Cutting Tool Solutions

2020 Product Catalog



osgtool.com

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Icon Guide

Tool Materials

HSS	HSS	HSSE	High Vanadium HSS	HSSE V3	HSSE V3
HSS-Co	HSS Cobalt	HSS-Co5	HSS-Co5	HSS-Co8	HSS-Co8
VC10	Powder Metallurgy HSS	XPM	High Grade Powder Metallurgy HSS	CARBIDE	Tungsten Carbide
CBN	CBN	CERMET	CERMET	PCD	PCD

Surface Treatment

BR	Bright	HR	HR Coating	TiCN	TiCN Coating
CrN	CrN Coating	IchAda	IchAda Coating	TiN	TiN Coating
DIA	OSG Patented Diamond Coating	N	Nitride Coating	V	OSG Special Multi-Layer TiCN Coating
DLC	DLC Coating	N S/O	Nitride/ Steam Oxide Coating	WD1	WD1 Coating
DUR	Duarise Coating	S/O	Steam Oxide Coating	WXL	WXL® Coating
EgiAs	EgiAs Coating	SS	Super Smooth	WXS	WXS® Coating
EXO	Multi-Layer TiAlN Coating	TiAlN	TiAlN Coating		

Other Icons

SPEED FEED	Speeds & Feeds	SHRINK FIT	Shrink Fit	NEW	New
NEW SIZES	New Sizes				

Tool Dimensions

- EXTRA LONG — Extra Long Length
- LONG — Long Length
- JOBBERS — Jobbers Length
- MED — Medium Length
- REG — Regular Length
- STUB — Stub Length
- LH — Left Hand
- LHS — Left Hand Spiral
- STI — Screw Thread Insert
- Center Cutting
- Non-Center Cutting
- R ±0 — Radius Tolerance
- Milling Diameter Tolerance
- Coolant-Through
- Straight Shank
- Taper Shank
- 0° — Helix Angle

Tool Dimensions

- TYPE W — For Soft Materials
- TYPE H — For Hard Materials
- TYPE VA — For Steels and Stainless Steels
- TYPE UNI — For Universal Use
- TYPE GG — For Cast Iron
- TYPE FS — Parabolic Flute
- TYPE N — Standard

Color Bands

- RED BAND — For Alloy Steels
- BLUE BAND — For Stainless Steels
- YELLOW BAND — For Aluminum
- WHITE BAND — For Cast Iron
- GREEN BAND — For Carbon Steel

Tour the New Catalog

Finding Your Tooling Needs

Master Index: *P1*
A snapshot of the entire catalog.

Surface Treatment Guide: *P16-17*
A complete list of all OSG surface treatments, their features and recommended applications.

Brand Index: *P18-48*
A complete list of all stocked OSG products organized by brand.

Featured Drilling Products: *P52-53*
A snapshot of OSG's featured drilling products to make tooling selection for any material fast and easy.

Drilling Application Guide: *P54-55*
Each of OSG's drill series recommendations according to materials

Drilling Illustrated Index: *P56-65*
All of OSG's drills listed according to length alongside their material recommendations.

Featured Threading Products: *P404-405*
A snapshot of OSG's featured threading products to make tooling selection for any material fast and easy.

Threading Application Guide: *P406-407*
OSG's threading products recommended according to materials with recommended SFM ranges. Compare tap performance to select your perfect tap.

Threading Illustrated Index: *P408-431*
All of OSG's threading products listed according to style alongside their material recommendations.

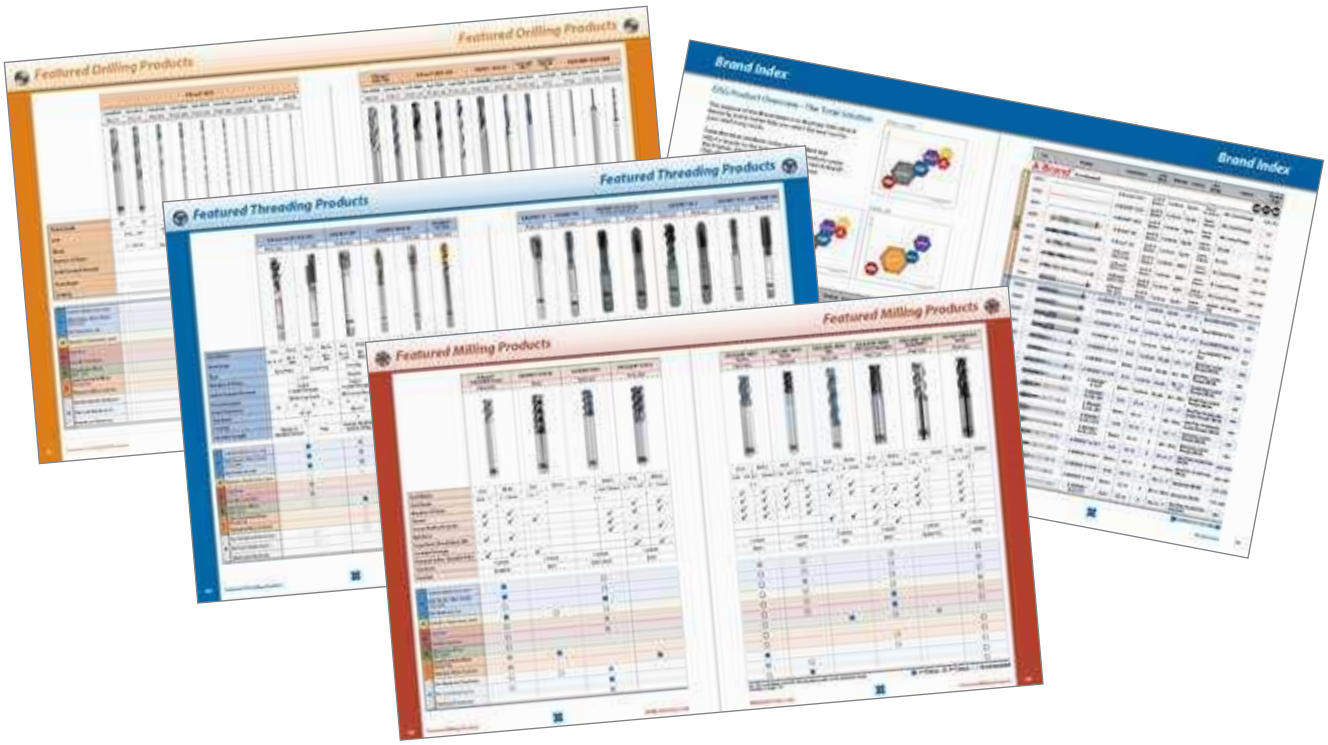
Featured Milling Products: *P796-797*
A snapshot of OSG's featured Milling products to make tooling selection for any material fast and easy.

Milling Illustrated Index: *P798-829*
All of OSG's Milling products listed according to brand alongside their material recommendations.

Indexable Illustrated Index: *P1316-1321*
All of OSG's Indexable products and their material recommendations.

List Number Index: *P1533-1536*
A complete list of all stocked OSG products organized by list number.

EDP Numerical Index: *P1537-1696*
A complete list of all stocked OSG products organized by EDP number.



OSG Online

www.osgtool.com

OSG is constantly striving to help you find what you need when you need it. Our website includes features that focus on functionality, usability and even appearance to make your experience as enjoyable as possible. We have recently updated the website so it is responsive across all your favorite devices!



OSG News: *See What's New at OSG*

- Press Releases
- New Products
- Social Media Blog

Resources: *Tools to Make it Easier*

- Product Search
- Tool Reconditioning
- Find a Distributor
- Competitor Crossover
- Fast Service Taps
- MSDS Download
- Tap-Drill Size Calculator

OSG's Tool Selector: *The Right Tool Right Now*

- With OSG's new tool selector, you are never more than 5 simple steps away from the right tool for your job.

Online Live Chat

- During regular business hours, OSG provides online support for customers looking for an alternative way to get their technical product assistance.

OSG Ozone: *Save BIG on Overstock*

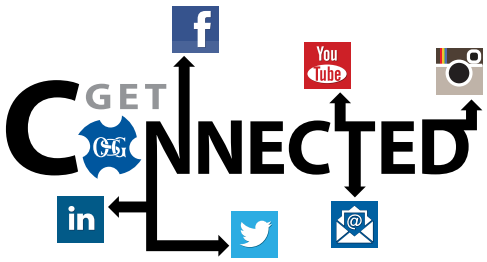
- Browse through an array of premium OSG products being offered at special discount prices!

Social Media

Connect with OSG

Follow and interact with OSG on popular social media sites including Facebook, Twitter, LinkedIn, Instagram, and YouTube.

Facebook: *facebook.com/osgtool*
Twitter: *twitter.com/OSGTOOL*
LinkedIn: *linkedin.com/company/osg-usa-inc*
Instagram: *instagram.com/osgtool/*
YouTube: *youtube.com/osgtool*
OSG E-CLUB: Subscribe: *eclub@osgtool.com*



Corporate Philosophy: Global Presence

As a comprehensive cutting tool manufacturer, we make products that at a fundamental level contribute to enhancing people's quality of life. Through continuous growth, we have established a production, sales and technical support network spanning 33 countries.

Our corporate aim is to continue to expand our operations globally and strengthen our contribution to manufacturing industries worldwide.

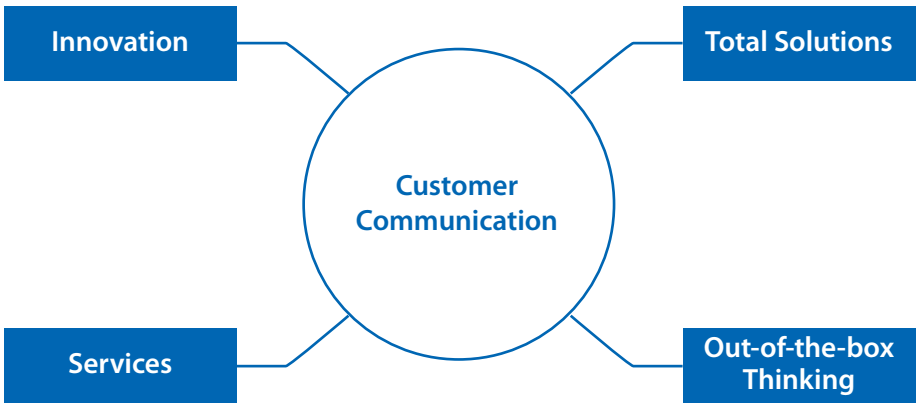
Business Model

Customer communication is at the heart of the OSG brand. We anticipate, listen and actively react to customer needs through on-site face-to-face support. OSG's vast global network provides our production sites with accurate feedback about user needs so that they can quickly design, develop, manufacture and deliver products that precisely meet those needs.

shaping your dreams

The power of OSG lies in our assured innovative technological know-how for producing high-quality and high-performance products; our exceptional services to respond to situations diligently; and our out-of-the-box thinking to provide total solutions that anticipate our customers' needs. We are committed to contribute to the advancement of the manufacturing industries by shaping our customers' dreams into reality.

The Power to Exceed Customers' Expectations



Shaping Customers' Dreams as a Comprehensive Cutting Tool Manufacturer

OSG Corporation has succeeded in maintaining steady growth over the past 80 years. We would like to express our heartfelt gratitude to the support of our customers, business partners and shareholders for contributing to OSG's tremendous global success today.

Ever since the company's establishment in 1938, OSG has been committed to developing quality products that truly exceed the expectations of each customer. This spirit remains alive in all facets of our operation today, and has given OSG the strength to challenge the status quo and deliver products and services in sync with manufacturing needs of the times. Our corporate tagline "shaping your dreams" summarizes this passion for new challenges and commitment to transforming each and every one of our customers' dreams into reality.

While the manufacturing industry is consistently evolving through the new discovery of materials and technologies, OSG is poised for continued growth by responding with new innovations. OSG will continue to support the global manufacturing industries while living up to our stakeholders' trust and expectations. We thank you for your continuous and enthusiastic support for OSG Corporation, a company that keeps evolving without forgetting its origin.



Jeff Tennant
President of OSG USA

OSG USA's Mission

It is the role of OSG USA, as well as its subsidiary companies, to carry out the core philosophy of our parent company.

OSG USA's mission is to contribute to the advancement of the manufacturing industry and society through innovative technology and superior quality products.

At OSG we are committed to providing our customers with the most cost effective quality products and the best service in the industry.

Our experienced staff strives to not only provide solutions but also works with our customers to improve processes through innovative strategies.

OSG History

A Commitment to Quality that Withstands the Test of Time

In March 1938, Hideo Osawa established OSG Grinding Co., Ltd. to achieve domestic production of high-quality taps. Thirty years later, OSG's first overseas subsidiary was established in the United States. Based on the corporate philosophy of "global presence," OSG has since then built a production, sales and technical support network spanning 33 countries. With over 50 years of experience in developing new markets and human assets, OSG will continue its global expansion and contribute to the advancement of the manufacturing industry worldwide.



March 1938
- Hideo Osawa established OSG Grinding Co., Ltd. in Tokyo
- Began manufacturing taps and dies

May 1942
- Began manufacturing and sales of screw gauges

May 1943
- Established Aichi Factory (now OSG Academy)



August 1956
- Began manufacturing and sales of cylindrical rolling dies



May 1963
- Began manufacturing and sales of flat rolling dies

April 1961
- Toyokawa Factory began operation

June 1963
- Changed the company name to OSG MFG. Company

December 1963
- Separated sales department and established OSG Corporation

March 1967
- Oike Factory began operation

August 1970
- Began manufacturing and sales of HSS end mills

June 1968
- First overseas subsidiary, OSG Tap & Die, Inc., opens in the USA

December 1971
- Toyohashi Factory began operation

1940 — 1950 — 1960 — 1970

OSG History



March 1984
•Began manufacturing and sales of drills

September 1980
• Began manufacturing and sales of carbide end mills

February 1987
•Began manufacturing and sales of cutter bodies

1980

1990

2000

2010

November 1990
• Yana Factory began Operation

June 1982
• Shinshiro Factory began operation

December 1992
• OSG MFG. Company and OSG Corporation were merged into OSG Corporation

February 1993
• Relocated corporate headquarters to Toyokawa, Aichi

December 1998
• Established CS Center



January 1998
• Established Hongu Center

December 2004
• Established Design Center

December 2006
• Established Global Technology Center

June 2010
• Began sales of OSG Phoenix, an indexable tooling series

November 2014
• Achieved consolidation net sales of 100 billion yen in FY2014

September 2014
• Introduces "The A Brand" product brand

September 2017
• Established D-Lab

2018
• OSG celebrates its 80th anniversary
• OSG USA, Inc. celebrates its 50th anniversary

Global Network



EUROPE

Belgium
Denmark
France
Germany
Italy
Ireland
The Netherlands
Poland
Romania
Russia
Spain
Slovakia
Sweden
South Africa
Switzerland
Turkey
United Kingdom

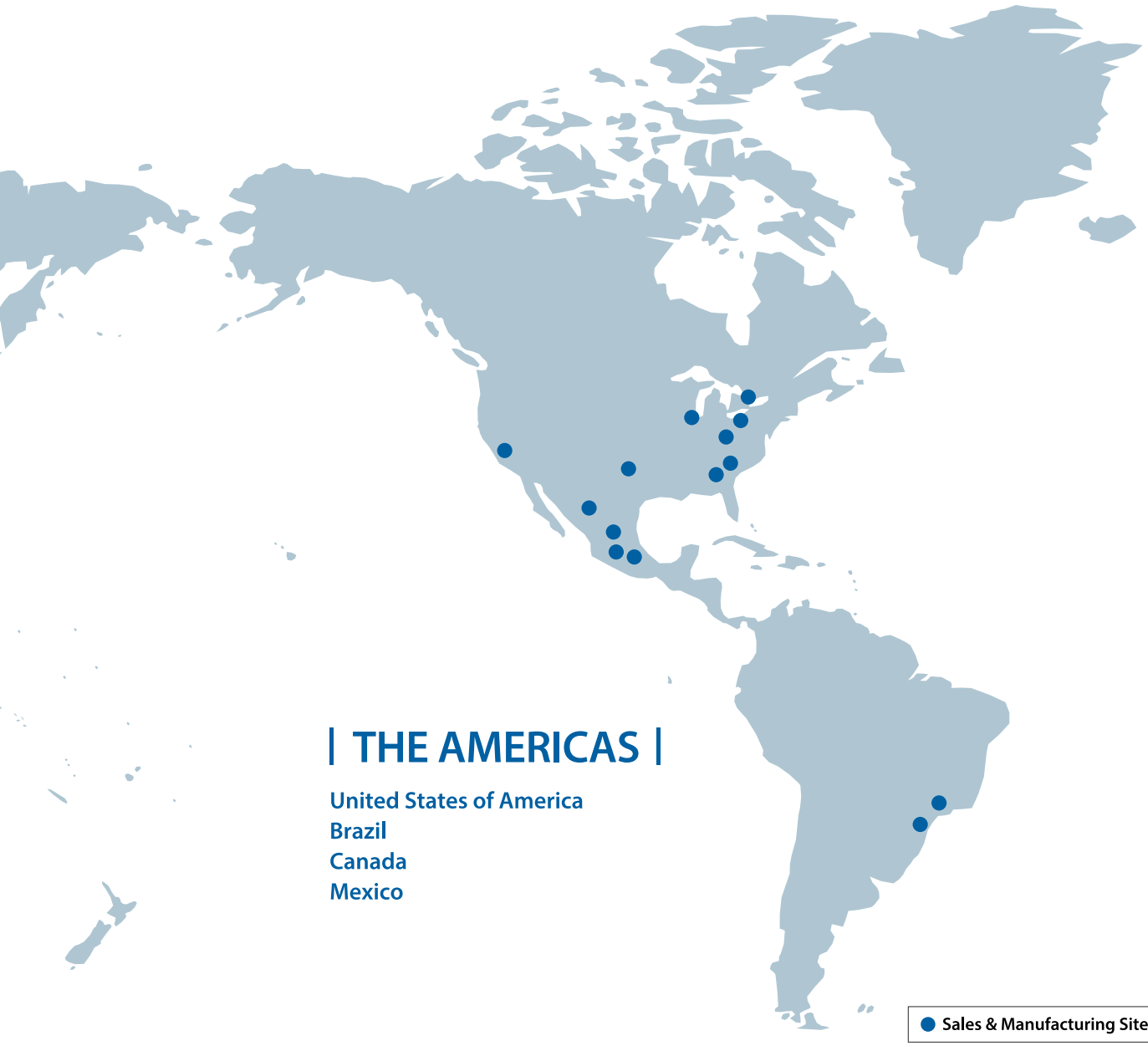
ASIA

Singapore
China
India
Indonesia
Japan
Malaysia
Philippines
South Korea
Taiwan
Thailand
Vietnam

A Global Network that Accelerates International Business Development

In 1968, OSG Corporation established its very first overseas subsidiary in the United States. Since then, OSG has dynamically expanded its global presence, establishing a production, sales and technical support network spanning 33 countries.

Global Network



THE AMERICAS

United States of America
Brazil
Canada
Mexico

● Sales & Manufacturing Sites

As of December 1, 2019


United States of America (OSG USA, Inc.)


Singapore (OSG Asia Pte Ltd.)


Belgium (OSG Europe Logistics S.A.)

North America Locations

U.S.A.

Texas



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OSG Mfg. Carbide Products Division, Bensenville, Illinois
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Web: www.osgtool.com

Ohio



OSG Mfg. Fastener Products Division, Parma, Ohio
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Fax: (1) 864-877-6554
Web: www.amamcotool.com

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Web: www.osgtool.com

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Canada

Canada



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Mexico

Mexico



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Premium Grinding,
S de R.L. de C.V.
Calle Nicolas Gogol 11371
Complejo Industrial Chihuahua,
Chihuahua, 31136, Mexico
Phone: (52) 61-44-81-68-98

Primus Coating S.A. DE C.V.
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Web: www.osg.co.jp



Supporting Global Manufacturing with Top Class Products and Technology

OSG maintains absolute control over every aspect of its manufacturing capabilities. OSG products are produced in-house - from the production of tool material, creation of tool geometry, to the development of its own proprietary coatings - the 3 vital elements in the manufacturing of superior cutting tools.



Taps

Taps are used to cut screw threads on the inside surfaces of holes, creating the "female" half (nut) of the screw. High precision is of vital importance, particularly in areas such as automobile engines, which require precision screws. OSG offers a lineup of taps with diameters in various sizes and with specifications suitable for a wide variety of uses.



Drills

Drills are used to make holes in a wide range of surfaces. OSG has received high acclaim for the development of high-precision, high-value-added products for manufacturing use in automotive and aircraft part manufacture, which demands advanced processing techniques and zero margin of error.

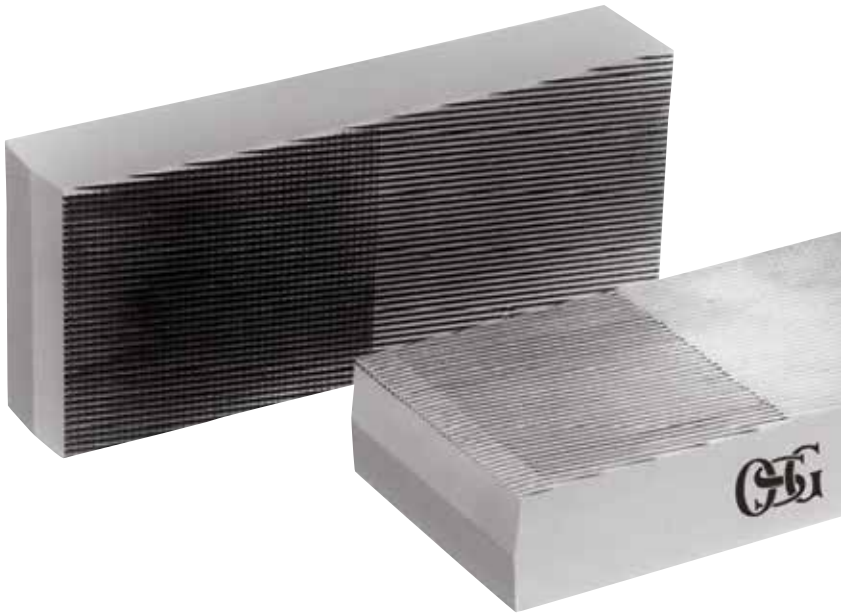


End Mills

End Mills are used to cut and contour molds for plastic parts, which include electric home appliances, die-casting dies for automotive parts and stamping molds. To meet today's demanding requirements (smaller size, lower weight and reduced cost), OSG has developed many carbide end mills that are excellent in both processing accuracy and durability.

Rolling Dies

Thread rolling dies are used to copy threading onto "Male" screws (bolts); the process consists of rolling a metal bar between two thread rolling dies tightly pressed to each side. OSG manufactures cylindrical and flat rolling dies for screws, worms and serrations, thread rolling planetary dies and contour-flow rolling dies, in accordance with their intended use.





Indexable Tools

Indexable tools are used to shape metal molds and machine parts. While end mills are used for finishing, indexable tools are intended for rough cutting and contouring, and use disposable inserts attached to the tool body.

Gauges

Gauges are used to inspect the final dimensions of screw threads and holes. OSG was an early adopter of changes in the Japan Industrial Standards (JIS). Today, we offer a range of screw gauges based on ISO standards. Precision checking is an extremely important process because of the trend toward increasing product precision and compliance with international standards.



OSG Product Treatments

OSG's surface treatments are designed to meet customer needs through comprehensive technology by providing wear resistance, seizure resistance, corrosion resistance and mold release. OSG proprietary treatments provide a range of thicknesses, hardnesses and oxidation temperatures so you are sure to find the best match for any application.



Coating	Coating Color	Type	Thickness (µm)	Hardness (HV)	Oxidation Temp. (°C)	Application
IchAda	Black Gray	Cr	1~5	3100	1100	**For drilling steel, stainless steel & hardened steel.** A PVD coating with excellent surface smoothness and abrasion resistance, high surface hardness and heat resistance for small diameter tools.
DUR	Black Gray	Cr multilayer	1~5	3100	1100	**For milling steel, stainless steel & hardened steel.** A PVD coating with excellent surface hardness and wear resistance, excellent heat resistance and low coefficient of friction to reduce material adhesion.
WD1	Iridescent Blue	Cr multilayer	3~5	3300	1100	**For drilling steel, stainless steel, cast iron & hardened steel.** A PVD coating with excellent surface hardness and wear resistance, excellent heat resistance and low coefficient of friction to reduce material adhesion.
EgiAs	Iridescent Red	Nano multilayer	3~5	3200	1100	**For drilling steel, stainless steel, cast iron, aluminum & hardened steel.** A PVD coating with excellent surface hardness and wear resistance, excellent heat resistance and low coefficient of friction to reduce material adhesion.
WXS	Black Gray	SiC	1~5	3500	1300	**For drilling, tapping & milling steel, stainless steel & hardened steel.** A PVD coating with excellent surface hardness and wear resistance, excellent heat resistance and low coefficient of friction to reduce material adhesion.
WXL	Black Gray	Cr	1~5	3100	1100	**For drilling & milling steel, stainless steel & hardened steel.** A PVD coating with excellent surface hardness and wear resistance, excellent heat resistance and low coefficient of friction to reduce material adhesion.
EXO®	Black Violet	TiAlN multilayer	3	2800	850	**For drilling, tapping & milling steel, stainless steel, cast iron & heat resistant alloys.** A PVD coating with high surface hardness and wear resistance, very good heat resistance and low coefficient of friction to reduce material adhesion.
TiAlN	Black Violet	TiAlN	3	2800	800	**For drilling, tapping & milling steel, stainless steel, cast iron & heat resistant alloys.** A PVD coating with high surface hardness and wear resistance, very good heat resistance and low coefficient of friction to reduce material adhesion.

Coating	Coating Color	Type	Thickness (μm)	Hardness (HV)	Oxidation Temp. (°C)	Application
V	Blue Gray	TiCN multilayer	3	2700	400	**For drilling & tapping steel, stainless steel, aluminum & heat resistant alloys.** A PVD coating with high surface hardness and wear resistance, good heat resistance and low coefficient of friction to reduce material adhesion.
TiCN	Blue Gray	TiCN	3	2700	400	**For drilling, tapping & milling steel, stainless steel, aluminum & heat resistant alloys.** A PVD coating with high surface hardness and wear resistance, good heat resistance and low coefficient of friction to reduce material adhesion.
TiN	Gold	TiN	3	2000	500	**For drilling, tapping & milling steel, stainless steel, tool & die steel & aluminum.** A PVD coating with good surface hardness and wear resistance, good heat resistance and low coefficient of friction to reduce material adhesion.
SS	Black Violet	TiAlN	1	2800	800	**For drilling & tapping steel, stainless steel, & heat resistant alloys.** A PVD coating with high wear & abrasion resistance, very good heat resistance and high surface smoothness to reduce material adhesion.
HR	Silver Gray	Ti	2	2800	700	**For tapping stainless steel & heat resistant alloys.** A PVD coating with high wear & abrasion resistance, very good heat resistance and high surface smoothness to reduce material adhesion.
S/O	Black	Steam-Oxide	-	-	-	**For tapping steel, stainless steel, tool & die steel & nickel-alloys.** The oxidized surface layer is porous and increases lubricity by retaining cutting fluid on the working area of the tool.
Ni	Silver Gray	Nitride	30~50	1000	-	**For tapping cast iron, cast aluminum, & plastic.** The case-hardened surface layer increases wear resistance in abrasive and tough materials.
CrN	Silver Gray	CrN	3	1800	700	**For tapping non-ferrous materials.** A PVD coating with high surface lubricity to reduce material adhesion applied over a case-hardened surface layer with increased wear resistance.
DIA	Black	DIA	20, 12	9000	600	**For drilling, tapping & milling non-ferrous & composite materials.** A CVD coating with superior surface hardness and wear resistance, outstanding durability, and excellent smoothness to reduce material adhesion.
DLC	Iridescent Green	DLC	0.2	6000	550	**For milling non-ferrous materials.** A PVD coating with excellent surface hardness and wear resistance, and very low coefficient of friction to reduce material adhesion.
BR	-	-	-	-	-	**For general machining of all materials.** The uncoated substrate provides good wear resistance and durability in general machining applications.

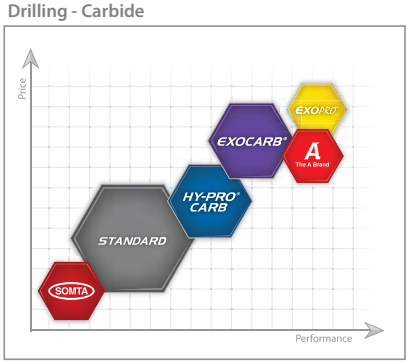
Brand Index

OSG Product Overview - The Total Solution

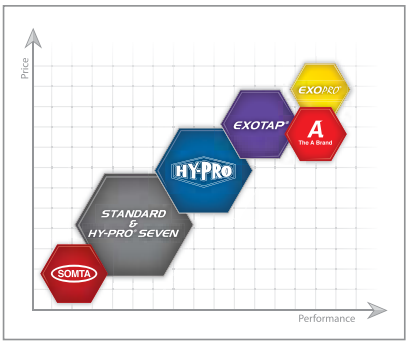
The purpose of this Brand Index is to illustrate OSG's Brand hierarchy and to better help you select the best tool for your machining needs.

From the value products under our Standard and HSS-Co brands to the high performance products under the V-Series, EXOCARB®, EXOPRO® and our new A Brand®, OSG offers a broad range of tools to meet your application requirements.

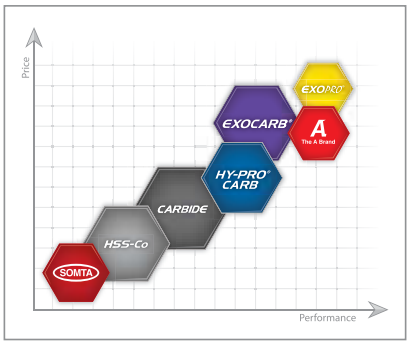
Drilling - Carbide



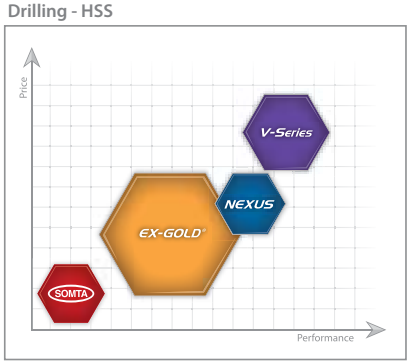
Threading



Milling



Drilling - HSS



List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
A Brand®								ADR ATP AEM
DRILLS								
6600		A Brand® ADO-TRS	Inch & Metric	Carbide	Egias	4mm - 20mm	3D, Coolant-Through, 3 Flutes	66-69
6610		A Brand® ADO-TRS	Inch & Metric	Carbide	EgiAs	4mm - 20mm	5D, Coolant-Through, 3 Flutes	70-73
5720		A Brand® ADFO	Inch & Metric	Carbide	EgiAs	3mm - 20mm	3D, Coolant-Through, Flat Drill	74-77
5700		A Brand® ADF	Inch & Metric	Carbide	EgiAs	0.2mm -20mm	2D, Solid, Flat Drill	78-83
5705		A Brand® ADFLS	Inch & Metric	Carbide	EgiAs	3mm - 20mm	2D, Solid, Flat Drill, Long Shank	84-85
6500		A Brand® ADO	Inch & Metric	Carbide	EgiAs	2mm - 20mm	3D, Coolant-Through	86-91
6510		A Brand® ADO	Inch & Metric	Carbide	EgiAs	2mm - 20mm	5D, Coolant-Through	92-97
6520		A Brand® ADO	Inch & Metric	Carbide	EgiAs	2mm - 15.88mm	8D, Coolant-Through	98-101
6530		A Brand® ADO	Inch & Metric	Carbide	EgiAs	2mm - 14.29mm	10D, Coolant-Through	102-104
6535		A Brand® ADO	Inch & Metric	Carbide	EgiAs	3mm - 14.29mm	15D, Coolant-Through	105-106
6540		A Brand® ADO	Inch & Metric	Carbide	EgiAs	3mm - 14.29mm	20D, Coolant-Through	107-108

A Brand® (Continued)

ADR ATP AEM

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
DRILLS	6550		A Brand® ADO	Inch & Metric	Carbide	EgiAs	3mm - 14.29mm	30D, Coolant-Through	109-110
	6560		A BRAND® ADO	Inch & Metric	Carbide	EgiAs	3mm - 10mm	40D, Coolant-Through	111
	6570		A BRAND® ADO	Inch & Metric	Carbide	EgiAs	3mm - 8mm	50D, Coolant-Through	112
	6300		A Brand® AD	Inch & Metric	Carbide	EgiAs	2mm - 20mm	2D, Solid	113-116
	6310		A Brand® AD	Inch & Metric	Carbide	EgiAs	2mm - 20mm	4D, Solid	117-120
	5200		A Brand® ADO-SUS	Inch & Metric	Carbide	WXL®	2mm- 20mm	3D, Coolant-Through	121-127
	5210		A Brand® ADO-SUS	Inch & Metric	Carbide	WXL®	2mm- 20mm	5D, Coolant-Through	128-134
	5220		A Brand® ADO-SUS	Inch & Metric	Carbide	WXL®	2mm - 12.7mm	8D, Coolant-Through	135-139
	5190		A Brand® AD-LDS	Inch & Metric	Carbide	EgiAs	3mm - 25mm	Solid 90°, 120°, 140° Spot Drill	140-141
TAPS	16625		A BRAND® AT-1	Inch	Carbide	EgiAs	1/4" - 1"	Thread Mill, Helical Flute	432
	16620		A BRAND® AT-1	Metric	Carbide	EgiAs	M6 - M24	Thread Mill,Helical Flute	433
	16630		A BRAND® AT-1	Inch	Carbide	EgiAs	1/16" - 2"	Thread Mill,NPT, Helical Flute	434
	16631		A BRAND® AT-1	Inch	Carbide	EgiAs	1/16" - 2"	Thread Mill,NPTF, Helical Flute	435
	16605		A BRAND® A-CSF	Inch	Carbide	Bright	1/4" - 1/2"	Spiral Flute, Coolant-Through, DIN OAL	490
	16600		A BRAND® A-CSF	Metric	Carbide	Bright	M5 - M12	Spiral Flute, Coolant-Through, DIN OAL	491
	16615		A BRAND® A-CHT	Inch	Carbide	Bright	No. 12 - 1/2"	Straight Flute, Coolant-Through, DIN OAL	660
	16610		A BRAND® A-CHT	Metric	Carbide	Bright	M5 - M12	Straight Flute, Coolant-Through, DIN OAL	661
	16545		A BRAND® A-OIL-SFT	Inch	VC-10	V	1/4" - 2"	Spiral Flute, Variable Helix, Coolant-Through, DIN OAL	498
	16540		A BRAND® A-OIL-SFT	Metric	VC-10	V	M6 - M56	Spiral Flute, Variable Helix, Coolant-Through, DIN OAL	499
	16555		A BRAND® A-OIL-POT	Inch	VC-10	V	1/4" - 1"	Spiral point, Coolant-Through, DIN OAL	581
	16550		A BRAND® A-OIL-POT	Metric	VC-10	V	M6 - M24	Spiral point, Coolant-Through, DIN OAL	582
	16505		A BRAND® A-SFT	Inch	VC-10	V	No. 4 - 2"	Spiral Flute, Variable Helix, DIN OAL	492-494
	16500		A BRAND® A-SFT	Metric	VC-10	V	M1.4 - M56	Spiral Flute, Variable Helix, DIN OAL	495-497
	16515		A BRAND® A-POT	Inch	VC-10	V	No. 2 - 1"	Spiral point, DIN OAL	577-578
	16510		A BRAND® A-POT	Metric	VC-10	V	M1.4 - M24	Spiral point, DIN OAL	579-580
	16525		A BRAND® A-LT-SFT	Inch	VC-10	V	No. 4 - 1"	Spiral Flute, Variable Helix, Long Shank	500

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A Brand® (Continued)

ADR ATP AEM

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
TAPS	16520		A BRAND® A-LT-SFT	Metric	VC-10	V	M3 - M24	Spiral Flute, Variable Helix, Long Shank	501-502
	16535		A BRAND® A-LT-POT	Inch	VC-10	V	No. 4 - 1"	Spiral point, Long Shank	583
	16530		A BRAND® A-LT-POT	Metric	VC-10	V	M3 - M24	Spiral point, Long Shank	584-585
	16570		A BRAND A-NPT	Inch	HSSE	V	1/16" - 1"	NPT, Interrupted	735
	16575		A BRAND A-LT-NPT	Inch	HSSE	V	1/16" - 1"	NPT, Long shank, Interrupted	736
	16590		A BRAND A-NPS	Inch	HSSE	V	1/16" - 1"	NPS	739
	16585		A BRAND A-BSPT	Inch	HSSE	V	1/8" - 1"	BSPT	738
	16580		A BRAND A-BSPP	Inch	HSSE	V	1/8" - 1"	BSPP	737
END MILLS	8200		A BRAND® AE-VMS	Inch	Carbide	Durise	5/64" - 1"	Anti-Vibration	830
	8205		A BRAND® AE-VMS	Metric	Carbide	Durise	3mm - 25mm	Anti-Vibration	831
	8210		A BRAND® AE-CR-VMS	Inch	Carbide	Durise	3/16" - 1"	Anti-Vibration, Corner Radius	832
	8215		A BRAND® AE-CR-VMS	Metric	Carbide	Durise	3mm - 12mm	Anti-Vibration, Corner Radius	833
	8220		A BRAND® AE-LN-CR-VMS	Inch	Carbide	Durise	1/4" - 1"	Anti-Vibration, Long Neck, Corner Radius	834
	8206		A BRAND® AE-VMSS	Metric	Carbide	Duarise	1mm - 12mm	Anti-Vibration	835
	8230		A BRAND® AE-LN-VMSS	Inch	Carbide	Duarise	1/4" - 1"	Anti-Vibration, Long Neck	836
	8235		A BRAND® AE-LN-VMSS	Metric	Carbide	Duarise	6mm - 12mm	Anti-Vibration, Long Neck	837
	8201		A BRAND® AE-VML	Inch	Carbide	Duarise	1/4" - 1/2"	Anti-Vibration, Long LOC	838
	8207		A BRAND® AE-VML	Metric	Carbide	Duarise	6mm - 12mm	Anti-Vibration, Long LOC	839
	8202		A BRAND® AE-NIK-VML	Inch	Carbide	Duarise	1/4" - 1/2"	Anti-Vibration, Long LOC, Nicks	840
	8208		A BRAND® AE-NIK-VML	Metric	Carbide	Duarise	6mm - 12mm	Anti-Vibration, Long LOC, Nicks	840

EXOPRO®

EP

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
DRILLS	5600		EXOPRO® Mega Muscle	Inch & Metric	Carbide	WD1	4mm-20mm	3D, Coolant-Through, 3 Flutes	142-143
	5610		EXOPRO® Mega Muscle	Inch & Metric	Carbide	WD1	4mm-20mm	5D, Coolant-Through, 3 Flutes	144-145
	5630		EXOPRO® Mega Muscle	Inch & Metric	Carbide	WD1	5mm - 15.88mm	10D, Coolant-Through	146-148
	5950Ni		EXOPRO® WHO-Ni	Inch & Metric	Carbide	WXS®	3mm-12.7mm	3D, Coolant-Through	149-150
	5955Ni		EXOPRO® WHO-Ni	Inch & Metric	Carbide	WXS®	3mm-12.7mm	5D, Coolant-Through	151-152

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EP

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
DRILLS	7501		EXOPRO® AERO-STAD	Inch	Carbide	Dia.	#40 - 1/2"	Composite, Triple Angle	173
	7520		EXOPRO® AERO-LHX	Inch	Carbide	Dia.	#40 - 1/2"	Composite, Low Helix	174
	7500		EXOPRO® AERO-D-REAM	Inch	Carbide	Dia.	#40 - 1/2"	Composite, Tapered Reamer	175
	7530		EXOPRO® AERO-S	Inch	Carbide	Dia.	#40 - 1/2"	Composite, High Helix, Stack Drill	176
	7532		EXOPRO® AERO-H	Inch	Carbide	Dia.	#40 - 1/2"	Composite, Stack Drill for All Stacks	177
TAPS	16050		EXOPRO® XPF-OIL	Inch	HSS-Co	V	1/4" - 1-3/4"	Forming Tap, Coolant-Through, DIN OAL	448-449
	16150		EXOPRO® XPF-OIL	Metric	HSS-Co	V	M6 - M45	Forming Tap, Coolant-Through, DIN OAL	450-452
	16250		EXOPRO® XPF	Inch	HSS-Co	V	No. 0 - 1-3/4"	Forming Tap, DIN OAL	453-456
	16350		EXOPRO® XPF	Metric	HSS-Co	V	M1 - M45	Forming Tap, DIN OAL	457-460
	16260		EXOPRO® XPF	Inch	HSS-CO	V	No. 2 - 1"	STI, Forming Tap, DIN OAL	705-706
	16360		EXOPRO® XPF	Metric	HSS-CO	V	M2 - M24	STI, Forming Tap, DIN OAL	707
	16255		EXOPRO® XPF-LS	Inch	HSS-Co	V	No. 5 - 1"	Forming Tap, Long Shank	461-462
	16355		EXOPRO® XPF-LS	Metric	HSS-Co	V	M3 - M20	Forming Tap, Long Shank	463-464
	16450		EXOPRO®CC-SUS	Inch	HSSE	TiN	No. 2- 1"	Spiral Flute, Variable Helix, DIN OAL	503-504
	16455		EXOPRO®CC-SUS	Metric	HSSE	TiN	M2 - M24	Spiral Flute, Variable Helix, DIN OAL	505
	335Ni		EXOPRO® WHR-Ni	Inch	VC10	HR	No. 2 - 1"	Spiral Flute, DIN OAL	506-507
	336Ni		EXOPRO® WHR-Ni	Metric	VC10	HR	M2.5 - M24	Spiral Flute, DIN OAL	508
	337Ni		EXOPRO® WHR-Ni	Inch	VC-10	HR	No. 2 - 1"	Spiral Point, DIN OAL	588-589
	338Ni		EXOPRO® WHR-Ni	Metric	VC-10	HR	M2.5 - M24	Spiral Point, DIN OAL	590
	13063		EXOPRO® Ti	Inch	VC-10	V	No. 2 - 1/2"	Spiral Flute, RHC/LHS	586
	13163		EXOPRO® Ti	Metric	VC-10	V	M2.5 - M12	Spiral Flute, RHC/LHS	587
END MILLS	2055		EXOPRO® UVX-Ni	Inch	Carbide	EXO®	1/4" - 1"	Corner Radius	841
	9510		EXOPRO® PHX	Metric	Carbide	EXO®	1mm - 20mm	Deep Feed, Ball End	842
	9590		EXOPRO® PHX	Metric	Carbide	WXS®	0.06mm-6mm	Long Neck, Ball End	843
	9581		EXOPRO® PHX	Metric	Carbide	WXS®	1mm - 12mm	Pencil-Neck, Deep Feed, Ball End	844-845
	9592		EXOPRO® PHX	Metric	Carbide	WXS®	0.8mm - 3mm	Pencil Neck, Deep Feed, Corner Radius	846

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EXOPRO® (Continued)

EP

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
END MILLS	9575		EXOPRO® PHX	Metric	Carbide	WXS®	6mm - 20mm	Deep Feed, Corner Radius	847
	9576		EXOPRO® PHX	Metric	Carbide	WXS®	4mm - 16mm	Long Neck,Deep Feed, Corner Radius	848
	9580		EXOPRO® PHX	Metric	Carbide	WXS®	2mm - 12mm	Pencil Neck, Deep Feed, Corner Radius	849-851
	9570		EXOPRO® PHX	Metric	Carbide	EXO®	1mm - 20mm	High-Feed, Corner Radius	852
	2061		EXOPRO® AERO-BNC	Inch	Carbide	Dia.	1/8" - 1/2"	Composite, Nicked Router	952
	2066		EXOPRO® AERO-HBC 30	Inch	Carbide	Dia.	1/8" - 1/2"	Composite, Compression Router	953
	2064		EXOPRO® AERO-HBC 45	Inch	Carbide	Dia.	1/4" - 1/2"	Composite, Compression Router	954
	2068		EXOPRO® AERO-HBC 60	Inch	Carbide	Dia.	1/4" - 1/2"	Composite, Compression Router	955
	2680		EXOPRO® AERO-REC	Inch	Carbide	Dia.	15/64" - 1/2"	Composite, Roughing Router	956
	2650		EXOPRO® AERO-MFR	Inch	Carbide	Dia.	1/4" - 1/2"	Composite, Finishing Router	957

EXOCARB®

HTE

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
DRILLS	5171		EXOCARB® WH70	Metric	Carbide	WXS®	2mm-18.6mm	5D	153-155
	5172		EXOCARB® XH	Metric	Carbide	Bright	2mm-12mm	Solid, Tap Extractor	156
	5275		EXOCARB® MAX-OIL AL	Metric	Carbide	Bright	3mm-10mm	15-30D, Coolant-Through	157
	5310		EXOCARB® MAX-MINI	Metric	Carbide	EXO®	1mm-3mm	10-20D, Solid, Miniature, 3 Flutes	158
	5315		EXOCARB® MAX-MINI	Metric	Carbide	SS	0.05mm	Solid, Miniature, Pilot Drill	159
	5320		EXOCARB® MAX-MINI	Metric	Carbide	SS	0.02mm-0.08mm	5D, Solid, Miniature	160
	5325		EXOCARB® MAX-MINI	Metric	Carbide	SS	0.02mm-0.08mm	10D, Solid, Miniature	161
	5330		EXOCARB® MAX-MINI	Inch & Metric	Carbide	TiAlN	0.2mm-5mm	3D, Solid, Miniature	162-170
	5340		EXOCARB® MAX-MINI	Inch & Metric	Carbide	SS	0.5mm-3mm	10D, Solid, Miniature	171-172
	5732		EXOCARB® AERO-H	Inch	Carbide	TiALN	#11 - 1/2"	Composite, Stack Drill for All Stacks	178
TAPS	41200		EXOCARB® Mini	Inch	Carbide	WXS®, SS	No. 0 - No. 8	Thread Mill, Miniature, Helical Flute	436
	41300		EXOCARB® Mini	Metric	Carbide	WXS®, SS	M1 - M5	Thread Mill, Miniature, Helical Flute	437
	41000		EXOCARB®	Inch	Carbide	EXO®	No. 10 - 1"	Thread Mill, Helical Flute	438-439
	41100		EXOCARB®	Metric	Carbide	EXO®	M6 - M24	Thread Mill, Helical Flute	440
	41050		EXOCARB® Oil	Inch	Carbide	EXO®	1/4" - 1"	Thread Mill, Coolant-Through, Helical Flute	441

EXOCARB® (Continued)

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
TAPS	41150		EXOCARB® Oil	Metric	Carbide	EXO®	M6 - M24	Thread Mill, Coolant-Through, Helical Flute	442
TAPS	42000		EXOCARB® Pipe	Inch	Carbide	EXO®	1/16" - 2-1/2"	Thread Mill, NPT, Helical Flute	443
TAPS	42001		EXOCARB® Pipe	Inch	Carbide	EXO®	1/16" - 2-1/2"	Thread Mill, NPTF, Helical Flute	444
TAPS	14153		EXOCARB®	Metric	Carbide	Bright	M6 - M10	Forming Tap, Carbide Inlaid, DIN/DIN	465
TAPS	369		EXOCARB®	Metric	Carbide	Bright	M3 - M12	Forming Tap, JIS	466
TAPS	357		EXOCARB®	Metric	Carbide	Bright	M6 - M12	Forming Tap, JIS, Long Shank	467
TAPS	389		EXOCARB®	Metric	Carbide	Bright	M3 - M12	Spiral Flute, JIS	509
TAPS	311		EXOCARB®VX	Inch	Carbide	V	No. 4 - 1/2″	Straight Flute, DIN OAL	662
TAPS	341		EXOCARB®VX	Metric	Carbide	V	M2.6 - M20	Straight Flute, JIS	663
TAPS	329		EXOCARB® Diamond	Inch	Carbide	Dia.	No. 4 - 1/2″	Straight Flute, UNJC, UNJF, DIN OAL	664
TAPS	359		EXOCARB® Diamond	Metric	Carbide	Dia.	M3 - M12	Straight Flute, JIS	665
TAPS	319		EXOCARB®	Inch	Carbide	Bright	No. 4 - 1/2″	Straight Flute, DIN OAL	666
TAPS	10059		EXOCARB®	Inch	Carbide	Bright	No. 10 - 3/8″	Straight Flute	667
TAPS	10061		EXOCARB®	Metric	Carbide	Bright	M3 - M10	Straight Flute, DIN OAL	668
TAPS	349		EXOCARB®	Metric	Carbide	Bright	M1.4 - M24	Straight Flute, JIS	669
TAPS	356		EXOCARB®	Metric	Carbide	Bright	M6 - M12	Straight Flute, JIS, Long Shank	670
END MILLS	3610		EXOCARB® WXL	Inch	Carbide	WXL®	1/32" - 1/2"	Ball End	853
END MILLS	3710		EXOCARB® WXL	Metric	Carbide	WXL®	0.1mm - 20mm	Ball End	854
END MILLS	3670		EXOCARB® WXL	Inch	Carbide	WXL®	1/16" - 1"	Corner Radius	855
END MILLS	3604		EXOCARB® WXL	Inch	Carbide	WXL®	1/16" - 1"	Square End	856
END MILLS	3690		EXOCARB® WXL	Inch	Carbide	WXL®	1/64" - 1/4"	Ball End, Long Neck, ±5µm Radius Tolerance	857
END MILLS	3790		EXOCARB® WXL	Metric	Carbide	WXL®	0.1mm - 6mm	Ball End, Long Neck, ±5µm Radius Tolerance	858-860
END MILLS	3619		EXOCARB® WXL	Inch	Carbide	WXL®	1/16" - 1/2"	Square End	861
END MILLS	3620		EXOCARB® WXL	Inch	Carbide	WXL®	1/16" - 3/4"	Square End	862
END MILLS	3621		EXOCARB® WXL	Inch	Carbide	WXL®	1/16" - 3/4"	Square End	863
END MILLS	3704		EXOCARB® WXL	Metric	Carbide	WXL®	1mm - 12mm	Square End	864

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EXOCARB® (Continued)

List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
3742		EXOCARB® WXL	Metric	Carbide	WXL®	3mm - 26mm	Square End	865
3791		EXOCARB® WXL	Metric	Carbide	WXL®	0.2mm - 5mm	Long Neck	866-867
3711		EXOCARB® WXL	Metric	Carbide	WXL®	1mm - 18mm	Ball End, Long Shank	868
3720		EXOCARB® WXL	Metric	Carbide	WXL®	0.1mm - 6mm	Square End	869
3721		EXOCARB® WXL	Metric	Carbide	WXL®	0.1mm - 20mm	Square End	870
3712		EXOCARB® WXL	Metric	Carbide	WXL®	0.2mm - 6mm	Pencil Neck, Ball End	871-876
3722		EXOCARB® WXL	Metric	Carbide	WXL®	0.1mm - 20mm	Square End	877
3723		EXOCARB® WXL	Metric	Carbide	WXL®	0.2mm - 12mm	Square End	878
3770		EXOCARB® WXL	Metric	Carbide	WXL®	0.6mm - 12mm	Corner Radius	879
3771		EXOCARB® WXL	Metric	Carbide	WXL®	3mm - 12mm	Corner Radius	880
3794		EXOCARB® WXL	Metric	Carbide	WXL®	1mm - 3mm	Long Neck	881-882
4445		EXOCARB® WXL	Inch	Carbide	WXL®	1/8" - 1/2"	High Helix, Corner Radius	883
4410		EXOCARB® WXS	Inch	Carbide	WXS®	1/32" - 1/2"	Ball End	884
4510		EXOCARB® WXS	Metric	Carbide	WXS®	1mm - 12mm	Ball End	885
4440		EXOCARB® WXS	Inch	Carbide	WXS®	1/16" - 3/4"	Square End	886
4540		EXOCARB® WXS	Metric	Carbide	WXS®	1mm - 25mm	Square End	887
4471		EXOCARB® WXS	Inch	Carbide	WXS®	1/16" - 1/2"	Corner Radius	888
4571		EXOCARB® WXS	Metric	Carbide	WXS®	3mm - 12mm	Corner Radius	889
4470		EXOCARB® WXS	Inch	Carbide	WXS®	1/8" - 1/2"	Corner Radius, High Feed	890
4570		EXOCARB® WXS	Metric	Carbide	WXS®	2mm - 13mm	Corner Radius, High Feed	890
4472		EXOCARB® WXS	Inch	Carbide	WXS®	1/8" - 1/2"	Corner Radius, High Feed	891
4572		EXOCARB® WXS	Metric	Carbide	WXS®	2mm - 12mm	Corner Radius, High Feed	892
4592		EXOCARB® WXS	Metric	Carbide	WXS®	0.4mm - 3mm	Corner Radius, Long Neck, ±5µm Radius Tolerance	893-895
4590		EXOCARB® WXS	Metric	Carbide	WXS®	0.1mm - 6mm	Ball End, Long Neck, ±5µm Radius Tolerance	896-898
4430		EXOCARB® WXS	Inch	Carbide	WXS®	1/4" - 1/2"	Ball End, True 4 Flute	899
4530		EXOCARB® WXS	Metric	Carbide	WXS®	6mm - 12mm	Ball End, True 4 Flute	900

END MILLS

EXOCARB® (Continued)

List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
4413		EXOCARB® WXS	Inch	Carbide	WXS®	1/16" - 1/2"	Ball End, Sphere Type	901
4513		EXOCARB® WXS	Metric	Carbide	WXS®	1mm - 12mm	Ball End, Sphere Type	902
4581		EXOCARB® WXS	Metric	Carbide	WXS®	1mm - 2.5mm	Ball End, Tapered	903
4541		EXOCARB® WXS	Metric	Carbide	WXS®	3mm - 12mm	Corner Radius	904
9010		EXOCARB® MAX	Inch	Carbide	WXS®	1/32" - 1/2"	Ball End	905
9110		EXOCARB® MAX	Metric	Carbide	WXS®	1mm - 10mm	Ball End	905
9011		EXOCARB® MAX	Inch	Carbide	WXS®	1/32" - 3/8"	Ball End, Long Shank	906
9111		EXOCARB® MAX	Metric	Carbide	WXS®	1mm - 10mm	Ball End, Long Shank	906
9140		EXOCARB® MAX	Metric	Carbide	WXS®	3mm - 12mm	Square End	907
9144		EXOCARB® MAX	Metric	Carbide	WXS®	6mm - 12mm	Corner Radius	907
9191		EXOCARB® MAX	Metric	CBN	Bright	0.4mm - 3mm	CBN, Ball End	908
9192		EXOCARB® MAX	Metric	CBN	Bright	0.4mm - 3mm	CBN, Super Long Neck, Ball Nose	908
9181		EXOCARB® MAX	Metric	CBN	Bright	0.5mm - 3mm	CBN, Corner Radius	909
9182		EXOCARB® MAX	Metric	CBN	Bright	0.5mm - 3mm	Long Neck, CBN, Corner Radius	909
7020		EXOCARB® Diamond	Inch	Carbide	Dia.	1/64" - 1/2"	Square End	910
7120		EXOCARB® Diamond	Metric	Carbide	Dia.	1mm - 12mm	Square End	911
7040		EXOCARB® Diamond	Inch	Carbide	Dia.	1/16" - 1/2"	Square End	911
7041		EXOCARB® Diamond	Inch	Carbide	Dia.	1/8" - 1/2"	Square End	912
7042		EXOCARB® Diamond	Inch	Carbide	Dia.	1/16" - 1/2"	Long Shank	912
7072		EXOCARB® Diamond	Inch	Carbide	Dia.	1/8" - 1/2"	Long Shank, Corner Radius	913
7010		EXOCARB® Diamond	Inch	Carbide	Dia.	1/32" - 1/2"	Ball End	913
7110		EXOCARB® Diamond	Metric	Carbide	Dia.	1mm - 12mm	Ball End	914
7030		EXOCARB® Diamond	Inch	Carbide	Dia.	1/32" - 1/2"	Ball End	914
7031		EXOCARB® Diamond	Inch	Carbide	Dia.	3/16" - 1/2"	Ball End	915
7032		EXOCARB® Diamond	Inch	Carbide	Dia.	1/16" - 1/2"	Ball End, Long Shank	915
7173		EXOCARB® Diamond	Metric	Carbide	Dia.	0.5mm - 12mm	Ball End, Long Shank	916

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7132		EXOCARB® Diamond	Metric	Carbide	Dia.	3mm - 12mm	Long Shank, Corner Radius	917
7140		EXOCARB® Diamond	Metric	Carbide	Dia.	0.5mm - 12mm	Square End	917
7230		EXOCARB® Diamond	Inch	Carbide	Dia.	1/64" - 1/4"	High Precision, Ball End	918
7231		EXOCARB® Diamond	Inch	Carbide	Dia.	1/64" - 1/4"	High Precision, Ball End, Long Reach	918
2050		EXOCARB® AERO UVX	Inch	Carbide	EXO®	1/8" - 1"	Square End, for Exotics	919
2052		EXOCARB® AERO UVX	Inch	Carbide	EXO®	1/8" - 1"	Corner Radius, for Exotics	920
3815		EXOCARB® AERO UVX Silent Rougher	Inch	Carbide	WXL®	1/4" - 1"	Low Helix, Corner Chamfer	921
3820		EXOCARB® AERO UVX Silent Rougher	Inch	Carbide	WXL®	1/4" - 1"	High Helix, Corner Chamfer	921
3915		EXOCARB® AERO UVX Silent Rougher	Metric	Carbide	WXL®	6mm - 25mm	Low Helix	922
3920		EXOCARB® AERO UVX Silent Rougher	Metric	Carbide	WXL®	6mm - 25mm	High Helix	922
3825		EXOCARB® AERO UVX Silent Rougher	Inch	Carbide	WXL®	1/4" - 1"	Low Helix, Long Neck, Corner Chamfer	923
3830		EXOCARB® AERO UVX Silent Rougher	Inch	Carbide	WXL®	1/4" - 1"	High Helix, Long Neck, Corner Chamfer	923
2015		EXOCARB® AERO Rougher	Inch	Carbide	TiAlN	1/4" - 1"	Rougher, for Exotics	924
2100		EXOCARB® AERO UVX-Ti	Inch	Carbide	EXO®	1/2" - 1-1/4"	Corner Radius, Rougher	925
2106		EXOCARB® AERO UVX-Ti	Inch	Carbide	EXO®	1/2" - 1-1/4"	Corner Radius	926-927
2104		EXOCARB® AERO UVX-Ti	Metric	Carbide	EXO®	12mm - 25mm	Reduced Neck	928
2102		EXOCARB® AERO UVX-Ti	Inch	Carbide	EXO®	1/2" - 1-1/4"	Reduced Neck, Corner Radius	928
2108		EXOCARB® AERO UVX-Ti	Inch	Carbide	EXO®	1/2" - 1-1/4"	Reduced Neck, Corner Radius	929
2110		EXOCARB® AERO UVX-Ti	Metric	Carbide	EXO®	12mm - 20mm	Reduced Neck, Corner Radius	930
2080		EXOCARB® AERO HFC-Ti	Inch	Carbide	Bright	5/8" - 1"	High Feed Radius Cutter for Titanium	931
2081		EXOCARB® AERO HFC-Ti	Metric	Carbide	Bright	16mm - 25mm	High Feed Radius Cutter for Titanium	931
2863		EXOCARB® AERO DLC	Inch	Carbide	DLC	1/2" - 1"	Corner Radius	932
2963		EXOCARB® AERO DLC	Metric	Carbide	DLC	12mm - 25mm	Corner Radius	933
2873		EXOCARB® AERO DLC	Inch	Carbide	DLC	1/2" - 1"	Square & Corner Radius	934
2973		EXOCARB® AERO DLC	Metric	Carbide	DLC	12mm - 25mm	Square & Corner Radius	935
2874		EXOCARB® AERO DLC	Inch	Carbide	DLC	5/8" - 1"	Coolant through, Square & Corner Radius	936

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END MILLS	2974		EXOCARB® AERO DLC	Metric	Carbide	DLC	20mm - 25mm	Coolant through, Square & Corner Radius	937
	2843		EXOCARB® AERO DLC	Inch	Carbide	DLC	1/2" - 1"	Long Length, Square & Corner Radius	938
	2943		EXOCARB® AERO DLC	Metric	Carbide	DLC	12mm - 20mm	Long Length, Square & Corner Radius	939
	2853		EXOCARB® AERO DLC	Inch	Carbide	DLC	3/4"	Extra Long Length, Square & Corner Radius	940
	2953		EXOCARB® AERO DLC	Metric	Carbide	DLC	20mm	Extra Long Length, Square & Corner Radius	941
	8120		EXOCARB® AERO	Metric	Carbide	Bright	1mm - 16mm	Square End	951
DISC CUTTERS	6440		EXOCARB® DISC CUTTER	Metric	Steel	-	3.150"-4.921" 80mm - 125mm	S for Roughing	1500
	6442		EXOCARB® DISC CUTTER	Metric	Carbide	-	9.52mm	S Inserts & Accessories	1501
	6441		EXOCARB® DISC CUTTER	Metric	Steel	-	3.150" - 4.921" 80mm - 125mm	Pro for Finishing	1502
	6541		EXOCARB® DISC CUTTER	Metric	Carbide	-	9.52mm	Pro Inserts & Accessories	1503
	6640		EXOCARB® ARBOR	Inch & Metric	Steel	-	1" / 25.4mm	Arbors & Accessories	1504

OSG PHOENIX®

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	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
INDEXABLE DRILLING	52400		OSG PHOENIX® PXD	Inch	-	-	0.551-1.023"	Exchangeable Head Drill, 3D & 5D	1328
	78310			Metric	-	-	14.00-25.99mm	Exchangeable Head Drill, 3D & 5D	1329
	78PXD			-	-	-	-	PXD Exchangeable Heads	1330-1334
	7808H			-	-	-	-	PXD Accessories	1335
	52502		OSG PHOENIX® PD	Inch	-	-	0.594-2.500"	Indexable Drill, 2D	1337-1338
	78031			Metric	-	-	15.00-63.00mm	Indexable Drill, 2D	1339-1340
	52503			Inch	-	-	0.594-2.500"	Indexable Drill, 3D	1341-1342
	78032			Metric	-	-	15.00-63.00mm	Indexable Drill, 3D	1343-1344
	52504			Inch	-	-	0.594-2.500"	Indexable Drill, 4D	1345-1346
	78033			Metric	-	-	15.00-63.00mm	Indexable Drill, 4D	1347-1348
	52505			Inch	-	-	0.594-2.500"	Indexable Drill, 5D	1349-1350
	78027			Metric	-	-	15.00-63.00mm	Indexable Drill, 5D	1351-1352
	78P5D			-	-	-	-	PD Inserts	1353

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INDEXABLE DRILLING								
7808H		OSG PHOENIX® PD	-	-	-	-	PD Accessories	1354
78001		OSG PHOENIX® PHP	Metric	-	-	14.00-40.00mm	High Performance Drill, 3D	1361
78PHP			-	-	-	-	PHP Inserts	1362
7808H			-	-	-	-	PHP Accessories	1362
52510		OSG PHOENIX® PZAG	Inch	-	-	0.531-1.813"	Counterbore Cutter, SA	1364
78321			Metric	-	-	14-48mm	Counterbore Cutter, SS	1365
52511			Inch	-	-	2.000-3.125"	Counterbore Cutter, Bore	1366
78421			Metric	-	-	54-82mm	Counterbore Cutter, Bore	1367
78PZAG			-	-	-	-	PZAG Inserts	1368
7808H			-	-	-	-	PZAG Accessories	1368
INDEXABLE MILLING								
52700		OSG PHOENIX® PAS	Inch	-	-	2.000-6.000"	45° Face Mill, 2-Sided Square Insert, Bore	1370
78020			Metric	-	-	50-125mm	45° Face Mill, 2-Sided Square Insert, Bore	1370
78PAS			-	-	-	-	PAS Inserts	1371
7808H			-	-	-	-	PAS Accessories	1371
52800		OSG PHOENIX® PAO	Inch	-	-	2.000-8.000"	45° Face Mill, 2-Sided Octagon Insert, Bore	1373
78120			Metric	-	-	50-200mm	45° Face Mill, 2-Sided Octagon Insert, Bore	1374
78PAO			-	-	-	-	PAO Inserts	1375
7808H			-	-	-	-	PAO Accessories	1376
78013		OSG PHOENIX® PSE	Inch	-	-	0.625-1.500"	90° Shoulder Cutter, SA/FA	1378
78011			Metric	-	-	16-36mm	90° Shoulder Cutter, SS	1379-1380
78012			Inch	-	-	2.000-6.000"	90° Shoulder Cutter, Bore	1381
78010			Metric	-	-	40-125mm	90° Shoulder Cutter, Bore	1382
52601			Inch	-	-	0.625-1.500"	90° Shoulder Cutter, ASF	1383
78016			Metric	-	-	16-40mm	90° Shoulder Cutter, SF	1384
78PSE			-	-	-	-	PSE/PSEL Inserts	1385
7808H			-	-	-	-	PSE Accessories	1386

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List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
INDEXABLE MILLING								
53000		OSG PHOENIX® PSEL	Inch	-	-	1.000-1.500"	90° Roughing Cutter, SA/FA	1389
78029			Metric	-	-	25-50mm	90° Roughing Cutter, SS	1390
53001			Inch	-	-	2.000-3.000"	90° Roughing Cutter, Bore	1391
78028			Metric	-	-	50-80mm	90° Roughing Cutter, Bore	1391
78PSE			-	-	-	-	PSE/PSEL Inserts	1392
7808H			-	-	-	-	PSEL Accessories	1393
52900		OSG PHOENIX® PSF	Inch	-	-	1.000-1.500"	90° Shoulder Cutter, Square Insert, SA/FA	1396
78030			Metric	-	-	25-40mm	90° Shoulder Cutter, Square Insert, SS	1396
52901			Inch	-	-	2.000-3.000"	90° Shoulder Cutter, Square Insert, Bore	1397
78130			Metric	-	-	50-80mm	90° Shoulder Cutter, Square Insert, Bore	1397
78PSF			-	-	-	-	PSF/PSFL Inserts	1398
7808H			-	-	-	-	PSF Accessories	1398
53200		OSG PHOENIX® PSFL	Inch	-	-	1.250-1.500"	90° Roughing Cutter, Square Insert, SA/FA	1400
78037			Metric	-	-	32-40mm	90° Roughing Cutter, Square Insert, SS	1400
53201			Inch	-	-	2.000-4.000"	90° Roughing Cutter, Square Insert, Bore	1401
78137			Metric	-	-	50-80mm	90° Roughing Cutter, Square Insert, Bore	1401
78PSF			-	-	-	-	PSF/PSFL Inserts	1402
7808H			-	-	-	-	PSFL Accessories	1402
53100		OSG PHOENIX® PSTW	Inch	-	-	2.000-6.000"	90° Shoulder Cutter, 2-Sided Triangle Insert, Bore	1404
78131			Metric	-	-	50-125mm	90° Shoulder Cutter, 2-Sided Triangle Insert, Bore	1405
78PSTW			-	-	-	-	PSTW Inserts	1406
7808H			-	-	-	-	PSTW Accessories	1406
78005		OSG PHOENIX® PRC	Inch	-	-	1.000-1.500"	Radius Cutter, SA	1408
78003			Metric	-	-	20-63mm	Radius Cutter, SS	1409
78004			Inch	-	-	2.000-6.000"	Radius Cutter, Bore	1410
78002			Metric	-	-	50-100mm	Radius Cutter, Bore	1411

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INDEXABLE MILLING								
52602		OSG PHOENIX® PRC	Inch	-	-	1.000-1.500"	Radius Cutter, ASF	1412
78017			Metric	-	-	20-40mm	Radius Cutter, SF	1412
78PRC			-	-	-	-	PRC Inserts	1413
7808H			-	-	-	-	PRC Accessories	1413
78009		OSG PHOENIX® PHC	Inch	-	-	0.625-1.500"	High Feed Radius Cutter, SA/FA	1416-1417
78007			Metric	-	-	16-63mm	High Feed Radius Cutter, SS	1418-1419
78008			Inch	-	-	2.000-6.000"	High Feed Radius Cutter, Bore	1420
78006			Metric	-	-	40-100mm	High Feed Radius Cutter, Bore	1421
52603			Inch	-	-	0.625-1.500"	High Feed Radius Cutter, ASF	1423
78015			Metric	-	-	16-40mm	High Feed Radius Cutter, SF	1424
78PHC			-	-	-	-	PHC Inserts	1425
7808H			-	-	-	-	PHC Accessories	1425
6420		OSG PHOENIX® PDR	Metric	-	-	40-50mm	Deep Feed Radius Cutter,SS	1427
6450			Metric	-	-	63-125mm	Deep Feed Radius Cutter, Bore	1427
78PDR			-	-	-	-	PDR Inserts	1428
7808H			-	-	-	-	PDR Accessories	1428
78036		OSG PHOENIX® PFAL	Metric	-	-	50-160mm	Finishing Cutter for Aluminum, Bore	1430
78PFAL			-	-	-	-	PFAL Inserts	1431
7808H			-	-	-	-	PFAL Accessories	1431
52100		OSG PHOENIX® PFB	Inch	-	-	0.250-1.250"	Finishing Ball End Mill, SA	1433-1434
78014			Metric	-	-	6-32mm	Finishing Ball End Mill, SS	1435
52604			Inch	-	-	0.375-1.000"	Finishing Ball End Mill, ASF	1436
78114			Metric	-	-	10-32mm	Finishing Ball End Mill, SF	1436
78PFB			-	-	-	-	PFB Inserts	1437-1438
7808H			-	-	-	-	PFB Accessories	1439
52200		OSG PHOENIX® PFR	Inch	-	-	0.250-1.250"	Finishing Radius End Mill, SA	1442

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INDEXABLE MILLING	78320		OSG PHOENIX® PFR	Metric	-	-	6-32mm	Finishing Radius End Mill, SS	1443
	52605			Inch	-	-	0.375-1.000"	Finishing Radius End Mill, ASF	1444
	78220			Metric	-	-	10-32mm	Finishing Radius End Mill, SF	1444
	78PFR		OSG PHOENIX® PFR	-	-	-	-	PFR Inserts	1445-1449
	7808H			-	-	-	-	PFR Accessories	1450
	52601		OSG PHOENIX® SF	Inch	-	-	0.625-1.500"	Screw Fit Cutter, PSE ASF	1453
	78016			Metric	-	-	16-40mm	Screw Fit Cutter, PSE SF	1454
	52602			Inch	-	-	1.000-1.500"	Screw Fit Cutter, PRC ASF	1455
	78017			Metric	-	-	20-40mm	Screw Fit Cutter, PRC SF	1455
	52603			Inch	-	-	0.625-1.500"	Screw Fit Cutter, PHC ASF	1456
	78015			Metric	-	-	16-40mm	Screw Fit Cutter, PHC SF	1457
	52604			Inch	-	-	0.375-1.000"	Screw Fit Cutter, PFB ASF	1458
	78114			Metric	-	-	10-30mm	Screw Fit Cutter, PFB SF	1459
	52605			Inch	-	-	0.375-1.000"	Screw Fit Cutter, PFR ASF	1460
	78220			Metric	-	-	10-32mm	Screw Fit Cutter, PFR SF	1460
	52600			Inch	-	-	-	Screw Fit Cutter, SF Arbor SA	1461
	78019			Metric	-	-	-	Screw Fit Cutter, SF Arbor SS	1462
	78025			-	-	-	-	Screw Fit Cutter, SF Arbor BT	1463
	78125			-	-	-	-	Screw Fit Cutter, SF Arbor HSK	1464
	78PXSE		OSG PHOENIX® PXM	Inch/ Metric	-	-	0.375-1.000" 10-25mm	PXSE, 4 Flute, Square & CR	1465
	78PXSE-O			Inch/ Metric	-	-	0.500-1.000" 12-25mm	PXSE, 4 Flute, Square & CR, Coolant-Through	1466
	78PXVC			Inch/ Metric	-	-	0.375-1.250" 10-32mm	PXVC, 4 Flute, Square & CR	1467-1468
	78PXSM			Inch/ Metric	-	-	0.375-1.000" 10-25mm	PXSM, Multiple Flute, Square & CR	1469-1470
	78PXNL			Inch/ Metric	-	-	0.375-1.000" 10-25mm	PXNL, 4 Flute, Roughing, Low Helix	1471
	78PXNL-O			Inch/ Metric	-	-	0.500-1.000" 12-25mm	PXNL, 4 Flute, Roughing, Low Helix, Coolant-Through	1471
	78PXNH			Inch/ Metric	-	-	0.375-1.000" 10-25mm	PXNH, 4 Flute, Roughing, High Helix	1472

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	78PXRE			Inch/ Metric	-	-	0.375-1.000" 10-25mm	PXRE, Multiple Flute, Straight Flute, Corner Radius	1473
	78PXDR			Inch/ Metric	-	-	0.375-1.000" 10-25mm	PXDR, 3 Flute, Helical Flute, Corner Radius	1473-1474
	78PXBE			Inch/ Metric	-	-	0.375-1.000" 10-25mm	PXBE, 3 Flute, Ball End	1475-1476
	78PXBE-O			Inch/ Metric	-	-	0.500-0.750" 12-20mm	PXBE, 3 Flute, Ball End, Coolant-Through	1476-1477
	78PXBM			Inch/ Metric	-	-	0.375-1.000" 10-25mm	PXBM, Multiple Flute, Ball End	1477
	52300			Inch	-	-	-	PXM SA/TPA	1478-1479
	52319			Inch	-	-	-	PXM SA/TPA, Coolant-Through	1480-1481
	78018			Metric	-	-	-	PXM SS/TP	1482-1483
	78035			Metric	-	-	-	PXM SS/TP, Coolant-Through	1484-1485
	78340			Metric	-	-	-	PXMC	1486
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	9953		SybchroMaster Collet	Inch & Metric	-	-	-	Sealed Collets	1511
	9955		SynchroMaster Accessories	-	-	-	-	Accessories	1512
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Holders	68802B		HR-B Handy Type Unit	-	-	-	-	Compact hot air shrink device	1513
	–		HR-B Handy Type Unit	-	-	-	-	Accessories	1514-1515
	–		Shrink Holders	Inch & Metric	-	-	-	Standard and Coolant-through	1521-1524
	–		Shrink Extentions	Inch & Metric	-	-	-	Multi Type Extentions	1525-1532
BLIZZARD®									BLZ
END MILLS	2021		EXOCARB® AERO BLIZZARD	Inch	Carbide	Bright	1/8" - 1"	Square & Corner Radius	942
	2022		EXOCARB® AERO BLIZZARD	Inch	Carbide	Bright	1/8" - 1"	Square & Corner Radius	943
	2023		EXOCARB® AERO BLIZZARD	Inch	Carbide	Bright	1/4" - 1"	Reduced Neck,Square & Corner Radius	944
	2024		EXOCARB® AERO BLIZZARD	Inch	Carbide	Bright	1/4" - 1"	Reduced Neck, Square & Corner Radius	945

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END MILLS	2041		EXOCARB® AERO BLIZZARD	Inch	Carbide	Bright	1/8" - 1"	Square & Corner Radius	946
END MILLS	2042		EXOCARB® AERO BLIZZARD	Inch	Carbide	Bright	1/8" - 1"	Square & Corner Radius	947
END MILLS	2043		EXOCARB® AERO BLIZZARD	Inch	Carbide	Bright	1/4" - 1"	Reduced Neck,Square & Corner Radius	948
END MILLS	2048		EXOCARB® AERO BLIZZARD	Inch	Carbide	Bright	1/4" - 1"	Reduced Neck, Square & Corner Radius	949
END MILLS	2010		EXOCARB® AERO BLIZZARD	Inch	Carbide	Bright	1/8" - 1"	Ball End	950
HY-PRO® CARB									HPC
DRILLS	HP243		HY-PRO® CARB	Inch & Metric	Carbide	WD1	1mm-20mm	3D, Solid	182-185
DRILLS	HP253		HY-PRO® CARB	Inch & Metric	Carbide	WD1	3mm-20mm	3D, Coolant-Through	190-193
DRILLS	HP245		HY-PRO® CARB	Inch & Metric	Carbide	WD1	1mm-20mm	5D, Solid	186-189
DRILLS	HP255		HY-PRO® CARB	Inch & Metric	Carbide	WD1	3mm-20mm	5D, Coolant-Through	194-197
DRILLS	HP258		HY-PRO® CARB	Inch & Metric	Carbide	WD1	3mm-20mm	8D, Coolant-Through	198-201
DRILLS	HP700		HY-PRO® CARB NEPTUNE	Inch	Carbide	TiALN	#40 - 1/4"	Composite, Hand Drill	179
END MILLS	VG441		HY-PRO® VGX	Inch	Carbide	TiAlN	1/8" - 1"	Square End	960
END MILLS	VG434		HY-PRO® VGX	Inch	Carbide	TiAlN	1/8" - 1"	Corner Radius	961
END MILLS	VG436		HY-PRO® VGX	Inch	Carbide	TiAlN	1/8" - 1"	Corner Chamfer	962
END MILLS	VG446		HY-PRO® VGX	Inch	Carbide	TiAlN	1/4" - 1"	Reduced Neck, Corner Radius/Corner Chamfer	963
END MILLS	VG464		HY-PRO® VGX	Inch	Carbide	TiAlN	1/4" - 1"	Extended Length, Square End/Corner Chamfer	964
END MILLS	VG441BN		HY-PRO® VGX	Inch	Carbide	TiAlN	1/8" - 1-1/4"	Ball Nose	965
END MILLS	VG541		HY-PRO® VGX	Inch	Carbide	TiAlN	1/8" - 1"	Square End	966
END MILLS	VG534		HY-PRO® VGX	Inch	Carbide	TiAlN	3/16" - 1"	Corner Radius	967-968
END MILLS	HP421		HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	3/64" - 1" 3mm-25mm	Square End	969-970
END MILLS	HP441		HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	3/64" - 1" 3mm-25mm	Square End	969-970
END MILLS	HP460		HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/8" - 1" 3mm-25mm	High Helix	971
END MILLS	HP450		HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/8" - 1" 3mm-25mm	Square End	972
END MILLS	HP453		HY-PRO® CARB	Metric	Carbide	TiAlN	4mm - 20mm	Super Tough Mills	973
END MILLS	HP456		HY-PRO® CARB	Metric	Carbide	TiAlN	6mm - 12mm	Super Tough Mills, Corner Radius	973

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Brand Index

HY-PRO® CARB (Continued)

HPC

List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
END MILLS	HP451	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/8" - 1" 4mm-20mm	Super Tough Mills	974
	HP400	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/4" - 1" 3mm - 25mm	Rougher	975
	HP410	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/32" - 3/16" 0.5mm - 2.5mm	Short Length, Long Neck	976-977
	HP411	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/8" - 1/4" 3mm - 6mm	Short Length, Long Neck	978
	HP455	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/8" - 1" 3mm - 25mm	Corner Protection	979
	HP421BN	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	3/64" - 1" 1mm-25mm	Ball End	980-981
	HP441BN	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	3/64" - 1" 1mm-25mm	Ball End	980-981
	HP416	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/32" - 1/2" 1mm-25mm	Ball End	982
	HP418	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	3/22" - 3/8" 1mm-12mm	Ball End, Pencil Neck	983
	HP419	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/32" - 3/16" 0.5mm-6mm	Ball End, Long Neck	984
	HP419L	HY-PRO® CARB	Metric	Carbide	TiAlN	0.6mm - 3mm	Ball End, Long Neck	985
	HP413	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/32" - 3/16 1mm-6mm	Ball End	986
	HP432	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/8" - 1" 3mm-12mm	Corner Radius	987-988
	HP434	HY-PRO® CARB	Inch/ Metric	Carbide	TiAlN	1/8" - 1" 3mm-12mm	Corner Radius	987-988
	HP433	HY-PRO® CARB	Metric	Carbide	TiAlN	3mm - 12mm	Corner Radius	989
	HP435	HY-PRO® CARB	Metric	Carbide	TiAlN	3mm - 12mm	Corner Radius	990

CARBIDE

HYE

DRILLS	215	CARBIDE	Inch & Metric	Carbide	Bright	1mm-12.7mm	Jobbers, Solid, Slow Spiral	204-208
	220D	CARBIDE	Inch & Metric	Carbide	Bright	1.18mm-12.7mm	Jobbers, Solid	209-211
	233	CARBIDE	Inch & Metric	Carbide	Bright	3mm-19.05mm	Jobbers, Solid, 3 Flutes	212
	200	CARBIDE	Inch & Metric	Carbide	Bright	1.18mm-12.7mm	Jobbers, Solid, Straight Flute	213-215
	235	CARBIDE	Inch	Carbide	Bright	3/64"-7/32"	Solid, Drill/Countersink	216-221
	700	CARBIDE	Inch	Carbide	Bright	1/8"-1"	Solid, Countersink, Single Flute	223
	701	CARBIDE	Inch	Carbide	Bright	1/4"-1"	Solid, Countersink, Multiple Flutes	224
	706	CARBIDE	Inch	Carbide	Bright	1/4"-1"	Solid, Countersink, Multiple Flutes	225
	300D	CARBIDE	Inch & Metric	Carbide	Bright	0.80mm-13mm	Reamer, Solid, Multiple Flutes, RH Cutting	217-221

CARBIDE (Continued)

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
DRILLS	750		CARBIDE	Inch	Carbide	Bright	1/16"-3/8"	Solid, Grinding/Deburring	222
	257		AERO-D-REAM	Inch	Carbide	BRIGHT	#40 - 1/2"	Composite, Tapered Drill/ Reamer	180-181
END MILLS	400		CARBIDE	Inch/ Metric	Carbide	Bright*	1/4" - 1" 6mm-25mm	Roughy Mills	991
	415		CARBIDE	Inch	Carbide	Bright*	1/8" - 1"	Toughy Mills, Standard Cut	992
	415C		CARBIDE	Inch	Carbide	Bright*	1/8" - 1"	Toughy Mills, Coarse Cut	992
	402		CARBIDE	Inch/ Metric	Carbide	TiAlN, TiCN, Bright*	1/32" - 1" 0.5mm-25mm	General Purpose	993-995
	403		CARBIDE	Inch/ Metric	Carbide	TiAlN, Bright*	1/32" - 1" 0.5mm-25mm	General Purpose	993-995
	404		CARBIDE	Inch/ Metric	Carbide	TiAlN, Bright*	1/32" - 1" 0.5mm-25mm	General Purpose	993-995
	408		CARBIDE	Inch	Carbide	Bright*	1/8" - 1"	Slow Spiral	996
	409		CARBIDE	Inch	Carbide	Bright*	1/16" - 1"	Slow Spiral	996
	452		CARBIDE	Inch	Carbide	TiALN, Bright*	1/16" - 1"	Plus Tolerance	997
	454		CARBIDE	Inch	Carbide	Bright*	1/16" - 1"	Plus Tolerance	997
	412		CARBIDE	Inch/ Metric	Carbide	Bright*	1/32" - 3/4" 1mm-12mm	Stub Length	998-999
	414		CARBIDE	Inch/ Metric	Carbide	TiALN, Bright*	1/32" - 3/4" 1mm-12mm	Stub Length	998-999
	462		CARBIDE	Inch/ Metric	Carbide	TiCN, TiALN, Bright*	1/8" - 1" 3mm-25mm	Long Length	1000-1001
	464		CARBIDE	Inch/ Metric	Carbide	TiCN, TiALN, Bright*	1/8" - 1" 3mm-25mm	Long Length	1000-1001
	482		CARBIDE	Inch/ Metric	Carbide	TiCN, TiALN, Bright*	1/8" - 1" 3mm-25mm	Extra-Long Length	1002-1003
	484		CARBIDE	Inch/ Metric	Carbide	TiCN, TiALN, Bright*	1/8" - 1" 3mm-25mm	Extra-Long Length	1002-1003
	495		CARBIDE	Inch	Carbide	Bright*	1/8" - 1"	Corner Radius	1004
	496		CARBIDE	Inch	Carbide	TiALN, Bright*	1/8" - 1"	Corner Radius	1004
	455C		CARBIDE	Inch	Carbide	TiCN, TiALN, Bright*	1/8" - 1"	Corner Protection	1005
	460C		CARBIDE	Inch/ Metric	Carbide	Bright*	1/8"-1" 6mm - 25mm	High Helix	1006
	445		CARBIDE	Inch/ Metric	Carbide	Bright*	1/16" - 1" 1mm-20mm	RHS/RHC	1007
	461		CARBIDE	Inch/ Metric	Carbide	TiALN, Bright*	1/8" - 1" 3mm-25mm	RHS/RHC	1008
	447		CARBIDE	Inch	Carbide	TiALN, Bright*	1/16" - 1"	LHS/RHC	1009
	492		CARBIDE	Inch	Carbide	Bright*	0.015" - 0.060"	Miniature	1010

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CARBIDE (Continued)

List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
END MILLS								HYE
494		CARBIDE	Inch	Carbide	Bright*	0.015" - 0.060"	Miniature	1010
402BN		CARBIDE	Inch/ Metric	Carbide	TiAlN, Bright*	1/32" - 1" 0.5mm-25mm	Ball End	1011-1013
403BN		CARBIDE	Inch/ Metric	Carbide	TiAlN, Bright*	1/32" - 1" 0.5mm-25mm	Ball End	1011-1013
404BN		CARBIDE	Inch/ Metric	Carbide	TiAlN, Bright*	1/32" - 1" 0.5mm-25mm	Ball End	1011-1013
452BN		CARBIDE	Inch	Carbide	Bright*	1/16" - 1"	Ball End, Plus Tolerance	1014
412BN		CARBIDE	Inch/ Metric	Carbide	TiALN, Bright*	1/32" - 3/4" 1mm - 12mm	Ball End, Stub Length	1015-1016
414BN		CARBIDE	Inch/ Metric	Carbide	TiCN, TiALN, Bright*	1/32" - 3/4" 1mm - 12mm	Ball End, Stub Length	1015-1016
462BN		CARBIDE	Inch/ Metric	Carbide	TiCN, Bright*	1/8" - 1" 3mm-25mm	Ball End, Long Length	1017
464BN		CARBIDE	Inch/ Metric	Carbide	TiCN, TiALN, Bright*	1/8" - 1" 3mm-25mm	Ball End, Long Length	1017
482BN		CARBIDE	Inch/ Metric	Carbide	TiALN, Bright*	1/8" - 1" 3mm-25mm	Ball End, Extra Long Length	1018-1019
484BN		CARBIDE	Inch/ Metric	Carbide	TiALN, Bright*	1/8" - 1" 3mm-25mm	Ball End, Extra Long Length	1018-1019
497		CARBIDE	Inch/ Metric	Carbide	Bright*	1/8" - 1" 3mm-20mm	Ball End, Long Shank	1020
442		CARBIDE	Inch	Carbide	TiALN, Bright*	1/8" - 1/2"	Double End	1021
444		CARBIDE	Inch	Carbide	TiALN, Bright*	1/8" - 1/2"	Double End	1021
422		CARBIDE	Inch	Carbide	TiALN, Bright*	1/32" - 1/2"	Double End, Stub Length	1022
423		CARBIDE	Inch	Carbide	TiALN, Bright*	1/32" - 1/2"	Double End, Stub Length	1022
424		CARBIDE	Inch	Carbide	TiALN, Bright*	1/32" - 1/2"	Double End, Stub Length	1022
442BN		CARBIDE	Inch	Carbide	Bright*	1/8" - 1/2"	Double End, Ball End	1023
444BN		CARBIDE	Inch	Carbide	TiALN, Bright*	1/8" - 1/2"	Double End, Ball End	1023
422BN		CARBIDE	Inch	Carbide	TiALN, Bright*	1/32" - 1/2"	Double End, Ball End, Stub Length	1024
423BN		CARBIDE	Inch	Carbide	Bright*	1/32" - 1/2"	Double End, Ball End, Stub Length	1024
424BN		CARBIDE	Inch	Carbide	TiALN, Bright*	1/32" - 1/2"	Double End, Ball End, Stub Length	1024
500		CARBIDE	Inch	Carbide	Bright	3/32" - 1/2"	2 Flute, Straight Router	1025
502		CARBIDE	Inch	Carbide	Bright	3/32" - 1/2"	3 Flute, Straight Router	1025
640		CARBIDE	Inch	Carbide	Bright	1/16" - 1/2"	Fiberglass Routers, Diamond Cut	1026
668		AERO-HBC 60°	Inch	Carbide	Bright	1/4" - 1/2"	Compression Router	958

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
CARBIDE (Continued)									HYE
END MILLS	641R		AERO-HFR	Inch	Carbide	Bright	3/16" - 1/2"	General Purpose Router	959
END MILLS	800 - 968		CARBIDE BURS	Inch/ Metric	Carbide	Bright	-	Carbide Burs	1089-1110
HY-PRO® MULTI PURPOSE									HYM
DRILL	738		HY-PRO® CARB	Inch	-	Bright	-	Indexable, Spot Drill/ Countersink/Chamfer	202-203
EXOTAP®									EXT
TAPS	14050		EXOTAP® NRT®	Inch	VC-10	V	No. 0 - 3/8"	Forming Tap	468-470
TAPS	14150		EXOTAP® NRT®	Metric	VC-10	V	M1.6 - M12	Forming Tap	471-472
TAPS	313Ti		EXOTAP® VC-10 Ti	Inch	VC-10	V	No. 2 - 1"	Spiral Flute	510-511
TAPS	345Ti		EXOTAP® VC-10 Ti	Metric	VC-10	V	M2.5 - M12	Spiral Flute	512
TAPS	312Ti		EXOTAP® VC-10 Ti	Inch	VC-10	V	No. 2 - 1"	Spiral Point	591-592
TAPS	344Ti		EXOTAP® VC-10 Ti	Metric	VC-10	V	M3 - M12	Spiral Point	593
TAPS	315Ti		EXOTAP® VC-10 Ti	Inch	VC-10	V	No. 2 - 1/2"	STI, Spiral Fluted	708
TAPS	314Ti		EXOTAP® VC-10 Ti	Inch	VC-10	V	No. 2 - 1/2"	STI, Spiral Pointed	720
TAPS	317Ti		EXOTAP® VC-10 Ti Oil	Inch	VC-10	V	1/4" - 1"	Spiral Flute, Coolant-Through, DIN OAL	513
TAPS	348Ti		EXOTAP® VC-10 Ti Oil	Metric	VC-10	V	M8 - M24	Spiral Flute, Coolant-Through, DIN OAL	514
TAPS	316Ti		EXOTAP® VC-10 Ti Oil	Inch	VC-10	V	1/4" - 1"	Spiral Point, Coolant-Through, DIN OAL	594
TAPS	347Ti		EXOTAP® VC-10 Ti Oil	Metric	VC-10	V	M8 - M24	Spiral Point, Coolant-Through, DIN OAL	595
TAPS	313Ni		EXOTAP® VC-10 Ni	Inch	VC-10	V,S/O	No. 2 - 1"	Spiral Flute	515-516
TAPS	345Ni		EXOTAP® VC-10 Ni	Metric	VC-10	S/O	M2.5 - M12	Spiral Flute	517
TAPS	312Ni		EXOTAP® VC-10 Ni	Inch	VC-10	V, S/O	No. 2 - 1"	Spiral Point	596-597
TAPS	344Ni		EXOTAP® VC-10 Ni	Metric	VC-10	V, S/O	M2.5 - M12	Spiral Point	598
TAPS	315Ni		EXOTAP® VC-10 Ni	Inch	VC-10	V	No. 2 - 1/2"	STI, Spiral Fluted	709
TAPS	314Ni		EXOTAP® VC-10 Ni	Inch	VC-10	V	No. 2 - 1/2"	STI, Spiral Pointed	721
TAPS	313		EXOTAP® VC-10	Inch	VC-10	V, S/O	No. 2 - 1/2"	Spiral Flute	518-519
TAPS	345		EXOTAP® VC-10	Metric	VC-10	V, S/O	M3 - M12	Spiral Flute	520
TAPS	312		EXOTAP® VC-10	Inch	VC-10	V, S/O	No. 2 - 3/4"	Spiral Point	599-600

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EXOTAP® (Continued)

List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
TAPS								
344		EXOTAP® VC-10	Metric	VC-10	V, S/O	M3 - M12	Spiral Point	601
315		EXOTAP® VC-10	Inch	VC-10	V, S/O	No. 2 - 1"	STI, Spiral Fluted	710-711
345STI		EXOTAP® VC-10	Metric	VC-10	V, S/O	M2 - M24	STI, Spiral Fluted	712
314		EXOTAP® VC-10	Inch	VC-10	V, S/O	No. 2 - 1"	STI, Spiral Pointed	722-723
344STI		EXOTAP® VC-10	Metric	VC-10	V, S/O	M2 - M24	STI, Spiral Pointed	724
317		EXOTAP® VC-10 Oil	Inch	VC-10	V	5/16" - 1"	Spiral Flute, Coolant-Through, DIN OAL	521
351		EXOTAP® VC-10 Oil	Metric	VC-10	V	M8 - M24	Spiral Flute, Coolant-Through, DIN OAL	522
316		EXOTAP® VC-10 Oil	Inch	VC-10	V	1/4" - 1"	Spiral Point, Coolant-Through, DIN OAL	602
350		EXOTAP® VC-10 Oil	Metric	VC-10	V	M6 - M24	Spiral Point, Coolant-Through, DIN OAL	603
303		EXOTAP VA-3®	Inch	HSSE	V, TiN, S/O	No. 2 - 1"	Spiral Flute	523-525
343		EXOTAP VA-3®	Metric	HSSE	V, TiN, S/O	M3 - M18	Spiral Flute	526
300		EXOTAP VA-3®	Inch	HSSE	V, TiN, S/O	No. 2 - 1"	Spiral Point	604-605
342		EXOTAP VA-3®	Metric	HSSE	V, TiN, S/O	M3 - M18	Spiral Point	606
302		EXOTAP VA-3®	Inch	HSSE	V, S/O	No. 2 - 1"	STI, Spiral Fluted	713-714
343STI		EXOTAP VA-3®	Metric	HSSE	V, S/O	M2 - M24	STI, Spiral Fluted	715
301		EXOTAP VA-3®	Inch	HSSE	V, S/O	No. 2 - 1"	STI, Spiral Pointed	725-726
342STI		EXOTAP VA-3®	Metric	HSSE	V, S/O	M2 - M24	STI, Spiral Pointed	727
307		EXOTAP® VA-3 Oil	Inch	HSSE	V	1/4" - 1"	Spiral Flute, Coolant-Through, DIN OAL	527
347		EXOTAP® VA-3 Oil	Metric	HSSE	V	M6 - M24	Spiral Flute, Coolant-Through, DIN OAL	528
306		EXOTAP® VA-3 Oil	Inch	HSSE	V	1/4" - 1"	Spiral Point, Coolant-Through, DIN OAL	607
346		EXOTAP® VA-3 Oil	Metric	HSSE	V	M6 - M24	Spiral Point, Coolant-Through, DIN OAL	608
398		EXOTAP VA-3®	Inch	HSSE	S/O	No. 4 - 5/8"	Spiral Flute, Long Shank	529
397		EXOTAP VA-3®	Inch	HSSE	S/O	No. 4 - 5/8"	Spiral Point, Long Shank	609
320		EXOTIN	Inch	HSSE	TiN	No. 4 - 3/4"	Spiral Point	610
10051		EXOTAP® VCX	Inch	XPM	V	No. 6 -1"	Straight Flute	671
11051		EXOTAP® VCX	Metric	XPM	V	M3 - M24	Straight Flute	672

EXOTAP® (Continued)

EXT

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
TAPS	305		EXOTAP-MOLD®	Inch	HSS-CO	Bright	No. 4 - 3/4"	Straight Flute	673
	10052		EXOTAP® DC	Inch	VC-10	V	1/4" - 1"	Straight Flute, DIN OAL	674
	11052		EXOTAP® DC	Metric	VC-10	V	M6 - M24	Straight Flute, DIN OAL	675
	11054		EXOTAP® DC	Metric	VC-10	V	M6 - M10	Straight Flute, DIN Shank, DIN OAL	678
	10056		EXOTAP® DC	Inch	VC-10	V	1/4" - 3/4"	Straight Flute	680
	11056		EXOTAP® DC	Metric	VC-10	V	M6 - M14	Straight Flute	681
	10053		EXOTAP® DC-OIL	Inch	VC-10	V	1/4" - 1"	Straight Flute, Coolant-Through, DIN OAL	676
	11053		EXOTAP® DC-OIL	Metric	VC-10	V	M6 - M24	Straight Flute, Coolant-Through, DIN OAL	677
	11055		EXOTAP® DC-OIL	Metric	VC-10	V	M6 - M12	Straight Flute, Coolant-Through, DIN Shank, DIN OAL	679
	10057		EXOTAP® DC-OIL	Inch	VC-10	V	1/4" - 1/2"	Straight Flute, Coolant-Through	682
	11057		EXOTAP® DC-OIL	Metric	VC-10	V	M6 - M14	Straight Flute, Coolant-Through	683
	308		EXOPIPE®	Inch	HSSE	TiN, S/O	1/16" - 1"	Pipe Tap, NPT	740
	318		EXOPIPE®	Inch	HSSE	TiN, S/O	1/16" - 1"	Pipe Tap, NPTF	741
	328		EXOTAP-MOLD®	Inch	HSS-CO	Bright	1/8" - 3/4"	Pipe Tap, NPT, ANPT	743
	15001		GENERAL	Inch	HSS	Bright	No. 2 - 1-1/2"	Gage, GO/NOGO Set, Class 2B	757
	15002		GENERAL	Metric	HSS	Bright	M3 - M24	Gage, GO/NOGO Set, Class 6H	758
	15015		GENERAL	Inch	HSS	TiN	No.5 - 1"	Diameter Correction Tool	445
	15010		GENERAL	Metric	HSS	TiN	M3 - M16	Diameter Correction Tool	446
	15020		GENERAL	-	-	-	-	Diameter Correction Tool Accessories	447

EXOMINI/EXOMILL

EXM

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
END MILLS	673		EXOMINI VC-10	Inch	VC-10	TiN	1/32" - 3/16"	Square End	1041
	676		EXOMINI VC-10	Inch	VC-10	TiN	1/16" - 3/16"	Center Hole (smaller than 1/8)	1042
	677		EXOMINI VC-10	Inch	VC-10	TiN	1/16" - 3/16"	Center Hole (smaller than 1/8)	1042
	690		EXOTIN Roughing	Inch	HSSE	TiN	1/4" - 2"	EXOTIN®, Center Hole	1049
	620		EXOMILL VC-10®	Inch	VC-10	Bright	1/8" - 1-1/2"	Square End	1043
	621		EXOMILL VC-10®	Inch	VC-10	Bright	1/8" - 1-1/2"	Ball End	1043

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	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
EXOMINI/EXOMILL (Continued)									EXM
END MILLS	641		EXOMILL VC-10®	Inch	VC-10	Bright	1/8" - 2"	Square End	1044
END MILLS	644		EXOMILL VC-10®	Inch	VC-10	Bright	3/8" - 1-1/2"	Ball End	1045
END MILLS	646		EXOMILL VC-10®	Inch	VC-10	Bright	1/4" - 2"	Square End	1046
END MILLS	660		EXOMILL VC-10®	Inch	VC-10	Bright	1/4" - 1"	High Helix	1046
OIL-HOLE DRILL									OHD
DRILL	1700		V-HO GDR	Inch & Metric	HSS-CO	V	5.95mm-31.75mm	Jobbers, Coolant-Through	243-244
EX-GOLD®									EXD
DRILLS	1750		HELIOS®	Inch & Metric	HSS-CO	WXL®	1.6mm-17.86mm	10D, Solid, Parabolic	245-247
DRILLS	1760		HELIOS®	Inch & Metric	HSS-CO	WXL®	1.6mm-17.86mm	15D, Solid, Parabolic	248-249
DRILLS	1770		HELIOS®	Inch & Metric	HSS-CO	WXL®	1.6mm-14.29mm	20D, Solid, Parabolic	250-251
DRILLS	1900		VPH GDS	Inch & Metric	XPM	V	0.5mm-20mm	Stub, Solid	230-236
DRILLS	1950		VPH GDR	Inch & Metric	XPM	V	1.99mm-17.46mm	Jobbers, Solid	237-239
DRILLS	2000		VP® GDR	Inch & Metric	XPM	V	2mm-32mm	Jobbers, Solid, Parabolic	240-242
DRILLS	1800		V-Select	Inch & Metric	HSSE	V	2mm-13mm	Jobbers, Solid	252-254
DRILLS	1000		EX-GOLD®	Inch & Metric	HSS-CO	TiN	1.99mm-12.7mm	Stub, Solid	260-262
DRILLS	1500		EX-GOLD®	Inch & Metric	HSS-CO	TiN	1.99mm-19.05mm	Jobbers, Solid	263-265
DRILLS	1100		EX-SUS-GOLD	Inch & Metric	HSSE	TiN, TiAlN	0.5mm-32mm	Stub, Solid	266-283
DRILLS	1600		EX-SUS-GOLD	Inch & Metric	HSSE	TiN, TiAlN	2mm-32mm	Jobbers, Solid	284-296
DRILLS	1150		NEXUS	Inch & Metric	HSSE	WD1	1mm-12.7mm	Stub, Solid	255-257
DRILLS	1650		NEXUS	Inch & Metric	HSSE	WD1	2mm-12.7mm	Jobbers, Solid	258-259
DRILLS	1200		EX-SPOT	Metric	HSS	Bright, TiN	3mm-25mm	Solid, 60°/90°/120° Spot Drill	297
DRILLS	1250		EX-SPOT	Metric	HSS	Bright	3mm-25mm	Solid, 90° Spot Drill, Long Shank	298
HY-PRO® TAP									HYT
TAPS	14001		HY-PRO® NRT®	Inch	HSS-CO	TiCN, TiN, Bright, S/O	No. 0 - 3/4"	Forming Tap	473-485
TAPS	14101		HY-PRO® NRT®	Metric	HSS-CO	TiCN, TiN, Bright, S/O	M1.6 - M12	Forming Tap	486-488
TAPS	290		HY-PRO®	Inch	HSSE	TiCN, S/O, Bright	No. 2 - 1-1/2"	Spiral Flute	550-552

HY-PRO® TAP (Continued)

HYT

List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
299		HY-PRO®	Metric	HSSE	TiCN, S/O, Bright	M3 - M30	Spiral Flute	553
280		HY-PRO®	Inch	HSSE	TiCN, S/O, Bright	No. 2 - 1-1/2"	Spiral Point	629-631
289		HY-PRO®	Metric	HSSE	TiCN, S/O, Bright	M3 - M30	Spiral Point	632
13039		HYPRO® AL	Inch	HSSE	Bright, V	No. 2 - 1/2"	STI, Spiral Fluted	716
11036		HYPRO® AL	Inch	HSSE	Bright, V	No. 2 - 1/2"	STI, Spiral Pointed	728
230		HY-PRO® DIN	Inch	HSSE	TiN	1/4" - 1"	Spiral Flute, Coolant-Through, DIN OAL	532
239		HY-PRO® DIN	Metric	HSSE	TiN	M6 - M20	Spiral Flute, Coolant-Through, DIN OAL	533
260		HY-PRO® DIN	Inch	HSSE	TiN	1/4" - 1"	Spiral Point, Coolant-Through, DIN OAL	613
269		HY-PRO® DIN	Metric	HSSE	TiN	M6 - M20	Spiral Point, Coolant-Through, DIN OAL	614
220		HY-PRO® DIN	Inch	HSSE	S/O	No. 4 - 2"	Spiral Flute, DIN OAL	530
229		HY-PRO® DIN	Metric	HSSE	S/O	M3 - M20	Spiral Flute, DIN OAL	531
250		HY-PRO® DIN	Inch	HSSE	S/O	No. 4 - 3/4"	Spiral Point, DIN OAL	611
259		HY-PRO® DIN	Metric	HSSE	S/O	M3 - M20	Spiral Point, DIN OAL	612
13013		HY-PRO® ALLOY	Inch	HSSE	V	1/4" - 3/4"	Spiral Flute, Coolant-Through, DIN OAL	534
13113		HY-PRO® ALLOY	Metric	HSSE	V	M6 - M20	Spiral Flute, Coolant-Through, DIN OAL	535
13058		HY-PRO® SYNCHRO AL	Inch	HSSE	V	No. 6 - 1/2"	Spiral Flute, Synchronized	544
13158		HY-PRO® SYNCHRO AL	Metric	HSSE	V	M3 - M12	Spiral Flute, Synchronized	545
13059		HY-PRO® SYNCHRO AL	Inch	HSSE	V	No. 6 - 1/2"	Spiral Point, Synchronized, RHC/LHS	623
13159		HY-PRO® SYNCHRO AL	Metric	HSSE	V	M3 - M12	Spiral Point, Synchronized, RHC/LHS	624
295		HY-PRO® AL	Inch	HSSE	Bright	No. 4 - 3/8"	Spiral Flute	546
296		HY-PRO® AL	Metric	HSSE	Bright	M3 - M10	Spiral Flute	547
13019		HY-PRO® AL-DIN	Inch	HSSE	N	No. 2 - 1/2"	Spiral Flute, DIN OAL	548
13119		HY-PRO® AL-DIN	Metric	HSSE	N	M3 - M12	Spiral Flute, DIN OAL	549
11016		HY-PRO®AL-DIN	Inch	HSSE	N	No. 2 - 1/2"	Spiral Point, DIN OAL	625
11116		HY-PRO®AL-DIN	Metric	HSSE	N	M3 - M12	Spiral Point, DIN OAL	626
11015		HY-PRO® AERO-F	Inch	HSS-Co	TiN	No. 4 - 1"	Spiral Point	615-619

TAPS

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List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
HY-PRO® TAP (Continued)								HYT
TAPS 11115		HY-PRO® AERO-F	Metric	HSS-Co	TiN	M3 - M14	Spiral Point	620-621
11017		HY-PRO®V DIN	Inch	HSSE	V	No. 4 - 1/2"	Spiral Point, DIN OAL	627
11117		HY-PRO®V DIN	Metric	HSSE	V	M3 - M12	Spiral Point, DIN OAL	628
240		HYPRO® DC	Inch	HSSE	N, Bright	No. 2 - 1/2"	Straight Flute	684
241		HYPRO® DC	Metric	HSSE	N	M3 - M12	Straight Flute	685
12053		HY-PRO® PIPE	Inch	HSSE	TiCN	1/8" - 1"	Pipe Tap, NPT, Interrupted	742
12054		HY-PRO® PIPE	Inch	HSSE	TiCN	1/8" - 1"	Pipe Tap, NPTF, Interrupted	742
HY-PRO® LARGE								HYL
TAPS 13014		HY-PRO® HXL	Inch	HSSE	S/O	1/2" - 2-1/2"	Spiral Flute, DIN OAL	536
13024		HY-PRO® HXL-OIL	Inch	HSSE	S/O	1/2" - 2-1/2"	Spiral Flute, Coolant-Through, DIN OAL	537
13015		HY-PRO® VXL	Inch	HSSE	S/O	1/2" - 2-1/2"	Spiral Flute, DIN OAL	538
13025		HY-PRO® VXL-OIL	Inch	HSSE	S/O	1/2" - 2-1/2"	Spiral Flute, Coolant-Through, DIN OAL	539
13116		HY-PRO® HXL-W	Metric	HSSE	S/O	M16 - M42	Spiral Flute, DIN OAL	540
13126		HY-PRO® HXL-W-OIL	Metric	HSSE	S/O	M16 - M42	Spiral Flute, Coolant-Through, DIN OAL	541
13117		HY-PRO® VXL-W	Metric	HSSE	S/O	M16 - M42	Spiral Flute, DIN OAL	542
13127		HY-PRO® VXL-W-OIL	Metric	HSSE	S/O	M16 - M42	Spiral Flute, Coolant-Through, DIN OAL	543
13118		HY-PRO® RXL-W	Metric	HSSE	V	M16 - M42	Spiral Point, DIN OAL & Extended OAL, For Through Holes, LHS	544
HY-PRO® SEVEN								HY7
TAPS 285		HY-PRO® SEVEN	Inch	HSS	TiCN, TiN, Bright	No. 0 - 1/2"	Forming Tap	489
286		HY-PRO® SEVEN	Metric	HSS	TiCN, TiN, Bright	M3 - M12	Forming Tap	489
297		HY-PRO® SEVEN	Inch	HSS	TiN, S/O, Bright	No. 3 - 1/2"	Spiral Flute	554
298		HY-PRO® SEVEN	Metric	HSS	TiN, S/O, Bright	M3 - M12	Spiral Flute	555
287		HY-PRO® SEVEN	Inch	HSS	TiN, S/O, Bright	No. 0 - 1/2"	Spiral Point	633
288		HY-PRO® SEVEN	Metric	HSS	TiN, S/O, Bright	M3 - M12	Spiral Point	634

GENERAL PURPOSE END MILLS

STE

END MILLS

List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
573		HY-PRO® V	Inch	HSSE	TiCN, Bright	1/8" - 1"	Square End	1047
574		HY-PRO® V	Inch	HSSE	TiCN, Bright	1/8" - 1"	Square End	1048
450		Roughing Cut	Inch	HSS-Co	TiCN, Bright	3/16" - 2"	Fine Pitch, Center Hole	1050
455		Roughing Cut	Inch	HSS-Co	TiCN, TiAlN	1/4" - 2"	Fine Pitch	1051
420		Roughing Cut	Inch	HSS-Co	Bright	1/4" - 1-1/2"	Fine Pitch, Center Cutting	1052
460		Roughing Cut	Inch	HSS-Co	Bright	1/2" - 1-1/2"	Fine Pitch, Center Cutting	1052
410		Roughing Cut	Inch	HSS-Co	Bright	1/2" - 1"	Square End	1053
430E		Roughing Cut	Inch	HSS-Co	Bright	3/8" - 1-1/2"	3 Flute, Aluminum	1053
490		Roughing Cut	Inch	HSS-Co	Bright	1/4" - 2"	General Purpose, Center Hole	1054
440		Roughing Cut	Inch	HSS-Co	Bright	1/2" - 2"	Ball End, General Purpose	1055
470		Roughing Cut	Inch	HSS-Co	Bright	1/4" - 2"	Rough & Finish	1056
520		Single End	Inch	HSS-Co	TiN, Bright	1/8" - 2"	Square End	1057
580		Single End	Metric	HSS-Co	Bright	3mm - 50mm	Square End	1058
525		Single End	Inch	HSS-Co	Bright	3/8" - 2"	Square End	1059
527		Single End	Inch	HSS-Co	Bright	1/8" - 1-1/4"	Reduced Neck	1059
530		Single End	Inch	HSS-Co	Bright	1/4" - 2"	High Helix	1060
535		Single End	Inch	HSS-Co	Bright	1/4" - 2"	High Helix	1060
521		Single End	Inch	HSS-Co	Bright	1/8" - 1-1/2"	Ball End	1061
526		Single End	Inch	HSS-Co	Bright	1/8" - 1"	Ball End, Reduced Neck	1061
531		Single End	Inch	HSS-Co	Bright	1/8" - 2"	Square End	1062
581		Single End	Metric	HSS-Co	Bright	3mm - 45mm	Center Hole	1063
536		Single End	Inch	HSS-Co	Bright	1/4" - 2"	Square End	1064
541		Single End	Inch	HSS-Co	TiCN, TiN, TiAlN,Bright	1/8" - 2"	Square End	1065
548		Single End	Inch	HSS-Co	TiCN, Bright	5/8" - 1-1/2"	Square End	1066
546		Single End	Inch	HSS-Co	TiCN, Bright	1/4" - 2"	Square End	1066
558		Single End	Inch	HSS-Co	TiCN, Bright	1/4" - 2"	Square End	1067

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GENERAL PURPOSE END MILLS (Continued)

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List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
544		Single End	Inch	HSS-Co	Bright	3/8" - 1-1/2"	Ball End	1068
540		Single End	Inch	HSS-Co	TiN, Bright	1/8" - 2"	Center Hole	1069
547		Single End	Inch	HSS-Co	Bright	1" - 2"	Center Hole	1070
545		Single End	Inch	HSS-Co	Bright	1/4" - 2"	Center Hole	1070
557		Single End	Inch	HSS-Co	Bright	1/4" - 2"	Center Hole	1070
591		Single End Tapered	Inch	HSS-Co	Bright	1/16" - 5/8"	1° Taper per Side	1072
593		Single End Tapered	Inch	HSS-Co	Bright	1/16" - 5/8"	2° Taper per Side	1072
594		Single End Tapered	Inch	HSS-Co	Bright	3/32" - 1/2"	3° Taper per Side	1073
595		Single End Tapered	Inch	HSS-Co	Bright	3/32" - 1/2"	3° Taper per Side	1074
596		Single End Tapered	Inch	HSS-Co	Bright	5/64" - 1/2"	7° Taper per Side	1075
597		Single End Tapered	Inch	HSS-Co	Bright	3/32" - 1/4"	10° Taper per Side	1075
522		Double End	Inch	HSS-Co	TiN, Bright	1/8" - 1"	Square End	1076
582		Double End	Metric	HSS-Co	Bright	1mm - 25mm	Square End	1077
532		Double End	Inch	HSS-Co	Bright	1/8" - 1"	Square End	1078
542		Double End	Inch	HSS-Co	TiN, Bright	1/8" - 1"	Center Hole	1079
543		Double End	Inch	HSS-Co	Bright	1/8" - 1"	Square End	1080
523		Double End	Inch	HSS-Co	Bright	1/8" - 1"	Ball End	1080
562		Double End	Inch	HSS-Co	Bright	1/32" - 3/16"	Miniature	1081
563		Double End	Inch	HSS-Co	Bright	1/32" - 3/16"	Miniature	1081
564		Double End	Inch	HSS-Co	Bright	1/16" - 3/16"	Miniature	1082
566		Double End	Inch	HSS-Co	Bright	1/16" - 3/16"	Miniature	1082
567		Double End	Inch	HSS-Co	Bright	1/16" - 3/16"	Miniature	1083
568		Double End	Inch	HSS-Co	Bright	1/16" - 3/16"	Miniature	1083
570		Double End	Inch	HSS-Co	Bright	1/16" - 3/16"	Ball End, Miniature	1084
571		Double End	Inch	HSS-Co	Bright	1/16" - 3/16"	Ball End, Miniature	1084

END MILLS

GENERAL PURPOSE TAP

List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
TAPS								STT
107		GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	No. 3 - 3/4"	Spiral Flute	556
143		GENERAL PURPOSE	Metric	HSS	TiCN, TiN, S/O, Bright	M3 - M12	Spiral Flute	557
13020		GENERAL PURPOSE	Inch	HSSE	S/O	No. 6 - 5/8"	Spiral Flute	558
105		GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	No. 0 - 3/4"	Spiral Point	635-637
142		GENERAL PURPOSE	Metric	HSS	TiCN, TiN, S/O, Bright	M1.6 - M20	Spiral Point	643
101		GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	1/4" - 1-1/2"	Straight Flute	688-689
102		GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	No. 0 - No. 12	Straight Flute	691-692
141		GENERAL PURPOSE	Metric	HSS	S/O, Bright	M1.6 - M36	Straight Flute	697
S108		GENERAL PURPOSE	Inch	HSS	Bright	No. 2 - 1"	STI, Spiral Fluted	717-718
S109		GENERAL PURPOSE	Metric	HSS	Bright	M2 - M24	STI, Spiral Fluted	719
125		GENERAL PURPOSE	Inch	HSS	Bright	No. 2 - 1"	STI, Spiral Pointed	729-730
127		GENERAL PURPOSE	Metric	HSS	Bright	M2 - M24	STI, Spiral Pointed	731
126		GENERAL PURPOSE	Inch	HSS	Bright	No. 2 - 1"	STI, Straight Fluted	732-733
128		GENERAL PURPOSE	Metric	HSS	Bright	M2 - M24	STI, Straight Fluted	734
123		GENERAL PURPOSE	Metric	HSSE	Bright	M3 - M24	Spiral Flute, JIS	559
122		GENERAL PURPOSE	Metric	HSSE	S/O, Bright	M3 - M24	Spiral Point, JIS	644
121		GENERAL PURPOSE	Metric	HSS	S/O, Bright	M2 - M36	Straight Flute, JIS	698-699
S111		GENERAL PURPOSE	Inch	HSS	Bright	No. 00	Spiral Point, Miniature	647
S110		GENERAL PURPOSE	Inch	HSS	Bright	No. 00 - No. 000	Straight Flute, Miniature	701
918		GENERAL PURPOSE	Inch	HSS	Bright	No. 4 - 5/8"	Spiral Flute, Long Shank	560
917		GENERAL PURPOSE	Inch	HSS	S/O, Bright	No. 4 - 5/8"	Spiral Point, Long Shank	645
11118		GENERAL PURPOSE	Metric	HSS	S/O	M4 - M12	Spiral Point, Extended Length	646
916		GENERAL PURPOSE	Inch	HSS	S/O	1/4" - 3/4"	Straight Flute, Pulley Taps, Long Shank	700
105B		GENERAL PURPOSE	Inch	HSS	S/O, Bright	No. 0 - 7/16"	Spiral Point, Bottom Taps	638
105A		GENERAL PURPOSE	Inch	HSS	S/O, Bright	No. 4 - 1/2"	Spiral Point, Assembly Type Taps	639
105+		GENERAL PURPOSE	Inch	HSS	TiN, Bright	No. 4 - No. 10	Spiral Point, H7 Taps	640

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GENERAL PURPOSE TAP (Continued)

STT

List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
TAPS	105H	GENERAL PURPOSE	Inch	HSS	TiCN, S/O, Bright	No. 6 - 3/4"	Spiral Point, +.005" Oversize	641
	142H	GENERAL PURPOSE	Metric	HSS	Bright	M4 - M12	Spiral Point, +.005" Oversize	642
	101C	GENERAL PURPOSE	Inch	HSS	N, S/O	1/4" - 3/4"	Straight Flute, Cast Iron Tap	686
	141C	GENERAL PURPOSE	Metric	HSS	N, S/O	M6 - M12	Straight Flute, Cast Iron Tap	687
	101H	GENERAL PURPOSE	Inch	HSS	TiCN, S/O, Bright	1/4" - 3/4"	Straight Flute, +.005" Oversize	690
	102H	GENERAL PURPOSE	Inch	HSS	S/O, Bright	No. 6 - No. 10	Straight Flute, +.005" Oversize	693
	103	GENERAL PURPOSE	Inch	HSS	TiN, S/O, Bright	No. 8 - 1/2"	Straight Flute, Three Flutes	694
	104	GENERAL PURPOSE	Inch	HSS	S/O, Bright	No. 2 - 5/16"	Straight Flute, Two Flutes	695
	101N	GENERAL PURPOSE	Inch	HSS	Bright	No. 12 - 1"	Straight Flute, UNEF	696
	114	GENERAL PURPOSE	Inch	HSS-CO	N	No. 2 - 1/4"	Straight Flute, For Plastics	702
	180	GENERAL PURPOSE	Inch	HSS	Bright	1-1/8" - 2-1/4"	Straight Flute, 8 Pitch	703
	101L	GENERAL PURPOSE	Inch	HSS	Bright	No. 6 - 1"	Straight Flute, Left Hand	704
	108	GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	1/16" - 2"	Pipe Tap, NPT, ANPT	744
	108AL	GENERAL PURPOSE	Inch	HSS	Bright	1/8" - 1"	Pipe Tap, NPT	745
	118	GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	1/16" - 2"	Pipe Tap, NPTF	746
	108G	GENERAL PURPOSE	Inch	HSS	TiCN, S/O, Bright	1/8" - 2"	Pipe Tap, NPT, NPTF, ANPT, Interrupted Thread	747
	S125	GENERAL PURPOSE	Inch	HSS	TiCN, S/O, Bright	1/8" - 1"	Pipe Tap, NPT, NPTF, Short Projection	748
	12006	GENERAL PURPOSE	Inch	HSS	Bright	1/8" - 3/4"	Pipe Tap, NPTF, Special Short Projection	749
	12007	GENERAL PURPOSE	Inch	HSS	Bright	1/8" - 3/4"	Pipe Tap, NPT	750
	109	GENERAL PURPOSE	Inch	HSS	S/O, Bright	1/8" - 1"	Pipe Tap, NPS, NPSF	751
	134	GENERAL	Inch	HSS	Bright	No. 0 - 1-1/2"	Solid & Adjustable Round Split Dies	752-754
	134P	GENERAL	Inch	HSS	Bright	1/8" - 1/2"	Adjustable Round Split Dies, Taper Pipe	755
	135	GENERAL	Metric	HSS	Bright	M2 - M30	Adjustable Round Split Dies	756

SOMTA

SOM

DRILLS	0CS-SO	SOMTA	Inch & Metric	Carbide	TiALN	6mm - 14mm	Stub, Coolant-Through	226
	01S-SO	SOMTA	Inch & Metric	Carbide	TiALN	1mm - 14mm	Stub, Solid	228

SOMTA (Continued)

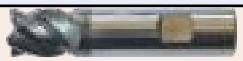
SOM

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
DRILLS	163-SO		SOMTA	Inch & Metric	HSS-Co5	Bright/ TiALN	1mm - 14mm	Stub, Solid	299-304
	0CJ-SO		SOMTA	Inch & Metric	Carbide	TiALN	6mm - 14mm	Jobbers, Coolant-Through	227
	01J-SO		SOMTA	Inch & Metric	Carbide	TiALN	1mm - 14mm	Jobbers, Solid	229
	164-SO		SOMTA	Inch & Metric	HSS-Co5	Bright/ TiALN	1mm - 15.88mm	Jobbers, Solid	305-310
	1R5-SO		SOMTA	Inch & Metric	HSS-Co5	TiALN	1mm - 13mm	Red Band, Ideal for Alloy Steel	316-318
	1BB-SO		SOMTA	Inch & Metric	HSS-Co5	TiALN	1mm - 13mm	Blue Band, Ideal for Stainless Steel	319-321
	1AQ-SO		SOMTA	Inch & Metric	HSS	Bright	0.9mm - 13mm	Yellow Band, Ideal for Aluminum	322-325
	1W6-SO		SOMTA	Inch & Metric	HSS-Co5	TiALN	1.984mm - 12.7mm	White Band, Ideal for Cast Iron	326-327
	1G7-SO		SOMTA	Inch & Metric	HSS-Co5	TiN	1mm - 13mm	Green Band, Ideal for Carbon Steel	328-331
	101-SO		SOMTA	Inch & Metric	HSS	Steam Oxide	0.3mm - 20mm	Straight Shank Jobbers Drill	332-337
	102-SO		SOMTA	Inch & Metric	HSS	Steam Oxide	0.3mm - 20mm	Straight Shank Jobbers Drill	332-337
	1X6-SO		SOMTA	Inch & Metric	HSS	TiN	3.175mm - 15.875mm	X-Ratio Split Point Straight Shank Jobbers Drill	338-340
	110-SO		SOMTA	Inch & Metric	HSS-Co5	Bright	1mm - 12.7mm	UDL Long Drill	311-315
	1NA-SO		SOMTA	Inch	HSS	Bright	3/64" - 1/4"	Center Drill	341
	751-SO		SOMTA	Inch & Metric	HSS-Co5	Bright	2mm - 20mm	Parallel Shank Machine Chucking Reamer	342-344
	752-SO		SOMTA	Inch & Metric	HSS-Co5	Bright	2mm - 20mm	Parallel Shank Machine Chucking Reamer	342-344
TAPS	5BA-SO, 5BL-SO		SOMTA	Inch	HSSE-V3	TiALN	No. 4 - 1-1/4	Spiral Flute, Red Band, Ideal for Alloy Steel	561-562
	5EA-SO, 5EL-SO		SOMTA	Metric	HSSE-V3	TiALN	M3 - M24	Spiral Flute, Red Band, Ideal for Alloy Steel	563
	5BB-SO, 5BM-SO		SOMTA	Inch	HSSE-V3	TiALN	No. 4 - 1-1/4	Spiral Flute, Blue Band, Ideal for Stainless Steel	564-565
	5EB-SO, 5EM-SO		SOMTA	Metric	HSSE-V3	TiALN	M3 - M24	Spiral Flute, Blue Band, Ideal for Stainless Steel	566
	5BC-S0, 5BN-SO		SOMTA	Inch	HSSE-V3	Bright	No. 4 - 1-1/4	Spiral Flute, Yellow Band, Ideal for Aluminum	567-568
	5EC-SO, 5EN-SO		SOMTA	Metric	HSSE-V3	Bright	M3 - M24	Spiral Flute, Yellow Band, Ideal for Aluminum	569
	5BD-SO, 5BP-SO		SOMTA	Inch	HSSE-V3	TiALN	No. 4 - 1-1/4	Spiral Flute, White Band, Ideal for Cast Iron	570-571
	5ED-SO, 5EP-SO		SOMTA	Metric	HSSE-V3	TiALN	M3 - M24	Spiral Flute, White Band, Ideal for Cast Iron	572
	5BE-SO, 5BK-SO		SOMTA	Inch	HSSE-V3	TiN	No. 4 - 1-1/4	Spiral Flute, Green Band, Ideal for Carbon Steel	573-574
	5EV-SO		SOMTA	Metric	HSSE-V3	TiN	M3 - M24	Spiral Flute, Green Band, Ideal for Carbon Steel	575

continued on next page

SOMTA (Continued)

SOM

	List	Product	Brand/Name	Inch/ Metric	Material	Coating	Size Range	Features	Product Page
TAPS	5EW-SO		SOMTA	Metric	HSSE-V3	TiN	M3 - M24	Spiral Flute, Green Band, Ideal for Carbon Steel	576
TAPS	5BF-SO, 5BS-SO		SOMTA	Inch	HSSE-V3	TiALN	No. 4 - 1-1/4	Spiral Point,Red Band, Ideal for Alloy Steel	648-649
TAPS	5EF-SO, 5ES-SO		SOMTA	Metric	HSSE-V3	TiALN	M3 - M24	Spiral Point, Red Band, Ideal for Alloy Steel	650
TAPS	5BG-SO, 5BT-SO		SOMTA	Inch	HSSE-V3	TiALN	No. 4 - 1-1/4	Spiral Point, Blue Band, Ideal for Stainless Steel	651-652
TAPS	5EG-SO, 5ET-SO		SOMTA	Metric	HSSE-V3	TiALN	M3 - M24	Spiral Point, Blue Band, Ideal for Stainless Steel	653
TAPS	5BH-SO, 5BU-SO		SOMTA	inch	HSSE-V3	Bright	No. 4 - 1-1/4	Spiral Point, Yellow Band, Ideal for Aluminum	654-655
TAPS	5EH-SO, 5EU-SO		SOMTA	Metric	HSSE-V3	Bright	M3 - M24	Spiral Point, Yellow Band, Ideal for Aluminum	656
TAPS	5BJ-SO, 5BV-SO		SOMTA	inch	HSSE-V3	TiN	No. 4 - 1-1/4	Spiral Point, Green Band, Ideal for Carbon Steel	657-658
TAPS	5EX-SO		SOMTA	Metric	HSSE-V3	TiN	M3 - M24	Spiral Point,Green Band, Ideal for Carbon Steel	659
END MILLS	04V-SO		SOMTA	Inch, Metric	Carbide	TiALN	3/16" - 3/4", 5mm - 20mm	Variable Index	1027
END MILLS	03V-SO		SOMTA	Inch, Metric	Carbide	TiALN	1/4" - 1", 5mm - 20mm	Variable Index	1028-1029
END MILLS	05V-SO		SOMTA	Inch, Metric	Carbide	TiALN	3/16" - 3/4", 5mm - 20mm	Variable Index	1030-1031
END MILLS	03A-SO		SOMTA	Metric	Carbide	TiALN	1mm - 20mm	Square	1032
END MILLS	03K-SO		SOMTA	Metric	Carbide	TiALN	1mm - 20mm	Square	1033
END MILLS	03M-SO		SOMTA	Metric	Carbide	TiALN	1mm - 20mm	Ball Nose	1034
END MILLS	03P-SO		SOMTA	Metric	Carbide	TiALN	1mm - 20mm	Ball Nose	1035
END MILLS	03E-SO		SOMTA	Inch, Metric	Carbide	TiALN	1/4" - 1", 6mm -20mm	Fine Pitch Rougher	1036
END MILLS	03C-SO		SOMTA	Inch	Carbide	Bright	1/4" - 1"	Coarse Pitch Rougher	1037
END MILLS	03F-SO		SOMTA	Inch, Metric	Carbide	TiALN	1/4" - 1", 6mm - 20mm	Fine Pitch Flat Crest Rougher	1038-1039
END MILLS	03D-SO		SOMTA	Inch	Carbide	Bright	1/4" - 1"	Coarse Pitch Flat Crest Rougher	1040
END MILLS	310-SO		SOMTA	Metric	HSS-Co8	TiALN	2mm - 25mm	Square	1085
END MILLS	314-SO		SOMTA	Metric	HSS Co8	TiALN	3mm - 25mm	Square	1086
END MILLS	312-SO		SOMTA	Metric	HSS Co8	TiALN	2mm - 25mm	Ball Nose	1087

The A Brand Story

The A Brand® represent a new evolution in cutting tool technology. With a commitment to only the best, the A Brand® emanates innovations essential for shaping the future of global manufacturing.

The A Brand® is a premium tooling brand that represents OSG's quality assurance guarantee to each and every customer. The A Brand® products have been developed with attention to the finest details, while incorporating a versatility to enable a wide range of processing in various materials. With the capability to perform difficult processing tasks, and high efficiency the A Brand® products lend to shortened production time and cost savings.

The A Brand® products have been developed with OSG's latest tooling innovations in threading, drilling, and milling to bring an unparalleled experience to our manufacturers with the highest level of quality, reliability, and satisfaction that can only be delivered by the A Brand®, the tooling master class.



DRILLING

The A Brand®

OSG's premium tooling brand. Features products that are designed to exceed the evolving manufacturing needs of our customers.

EXOPRO®

OSG's ultra-premium tooling series. Features supreme performance carbide drills with OSG's proprietary coatings, like WD1, WXS® and DIA , for maximum cost-efficiency.

EXOCARB®

High performance sub-micrograin carbide drills with OSG's proprietary EXO®, WXS and SS coatings.

EXOCARB® MAX

Maximum performance carbide coolant-through drills for ultra high-speed drilling.

HY-PRO® CARB

Premium micrograin carbide drills with OSG WD1 coating. Perfect blend of performance and cost-efficiency.

CARBIDE

Micrograin carbide drills and reamers.

V Products

Premium powdered metal and cobalt high speed steel drills with OSG's proprietary V or WXL coating.

NEXUS

Premium high speed steel drills with OSG's proprietary WD1 coating.

EX-GOLD®

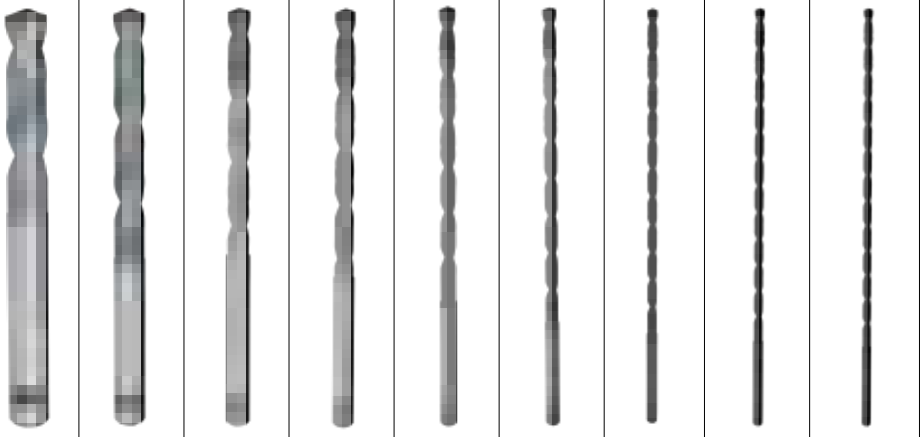
Premium high speed steel drills with TiN & TiAlN coating.

SOMTA

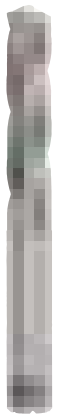
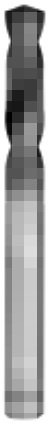
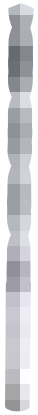
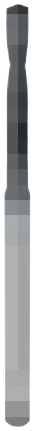
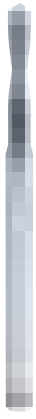
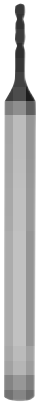
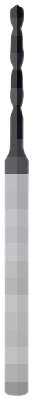
Value carbide and HSS-Co drills for a wide range of applications.





	A Brand® ADO								
	List 6500	List 6510	List 6520	List 6530	List 6535	List 6540	List 6550	List 6560	List 6570
	P86-91	P92-97	P98-101	P102-104	P105-106	P107-108	P109-110	P111	P112
									
Flute Length	3D	5D	8D	10D	15D	20D	30D	40D	50D
Inch	3/32 - 3/4"		3/32 - 5/8"	3/32 - 9/16"	1/8 - 9/16"			1/8 - 3/8"	1/8 - 5/16"
Metric	2 - 20mm		2 - 15.88mm	2 - 14.29mm	3 - 14.29mm			3 - 10mm	3 - 8mm
Number of Flutes	2								
Solid/Coolant-Through	Coolant-Through								
Point Angle	140°								
Coating	EgiAs								

P	Carbon Steels (1010, 1018)	✖
	Mild Steels, Alloy Steels (1050, 4140)	✖
	Die Steels (H13, D2)	✖
M	Stainless Steel (304SS, 420SS)	✩
K	Cast Iron	✖
	Ductile Cast Iron	✖
N	Aluminum Alloys (6061, 7075)	✩
S	Heat Resistant Alloys (Inconel 718)	✩
	Titanium Alloy (Ti-6Al-4V)	✩
H	Pre-Hardened Steel (P20)	✩
	Die Cast Steels (A2, S7)	✩
	Hardened Steels (D2)	

A Brand® ADO-TRS		A Brand® ADO-SUS			EXOPRO® WHO-Ni		EXOCARB® WH-70	EXOCARB® MAX-OIL AL	EXOCARB® MAX-MINI		
List 6600	List 6610	List 5200	List 5210	List 5220	List 5950Ni	List 5955Ni	List 5171	List 5275	List 5310	List 5330	List 5340
P66-69	P70-73	P121-127	P128-134	P135-139	P149-150	P151-152	P153-155	P157	P158	P162-170	P171-172
											
3D	5D	3D	5D	8D	3D	5D	Regular	15-30D	20D	Regular	Long
1/8 - 3/4"		3/32 - 3/4"		3/32 - 1/2"	1/8 - 1/2"		-	-	-	-	-
3 - 20mm		2 - 20mm		2 - 12.7mm	3 - 12.7mm		2 - 18.6mm	3 - 10mm	1 - 3mm	0.20 - 5mm	0.50 - 3mm
3		2			2		2	2	3	2	2
Coolant-Through		Coolant-Through			Coolant-Through		Solid	Coolant-Through	Solid	Solid	Solid
140°		140°			140°		120°	140°	140°, 120°	140°, 130°	120°
EgiAs		WXL			WXS		WXS	Bright	EXO	TiAlN	SS
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For OSG's complete drill offering please refer to the Illustrated Index on pages 56-65.

✖ 1st Choice ✖ 2nd Choice ○ Recommended

	Work Material	Material Designation	Material Condition	Hardness	
				BHN	HRC
P	Low Carbon Steel	1010, 1018	Normalized	~190	~10
P	Medium Carbon Steel	1035, 1045	Normalized	~208	~15
P	High Carbon Steel	1065, 1095	Normalized	~253	~25
P	Alloy Steel	4140, 4340, 8620	Normalized	253~301	25~32
P		4140, 4340, 8620	Hardened	327~390	35~42
M	Stainless Steel	300 Series / 400 Series	Annealed	~253	~25
M		300 Series / 400 Series	Hardened	327~390	35~42
M		17-4, 15-5, A286	Annealed	~253	~25
M		17-4, 15-5, A286	Hardened	327~390	35~42
K	Cast Iron	Nodular, Grey	As Cast	~208	~15
N	Aluminum Alloy	6061, 7075, 2011	Normalized	~150	
N	Die Cast Aluminum	356AL, 390AL	As Cast	~150	
S	Nickel Based Alloy	Inconel 718, 625	Annealed	253~301	25~32
S		Inconel 718	Hardened	327~390	35~42
S		Hastelloy, Waspaloy	Normalized		25~40
S		Kovar	Normalized		25~40
S	Titanium Alloy	6Al4V	Annealed	253~301	25~32
S		6Al4V, 6AL6V	Hardened	327~390	35~42
H	Tool Steel	D2, H13, P20, S7	Annealed	190~253	10~25
H		H13	Hardened	327~450	35~48
H		D2, A2	Hardened		48~55
H		D2, A2	Hardened		55~70
Other	Magnesium			~100	
Other	Brass, Bronze			~150	
Other	Copper			~150	
Other	Beryllium Copper			~253	~25
Other	Cobalt-Chrome	Stellite			



Carbide													Powdered Metal		HSS-Va & HSS-Co					
66-73	74-77	78-85	86-101	102-112	113-120	121-139	149-152	153-155	157	158-172	190-201	182-189	230-239	240-242	243-244	245-251	252-254	255-259	260-265	266-296
A Brand® ADO-TRS *Coolant-Through*	A Brand® ADFO *Coolant-Through*	A Brand® ADF	A Brand® ADO 3D-8D *Coolant-Through*	A Brand® ADO 10D-50D *Coolant-Through*	A Brand® AD	A Brand® ADO-SUS *Coolant-Through*	EXOPRO® WHO-Ni *Coolant-Through*	EXOCARB® WH70	EXOCARB® MAX-OIL AL *Coolant-Through*	EXOCARB® MAX-MINI*	HY-PRO® CARB *Coolant-Through*	HY-PRO® CARB	VPH GDS & GDR	VP® GDR	V-HO GDR *Coolant-Through*	HELIOS®	V-Select	NEXUS	EX-GOLD®	EX-SUS-GOLD
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*EXOCARB® MAX-MINI covers different materials for each list number.
Verify recommended materials on each product page.

● = 1st Choice
○ = 2nd Choice

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page	Tech Page
≤2D									
5700	 NEW SIZES	A Brand® ADF	Inch & Metric	Carbide	EgiAs/ IchAda	0.2mm-20mm	2D, Solid, Flat Drill	78-83	348-349
5705		A Brand® ADFLS	Inch & Metric	Carbide	EgiAs	3mm-20mm	2D, Solid, Flat Drill, Long Shank	84-85	350
6300		A Brand® AD	Inch & Metric	Carbide	EgiAs	2mm-20mm	2D, Solid	113-116	357
5172		EXOCARB® XH	Metric	Carbide	Bright	2mm-12mm	Solid, Tap Extractor	156	363
≤3D									
6600	 NEW SIZES	A Brand® ADO-TRS	Inch & Metric	Carbide	EgiAs	3mm - 20mm	3D, Coolant-Through, 3 Flutes	66-69	346
5720		A Brand® ADFO	Inch & Metric	Carbide	EgiAs	3mm - 20mm	3D, Coolant-Through, Flat Drill	74-77	347
6500		A Brand® ADO	Inch & Metric	Carbide	EgiAs	2mm - 20mm	3D, Coolant-Through	86-91	351
5200		A Brand® ADO-SUS	Inch & Metric	Carbide	WXL®	2mm-20mm	3D, Coolant-Through	121-127	358
5600		EXOPRO® Mega Muscle	Inch & Metric	Carbide	WD1	4.089mm-20mm	3D, Coolant-Through, 3 Flutes	142-143	360
5950Ni		EXOPRO® WHO-Ni	Inch & Metric	Carbide	WXS®	3mm-12.7mm	3D, Coolant-Through	149-150	362
5330		EXOCARB® MAX-MINI	Metric	Carbide	TiAlN	0.2mm-5mm	3D, Solid, Miniature	162-170	367
HP243		HY-PRO® CARB	Inch & Metric	Carbide	WD1	1mm-20mm	3D, Solid	182-185	372-373
HP253		HY-PRO® CARB	Inch & Metric	Carbide	WD1	3mm-20mm	3D, Coolant-Through	190-193	374-375
0CS-SO	 NEW	SOMTA	Inch & Metric	Carbide	TiALN	6mm - 14mm	Stub, Coolant-Through	226	380-381
01S-SO	 NEW	SOMTA	Inch & Metric	Carbide	TiALN	1mm - 14mm	Stub, Solid	228	380-381
1900		VPH GDS	Inch & Metric	XPM	V	0.5mm-20mm	Stub, Solid	230-236	382-383
1150		NEXUS	Inch & Metric	HSSE	WD1	1mm-12.7mm	Stub, Solid	255-257	388-389
1000		EX-GOLD®	Inch & Metric	HSS-CO	TiN	1.99mm-12.7mm	Stub, Solid	260-262	390
1100		EX-SUS-GOLD	Inch & Metric	HSSE	TiN, TiAlN	0.5mm-32mm	Stub, Solid	266-283	391
163-SO	 NEW	SOMTA	Inch & Metric	HSS-Co5	Bright/ TiALN	1mm - 14mm	Stub, Parabolic	299-304	293
≤4D									
6310		A Brand® AD	Inch & Metric	Carbide	EgiAs	2mm-20mm	4D, Solid	117-120	357

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
≤2D																	
5700	◎	◎	◎	◎	◎	○	○	○	◎	○	○			◎	○		
5705	○	○	○	○	○				○	○	○			○	○		
6300	◎	◎	◎	○	○				◎					○			
5172																	◎
≤3D																	
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5720	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○			◎	○		
6500	◎	◎	◎	◎	◎	○	○	○	◎	○	○	○	○	◎	○	○	
5200	◎	◎	◎	◎		◎	◎	◎	○		○	◎	◎	○			
5600	◎	◎	◎	◎	◎		◎	○	◎		○		○	○	○		
5950Ni	○	○	○	◎	○				○			◎		○	◎	◎	○
5330	◎	◎	◎	○	○	○	○	○	○	◎	◎		○				
HP243	◎	◎	◎	◎	◎				◎		○			◎	○		
HP253	◎	◎	◎	◎	◎	○	○	○	◎		○	○	○	◎	○		
0CS-SO	○	○	○	○			○	○	○	○	○	○	○	○	○		
01S-SO	○	○	○	○			○	○	○	○	○	○	○	○	○		
1900	○	◎	◎	◎	◎		○	○	◎	○	○	◎	○	◎	◎	○	
1150	◎	◎	○	◎	◎	○	○	○	○	◎	◎	○	○	○			
1000	◎	◎	○	◎	◎			○	○		○			○	○		
1100	◎	○				◎	◎	○		◎	◎						
163-SO	◎	◎	◎	◎		○	○	○	○	◎		○	○	◎			
≤4D																	
6310	◎	◎	◎	○	○				◎					○			

○ good ◎ best

≤5D

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page	Tech Page
6610	 NEW SIZES	A Brand® ADO-TRS	Inch & Metric	Carbide	EgiAs	3mm - 20mm	5D, Coolant-Through, 3 Flutes	70-73	346
6510		A Brand® ADO	Inch & Metric	Carbide	EgiAs	2mm - 20mm	5D, Coolant-Through	92-97	351
5210		A Brand® ADO-SUS	Inch & Metric	Carbide	WXL®	2mm- 20mm	5D, Coolant-Through	128-134	358
5610		EXOPRO® Mega Muscle	Inch & Metric	Carbide	WD1	4.089mm- 20mm	5D, Coolant-Through, 3 Flutes	144-145	360
5955Ni		EXOPRO® WHO-Ni	Inch & Metric	Carbide	WXS®	3mm- 12.7mm	5D, Coolant-Through	151-152	362
5171		EXOCARB® WH70	Metric	Carbide	WXS®	2mm- 18.6mm	5D	153-155	363
5320		EXOCARB® MAX-MINI	Metric	Carbide	SS	0.02mm- 0.08mm	5D, Solid, Miniature	160	366
HP245		HY-PRO® CARB	Inch & Metric	Carbide	WD1	1mm- 20mm	5D, Solid	186-189	372-373
HP255		HY-PRO® CARB	Inch & Metric	Carbide	WD1	3mm- 20mm	5D, Coolant-Through	194-197	374-375
215		CARBIDE	Inch & Metric	Carbide	Bright	1mm- 12.7mm	Jobbers, Solid, Slow Spiral	204-208	377-378
220D		CARBIDE	Inch & Metric	Carbide	Bright	1.18mm- 12.7mm	Jobbers, Solid	209-211	377-378
233		CARBIDE	Inch & Metric	Carbide	Bright	3mm- 19.05mm	Jobbers, Solid, 3 Flutes	212	377-378
200		CARBIDE	Inch & Metric	Carbide	Bright	1.18mm- 12.7mm	Jobbers, Solid, Straight Flute	213-215	377-378
0CJ-SO	 NEW	SOMTA	Inch & Metric	Carbide	TiALN	6mm - 14mm	Jobbers, Coolant-Through	227	380-381
01J-SO	 NEW	SOMTA	Inch & Metric	Carbide	TiALN	1mm - 14mm	Jobbers, Solid	229	380-381
1950		VPH GDR	Inch & Metric	XPM	V	1.99mm- 17.46mm	Jobbers, Solid	237-239	382-383
2000		VP® GDR	Inch & Metric	XPM	V	2mm- 32mm	Jobbers, Solid, Parabolic	240-242	384
1700		V-HO GDR	Inch & Metric	HSS-CO	V	5.95mm- 31.75mm	Jobbers, Coolant-Through	243-244	385
1800		V-Select	Inch & Metric	HSSE	V	2mm- 13mm	Jobbers, Solid	252-254	387
1650		NEXUS	Inch & Metric	HSSE	WD1	2mm- 12.7mm	Jobbers, Solid	258-259	388-389
1500		EX-GOLD®	Inch & Metric	HSS-CO	TiN	1.99mm- 19.05mm	Jobbers, Solid	263-265	390
1600		EX-SUS-GOLD	Inch & Metric	HSSE	TiN, TiAlN	2mm- 32mm	Jobbers, Solid	284-296	391
164-SO	 NEW	SOMTA	Inch & Metric	HSS-Co5	Bright/ TiALN	1mm - 15.88mm	Jobbers, Parabolic	305-310	393

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
≤5D																	
6610	◎	◎	◎	◎	◎		◎	○	◎		○		○	◎	○		
6510	◎	◎	◎	◎	◎	○	○	○	◎	○	○	○	○	◎	○	○	
5210	◎	◎	◎	◎		◎	◎	◎	○		○	◎	◎	○			
5610	◎	◎	◎	◎	◎		◎	○	◎		○			○			
5955Ni	○	○	○	◎	○				○			◎		○	◎	◎	○
5171																	◎
5320						◎	◎	◎		○	○	◎	○	○	○	◎	
HP245	◎	◎	◎	◎	◎				◎		○			◎	○		
HP255	◎	◎	◎	◎	◎	○	○	○	◎		○	○	○	◎	○		
215	○	○	○	○	○		○	○	○		○	○	○	○	○		
220D	○	○	○	○			○	○	○	○	○			○			
233	○								○								
200	○								○								
0CJ-SO	○	○	○	○			○	○	○	○	○	○	○	○	○		
01J-SO	○	○	○	○			○	○	○	○	○	○	○	○	○		
1950	○	◎	◎	◎	◎		○	○	◎	○	○	◎	○	◎	◎	○	
2000	○	○	◎	◎	◎				◎	○	○	○		◎	○		
1700	◎	◎	◎	◎	○	◎	◎	○	○	○	○		○	○	○		
1800	○	○	○	○	○			○	○	○	○						
1650	◎	◎	○	◎	◎	○	○	○	○	◎	◎	○	○	○			
1500	◎	◎	○	◎	◎			○	○		○			○			
1600	◎	○				◎	◎	○		◎	◎						
164-SO	◎	◎	◎	◎		○	○	○	○	◎		○	○	◎			

○ good ◎ best

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page	Tech Page
≤5D									
1R5-SO	 NEW	SOMTA	Inch & Metric	HSS-Co5	TiALN	1mm - 13mm	Red Band, Ideal for Alloy Steel	316-318	394-395
1BB-SO	 NEW	SOMTA	Inch & Metric	HSS-Co5	TiALN	1mm - 13mm	Blue Band, Ideal for Stainless Steel	319-321	394-395
1AQ-SO	 NEW	SOMTA	Inch & Metric	HSS	Bright	0.9mm - 13mm	Yellow Band, Ideal for Aluminum	322-325	394-395
1W6-SO	 NEW	SOMTA	Inch & Metric	HSS-Co5	TiALN	5/64 - 1/2"	White Band, Ideal for Cast Iron	326-327	394-395
1G7-SO	 NEW	SOMTA	Inch & Metric	HSS-Co5	TiN	1mm - 13mm	Green Band, Ideal for Carbon Steel	328-331	394-395
101-SO	 NEW	SOMTA	Metric	HSS	Steam Oxide	0.3mm - 20mm	Jobbers, Solid	332-337	396
102-SO	 NEW	SOMTA	Inch	HSS	Steam Oxide	1/64" - 5/8"	Jobbers, Solid	332-337	396
1X6-SO	 NEW	SOMTA	Inch	HSS	TiN	1/8" - 5/8"	Jobbers, Solid	338-340	396
≤8D									
6520		A Brand® ADO	Inch & Metric	Carbide	EgiAs	2mm - 15.88mm	8D, Coolant-Through	98-101	351
5220		A Brand® ADO-SUS	Inch & Metric	Carbide	WXL®	2mm - 12.7mm	8D, Coolant-Through	135-139	358
HP258		HY-PRO® CARB	Inch & Metric	Carbide	WD1	3mm- 20mm	8D, Coolant-Through	198-201	374-375
>10D									
6530		A Brand® ADO	Inch & Metric	Carbide	EgiAs	2mm - 14.29mm	10D, Coolant-Through	102-104	352-353
6535		A Brand® ADO	Inch & Metric	Carbide	EgiAs	3mm - 14.29mm	15D, Coolant-Through	105-106	352-353
6540		A Brand® ADO	Inch & Metric	Carbide	EgiAs	3mm - 14.29mm	20D, Coolant-Through	107-108	352-353
6550		A Brand® ADO	Inch & Metric	Carbide	EgiAs	3mm - 14.29mm	30D, Coolant-Through	109-110	352-353
6560	 NEW	A Brand® ADO	Inch & Metric	Carbide	EgiAs	3mm - 10mm	40D, Coolant-Through	111	354
6570	 NEW	A Brand® ADO	Inch & Metric	Carbide	EgiAs	3mm- 8mm	50D, Coolant-Through	112	354
5630		EXOPRO® Mega Muscle	Inch & Metric	Carbide	WD1	5mm - 15.88mm	10D, Coolant-Through	146-148	361
5275		EXOCARB® MAX-OIL AL	Metric	Carbide	Bright	3mm- 10mm	15-30D, Coolant-Through	157	364
5310		EXOCARB® MAX-MINI	Metric	Carbide	EXO®	1mm- 3mm	Up to 20D, Solid, Miniature, 3 Flutes	158	365
5325		EXOCARB® MAX-MINI	Metric	Carbide	SS	0.02mm- 0.08mm	10D, Solid, Miniature	161	366

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
≤5D																	
1R5-SO	○	○		◎									○	○	○		
1BB-SO						◎	◎	◎				○	○				
1AQ-SO	○									◎	○						
1W6-SO									◎								
1G7-SO	◎	◎		○													
101-SO	○	○	○	○	○	○	○		○	○	○	○	○				
102-SO	○	○	○	○	○	○	○		○	○	○	○	○				
1X6-SO	○	○	○	○	○	○	○		○	○	○	○	○				
≤8D																	
6520	◎	◎	◎	◎	◎	○	○	○	◎	○	○	○	○	◎	○	○	
5220	◎	◎	◎	◎		◎	◎	◎	○		○	◎	◎	○			
HP258	◎	◎	◎	◎	◎	○	○	○	◎		○	○	○	◎	○		
>10D																	
6530	◎	◎	◎	◎	◎	○	○	○	◎					○			
6535	◎	◎	◎	◎	◎	○	○	○	◎					○			
6540	◎	◎	◎	◎	◎	○	○	○	◎					○			
6550	◎	◎	◎	◎	◎	○	○	○	◎					○			
6560	◎	◎	◎	◎	◎	○	○	○	◎					○			
6570	◎	◎	◎	◎	◎	○	○	○	◎					○			
5630	◎	◎	◎	◎	◎		○	○	◎		○			○			
5275										◎	◎						
5310														○	○	◎	◎
5325						◎	◎	◎		○	○	◎	○	○	○	◎	

○ good ◎ best

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page	Tech Page
>10D									
5340		EXOCARB® MAX-MINI	Metric	Carbide	SS	0.5mm-3mm	10D, Solid, Miniature	171-172	368
1750		HELIOS®	Inch & Metric	HSS-CO	WXL®	1.6mm-17.86mm	10D, Solid, Parabolic	245-247	386
1760		HELIOS®	Inch & Metric	HSS-CO	WXL®	1.6mm-17.86mm	15D, Solid, Parabolic	248-249	386
1770		HELIOS®	Inch & Metric	HSS-CO	WXL®	1.6mm-14.29mm	20D, Solid, Parabolic	250-251	386
110-SO	 NEW	SOMTA	Inch & Metric	HSS-Co5	Bright	1mm - 12.7mm	Long, Parabolic	311-315	393
Centering/Countersinking									
5190		A Brand® AD-LDS	Inch & Metric	Carbide	EgiAs	3mm - 25mm	Solid, 90°, 120°, 140° Spot Drill	140-141	359
5315		EXOCARB® MAX-MINI	Metric	Carbide	SS	0.05mm	Solid, Miniature, Pilot Drill	159	366
738		HY-PRO® CARB	Inch	-	Bright	-	Indexable, Spot Drill/ Countersink/Chamfer	202-203	376
235		CARBIDE	Inch	Carbide	Bright	3/64"-7/32"	Solid, Drill/Countersink	216	–
700		CARBIDE	Inch	Carbide	Bright	1/8"-1"	Solid, Countersink, Single Flute	223	–
701		CARBIDE	Inch	Carbide	Bright	1/4"-1"	Solid, Countersink, Multiple Flutes	224	–
706		CARBIDE	Inch	Carbide	Bright	1/4"-1"	Solid, Countersink, 6 Flutes	225	–
1200		EX-SPOT	Metric	HSS	Bright, TiN	3mm-25mm	Solid, 60°/90°/120° Spot Drill	297	392
1250		EX-SPOT	Metric	HSS	Bright	3mm-25mm	Solid, 90° Spot Drill, Long Shank	298	392
1NA-SO	 NEW	SOMTA	Inch	HSS	Bright	3/64" - 1/4"	Center Drill	341	397
Chucking Reamer									
300D		CARBIDE	Inch & Metric	Carbide	Bright	0.80mm-13mm	Solid, Multiple Flutes, RH Cutting	217-221	379
751-SO	 NEW	SOMTA	Metric	HSS-Co5	Bright	2mm - 20mm	Solid, RH Cutting	342-344	398
752-SO	 NEW	SOMTA	Inch	HSS-Co5	Bright	1/8" - 3/4"	Solid, RH Cutting	342-344	398
Boring Tools									
750		CARBIDE	Inch	Carbide	Bright	1/16"-3/8"	Solid, Grinding/ Deburring	222	-

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
>10D																	
5340	○	○	○	○	○	◎	◎	◎		◎	◎		○				
1750	◎	◎	◎	◎	◎	○	○	○	◎	○	○		○	◎	○		
1760	◎	◎	◎	◎	◎	○	○	○	◎	○	○		○	◎	○		
1770	◎	◎	◎	◎	◎	○	○	○	◎	○	○		○	◎	○		
110-SO	◎	◎	◎	◎		○	○	○	○	◎		○	○	◎			
Centering/Countersinking																	
5190	◎	◎	◎	◎	◎				◎		○	○	○	◎	◎	◎	
5315						◎	◎	◎		○	○	◎	○	○	○	◎	
738	◎	◎	○	○	○		○	○	◎	◎	◎			○	○		
235	○	○	○	○		○	○	○	○	○	○	○	○	○			
700	○	○		○					○	○	○						
701			○	○					○					○	○	○	
706	○	○		○						○	○						
1200	◎	◎	◎	○	○	○	○	○		○	○			○			
1250	◎	◎	◎	○	○				○	○	○						
1NA-SO	○	○	○	○		○	○		○	○	○	○	○				
Chucking Reamer																	
300D	○	○		○		○	○	○	○	○	○						
751-SO	○	○	○		○	○	○		○	○		○	○				
752-SO	○	○	○		○	○	○		○	○		○	○				
Boring Tools																	
750			○	○											○	○	

○ good ◎ best

Composite Drills

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page	Tech Page
7501		EXOPRO® AERO-STAD	Inch	Carbide	Diamond	#40 - 1/2"	Triple Angle	173	369
7520		EXOPRO® AERO-LHX	Inch	Carbide	Diamond	#40 - 1/2"	Low Helix	174	369
7500		EXOPRO® AERO-D-REAM	Inch	Carbide	Diamond	#40 - 1/2"	Tapered Drill/ Reamer	175	369
7530		EXOPRO® AERO-S	Inch	Carbide	Diamond	#40 - 1/2"	High Helix, Stack Drill	176	369
7532		EXOPRO® AERO-H	Inch	Carbide	Diamond	#40 - 1/2"	Stack Drill for All Stacks	177	370
5732		EXOCARB® AERO-H	Inch	Carbide	TiAlN	#11 - 1/2"	Stack Drill for All Stacks	178	370
HP700		HY-PRO® CARB NEPTUNE®	Inch	Carbide	TiAlN	#40 - 1/4"	Hand Drill	179	371
257		AERO-D-REAM	Inch	Carbide	Bright	#40 - 1/2"	Tapered Drill/ Reamer	180-181	369

Composite Drills

List No.	Machine Type			Composite Type				
	Hand	Pneumatic	CNC	CFRP	Honeycomb	CFRP/ Al Stack	CFRP/ Ti Stack	CFRP/ CRES Stack
7501	◎	◎	◎	◎	◎	○		
7520		○	◎	◎	◎			
7500	◎	◎	◎	◎	◎			
7530		◎	◎	◎	◎	◎		
7532		○	◎	◎		○	◎	◎
5732		○	◎	◎		○	◎	◎
HP700	◎	○	◎	◎		◎	◎	◎
257	◎	◎	◎	◎	◎			

○ Good ◎ Best

List 6600

NEW SIZES | SPEED FEED P346 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-TRS-3D, 3 Flute, Coolant-Through



Cutting Diameter Tolerance (h8)		
Size	mm	inch
3≤D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8720300	-	-	-	3.000	0.11811	18	66	3
660012517	1/8	-	-	3.175	0.12500	20	74	1/8
8720330	-	-	-	3.300	0.12992			4
660013217	-	-	-	3.360	0.13228	21		
660013517	-	-	-	3.440	0.13543			
8720350	-	-	-	3.500	0.13780			
660013817	-	-	-	3.520	0.13858	22		
660014017	-	-	-	3.570	0.14055			
8720366	-	-	-	3.660	0.14409			
660014817	-	-	-	3.770	0.14843	23		
8720386	-	-	-	3.860	0.15197	24		
660015617	5/32	-	-	3.969	0.15625			5/32
8720400	-	-	-	4.000	0.15748			4
660015917	-	-	-	4.050	0.15945	25	80	6
660016117	-	20	-	4.089	0.16100			
8720410	-	-	-	4.100	0.16142			
660016317	-	-	-	4.160	0.16378			
8720420	-	-	-	4.200	0.16535	26		
660016817	-	-	-	4.270	0.16811			
8720430	-	-	-	4.300	0.16929			
660017217	11/64	-	-	4.366	0.17188	27		3/16
8720440	-	-	-	4.400	0.17323			6
660017517	-	-	-	4.460	0.17559			
8720450	-	-	-	4.500	0.17717			
8720460	-	-	-	4.600	0.18110	28		
660018317	-	-	-	4.660	0.18346			
8720470	-	-	-	4.700	0.18504	29		
660018717	3/16	-	-	4.763	0.18750			3/16
8720480	-	-	-	4.800	0.18898			6
8720490	-	-	-	4.900	0.19291	30		
8720500	-	-	-	5.000	0.19685	25		
8720510	-	-	-	5.100	0.20079	26	82	
660020317	13/64	-	-	5.159	0.20313			1/4
8720520	-	-	-	5.200	0.20472			6
8720530	-	-	-	5.300	0.20866	27		
8720540	-	-	-	5.400	0.21260			
660021317	-	3	-	5.410	0.21300	28		
8720550	-	-	-	5.500	0.21654			
660021817	7/32	-	-	5.556	0.21875			1/4
8720560	-	-	-	5.600	0.22047	29		6
8720570	-	-	-	5.700	0.22441			
8720580	-	-	-	5.800	0.22835			
8720590	-	-	-	5.900	0.23228	30		
660023417	15/64	-	-	5.953	0.23438			1/4
8720600	-	-	-	6.000	0.23622			6

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6600 (Continued)

NEW SIZES | SPEED FEED P346 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-TRS-3D, 3 Flute, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8720610	-	-	-	6.100	0.24016	31	88	8
8720620	-	-	-	6.200	0.24409			
8720630	-	-	-	6.300	0.24803	32		1/4
660025017	1/4	-	E	6.350	0.25000			
8720640	-	-	-	6.400	0.25197			8
8720650	-	-	-	6.500	0.25591	33		
660025717	-	-	F	6.528	0.25700			
8720660	-	-	-	6.600	0.25984			
8720670	-	-	-	6.700	0.26378	34		5/16
660026517	17/64	-	-	6.747	0.26563			
8720680	-	-	-	6.800	0.26772			8
8720690	-	-	-	6.900	0.27165	35		
8720700	-	-	-	7.000	0.27559			
8720710	-	-	-	7.100	0.27953	36	94	5/16
660028117	9/32	-	-	7.144	0.28125			
8720720	-	-	-	7.200	0.28346			8
8720730	-	-	-	7.300	0.28740	37		
8720738	-	-	-	7.380	0.29055			
8720740	-	-	-	7.400	0.29134			
8720750	-	-	-	7.500	0.29528	38	94	8
660029617	19/64	-	-	7.541	0.29688			5/16
8720760	-	-	-	7.600	0.29921			8
8720770	-	-	-	7.700	0.30315	39		
8720780	-	-	-	7.800	0.30709			
8720790	-	-	-	7.900	0.31102	40		5/16
660031217	5/16	-	-	7.938	0.31250			
8720800	-	-	-	8.000	0.31496			8
8720810	-	-	-	8.100	0.31890	41	101	10
8720820	-	-	-	8.200	0.32283			
8720830	-	-	-	8.300	0.32677	42		3/8
660032817	21/64	-	-	8.334	0.32813			
8720840	-	-	-	8.400	0.33071			10
660033217	-	-	Q	8.433	0.33200	43		
8720850	-	-	-	8.500	0.33465			
8720860	-	-	-	8.600	0.33858			
8720870	-	-	-	8.700	0.34252	44		3/8
660034317	11/32	-	-	8.731	0.34375			
8720880	-	-	-	8.800	0.34646			10
8720890	-	-	-	8.900	0.35039	45		
8720900	-	-	-	9.000	0.35433			
8720910	-	-	-	9.100	0.35827	46	106	3/8
660035917	23/64	-	-	9.128	0.35938			
8720920	-	-	-	9.200	0.36220			10
8720925	-	-	-	9.250	0.36417	47		
8720930	-	-	-	9.300	0.36614			
8720938	-	-	-	9.380	0.36929			
8720940	-	-	-	9.400	0.37008			
8720950	-	-	-	9.500	0.37402	48		

Packed: 1 pc.
Available EgiAs coating only.

continued on next page

ADR

Work Material

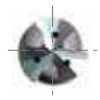
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6600	▢	▢	▢	▢	▢		▢	▢	▢		▢		▢	▢	▢	▢	

▢ good ▢ best

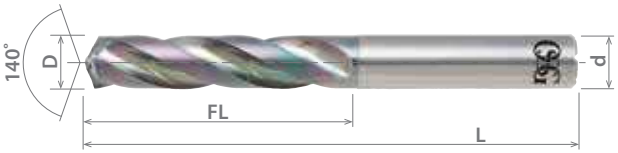
List 6600 (Continued)

NEW SIZES | SPEED FEED P346 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-TRS-3D, 3 Flute, Coolant-Through



R Thinning



Cutting Diameter Tolerance (h8)		
Size	mm	inch
3≤D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
660037517	3/8	-	-	9.525	0.37500	48	106	3/8
8720960	-	-	-	9.600	0.37795			10
8720970	-	-	-	9.700	0.38189	49		
8720980	-	-	-	9.800	0.38583			
8720990	-	-	-	9.900	0.38976	50		
660039017	25/64	-	-	9.922	0.39063			7/16
8721000	-	-	-	10.000	0.39370			10
8721010	-	-	-	10.100	0.39764	51	113	12
8721020	-	-	-	10.200	0.40157			
8721030	-	-	-	10.300	0.40551	52		
660040617	13/32	-	-	10.319	0.40625			7/16
8721040	-	-	-	10.400	0.40945			12
8721050	-	-	-	10.500	0.41339	53		
8721060	-	-	-	10.600	0.41732			
8721070	-	-	-	10.700	0.42126	54		
660042217	27/64	-	-	10.716	0.42188			7/16
8721080	-	-	-	10.800	0.42520			12
8721090	-	-	-	10.900	0.42913	55		
8721100	-	-	-	11.000	0.43307			
8721110	-	-	-	11.100	0.43701	56	120	12
660043717	7/16	-	-	11.113	0.43750			7/16
8721120	-	-	-	11.200	0.44094			12
8721125	-	-	-	11.250	0.44291	57		
8721130	-	-	-	11.300	0.44488			
8721138	-	-	-	11.380	0.44803			
8721140	-	-	-	11.400	0.44882			
8721150	-	-	-	11.500	0.45276	58		
660045317	29/64	-	-	11.509	0.45313			1/2
8721160	-	-	-	11.600	0.45669			12
8721170	-	-	-	11.700	0.46063	59		
8721180	-	-	-	11.800	0.46457			
8721190	-	-	-	11.900	0.46850	60		
660046817	15/32	-	-	11.906	0.46875			1/2
8721200	-	-	-	12.000	0.47244			12
660048417	31/64	-	-	12.303	0.48438	62	128	1/2
8721250	-	-	-	12.500	0.49213	63		14
660050017	1/2	-	-	12.700	0.50000	64		1/2
8721300	-	-	-	13.000	0.51181	65		14
8721325	-	-	-	13.250	0.52165	67	134	
8721330	-	-	-	13.300	0.52362			
8721338	-	-	-	13.380	0.52677			
660053117	17/32	-	-	13.494	0.53125	68		5/8
8721350	-	-	-	13.500	0.53150			14
8721400	-	-	-	14.000	0.55118	70		
8721410	-	-	-	14.100	0.55512	71	140	16
8721420	-	-	-	14.200	0.55906			
660056217	9/16	-	-	14.288	0.56250	72		5/8
8721430	-	-	-	14.300	0.56299			16
8721450	-	-	-	14.500	0.57087	73		
8721500	-	-	-	15.000	0.59055	75		

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6600 (Continued)

NEW SIZES | SPEED FEED P346 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-TRS-3D, 3 Flute, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
660059317	19/32	-	-	15.081	0.59375	76	145	5/8
8721520	-	-	-	15.200	0.59843			16
8721530	-	-	-	15.300	0.60236	77		
8721550	-	-	-	15.500	0.61024	78		
660062517	5/8	-	-	15.875	0.62500	80		5/8
8721600	-	-	-	16.000	0.62992			16
8721650	-	-	-	16.500	0.64961	83	150	18
660065617	21/32	-	-	16.669	0.65625	85		3/4
660066317	-	-	-	16.840	0.66299			18
8721700	-	-	-	17.000	0.66929			
8721725	-	-	-	17.250	0.67913	87	155	
660068717	11/16	-	-	17.463	0.68750	88		3/4
8721750	-	-	-	17.500	0.68898			18
660070317	45/64	-	-	17.859	0.70313	90		3/4
8721800	-	-	-	18.000	0.70866			18
660071817	23/32	-	-	18.256	0.71875	92	160	3/4
8721850	-	-	-	18.500	0.72835	93		20
8721900	-	-	-	19.000	0.74803	95		
660075017	3/4	-	-	19.050	0.75000			3/4
8721925	-	-	-	19.250	0.75787	97	165	20
8721950	-	-	-	19.500	0.76772	98		
8722000	-	-	-	20.000	0.78740	100		

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6600	▢	▢	▢	▢	▢		▢	▢	▢		▢		▢	▢	▢	▢	

▢ good ▢ best

List 6610

NEW SIZES | SPEED FEED P346 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-TRS-5D, 3 Flute, Coolant-Through



R Thinning



Cutting Diameter Tolerance (h8)		
Size	mm	inch
3≤D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8722300	-	-	-	3.000	0.11811	27	78	3
661012517	1/8	-	-	3.175	0.12500	29	86	1/8
8722330	-	-	-	3.300	0.12992	30		4
8722350	-	-	-	3.500	0.13780	32		
8722366	-	-	-	3.660	0.14409	33		
661015617	5/32	-	-	3.969	0.15625	36		5/32
8722400	-	-	-	4.000	0.15748			4
661016117	-	20	-	4.089	0.16100	37	95	6
8722410	-	-	-	4.100	0.16142			
8722420	-	-	-	4.200	0.16535	38		
8722430	-	-	-	4.300	0.16929	39		
661017217	11/64	-	-	4.366	0.17188	40		3/16
8722440	-	-	-	4.400	0.17323			6
8722450	-	-	-	4.500	0.17717	41		
8722460	-	-	-	4.600	0.18110	42		
8722470	-	-	-	4.700	0.18504	43		
661018717	3/16	-	-	4.763	0.18750			3/16
8722480	-	-	-	4.800	0.18898	44		6
8722490	-	-	-	4.900	0.19291	45		
8722500	-	-	-	5.000	0.19685			
8722510	-	-	-	5.100	0.20079	41	100	
661020317	13/64	-	-	5.159	0.20313	42		1/4
8722520	-	-	-	5.200	0.20472			6
8722530	-	-	-	5.300	0.20866	43		
8722540	-	-	-	5.400	0.21260	44		
661021317	-	3	-	5.410	0.21300			
8722550	-	-	-	5.500	0.21654			
661021817	7/32	-	-	5.556	0.21875	45		1/4
8722560	-	-	-	5.600	0.22047			6
8722570	-	-	-	5.700	0.22441	46		
8722580	-	-	-	5.800	0.22835	47		
8722590	-	-	-	5.900	0.23228	48		
661023417	15/64	-	-	5.953	0.23438			1/4
8722600	-	-	-	6.000	0.23622			6
8722610	-	-	-	6.100	0.24016	49	109	8
8722620	-	-	-	6.200	0.24409	50		
8722630	-	-	-	6.300	0.24803	51		
661025017	1/4	-	E	6.350	0.25000	52		1/4
8722640	-	-	-	6.400	0.25197			8
8722650	-	-	-	6.500	0.25591			
661025717	-	-	F	6.528	0.25700	53		
8722660	-	-	-	6.600	0.25984			
8722670	-	-	-	6.700	0.26378	54		
661026517	17/64	-	-	6.747	0.26563	55		5/16
8722680	-	-	-	6.800	0.26772			8
8722690	-	-	-	6.900	0.27165	56		
8722700	-	-	-	7.000	0.27559			
8722710	-	-	-	7.100	0.27953	57	118	

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6610 (Continued)

ADO-TRS-5D, 3 Flute, Coolant-Through

NEW SIZES | SPEED FEED P346 | CARBIDE | EgiAs | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
661028117	9/32	-	-	7.144	0.28125	58	118	5/16
8722720	-	-	-	7.200	0.28346			8
8722730	-	-	-	7.300	0.28740	59		
8722738	-	-	-	7.380	0.29055	60		
8722740	-	-	-	7.400	0.29134			
8722750	-	-	-	7.500	0.29528			
661029617	19/64	-	-	7.541	0.29688			5/16
8722760	-	-	-	7.600	0.29921	61		8
8722770	-	-	-	7.700	0.30315	62		
8722780	-	-	-	7.800	0.30709	63		
8722790	-	-	-	7.900	0.31102	64		
661031217	5/16	-	-	7.938	0.31250			5/16
8722800	-	-	-	8.000	0.31496			8
8722810	-	-	-	8.100	0.31890	65	128	10
8722820	-	-	-	8.200	0.32283	66		
8722830	-	-	-	8.300	0.32677	67		
661032817	21/64	-	-	8.334	0.32813			3/8
8722840	-	-	-	8.400	0.33071	68		10
661033217	-	-	Q	8.433	0.33200			
8722850	-	-	-	8.500	0.33465			
8722860	-	-	-	8.600	0.33858	69		
8722870	-	-	-	8.700	0.34252	70		
661034317	11/32	-	-	8.731	0.34375			3/8
8722880	-	-	-	8.800	0.34646	71		10
8722890	-	-	-	8.900	0.35039	72		
8722900	-	-	-	9.000	0.35433			
8722910	-	-	-	9.100	0.35827	73	136	
661035917	23/64	-	-	9.128	0.35938			3/8
8722920	-	-	-	9.200	0.36220	74		10
8722925	-	-	-	9.250	0.36417			
8722930	-	-	-	9.300	0.36614	75		
8722938	-	-	-	9.380	0.36929	76		
8722940	-	-	-	9.400	0.37008			
8722950	-	-	-	9.500	0.37402			
661037517	3/8	-	-	9.525	0.37500			3/8
8722960	-	-	-	9.600	0.37795	77		10
8722970	-	-	-	9.700	0.38189	78		
8722980	-	-	-	9.800	0.38583	79		
8722990	-	-	-	9.900	0.38976	80		
661039017	25/64	-	-	9.922	0.39063			7/16
8723000	-	-	-	10.000	0.39370			10
8723010	-	-	-	10.100	0.39764	81	146	12
8723020	-	-	-	10.200	0.40157	82		
8723030	-	-	-	10.300	0.40551	83		
661040617	13/32	-	-	10.319	0.40625			7/16
8723040	-	-	-	10.400	0.40945	84		12
8723050	-	-	-	10.500	0.41339			
8723060	-	-	-	10.600	0.41732	85		
8723070	-	-	-	10.700	0.42126	86		
661042217	27/64	-	-	10.716	0.42188			7/16

Packed: 1 pc.
Available EgiAs coating only.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6610	▢	▢	▢	▢	▢		▢	▢	▢		▢		▢	▢	▢		

▢ good ▢ best

List 6610 (Continued)

NEW SIZES | SPEED FEED P346 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-TRS-5D, 3 Flute, Coolant-Through



R Thinning



Cutting Diameter Tolerance (h8)		
Size	mm	inch
3≤D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8723080	-	-	-	10.800	0.42520	87	146	12
8723090	-	-	-	10.900	0.42913	88		
8723100	-	-	-	11.000	0.43307			
8723110	-	-	-	11.100	0.43701	89	156	7/16
661043717	7/16	-	-	11.113	0.43750			
8723120	-	-	-	11.200	0.44094	90		12
8723125	-	-	-	11.250	0.44291			
8723130	-	-	-	11.300	0.44488	91		
8723138	-	-	-	11.380	0.44803	92		
8723140	-	-	-	11.400	0.44882			
8723150	-	-	-	11.500	0.45276			
661045317	29/64	-	-	11.509	0.45313			1/2
8723160	-	-	-	11.600	0.45669	93		12
8723170	-	-	-	11.700	0.46063	94		
8723180	-	-	-	11.800	0.46457	95		
8723190	-	-	-	11.900	0.46850	96		
661046817	15/32	-	-	11.906	0.46875			1/2
8723200	-	-	-	12.000	0.47244			12
661048417	31/64	-	-	12.303	0.48438	99	167	1/2
8723250	-	-	-	12.500	0.49213	100		14
661050017	1/2	-	-	12.700	0.50000	102		1/2
8723300	-	-	-	13.000	0.51181	104		14
8723325	-	-	-	13.250	0.52165	106	176	
8723330	-	-	-	13.300	0.52362	107		
8723338	-	-	-	13.380	0.52677	108		
661053117	17/32	-	-	13.494	0.53125			5/8
8723350	-	-	-	13.500	0.53150			14
8723400	-	-	-	14.000	0.55118	112		
8723410	-	-	-	14.100	0.55512	113	185	16
8723420	-	-	-	14.200	0.55906	114		
661056217	9/16	-	-	14.288	0.56250	115		5/8
8723430	-	-	-	14.300	0.56299			16
8723450	-	-	-	14.500	0.57087	116		
8723500	-	-	-	15.000	0.59055	120		
661059317	19/32	-	-	15.081	0.59375	121	193	5/8
8723520	-	-	-	15.200	0.59843	122		16
8723530	-	-	-	15.300	0.60236	123		
8723550	-	-	-	15.500	0.61024	124		
661062517	5/8	-	-	15.875	0.62500	128		5/8
8723600	-	-	-	16.000	0.62992			16
8723650	-	-	-	16.500	0.64961	132	201	18
661065617	21/32	-	-	16.669	0.65625	134		3/4
661066317	-	-	-	16.840	0.66299	135		18
8723700	-	-	-	17.000	0.66929	136		
8723725	-	-	-	17.250	0.67913	138	209	
661068717	11/16	-	-	17.463	0.68750	140		3/4
8723750	-	-	-	17.500	0.68898			18
661070317	45/64	-	-	17.859	0.70313	143		3/4
8723800	-	-	-	18.000	0.70866	144		18

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6610 (Continued)

ADO-TRS-5D, 3 Flute, Coolant-Through

NEW SIZES | SPEED FEED P346 | CARBIDE | EgiAs | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
661071817	23/32	-	-	18.256	0.71875	147	217	3/4
8723850	-	-	-	18.500	0.72835	148		20
8723900	-	-	-	19.000	0.74803	152		
661075017	3/4	-	-	19.050	0.75000	154		3/4
8723925	-	-	-	19.250	0.75787			20
8723950	-	-	-	19.500	0.76772	156	225	
8724000	-	-	-	20.000	0.78740	160		

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6610	◎	◎	◎	◎	◎		◎	○	◎		○		○	◎	○		

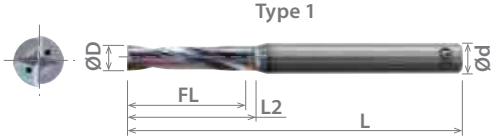
○ good ◎ best

List 5720

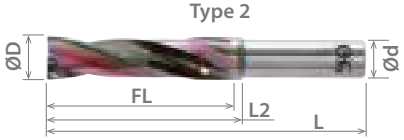
SPEED FEED P347 | CARBIDE | EgiAs | 20° | SHANK h6

ADFO-3D, Coolant-Through, Flat Drill

Type 1



Type 2



Cutting Diameter Tolerance (h8)		
Size	mm	inch
3≤D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
3334300	-	-	-	3.000	0.11811	15	16	55	4	1
3334302	-	-	-	3.100	0.12205					
572012517	1/8	-	-	3.175	0.12500		17		1/8	2
3334304	-	-	-	3.200	0.12598		16		4	1
3334305	-	-	-	3.300	0.12992					
3334306	-	-	-	3.400	0.13386	16	17			
3334307	-	-	-	3.500	0.13780					
3334309	-	-	-	3.600	0.14173					
3334312	-	-	-	3.700	0.14567					
3334313	-	-	-	3.800	0.14961	19	20	60		
3334314	-	-	-	3.900	0.15354					
572015617	5/32	-	-	3.969	0.15625				3/16	
3334315	-	-	-	4.000	0.15748				4	2
3334317	-	-	-	4.100	0.16142	21	22		6	1
3334318	-	-	-	4.200	0.16535					
3334319	-	-	-	4.300	0.16929					
3334320	-	-	-	4.400	0.17323					
3334321	-	-	-	4.500	0.17717					
3334323	-	-	-	4.600	0.18110					
3334326	-	-	-	4.700	0.18504					
572018717	3/16	-	-	4.763	0.18750	24	27	65	3/16	2
3334327	-	-	-	4.800	0.18898		25		6	1
3334328	-	-	-	4.900	0.19291					
3334329	-	-	-	5.000	0.19685					
3334331	-	-	-	5.100	0.20079					
3334332	-	-	-	5.200	0.20472					
3334333	-	-	-	5.300	0.20866					
3334334	-	-	-	5.400	0.21260	27	28			
3334335	-	-	-	5.500	0.21654					
572021817	7/32	-	-	5.556	0.21875				1/4	
3334338	-	-	-	5.600	0.22047				6	
3334339	-	-	-	5.700	0.22441					
3334340	-	-	-	5.800	0.22835					
3334341	-	-	-	5.900	0.23228					
3334342	-	-	-	6.000	0.23622					2
3334344	-	-	-	6.100	0.24016	30	31	70	8	1
3334345	-	-	-	6.200	0.24409					
3334346	-	-	-	6.300	0.24803					
572025017	1/4	-	E	6.350	0.25000		32		1/4	2
3334347	-	-	-	6.400	0.25197		31		8	1
3334348	-	-	-	6.500	0.25591					
3334350	-	-	-	6.600	0.25984					
3334351	-	-	-	6.700	0.26378					
3334352	-	-	-	6.800	0.26772					
3334353	-	-	-	6.900	0.27165					
3334354	-	-	-	7.000	0.27559					
3334356	-	-	-	7.100	0.27953	34	35	75		
572028117	9/32	-	-	7.144	0.28125		34		5/16	
3334357	-	-	-	7.200	0.28346		35		8	
3334358	-	-	-	7.300	0.28740					
3334359	-	-	-	7.400	0.29134					
3334360	-	-	-	7.500	0.29528					
3334361	-	-	-	7.600	0.29921					

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 5720 (Continued)

ADFO-3D, Coolant-Through, Flat Drill

SPEED FEED P347 | CARBIDE | EgiAs | 20° | SHANK h6

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
3334362	-	-	-	7.700	0.30315	34	35	75	8	1
3334363	-	-	-	7.800	0.30709					
3334364	-	-	-	7.900	0.31102					
572031217	5/16	-	-	7.938	0.31250		36		5/16	2
3334365	-	-	-	8.000	0.31496		35		8	
3334367	-	-	-	8.100	0.31890	38	39	80	10	1
3334368	-	-	-	8.200	0.32283					
3334369	-	-	-	8.300	0.32677					
572032817	21/64	-	-	8.334	0.32813		37		3/8	
3334370	-	-	-	8.400	0.33071		39		10	
3334371	-	-	-	8.500	0.33465					
3334373	-	-	-	8.600	0.33858					
3334374	-	-	-	8.700	0.34252					
3334375	-	-	-	8.800	0.34646					
3334376	-	-	-	8.900	0.35039					
3334377	-	-	-	9.000	0.35433					
3334379	-	-	-	9.100	0.35827	42	43	85	10	
572035917	23/64	-	-	9.128	0.35938				3/8	
3334380	-	-	-	9.200	0.36220					
3334381	-	-	-	9.300	0.36614					
3334382	-	-	-	9.400	0.37008					
3334383	-	-	-	9.500	0.37402					
572037517	3/8	-	-	9.525	0.37500		44		3/8	2
3334384	-	-	-	9.600	0.37795		43		10	1
3334385	-	-	-	9.700	0.38189					
3334386	-	-	-	9.800	0.38583					
3334387	-	-	-	9.900	0.38976					
3334388	-	-	-	10.000	0.39370					2
3334390	-	-	-	10.100	0.39764	46	47	90	12	1
3334391	-	-	-	10.200	0.40157					
3334392	-	-	-	10.300	0.40551					
572040617	13/32	-	-	10.319	0.40625		48		7/16	
3334393	-	-	-	10.400	0.40945		47		12	
3334394	-	-	-	10.500	0.41339					
3334395	-	-	-	10.600	0.41732					
3334396	-	-	-	10.700	0.42126					
3334397	-	-	-	10.800	0.42520					
3334398	-	-	-	10.900	0.42913					
3334399	-	-	-	11.000	0.43307					
3334401	-	-	-	11.100	0.43701	50	51	95	12	1
572043717	7/16	-	-	11.113	0.43750		52		7/16	2
3334402	-	-	-	11.200	0.44094		51		12	1
3334403	-	-	-	11.300	0.44488					
3334404	-	-	-	11.400	0.44882					
3334405	-	-	-	11.500	0.45276					
572045317	29/64	-	-	11.509	0.45313		52		1/2	

Packed: 1 pc.
Available EgiAs coating only.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5720	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○			◎	○		

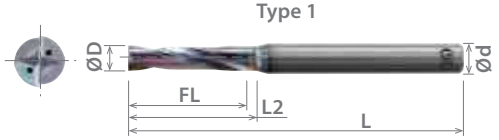
○ good ◎ best

List 5720 (Continued)

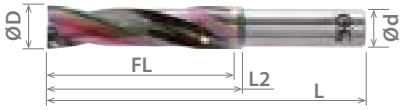
SPEED FEED P347 | CARBIDE | EgiAs | 20° | SHANK h6

ADFO-3D, Coolant-Through, Flat Drill

Type 1



Type 2



Cutting Diameter Tolerance (h8)		
Size	mm	inch
3≤D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
3334406	-	-	-	11.600	0.45669	50	51	95	12	1
3334407	-	-	-	11.700	0.46063					
3334408	-	-	-	11.800	0.46457					
3334409	-	-	-	11.900	0.46850					
572046817	15/32	-	-	11.906	0.46875		52		1/2	
3334410	-	-	-	12.000	0.47244		51		12	2
3334412	-	-	-	12.100	0.47638	56	57	100	14	1
3334413	-	-	-	12.200	0.48031					
3334414	-	-	-	12.300	0.48425					
3334415	-	-	-	12.400	0.48819					
3334416	-	-	-	12.500	0.49213					
3334417	-	-	-	12.600	0.49606					
3334418	1/2	-	-	12.700	0.50000					
3334419	-	-	-	12.800	0.50394					
3334420	-	-	-	12.900	0.50787					
3334421	-	-	-	13.000	0.51181					
3334422	-	-	-	13.100	0.51575	60	61	105		
3334423	-	-	-	13.200	0.51969					
3334424	-	-	-	13.300	0.52362					
3334425	-	-	-	13.400	0.52756					
3334426	-	-	-	13.500	0.53150					
3334427	-	-	-	13.600	0.53543					
3334428	-	-	-	13.700	0.53937					
3334429	-	-	-	13.800	0.54331					
3334430	-	-	-	13.900	0.54724					
3334431	-	-	-	14.000	0.55118					2
3334432	-	-	-	14.100	0.55512	64	65	110	16	1
3334433	-	-	-	14.200	0.55906					
572056217	9/16	-	-	14.288	0.56250		66		5/8	
3334434	-	-	-	14.300	0.56299		65		16	
3334435	-	-	-	14.400	0.56693					
3334436	-	-	-	14.500	0.57087					
3334437	-	-	-	14.600	0.57480					
3334438	-	-	-	14.700	0.57874					
3334439	-	-	-	14.800	0.58268					
3334440	-	-	-	14.900	0.58661					
3334441	-	-	-	15.000	0.59055					
3334442	-	-	-	15.100	0.59449	68	69	115		
3334443	-	-	-	15.200	0.59843					
3334444	-	-	-	15.300	0.60236					
3334445	-	-	-	15.400	0.60630					
3334446	-	-	-	15.500	0.61024					
3334447	-	-	-	15.600	0.61417					
3334448	-	-	-	15.700	0.61811					
3334449	-	-	-	15.800	0.62205					
572062517	5/8	-	-	15.875	0.62500	68	70	115	5/8	2
3334450	-	-	-	15.900	0.62598		69		16	1
3334451	-	-	-	16.000	0.62992					2
3334452	-	-	-	16.500	0.64961	74	75	125	18	1
3334453	-	-	-	17.000	0.66929					
572068717	11/16	-	-	17.463	0.68750	78	80	130	3/4	
3334454	-	-	-	17.500	0.68898		79		18	
3334455	-	-	-	18.000	0.70866					2

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 5720 (Continued)

ADFO-3D, Coolant-Through, Flat Drill

SPEED FEED P347 | CARBIDE | EgiAs | 20° | SHANK h6

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
3334456	-	-	-	18.500	0.72835	84	85	135	20	1
3334457	-	-	-	19.000	0.74803					
572075017	3/4	-	-	19.050	0.75000	88	90	140	3/4	2
3334458	-	-	-	19.500	0.76772		89		20	1
3334459	-	-	-	20.000	0.78740					2

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5720	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○			▢	○		

○ good ▢ best

List 5700

NEW SIZES | SPEED FEED P348-349 | CARBIDE | IchAda | EgiAs | 20° | SHANK h6

ADF-2D, Flat Drill

Type 1



Type 2



Cutting Diameter Tolerance		
Size	mm	inch
D < 2	+0 / -0.009	+0 / -0.0004
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
3330020	-	-	-	0.200	0.00787	0.6	0.7	40	3	1
3330025	-	-	-	0.250	0.00984	0.8	0.9			
3330030	-	-	-	0.300	0.01181	0.9	1.0			
3330035	-	-	-	0.350	0.01378	1.1	1.2			
570001511	1/64	-	-	0.397	0.01563	1.2	1.3			
3330040	-	-	-	0.400	0.01575					
3330045	-	-	-	0.450	0.01772	1.4	1.5			
3330050	-	-	-	0.500	0.01969	1.7	1.9			
3330055	-	-	-	0.550	0.02165	1.9	2.1			
3330060	-	-	-	0.600	0.02362	2.0	2.2			
3330065	-	-	-	0.650	0.02559	2.2	2.4			
3330070	-	-	-	0.700	0.02756	2.4	2.6			
3330071	-	-	-	0.710	0.02795					
3330072	-	-	-	0.720	0.02835					
3330074	-	-	-	0.740	0.02913	2.5	2.7			
3330075	-	-	-	0.750	0.02953	2.6	2.8			
570003111	1/32	-	-	0.794	0.03125	2.7	2.9			
3330080	-	-	-	0.800	0.03150					
3330081	-	-	-	0.810	0.03189	2.8	3.0			
3330085	-	-	-	0.850	0.03346	2.9	3.1			
3330089	-	-	-	0.890	0.03504	3.0	3.2			
3330090	-	-	-	0.900	0.03543	3.1	3.3			
3330091	-	-	-	0.910	0.03583					
3330092	-	-	-	0.920	0.03622					
3330095	-	-	-	0.950	0.03740	3.2	3.4			
3330100	-	-	-	1.000	0.03937	4.0	4.3	45		
3330109	-	-	-	1.090	0.04291	4.4	4.7			
3330110	-	-	-	1.100	0.04331					
3330111	-	-	-	1.110	0.04370					
3330112	-	-	-	1.120	0.04409	4.5	4.8			
570004611	3/64	-	-	1.191	0.04688	4.8	5.1			
3330120	-	-	-	1.200	0.04724					
3330125	-	-	-	1.250	0.04921	5.0	5.3			
3330126	-	-	-	1.260	0.04961					
3330127	-	-	-	1.270	0.05000	5.1	5.4			
3330128	-	-	-	1.280	0.05039					
3330129	-	-	-	1.290	0.05079	5.2	5.5			
3330130	-	-	-	1.300	0.05118					
3330135	-	-	-	1.350	0.05315	5.4	5.7			
3330140	-	-	-	1.400	0.05512	5.6	5.9			
3330144	-	-	-	1.440	0.05669	5.8	6.1			
3330145	-	-	-	1.450	0.05709					
3330146	-	-	-	1.460	0.05748					
3330147	-	-	-	1.470	0.05787	5.9	6.2			
3330148	-	-	-	1.480	0.05827					
3330150	-	-	-	1.500	0.05906	6.0	6.3			
3330153	-	-	-	1.530	0.06024	6.1	6.4			
3330154	-	-	-	1.540	0.06063	6.2	6.5			
3330155	-	-	-	1.550	0.06102					
3330156	-	-	-	1.560	0.06142					

Packed: 1 pc.
Sizes smaller than 2mm available with IchAda coating.
Sizes 2mm and larger available with EgiAs coating.

ADR

List 5700 (Continued)

ADF-2D, Flat Drill

NEW SIZES | SPEED FEED P348-349 | CARBIDE | IchAda | EgiAs | 20° | SHANK h6

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
3330157	-	-	-	1.570	0.06181	6.3	6.6	45	3	1
3330158	-	-	-	1.580	0.06220					
570006211	1/16	-	-	1.588	0.06250	6.4	6.7			
3330160	-	-	-	1.600	0.06299					
3330170	-	-	-	1.700	0.06693	6.8	7.1			
3330175	-	-	-	1.750	0.06890	7.0	7.3			
3330180	-	-	-	1.800	0.07087	7.2	7.5			
3330182	-	-	-	1.820	0.07165	7.3	7.6			
3330183	-	-	-	1.830	0.07205					
3330184	-	-	-	1.840	0.07244	7.4	7.7			
3330185	-	-	-	1.850	0.07283					
3330186	-	-	-	1.860	0.07323					
3330190	-	-	-	1.900	0.07480	7.6	7.9			
3330195	-	-	-	1.950	0.07677	7.8	8.1			
570007811	5/64	-	-	1.984	0.07813	7.9	8.2			
3330200	-	-	-	2.000	0.07874	10	10.3	50	4	
3330210	-	-	-	2.100	0.08268		10.5			
3330220	-	-	-	2.200	0.08661	11	10.6			
3330230	-	-	-	2.300	0.09055		10.8			
570009311	3/32	-	-	2.381	0.09375		11.0			
3330240	-	-	-	2.400	0.09449	12				
3330250	-	-	-	2.500	0.09843		11.2			
3330260	-	-	-	2.600	0.10236	13	11.4			
3330270	-	-	-	2.700	0.10630		11.6			
3330280	-	-	-	2.800	0.11024	14	11.8			
3330290	-	-	-	2.900	0.11417		11.9			
3330300	-	-	-	3.000	0.11811	15	11.4	55	6	
3330310	-	-	-	3.100	0.12205		11.6			
570012511	1/8	-	-	3.175	0.12500		17.0		1/8	2
3330320	-	-	-	3.200	0.12598		11.8		6	1
3330330	-	-	-	3.300	0.12992		12.0			
3330340	-	-	-	3.400	0.13386	16	12.1			
3330350	-	-	-	3.500	0.13780		12.3			
3330360	-	-	-	3.600	0.14173		12.5			
3330370	-	-	-	3.700	0.14567		12.7			
3330380	-	-	-	3.800	0.14961	19	17.9	60	6	
3330390	-	-	-	3.900	0.15354		18.1			
570015611	5/32	-	-	3.969	0.15625		20.5		3/16	1
3330400	-	-	-	4.000	0.15748		18.3		6	
3330410	-	-	-	4.100	0.16142		18.5			
3330420	-	-	-	4.200	0.16535	21	18.6			
3330430	-	-	-	4.300	0.16929		18.8			
3330440	-	-	-	4.400	0.17323		19.0			
3330450	-	-	-	4.500	0.17717		19.2			
3330460	-	-	-	4.600	0.18110		19.4			
3330470	-	-	-	4.700	0.18504		19.6			

Packed: 1 pc.
Sizes smaller than 2mm available with IchAda coating.
Sizes 2mm and larger available with EgiAs coating.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5700	◎	◎	◎	◎	◎	○	○	○	◎	○	○			◎	○		

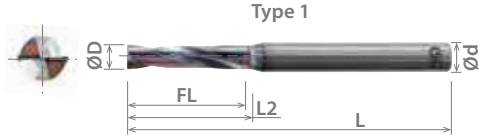
○ good ◎ best

List 5700 (Continued)

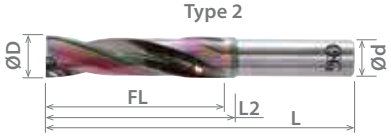
NEW SIZES | SPEED FEED P348-349 | CARBIDE | IchAda | EgiAs | 20° | SHANK h6

ADF-2D, Flat Drill

Type 1



Type 2



Cutting Diameter Tolerance		
Size	mm	inch
D < 2	+0 / -0.009	+0 / -0.0004
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
570018711	3/16	-	-	4.763	0.18750		27.0		3/16	2
3330480	-	-	-	4.800	0.18898		24.8			
3330490	-	-	-	4.900	0.19291		24.9			
3330500	-	-	-	5.000	0.19685	24	25.1		6	
3330510	-	-	-	5.100	0.20079		25.3			
3330520	-	-	-	5.200	0.20472		25.5			
3330530	-	-	-	5.300	0.20866		25.7			
3330540	-	-	-	5.400	0.21260		25.9	65		1
3330550	-	-	-	5.500	0.21654		26.1			
570021811	7/32	-	-	5.556	0.21875		25.5		1/4	
3330560	-	-	-	5.600	0.22047	27	26.3			
3330570	-	-	-	5.700	0.22441		26.4			
3330580	-	-	-	5.800	0.22835		26.6			
3330590	-	-	-	5.900	0.23228		26.8		6	
3330600	-	-	-	6.000	0.23622		27.0			
3330610	-	-	-	6.100	0.24016					
3330620	-	-	-	6.200	0.24409					
3330630	-	-	-	6.300	0.24803					
570025011	1/4	-	E	6.350	0.25000				1/4	
3330640	-	-	-	6.400	0.25197					
3330650	-	-	-	6.500	0.25591	30	32.0	70		2
3330660	-	-	-	6.600	0.25984					
3330670	-	-	-	6.700	0.26378				6	
3330680	-	-	-	6.800	0.26772					
3330690	-	-	-	6.900	0.27165					
3330700	-	-	-	7.000	0.27559					
3330710	-	-	-	7.100	0.27953		36.0			
570028111	9/32	-	-	7.144	0.28125		34.5		5/16	1
3330720	-	-	-	7.200	0.28346					
3330730	-	-	-	7.300	0.28740					
3330740	-	-	-	7.400	0.29134					
3330750	-	-	-	7.500	0.29528	34	36.0	75	6	
3330760	-	-	-	7.600	0.29921					
3330770	-	-	-	7.700	0.30315					
3330780	-	-	-	7.800	0.30709					2
3330790	-	-	-	7.900	0.31102					
570031211	5/16	-	-	7.938	0.31250				5/16	
3330800	-	-	-	8.000	0.31496					
3330810	-	-	-	8.100	0.31890				8	
3330820	-	-	-	8.200	0.32283		40.0			
3330830	-	-	-	8.300	0.32677					
570032811	21/64	-	-	8.334	0.32813		37.8		3/8	1
3330840	-	-	-	8.400	0.33071					
3330850	-	-	-	8.500	0.33465	38		80		
3330860	-	-	-	8.600	0.33858					
3330870	-	-	-	8.700	0.34252		40.0		8	2
3330880	-	-	-	8.800	0.34646					
3330890	-	-	-	8.900	0.35039					
3330900	-	-	-	9.000	0.35433					

Packed: 1 pc.
Sizes smaller than 2mm available with IchAda coating.
Sizes 2mm and larger available with EgiAs coating.

ADR

List 5700 (Continued)

ADF-2D, Flat Drill

NEW SIZES | SPEED FEED P348-349 | CARBIDE | IchAda | EgiAs | 20° | SHANK h6

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
3330910	-	-	-	9.100	0.35827	42	44.0	85	8	2
570035911	23/64	-	-	9.128	0.35938		43.3		3/8	1
3330920	-	-	-	9.200	0.36220		44.0		8	2
3330930	-	-	-	9.300	0.36614					
3330940	-	-	-	9.400	0.37008					
3330950	-	-	-	9.500	0.37402					
570037511	3/8	-	-	9.525	0.37500				3/8	
3330960	-	-	-	9.600	0.37795				8	
3330970	-	-	-	9.700	0.38189					
3330980	-	-	-	9.800	0.38583					
3330990	-	-	-	9.900	0.38976					
3331000	-	-	-	10.000	0.39370				10	
3331010	-	-	-	10.100	0.39764	46	48.0	90		
3331020	-	-	-	10.200	0.40157					
3331030	-	-	-	10.300	0.40551					
570040611	13/32	-	-	10.319	0.40625		46.5		7/16	1
3331040	-	-	-	10.400	0.40945	46	48.0	90	10	2
3331050	-	-	-	10.500	0.41339					
3331060	-	-	-	10.600	0.41732					
3331070	-	-	-	10.700	0.42126					
3331080	-	-	-	10.800	0.42520					
3331090	-	-	-	10.900	0.42913					
3331100	-	-	-	11.000	0.43307					
3331110	-	-	-	11.100	0.43701	50	52.0	95	7/16	
570043711	7/16	-	-	11.113	0.43750					
3331120	-	-	-	11.200	0.44094				10	
3331130	-	-	-	11.300	0.44488					
3331140	-	-	-	11.400	0.44882					
3331150	-	-	-	11.500	0.45276					
570045311	29/64	-	-	11.509	0.45313		49.8		1/2	1
3331160	-	-	-	11.600	0.45669		52.0		10	2
3331170	-	-	-	11.700	0.46063					
3331180	-	-	-	11.800	0.46457					
3331190	-	-	-	11.900	0.46850					
570046811	15/32	-	-	11.906	0.46875		50.5		1/2	1
3331200	-	-	-	12.000	0.47244		52.0		12	2
3331210	-	-	-	12.100	0.47638	56	58.0	100		
3331220	-	-	-	12.200	0.48031					
3331230	-	-	-	12.300	0.48425					
3331240	-	-	-	12.400	0.48819					
3331250	-	-	-	12.500	0.49213					
3331260	-	-	-	12.600	0.49606					
3331270	1/2	-	-	12.700	0.50000					
3331280	-	-	-	12.800	0.50394					
3331290	-	-	-	12.900	0.50787					
3331300	-	-	-	13.000	0.51181					

Packed: 1 pc.
Sizes smaller than 2mm available with IchAda coating.
Sizes 2mm and larger available with EgiAs coating.

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ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5700	◎	◎	◎	◎	◎	○	○	○	◎	○	○			◎	○		

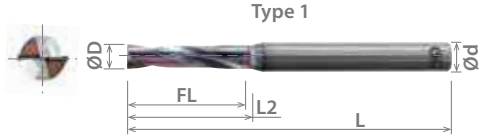
○ good ◎ best

List 5700 (Continued)

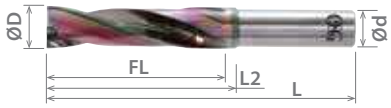
NEW SIZES | SPEED FEED P348-349 | CARBIDE | IchAda | EgiAs | 20° | SHANK h6

ADF-2D, Flat Drill

Type 1



Type 2



Cutting Diameter Tolerance		
Size	mm	inch
D < 2	+0 / -0.009	+0 / -0.0004
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
3331310	-	-	-	13.100	0.51575	60	62.0	105	12	2
3331320	-	-	-	13.200	0.51969					
3331330	-	-	-	13.300	0.52362					
3331340	-	-	-	13.400	0.52756					
3331350	-	-	-	13.500	0.53150					
3331360	-	-	-	13.600	0.53543					
3331370	-	-	-	13.700	0.53937					
3331380	-	-	-	13.800	0.54331					
3331390	-	-	-	13.900	0.54724					
3331400	-	-	-	14.000	0.55118					
3331410	-	-	-	14.100	0.55512	64	66.0	110	12	2
3331420	-	-	-	14.200	0.55906					
570056211	9/16	-	-	14.288	0.56250		63.0		5/8	1
3331430	-	-	-	14.300	0.56299		66.0		12	2
3331440	-	-	-	14.400	0.56693					
3331450	-	-	-	14.500	0.57087					
3331460	-	-	-	14.600	0.57480					
3331470	-	-	-	14.700	0.57874					
3331480	-	-	-	14.800	0.58268					
3331490	-	-	-	14.900	0.58661					
3331500	-	-	-	15.000	0.59055					
3331510	-	-	-	15.100	0.59449	68	70.0	115		
3331520	-	-	-	15.200	0.59843					
3331530	-	-	-	15.300	0.60236					
3331540	-	-	-	15.400	0.60630					
3331550	-	-	-	15.500	0.61024					
3331560	-	-	-	15.600	0.61417					
3331570	-	-	-	15.700	0.61811					
3331580	-	-	-	15.800	0.62205					
570062511	5/8	-	-	15.875	0.62500				5/8	
3331590	-	-	-	15.900	0.62598				12	
3331600	-	-	-	16.000	0.62992				16	
3331650	-	-	-	16.500	0.64961	74	76.0	125		
3331700	-	-	-	17.000	0.66929					

Packed: 1 pc.
Sizes smaller than 2mm available with IchAda coating.
Sizes 2mm and larger available with EgiAs coating.

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ADR

List 5700 (Continued)

ADF-2D, Flat Drill

NEW SIZES | SPEED FEED P348-349 | CARBIDE | IchAda | EgiAs | 20° | SHANK h6

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
570068711	11/16	-	-	17.463	0.68750	78	77.1	130	3/4	1
3331750	-	-	-	17.500	0.68898		80.0		16	2
3331800	-	-	-	18.000	0.70866					
3331850	-	-	-	18.500	0.72835	84	86.0	135		
3331900	-	-	-	19.000	0.74803					
570075011	3/4	-	-	19.050	0.75000	88	90.0	140	3/4	
3331950	-	-	-	19.500	0.76772				16	
3332000	-	-	-	20.000	0.78740				20	

Packed: 1 pc.
Sizes smaller than 2mm available with IchAda coating.
Sizes 2mm and larger available with EgiAs coating.

ADR

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5700	▣	▣	▣	▣	▣	▢	▢	▢	▣	▢	▢			▣	▢		

▢ good ▣ best

List 5705

ADFLS-2D, Long Shank, Flat Drill

SPEED FEED P350 | CARBIDE | EgiAs | 20° | SHANK h6

Cutting Diameter Tolerance (h8)		
Size	mm	inch
3≤D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

Type 1



Type 2



Type 3



EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
3332300	-	-	-	3.000	0.11811	15	30	100	6	1
3332310	-	-	-	3.100	0.12205		31			
570512517	1/8	-	-	3.175	0.12500		32		1/8	2
3332320	-	-	-	3.200	0.12598				6	1
3332330	-	-	-	3.300	0.12992		33			
3332340	-	-	-	3.400	0.13386	16	34			
3332350	-	-	-	3.500	0.13780		35			
3332360	-	-	-	3.600	0.14173		36			
3332370	-	-	-	3.700	0.14567		37			
3332380	-	-	-	3.800	0.14961	19	38			
3332390	-	-	-	3.900	0.15354		39			
570515617	5/32	-	-	3.969	0.15625		40		3/16	
3332400	-	-	-	4.000	0.15748				6	
3332410	-	-	-	4.100	0.16142		41			
3332420	-	-	-	4.200	0.16535	21	42			
3332430	-	-	-	4.300	0.16929		43			
3332440	-	-	-	4.400	0.17323		44			
3332450	-	-	-	4.500	0.17717		45			
3332460	-	-	-	4.600	0.18110		46			
3332470	-	-	-	4.700	0.18504		47			
570518717	3/16	-	-	4.763	0.18750	24	48		3/16	2
3332480	-	-	-	4.800	0.18898				6	1
3332490	-	-	-	4.900	0.19291		49			
3332500	-	-	-	5.000	0.19685		50	110		
3332510	-	-	-	5.100	0.20079		51			
3332520	-	-	-	5.200	0.20472		52			
3332530	-	-	-	5.300	0.20866		53			
3332540	-	-	-	5.400	0.21260	27	54			
3332550	-	-	-	5.500	0.21654		55			
570521817	7/32	-	-	5.556	0.21875		56		1/4	
3332560	-	-	-	5.600	0.22047				6	
3332570	-	-	-	5.700	0.22441		57			
3332580	-	-	-	5.800	0.22835		58			
3332590	-	-	-	5.900	0.23228		59			
3332600	-	-	-	6.000	0.23622		29			2
3334060	-	-	-				60			3
570525017	1/4	-	E	6.350	0.25000	30	64	120	1/4	2
3332650	-	-	-	6.500	0.25591		32		6	
3332680	-	-	-	6.800	0.26772					
3332700	-	-	-	7.000	0.27559					
570528117	9/32	-	-	7.144	0.28125	34	72	130	5/16	1
3332750	-	-	-	7.500	0.29528		36		6	2
3332780	-	-	-	7.800	0.30709					
570531217	5/16	-	-	7.938	0.31250		79		5/16	
3332800	-	-	-	8.000	0.31496		36		8	
3334080	-	-	-				80			3
570532817	21/64	-	-	8.334	0.32813	38	83	140	3/8	1
3332850	-	-	-	8.500	0.33465		40		8	2
3332880	-	-	-	8.800	0.34646					
3332900	-	-	-	9.000	0.35433					

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 5705 (Continued)

SPEED FEED P350 | CARBIDE | EgiAs | 20° | SHANK h6

ADFLS-2D, Long Shank, Flat Drill

EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Type
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L2 (mm)	L (mm)	d (mm/in)	
570535917	23/64	-	-	9.128	0.35938	42	91	150	3/8	1
3332950	-	-	-	9.500	0.37402		44		8	2
570537517	3/8	-	-	9.525	0.37500		95		3/8	
3332980	-	-	-	9.800	0.38583		44		8	
3333000	-	-	-	10.000	0.39370				10	
3334100	-	-	-				100			3
570540617	13/32	-	-	10.319	0.40625	46	103	160	7/16	1
3333050	-	-	-	10.500	0.41339		48		10	2
3333080	-	-	-	10.800	0.42520					
3333100	-	-	-	11.000	0.43307					
570543717	7/16	-	-	11.113	0.43750	50	111	170	7/16	
570545317	29/64	-	-	11.509	0.45313		115		1/2	1
3333180	-	-	-	11.800	0.46457		52		10	2
570546817	15/32	-	-	11.906	0.46875		119		1/2	1
3333200	-	-	-	12.000	0.47244		52		12	2
3334120	-	-	-				120			3
3333250	-	-	-	12.500	0.49213	56	58	180		2
570550017	1/2	-	-	12.700	0.50000		127		1/2	
3333300	-	-	-	13.000	0.51181		58		12	
3333350	-	-	-	13.500	0.53150	60	62	190		
3333400	-	-	-	14.000	0.55118					
570556217	9/16	-	-	14.288	0.56250	64	143	200	5/8	1
3333500	-	-	-	15.000	0.59055		66		12	2
570562517	5/8	-	-	15.875	0.62500	68	159	210	5/8	
3333600	-	-	-	16.000	0.62992		70		16	
3334160	-	-	-				160			3
3333700	-	-	-	17.000	0.66929	74	76	220		2
570568717	11/16	-	-	17.463	0.68750	78	175	230	3/4	1
3333750	-	-	-	17.500	0.68898		80		16	2
3333800	-	-	-	18.000	0.70866					
570575017	3/4	-	-	19.050	0.75000	88	191	250	3/4	
3334000	-	-	-	20.000	0.78740		90		20	
3334200	-	-	-							3

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5705	▢	▢	▢	▢	▢				▢	▢	▢			▢	▢		

▢ good ◎ best

List 6500

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-3D, Coolant-Through





Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
650007812	-	-	-	2.000	0.07874	12	66	3
650008212	-	-	-	2.100	0.08268	13		
650008612	-	-	-	2.200	0.08661	14		
8690230	-	-	-	2.300	0.09055			
650009312	3/32	-	-	2.381	0.09375	15		
650009412	-	-	-	2.400	0.09449			
8690250	-	-	-	2.500	0.09843			
8690260	-	-	-	2.600	0.10236	16		
650010612	-	-	-	2.700	0.10630	17		
650010912	7/64	-	-	2.778	0.10938			
8690280	-	-	-	2.800	0.11024			
650011161	-	-	-	2.830	0.11142	18		
8690290	-	-	-	2.900	0.11417			
650011631	-	-	-	2.950	0.11614			
8690300	-	-	-	3.000	0.11811			
8690310	-	-	-	3.100	0.12205	19	74	4
650012511	1/8	-	-	3.175	0.12500	20		1/8
8690320	-	-	-	3.200	0.12598			4
8690330	-	-	-	3.300	0.12992			
650013231	-	-	-	3.360	0.13228	21		
8690340	-	-	-	3.400	0.13386			
650013561	-	-	-	3.440	0.13543			
8690350	-	-	-	3.500	0.13780			
650013871	-	-	-	3.520	0.13858	22		
650014051	-	-	-	3.570	0.14055			
8690360	-	-	-	3.600	0.14173			
8690370	-	-	-	3.700	0.14567	23		
650014841	-	-	-	3.770	0.14843			
8690380	-	-	-	3.800	0.14961			
650015211	-	-	-	3.860	0.15197	24		
8690390	-	-	-	3.900	0.15354			
650015511	5/32	-	-	3.969	0.15625			3/16
8690400	-	-	-	4.000	0.15748			4
650015911	-	-	-	4.050	0.15945	25	80	6
650016011	-	20	-	4.089	0.16100			
8690410	-	-	-	4.100	0.16142			5
8700410	-	-	-					6
650016311	-	-	-	4.160	0.16378	26		
8690420	-	-	-	4.200	0.16535			5
8700420	-	-	-					6
650016711	-	-	-	4.270	0.16811			
8690430	-	-	-	4.300	0.16929			5
8700430	-	-	-					6
650017111	11/64	-	-	4.366	0.17188	27		3/16
8690440	-	-	-	4.400	0.17323			5
8700440	-	-	-					6
650017511	-	-	-	4.460	0.17559			
8690450	-	-	-	4.500	0.17717			5
8700450	-	-	-					6
8690460	-	-	-	4.600	0.18110	28		5
8700460	-	-	-					6
650018311	-	-	-	4.660	0.18346	29		

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6500 (Continued)

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-3D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8690470	-	-	-	4.700	0.18504	29	80	5
8700470	-	-	-					6
650018711	3/16	-	-	4.763	0.18750			3/16
8690480	-	-	-	4.800	0.18898			5
8700480	-	-	-					6
8690490	-	-	-	4.900	0.19291	30		5
8700490	-	-	-					6
8690500	-	-	-	5.000	0.19685	25		5
8700500	-	-	-					6
8690510	-	-	-	5.100	0.20079	26	82	
650020291	-	-	-	5.150	0.20276			
650020211	13/64	-	-	5.159	0.20313			1/4
8690520	-	-	-	5.200	0.20472			6
650020701	-	-	-	5.260	0.20709	27		
8690530	-	-	-	5.300	0.20866			
8690540	-	-	-	5.400	0.21260			
650021211	-	3	-	5.410	0.21300	28		
650021521	-	-	-	5.470	0.21535			
8690550	-	-	-	5.500	0.21654			
650021711	7/32	-	-	5.556	0.21875			1/4
8690560	-	-	-	5.600	0.22047			6
8690570	-	-	-	5.700	0.22441	29		
8690580	-	-	-	5.800	0.22835			
8690590	-	-	-	5.900	0.23228	30		
650023311	15/64	-	-	5.953	0.23438			1/4
8690600	-	-	-	6.000	0.23622			6
8690610	-	-	-	6.100	0.24016	31	88	7
8700610	-	-	-					8
650024211	-	-	-	6.150	0.24213			
8690620	-	-	-	6.200	0.24409			7
8700620	-	-	-					8
8690630	-	-	-	6.300	0.24803	32		7
8700630	-	-	-					8
650025011	1/4	-	E	6.350	0.25000			1/4
8690640	-	-	-	6.400	0.25197			7
8700640	-	-	-					8
8690650	-	-	-	6.500	0.25591	33		7
8700650	-	-	-					8
650025611	-	-	F	6.528	0.25700			
8690660	-	-	-	6.600	0.25984			7
8700660	-	-	-					8
650026211	-	-	-	6.650	0.26181	34		
8690670	-	-	-	6.700	0.26378			7
8700670	-	-	-					8
650026411	17/64	-	-	6.747	0.26563			5/16
8690680	-	-	-	6.800	0.26772			7
8700680	-	-	-					8
650026911	-	-	-	6.860	0.27008	35		

Packed: 1 pc.
Available EgiAs coating only.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6500	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	

▢ good ▢ best

List 6500 (Continued)

ADO-3D, Coolant-Through

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8690690	-	-	-	6.900	0.27165	35	88	7
8700690	-	-	-					8
8690700	-	-	-	7.000	0.27559			7
8700700	-	-	-					8
650027701	-	-	-	7.040	0.27717	36	94	
8690710	-	-	-	7.100	0.27953			
650028011	9/32	-	-	7.144	0.28125			5/16
8690720	-	-	-	7.200	0.28346			8
8690730	-	-	-	7.300	0.28740	37		
8690740	-	-	-	7.400	0.29134			
8690750	-	-	-	7.500	0.29528	38		
650029611	19/64	-	-	7.541	0.29688			5/16
8690760	-	-	-	7.600	0.29921			8
8690770	-	-	-	7.700	0.30315	39		
8690780	-	-	-	7.800	0.30709			
8690790	-	-	-	7.900	0.31102	40		
650031211	5/16	-	-	7.938	0.31250			5/16
8690800	-	-	-	8.000	0.31496			8
8690810	-	-	-	8.100	0.31890	41	101	9
8700810	-	-	-					10
650032111	-	-	-	8.150	0.32087			
8690820	-	-	-	8.200	0.32283			9
8700820	-	-	-					10
8690830	-	-	-	8.300	0.32677	42		9
8700830	-	-	-					10
650032711	21/64	-	-	8.334	0.32813			3/8
8690840	-	-	-	8.400	0.33071			9
8700840	-	-	-					10
650033011	-	-	Q	8.433	0.33200	43		
8690850	-	-	-	8.500	0.33465			9
8700850	-	-	-					10
650033611	-	-	-	8.560	0.33701			
8690860	-	-	-	8.600	0.33858			9
8700860	-	-	-					10
650034011	-	-	-	8.640	0.34016	44		
650034111	-	-	-	8.680	0.34173			
8690870	-	-	-	8.700	0.34252			9
8700870	-	-	-					10
650034211	11/32	-	-	8.731	0.34375			3/8
8690880	-	-	-	8.800	0.34646			9
8700880	-	-	-					10
650034811	-	-	-	8.860	0.34882	45		
8690890	-	-	-	8.900	0.35039			9
8700890	-	-	-					10
8690900	-	-	-	9.000	0.35433			9
8700900	-	-	-					10
8690910	-	-	-	9.100	0.35827	46	106	10
650035811	23/64	-	-	9.128	0.35938			3/8
8690920	-	-	-	9.200	0.36220			10
8690930	-	-	-	9.300	0.36614	47		
8690940	-	-	-	9.400	0.37008			
8690950	-	-	-	9.500	0.37402	48		
650037511	3/8	-	-	9.525	0.37500			3/8

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6500 (Continued)

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-3D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
650037601	-	-	-	9.550	0.37598	48	106	10
8690960	-	-	-	9.600	0.37795			
8690970	-	-	-	9.700	0.38189	49		
8690980	-	-	-	9.800	0.38583			
8690990	-	-	-	9.900	0.38976	50		
650038911	25/64	-	-	9.922	0.39063			7/16
8691000	-	-	-	10.000	0.39370			10
8691010	-	-	-	10.100	0.39764	51	113	11
8701010	-	-	-					12
8691020	-	-	-	10.200	0.40157			11
8701020	-	-	-					12
8691030	-	-	-	10.300	0.40551	52		11
8701030	-	-	-					12
650040511	13/32	-	-	10.319	0.40625			7/16
8691040	-	-	-	10.400	0.40945			11
8701040	-	-	-					12
650041011	-	-	-	10.440	0.41102	53		
8691050	-	-	-	10.500	0.41339			11
8701050	-	-	-					12
8691060	-	-	-	10.600	0.41732			11
8701060	-	-	-					12
8691070	-	-	-	10.700	0.42126	54		11
8701070	-	-	-					12
650042111	27/64	-	-	10.716	0.42188			7/16
8691080	-	-	-	10.800	0.42520			11
8701080	-	-	-					12
650042661	-	-	-	10.860	0.42756	55		
8691090	-	-	-	10.900	0.42913			11
8701090	-	-	-					12
8691100	-	-	-	11.000	0.43307			11
8701100	-	-	-					12
8691110	-	-	-	11.100	0.43701	56	120	
650043711	7/16	-	-	11.113	0.43750			7/16
8691120	-	-	-	11.200	0.44094			12
8691130	-	-	-	11.300	0.44488	57		
8691140	-	-	-	11.400	0.44882			
8691150	-	-	-	11.500	0.45276	58		
650045211	29/64	-	-	11.509	0.45313			1/2
8691160	-	-	-	11.600	0.45669			12
8691170	-	-	-	11.700	0.46063	59		
8691180	-	-	-	11.800	0.46457			
8691190	-	-	-	11.900	0.46850	60		
650046711	15/32	-	-	11.906	0.46875			1/2
8691200	-	-	-	12.000	0.47244			12
8691210	-	-	-	12.100	0.47638	61	128	13
8701210	-	-	-					14
8691220	-	-	-	12.200	0.48031			13
8701220	-	-	-					14

Packed: 1 pc.
Available EgiAs coating only.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6500	▢	▢	▢	▢	▢	○	○	○	▢	○	○	○	○	▢	○	○	

○ good ▢ best

List 6500 (Continued)

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-3D, Coolant-Through



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8691230	-	-	-	12.300	0.48425	62	128	1/2
8701230	-	-	-					13
650048411	31/64	-	-	12.303	0.48438			14
8691240	-	-	-	12.400	0.48819			13
8701240	-	-	-					14
650049011	-	-	-	12.450	0.49016	63		
8691250	-	-	-	12.500	0.49213			13
8701250	-	-	-					14
8691260	-	-	-	12.600	0.49606			13
8701260	-	-	-					14
650049811	-	-	-	12.680	0.49921	64		
650050011	1/2	-	-	12.700	0.50000			1/2
8691270	-	-	-					13
8701270	-	-	-					14
8691280	-	-	-	12.800	0.50394			13
8701280	-	-	-					14
8691290	-	-	-	12.900	0.50787	65		13
8701290	-	-	-					14
8691300	-	-	-	13.000	0.51181			13
8701300	-	-	-					14
650051501	-	-	-	13.080	0.51496	66	134	
8691310	-	-	-	13.100	0.51575			
8691320	-	-	-	13.200	0.51969			
8691330	-	-	-	13.300	0.52362	67		
8691340	-	-	-	13.400	0.52756			
650053011	17/32	-	-	13.494	0.53125	68		5/8
8691350	-	-	-	13.500	0.53150			14
8691360	-	-	-	13.600	0.53543			
8691370	-	-	-	13.700	0.53937	69		
8691380	-	-	-	13.800	0.54331			
650054601	-	-	-	13.870	0.54606	70		
8691390	-	-	-	13.900	0.54724			
8691400	-	-	-	14.000	0.55118			
8691410	-	-	-	14.100	0.55512	71	140	15
8701410	-	-	-					16
8691420	-	-	-	14.200	0.55906			15
8701420	-	-	-					16
650056111	9/16	-	-	14.288	0.56250	72		5/8
8691430	-	-	-	14.300	0.56299			15
8701430	-	-	-					16
8691440	-	-	-	14.400	0.56693			15
8701440	-	-	-					16
8691450	-	-	-	14.500	0.57087	73		15
8701450	-	-	-					16
8691460	-	-	-	14.600	0.57480			15
8701460	-	-	-					16
650057711	37/64	-	-	14.684	0.57813	74		5/8
8691470	-	-	-	14.700	0.57874			15
8701470	-	-	-					16
8691480	-	-	-	14.800	0.58268			15
8701480	-	-	-					16
8691490	-	-	-	14.900	0.58661	75		15
8701490	-	-	-					16

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6500 (Continued)

ADO-3D, Coolant-Through

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8691500	-	-	-	15.000	0.59055	75	140	15
8701500	-	-	-					16
8691510	-	-	-	15.100	0.59449	76	145	
8691520	-	-	-	15.200	0.59843			
8691530	-	-	-	15.300	0.60236	77		
8691540	-	-	-	15.400	0.60630			
8691550	-	-	-	15.500	0.61024	78		
8691560	-	-	-	15.600	0.61417			
8691570	-	-	-	15.700	0.61811	79		
8691580	-	-	-	15.800	0.62205			
650062511	5/8	-	-	15.875	0.62500	80		5/8
8691590	-	-	-	15.900	0.62598			16
8691600	-	-	-	16.000	0.62992			
650063311	-	-	-	16.100	0.63386	81	150	18
8691650	-	-	-	16.500	0.64961	83		17
8701650	-	-	-					18
650065511	21/32	-	-	16.669	0.65625	85		3/4
650066311	-	-	-	16.840	0.66299			18
8691700	-	-	-	17.000	0.66929			17
8701700	-	-	-					18
8691750	-	-	-	17.500	0.68898	88	155	
650069321	-	-	-	17.610	0.69331	90		
650069601	-	-	-	17.680	0.69606			
650069801	-	-	-	17.730	0.69803			
8691800	-	-	-	18.000	0.70866			
8691850	-	-	-	18.500	0.72835	93	160	19
8701850	-	-	-					20
650073311	-	-	-	18.640	0.73386	95		
8691900	-	-	-	19.000	0.74803			19
8701900	-	-	-					20
650075011	3/4	-	-	19.050	0.75000			3/4
650075711	-	-	-	19.250	0.75787	97	165	20
8691950	-	-	-	19.500	0.76772	98		
650077401	-	-	-	19.660	0.77402	100		
650077661	-	-	-	19.730	0.77677			
650077801	-	-	-	19.760	0.77795			
8692000	-	-	-	20.000	0.78740			

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6500	◻	◻	◻	◻	◻	○	○	○	◻	○	○	○	○	◻	○	○	

○ good ◻ best

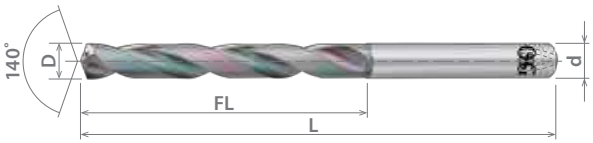
List 6510

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-5D, Coolant-Through



R Thinning



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
651007812	-	-	-	2.000	0.07874	18	70	3
651008212	-	-	-	2.100	0.08268	19		
651008612	-	-	-	2.200	0.08661	20		
8692230	-	-	-	2.300	0.09055	21		
651009312	3/32	-	-	2.381	0.09375	22		
651009412	-	-	-	2.400	0.09449			
8692250	-	-	-	2.500	0.09843	23		
8692260	-	-	-	2.600	0.10236	24	78	
651010612	-	-	-	2.700	0.10630	25		
8692278	7/64	-	-	2.778	0.10938	26		
8692280	-	-	-	2.800	0.11024			
8692290	-	-	-	2.900	0.11417	27		
8692300	-	-	-	3.000	0.11811			
8692310	-	-	-	3.100	0.12205	28	86	4
651012511	1/8	-	-	3.175	0.12500	29		1/8
8692320	-	-	-	3.200	0.12598			4
8692330	-	-	-	3.300	0.12992	30		
8692340	-	-	-	3.400	0.13386	31		
8692350	-	-	-	3.500	0.13780	32		
8692360	-	-	-	3.600	0.14173	33		
8692370	-	-	-	3.700	0.14567	34		
8692380	-	-	-	3.800	0.14961	35		
8692390	-	-	-	3.900	0.15354	36		
651015511	5/32	-	-	3.969	0.15625			3/16
8692400	-	-	-	4.000	0.15748			4
651016011	-	20	-	4.089	0.16100	37	95	6
8692410	-	-	-	4.100	0.16142			5
8702410	-	-	-					6
8692420	-	-	-	4.200	0.16535	38		5
8702420	-	-	-					6
8692430	-	-	-	4.300	0.16929	39		5
8702430	-	-	-					6
651017111	11/64	-	-	4.366	0.17188	40		3/16
8692440	-	-	-	4.400	0.17323			5
8702440	-	-	-					6
8692450	-	-	-	4.500	0.17717	41		5
8702450	-	-	-					6
8692460	-	-	-	4.600	0.18110	42		5
8702460	-	-	-					6
8692470	-	-	-	4.700	0.18504	43		5
8702470	-	-	-					6
651018711	3/16	-	-	4.763	0.18750	44		3/16
8692480	-	-	-	4.800	0.18898			5
8702480	-	-	-					6
8692490	-	-	-	4.900	0.19291	45		5
8702490	-	-	-					6
8692500	-	-	-	5.000	0.19685			5
8702500	-	-	-					6
8692510	-	-	-	5.100	0.20079	41	100	

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6510 (Continued)

ADO-5D, Coolant-Through

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
651020211	13/64	-	-	5.159	0.20313	42	100	1/4
8692520	-	-	-	5.200	0.20472			6
8692530	-	-	-	5.300	0.20866	43		
8692540	-	-	-	5.400	0.21260	44		
651021311	-	3	-	5.410	0.21300			1/4
8692550	-	-	-	5.500	0.21654			6
651021711	7/32	-	-	5.556	0.21875	45		1/4
8692560	-	-	-	5.600	0.22047			6
8692570	-	-	-	5.700	0.22441	46		
8692580	-	-	-	5.800	0.22835	47		
8692590	-	-	-	5.900	0.23228	48		
651023311	15/64	-	-	5.953	0.23438			1/4
8692600	-	-	-	6.000	0.23622			6
8692610	-	-	-	6.100	0.24016	49	109	7
8702610	-	-	-					8
8692620	-	-	-	6.200	0.24409	50		7
8702620	-	-	-					8
8692630	-	-	-	6.300	0.24803	51		7
8702630	-	-	-					8
651025011	1/4	-	E	6.350	0.25000	52		1/4
8692640	-	-	-	6.400	0.25197			7
8702640	-	-	-					8
8692650	-	-	-	6.500	0.25591			7
8702650	-	-	-					8
651025611	-	-	F	6.528	0.25700	53		
8692660	-	-	-	6.600	0.25984			7
8702660	-	-	-					8
8692670	-	-	-	6.700	0.26378	54		7
8702670	-	-	-					8
651026411	17/64	-	-	6.747	0.26563	55		5/16
8692680	-	-	-	6.800	0.26772			7
8702680	-	-	-					8
8692690	-	-	-	6.900	0.27165	56		7
8702690	-	-	-					8
8692700	-	-	-	7.000	0.27559			7
8702700	-	-	-					8
8692710	-	-	-	7.100	0.27953	57	118	
651028011	9/32	-	-	7.144	0.28125	58		5/16
8692720	-	-	-	7.200	0.28346			8
8692730	-	-	-	7.300	0.28740	59		
8692740	-	-	-	7.400	0.29134	60		
8692750	-	-	-	7.500	0.29528			
651029611	19/64	-	-	7.541	0.29688			5/16
8692760	-	-	-	7.600	0.29921	61		8
8692770	-	-	-	7.700	0.30315	62		
8692780	-	-	-	7.800	0.30709	63		
8692790	-	-	-	7.900	0.31102	64		
651031211	5/16	-	-	7.938	0.31250			5/16
8692800	-	-	-	8.000	0.31496			8

Packed: 1 pc.
Available EgiAs coating only.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6510	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	

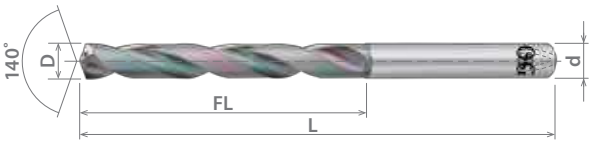
▢ good ▢ best

List 6510 (Continued)

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-5D, Coolant-Through





Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8692810	-	-	-	8.100	0.31890	65	128	9
8702810	-	-	-					10
8692820	-	-	-	8.200	0.32283	66		9
8702820	-	-	-					10
8692830	-	-	-	8.300	0.32677	67		9
8702830	-	-	-					10
651032711	21/64	-	-	8.334	0.32813			3/8
8692840	-	-	-	8.400	0.33071	68		9
8702840	-	-	-					10
651033111	-	-	Q	8.433	0.33200			11/32
8692850	-	-	-	8.500	0.33465			9
8702850	-	-	-					10
8692860	-	-	-	8.600	0.33858	69		9
8702860	-	-	-					10
8692870	-	-	-	8.700	0.34252	70		9
8702870	-	-	-					10
651034211	11/32	-	-	8.731	0.34375			3/8
8692880	-	-	-	8.800	0.34646	71		9
8702880	-	-	-					10
8692890	-	-	-	8.900	0.35039	72		9
8702890	-	-	-					10
8692900	-	-	-	9.000	0.35433			9
8702900	-	-	-					10
8692910	-	-	-	9.100	0.35827	73	136	
651035811	23/64	-	-	9.128	0.35938			3/8
8692920	-	-	-	9.200	0.36220	74		10
8692930	-	-	-	9.300	0.36614	75		
8692940	-	-	-	9.400	0.37008	76		
8692950	-	-	-	9.500	0.37402			
651037511	3/8	-	-	9.525	0.37500			3/8
8692960	-	-	-	9.600	0.37795	77		10
8692970	-	-	-	9.700	0.38189	78		
8692980	-	-	-	9.800	0.38583	79		
8692990	-	-	-	9.900	0.38976	80		
651038911	25/64	-	-	9.922	0.39063			7/16
8693000	-	-	-	10.000	0.39370			10
8693010	-	-	-	10.100	0.39764	81	146	11
8703010	-	-	-					12
8693020	-	-	-	10.200	0.40157	82		11
8703020	-	-	-					12
8693030	-	-	-	10.300	0.40551	83		11
8703030	-	-	-					12
651040511	13/32	-	-	10.319	0.40625			7/16
8693040	-	-	-	10.400	0.40945	84		11
8703040	-	-	-					12
8693050	-	-	-	10.500	0.41339			11
8703050	-	-	-					12
8693060	-	-	-	10.600	0.41732	85		11
8703060	-	-	-					12
8693070	-	-	-	10.700	0.42126	86		11
8703070	-	-	-					12
651042111	27/64	-	-	10.716	0.42188			7/16

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6510 (Continued)

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-5D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8693080	-	-	-	10.800	0.42520	87	146	11
8703080	-	-	-					12
8693090	-	-	-	10.900	0.42913	88		11
8703090	-	-	-					12
8693100	-	-	-	11.000	0.43307			11
8703100	-	-	-					12
8693110	-	-	-	11.100	0.43701	89	156	
651043711	7/16	-	-	11.113	0.43750			7/16
8693120	-	-	-	11.200	0.44094	90		12
8693130	-	-	-	11.300	0.44488	91		
8693140	-	-	-	11.400	0.44882	92		
8693150	-	-	-	11.500	0.45276			
651045211	29/64	-	-	11.509	0.45313			1/2
8693160	-	-	-	11.600	0.45669	93		12
8693170	-	-	-	11.700	0.46063	94		
8693180	-	-	-	11.800	0.46457	95		
8693190	-	-	-	11.900	0.46850	96		
651046711	15/32	-	-	11.906	0.46875			1/2
8693200	-	-	-	12.000	0.47244			12
8693210	-	-	-	12.100	0.47638	97	167	13
8703210	-	-	-					14
8693220	-	-	-	12.200	0.48031	98		13
8703220	-	-	-					14
8693230	-	-	-	12.300	0.48425	99		1/2
8703230	-	-	-					13
651048411	31/64	-	-	12.303	0.48438			14
8693240	-	-	-	12.400	0.48819	100		13
8703240	-	-	-					14
8693250	-	-	-	12.500	0.49213			13
8703250	-	-	-					14
8693260	-	-	-	12.600	0.49606	101		13
8703260	-	-	-					14
651050011	1/2	-	-	12.700	0.50000	102		1/2
8693270	-	-	-					13
8703270	-	-	-					14
8693280	-	-	-	12.800	0.50394	103		13
8703280	-	-	-					14
8693290	-	-	-	12.900	0.50787	104		13
8703290	-	-	-					14
8693300	-	-	-	13.000	0.51181			13
8703300	-	-	-					14

Packed: 1 pc.
Available EgiAs coating only.

continued on next page ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6510	▣	▣	▣	▣	▣	▢	▢	▢	▣	▢	▢	▢	▢	▣	▢	▢	

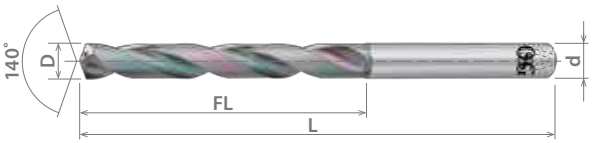
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List 6510 (Continued)

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-5D, Coolant-Through





Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8693310	-	-	-	13.100	0.51575	105	176	14
8693320	-	-	-	13.200	0.51969	106		
8693330	-	-	-	13.300	0.52362	107		
8693340	-	-	-	13.400	0.52756	108		5/8
651053011	17/32	-	-	13.494	0.53125			
8693350	-	-	-	13.500	0.53150			14
8693360	-	-	-	13.600	0.53543	109		
8693370	-	-	-	13.700	0.53937	110		
8693380	-	-	-	13.800	0.54331	111		
8693390	-	-	-	13.900	0.54724	112		14
8693400	-	-	-	14.000	0.55118			
8693410	-	-	-	14.100	0.55512	113	185	15
8703410	-	-	-					16
8693420	-	-	-	14.200	0.55906	114		15
8703420	-	-	-					16
651056111	9/16	-	-	14.288	0.56250	115		5/8
8693430	-	-	-	14.300	0.56299			15
8703430	-	-	-					16
8693440	-	-	-	14.400	0.56693	116		15
8703440	-	-	-					16
8693450	-	-	-	14.500	0.57087			15
8703450	-	-	-					16
8693460	-	-	-	14.600	0.57480	117		15
8703460	-	-	-					16
8693470	-	-	-	14.700	0.57874	118		15
8703470	-	-	-					16
8693480	-	-	-	14.800	0.58268	119		15
8703480	-	-	-					16
8693490	-	-	-	14.900	0.58661	120		15
8703490	-	-	-					16
8693500	-	-	-	15.000	0.59055			15
8703500	-	-	-					16
8693510	-	-	-	15.100	0.59449	121	193	
8693520	-	-	-	15.200	0.59843	122		
8693530	-	-	-	15.300	0.60236	123		
8693540	-	-	-	15.400	0.60630	124		
8693550	-	-	-	15.500	0.61024			
8693560	-	-	-	15.600	0.61417	125		
8693570	-	-	-	15.700	0.61811	126		
8693580	-	-	-	15.800	0.62205	127		
651062511	5/8	-	-	15.875	0.62500	128		5/8
8693590	-	-	-	15.900	0.62598			16
8693600	-	-	-	16.000	0.62992			
651063311	-	-	-	16.100	0.63386	129	201	18
8693650	-	-	-	16.500	0.64961	132		17
8703650	-	-	-					18
651065511	21/32	-	-	16.669	0.65625	134		3/4
8693700	-	-	-	17.000	0.66929	136		17
8703700	-	-	-					18
8693750	-	-	-	17.500	0.68898	140	209	
8693800	-	-	-	18.000	0.70866	144		

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6510 (Continued)

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-5D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8693850	-	-	-	18.500	0.72835	148	217	19
8703850	-	-	-					20
8693900	-	-	-	19.000	0.74803	152		19
8703900	-	-	-					20
651075011	3/4	-	-	19.050	0.75000	154		3/4
651075711	-	-	-	19.250	0.75787			20
8693950	-	-	-	19.500	0.76772	156	225	
8694000	-	-	-	20.000	0.78740	160		

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6510	◎	◎	◎	◎	◎	○	○	○	◎	○	○	○	○	◎	○	○	

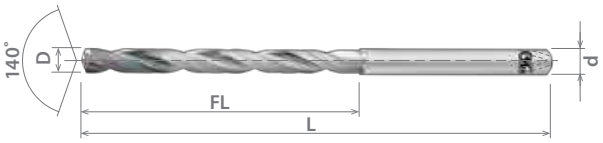
○ good ◎ best

List 6520

ADO-8D, Coolant-Through

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6


R Thinning



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤15.88	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
*8694200	-	-	-	2.000	0.07874	22	75	3
*8694210	-	-	-	2.100	0.08268	24		
*8694220	-	-	-	2.200	0.08661	25		
*8694230	-	-	-	2.300	0.09055	26		
*652009312	3/32	-	-	2.381	0.09375	27		
*8694240	-	-	-	2.400	0.09449			
*8694250	-	-	-	2.500	0.09843	28		
*8694260	-	-	-	2.600	0.10236	29	80	
*8694270	-	-	-	2.700	0.10630	30		
*652010911	7/64	-	-	2.778	0.10938	31		
*8694280	-	-	-	2.800	0.11024			
*8694290	-	-	-	2.900	0.11417	32		
8694300	-	-	-	3.000	0.11811	33		
8694310	-	-	-	3.100	0.12205	34	95	4
652012511	1/8	-	-	3.175	0.12500	35		1/8
8694320	-	-	-	3.200	0.12598	36		4
8694330	-	-	-	3.300	0.12992			
8694340	-	-	-	3.400	0.13386	37		
8694350	-	-	-	3.500	0.13780	39		
8694360	-	-	-	3.600	0.14173	40		
8694370	-	-	-	3.700	0.14567	41		
8694380	-	-	-	3.800	0.14961	42		
8694390	-	-	-	3.900	0.15354	43		
652015511	5/32	-	-	3.969	0.15625	44		3/16
8694400	-	-	-	4.000	0.15748			4
652016011	-	20	-	4.089	0.16100	45	105	6
8704410	-	-	-	4.100	0.16142			
8704420	-	-	-	4.200	0.16535	46		
8704430	-	-	-	4.300	0.16929	47		
652017111	11/64	-	-	4.366	0.17188			3/16
8704440	-	-	-	4.400	0.17323	48		6
8694450	-	-	-	4.500	0.17717	50		5
8704450	-	-	-					6
8704460	-	-	-	4.600	0.18110	51		
8704470	-	-	-	4.700	0.18504	52		
652018711	3/16	-	-	4.763	0.18750			3/16
8704480	-	-	-	4.800	0.18898	53		6
8704490	-	-	-	4.900	0.19291	54		
8694500	-	-	-	5.000	0.19685	55		5
8704500	-	-	-					6
8704510	-	-	-	5.100	0.20079	56	115	
652020211	13/64	-	-	5.159	0.20313	57		1/4
8704520	-	-	-	5.200	0.20472			6
8704530	-	-	-	5.300	0.20866	58		
8704540	-	-	-	5.400	0.21260	59		
652021311	-	3	-	5.410	0.21300	60		1/4
8694550	-	-	-	5.500	0.21654	61		6
652021711	7/32	-	-	5.556	0.21875			1/4
8704560	-	-	-	5.600	0.22047	62		6
8704570	-	-	-	5.700	0.22441	63		

Packed: 1 pc.
Available EgiAs coating only.
* Sizes ≤ 2.90 mm have a single margin. Sizes ≥ 3 mm have a double margin.

ADR

List 6520 (Continued)

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-8D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8704580	-	-	-	5.800	0.22835	64	115	6
8704590	-	-	-	5.900	0.23228	65		
652023311	15/64	-	-	5.953	0.23438	66		1/4
8694600	-	-	-	6.000	0.23622			6
8704610	-	-	-	6.100	0.24016	67	125	8
8704620	-	-	-	6.200	0.24409	68		
8704630	-	-	-	6.300	0.24803	69		
652025011	1/4	-	E	6.350	0.25000	70		1/4
8704640	-	-	-	6.400	0.25197			8
8694650	-	-	-	6.500	0.25591	72		7
8704650	-	-	-					8
652025611	-	-	F	6.528	0.25700			
8704660	-	-	-	6.600	0.25984	73		
8704670	-	-	-	6.700	0.26378	74		
652026411	17/64	-	-	6.747	0.26563			5/16
8704680	-	-	-	6.800	0.26772	75		8
8704690	-	-	-	6.900	0.27165	76		
8694700	-	-	-	7.000	0.27559	77		7
8704700	-	-	-					8
8704710	-	-	-	7.100	0.27953	78	140	
652028011	9/32	-	-	7.144	0.28125	79		5/16
8704720	-	-	-	7.200	0.28346			8
8704730	-	-	-	7.300	0.28740	80		
8704740	-	-	-	7.400	0.29134	81		
8694750	-	-	-	7.500	0.29528	83		
652029611	19/64	-	-	7.541	0.29688	84		5/16
8704760	-	-	-	7.600	0.29921			8
8704770	-	-	-	7.700	0.30315	85		
8704780	-	-	-	7.800	0.30709	86		
8704790	-	-	-	7.900	0.31102	87		
652031211	5/16	-	-	7.938	0.31250			5/16
8694800	-	-	-	8.000	0.31496	88		8
8704810	-	-	-	8.100	0.31890	89	150	10
8704820	-	-	-	8.200	0.32283	90		
8704830	-	-	-	8.300	0.32677	91		
652032711	21/64	-	-	8.334	0.32813	92		3/8
8704840	-	-	-	8.400	0.33071			10
652033111	-	-	Q	8.433	0.33200	93		11/32
8694850	-	-	-	8.500	0.33465	94		9
8704850	-	-	-					10
8704860	-	-	-	8.600	0.33858	95		
8704870	-	-	-	8.700	0.34252	96		
652035211	11/32	-	-	8.733	0.34375			3/8
8704880	-	-	-	8.800	0.34646	97		10
8704890	-	-	-	8.900	0.35039	98		

Packed: 1 pc.
Available EgiAs coating only.
* Sizes ≤ 2.90 mm have a single margin. Sizes ≥ 3 mm have a double margin.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6520	▢	▢	▢	▢	▢	○	○	○	▢	○	○	○	○	▢	○	○	

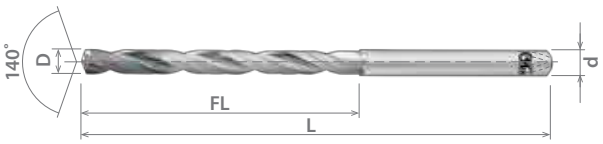
○ good ▢ best

List 6520 (Continued)

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-8D, Coolant-Through


R Thinning



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤15.88	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8694900	-	-	-	9.000	0.35433	99	150	9
8704900	-	-	-					10
8704910	-	-	-	9.100	0.35827	100	160	
652035711	23/64	-	-	9.128	0.35938	101		3/8
8704920	-	-	-	9.200	0.36220			10
8704930	-	-	-	9.300	0.36614	102		
8704940	-	-	-	9.400	0.37008	103		
8694950	-	-	-	9.500	0.37402	105		
652037511	3/8	-	-	9.525	0.37500			3/8
8704960	-	-	-	9.600	0.37795	106		10
8704970	-	-	-	9.700	0.38189	107		
8704980	-	-	-	9.800	0.38583	108		
8704990	-	-	-	9.900	0.38976	109		
652038811	25/64	-	-	9.922	0.39063	110		7/16
8695000	-	-	-	10.000	0.39370			10
8705010	-	-	-	10.100	0.39764	111	182	12
8705020	-	-	-	10.200	0.40157	112		
8705030	-	-	-	10.300	0.40551	113		
652040711	13/32	-	-	10.319	0.40625			7/16
8705040	-	-	-	10.400	0.40945	114		12
8695050	-	-	-	10.500	0.41339	116		11
8705050	-	-	-					12
8705060	-	-	-	10.600	0.41732	117		
8705070	-	-	-	10.700	0.42126	118		
652042111	27/64	-	-	10.716	0.42188			7/16
8705080	-	-	-	10.800	0.42520	119		12
8705090	-	-	-	10.900	0.42913	120		
8695100	-	-	-	11.000	0.43307	121		11
8705100	-	-	-					12
8705110	-	-	-	11.100	0.43701	122	194	
652043811	7/16	-	-	11.113	0.43750			7/16
8705120	-	-	-	11.200	0.44094	123		12
8705130	-	-	-	11.300	0.44488	124		
8705140	-	-	-	11.400	0.44882	125		
8695150	-	-	-	11.500	0.45276	127		
652045211	29/64	-	-	11.509	0.45313			1/2
8705160	-	-	-	11.600	0.45669	128		12
8705170	-	-	-	11.700	0.46063	129		
8705180	-	-	-	11.800	0.46457	130		
8705190	-	-	-	11.900	0.46850	131		
8695200	-	-	-	12.000	0.47244	132		
8705210	-	-	-	12.100	0.47638	133	206	14
8705220	-	-	-	12.200	0.48031	134		
8705230	-	-	-	12.300	0.48425	135		
8705240	-	-	-	12.400	0.48819	136		
8695250	-	-	-	12.500	0.49213	138		13
8705250	-	-	-					14
8705260	-	-	-	12.600	0.49606	139		
652050011	1/2	-	-	12.700	0.50000	140		1/2

Packed: 1 pc.
Available EgiAs coating only.
* Sizes ≤ 2.90 mm have a single margin. Sizes ≥ 3 mm have a double margin.

ADR

List 6520 (Continued)

ADO-8D, Coolant-Through

SPEED FEED P351 | CARBIDE | EgiAs | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
652053011	17/32	-	-	13.494	0.53125	149	218	5/8
8705350	-	-	-	13.500	0.53150			14
8705400	-	-	-	14.000	0.55118	154		
652056111	9/16	-	-	14.288	0.56250	157	230	5/8
8705450	-	-	-	14.500	0.57087	160		16
652062511	5/8	-	-	15.875	0.62500	175	241	5/8

Packed: 1 pc.
Available EgiAs coating only.
* Sizes ≤ 2.90 mm have a single margin. Sizes ≥ 3 mm have a double margin.

ADR

Work Material

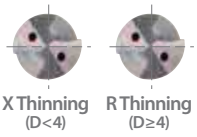
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6520	◎	◎	◎	◎	◎	○	○	○	◎	○	○	○	○	◎	○	○	

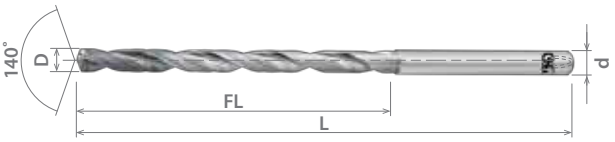
○ good ◎ best

List 6530

ADO-10D, Coolant-Through

SPEED FEED P352-353 | CARBIDE | EgiAs | 30° | SHANK h6





Cutting Diameter Tolerance (e8)		
Size	mm	inch
2≤D≤3	-0.014 / -0.028	-0.0006 / -0.0011
3<D≤6	-0.020 / -0.038	-0.0008 / -0.0015
6<D≤10	-0.025 / -0.047	-0.0010 / -0.0019
10<D≤14.29	-0.032 / -0.059	-0.0013 / -0.0023

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
*653007812	-	-	-	2.000	0.07874	26	75	3
*653008212	-	-	-	2.100	0.08268	33		
*653008612	-	-	-	2.200	0.08661			
*653009012	-	-	-	2.300	0.09055			
*653009312	3/32	-	-	2.381	0.09375			
*653009412	-	-	-	2.400	0.09449			
*653009812	-	-	-	2.500	0.09843			
*653010212	-	-	-	2.600	0.10236	40	90	
*653010612	-	-	-	2.700	0.10630			
*653010912	7/64	-	-	2.778	0.10938			
*653011012	-	-	-	2.800	0.11024			
*653011412	-	-	-	2.900	0.11417			
8696300	-	-	-	3.000	0.11811			
653012212	-	-	-	3.100	0.12205	45	100	4
653012512	1/8	-	-	3.175	0.12500			1/8
653012612	-	-	-	3.200	0.12598			4
653012912	-	-	-	3.300	0.12992			
653013312	-	-	-	3.400	0.13386	50		
8696350	-	-	-	3.500	0.13780			
653014112	-	-	-	3.600	0.14173			
653014512	-	-	-	3.700	0.14567			
653014912	-	-	-	3.800	0.14961			
653015312	-	-	-	3.900	0.15354			
653015612	5/32	-	-	3.969	0.15625			3/16
8696400	-	-	-	4.000	0.15748			4
653016012	-	20	-	4.089	0.16100	55	115	6
8710410	-	-	-	4.100	0.16142			
8710420	-	-	-	4.200	0.16535			
8710430	-	-	-	4.300	0.16929	60		
8710440	-	-	-	4.400	0.17323			
8696450	-	-	-	4.500	0.17717			5
8710450	-	-	-					6
8710460	-	-	-	4.600	0.18110			
8710470	-	-	-	4.700	0.18504	65		
653018712	3/16	-	-	4.763	0.18750			3/16
8710480	-	-	-	4.800	0.18898			6
8710490	-	-	-	4.900	0.19291			
8696500	-	-	-	5.000	0.19685			5
8710500	-	-	-					6
653020012	-	-	-	5.100	0.20079	70	128	
653020212	13/64	-	-	5.159	0.20313			1/4
653020412	-	-	-	5.200	0.20472			6
653020812	-	-	-	5.300	0.20866			
653021212	-	-	-	5.400	0.21260	78		
653021112	-	3	-	5.410	0.21300			
8696550	-	-	-	5.500	0.21654			
653021712	7/32	-	-	5.556	0.21875			1/4
653022012	-	-	-	5.600	0.22047			6
653022412	-	-	-	5.700	0.22441			
653022812	-	-	-	5.800	0.22835			

Packed: 1 pc.
Available EgiAs coating only.
* Sizes ≤ 2.90 mm have a single margin. Sizes ≥ 3 mm have a double margin.

ADR

List 6530 (Continued)

ADO-10D, Coolant-Through

SPEED FEED P352-353 | CARBIDE | EgiAs | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
653023212	-	-	-	5.900	0.23228	78	128	6
8696600	-	-	-	6.000	0.23622			
8710610	-	-	-	6.100	0.24016	87	140	8
8696620	-	-	-	6.200	0.24409			7
8710620	-	-	-					8
8710630	-	-	-	6.300	0.24803			
653025012	1/4	-	E	6.350	0.25000			1/4
8710640	-	-	-	6.400	0.25197			8
8696650	-	-	-	6.500	0.25591			7
8710650	-	-	-					8
653025612	-	-	F	6.528	0.25700			
8710660	-	-	-	6.600	0.25984			
8710670	-	-	-	6.700	0.26378			
653026412	17/64	-	-	6.747	0.26563	90		5/16
8710680	-	-	-	6.800	0.26772			8
8710690	-	-	-	6.900	0.27165			
8696700	-	-	-	7.000	0.27559			7
8710700	-	-	-					8
653027912	-	-	-	7.100	0.27953	100	155	
653028012	9/32	-	-	7.144	0.28125			5/16
653028312	-	-	-	7.200	0.28346			8
653028712	-	-	-	7.300	0.28740			
653029112	-	-	-	7.400	0.29134			
8696750	-	-	-	7.500	0.29528			
653029912	-	-	-	7.600	0.29921	105		
653030312	-	-	-	7.700	0.30315			
653030712	-	-	-	7.800	0.30709			
653031112	-	-	-	7.900	0.31102			
653031212	5/16	-	-	7.938	0.31250			5/16
8696800	-	-	-	8.000	0.31496			8
8710810	-	-	-	8.100	0.31890	110	165	10
8710820	-	-	-	8.200	0.32283			
8696830	-	-	-	8.300	0.32677			9
8710830	-	-	-					10
8710840	-	-	-	8.400	0.33071			
653033112	-	-	Q	8.433	0.33200			
8696850	-	-	-	8.500	0.33465			9
8710850	-	-	-					10
8710860	-	-	-	8.600	0.33858	115		
8710870	-	-	-	8.700	0.34252			
653034212	11/32	-	-	8.731	0.34375			3/8
8710880	-	-	-	8.800	0.34646			10
8710890	-	-	-	8.900	0.35039			
8696900	-	-	-	9.000	0.35433			9
8710900	-	-	-					10

Packed: 1 pc.
Available EgiAs coating only.
* Sizes ≤ 2.90 mm have a single margin. Sizes ≥ 3 mm have a double margin.

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ADR

Work Material

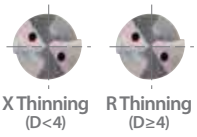
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6530	▢	▢	▢	▢	▢	○	○	○	▢					○			

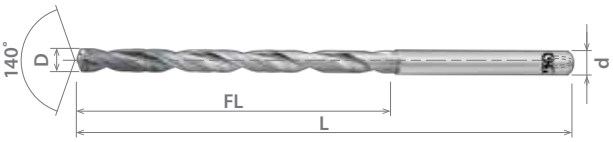
○ good ▢ best

List 6530 (Continued)

SPEED FEED P352-353 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-10D, Coolant-Through





Cutting Diameter Tolerance (e8)		
Size	mm	inch
2≤D≤3	-0.014 / -0.028	-0.0006 / -0.0011
3<D≤6	-0.020 / -0.038	-0.0008 / -0.0015
6<D≤10	-0.025 / -0.047	-0.0010 / -0.0019
10<D≤14.29	-0.032 / -0.059	-0.0013 / -0.0023

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
653035812	-	-	-	9.100	0.35827	125	190	10
653036212	-	-	-	9.200	0.36220			
653036612	-	-	-	9.300	0.36614			
653037012	-	-	-	9.400	0.37008			
8696950	-	-	-	9.500	0.37402			
653037512	3/8	-	-	9.525	0.37500	130		3/8
653037812	-	-	-	9.600	0.37795			10
653038112	-	-	-	9.700	0.38189			
653038512	-	-	-	9.800	0.38583			
653038912	-	-	-	9.900	0.38976			
8697000	-	-	-	10.000	0.39370			
8711010	-	-	-	10.100	0.39764	140	205	12
8711020	-	-	-	10.200	0.40157			
8711030	-	-	-	10.300	0.40551			
8711040	-	-	-	10.400	0.40945			
8711050	-	-	-	10.500	0.41339			
8711060	-	-	-	10.600	0.41732			
8711070	-	-	-	10.700	0.42126			
653042312	27/64	-	-	10.716	0.42188	145		7/16
8711080	-	-	-	10.800	0.42520			12
8711090	-	-	-	10.900	0.42913			
8697100	-	-	-	11.000	0.43307			11
8711100	-	-	-					12
653043712	-	-	-	11.100	0.43701	155	215	
653043812	7/16	-	-	11.113	0.43750			7/16
653044012	-	-	-	11.200	0.44094			12
653044412	-	-	-	11.300	0.44488			
653044812	-	-	-	11.400	0.44882			
653045212	-	-	-	11.500	0.45276			
653045412	29/64	-	-	11.509	0.45313			1/2
653045612	-	-	-	11.600	0.45669			12
653046012	-	-	-	11.700	0.46063			
653046412	-	-	-	11.800	0.46457			
653046812	-	-	-	11.900	0.46850			
8697200	-	-	-	12.000	0.47244			
8711250	-	-	-	12.500	0.49213			14
653050012	1/2	-	-	12.700	0.50000			1/2
653056112	9/16	-	-	14.288	0.56250	180	230	5/8

Packed: 1 pc.
Available EgiAs coating only.
* Sizes ≤ 2.90 mm have a single margin. Sizes ≥ 3 mm have a double margin.

ADR

Work Material

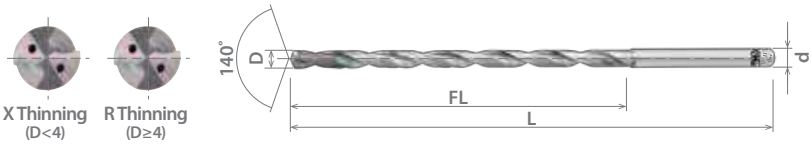
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6530	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢			

▢ good ▢ best

List 6535

ADO-15D, Coolant-Through

SPEED FEED P352-353 | CARBIDE | EgiAs | 30° | SHANK h6



Cutting Diameter Tolerance (e8)		
Size	mm	inch
D=3	-0.014 / -0.028	-0.0006 / -0.0011
3<D≤6	-0.020 / -0.038	-0.0008 / -0.0015
6<D≤10	-0.025 / -0.047	-0.0010 / -0.0019
10<D≤14.29	-0.032 / -0.059	-0.0013 / -0.0023

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8698300	-	-	-	3.000	0.11811	55	105	3
653512512	1/8	-	-	3.175	0.12500	60	125	1/8
8698320	-	-	-	3.200	0.12598			4
8698350	-	-	-	3.500	0.13780	65		
653514112	9/64	-	-	3.572	0.14063			5/32
653515612	5/32	-	-	3.969	0.15625	75		3/16
8698400	-	-	-	4.000	0.15748			4
653517212	11/64	-	-	4.366	0.17188	85	140	3/16
8712440	-	-	-	4.400	0.17323			6
8712450	-	-	-	4.500	0.17717			
653518712	3/16	-	-	4.763	0.18750	90		3/16
8712480	-	-	-	4.800	0.18898			6
8712500	-	-	-	5.000	0.19685			
8712510	-	-	-	5.100	0.20079	95	160	
653520312	13/64	-	-	5.159	0.20313			1/4
8712520	-	-	-	5.200	0.20472			
653521312	-	-	-	5.410	0.21299	110		6
8698550	-	-	-	5.500	0.21654			
653521912	7/32	-	-	5.556	0.21875			1/4
653523412	15/64	-	-	5.953	0.23438			
8698600	-	-	-	6.000	0.23622			6
8712620	-	-	-	6.200	0.24409	120	175	8
653525012	1/4	-	E	6.350	0.25000			1/4
8712650	-	-	-	6.500	0.25591			8
653526612	17/64	-	-	6.747	0.26563	125		5/16
8712700	-	-	-	7.000	0.27559			8
653528112	9/32	-	-	7.144	0.28125	135	195	5/16
8698750	-	-	-	7.500	0.29528	145		8
653529712	19/64	-	-	7.541	0.29688			5/16
653531312	5/16	-	-	7.938	0.31250			
8698800	-	-	-	8.000	0.31496			8
8712810	-	-	-	8.100	0.31890	155	210	10
8712820	-	-	-	8.200	0.32283			
653532812	21/64	-	-	8.334	0.32813			3/8
8712850	-	-	-	8.500	0.33465			10
653534412	11/32	-	-	8.731	0.34375	160		3/8
8712900	-	-	-	9.000	0.35433			10
653535912	23/64	-	-	9.128	0.35938	170	240	3/8
8712940	-	-	-	9.400	0.37008			10
8698950	-	-	-	9.500	0.37402			

Packed: 1 pc.
Available EgiAs coating only.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6535	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢			

▢ good ▢ best

List 6535 (Continued)

SPEED FEED P352-353 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-15D, Coolant-Through





Cutting Diameter Tolerance (e8)		
Size	mm	inch
D=3	-0.014 / -0.028	-0.0006 / -0.0011
3<D≤6	-0.020 / -0.038	-0.0008 / -0.0015
6<D≤10	-0.025 / -0.047	-0.0010 / -0.0019
10<D≤14.29	-0.032 / -0.059	-0.0013 / -0.0023

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
653537512	3/8	-	-	9.525	0.37500	180	240	3/8
8712980	-	-	-	9.800	0.38583			10
653539112	25/64	-	-	9.922	0.39063			7/16
8699000	-	-	-	10.000	0.39370			10
653540612	13/32	-	-	10.319	0.40625	190	260	7/16
8713050	-	-	-	10.500	0.41339			12
653542212	27/64	-	-	10.716	0.42188	200		7/16
8713100	-	-	-	11.000	0.43307			12
653543712	7/16	-	-	11.113	0.43750	210	280	7/16
8713150	-	-	-	11.500	0.45276			12
653545312	29/64	-	-	11.509	0.45313			1/2
653546912	15/32	-	-	11.906	0.46875	215		
8699200	-	-	-	12.000	0.47244			12
8713250	-	-	-	12.500	0.49213	225	290	14
653550012	1/2	-	-	12.700	0.50000	230	295	1/2
653553112	17/32	-	-	13.494	0.53125	245	315	5/8
653556312	9/16	-	-	14.288	0.56250	260	330	

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

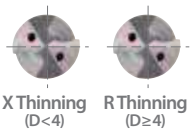
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6535	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢			

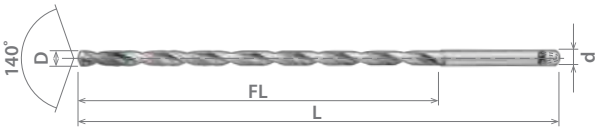
▢ good ▢ best

List 6540

ADO-20D, Coolant-Through

SPEED FEED P352-353 | CARBIDE | EgiAs | 30° | SHANK h6





Cutting Diameter Tolerance (e8)		
Size	mm	inch
D=3	-0.014 / -0.028	-0.0006 / -0.0011
3<D≤6	-0.020 / -0.038	-0.0008 / -0.0015
6<D≤10	-0.025 / -0.047	-0.0010 / -0.0019
10<D≤14.29	-0.032 / -0.059	-0.0013 / -0.0023

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8706300	-	-	-	3.000	0.11811	70	120	3
654012512	1/8	-	-	3.175	0.12500			1/8
8706320	-	-	-	3.200	0.12598	80	140	4
8706350	-	-	-	3.500	0.13780	85		
654014012	9/64	-	-	3.572	0.14063			5/32
654015612	5/32	-	-	3.969	0.15625	90		3/16
8706400	-	-	-	4.000	0.15748			4
654017212	11/64	-	-	4.366	0.17188	110	165	3/16
8706450	-	-	-	4.500	0.17717			5
8714450	-	-	-					6
654018712	3/16	-	-	4.763	0.18750			3/16
8714480	-	-	-	4.800	0.18898	115		6
8706500	-	-	-	5.000	0.19685			5
8714500	-	-	-					6
8714510	-	-	-	5.100	0.20079	120	190	
654020212	13/64	-	-	5.159	0.20313			1/4
8714520	-	-	-	5.200	0.20472			6
654021312	-	-	-	5.410	0.21299	140		
8706550	-	-	-	5.500	0.21654			
654021712	7/32	-	-	5.556	0.21875			1/4
654023412	15/64	-	-	5.953	0.23438			
8706600	-	-	-	6.000	0.23622			6
8714620	-	-	-	6.200	0.24409	155	210	8
654025012	1/4	-	E	6.350	0.25000	150	200	1/4
8706650	-	-	-	6.500	0.25591	155	210	7
8714650	-	-	-					8
654026412	17/64	-	-	6.747	0.26563			5/16
8706700	-	-	-	7.000	0.27559	160		7
8714700	-	-	-					8
654028012	9/32	-	-	7.144	0.28125	170	230	5/16
8706750	-	-	-	7.500	0.29528			8
654029612	19/64	-	-	7.541	0.29688	180		5/16
654031212	5/16	-	-	7.938	0.31250			
8706800	-	-	-	8.000	0.31496			8

Packed: 1 pc.
Available EgiAs coating only.

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ADR

Work Material

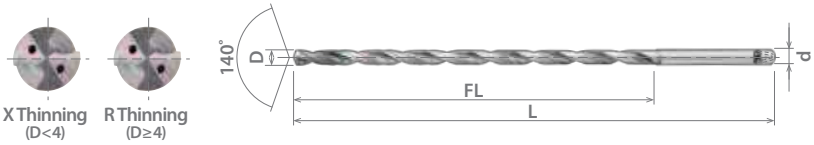
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6540	◎	◎	◎	◎	◎	○	○	○	◎					○			

○ good ◎ best

List 6540 (Continued)

SPEED FEED P352-353 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-20D, Coolant-Through



Cutting Diameter Tolerance (e8)		
Size	mm	inch
D=3	-0.014 / -0.028	-0.0006 / -0.0011
3<D≤6	-0.020 / -0.038	-0.0008 / -0.0015
6<D≤10	-0.025 / -0.047	-0.0010 / -0.0019
10<D≤14.29	-0.032 / -0.059	-0.0013 / -0.0023

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8714810	-	-	-	8.100	0.31890	195	260	10
654032812	21/64	-	-	8.334	0.32813			3/8
8706850	-	-	-	8.500	0.33465			9
8714850	-	-	-					10
654034212	11/32	-	-	8.731	0.34375	210		3/8
8706900	-	-	-	9.000	0.35433			9
8714900	-	-	-					10
654035912	23/64	-	-	9.128	0.35938	220	290	3/8
8714940	-	-	-	9.400	0.37008			10
8706950	-	-	-	9.500	0.37402			
654037512	3/8	-	-	9.525	0.37500			3/8
8714980	-	-	-	9.800	0.38583	230		10
654039012	25/64	-	-	9.922	0.39063			7/16
8707000	-	-	-	10.000	0.39370			10
654040612	13/32	-	-	10.319	0.40625	250	310	7/16
8715050	-	-	-	10.500	0.41339			12
654042112	27/64	-	-	10.716	0.42188			7/16
8707100	-	-	-	11.000	0.43307			11
8715100	-	-	-					12
654043712	7/16	-	-	11.113	0.43750	270	330	7/16
654045212	-	-	-	11.500	0.45276			12
654045412	29/64	-	-	11.509	0.45313			1/2
654046812	15/32	-	-	11.906	0.46875			
8707200	-	-	-	12.000	0.47244			12
8715250	-	-	-	12.500	0.49213	280		14
654050012	1/2	-	-	12.700	0.50000			1/2
654053112	17/32	-	-	13.494	0.53125	310	380	5/8
654056112	9/16	-	-	14.288	0.56250	315	365	

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6540	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢			

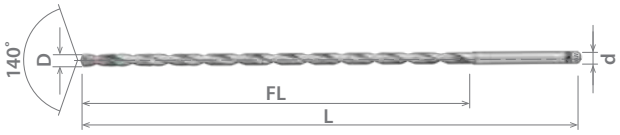
▢ good ▢ best

List 6550

ADO-30D, Coolant-Through

SPEED FEED P352-353 | CARBIDE | EgiAs | 30° | SHANK h6





Cutting Diameter Tolerance (e8)		
Size	mm	inch
D=3	-0.014 / -0.028	-0.0006 / -0.0011
3<D≤6	-0.020 / -0.038	-0.0008 / -0.0015
6<D≤10	-0.025 / -0.047	-0.0010 / -0.0019
10<D≤14.29	-0.032 / -0.059	-0.0013 / -0.0023

EDP Number	Diameter					xD	Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch		FL (mm)	L (mm)	d (mm/in)
655011812	-	-	-	3.000	0.11811	25 x D	85	135	3
655012512	1/8	-	-	3.175	0.12500		95	165	1/8
8708320	-	-	-	3.200	0.12598	30 x D	105	185	4
8708350	-	-	-	3.500	0.13780		116		
655014012	9/64	-	-	3.572	0.14063				5/32
655015612	5/32	-	-	3.969	0.15625		132		3/16
8708400	-	-	-	4.000	0.15748				4
655017212	11/64	-	-	4.366	0.17188		150	215	3/16
8708450	-	-	-	4.500	0.17717				5
8716450	-	-	-						6
655018712	3/16	-	-	4.763	0.18750		155	210	3/16
8716480	-	-	-	4.800	0.18898		165	215	6
8708500	-	-	-	5.000	0.19685				5
8716500	-	-	-						6
8716510	-	-	-	5.100	0.20079		180	250	
655020212	13/64	-	-	5.159	0.20313				1/4
8716520	-	-	-	5.200	0.20472				6
655021312	-	-	-	5.410	0.21299		200		
8708550	-	-	-	5.500	0.21654				
655021712	7/32	-	-	5.556	0.21875				1/4
655023412	15/64	-	-	5.953	0.23438				
8708600	-	-	-	6.000	0.23622				6
8716620	-	-	-	6.200	0.24409		215	280	8
655025012	1/4	-	E	6.350	0.25000				1/4
8708650	-	-	-	6.500	0.25591				7
8716650	-	-	-						8
655026412	17/64	-	-	6.747	0.26563		230		5/16
8708700	-	-	-	7.000	0.27559				7
8716700	-	-	-						8
655028012	9/32	-	-	7.144	0.28125		250	315	5/16
8708750	-	-	-	7.500	0.29528				8
655029612	19/64	-	-	7.541	0.29688		265		5/16
655031212	5/16	-	-	7.938	0.31250				
8708800	-	-	-	8.000	0.31496				8
8716810	-	-	-	8.100	0.31890		280	350	10
655032812	21/64	-	-	8.334	0.32813				3/8
8708850	-	-	-	8.500	0.33465				9
8716850	-	-	-						10
655034212	11/32	-	-	8.733	0.34375		300		3/8

Packed: 1 pc.
Available EgiAs coating only.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6550	◎	◎	◎	◎	◎	○	○	○	◎					○			

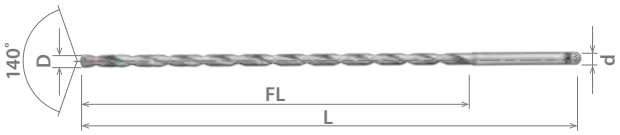
○ good ◎ best

List 6550 (Continued)

SPEED FEED P352-353 | CARBIDE | EgiAs | 30° | SHANK h6

ADO-30D, Coolant-Through





Cutting Diameter Tolerance (e8)		
Size	mm	inch
D=3	-0.014 / -0.028	-0.0006 / -0.0011
3<D≤6	-0.020 / -0.038	-0.0008 / -0.0015
6<D≤10	-0.025 / -0.047	-0.0010 / -0.0019
10<D≤14.29	-0.032 / -0.059	-0.0013 / -0.0023

EDP Number	Diameter					xD	Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch		FL (mm)	L (mm)	d (mm/in)
8708900	-	-	-	9.000	0.35433	30 x D	300	350	9
8716900	-	-	-						10
655035912	23/64	-	-	9.128	0.35938		315	390	3/8
8716940	-	-	-	9.400	0.37008				10
8708950	-	-	-	9.500	0.37402				
655037512	3/8	-	-	9.525	0.37500				3/8
8716980	-	-	-	9.800	0.38583		330		10
655039012	25/64	-	-	9.922	0.39063				7/16
8709000	-	-	-	10.000	0.39370				10
655040612	13/32	-	-	10.319	0.40625		340	400	7/16
655041212	-	-	-	10.500	0.41339		350		12
655042112	27/64	-	-	10.716	0.42188				7/16
655043212	-	-	-	11.000	0.43307				12
655043712	7/16	-	-	11.113	0.43750				7/16
655045212	-	-	-	11.500	0.45276	28 x D			12
655045412	29/64	-	-	11.509	0.45313				1/2
655046812	15/32	-	-	11.906	0.46875	25 x D	340		
655047212	-	-	-	12.000	0.47244	26 x D	350		12
655049112	-	-	-	12.500	0.49213	25 x D			14
655050012	1/2	-	-	12.700	0.50000				1/2
655053112	17/32	-	-	13.494	0.53125	22 x D	340		5/8
655056112	9/16	-	-	14.288	0.56250		350		

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

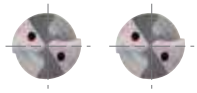
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6550	▢	▢	▢	▢	▢	○	○	○	▢					○			

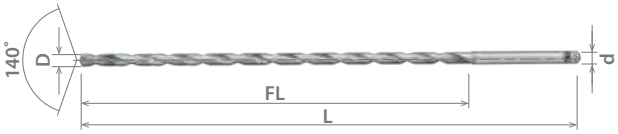
○ good ▢ best

List 6560

NEW | SPEED FEED P354 | CARBIDE | EgiAs | 25° | SHANK h6

ADO-40D, Coolant-Through





Cutting Diameter Tolerance (e8)		
Size	mm	inch
D=3	-0.014/-0.028	-0.0006/-0.0011
3<D≤6	-0.020/-0.038	-0.0008/-0.0015
6<D≤10	-0.025/-0.047	-0.0010/-0.0019

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8717300	-	-	-	3.000	0.11811	129	179	3
656012512	1/8	-	-	3.175	0.12500	137	187	1/8
656015612	5/32	-	-	3.969	0.15625	171	221	3/16
8717400	-	-	-	4.000	0.15748	172	222	4
656018712	3/16	-	-	4.763	0.18750	205	255	3/16
8717500	-	-	-	5.000	0.19685	215	265	5
8717600	-	-	-	6.000	0.23622	258	308	6
656025012	1/4	-	-	6.350	0.25000	273	323	1/4
656031212	5/16	-	-	7.938	0.31250	341	391	5/16
8717800	-	-	-	8.000	0.31496	344	394	8
656037512	3/8	-	-	9.525	0.37500	410	460	3/8
8718000	-	-	-	10.000	0.39370	430	490	10

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6560	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢			

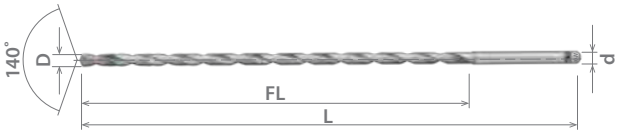
▢ good ▢ best

List 6570

NEW | SPEED FEED P354 | CARBIDE | EgiAs | 25° | SHANK h6

ADO-50D, Coolant-Through





Cutting Diameter Tolerance (e8)		
Size	mm	inch
D=3	-0.014/-0.028	-0.0006/-0.0011
3<D≤6	-0.020/-0.038	-0.0008/-0.0015
6<D≤8	-0.025/-0.047	-0.0010/-0.0019

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8718300	-	-	-	3.000	0.11811	159	209	3
657012512	1/8	-	-	3.175	0.12500	169	219	1/8
657015612	5/32	-	-	3.969	0.15625	210	260	3/16
8718400	-	-	-	4.000	0.15748	212	262	4
657018712	3/16	-	-	4.763	0.18750	252	302	3/16
8718500	-	-	-	5.000	0.19685	265	315	5
8718600	-	-	-	6.000	0.23622	318	368	6
657025012	1/4	-	-	6.350	0.25000	337	387	1/4
657031212	5/16	-	-	7.938	0.31250	421	471	5/16
8718800	-	-	-	8.000	0.31496	424	474	8

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

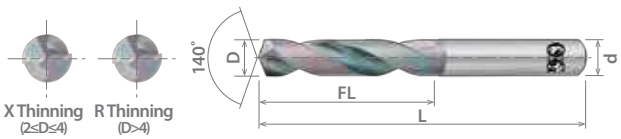
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6570	▢	▢	▢	▢	▢	○	○	○	▢					○			

○ good ▢ best

List 6300

AD-2D

SPEED FEED	CARBIDE	EgiAs	30°	SHANK h6
P357				



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8670200	-	-	-	2.000	0.07874	14	62	4
8670210	-	-	-	2.100	0.08268			
8670220	-	-	-	2.200	0.08661			
8670230	-	-	-	2.300	0.09055			
8670240	-	-	-	2.400	0.09449			
8670250	-	-	-	2.500	0.09843			
8670260	-	-	-	2.600	0.10236			
8670270	-	-	-	2.700	0.10630			
8670280	-	-	-	2.800	0.11024			
8670290	-	-	-	2.900	0.11417			
8670300	-	-	-	3.000	0.11811	20	66	
8670310	-	-	-	3.100	0.12205			
630012311	1/8	-	-	3.175	0.12500			1/8
8670320	-	-	-	3.200	0.12598			4
8670330	-	-	-	3.300	0.12992			
8670340	-	-	-	3.400	0.13386			
8670350	-	-	-	3.500	0.13780			
8670360	-	-	-	3.600	0.14173			
8670370	-	-	-	3.700	0.14567			
8670380	-	-	-	3.800	0.14961	24		
8670390	-	-	-	3.900	0.15354			
630015511	5/32	-	-	3.969	0.15625			3/16
8670400	-	-	-	4.000	0.15748			4
630016111	-	20	-	4.089	0.16100			6
8670410	-	-	-	4.100	0.16142			
8670420	-	-	-	4.200	0.16535			
8670430	-	-	-	4.300	0.16929			
630017111	11/64	-	-	4.366	0.17188			3/16
8670440	-	-	-	4.400	0.17323			6
8670450	-	-	-	4.500	0.17717			
8670460	-	-	-	4.600	0.18110			
8670470	-	-	-	4.700	0.18504			
630018611	3/16	-	-	4.763	0.18750	28		3/16
8670480	-	-	-	4.800	0.18898			6
8670490	-	-	-	4.900	0.19291			
8670500	-	-	-	5.000	0.19685			
8670510	-	-	-	5.100	0.20079			
630020211	13/64	-	-	5.159	0.20313			1/4
8670520	-	-	-	5.200	0.20472			6
8670530	-	-	-	5.300	0.20866			

Packed: 1 pc.
Available EgiAs coating only.

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ADR

Work Material

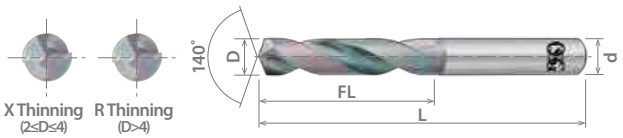
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6300	◎	◎	◎	○	○				◎					○			

○ good ◎ best

List 6300 (Continued)

AD-2D

SPEED FEED P357 | CARBIDE | EgiAs | 30° | SHANK h6



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8670540	-	-	-	5.400	0.21260	28	66	6
630021311	-	3	-	5.410	0.21300			
8670550	-	-	-	5.500	0.21654			
630021711	7/32	-	-	5.556	0.21875			1/4
8670560	-	-	-	5.600	0.22047			6
8670570	-	-	-	5.700	0.22441			
8670580	-	-	-	5.800	0.22835			
8670590	-	-	-	5.900	0.23228			
630023311	15/64	-	-	5.953	0.23438			1/4
8670600	-	-	-	6.000	0.23622			6
8670610	-	-	-	6.100	0.24016	34	79	8
8670620	-	-	-	6.200	0.24409			
8670630	-	-	-	6.300	0.24803			
630024911	1/4	-	E	6.350	0.25000			1/4
8670640	-	-	-	6.400	0.25197			8
8670650	-	-	-	6.500	0.25591			
630025711	-	-	F	6.528	0.25700			
8670660	-	-	-	6.600	0.25984			
8670670	-	-	-	6.700	0.26378			
630026411	17/64	-	-	6.747	0.26563			5/16
8670680	-	-	-	6.800	0.26772			8
8670690	-	-	-	6.900	0.27165			
8670700	-	-	-	7.000	0.27559			
8670710	-	-	-	7.100	0.27953	41		
630028011	9/32	-	-	7.144	0.28125			5/16
8670720	-	-	-	7.200	0.28346			8
8670730	-	-	-	7.300	0.28740			
8670740	-	-	-	7.400	0.29134			
8670750	-	-	-	7.500	0.29528			
630029511	19/64	-	-	7.541	0.29688			5/16
8670760	-	-	-	7.600	0.29921			8
8670770	-	-	-	7.700	0.30315			
8670780	-	-	-	7.800	0.30709			
8670790	-	-	-	7.900	0.31102			
630031111	5/16	-	-	7.938	0.31250			5/16
8670800	-	-	-	8.000	0.31496			8
8670810	-	-	-	8.100	0.31890	47	89	10
8670820	-	-	-	8.200	0.32283			
8670830	-	-	-	8.300	0.32677			
630032711	21/64	-	-	8.334	0.32813			3/8
8670840	-	-	-	8.400	0.33071			10
630033111	-	-	Q	8.433	0.33200			
8670850	-	-	-	8.500	0.33465			
8670860	-	-	-	8.600	0.33858			
8670870	-	-	-	8.700	0.34252			
630034211	11/32	-	-	8.731	0.34375			3/8
8670880	-	-	-	8.800	0.34646			10
8670890	-	-	-	8.900	0.35039			
8670900	-	-	-	9.000	0.35433			

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6300 (Continued)

AD-2D

SPEED FEED P357 | CARBIDE | EgiAs | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8670910	-	-	-	9.100	0.35827			10
630035811	23/64	-	-	9.128	0.35938			3/8
8670920	-	-	-	9.200	0.36220			
8670930	-	-	-	9.300	0.36614			10
8670940	-	-	-	9.400	0.37008			
8670950	-	-	-	9.500	0.37402			
630037411	3/8	-	-	9.525	0.37500	47	89	3/8
8670960	-	-	-	9.600	0.37795			
8670970	-	-	-	9.700	0.38189			10
8670980	-	-	-	9.800	0.38583			
8670990	-	-	-	9.900	0.38976			
630038911	25/64	-	-	9.922	0.39063			7/16
8671000	-	-	-	10.000	0.39370			10
8671010	-	-	-	10.100	0.39764			
8671020	-	-	-	10.200	0.40157			12
8671030	-	-	-	10.300	0.40551			
630040511	13/32	-	-	10.319	0.40625			7/16
8671040	-	-	-	10.400	0.40945			
8671050	-	-	-	10.500	0.41339			12
8671060	-	-	-	10.600	0.41732			
8671070	-	-	-	10.700	0.42126			
630042111	27/64	-	-	10.716	0.42188			7/16
8671080	-	-	-	10.800	0.42520			
8671090	-	-	-	10.900	0.42913			12
8671100	-	-	-	11.000	0.43307			
8671110	-	-	-	11.100	0.43701	55	102	
630043711	7/16	-	-	11.113	0.43750			7/16
8671120	-	-	-	11.200	0.44094			
8671130	-	-	-	11.300	0.44488			12
8671140	-	-	-	11.400	0.44882			
8671150	-	-	-	11.500	0.45276			
630045211	29/64	-	-	11.509	0.45313			1/2
8671160	-	-	-	11.600	0.45669			
8671170	-	-	-	11.700	0.46063			12
8671180	-	-	-	11.800	0.46457			
8671190	-	-	-	11.900	0.46850			
630046811	15/32	-	-	11.906	0.46875			1/2
8671200	-	-	-	12.000	0.47244			12
630047611	-	-	-	12.100	0.47638			
630048011	-	-	-	12.200	0.48031			14
630048311	31/64	-	-	12.303	0.48438			1/2
630048811	-	-	-	12.400	0.48819	60	107	
630049211	-	-	-	12.500	0.49213			14
630049611	-	-	-	12.600	0.49606			
630049911	1/2	-	-	12.700	0.50000			1/2
630050311	-	-	-	12.800	0.50394			14

Packed: 1 pc.
Available EgiAs coating only.

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ADR

Work Material

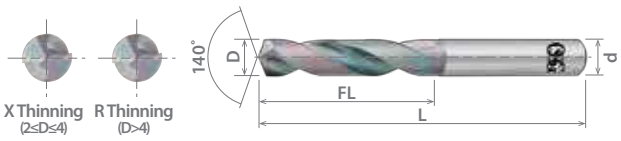
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6300	▢	▢	▢	○	○				▢					○			

○ good ▢ best

List 6300 (Continued)

SPEED FEED P357 | CARBIDE | EgiAs | 30° | SHANK h6

AD-2D



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
630050711	-	-	-	12.900	0.50787	60	107	14
630051111	-	-	-	13.000	0.51181			
630051411	33/64	-	-	13.097	0.51563			5/8
630051911	-	-	-	13.200	0.51969			14
630052311	-	-	-	13.300	0.52362			
630052711	-	-	-	13.400	0.52756			
630053211	-	-	-	13.500	0.53150			
630055111	-	-	-	14.000	0.55118			
630056111	9/16	-	-	14.288	0.56250	65	115	5/8
630057011	-	-	-	14.500	0.57087			16
630059011	-	-	-	15.000	0.59055			
630061011	-	-	-	15.500	0.61024			
630062311	5/8	-	-	15.875	0.62500			5/8
630062911	-	-	-	16.000	0.62992			16
630064911	-	-	-	16.500	0.64961	73	123	18
630066911	-	-	-	17.000	0.66929			
630068911	-	-	-	17.500	0.68898			
630070811	-	-	-	18.000	0.70866			
630072811	-	-	-	18.500	0.72835	79	131	20
630074811	-	-	-	19.000	0.74803			
630074911	3/4			19.050	0.75000			3/4
630076711	-	-	-	19.500	0.76772			20
630078711	-	-	-	20.000	0.78740			

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

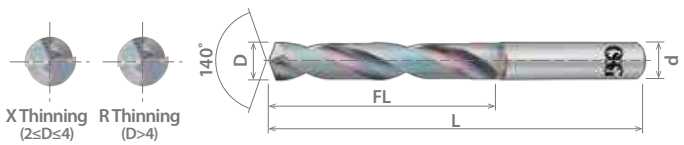
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6300	◎	◎	◎	○	○				◎					○			

○ good ◎ best

List 6310

AD-4D

SPEED FEED	CARBIDE	EgiAs	30°	SHANK h6
P357				



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8672200	-	-	-	2.000	0.07874	20	66	4
8672210	-	-	-	2.100	0.08268			
8672220	-	-	-	2.200	0.08661			
8672230	-	-	-	2.300	0.09055			
8672240	-	-	-	2.400	0.09449			
8672250	-	-	-	2.500	0.09843			
8672260	-	-	-	2.600	0.10236			
8672270	-	-	-	2.700	0.10630			
8672280	-	-	-	2.800	0.11024			
8672290	-	-	-	2.900	0.11417			
8672300	-	-	-	3.000	0.11811	28	74	
8672310	-	-	-	3.100	0.12205			
631012311	1/8	-	-	3.175	0.12500			1/8
8672320	-	-	-	3.200	0.12598			4
8672330	-	-	-	3.300	0.12992			
8672340	-	-	-	3.400	0.13386			
8672350	-	-	-	3.500	0.13780			
8672360	-	-	-	3.600	0.14173			
8672370	-	-	-	3.700	0.14567			
8672380	-	-	-	3.800	0.14961	36		
8672390	-	-	-	3.900	0.15354			
631015511	5/32	-	-	3.969	0.15625			3/16
8672400	-	-	-	4.000	0.15748			4
631016111	-	20	-	4.089	0.16100			6
8672410	-	-	-	4.100	0.16142			
8672420	-	-	-	4.200	0.16535			
8672430	-	-	-	4.300	0.16929			
631017111	11/64	-	-	4.366	0.17188			3/16
8672440	-	-	-	4.400	0.17323			6
8672450	-	-	-	4.500	0.17717			
8672460	-	-	-	4.600	0.18110			
8672470	-	-	-	4.700	0.18504			
631018611	3/16	-	-	4.763	0.18750	44	82	3/16
8672480	-	-	-	4.800	0.18898			6
8672490	-	-	-	4.900	0.19291			
8672500	-	-	-	5.000	0.19685			
8672510	-	-	-	5.100	0.20079			
631020211	13/64	-	-	5.159	0.20313			1/4
8672520	-	-	-	5.200	0.20472			6
8672530	-	-	-	5.300	0.20866			

Packed: 1 pc.
Available EgiAs coating only.

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ADR

Work Material

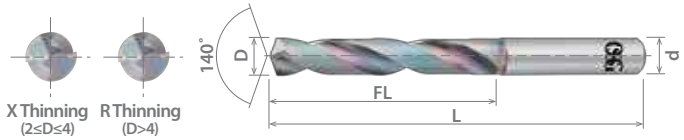
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6310	▢	▢	▢	○	○				▢					○			

○ good ▢ best

List 6310 (Continued)

SPEED FEED P357 | CARBIDE | EgiAs | 30° | SHANK h6

AD-4D



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8672540	-	-	-	5.400	0.21260	44	82	6
631021311	-	3	-	5.410	0.21300			
8672550	-	-	-	5.500	0.21654			
631021711	7/32	-	-	5.556	0.21875			1/4
8672560	-	-	-	5.600	0.22047			6
8672570	-	-	-	5.700	0.22441			
8672580	-	-	-	5.800	0.22835			
8672590	-	-	-	5.900	0.23228			
631023311	15/64	-	-	5.953	0.23438			1/4
8672600	-	-	-	6.000	0.23622			6
8672610	-	-	-	6.100	0.24016	53	91	8
8672620	-	-	-	6.200	0.24409			
8672630	-	-	-	6.300	0.24803			
631024911	1/4	-	E	6.350	0.25000			1/4
8672640	-	-	-	6.400	0.25197			8
8672650	-	-	-	6.500	0.25591			
631025711	-	-	F	6.258	0.25700			
8672660	-	-	-	6.600	0.25984			
8672670	-	-	-	6.700	0.26378			
631026411	17/64	-	-	6.747	0.26563			5/16
8672680	-	-	-	6.800	0.26772			8
8672690	-	-	-	6.900	0.27165			
8672700	-	-	-	7.000	0.27559			
8672710	-	-	-	7.100	0.27953			
631028011	9/32	-	-	7.144	0.28125			5/16
8672720	-	-	-	7.200	0.28346			8
8672730	-	-	-	7.300	0.28740			
8672740	-	-	-	7.400	0.29134			
8672750	-	-	-	7.500	0.29528			
631029511	19/64	-	-	7.541	0.29688			5/16
8672760	-	-	-	7.600	0.29921			8
8672770	-	-	-	7.700	0.30315			
8672780	-	-	-	7.800	0.30709			
8672790	-	-	-	7.900	0.31102			
631031111	5/16	-	-	7.938	0.31250			5/16
8672800	-	-	-	8.000	0.31496			8
8672810	-	-	-	8.100	0.31890	61	103	10
8672820	-	-	-	8.200	0.32283			
8672830	-	-	-	8.300	0.32677			
631032711	21/64	-	-	8.334	0.32813			3/8
8672840	-	-	-	8.400	0.33071			10
631033111	-	-	Q	8.433	0.33200			
8672850	-	-	-	8.500	0.33465			
8672860	-	-	-	8.600	0.33858			
8672870	-	-	-	8.700	0.34252			
631034211	11/32	-	-	8.731	0.34375			3/8
8672880	-	-	-	8.800	0.34646			10
8672890	-	-	-	8.900	0.35039			
8672900	-	-	-	9.000	0.35433			
8672910	-	-	-	9.100	0.35827			

Packed: 1 pc.
Available EgiAs coating only.

ADR

List 6310 (Continued)

AD-4D

SPEED FEED P357 | CARBIDE | EgiAs | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
631035811	23/64	-	-	9.128	0.35938	61	103	3/8
8672920	-	-	-	9.200	0.36220			10
8672930	-	-	-	9.300	0.36614			
8672940	-	-	-	9.400	0.37008			
8672950	-	-	-	9.500	0.37402			
631037411	3/8	-	-	9.525	0.37500			3/8
8672960	-	-	-	9.600	0.37795			10
8672970	-	-	-	9.700	0.38189			
8672980	-	-	-	9.800	0.38583			
8672990	-	-	-	9.900	0.38976			
631038911	25/64	-	-	9.922	0.39063			7/16
8673000	-	-	-	10.000	0.39370			10
8673010	-	-	-	10.100	0.39764	71	118	12
8673020	-	-	-	10.200	0.40157			
8673030	-	-	-	10.300	0.40551			
631040511	13/32	-	-	10.319	0.40625			7/16
8673040	-	-	-	10.400	0.40945			12
8673050	-	-	-	10.500	0.41339			
8673060	-	-	-	10.600	0.41732			
8673070	-	-	-	10.700	0.42126			
631042111	27/64	-	-	10.716	0.42188			7/16
8673080	-	-	-	10.800	0.42520			12
8673090	-	-	-	10.900	0.42913			
8673100	-	-	-	11.000	0.43307			
8673110	-	-	-	11.100	0.43701			
631043711	7/16	-	-	11.113	0.43750			7/16
8673120	-	-	-	11.200	0.44094			12
8673130	-	-	-	11.300	0.44488			
8673140	-	-	-	11.400	0.44882			
8673150	-	-	-	11.500	0.45276			
631045211	29/64	-	-	11.509	0.45313			1/2
8673160	-	-	-	11.600	0.45669			12
8673170	-	-	-	11.700	0.46063			
8673180	-	-	-	11.800	0.46457			
8673190	-	-	-	11.900	0.46850			
631046811	15/32	-	-	11.906	0.46875			1/2
8673200	-	-	-	12.000	0.47244			12
8673210	-	-	-	12.100	0.47638	77	124	14
8673220	-	-	-	12.200	0.48031			
8673230	-	-	-	12.300	0.48425			1/2
631048411	31/64	-	-	12.303	0.48438			14
8673240	-	-	-	12.400	0.48819			
8673250	-	-	-	12.500	0.49213			
8673260	-	-	-	12.600	0.49606			
631050011	1/2	-	-	12.700	0.50000			1/2
8673270	1/2	-	-					14
8673280	-	-	-	12.800	0.50394			

Packed: 1 pc.
Available EgiAs coating only.

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ADR

Work Material

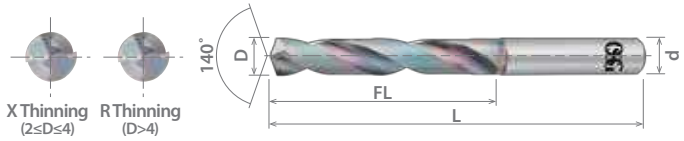
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6310	◎	◎	◎	○	○				◎					○			

○ good ◎ best

List 6310 (Continued)

SPEED FEED P357 | CARBIDE | EgiAs | 30° | SHANK h6

AD-4D



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8673290	-	-	-	12.900	0.50787	77	124	14
8673300	-	-	-	13.000	0.51181			
631051511	33/64	-	-	13.097	0.51563			5/8
8673310	-	-	-	13.100	0.51575			14
8673320	-	-	-	13.200	0.51969			
8673330	-	-	-	13.300	0.52362			
8673340	-	-	-	13.400	0.52756			
8673350	-	-	-	13.500	0.53150			
8673400	-	-	-	14.000	0.55118			
631056111	9/16	-	-	14.288	0.56250	83	133	5/8
8673450	-	-	-	14.500	0.57087			16
8673500	-	-	-	15.000	0.59055			
8673550	-	-	-	15.500	0.61024			
631062311	5/8	-	-	15.875	0.62500			5/8
8673600	-	-	-	16.000	0.62992			16
8673650	-	-	-	16.500	0.64961	93	143	18
8673700	-	-	-	17.000	0.66929			
8673750	-	-	-	17.500	0.68898			
8673800	-	-	-	18.000	0.70866			
8673850	-	-	-	18.500	0.72835	101	153	20
8673900	-	-	-	19.000	0.74803			
631074911	3/4	-	-	19.050	0.75000			3/4
8673950	-	-	-	19.500	0.76772			20
8674000	-	-	-	20.000	0.78740			

Packed: 1 pc.
Available EgiAs coating only.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
6310	▢	▢	▢	○	○				▢					○			

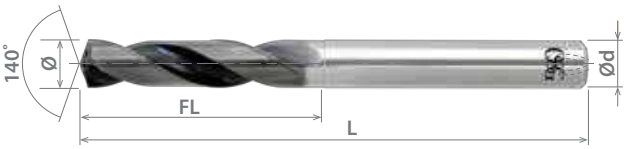
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List 5200

ADO-SUS-3D, Coolant-Through

SPEED FEED	CARBIDE	WXL		30°	SHANK h6
P358					





Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8665200	-	-	-	2.000	0.07874	12	66	3
8665210	-	-	-	2.100	0.08268	13		
8665220	-	-	-	2.200	0.08661	14		
8665230	-	-	-	2.300	0.09055			
520009312	3/32	-	-	2.381	0.09375	15		
8665240	-	-	-	2.400	0.09449			
8665250	-	-	-	2.500	0.09843			
8665260	-	-	-	2.600	0.10236	16		
8665270	-	-	-	2.700	0.10630	17		
520010912	7/64	-	-	2.778	0.10938			
8665280	-	-	-	2.800	0.11024			
8665290	-	-	-	2.900	0.11417	18		
520011612	-	-	-	2.950	0.11614			
8665300	-	-	-	3.000	0.11811			
8665310	-	-	-	3.100	0.12205	19	74	4
8665315	-	-	-	3.150	0.12402			
520012512	1/8	-	-	3.175	0.12500	20		1/8
8665320	-	-	-	3.200	0.12598			4
8665326	-	-	-	3.260	0.12835			
8665330	-	-	-	3.300	0.12992			
520013212	-	-	-	3.360	0.13228	21		
8665340	-	-	-	3.400	0.13386			
520013512	-	-	-	3.440	0.13543			
8665350	-	-	-	3.500	0.13780			
520013812	-	-	-	3.520	0.13858	22		
520014012	9/64	-	-	3.572	0.14063			
8665360	-	-	-	3.600	0.14173			
8665370	-	-	-	3.700	0.14567	23		
8665375	-	-	-	3.750	0.14764			
520014812	-	-	-	3.770	0.14843			
8665380	-	-	-	3.800	0.14961			
520015212	-	-	-	3.860	0.15197	24		
8665390	-	-	-	3.900	0.15354			
520015612	5/32	-	-	3.969	0.15625			
8665400	-	-	-	4.000	0.15748			
520015912	-	-	-	4.050	0.15945	25	80	6
520016112	-	20	-	4.089	0.16100			
8665410	-	-	-	4.100	0.16142			5

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

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ADR

Work Material

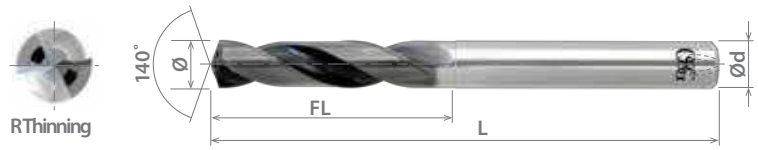
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5200	◎	◎	○	○		◎	◎	◎	◎		○		◎	○			

○ good ◎ best

List 5200 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-3D, Coolant-Through



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8680410	-	-	-			25	80	6
520016312	-	-	-	4.160	0.16378	26		
8665420	-	-	-	4.200	0.16535			5
8680420	-	-	-					6
520016812	-	-	-	4.270	0.16811			
8665430	-	-	-	4.300	0.16929			5
8680430	-	-	-					6
520017112	11/64	-	-	4.366	0.17188	27		3/16
8665440	-	-	-	4.400	0.17323			5
8680440	-	-	-					6
520017512	-	-	-	4.460	0.17559			
8665450	-	-	-	4.500	0.17717			5
8680450	-	-	-					6
8665460	-	-	-	4.600	0.18110	28		5
8680460	-	-	-					6
520018312	-	-	-	4.660	0.18346	29		
8665470	-	-	-	4.700	0.18504			5
8680470	-	-	-					6
520018712	3/16	-	-	4.763	0.18750			3/16
8665480	-	-	-	4.800	0.18898			5
8680480	-	-	-					6
8665485	-	-	-	4.850	0.19094			
8665490	-	-	-	4.900	0.19291	30		5
8680490	-	-	-					6
8665500	-	-	-	5.000	0.19685	25		5
8680500	-	-	-					6
8665510	-	-	-	5.100	0.20079	26	82	
520020212	-	-	-	5.150	0.20276			
520020312	13/64	-	-	5.159	0.20313			1/4
8665520	-	-	-	5.200	0.20472			6
8665525	-	-	-	5.250	0.20669	27		
520020712	-	-	-	5.260	0.20709			
8665530	-	-	-	5.300	0.20866			
8665540	-	-	-	5.400	0.21260			
520021312	-	3	-	5.410	0.21300	28		
520021512	-	-	-	5.470	0.21535			
8665550	-	-	-	5.500	0.21654			
520021812	7/32	-	-	5.556	0.21875			1/4
8665560	-	-	-	5.600	0.22047			6
8665570	-	-	-	5.700	0.22441	29		
8665580	-	-	-	5.800	0.22835			
8665590	-	-	-	5.900	0.23228	30		
520023412	15/64	-	-	5.953	0.23438			1/4
8665600	-	-	-	6.000	0.23622			6
8665610	-	-	-	6.100	0.24016	31	88	7
8680610	-	-	-					8
520024212	-	-	-	6.150	0.24213			

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

ADR

List 5200 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-3D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8665620	-	-	-	6.200	0.24409	31	88	7
8680620	-	-	-					8
8665625	-	-	-	6.250	0.24606	32		7
8665630	-	-	-	6.300	0.24803			
8680630	-	-	-					8
8665635	1/4	-	E	6.350	0.25000			1/4
8665640	-	-	-	6.400	0.25197			7
8680640	-	-	-					8
8665650	-	-	-	6.500	0.25591	33		7
8680650	-	-	-					8
520025712	-	-	F	6.528	0.25700			
8665660	-	-	-	6.600	0.25984			7
8680660	-	-	-					8
520026112	-	-	-	6.650	0.26181	34		
8665670	-	-	-	6.700	0.26378			7
8680670	-	-	-					8
8665675	-	-	-	6.750	0.26575			7
520026512	17/64	-	-	6.747	0.26563			5/16
8665680	-	-	-	6.800	0.26772			7
8680680	-	-	-					8
520027012	-	-	-	6.860	0.27008	35		
8665690	-	-	-	6.900	0.27165			7
8680690	-	-	-					8
8665700	-	-	-	7.000	0.27559			7
8680700	-	-	-					8
520027712	-	-	-	7.040	0.27717	36	94	
8665710	-	-	-	7.100	0.27953			
520028112	9/32	-	-	7.144	0.28125			5/16
8665720	-	-	-	7.200	0.28346			8
8665725	-	-	-	7.250	0.28543	37		
8665730	-	-	-	7.300	0.28740			
8665740	-	-	-	7.400	0.29134			
8665750	-	-	-	7.500	0.29528	38		
520029612	19/64	-	-	7.541	0.29688			5/16
8665760	-	-	-	7.600	0.29921			8
8665770	-	-	-	7.700	0.30315	39		
8665775	-	-	-	7.750	0.30512			
8665780	-	-	-	7.800	0.30709			
8665790	-	-	-	7.900	0.31102	40		
520031212	5/16	-	-	7.938	0.31250			5/16
8665800	-	-	-	8.000	0.31496			8
8665810	-	-	-	8.100	0.31890	41	101	9
8680810	-	-	-					10

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

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ADR

Work Material

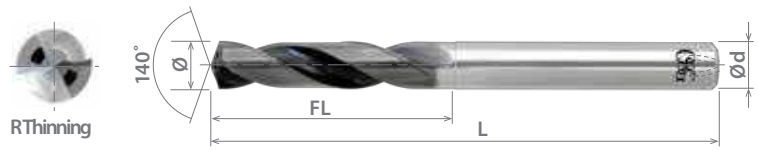
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5200	◎	◎	○	○		◎	◎	◎	◎		○		◎	○			

○ good ◎ best

List 5200 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-3D, Coolant-Through



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
520032012	-	-	-	8.150	0.32087	41	101	10
8665820	-	-	-	8.200	0.32283			9
8680820	-	-	-					10
8665825	-	-	-	8.250	0.32480	42		9
8665830	-	-	-	8.300	0.32677			
8680830	-	-	-					10
520032812	21/64	-	-	8.334	0.32813			3/8
8665840	-	-	-	8.400	0.33071			9
8680840	-	-	-					10
520033212	-	-	Q	8.433	0.33200	43		
8665850	-	-	-	8.500	0.33465			9
8680850	-	-	-					10
520033712	-	-	-	8.560	0.33701			
8665860	-	-	-	8.600	0.33858			9
8680860	-	-	-					10
520034012	-	-	-	8.640	0.34016	44		
520034112	-	-	-	8.680	0.34173			
8665870	-	-	-	8.700	0.34252			9
8680870	-	-	-					10
520034312	11/32	-	-	8.731	0.34375			3/8
8665875	-	-	-	8.750	0.34449			9
8665880	-	-	-	8.800	0.34646			
8680880	-	-	-					10
520034812	-	-	-	8.860	0.34882	45		
8665890	-	-	-	8.900	0.35039			9
8680890	-	-	-					10
8665900	-	-	-	9.000	0.35433			9
8680900	-	-	-					10
8665910	-	-	-	9.100	0.35827	46	106	
520035912	23/64	-	-	9.128	0.35938			3/8
8665920	-	-	-	9.200	0.36220			10
8665925	-	-	-	9.250	0.36417	47		
8665930	-	-	-	9.300	0.36614			
8665940	-	-	-	9.400	0.37008			
8665950	-	-	-	9.500	0.37402	48		
520037512	3/8	-	-	9.525	0.37500			3/8
520037612	-	-	-	9.550	0.37598			10
8665960	-	-	-	9.600	0.37795			
8665970	-	-	-	9.700	0.38189	49		
8665975	-	-	-	9.750	0.38386			
8665980	-	-	-	9.800	0.38583			
8665990	-	-	-	9.900	0.38976	50		
520039012	25/64	-	-	9.922	0.39063			7/16
8666000	-	-	-	10.000	0.39370			10
8666010	-	-	-	10.100	0.39764	51	113	11
8681010	-	-	-					12
8666020	-	-	-	10.200	0.40157			11

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

ADR

List 5200 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-3D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8681020	-	-	-	10.200	0.40157	51		12
8666025	-	-	-	10.250	0.40354			11
8666030	-	-	-	10.300	0.40551			
8681030	-	-	-			52		12
520040612	13/32	-	-	10.319	0.40625			7/16
8666040	-	-	-	10.400	0.40945			11
8681040	-	-	-					12
520041112	-	-	-	10.440	0.41102			
8666050	-	-	-	10.500	0.41339			11
8681050	-	-	-			53		12
8666060	-	-	-	10.600	0.41732			11
8681060	-	-	-				113	12
8666070	-	-	-	10.700	0.42126			11
8681070	-	-	-					12
520042212	27/64	-	-	10.716	0.42188	54		7/16
8666075	-	-	-	10.750	0.42323			11
8666080	-	-	-	10.800	0.42520			
8681080	-	-	-					12
520042712	-	-	-	10.860	0.42756			
8666090	-	-	-	10.900	0.42913			11
8681090	-	-	-			55		12
8666100	-	-	-	11.000	0.43307			11
8681100	-	-	-					12
8666110	-	-	-	11.100	0.43701			
520043712	7/16	-	-	11.113	0.43750	56		7/16
8666120	-	-	-	11.200	0.44094			
8666130	-	-	-	11.300	0.44488			12
8666140	-	-	-	11.400	0.44882	57		
8666150	-	-	-	11.500	0.45276			
520045312	29/64	-	-	11.509	0.45313	58	120	1/2
8666160	-	-	-	11.600	0.45669			
8666170	-	-	-	11.700	0.46063			12
8666180	-	-	-	11.800	0.46457	59		
8666190	-	-	-	11.900	0.46850			
520046912	15/32	-	-	11.906	0.46875	60		1/2
8666200	-	-	-	12.000	0.47244			12
8666210	-	-	-	12.100	0.47638			13
8681210	-	-	-			61		14
8666220	-	-	-	12.200	0.48031			13
8681220	-	-	-				128	14
8666230	-	-	-	12.300	0.48425			13
8681230	-	-	-			62		14
520048512	31/64	-	-	12.303	0.48438			1/2

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

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ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5200	◎	◎	○	○		◎	◎	◎	◎		○		◎	○			

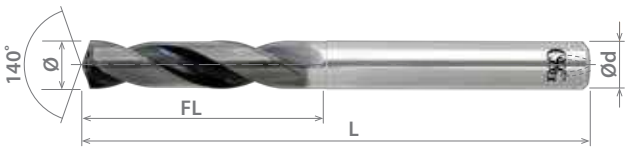
○ good ◎ best

List 5200 (Continued)

ADO-SUS-3D, Coolant-Through

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6





Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8666240	-	-	-	12.400	0.48819	62	128	13
8681240	-	-	-					14
520049012	-	-	-	12.450	0.49016	63		
8666250	-	-	-	12.500	0.49213			13
8681250	-	-	-					14
8666260	-	-	-	12.600	0.49606			13
8681260	-	-	-					14
520049912	-	-	-	12.680	0.49921	64		
8666270	-	-	-	12.700	0.50000			13
520050012	1/2	-	-					1/2
8666275	-	-	-	12.750	0.50197			13
8666280	-	-	-	12.800	0.50394			
8681280	-	-	-					14
8666290	-	-	-	12.900	0.50787	65		13
8681290	-	-	-					14
8666300	-	-	-	13.000	0.51181			13
8681300	-	-	-					14
520051512	-	-	-	13.080	0.51496	66	134	
8666310	-	-	-	13.100	0.51575			
8666320	-	-	-	13.200	0.51969			
8666330	-	-	-	13.300	0.52362	67		
8666340	-	-	-	13.400	0.52756			
520053112	17/32	-	-	13.494	0.53125	68		5/8
8666350	-	-	-	13.500	0.53150			14
8666360	-	-	-	13.600	0.53543			
8666370	-	-	-	13.700	0.53937	69		
8666380	-	-	-	13.800	0.54331			
520054612	-	-	-	13.870	0.54606	70		
8666390	-	-	-	13.900	0.54724			
8666400	-	-	-	14.000	0.55118			
8666410	-	-	-	14.100	0.55512	71	140	15
520055512	-	-	-					16
8666420	-	-	-	14.200	0.55906			15
520055912	-	-	-					16
520056212	9/16	-	-	14.288	0.56250	72		5/8
8666430	-	-	-	14.300	0.56299			15
520056312	-	-	-					16
8666440	-	-	-	14.400	0.56693			15
520056612	-	-	-					16
8666450	-	-	-	14.500	0.57087	73		15
8681450	-	-	-					16
8666460	-	-	-	14.600	0.57480			15
520057412	-	-	-					16
520057812	37/64	-	-	14.684	0.57813	74		5/8
8666470	-	-	-	14.700	0.57874			15
520057912	-	-	-					16
8666480	-	-	-	14.800	0.58268			15

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

ADR

List 5200 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-3D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
520058212	-	-	-	14.800	0.58268	74	140	16
8666490	-	-	-	14.900	0.58661	75		15
520058612	-	-	-					16
8666500	-	-	-	15.000	0.59055			15
8681500	-	-	-					16
8666510	-	-	-	15.100	0.59449	76	145	
8666520	-	-	-	15.200	0.59843			
8666530	-	-	-	15.300	0.60236	77		
8666540	-	-	-	15.400	0.60630			
8666550	-	-	-	15.500	0.61024	78		
8666560	-	-	-	15.600	0.61417			
8666570	-	-	-	15.700	0.61811	79		
8666580	-	-	-	15.800	0.62205			
520062512	5/8	-	-	15.875	0.62500	80		5/8
8666590	-	-	-	15.900	0.62598			16
8666600	-	-	-	16.000	0.62992			
520063312	-	-	-	16.100	0.63386	81	150	18
8666650	-	-	-	16.500	0.64961	83		17
8681650	-	-	-					18
520065612	21/32	-	-	16.669	0.65625	85		3/4
520066312	-	-	-	16.840	0.66299			18
8666700	-	-	-	17.000	0.66929			17
8681700	-	-	-					18
8666750	-	-	-	17.500	0.68898	88	155	
520069312	-	-	-	17.610	0.69331	90		
520069612	-	-	-	17.680	0.69606			
520069812	-	-	-	17.730	0.69803			
8666800	-	-	-	18.000	0.70866			
8666850	-	-	-	18.500	0.72835	93	160	19
8681850	-	-	-					20
520073312	-	-	-	18.640	0.73386	95		
8666900	-	-	-	19.000	0.74803			19
8681900	-	-	-					20
520075012	3/4	-	-	19.050	0.75000			3/4
520075712	-	-	-	19.250	0.75787	97	165	20
8666950	-	-	-	19.500	0.76772	98		
520077412	-	-	-	19.660	0.77402	100		
520077612	-	-	-	19.730	0.77677			
520077812	-	-	-	19.760	0.77795			
8667000	-	-	-	20.000	0.78740			

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5200	◎	◎	○	○		◎	◎	◎	◎		○		◎	○			

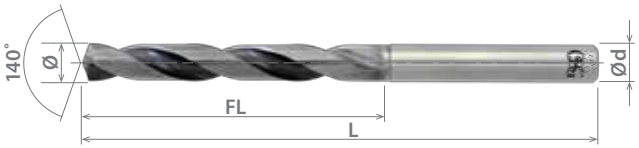
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List 5210

ADO-SUS-5D, Coolant-Through

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6





Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8667200	-	-	-	2.000	0.07874	18	70	3
8667210	-	-	-	2.100	0.08268	19		
8667220	-	-	-	2.200	0.08661	20		
8667230	-	-	-	2.300	0.09055	21		
521009312	3/32	-	-	2.381	0.09375	22		
8667240	-	-	-	2.400	0.09449			
8667250	-	-	-	2.500	0.09843	23		
8667260	-	-	-	2.600	0.10236	24	78	
8667270	-	-	-	2.700	0.10630	25		
8667276	-	-	-	2.760	0.10866			
8667278	-	-	-	2.780	0.10945	26		
8667280	-	-	-	2.800	0.11024			
8667290	-	-	-	2.900	0.11417	27		
8667300	-	-	-	3.000	0.11811			
8667310	-	-	-	3.100	0.12205	28	86	4
8667315	-	-	-	3.150	0.12402	29		
521012512	1/8	-	-	3.175	0.12500			1/8
8667320	-	-	-	3.200	0.12598			4
8667326	-	-	-	3.260	0.12835			
8667330	-	-	-	3.300	0.12992	30		
8667340	-	-	-	3.400	0.13386	31		
8667350	-	-	-	3.500	0.13780	32		
8667360	-	-	-	3.600	0.14173	33		
8667366	-	-	-	3.660	0.14409			
8667368	-	-	-	3.680	0.14488	34		
8667370	-	-	-	3.700	0.14567			
8667375	-	-	-	3.750	0.14764			
8667380	-	-	-	3.800	0.14961	35		
8667390	-	-	-	3.900	0.15354	36		
521015612	5/32	-	-	3.969	0.15625			
8667400	-	-	-	4.000	0.15748			
521016112	-	20	-	4.089	0.16100	37	95	6
8667410	-	-	-	4.100	0.16142			5
8682410	-	-	-					6
8667420	-	-	-	4.200	0.16535	38		5
8682420	-	-	-					6
8667430	-	-	-	4.300	0.16929	39		5
8682430	-	-	-					6
521017112	11/64	-	-	4.366	0.17188	40		3/16
8667440	-	-	-	4.400	0.17323			5
8682440	-	-	-					6
8667450	-	-	-	4.500	0.17717	41		5
8682450	-	-	-					6
8667460	-	-	-	4.600	0.18110	42		5
8682460	-	-	-					6

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

ADR

List 5210 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-5D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8667462	-	-	-	4.620	0.18189	42	95	5
8667464	-	-	-	4.640	0.18268			
8667470	-	-	-	4.700	0.18504	43		
8682470	-	-	-					6
521018712	3/16	-	-	4.763	0.18750	44		3/16
8667480	-	-	-	4.800	0.18898			5
8682480	-	-	-					6
8667485	-	-	-	4.850	0.19094			
8667490	-	-	-	4.900	0.19291	45		5
8682490	-	-	-					6
8667500	-	-	-	5.000	0.19685			5
8682500	-	-	-					6
8667510	-	-	-	5.100	0.20079	41	100	
521020312	13/64	-	-	5.159	0.20313	42		1/4
8667520	-	-	-	5.200	0.20472			6
8667525	-	-	-	5.250	0.20669			
8667530	-	-	-	5.300	0.20866	43		
8667540	-	-	-	5.400	0.21260	44		
521021312	-	3	-	5.410	0.21300			
8667550	-	-	-	5.500	0.21654			
8667552	-	-	-	5.520	0.21732	45		
8667554	-	-	-	5.540	0.21811			
521021812	7/32	-	-	5.556	0.21875			1/4
8667560	-	-	-	5.600	0.22047			6
8667570	-	-	-	5.700	0.22441	46		
8667580	-	-	-	5.800	0.22835	47		
8667590	-	-	-	5.900	0.23228	48		
521023412	15/64	-	-	5.953	0.23438			1/4
8667600	-	-	-	6.000	0.23622			6
8667610	-	-	-	6.100	0.24016	49	109	7
8682610	-	-	-					8
8667620	-	-	-	6.200	0.24409	50		7
8682620	-	-	-					8
8667625	-	-	-	6.250	0.24606			7
8667630	-	-	-	6.300	0.24803	51		
8682630	-	-	-					8
8667635	1/4	-	E	6.350	0.25000	52		1/4
8667640	-	-	-	6.400	0.25197			7
8682640	-	-	-					8
8667650	-	-	-	6.500	0.25591			7
8682650	-	-	-					8
521025712	-	-	F	6.528	0.25700	53		
8667660	-	-	-	6.600	0.25984			7

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5210	◎	◎	○	○		◎	◎	◎	◎		○		◎	○			

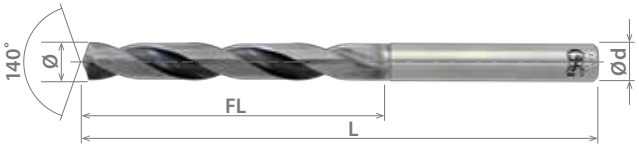
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List 5210 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-5D, Coolant-Through





Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8682660	-	-	-	6.600	0.25984	53	109	8
8667670	-	-	-	6.700	0.26378	54		7
8682670	-	-	-					8
521026512	17/64	-	-	6.747	0.26563	55		55
8667675	-	-	-	6.750	0.26575	54		7
8667680	-	-	-	6.800	0.26772	55		7
8682680	-	-	-					8
8667690	-	-	-	6.900	0.27165	56		7
8682690	-	-	-					8
8667700	-	-	-	7.000	0.27559			7
8682700	-	-	-					8
8667710	-	-	-	7.100	0.27953	57	118	
521028112	9/32	-	-	7.144	0.28125	58		5/16
8667720	-	-	-	7.200	0.28346			8
8667725	-	-	-	7.250	0.28543			
8667730	-	-	-	7.300	0.28740	59		
8667736	-	-	-	7.360	0.28976			
8667738	-	-	-	7.380	0.29055	60		
8667740	-	-	-	7.400	0.29134			
8667750	-	-	-	7.500	0.29528			
8667752	-	-	-	7.520	0.29606	61		
8667754	-	-	-	7.540	0.29685			
521029612	19/64	-	-	7.541	0.29688	60		5/16
8667760	-	-	-	7.600	0.29921	61		8
8667770	-	-	-	7.700	0.30315	62		
8667775	-	-	-	7.750	0.30512			
8667780	-	-	-	7.800	0.30709	63		
8667790	-	-	-	7.900	0.31102	64		
521031212	5/16	-	-	7.938	0.31250			5/16
8667800	-	-	-	8.000	0.31496			8
8667810	-	-	-	8.100	0.31890	65	128	9
8682810	-	-	-					10
8667820	-	-	-	8.200	0.32283	66		9
8682820	-	-	-					10
8667825	-	-	-	8.250	0.32480			9
8667830	-	-	-	8.300	0.32677	67		
8682830	-	-	-					10
521032812	21/64	-	-	8.334	0.32813			3/8
8667840	-	-	-	8.400	0.33071	68		9
8682840	-	-	-					10
521033212	-	-	Q	8.433	0.33200			
8667850	-	-	-	8.500	0.33465			9
8682850	-	-	-					10
8667860	-	-	-	8.600	0.33858	69		9
8682860	-	-	-					10
8667870	-	-	-	8.700	0.34252	70		9

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

ADR

List 5210 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-5D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8682870	-	-	-	8.700	0.34252	70	128	10
521034312	11/32	-	-	8.731	0.34375			3/8
8667875	-	-	-	8.750	0.34449			9
8667880	-	-	-	8.800	0.34646	71		
8682880	-	-	-					10
8667890	-	-	-	8.900	0.35039	72		9
8682890	-	-	-					10
8667900	-	-	-	9.000	0.35433			9
8682900	-	-	-					10
8667910	-	-	-	9.100	0.35827	73	136	
521035912	23/64	-	-	9.128	0.35938			3/8
8667920	-	-	-	9.200	0.36220	74		10
8667924	-	-	-	9.240	0.36378			
8667925	-	-	-	9.250	0.36417			
8667926	-	-	-	9.260	0.36457	75		
8667930	-	-	-	9.300	0.36614			
8667936	-	-	-	9.360	0.36850			
8667938	-	-	-	9.380	0.36929	76		
8667940	-	-	-	9.400	0.37008			
8667950	-	-	-	9.500	0.37402			
8667952	-	-	-	9.520	0.37480	77		
521037512	3/8	-	-	9.525	0.37500	76		3/8
8667954	-	-	-	9.540	0.37559	77		10
8667960	-	-	-	9.600	0.37795			
8667970	-	-	-	9.700	0.38189	78		
8667975	-	-	-	9.750	0.38386			
8667980	-	-	-	9.800	0.38583	79		
8667990	-	-	-	9.900	0.38976	80		
521039012	25/64	-	-	9.922	0.39063			7/16
8668000	-	-	-	10.000	0.39370			10
8668010	-	-	-	10.100	0.39764	81	146	11
8683010	-	-	-					12
8668020	-	-	-	10.200	0.40157	82		11
8683020	-	-	-					12
8668025	-	-	-	10.250	0.40354			11
8668030	-	-	-	10.300	0.40551	83		
8683030	-	-	-					12
521040612	13/32	-	-	10.319	0.40625			7/16
8668040	-	-	-	10.400	0.40945	84		11
8683040	-	-	-					12
8668050	-	-	-	10.500	0.41339			11
8683050	-	-	-					12
8668060	-	-	-	10.600	0.41732	85		11

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

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ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5210	◎	◎	○	○		◎	◎	◎	◎		○		◎	○			

○ good ◎ best

List 5210 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-5D, Coolant-Through



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8683060	-	-	-	10.600	0.41732	85	146	12
8668070	-	-	-	10.700	0.42126	86		11
8683070	-	-	-					12
521042212	27/64	-	-	10.716	0.42188			7/16
8668075	-	-	-	10.750	0.42323			11
8668080	-	-	-	10.800	0.42520	87		
8683080	-	-	-					12
8668090	-	-	-	10.900	0.42913	88		11
8683090	-	-	-					12
8668100	-	-	-	11.000	0.43307			11
8683100	-	-	-					12
8668110	-	-	-	11.100	0.43701	89	156	12
521043812	7/16	-	-	11.113	0.43750			7/16
8668120	-	-	-	11.200	0.44094	90		12
8668122	-	-	-	11.220	0.44173			
8668124	-	-	-	11.240	0.44252			
8668130	-	-	-	11.300	0.44488	91		
8668136	-	-	-	11.360	0.44724			
8668138	-	-	-	11.380	0.44803	92		
8668140	-	-	-	11.400	0.44882			
8668150	-	-	-	11.500	0.45276			
521045312	29/64	-	-	11.509	0.45313			1/2
8668160	-	-	-	11.600	0.45669	93		12
8668170	-	-	-	11.700	0.46063	94		
8668180	-	-	-	11.800	0.46457	95		
8668190	-	-	-	11.900	0.46850	96		
521046912	15/32	-	-	11.906	0.46875			1/2
8668200	-	-	-	12.000	0.47244			12
8668210	-	-	-	12.100	0.47638	97	167	13
8683210	-	-	-					14
8668220	-	-	-	12.200	0.48031	98		13
8683220	-	-	-					14
8668230	-	-	-	12.300	0.48425	99		13
8683230	-	-	-					14
521048512	31/64	-	-	12.303	0.48438			1/2
8668240	-	-	-	12.400	0.48819	100		13
8683240	-	-	-					14
8668250	-	-	-	12.500	0.49213			13
8683250	-	-	-					14
8668260	-	-	-	12.600	0.49606	101		13
8683260	-	-	-					14
8668270	-	-	-	12.700	0.50000	102		13
521050012	1/2	-	-					1/2
8668275	-	-	-	12.750	0.50197	103		13
8668280	-	-	-	12.800	0.50394			
8683280	-	-	-					14

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

ADR

List 5210 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-5D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8668290	-	-	-	12.900	0.50787	104	167	13
8683290	-	-	-					14
8668300	-	-	-	13.000	0.51181			13
8683300	-	-	-					14
8668310	-	-	-	13.100	0.51575	105	176	
8668320	-	-	-	13.200	0.51969	106		
8668325	-	-	-	13.250	0.52165			
8668330	-	-	-	13.300	0.52362	107		
8668340	-	-	-	13.400	0.52756	108		
521053112	17/32	-	-	13.494	0.53125			5/8
8668350	-	-	-	13.500	0.53150			14
8668360	-	-	-	13.600	0.53543	109		
8668370	-	-	-	13.700	0.53937	110		
8668380	-	-	-	13.800	0.54331	111		
8668390	-	-	-	13.900	0.54724	112		
8668400	-	-	-	14.000	0.55118			
8668410	-	-	-	14.100	0.55512	113	185	15
521055512	-	-	-					16
8668420	-	-	-	14.200	0.55906	114		15
521055912	-	-	-					16
521056212	9/16	-	-	14.288	0.56250	115		5/8
8668430	-	-	-	14.300	0.56299			15
521056312	-	-	-					16
8668440	-	-	-	14.400	0.56693	116		15
521056612	-	-	-					16
8668450	-	-	-	14.500	0.57087			15
8683450	-	-	-					16
8668460	-	-	-	14.600	0.57480	117		15
521057412	-	-	-					16
8668470	-	-	-	14.700	0.57874	118		15
521057812	-	-	-					16
8668480	-	-	-	14.800	0.58268	119		15
521058212	-	-	-					16
8668490	-	-	-	14.900	0.58661	120		15
521058612	-	-	-					16
8668500	-	-	-	15.000	0.59055			15
8683500	-	-	-					16
8668510	-	-	-	15.100	0.59449	121	193	
8668520	-	-	-	15.200	0.59843	122		
8668525	-	-	-	15.250	0.60039			
8668530	-	-	-	15.300	0.60236	123		
8668540	-	-	-	15.400	0.60630	124		
8668550	-	-	-	15.500	0.61024			

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

continued on next page

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5210	▢	▢	▢	▢		▢	▢	▢	▢		▢		▢	▢			

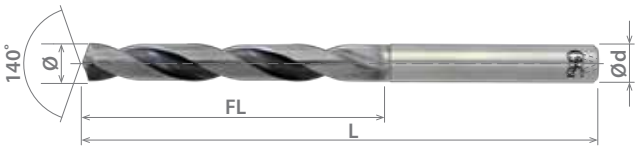
▢ good ▢ best

List 5210 (Continued)

ADO-SUS-5D, Coolant-Through

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6





Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8668560	-	-	-	15.600	0.61417	125	193	16
8668570	-	-	-	15.700	0.61811	126		
8668580	-	-	-	15.800	0.62205	127		
521062512	5/8	-	-	15.875	0.62500	128		5/8
8668590	-	-	-	15.900	0.62598			16
8668600	-	-	-	16.000	0.62992			
521063312	-	-	-	16.100	0.63386	113	184	18
8668650	-	-	-	16.500	0.64961	116		17
8683650	-	-	-					18
521065612	21/32	-	-	16.669	0.65625	117		3/4
8668700	-	-	-	17.000	0.66929	119		17
8683700	-	-	-					18
8668750	-	-	-	17.500	0.68898	123	191	
8668800	-	-	-	18.000	0.70866	126		
8668850	-	-	-	18.500	0.72835	130	198	19
8683850	-	-	-					20
8668900	-	-	-	19.000	0.74803	133		19
8683900	-	-	-					20
521075012	3/4	-	-	19.050	0.75000	134	205	3/4
521075712	-	-	-	19.250	0.75787	135		20
8668950	-	-	-	19.500	0.76772	137		
8669000	-	-	-	20.000	0.78740	140		

Packed: 1 pc.
Available WXL® coating only.
MEGA COOLER™ applies only to diameter sizes over 6 mm.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5210	▣	▣	▢	▢		▣	▣	▣	▣		▢		▣	▢			

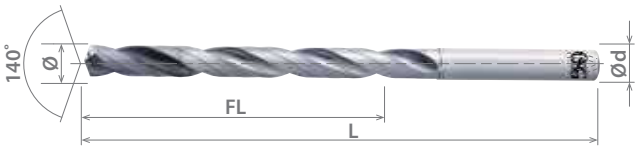
▢ good ▣ best

List 5220

ADO-SUS-8D, Coolant-Through

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6





Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤12.7	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8686200	-	-	-	2.000	0.07874	22	75	3
8686210	-	-	-	2.100	0.08268	24		
8686220	-	-	-	2.200	0.08661	25		
8686230	-	-	-	2.300	0.09055	26		
522009312	3/32	-	-	2.381	0.09375	27		
8686240	-	-	-	2.400	0.09449			
8686250	-	-	-	2.500	0.09843	28		
8686260	-	-	-	2.600	0.10236	29	80	
8686270	-	-	-	2.700	0.10630	30		
522010912	7/64	-	-	2.778	0.10938	31		
8686280	-	-	-	2.800	0.11024			
8686290	-	-	-	2.900	0.11417	32		
8686300	-	-	-	3.000	0.11811	33		
8684310	-	-	-	3.100	0.12205	34	95	4
522012512	1/8	-	-	3.175	0.12500	35		1/8
8684320	-	-	-	3.200	0.12598	36		4
8684330	-	-	-	3.300	0.12992			
8684340	-	-	-	3.400	0.13386	37		
8684350	-	-	-	3.500	0.13780	39		
8684360	-	-	-	3.600	0.14173	40		
8684370	-	-	-	3.700	0.14567	41		
8684380	-	-	-	3.800	0.14961	42		
8684390	-	-	-	3.900	0.15354	43		
522015612	5/32	-	-	3.970	0.15630	44		3/16
8684400	-	-	-	4.000	0.15748			4
522016112	-	20	-	4.089	0.16100	45	105	6
8686410	-	-	-	4.100	0.16142			5
8684410	-	-	-					6
8686420	-	-	-	4.200	0.16535	46		5
8684420	-	-	-					6
8686430	-	-	-	4.300	0.16929	47		5
8684430	-	-	-					6
522017212	11/64	-	-	4.366	0.17188			3/16
8686440	-	-	-	4.400	0.17323	48		5
8684440	-	-	-					6
8686450	-	-	-	4.500	0.17717	50		5
8684450	-	-	-					6

Packed: 1 pc.
Available WXL® coating only.

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ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5220	◎	◎	○	○		◎	◎	◎	◎		○		◎	○			

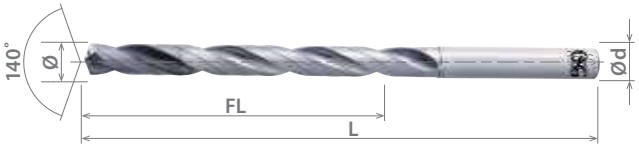
○ good ◎ best

List 5220 (Continued)

ADO-SUS-8D, Coolant-Through

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6





Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤12.7	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8686460	-	-	-	4.600	0.18110	51	105	5
8684460	-	-	-					6
8686470	-	-	-	4.700	0.18504	52		5
8684470	-	-	-					6
522018712	3/16	-	-	4.763	0.18750			3/16
8686480	-	-	-	4.800	0.18898	53		5
8684480	-	-	-					6
8686490	-	-	-	4.900	0.19291	54		5
8684490	-	-	-					6
8686500	-	-	-	5.000	0.19685	55		5
8684500	-	-	-					6
8684510	-	-	-	5.100	0.20079	56	115	
522020312	13/64	-	-	5.159	0.20313	57		1/4
8684520	-	-	-	5.200	0.20472			6
8684530	-	-	-	5.300	0.20866	58		
8684540	-	-	-	5.400	0.21260	59		
522021312	-	3	-	5.410	0.21300	60		1/4
8684550	-	-	-	5.500	0.21654	61		6
522021812	7/32	-	-	5.556	0.21875			1/4
8684560	-	-	-	5.600	0.22047	62		6
8684570	-	-	-	5.700	0.22441	63		
8684580	-	-	-	5.800	0.22835	64		
8684590	-	-	-	5.900	0.23228	65		
522023412	15/64	-	-	5.953	0.23438	66		1/4
8684600	-	-	-	6.000	0.23622			6
8686610	-	-	-	6.100	0.24016	67	125	7
8684610	-	-	-					8
8686620	-	-	-	6.200	0.24409	68		7
8684620	-	-	-					8
8686630	-	-	-	6.300	0.24803	69		7
8684630	-	-	-					8
522025012	1/4	-	E	6.350	0.25000	70		1/4
8686640	-	-	-	6.400	0.25197			7
8684640	-	-	-					8
8686650	-	-	-	6.500	0.25591	72		7
8684650	-	-	-					8
522025712	-	-	F	6.528	0.25700			
8686660	-	-	-	6.600	0.25984	73		7
8684660	-	-	-					8
8686670	-	-	-	6.700	0.26378	74		7
8684670	-	-	-					8
522026512	17/64	-	-	6.747	0.26563			5/16
8686680	-	-	-	6.800	0.26772	75		7
8684680	-	-	-					8
8686690	-	-	-	6.900	0.27165	76		7
8684690	-	-	-					8

Packed: 1 pc.
Available WXL® coating only.

ADR

List 5220 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-8D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8686700	-	-	-	7.000	0.27559	77	125	7
8684700	-	-	-					8
8684710	-	-	-	7.100	0.27953	78	140	
522028112	9/32	-	-	7.144	0.28125	79		5/16
8684720	-	-	-	7.200	0.28346			8
8684730	-	-	-	7.300	0.28740	80		
8684740	-	-	-	7.400	0.29134	81		
8684750	-	-	-	7.500	0.29528	83		
522029612	19/64	-	-	7.541	0.29688	84		5/16
8684760	-	-	-	7.600	0.29921			8
8684770	-	-	-	7.700	0.30315	85		
8684780	-	-	-	7.800	0.30709	86		
8684790	-	-	-	7.900	0.31102	87		
522031212	5/16	-	-	7.938	0.31250			5/16
8684800	-	-	-	8.000	0.31496	88		8
8686810	-	-	-	8.100	0.31890	89	150	9
8684810	-	-	-					10
8686820	-	-	-	8.200	0.32283	90		9
8684820	-	-	-					10
8686830	-	-	-	8.300	0.32677	91		9
8684830	-	-	-					10
522032812	21/64	-	-	8.334	0.32813	92		3/8
8686840	-	-	-	8.400	0.33071			9
8684840	-	-	-					10
522033112	-	-	Q	8.433	0.33200	93		11/32
8686850	-	-	-	8.500	0.33465	94		9
8684850	-	-	-					10
8686860	-	-	-	8.600	0.33858	95		9
8684860	-	-	-					10
8686870	-	-	-	8.700	0.34252	96		9
8684870	-	-	-					10
522034312	11/32	-	-	8.731	0.34375			3/8
8686880	-	-	-	8.800	0.34646	97		9
8684880	-	-	-					10
8686890	-	-	-	8.900	0.35039	98		9
8684890	-	-	-					10
8686900	-	-	-	9.000	0.35433	99		9
8684900	-	-	-					10
8684910	-	-	-	9.100	0.35827	100	160	
522035912	23/64	-	-	9.128	0.35938	101		3/8
8684920	-	-	-	9.200	0.36220			10
8684930	-	-	-	9.300	0.36614	102		
8684940	-	-	-	9.400	0.37008	103		

Packed: 1 pc.
Available WXL® coating only.

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ADR

Work Material

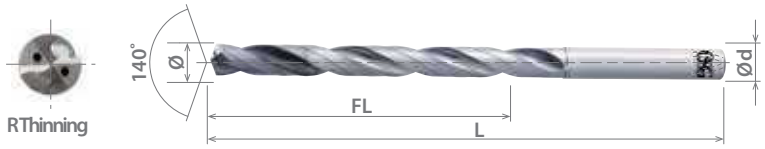
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5220	◎	◎	○	○		◎	◎	◎	◎		○		◎	○			

○ good ◎ best

List 5220 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-8D, Coolant-Through



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤12.7	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8684950	-	-	-	9.500	0.37402	105	160	10
522037512	3/8	-	-	9.525	0.37500			3/8
8684960	-	-	-	9.600	0.37795	106		10
8684970	-	-	-	9.700	0.38189	107		
8684980	-	-	-	9.800	0.38583	108		
8684990	-	-	-	9.900	0.38976	109		
522039012	25/64	-	-	9.922	0.39063	110		7/16
8685000	-	-	-	10.000	0.39370			10
8687010	-	-	-	10.100	0.39764	111	182	11
8685010	-	-	-					12
8687020	-	-	-	10.200	0.40157	112		11
8685020	-	-	-					12
8687030	-	-	-	10.300	0.40551	113		11
8685030	-	-	-					12
522040612	13/32	-	-	10.319	0.40625			7/16
8687040	-	-	-	10.400	0.40945	114		11
8685040	-	-	-					12
8687050	-	-	-	10.500	0.41339	116		11
8685050	-	-	-					12
8687060	-	-	-	10.600	0.41732	117		11
8685060	-	-	-					12
8687070	-	-	-	10.700	0.42126	118		11
8685070	-	-	-					12
522042212	27/64	-	-	10.716	0.42188			7/16
8687080	-	-	-	10.800	0.42520	119		11
8685080	-	-	-					12
8687090	-	-	-	10.900	0.42913	120		11
8685090	-	-	-					12
8687100	-	-	-	11.000	0.43307	121		11
8685100	-	-	-					12
8685110	-	-	-	11.100	0.43701	122	194	
522043712	7/16	-	-	11.113	0.43750			7/16
8685120	-	-	-	11.200	0.44094	123		12
8685130	-	-	-	11.300	0.44488	124		
8685140	-	-	-	11.400	0.44882	125		
8685150	-	-	-	11.500	0.45276	127		
522045312	29/64	-	-	11.509	0.45313			1/2
8685160	-	-	-	11.600	0.45669	128		12
8685170	-	-	-	11.700	0.46063	129		
8685180	-	-	-	11.800	0.46457	130		
8685190	-	-	-	11.900	0.46850	131		
8685200	-	-	-	12.000	0.47244	132		
522047612	-	-	-	12.100	0.47638	133	206	14
522048012	-	-	-	12.200	0.48031	134		
522048412	-	-	-	12.300	0.48425	135		
522048812	-	-	-	12.400	0.48819	136		

Packed: 1 pc.
Available WXL® coating only.

ADR

List 5220 (Continued)

SPEED FEED P358 | CARBIDE | WXL | 30° | SHANK h6

ADO-SUS-8D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
522049212	-	-	-	12.500	0.49213	138	206	13
522049312	-	-	-					14
522049612	-	-	-	12.600	0.49606	139		
522050012	1/2	-	-	12.700	0.50000	140		1/2

Packed: 1 pc.
Available WXL® coating only.

ADR

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5220	◎	◎	○	○		◎	◎	◎	◎		○		◎	○			

○ good ◎ best

List 5190

AD-LDS

SPEED FEED P359 | CARBIDE | EgiAs | 12° | 25° | SHANK h7



EDP Number	Diameter					Min. Drill Hole Size	Flute Length	Overall Length	Shank Diameter	Point Angle	Helix
	Fractional Size	Wire Gage	Letter Size	mm	Inch		FL (mm)	L (mm)	d (mm/in)	a	
8688933	-	-	-	3.000	0.11811	1.2	9	48	3	90°	12°
8688957	-	-	-							120°	25°
8688966	-	-	-							140°	25°
8688934	-	-	-	4.000	0.15748	1.5	12	54	4	90°	12°
8688958	-	-	-							120°	25°
8688967	-	-	-							140°	25°
519012017	-	-	-	5.000	0.19685	1.7	14	70	5	90°	12°
519022017	-	-	-							120°	25°
519032017	-	-	-							140°	25°
8688935	-	-	-	6.000	0.23622	1.9	15	72	6	90°	12°
8688959	-	-	-							120°	25°
8688968	-	-	-							140°	25°
519012517	1/4	-	E	6.350	0.25000		17	75	1/4	90°	12°
519022517		-								120°	25°
519032517		-								140°	25°
8688936	-	-	-	8.000	0.31496	2.1	20	81	8	90°	12°
8688960	-	-	-							120°	25°
8688969	-	-	-							140°	25°
519013817	3/8	-	-	9.525	0.37500	2.3	24	93	3/8	90°	12°
519023817		-	-							120°	25°
519033817		-	-							140°	25°
8688937	-	-	-	10.000	0.39370	2.5			10	90°	12°
8688961	-	-	-							120°	25°
8688970	-	-	-							140°	25°
8688938	-	-	-	12.000	0.47244		28	108	12	90°	12°
8688962	-	-	-							120°	25°
8688971	-	-	-							140°	25°
519015017	1/2	-	-	12.700	0.50000	3.0	36	111	1/2	90°	12°
519025017		-	-							120°	25°
519035017		-	-							140°	25°
519016217	5/8	-	-	15.875	0.62500	5.0	41	118	5/8	90°	12°
519026217		-	-							120°	25°
519036217		-	-							140°	25°
519016317	-	-	-	16.000	0.62992				16	90°	12°
519026317	-	-	-							120°	25°
519036317	-	-	-							140°	25°
519017517	3/4	-	-	19.050	0.75000		46	132	3/4	90°	12°
519027517		-	-							120°	25°
519037517		-	-							140°	25°
519017917	-	-	-	20.000	0.78740				20	90°	12°
519027917	-	-	-							120°	25°
519037917										140°	25°

Packed: 1 pc.
Available EgiAs coating only.
Minimum drill hole size is recommended for chamfering operations.

ADR

List 5190 (Continued)

AD-LDS

SPEED FEED P359 | CARBIDE | EgiAs | 12° | 25° | SHANK h7

EDP Number	Diameter					Min. Drill Hole Size	Flute Length	Overall Length	Shank Diameter	Point Angle	Helix
	Fractional Size	Wire Gage	Letter Size	mm	Inch		FL (mm)	L (mm)	d (mm/in)	a	
519019817	-	-	-	25.000	0.98425	5.0	53	151	25	90°	12°
519029817	-	-	-							120°	25°
519039817	-	-	-							140°	25°

Packed: 1 pc.
Available EgiAs coating only.
Minimum drill hole size is recommended for chamfering operations.

ADR

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5190	▢	▢	▢	▢	▢				▢		▢	▢	▢	▢	▢	▢	

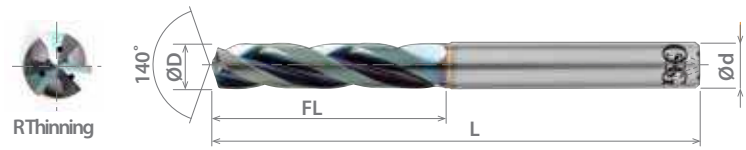
▢ good ▢ best

List 5600

WHILE SUPPLIES LAST

TRS-HO-3D, 3 Flute, Coolant-Through

SPEED FEED	CARBIDE				
P360		WD1		30°	SHANK h6



Cutting Diameter Tolerance (h8)		
Size	mm	inch
4≤D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
560016011	-	20	-	4.089	0.16100	25	80	5
560016111	-	-	-	4.100	0.16142			
560016311	-	-	-	4.160	0.16378			
560016511	-	-	-	4.200	0.16535	26		
560016811	-	-	-	4.270	0.16811			
560016911	-	-	-	4.300	0.16929			
560017211	11/64	-	-	4.366	0.17188	27		3/16
560017311	-	-	-	4.400	0.17323			5
560017511	-	-	-	4.460	0.17559			
560017711	-	-	-	4.500	0.17717			
560018511	-	-	-	4.700	0.18504	29		
560018711	3/16	-	-	4.763	0.18750			3/16
560018911	-	-	-	4.800	0.18898			5
560019211	-	-	-	4.900	0.19291	30		
560020311	13/64	-	-	5.159	0.20313	26	82	15/64
8660530	-	-	-	5.300	0.20866	27		
8660540	-	-	-	5.400	0.21260			
560021311	-	3	-	5.410	0.21300	28		1/4
560021911	7/32	-	-	5.558	0.21880			15/64
8660570	-	-	-	5.700	0.22441	29		6
560023411	15/64	-	-	5.953	0.23438	30		15/64
8660610	-	-	-	6.100	0.24016	31	88	7
8660620	-	-	-	6.200	0.24409			
8660630	-	-	-	6.300	0.24803	32		
8660660	-	-	-	6.600	0.25984	33		
8660670	-	-	-	6.700	0.26378	34		
8660760	-	-	-	7.600	0.29921			8
8660770	-	-	-	7.700	0.30315	39		
8660780	-	-	-	7.800	0.30709			
560032811	21/64	-	-	8.334	0.32813	42	101	11/32
8660840	-	-	-	8.400	0.33071			9
8660980	-	-	-	9.800	0.38583	49	106	10
8660990	-	-	-	9.900	0.38976	50		
8661000	-	-	-	10.000	0.39370			
8661010	-	-	-	10.100	0.39764	51	113	11
8661050	-	-	-	10.500	0.41339	53		
8661060	-	-	-	10.600	0.41732			
8661070	-	-	-	10.700	0.42126	54		
560045311	29/64	-	-	11.509	0.45313	58		15/32
8661190	-	-	-	11.900	0.46850	60		12
560046911	15/32	-	-	11.906	0.46875			15/32
8661210	-	-	-	12.100	0.47638	61	128	13
8661220	-	-	-	12.200	0.48031			
8661230	-	-	-	12.300	0.48425	62		
8661250	-	-	-	12.500	0.49213	63	128	13
8661260	-	-	-	12.600	0.49606			
560050011	1/2	-	-	12.700	0.50000	64		1/2
8661270	-	-	-					13
8661310	33/64	-	-	13.097	0.51563	66	134	14
8661320	-	-	-	13.200	0.51969			
8661340	-	-	-	13.400	0.52756	67		

Packed: 1 pc.
Available WD1 coating only.

EP

List 5600 (Continued)

WHILE SUPPLIES LAST

TRS-HO-3D, 3 Flute, Coolant-Through

SPEED FEED P360 | CARBIDE | WD1 | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8661420	-	-	-	14.200	0.55906	71	140	15
8661430	-	-	-	14.300	0.56299	72		
8661440	-	-	-	14.400	0.56693			
8661450	-	-	-	14.500	0.57087	73		
8661460	-	-	-	14.600	0.57480			
8661470	-	-	-	14.700	0.57874	74		
8661480	-	-	-	14.800	0.58268			
8661490	-	-	-	14.900	0.58661	75		
8661500	-	-	-	15.000	0.59055			
560059311	19/32	-	-	15.081	0.59375	76	145	5/8
8661540	-	-	-	15.400	0.60630	77		16
8661570	-	-	-	15.700	0.61811	79		
8661580	-	-	-	15.800	0.62205			
560063311	-	-	-	16.100	0.63386	81	150	18
560066311	-	-	-	16.840	0.66299	85		18
560071811	23/32	-	-	18.256	0.71875	92	160	3/4
8661850	-	-	-	18.500	0.72835	93		19
560075711	-	-	-	19.250	0.75787	97	165	20
8661950	-	-	-	19.500	0.76772	98		
8662000	-	-	-	20.000	0.78740	100		

Packed: 1 pc.
Available WD1 coating only.

EP

Additional Offerings

Looking for more sizes? Try A Brand® ADO-TRS 3D (p. 66-69)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5600	▢	▢	▢	▢	▢		▢	▢	▢		▢		▢	▢	▢		

▢ good ▢ best

List 5610 WHILE SUPPLIES LAST

TRS-HO-5D, 3 Flute, Coolant-Through

SPEED FEED P360 | CARBIDE | WD1 | 30° | SHANK h6





Cutting Diameter Tolerance (h8)		
Size	mm	inch
4≤D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
561016011	-	20	-	4.089	0.16100	37	95	5
561016111	-	-	-	4.100	0.16142			
561016511	-	-	-	4.200	0.16535	38		
561017211	11/64	-	-	4.366	0.17188	40		3/16
561018111	-	-	-	4.600	0.18110	42		5
561018511	-	-	-	4.700	0.18504	43		
561018711	3/16	-	-	4.763	0.18750			3/16
561018911	-	-	-	4.800	0.18898	44		5
561019211	-	-	-	4.900	0.19291	45		
561021311	-	3	-	5.410	0.21300	44	100	1/4
561021911	7/32	-	-	5.556	0.21875	45		15/64
8662570	-	-	-	5.700	0.22441	46		6
8662590	-	-	-	5.900	0.23228	48		
561023411	15/64	-	-	5.953	0.23438			15/64
561025011	1/4	-	E	6.350	0.25000	52	109	1/4
8662640	-	-	-	6.400	0.25197			7
8662710	-	-	-	7.100	0.27953	57	118	8
8662720	-	-	-	7.200	0.28346	58		8
8662740	-	-	-	7.400	0.29134	60		
561029711	19/64	-	-	7.541	0.29688			5/16
8662760	-	-	-	7.600	0.29921	61		8
8662770	-	-	-	7.700	0.30315	62		
8662790	-	-	-	7.900	0.31102	64		
8662800	-	-	-	8.000	0.31496			8
8662830	-	-	-	8.300	0.32677	67	128	
561032811	21/64	-	-	8.334	0.32813			11/32
561033211	-	-	Q	8.433	0.33200	68		
8662860	-	-	-	8.600	0.33858	69		9
8662880	-	-	-	8.800	0.34646	71		
561035911	23/64	-	-	9.128	0.35938	73	136	25/64
8662990	-	-	-	9.900	0.38976	80		10
8663070	-	-	-	10.700	0.42126	86	146	11
8663080	-	-	-	10.800	0.42520	87		
8663090	-	-	-	10.900	0.42913	88		
8663120	-	-	-	11.200	0.44094	90	156	12
8663130	-	-	-	11.300	0.44488	91		
8663160	-	-	-	11.600	0.45669	93		
561046911	15/32	-	-	11.906	0.46875	96		15/32
8663210	-	-	-	12.100	0.47638	97	167	13
8663230	-	-	-	12.300	0.48425	99		
561048411	31/64	-	-	12.303	0.48438			1/2
8663240	-	-	-	12.400	0.48819	100		13
8663270	-	-	-	12.700	0.50000	102		
8663280	-	-	-	12.800	0.50394	103		
8663290	-	-	-	12.900	0.50787	104		
8663310	33/64	-	-	13.097	0.51563	105	176	14
8663320	-	-	-	13.200	0.51969	106		
8663330	-	-	-	13.300	0.52362	107		
8663340	-	-	-	13.400	0.52756	108		
8663390	-	-	-	13.900	0.54724	112		

Packed: 1 pc.
Available WD1 coating only.

EP

List 5610 (Continued)

WHILE SUPPLIES LAST

TRS-HO-5D, 3 Flute, Coolant-Through

SPEED FEED P360 | CARBIDE | WD1 | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8663410	-	-	-	14.100	0.55512	113	185	15
8663430	-	-	-	14.300	0.56299	115		
8663450	-	-	-	14.500	0.57087			
8663460	-	-	-	14.600	0.57480	117		
8663470	-	-	-	14.700	0.57874	118		
8663480	-	-	-	14.800	0.58268	119		
8663490	-	-	-	14.900	0.58661	120		
8663500	-	-	-	15.000	0.59055			
561059311	19/32	-	-	15.081	0.59375	121	193	5/8
8663530	-	-	-	15.300	0.60236	123		16
8663540	-	-	-	15.400	0.60630	124		
8663560	-	-	-	15.600	0.61417	125		
8663570	-	-	-	15.700	0.61811	126		
8663580	-	-	-	15.800	0.62205	127		
561062511	5/8	-	-	15.875	0.62500	128		5/8
8663590	-	-	-	15.900	0.62598			16
8663600	-	-	-	16.000	0.62992			
8663650	-	-	-	16.500	0.64961	132	201	17
561068711	11/16	-	-	17.463	0.68750	140	209	3/4
8663800	-	-	-	18.000	0.70866	144		18
561071811	23/32	-	-	18.256	0.71875	147	217	3/4
8663850	-	-	-	18.500	0.72835	148		19
8663900	-	-	-	19.000	0.74803	152		
561075011	3/4	-	-	19.050	0.75000	154		3/4
561075711	-	-	-	19.250	0.75787			20
8663950	-	-	-	19.500	0.76772	156	225	
8664000	-	-	-	20.000	0.78740	160		

Packed: 1 pc.
Available WD1 coating only.

EP

Additional Offerings

Looking for more sizes? Try A Brand® ADO-TRS 5D (p. 70-73)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5610	▢	▢	▢	▢	▢		▢	▢	▢		▢			▢			

▢ good ▢ best

List 5630

TRS-HO-10D, 3 Flute, Coolant-Through

SPEED FEED P361 | CARBIDE | WD1 | 30° | SHANK h6

Cutting Diameter Tolerance (h8)		
Size	mm	inch
5≤D≤6	-0.020 / -0.038	-0.0007 / -0.0014
6<D≤10	-0.025 / -0.047	-0.0009 / -0.0018
10<D≤15.88	-0.032 / -0.059	-0.0012 / -0.0023


RThinning



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
48159050	-	-	-	5.000	0.19685	65	115	6
563020011	-	-	-	5.100	0.20079	70	128	
563020311	13/64	-	-	5.159	0.20313			
563020411	-	-	-	5.200	0.20472			
563020811	-	-	-	5.300	0.20866			
563021211	-	-	-	5.400	0.21260	78		
563021311	-	3	-	5.410	0.21299			
8664055	-	-	-	5.500	0.21654			
563021811	7/32	-	-	5.558	0.21880			
563022011	-	-	-	5.600	0.22047			
563022411	-	-	-	5.700	0.22441			
563022811	-	-	-	5.800	0.22835			
563023211	-	-	-	5.900	0.23228			
563023411	15/64	-	-	5.953	0.23438			
8664060	-	-	-	6.000	0.23622			
563024011	-	-	-	6.100	0.24016	87	140	8
563024411	-	-	-	6.200	0.24409			
563024811	-	-	-	6.300	0.24803			
563025011	1/4	-	E	6.350	0.25000			1/4
563025211	-	-	-	6.400	0.25197			8
48159065	-	-	-	6.500	0.25591			
563025711	-	-	-	6.530	0.25709			
563025911	-	-	-	6.600	0.25984			
563026311	-	-	-	6.700	0.26378			
563026511	17/64	-	-	6.747	0.26563	90		5/16
563026711	-	-	-	6.800	0.26772			8
563027111	-	-	-	6.900	0.27165			
48159070	-	-	-	7.000	0.27559			
563027911	-	-	-	7.100	0.27953	100	155	
563028111	9/32	-	-	7.144	0.28125			5/16
563028311	-	-	-	7.200	0.28346			8
563028711	-	-	-	7.300	0.28740			
563029111	-	-	-	7.400	0.29134			
8664075	-	-	-	7.500	0.29528			
563029611	19/64	-	-	7.541	0.29688	105		5/16
563029911	-	-	-	7.600	0.29921			8
563030311	-	-	-	7.700	0.30315			
563030711	-	-	-	7.800	0.30709			
563031111	-	-	-	7.900	0.31102			
563031211	5/16	-	-	7.938	0.31250			5/16
8664080	-	-	-	8.000	0.31496			8
563031811	-	-	-	8.100	0.31890	110	165	10
563032211	-	-	-	8.200	0.32283			
563032611	-	-	-	8.300	0.32677			
563032811	21/64	-	-	8.334	0.32813			3/8
563033011	-	-	-	8.400	0.33071			10
563033111	-	-	Q	8.433	0.33200			
48159085	-	-	-	8.500	0.33465			
563033811	-	-	-	8.600	0.33858	115		
563034211	-	-	-	8.700	0.34252			
563034311	11/32	-	-	8.733	0.34380			3/8
563034611	-	-	-	8.800	0.34646			10

Packed: 1 pc.
Available WD1 coating only.

EP

List 5630 (Continued)

TRS-HO-10D, 3 Flute, Coolant-Through

SPEED FEED P361 | CARBIDE | WD1 | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
563035011	-	-	-	8.900	0.35039	115	165	10
48159090	-	-	-	9.000	0.35433			
563035811	-	-	-	9.100	0.35827	125	190	
563035911	23/64	-	-	9.128	0.35938			3/8
563036211	-	-	-	9.200	0.36220			10
563036611	-	-	-	9.300	0.36614			
563037011	-	-	-	9.400	0.37008			
8664095	-	-	-	9.500	0.37402			
563037511	3/8	-	-	9.525	0.37500	130		3/8
563037811	-	-	-	9.600	0.37795			10
563038111	-	-	-	9.700	0.38189			
563038511	-	-	-	9.800	0.38583			
563038911	-	-	-	9.900	0.38976			
563039011	25/64	-	-	9.922	0.39063			7/16
8664100	-	-	-	10.000	0.39370			10
563039711	-	-	-	10.100	0.39764	140	205	12
563040111	-	-	-	10.200	0.40157			
563040511	-	-	-	10.300	0.40551			
563040611	13/32	-	-	10.319	0.40625			7/16
563040911	-	-	-	10.400	0.40945			12
563041311	-	-	-	10.500	0.41339			
563041711	-	-	-	10.600	0.41732			
563041211	-	-	-	10.700	0.42126			
563042211	27/64	-	-	10.716	0.42188	145		7/16
563042511	-	-	-	10.800	0.42520			12
563042911	-	-	-	10.900	0.42913			
563043311	-	-	-	11.000	0.43307			
563043711	-	-	-	11.100	0.43701	155	215	
563043811	7/16	-	-	11.113	0.43750			7/16
563044011	-	-	-	11.200	0.44094			12
563044411	-	-	-	11.300	0.44488			
563044811	-	-	-	11.400	0.44882			
8664115	-	-	-	11.500	0.45276			
563045311	29/64	-	-	11.509	0.45313			1/2
563045611	-	-	-	11.600	0.45669			12
563046011	-	-	-	11.700	0.46063			
563046411	-	-	-	11.800	0.46457			
563056811	-	-	-	11.900	0.46850			
8664120	-	-	-	12.000	0.47244			
563047611	-	-	-	12.100	0.47638			14
563048011	-	-	-	12.200	0.48031			
563048411	-	-	-	12.300	0.48425			1/2
563048811	-	-	-	12.400	0.48819			14
563049211	-	-	-	12.500	0.49213			
563049611	-	-	-	12.600	0.49606			
563050011	1/2	-	-	12.700	0.50000			1/2
563053111	17/32	-	-	13.494	0.53125	175	225	5/8
563053211	-	-	-	13.500	0.53150			14

Packed: 1 pc.
Available WD1 coating only.

continued on next page

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5630	▢	▢	▢	▢	▢		○	○	▢		○			○			

○ good ▢ best

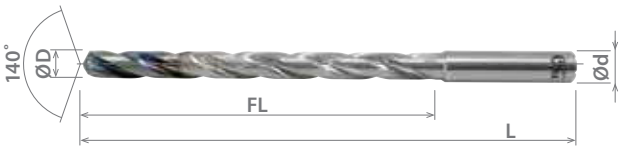
List 5630 (Continued)

TRS-HO-10D, 3 Flute, Coolant-Through

SPEED FEED P361 | CARBIDE | WD1 | 30° | SHANK h6

Cutting Diameter Tolerance (h8)		
Size	mm	inch
5≤D≤6	-0.020 / -0.038	-0.0007 / -0.0014
6<D≤10	-0.025 / -0.047	-0.0009 / -0.0018
10<D≤15.88	-0.032 / -0.059	-0.0012 / -0.0023





EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
563055111	-	-	-	14.000	0.55118	180	230	14
563056211	9/16	-	-	14.288	0.56250			5/8
563057011	-	-	-	14.500	0.57087	190	240	16
563062511	5/8	-	-	15.875	0.62500	210	260	5/8

Packed: 1 pc.
Available WD1 coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5630	◎	◎	◎	◎	◎		○	○	◎		○			○			

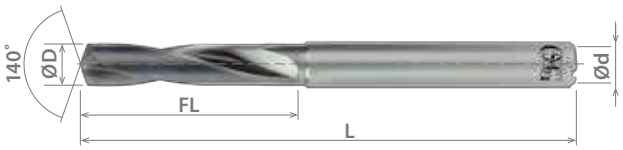
○ good ◎ best

List 5950Ni

WHO55-3D, Coolant-Through

SPEED FEED P362 | CARBIDE | WXS | 12-20° | SHANK h6





Cutting Diameter Tolerance (h8)		
Size	mm	inch
D=3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤12.7	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
595011811	-	-	-	3.000	0.11811	20	62	6
595012511	1/8	-	-	3.175	0.12500			
595013011	-	-	-	3.300	0.12992	21		
595013411	-	-	-	3.400	0.13386			
595013711	-	-	-	3.490	0.13740			
595013811	-	-	-	3.500	0.13780			
595013911	-	-	-	3.510	0.13819	23		
595014211	-	-	-	3.600	0.14173			
595014611	-	-	-	3.700	0.14567			
595015011	-	-	-	3.800	0.14961	24		
595015411	-	-	-	3.900	0.15354			
595015611	5/32	-	-	3.969	0.15625			
595015711	-	-	-	4.000	0.15748			
595016111	-	-	-	4.100	0.16142	26	68	
595016311	-	-	-	4.150	0.16339			
595016511	-	-	-	4.200	0.16535			
595016911	-	-	-	4.300	0.16929	27		
595017111	11/64	-	-	4.366	0.17188			
595017311	-	-	-	4.400	0.17323			
595017711	-	-	-	4.500	0.17717			
595018111	-	-	-	4.600	0.18110	29		
595018511	-	-	-	4.700	0.18504			
595018711	3/16	-	-	4.763	0.18750			
595018911	-	-	-	4.800	0.18898	30		
595019311	-	-	-	4.900	0.19291			
595019711	-	-	-	5.000	0.19685			
595020111	-	-	-	5.100	0.20079	26	74	
595020311	13/64	-	-	5.159	0.20313			
595020511	-	-	-	5.200	0.20472			
595020611	-	-	-	5.220	0.20550	28		
595020911	-	-	-	5.300	0.20866			
595021311	-	-	-	5.400	0.21260			
595021711	-	-	-	5.500	0.21654			
595021611	-	-	-	5.530	0.21772	29		
595021811	7/32	-	-	5.556	0.21875			
595021911	-	-	-	5.560	0.21890			
595022011	-	-	-	5.600	0.22047			
595022411	-	-	-	5.700	0.22441			
595022811	-	-	-	5.800	0.22835	30		
595023211	-	-	-	5.900	0.23228			
595023411	15/64	-	-	5.953	0.23438			
595023611	-	-	-	6.000	0.23622			

Packed: 1 pc.
Available WXS® coating only.

continued on next page

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5950Ni	○	○	○	◎	○				○			◎		○	○	◎	○

○ good ◎ best

List 5950Ni (Continued)

SPEED FEED P362 | CARBIDE | WXS | 12-20° | SHANK h6

WHO55-3D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
595025011	1/4	-	-	6.350	0.25000	33	83	8
595025611	-	-	-	6.500	0.25591			
595026211	-	-	-	6.650	0.26181	34		
595026511	17/64	-	-	6.747	0.26563	35		
595026811	-	-	-	6.800	0.26772			
595027411	-	-	-	6.960	0.27402			
595027611	-	-	-	7.000	0.27559			
595028111	9/32	-	-	7.144	0.28125	36	94	
595029511	-	-	-	7.500	0.29528	38		
595029611	19/64	-	-	7.541	0.29688	39		
595030711	-	-	-	7.800	0.30709	40		
595031211	5/16	-	-	7.938	0.31250			
595031511	-	-	-	8.000	0.31496			
595031711	-	-	-	8.040	0.31654	41	101	10
595032811	21/64	-	-	8.334	0.32813	43		
595033411	-	-	-	8.500	0.33465			
595033511	-	-	-	8.520	0.33543	44		
595033811	-	-	-	8.580	0.33780			
595034211	-	-	-	8.700	0.34252			
595034311	11/32	-	-	8.731	0.34375	45		
595034611	-	-	-	8.800	0.34646			
595035411	-	-	-	9.000	0.35433			
595035911	23/64	-	-	9.128	0.35938	46	106	
595037011	-	-	-	9.390	0.36969	48		
595037411	-	-	-	9.500	0.37402			
595037511	3/8	-	-	9.525	0.37500	49		
595038611	-	-	-	9.800	0.38583	50		
595038911	-	-	-	9.900	0.38976			
595039011	25/64	-	-	9.922	0.39063			
595039311	-	-	-	9.970	0.39252			
595039411	-	-	-	10.000	0.39370			
595040511	-	-	-	10.300	0.40551	53	113	12
595040611	13/32	-	-	10.319	0.40625			
595041311	-	-	-	10.500	0.41339			
595042211	27/64	-	-	10.716	0.42188	55		
595042511	-	-	-	10.800	0.42520			
595042611	-	-	-	10.830	0.42638			
595043311	-	-	-	11.000	0.43307			
595043711	7/16	-	-	11.113	0.43750	56	120	
595045211	-	-	-	11.470	0.45157	58		
595045411	-	-	-	11.500	0.45276			
595045311	29/64	-	-	11.509	0.45313	59		
595045511	-	-	-	11.560	0.45512			
595046511	-	-	-	11.800	0.46457	60		
595046811	15/32	-	-	11.906	0.46875			
595047211	-	-	-	12.000	0.47244			
595048411	31/64	-	-	12.303	0.48438	63	128	14
595050011	1/2	-	-	12.700	0.50000	65		

Packed: 1 pc.
Available WXS® coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5950Ni	○	○	○	◎	○				○			◎		○	○	◎	○

○ good ◎ best

List 5955Ni

WHO55-5D, Coolant-Through

SPEED FEED P362 | CARBIDE | WXS | 12-20° | SHANK h6



Cutting Diameter Tolerance (h8)		
Size	mm	inch
D=3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤12.7	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
595511811	-	-	-	3.000	0.11811	29	78	6
595512511	1/8	-	-	3.175	0.12500			
3316330	-	-	-	3.300	0.12992	32		
3316340	-	-	-	3.400	0.13386			
3316349	-	-	-	3.490	0.13740			
3316350	-	-	-	3.500	0.13780			
595513911	-	-	-	3.510	0.13819	34		
3316360	-	-	-	3.600	0.14173			
3316370	-	-	-	3.700	0.14567			
3316380	-	-	-	3.800	0.14961	36		
3316390	-	-	-	3.900	0.15354			
595515611	5/32	-	-	3.969	0.15625			
3316400	-	-	-	4.000	0.15748			
3316410	-	-	-	4.100	0.16142	38	88	
3316415	-	-	-	4.150	0.16339			
3316420	-	-	-	4.200	0.16535			
3316430	-	-	-	4.300	0.16929	41		
595517111	11/64	-	-	4.366	0.17188			
3316440	-	-	-	4.400	0.17323			
3316450	-	-	-	4.500	0.17717			
3316460	-	-	-	4.600	0.18110	43		
3316470	-	-	-	4.700	0.18504			
595518711	3/16	-	-	4.763	0.18750	45		
3316480	-	-	-	4.800	0.18898			
3316490	-	-	-	4.900	0.19291			
3316500	-	-	-	5.000	0.19685			
3316510	-	-	-	5.100	0.20079	42	92	
595520311	13/64	-	-	5.159	0.20313			
3316520	-	-	-	5.200	0.20472			
595520611	-	-	-	5.220	0.20550	44		
3316530	-	-	-	5.300	0.20866			
3316540	-	-	-	5.400	0.21260			
3316550	-	-	-	5.500	0.21654			
595521611	-	-	-	5.530	0.21772	46		
595521811	7/32	-	-	5.556	0.21875			
3316556	-	-	-	5.560	0.21890			
3316560	-	-	-	5.600	0.22047			
3316570	-	-	-	5.700	0.22441			
3316580	-	-	-	5.800	0.22835	48		
3316590	-	-	-	5.900	0.23228			
595523411	15/64	-	-	5.953	0.23438			
3316600	-	-	-	6.000	0.23622			

Packed: 1 pc.
Available WXS® coating only.

continued on next page

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5955Ni	○	○	○	◎	○				○			◎		○	○	◎	○

○ good ◎ best

List 5955Ni (Continued)

SPEED FEED P362 | CARBIDE | WXS | 12-20° | SHANK h6

WHO55-5D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
595525011	1/4	-	-	6.350	0.25000	52	102	8
3316650	-	-	-	6.500	0.25591			
595526211	-	-	-	6.650	0.26181	54		
595526511	17/64	-	-	6.747	0.26563	55		
3316680	-	-	-	6.800	0.26772	56		
595527411	-	-	-	6.960	0.27402			
3316700	-	-	-	7.000	0.27559			
595528111	9/32	-	-	7.144	0.28125	58	118	
3316750	-	-	-	7.500	0.29528	60		
595529611	19/64	-	-	7.541	0.29688	62		
3316780	-	-	-	7.800	0.30709	64		
595531211	5/16	-	-	7.938	0.31250			
3316800	-	-	-	8.000	0.31496			
595531711	-	-	-	8.040	0.31654	66	128	10
595532811	21/64	-	-	8.334	0.32813	68		
3316850	-	-	-	8.500	0.33465			
595533511	-	-	-	8.520	0.33543	70		
3316858	-	-	-	8.580	0.33780			
3316870	-	-	-	8.700	0.34252			
595534311	11/32	-	-	8.731	0.34375	72		
3316880	-	-	-	8.800	0.34646			
3316900	-	-	-	9.000	0.35433			
595535911	23/64	-	-	9.128	0.35938	74	136	
595537011	-	-	-	9.390	0.36969	76		
3316950	-	-	-	9.500	0.37402			
595537511	3/8	-	-	9.525	0.37500	78		
3316980	-	-	-	9.800	0.38583	80		
595538911	-	-	-	9.900	0.38976			
595539011	25/64	-	-	9.922	0.39063			
3316997	-	-	-	9.970	0.39252			
3317000	-	-	-	10.000	0.39370			
3317030	-	-	-	10.300	0.40551	84	146	12
595540611	13/32	-	-	10.319	0.40625			
3317050	-	-	-	10.500	0.41339			
595542211	27/64	-	-	10.716	0.42188	88		
3317080	-	-	-	10.800	0.42520			
595542611	-	-	-	10.830	0.42638			
3317100	-	-	-	11.000	0.43307			
595543711	7/16	-	-	11.113	0.43750	90	156	
595545211	-	-	-	11.470	0.45157	92		
3317150	-	-	-	11.500	0.45276			
595545311	29/64	-	-	11.509	0.45313	94		
3317156	-	-	-	11.560	0.45512			
3317180	-	-	-	11.800	0.46457	96		
595546811	15/32	-	-	11.906	0.46875			
3317200	-	-	-	12.000	0.47244			
595548411	31/64	-	-	12.303	0.48438	100	167	14
595550011	1/2	-	-	12.700	0.50000	104		

Packed: 1 pc.
Available WXS® coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5955Ni	○	○	○	◎	○				○			◎		○	○	◎	○

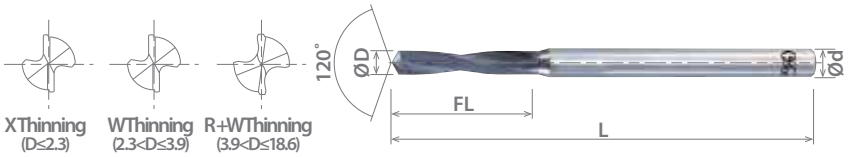
○ good ◎ best

List 5171

WH70-DRL, 55-70 HRC

SPEED FEED P363 | CARBIDE | WXS | 12° | SHANK h6

Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤18.6	+0 / -0.033	+0 / -0.0013



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
3318200	-	-	-	2.000	0.07874	12	42	3
3318210	-	-	-	2.100	0.08268			
3318220	-	-	-	2.200	0.08661	13	43	
3318230	-	-	-	2.300	0.09055			
3318240	-	-	-	2.400	0.09449	14	44	
3318250	-	-	-	2.500	0.09843			
3318260	-	-	-	2.600	0.10236			
3318270	-	-	-	2.700	0.10630	16	46	
3318280	-	-	-	2.800	0.11024			
3318290	-	-	-	2.900	0.11417			
3318300	-	-	-	3.000	0.11811			
3318310	-	-	-	3.100	0.12205	18	48	4
3318320	-	-	-	3.200	0.12598			
3318330	-	-	-	3.300	0.12992			
3318340	-	-	-	3.400	0.13386	20	50	
3318350	-	-	-	3.500	0.13780			
3318360	-	-	-	3.600	0.14173			
3318370	-	-	-	3.700	0.14567			
3318380	-	-	-	3.800	0.14961	22	52	
3318390	-	-	-	3.900	0.15354			
3318400	-	-	-	4.000	0.15748			
3318410	-	-	-	4.100	0.16142	25	68	5
3318420	-	-	-	4.200	0.16535			
3318430	-	-	-	4.300	0.16929	28		
3318440	-	-	-	4.400	0.17323			
3318450	-	-	-	4.500	0.17717			
3318460	-	-	-	4.600	0.18110			
3318470	-	-	-	4.700	0.18504			
3318480	-	-	-	4.800	0.18898	32		
3318490	-	-	-	4.900	0.19291			
3318500	-	-	-	5.000	0.19685			
3318510	-	-	-	5.100	0.20079		74	6
3318520	-	-	-	5.200	0.20472			
3318530	-	-	-	5.300	0.20866			
3318540	-	-	-	5.400	0.21260	35		
3318550	-	-	-	5.500	0.21654			
3318560	-	-	-	5.600	0.22047			
3318570	-	-	-	5.700	0.22441			
3318580	-	-	-	5.800	0.22835			
3318590	-	-	-	5.900	0.23228			
3318600	-	-	-	6.000	0.23622			
3318610	-	-	-	6.100	0.24016	40	83	7

Packed: 1 pc.
Available WXS coating only.
EXOCARB® VX taps recommended.

continued on next page

HTE

Work Material

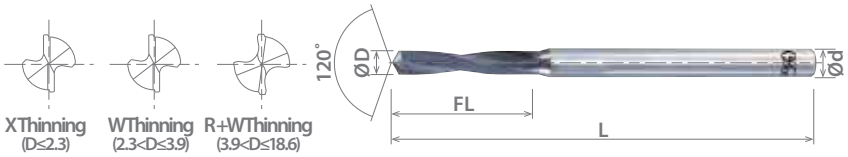
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5171																	◻

◯ good ◻ best

List 5171 (Continued)

WH70-DRL, 55-70 HRC

SPEED FEED	CARBIDE			SHANK
P363		WXS	12°	h6



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤18.6	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
3318620	-	-	-	6.200	0.24409	40	83	7
3318630	-	-	-	6.300	0.24803			
3318640	-	-	-	6.400	0.25197			
3318650	-	-	-	6.500	0.25591			
3318660	-	-	-	6.600	0.25984			
3318670	-	-	-	6.700	0.26378			
3318680	-	-	-	6.800	0.26772	45		
3318690	-	-	-	6.900	0.27217			
3318700	-	-	-	7.000	0.27559			
3318710	-	-	-	7.100	0.27953		94	8
3318720	-	-	-	7.200	0.28346			
3318730	-	-	-	7.300	0.28740			
3318740	-	-	-	7.400	0.29134			
3318750	-	-	-	7.500	0.29528			
3318760	-	-	-	7.600	0.29921	50		
3318770	-	-	-	7.700	0.30315			
3318780	-	-	-	7.800	0.30709			
3318790	-	-	-	7.900	0.31102			
3318800	-	-	-	8.000	0.31496			
3318810	-	-	-	8.100	0.31890		101	9
3318820	-	-	-	8.200	0.32283			
3318830	-	-	-	8.300	0.32677			
3318840	-	-	-	8.400	0.33071			
3318850	-	-	-	8.500	0.33465			
3318860	-	-	-	8.600	0.33858	57		
3318870	-	-	-	8.700	0.34252			
3318880	-	-	-	8.800	0.34646			
3318890	-	-	-	8.900	0.35039			
3318900	-	-	-	9.000	0.35433			
3318910	-	-	-	9.100	0.35827		106	10
3318920	-	-	-	9.200	0.36220			
3318930	-	-	-	9.300	0.36614			
3318940	-	-	-	9.400	0.37008			
3318950	-	-	-	9.500	0.37402			
3318960	-	-	-	9.600	0.37795	63		
3318970	-	-	-	9.700	0.38189			
3318980	-	-	-	9.800	0.38583			
3318990	-	-	-	9.900	0.38976			
3319000	-	-	-	10.000	0.39370			
3319010	-	-	-	10.100	0.39764		113	11
3319020	-	-	-	10.200	0.40157			
3319030	-	-	-	10.300	0.40551			
3319040	-	-	-	10.400	0.40945			
3319050	-	-	-	10.500	0.41339			
3319060	-	-	-	10.600	0.41732			
3319070	-	-	-	10.700	0.42126	71		
3319080	-	-	-	10.800	0.42520			
3319090	-	-	-	10.900	0.42913			
3319100	-	-	-	11.000	0.43307			
3319110	-	-	-	11.100	0.43701			
3319120	-	-	-	11.200	0.44094		120	12
3319130	-	-	-	11.300	0.44488			

Packed: 1 pc.
Available WXS coating only.
EXOCARB® VX taps recommended.

HTE

List 5171 (Continued)

WH70-DRL, 55-70 HRC

SPEED FEED P363 | CARBIDE | WXS | 12° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
3319140	-	-	-	11.400	0.44882	71	120	12
3319150	-	-	-	11.500	0.45276			
3319160	-	-	-	11.600	0.45669			
3319170	-	-	-	11.700	0.46063			
3319180	-	-	-	11.800	0.46457			
3319190	-	-	-	11.900	0.46850	76		
3319200	-	-	-	12.000	0.47244			
517112113	-	-	-	12.100	0.47638		136	16
517112613	-	-	-	12.600	0.49606	79	139	
517114113	-	-	-	14.100	0.55512	90	150	
517114613	-	-	-	14.600	0.57480			
517115613	-	-	-	15.600	0.61417	96	156	
517116113	-	-	-	16.100	0.63386	102	162	20
517116613	-	-	-	16.600	0.65354			
517117613	-	-	-	17.600	0.69291	108	168	
517118613	-	-	-	18.600	0.73228	114	174	

Packed: 1 pc.
Available WXS coating only.
EXOCARB® VX taps recommended.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5171																	◎

○ good ◎ best

List 5172

SPEED FEED P363 | CARBIDE | BR | SHANK h7

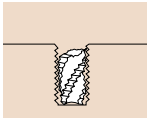
EX-H-DRL, Tap Extractor



EDP Number	Diameter	Flute Length	Overall Length	Shank Diameter	Tap Types					
					Straight Fluted		Spiral Pointed		Spiral Fluted	
	mm	FL (mm)	L (mm)	d (mm)	Metric	ANSI	Metric	ANSI	Metric	ANSI
87702	2.000	10	30	2	M3	#4, #5, #6	M3	#4, #5	M3	#4, #5, #6
87703	3.000	15	40	3	M4, M5	#8, #10	M4	#8, #10	M4, M5	#8, #10
87704	4.000	20	45	4	M6	1/4, 5/16	M5, M6	1/4	M6	1/4 and 5/16
87705	5.000	25	50	5	M8, M10	3/8	-	5/16	M8, M10	3/8
87706	6.000	30	60	6	M12	7/16, 1/2	M8	3/8	M12	7/16, 1/2
87707	7.000	35	80	7	M14	9/16	M10	7/16	M14	9/16
87708	8.000	40		8	M16	5/8	M12	1/2	M16	5/8
87709	9.000	45	100	9	M18	3/4	M14	9/16	M18	3/4
87710	10.000	50		10	M20	-	M16	5/8	M20	-
87781	11.000	55	110	11	M22	7/8	M18	-	M22	7/8
87782	12.000	60		12	M24	1.00	M20	3/4	M24	1.00
87700	2-6 Set	-	-	-	-	-	-	-	-	-

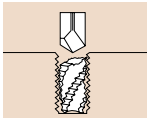
Packed: 1 pc.
Drills are available in 5pc sets (EDP 87700) for Ø2 through Ø6.
For drill diameter selection, use the method outlined below.
Straight Fluted & Spiral Fluted Taps: 0.46(Tap Ø)<(Drill Ø)<0.75(Tap Ø)
Spiral Pointed Taps: 0.6(Tap Ø)<(Drill Ø)<0.75(Tap Ø)

HTE



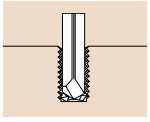
1. Broken Tap

Check how tap is broken. If any portion of the tap is protruding, grind the damaged surface of the tap flush with the workpiece. This will allow the damaged tap to be drilled easier.



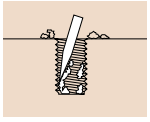
2. Centering of Drill

Position the drill over the center of the tap. Please make sure both the workpiece and drill are properly secured. Make an initial light drill approach, and then quickly retract the drill. For this step, do not use lubrication.



3. Hole Processing

Drill the hole at a fixed feed and speed, stopping the operation occasionally to remove broken chips. In addition, use plenty of high quality cutting oil.



4. Chip Removal

Once the tap has been broken up, the remaining portions of the tap can be removed. For best results, use a scriber. Once the hole is cleaned, tapping can be resumed.

Cutting Conditions and Procedures to Note

1. Use a drilling speed of 65-80SFM.
2. Hand feed of 0.0005~0.001 in/rev is normal.
3. Use a rigid holder.
4. Select a high quality cutting oil and apply in sufficient amounts.
5. This tool should not be used to drill soft steels, aluminum alloys or other soft materials.
6. Resharpening should be done periodically.
7. For through hole processing of heat treated steels, use a spare piece of material underneath the material being drilled as this will prevent breakage caused by sudden torque.
8. **Cannot be used to remove forming taps.**

Work Material

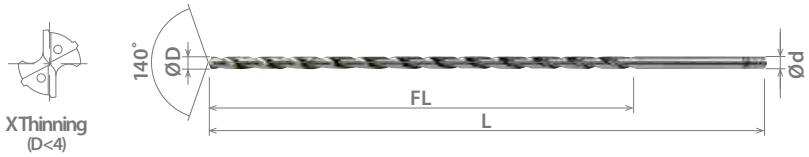
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5172																	▢

▢ good ▢ best

List 5275

CAO-GDXL, 15D-30D, Coolant-Through

SPEED FEED P364 | CARBIDE | BR | 30° | SHANK h6



Cutting Diameter Tolerance (h8)		
Size	mm	inch
D=3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009

EDP Number	Diameter					xD	Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch		FL (mm)	L (mm)	d (mm)
8567130	-	-	-	3.000	0.11811	15 x D	55	105	3
8567140	-	-	-	4.000	0.15748		75	125	4
8567340	-	-	-			20 x D	90	140	
8567345	-	-	-	4.500	0.17717		110	165	5
8567150	-	-	-	5.000	0.19685	15 x D	90	140	
8567350	-	-	-			20 x D	115	165	
8567450	-	-	-			30 x D	165	215	
8567355	-	-	-	5.500	0.21654	20 x D	140	190	6
8567455	-	-	-			30 x D	200	250	
8567160	-	-	-	6.000	0.23622	15 x D	110	160	
8567360	-	-	-			20 x D	140	190	
8567460	-	-	-			30 x D	200	250	
8567165	-	-	-	6.500	0.25591	15 x D	120	175	7
8567170	-	-	-	7.000	0.27559		125		
8567370	-	-	-			20 x D	160	210	
8567470	-	-	-			30 x D	230	280	
8567180	-	-	-	8.000	0.31496	15 x D	145	195	8
8567380	-	-	-			20 x D	180	230	
8567480	-	-	-			30 x D	265	315	
8567190	-	-	-	9.000	0.35433	15 x D	160	210	9
8567390	-	-	-			20 x D	210	260	
8567200	-	-	-	10.000	0.39370	15 x D	180	240	10
8567400	-	-	-			20 x D	230	290	

Packed: 1 pc.
Available Bright finish only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5275										◎	◎						

◎ good ◎ best

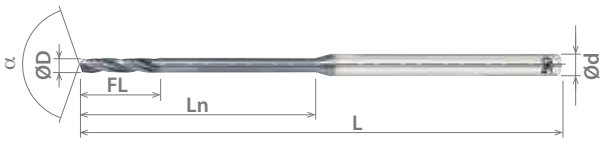
List 5310

FHL-GDTS, Miniature, 3 Flute, Up to 20D, 40-65 HRC

SPEED FEED	CARBIDE	EXO®	25°	SHANK
P365				h6

Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006





EDP Number	Diameter					Flute Length	Neck Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L1 (mm)	L (mm)	d (mm)	α
8569010	-	-	-	1.000	0.03937	5.0	20	57	3	140°
8569011	-	-	-	1.100	0.04331	5.5				
8569012	-	-	-	1.200	0.04724	6.5				
8569013	-		-	1.300	0.05118					
8569014	-	-	-	1.400	0.05512	7.5				
8569015	-	-	-	1.500	0.05906					
8569016	-	-	-	1.600	0.06299	8.5				
8569017	-	-	-	1.700	0.06693					
8569018	-	-	-	1.800	0.07087	9.5				
8569019	-	-	-	1.900	0.07480					
8569020	-	-	-	2.000	0.07874	10.5	30	65		120°
8569025	-	-	-	2.500	0.09843	13.0				
8569030	-	-	-	3.000	0.11811	15.0				

Packed: 1 pc.
Available EXO® coating only.
Shrink fit holders recommended.
Must utilize recommended peck cycle for optimum tool life.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5310														○	○	◎	◎

○ good ◎ best

List 5315

UVM-LDS, Miniature, Pilot

SPEED FEED	CARBIDE			SHANK
P366		SS	30°	h3

Cutting Diameter Tolerance		
Size	mm	inch
0.05	+0 / -0.003	+0 / -0.0001



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8589205	-	-	-	0.050	0.00197	0.075	38	3
8589255	-	-	-					1/8

Packed: 1 pc.
Available Super Smooth coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5315						▢	▢	▢		▢	▢	▢	▢	▢	▢	▢	

▢ good ▢ best

List 5320

UVM-DRL-5D, Miniature

SPEED FEED	CARBIDE	SS	30°	SHANK
P366				h3

Cutting Diameter Tolerance		
Size	mm	inch
0.02≤D≤0.08	+0 / -0.003	+0 / -0.0001



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8589002	-	-	-	0.020	0.00079	0.12	38	3
8589052	-	-	-					1/8
8589003	-	-	-	0.030	0.00118	0.18		3
8589053	-	-	-					1/8
8589004	-	-	-	0.040	0.00157	0.24		3
8589054	-	-	-					1/8
8589005	-	-	-	0.050	0.00197	0.30		3
8589055	-	-	-					1/8
8589008	-	-	-	0.080	0.00315	0.48		3
8589058	-	-	-					1/8

Packed: 1 pc.
Available Super Smooth coating only.

HTE

Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5320						▢	▢	▢		▢	▢	▢	▢	▢	▢	▢	

▢ good ▢ best

List 5325

UVM-DRL-10D, Miniature

SPEED FEED	CARBIDE			SHANK
P366		SS	30°	h3

Cutting Diameter Tolerance		
Size	mm	inch
0.02≤D≤0.08	+0 / -0.003	+0 / -0.0001



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8589102	-	-	-	0.020	0.00079	0.22	38	3
8589152	-	-	-					1/8
8589103	-	-	-	0.030	0.00118	0.33		3
8589153	-	-	-					1/8
8589104	-	-	-	0.040	0.00157	0.44		3
8589154	-	-	-					1/8
8589105	-	-	-	0.050	0.00197	0.55		3
8589155	-	-	-					1/8
8589108	-	-	-	0.080	0.00315	0.88		3
8589158	-	-	-					1/8

Packed: 1 pc.
Available Super Smooth coating only.

HTE

Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5325						▢	▢	▢		▢	▢	▢	▢	▢	▢	▢	

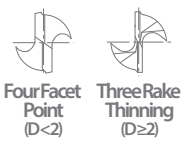
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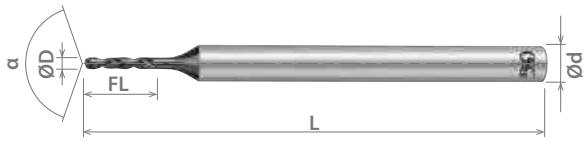
List 5330

WX-MS-GDS, Precision Drill

SPEED FEED P367 | CARBIDE | TiAlN | 30° | SHANK h6

Cutting Diameter Tolerance		
Size	mm	inch
0.2≤D≤5.00	+0 / -0.010	+0 / -0.0004





EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300020	-	-	-	0.200	0.00787	1.5	38	3	140°
3300021	-	-	-	0.210	0.00827				
3300022	-	-	-	0.220	0.00866				
3300023	-	-	-	0.230	0.00906				
3300024	-	-	-	0.240	0.00945				
3300025	-	-	-	0.250	0.00984				
3300026	-	-	-	0.260	0.01024				
3300027	-	-	-	0.270	0.01063				
3300028	-	-	-	0.280	0.01102				
3300029	-	-	-	0.290	0.01142				
3300030	-	-	-	0.300	0.01181				
3300031	-	-	-	0.310	0.01220	2.0			
3300032	-	-	-	0.320	0.01260				
3300033	-	-	-	0.330	0.01299				
3300034	-	-	-	0.340	0.01339				
3300035	-	-	-	0.350	0.01378				
3300036	-	-	-	0.360	0.01417				
3300037	-	-	-	0.370	0.01457				
3300038	-	-	-	0.380	0.01496				
3300039	-	-	-	0.390	0.01535	2.5			
3300040	-	-	-	0.400	0.01575				
3300041	-	-	-	0.410	0.01614				
3300042	-	-	-	0.420	0.01654				
3300043	-	-	-	0.430	0.01693				
3300044	-	-	-	0.440	0.01732				
3300045	-	-	-	0.450	0.01772				
3300046	-	-	-	0.460	0.01811				
3300047	-	-	-	0.470	0.01850				
3300048	-	-	-	0.480	0.01890				
3300049	-	-	-	0.490	0.01929	3.0			
3300050	-	-	-	0.500	0.01969				
3300051	-	-	-	0.510	0.02008				
3300052	-	-	-	0.520	0.02047				
3300053	-	-	-	0.530	0.02087				
3300054	-	-	-	0.540	0.02126	3.5			
3300055	-	-	-	0.550	0.02165				
3300056	-	-	-	0.560	0.02205				
3300057	-	-	-	0.570	0.02244				
3300058	-	-	-	0.580	0.02283				
3300059	-	-	-	0.590	0.02323				
3300060	-	-	-	0.600	0.02362				
3300061	-	-	-	0.610	0.02402	4.0			
3300062	-	-	-	0.620	0.02441				
3300063	-	-	-	0.630	0.02480				
3300064	-	-	-	0.640	0.02520				
3300065	-	-	-	0.650	0.02559				
3300066	-	-	-	0.660	0.02598				
3300067	-	-	-	0.670	0.02638				
3300068	-	-	-	0.680	0.02677	4.5			
3300069	-	-	-	0.690	0.02717				

Packed: 1 pc.
Available TiAlN coating only.

HTE

List 5330 (Continued)

WX-MS-GDS, Precision Drill

SPEED FEED P367 | CARBIDE | TiAlN | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300070	-	-	-	0.700	0.02756	4.5	38	3	140°
3300071	-	-	-	0.710	0.02795				
3300072	-	-	-	0.720	0.02835				
3300073	-	-	-	0.730	0.02874				
3300074	-	-	-	0.740	0.02913				
3300075	-	-	-	0.750	0.02953				
3300076	-	-	-	0.760	0.02992	5.0			
3300077	-	-	-	0.770	0.03031				
3300078	-	-	-	0.780	0.03071				
3300079	-	-	-	0.790	0.03110				
3300080	-	-	-	0.800	0.03150				
3300081	-	-	-	0.810	0.03189				
3300082	-	-	-	0.820	0.03228				
3300083	-	-	-	0.830	0.03268				
3300084	-	-	-	0.840	0.03307				
3300085	-	-	-	0.850	0.03346				
3300086	-	-	-	0.860	0.03386	5.5			
3300087	-	-	-	0.870	0.03425				
3300088	-	-	-	0.880	0.03465				
3300089	-	-	-	0.890	0.03504				
3300090	-	-	-	0.900	0.03543				
3300091	-	-	-	0.910	0.03583				
3300092	-	-	-	0.920	0.03622				
3300093	-	-	-	0.930	0.03661				
3300094	-	-	-	0.940	0.03701				
3300095	-	-	-	0.950	0.03740				
3300096	-	-	-	0.960	0.03780	6.0			
3300097	-	-	-	0.970	0.03819				
3300098	-	-	-	0.980	0.03858				
3300099	-	-	-	0.990	0.03898				
3300100	-	-	-	1.000	0.03937				
3300101	-	-	-	1.010	0.03976				
3300102	-	-	-	1.020	0.04016				
3300103	-	-	-	1.030	0.04055				
3300104	-	-	-	1.040	0.04094				
3300105	-	-	-	1.050	0.04134				
3300106	-	-	-	1.060	0.04173				
3300107	-	-	-	1.070	0.04213	7.0	42		
3300108	-	-	-	1.080	0.04252				
3300109	-	-	-	1.090	0.04291				
3300110	-	-	-	1.100	0.04331				
3300111	-	-	-	1.110	0.04370				
3300112	-	-	-	1.120	0.04409				
3300113	-	-	-	1.130	0.04449				
3300114	-	-	-	1.140	0.04488				
3300115	-	-	-	1.150	0.04528				

Packed: 1 pc.
Available TiAlN coating only.

continued on next page

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5330	◎	◎	◎	○	○	○	○	○	○	◎	◎		○				

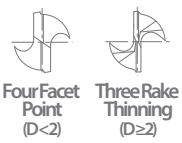
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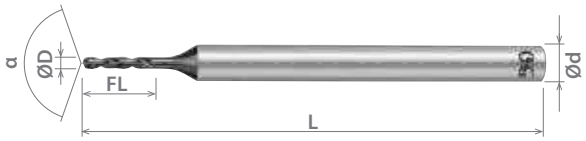
List 5330 (Continued)

WX-MS-GDS, Precision Drill

SPEED FEED P367 | CARBIDE | TiAlN | 30° | SHANK h6

Cutting Diameter Tolerance		
Size	mm	inch
0.2≤D≤5.00	+0 / -0.010	+0 / -0.0004





EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300116	-	-	-	1.160	0.04567	7.0	42	3	140°
3300117	-	-	-	1.170	0.04606				
3300118	-	-	-	1.180	0.04646				
3300119	-	-	-	1.190	0.04685	8.0			
3300120	-	-	-	1.200	0.04724				
3300121	-	-	-	1.210	0.04764				
3300122	-	-	-	1.220	0.04803				
3300123	-	-	-	1.230	0.04843				
3300124	-	-	-	1.240	0.04882				
3300125	-	-	-	1.250	0.04921				
3300126	-	-	-	1.260	0.04961				
3300127	-	-	-	1.270	0.05000				
3300128	-	-	-	1.280	0.05039				
3300129	-	-	-	1.290	0.05079				
3300130	-	-	-	1.300	0.05118				
3300131	-	-	-	1.310	0.05157				
3300132	-	-	-	1.320	0.05197				
3300133	-	-	-	1.330	0.05236	9.0			
3300134	-	-	-	1.340	0.05276				
3300135	-	-	-	1.350	0.05315				
3300136	-	-	-	1.360	0.05354				
3300137	-	-	-	1.370	0.05394				
3300138	-	-	-	1.380	0.05433				
3300139	-	-	-	1.390	0.05472				
3300140	-	-	-	1.400	0.05512				
3300141	-	-	-	1.410	0.05551				
3300142	-	-	-	1.420	0.05591				
3300143	-	-	-	1.430	0.05630				
3300144	-	-	-	1.440	0.05669				
3300145	-	-	-	1.450	0.05709				
3300146	-	-	-	1.460	0.05748				
3300147	-	-	-	1.470	0.05787				
3300148	-	-	-	1.480	0.05827				
3300149	-	-	-	1.490	0.05866				
3300150	-	-	-	1.500	0.05906				
3300151	-	-	-	1.510	0.05945	10			
3300152	-	-	-	1.520	0.05984				
3300153	-	-	-	1.530	0.06024				
3300154	-	-	-	1.540	0.06063				
3300155	-	-	-	1.550	0.06102				
3300156	-	-	-	1.560	0.06142				
3300157	-	-	-	1.570	0.06181				
3300158	-	-	-	1.580	0.06220				
3300159	-	-	-	1.590	0.06260				
3300160	-	-	-	1.600	0.06299				
3300161	-	-	-	1.610	0.06339				
3300162	-	-	-	1.620	0.06378				
3300163	-	-	-	1.630	0.06417				
3300164	-	-	-	1.640	0.06457				
3300165	-	-	-	1.650	0.06496				

Packed: 1 pc.
Available TiAlN coating only.

HTE

List 5330 (Continued)

WX-MS-GDS, Precision Drill

SPEED FEED P367 | CARBIDE | TiAlN | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300166	-	-	-	1.660	0.06535	10	42	3	140°
3300167	-	-	-	1.670	0.06575				
3300168	-	-	-	1.680	0.06614				
3300169	-	-	-	1.690	0.06654				
3300170	-	-	-	1.700	0.06693				
3300171	-	-	-	1.710	0.06732	11			
3300172	-	-	-	1.720	0.06772				
3300173	-	-	-	1.730	0.06811				
3300174	-	-	-	1.740	0.06850				
3300175	-	-	-	1.750	0.06890				
3300176	-	-	-	1.760	0.06929				
3300177	-	-	-	1.770	0.06969				
3300178	-	-	-	1.780	0.07008				
3300179	-	-	-	1.790	0.07047				
3300180	-	-	-	1.800	0.07087				
3300181	-	-	-	1.810	0.07126				
3300182	-	-	-	1.820	0.07165				
3300183	-	-	-	1.830	0.07205				
3300184	-	-	-	1.840	0.07244				
3300185	-	-	-	1.850	0.07283				
3300186	-	-	-	1.860	0.07323				
3300187	-	-	-	1.870	0.07362				
3300188	-	-	-	1.880	0.07402				
3300189	-	-	-	1.890	0.07441				
3300190	-	-	-	1.900	0.07480				
3300191	-	-	-	1.910	0.07520	12	50		
3300192	-	-	-	1.920	0.07559				
3300193	-	-	-	1.930	0.07598				
3300194	-	-	-	1.940	0.07638				
3300195	-	-	-	1.950	0.07677				
3300196	-	-	-	1.960	0.07717				
3300197	-	-	-	1.970	0.07756				
3300198	-	-	-	1.980	0.07795				
3300199	-	-	-	1.990	0.07835				
3300200	-	-	-	2.000	0.07874				
48172201	-	-	-	2.010	0.07913				
48172202	-	-	-	2.020	0.07953				
48172203	-	-	-	2.030	0.07992				
48172204	-	-	-	2.040	0.08031				
3300205	-	-	-	2.050	0.08071				
48172206	-	-	-	2.060	0.08110				
48172207	-	-	-	2.070	0.08150				
48172208	-	-	-	2.080	0.08189				
48172209	-	-	-	2.090	0.08228				
3300210	-	-	-	2.100	0.08268				
48172211	-	-	-	2.110	0.08307				

Packed: 1 pc.
Available TiAlN coating only.

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HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5330	▣	▣	▣	▢	▢	▢	▢	▢	▢	▣	▣		▢				

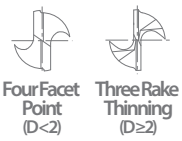
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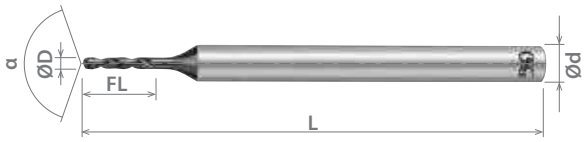
List 5330 (Continued)

WX-MS-GDS, Precision Drill

SPEED FEED P367 | CARBIDE | TiAlN | 30° | SHANK h6

Cutting Diameter Tolerance		
Size	mm	inch
0.2≤D≤5.00	+0 / -0.010	+0 / -0.0004





EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
48172212	-	-	-	2.120	0.08346	12	50	3	140°
48172213	-	-	-	2.130	0.08386	13			
48172214	-	-	-	2.140	0.08425				
3300215	-	-	-	2.150	0.08465				
48172216	-	-	-	2.160	0.08504				
48172217	-	-	-	2.170	0.08543				
48172218	-	-	-	2.180	0.08583				
48172219	-	-	-	2.190	0.08622				
3300220	-	-	-	2.200	0.08661				
48172221	-	-	-	2.210	0.08701				
48172222	-	-	-	2.220	0.08740				
48172223	-	-	-	2.230	0.08780				
48172224	-	-	-	2.240	0.08819				
3300225	-	-	-	2.250	0.08858				
48172226	-	-	-	2.260	0.08898				
48172227	-	-	-	2.270	0.08937				
48172228	-	-	-	2.280	0.08976				
48172229	-	-	-	2.290	0.09016				
3300230	-	-	-	2.300	0.09055				
48172231	-	-	-	2.310	0.09094				
48172232	-	-	-	2.320	0.09134				
48172233	-	-	-	2.330	0.09173				
48172234	-	-	-	2.340	0.09213				
3300235	-	-	-	2.350	0.09252				
48172236	-	-	-	2.360	0.09291				
48172237	-	-	-	2.370	0.09331	14			130°
48172238	-	-	-	2.380	0.09370				
48172239	-	-	-	2.390	0.09409				
3300240	-	-	-	2.400	0.09449				
48172241	-	-	-	2.410	0.09488				
48172242	-	-	-	2.420	0.09528				
48172243	-	-	-	2.430	0.09567				
48172244	-	-	-	2.440	0.09606				
3300245	-	-	-	2.450	0.09646				
48172246	-	-	-	2.460	0.09685				
48172247	-	-	-	2.470	0.09724				
48172248	-	-	-	2.480	0.09764				
48172249	-	-	-	2.490	0.09803				
3300250	-	-	-	2.500	0.09843				
48172251	-	-	-	2.510	0.09882				
48172252	-	-	-	2.520	0.09921				
48172253	-	-	-	2.530	0.09961				
48172254	-	-	-	2.540	0.10000				
3300255	-	-	-	2.550	0.10039				
48172256	-	-	-	2.560	0.10079				
48172257	-	-	-	2.570	0.10118				
48172258	-	-	-	2.580	0.10157				
48172259	-	-	-	2.590	0.10197				
3300260	-	-	-	2.600	0.10236				
48172261	-	-	-	2.610	0.10276				

Packed: 1 pc.
Available TiAlN coating only.

HTE

List 5330 (Continued)

WX-MS-GDS, Precision Drill

SPEED FEED P367 | CARBIDE | TiAlN | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
48172262	-	-	-	2.620	0.10315	14	50	3	130°
48172263	-	-	-	2.630	0.10354				
48172264	-	-	-	2.640	0.10394				
3300265	-	-	-	2.650	0.10433				
48172266	-	-	-	2.660	0.10472	16			
48172267	-	-	-	2.670	0.10512				
48172268	-	-	-	2.680	0.10551				
48172269	-	-	-	2.690	0.10591				
3300270	-	-	-	2.700	0.10630				
48172271	-	-	-	2.710	0.10669				
48172272	-	-	-	2.720	0.10709				
48172273	-	-	-	2.730	0.10748				
48172274	-	-	-	2.740	0.10787				
3300275	-	-	-	2.750	0.10827				
48172276	-	-	-	2.760	0.10866				
48172277	-	-	-	2.770	0.10906				
48172278	-	-	-	2.780	0.10945				
48172279	-	-	-	2.790	0.10984				
3300280	-	-	-	2.800	0.11024				
48172281	-	-	-	2.810	0.11063				
48172282	-	-	-	2.820	0.11102				
48172283	-	-	-	2.830	0.11142				
48172284	-	-	-	2.840	0.11181				
3300285	-	-	-	2.850	0.11220				
48172286	-	-	-	2.860	0.11260				
48172287	-	-	-	2.870	0.11299				
48172288	-	-	-	2.880	0.11339				
48172289	-	-	-	2.890	0.11378				
3300290	-	-	-	2.900	0.11417				
48172291	-	-	-	2.910	0.11457				
48172292	-	-	-	2.920	0.11496				
48172293	-	-	-	2.930	0.11535				
48172294	-	-	-	2.940	0.11575				
3300295	-	-	-	2.950	0.11614				
48172296	-	-	-	2.960	0.11654				
48172297	-	-	-	2.970	0.11693				
48172298	-	-	-	2.980	0.11732				
48172299	-	-	-	2.990	0.11772				
3300300	-	-	-	3.000	0.11811				
48172301	-	-	-	3.010	0.11850	18	56	4	
48172302	-	-	-	3.020	0.11890				
48172303	-	-	-	3.030	0.11929				
48172304	-	-	-	3.040	0.11969				
3300305	-	-	-	3.050	0.12008				
48172306	-	-	-	3.060	0.12047				
48172307	-	-	-	3.070	0.12087				

Packed: 1 pc.
Available TiAlN coating only.

continued on next page

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5330	▣	▣	▣	▢	▢	▢	▢	▢	▢	▣	▣		▢				

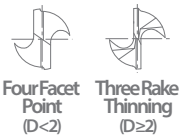
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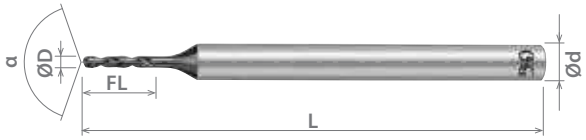
List 5330 (Continued)

WX-MS-GDS, Precision Drill

SPEED FEED P367 | CARBIDE | TiAlN | 30° | SHANK h6

Cutting Diameter Tolerance		
Size	mm	inch
0.2≤D≤5.00	+0 / -0.010	+0 / -0.0004





EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
48172308	-	-	-	3.080	0.12126	18	56	4	130°
48172309	-	-	-	3.090	0.12165				
3300310	-	-	-	3.100	0.12205				
48172311	-	-	-	3.110	0.12244				
48172312	-	-	-	3.120	0.12283				
48172313	-	-	-	3.130	0.12323				
48172314	-	-	-	3.140	0.12362				
3300315	-	-	-	3.150	0.12402				
48172316	-	-	-	3.160	0.12441				
48172317	-	-	-	3.170	0.12480				
48172318	-	-	-	3.180	0.12520				
48172319	-	-	-	3.190	0.12559				
3300320	-	-	-	3.200	0.12598				
48172321	-	-	-	3.210	0.12638				
48172322	-	-	-	3.220	0.12677				
48172323	-	-	-	3.230	0.12717				
48172324	-	-	-	3.240	0.12756				
3300325	-	-	-	3.250	0.12795				
48172326	-	-	-	3.260	0.12835				
48172327	-	-	-	3.270	0.12874				
48172328	-	-	-	3.280	0.12913				
48172329	-	-	-	3.290	0.12953				
3300330	-	-	-	3.300	0.12992				
48172331	-	-	-	3.310	0.13031				
48172332	-	-	-	3.320	0.13071				
48172333	-	-	-	3.330	0.13110				
48172334	-	-	-	3.340	0.13150				
3300335	-	-	-	3.350	0.13189				
48172336	-	-	-	3.360	0.13228	20			
48172337	-	-	-	3.370	0.13268				
48172338	-	-	-	3.380	0.13307				
48172339	-	-	-	3.390	0.13346				
3300340	-	-	-	3.400	0.13386				
48172341	-	-	-	3.410	0.13425				
48172342	-	-	-	3.420	0.13465				
48172343	-	-	-	3.430	0.13504				
48172344	-	-	-	3.440	0.13543				
3300345	-	-	-	3.450	0.13583				
48172346	-	-	-	3.460	0.13622				
48172347	-	-	-	3.470	0.13661				
48172348	-	-	-	3.480	0.13701				
48172349	-	-	-	3.490	0.13740				
3300350	-	-	-	3.500	0.13780				
48172351	-	-	-	3.510	0.13819				
48172352	-	-	-	3.520	0.13858				
48172353	-	-	-	3.530	0.13898				
48172354	-	-	-	3.540	0.13937				
3300355	-	-	-	3.550	0.13976				
48172356	-	-	-	3.560	0.14016				
48172357	-	-	-	3.570	0.14055				

Packed: 1 pc.
Available TiAlN coating only.

HTE

List 5330 (Continued)

WX-MS-GDS, Precision Drill

SPEED FEED P367 | CARBIDE | TiAlN | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
48172358	-	-	-	3.580	0.14094	20	56	4	130°
48172359	-	-	-	3.590	0.14134				
3300360	-	-	-	3.600	0.14173				
48172361	-	-	-	3.610	0.14213				
48172362	-	-	-	3.620	0.14252				
48172363	-	-	-	3.630	0.14291				
48172364	-	-	-	3.640	0.14331				
3300365	-	-	-	3.650	0.14370				
48172366	-	-	-	3.660	0.14409				
48172367	-	-	-	3.670	0.14449				
48172368	-	-	-	3.680	0.14488				
48172369	-	-	-	3.690	0.14528				
3300370	-	-	-	3.700	0.14567				
48172371	-	-	-	3.710	0.14606				
48172372	-	-	-	3.720	0.14646				
48172373	-	-	-	3.730	0.14685				
48172374	-	-	-	3.740	0.14724				
3300375	-	-	-	3.750	0.14764				
48172376	-	-	-	3.760	0.14803	22			
48172377	-	-	-	3.770	0.14843				
48172378	-	-	-	3.780	0.14882				
48172379	-	-	-	3.790	0.14921				
3300380	-	-	-	3.800	0.14961				
48172381	-	-	-	3.810	0.15000				
48172382	-	-	-	3.820	0.15039				
48172383	-	-	-	3.830	0.15079				
48172384	-	-	-	3.840	0.15118				
3300385	-	-	-	3.850	0.15157				
48172386	-	-	-	3.860	0.15197				
48172387	-	-	-	3.870	0.15236				
48172388	-	-	-	3.880	0.15276				
48172389	-	-	-	3.890	0.15315				
3300390	-	-	-	3.900	0.15354				
48172391	-	-	-	3.910	0.15394				
48172392	-	-	-	3.920	0.15433				
48172393	-	-	-	3.930	0.15472				
48172394	-	-	-	3.940	0.15512				
3300395	-	-	-	3.950	0.15551				
48172396	-	-	-	3.960	0.15591				
48172397	-	-	-	3.970	0.15630				
48172398	-	-	-	3.980	0.15669				
48172399	-	-	-	3.990	0.15709				
3300400	-	-	-	4.000	0.15748				
3300405	-	-	-	4.050	0.15945		64	5	
3300410	-	-	-	4.100	0.16142				
3300415	-	-	-	4.150	0.16339				

Packed: 1 pc.
Available TiAlN coating only.

continued on next page

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5330	▢	▢	▢	○	○	○	○	○	○	▢	▢		○				

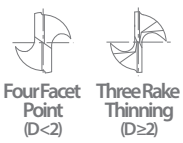
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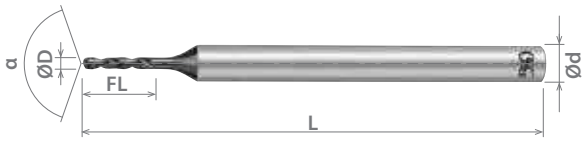
List 5330 (Continued)

WX-MS-GDS, Precision Drill

SPEED FEED P367 | CARBIDE | TiAlN | 30° | SHANK h6

Cutting Diameter Tolerance		
Size	mm	inch
0.2≤D≤5.00	+0 / -0.010	+0 / -0.0004





EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
3300420	-	-	-	4.200	0.16535	22	64	5	130°
3300425	-	-	-	4.250	0.16732				
3300430	-	-	-	4.300	0.16929	24			
3300435	-	-	-	4.350	0.17126				
3300440	-	-	-	4.400	0.17323				
3300445	-	-	-	4.450	0.17520				
3300450	-	-	-	4.500	0.17717				
3300455	-	-	-	4.550	0.17913				
3300460	-	-	-	4.600	0.18110				
3300465	-	-	-	4.650	0.18307				
3300470	-	-	-	4.700	0.18504				
3300475	-	-	-	4.750	0.18701				
3300480	-	-	-	4.800	0.18898	26			
3300485	-	-	-	4.850	0.19094				
3300490	-	-	-	4.900	0.19291				
3300495	-	-	-	4.950	0.19488				
3300500	-	-	-	5.000	0.19685				

Packed: 1 pc.
Available TiAlN coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5330	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢				

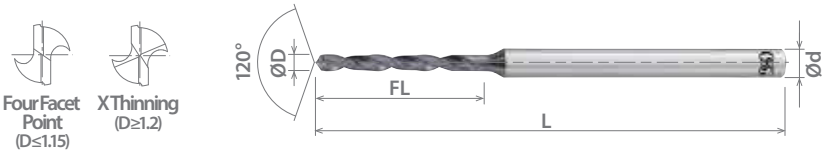
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List 5340

MRS-GDL, Precision Drill

SPEED FEED	CARBIDE	SS	30°	SHANK
P368				h6

Cutting Diameter Tolerance		
Size	mm	inch
0.50≤D≤3.00	+0 / -0.008	+0 / -0.0003



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8577050	-	-	-	0.500	0.01969	6.0	42	3
8577054	-	-	-	0.540	0.02126	6.6		
8577055	-	-	-	0.550	0.02165			
8577056	-	-	-	0.560	0.02205	7.2		
8577060	-	-	-	0.600	0.02362			
8577063	-	-	-	0.630	0.02480	7.8	46	
8577064	-	-	-	0.640	0.02520			
8577065	-	-	-	0.650	0.02559			
8577070	-	-	-	0.700	0.02756	8.4		
8577071	-	-	-	0.710	0.02795	9.0		
8577072	-	-	-	0.720	0.02835			
8577073	-	-	-	0.730	0.02874			
8577074	-	-	-	0.740	0.02913			
8577075	-	-	-	0.750	0.02953			
8577080	-	-	-	0.800	0.03150	9.6		
8577081	-	-	-	0.810	0.03189	10.2		
8577082	-	-	-	0.820	0.03228			
8577090	-	-	-	0.900	0.03543	10.8		
8577091	-	-	-	0.910	0.03583	11.4		
8577092	-	-	-	0.920	0.03622			
8577100	-	-	-	1.000	0.03937	12.0		
8577110	-	-	-	1.100	0.04331	13.2	50	
8577111	-	-	-	1.110	0.04370	13.8		
8577112	-	-	-	1.120	0.04409			
8577115	-	-	-	1.150	0.04528			
8577120	-	-	-	1.200	0.04724	14.4		
8577127	-	-	-	1.270	0.05000	15.6		
8577128	-	-	-	1.280	0.05039			
8577129	-	-	-	1.290	0.05079			
8577130	-	-	-	1.300	0.05118			
8577140	-	-	-	1.400	0.05512	16.8	54	
8577145	-	-	-	1.450	0.05709	17.4		
8577146	-	-	-	1.460	0.05748	18.0		
8577147	-	-	-	1.470	0.05787			
8577150	-	-	-	1.500	0.05906			
8577151	-	-	-	1.510	0.05945	18.6		
8577152	-	-	-	1.520	0.05984			
8577153	-	-	-	1.530	0.06024			
8577155	-	-	-	1.550	0.06102			
8577156	-	-	-	1.560	0.06142	19.2		

Packed: 1 pc.
Available Super Smooth coating only.

continued on next page

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5340	○	○	○	○	○	◎	◎	◎		◎	◎		○				

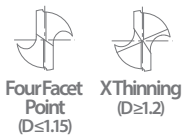
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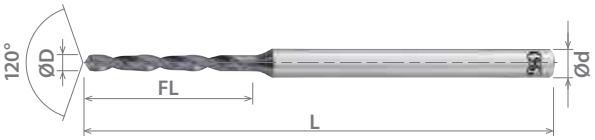
List 5340 (Continued)

MRS-GDL, Precision Drill

SPEED FEED	CARBIDE	SS	30°	SHANK
P368				h6

Cutting Diameter Tolerance		
Size	mm	inch
0.50≤D≤3.00	+0 / -0.008	+0 / -0.0003





EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8577157	-	-	-	1.570	0.06181	19.2	54	3
8577160	-	-	-	1.600	0.06299			
8577170	-	-	-	1.700	0.06693	20.4	58	
8577180	-	-	-	1.800	0.07087	21.6		
8577181	-	-	-	1.810	0.07126	22.2		
8577182	-	-	-	1.820	0.07165			
8577183	-	-	-	1.830	0.07205			
8577190	-	-	-	1.900	0.07480	22.8		
8577198	-	-	-	1.980	0.07795	24.0		
8577199	-	-	-	1.990	0.07835			
8577200	-	-	-	2.000	0.07874			
8577210	-	-	-	2.100	0.08268	25.2	62	
8577212	-	-	-	2.120	0.08346	25.8		
8577213	-	-	-	2.130	0.08386			
8577214	-	-	-	2.140	0.08425			
8577220	-	-	-	2.200	0.08661	26.4		
8577229	-	-	-	2.290	0.09016	27.6		
8577230	-	-	-	2.300	0.09055			
8577231	-	-	-	2.310	0.09094	28.2		
8577239	-	-	-	2.390	0.09409	28.8		
8577240	-	-	-	2.400	0.09449			
8577241	-	-	-	2.410	0.09488	29.4	66	
8577242	-	-	-	2.420	0.09528			
8577250	-	-	-	2.500	0.09843	30.0		
8577255	-	-	-	2.550	0.10039	30.6		
8577256	-	-	-	2.560	0.10079	31.2		
8577257	-	-	-	2.570	0.10118			
8577260	-	-	-	2.600	0.10236			
8577270	-	-	-	2.700	0.10630	32.4		
8577277	-	-	-	2.770	0.10906	33.6		
8577278	-	-	-	2.780	0.10945			
8577279	-	-	-	2.790	0.10984			
8577280	-	-	-	2.800	0.11024			
8577290	-	-	-	2.900	0.11417	34.8		
8577300	-	-	-	3.000	0.11811	36.0		

Packed: 1 pc.
Available Super Smooth coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5340	○	○	○	○	○	◎	◎	◎		◎	◎		○				

○ good ◎ best

List 7501

Triple Angle

SPEED FEED	CARBIDE	DIA	0°
P369			

Tolerance
+0/-0.001"



EDP Number	Approximate Hole Size			Drill Size		Flute Length	Taper Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	l (mm)	L (mm)	d (mm)
750109816	-	#40	-	2.502	0.09850	15.2	3.8	50.8	2.50
750112916	-	#30	-	3.277	0.12900	20.3	4.8		3.27
750116116	-	#20	-	4.102	0.16150	25.4	5.9	76.2	4.10
750119116	-	#11	-	4.864	0.19150	27.9	7.0		4.86
750119216	-	#11	-			48.2		101.6	
750122116	-	#2	-	5.626	0.22150	33.0	8.0	88.9	5.62
750125116	1/4	-	-	6.375	0.25100	38.1	9.0		6.37
750125216	1/4	-	-			63.5		139.7	
750131316	5/16	-	-	7.963	0.31350	48.2	11.2	101.6	7.96
750137616	3/8	-	-	9.550	0.37600	58.4	13.4		9.55
750137716	3/8	-	-			96.5		152.4	
750143816	7/16	-	-	11.138	0.43850	66.0	15.5	101.6	11.13
750150116	1/2	-	-	12.725	0.50100	76.2	17.7	127.0	12.72

Packed: 1 pc.
Available Diamond coating only.
Drills are oversize over nominal.
Tri-Flat shank available upon request.

EP

Tri-Flat Shank



Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
7501	◎	○		◎	◎		◎	○	◎	○		

○ Good ◎ Best

List 7520

Low Helix

SPEED FEED P369 | CARBIDE | DIA | 5°

Tolerance
+0/-0.001"



EDP Number	Approximate Hole Size			Drill Size		Flute Length	Taper Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	l (mm)	L (mm)	d (mm)
752009816	-	#40	-	2.502	0.09850	15.2	7.0	50.8	2.50
752012916	-	#30	-	3.277	0.12900	20.3	9.0		3.27
752016116	-	#20	-	4.102	0.16150	25.4	11.2	76.2	4.10
752019216	-	#11	-	4.864	0.19150	27.9	13.2		4.86
752022116	-	#2	-	5.626	0.22150	33.0	15.2	88.9	5.62
752025116	1/4	-	-	6.375	0.25100	38.1	17.2		6.37
752031316	5/16	-	-	7.963	0.31350	48.2	21.4	101.6	7.96
752037616	3/8	-	-	9.550	0.37600	58.4	25.6		9.55
752043816	7/16	-	-	11.138	0.43850	66.0	29.8		11.13
752050116	1/2	-	-	12.725	0.50100	76.2	34.0	127.0	12.72

Packed: 1 pc.
Available Diamond coating only.
Drills are oversize over nominal.

EP

Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
7520	◎	○		◎	◎		◎		◎			

○ Good ◎ Best

List 7500

Tapered Drill/Reamer

SPEED FEED	CARBIDE	DIA	0°
P369			

Tolerance
+0/-0.001"



EDP Number	Approximate Hole Size			Drill Size		Flute Length	Taper Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	l (mm)	L (mm)	d (mm)
750009816	-	#40	-	2.502	0.09850	14.5	5.0	76.2	2.50
750012816	-	#30	-	3.264	0.12850	18.9	6.5		3.26
750012916	-		-			31.9		152.4	
750016116	-	#20	-	4.102	0.16150	23.8	8.1	76.2	4.10
750016216	-		-			40.1		152.4	
750018716	3/16	-	-	4.763	0.18750	46.7	9.4		4.76
750019016	-	#11	-	4.826	0.19000	47.3	9.5	101.6	4.82
750019116	-		-					152.4	
750019216	-		-	4.851	0.19100		9.6	101.6	4.85
750019316	-		-					152.4	
750019416	-		-	4.864	0.19200	28.3		76.2	4.87
750019516	-		-			47.7		101.6	
750019716	-		-					4.864	
750021816	7/32	-	-	5.537	0.21800	54.3	10.9		5.53
750022116	-	#2	-	5.626	0.22150	55.2	11.1	101.6	5.62
750025016	1/4	-	-	6.350	0.25000	62.3	12.5		6.35
750025116		-	-					152.4	
750025316		-	-	6.375	0.25100	37.1		76.2	6.37
750025416		-	-			62.6		101.6	
750025516		-	-					152.4	
750031216	5/16	-	-	7.938	0.31250	46.2	15.5	101.6	7.93
750031316		-	-			62.0		152.4	
750031416		-	-	7.963	0.31350	46.3	15.6	101.6	7.96
750031516		-	-			62.2		152.4	
750037516	3/8	-	-	9.525	0.37500	55.4	18.6	101.6	9.52
750037616		-	-			74.4		152.4	
750037716		-	-	9.550	0.37600	55.5	18.7	101.6	9.55
750037816		-	-			74.6		152.4	
750043816	7/16	-	-	11.138	0.43850	64.8	21.7	101.6	11.13
750050116	1/2	-	-	12.725	0.50100	99.5	24.8	152.4	12.72

Packed: 1 pc.
Available Diamond coating only.
Drills are oversize over nominal.
Tri-Flat shank available upon request.

EP

Tri-Flat Shank



Work Material

List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
7500	◎	○		◎	◎		◎		◎			

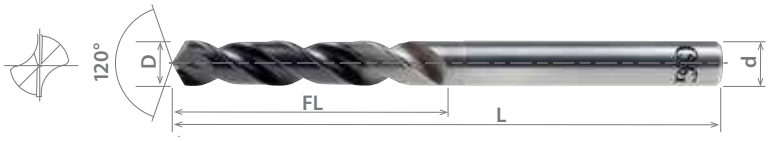
○ Good ◎ Best

List 7530

High Helix

SPEED FEED P369 | CARBIDE | DIA | 40°

Tolerance
+0/-0.001"



EDP Number	Approximate Hole Size			Drill Size		Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	D		FL (mm)	L (mm)	d (mm)
				mm	Inch			
753009816	-	#40	-	2.502	0.09850	15.2	50.8	2.50
753012916	-	#30	-	3.277	0.12900	20.3	76.2	3.27
753016116	-	#20	-	4.102	0.16150	25.4		4.10
753019116	-	#11	-	4.864	0.19150	27.9		4.86
753022116	-	#2	-	5.626	0.22150	33.0	101.6	5.62
753025116	1/4	-	-	6.375	0.25100	38.1		6.37
753031316	5/16	-	-	7.963	0.31350	48.2		7.96
753037616	3/8	-	-	9.550	0.37600	58.4		9.55
753043816	7/16	-	-	11.138	0.43850	66.0	152.4	11.13
753050116	1/2	-	-	12.725	0.50100	76.2		12.72

Packed: 1 pc.
Available Diamond coating only.
Drills are oversize over nominal.

EP

Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/ Al/ Ti/CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
7530	◎	◎		○	○		◎	◎		◎		

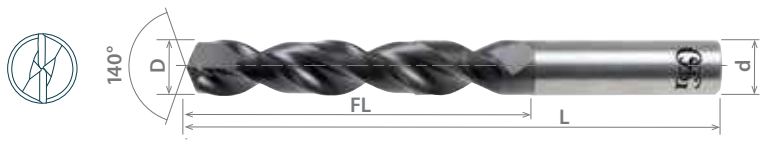
○ Good ◎ Best

List 7532

Stack Drill

SPEED FEED	CARBIDE	DIA	40°
P370			

Tolerance
+0/-0.001"



EDP Number	Approximate Hole Size			Drill Size		Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	D		FL (mm)	L (mm)	d (mm)
				mm	Inch			
753209816	-	#40	-	2.502	0.09850	15.2	50.8	2.50
753212916	-	#30	-	3.277	0.12900	20.3	76.2	3.27
753216116	-	#20	-	4.102	0.16150	25.4		4.10
753219116	-	#11	-	4.864	0.19150	27.9		4.86
753222116	-	#2	-	5.626	0.22150	33.0	101.6	5.62
753225116	1/4	-	-	6.375	0.25100	38.1		6.37
753231316	5/16	-	-	7.963	0.31350	48.2		7.96
753237616	3/8	-	-	9.550	0.37600	58.4		9.55
753243816	7/16	-	-	11.138	0.43850	66.0	152.4	11.13
753250116	1/2	-	-	12.725	0.50100	76.2		12.72

Packed: 1 pc.
Available Diamond coating only.
Drills are oversize over nominal.

EP

Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
7532	◎									○	◎	◎

○ Good ◎ Best

List 5732

Stack Drill

SPEED FEED	CARBIDE	TiAlN	40°
P370			

Tolerance
+0/-0.0011"



EDP Number	Approximate Hole Size			Drill Size		Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	D		FL (mm)	L (mm)	d (mm)
				mm	Inch			
573219111	-	#11	-	4.864	0.19150	50.8	101.6	4.86
573225111	1/4	-	-	6.375	0.25100			6.37
573237611	3/8	-	-	9.550	0.37600			9.55
573250111	1/2	-	-	12.725	0.50100	101.6	152.4	12.72

Packed: 1 pc.
Available TiAlN coating only.
Drills are oversize over nominal.

HTE

Work Material

List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
5732	◻									○	◻	◻

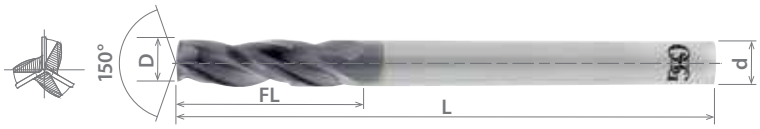
○ Good ◻ Best

List HP700

Three Flute Drill

SPEED FEED	CARBIDE	TiAlN	30°
P371			

Tolerance
+0/-0.001"



EDP Number	Approximate Hole Size			Drill Size		Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	D		FL (mm)	L (mm)	d (mm)
				mm	Inch			
HP700-0980	-	#40	-	2.490	0.09800	12.7	38.1	2.48
HP700-1285	-	#30	-	3.260	0.12850			3.26
HP700-1610	-	#20	-	4.090	0.16100			4.08
HP700-1910	-	#11	-	4.850	0.19100			4.85
HP700-2500	1/4	-	-	6.350	0.25000			6.35
HP700-2512	1/4	-	-	4.090 x 6.350	#20 x 0.250 Step	15.8		

Packed: 1 pc.
Available TiAlN coating only.
Tri-Flat shank available upon request.

HPC

Tri-Flat Shank



Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
HP700	◎									◎	◎	◎

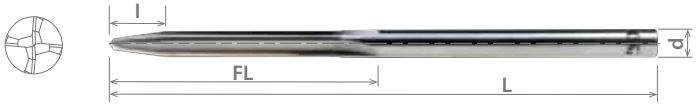
○ Good ◎ Best

List 257

Tapered Drill/Reamer

SPEED FEED	CARBIDE	BR	0°
P369			

Tolerance
+0.0005"/-0



EDP Number	Approximate Hole Size					Flute Length	Taper Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	l (mm)	L (mm)	d (mm)
257-0980	-	40	-	2.489	0.09800	14.4	5.1	76.2	2.48
257-1094	7/64	-	-	2.779	0.10940	16.1	5.6		2.77
257-1250	1/8	-	-	3.175	0.12500	18.4	6.4		3.17
257-1280	-	-	-	3.251	0.12800	31.9	6.5	152.4	3.25
257-1285	-	30	-	3.264	0.12850	18.9	6.6	76.2	3.26
257-1286	-	-	-			32.0		152.4	
257-1299	-	-	-	3.299	0.12990	19.2		76.2	3.29
257-1406	9/64	-	-	3.571	0.14060	20.7	7.2		3.57
257-1440	-	27	-	3.658	0.14400	21.2	7.3		3.65
257-1562	5/32	-	-	3.970	0.15630	23.0	7.9		3.96
257-1570	-	22	-	3.988	0.15700	23.2	8.0		3.98
257-1610	-	20	-	4.089	0.16100	23.7	8.2		4.08
257-1616	-		-			40.1		152.4	
257-1630	-	-	-	4.140	0.16300	24.1	8.3	76.2	4.14
257-1719	11/64	-	-	4.366	0.17190	25.4	8.7		4.36
257-1870	-	-	-	4.750	0.18700	27.6	9.4		4.74
257-1875	3/16	-	-	4.763	0.18750	27.7	9.5		4.76
257-1900	-	-	-	4.826	0.19000	47.3	9.6	101.6	4.82
257-1906	-	-	-					152.4	
257-1910	-	11	-	4.851	0.19100	47.6		76.2	4.85
257-1916	-		-					101.6	
257-1920	-	-	-	4.877	0.19200	47.8	9.7		4.87
257-1930	-	-	-	4.902	0.19300	48.1			4.90
257-1935	-	10	-	4.915	0.19350	48.2	9.8		4.91
257-1940	-	-	-	4.928	0.19400	48.3			4.92
257-2010	-	7	-	5.105	0.20100	50.1	10.1		5.10
257-2031	13/64	-	-	5.159	0.20310	50.6	10.2		5.15
257-2040	-	6	-	5.182	0.20400	50.8	10.3		5.18
257-2055	-	5	-	5.220	0.20550	51.2	10.4		5.21
257-2180	-	-	-	5.537	0.21800	54.3	11.0		5.53
257-2188	7/32	-	-	5.558	0.21880	54.5			5.55
257-2186		-	-			54.3		152.4	
257-2210	-	2	-	5.613	0.22100	55.1	11.1	101.6	5.61
257-2280	-	1	-	5.791	0.22800	56.8	11.5		5.79
257-2344	15/64	-	-	5.954	0.23440	58.4	11.8		5.95
257-2500	1/4	-	-	6.350	0.25000	54.3	12.5		6.35
257-2506		-	-			62.3	12.6	152.4	
257-2510	-	-	-	6.375	0.25100	62.6		101.6	6.37
257-2516	-	-	-					152.4	
257-2520	-	-	-	6.401	0.25200	62.8		101.6	6.40
257-2530	-	-	-	6.426	0.25300	63.0	12.7		6.42
257-2656	17/64	-	-	6.746	0.26560	66.2	13.3		6.74
257-2812	9/32	-	-	7.145	0.28130	70.1	14.1		7.14
257-2969	19/64	-	-	7.541	0.29690	74.0	14.9		7.54
257-3120	-	-	-	7.925	0.31200	46.1	15.6		7.92
257-3125	5/16	-	-	7.938	0.31250	46.2			7.93
257-3135	-	-	-	7.963	0.31350	46.3	15.7		7.96
257-3280	21/64	-	-	8.334	0.32810	48.4	16.4		8.33
257-3438	11/32	-	-	8.733	0.34380	50.8	17.2		8.73
257-3500	-	-	-	8.890	0.35000	51.7	17.5		8.89
257-3594	23/64	-	-	9.129	0.35940	53.1	17.9		9.12

Packed: 1 pc.
Brazed shanks available on request: Threaded, Quick Change and Tri-Flat.

HYE

List 257 (Continued)

Tapered Drill/Reamer

SPEED FEED P369 | CARBIDE | BR | 0°

EDP Number	Approximate Hole Size					Flute Length	Taper Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	l (mm)	L (mm)	d (mm)
257-3750	3/8	-	-	9.525	0.37500	55.4	18.7	101.6	9.52
257-3756		-	-			74.4		152.4	
257-3906	25/64	-	-	9.921	0.39060	77.4	19.4		9.90
257-4066	13/32	-	-	10.320	0.40630	80.6	20.2		10.31
257-4376	7/16	-	-	11.113	0.43750	86.8	21.8		11.11
257-5006	1/2	-	-	12.700	0.50000	99.3	24.9		12.70

Packed: 1 pc.
Brazed shanks available on request: Threaded, Quick Change and Tri-Flat.

HYE

Threaded Shank



Quick Change Shank



Tri-Flat Shank



Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/ Al/ Ti/CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
257	◎	○		◎	◎		◎	◎	◎			

○ good ◎ best

List HP243

3D

SPEED FEED	CARBIDE	WD1	30°	SHANK h6
P372-373				

Cutting Diameter Tolerance (m7)		
Size	mm	inch
1≤D≤3	+0.002 / +0.012	+0.0001 / +0.0005
3<D≤6	+0.004 / +0.016	+0.0002 / +0.0006
6<D≤10	+0.006 / +0.021	+0.0002 / +0.0008
10<D≤18	+0.007 / +0.025	+0.0003 / +0.0010
18<D≤20	+0.008 / +0.029	+0.0003 / +0.0011



R Thinning



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP243-0394	-	-	-	1.000	0.03937	7	35	3
HP243-0433	-	-	-	1.100	0.04331			
HP243-0469	3/64	-	-	1.191	0.04688	8		
HP243-0472	-	-	-	1.200	0.04724			
HP243-0512	-	-	-	1.300	0.05118			
HP243-0551	-	-	-	1.400	0.05512	9		
HP243-0591	-	-	-	1.500	0.05906		40	
HP243-0626	1/16	-	-	1.588	0.06250	10		
HP243-0630	-	-	-	1.600	0.06299			
HP243-0669	-	-	-	1.700	0.06693			
HP243-0709	-	-	-	1.800	0.07087	11		
HP243-0748	-	-	-	1.900	0.07480			
HP243-0780	5/64	-	-	1.984	0.07813	13	45	
HP243-0787	-	-	-	2.000	0.07874			
HP243-0827	-	-	-	2.100	0.08268			
HP243-0866	-	-	-	2.200	0.08661			
HP243-0906	-	-	-	2.300	0.09055			
HP243-0937	3/32	-	-	2.381	0.09375			
HP243-0945	-	-	-	2.400	0.09449	15		
HP243-0984	-	-	-	2.500	0.09843		50	
HP243-1024	-	-	-	2.600	0.10236			
HP243-1063	-	-	-	2.700	0.10630	17		
HP243-1094	7/64	-	-	2.778	0.10938			
HP243-1102	-	-	-	2.800	0.11024			
HP243-1142	-	-	-	2.900	0.11417			
HP243-1181	-	-	-	3.000	0.11811	20	62	6
HP243-1220	-	-	-	3.100	0.12205			
HP243-1248	1/8	-	-	3.175	0.12500			
HP243-1260	-	-	-	3.200	0.12598			
HP243-1299	-	-	-	3.300	0.12992			
HP243-1339	-	-	-	3.400	0.13386			
HP243-1378	-	-	-	3.500	0.13780			
HP243-1406	9/64	-	-	3.572	0.14063			
HP243-1417	-	-	-	3.600	0.14173			
HP243-1457	-	-	-	3.700	0.14567			
HP243-1496	-	-	-	3.800	0.14961	24	66	
HP243-1535	-	-	-	3.900	0.15354			
HP243-1563	5/32	-	-	3.969	0.15625			
HP243-1575	-	-	-	4.000	0.15748			
HP243-1610	-	20	-	4.089	0.16100			
HP243-1614	-	-	-	4.100	0.16142			
HP243-1654	-	-	-	4.200	0.16535			
HP243-1693	-	-	-	4.300	0.16929			
HP243-1720	11/64	-	-	4.366	0.17188			
HP243-1732	-	-	-	4.400	0.17323			
HP243-1772	-	-	-	4.500	0.17717			
HP243-1811	-	-	-	4.600	0.18110			
HP243-1831	-	-	-	4.650	0.18307			
HP243-1850	-	-	-	4.700	0.18504			
HP243-1874	3/16	-	-	4.763	0.18750	28		

Packed: 1 pc.
Available WD1 coating only.

HPC

List HP243 (Continued)

3D

SPEED FEED P372-373 | CARBIDE | WD1 | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP243-1890	-	-	-	4.800	0.18898	28	66	6
HP243-1929	-	-	-	4.900	0.19291			
HP243-1969	-	-	-	5.000	0.19685			
HP243-2008	-	-	-	5.100	0.20079			
HP243-2031	13/64	-	-	5.159	0.20313			
HP243-2047	-	-	-	5.200	0.20472			
HP243-2087	-	-	-	5.300	0.20866			
HP243-2126	-	-	-	5.400	0.21260			
HP243-2130	-	3	-	5.410	0.21300			
HP243-2165	-	-	-	5.500	0.21654			
HP243-2189	7/32	-	-	5.556	0.21875			
HP243-2205	-	-	-	5.600	0.22047			
HP243-2244	-	-	-	5.700	0.22441			
HP243-2283	-	-	-	5.800	0.22835			
HP243-2323	-	-	-	5.900	0.23228			
HP243-2343	15/64	-	-	5.953	0.23438			
HP243-2362	-	-	-	6.000	0.23622			
HP243-2402	-	-	-	6.100	0.24016	34	79	8
HP243-2441	-	-	-	6.200	0.24409			
HP243-2480	-	-	-	6.300	0.24803			
HP243-2500	1/4	-	E	6.350	0.25000			
HP243-2520	-	-	-	6.400	0.25197			
HP243-2559	-	-	-	6.500	0.25591			
HP243-2571	-	-	F	6.528	0.25700			
HP243-2598	-	-	-	6.600	0.25984			
HP243-2638	-	-	-	6.700	0.26378			
HP243-2657	17/64	-	-	6.747	0.26563			
HP243-2677	-	-	-	6.800	0.26772			
HP243-2717	-	-	-	6.900	0.27165			
HP243-2756	-	-	-	7.000	0.27559			
HP243-2795	-	-	-	7.100	0.27953	41		
HP243-2811	9/32	-	-	7.144	0.28125			
HP243-2835	-	-	-	7.200	0.28346			
HP243-2874	-	-	-	7.300	0.28740			
HP243-2913	-	-	-	7.400	0.29134			
HP243-2953	-	-	-	7.500	0.29528			
HP243-2969	19/64	-	-	7.541	0.29688			
HP243-2992	-	-	-	7.600	0.29921			
HP243-3031	-	-	-	7.700	0.30315			
HP243-3071	-	-	-	7.800	0.30709			
HP243-3110	-	-	-	7.900	0.31102			
HP243-3126	5/16	-	-	7.938	0.31250			
HP243-3150	-	-	-	8.000	0.31496			
HP243-3189	-	-	-	8.100	0.31890			
HP243-3228	-	-	-	8.200	0.32283	47	89	10
HP243-3268	-	-	-	8.300	0.32677			

Packed: 1 pc.
Available WD1 coating only.

continued on next page

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP243	◎	◎	◎	◎	◎				◎		○			◎	○		

○ good ◎ best

List HP243 (Continued)

3D

SPEED FEED	CARBIDE	WD1	30°	SHANK
P372-373				h6

Cutting Diameter Tolerance (m7)		
Size	mm	inch
1≤D≤3	+0.002 / +0.012	+0.0001 / +0.0005
3<D≤6	+0.004 / +0.016	+0.0002 / +0.0006
6<D≤10	+0.006 / +0.021	+0.0002 / +0.0008
10<D≤18	+0.007 / +0.025	+0.0003 / +0.0010
18<D≤20	+0.008 / +0.029	+0.0003 / +0.0011



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP243-3280	21/64	-	-	8.334	0.32813	47	89	10
HP243-3307	-	-	-	8.400	0.33071			
HP243-3319	-	-	Q	8.433	0.33200			
HP243-3346	-	-	-	8.500	0.33465			
HP243-3386	-	-	-	8.600	0.33858			
HP243-3425	-	-	-	8.700	0.34252			
HP243-3437	11/32	-	-	8.731	0.34375			
HP243-3465	-	-	-	8.800	0.34646			
HP243-3504	-	-	-	8.900	0.35039			
HP243-3543	-	-	-	9.000	0.35433			
HP243-3583	-	-	-	9.100	0.35827			
HP243-3594	23/64	-	-	9.128	0.35938			
HP243-3622	-	-	-	9.200	0.36220			
HP243-3642	-	-	-	9.250	0.36417			
HP243-3661	-	-	-	9.300	0.36614			
HP243-3701	-	-	-	9.400	0.37008			
HP243-3740	-	-	-	9.500	0.37402			
HP243-3748	3/8	-	-	9.525	0.37500			
HP243-3780	-	-	-	9.600	0.37795			
HP243-3819	-	-	-	9.700	0.38189			
HP243-3858	-	-	-	9.800	0.38583			
HP243-3898	-	-	-	9.900	0.38976			
HP243-3906	25/64	-	-	9.922	0.39063			
HP243-3937	-	-	-	10.000	0.39370			
HP243-3976	-	-	-	10.100	0.39764	55	102	12
HP243-4016	-	-	-	10.200	0.40157			
HP243-4055	-	-	-	10.300	0.40551			
HP243-4063	13/32	-	-	10.319	0.40625			
HP243-4094	-	-	-	10.400	0.40945			
HP243-4134	-	-	-	10.500	0.41339			
HP243-4173	-	-	-	10.600	0.41732			
HP243-4213	-	-	-	10.700	0.42126			
HP243-4220	27/64	-	-	10.716	0.42188			
HP243-4252	-	-	-	10.800	0.42520			
HP243-4291	-	-	-	10.900	0.42913			
HP243-4331	-	-	-	11.000	0.43307			
HP243-4370	-	-	-	11.100	0.43701			
HP243-4374	7/16	-	-	11.113	0.43750			
HP243-4409	-	-	-	11.200	0.44094			
HP243-4449	-	-	-	11.300	0.44488			
HP243-4488	-	-	-	11.400	0.44882			
HP243-4528	-	-	-	11.500	0.45276			
HP243-4531	29/64	-	-	11.509	0.45313			
HP243-4567	-	-	-	11.600	0.45669			
HP243-4606	-	-	-	11.700	0.46063			
HP243-4646	-	-	-	11.800	0.46457			
HP243-4685	-	-	-	11.900	0.46850			
HP243-4689	15/32	-	-	11.906	0.46875			
HP243-4724	-	-	-	12.000	0.47244			

Packed: 1 pc.
Available WD1 coating only.

HPC

List HP243 (Continued)

SPEED FEED P372-373 | CARBIDE | WD1 | 30° | SHANK h6

3D

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP243-4764	-	-	-	12.100	0.47638	60	107	14
HP243-4803	-	-	-	12.200	0.48031			
HP243-4843	31/64	-	-	12.303	0.48438			
HP243-4882	-	-	-	12.400	0.48819			
HP243-4921	-	-	-	12.500	0.49213			
HP243-4961	-	-	-	12.600	0.49606			
HP243-5000	1/2	-	-	12.700	0.50000			
HP243-5039	-	-	-	12.800	0.50394			
HP243-5079	-	-	-	12.900	0.50787			
HP243-5118	-	-	-	13.000	0.51181			
HP243-5157	33/64	-	-	13.097	0.51563			
HP243-5197	-	-	-	13.200	0.51969			
HP243-5236	-	-	-	13.300	0.52362			
HP243-5276	-	-	-	13.400	0.52756			
HP243-5311	17/32	-	-	13.494	0.53125			
HP243-5315	-	-	-	13.500	0.53150			
HP243-5394	-	-	-	13.700	0.53937			
HP243-5512	-	-	-	14.000	0.55118			
HP243-5626	9/16	-	-	14.288	0.56250	65	115	16
HP243-5709	-	-	-	14.500	0.57087			
HP243-5780	37/64	-	-	14.684	0.57813			
HP243-5787	-	-	-	14.700	0.57874			
HP243-5906	-	-	-	15.000	0.59055			
HP243-5937	19/32	-	-	15.081	0.59375			
HP243-6102	-	-	-	15.500	0.61024			
HP243-6181	-	-	-	15.700	0.61811			
HP243-6248	5/8	-	-	15.875	0.62500			
HP243-6299	-	-	-	16.000	0.62992			
HP243-6339	-	-	-	16.100	0.63386	73	123	18
HP243-6496	-	-	-	16.500	0.64961			
HP243-6563	21/32	-	-	16.669	0.65625			
HP243-6693	-	-	-	17.000	0.66929			
HP243-6890	-	-	-	17.500	0.68898			
HP243-7087	-	-	-	18.000	0.70866			
HP243-7283	-	-	-	18.500	0.72835	79	131	20
HP243-7480	-	-	-	19.000	0.74803			
HP243-7500	3/4	-	-	19.050	0.75000			
HP243-7579	-	-	-	19.250	0.75787			
HP243-7677	-	-	-	19.500	0.76772			
HP243-7874	-	-	-	20.000	0.78740			

Packed: 1 pc.
Available WD1 coating only.

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP243	◎	◎	◎	◎	◎				◎		○			◎	○		

○ good ◎ best

List HP245

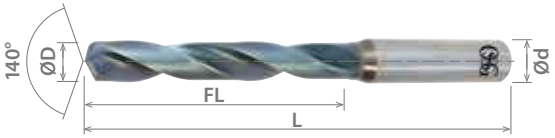
5D

SPEED FEED	CARBIDE	WD1	30°	SHANK h6
P372-373				

Cutting Diameter Tolerance (m7)		
Size	mm	inch
1≤D≤3	+0.002 / +0.012	+0.0001 / +0.0005
3<D≤6	+0.004 / +0.016	+0.0002 / +0.0006
6<D≤10	+0.006 / +0.021	+0.0002 / +0.0008
10<D≤18	+0.007 / +0.025	+0.0003 / +0.0010
18<D≤20	+0.008 / +0.029	+0.0003 / +0.0011



R Thinning



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP245-0394	-	-	-	1.000	0.03937	9	38	3
HP245-0433	-	-	-	1.100	0.04331			
HP245-0469	3/64	-	-	1.191	0.04688	11		
HP245-0472	-	-	-	1.200	0.04724			
HP245-0512	-	-	-	1.300	0.05118			
HP245-0551	-	-	-	1.400	0.05512	12		
HP245-0591	-	-	-	1.500	0.05906		45	
HP245-0626	1/16	-	-	1.588	0.06250	14		
HP245-0630	-	-	-	1.600	0.06299			
HP245-0669	-	-	-	1.700	0.06693			
HP245-0709	-	-	-	1.800	0.07087	16		
HP245-0748	-	-	-	1.900	0.07480			
HP245-0780	5/64	-	-	1.984	0.07813	18	52	
HP245-0787	-	-	-	2.000	0.07874		50	
HP245-0827	-	-	-	2.100	0.08268			
HP245-0866	-	-	-	2.200	0.08661	20	52	
HP245-0906	-	-	-	2.300	0.09055			
HP245-0937	3/32	-	-	2.381	0.09375	22		
HP245-0945	-	-	-	2.400	0.09449			
HP245-0984	-	-	-	2.500	0.09843		56	
HP245-1024	-	-	-	2.600	0.10236			
HP245-1063	-	-	-	2.700	0.10630	23		
HP245-1094	7/64	-	-	2.778	0.10938			
HP245-1102	-	-	-	2.800	0.11024			
HP245-1142	-	-	-	2.900	0.11417			
HP245-1181	-	-	-	3.000	0.11811	28	66	6
HP245-1220	-	-	-	3.100	0.12205			
HP245-1248	1/8	-	-	3.175	0.12500			
HP245-1260	-	-	-	3.200	0.12598			
HP245-1299	-	-	-	3.300	0.12992			
HP245-1339	-	-	-	3.400	0.13386			
HP245-1378	-	-	-	3.500	0.13780			
HP245-1406	9/64	-	-	3.572	0.14063			
HP245-1417	-	-	-	3.600	0.14173			
HP245-1457	-	-	-	3.700	0.14567			
HP245-1496	-	-	-	3.800	0.14961	36	74	
HP245-1535	-	-	-	3.900	0.15354			
HP245-1563	5/32	-	-	3.969	0.15625			
HP245-1575	-	-	-	4.000	0.15748			
HP245-1610	-	20	-	4.089	0.16100			
HP245-1614	-	-	-	4.100	0.16142			
HP245-1654	-	-	-	4.200	0.16535			
HP245-1693	-	-	-	4.300	0.16929			
HP245-1720	11/64	-	-	4.366	0.17188			
HP245-1732	-	-	-	4.400	0.17323			
HP245-1772	-	-	-	4.500	0.17717			
HP245-1811	-	-	-	4.600	0.18110			
HP245-1831	-	-	-	4.650	0.18307			
HP245-1850	-	-	-	4.700	0.18504			
HP245-1874	3/16	-	-	4.763	0.18750	44	82	

Packed: 1 pc.
Available WD1 coating only.

HPC

List HP245 (Continued)

5D

SPEED FEED P372-373 | CARBIDE | WD1 | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP245-1890	-	-	-	4.800	0.18898	44	82	6
HP245-1929	-	-	-	4.900	0.19291			
HP245-1969	-	-	-	5.000	0.19685			
HP245-2008	-	-	-	5.100	0.20079			
HP245-2031	13/64	-	-	5.159	0.20313			
HP245-2047	-	-	-	5.200	0.20472			
HP245-2087	-	-	-	5.300	0.20866			
HP245-2126	-	-	-	5.400	0.21260			
HP245-2130	-	3	-	5.410	0.21300			
HP245-2165	-	-	-	5.500	0.21654			
HP245-2189	7/32	-	-	5.556	0.21875			
HP245-2205	-	-	-	5.600	0.22047			
HP245-2244	-	-	-	5.700	0.22441			
HP245-2283	-	-	-	5.800	0.22835			
HP245-2323	-	-	-	5.900	0.23228			
HP245-2343	15/64	-	-	5.953	0.23438			
HP245-2362	-	-	-	6.000	0.23622			
HP245-2402	-	-	-	6.100	0.24016	53	91	8
HP245-2441	-	-	-	6.200	0.24409			
HP245-2480	-	-	-	6.300	0.24803			
HP245-2500	1/4	-	E	6.350	0.25000			
HP245-2520	-	-	-	6.400	0.25197			
HP245-2559	-	-	-	6.500	0.25591			
HP245-2571	-	-	F	6.528	0.25700			
HP245-2598	-	-	-	6.600	0.25984			
HP245-2638	-	-	-	6.700	0.26378			
HP245-2657	17/64	-	-	6.747	0.26563			
HP245-2677	-	-	-	6.800	0.26772			
HP245-2717	-	-	-	6.900	0.27165			
HP245-2756	-	-	-	7.000	0.27559			
HP245-2795	-	-	-	7.100	0.27953			
HP245-2811	9/32	-	-	7.144	0.28125			
HP245-2835	-	-	-	7.200	0.28346			
HP245-2874	-	-	-	7.300	0.28740			
HP245-2913	-	-	-	7.400	0.29134			
HP245-2953	-	-	-	7.500	0.29528			
HP245-2969	19/64	-	-	7.541	0.29688			
HP245-2992	-	-	-	7.600	0.29921			
HP245-3031	-	-	-	7.700	0.30315			
HP245-3071	-	-	-	7.800	0.30709			
HP245-3110	-	-	-	7.900	0.31102			
HP245-3126	5/16	-	-	7.938	0.31250			
HP245-3150	-	-	-	8.000	0.31496			
HP245-3189	-	-	-	8.100	0.31890	61	103	10
HP245-3228	-	-	-	8.200	0.32283			
HP245-3268	-	-	-	8.300	0.32677			

Packed: 1 pc.
Available WD1 coating only.

continued on next page

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP245	▢	▢	▢	▢	▢				▢		▢			▢	▢		

▢ good ▢ best

List HP245 (Continued)

5D

SPEED FEED	CARBIDE			
P372-373		WD1	30°	SHANK h6



Cutting Diameter Tolerance (m7)		
Size	mm	inch
1≤D≤3	+0.002 / +0.012	+0.0001 / +0.0005
3<D≤6	+0.004 / +0.016	+0.0002 / +0.0006
6<D≤10	+0.006 / +0.021	+0.0002 / +0.0008
10<D≤18	+0.007 / +0.025	+0.0003 / +0.0010
18<D≤20	+0.008 / +0.029	+0.0003 / +0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP245-3280	21/64	-	-	8.334	0.32813	61	103	10
HP245-3307	-	-	-	8.400	0.33071			
HP245-3319	-	-	Q	8.433	0.33200			
HP245-3346	-	-	-	8.500	0.33465			
HP245-3386	-	-	-	8.600	0.33858			
HP245-3425	-	-	-	8.700	0.34252			
HP245-3437	11/32	-	-	8.731	0.34375			
HP245-3465	-	-	-	8.800	0.34646			
HP245-3504	-	-	-	8.900	0.35039			
HP245-3543	-	-	-	9.000	0.35433			
HP245-3583	-	-	-	9.100	0.35827			
HP245-3594	23/64	-	-	9.128	0.35938			
HP245-3622	-	-	-	9.200	0.36220			
HP245-3642	-	-	-	9.250	0.36417			
HP245-3661	-	-	-	9.300	0.36614			
HP245-3701	-	-	-	9.400	0.37008			
HP245-3740	-	-	-	9.500	0.37402			
HP245-3748	3/8	-	-	9.525	0.37500			
HP245-3780	-	-	-	9.600	0.37795			
HP245-3819	-	-	-	9.700	0.38189			
HP245-3858	-	-	-	9.800	0.38583			
HP245-3898	-	-	-	9.900	0.38976			
HP245-3906	25/64	-	-	9.922	0.39063			
HP245-3937	-	-	-	10.000	0.39370			
HP245-3976	-	-	-	10.100	0.39764	71	118	12
HP245-4016	-	-	-	10.200	0.40157			
HP245-4055	-	-	-	10.300	0.40551			
HP245-4063	13/32	-	-	10.319	0.40625			
HP245-4094	-	-	-	10.400	0.40945			
HP245-4134	-	-	-	10.500	0.41339			
HP245-4173	-	-	-	10.600	0.41732			
HP245-4213	-	-	-	10.700	0.42126			
HP245-4220	27/64	-	-	10.716	0.42188			
HP245-4252	-	-	-	10.800	0.42520			
HP245-4291	-	-	-	10.900	0.42913			
HP245-4331	-	-	-	11.000	0.43307			
HP245-4370	-	-	-	11.100	0.43701			
HP245-4374	7/16	-	-	11.113	0.43750			
HP245-4409	-	-	-	11.200	0.44094			
HP245-4449	-	-	-	11.300	0.44488			
HP245-4488	-	-	-	11.400	0.44882			
HP245-4528	-	-	-	11.500	0.45276			
HP245-4531	29/64	-	-	11.509	0.45313			
HP245-4567	-	-	-	11.600	0.45669			
HP245-4606	-	-	-	11.700	0.46063			
HP245-4646	-	-	-	11.800	0.46457			
HP245-4685	-	-	-	11.900	0.46850			
HP245-4689	15/32	-	-	11.906	0.46875			
HP245-4724	-	-	-	12.000	0.47244			

Packed: 1 pc.
Available WD1 coating only.

HPC

List HP245 (Continued)

5D

SPEED FEED P372-373 | CARBIDE | WD1 | 30° | SHANK h6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP245-4764	-	-	-	12.100	0.47638	77	124	14
HP245-4803	-	-	-	12.200	0.48031			
HP245-4843	31/64	-	-	12.303	0.48438			
HP245-4882	-	-	-	12.400	0.48819			
HP245-4921	-	-	-	12.500	0.49213			
HP245-4961	-	-	-	12.600	0.49606			
HP245-5000	1/2	-	-	12.700	0.50000			
HP245-5039	-	-	-	12.800	0.50394			
HP245-5079	-	-	-	12.900	0.50787			
HP245-5118	-	-	-	13.000	0.51181			
HP245-5157	33/64	-	-	13.097	0.51563			
HP245-5197	-	-	-	13.200	0.51969			
HP245-5236	-	-	-	13.300	0.52362			
HP245-5394	-	-	-	13.700	0.53937			
HP245-5276	-	-	-	13.400	0.52756			
HP245-5311	17/32	-	-	13.494	0.53125			
HP245-5315	-	-	-	13.500	0.53150			
HP245-5512	-	-	-	14.000	0.55118			
HP245-5626	9/16	-	-	14.288	0.56250	83	133	16
HP245-5709	-	-	-	14.500	0.57087			
HP245-5780	37/64	-	-	14.684	0.57813			
HP245-5787	-	-	-	14.700	0.57874			
HP245-5906	-	-	-	15.000	0.59055			
HP245-5937	19/32	-	-	15.081	0.59375			
HP245-6102	-	-	-	15.500	0.61024			
HP245-6181	-	-	-	15.700	0.61811			
HP245-6248	5/8	-	-	15.875	0.62500			
HP245-6299	-	-	-	16.000	0.62992			
HP245-6339	-	-	-	16.100	0.63386	93	143	18
HP245-6496	-	-	-	16.500	0.64961			
HP245-6563	21/32	-	-	16.669	0.65625			
HP245-6693	-	-	-	17.000	0.66929			
HP245-6890	-	-	-	17.500	0.68898			
HP245-7087	-	-	-	18.000	0.70866			
HP245-7283	-	-	-	18.500	0.72835	101	153	20
HP245-7480	-	-	-	19.000	0.74803			
HP245-7500	3/4	-	-	19.050	0.75000			
HP245-7579	-	-	-	19.250	0.75787			
HP245-7677	-	-	-	19.500	0.76772			
HP245-7874	-	-	-	20.000	0.78740			

Packed: 1 pc.
Available WD1 coating only.

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP245	◎	◎	◎	◎	◎				◎		○			◎	○		

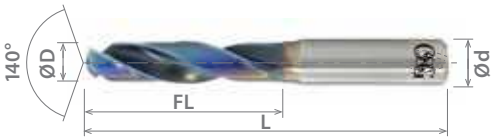
○ good ◎ best

List HP253

3D, Coolant-Through

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6





Cutting Diameter Tolerance (m7)		
Size	mm	inch
D=3	+0.002 / +0.012	+0.0001 / +0.0005
3<D≤6	+0.004 / +0.016	+0.0002 / +0.0006
6<D≤10	+0.006 / +0.021	+0.0002 / +0.0008
10<D≤18	+0.007 / +0.025	+0.0003 / +0.0010
18<D≤20	+0.008 / +0.029	+0.0003 / +0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP253-1181	-	-	-	3.000	0.11811	20	62	6
HP253-1220	-	-	-	3.100	0.12205			
HP253-1248	1/8	-	-	3.175	0.12500			
HP253-1260	-	-	-	3.200	0.12598			
HP253-1299	-	-	-	3.300	0.12992			
HP253-1339	-	-	-	3.400	0.13386			
HP253-1378	-	-	-	3.500	0.13780			
HP253-1406	9/64	-	-	3.572	0.14063			
HP253-1417	-	-	-	3.600	0.14173			
HP253-1457	-	-	-	3.700	0.14567			
HP253-1496	-	-	-	3.800	0.14961	24	66	
HP253-1535	-	-	-	3.900	0.15354			
HP253-1563	5/32	-	-	3.969	0.15625			
HP253-1575	-	-	-	4.000	0.15748			
HP253-1610	-	20	-	4.089	0.16100			
HP253-1614	-	-	-	4.100	0.16142			
HP253-1654	-	-	-	4.200	0.16535			
HP253-1693	-	-	-	4.300	0.16929			
HP253-1720	11/64	-	-	4.366	0.17188			
HP253-1732	-	-	-	4.400	0.17323			
HP253-1772	-	-	-	4.500	0.17717			
HP253-1811	-	-	-	4.600	0.18110			
HP253-1831	-	-	-	4.650	0.18307			
HP253-1850	-	-	-	4.700	0.18504			
HP253-1874	3/16	-	-	4.763	0.18750	28		
HP253-1890	-	-	-	4.800	0.18898			
HP253-1929	-	-	-	4.900	0.19291			
HP253-1969	-	-	-	5.000	0.19685			
HP253-2008	-	-	-	5.100	0.20079			
HP253-2031	13/64	-	-	5.159	0.20313			
HP253-2047	-	-	-	5.200	0.20472			
HP253-2087	-	-	-	5.300	0.20866			
HP253-2126	-	-	-	5.400	0.21260			
HP253-2130	-	3	-	5.410	0.21300			
HP253-2165	-	-	-	5.500	0.21654			
HP253-2189	7/32	-	-	5.556	0.21875			
HP253-2205	-	-	-	5.600	0.22047			
HP253-2244	-	-	-	5.700	0.22441			
HP253-2283	-	-	-	5.800	0.22835			
HP253-2323	-	-	-	5.900	0.23228			
HP253-2343	15/64	-	-	5.953	0.23438			
HP253-2362	-	-	-	6.000	0.23622			
HP253-2402	-	-	-	6.100	0.24016	34	79	8
HP253-2441	-	-	-	6.200	0.24409			
HP253-2480	-	-	-	6.300	0.24803			
HP253-2500	1/4	-	E	6.350	0.25000			
HP253-2520	-	-	-	6.400	0.25197			
HP253-2559	-	-	-	6.500	0.25591			
HP253-2571	-	-	F	6.528	0.25700			
HP253-2598	-	-	-	6.600	0.25984			

Packed: 1 pc.
Available WD1 coating only.

HPC

List HP253 (Continued)

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6

3D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP253-2638	-	-	-	6.700	0.26378	34	79	8
HP253-2657	17/64	-	-	6.747	0.26563			
HP253-2677	-	-	-	6.800	0.26772			
HP253-2717	-	-	-	6.900	0.27165			
HP253-2756	-	-	-	7.000	0.27559			
HP253-2795	-	-	-	7.100	0.27953	41		
HP253-2811	9/32	-	-	7.144	0.28125			
HP253-2835	-	-	-	7.200	0.28346			
HP253-2874	-	-	-	7.300	0.28740			
HP253-2913	-	-	-	7.400	0.29134			
HP253-2953	-	-	-	7.500	0.29528			
HP253-2969	19/64	-	-	7.541	0.29688			
HP253-2992	-	-	-	7.600	0.29921			
HP253-3031	-	-	-	7.700	0.30315			
HP253-3071	-	-	-	7.800	0.30709			
HP253-3110	-	-	-	7.900	0.31102			
HP253-3126	5/16	-	-	7.938	0.31250			
HP253-3150	-	-	-	8.000	0.31496			
HP253-3189	-	-	-	8.100	0.31890	47	89	10
HP253-3228	-	-	-	8.200	0.32283			
HP253-3268	-	-	-	8.300	0.32677			
HP253-3280	21/64	-	-	8.334	0.32813			
HP253-3307	-	-	-	8.400	0.33071			
HP253-3319	-	-	Q	8.433	0.33200			
HP253-3346	-	-	-	8.500	0.33465			
HP253-3386	-	-	-	8.600	0.33858			
HP253-3425	-	-	-	8.700	0.34252			
HP253-3437	11/32	-	-	8.731	0.34375			
HP253-3465	-	-	-	8.800	0.34646			
HP253-3504	-	-	-	8.900	0.35039			
HP253-3543	-	-	-	9.000	0.35433			
HP253-3583	-	-	-	9.100	0.35827			
HP253-3594	23/64	-	-	9.128	0.35938			
HP253-3622	-	-	-	9.200	0.36220			
HP253-3642	-	-	-	9.250	0.36417			
HP253-3661	-	-	-	9.300	0.36614			
HP253-3701	-	-	-	9.400	0.37008			
HP253-3740	-	-	-	9.500	0.37402			
HP253-3748	3/8	-	-	9.525	0.37500			
HP253-3780	-	-	-	9.600	0.37795			
HP253-3819	-	-	-	9.700	0.38189			
HP253-3858	-	-	-	9.800	0.38583			
HP253-3898	-	-	-	9.900	0.38976			
HP253-3906	25/64	-	-	9.922	0.39063			
HP253-3937	-	-	-	10.000	0.39370			
HP253-3976	-	-	-	10.100	0.39764	55	102	12

Packed: 1 pc.
Available WD1 coating only.

continued on next page

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP253	◎	◎	◎	◎	◎	○	○	○	◎		○	○	○	◎	○		

○ good ◎ best

List HP253 (Continued)

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6

3D, Coolant-Through



Cutting Diameter Tolerance (m7)		
Size	mm	inch
D=3	+0.002 / +0.012	+0.0001 / +0.0005
3<D≤6	+0.004 / +0.016	+0.0002 / +0.0006
6<D≤10	+0.006 / +0.021	+0.0002 / +0.0008
10<D≤18	+0.007 / +0.025	+0.0003 / +0.0010
18<D≤20	+0.008 / +0.029	+0.0003 / +0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP253-4016	-	-	-	10.200	0.40157	55	102	12
HP253-4055	-	-	-	10.300	0.40551			
HP253-4063	13/32	-	-	10.319	0.40625			
HP253-4094	-	-	-	10.400	0.40945			
HP253-4134	-	-	-	10.500	0.41339			
HP253-4173	-	-	-	10.600	0.41732			
HP253-4213	-	-	-	10.700	0.42126			
HP253-4220	27/64	-	-	10.716	0.42188			
HP253-4252	-	-	-	10.800	0.42520			
HP253-4291	-	-	-	10.900	0.42913			
HP253-4331	-	-	-	11.000	0.43307			
HP253-4370	-	-	-	11.100	0.43701			
HP253-4374	7/16	-	-	11.113	0.43750			
HP253-4409	-	-	-	11.200	0.44094			
HP253-4449	-	-	-	11.300	0.44488			
HP253-4488	-	-	-	11.400	0.44882			
HP253-4528	-	-	-	11.500	0.45276			
HP253-4531	29/64	-	-	11.509	0.45313			
HP253-4567	-	-	-	11.600	0.45669			
HP253-4606	-	-	-	11.700	0.46063			
HP253-4646	-	-	-	11.800	0.46457			
HP253-4685	-	-	-	11.900	0.46850			
HP253-4689	15/32	-	-	11.906	0.46875			
HP253-4724	-	-	-	12.000	0.47244			
HP253-4764	-	-	-	12.100	0.47638	60	107	14
HP253-4803	-	-	-	12.200	0.48031			
HP253-4843	31/64	-	-	12.303	0.48438			
HP253-4882	-	-	-	12.400	0.48819			
HP253-4921	-	-	-	12.500	0.49213			
HP253-4961	-	-	-	12.600	0.49606			
HP253-5000	1/2	-	-	12.700	0.50000			
HP253-5039	-	-	-	12.800	0.50394			
HP253-5079	-	-	-	12.900	0.50787			
HP253-5118	-	-	-	13.000	0.51181			
HP253-5157	33/64	-	-	13.097	0.51563			
HP253-5197	-	-	-	13.200	0.51969			
HP253-5236	-	-	-	13.300	0.52362			
HP253-5276	-	-	-	13.400	0.52756			
HP253-5311	17/32	-	-	13.494	0.53125			
HP253-5315	-	-	-	13.500	0.53150			
HP253-5394	-	-	-	13.700	0.53937			
HP253-5512	-	-	-	14.000	0.55118			
HP253-5626	9/16	-	-	14.288	0.56250	65	115	16
HP253-5709	-	-	-	14.500	0.57087			
HP253-5780	37/64	-	-	14.684	0.57813			
HP253-5787	-	-	-	14.700	0.57874			
HP253-5906	-	-	-	15.000	0.59055			
HP253-5937	19/32	-	-	15.081	0.59375			
HP253-6102	-	-	-	15.500	0.61024			
HP253-6181	-	-	-	15.700	0.61811			

Packed: 1 pc.
Available WD1 coating only.

HPC

List HP253 (Continued)

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6

3D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP253-6248	5/8	-	-	15.875	0.62500	65	115	16
HP253-6299	-	-	-	16.000	0.62992			
HP253-6339	-	-	-	16.100	0.63386	73	123	18
HP253-6496	-	-	-	16.500	0.64961			
HP253-6563	21/32	-	-	16.669	0.65625			
HP253-6693	-	-	-	17.000	0.66929			
HP253-6890	-	-	-	17.500	0.68898			
HP253-7087	-	-	-	18.000	0.70866			
HP253-7283	-	-	-	18.500	0.72835	79	131	20
HP253-7480	-	-	-	19.000	0.74803			
HP253-7500	3/4	-	-	19.050	0.75000			
HP253-7579	-	-	-	19.250	0.75787			
HP253-7677	-	-	-	19.500	0.76772			
HP253-7874	-	-	-	20.000	0.78740			

Packed: 1 pc.
Available WD1 coating only.

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP253	◎	◎	◎	◎	◎	○	○	○	◎		○	○	○	◎	○		

○ good ◎ best

List HP255

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6

5D, Coolant-Through



Cutting Diameter Tolerance (m7)		
Size	mm	inch
D=3	+0.002 / +0.012	+0.0001 / +0.0005
3<D≤6	+0.004 / +0.016	+0.0002 / +0.0006
6<D≤10	+0.006 / +0.021	+0.0002 / +0.0008
10<D≤18	+0.007 / +0.025	+0.0003 / +0.0010
18<D≤20	+0.008 / +0.029	+0.0003 / +0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP255-1181	-	-	-	3.000	0.11811	28	66	6
HP255-1220	-	-	-	3.100	0.12205			
HP255-1248	1/8	-	-	3.175	0.12500			
HP255-1260	-	-	-	3.200	0.12598			
HP255-1299	-	-	-	3.300	0.12992			
HP255-1339	-	-	-	3.400	0.13386			
HP255-1378	-	-	-	3.500	0.13780			
HP255-1406	9/64	-	-	3.572	0.14063			
HP255-1417	-	-	-	3.600	0.14173			
HP255-1457	-	-	-	3.700	0.14567			
HP255-1496	-	-	-	3.800	0.14961	36	74	
HP255-1535	-	-	-	3.900	0.15354			
HP255-1563	5/32	-	-	3.969	0.15625			
HP255-1575	-	-	-	4.000	0.15748			
HP255-1610	-	20	-	4.089	0.16100			
HP255-1614	-	-	-	4.100	0.16142			
HP255-1654	-	-	-	4.200	0.16535			
HP255-1693	-	-	-	4.300	0.16929			
HP255-1720	11/64	-	-	4.366	0.17188			
HP255-1732	-	-	-	4.400	0.17323			
HP255-1772	-	-	-	4.500	0.17717			
HP255-1811	-	-	-	4.600	0.18110			
HP255-1831	-	-	-	4.650	0.18307			
HP255-1850	-	-	-	4.700	0.18504			
HP255-1874	3/16	-	-	4.763	0.18750	44	82	
HP255-1890	-	-	-	4.800	0.18898			
HP255-1929	-	-	-	4.900	0.19291			
HP255-1969	-	-	-	5.000	0.19685			
HP255-2008	-	-	-	5.100	0.20079			
HP255-2031	13/64	-	-	5.159	0.20313			
HP255-2047	-	-	-	5.200	0.20472			
HP255-2087	-	-	-	5.300	0.20866			
HP255-2126	-	-	-	5.400	0.21260			
HP255-2130	-	3	-	5.410	0.21300			
HP255-2165	-	-	-	5.500	0.21654			
HP255-2189	7/32	-	-	5.556	0.21875			
HP255-2205	-	-	-	5.600	0.22047			
HP255-2244	-	-	-	5.700	0.22441			
HP255-2283	-	-	-	5.800	0.22835			
HP255-2323	-	-	-	5.900	0.23228			
HP255-2343	15/64	-	-	5.953	0.23438			
HP255-2362	-	-	-	6.000	0.23622			
HP255-2402	-	-	-	6.100	0.24016	53	91	8
HP255-2441	-	-	-	6.200	0.24409			
HP255-2480	-	-	-	6.300	0.24803			
HP255-2500	1/4	-	E	6.350	0.25000			
HP255-2520	-	-	-	6.400	0.25197			
HP255-2559	-	-	-	6.500	0.25591			
HP255-2571	-	-	F	6.528	0.25700			
HP255-2598	-	-	-	6.600	0.25984			

Packed: 1 pc.
Available WD1 coating only.

HPC

List HP255 (Continued)

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6

5D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP255-2638	-	-	-	6.700	0.26378	53	91	8
HP255-2657	17/64	-	-	6.746	0.26560			
HP255-2677	-	-	-	6.800	0.26772			
HP255-2717	-	-	-	6.900	0.27165			
HP255-2756	-	-	-	7.000	0.27559			
HP255-2795	-	-	-	7.100	0.27953			
HP255-2811	9/32	-	-	7.145	0.28130			
HP255-2835	-	-	-	7.200	0.28346			
HP255-2874	-	-	-	7.300	0.28740			
HP255-2913	-	-	-	7.400	0.29134			
HP255-2953	-	-	-	7.500	0.29528			
HP255-2969	19/64	-	-	7.541	0.29690			
HP255-2992	-	-	-	7.600	0.29921			
HP255-3031	-	-	-	7.700	0.30315			
HP255-3071	-	-	-	7.800	0.30709			
HP255-3110	-	-	-	7.900	0.31102			
HP255-3126	5/16	-	-	7.938	0.31250			
HP255-3150	-	-	-	8.000	0.31496			
HP255-3189	-	-	-	8.100	0.31890	61	103	10
HP255-3228	-	-	-	8.200	0.32283			
HP255-3268	-	-	-	8.300	0.32677			
HP255-3280	21/64	-	-	8.334	0.32810			
HP255-3307	-	-	-	8.400	0.33071			
HP255-3319	-	-	Q	8.433	0.33200			
HP255-3346	-	-	-	8.500	0.33465			
HP255-3386	-	-	-	8.600	0.33858			
HP255-3425	-	-	-	8.700	0.34252			
HP255-3437	11/32	-	-	8.733	0.34380			
HP255-3465	-	-	-	8.800	0.34646			
HP255-3504	-	-	-	8.900	0.35039			
HP255-3543	-	-	-	9.000	0.35433			
HP255-3583	-	-	-	9.100	0.35827			
HP255-3594	23/64	-	-	9.129	0.35940			
HP255-3622	-	-	-	9.200	0.36220			
HP255-3642	-	-	-	9.250	0.36417			
HP255-3661	-	-	-	9.300	0.36614			
HP255-3701	-	-	-	9.400	0.37008			
HP255-3740	-	-	-	9.500	0.37402			
HP255-3748	3/8	-	-	9.525	0.37500			
HP255-3780	-	-	-	9.600	0.37795			
HP255-3819	-	-	-	9.700	0.38189			
HP255-3858	-	-	-	9.800	0.38583			
HP255-3898	-	-	-	9.900	0.38976			
HP255-3906	25/64	-	-	9.921	0.39060			
HP255-3937	-	-	-	10.000	0.39370			

Packed: 1 pc.
Available WD1 coating only.

continued on next page

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP255	◎	◎	◎	◎	◎	○	○	○	◎		○	○	○	◎	○		

○ good ◎ best

List HP255 (Continued)

5D, Coolant-Through

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6



Cutting Diameter Tolerance (m7)		
Size	mm	inch
D=3	+0.002 / +0.012	+0.0001 / +0.0005
3<D≤6	+0.004 / +0.016	+0.0002 / +0.0006
6<D≤10	+0.006 / +0.021	+0.0002 / +0.0008
10<D≤18	+0.007 / +0.025	+0.0003 / +0.0010
18<D≤20	+0.008 / +0.029	+0.0003 / +0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP255-3976	-	-	-	10.100	0.39764	71	118	12
HP255-4016	-	-	-	10.200	0.40157			
HP255-4055	-	-	-	10.300	0.40551			
HP255-4063	13/32	-	-	10.319	0.40625			
HP255-4094	-	-	-	10.400	0.40945			
HP255-4134	-	-	-	10.500	0.41339			
HP255-4173	-	-	-	10.600	0.41732			
HP255-4213	-	-	-	10.700	0.42126			
HP255-4220	27/64	-	-	10.716	0.42190			
HP255-4252	-	-	-	10.800	0.42520			
HP255-4291	-	-	-	10.900	0.42913			
HP255-4331	-	-	-	11.000	0.43307			
HP255-4370	-	-	-	11.100	0.43701			
HP255-4374	7/16	-	-	11.113	0.43750			
HP255-4409	-	-	-	11.200	0.44094			
HP255-4449	-	-	-	11.300	0.44488			
HP255-4488	-	-	-	11.400	0.44882			
HP255-4528	-	-	-	11.500	0.45276			
HP255-4531	29/64	-	-	11.509	0.45310			
HP255-4567	-	-	-	11.600	0.45669			
HP255-4606	-	-	-	11.700	0.46063			
HP255-4646	-	-	-	11.800	0.46457			
HP255-4685	-	-	-	11.900	0.46850			
HP255-4689	15/32	-	-	11.908	0.46880			
HP255-4724	-	-	-	12.000	0.47244			
HP255-4764	-	-	-	12.100	0.47638	77	124	14
HP255-4803	-	-	-	12.200	0.48031			
HP255-4843	-	-	-	12.300	0.48425			
HP255-4882	-	-	-	12.400	0.48819			
HP255-4921	-	-	-	12.500	0.49213			
HP255-4961	-	-	-	12.600	0.49606			
HP255-5000	1/2	-	-	12.700	0.50000			
HP255-5039	-	-	-	12.800	0.50394			
HP255-5079	-	-	-	12.900	0.50787			
HP255-5118	-	-	-	13.000	0.51181			
HP255-5157	-	-	-	13.100	0.51575			
HP255-5197	-	-	-	13.200	0.51969			
HP255-5236	-	-	-	13.300	0.52362			
HP255-5276	-	-	-	13.400	0.52756			
HP255-5311	17/32	-	-	13.495	0.53130			
HP255-5315	-	-	-	13.500	0.53150			
HP255-5394	-	-	-	13.700	0.53937			
HP255-5512	-	-	-	14.000	0.55118			
HP255-5626	9/16	-	-	14.288	0.56250	83	133	16
HP255-5709	-	-	-	14.500	0.57087			
HP255-5780	37/64	-	-	14.684	0.57810			
HP255-5787	-	-	-	14.700	0.57874			
HP255-5906	-	-	-	15.000	0.59055			
HP255-5937	19/32	-	-	15.083	0.59380			
HP255-6102	-	-	-	15.500	0.61024			

Packed: 1 pc.
Available WD1 coating only.

HPC

List HP255 (Continued)

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6

5D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP255-6181	-	-	-	15.700	0.61811	83	133	16
HP255-6248	5/8	-	-	15.875	0.62500			
HP255-6299	-	-	-	16.000	0.62992			
HP255-6339	-	-	-	16.100	0.63386	93	143	18
HP255-6496	-	-	-	16.500	0.64961			
HP255-6563	21/32	-	-	16.669	0.65625			
HP255-6693	-	-	-	17.000	0.66929			
HP255-6890	-	-	-	17.500	0.68898			
HP255-7087	-	-	-	18.000	0.70866			
HP255-7283	-	-	-	18.500	0.72835	101	153	20
HP255-7480	-	-	-	19.000	0.74803			
HP255-7500	3/4	-	-	19.050	0.75000			
HP255-7579	-	-	-	19.250	0.75787			
HP255-7677	-	-	-	19.500	0.76772			
HP255-7874	-	-	-	20.000	0.78740			

Packed: 1 pc.
Available WD1 coating only.

HPC

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP255	◎	◎	◎	◎	◎	○	○	○	◎		○	○	○	◎	○		

○ good ◎ best

List HP258

8D, Coolant-Through

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6



Cutting Diameter Tolerance (m7)		
Size	mm	inch
D=3	+0.002 / +0.012	+0.0001 / +0.0005
3<D≤6	+0.004 / +0.016	+0.0002 / +0.0006
6<D≤10	+0.006 / +0.021	+0.0002 / +0.0008
10<D≤18	+0.007 / +0.025	+0.0003 / +0.0010
18<D≤20	+0.008 / +0.029	+0.0003 / +0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP258-1181	-	-	-	3.000	0.11811	34	77	4
HP258-1220	-	-	-	3.100	0.12205	36		
HP258-1248	1/8	-	-	3.175	0.12500	43	81	
HP258-1260	-	-	-	3.200	0.12598	36	77	
HP258-1299	-	-	-	3.300	0.12992			
HP258-1339	-	-	-	3.400	0.13386			
HP258-1378	-	-	-	3.500	0.13780			
HP258-1406	9/64	-	-	3.572	0.14063	43	81	
HP258-1417	-	-	-	3.600	0.14173	36	77	
HP258-1457	-	-	-	3.700	0.14567			
HP258-1496	-	-	-	3.800	0.14961	45	85	
HP258-1535	-	-	-	3.900	0.15354			
HP258-1563	5/32	-	-	3.969	0.15625	43	81	
HP258-1575	-	-	-	4.000	0.15748	45	85	
HP258-1610	-	20	-	4.089	0.16100	50	90	6
HP258-1614	-	-	-	4.100	0.16142	45	85	
HP258-1654	-	-	-	4.200	0.16535			
HP258-1693	-	-	-	4.300	0.16929			
HP258-1720	11/64	-	-	4.366	0.17188	50	90	
HP258-1732	-	-	-	4.400	0.17323	45	85	
HP258-1772	-	-	-	4.500	0.17717			
HP258-1811	-	-	-	4.600	0.18110			
HP258-1831	-	-	-	4.650	0.18307			
HP258-1850	-	-	-	4.700	0.18504			
HP258-1874	3/16	-	-	4.763	0.18750	50	90	
HP258-1890	-	-	-	4.800	0.18898			
HP258-1929	-	-	-	4.900	0.19291			
HP258-1969	-	-	-	5.000	0.19685			
HP258-2008	-	-	-	5.100	0.20079	57	97	
HP258-2031	13/64	-	-	5.159	0.20313			
HP258-2047	-	-	-	5.200	0.20472			
HP258-2087	-	-	-	5.300	0.20866			
HP258-2126	-	-	-	5.400	0.21260			
HP258-2130	-	3	-	5.410	0.21300			
HP258-2165	-	-	-	5.500	0.21654			
HP258-2189	7/32	-	-	5.556	0.21875			
HP258-2205	-	-	-	5.600	0.22047			
HP258-2244	-	-	-	5.700	0.22441			
HP258-2283	-	-	-	5.800	0.22835			
HP258-2323	-	-	-	5.900	0.23228			
HP258-2343	15/64	-	-	5.953	0.23438			
HP258-2362	-	-	-	6.000	0.23622			
HP258-2402	-	-	-	6.100	0.24016	66	106	8
HP258-2441	-	-	-	6.200	0.24409			
HP258-2480	-	-	-	6.300	0.24803			
HP258-2500	1/4	-	E	6.350	0.25000			
HP258-2520	-	-	-	6.400	0.25197			
HP258-2559	-	-	-	6.500	0.25591			
HP258-2571	-	-	F	6.528	0.25700			
HP258-2598	-	-	-	6.600	0.25984			

Packed: 1 pc.
Available WD1 coating only.

HPC

List HP258 (Continued)

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6

8D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP258-2638	-	-	-	6.700	0.26378	66	106	8
HP258-2657	17/64	-	-	6.746	0.26560			
HP258-2677	-	-	-	6.800	0.26772			
HP258-2717	-	-	-	6.900	0.27165	76	116	
HP258-2756	-	-	-	7.000	0.27559			
HP258-2795	-	-	-	7.100	0.27953			
HP258-2811	9/32	-	-	7.145	0.28130			
HP258-2835	-	-	-	7.200	0.28346			
HP258-2874	-	-	-	7.300	0.28740			
HP258-2913	-	-	-	7.400	0.29134			
HP258-2953	-	-	-	7.500	0.29528			
HP258-2969	19/64	-	-	7.541	0.29690			
HP258-2992	-	-	-	7.600	0.29921			
HP258-3031	-	-	-	7.700	0.30315			
HP258-3071	-	-	-	7.800	0.30709			
HP258-3110	-	-	-	7.900	0.31102			
HP258-3126	5/16	-	-	7.938	0.31250			
HP258-3150	-	-	-	8.000	0.31496			
HP258-3189	-	-	-	8.100	0.31890	87	131	10
HP258-3228	-	-	-	8.200	0.32283			
HP258-3268	-	-	-	8.300	0.32677			
HP258-3280	21/64	-	-	8.334	0.32810			
HP258-3307	-	-	-	8.400	0.33071			
HP258-3319	-	-	Q	8.433	0.33200			
HP258-3346	-	-	-	8.500	0.33465			
HP258-3386	-	-	-	8.600	0.33858			
HP258-3425	-	-	-	8.700	0.34252			
HP258-3437	11/32	-	-	8.733	0.34380			
HP258-3465	-	-	-	8.800	0.34646			
HP258-3504	-	-	-	8.900	0.35039			
HP258-3543	-	-	-	9.000	0.35433			
HP258-3583	-	-	-	9.100	0.35827	95	139	
HP258-3594	23/64	-	-	9.129	0.35940			
HP258-3622	-	-	-	9.200	0.36220			
HP258-3642	-	-	-	9.250	0.36417			
HP258-3661	-	-	-	9.300	0.36614			
HP258-3701	-	-	-	9.400	0.37008			
HP258-3740	-	-	-	9.500	0.37402			
HP258-3748	3/8	-	-	9.525	0.37500			
HP258-3780	-	-	-	9.600	0.37795			
HP258-3819	-	-	-	9.700	0.38189			
HP258-3858	-	-	-	9.800	0.38583			
HP258-3898	-	-	-	9.900	0.38976			
HP258-3906	25/64	-	-	9.921	0.39060			
HP258-3937	-	-	-	10.000	0.39370			

Packed: 1 pc.
Available WD1 coating only.

continued on next page

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP258	◎	◎	◎	◎	◎	○	○	○	◎		○	○	○	◎	○		

○ good ◎ best

List HP258 (Continued)

8D, Coolant-Through

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6



Cutting Diameter Tolerance (m7)		
Size	mm	inch
D=3	+0.002 / +0.012	+0.0001 / +0.0005
3<D≤6	+0.004 / +0.016	+0.0002 / +0.0006
6<D≤10	+0.006 / +0.021	+0.0002 / +0.0008
10<D≤18	+0.007 / +0.025	+0.0003 / +0.0010
18<D≤20	+0.008 / +0.029	+0.0003 / +0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP258-3976	-	-	-	10.100	0.39764	106	155	12
HP258-4016	-	-	-	10.200	0.40157			
HP258-4055	-	-	-	10.300	0.40551			
HP258-4063	13/32	-	-	10.319	0.40625			
HP258-4094	-	-	-	10.400	0.40945			
HP258-4134	-	-	-	10.500	0.41339			
HP258-4173	-	-	-	10.600	0.41732			
HP258-4213	-	-	-	10.700	0.42126			
HP258-4220	27/64	-	-	10.716	0.42190			
HP258-4252	-	-	-	10.800	0.42520			
HP258-4291	-	-	-	10.900	0.42913			
HP258-4331	-	-	-	11.000	0.43307			
HP258-4370	-	-	-	11.100	0.43701	114	163	
HP258-4374	7/16	-	-	11.113	0.43750			
HP258-4409	-	-	-	11.200	0.44094			
HP258-4449	-	-	-	11.300	0.44488			
HP258-4488	-	-	-	11.400	0.44882			
HP258-4528	-	-	-	11.500	0.45276			
HP258-4531	29/64	-	-	11.509	0.45310			
HP258-4567	-	-	-	11.600	0.45669			
HP258-4606	-	-	-	11.700	0.46063			
HP258-4646	-	-	-	11.800	0.46457			
HP258-4685	-	-	-	11.900	0.46850			
HP258-4689	15/32	-	-	11.908	0.46880			
HP258-4724	-	-	-	12.000	0.47244			
HP258-4764	-	-	-	12.100	0.47638	133	182	14
HP258-4803	-	-	-	12.200	0.48031			
HP258-4843	-	-	-	12.300	0.48425			
HP258-4882	-	-	-	12.400	0.48819			
HP258-4921	-	-	-	12.500	0.49213			
HP258-4961	-	-	-	12.600	0.49606			
HP258-5000	1/2	-	-	12.700	0.50000			
HP258-5039	-	-	-	12.800	0.50394			
HP258-5079	-	-	-	12.900	0.50787			
HP258-5118	-	-	-	13.000	0.51181			
HP258-5157	-	-	-	13.100	0.51575			
HP258-5197	-	-	-	13.200	0.51969			
HP258-5236	-	-	-	13.300	0.52362			
HP258-5276	-	-	-	13.400	0.52756			
HP258-5311	17/32	-	-	13.495	0.53130			
HP258-5315	-	-	-	13.500	0.53150			
HP258-5394	-	-	-	13.700	0.53937			
HP258-5512	-	-	-	14.000	0.55118			
HP258-5626	9/16	-	-	14.288	0.56250	152	204	16
HP258-5709	-	-	-	14.500	0.57087			
HP258-5780	37/64	-	-	14.684	0.57810			
HP258-5787	-	-	-	14.700	0.57874			
HP258-5906	-	-	-	15.000	0.59055			
HP258-5937	19/32	-	-	15.083	0.59380			
HP258-6102	-	-	-	15.500	0.61024			

Packed: 1 pc.
Available WD1 coating only.

HPC

List HP258 (Continued)

SPEED FEED P374-375 | CARBIDE | WD1 | 30° | SHANK h6

8D, Coolant-Through

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
HP258-6181	-	-	-	15.700	0.61811	152	204	16
HP258-6248	5/8	-	-	15.875	0.62500			
HP258-6299	-	-	-	16.000	0.62992			
HP258-6496	-	-	-	16.500	0.64961	171	223	18
HP258-6563	21/32	-	-	16.669	0.65625			
HP258-6693	-	-	-	17.000	0.66929			
HP258-6890	-	-	-	17.500	0.68898			
HP258-7087	-	-	-	18.000	0.70866			
HP258-7283	-	-	-	18.500	0.72835	190	244	20
HP258-7480	-	-	-	19.000	0.74803			
HP258-7500	3/4	-	-	19.050	0.75000			
HP258-7677	-	-	-	19.500	0.76772			
HP258-7874	-	-	-	20.000	0.78740			

Packed: 1 pc.
Available WD1 coating only.

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP258	◎	◎	◎	◎	◎	○	○	○	◎		○	○	○	◎	○		

○ good ◎ best

List 738

SPEED FEED P376

CNC Multi-Purpose Centering Drill & Chamfering Tool



60°

Holders				
EDP Number	Point Angle	Overall Length L (in)	Max. Diameter (in)	Shank Diameter d (in)
73808100	60°	4-21/64	0.418	5/8

Packed: 1 pc.

Precise Ground Inserts		
EDP Number	Type	Application
73818119	NK1010-60	Aluminum, Cast Iron AlCrN
73801300	-	L-15 Replacement Screw

Packed: 10 pcs.
Insert Radius: 0.4 mm

HYM



90°



118°

Holders				
EDP Number	Point Angle	Overall Length L (in)	Max. Diameter (in)	Shank Diameter d (in)
73801000	90°	4-1/2	0.500	5/8
73802000	118°		0.625	
73804000	100°		0.550	
73805000	90°	8	0.500	
73806000	118°		0.625	

Packed: 1 pc.

Precise Ground Inserts		
EDP Number	Type	Application
73811000	NK1010	Aluminum, Cast Iron
73812000	NK2020	Steel
73801100	-	L-6 Replacement Screw

Packed: 10 pcs.
Insert Radius: 0.6 mm

HYM



90°



120°

Holders				
EDP Number	Point Angle	Overall Length L (in)	Max. Diameter (In/mm)	Shank Diameter d (in)
73809000	90°	5-1/8	0.866 (22mm)	3/4
73809100	120°		0.984 (25mm)	1
73809200	90°	8	0.866 (22mm)	1
73809300	120°		0.984 (25mm)	1-1/4

Packed: 1 pc.

Precise Ground Inserts		
EDP Number	Type	Application
73819000	NK2020	For Steel
73819100	NK1010	For Cast & Aluminum
73819011	NK6060	For Steel TiAlN
73819111	NK8080	For Cast & Aluminum TiAlN
73801200	-	L-10 Replacement Screw

Packed: 10 pcs.
Insert Radius: 0.6 mm

HYM

List 738 (Continued)

SPEED FEED P376

CNC Multi-Purpose Centering Drill & Chamfering Tool



90°

Holders				
EDP Number	Point Angle	Overall Length L (in)	Max. Diameter (in)	Shank Diameter d (in)
73803000	90°	4-1/8	0.315	3/8
73803500		6-1/2		

Packed: 1 pc.

Precise Ground Inserts		
EDP Number	Type	Application
73813005	NK5050	Aluminum, Cast Iron
73801400	-	L-13 Replacement Screw

Packed: 10 pcs.
Insert Radius: 0.2 mm

HYM



90°

Holders				
EDP Number	Point Angle	Overall Length L (in)	Max. Diameter (in)	Shank Diameter d (in)
73807000	90°	5-1/8	1.18	3/4

Packed: 1 pc.

Precise Ground Inserts		
EDP Number	Type	Application
73817000	2001	General Purpose
73801100	-	L-6 Replacement Screw

Packed: 10 pcs.
Holder requires 2 inserts.
Inserts have 3 edges per side and are 2 sided.
Insert Radius: 0.6mm

HYM

List 738 (Accessories)

Accessories	
EDP Number	Application
73801500	N-5 Wrench for L-13 screws
73801600	K-3 Wrench for L-6 & L-10 screws
73801700	N-6 Wrench for L-15 screws

Packed: 1 pcs.

HYM

Work Material

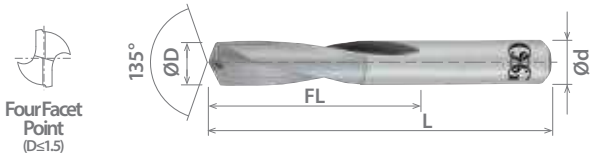
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
738	◎	◎	○	○	○		○	○	◎	◎	◎			○	○		

○ good ◎ best

List 215

SPEED FEED P377-378 | CARBIDE | BR | 15°

Cutting Diameter Tolerance		
Size	mm	inch
1.0≤D≤12.7	+0 / -0.013	+0 / -0.0005



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
215-0394	-	-	-	1.000	0.03937	11.1	38.1	1.00
215-0433	-	-	-	1.100	0.04331	12.7		1.10
215-0465	-	56	-	1.181	0.04650			1.18
215-0469	3/64	-	-	1.191	0.04688			3/64
215-0472	-	-	-	1.200	0.04724			1.20
215-0512	-	-	-	1.300	0.05118			1.30
215-0520	-	55	-	1.321	0.05200			1.32
215-0550	-	54	-	1.397	0.05500			1.40
215-0551	-	-	-	1.400	0.05512			
215-0591	-	-	-	1.500	0.05906			1.50
215-0595	-	53	-	1.511	0.05950			1.51
215-0625	1/16	-	-	1.588	0.06250	15.9	41.3	1/16
215-0630	-	-	-	1.600	0.06299	17.5	42.9	1.60
215-0635	-	52	-	1.613	0.06350		42.7	1.61
215-0669	-	-	-	1.700	0.06693		42.9	1.70
215-0670	-	51	-	1.702	0.06700			
215-0700	-	50	-	1.778	0.07000			1.78
215-0709	-	-	-	1.800	0.07087	18.0	43.0	1.80
215-0730	-	49	-	1.854	0.07300	17.5	42.9	1.85
215-0748	-	-	-	1.900	0.07480			1.90
215-0760	-	48	-	1.930	0.07600			1.93
215-0781	5/64	-	-	1.984	0.07813			5/64
215-0785	-	47	-	1.994	0.07850	19.1	44.5	1.99
215-0787	-	-	-	2.000	0.07874			2.00
215-0810	-	46	-	2.057	0.08100			2.06
215-0820	-	45	-	2.083	0.08200			2.08
215-0827	-	-	-	2.100	0.08268			2.10
215-0860	-	44	-	2.184	0.08600			2.18
215-0866	-	-	-	2.200	0.08661			2.20
215-0890	-	43	-	2.261	0.08900			2.26
215-0906	-	-	-	2.300	0.09055			2.30
215-0935	-	42	-	2.375	0.09350			2.37
215-0938	3/32	-	-	2.381	0.09375			3/32
215-0945	-	-	-	2.400	0.09449	20.6	46.0	2.40
215-0960	-	41	-	2.438	0.09600			2.44
215-0980	-	40	-	2.489	0.09800			2.49
215-0984	-	-	-	2.500	0.09843			2.50
215-0995	-	39	-	2.527	0.09950			2.53
215-1015	-	38	-	2.578	0.10150			2.58
215-1024	-	-	-	2.600	0.10236			2.60
215-1040	-	37	-	2.642	0.10400			2.64
215-1063	-	-	-	2.700	0.10630			2.70
215-1065	-	36	-	2.705	0.10650			2.71
215-1094	7/64	-	-	2.778	0.10938			7/64
215-1100	-	35	-	2.794	0.11000	22.2	47.6	2.79
215-1102	-	-	-	2.800	0.11024			2.80
215-1110	-	34	-	2.819	0.11100			2.82
215-1130	-	33	-	2.870	0.11300			2.87
215-1142	-	-	-	2.900	0.11417			2.90
215-1160	-	32	-	2.946	0.11600			2.95

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

HYE

List 215 (Continued)

SPEED FEED P377-378 | CARBIDE | BR | 15°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
215-1181	-	-	-	3.000	0.11811	22.2	47.6	3.00
215-1200	-	31	-	3.048	0.12000			3.05
215-1220	-	-	-	3.100	0.12205			3.10
215-1250	1/8	-	-	3.175	0.12500			1/8
215-1260	-	-	-	3.200	0.12598	23.8	49.2	3.20
215-1285	-	30	-	3.264	0.12850			3.26
215-1299	-	-	-	3.300	0.12992			3.30
215-1339	-	-	-	3.400	0.13386			3.40
215-1360	-	29	-	3.454	0.13600			3.45
215-1378	-	-	-	3.500	0.13780			3.50
215-1405	-	28	-	3.569	0.14050			3.57
215-1406	9/64	-	-	3.572	0.14063			9/64
215-1417	-	-	-	3.600	0.14173	25.4	52.4	3.60
215-1440	-	27	-	3.658	0.14400			3.66
215-1457	-	-	-	3.700	0.14567			3.70
215-1470	-	26	-	3.734	0.14700			3.73
215-1495	-	25	-	3.797	0.14950			3.80
215-1496	-	-	-	3.800	0.14961			
215-1520	-	24	-	3.861	0.15200			3.86
215-1535	-	-	-	3.900	0.15354			3.90
215-1540	-	23	-	3.912	0.15400			3.91
215-1562	5/32	-	-	3.969	0.15625			5/32
215-1570	-	22	-	3.988	0.15700	27.0	54.0	3.99
215-1575	-	-	-	4.000	0.15748			4.00
215-1590	-	21	-	4.039	0.15900			4.04
215-1610	-	20	-	4.089	0.16100			4.09
215-1614	-	-	-	4.100	0.16142			4.10
215-1654	-	-	-	4.200	0.16535			4.20
215-1660	-	19	-	4.216	0.16600			4.22
215-1693	-	-	-	4.300	0.16929			4.30
215-1695	-	18	-	4.305	0.16950			4.31
215-1719	11/64	-	-	4.366	0.17188			11/64
215-1730	-	17	-	4.394	0.17300	28.6	55.6	4.39
215-1732	-	-	-	4.400	0.17323			4.40
215-1770	-	16	-	4.496	0.17700			4.50
215-1772	-	-	-	4.501	0.17720			
215-1800	-	15	-	4.572	0.18000			4.57
215-1811	-	-	-	4.600	0.18110			4.60
215-1820	-	14	-	4.623	0.18200			4.62
215-1850	-	13	-	4.699	0.18500			4.70
215-1875	3/16	-	-	4.763	0.18750			3/16
215-1890	-	12	-	4.801	0.18900	30.2	57.2	4.80
215-1910	-	11	-	4.851	0.19100			4.85
215-1929	-	-	-	4.900	0.19291			4.90
215-1935	-	10	-	4.915	0.19350			4.91
215-1960	-	9	-	4.978	0.19600			4.98

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

continued on next page

HYE

Work Material

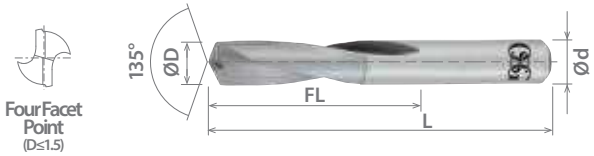
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
215	○	○	○	○	○		○	○	○		○	○	○	○	○		

○ good ◎ best

List 215 (Continued)

SPEED FEED P377-378 | CARBIDE | BR | 15°

Cutting Diameter Tolerance		
Size	mm	inch
1.0≤D≤12.7	+0 / -0.013	+0 / -0.0005



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
215-1968	-	-	-	5.000	0.19685	30.2	57.2	5.00
215-1990	-	8	-	5.055	0.19900			5.05
215-2008	-	-	-	5.100	0.20079			5.10
215-2010	-	7	-	5.105	0.20100			5.11
215-2031	13/64	-	-	5.159	0.20313			13/64
215-2040	-	6	-	5.182	0.20400	31.8	60.3	5.18
215-2047	-	-	-	5.200	0.20472			5.20
215-2055	-	5	-	5.220	0.20550			5.22
215-2087	-	-	-	5.300	0.20866			5.30
215-2090	-	4	-	5.309	0.20900			5.31
215-2126	-	-	-	5.400	0.21260			5.40
215-2130	-	3	-	5.410	0.21300			5.41
215-2165	-	-	-	5.500	0.21654			5.50
215-2188	7/32	-	-	5.556	0.21875			7/32
215-2205	-	-	-	5.600	0.22047	33.3	61.9	5.60
215-2210	-	2	-	5.613	0.22100			5.61
215-2244	-	-	-	5.700	0.22441			5.70
215-2280	-	1	-	5.791	0.22800			5.79
215-2283	-	-	-	5.800	0.22835			5.80
215-2323	-	-	-	5.900	0.23228			5.90
215-2340	-	-	A	5.944	0.23400			5.94
215-2344	15/64	-	-	5.953	0.23438			15/64
215-2362	-	-	-	6.000	0.23622			6.00
215-2380	-	-	B	6.045	0.23800	34.9	63.5	6.05
215-2402	-	-	-	6.100	0.24016			6.10
215-2420	-	-	C	6.147	0.24200			6.15
215-2441	-	-	-	6.200	0.24409			6.20
215-2460	-	-	D	6.248	0.24600			6.25
215-2480	-	-	-	6.300	0.24803			6.30
215-2500	1/4	-	E	6.350	0.25000			1/4
215-2520	-	-	-	6.400	0.25197			6.40
215-2559	-	-	-	6.500	0.25591			6.50
215-2570	-	-	F	6.528	0.25700	36.5	66.7	6.53
215-2598	-	-	-	6.600	0.25984			6.60
215-2610	-	-	G	6.629	0.26100			6.63
215-2638	-	-	-	6.700	0.26378			6.70
215-2656	17/64	-	-	6.747	0.26563			17/64
215-2660	-	-	H	6.756	0.26600	38.1	68.3	6.76
215-2677	-	-	-	6.800	0.26772		68.0	6.80
215-2717	-	-	-	6.900	0.27165		68.3	6.90
215-2720	-	-	I	6.909	0.27200			6.91
215-2756	-	-	-	7.000	0.27559			7.00
215-2770	-	-	J	7.036	0.27700			7.04
215-2795	-	-	-	7.100	0.27953			7.10
215-2810	-	-	K	7.137	0.28100			7.14
215-2812	9/32	-	-	7.144	0.28125			9/32
215-2835	-	-	-	7.200	0.28346	39.7	69.9	7.20
215-2874	-	-	-	7.300	0.28740			7.30
215-2900	-	-	L	7.366	0.29000			7.37
215-2913	-	-	-	7.400	0.29134			7.40

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

HYE

List 215 (Continued)

SPEED FEED P377-378 | CARBIDE | BR | 15°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
215-2950	-	-	M	7.493	0.29500	39.7	69.9	7.49
215-2953	-	-	-	7.500	0.29528			7.50
215-2969	19/64	-	-	7.541	0.29688			19/64
215-2992	-	-	-	7.600	0.29921	41.3	71.4	7.60
215-3020	-	-	N	7.671	0.30200			7.67
215-3031	-	-	-	7.700	0.30315			7.70
215-3071	-	-	-	7.800	0.30709			7.80
215-3110	-	-	-	7.900	0.31102			7.90
215-3125	5/16	-	-	7.938	0.31250			5/16
215-3150	-	-	-	8.000	0.31496			8.00
215-3160	-	-	O	8.026	0.31600	42.9	74.6	8.03
215-3189	-	-	-	8.100	0.31890			8.10
215-3228	-	-	-	8.200	0.32283			8.20
215-3230	-	-	P	8.204	0.32300			
215-3268	-	-	-	8.300	0.32677			8.30
215-3281	21/64	-	-	8.334	0.32813			21/64
215-3307	-	-	-	8.400	0.33071		76.2	8.40
215-3320	-	-	Q	8.433	0.33200			8.43
215-3346	-	-	-	8.500	0.33465			8.50
215-3386	-	-	-	8.600	0.33858			8.60
215-3390	-	-	R	8.611	0.33900			8.61
215-3425	-	-	-	8.700	0.34252			8.70
215-3438	11/32	-	-	8.731	0.34375			11/32
215-3465	-	-	-	8.800	0.34646	44.5	77.8	8.80
215-3480	-	-	S	8.839	0.34800			8.84
215-3504	-	-	-	8.900	0.35039			8.90
215-3543	-	-	-	9.000	0.35433			9.00
215-3580	-	-	T	9.093	0.35800			9.09
215-3583	-	-	-	9.100	0.35827			9.10
215-3594	23/64	-	-	9.128	0.35938			23/64
215-3622	-	-	-	9.200	0.36220	46.0	79.4	9.20
215-3661	-	-	-	9.300	0.36614			9.30
215-3680	-	-	U	9.347	0.36800			9.35
215-3701	-	-	-	9.400	0.37008			9.40
215-3740	-	-	-	9.500	0.37402	46.0	79.0	9.50
215-3750	3/8	-	-	9.525	0.37500	46.0	79.4	3/8
215-3770	-	-	V	9.576	0.37700	47.6	82.6	9.58
215-3780	-	-	-	9.600	0.37795			9.60
215-3819	-	-	-	9.700	0.38189			9.70
215-3858	-	-	-	9.800	0.38583			9.80
215-3860	-	-	W	9.804	0.38600			
215-3898	-	-	-	9.900	0.38976			9.90
215-3906	25/64	-	-	9.922	0.39063			25/64
215-3937	-	-	-	10.000	0.39370	48.0	83.0	10.00
215-3970	-	-	X	10.084	0.39700	49.2	84.1	10.08
215-3976	-	-	-	10.100	0.39764			10.10

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

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HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
215	○	○	○	○	○		○	○	○		○	○	○	○	○		

○ good ◎ best

List 215 (Continued)

SPEED FEED P377-378 | CARBIDE | BR | 15°

Cutting Diameter Tolerance		
Size	mm	inch
1.0≤D≤12.7	+0 / -0.013	+0 / -0.0005



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
215-4016	-	-	-	10.200	0.40157	49.2	84.1	10.20
215-4040	-	-	Y	10.262	0.40400			10.26
215-4055	-	-	-	10.300	0.40551			10.30
215-4062	13/32	-	-	10.319	0.40625			13/32
215-4094	-	-	-	10.400	0.40945	50.8	85.7	10.40
215-4130	-	-	Z	10.490	0.41300			10.49
215-4134	-	-	-	10.500	0.41339		86.0	10.50
215-4173	-	-	-	10.600	0.41732		85.7	10.60
215-4213	-	-	-	10.700	0.42126			10.70
215-4219	27/64	-	-	10.716	0.42188			27/64
215-4252	-	-	-	10.800	0.42520	52.4	87.3	10.80
215-4291	-	-	-	10.900	0.42913			10.90
215-4331	-	-	-	11.000	0.43307			11.00
215-4370	-	-	-	11.100	0.43701			11.10
215-4375	7/16	-	-	11.113	0.43750			7/16
215-4409	-	-	-	11.200	0.44094	54.0	90.5	11.20
215-4449	-	-	-	11.300	0.44488			11.30
215-4488	-	-	-	11.400	0.44882			11.40
215-4528	-	-	-	11.500	0.45276		90.0	11.50
215-4531	29/64	-	-	11.509	0.45313		90.5	29/64
215-4567	-	-	-	11.600	0.45669		92.1	11.60
215-4606	-	-	-	11.700	0.46063			11.70
215-4646	-	-	-	11.800	0.46457			11.80
215-4685	-	-	-	11.900	0.46850			11.90
215-4688	15/32	-	-	11.906	0.46875			15/32
215-4724	-	-	-	12.000	0.47244	54.0	93.0	12.00
215-4844	31/64	-	-	12.303	0.48438	55.6	93.7	31/64
215-5000	1/2	-	-	12.700	0.50000	57.2	95.3	1/2

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

HYE

Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
215	○	○	○	○	○		○	○	○		○	○	○	○	○		

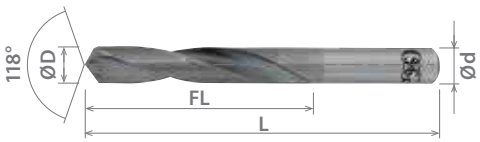
○ good ◎ best

List 220D

SPEED FEED P377-378 | CARBIDE | BR | 20°

Cutting Diameter Tolerance		
Size	mm	inch
1.18≤D≤12.7	+0 / -0.013	+0 / -0.0005





EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
220-0465	-	56	-	1.181	0.04650	19.1	38.1	1.18
220-0469	3/64	-	-	1.191	0.04688			3/64
220-0520	-	55	-	1.321	0.05200			1.32
220-0550	-	54	-	1.397	0.05500			1.40
220-0591	-	-	-	1.500	0.05906			1.50
220-0595	-	53	-	1.511	0.05950			1.51
220-0625	1/16	-	-	1.588	0.06250			1/16
220-0635	-	52	-	1.613	0.06350			1.61
220-0670	-	51	-	1.702	0.06700			1.70
220-0700	-	50	-	1.778	0.07000	22.2	44.5	1.78
220-0730	-	49	-	1.854	0.07300			1.85
220-0760	-	48	-	1.930	0.07600			1.93
220-0781	5/64	-	-	1.984	0.07813			5/64
220-0785	-	47	-	1.994	0.07850			1.99
220-0787	-	-	-	2.000	0.07874			2.00
220-0810	-	46	-	2.057	0.08100			2.06
220-0820	-	45	-	2.083	0.08200			2.08
220-0860	-	44	-	2.184	0.08600	25.4	50.8	2.18
220-0890	-	43	-	2.261	0.08900			2.26
220-0935	-	42	-	2.375	0.09350			2.37
220-0938	3/32	-	-	2.291	0.09375			3/32
220-0960	-	41	-	2.438	0.09600			2.44
220-0980	-	40	-	2.489	0.09800			2.49
220-0984	-	-	-	2.500	0.09843			2.50
220-0995	-	39	-	2.527	0.09950	31.8	57.2	2.53
220-1015	-	38	-	2.578	0.10150			2.58
220-1040	-	37	-	2.642	0.10400			2.64
220-1065	-	36	-	2.705	0.10650			2.71
220-1094	7/64	-	-	2.778	0.10938			7/64
220-1100	-	35	-	2.794	0.11000			2.79
220-1110	-	34	-	2.819	0.11100			2.82
220-1130	-	33	-	2.870	0.11300			2.87
220-1160	-	32	-	2.946	0.11600			2.95
220-1181	-	-	-	3.000	0.11811			3.00
220-1200	-	31	-	3.048	0.12000			3.05
220-1250	1/8	-	-	3.175	0.12500			1/8
220-1285	-	30	-	3.264	0.12850			3.26
220-1360	-	29	-	3.454	0.13600	34.9	63.5	3.45
220-1378	-	-	-	3.500	0.13780			3.50
220-1405	-	28	-	3.569	0.14050			3.57

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

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HYE

Work Material

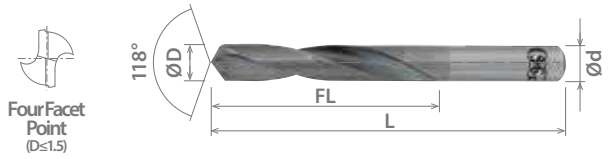
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
220D	○	○	○	○			○	○	○	○	○			○			

○ good ◎ best

List 220D (Continued)

SPEED FEED P377-378 | CARBIDE | BR | 20°

Cutting Diameter Tolerance		
Size	mm	inch
1.18≤D≤12.7	+0 / -0.013	+0 / -0.0005



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
220-1406	9/64	-	-	3.572	0.14063	34.9	63.5	9/64
220-1440	-	27	-	3.658	0.14400			3.66
220-1470	-	26	-	3.734	0.14700			3.73
220-1495	-	25	-	3.797	0.14950			3.80
220-1520	-	24	-	3.861	0.15200			3.86
220-1540	-	23	-	3.912	0.15400			3.91
220-1562	5/32	-	-	3.969	0.15625			5/32
220-1570	-	22	-	3.988	0.15700			3.99
220-1575	-	-	-	4.000	0.15748			4.00
220-1590	-	21	-	4.039	0.15900			4.04
220-1610	-	20	-	4.089	0.16100			4.09
220-1660	-	19	-	4.216	0.16600	41.3	69.9	4.22
220-1695	-	18	-	4.305	0.16950			4.31
220-1719	11/64	-	-	4.366	0.17188			11/64
220-1730	-	17	-	4.394	0.17300			4.39
220-1770	-	16	-	4.496	0.17700			4.50
220-1772	-	-	-	4.500	0.17720			
220-1800	-	15	-	4.572	0.18000			4.57
220-1820	-	14	-	4.623	0.18200			4.62
220-1850	-	13	-	4.699	0.18500			4.70
220-1875	3/16	-	-	4.763	0.18750			3/16
220-1890	-	12	-	4.801	0.18900			4.80
220-1910	-	11	-	4.851	0.19100			4.85
220-1935	-	10	-	4.915	0.19350			4.91
220-1960	-	9	-	4.978	0.19600	44.5	76.2	4.98
220-1968	-	-	-	5.000	0.19685			5.00
220-1990	-	8	-	5.055	0.19900			5.05
220-2010	-	7	-	5.105	0.20100			5.11
220-2031	13/64	-	-	5.159	0.20313			13/64
220-2040	-	6	-	5.182	0.20400			5.18
220-2055	-	5	-	5.220	0.20550			5.22
220-2090	-	4	-	5.309	0.20900			5.31
220-2130	-	3	-	5.410	0.21300			5.41
220-2165	-	-	-	5.500	0.21654			5.50
220-2188	7/32	-	-	5.556	0.21875			7/32
220-2210	-	2	-	5.613	0.22100			5.61
220-2280	-	1	-	5.791	0.22800			5.79
220-2340	-	-	A	5.944	0.23400	50.8	82.6	5.94
220-2344	15/64	-	-	5.953	0.23438			15/64
220-2362	-	-	-	6.000	0.23622			6.00
220-2380	-	-	B	6.045	0.23800			6.05
220-2420	-	-	C	6.147	0.24200			6.15
220-2460	-	-	D	6.248	0.24600			6.25
220-2500	1/4	-	E	6.350	0.25000			1/4
220-2559	-	-	-	6.500	0.25591			6.50
220-2570	-	-	F	6.528	0.25700			6.53
220-2610	-	-	G	6.629	0.26100	54.0	88.9	6.63
220-2656	17/64	-	-	6.747	0.26563			17/64
220-2660	-	-	H	6.756	0.26600			6.76
220-2720	-	-	I	6.909	0.27200			6.91

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

HYE

List 220D (Continued)

SPEED FEED P377-378 | CARBIDE | BR | 20°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
220-2756	-	-	-	7.000	0.27559	54.0	88.9	7.00
220-2770	-	-	J	7.036	0.27700			7.04
220-2810	-	-	K	7.137	0.28100			7.14
220-2812	9/32	-	-	7.144	0.28125			9/32
220-2900	-	-	L	7.366	0.29000			7.37
220-2950	-	-	M	7.493	0.29500	60.3	95.3	7.49
220-2953	-	-	-	7.500	0.29528			7.50
220-2969	19/64	-	-	7.541	0.29688			19/64
220-3020	-	-	N	7.671	0.30200			7.67
220-3125	5/16	-	-	7.938	0.31250			7.94
220-3150	-	-	-	8.000	0.31496			8.00
220-3160	-	-	O	8.026	0.31600			8.03
220-3230	-	-	P	8.204	0.32300			8.20
220-3281	21/64	-	-	8.334	0.32813	63.5	101.6	21/64
220-3320	-	-	Q	8.433	0.33200			8.43
220-3346	-	-	-	8.500	0.33465			8.50
220-3390	-	-	R	8.611	0.33900			8.61
220-3438	11/32	-	-	8.731	0.34375			11/32
220-3480	-	-	S	8.839	0.34800			8.84
220-3543	-	-	-	9.000	0.35433			9.00
220-3580	-	-	T	9.093	0.35800	69.9	108.0	9.09
220-3594	23/64	-	-	9.128	0.35938	63.5	101.6	23/64
220-3680	-	-	U	9.347	0.36800	69.9	108.0	9.35
220-3740	-	-	-	9.500	0.37402			9.50
220-3750	3/8	-	-	9.525	0.37500			9.53
220-3770	-	-	V	9.576	0.37700			9.58
220-3860	-	-	W	9.804	0.38600	73.0	114.3	9.80
220-3906	25/64	-	-	9.922	0.39063			25/64
220-3937	-	-	-	10.000	0.39370			10.00
220-3970	-	-	X	10.084	0.39700			10.08
220-4040	-	-	Y	10.262	0.40400			10.26
220-4062	13/32	-	-	10.319	0.40625			13/32
220-4130	-	-	Z	10.490	0.41300			10.49
220-4134	-	-	-	10.500	0.41339			10.50
220-4219	27/64	-	-	10.716	0.42188			17/64
220-4331	-	-	-	11.000	0.43307			11.00
220-4375	7/16	-	-	11.113	0.43750			7/16
220-4528	-	-	-	11.500	0.45276	76.2	120.7	11.50
220-4531	29/64	-	-	11.509	0.45313			29/64
220-4688	15/32	-	-	11.906	0.46875			15/32
220-4724	-	-	-	12.000	0.47244			12.00
220-4844	31/64	-	-	12.303	0.48438			31/64
220-5000	1/2	-	-	12.700	0.50000			1/2

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

HYE

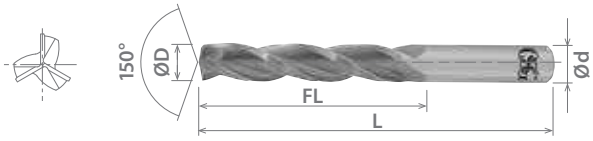
Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
220D	○	○	○	○			○	○	○	○	○			○			

○ good ◎ best

List 233

Three Flute



SPEED FEED	CARBIDE	BR	30°
P377-378			

Cutting Diameter Tolerance		
Size	mm	inch
3.00≤D≤19.05	+0 / -0.013	+0 / -0.0005

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
233-1181	-	-	-	3.000	0.11811	31.8	57.2	3.00
233-1250	1/8	-	-	3.175	0.12500			1/8
233-1406	9/64	-	-	0.357	0.14063	34.9	63.5	9/64
233-1562	5/32	-	-	3.969	0.15625			5/32
233-1719	11/64	-	-	4.366	0.17188	41.3	69.9	11/64
233-1875	3/16	-	-	4.763	0.18750			3/16
233-2031	13/64	-	-	5.159	0.20313	44.5	76.2	13/64
233-2188	7/32	-	-	5.556	0.21875			7/32
233-2344	15/64	-	-	5.953	0.23438	50.8	82.6	15/64
233-2362	-	-	-	6.000	0.23622			6.00
233-2500	1/4	-	E	6.350	0.25000			1/4
233-2656	17/64	-	-	6.747	0.26563	54.0	88.9	17/64
233-2812	9/32	-	-	7.144	0.28125			9/32
233-2969	19/64	-	-	7.541	0.29688	60.3	95.3	19/64
233-3125	5/16	-	-	7.938	0.31250			5/16
233-3150	-	-	-	8.000	0.31496			8.00
233-3281	21/64	-	-	8.334	0.32813	63.5	101.6	21/64
233-3438	11/32	-	-	8.733	0.34380			11/32
233-3594	23/64	-	-	9.128	0.35938			23/64
233-3750	3/8	-	-	9.525	0.37500	69.9	108.0	3/8
233-3906	25/64	-	-	9.922	0.39063	73.0	114.3	25/64
233-3937	-	-	-	10.000	0.39370			10.00
233-4062	13/32	-	-	10.319	0.40625			13/32
233-4219	27/64	-	-	10.716	0.42188			27/64
233-4375	7/16	-	-	11.113	0.43750			7/16
233-4531	29/64	-	-	11.509	0.45313	76.2	120.7	29/64
233-4688	15/32	-	-	11.906	0.46875			15/32
233-4724	-	-	-	12.000	0.47244			12.00
233-4844	31/64	-	-	12.303	0.48438			31/64
233-5000	1/2	-	-	12.700	0.50000			1/2
233-5312	17/32	-	-	13.494	0.43125			17/32
233-5512	-	-	-	14.000	0.55118	88.9	146.1	14.00
233-5625	9/16	-	-	14.288	0.56250			9/16
233-6250	5/8	-	-	15.875	0.62500			5/8
233-6299	-	-	-	16.000	0.62992			16.00
233-7500	3/4	-	-	19.050	0.75000	108.0		3/4

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
233	○								○								

○ good ◎ best

List 200

SPEED FEED P377-378 | CARBIDE | BR | 0°

Cutting Diameter Tolerance		
Size	mm	inch
1.18≤D≤12.7	+0 / -0.013	+0 / -0.0005



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
200-0465	-	56	-	1.181	0.04650	12.7	38.1	1.18
200-0469	3/64	-	-	1.191	0.04688			3/64
200-0520	-	55	-	1.321	0.05200			1.32
200-0550	-	54	-	1.397	0.05500			1.40
200-0591	-	-	-	1.500	0.05906			1.50
200-0595	-	53	-	1.511	0.05950			1.51
200-0625	1/16	-	-	1.588	0.06250	15.9	41.3	1/16
200-0635	-	52	-	1.613	0.06350	17.5	42.9	1.61
200-0670	-	51	-	1.702	0.06700			1.70
200-0700	-	50	-	1.778	0.07000			1.78
200-0730	-	49	-	1.854	0.07300			1.85
200-0760	-	48	-	1.930	0.07600			1.93
200-0781	5/64	-	-	1.984	0.07813			5/64
200-0785	-	47	-	1.994	0.07850	19.1	44.5	1.99
200-0787	-	-	-	2.000	0.07874			2.00
200-0810	-	46	-	2.057	0.08100			2.06
200-0820	-	45	-	2.083	0.08200			2.08
200-0860	-	44	-	2.184	0.08600			2.18
200-0890	-	43	-	2.261	0.08900			2.26
200-0935	-	42	-	2.375	0.09350			2.37
200-0938	3/32	-	-	2.381	0.09375			3/32
200-0960	-	41	-	2.438	0.09600	20.6	46.0	2.44
200-0980	-	40	-	2.489	0.09800			2.49
200-0984	-	-	-	2.500	0.09843			2.50
200-0995	-	39	-	2.527	0.09950			2.53
200-1015	-	38	-	2.578	0.10150			2.58
200-1040	-	37	-	2.642	0.10400			2.64
200-1065	-	36	-	2.705	0.10650			2.71
200-1094	7/64	-	-	2.778	0.10938			7/64
200-1100	-	35	-	2.794	0.11000	22.2	47.6	2.79
200-1110	-	34	-	2.819	0.11100			2.82
200-1130	-	33	-	2.870	0.11300			2.87
200-1160	-	32	-	2.946	0.11600			2.95
200-1181	-	-	-	3.000	0.11811			3.00
200-1200	-	31	-	3.048	0.12000			3.05
200-1250	1/8	-	-	3.175	0.12500			1/8
200-1285	-	30	-	3.264	0.12850	23.8	49.2	3.26
200-1360	-	29	-	3.454	0.13600			3.45
200-1378	-	-	-	3.500	0.13780			3.50
200-1405	-	28	-	3.569	0.14050			3.57

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

continued on next page

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
200	○								○								

○ good ◎ best

List 200 (Continued)

SPEED FEED P377-378 | CARBIDE | BR | 0°

Cutting Diameter Tolerance		
Size	mm	inch
1.18≤D≤12.7	+0 / -0.013	+0 / -0.0005



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
200-1406	9/64	-	-	3.572	0.14063	23.8	49.2	9/64
200-1440	-	27	-	3.658	0.14400	25.4	52.4	3.66
200-1470	-	26	-	3.734	0.14700			3.73
200-1495	-	25	-	3.797	0.14950			3.80
200-1520	-	24	-	3.861	0.15200			3.86
200-1540	-	23	-	3.912	0.15400			3.91
200-1562	5/32	-	-	3.969	0.15625			5/32
200-1570	-	22	-	3.988	0.15700	27.0	54.0	3.99
200-1575	-	-	-	4.000	0.15748			4.00
200-1590	-	21	-	4.039	0.15900			4.04
200-1610	-	20	-	4.089	0.16100			4.09
200-1660	-	19	-	4.216	0.16600			4.22
200-1695	-	18	-	4.305	0.16950			4.31
200-1719	11/64	-	-	4.366	0.17188			11/64
200-1730	-	17	-	4.394	0.17300	28.6	55.6	4.39
200-1770	-	16	-	4.496	0.17700			4.50
200-1772	-	-	-	4.500	1.77200			
200-1800	-	15	-	4.572	0.18000			4.57
200-1820	-	14	-	4.623	0.18200			4.62
200-1850	-	13	-	4.699	0.18500			4.70
200-1875	3/16	-	-	4.763	0.18750			3/16
200-1890	-	12	-	4.801	0.18900	30.2	57.2	4.80
200-1910	-	11	-	4.851	0.19100			4.85
200-1935	-	10	-	4.915	0.19350			4.91
200-1960	-	9	-	4.978	0.19600			4.98
200-1968	-	-	-	5.000	0.19685			5.00
200-1990	-	8	-	5.055	0.19900			5.05
200-2010	-	7	-	5.105	0.20100			5.11
200-2031	13/64	-	-	5.159	0.20313			13/64
200-2040	-	6	-	5.182	0.20400	31.8	60.3	5.18
200-2055	-	5	-	5.220	0.20550			5.22
200-2090	-	4	-	5.309	0.20900			5.31
200-2130	-	3	-	5.410	0.21300			5.41
200-2165	-	-	-	5.500	0.21654			5.50
200-2188	7/32	-	-	5.556	0.21875			7/32
200-2210	-	2	-	5.613	0.22100	33.3	61.9	5.61
200-2280	-	1	-	5.791	0.22800			5.79
200-2340	-	-	A	5.944	0.23400			5.94
200-2344	15/64	-	-	5.953	0.23438			15/64
200-2362	-	-	-	6.000	0.23622			6.00
200-2380	-	-	B	6.045	0.23800	34.9	63.5	6.05
200-2420	-	-	C	6.147	0.24200			6.15
200-2460	-	-	D	6.248	0.24600			6.25
200-2500	1/4	-	E	6.350	0.25000			1/4
200-2559	-	-	-	6.500	0.25591			6.50
200-2570	-	-	F	6.528	0.25700	36.5	66.7	6.53
200-2610	-	-	G	6.629	0.26100			6.63
200-2656	17/64	-	-	6.747	0.26563			17/64
200-2660	-	-	H	6.756	0.26600	38.1	68.3	6.76
200-2720	-	-	I	6.909	0.27200			6.91

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

HYE

List 200 (Continued)

SPEED FEED P377-378 | CARBIDE | BR | 0°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
200-2756	-	-	-	7.000	0.27559	38.1	68.3	7.00
200-2770	-	-	J	7.036	0.27700			7.04
200-2810	-	-	K	7.137	0.28100			7.14
200-2812	9/32	-	-	7.144	0.28125			9/32
200-2900	-	-	L	7.366	0.29000	39.7	69.9	7.37
200-2950	-	-	M	7.493	0.29500			7.49
200-2953	-	-	-	7.500	0.29528			7.50
200-2969	19/64	-	-	7.541	0.29688			19/64
200-3020	-	-	N	7.671	0.30200	41.3	71.4	7.67
200-3125	5/16	-	-	7.938	0.31250			7.94
200-3150	-	-	-	8.000	0.31496			8.00
200-3160	-	-	O	8.026	0.31600	62.9	74.6	8.03
200-3230	-	-	P	8.204	0.32300			8.20
200-3281	21/64	-	-	8.334	0.32813			21/64
200-3320	-	-	Q	8.433	0.33200		76.2	8.43
200-3346	-	-	-	8.500	0.33465			8.50
200-3390	-	-	R	8.611	0.33900			8.61
200-3438	11/32	-	-	8.731	0.34375			11/32
200-3480	-	-	S	8.839	0.34800	44.5	77.8	8.84
200-3543	-	-	-	9.000	0.35433			9.00
200-3580	-	-	T	9.093	0.35800			9.09
200-3594	23/64	-	-	9.128	0.35938			9.13
200-3680	-	-	U	9.347	0.36800	46.0	79.4	9.35
200-3740	-	-	-	9.500	0.37402			9.50
200-3750	3/8	-	-	9.525	0.37500			9.53
200-3770	-	-	V	9.576	0.37700	47.6	82.6	9.58
200-3860	-	-	W	9.804	0.38600			9.80
200-3906	25/64	-	-	9.922	0.39063			9.92
200-3937	-	-	-	10.000	0.39370			10.00
200-3970	-	-	X	10.084	0.39700	49.2	84.1	10.08
200-4040	-	-	Y	10.262	0.40400			10.26
200-4062	13/32	-	-	10.319	0.40625			10.32
200-4130	-	-	Z	10.490	0.41300	50.8	85.7	10.49
200-4134	-	-	-	10.500	0.41339			10.50
200-4219	27/64	-	-	10.716	0.42188			10.72
200-4331	-	-	-	11.000	0.43307	52.4	87.3	11.00
200-4375	7/16	-	-	11.113	0.43750			11.11
200-4528	-	-	-	11.500	0.45276	54.0	90.5	11.50
200-4531	29/64	-	-	11.509	0.45313			11.51
200-4688	15/32	-	-	11.906	0.46875		92.1	11.91
200-4724	-	-	-	12.000	0.47244			12.00
200-4844	31/64	-	-	12.303	0.48438	55.6	93.7	12.30
200-5000	1/2	-	-	12.700	0.50000	57.2	95.3	1/2

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

HYE

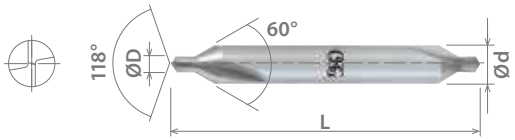
Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
200	▢								▢								

▢ good ▢ best

List 235

CARBIDE | BR | 0°



Cutting Diameter Tolerance		
Size	mm	inch
3/64≤D≤7/32	+0.076 / -0	+0.003 / -0

EDP Number	Diameter (in)	Tool Number	Overall Length	Shank Diameter
			L (in)	d (in)
235-0010	3/64	1	1.47	1/8
235-0020	5/64	2	1.83	3/16
235-0030	7/64	3	1.87	1/4
235-0040	1/8	4	2.43	5/16
235-0050	3/16	5	2.64	7/16
235-0060	7/32	6	2.87	1/2

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 08 = TiCN, 11 = TiAlN.

HYE

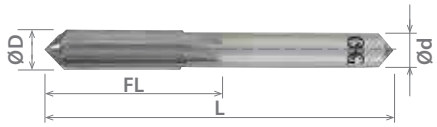
Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
235	○	○	○	○		○	○	○	○	○	○	○	○	○			

○ good ◎ best

List 300D

SPEED FEED P379 | CARBIDE | BR



Cutting Diameter Tolerance			
Size	mm	Inch	No. of Flutes
0.80mm-6.45mm	+.0025/+.0102	+.0001/+.0004	4
6.451mm-13mm	+.0025/+.0127	+.0001/+.0005	6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
300-0315	-	-	-	0.800	0.03150	9.5	38.1	0.79
300-0354	-	-	-	0.900	0.03543			0.87
300-0394	-	-	-	1.000	0.03937	10.0		0.80
300-0433	-	-	-	1.100	0.04331	9.5		1.04
300-0465	-	56	-	1.181	0.04650			
300-0469	3/64	-	-	1.191	0.04688			
300-0472	-	-	-	1.200	0.04724			
300-0512	-	-	-	1.300	0.05118			
300-0520	-	55	-	1.321	0.05200			
300-0550	-	54	-	1.397	0.05500			1.32
300-0551	-	-	-	1.400	0.05510	10.0		1.34
300-0591	-	-	-	1.500	0.05906	9.5		1.32
300-0595	-	53	-	1.511	0.05950			
300-0625	1/16	-	-	1.588	0.06250			
300-0630	-	-	-	1.600	0.06299			
300-0635	-	52	-	1.613	0.06350			
300-0669	-	-	-	1.700	0.06693	12.7	44.5	1.59
300-0670	-	51	-	1.702	0.06700			
300-0700	-	50	-	1.778	0.07000			
300-0709	-	-	-	1.800	0.07087			
300-0730	-	49	-	1.854	0.07300			
300-0748	-	-	-	1.900	0.07480			
300-0760	-	48	-	1.930	0.07600			
300-0781	5/64	-	-	1.984	0.07813			
300-0785	-	47	-	1.994	0.07850			
300-0787	-	-	-	2.000	0.07874			
300-0810	-	46	-	2.057	0.08100		50.8	1.98
300-0820	-	45	-	2.083	0.08200			
300-0827	-	-	-	2.100	0.08268			
300-0860	-	44	-	2.184	0.08600			
300-0866	-	-	-	2.200	0.08661			
300-0890	-	43	-	2.261	0.08900			
300-0906	-	-	-	2.300	0.09055			
300-0935	-	42	-	2.375	0.09350			
300-0938	3/32	-	-	2.381	0.09375			
300-0945	-	-	-	2.400	0.09449			
300-0960	-	41	-	2.438	0.09600	15.9	57.2	2.38
300-0980	-	40	-	2.489	0.09800			
300-0984	-	-	-	2.500	0.09843			
300-0995	-	39	-	2.527	0.09950			
300-1015	-	38	-	2.578	0.10150			

Packed: 1 pc.

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HYR

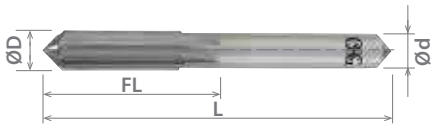
Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
300D	○	○		○		○	○	○	○	○	○						

○ good ◎ best

List 300D (Continued)

SPEED FEED P379 | CARBIDE | BR



Cutting Diameter Tolerance			
Size	mm	Inch	No. of Flutes
0.80mm-6.45mm	+.0025/+.0102	+.0001/+.0004	4
6.451mm-13mm	+.0025/+.0127	+.0001/+.0005	6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
300-1024	-	-	-	2.600	0.10236	15.9	57.2	2.38
300-1040	-	37	-	2.642	0.10400			
300-1063	-	-	-	2.700	0.10630			
300-1065	-	36	-	2.705	0.10650			
300-1094	7/64	-	-	2.778	0.10938			
300-1100	-	35	-	2.794	0.11000			
300-1102	-	-	-	2.800	0.11024			
300-1110	-	34	-	2.819	0.11100			
300-1130	-	33	-	2.870	0.11300			
300-1142	-	-	-	2.900	0.11417			2.78
300-1160	-	32	-	2.946	0.11600			
300-1181	-	-	-	3.000	0.11811			
300-1200	-	31	-	3.048	0.12000			
300-1220	-	-	-	3.100	0.12205			
300-1250	1/8	-	-	3.175	0.12500			
300-1260	-	-	-	3.200	0.12598			
300-1285	-	30	-	3.264	0.12850			
300-1299	-	-	-	3.300	0.12992	19.1	63.5	3.18
300-1339	-	-	-	3.400	0.13386			
300-1360	-	29	-	3.454	0.13600			
300-1378	-	-	-	3.500	0.13780			
300-1405	-	28	-	3.569	0.14050			
300-1406	9/64	-	-	3.572	0.14063			
300-1417	-	-	-	3.600	0.14173			
300-1440	-	27	-	3.658	0.14400			
300-1457	-	-	-	3.700	0.14567			3.57
300-1470	-	26	-	3.734	0.14700			
300-1495	-	25	-	3.797	0.14950			
300-1496	-	-	-	3.800	0.14960			
300-1520	-	24	-	3.861	0.15200			
300-1535	-	-	-	3.900	0.15354			
300-1540	-	23	-	3.912	0.15400			
300-1562	5/32	-	-	3.969	0.15625			
300-1570	-	22	-	3.988	0.15700			
300-1575	-	-	-	4.000	0.15748			
300-1590	-	21	-	4.039	0.15900			
300-1610	-	20	-	4.089	0.16100	22.2	69.9	3.97
300-1614	-	-	-	4.100	0.16142			
300-1654	-	-	-	4.200	0.16535			
300-1660	-	19	-	4.216	0.16600			
300-1693	-	-	-	4.300	0.16929			
300-1695	-	18	-	4.305	0.16950			
300-1719	11/64	-	-	4.366	0.17188			
300-1730	-	17	-	4.394	0.17300			
300-1732	-	-	-	4.400	0.17323			
300-1770	-	16	-	4.496	0.17700			4.37
300-1772	-	-	-	4.500	0.17720			
300-1800	-	15	-	4.572	0.18000			
300-1811	-	-	-	4.600	0.18110			
300-1820	-	14	-	4.623	0.18200			

Packed: 1 pc.

HYR

List 300D (Continued)

SPEED FEED P379 | CARBIDE | BR

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
300-1850	-	13	-	4.699	0.18500	22.2	69.9	4.37
300-1875	3/16	-	-	4.763	0.18750			
300-1890	-	12	-	4.801	0.18900			
300-1910	-	11	-	4.851	0.19100	25.4	76.2	4.76
300-1929	-	-	-	4.900	0.19291	22.2	69.9	
300-1935	-	10	-	4.915	0.19350			
300-1960	-	9	-	4.978	0.19600	25.4	76.2	
300-1969	-	-	-	5.000	0.19685			
300-1990	-	8	-	5.055	0.19900			
300-2008	-	-	-	5.100	0.20079			
300-2010	-	7	-	5.105	0.20100			
300-2031	13/64	-	-	5.159	0.20313			
300-2040	-	6	-	5.182	0.20400			
300-2047	-	-	-	5.200	0.20472			
300-2055	-	5	-	5.220	0.20550			
300-2087	-	-	-	5.300	0.20866			
300-2090	-	4	-	5.309	0.20900			
300-2126	-	-	-	5.400	0.21260			
300-2130	-	3	-	5.410	0.21300			
300-2165	-	-	-	5.500	0.21654			
300-2188	7/32	-	-	5.556	0.21875			
300-2205	-	-	-	5.600	0.22047			
300-2210	-	2	-	5.613	0.22100			
300-2244	-	-	-	5.700	0.22441			5.56
300-2280	-	1	-	5.791	0.22800			
300-2283	-	-	-	5.800	0.22835			
300-2323	-	-	-	5.900	0.23228			
300-2340	-	-	A	5.944	0.23400			
300-2344	15/64	-	-	5.953	0.23438			
300-2362	-	-	-	6.000	0.23622			
300-2380	-	-	B	6.045	0.23800			
300-2402	-	-	-	6.100	0.24016			
300-2420	-	-	C	6.147	0.24200			
300-2441	-	-	-	6.200	0.24409	25.0	75.9	
300-2460	-	-	D	6.248	0.24600	25.4	76.2	
300-2480	-	-	-	6.300	0.24803			
300-2500	1/4	-	E	6.350	0.25000			
300-2520	-	-	-	6.400	0.25197	29.0	83.0	6.35
300-2559	-	-	-	6.500	0.25591	28.6	82.6	
300-2570	-	-	F	6.528	0.25700			
300-2598	-	-	-	6.600	0.25984			
300-2610	-	-	G	6.629	0.26100			
300-2638	-	-	-	6.700	0.26378			
300-2656	17/64	-	-	6.747	0.26563			
300-2660	-	-	H	6.756	0.26600			
300-2677	-	-	-	6.800	0.26772			

Packed: 1 pc.

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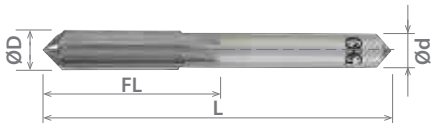
Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
300D	○	○		○		○	○	○	○	○	○						

○ good ◎ best

List 300D (Continued)

SPEED FEED P379 | CARBIDE | BR



Cutting Diameter Tolerance			
Size	mm	Inch	No. of Flutes
0.80mm-6.45mm	+.0025/+.0102	+.0001/+.0004	4
6.451mm-13mm	+.0025/+.0127	+.0001/+.0005	6

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
300-2717	-	-	-	6.900	0.27165	28.6	82.6	6.35
300-2720	-	-	I	6.909	0.27200			
300-2756	-	-	-	7.000	0.27559			
300-2770	-	-	J	7.036	0.27700			
300-2795	-	-	-	7.100	0.27953			
300-2810	-	-	K	7.137	0.28100			
300-2812	9/32	-	-	7.144	0.28125			
300-2835	-	-	-	7.200	0.28346			
300-2874	-	-	-	7.300	0.28740			7.14
300-2900	-	-	L	7.366	0.29000			
300-2913	-	-	-	7.400	0.29134			
300-2950	-	-	M	7.493	0.29500			
300-2953	-	-	-	7.500	0.29528			
300-2969	19/64	-	-	7.541	0.29688			
300-2992	-	-	-	7.600	0.29921			
300-3020	-	-	N	7.671	0.30200			
300-3031	-	-	-	7.700	0.30315			
300-3071	-	-	-	7.800	0.30709			
300-3110	-	-	-	7.900	0.31102			
300-3125	5/16	-	-	7.938	0.31250			
300-3150	-	-	-	8.000	0.31496			
300-3160	-	-	O	8.026	0.31600	31.8	88.9	7.94
300-3189	-	-	-	8.100	0.31890			
300-3228	-	-	-	8.200	0.32283			
300-3230	-	-	P	8.204	0.32300			
300-3268	-	-	-	8.300	0.32677			
300-3281	21/64	-	-	8.334	0.32813			
300-3307	-	-	-	8.400	0.33071			
300-3320	-	-	Q	8.433	0.33200			
300-3346	-	-	-	8.500	0.33465			
300-3386	-	-	-	8.600	0.33858			
300-3390	-	-	R	8.611	0.33900			
300-3425	-	-	-	8.700	0.34252			
300-3438	11/32	-	-	8.733	0.34380			
300-3465	-	-	-	8.800	0.34646			
300-3480	-	-	S	8.839	0.34800			
300-3504	-	-	-	8.900	0.35039			
300-3543	-	-	-	9.000	0.35433			
300-3580	-	-	T	9.093	0.35800			
300-3583	-	-	-	9.100	0.35827			
300-3594	23/64	-	-	9.128	0.35938			
300-3622	-	-	-	9.200	0.36220			9.13
300-3661	-	-	-	9.300	0.36614			
300-3680	-	-	U	9.347	0.36800			
300-3701	-	-	-	9.400	0.37008			
300-3740	-	-	-	9.500	0.37402			
300-3750	3/8	-	-	9.525	0.37500			
300-3770	-	-	V	9.576	0.37700			
300-3780	-	-	-	9.600	0.37795			
300-3819	-	-	-	9.700	0.38189			

Packed: 1 pc.

HYR

List 300D (Continued)

SPEED FEED P379 | CARBIDE | BR

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
300-3858	-	-	-	9.800	0.38583	31.8	88.9	9.13
300-3860	-	-	W	9.804	0.38600			
300-3898	-	-	-	9.900	0.38976			9.53
300-3906	25/64	-	-	9.922	0.39063			
300-3937	-	-	-	10.000	0.39370			
300-3970	-	-	X	10.084	0.39700			
300-3976	-	-	-	10.100	0.39764			
300-4016	-	-	-	10.200	0.40157			
300-4040	-	-	Y	10.262	0.40400			
300-4055	-	-	-	10.300	0.40551			
300-4062	13/32	-	-	10.319	0.40625			
300-4094	-	-	-	10.400	0.40945			
300-4130	-	-	Z	10.490	0.41300			
300-4134	-	-	-	10.500	0.41339			
300-4173	-	-	-	10.600	0.41732	34.9	95.3	
300-4213	-	-	-	10.700	0.42126			
300-4219	27/64	-	-	10.716	0.42188			
300-4252	-	-	-	10.800	0.42520			
300-4291	-	-	-	10.900	0.42913			
300-4331	-	-	-	11.000	0.43307	35.0		
300-4370	-	-	-	11.100	0.43701	34.9		
300-4375	7/16	-	-	11.113	0.43750			
300-4409	-	-	-	11.200	0.44094			
300-4449	-	-	-	11.300	0.44488			
300-4488	-	-	-	11.400	0.44882			
300-4528	-	-	-	11.500	0.45276			
300-4531	29/64	-	-	11.509	0.45313			11.11
300-4567	-	-	-	11.600	0.45669			
300-4606	-	-	-	11.700	0.46063			
300-4646	-	-	-	11.800	0.46457			
300-4685	-	-	-	11.900	0.46850			
300-4688	15/32	-	-	11.906	0.46875			
300-4724	-	-	-	12.000	0.47244			
300-4764	-	-	-	12.100	0.47638	38.1	101.6	
300-4803	-	-	-	12.200	0.48031			
300-4843	-	-	-	12.300	0.48425			
300-4844	31/64	-	-	12.303	0.48438			
300-4882	-	-	-	12.400	0.48819			
300-4921	-	-	-	12.500	0.49213			
300-4961	-	-	-	12.600	0.49606			
300-5000	1/2	-	-	12.700	0.50000			
300-5079	-	-	-	12.900	0.50787			
300-5118	-	-	-	13.000	0.51181			

Packed: 1 pc.

HYR

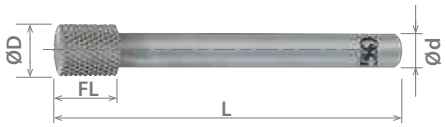
Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
300D	○	○		○		○	○	○	○	○	○						

○ good ◎ best

List 750

CARBIDE | BR



EDP Number	Diameter (in)	Flute Length FL (in)	Max DOC (in)	Overall Length L (in)	Shank Diameter d (in)
750-0625	1/16	1/8	1/2	1-1/2	1/8
750-0781	5/64	5/32			
750-0938	3/32				
750-1094	7/64	3/16			
750-1250	1/8				
750-1406	9/64	7/32	5/8	2	3/16
750-1562	5/32	5/16			
750-1719	11/64	1/4			
750-1875	3/16				
750-2031	13/64	9/32	3/4		1/4
750-2188	7/32				
750-2344	15/64	5/16			
750-2500	1/4				
750-2812	9/32	11/32	-	2-1/2	
750-3125	5/16				
750-3438	11/32	3/8			
750-3750	3/8				

Packed: 1 pc.

HYE

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
750			▢	▢											▢	▢	

▢ good ▣ best

List 700

CARBIDE BR

Single Flute



EDP Number	Diameter	Overall Length	Shank Diameter	Included Angle Degree
	D (in)	L (in)	d (in)	α
700-1250	1/8*	1-1/2	1/8	60
700-1251				82
700-1252				90
700-1875	3/16*	2	3/16	60
700-1871				82
700-1872				90
700-2500	1/4*		1/4	60
700-2501				82
700-2502				90
700-3750	3/8	2-9/16		60
700-3751		2-7/16		82
700-3752				90
700-5000	1/2	2-5/8		60
700-5001				82
700-5002				90
700-6250	5/8	2-13/16		60
700-6251		2-5/8		82
700-6252				90
700-6253		3-1/16	3/8	60
700-6254		2-7/8		82
700-6255				90
700-7500	3/4	3		60
700-7501		2-7/8		82
700-7502				90
700-1000	1	3-1/4	1/2	60
700-1001		3		82
700-1002				90

Packed: 1 pc.
*Indicates Solid Carbide. All others have hardened steel shanks.

HYE

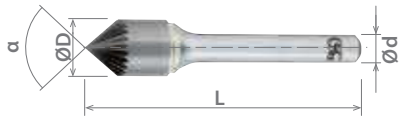
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
700	▢	▢		▢					▢	▢	▢						

▢ good ▢ best

List 701

CARBIDE | BR

Multiple Flute



EDP Number	Diameter	Overall Length	Shank Diameter	Included Angle Degree	No. of Flutes
	D (in)	L (in)	d (in)	α	
701-2500	1/4*	2	1/4	60	18
701-2501				82	
701-2502				90	
701-3750	3/8	2-3/16		60	20
701-3751		2-5/16		82	
701-3752				90	
701-5000	1/2	2-1/8		60	24
701-5001				82	
701-5002				90	
701-6250	5/8	3	3/8	60	30
701-6251		2-7/8		82	
701-6252				90	
701-7500	3/4	3		60	36
701-7501		2-7/8		82	
701-7502				90	
701-1000	1	3	1/2	60	46
701-1001				82	
701-1002				90	

Packed: 1 pc.
*Indicates Solid Carbide. All others have hardened steel shanks.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
701			○	○					○					○	○	○	

○ good ◎ best

List 706

CARBIDE | BR

6 Flute



EDP Number	Diameter	Overall Length	Shank Diameter	Included Angle Degree
	D (in)	L (in)	d (in)	α
706-2500-060	1/4*	2	1/4	60
706-2500-082				82
706-2500-090				90
706-3750-060	3/8	2-1/2		60
706-3750-082		2-3/8		82
706-3750-090				90
706-5000-060	1/2	2-5/8		60
706-5000-082		2-1/2		82
706-5000-090				90
706-6250-060	5/8	3	3/8	60
706-6250-082		2-7/8		82
706-6250-090				90
706-7500-060	3/4	3		60
706-7500-082		2-7/8		82
706-7500-090				90
706-1000-060	1	3-1/4	1/2	60
706-1000-082		3		82
706-1000-090				90

Packed: 1 pc.
*Indicates Solid Carbide. All others have hardened steel shanks.

HYE

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
706	▢	▢		▢						▢	▢						

▢ good ▢ best

List 0CS-SO

SOMTA | NEW | SPEED FEED P380-381 | CARBIDE | TYPE N | TiAlN | STUB | 30°

Coolant-Through, Stub Length Drills

Cutting Diameter Tolerance (h8)		
Size	mm	inch
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤14	+0 / -0.027	+0 / -0.0011



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
0CS0600F-SO	-	-	-	6.000	0.23622	28	66	6
0CS0630F-SO	-	-	-	6.300	0.24803	34	79	8
0CS0650F-SO	-	-	-	6.500	0.25591			
0CS0680F-SO	-	-	-	6.800	0.26772			
0CS0700F-SO	-	-	-	7.000	0.27559			
0CS0750F-SO	-	-	-	7.500	0.29528	41		
0CS0800F-SO	-	-	-	8.000	0.31496			
0CS0850F-SO	-	-	-	8.500	0.33465	47	89	10
0CS0900F-SO	-	-	-	9.000	0.35433			
0CS0950F-SO	-	-	-	9.500	0.37402			
0CS1000F-SO	-	-	-	10.000	0.39370			
0CS1020F-SO	-	-	-	10.200	0.40157	55	102	12
0CS1050F-SO	-	-	-	10.500	0.41339			
0CS1100F-SO	-	-	-	11.000	0.43307			
0CS1150F-SO	-	-	-	11.500	0.45276			
0CS1200F-SO	-	-	-	12.000	0.47244			
0CS1250F-SO	-	-	-	12.500	0.49213	60	107	14
0CS1270F-SO	1/2	-	-	12.700	0.50000			
0CS1300F-SO	-	-	-	13.000	0.51181			
0CS1350F-SO	-	-	-	13.500	0.53150			
0CS1400F-SO	-	-	-	14.000	0.55118			

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
0CS-SO	▢	▢	▢	▢			▢	▢	▢	▢	▢	▢	▢	▢	▢		

▢ good ▣ best

List 0CJ-SO

SOMTA | NEW | SPEED FEED P380-381 | CARBIDE | TYPE N | TiAlN | JOBBERS | 30°

Coolant-Through, Jobber Length Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤14	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
0CJ0600F-SO	-	-	-	6.000	0.23622	44	82	6
0CJ0630F-SO	-	-	-	6.300	0.24803	53	91	8
0CJ0650F-SO	-	-	-	6.500	0.25591			
0CJ0680F-SO	-	-	-	6.800	0.26772			
0CJ0700F-SO	-	-	-	7.000	0.27559			
0CJ0750F-SO	-	-	-	7.500	0.29528			
0CJ0800F-SO	-	-	-	8.000	0.31496			
0CJ0850F-SO	-	-	-	8.500	0.33465	61	103	10
0CJ0900F-SO	-	-	-	9.000	0.35433			
0CJ0950F-SO	-	-	-	9.500	0.37402			
0CJ1000F-SO	-	-	-	10.000	0.39370			
0CJ1020F-SO	-	-	-	10.200	0.40157	71	118	12
0CJ1050F-SO	-	-	-	10.500	0.41339			
0CJ1100F-SO	-	-	-	11.000	0.43307			
0CJ1150F-SO	-	-	-	11.500	0.45276			
0CJ1200F-SO	-	-	-	12.000	0.47244			
0CJ1250F-SO	-	-	-	12.500	0.49213	77	124	14
0CJ1270F-SO	1/2	-	-	12.700	0.50000			
0CJ1300F-SO	-	-	-	13.000	0.51181			
0CJ1350F-SO	-	-	-	13.500	0.53150			
0CJ1400F-SO	-	-	-	14.000	0.55118			

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
0CJ-SO	○	○	○	○			○	○	○	○	○	○	○	○	○		

○ good ◎ best

List 01S-SO

SOMTA | NEW | SPEED FEED P380-381 | CARBIDE | TYPE N | TiAlN | STUB | 30°

Stub Length Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤14	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
01S0100F-SO	-	-	-	1.000	0.03937	6	26	1.0
01S0150F-SO	-	-	-	1.500	0.05906	9	32	1.5
01S0200F-SO	-	-	-	2.000	0.07874	12	38	2.0
01S0250F-SO	-	-	-	2.500	0.09843	14	43	2.5
01S0300F-SO	-	-	-	3.000	0.11811	20	62	6.0
01S0330F-SO	-	-	-	3.300	0.12992			
01S0350F-SO	-	-	-	3.500	0.13780			
01S0400F-SO	-	-	-	4.000	0.15748	24	66	
01S0420F-SO	-	-	-	4.200	0.16535			
01S0450F-SO	-	-	-	4.500	0.17717			
01S0500F-SO	-	-	-	5.000	0.19685	28		
01S0550F-SO	-	-	-	5.500	0.21654			
01S0600F-SO	-	-	-	6.000	0.23622			
01S0630F-SO	-	-	-	6.300	0.24803	34	79	8.0
01S0650F-SO	-	-	-	6.500	0.25591			
01S0680F-SO	-	-	-	6.800	0.26772			
01S0700F-SO	-	-	-	7.000	0.27559			
01S0750F-SO	-	-	-	7.500	0.29528	41		
01S0800F-SO	-	-	-	8.000	0.31496			
01S0850F-SO	-	-	-	8.500	0.33465	47	89	10.0
01S0900F-SO	-	-	-	9.000	0.35433			
01S0950F-SO	-	-	-	9.500	0.37402			
01S1000F-SO	-	-	-	10.000	0.39370			
01S1020F-SO	-	-	-	10.200	0.40157	55	102	12.0
01S1050F-SO	-	-	-	10.500	0.41339			
01S1100F-SO	-	-	-	11.000	0.43307			
01S1150F-SO	-	-	-	11.500	0.45276			
01S1200F-SO	-	-	-	12.000	0.47244			
01S1250F-SO	-	-	-	12.500	0.49213	60	107	14.0
01S1270F-SO	1/2	-	-	12.700	0.50000			
01S1300F-SO	-	-	-	13.000	0.51181			
01S1350F-SO	-	-	-	13.500	0.53150			
01S1400F-SO	-	-	-	14.000	0.55118			

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
01S-SO	○	○	○	○			○	○	○	○	○	○	○	○	○		

○ good ◎ best

List 01J-SO

SOMTA | NEW | SPEED FEED P380-381 | CARBIDE | TYPE N | TiAlN | JOBBERS | 30°

Jobber Length Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤14	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
01J0100F-SO	-	-	-	1.000	0.03937	8	55	4
01J0150F-SO	-	-	-	1.500	0.05906	12		
01J0200F-SO	-	-	-	2.000	0.07874	21	57	
01J0250F-SO	-	-	-	2.500	0.09843			
01J0300F-SO	-	-	-	3.000	0.11811	28	66	6
01J0330F-SO	-	-	-	3.300	0.12992			
01J0350F-SO	-	-	-	3.500	0.13780			
01J0400F-SO	-	-	-	4.000	0.15748	36	74	
01J0420F-SO	-	-	-	4.200	0.16535			
01J0450F-SO	-	-	-	4.500	0.17717			
01J0500F-SO	-	-	-	5.000	0.19685	44	82	
01J0550F-SO	-	-	-	5.500	0.21654			
01J0600F-SO	-	-	-	6.000	0.23622			
01J0630F-SO	-	-	-	6.300	0.24803	53	91	8
01J0650F-SO	-	-	-	6.500	0.25591			
01J0680F-SO	-	-	-	6.800	0.26772			
01J0700F-SO	-	-	-	7.000	0.27559			
01J0750F-SO	-	-	-	7.500	0.29528			
01J0800F-SO	-	-	-	8.000	0.31496			
01J0850F-SO	-	-	-	8.500	0.33465	61	103	10
01J0900F-SO	-	-	-	9.000	0.35433			
01J0950F-SO	-	-	-	9.500	0.37402			
01J1000F-SO	-	-	-	10.000	0.39370			
01J1020F-SO	-	-	-	10.200	0.40157	71	118	12
01J1050F-SO	-	-	-	10.500	0.41339			
01J1100F-SO	-	-	-	11.000	0.43307			
01J1150F-SO	-	-	-	11.500	0.45276			
01J1200F-SO	-	-	-	12.000	0.47244			
01J1250F-SO	-	-	-	12.500	0.49213	77	124	14
01J1270F-SO	1/2	-	-	12.700	0.50000			
01J1300F-SO	-	-	-	13.000	0.51181			
01J1350F-SO	-	-	-	13.500	0.53150			
01J1400F-SO	-	-	-	14.000	0.55118			

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

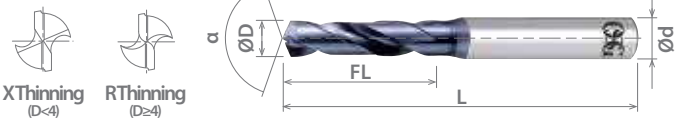
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
01J-SO	▢	▢	▢	▢			▢	▢	▢	▢	▢	▢	▢	▢	▢		

▢ good ▢ best

List 1900

VPH-GDS, Ideal for Difficult to Machine Materials

SPEED FEED P382-383 | XPM | V | STUB | 30°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8599005	-	-	-	0.500	0.01969	3.0	38	3	130°
8608055	-	-	-	0.550	0.02165	3.5			
8608056	-	-	-	0.560	0.02205				
8608057	-	-	-	0.570	0.02244				
8599006	-	-	-	0.600	0.02362				
8608061	-	-	-	0.610	0.02402	4.0			
8608063	-	-	-	0.630	0.02480			4	
8608065	-	-	-	0.650	0.02559			3	
8608066	-	-	-	0.660	0.02598				
8608068	-	-	-	0.680	0.02677	4.5			
8608069	-	-	-	0.690	0.02717				
8599007	-	-	-	0.700	0.02756				
8608071	-	-	-	0.710	0.02795				
8608074	-	-	-	0.740	0.02913			4	
8608075	-	-	-	0.750	0.02953			3	
8599008	-	-	-	0.800	0.03150	5.0			
8608082	-	-	-	0.820	0.03228			4	
8608083	-	-	-	0.830	0.03268			5	
8608085	-	-	-	0.850	0.03346			3	
8608088	-	-	-	0.880	0.03465	5.5			
8608089	-	-	-	0.890	0.03504				
8599009	-	-	-	0.900	0.03543				
8608094	-	-	-	0.940	0.03701				
8608095	-	-	-	0.950	0.03740				
8608099	-	-	-	0.990	0.03898	6.0			
8599010	-	-	-	1.000	0.03937				
8608102	-	-	-	1.020	0.04016				
8608104	-	-	-	1.040	0.04094				
8608105	-	-	-	1.050	0.04134			4	
8608106	-	-	-	1.060	0.04173			5	
8608107	-	-	-	1.070	0.04213	7.0	39	3	
8608109	-	-	-	1.090	0.04291				
8608113	-	-	-	1.130	0.04449			4	
8608114	-	-	-	1.140	0.04488			5	
8608118	-	-	-	1.180	0.04646	8.0	40	3	
8608119	-	-	-	1.190	0.04685				
8608122	-	-	-	1.220	0.04803				
8608124	-	-	-	1.240	0.04882				
8608125	-	-	-	1.250	0.04921				
8608126	-	-	-	1.260	0.04961				
8608127	-	-	-	1.270	0.05000				
8608128	-	-	-	1.280	0.05039				
8608129	-	-	-	1.290	0.05079				
8599013	-	-	-	1.300	0.05118				
8608131	-	-	-	1.310	0.05157				
8608132	-	-	-	1.320	0.05197				
8599014	-	-	-	1.400	0.05512	9.0	41		
8608146	-	-	-	1.460	0.05748				
8608147	-	-	-	1.470	0.05787				
8608148	-	-	-	1.480	0.05827				

Packed: 1 pc.
Available V coating only.

EXD

List 1900 (Continued)

VPH-GDS, Ideal for Difficult to Machine Materials

SPEED FEED P382-383 | XPM | V | STUB | 30°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8599015	-	-	-	1.500	0.05906	9.0	41		
8608151	-	-	-	1.510	0.05945				
8608153	-	-	-	1.530	0.06024			3	
8608155	-	-	-	1.550	0.06102				
8608159	-	-	-	1.590	0.06260				
8608161	-	-	-	1.610	0.06339				
8608162	-	-	-	1.620	0.06378	10.0	42	4	
8608163	-	-	-	1.630	0.06417			5	
8608164	-	-	-	1.640	0.06457			3	
8608166	-	-	-	1.660	0.06535				
8608169	-	-	-	1.690	0.06654			4	
8599017	-	-	-	1.700	0.06693				
8608176	-	-	-	1.760	0.06929				
8608177	-	-	-	1.770	0.06969				
8608178	-	-	-	1.780	0.07008	11.0	43		
8599018	-	-	-	1.800	0.07087				
8608182	-	-	-	1.820	0.07165			3	
8608185	-	-	-	1.850	0.07283				
8608193	-	-	-	1.930	0.07598				
8608198	-	-	-	1.980	0.07795				
8608199	-	-	-	1.990	0.07835				
9599020	-	-	-	2.000	0.07874				
8608203	-	-	-	2.030	0.07992	12.0	44		130°
8608204	-	-	-	2.040	0.08031			4	
8608206	-	-	-	2.060	0.08110				
8608208	-	-	-	2.080	0.08189				
9599021	-	-	-	2.100	0.08268				
8608213	-	-	-	2.130	0.08386				
8608215	-	-	-	2.150	0.08465				
8608216	-	-	-	2.160	0.08504			3	
8608218	-	-	-	2.180	0.08583				
9599022	-	-	-	2.200	0.08661				
8608222	-	-	-	2.220	0.08740	13.0	45		
8608226	-	-	-	2.260	0.08898				
9599023	-	-	-	2.300	0.09055				
8608231	-	-	-	2.310	0.09094			4	
8608233	-	-	-	2.330	0.09173				
8608237	-	-	-	2.370	0.09331				
8608238	-	-	-	2.380	0.09370			3	
9599024	-	-	-	2.400	0.09449				
8608244	-	-	-	2.440	0.09606				
8608246	-	-	-	2.460	0.09685	14.0	46	4	
8608249	-	-	-	2.490	0.09803				
9599025	-	-	-	2.500	0.09843			3	
8608253	-	-	-	2.530	0.09961				
8608258	-	-	-	2.580	0.10157				

Packed: 1 pc.
Available V coating only.

continued on next page

EXD

Work Material

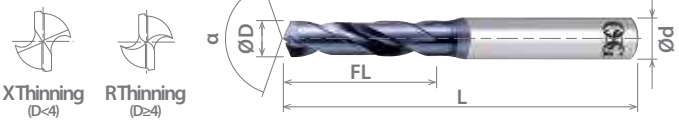
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1900	○	◎	◎	◎	◎		○	○	◎	○	○	◎	○	◎	◎	○	

○ good ◎ best

List 1900 (Continued)

VPH-GDS, Ideal for Difficult to Machine Materials

SPEED FEED P382-383 | XPM | V | STUB | 30°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
9599026	-	-	-	2.600	0.10236	14.0	46	3	130°
8608264	-	-	-	2.640	0.10394				
9599027	-	-	-	2.700	0.10630	16.0			
8608271	-	-	-	2.710	0.10669				
8608278	-	-	-	2.780	0.10945				
8608279	-	-	-	2.790	0.10984				
9599028	-	-	-	2.800	0.11024		48		
8608281	-	-	-	2.810	0.11063				
8608282	-	-	-	2.820	0.11102				
8608287	-	-	-	2.870	0.11299				
9599029	-	-	-	2.900	0.11417				
8608295	-	-	-	2.950	0.11614				
9599030	-	-	-	3.000	0.11811				
8608305	-	-	-	3.050	0.12008	18.0	50	4	
9599031	-	-	-	3.100	0.12205				
8608318	1/8	-	-	3.180	0.12520				
8608319	-	-	-	3.190	0.12559				
9599032	-	-	-	3.200	0.12598				
8608326	-	-	-	3.260	0.12835				
9599033	-	-	-	3.300	0.12992				
8608336	-	-	-	3.360	0.13228	20.0	52		
9599034	-	-	-	3.400	0.13386				
8608345	-	-	-	3.450	0.13583				
9599035	-	-	-	3.500	0.13780				
8608352	-	-	-	3.520	0.13858				
8608357	-	-	-	3.570	0.14055				
9599036	-	-	-	3.600	0.14173				
8608366	-	-	-	3.660	0.14409				
9599037	-	-	-	3.700	0.14567				
8608373	-	-	-	3.730	0.14685				
8608377	-	-	-	3.770	0.14843	22.0	54		
9599038	-	-	-	3.800	0.14961				
8608386	-	-	-	3.860	0.15197				
9599039	-	-	-	3.900	0.15354				
8608391	-	-	-	3.910	0.15394				
8608397	-	-	-	3.970	0.15630				
8608399	-	-	-	3.990	0.15709				
9599040	-	-	-	4.000	0.15748				
8608404	-	-	-	4.040	0.15906		66	6	
8608409	-	-	-	4.090	0.16102				
9599041	-	-	-	4.100	0.16142				
8608415	-	-	-	4.150	0.16339				
9599042	-	-	-	4.200	0.16535				
8608422	-	-	-	4.220	0.16614				
8608427	-	-	-	4.270	0.16811	24.0	68		
9599043	-	-	-	4.300	0.16929				
8608431	-	-	-	4.310	0.16969				
8608437	11/64	-	-	4.370	0.17205				
8608439	-	-	-	4.390	0.17283				
9599044	-	-	-	4.400	0.17323				

Packed: 1 pc.
Available V coating only.

EXD

List 1900 (Continued)

VPH-GDS, Ideal for Difficult to Machine Materials

SPEED FEED P382-383 | XPM | V | STUB | 30°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8608445	-	-	-	4.450	0.17520	24.0	68	6	130°
9599045	-	-	-	4.500	0.17717				
8608457	-	-	-	4.570	0.17992				
9599046	-	-	-	4.600	0.18110				
8608462	-	-	-	4.620	0.18189				
8608466	-	-	-	4.660	0.18346				
9599047	-	-	-	4.700	0.18504				
8608476	-	-	-	4.760	0.18740	26.0	70		
8608479	-	-	-	4.790	0.18858				
9599048	-	-	-	4.800	0.18898				
8608485	-	-	-	4.850	0.19094				
9599049	-	-	-	4.900	0.19291				
8608491	-	-	-	4.910	0.19331				
8608498	-	-	-	4.980	0.19606				
9599050	-	-	-	5.000	0.19685				
8608505	-	-	-	5.050	0.19882				
9599051	-	-	-	5.100	0.20079				
8608511	-	-	-	5.110	0.20118				
8608515	-	-	-	5.150	0.20276				
8608516	-	-	-	5.160	0.20315				
8608518	-	-	-	5.180	0.20394				
9599052	-	-	-	5.200	0.20472				
8608522	-	-	-	5.220	0.20551				
8608526	-	-	-	5.260	0.20709				
9599053	-	-	-	5.300	0.20866				
8608531	-	-	-	5.310	0.20906	28.00	72		
9599054	-	-	-	5.400	0.21260				
8608541	-	-	-	5.410	0.21299				
8608546	-	-	-	5.460	0.21496				
9599055	-	-	-	5.500	0.21654				
8608556	-	-	-	5.560	0.21890				
9599056	-	-	-	5.600	0.22047				
8608561	-	-	-	5.610	0.22087				
9599057	-	-	-	5.700	0.22441				
8608579	-	-	-	5.790	0.22795		70		
9599058	-	-	-	5.800	0.22835				
9599059	-	-	-	5.900	0.23228		72		
8608595	15/64	-	-	5.953	0.23438				
9599060	-	-	-	6.000	0.23622				
9599061	-	-	-	6.100	0.24016	31.0	75	8	
9598615	-	-	-	6.150	0.24213				
9599062	-	-	-	6.200	0.24409				
9599063	-	-	-	6.300	0.24803				
8608635	1/4	-	E	6.350	0.25000				
9599064	-	-	-	6.400	0.25197				
9599065	-	-	-	6.500	0.25591				

Packed: 1 pc.
Available V coating only.

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EXD

Work Material

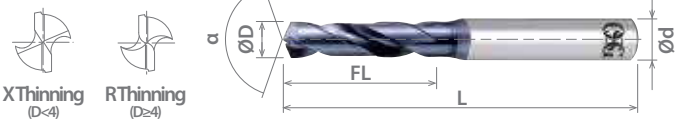
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1900	○	◎	◎	◎	◎		○	○	◎	○	○	◎	○	◎	◎	○	

○ good ◎ best

List 1900 (Continued)

VPH-GDS, Ideal for Difficult to Machine Materials

SPEED FEED P382-383 | XPM | V | STUB | 30°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
9599066	-	-	-	6.600	0.25984	31.0	75	8	130°
9598665	-	-	-	6.650	0.26181				
9599067	-	-	-	6.700	0.26378				
8608675	17/64	-	-	6.747	0.26563	34.0	78		
9599068	-	-	-	6.800	0.26772				
9598686	-	-	-	6.860	0.27008				
9599069	-	-	-	6.900	0.27165				
9599070	-	-	-	7.000	0.27559				
9598704	-	-	-	7.040	0.27717				
9599071	-	-	-	7.100	0.27953				
8608714	9/32	-	-	7.144	0.28125				
9599072	-	-	-	7.200	0.28346				
9599073	-	-	-	7.300	0.28740				
9599074	-	-	-	7.400	0.29134				
9599075	-	-	-	7.500	0.29528				
8608754	19/64	-	-	7.541	0.29688				
9599076	-	-	-	7.600	0.29921	37.0	81		
9599077	-	-	-	7.700	0.30315				
9599078	-	-	-	7.800	0.30709				
9599079	-	-	-	7.900	0.31102				
8608794	5/16	-	-	7.938	0.31250				
9599080	-	-	-	8.000	0.31496				
9599081	-	-	-	8.100	0.31890		87	10	
9598815	-	-	-	8.150	0.32087				
9599082	-	-	-	8.200	0.32283				
9599083	-	-	-	8.300	0.32677				
8608833	21/64	-	-	8.334	0.32813				
9599084	-	-	-	8.400	0.33071				
9599085	-	-	-	8.500	0.33465				
9598856	-	-	-	8.560	0.33701	40.0	90		
9599086	-	-	-	8.600	0.33858				
9598868	-	-	-	8.680	0.34173				
9599087	-	-	-	8.700	0.34252				
8608873	11/32	-	-	8.731	0.34375				
9599088	-	-	-	8.800	0.34646				
9598886	-	-	-	8.860	0.34882				
9599089	-	-	-	8.900	0.35039				
9599090	-	-	-	9.000	0.35433				
9599091	-	-	-	9.100	0.35827				
8608913	23/64	-	-	9.128	0.35938				
9599092	-	-	-	9.200	0.36220				
9599093	-	-	-	9.300	0.36614				
9599094	-	-	-	9.400	0.37008				
9599095	-	-	-	9.500	0.37402				
8608952	3/8	-	-	9.525	0.37500				
9598955	-	-	-	9.550	0.37598	43.0	93		
9599096	-	-	-	9.600	0.37795				
9599097	-	-	-	9.700	0.38189				
9599098	-	-	-	9.800	0.38583				
9599099	-	-	-	9.900	0.38976				

Packed: 1 pc.
Available V coating only.

EXD

List 1900 (Continued)

VPH-GDS, Ideal for Difficult to Machine Materials

SPEED FEED P382-383 | XPM | V | STUB | 30°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8608992	25/64	-	-	9.922	0.39063	43.0	93	10	130°
9599100	-	-	-	10.000	0.39370				
9599101	-	-	-	10.100	0.39764		100	12	
9599102	-	-	-	10.200	0.40157				
9599103	-	-	-	10.300	0.40551				
8609032	13/32	-	-	10.319	0.40625				
9599104	-	-	-	10.400	0.40945				
9599144	-	-	-	10.440	0.41102				
9599105	-	-	-	10.500	0.41339				
9599106	-	-	-	10.600	0.41732				
9599107	-	-	-	10.700	0.42126	47.0	104		
8609072	27/64	-	-	10.716	0.42188				
9599108	-	-	-	10.800	0.42520				
9599186	-	-	-	10.860	0.42756				
9599109	-	-	-	10.900	0.42913				
9599110	-	-	-	11.000	0.43307				
9599111	-	-	-	11.100	0.43701				
8609111	7/16	-	-	11.113	0.43750				
9599112	-	-	-	11.200	0.44094				
9599113	-	-	-	11.300	0.44488				
9599114	-	-	-	11.400	0.44882				
9599115	-	-	-	11.500	0.45276				
8609151	29/64	-	-	11.509	0.45313				
9599116	-	-	-	11.600	0.45669				
9599117	-	-	-	11.700	0.46063				
9599118	-	-	-	11.800	0.46457				
9599119	-	-	-	11.900	0.46850				
8609191	15/32	-	-	11.906	0.46875				
9599120	-	-	-	12.000	0.47244	51.0	108		
9599121	-	-	-	12.100	0.47638				
9599122	-	-	-	12.200	0.48031				
9599123	-	-	-	12.300	0.48425				
9599124	-	-	-	12.400	0.48819				
9599245	-	-	-	12.450	0.49016				
9599125	-	-	-	12.500	0.49213				
9599126	-	-	-	12.600	0.49606				
9599268	-	-	-	12.680	0.49921				
9599127	1/2	-	-	12.700	0.50000				
9599128	-	-	-	12.800	0.50394				
9599129	-	-	-	12.900	0.50787				
9599130	-	-	-	13.000	0.51181				
9599308	-	-	-	13.080	0.51496		111	16	120°
8609349	17/32	-	-	13.494	0.53125	54.0	114		
8599135	-	-	-	13.500	0.53150				
8599136	-	-	-	13.600	0.53543				
8608954	-	-	-	13.790	0.54291				

Packed: 1 pc.
Available V coating only.

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EXD

Work Material

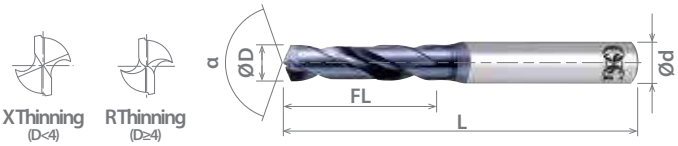
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1900	○	◎	◎	◎	◎		○	○	◎	○	○	◎	○	◎	◎	○	

○ good ◎ best

List 1900 (Continued)

VPH-GDS, Ideal for Difficult to Machine Materials

SPEED FEED	XPM	V	STUB	30°
P382-383				



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
9599387	-	-	-	13.870	0.54606	54.0	114	16	120°
8599140	-	-	-	14.000	0.55118				
8599142	-	-	-	14.200	0.55906	56.0	116		
8609429	9/16	-	-	14.288	0.56250				
8599145	-	-	-	14.500	0.57087				
8599146	-	-	-	14.600	0.57480				
8608956	-	-	-	14.610	0.57520				
9599468	-	-	-	14.680	0.57795				
8599150	-	-	-	15.000	0.59055				
8599155	-	-	-	15.500	0.61024	58.0	118		
8599157	-	-	-	15.700	0.61811				
8609588	5/8	-	-	15.875	0.62500				
8599160	-	-	-	16.000	0.62992				
8599165	-	-	-	16.500	0.64961	60.0	126	20	
8609667	21/32	-	-	16.669	0.65625				
8608958	-	-	-	16.760	0.65984				
9599684	-	-	-	16.840	0.66299				
8599170	-	-	-	17.000	0.66929				
8599175	-	-	-	17.500	0.68898	62.0	128		
8608960	-	-	-	17.630	0.69409				
8608962	-	-	-	17.680	0.69606				
8599177	-	-	-	17.700	0.69685				
8599180	-	-	-	18.000	0.70866				
8599185	-	-	-	18.500	0.72835	64.0	130		
8608964	-	-	-	18.640	0.73386				
8599190	-	-	-	19.000	0.74803				
8609905	3/4	-	-	19.050	0.75000	66.0	132		
8599195	-	-	-	19.500	0.76772				
8608966	-	-	-	19.660	0.77402				
8608968	-	-	-	19.740	0.77717				
9599976	-	-	-	19.760	0.77795				
8599200	-	-	-	20.000	0.78740				

Packed: 1 pc.
Available V coating only.

EXD

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1900	○	◎	◎	◎	◎		○	○	◎	○	○	◎	○	◎	◎	○	

○ good ◎ best

List 1950

VPH-GDR, Ideal for Difficult to Machine Materials

SPEED FEED	XPM	V	JOBBERS	30°
P382-383				

Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.99≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤17.46	+0 / -0.027	+0 / -0.0011



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8612199	-	47	-	1.994	0.07850				
8612206	-	46	-	2.057	0.08100	24	56		
8612208	-	45	-	2.083	0.08200				
8612218	-	44	-	2.184	0.08600	27	59		
8612226	-	43	-	2.261	0.08900				
8612237	-	42	-	2.375	0.09350				
8612238	3/32	-	-	2.381	0.09375				
8612244	-	41	-	2.438	0.09600				
8612249	-	40	-	2.489	0.09800	30	62	3	
8612253	-	39	-	2.527	0.09950				
8612258	-	38	-	2.578	0.10150				
8612264	-	37	-	2.642	0.10400				
8612271	-	36	-	2.705	0.10650				
8612278	7/64	-	-	2.778	0.10938				
8612279	-	35	-	2.794	0.11000	33	65		
8612282	-	34	-	2.819	0.11100				
8612287	-	33	-	2.870	0.11300				
8612295	-	32	-	2.946	0.11600				
8612305	-	31	-	3.048	0.12000				
8612317	1/8	-	-	3.175	0.12500	36	68		130°
8612326	-	30	-	3.264	0.12850				
8612345	-	29	-	3.454	0.13600				
8612357	9/64	-	-	3.572	0.14063	39	71		
8612366	-	27	-	3.658	0.14400			4	
8612373	-	26	-	3.734	0.14700				
8612380	-	25	-	3.797	0.14950				
8612386	-	24	-	3.861	0.15200				
8612391	-	23	-	3.912	0.15400		75		
8612397	5/32	-	-	3.969	0.15625	43			
8612399	-	22	-	3.988	0.15700				
8612404	-	21	-	4.039	0.15900				
8612409	-	20	-	4.089	0.16100		87		
8612422	-	19	-	4.216	0.16600				
8612430	-	-	-	4.300	0.16929				
8612437	11/64	-	-	4.366	0.17188				
8612439	-	17	-	4.394	0.17300			6	
8612450	-	16	-	4.496	0.17700	47	91		
8612457	-	15	-	4.572	0.18000				
8612462	-	14	-	4.623	0.18200				
8612470	-	13	-	4.699	0.18500				

Packed: 1 pc.
Available V coating only.

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EXD

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1950	○	◎	◎	◎	◎		○	○	◎	○	○	◎	○	◎	◎	○	

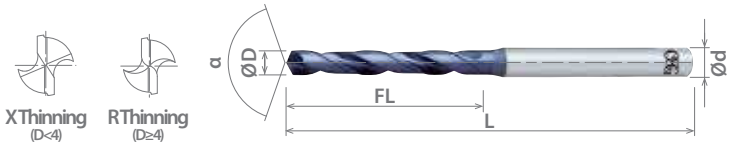
○ good ◎ best

List 1950 (Continued)

VPH-GDR, Ideal for Difficult to Machine Materials

SPEED FEED	XPM	V	JOBBERS	30°
P382-383				

Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.99≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤17.46	+0 / -0.027	+0 / -0.0011



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8612476	3/16	-	-	4.763	0.18750	52	96	6	130°
8612480	-	12	-	4.801	0.18900				
8612485	-	11	-	4.851	0.19100				
8612491	-	-	-	4.910	0.19331				
8612498	-	9	-	4.978	0.19600				
8612505	-	8	-	5.055	0.19900				
8612511	-	7	-	5.105	0.20100				
8612516	13/64	-	-	5.159	0.20313				
8612518	-	6	-	5.182	0.20400				
8612522	-	5	-	5.220	0.20550				
8612531	-	4	-	5.309	0.20900	57	101		
8612541	-	3	-	5.410	0.21300				
8612556	7/32	-	-	5.556	0.21875				
8612561	-	2	-	5.613	0.22100				
8612579	-	1	-	5.791	0.22800				
8612594	-	-	A	5.944	0.23400				
8612595	15/64	-	-	5.953	0.23438				
8612604	-	-	-	6.040	0.23780	63	107	8	
8612615	-	-	C	6.147	0.24200				
8612625	-	-	D	6.248	0.24600				
8612635	1/4	-	E	6.350	0.25000				
8612653	-	-	F	6.528	0.25700				
8612663	-	-	G	6.629	0.26100				
8612675	17/64	-	-	6.747	0.26563	69	113		
8612690	-	-	I	6.909	0.27200				
8612703	-	-	J	7.036	0.27700				
8612714	9/32	-	-	7.144	0.28125				
8612737	-	-	L	7.366	0.29000				
8612749	-	-	M	7.493	0.29500				
8612754	19/64	-	-	7.541	0.29688	75	119		
8612767	-	-	N	7.671	0.30200				
8612794	5/16	-	-	7.938	0.31250				
8612803	-	-	O	8.026	0.31600			10	
8612820	-	-	P	8.204	0.32300		125		
8612833	21/64	-	-	8.334	0.32813				
8612843	-	-	Q	8.433	0.33200				
8612861	-	-	R	8.611	0.33900	81	131		
8612873	11/32	-	-	8.731	0.34375				
8612884	-	-	S	8.839	0.34800				
8612909	-	-	T	9.093	0.35800				
8612913	23/64	-	-	9.128	0.35938				
8612934	-	-	-	9.340	0.36772				
8612952	3/8	-	-	9.525	0.37500	87	137		
8612957	-	-	V	9.576	0.37700				
8612980	-	-	W	9.804	0.38600				
8612992	25/64	-	-	9.922	0.39063				
8613008	-	-	X	10.084	0.39700		144	12	
8613026	-	-	Y	10.262	0.40400				
8613032	13/32	-	-	10.319	0.40625				
8613049	-	-	Z	10.490	0.41300				

Packed: 1 pc.
Available V coating only.

EXD

List 1950 (Continued)

VPH-GDR, Ideal for Difficult to Machine Materials

SPEED FEED P382-383 | XPM | V | JOBBERS | 30°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8613072	27/64	-	-	10.716	0.42188	94	151	12	130°
8613111	7/16	-	-	11.113	0.43750				
8613151	29/64	-	-	11.509	0.45313				
8613191	15/32	-	-	11.906	0.46875	101	158		
8613230	31/64	-	-	12.303	0.48438				
8613270	1/2	-	-	12.700	0.50000				
8613349	17/32	-	-	13.494	0.53125	106	166	16	120°
8613429	9/16	-	-	14.288	0.56250	109	169		
8613588	5/8	-	-	15.875	0.62500	115	175		
8613667	21/32	-	-	16.669	0.65625		181	20	
8613746	11/16	-	-	17.463	0.68750	118	184		

Packed: 1 pc.
Available V coating only.

EXD

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1950	○	◎	◎	◎	◎		○	○	◎	○	○	◎	○	◎	◎	○	

○ good ◎ best

List 2000

VP-GDR, Parabolic

SPEED FEED	XPM	V	JOBBERS	40°
P384				



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8593020	-	-	-	2.000	0.07874	24	56	3
8593021	-	-	-	2.100	0.08268			
8593022	-	-	-	2.200	0.08661	27	59	
8593023	-	-	-	2.300	0.09055			
8593024	-	-	-	2.400	0.09449	30	62	
8593025	-	-	-	2.500	0.09843			
8593026	-	-	-	2.600	0.10236			
8593027	-	-	-	2.700	0.10630	33	65	
8593028	-	-	-	2.800	0.11024			
8593029	-	-	-	2.900	0.11417			
8593030	-	-	-	3.000	0.11811			
8593031	-	-	-	3.100	0.12205	36	68	4
8593032	-	-	-	3.200	0.12598			
8593033	-	-	-	3.300	0.12992			
8593034	-	-	-	3.400	0.13386	39	71	
8593035	-	-	-	3.500	0.13780			
8593036	-	-	-	3.600	0.14173			
8593037	-	-	-	3.700	0.14567			
8593038	-	-	-	3.800	0.14961	43	75	
8593039	-	-	-	3.900	0.15354			
8593040	-	-	-	4.000	0.15748			
8593041	-	-	-	4.100	0.16142		87	6
8593042	-	-	-	4.200	0.16535			
8593043	-	-	-	4.300	0.16929	47	91	
8593044	-	-	-	4.400	0.17323			
8593045	-	-	-	4.500	0.17717			
8593046	-	-	-	4.600	0.18110			
8593047	-	-	-	4.700	0.18504			
8593048	-	-	-	4.800	0.18898	52	96	
8593049	-	-	-	4.900	0.19291			
8593050	-	-	-	5.000	0.19685			
8593051	-	-	-	5.100	0.20079			
8593052	-	-	-	5.200	0.20472			
8593053	-	-	-	5.300	0.20866			
8593054	-	-	-	5.400	0.21260	57	101	
8593055	-	-	-	5.500	0.21654			
8593056	-	-	-	5.600	0.22047			
8593057	-	-	-	5.700	0.22441			
8593058	-	-	-	5.800	0.22835			
8593059	-	-	-	5.900	0.23228			
8593060	-	-	-	6.000	0.23622			
8593061	-	-	-	6.100	0.24016	63	107	8
8593062	-	-	-	6.200	0.24409			
8593063	-	-	-	6.300	0.24803			
8593064	-	-	-	6.400	0.25197			
8593065	-	-	-	6.500	0.25591			
8593066	-	-	-	6.600	0.25984			
8593067	-	-	-	6.700	0.26378			
8593068	-	-	-	6.800	0.26772	69	113	
8593069	-	-	-	6.900	0.27165			
8593070	-	-	-	7.000	0.27559			
8593071	-	-	-	7.100	0.27953			
8593072	-	-	-	7.200	0.28346			

Packed: 1 pc.
Available V coating only.

EXD

List 2000 (Continued)

SPEED FEED P384 | XPM | V | JOBBERS | 40°

VP-GDR, Parabolic

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8593073	-	-	-	7.300	0.28740	69	113	8
8593074	-	-	-	7.400	0.29134			
8593075	-	-	-	7.500	0.29528			
8593076	-	-	-	7.600	0.29921	75	119	
8593077	-	-	-	7.700	0.30315			
8593078	-	-	-	7.800	0.30709			
8593079	-	-	-	7.900	0.31102			
8593080	-	-	-	8.000	0.31496			
8593081	-	-	-	8.100	0.31890		125	10
8593082	-	-	-	8.200	0.32283			
8593083	-	-	-	8.300	0.32677			
8593084	-	-	-	8.400	0.33071			
8593085	-	-	-	8.500	0.33465			
8593086	-	-	-	8.600	0.33858	81	131	
8593087	-	-	-	8.700	0.34252			
8593088	-	-	-	8.800	0.34646			
8593089	-	-	-	8.900	0.35039			
8593090	-	-	-	9.000	0.35433			
8593091	-	-	-	9.100	0.35827			
8593092	-	-	-	9.200	0.36220			
8593093	-	-	-	9.300	0.36614			
8593094	-	-	-	9.400	0.37008			
8593095	-	-	-	9.500	0.37402			
8593096	-	-	-	9.600	0.37795	87	137	
8593097	-	-	-	9.700	0.38189			
8593098	-	-	-	9.800	0.38583			
8593099	-	-	-	9.900	0.38976			
8593100	-	-	-	10.000	0.39370			
8593101	-	-	-	10.100	0.39764		144	12
8593102	-	-	-	10.200	0.40157			
8593103	-	-	-	10.300	0.40551			
8593104	-	-	-	10.400	0.40945			
8593105	-	-	-	10.500	0.41339			
8593106	-	-	-	10.600	0.41732			
8593107	-	-	-	10.700	0.42126	94	151	
8593108	-	-	-	10.800	0.42520			
8593109	-	-	-	10.900	0.42913			
8593110	-	-	-	11.000	0.43307			
8593111	-	-	-	11.100	0.43701			
8593112	-	-	-	11.200	0.44094			
8593113	-	-	-	11.300	0.44488			
8593114	-	-	-	11.400	0.44882			
8593115	-	-	-	11.500	0.45276			
8593116	-	-	-	11.600	0.45669			
8593117	-	-	-	11.700	0.46063			
8593118	-	-	-	11.800	0.46457			
8593119	-	-	-	11.900	0.46850	101	158	
8593120	-	-	-	12.000	0.47244			
8593121	-	-	-	12.100	0.47638			

Packed: 1 pc.
Available V coating only.

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EXD

Work Material

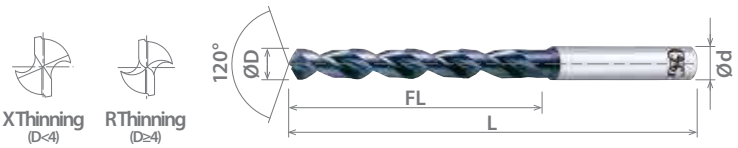
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2000	○	○	◎	○	◎				◎	○	○	○		◎	○		

○ good ◎ best

List 2000 (Continued)

VP-GDR, Parabolic

SPEED FEED	XPM	V	JOBBERS	40°
P384				



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8593122	-	-	-	12.200	0.48031	101	158	12
8593123	-	-	-	12.300	0.48425			
8593124	-	-	-	12.400	0.48819			
8593125	-	-	-	12.500	0.49213			
8593126	-	-	-	12.600	0.49606			
8593127	1/2	-	-	12.700	0.50000			
8593128	-	-	-	12.800	0.50394			
8593129	-	-	-	12.900	0.50787			
8593130	-	-	-	13.000	0.51181			
8593135	-	-	-	13.500	0.53150	106	166	16
8593140	-	-	-	14.000	0.55118			
8593145	-	-	-	14.500	0.57087	109	169	
8593150	-	-	-	15.000	0.59055			
8593155	-	-	-	15.500	0.61024	112	172	
8593160	-	-	-	16.000	0.62992			
8593165	-	-	-	16.500	0.64961	115	181	20
8593170	-	-	-	17.000	0.66929			
8593175	-	-	-	17.500	0.68898	118	184	
8593180	-	-	-	18.000	0.70866			
8593185	-	-	-	18.500	0.72835	122	188	
8593190	-	-	-	19.000	0.74803			
8593195	-	-	-	19.500	0.76772	125	191	
8593200	-	-	-	20.000	0.78740			
8593205	-	-	-	20.500	0.80709	128	204	25
8593210	-	-	-	21.000	0.82677			
8593215	-	-	-	21.500	0.84646	132	208	
8593220	-	-	-	22.000	0.86614			
8593225	-	-	-	22.500	0.88583	136	212	
8593230	-	-	-	23.000	0.90551			
8593235	-	-	-	23.500	0.92520			
8593240	-	-	-	24.000	0.94488	140	216	
8593245	-	-	-	24.500	0.96457			
8593250	-	-	-	25.000	0.98425			
8593255	-	-	-	25.500	1.00394	145	225	32
8593260	-	-	-	26.000	1.02362			
8593265	-	-	-	26.500	1.04331			
8593270	-	-	-	27.000	1.06299	150	230	
8593280	-	-	-	28.000	1.10236			
8593290	-	-	-	29.000	1.14173	155	235	
8593300	-	-	-	30.000	1.18110			
8593310	-	-	-	31.000	1.22047	160	240	
8593320	-	-	-	32.000	1.25984	165		

Packed: 1 pc.
Available V coating only.

EXD

Work Material

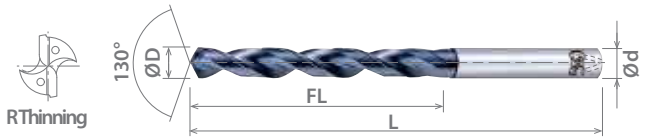
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2000	○	○	◎	○	◎				◎	○	○	○		◎	○		

○ good ◎ best

List 1700

V-HO-GDR, Coolant-Through

SPEED FEED P385 | HSS-Co | V | JOBBERS | 30°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
5.95<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤31.75	+0 / -0.039	+0 / -0.0015

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
17234408	15/64	-	-	5.953	0.23438	66	112	15/64
17236208	-	-	-	6.000	0.23622	69	115	6.00
17250008	1/4	-	E	6.350	0.25000			1/4
17257008	-	-	F	6.528	0.25700	73	119	6.53
17265608	17/64	-	-	6.747	0.26563			17/64
17272008	-	-	I	6.909	0.27200			6.91
17281208	9/32	-	-	7.144	0.28125	74	120	9/32
17296908	19/64	-	-	7.541	0.29688	77	123	19/64
17312508	5/16	-	-	7.938	0.31250	80	127	5/16
17315008	-	-	-	8.000	0.31496			8.00
17328108	21/64	-	-	8.334	0.32813	84	130	21/64
17343808	11/32	-	-	8.731	0.34375	87	133	11/32
17359408	23/64	-	-	9.128	0.35938	88	134	23/64
17375008	3/8	-	-	9.525	0.37500	92	138	3/8
17377008	-	-	V	9.576	0.37700		145	9.58
17390608	25/64	-	-	9.922	0.39063	95	148	25/64
17393708	-	-	-	10.000	0.39370			10.00
17406208	13/32	-	-	10.319	0.40625	98	151	13/32
17421908	27/64	-	-	10.716	0.42188	100	153	27/64
17437508	7/16	-	-	11.113	0.43750	103	156	7/16
17453108	29/64	-	-	11.509	0.45313	106	159	29/64
17468808	15/32	-	-	11.906	0.46875	109	162	15/32
17484408	31/64	-	-	12.303	0.48438	111	164	31/64
17500008	1/2	-	-	12.700	0.50000	114	167	1/2
17531208	17/32	-	-	13.494	0.53125	122	182	5/8
17562508	9/16	-	-	14.288	0.56250			
17578108	37/64	-	-	14.684	0.57813			
17593808	19/32	-	-	15.081	0.59375	131	192	
17625008	5/8	-	-	15.875	0.62500			
17656208	21/32	-	-	16.669	0.65625		199	3/4
17687508	11/16	-	-	17.463	0.68750	142	210	
17718808	23/32	-	-	18.256	0.71875			
17750008	3/4	-	-	19.050	0.75000	149	219	
17781308	25/32	-	-	19.844	0.78125	152		7/8
17812508	13/16	-	-	20.638	0.81250	155	223	
17843808	27/32	-	-	21.431	0.84375			
17875008	7/8	-	-	22.225	0.87500			
17906208	29/32	-	-	23.019	0.90625		233	1
17937508	15/16	-	-	23.813	0.93750			
17968808	31/32	-	-	24.606	0.96875	161	239	
18000008	1	-	-	25.400	1.00000			
18031208	1-1/32	-	-	26.194	1.03125	165	242	1-1/4

Packed: 1 pc.
Available V coating only.

continued on next page

OHD

Work Material

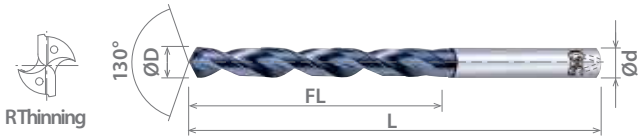
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1700	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢		

▢ good ▢ best

List 1700 (Continued)

SPEED FEED P385 | HSS-Co | V | JOBBERS | 30°

V-HO-GDR, Coolant-Through



Cutting Diameter Tolerance (h8)		
Size	mm	inch
5.95<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤31.75	+0 / -0.039	+0 / -0.0015

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
18062508	1-1/16	-	-	26.988	1.06250	168	246	1-1/4
18093808	1-3/32	-	-	27.781	1.09375	174	252	
18125008	1-1/8	-	-	28.575	1.12500	180	258	
18218808	1-7/32	-	-	30.956	1.21875	190	268	
18250008	1-1/4	-	-	31.750	1.25000	200	277	

Packed: 1 pc.
Available V coating only.

OHD

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1700	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢		

▢ good ▢ best

List 1750

TDXL-10D

SPEED FEED P386 | HSS-Co | WXL | 40°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.6≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤17.86	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8622816	-	-	-	1.600	0.06299	26	75	1.6
8622818	-	-	-	1.800	0.07087			1.8
17542411	5/64	-	-	1.984	0.07813			5/64
8622820	-	-	-	2.000	0.07874			2.0
8622821	-	-	-	2.100	0.08268	33		2.1
8622822	-	-	-	2.200	0.08661			2.2
8622823	-	-	-	2.300	0.09055			2.3
17543111	3/32	-	-	2.381	0.09375			3/32
8622824	-	-	-	2.400	0.09449			2.4
8622825	-	-	-	2.500	0.09843			2.5
8622826	-	-	-	2.600	0.10236	40	90	2.6
8622827	-	-	-	2.700	0.10630			2.7
17543811	7/64	-	-	2.778	0.10938			7/64
8622828	-	-	-	2.800	0.11024			2.8
8622829	-	-	-	2.900	0.11417			2.9
8622830	-	-	-	3.000	0.11811			3.0
8622831	-	-	-	3.100	0.12205	45	100	3.1
17544411	1/8	-	-	3.175	0.12500			1/8
8622832	-	-	-	3.200	0.12598			3.2
8622833	-	-	-	3.300	0.12992			3.3
8622834	-	-	-	3.400	0.13386	50		3.4
8622835	-	-	-	3.500	0.13780			3.5
17544711	9/64	-	-	3.572	0.14063			9/64
8622836	-	-	-	3.600	0.14173			3.6
8622837	-	-	-	3.700	0.14567			3.7
8622838	-	-	-	3.800	0.14961			3.8
8622839	-	-	-	3.900	0.15354			3.9
17545311	5/32	-	-	3.969	0.15625			5/32
8622840	-	-	-	4.000	0.15748			4.0
8622841	-	-	-	4.100	0.16142	55	115	4.1
8622842	-	-	-	4.200	0.16535			4.2
8622843	-	-	-	4.300	0.16929	60		4.3
17545911	11/64	-	-	4.366	0.17188			11/64
8622844	-	-	-	4.400	0.17323			4.4
8622845	-	-	-	4.500	0.17717			4.5
8622846	-	-	-	4.600	0.18110			4.6
8622847	-	-	-	4.700	0.18504			4.7
17546511	3/16	-	-	4.763	0.18750	65		3/16
8622848	-	-	-	4.800	0.18898			4.8
8622849	-	-	-	4.900	0.19291			4.9
8622850	-	-	-	5.000	0.19685			5.0
8622851	-	-	-	5.100	0.20079	70	128	5.1

Packed: 1 pc.
Available WXL® coating only.

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EXD

Work Material

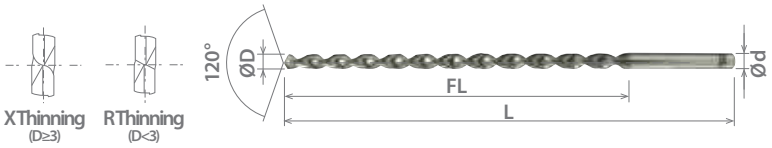
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1750	◎	◎	◎	◎	◎	○	○	○	◎	○	○		○	◎	○		

○ good ◎ best

List 1750 (Continued)

SPEED FEED P386 | HSS-Co | WXL | 40°

TDXL-10D



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.6≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤17.86	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
17547211	13/64	-	-	5.159	0.20313	70	128	13/64
8622852	-	-	-	5.200	0.20472			5.2
8622853	-	-	-	5.300	0.20866			5.3
8622854	-	-	-	5.400	0.21260	78		5.4
8622855	-	-	-	5.500	0.21654			5.5
17547711	7/32	-	-	5.556	0.21875			7/32
8622856	-	-	-	5.600	0.22047			5.6
8622857	-	-	-	5.700	0.22441			5.7
8622858	-	-	-	5.800	0.22835			5.8
8622859	-	-	-	5.900	0.23228			5.9
17548111	15/64	-	-	5.953	0.23438			15/64
8622860	-	-	-	6.000	0.23622			6.0
8622861	-	-	-	6.100	0.24016	87	140	6.1
8622862	-	-	-	6.200	0.24409			6.2
8622863	-	-	-	6.300	0.24803			6.3
17548511	1/4	-	E	6.350	0.25000			1/4
8622864	-	-	-	6.400	0.25197			6.4
8622865	-	-	-	6.500	0.25591			6.5
8622866	-	-	-	6.600	0.25984			6.6
8622867	-	-	-	6.700	0.26378			6.7
17548811	17/64	-	-	6.747	0.26563	90		17/64
8622868	-	-	-	6.800	0.26772			6.8
8622869	-	-	-	6.900	0.27165			6.9
8622870	-	-	-	7.000	0.27559			7.0
8622871	-	-	-	7.100	0.27953	100	155	7.1
17549111	9/32	-	-	7.144	0.28125			9/32
8622872	-	-	-	7.200	0.28346			7.2
8622873	-	-	-	7.300	0.28740			7.3
8622874	-	-	-	7.400	0.29134			7.4
8622875	-	-	-	7.500	0.29528			7.5
17549411	19/64	-	-	7.541	0.29688	105		19/64
8622876	-	-	-	7.600	0.29921			7.6
8622877	-	-	-	7.700	0.30315			7.7
8622878	-	-	-	7.800	0.30709			7.8
8622879	-	-	-	7.900	0.31102			7.9
17549611	5/16	-	-	7.938	0.31250			5/16
8622880	-	-	-	8.000	0.31496			8.0
8622881	-	-	-	8.100	0.31890	110	165	8.1
8622882	-	-	-	8.200	0.32283			8.2
8622883	-	-	-	8.300	0.32677			8.3
17549911	21/64	-	-	8.334	0.32813			21/64
8622884	-	-	-	8.400	0.33071			8.4
8622885	-	-	-	8.500	0.33465			8.5
8622886	-	-	-	8.600	0.33858	115		8.6
8622887	-	-	-	8.700	0.34252			8.7
17550211	11/32	-	-	8.731	0.34375			11/32
8622888	-	-	-	8.800	0.34646			8.8
8622889	-	-	-	8.900	0.35039			8.9
8622890	-	-	-	9.000	0.35433			9.0
8622891	-	-	-	9.100	0.35827	125	190	9.1
17550511	23/64	-	-	9.128	0.35938			23/64
8622892	-	-	-	9.200	0.36220			9.2

Packed: 1 pc.
Available WXL® coating only.

EXD

List 1750 (Continued)

SPEED FEED P386 | HSS-Co | WXL | 40°

TDXL-10D

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8622893	-	-	-	9.300	0.36614	125	190	9.3
8622894	-	-	-	9.400	0.37008			9.4
8622895	-	-	-	9.500	0.37402			9.5
17550711	3/8	-	-	9.525	0.37500	130		3/8
8622896	-	-	-	9.600	0.37795			9.6
8622897	-	-	-	9.700	0.38189			9.7
8622898	-	-	-	9.800	0.38583			9.8
8622899	-	-	-	9.900	0.38976			9.9
17551011	25/64	-	-	9.922	0.39063			25/64
8622900	-	-	-	10.000	0.39370			10.0
8622901	-	-	-	10.100	0.39764	140	205	10.1
8622902	-	-	-	10.200	0.40157			10.2
8622903	-	-	-	10.300	0.40551			10.3
17551311	13/32	-	-	10.319	0.40625			13/32
8622904	-	-	-	10.400	0.40945			10.4
8622905	-	-	-	10.500	0.41339			10.5
8622906	-	-	-	10.600	0.41732	145		10.6
8622907	-	-	-	10.700	0.42126			10.7
17551511	27/64	-	-	10.716	0.42188			27/64
8622908	-	-	-	10.800	0.42520			10.8
8622909	-	-	-	10.900	0.42913			10.9
8622910	-	-	-	11.000	0.43307			11.0
8622911	-	-	-	11.100	0.43701	155	215	11.1
17551611	7/16	-	-	11.113	0.43750			7/16
8622912	-	-	-	11.200	0.44094			11.2
8622913	-	-	-	11.300	0.44488			11.3
8622914	-	-	-	11.400	0.44882			11.4
8622915	-	-	-	11.500	0.45276			11.5
17551711	29/64	-	-	11.509	0.45313			29/64
8622916	-	-	-	11.600	0.45669			11.6
8622917	-	-	-	11.700	0.46063			11.7
8622918	-	-	-	11.800	0.46457			11.8
8622919	-	-	-	11.900	0.46850			11.9
17551811	15/32	-	-	11.906	0.46875			15/32
8622920	-	-	-	12.000	0.47244			12.0
17552011	1/2	-	-	12.700	0.50000	160	220	1/2
17525111	17/32	-	-	13.494	0.53125	175	225	17/32
17525311	9/16	-	-	14.288	0.56250	186	236	9/16
17525511	45/64	-	-	17.859	0.70313	233	283	45/64

Packed: 1 pc.
Available WXL® coating only.

EXD

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1750	◎	◎	◎	◎	◎	○	○	○	◎	○	○		○	◎	○		

○ good ◎ best

List 1760

TDXL-15D

SPEED FEED P386 | HSS-Co | WXL | 40°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.6≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤17.86	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8623016	-	-	-	1.600	0.06299	30	70	1.6
8623018	-	-	-	1.800	0.07087	34	75	1.8
17502411	5/64	-	-	1.984	0.07813	36	80	5/64
8623020	-	-	-	2.000	0.07874			2.0
8623021	-	-	-	2.100	0.08268	38		2.1
8623022	-	-	-	2.200	0.08661	40		2.2
8623023	-	-	-	2.300	0.09055	42	85	2.3
17503111	3/32	-	-	2.381	0.09375	44		3/32
8623024	-	-	-	2.400	0.09449			2.4
8623025	-	-	-	2.500	0.09843	46		2.5
8623026	-	-	-	2.600	0.10236	48	100	2.6
8623027	-	-	-	2.700	0.10630	50		2.7
17503811	7/64	-	-	2.778	0.10938			7/64
8623028	-	-	-	2.800	0.11024			2.8
8623029	-	-	-	2.900	0.11417	54	105	2.9
8623030	-	-	-	3.000	0.11811			3.0
8623031	-	-	-	3.100	0.12205	56	110	3.1
17504411	1/8	-	-	3.175	0.12500	58		1/8
8623032	-	-	-	3.200	0.12598			3.2
8623033	-	-	-	3.300	0.12992	60		3.3
8623034	-	-	-	3.400	0.13386	62	115	3.4
8623035	-	-	-	3.500	0.13780	64		3.5
17504711	9/64	-	-	3.572	0.14063			9/64
8623036	-	-	-	3.600	0.14173	66		3.6
8623037	-	-	-	3.700	0.14567	68	120	3.7
8623038	-	-	-	3.800	0.14961	70		3.8
8623039	-	-	-	3.900	0.15354			3.9
17505311	5/32	-	-	3.969	0.15625	72		5/32
8623040	-	-	-	4.000	0.15748			4.0
8623041	-	-	-	4.100	0.16142	74	135	4.1
8623042	-	-	-	4.200	0.16535	76		4.2
8623043	-	-	-	4.300	0.16929	78	140	4.3
17505911	11/64	-	-	4.366	0.17188			11/64
8623044	-	-	-	4.400	0.17323	80		4.4
8623045	-	-	-	4.500	0.17717	82		4.5
8623046	-	-	-	4.600	0.18110	84	145	4.6
8623047	-	-	-	4.700	0.18504	86		4.7
17506511	3/16	-	-	4.763	0.18750			3/16
8623048	-	-	-	4.800	0.18898			4.8
8623049	-	-	-	4.900	0.19291	88	150	4.9
8623050	-	-	-	5.000	0.19685	90		5.0
8623051	-	-	-	5.100	0.20079	92		5.1
17507211	13/64	-	-	5.159	0.20313			13/64
8623052	-	-	-	5.200	0.20472	94	155	5.2
8623053	-	-	-	5.300	0.20866	96		5.3
8623054	-	-	-	5.400	0.21260	98		5.4
8623055	-	-	-	5.500	0.21654	100		5.5
17507711	7/32	-	-	5.556	0.21875			7/32
8623056	-	-	-	5.600	0.22047	102	160	5.6
8623057	-	-	-	5.700	0.22441	104	165	5.7
8623058	-	-	-	5.800	0.22835	106		5.8
17508111	-	-	-	5.950	0.23425	108	170	15/64

Packed: 1 pc.
Available WXL® coating only.

EXD

List 1760 (Continued)

TDXL-15D

SPEED FEED P386 | HSS-Co | WXL | 40°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8623060	-	-	-	6.000	0.23622	108	170	6.0
8623062	-	-	-	6.200	0.24409	112		6.2
8623063	-	-	-	6.300	0.24803	114	175	6.3
17508511	1/4	-	E	6.350	0.25000			1/4
8623065	-	-	-	6.500	0.25591	118	200	6.5
8623066	-	-	-	6.600	0.25984	120		6.6
17508811	17/64	-	-	6.747	0.26563			17/64
8623068	-	-	-	6.800	0.26772			6.8
8623069	-	-	-	6.900	0.27165	124		6.9
8623070	-	-	-	7.000	0.27559	126		7.0
8623071	-	-	-	7.100	0.27953			7.1
17509111	9/32	-	-	7.144	0.28125	130	205	9/32
8623075	-	-	-	7.500	0.29528	136		7.5
17509411	19/64	-	-	7.541	0.29688			19/64
17509611	5/16	-	-	7.938	0.31250	144	215	5/16
8623080	-	-	-	8.000	0.31496			8.0
8623081	-	-	-	8.100	0.31890	146		8.1
8623082	-	-	-	8.200	0.32283	148	220	8.2
17509911	21/64	-	-	8.334	0.32813	150		21/64
8623085	-	-	-	8.500	0.33465	154	225	8.5
8623086	-	-	-	8.600	0.33858	156		8.6
17510211	11/32	-	-	8.731	0.34375	160	230	11/32
8623088	-	-	-	8.800	0.34646			8.8
8623090	-	-	-	9.000	0.35433	162		9.0
17510511	23/64	-	-	9.128	0.35938	165	235	23/64
8623093	-	-	-	9.300	0.36614	168	240	9.3
8623095	-	-	-	9.500	0.37402	172		9.5
17510711	3/8	-	-	9.525	0.37500			3/8
8623097	-	-	-	9.700	0.38189	176	245	9.7
8623098	-	-	-	9.800	0.38583	178		9.8
17511011	25/64	-	-	9.922	0.39063	180	250	25/64
8623100	-	-	-	10.000	0.39370			10.0
17511311	13/32	-	-	10.319	0.40625	185	260	13/32
8623105	-	-	-	10.500	0.41339	190	270	10.5
17511511	27/64	-	-	10.716	0.42188	195	275	27/64
8623110	-	-	-	11.000	0.43307	200	280	11.0
17511611	7/16	-	-	11.113	0.43750			7/16
8623115	-	-	-	11.500	0.45276	208	290	11.5
17511711	29/64	-	-	11.509	0.45313	210		29/64
8623118	-	-	-	11.800	0.46457	214	295	11.8
17511811	15/32	-	-	11.906	0.46875	215		15/32
8623120	-	-	-	12.000	0.47244	216	300	12.0
17512011	1/2	-	-	12.700	0.50000	230	310	1/2
17525711	17/32	-	-	13.494	0.53125	243	293	17/32
17525911	9/16	-	-	14.288	0.56250	257	307	9/16
17526111	45/64	-	-	17.859	0.70313	322	372	45/64

Packed: 1 pc.
Available WXL® coating only.

EXD

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1760	◎	◎	◎	◎	◎	○	○	○	◎	○	○		○	◎	○		

○ good ◎ best

List 1770

TDXL-20D

SPEED FEED P386 | HSS-Co | WXL | 40°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.6≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤14.29	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
8623216	-	-	-	1.600	0.06299	38	85	1.6
8623218	-	-	-	1.800	0.07087	42		1.8
17515311	5/64	-	-	1.984	0.07813	46		5/64
8623220	-	-	-	2.000	0.07874			2.0
8623221	-	-	-	2.100	0.08268	50	90	2.1
8623222	-	-	-	2.200	0.08661	52		2.2
8623223	-	-	-	2.300	0.09055	54	95	2.3
17516011	3/32	-	-	2.381	0.09375	56		3/32
8623224	-	-	-	2.400	0.09449			2.4
8623225	-	-	-	2.500	0.09843	58	100	2.5
8623226	-	-	-	2.600	0.10236	60	110	2.6
8623227	-	-	-	2.700	0.10630	64	115	2.7
17516711	7/64	-	-	2.778	0.10938	66		7/64
8623228	-	-	-	2.800	0.11024			2.8
8623229	-	-	-	2.900	0.11417	68	120	2.9
8623230	-	-	-	3.000	0.11811	70		3.0
8623231	-	-	-	3.100	0.12205	72	125	3.1
17517311	1/8	-	-	3.175	0.12500	74		1/8
8623232	-	-	-	3.200	0.12598			3.2
8623233	-	-	-	3.300	0.12992	76		3.3
8623234	-	-	-	3.400	0.13386	80	130	3.4
8623235	-	-	-	3.500	0.13780	82		3.5
17517611	9/64	-	-	3.572	0.14063			9/64
8623237	-	-	-	3.700	0.14567	86	135	3.7
8623238	-	-	-	3.800	0.14961	88	140	3.8
17518211	5/32	-	-	3.969	0.15625	92		5/32
8623240	-	-	-	4.000	0.15748			4.0
8623241	-	-	-	4.100	0.16142	96	155	4.1
8623242	-	-	-	4.200	0.16535	98		4.2
8623243	-	-	-	4.300	0.16929	100	160	4.3
17518811	11/64	-	-	4.366	0.17188			11/64
8623245	-	-	-	4.500	0.17717	104	165	4.5
8623246	-	-	-	4.600	0.18110	106		4.6
17519411	3/16	-	-	4.763	0.18750	110	170	3/16
8623248	-	-	-	4.800	0.18898	112		4.8
8623250	-	-	-	5.000	0.19685	116	175	5.0
8623251	-	-	-	5.100	0.20079	118	180	5.1
17520111	13/64	-	-	5.159	0.20313	120		13/64
8623252	-	-	-	5.200	0.20472			5.2
8623255	-	-	-	5.500	0.21654	128	185	5.5
17520611	7/32	-	-	5.556	0.21875			7/32
8623257	-	-	-	5.700	0.22441	132	190	5.7
8623258	-	-	-	5.800	0.22835	134	200	5.8
17521011	15/64	-	-	5.953	0.23438	138		15/64
8623260	-	-	-	6.000	0.23622			6.0
17521411	1/4	-	E	6.350	0.25000	146		1/4
8623265	-	-	-	6.500	0.25591	150	225	6.5
17521711	17/64	-	-	6.747	0.26563	156		17/64
8623270	-	-	-	7.000	0.27559	162	230	7.0
17522011	9/32	-	-	7.144	0.28125	164	235	9/32
8623275	-	-	-	7.500	0.29528	174	245	7.5
17522311	19/64	-	-	7.541	0.29688			19/64

Packed: 1 pc.
Available WXL® coating only.

EXD

List 1770 (Continued)

SPEED FEED P386 | HSS-Co | WXL | 40°

TDXL-20D

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm/in)
17522511	5/16	-	-	7.938	0.31250	184	255	5/16
8623280	-	-	-	8.000	0.31496			8.0
8623281	-	-	-	8.100	0.31890	188		8.1
8623282	-	-	-	8.200	0.32283	190	260	8.2
17522811	21/64	-	-	8.334	0.32813	192		21/64
8623285	-	-	-	8.500	0.33465	196	265	8.5
17523111	11/32	-	-	8.731	0.34375	200	270	11/32
8623290	-	-	-	9.000	0.35433	208	275	9.0
17523411	23/64	-	-	9.128	0.35938	210		23/64
17523611	3/8	-	-	9.525	0.37500	220	290	3/8
17523911	25/64	-	-	9.922	0.39063	230	300	25/64
8623300	-	-	-	10.000	0.39370			10.0
17524211	13/32	-	-	10.319	0.40625	238		13/32
17524411	27/64	-	-	10.716	0.42188	246	340	27/64
8623310	-	-	-	11.000	0.43307	254	350	11.0
17524511	7/16	-	-	11.113	0.43750	255		7/16
17524611	29/64	-	-	11.509	0.45313	265		29/64
17524711	15/32	-	-	11.906	0.46875	274		15/32
8623320	-	-	-	12.000	0.47244	276		12.0
17524911	1/2	-	-	12.700	0.50000	292	360	1/2
17526311	17/32	-	-	13.494	0.53125	310		17/32
17526511	9/16	-	-	14.288	0.56250	328	378	9/16

Packed: 1 pc.
Available WXL® coating only.

EXD

Work Material

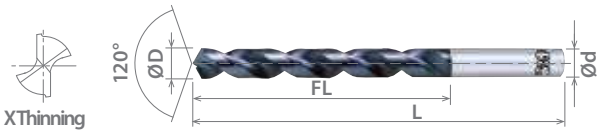
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1770	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢		

▢ good ▢ best

List 1800

V-SDR

SPEED FEED P387 | HSSE | V | JOBBERS | 35°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8594020	-	-	-	2.000	0.07874	24	49	2.0
8594021	-	-	-	2.100	0.08268			2.1
8594022	-	-	-	2.200	0.08661	27	53	2.2
8594023	-	-	-	2.300	0.09055			2.3
8594024	-	-	-	2.400	0.09449	30	57	2.4
8594025	-	-	-	2.500	0.09843			2.5
8594026	-	-	-	2.600	0.10236			2.6
8594027	-	-	-	2.700	0.10630	33	61	2.7
8594028	-	-	-	2.800	0.11024			2.8
8594029	-	-	-	2.900	0.11417			2.9
8594030	-	-	-	3.000	0.11811			3.0
8594031	-	-	-	3.100	0.12205	36	65	3.1
8594032	-	-	-	3.200	0.12598			3.2
8594033	-	-	-	3.300	0.12992			3.3
8594034	-	-	-	3.400	0.13386	39	70	3.4
8594035	-	-	-	3.500	0.13780			3.5
8594036	-	-	-	3.600	0.14173			3.6
8594037	-	-	-	3.700	0.14567			3.7
8594038	-	-	-	3.800	0.14961	43	75	3.8
8594039	-	-	-	3.900	0.15354			3.9
8594040	-	-	-	4.000	0.15748			4.0
8594041	-	-	-	4.100	0.16142			4.1
8594042	-	-	-	4.200	0.16535			4.2
8594043	-	-	-	4.300	0.16929	47	80	4.3
8594044	-	-	-	4.400	0.17323			4.4
8594045	-	-	-	4.500	0.17717			4.5
8594046	-	-	-	4.600	0.18110			4.6
8594047	-	-	-	4.700	0.18504			4.7
8594048	-	-	-	4.800	0.18898	52	86	4.8
8594049	-	-	-	4.900	0.19291			4.9
8594050	-	-	-	5.000	0.19685			5.0
8594051	-	-	-	5.100	0.20079			5.1
8594052	-	-	-	5.200	0.20472			5.2
8594053	-	-	-	5.300	0.20866			5.3
8594054	-	-	-	5.400	0.21260	57	93	5.4
8594055	-	-	-	5.500	0.21654			5.5
8594056	-	-	-	5.600	0.22047			5.6
8594057	-	-	-	5.700	0.22441			5.7
8594058	-	-	-	5.800	0.22835			5.8
8594059	-	-	-	5.900	0.23228			5.9
8594060	-	-	-	6.000	0.23622			6.0
8594061	-	-	-	6.100	0.24016	63	101	6.1
8594062	-	-	-	6.200	0.24409			6.2
8594063	-	-	-	6.300	0.24803			6.3
8594064	-	-	-	6.400	0.25197			6.4
8594065	-	-	-	6.500	0.25591			6.5
8594066	-	-	-	6.600	0.25984			6.6
8594067	-	-	-	6.700	0.26378			6.7
8594068	-	-	-	6.800	0.26772	69	109	6.8
8594069	-	-	-	6.900	0.27165			6.9
8594070	-	-	-	7.000	0.27559			7.0
8594071	-	-	-	7.100	0.27953			7.1

Packed: 1 pc.
Available V coating only.

EXD

List 1800 (Continued)

SPEED FEED P387 | HSSE | V | JOBBERS | 35°

V-SDR

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8594072	-	-	-	7.200	0.28346	69	109	7.2
8594073	-	-	-	7.300	0.28740			7.3
8594074	-	-	-	7.400	0.29134			7.4
8594075	-	-	-	7.500	0.29528			7.5
8594076	-	-	-	7.600	0.29921	75	117	7.6
8594077	-	-	-	7.700	0.30315			7.7
8594078	-	-	-	7.800	0.30709			7.8
8594079	-	-	-	7.900	0.31102			7.9
8594080	-	-	-	8.000	0.31496			8.0
8594081	-	-	-	8.100	0.31890			8.1
8594082	-	-	-	8.200	0.32283			8.2
8594083	-	-	-	8.300	0.32677			8.3
8594084	-	-	-	8.400	0.33071			8.4
8594085	-	-	-	8.500	0.33465			8.5
8594086	-	-	-	8.600	0.33858	81	125	8.6
8594087	-	-	-	8.700	0.34252			8.7
8594088	-	-	-	8.800	0.34646			8.8
8594089	-	-	-	8.900	0.35039			8.9
8594090	-	-	-	9.000	0.35433			9.0
8594091	-	-	-	9.100	0.35827			9.1
8594092	-	-	-	9.200	0.36220			9.2
8594093	-	-	-	9.300	0.36614			9.3
8594094	-	-	-	9.400	0.37008			9.4
8594095	-	-	-	9.500	0.37402			9.5
8594096	-	-	-	9.600	0.37795	87	133	9.6
8594097	-	-	-	9.700	0.38189			9.7
8594098	-	-	-	9.800	0.38583			9.8
8594099	-	-	-	9.900	0.38976			9.9
8594100	-	-	-	10.000	0.39370			10.0
8594101	-	-	-	10.100	0.39764			10.1
8594102	-	-	-	10.200	0.40157			10.2
8594103	-	-	-	10.300	0.40551			10.3
8594104	-	-	-	10.400	0.40945			10.4
8594105	-	-	-	10.500	0.41339			10.5
8594106	-	-	-	10.600	0.41732			10.6
8594107	-	-	-	10.700	0.42126	94	142	10.7
8594108	-	-	-	10.800	0.42520			10.8
8594109	-	-	-	10.900	0.42913			10.9
8594110	-	-	-	11.000	0.43307			11.0
8594111	-	-	-	11.100	0.43701			11.1
8594112	-	-	-	11.200	0.44094			11.2
8594113	-	-	-	11.300	0.44488			11.3
8594114	-	-	-	11.400	0.44882			11.4
8594115	-	-	-	11.500	0.45276			11.5
8594116	-	-	-	11.600	0.45669			11.6
8594117	-	-	-	11.700	0.46063			11.7
8594118	-	-	-	11.800	0.46457			11.8
8594119	-	-	-	11.900	0.46850	101	151	11.9

Packed: 1 pc.
Available V coating only.

continued on next page

EXD

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1800	○	○	○	○	○			○	○	○	○						

○ good ◎ best

List 1800 (Continued)

SPEED FEED P387 | HSSE | V | JOBBERS | 35°

V-SDR



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
8594120	-	-	-	12.000	0.47244			12.0
8594121	-	-	-	12.100	0.47638			12.1
8594122	-	-	-	12.200	0.48031			12.2
8594123	-	-	-	12.300	0.48425			12.3
8594124	-	-	-	12.400	0.48819			12.4
8594125	-	-	-	12.500	0.49213	101	151	12.5
8594126	-	-	-	12.600	0.49606			12.6
8594127	1/2	-	-	12.700	0.50000			12.7
8594128	-	-	-	12.800	0.50394			12.8
8594129	-	-	-	12.900	0.50787			12.9
8594130	-	-	-	13.000	0.51181			13.0

Packed: 1 pc.
Available V coating only.

EXD

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1800	○	○	○	○	○			◎	○	○	○						

○ good ◎ best

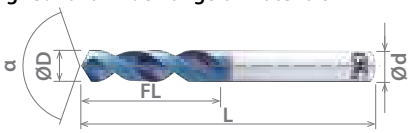
List 1150

NEXUS-GDS, Designed for a Wide Range of Materials

SPEED FEED	HSSE	WD1	STUB	40°
P388-389				

Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤12.7	+0 / -0.027	+0 / -0.0011





EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8650100	-	-	-	1.000	0.03937	6	38		
11507615	-	-	-	1.250	0.04921	8	40		
11509115	-	54	-	1.397	0.05500	9	41		
8650150	-	-	-	1.500	0.05906				
11511115	-	-	-	1.600	0.06299	10	42		
11511615	-	-	-	1.650	0.06496				140°
11512915	-	50	-	1.778	0.07000				
8650180	-	-	-	1.800	0.07087				
8650181	-	-	-	1.810	0.07126	11	43		
8650183	-	-	-	1.830	0.07205				
11513615	-	49	-	1.854	0.07300				
11514915	5/64	-	-	1.984	0.07813				
8650200	-	-	-	2.000	0.07874	12	44		
11515915	-	45	-	2.083	0.08200				
8650211	-	-	-	2.110	0.08307				
8650213	-	-	-	2.130	0.08386				
11516915	-	44	-	2.184	0.08600				
11517715	-	43	-	2.261	0.08900	13	45	3	
8650228	-	-	-	2.280	0.08976				
8650230	-	-	-	2.300	0.09055				
11518815	-	42	-	2.375	0.09350				
8650238	-	-	-	2.380	0.09370				
8650240	-	-	-	2.400	0.09449				
8650250	-	-	-	2.500	0.09843	14	46		
11520415	-	39	-	2.527	0.09950				
11520915	-	38	-	2.578	0.10150				
8650260	-	-	-	2.600	0.10236				130°
11521515	-	37	-	2.642	0.10400				
11522215	-	36	-	2.705	0.10650				
8650276	-	-	-	2.760	0.10866				
8650278	-	-	-	2.780	0.10945				
8650280	-	-	-	2.800	0.11024	16	48		
11523815	-	33	-	2.870	0.11300				
11524115	-	-	-	2.900	0.11417				
8650300	-	-	-	3.000	0.11811				
11526115	-	-	-	3.100	0.12205				
11526915	1/8	-	-	3.175	0.12500				
8650320	-	-	-	3.200	0.12598	18	50		
8650325	-	-	-	3.250	0.12795			4	
8650330	-	-	-	3.300	0.12992				
8650340	-	-	-	3.400	0.13386				
11529615	-	29	-	3.454	0.13600	20	52		

Packed: 1 pc.
Available WD1 coating only.

continued on next page

EXD

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1150	◎	◎	○	◎	◎	○	○	○	○	◎	◎	○	○	○			

○ good ◎ best

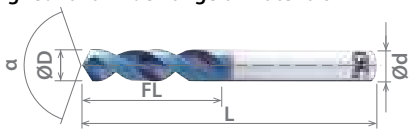
List 1150 (Continued)

NEXUS-GDS, Designed for a Wide Range of Materials

SPEED FEED P388-389 | HSSE | WD1 | STUB | 40°

Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤12.7	+0 / -0.027	+0 / -0.0011





EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8650350	-	-	-	3.500	0.13780	20	52	4	130°
11530815	9/64	-	-	3.572	0.14063				
8650365	-	-	-	3.650	0.14370				
8650367	-	-	-	3.670	0.14449				
11533115	-	25	-	3.797	0.14950	22	54		
8650390	-	-	-	3.900	0.15354				
11534815	5/32	-	-	3.969	0.15625				
8650400	-	-	-	4.000	0.15748				
11535515	-	21	-	4.039	0.15900		66	6	120°
8650410	-	-	-	4.100	0.16142				
8650420	-	-	-	4.200	0.16535				
8650430	-	-	-	4.300	0.16929	24	68		
11538815	11/64	-	-	4.366	0.17188				
8650450	-	-	-	4.500	0.17717				
8650459	-	-	-	4.590	0.18071				
11541315	-	14	-	4.623	0.18200				
8650463	-	-	-	4.630	0.18228				
11542715	3/16	-	-	4.763	0.18750	26	70		
8650500	-	-	-	5.000	0.19685				
11545615	-	8	-	5.055	0.19900				
8650510	-	-	-	5.100	0.20079				
11546215	-	7	-	5.105	0.20100				
11546715	13/64	-	-	5.159	0.20313				
8650520	-	-	-	5.200	0.20472				
11549215	-	3	-	5.410	0.21300	28	72		
8650548	-	-	-	5.480	0.21575				
8650550	-	-	-	5.500	0.21654				
11550715	7/32	-	-	5.556	0.21875				
11551115	-	-	-	5.600	0.22047				
11553015	-	1	-	5.791	0.22800				
11554615	15/64	-	-	5.953	0.23438				
8650600	-	-	-	6.000	0.23622				
11555815	1/4	-	E	6.350	0.25000	31	75	8	
11556115	-	-	-	6.500	0.25591				
11556215	-	-	-	6.520	0.25669				
8650680	-	-	-	6.800	0.26772	34	78		
8650690	-	-	-	6.900	0.27165				
8650700	-	-	-	7.000	0.27559				
11557815	-	-	-	7.300	0.28740				
8650734	-	-	-	7.340	0.28898				
8650738	-	-	-	7.380	0.29055				
11558315	-	-	-	7.450	0.29331				
11559315	5/16	-	-	7.938	0.31250	37	81		
8650800	-	-	-	8.000	0.31496				
8650810	-	-	-	8.100	0.31890		87	10	
11559915	-	-	P	8.204	0.32300				
11560415	-	-	-	8.430	0.33189				
8650850	-	-	-	8.500	0.33465				
8650860	-	-	-	8.600	0.33858	40	90		
8650880	-	-	-	8.800	0.34646				
11561315	-	-	-	8.830	0.34764				
8650900	-	-	-	9.000	0.35433				

Packed: 1 pc.
Available WD1 coating only.

EXD

List 1150 (Continued)

SPEED FEED P388-389 | HSSE | WD1 | STUB | 40°

NEXUS-GDS, Designed for a Wide Range of Materials

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
11561815	-	-	-	9.050	0.35630	40	90	10	120°
8650918	-	-	-	9.180	0.36142				
8650920	-	-	-	9.200	0.36220				
8650924	-	-	-	9.240	0.36378				
8650934	-	-	-	9.340	0.36772				
8650936	-	-	-	9.360	0.36850				
11563215	3/8	-	-	9.525	0.37500				
11564115	25/64	-	-	9.922	0.39063	43	93		
8651000	-	-	-	10.000	0.39370				
11564715	-	-	-	10.200	0.40157		100	12	
8651030	-	-	-	10.300	0.40551				
11565015	13/32	-	-	10.319	0.40625				
8651040	-	-	-	10.400	0.40945				
8651050	-	-	-	10.500	0.41339				
11565915	27/64	-	-	10.716	0.42188	47	104		
8651100	-	-	-	11.000	0.43307				
11566815	7/16	-	-	11.113	0.43750				
11567715	29/64	-	-	11.509	0.45313				
11568415	-	-	-	11.850	0.46654	51	108		
8651200	-	-	-	12.000	0.47244				
11568815	-	-	-	12.100	0.47638				
11569415	1/2	-	-	12.700	0.50000				

Packed: 1 pc.
Available WD1 coating only.

EXD

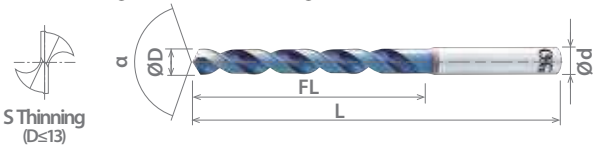
Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
1150	◎	◎	○	◎	◎	○	○	○	○	◎	◎	○	○	○				

○ good ◎ best

List 1650

NEXUS-GDR, Designed for a Wide Range of Materials

SPEED FEED P388-389 | HSSE | WD1 | JOBBERS | 40°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤12.7	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8655200	-	-	-	2.000	0.07874	24	56	3	130°
16502715	-	43	-	2.261	0.08900	27	59		
8655230	-	-	-	2.300	0.09055				
16503915	3/32	-	-	2.381	0.09375	30	62		
8655250	-	-	-	2.500	0.09843				
16505915	-	38	-	2.578	0.10150				
8655260	-	-	-	2.600	0.10236				
8655280	-	-	-	2.800	0.11024	33	65		
16508815	-	33	-	2.870	0.11300				
8655300	-	-	-	3.000	0.11811				
16511915	1/8	-	-	3.175	0.12500	36	68	4	
8655330	-	-	-	3.300	0.12992				
8655340	-	-	-	3.400	0.13386	39	71		
16514615	-	29	-	3.454	0.13600				
8655350	-	-	-	3.500	0.13780				
16515815	9/64	-	-	3.572	0.14063				
16518115	-	25	-	3.797	0.14950	43	75		
16519815	5/32	-	-	3.969	0.15625				
8655400	-	-	-	4.000	0.15748				
16520515	-	21	-	4.039	0.15900		87	6	120°
8655420	-	-	-	4.200	0.16535				
8655430	-	-	-	4.300	0.16929	47	91		
8655450	-	-	-	4.500	0.17717				
16527715	3/16	-	-	4.763	0.18750	52	96		
8655500	-	-	-	5.000	0.19685				
8655510	-	-	-	5.100	0.20079				
16531215	-	7	-	5.105	0.20100				
16531715	13/64	-	-	5.159	0.20313				
8655520	-	-	-	5.200	0.20472				
16534215	-	3	-	5.410	0.21300	57	101		
8655550	-	-	-	5.500	0.21654				
16535715	7/32	-	-	5.556	0.21875				
8655600	-	-	-	6.000	0.23622				
16540815	1/4	-	E	6.350	0.25000	63	107	8	
8655680	-	-	-	6.800	0.26772	69	113		
8655690	-	-	-	6.900	0.27165				
8655700	-	-	-	7.000	0.27559				
16544015	5/16	-	-	7.938	0.31250	75	119		
8655800	-	-	-	8.000	0.31496				
8655850	-	-	-	8.500	0.33465		125	10	
8655860	-	-	-	8.600	0.33858	81	131		
8655880	-	-	-	8.800	0.34646				
8655900	-	-	-	9.000	0.35433				
16547315	3/8	-	-	9.525	0.37500				
8656000	-	-	-	10.000	0.39370	87	137		
8656030	-	-	-	10.300	0.40551		144	12	
8656040	-	-	-	10.400	0.40945				

Packed: 1 pc.
Available WD1 coating only.

EXD

List 1650 (Continued)

SPEED FEED P388-389 | HSSE | WD1 | JOBBERS | 40°

NEXUS-GDR, Designed for a Wide Range of Materials

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8656050	-	-	-	10.500	0.41339	87	144	12	120°
8656100	-	-	-	11.000	0.43307	94	151		
16550615	7/16	-	-	11.113	0.43750				
8656200	-	-	-	12.000	0.47244	101	158		
16553115	1/2	-	-	12.700	0.50000				

Packed: 1 pc.
Available WD1 coating only.

EXD

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1650	◎	◎	○	◎	◎	○	○	○	○	◎	◎	○	○	○			

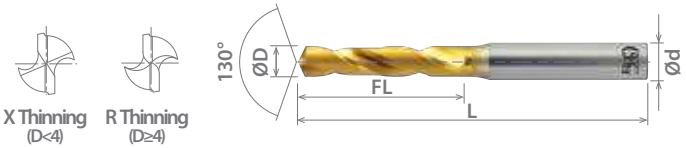
○ good ◎ best

List 1000

EX-GDS, Ideal for General Applications

SPEED FEED P390 | HSS-Co | TiN | STUB | 25°

Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.99≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤12.7	+0 / -0.027	+0 / -0.0011



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (in)
10078505	-	47	-	1.994	0.07850	17	33	1/8
10081005	-	46	-	2.057	0.08100	19	50	
10082005	-	45	-	2.083	0.08200			
10086005	-	44	-	2.184	0.08600			
10089005	-	43	-	2.261	0.08900			
10093505	-	42	-	2.375	0.09350			
10093805	3/32	-	-	2.381	0.09375			
10096005	-	41	-	2.438	0.09600	20	52	
10098005	-	40	-	2.489	0.09800			
10099505	-	39	-	2.527	0.09950		57	3/16
10101505	-	38	-	2.578	0.10150			
10104005	-	37	-	2.642	0.10400			
10106505	-	36	-	2.705	0.10650			
10109405	7/64	-	-	2.778	0.10938			
10110005	-	35	-	2.794	0.11000	22	58	
10111005	-	34	-	2.819	0.11100			
10113005	-	33	-	2.870	0.11300			
10116005	-	32	-	2.946	0.11600			
10120005	-	31	-	3.048	0.12000			
10125005	1/8	-	-	3.175	0.12500			
10128505	-	30	-	3.264	0.12850	23	60	
10136005	-	29	-	3.454	0.13600			
10140505	-	28	-	3.569	0.14050			
10140605	9/64	-	-	3.572	0.14063			
10144005	-	27	-	3.658	0.14400	25	61	
10147005	-	26	-	3.734	0.14700			
10149505	-	25	-	3.797	0.14950			
10152005	-	24	-	3.861	0.15200			
10154005	-	23	-	3.912	0.15400			
10156205	5/32	-	-	3.969	0.15625			
10157005	-	22	-	3.988	0.15700	26	63	
10159005	-	21	-	4.039	0.15900			
10161005	-	20	-	4.089	0.16100			
10166005	-	19	-	4.216	0.16600			
10169505	-	18	-	4.305	0.16950			
10171905	11/64	-	-	4.366	0.17188			
10173005	-	17	-	4.394	0.17300	28	65	
10177005	-	16	-	4.496	0.17700			
10180005	-	15	-	4.572	0.18000			
10182005	-	14	-	4.623	0.18200			
10185005	-	13	-	4.699	0.18500			
10187505	3/16	-	-	4.763	0.18750			
10189005	-	12	-	4.801	0.18900	30	76	1/4
10191005	-	11	-	4.851	0.19100			
10193505	-	10	-	4.915	0.19350			
10196005	-	9	-	4.978	0.19600			
10199005	-	8	-	5.055	0.19900			

Packed: 1 pc.
Available TiN coating only.

EXD

List 1000 (Continued)

EX-GDS, Ideal for General Applications

SPEED FEED P390 | HSS-Co | TiN | STUB | 25°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (in)
10201005	-	7	-	5.105	0.20100	30	76	1/4
10203105	13/64	-	-	5.159	0.20313			
10204005	-	6	-	5.182	0.20400	31	77	
10205505	-	5	-	5.220	0.20550			
10209005	-	4	-	5.309	0.20900			
10213005	-	3	-	5.410	0.21300			
10218805	7/32	-	-	5.556	0.21875			
10221005	-	2	-	5.613	0.22100	33	79	
10228005	-	1	-	5.791	0.22800			
10234005	-	-	A	5.944	0.23400			
10234405	15/64	-	-	5.953	0.23438			
10238005	-	-	B	6.045	0.23800	34	80	
10242005	-	-	C	6.147	0.24200			
10246005	-	-	D	6.248	0.24600			
10250005	1/4	-	E	6.350	0.25000			
10257005	-	-	F	6.528	0.25700	36	82	3/8
10261005	-	-	G	6.629	0.26100			
10265605	17/64	-	-	6.747	0.26563			
10272005	-	-	I	6.909	0.27200	38	84	
10277005	-	-	J	7.036	0.27700			
10281205	9/32	-	-	7.144	0.28125			
10290005	-	-	L	7.366	0.29000	39	85	
10295005	-	-	M	7.493	0.29500			
10296905	19/64	-	-	7.541	0.29688			
10302005	-	-	N	7.671	0.30200	41	87	
10312505	5/16	-	-	7.938	0.31250			
10316005	-	-	O	8.026	0.31600	42	88	
10323005	-	-	P	8.204	0.32300			
10328105	21/64	-	-	8.334	0.32813			
10332005	-	-	Q	8.433	0.33200			
10339005	-	-	R	8.611	0.33900			
10343805	11/32	-	-	8.731	0.34375			
10348005	-	-	S	8.839	0.34800	44	90	
10358005	-	-	T	9.093	0.35800			
10359405	23/64	-	-	9.128	0.35938			
10368005	-	-	U	9.347	0.36800	46	92	
10375005	3/8	-	-	9.525	0.37500			
10377005	-	-	V	9.576	0.37700	47	100	1/2
10386005	-	-	W	9.804	0.38600			
10390605	25/64	-	-	9.922	0.39063			
10397005	-	-	X	10.084	0.39700	49	102	
10404005	-	-	Y	10.262	0.40400			
10406205	13/32	-	-	10.319	0.40625			

Packed: 1 pc.
Available TiN coating only.

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EXD

Work Material

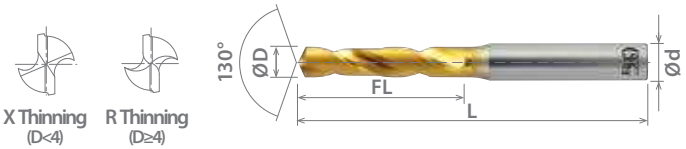
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1000	▣	▣	▢	▣	▣			▢	▢		▢			▢	▢		

▢ good ▣ best

List 1000 (Continued)

SPEED FEED P390 | HSS-Co | TiN | STUB | 25°

EX-GDS, Ideal for General Applications



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.99≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤12.7	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (in)
10413005	-	-	Z	10.490	0.41300	50	103	1/2
10421905	27/64	-	-	10.716	0.42188			
10437505	7/16	-	-	11.113	0.43750	52	105	
10453105	29/64	-	-	11.509	0.45313	53	107	
10468805	15/32	-	-	11.906	0.46875			
10484405	31/64	-	-	12.303	0.48438	55	108	
10500005	1/2	-	-	12.700	0.50000	57	110	

Packed: 1 pc.
Available TiN coating only.

EXD

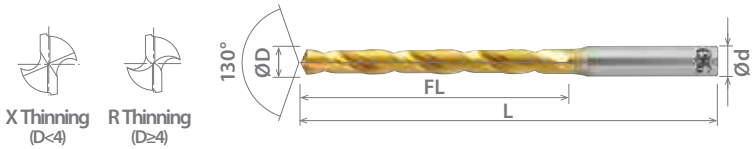
Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
1000	◎	◎	○	◎	◎			○	○		○			○	○			

○ good ◎ best

List 1500

EX-GDR, Ideal for General Applications

SPEED FEED	HSS-Co	TiN	JOBBERS	30°
P390				



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.99≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤19.05	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (in)
15078505	-	47	-	1.994	0.07850	25	57	1/8
15081005	-	46	-	2.057	0.08100	28	60	
15082005	-	45	-	2.083	0.08200			
15086005	-	44	-	2.184	0.08600			
15089005	-	43	-	2.261	0.08900	31	63	
15093505	-	42	-	2.375	0.09350			
15093805	3/32	-	-	2.381	0.09375			
15096005	-	41	-	2.438	0.09600	34	66	
15098005	-	40	-	2.489	0.09800			
15099505	-	39	-	2.527	0.09950		71	3/16
15101505	-	38	-	2.578	0.10150	36	73	
15104005	-	37	-	2.642	0.10400			
15106505	-	36	-	2.705	0.10650			
15109405	7/64	-	-	2.778	0.10938	38	74	
15110005	-	35	-	2.794	0.11000			
15111005	-	34	-	2.819	0.11100			
15113005	-	33	-	2.870	0.11300			
15116005	-	32	-	2.946	0.11600	41	77	
15120005	-	31	-	3.048	0.12000			
15125005	1/8	-	-	3.175	0.12500			
15128505	-	30	-	3.264	0.12850			
15136005	-	29	-	3.454	0.13600	44	80	
15140505	-	28	-	3.569	0.14050			
15140605	9/64	-	-	3.572	0.14063			
15144005	-	27	-	3.658	0.14400	47	84	
15147005	-	26	-	3.734	0.14700			
15149505	-	25	-	3.797	0.14950			
15152005	-	24	-	3.861	0.15200	50	87	
15154005	-	23	-	3.912	0.15400			
15156205	5/32	-	-	3.969	0.15625			
15157005	-	22	-	3.988	0.15700			
15159005	-	21	-	4.039	0.15900	53	90	
15161005	-	20	-	4.089	0.16100			
15166005	-	19	-	4.216	0.16600			
15169505	-	18	-	4.305	0.16950			
15171905	11/64	-	-	4.366	0.17188			
15173005	-	17	-	4.394	0.17300	55	92	
15177005	-	16	-	4.496	0.17700			

Packed: 1 pc.
Available TiN coating only.

continued on next page

EXD

Work Material

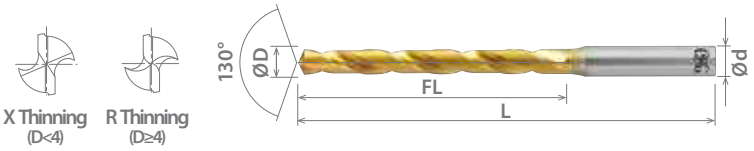
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1500	◎	◎	○	◎	◎			○	○		○			○			

○ good ◎ best

List 1500 (Continued)

EX-GDR, Ideal for General Applications

SPEED FEED	HSS-Co	TiN	JOBBERS	30°
P390				



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.99≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤19.05	+0 / -0.033	+0 / -0.0013

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (in)
15180005	-	15	-	4.572	0.18000	55	92	3/16
15182005	-	14	-	4.623	0.18200			
15185005	-	13	-	4.699	0.18500	58	95	
15187505	3/16	-	-	4.763	0.18750			
15189005	-	12	-	4.801	0.18900		104	1/4
15191005	-	11	-	4.851	0.19100			
15193505	-	10	-	4.915	0.19350	61	107	
15196005	-	9	-	4.978	0.19600			
15199005	-	8	-	5.055	0.19900			
15201005	-	7	-	5.105	0.20100			
15203105	13/64	-	-	5.159	0.20313			
15204005	-	6	-	5.182	0.20400			
15205505	-	5	-	5.220	0.20550	63	109	
15209005	-	4	-	5.309	0.20900			
15213005	-	3	-	5.410	0.21300			
15218805	7/32	-	-	5.556	0.21875			
15221005	-	2	-	5.613	0.22100	66	112	
15228005	-	1	-	5.791	0.22800			
15234005	-	-	A	5.944	0.23400			
15234405	15/64	-	-	5.953	0.23438			
15238005	-	-	B	6.045	0.23800	69	115	
15242005	-	-	C	6.147	0.24200			
15246005	-	-	D	6.248	0.24600			
15250005	1/4	-	E	6.350	0.25000			
15257005	-	-	F	6.528	0.25700	73	119	3/8
15261005	-	-	G	6.629	0.26100			
15265605	17/64	-	-	6.747	0.26563			
15272005	-	-	I	6.909	0.27200			
15277005	-	-	J	7.036	0.27700			
15281205	9/32	-	-	7.144	0.28125	74	120	
15290005	-	-	L	7.366	0.29000			
15295005	-	-	M	7.493	0.29500	77	123	
15296905	19/64	-	-	7.541	0.29688			
15302005	-	-	N	7.671	0.30200			
15312505	5/16	-	-	7.938	0.31250	80	127	
15316005	-	-	O	8.026	0.31600			
15323005	-	-	P	8.204	0.32300	84	130	
15328105	21/64	-	-	8.334	0.32813			
15332005	-	-	Q	8.433	0.33200	87	133	
15339005	-	-	R	8.611	0.33900			
15343805	11/32	-	-	8.731	0.34375			
15348005	-	-	S	8.839	0.34800	88	134	
15358005	-	-	T	9.093	0.35800			
15359405	23/64	-	-	9.128	0.35938			
15368005	-	-	U	9.347	0.36800	92	138	
15375005	3/8	-	-	9.525	0.37500			
15377005	-	-	V	9.576	0.37700		145	1/2

Packed: 1 pc.
Available TiN coating only.

EXD

List 1500 (Continued)

EX-GDR, Ideal for General Applications

SPEED FEED P390 | HSS-Co | TiN | JOBBERS | 30°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (in)
15386005	-	-	W	9.804	0.38600	95	148	1/2
15390605	25/64	-	-	9.922	0.39063			
15397005	-	-	X	10.084	0.39700			
15404005	-	-	Y	10.262	0.40400	98	151	
15406205	13/32	-	-	10.319	0.40625			
15413005	-	-	Z	10.490	0.41300			
15421905	27/64	-	-	10.716	0.42188	100	153	
15437505	7/16	-	-	11.113	0.43750	103	156	
15453105	29/64	-	-	11.509	0.45313	106	159	
15468805	15/32	-	-	11.906	0.46875	109	162	
15484405	31/64	-	-	12.303	0.48438	111	164	
15500005	1/2	-	-	12.700	0.50000	114	167	
15531205	17/32	-	-	13.494	0.53125	122	182	5/8
15562505	9/16	-	-	14.288	0.56250			
15578105	37/64	-	-	14.684	0.57813			
15593805	19/32	-	-	15.081	0.59375	131	199	3/4
15625005	5/8	-	-	15.875	0.62500			
15656205	21/32	-	-	16.669	0.65625			
15687505	11/16	-	-	17.463	0.68750	142	210	
15718805	23/32	-	-	18.256	0.71875			7/8
15750005	3/4	-	-	19.050	0.75000	149	216	

Packed: 1 pc.
Available TiN coating only.

EXD

Work Material

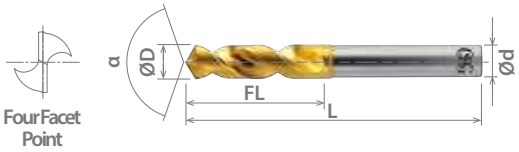
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1500	◎	◎	○	◎	◎			○	○		○			○			

○ good ◎ best

List 1100

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

EX-SUS-GDS, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
61505	6150511	-	-	-	0.500	0.01969	3	38	3	150°
8595051	859505111	-	-	-	0.510	0.02008				
8595052	-	-	-	-	0.520	0.02047				
8595053	-	-	-	-	0.530	0.02087				
8595054	-	-	-	-	0.540	0.02126	3.5			
8595055	-	-	-	-	0.550	0.02165				
8595056	-	-	-	-	0.560	0.02205				
8595057	859505711	-	-	-	0.570	0.02244				
8595058		-	-	-	0.580	0.02283				
8595059		-	-	-	0.590	0.02323				
61506	6150611	-	-	-	0.600	0.02362				
8595061	-	-	-	-	0.610	0.02402	4			
8595062	-	-	-	-	0.620	0.02441				
8595063	-	-	-	-	0.630	0.02480				
8595064	859506411	-	-	-	0.640	0.02520				
8595065	859506511	-	-	-	0.650	0.02559				
8595066	-	-	-	-	0.660	0.02598				
8595067	-	-	-	-	0.670	0.02638				
8595068	-	-	-	-	0.680	0.02677	4.5			
8595069	-	-	-	-	0.690	0.02717				
61507	6150711	-	-	-	0.700	0.02756				
8595071	859507111	-	-	-	0.710	0.02795				
8595072	-	-	-	-	0.720	0.02835				
8595073	-	-	-	-	0.730	0.02874				
8595074	-	-	-	-	0.740	0.02913				
8595075	-	-	-	-	0.750	0.02953				
8595076	-	-	-	-	0.760	0.02992	5			
8595077	-	-	-	-	0.770	0.03031				
8595078	-	-	-	-	0.780	0.03071				
8595079	859507911	-	-	-	0.790	0.03110				
61508	-	-	-	-	0.800	0.03150				
8595081	859508111	-	-	-	0.810	0.03189				
8595082	-	-	-	-	0.820	0.03228				
8595083	-	-	-	-	0.830	0.03268				
8595084	859508411	-	-	-	0.840	0.03307				
8595085	-	-	-	-	0.850	0.03346				
8595086	-	-	-	-	0.860	0.03386	5.5			
8595087	-	-	-	-	0.870	0.03425				
8595088	-	-	-	-	0.880	0.03465				
8595089	-	-	-	-	0.890	0.03504				
61509	-	-	-	-	0.900	0.03543				
8595091	859509111	-	-	-	0.910	0.03583				
8595092	-	-	-	-	0.920	0.03622				
8595093	-	-	-	-	0.930	0.03661				
8595094	-	-	-	-	0.940	0.03701				
8595095	-	-	-	-	0.950	0.03740				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1100 (Continued)

EX-SUS-GDS, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595096	-	-	-	-	0.960	0.03780	6	38	3	150°
8595097	-	-	-	-	0.970	0.03819				
8595098	-	-	-	-	0.980	0.03858				
8595099	-	-	-	-	0.990	0.03898				
61510	6151011	-	-	-	1.000	0.03937				140°
8595101	-	-	-	-	1.010	0.03976				
8595102	859510211	-	-	-	1.020	0.04016				
8595103	859510311	-	-	-	1.030	0.04055				
8595104	-	-	-	-	1.040	0.04094				
8595105	-	-	-	-	1.050	0.04134				
8595106	-	-	-	-	1.060	0.04173				
8595107	-	-	-	-	1.070	0.04213	7	39		
8595108	-	-	-	-	1.080	0.04252				
8595109	859510911	-	-	-	1.090	0.04291				
61511	6151111	-	-	-	1.100	0.04331				
8595111	-	-	-	-	1.110	0.04370				
8595112	-	-	-	-	1.120	0.04409				
8595113	-	-	-	-	1.130	0.04449				
8595114	859511411	-	-	-	1.140	0.04488				
8595115	-	-	-	-	1.150	0.04528				
8595116	-	-	-	-	1.160	0.04567				
8595117	-	-	-	-	1.170	0.04606				
8595118	859511811	-	-	-	1.180	0.04646				
8595119	859511911	-	-	-	1.190	0.04685	8	40		
61512	6151211	-	-	-	1.200	0.04724				
8595121	-	-	-	-	1.210	0.04764				
8595122	859512211	-	-	-	1.220	0.04803				
8595123	-	-	-	-	1.230	0.04843				
8595124	-	-	-	-	1.240	0.04882				
8595125	859512511	-	-	-	1.250	0.04921				
8595126	-	-	-	-	1.260	0.04961				
8595127	859512711	-	-	-	1.270	0.05000				
8595128	-	-	-	-	1.280	0.05039				
8595129	-	-	-	-	1.290	0.05079				
61513	-	-	-	-	1.300	0.05118				
8595131	-	-	-	-	1.310	0.05157				
8595132	859513211	-	-	-	1.320	0.05197				
8595133	-	-	-	-	1.330	0.05236	9	41		
8595134	-	-	-	-	1.340	0.05276				
8595135	859513511	-	-	-	1.350	0.05315				
8595136	-	-	-	-	1.360	0.05354				
8595137	-	-	-	-	1.370	0.05394				
8595138	-	-	-	-	1.380	0.05433				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

continued on next page

EXD

Work Material

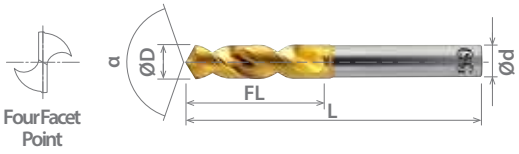
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1100	▣	○				▣	▣	○		▣	▣						

○ good ▣ best

List 1100 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

EX-SUS-GDS, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595139	-	-	-	-	1.390	0.05472	9	41	3	140°
61514	6151411	-	-	-	1.400	0.05512				
8595141	859514111	-	-	-	1.410	0.05551				
8595142	-	-	-	-	1.420	0.05591				
8595143	-	-	-	-	1.430	0.05630				
8595144	859514411	-	-	-	1.440	0.05669				
8595145	859514511	-	-	-	1.450	0.05709				
8595146	-	-	-	-	1.460	0.05748				
8595147	-	-	-	-	1.470	0.05787				
8595148	-	-	-	-	1.480	0.05827				
8595149	-	-	-	-	1.490	0.05866				
61515	6151511	-	-	-	1.500	0.05906				
8595151	859515111	-	-	-	1.510	0.05945	10	42		
8595152	859515211	-	-	-	1.520	0.05984				
8595153	-	-	-	-	1.530	0.06024				
8595154	-	-	-	-	1.540	0.06063				
8595155	859515511	-	-	-	1.550	0.06102				
8595156	859515611	-	-	-	1.560	0.06142				
8595157	859515711	-	-	-	1.570	0.06181				
8595158	859515811	-	-	-	1.580	0.06220				
8595159	859515911	-	-	-	1.590	0.06260				
61516	6151611	-	-	-	1.600	0.06299				
8595161	859516111	-	-	-	1.610	0.06339				
8595162	859516211	-	-	-	1.620	0.06378				
8595163	-	-	-	-	1.630	0.06417				
8595164	-	-	-	-	1.640	0.06457				
8595165	859516511	-	-	-	1.650	0.06496				
8595166	-	-	-	-	1.660	0.06535				
8595167	-	-	-	-	1.670	0.06575				
8595168	-	-	-	-	1.680	0.06614				
8595169	-	-	-	-	1.690	0.06654				
61517	6151711	-	-	-	1.700	0.06693				
8595171	859517111	-	-	-	1.710	0.06732	11	43		
8595172	859517211	-	-	-	1.720	0.06772				
8595173	-	-	-	-	1.730	0.06811				
8595174	859517411	-	-	-	1.740	0.06850				
8595175	859517511	-	-	-	1.750	0.06890				
8595176	859517611	-	-	-	1.760	0.06929				
8595177	859517711	-	-	-	1.770	0.06969				
8595178	859517811	-	-	-	1.780	0.07008				
8595179	-	-	-	-	1.790	0.07047				
61518	6151811	-	-	-	1.800	0.07087				
8595181	-	-	-	-	1.810	0.07126				
8595182	-	-	-	-	1.820	0.07165				
8595183	-	-	-	-	1.830	0.07205				
8595184	-	-	-	-	1.840	0.07244				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1100 (Continued)

EX-SUS-GDS, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595185	859518511	-	-	-	1.850	0.07283	11	43	3	140°
8595186	-	-	-	-	1.860	0.07323				
8595187	-	-	-	-	1.870	0.07362				
8595188	-	-	-	-	1.880	0.07402				
8595189	-	-	-	-	1.890	0.07441				
61519	6151911	-	-	-	1.900	0.07480				
8595191	859519111	-	-	-	1.910	0.07520	12	44		
8595192	-	-	-	-	1.920	0.07559				
8595193	-	-	-	-	1.930	0.07598				
8595194	-	-	-	-	1.940	0.07638				
8595195	859519511	-	-	-	1.950	0.07677				
8595196	-	-	-	-	1.960	0.07717				
8595197	859519711	-	-	-	1.970	0.07756				
8595198	859519811	-	-	-	1.980	0.07795				
8595199	859519911	-	-	-	1.990	0.07835				
61520	6152011	-	-	-	2.000	0.07874				130°
8595201	-	-	-	-	2.010	0.07913				
8595202	-	-	-	-	2.020	0.07953				
8595203	-	-	-	-	2.030	0.07992				
8595204	-	-	-	-	2.040	0.08031				
8595205	859520511	-	-	-	2.050	0.08071				
8595206	-	-	-	-	2.060	0.08110				
8595207	-	-	-	-	2.070	0.08150				
8595208	859520811	-	-	-	2.080	0.08189				
8595209	-	-	-	-	2.090	0.08228				
61521	-	-	-	-	2.100	0.08268				
8595211	-	-	-	-	2.110	0.08307				
8595212	-	-	-	-	2.120	0.08346				
8595213	-	-	-	-	2.130	0.08386	13	45		
8595214	-	-	-	-	2.140	0.08425				
8595215	859521511	-	-	-	2.150	0.08465				
8595216	-	-	-	-	2.160	0.08504				
8595217	-	-	-	-	2.170	0.08543				
8595218	-	-	-	-	2.180	0.08583				
8595219	859521911	-	-	-	2.190	0.08622				
61522	6152211	-	-	-	2.200	0.08661				
8595221	-	-	-	-	2.210	0.08701				
8595222	-	-	-	-	2.220	0.08740				
8595223	-	-	-	-	2.230	0.08780				
8595224	-	-	-	-	2.240	0.08819				
8595225	859522511	-	-	-	2.250	0.08858				
8595226	859522611	-	-	-	2.260	0.08898				
8595227	-	-	-	-	2.270	0.08937				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

continued on next page EXD

Work Material

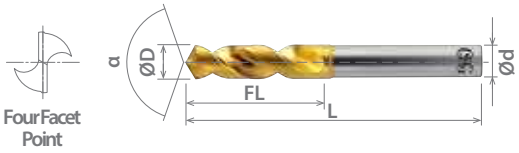
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1100	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1100 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

EX-SUS-GDS, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595228	-	-	-	-	2.280	0.08976	13	45	3	130°
8595229	-	-	-	-	2.290	0.09016				
61523	6152311	-	-	-	2.300	0.09055				
8595231	-	-	-	-	2.310	0.09094				
8595232	-	-	-	-	2.320	0.09134				
8595233	-	-	-	-	2.330	0.09173				
8595234	-	-	-	-	2.340	0.09213				
8595235	-	-	-	-	2.350	0.09252				
8595236	-	-	-	-	2.360	0.09291				
8595237	859523711	-	-	-	2.370	0.09331	14	46		
8595238	859523811	-	-	-	2.380	0.09370				
8595239	859523911	-	-	-	2.390	0.09409				
61524	6152411	-	-	-	2.400	0.09449				
8595241	859524111	-	-	-	2.410	0.09488				
8595242	859524211	-	-	-	2.420	0.09528				
8595243	-	-	-	-	2.430	0.09567				
8595244	859524411	-	-	-	2.440	0.09606				
8595245	859524511	-	-	-	2.450	0.09646				
8595246	859524611	-	-	-	2.460	0.09685				
8595247	-	-	-	-	2.470	0.09724				
8595248	-	-	-	-	2.480	0.09764				
8595249	859524911	-	-	-	2.490	0.09803				
61525	6152511	-	-	-	2.500	0.09843				
8595251	-	-	-	-	2.510	0.09882				
8595252	859525211	-	-	-	2.520	0.09921				
8595253	859525311	-	-	-	2.530	0.09961				
8595254	-	-	-	-	2.540	0.10000				
8595255	859525511	-	-	-	2.550	0.10039				
8595256	-	-	-	-	2.560	0.10079				
8595257	-	-	-	-	2.570	0.10118				
8595258	859525811	-	-	-	2.580	0.10157				
8595259	-	-	-	-	2.590	0.10197				
61526	6152611	-	-	-	2.600	0.10236				
8595261	-	-	-	-	2.610	0.10276				
8595262	-	-	-	-	2.620	0.10315				
8595263	-	-	-	-	2.630	0.10354				
8595264	859526411	-	-	-	2.640	0.10394				
8595265	859526511	-	-	-	2.650	0.10433				
8595266	859526611	-	-	-	2.660	0.10472	16	48		
8595267	-	-	-	-	2.670	0.10512				
8595268	-	-	-	-	2.680	0.10551				
8595269	-	-	-	-	2.690	0.10591				
61527	6152711	-	-	-	2.700	0.10630				
8595271	859527111	-	-	-	2.710	0.10669				
8595272	-	-	-	-	2.720	0.10709				
8595273	-	-	-	-	2.730	0.10748				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1100 (Continued)

EX-SUS-GDS, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595274	-	-	-	-	2.740	0.10787	16	48	3	130°
8595275	-	-	-	-	2.750	0.10827				
8595276	-	-	-	-	2.760	0.10866				
8595277	-	-	-	-	2.770	0.10906				
8595278	859527811	-	-	-	2.780	0.10945				
8595279	859527911	-	-	-	2.790	0.10984				
61528	6152811	-	-	-	2.800	0.11024				
8595281	-	-	-	-	2.810	0.11063				
8595282	859528211	-	-	-	2.820	0.11102				
8595283	859528311	-	-	-	2.830	0.11142				
8595284	-	-	-	-	2.840	0.11181				
8595285	859528511	-	-	-	2.850	0.11220				
8595286	859528611	-	-	-	2.860	0.11260				
8595287	-	-	-	-	2.870	0.11299				
8595288	-	-	-	-	2.880	0.11339				
8595289	-	-	-	-	2.890	0.11378				
61529	6152911	-	-	-	2.900	0.11417				
8595291	-	-	-	-	2.910	0.11457				
8595292	-	-	-	-	2.920	0.11496				
8595293	-	-	-	-	2.930	0.11535				
8595294	-	-	-	-	2.940	0.11575				
8595295	859529511	-	-	-	2.950	0.11614				
8595296	-	-	-	-	2.960	0.11654				
8595297	-	-	-	-	2.970	0.11693				
8595298	-	-	-	-	2.980	0.11732				
8595299	-	-	-	-	2.990	0.11772				
61530	6153011	-	-	-	3.000	0.11811				
8595301	-	-	-	-	3.010	0.11850	18	50	4	
8595302	-	-	-	-	3.020	0.11890				
8595303	-	-	-	-	3.030	0.11929				
8595304	-	-	-	-	3.040	0.11969				
8595305	859530511	-	-	-	3.050	0.12008				
8595306	-	-	-	-	3.060	0.12047				
8595307	-	-	-	-	3.070	0.12087				
8595308	-	-	-	-	3.080	0.12126				
8595309	-	-	-	-	3.090	0.12165				
61531	6153111	-	-	-	3.100	0.12205				
8595311	-	-	-	-	3.110	0.12244				
8595312	-	-	-	-	3.120	0.12283				
8595313	-	-	-	-	3.130	0.12323				
8595314	-	-	-	-	3.140	0.12362				
8595315	859531511	-	-	-	3.150	0.12402				
8595316	-	-	-	-	3.160	0.12441				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

continued on next page

EXD

Work Material

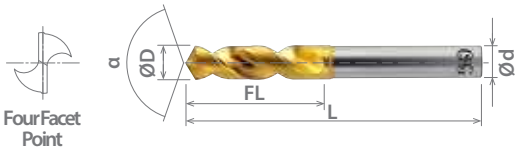
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1100	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1100 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

EX-SUS-GDS, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595317	-	-	-	-	3.170	0.12480				
8595318	859531811	-	-	-	3.180	0.12520				
8595319	-	-	-	-	3.190	0.12559				
61532	6153211	-	-	-	3.200	0.12598				
8595321	-	-	-	-	3.210	0.12638				
8595322	859532211	-	-	-	3.220	0.12677				
8595323	-	-	-	-	3.230	0.12717				
8595324	-	-	-	-	3.240	0.12756				
8595325	859532511	-	-	-	3.250	0.12795				
8595326	859532611	-	-	-	3.260	0.12835	18	50		
8595327	859532711	-	-	-	3.270	0.12874				
8595328	-	-	-	-	3.280	0.12913				
8595329	859532911	-	-	-	3.290	0.12953				
61533	6153311	-	-	-	3.300	0.12992				
8595331	-	-	-	-	3.310	0.13031				
8595332	-	-	-	-	3.320	0.13071				
8595333	-	-	-	-	3.330	0.13110				
8595334	-	-	-	-	3.340	0.13150				
8595335	859533511	-	-	-	3.350	0.13189				
8595336	-	-	-	-	3.360	0.13228				
8595337	-	-	-	-	3.370	0.13268				
8595338	-	-	-	-	3.380	0.13307				
8595339	-	-	-	-	3.390	0.13346				
61534	6153411	-	-	-	3.400	0.13386			4	130°
8595341	-	-	-	-	3.410	0.13425				
8595342	-	-	-	-	3.420	0.13465				
8595343	-	-	-	-	3.430	0.13504				
8595344	-	-	-	-	3.440	0.13543				
8595345	859534511	-	-	-	3.450	0.13583				
8595346	859534611	-	-	-	3.460	0.13622				
8595347	859534711	-	-	-	3.470	0.13661				
8595348	-	-	-	-	3.480	0.13701				
8595349	-	-	-	-	3.490	0.13740	20	52		
61535	6153511	-	-	-	3.500	0.13780				
8595351	-	-	-	-	3.510	0.13819				
8595352	-	-	-	-	3.520	0.13858				
8595353	-	-	-	-	3.530	0.13898				
8595354	-	-	-	-	3.540	0.13937				
8595355	-	-	-	-	3.550	0.13976				
8595356	-	-	-	-	3.560	0.14016				
8595357	859535711	-	-	-	3.570	0.14055				
8595358	-	-	-	-	3.580	0.14094				
8595359	-	-	-	-	3.590	0.14134				
61536	-	-	-	-	3.600	0.14173				
8595361	-	-	-	-	3.610	0.14213				
8595362	-	-	-	-	3.620	0.14252				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1100 (Continued)

EX-SUS-GDS, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595363	-	-	-	-	3.630	0.14291	20	52	4	130°
8595364	-	-	-	-	3.640	0.14331				
8595365	-	-	-	-	3.650	0.14370				
8595366	859536611	-	-	-	3.660	0.14409				
8595367	-	-	-	-	3.670	0.14449				
8595368	-	-	-	-	3.680	0.14488				
8595369	-	-	-	-	3.690	0.14528				
61537	6153711	-	-	-	3.700	0.14567				
8595371	-	-	-	-	3.710	0.14606				
8595372	-	-	-	-	3.720	0.14646				
8595373	859537311	-	-	-	3.730	0.14685				
8595374	-	-	-	-	3.740	0.14724				
8595375	859537511	-	-	-	3.750	0.14764				
8595376	-	-	-	-	3.760	0.14803	22	54		
8595377	-	-	-	-	3.770	0.14843				
8595378	-	-	-	-	3.780	0.14882				
8595379	-	-	-	-	3.790	0.14921				
61538	6153811	-	-	-	3.800	0.14961				
8595381	-	-	-	-	3.810	0.15000				
8595382	-	-	-	-	3.820	0.15039				
8595383	-	-	-	-	3.830	0.15079				
8595384	-	-	-	-	3.840	0.15118				
8595385	859538511	-	-	-	3.850	0.15157				
8595386	859538611	-	-	-	3.860	0.15197				
8595387	-	-	-	-	3.870	0.15236				
8595388	-	-	-	-	3.880	0.15276				
8595389	-	-	-	-	3.890	0.15315				
61539	-	-	-	-	3.900	0.15354				
8595391	859539111	-	-	-	3.910	0.15394				
8595392	-	-	-	-	3.920	0.15433				
8595393	-	-	-	-	3.930	0.15472				
8595394	-	-	-	-	3.940	0.15512				
8595395	859539511	-	-	-	3.950	0.15551				
8595396	-	-	-	-	3.960	0.15591				
8595397	859539711	-	-	-	3.970	0.15630				
8595398	-	-	-	-	3.980	0.15669				
8595399	859539911	-	-	-	3.990	0.15709				
61540	6154011	-	-	-	4.000	0.15748				
8595401	-	-	-	-	4.010	0.15787		66	6	120°
8595402	-	-	-	-	4.020	0.15827				
8595403	-	-	-	-	4.030	0.15866				
8595404	859540411	-	-	-	4.040	0.15906				
8595405	-	-	-	-	4.050	0.15945				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

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EXD

Work Material

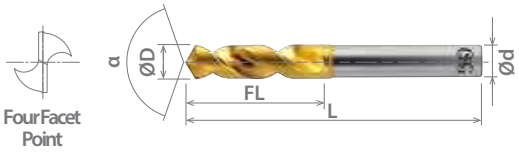
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1100	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1100 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

EX-SUS-GDS, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595406	-	-	-	-	4.060	0.15984	22	66	6	120°
8595407	-	-	-	-	4.070	0.16024				
8595408	-	-	-	-	4.080	0.16063				
8595409	859540911	-	-	-	4.090	0.16102				
61541	6154111	-	-	-	4.100	0.16142				
8595411	-	-	-	-	4.110	0.16181				
8595412	-	-	-	-	4.120	0.16220				
8595413	-	-	-	-	4.130	0.16260				
8595414	-	-	-	-	4.140	0.16299				
8595415	859541511	-	-	-	4.150	0.16339				
8595416	-	-	-	-	4.160	0.16378				
8595417	859541711	-	-	-	4.170	0.16417				
8595418	-	-	-	-	4.180	0.16457				
8595419	-	-	-	-	4.190	0.16496				
61542	6154211	-	-	-	4.200	0.16535				
8595421	-	-	-	-	4.210	0.16575				
8595422	859542211	-	-	-	4.220	0.16614				
8595423	-	-	-	-	4.230	0.16654				
8595424	-	-	-	-	4.240	0.16693				
8595425	-	-	-	-	4.250	0.16732				
8595426	-	-	-	-	4.260	0.16772	24	68		
8595427	-	-	-	-	4.270	0.16811				
8595428	-	-	-	-	4.280	0.16850				
8595429	-	-	-	-	4.290	0.16890				
61543	6154311	-	-	-	4.300	0.16929				
8595431	-	-	-	-	4.310	0.16969				
8595432	-	-	-	-	4.320	0.17008				
8595433	859543311	-	-	-	4.330	0.17047				
8595434	-	-	-	-	4.340	0.17087				
8595435	-	-	-	-	4.350	0.17126				
8595436	-	-	-	-	4.360	0.17165				
8595437	859543711	-	-	-	4.370	0.17205				
8595438	-	-	-	-	4.380	0.17244				
8595439	-	-	-	-	4.390	0.17283				
61544	6154411	-	-	-	4.400	0.17323				
8595441	859544111	-	-	-	4.410	0.17362				
8595442	-	-	-	-	4.420	0.17402				
8595443	-	-	-	-	4.430	0.17441				
8595444	-	-	-	-	4.440	0.17480				
8595445	859544511	-	-	-	4.450	0.17520				
8595446	-	-	-	-	4.460	0.17559				
8595447	-	-	-	-	4.470	0.17598				
8595448	-	-	-	-	4.480	0.17638				
8595449	-	-	-	-	4.490	0.17677				
61545	6154511	-	-	-	4.500	0.17717				
8595451	-	-	-	-	4.510	0.17756				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1100 (Continued)

EX-SUS-GDS, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595452	-	-	-	-	4.520	0.17795	24	68	6	120°
8595453	-	-	-	-	4.530	0.17835				
8595454	-	-	-	-	4.540	0.17874				
8595455	-	-	-	-	4.550	0.17913				
8595456	-	-	-	-	4.560	0.17953				
8595457	859545711	-	-	-	4.570	0.17992				
8595458	-	-	-	-	4.580	0.18031				
8595459	-	-	-	-	4.590	0.18071				
61546	6154611	-	-	-	4.600	0.18110				
8595461	-	-	-	-	4.610	0.18150				
8595462	859546211	-	-	-	4.620	0.18189				
8595463	-	-	-	-	4.630	0.18228				
8595464	-	-	-	-	4.640	0.18268				
8595465	-	-	-	-	4.650	0.18307				
8595466	-	-	-	-	4.660	0.18346				
8595467	-	-	-	-	4.670	0.18386				
8595468	-	-	-	-	4.680	0.18425				
8595469	-	-	-	-	4.690	0.18465				
61547	6154711	-	-	-	4.700	0.18504				
8595471	-	-	-	-	4.710	0.18543				
8595472	-	-	-	-	4.720	0.18583				
8595473	-	-	-	-	4.730	0.18622				
8595474	-	-	-	-	4.740	0.18661				
8595475	859547511	-	-	-	4.750	0.18701				
8595476	859547611	-	-	-	4.760	0.18740	26	70		
8595477	-	-	-	-	4.770	0.18780				
8595478	-	-	-	-	4.780	0.18819				
8595479	-	-	-	-	4.790	0.18858				
61548	6154811	-	-	-	4.800	0.18898				
8595481	-	-	-	-	4.810	0.18937				
8595482	-	-	-	-	4.820	0.18976				
8595483	-	-	-	-	4.830	0.19016				
8595484	-	-	-	-	4.840	0.19055				
8595485	-	-	-	-	4.850	0.19094				
8595486	859548611	-	-	-	4.860	0.19134				
8595487	859548711	-	-	-	4.870	0.19173				
8595488	859548811	-	-	-	4.880	0.19213				
8595489	-	-	-	-	4.890	0.19252				
61549	6154911	-	-	-	4.900	0.19291				
8595491	-	-	-	-	4.910	0.19331				
8595492	-	-	-	-	4.920	0.19370				
8595493	-	-	-	-	4.930	0.19409				
8595494	-	-	-	-	4.940	0.19449				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

continued on next page

EXD

Work Material

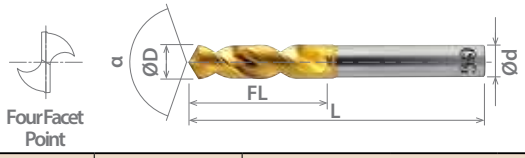
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1100	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1100 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

EX-SUS-GDS, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595495	-	-	-	-	4.950	0.19488	26	70	6	120°
8595496	859549611	-	-	-	4.960	0.19528				
8595497	-	-	-	-	4.970	0.19567				
8595498	859549811	-	-	-	4.980	0.19606				
8595499	-	-	-	-	4.990	0.19646				
61550	6155011	-	-	-	5.000	0.19685				
8595501	-	-	-	-	5.010	0.19724				
8595502	-	-	-	-	5.020	0.19764				
8595503	-	-	-	-	5.030	0.19803				
8595504	-	-	-	-	5.040	0.19843				
8595505	859550511	-	-	-	5.050	0.19882				
8595506	-	-	-	-	5.060	0.19921				
8595507	-	-	-	-	5.070	0.19961				
8595508	-	-	-	-	5.080	0.20000				
8595509	-	-	-	-	5.090	0.20039				
61551	6155111	-	-	-	5.100	0.20079				
8595511	859551111	-	-	-	5.110	0.20118				
8595512	-	-	-	-	5.120	0.20157				
8595513	-	-	-	-	5.130	0.20197				
8595514	-	-	-	-	5.140	0.20236				
8595515	-	-	-	-	5.150	0.20276				
8595516	859551611	-	-	-	5.160	0.20315				
8595517	-	-	-	-	5.170	0.20354				
8595518	859551811	-	-	-	5.180	0.20394				
8595519	-	-	-	-	5.190	0.20433				
61552	6155211	-	-	-	5.200	0.20472				
8595521	-	-	-	-	5.210	0.20512				
8595522	859552211	-	-	-	5.220	0.20551				
8595523	-	-	-	-	5.230	0.20591				
8595524	-	-	-	-	5.240	0.20630				
8595525	-	-	-	-	5.250	0.20669				
8595526	-	-	-	-	5.260	0.20709				
8595527	-	-	-	-	5.270	0.20748				
8595528	-	-	-	-	5.280	0.20787				
8595529	-	-	-	-	5.290	0.20827				
61553	6155311	-	-	-	5.300	0.20866				
8595531	-	-	-	-	5.310	0.20906	28	72		
8595532	-	-	-	-	5.320	0.20945				
8595533	-	-	-	-	5.330	0.20984				
8595534	-	-	-	-	5.340	0.21024				
8595535	-	-	-	-	5.350	0.21063				
8595536	-	-	-	-	5.360	0.21102				
8595537	-	-	-	-	5.370	0.21142				
8595538	-	-	-	-	5.380	0.21181				
8595539	-	-	-	-	5.390	0.21220				
61554	-	-	-	-	5.400	0.21260				
8595541	-	-	-	-	5.410	0.21299				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1100 (Continued)

EX-SUS-GDS, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595542	-	-	-	-	5.420	0.21339				
8595543	-	-	-	-	5.430	0.21378				
8595544	-	-	-	-	5.440	0.21417				
8595545	859554511	-	-	-	5.450	0.21457				
8595546	-	-	-	-	5.460	0.21496				
8595547	-	-	-	-	5.470	0.21535				
8595548	859554811	-	-	-	5.480	0.21575				
8595549		-	-	-	5.490	0.21614				
61555	6155511	-	-	-	5.500	0.21654				
8595551	-	-	-	-	5.510	0.21693				
8595552	-	-	-	-	5.520	0.21732				
8595553	-	-	-	-	5.530	0.21772				
8595554	-	-	-	-	5.540	0.21811				
8595555	-	-	-	-	5.550	0.21850				
8595556	859555611	-	-	-	5.560	0.21890				
8595557	-	-	-	-	5.570	0.21929				
8595558	-	-	-	-	5.580	0.21969				
8595559	-	-	-	-	5.590	0.22008				
61556	6155611	-	-	-	5.600	0.22047				
8595561	-	-	-	-	5.610	0.22087				
8595562	-	-	-	-	5.620	0.22126				
8595563	-	-	-	-	5.630	0.22165	28	72	6	120°
8595564	-	-	-	-	5.640	0.22205				
8595565	859556511	-	-	-	5.650	0.22244				
8595566	-	-	-	-	5.660	0.22283				
8595567	-	-	-	-	5.670	0.22323				
8595568	-	-	-	-	5.680	0.22362				
8595569	-	-	-	-	5.690	0.22402				
61557	-	-	-	-	5.700	0.22441				
8595571	-	-	-	-	5.710	0.22480				
8595572	859557211	-	-	-	5.720	0.22520				
8595573	-	-	-	-	5.730	0.22559				
8595574	-	-	-	-	5.740	0.22598				
8595575	859557511	-	-	-	5.750	0.22638				
8595576	-	-	-	-	5.760	0.22677				
8595577	-	-	-	-	5.770	0.22717				
8595578	859557811	-	-	-	5.780	0.22756				
8595579	859557911	-	-	-	5.790	0.22795				
61558	6155811	-	-	-	5.800	0.22835				
8595581	-	-	-	-	5.810	0.22874				
8595582	-	-	-	-	5.820	0.22913				
8595583	-	-	-	-	5.830	0.22953				
8595584	-	-	-	-	5.840	0.22992				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

continued on next page

EXD

Work Material

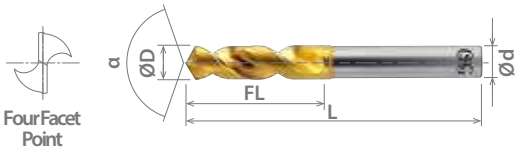
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1100	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1100 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

EX-SUS-GDS, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595585	-	-	-	-	5.850	0.23031	28	72	6	120°
8595586	-	-	-	-	5.860	0.23071				
8595587	-	-	-	-	5.870	0.23110				
8595588	-	-	-	-	5.880	0.23150				
8595589	-	-	-	-	5.890	0.23189				
61559	6155911	-	-	-	5.900	0.23228				
8595591	-	-	-	-	5.910	0.23268				
8595592	-	-	-	-	5.920	0.23307				
8595593	-	-	-	-	5.930	0.23346				
8595594	-	-	-	-	5.940	0.23386				
8595595	859559511	-	-	-	5.950	0.23425				
8595596	-	-	-	-	5.960	0.23465				
8595597	859559711	-	-	-	5.970	0.23504				
8595598	-	-	-	-	5.980	0.23543				
8595599	-	-	-	-	5.990	0.23583				
61560	6156011	-	-	-	6.000	0.23622				
8595605	-	-	-	-	6.050	0.23819	31	75	8	
61561	6156111	-	-	-	6.100	0.24016				
8595615	-	-	-	-	6.150	0.24213				
61562	-	-	-	-	6.200	0.24409				
8595625	-	-	-	-	6.250	0.24606				
61563	6156311	-	-	-	6.300	0.24803				
8595635	859563511	1/4	-	E	6.350	0.25000				
61564	6156411	-	-	-	6.400	0.25197				
8595645	-	-	-	-	6.450	0.25394				
61565	6156511	-	-	-	6.500	0.25591				
8595655	859565511	-	-	-	6.550	0.25787				
61566	6156611	-	-	-	6.600	0.25984				
8595665	-	-	-	-	6.650	0.26181				
61567	6156711	-	-	-	6.700	0.26378				
8595675	859567511	-	-	-	6.750	0.26575	34	78		
61568	6156811	-	-	-	6.800	0.26772				
8595685	859568511	-	-	-	6.850	0.26969				
61569	6156911	-	-	-	6.900	0.27165				
8595695	-	-	-	-	6.950	0.27362				
61570	6157011	-	-	-	7.000	0.27559				
8595705	-	-	-	-	7.050	0.27756				
61571	6157111	-	-	-	7.100	0.27953				
8595715	859571511	-	-	-	7.150	0.28150				
61572	6157211	-	-	-	7.200	0.28346				
8595725	-	-	-	-	7.250	0.28543				
61573	6157311	-	-	-	7.300	0.28740				
8595735	-	-	-	-	7.350	0.28937				
61574	6157411	-	-	-	7.400	0.29134				
8595745	-	-	-	-	7.450	0.29331				
61575	6157511	-	-	-	7.500	0.29528				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1100 (Continued)

EX-SUS-GDS, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8595755	859575511	-	-	-	7.550	0.29724	37	81	8	120°
61576	-	-	-	-	7.600	0.29921				
8595765	859576511	-	-	-	7.650	0.30118				
61577	6157711	-	-	-	7.700	0.30315				
8595775	859577511	-	-	-	7.750	0.30512				
61578	-	-	-	-	7.800	0.30709				
8595785	-	-	-	-	7.850	0.30906				
61579	6157911	-	-	-	7.900	0.31102				
8595795	859579511	-	-	-	7.950	0.31299				
61580	6158011	-	-	-	8.000	0.31496				
8595805	-	-	-	-	8.050	0.31693		87	10	
61581	6158111	-	-	-	8.100	0.31890				
8595815	-	-	-	-	8.150	0.32087				
61582	6158211	-	-	-	8.200	0.32283				
8595825	-	-	-	-	8.250	0.32480				
61583	6158311	-	-	-	8.300	0.32677				
8595835	859583511	-	-	-	8.350	0.32874				
61584	-	-	-	-	8.400	0.33071				
8595845	-	-	-	-	8.450	0.33268				
61585	6158511	-	-	-	8.500	0.33465				
8595855	-	-	-	-	8.550	0.33661	40	90		
61586	6158611	-	-	-	8.600	0.33858				
8595865	-	-	-	-	8.650	0.34055				
61587	-	-	-	-	8.700	0.34252				
8595875	859587511	-	-	-	8.750	0.34449				
61588	6158811	-	-	-	8.800	0.34646				
8595885	-	-	-	-	8.850	0.34843				
61589	-	-	-	-	8.900	0.35039				
8595895	-	-	-	-	8.950	0.35236				
61590	6159011	-	-	-	9.000	0.35433				
8595905	-	-	-	-	9.050	0.35630				
61591	-	-	-	-	9.100	0.35827				
8595915	-	-	-	-	9.150	0.36024				
61592	-	-	-	-	9.200	0.36220				
8595925	-	-	-	-	9.250	0.36417				
61593	-	-	-	-	9.300	0.36614				
8595935	-	-	-	-	9.350	0.36811				
61594	-	-	-	-	9.400	0.37008				
8595945	-	-	-	-	9.450	0.37205				
61595	6159511	-	-	-	9.500	0.37402				
8595955	-	-	-	-	9.550	0.37598	43	93		
61596	6159611	-	-	-	9.600	0.37795				
8595965	859596511	-	-	-	9.650	0.37992				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

continued on next page

EXD

Work Material

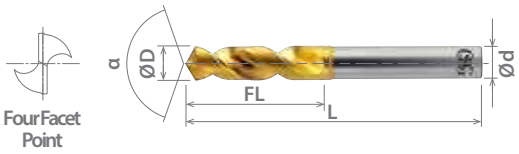
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1100	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1100 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

EX-SUS-GDS, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
61597	-	-	-	-	9.700	0.38189	43	93	10	120°
8595975	-	-	-	-	9.750	0.38386				
61598	6159811	-	-	-	9.800	0.38583				
8595985	-	-	-	-	9.850	0.38780				
61599	6159911	-	-	-	9.900	0.38976				
8595995	-	-	-	-	9.950	0.39173				
61600	6160011	-	-	-	10.000	0.39370				
8596005	-	-	-	-	10.050	0.39567		100	12	
61601	-	-	-	-	10.100	0.39764				
8596015	859601511	-	-	-	10.150	0.39961				
61602	6160211	-	-	-	10.200	0.40157				
8596025	-	-	-	-	10.250	0.40354				
61603	6160311	-	-	-	10.300	0.40551				
8596035	859603511	-	-	-	10.350	0.40748				
61604	-	-	-	-	10.400	0.40945				
8596045	-	-	-	-	10.450	0.41142				
61605	6160511	-	-	-	10.500	0.41339				
8596055	-	-	-	-	10.550	0.41535				
61606	-	-	-	-	10.600	0.41732				
8596065	-	-	-	-	10.650	0.41929	47	104		
61607	6160711	-	-	-	10.700	0.42126				
8596075	-	-	-	-	10.750	0.42323				
61608	-	-	-	-	10.800	0.42520				
8596085	-	-	-	-	10.850	0.42717				
61609	-	-	-	-	10.900	0.42913				
8596095	-	-	-	-	10.950	0.43110				
61610	6161011	-	-	-	11.000	0.43307				
8596105	-	-	-	-	11.050	0.43504				
61611	6161111	-	-	-	11.100	0.43701				
8596115	-	-	-	-	11.150	0.43898				
61612	-	-	-	-	11.200	0.44094				
8596125	-	-	-	-	11.250	0.44291				
61613	-	-	-	-	11.300	0.44488				
8596135	-	-	-	-	11.350	0.44685				
61614	-	-	-	-	11.400	0.44882				
8596145	-	-	-	-	11.450	0.45079				
61615	6161511	-	-	-	11.500	0.45276				
8596155	-	-	-	-	11.550	0.45472				
61616	-	-	-	-	11.600	0.45669				
8596165	-	-	-	-	11.650	0.45866				
61617	-	-	-	-	11.700	0.46063				
8596175	-	-	-	-	11.750	0.46260				
61618	-	-	-	-	11.800	0.46457				
8596185	-	-	-	-	11.850	0.46654	51	108		
61619	-	-	-	-	11.900	0.46850				
8596195	-	-	-	-	11.950	0.47047				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1100 (Continued)

EX-SUS-GDS, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
61620	6162011	-	-	-	12.000	0.47244	51	108	12	120°
61621	-	-	-	-	12.100	0.47638				
61622	-	-	-	-	12.200	0.48031				
61623	6162311	-	-	-	12.300	0.48425				
61624	6162411	-	-	-	12.400	0.48819				
61625	6162511	-	-	-	12.500	0.49213				
61626	6162611	-	-	-	12.600	0.49606				
61627	6162711	1/2	-	-	12.700	0.50000				
61628	6162811	-	-	-	12.800	0.50394				
61629	6162911	-	-	-	12.900	0.50787				
61630	6163011	-	-	-	13.000	0.51181				
61631	6163111	-	-	-	13.100	0.51575		111	16	
61632	-	-	-	-	13.200	0.51969				
61633	-	-	-	-	13.300	0.52362	54	114		
61634	-	-	-	-	13.400	0.52756				
61635	6163511	-	-	-	13.500	0.53150				
61636	-	-	-	-	13.600	0.53543				
61637	-	-	-	-	13.700	0.53937				
61638	-	-	-	-	13.800	0.54331				
61639	-	-	-	-	13.900	0.54724				
61640	6164011	-	-	-	14.000	0.55118				
61641	6164111	-	-	-	14.100	0.55512	56	116		
61642	-	-	-	-	14.200	0.55906				
61643	6164311	-	-	-	14.300	0.56299				
61644	-	-	-	-	14.400	0.56693				
61645	6164511	-	-	-	14.500	0.57087				
61646	-	-	-	-	14.600	0.57480				
61647	-	-	-	-	14.700	0.57874				
61648	-	-	-	-	14.800	0.58268				
61649	-	-	-	-	14.900	0.58661				
61650	6165011	-	-	-	15.000	0.59055				
61651	-	-	-	-	15.100	0.59449	58	118		
61652	-	-	-	-	15.200	0.59843				
61653	6165311	-	-	-	15.300	0.60236				
61654	-	-	-	-	15.400	0.60630				
61655	-	-	-	-	15.500	0.61024				
61656	-	-	-	-	15.600	0.61417				
61657	-	-	-	-	15.700	0.61811				
61658	-	-	-	-	15.800	0.62205				
61659	6165911	-	-	-	15.900	0.62598				
61660	6166011	-	-	-	16.000	0.62992				
61661	6166111	-	-	-	16.100	0.63386	60	126	20	
61662	-	-	-	-	16.200	0.63780				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

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EXD

Work Material

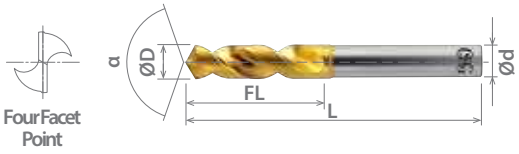
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1100	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1100 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

EX-SUS-GDS, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.5≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
61663	-	-	-	-	16.300	0.64173	60	126	20	120°
61664	-	-	-	-	16.400	0.64567				
61665	6166511	-	-	-	16.500	0.64961				
61666	-	-	-	-	16.600	0.65354				
61667	6166711	-	-	-	16.700	0.65748				
61668	-	-	-	-	16.800	0.66142				
61669	-	-	-	-	16.900	0.66535				
61670	-	-	-	-	17.000	0.66929				
61671	6167111	-	-	-	17.100	0.67323	62	128		
61672	6167211	-	-	-	17.200	0.67717	60			
61673	-	-	-	-	17.300	0.68110				
61674	-	-	-	-	17.400	0.68504				
61675	-	-	-	-	17.500	0.68898				
61676	-	-	-	-	17.600	0.69291				
61677	6167711	-	-	-	17.700	0.69685				
61678	-	-	-	-	17.800	0.70079				
61679	-	-	-	-	17.900	0.70472				
61680	6168011	-	-	-	18.000	0.70866				
61681	-	-	-	-	18.100	0.71260	64	130		
61682	-	-	-	-	18.200	0.71654				
61683	-	-	-	-	18.300	0.72047				
61684	-	-	-	-	18.400	0.72441				
61685	-	-	-	-	18.500	0.72835				
61686	-	-	-	-	18.600	0.73228				
61687	-	-	-	-	18.700	0.73622				
61688	-	-	-	-	18.800	0.74016				
61689	-	-	-	-	18.900	0.74409				
61690	-	-	-	-	19.000	0.74803				
61691	6169111	-	-	-	19.100	0.75197	66	132		
61692	-	-	-	-	19.200	0.75591				
61693	-	-	-	-	19.300	0.75984				
61694	-	-	-	-	19.400	0.76378				
61695	-	-	-	-	19.500	0.76772				
61696	-	-	-	-	19.600	0.77165				
61697	-	-	-	-	19.700	0.77559				
61698	-	-	-	-	19.800	0.77953				
61699	-	-	-	-	19.900	0.78346				
61700	-	-	-	-	20.000	0.78740				
61705	-	-	-	-	20.500	0.80709	68	144	25	
61710	6171011	-	-	-	21.000	0.82677				
61715	6171511	-	-	-	21.500	0.84646	70	146		
61720	-	-	-	-	22.000	0.86614				
61725	-	-	-	-	22.500	0.88583	72	148		
61730	6173011	-	-	-	23.000	0.90551				
61735	-	-	-	-	23.500	0.92520				
61740	-	-	-	-	24.000	0.94488	75	151		

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1100 (Continued)

EX-SUS-GDS, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | STUB | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
61745	-	-	-	-	24.500	0.96457	75	151	25	120°
61750	-	-	-	-	25.000	0.98425				
61755	-	-	-	-	25.500	1.00394	78	158	32	
61760	-	-	-	-	26.000	1.02362				
61765	-	-	-	-	26.500	1.04331				
61770	-	-	-	-	27.000	1.06299	81	161		
61775	-	-	-	-	27.500	1.08268				
61780	-	-	-	-	28.000	1.10236				
61785	-	-	-	-	28.500	1.12205	84	164		
61790	-	-	-	-	29.000	1.14173				
61795	-	-	-	-	29.500	1.16142				
61800	-	-	-	-	30.000	1.18110				
61805	-	-	-	-	30.500	1.20079	87	167		
61810	-	-	-	-	31.000	1.22047				
61815	-	-	-	-	31.500	1.24016				
61820	-	-	-	-	32.000	1.25984	90	170		

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

Work Material

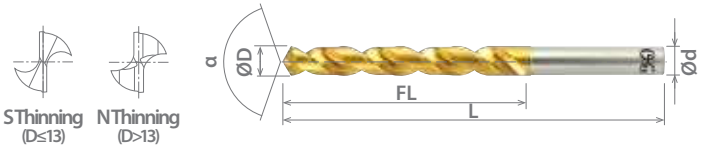
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1100	◉	○				◉	◉	○		◉	◉						

○ good ◉ best

List 1600

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

EX-SUS-GDR, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
62520	6252011	-	-	-	2.000	0.07874	24	56	3	130°
8597201	-	-	-	-	2.010	0.07913				
8597202	-	-	-	-	2.020	0.07953				
8597203	-	-	-	-	2.030	0.07992				
8597204	859720411	-	-	-	2.040	0.08031				
8597205	-	-	-	-	2.050	0.08071				
8597206	-	-	-	-	2.060	0.08110				
8597207	-	-	-	-	2.070	0.08150				
8597208	859720811	-	-	-	2.080	0.08189				
8597209	-	-	-	-	2.090	0.08228				
62521	-	-	-	-	2.100	0.08268				
8597211	-	-	-	-	2.110	0.08307				
8597212	-	-	-	-	2.120	0.08346				
8597213	-	-	-	-	2.130	0.08386	27	59		
8597214	-	-	-	-	2.140	0.08425				
8597215	-	-	-	-	2.150	0.08465				
8597216	-	-	-	-	2.160	0.08504				
8597217	-	-	-	-	2.170	0.08543				
8597218	859721811	-	-	-	2.180	0.08583				
8597219	-	-	-	-	2.190	0.08622				
62522	6252211	-	-	-	2.200	0.08661				
8597221	-	-	-	-	2.210	0.08701				
8597222	-	-	-	-	2.220	0.08740				
8597223	-	-	-	-	2.230	0.08780				
8597224	-	-	-	-	2.240	0.08819				
8597225	-	-	-	-	2.250	0.08858				
8597226	859722611	-	-	-	2.260	0.08898				
8597227	-	-	-	-	2.270	0.08937				
8597228	859722811	-	-	-	2.280	0.08976				
8597229	-	-	-	-	2.290	0.09016				
62523	-	-	-	-	2.300	0.09055				
8597231	-	-	-	-	2.310	0.09094				
8597232	-	-	-	-	2.320	0.09134				
8597233	-	-	-	-	2.330	0.09173				
8597234	-	-	-	-	2.340	0.09213				
8597235	-	-	-	-	2.350	0.09252				
8597236	-	-	-	-	2.360	0.09291				
8597237	-	-	-	-	2.370	0.09331	30	62		
8597238	859723811	-	-	-	2.380	0.09370				
8597239	-	-	-	-	2.390	0.09409				
62524	6252411	-	-	-	2.400	0.09449				
8597241	-	-	-	-	2.410	0.09488				
8597242	-	-	-	-	2.420	0.09528				
8597243	-	-	-	-	2.430	0.09567				
8597244	-	-	-	-	2.440	0.09606				
8597245	-	-	-	-	2.450	0.09646				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1600 (Continued)

EX-SUS-GDR, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8597246	-	-	-	-	2.460	0.09685	30	62	3	130°
8597247	-	-	-	-	2.470	0.09724				
8597248	-	-	-	-	2.480	0.09764				
8597249	-	-	-	-	2.490	0.09803				
62525	6252511	-	-	-	2.500	0.09843				
8597251	-	-	-	-	2.510	0.09882				
8597252	-	-	-	-	2.520	0.09921				
8597253	-	-	-	-	2.530	0.09961				
8597254	-	-	-	-	2.540	0.10000				
8597255	859725511	-	-	-	2.550	0.10039				
8597256	-	-	-	-	2.560	0.10079				
8597257	-	-	-	-	2.570	0.10118				
8597258	859725811	-	-	-	2.580	0.10157				
8597259	-	-	-	-	2.590	0.10197				
62526	-	-	-	-	2.600	0.10236				
8597261	-	-	-	-	2.610	0.10276				
8597262	-	-	-	-	2.620	0.10315				
8597263	-	-	-	-	2.630	0.10354				
8597264	-	-	-	-	2.640	0.10394				
8597265	-	-	-	-	2.650	0.10433				
8597266	-	-	-	-	2.660	0.10472	33	65		
8597267	-	-	-	-	2.670	0.10512				
8597268	-	-	-	-	2.680	0.10551				
8597269	-	-	-	-	2.690	0.10591				
62527	-	-	-	-	2.700	0.10630				
8597271	-	-	-	-	2.710	0.10669				
8597272	-	-	-	-	2.720	0.10709				
8597273	-	-	-	-	2.730	0.10748				
8597274	-	-	-	-	2.740	0.10787				
8597275	-	-	-	-	2.750	0.10827				
8597276	-	-	-	-	2.760	0.10866				
8597277	-	-	-	-	2.770	0.10906				
8597278	859727811	-	-	-	2.780	0.10945				
8597279	859727911	-	-	-	2.790	0.10984				
62528	-	-	-	-	2.800	0.11024				
8597281	859728111	-	-	-	2.810	0.11063				
8597282	-	-	-	-	2.820	0.11102				
8597283	-	-	-	-	2.830	0.11142				
8597284	-	-	-	-	2.840	0.11181				
8597285	-	-	-	-	2.850	0.11220				
8597286	859728611	-	-	-	2.860	0.11260				
8597287	-	-	-	-	2.870	0.11299				
8597288	-	-	-	-	2.880	0.11339				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

continued on next page

EXD

Work Material

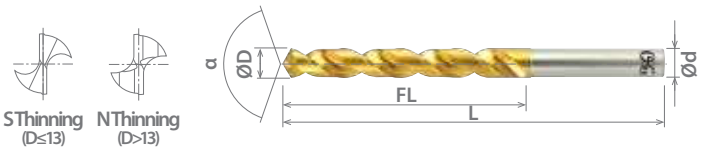
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1600	▣	▢				▣	▣	▢		▣	▣						

▢ good ▣ best

List 1600 (Continued)

EX-SUS-GDR, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8597289	-	-	-	-	2.890	0.11378	33	65	3	130°
62529	6252911	-	-	-	2.900	0.11417				
8597291	-	-	-	-	2.910	0.11457				
8597292	-	-	-	-	2.920	0.11496				
8597293	-	-	-	-	2.930	0.11535				
8597294	859729411	-	-	-	2.940	0.11575				
8597295	-	-	-	-	2.950	0.11614				
8597296	-	-	-	-	2.960	0.11654				
8597297	-	-	-	-	2.970	0.11693				
8597298	-	-	-	-	2.980	0.11732				
8597299	-	-	-	-	2.990	0.11772				
62530	6253011	-	-	-	3.000	0.11811				
8597301	-	-	-	-	3.010	0.11850	36	68	4	
8597302	-	-	-	-	3.020	0.11890				
8597303	-	-	-	-	3.030	0.11929				
8597304	859730411	-	-	-	3.040	0.11969				
8597305	859730511	-	-	-	3.050	0.12008				
8597306	-	-	-	-	3.060	0.12047				
8597307	-	-	-	-	3.070	0.12087				
8597308	-	-	-	-	3.080	0.12126				
8597309	-	-	-	-	3.090	0.12165				
62531	6253111	-	-	-	3.100	0.12205				
8597311	-	-	-	-	3.110	0.12244				
8597312	-	-	-	-	3.120	0.12283				
8597313	-	-	-	-	3.130	0.12323				
8597314	-	-	-	-	3.140	0.12362				
8597315	-	-	-	-	3.150	0.12402				
8597316	-	-	-	-	3.160	0.12441				
8597317	-	-	-	-	3.170	0.12480				
8597318	859731811	-	-	-	3.180	0.12520				
8597319	-	-	-	-	3.190	0.12559				
62532	6253211	-	-	-	3.200	0.12598				
8597321	-	-	-	-	3.210	0.12638				
8597322	-	-	-	-	3.220	0.12677				
8597323	-	-	-	-	3.230	0.12717				
8597324	-	-	-	-	3.240	0.12756				
8597325	-	-	-	-	3.250	0.12795				
8597326	-	-	-	-	3.260	0.12835				
8597327	-	-	-	-	3.270	0.12874				
8597328	-	-	-	-	3.280	0.12913				
8597329	-	-	-	-	3.290	0.12953				
62533	6253311	-	-	-	3.300	0.12992				
8597331	-	-	-	-	3.310	0.13031				
8597332	-	-	-	-	3.320	0.13071				
8597333	-	-	-	-	3.330	0.13110				
8597334	-	-	-	-	3.340	0.13150				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1600 (Continued)

EX-SUS-GDR, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8597335	-	-	-	-	3.350	0.13189	36	68	4	130°
8597336	-	-	-	-	3.360	0.13228	39	71		
8597337	-	-	-	-	3.370	0.13268				
8597338	-	-	-	-	3.380	0.13307				
8597339	-	-	-	-	3.390	0.13346				
62534	-	-	-	-	3.400	0.13386				
8597341	-	-	-	-	3.410	0.13425				
8597342	-	-	-	-	3.420	0.13465				
8597343	-	-	-	-	3.430	0.13504				
8597344	-	-	-	-	3.440	0.13543				
8597345	859734511	-	-	-	3.450	0.13583				
8597346	-	-	-	-	3.460	0.13622				
8597347	-	-	-	-	3.470	0.13661				
8597348	-	-	-	-	3.480	0.13701				
8597349	-	-	-	-	3.490	0.13740				
62535	6253511	-	-	-	3.500	0.13780				
8597351	-	-	-	-	3.510	0.13819				
8597352	-	-	-	-	3.520	0.13858				
8597353	-	-	-	-	3.530	0.13898				
8597354	-	-	-	-	3.540	0.13937				
8597355	-	-	-	-	3.550	0.13976				
8597356	-	-	-	-	3.560	0.14016				
8597357	859735711	-	-	-	3.570	0.14055				
8597358	859735811	-	-	-	3.580	0.14094				
8597359	-	-	-	-	3.590	0.14134				
62536	-	-	-	-	3.600	0.14173				
8597361	-	-	-	-	3.610	0.14213				
8597362	-	-	-	-	3.620	0.14252				
8597363	-	-	-	-	3.630	0.14291				
8597364	-	-	-	-	3.640	0.14331				
8597365	-	-	-	-	3.650	0.14370				
8597366	-	-	-	-	3.660	0.14409				
8597367	-	-	-	-	3.670	0.14449				
8597368	-	-	-	-	3.680	0.14488				
8597369	-	-	-	-	3.690	0.14528				
62537	6253711	-	-	-	3.700	0.14567				
8597371	-	-	-	-	3.710	0.14606				
8597372	-	-	-	-	3.720	0.14646				
8597373	-	-	-	-	3.730	0.14685				
8597374	-	-	-	-	3.740	0.14724				
8597375	-	-	-	-	3.750	0.14764				
8597376	-	-	-	-	3.760	0.14803	43	75		
8597377	-	-	-	-	3.770	0.14843				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

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EXD

Work Material

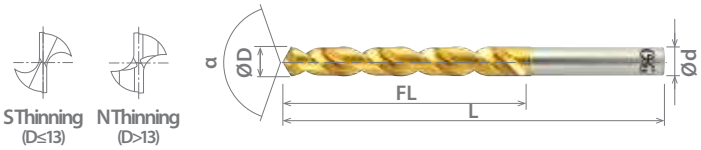
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1600	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1600 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

EX-SUS-GDR, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8597378	-	-	-	-	3.780	0.14882	43	75	4	130°
8597379	-	-	-	-	3.790	0.14921				
62538	6253811	-	-	-	3.800	0.14961				
8597381	-	-	-	-	3.810	0.15000				
8597382	859738211	-	-	-	3.820	0.15039				
8597383	859738311	-	-	-	3.830	0.15079				
8597384	859738411	-	-	-	3.840	0.15118				
8597385	-	-	-	-	3.850	0.15157				
8597386	-	-	-	-	3.860	0.15197				
8597387	-	-	-	-	3.870	0.15236				
8597388	-	-	-	-	3.880	0.15276				
8597389	-	-	-	-	3.890	0.15315				
62539	-	-	-	-	3.900	0.15354				
8597391	-	-	-	-	3.910	0.15394				
8597392	-	-	-	-	3.920	0.15433				
8597393	-	-	-	-	3.930	0.15472				
8597394	-	-	-	-	3.940	0.15512				
8597395	-	-	-	-	3.950	0.15551				
8597396	-	-	-	-	3.960	0.15591				
8597397	859739711	-	-	-	3.970	0.15630				
8597398	-	-	-	-	3.980	0.15669				
8597399	859739911	-	-	-	3.990	0.15709				
62540	6254011	-	-	-	4.000	0.15748				
8597401	-	-	-	-	4.010	0.15787		87	6	120°
8597402	-	-	-	-	4.020	0.15827				
8597403	-	-	-	-	4.030	0.15866				
8597404	859740411	-	-	-	4.040	0.15906				
8597405	-	-	-	-	4.050	0.15945				
8597406	-	-	-	-	4.060	0.15984				
8597407	-	-	-	-	4.070	0.16024				
8597408	-	-	-	-	4.080	0.16063				
8597409	859740911	-	-	-	4.090	0.16102				
62541	-	-	-	-	4.100	0.16142				
8597411	-	-	-	-	4.110	0.16181				
8597412	-	-	-	-	4.120	0.16220				
8597413	-	-	-	-	4.130	0.16260				
8597414	-	-	-	-	4.140	0.16299				
8597415	-	-	-	-	4.150	0.16339				
8597416	-	-	-	-	4.160	0.16378				
8597417	-	-	-	-	4.170	0.16417				
8597418	-	-	-	-	4.180	0.16457				
8597419	-	-	-	-	4.190	0.16496				
62542	-	-	-	-	4.200	0.16535				
8597421	-	-	-	-	4.210	0.16575				
8597422	859742211	-	-	-	4.220	0.16614				
8597423	-	-	-	-	4.230	0.16654				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1600 (Continued)

EX-SUS-GDR, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8597424	-	-	-	-	4.240	0.16693	43	87	6	120°
8597425	-	-	-	-	4.250	0.16732				
8597426	-	-	-	-	4.260	0.16772	47	91		
8597427	-	-	-	-	4.270	0.16811				
8597428	-	-	-	-	4.280	0.16850				
8597429	-	-	-	-	4.290	0.16890				
62543	-	-	-	-	4.300	0.16929				
8597431	-	-	-	-	4.310	0.16969				
8597432	-	-	-	-	4.320	0.17008				
8597433	-	-	-	-	4.330	0.17047				
8597434	-	-	-	-	4.340	0.17087				
8597435	-	-	-	-	4.350	0.17126				
8597436	-	-	-	-	4.360	0.17165				
8597437	859743711	-	-	-	4.370	0.17205				
8597438	-	-	-	-	4.380	0.17244				
8597439	-	-	-	-	4.390	0.17283				
62544	-	-	-	-	4.400	0.17323				
8597441	-	-	-	-	4.410	0.17362				
8597442	-	-	-	-	4.420	0.17402				
8597443	-	-	-	-	4.430	0.17441				
8597444	-	-	-	-	4.440	0.17480				
8597445	-	-	-	-	4.450	0.17520				
8597446	-	-	-	-	4.460	0.17559				
8597447	-	-	-	-	4.470	0.17598				
8597448	-	-	-	-	4.480	0.17638				
8597449	-	-	-	-	4.490	0.17677				
62545	6254511	-	-	-	4.500	0.17717				
8597451	-	-	-	-	4.510	0.17756				
8597452	-	-	-	-	4.520	0.17795				
8597453	-	-	-	-	4.530	0.17835				
8597454	-	-	-	-	4.540	0.17874				
8597455	-	-	-	-	4.550	0.17913				
8597456	-	-	-	-	4.560	0.17953				
8597457	859745711	-	-	-	4.570	0.17992				
8597458	-	-	-	-	4.580	0.18031				
8597459	-	-	-	-	4.590	0.18071				
62546	-	-	-	-	4.600	0.18110				
8597461	-	-	-	-	4.610	0.18150				
8597462	-	-	-	-	4.620	0.18189				
8597463	-	-	-	-	4.630	0.18228				
8597464	-	-	-	-	4.640	0.18268				
8597465	-	-	-	-	4.650	0.18307				
8597466	-	-	-	-	4.660	0.18346				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

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EXD

Work Material

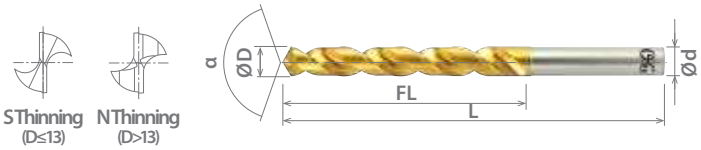
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1600	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1600 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

EX-SUS-GDR, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8597467	-	-	-	-	4.670	0.18386				
8597468	-	-	-	-	4.680	0.18425				
8597469	-	-	-	-	4.690	0.18465				
62547	-	-	-	-	4.700	0.18504				
8597471	-	-	-	-	4.710	0.18543	47	91		
8597472	-	-	-	-	4.720	0.18583				
8597473	-	-	-	-	4.730	0.18622				
8597474	-	-	-	-	4.740	0.18661				
8597475	859747511	-	-	-	4.750	0.18701				
8597476	859747611	-	-	-	4.760	0.18740				
8597477	-	-	-	-	4.770	0.18780				
8597478	-	-	-	-	4.780	0.18819				
8597479	-	-	-	-	4.790	0.18858				
62548	6254811	-	-	-	4.800	0.18898				
8597481	-	-	-	-	4.810	0.18937				
8597482	-	-	-	-	4.820	0.18976				
8597483	-	-	-	-	4.830	0.19016				
8597484	-	-	-	-	4.840	0.19055				
8597485	859748511	-	-	-	4.850	0.19094				
8597486	-	-	-	-	4.860	0.19134				
8597487	-	-	-	-	4.870	0.19173				
8597488	-	-	-	-	4.880	0.19213				
8597489	-	-	-	-	4.890	0.19252				
62549	-	-	-	-	4.900	0.19291			6	120°
8597491	-	-	-	-	4.910	0.19331				
8597492	-	-	-	-	4.920	0.19370				
8597493	-	-	-	-	4.930	0.19409				
8597494	-	-	-	-	4.940	0.19449	52	96		
8597495	-	-	-	-	4.950	0.19488				
8597496	-	-	-	-	4.960	0.19528				
8597497	-	-	-	-	4.970	0.19567				
8597498	859749811	-	-	-	4.980	0.19606				
8597499	-	-	-	-	4.990	0.19646				
62550	-	-	-	-	5.000	0.19685				
8597501	-	-	-	-	5.010	0.19724				
8597502	859750211	-	-	-	5.020	0.19764				
8597503	-	-	-	-	5.030	0.19803				
8597504	-	-	-	-	5.040	0.19843				
8597505	-	-	-	-	5.050	0.19882				
8597506	-	-	-	-	5.060	0.19921				
8597507	-	-	-	-	5.070	0.19961				
8597508	-	-	-	-	5.080	0.20000				
8597509	-	-	-	-	5.090	0.20039				
62551	-	-	-	-	5.100	0.20079				
8597511	859751111	-	-	-	5.110	0.20118				
8597512	-	-	-	-	5.120	0.20157				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1600 (Continued)

EX-SUS-GDR, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8597513	-	-	-	-	5.130	0.20197	52	96	6	120°
8597514	-	-	-	-	5.140	0.20236				
8597515	-	-	-	-	5.150	0.20276				
8597516	859751611	-	-	-	5.160	0.20315				
8597517	-	-	-	-	5.170	0.20354				
8597518	-	-	-	-	5.180	0.20394				
8597519	-	-	-	-	5.190	0.20433				
62552	6255211	-	-	-	5.200	0.20472				
8597521	-	-	-	-	5.210	0.20512				
8597522	-	-	-	-	5.220	0.20551				
8597523	-	-	-	-	5.230	0.20591				
8597524	-	-	-	-	5.240	0.20630				
8597525	-	-	-	-	5.250	0.20669				
8597526	-	-	-	-	5.260	0.20709				
8597527	-	-	-	-	5.270	0.20748				
8597528	-	-	-	-	5.280	0.20787				
8597529	-	-	-	-	5.290	0.20827				
62553	-	-	-	-	5.300	0.20866				
8597531	859753111	-	-	-	5.310	0.20906	57	101		
8597532	-	-	-	-	5.320	0.20945				
8597533	-	-	-	-	5.330	0.20984				
8597534	-	-	-	-	5.340	0.21024				
8597535	-	-	-	-	5.350	0.21063				
8597536	-	-	-	-	5.360	0.21102				
8597537	-	-	-	-	5.370	0.21142				
8597538	-	-	-	-	5.380	0.21181				
8597539	-	-	-	-	5.390	0.21220				
62554	-	-	-	-	5.400	0.21260				
8597541	-	-	-	-	5.410	0.21299				
8597542	-	-	-	-	5.420	0.21339				
8597543	-	-	-	-	5.430	0.21378				
8597544	-	-	-	-	5.440	0.21417				
8597545	-	-	-	-	5.450	0.21457				
8597546	-	-	-	-	5.460	0.21496				
8597547	859754711	-	-	-	5.470	0.21535				
8597548	-	-	-	-	5.480	0.21575				
8597549	-	-	-	-	5.490	0.21614				
62555	6255511	-	-	-	5.500	0.21654				
8597551	-	-	-	-	5.510	0.21693				
8597552	-	-	-	-	5.520	0.21732				
8597553	-	-	-	-	5.530	0.21772				
8597554	-	-	-	-	5.540	0.21811				
8597555	-	-	-	-	5.550	0.21850				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

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EXD

Work Material

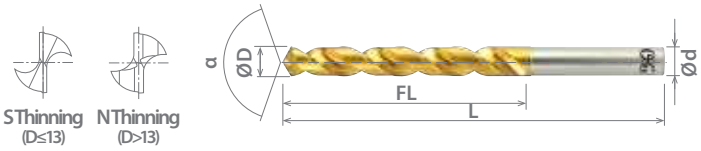
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1600	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1600 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

EX-SUS-GDR, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8597556	-	-	-	-	5.560	0.21890				
8597557	-	-	-	-	5.570	0.21929				
8597558	-	-	-	-	5.580	0.21969				
8597559	-	-	-	-	5.590	0.22008				
62556	-	-	-	-	5.600	0.22047				
8597561	859756111	-	-	-	5.610	0.22087				
8597562	-	-	-	-	5.620	0.22126				
8597563	-	-	-	-	5.630	0.22165				
8597564	-	-	-	-	5.640	0.22205				
8597565	-	-	-	-	5.650	0.22244				
8597566	-	-	-	-	5.660	0.22283				
8597567	-	-	-	-	5.670	0.22323				
8597568	-	-	-	-	5.680	0.22362				
8597569	-	-	-	-	5.690	0.22402				
62557	-	-	-	-	5.700	0.22441				
8597571	-	-	-	-	5.710	0.22480				
8597572	-	-	-	-	5.720	0.22520				
8597573	-	-	-	-	5.730	0.22559				
8597574	-	-	-	-	5.740	0.22598				
8597575	-	-	-	-	5.750	0.22638				
8597576	-	-	-	-	5.760	0.22677				
8597577	-	-	-	-	5.770	0.22717				
8597578	-	-	-	-	5.780	0.22756	57	101	6	120°
8597579	-	-	-	-	5.790	0.22795				
62558	-	-	-	-	5.800	0.22835				
8597581	-	-	-	-	5.810	0.22874				
8597582	-	-	-	-	5.820	0.22913				
8597583	-	-	-	-	5.830	0.22953				
8597584	-	-	-	-	5.840	0.22992				
8597585	-	-	-	-	5.850	0.23031				
8597586	-	-	-	-	5.860	0.23071				
8597587	-	-	-	-	5.870	0.23110				
8597588	-	-	-	-	5.880	0.23150				
8597589	-	-	-	-	5.890	0.23189				
62559	-	-	-	-	5.900	0.23228				
8597591	-	-	-	-	5.910	0.23268				
8597592	-	-	-	-	5.920	0.23307				
8597593	-	-	-	-	5.930	0.23346				
8597594	-	-	-	-	5.940	0.23386				
8597595	859759511	-	-	-	5.950	0.23425				
8597596	-	-	-	-	5.960	0.23465				
8597597	-	-	-	-	5.970	0.23504				
8597598	-	-	-	-	5.980	0.23543				
8597599	-	-	-	-	5.990	0.23583				
62560	-	-	-	-	6.000	0.23622				
8597605	-	-	-	-	6.050	0.23819	63	107	8	

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1600 (Continued)

EX-SUS-GDR, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
62561	6256111	-	-	-	6.100	0.24016	63	107	8	120°
8597615	-	-	-	-	6.150	0.24213				
62562	-	-	-	-	6.200	0.24409				
8597625	-	-	-	-	6.250	0.24606				
62563	-	-	-	-	6.300	0.24803				
8597635	859763511	1/4	-	E	6.350	0.25000				
62564	-	-	-	-	6.400	0.25197				
8597645	-	-	-	-	6.450	0.25394				
62565	6256511	-	-	-	6.500	0.25591				
8597655	-	-	-	-	6.550	0.25787				
62566	6256611	-	-	-	6.600	0.25984				
8597665	-	-	-	-	6.650	0.26181				
62567	-	-	-	-	6.700	0.26378				
8597675	859767511	-	-	-	6.750	0.26575	69	113		
62568	6256811	-	-	-	6.800	0.26772				
8597685	-	-	-	-	6.850	0.26969				
62569	-	-	-	-	6.900	0.27165				
8597695	-	-	-	-	6.950	0.27362				
62570	6257011	-	-	-	7.000	0.27559				
8597705	-	-	-	-	7.050	0.27756				
62571	-	-	-	-	7.100	0.27953				
8597715	-	-	-	-	7.150	0.28150				
62572	-	-	-	-	7.200	0.28346				
8597725	859772511	-	-	-	7.250	0.28543				
62573	-	-	-	-	7.300	0.28740				
8597735	-	-	-	-	7.350	0.28937				
62574	6257411	-	-	-	7.400	0.29134				
8597745	-	-	-	-	7.450	0.29331				
62575	-	-	-	-	7.500	0.29528				
8597755	-	-	-	-	7.550	0.29724	75	119		
62576	-	-	-	-	7.600	0.29921				
8597765	-	-	-	-	7.650	0.30118				
62577	6257711	-	-	-	7.700	0.30315				
8597775	-	-	-	-	7.750	0.30512				
62578	-	-	-	-	7.800	0.30709				
8597785	-	-	-	-	7.850	0.30906				
62579	6257911	-	-	-	7.900	0.31102				
8597795	-	-	-	-	7.950	0.31299				
62580	-	-	-	-	8.000	0.31496				
8597805	-	-	-	-	8.050	0.31693		125	10	
62581	-	-	-	-	8.100	0.31890				
8597815	-	-	-	-	8.150	0.32087				
62582	-	-	-	-	8.200	0.32283				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

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EXD

Work Material

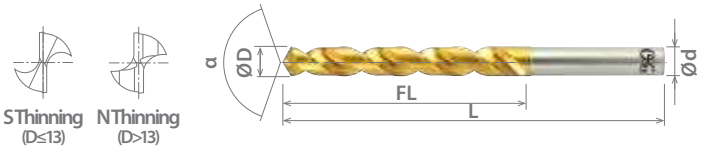
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1600	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1600 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

EX-SUS-GDR, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8597825	-	-	-	-	8.250	0.32480	75	125	10	120°
62583	-	-	-	-	8.300	0.32677				
8597835	-	-	-	-	8.350	0.32874				
62584	-	-	-	-	8.400	0.33071				
8597845	-	-	-	-	8.450	0.33268				
62585	6258511	-	-	-	8.500	0.33465				
8597855	-	-	-	-	8.550	0.33661	81	131		
62586	6258611	-	-	-	8.600	0.33858				
8597865	-	-	-	-	8.650	0.34055				
62587	-	-	-	-	8.700	0.34252				
8597875	-	-	-	-	8.750	0.34449				
62588	-	-	-	-	8.800	0.34646				
8597885	-	-	-	-	8.850	0.34843				
62589	-	-	-	-	8.900	0.35039				
8597895	-	-	-	-	8.950	0.35236				
62590	-	-	-	-	9.000	0.35433				
8597905	-	-	-	-	9.050	0.35630				
62591	6259111	-	-	-	9.100	0.35827				
8597915	-	-	-	-	9.150	0.36024				
62592	6259211	-	-	-	9.200	0.36220				
8597925	859792511	-	-	-	9.250	0.36417				
62593	-	-	-	-	9.300	0.36614				
8597935	859793511	-	-	-	9.350	0.36811				
62594	-	-	-	-	9.400	0.37008				
8597945	-	-	-	-	9.450	0.37205				
62595	6259511	-	-	-	9.500	0.37402				
8597955	-	-	-	-	9.550	0.37598	87	137		
62596	-	-	-	-	9.600	0.37795				
8597965	-	-	-	-	9.650	0.37992				
62597	-	-	-	-	9.700	0.38189				
8597975	-	-	-	-	9.750	0.38386				
62598	6259811	-	-	-	9.800	0.38583				
8597985	-	-	-	-	9.850	0.38780				
62599	-	-	-	-	9.900	0.38976				
8597995	-	-	-	-	9.950	0.39173				
62600	-	-	-	-	10.000	0.39370				
8598005	-	-	-	-	10.050	0.39567		144	12	
62601	-	-	-	-	10.100	0.39764				
8598015	-	-	-	-	10.150	0.39961				
62602	6260211	-	-	-	10.200	0.40157				
8598025	-	-	-	-	10.250	0.40354				
62603	-	-	-	-	10.300	0.40551				
8598035	-	-	-	-	10.350	0.40748				
62604	-	-	-	-	10.400	0.40945				
8598045	-	-	-	-	10.450	0.41142				
62605	-	-	-	-	10.500	0.41339				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

List 1600 (Continued)

EX-SUS-GDR, Ideal for Stainless Steel

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
8598055	-	-	-	-	10.550	0.41535	87	144	12	120°
62606	-	-	-	-	10.600	0.41732				
8598065	-	-	-	-	10.650	0.41929	94	151		
62607	6260711	-	-	-	10.700	0.42126				
8598075	-	-	-	-	10.750	0.42323				
62608	-	-	-	-	10.800	0.42520				
8598085	-	-	-	-	10.850	0.42717				
62609	6260911	-	-	-	10.900	0.42913				
8598095	-	-	-	-	10.950	0.43110				
62610	6261011	-	-	-	11.000	0.43307				
8598105	-	-	-	-	11.050	0.43504				
62611	6261111	-	-	-	11.100	0.43701				
8598115	-	-	-	-	11.150	0.43898				
62612	-	-	-	-	11.200	0.44094				
8598125	-	-	-	-	11.250	0.44291				
62613	-	-	-	-	11.300	0.44488				
8598135	-	-	-	-	11.350	0.44685				
62614	-	-	-	-	11.400	0.44882				
8598145	-	-	-	-	11.450	0.45079				
62615	-	-	-	-	11.500	0.45276				
8598155	-	-	-	-	11.550	0.45472				
62616	-	-	-	-	11.600	0.45669				
8598165	-	-	-	-	11.650	0.45866				
62617	-	-	-	-	11.700	0.46063				
8598175	-	-	-	-	11.750	0.46260				
62618	-	-	-	-	11.800	0.46457				
8598185	-	-	-	-	11.850	0.46654	101	158		
62619	-	-	-	-	11.900	0.46850				
8598195	-	-	-	-	11.950	0.47047				
62620	-	-	-	-	12.000	0.47244				
62621	-	-	-	-	12.100	0.47638				
62622	-	-	-	-	12.200	0.48031				
62623	6262311	-	-	-	12.300	0.48425				
62624	6262411	-	-	-	12.400	0.48819				
62625	-	-	-	-	12.500	0.49213				
62626	6262611	-	-	-	12.600	0.49606				
62627	6262711	1/2	-	-	12.700	0.50000				
62628	-	-	-	-	12.800	0.50394				
62629	-	-	-	-	12.900	0.50787				
62630	-	-	-	-	13.000	0.51181				
62635	-	-	-	-	13.500	0.53150	106	166	16	
62640	-	-	-	-	14.000	0.55118				
62641	-	-	-	-	14.100	0.55512	109	169		

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

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EXD

Work Material

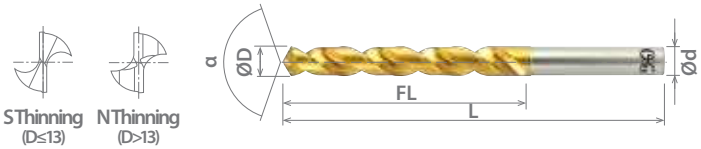
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1600	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1600 (Continued)

SPEED FEED P391 | HSSE | TiN | TiAlN | JOBBERS | 40°

EX-SUS-GDR, Ideal for Stainless Steel



Cutting Diameter Tolerance (h8)		
Size	mm	inch
2≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤30	+0 / -0.033	+0 / -0.0013
30<D≤32	+0 / -0.039	+0 / -0.0015

TiN EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter	Point Angle
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)	α
62645	-	-	-	-	14.500	0.57087	109	169	16	120°
62650	6265011	-	-	-	15.000	0.59055				
62655	-	-	-	-	15.500	0.61024	112	172		
62656	-	-	-	-	15.600	0.61417				
62660	-	-	-	-	16.000	0.62992				
62665	-	-	-	-	16.500	0.64961	115	181	20	
62670	-	-	-	-	17.000	0.66929				
62675	-	-	-	-	17.500	0.68898	118	184		
62676	-	-	-	-	17.600	0.69291				
62680	-	-	-	-	18.000	0.70866				
62685	-	-	-	-	18.500	0.72835	122	188		
62690	-	-	-	-	19.000	0.74803				
62695	-	-	-	-	19.500	0.76772	125	191		
62696	-	-	-	-	19.600	0.77165				
62700	-	-	-	-	20.000	0.78740				
62705	-	-	-	-	20.500	0.80709	128	204	25	
62710	-	-	-	-	21.000	0.82677				
62715	-	-	-	-	21.500	0.84646	132	208		
62720	-	-	-	-	22.000	0.86614				
62725	-	-	-	-	22.500	0.88583	136	212		
62730	6273011	-	-	-	23.000	0.90551				
62735	-	-	-	-	23.500	0.92520				
62740	-	-	-	-	24.000	0.94488	140	216		
62745	-	-	-	-	24.500	0.96457				
62750	-	-	-	-	25.000	0.98425				
62755	-	-	-	-	25.500	1.00394	145	225	32	
62760	-	-	-	-	26.000	1.02362				
62765	-	-	-	-	26.500	1.04331				
62770	-	-	-	-	27.000	1.06299	150	230		
62780	-	-	-	-	28.000	1.10236				
62790	-	-	-	-	29.000	1.14173	155	235		
62800	-	-	-	-	30.000	1.18110				
62810	-	-	-	-	31.000	1.22047	160	240		
62820	-	-	-	-	32.000	1.25984	165	245		

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD

Work Material

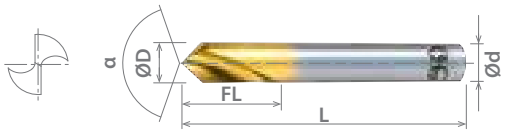
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1600	◎	○				◎	◎	○		◎	◎						

○ good ◎ best

List 1200

SPEED FEED P392 | HSS | BR | TiN | STUB | 20°

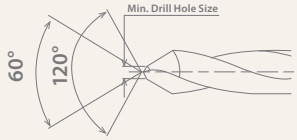
TiN-NC-LDS, 60°, 90° & 120° Spot Drills



EDP Number		Diameter					Min Drill Hole Size	Flute Length	Overall Length	Shank Diameter	Point Angle
Bright	TiN	Fractional Size	Wire Gage	Letter Size	mm	Inch		FL (mm)	L (mm)	d (mm)	α
-	63703	-	-	-	3.000	0.11811	1.5	11	48	3	60°
62903	63603	-	-	-			1.1				90°
62923	63653	-	-	-			-				120°
-	63704	-	-	-	4.000	0.15748	1.7	15	54	4	60°
62904	63604	-	-	-			1.3				90°
62924	63654	-	-	-			-				120°
-	63706	-	-	-	6.000	0.23622	1.9	20	72	6	60°
62906	63606	-	-	-			1.5				90°
62926	63656	-	-	-			-				120°
-	63708	-	-	-	8.000	0.31496	1.9	26	81	8	60°
62908	63608	-	-	-			1.6				90°
62928	63658	-	-	-			-				120°
-	63710	-	-	-	10.000	0.39370	2.1	30	93	10	60°
62910	63610	-	-	-							90°
62930	63660	-	-	-			-				120°
-	63712	-	-	-	12.000	0.47244	2.1	36	108	12	60°
62912	63612	-	-	-							90°
62932	63662	-	-	-			-				120°
62916	63616	-	-	-	16.000	0.62992	3	41	118	16	90°
62936	-	-	-	-			-				120°
62918	63618	-	-	-	20.000	0.78740	3	53	132	20	90°
62938	-	-	-	-			-				120°
62920	63620	-	-	-	25.000	0.98425	3	60	151	25	90°
62940	-	-	-	-							120°

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 11 = TiAlN.

EXD



The EX-SPOT with point angle 60° has a 120° point angle within the minimum drill hole diameter in order to prevent the chisel edges from crashing.

Work Material

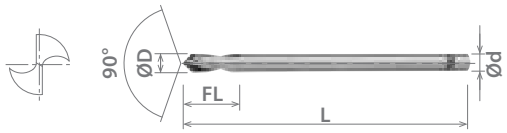
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1200	◎	◎	◎	○	○	○	○	○		○	○			○			

○ good ◎ best

List 1250

SPEED FEED P392 | HSS | BR | STUB | 20°

LS-NC-LDS, Long Shank, 90° Spot Drill



EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
63503	-	-	-	3.000	0.11811	11	75	3
63504	-	-	-	4.000	0.15748	15	100	4
63506	-	-	-	6.000	0.23622	20	150	6
63508	-	-	-	8.000	0.31496	26		8
63510	-	-	-	10.000	0.39370	30	200	10
63512	-	-	-	12.000	0.47244	36		12
63516	-	-	-	16.000	0.62992	41	250	16
63518	-	-	-	20.000	0.78740	53		20
63520	-	-	-	25.000	0.98425	60		25

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order: 05 = TiN, 11 = TiAlN

EXD

Work Material

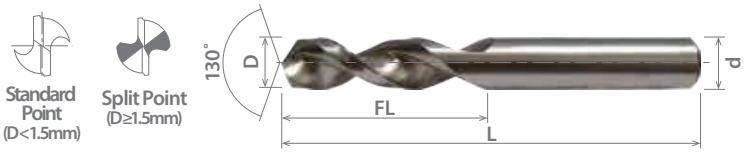
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1250	◎	◎	◎	○	○				○	○	○						

○ good ◎ best

List 163-SO

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | STUB | 40°

Parabolic Flute, Stub Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤14	+0 / -0.027	+0 / -0.0011

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1630100-SO	1630100A-SO	-	-	-	1.000	0.03937	6	26	1.00
10	1630102-SO	1630102A-SO	-	60	-	1.016	0.04000			1.02
10	1630104-SO	1630104A-SO	-	59	-	1.041	0.04100			1.04
10	1630107-SO	1630107A-SO	-	58	-	1.067	0.04200	7	28	1.07
10	1630109-SO	1630109A-SO	-	57	-	1.092	0.04300			1.09
10	1630110-SO	1630110A-SO	-	-	-	1.100	0.04331			1.10
10	-	1630115A-SO	-	-	-	1.150	0.04528			1.15
10	1630118-SO	1630118A-SO	-	56	-	1.181	0.04650			1.18
10	1630119-SO	1630119A-SO	3/64	-	-	1.191	0.04688	8	30	1.19
10	1630120-SO	1630120A-SO	-	-	-	1.200	0.04724			1.20
10	1630125-SO	-	-	-	-	1.250	0.04921			1.25
10	1630130-SO	1630130A-SO	-	-	-	1.300	0.05118			1.30
10	1630132-SO	1630132A-SO	-	55	-	1.321	0.05200			1.32
10	1630135-SO	1630135A-SO	-	-	-	1.350	0.05315	9	32	1.35
10	1630139-SO	1630139A-SO	-	54	-	1.397	0.05500			1.40
10	1630140-SO	1630140A-SO	-	-	-	1.400	0.05512			
10	1630145-SO	1630145A-SO	-	-	-	1.450	0.05709			1.45
10	1630150-SO	1630150A-SO	-	-	-	1.500	0.05906			1.50
10	1630152-SO	1630152A-SO	-	53	-	1.511	0.05950	10	34	1.51
10	1630155-SO	1630155A-SO	-	-	-	1.550	0.06102			1.55
10	1630159-SO	1630159A-SO	1/16	-	-	1.588	0.06250			1.59
10	1630160-SO	1630160A-SO	-	-	-	1.600	0.06299			1.60
10	1630161-SO	1630161A-SO	-	52	-	1.613	0.06350			1.61
10	1630165-SO	1630165A-SO	-	-	-	1.650	0.06496			1.65
10	1630167-SO	1630167A-SO	-	-	-	1.670	0.06575			1.67
10	1630169-SO	1630169A-SO	-	51	-	1.702	0.06700			1.70
10	1630170-SO	1630170A-SO	-	-	-	1.700	0.06693			
10	1630175-SO	1630175A-SO	-	-	-	1.750	0.06890	11	36	1.75
10	1630178-SO	1630178A-SO	-	50	-	1.778	0.07000			1.78
10	1630180-SO	1630180A-SO	-	-	-	1.800	0.07087			1.80
10	1630185-SO	1630185A-SO	-	49	-	1.854	0.07300			1.85
10	1630190-SO	1630190A-SO	-	-	-	1.900	0.07480			1.90
10	1630193-SO	1630193A-SO	-	48	-	1.930	0.07600	12	38	1.93
10	1630195-SO	1630195A-SO	-	-	-	1.950	0.07677			1.95
10	1630198-SO	1630198A-SO	5/64	-	-	1.984	0.07813			1.98
10	1630199-SO	1630199A-SO	-	47	-	1.994	0.07850			1.99
10	1630200-SO	1630200A-SO	-	-	-	2.000	0.07874			2.00
10	1630205-SO	1630205A-SO	-	-	-	2.050	0.08071			2.05
10	1630206-SO	1630206A-SO	-	46	-	2.057	0.08100			2.06
10	1630208-SO	1630208A-SO	-	45	-	2.083	0.08200			2.08

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

continued on next page

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
163-SO	◎	◎	◎	◎		○	○	○	○	◎		○	○	◎			

○ good ◎ best

List 163-SO (Continued)

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | STUB | 40°

Parabolic Flute, Stub Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤14	+0 / -0.027	+0 / -0.0011

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1630210-SO	1630210A-SO	-	-	-	2.100	0.08268	12	38	2.10
10	1630215-SO	1630215A-SO	-	-	-	2.150	0.08465	13	40	2.15
10	1630218-SO	1630218A-SO	-	44	-	2.184	0.08600			2.18
10	1630220-SO	1630220A-SO	-	-	-	2.200	0.08661			2.20
10	1630225-SO	1630225A-SO	-	-	-	2.250	0.08858			2.25
10	1630226-SO	1630226A-SO	-	43	-	2.261	0.08900			2.26
10	1630230-SO	1630230A-SO	-	-	-	2.300	0.09055			2.30
10	1630235-SO	-	-	-	-	2.350	0.09252			2.35
10	1630237-SO	1630237A-SO	-	42	-	2.375	0.09350	14	43	2.37
10	1630238-SO	1630238A-SO	3/32	-	-	2.381	0.09375			2.38
10	1630240-SO	1630240A-SO	-	-	-	2.400	0.09449			2.40
10	1630244-SO	1630244A-SO	-	41	-	2.438	0.09600			2.44
10	1630245-SO	1630245A-SO	-	-	-	2.450	0.09646			2.45
10	-	1630248A-SO	-	-	-	2.480	0.09764			2.48
10	1630249-SO	1630249A-SO	-	40	-	2.489	0.09800			2.49
10	1630250-SO	1630250A-SO	-	-	-	2.500	0.09843			2.50
10	1630253-SO	1630253A-SO	-	39	-	2.527	0.09950			2.53
10	1630255-SO	-	-	-	-	2.550	0.10039			2.55
10	1630258-SO	1630258A-SO	-	38	-	2.578	0.10150			2.58
10	1630260-SO	1630260A-SO	-	-	-	2.600	0.10236			2.60
10	1630264-SO	1630264A-SO	-	37	-	2.642	0.10400			2.64
10	1630270-SO	1630270A-SO	-	-	-	2.700	0.10630	16	46	2.70
10	1630271-SO	1630271A-SO	-	36	-	2.705	0.10650			2.71
10	1630275-SO	1630275A-SO	-	-	-	2.750	0.10827			2.75
10	1630278-SO	1630278A-SO	7/64	-	-	2.778	0.10938			2.78
10	1630279-SO	1630279A-SO	-	35	-	2.794	0.11000			2.79
10	1630280-SO	1630280A-SO	-	-	-	2.800	0.11024			2.80
10	1630282-SO	1630282A-SO	-	34	-	2.819	0.11100			2.82
10	1630285-SO	1630285A-SO	-	-	-	2.850	0.11220			2.85
10	1630287-SO	1630287A-SO	-	33	-	2.870	0.11300			2.87
10	1630290-SO	1630290A-SO	-	-	-	2.900	0.11417			2.90
10	1630295-SO	1630295A-SO	-	32	-	2.946	0.11600			2.95
10	1630300-SO	1630300A-SO	-	-	-	3.000	0.11811			3.00
10	1630305-SO	1630305A-SO	-	31	-	3.048	0.12000	18	49	3.05
10	1630310-SO	1630310A-SO	-	-	-	3.100	0.12205			3.10
10	1630315-SO	1630315A-SO	-	-	-	3.150	0.12402			3.15
10	1630318-SO	1630318A-SO	1/8	-	-	3.175	0.12500			3.18
10	1630320-SO	1630320A-SO	-	-	-	3.200	0.12598			3.20
10	1630322-SO	1630322A-SO	-	-	-	3.220	0.12598			3.22
10	1630323-SO	1630323A-SO	-	-	-	3.230	0.12598			3.23
10	1630325-SO	1630325A-SO	-	-	-	3.250	0.12598			3.25
10	1630326-SO	1630326A-SO	-	30	-	3.264	0.12850			3.26
10	1630330-SO	1630330A-SO	-	-	-	3.300	0.12992			3.30
10	1630335-SO	1630335A-SO	-	-	-	3.350	0.13189			3.35
10	1630340-SO	1630340A-SO	-	-	-	3.400	0.13386	20	52	3.40
10	1630345-SO	1630345A-SO	-	29	-	3.454	0.13600			3.45
10	1630350-SO	1630350A-SO	-	-	-	3.500	0.13780			3.50
10	1630357-SO	1630357A-SO	9/64	-	-	3.572	0.14063			3.57
10	1630360-SO	1630360A-SO	-	-	-	3.600	0.14173			3.60
10	1630366-SO	1630366A-SO	-	27	-	3.658	0.14400			3.66

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

List 163-SO (Continued)

Parabolic Flute, Stub Drills

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | STUB | 40°

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1630370-SO	1630370A-SO	-	-	-	3.700	0.14567	20	52	3.70
10	1630373-SO	1630373A-SO	-	26	-	3.734	0.14700			3.73
10	1630379-SO	1630379A-SO	-	25	-	3.797	0.14950	22	55	3.80
10	1630380-SO	1630380A-SO	-	-	-	3.800	0.14961			
10	1630386-SO	1630386A-SO	-	24	-	3.861	0.15200			3.86
10	1630390-SO	1630390A-SO	-	-	-	3.900	0.15354			3.90
10	1630391-SO	1630391A-SO	-	23	-	3.912	0.15400			3.91
10	1630397-SO	1630397A-SO	5/32	-	-	3.969	0.15625			3.97
10	1630399-SO	1630399A-SO	-	22	-	3.988	0.15700			3.99
10	1630400-SO	1630400A-SO	-	-	-	4.000	0.15748			4.00
10	1630404-SO	1630404A-SO	-	21	-	4.039	0.15900			4.04
10	1630409-SO	1630409A-SO	-	20	-	4.089	0.16100			4.09
10	1630410-SO	1630410A-SO	-	-	-	4.100	0.16142			4.10
10	1630420-SO	1630420A-SO	-	-	-	4.200	0.16535			4.20
10	1630422-SO	1630422A-SO	-	19	-	4.216	0.16600			4.22
10	1630425-SO	1630425A-SO	-	-	-	4.250	0.16732			4.25
10	1630430-SO	1630430A-SO	-	-	-	4.300	0.16929	24	58	4.30
10	1630431-SO	1630431A-SO	-	18	-	4.305	0.16950			4.31
10	1630437-SO	1630437A-SO	11/64	-	-	4.366	0.17188			4.37
10	1630439-SO	1630439A-SO	-	17	-	4.394	0.17300			4.39
10	1630440-SO	1630440A-SO	-	-	-	4.400	0.17323			4.40
10	-	1630445A-SO	-	-	-	4.450	0.17520			4.45
10	1630449-SO	1630449A-SO	-	16	-	4.496	0.17700			4.50
10	1630450-SO	1630450A-SO	-	-	-	4.500	0.17717			
10	1630457-SO	1630457A-SO	-	15	-	4.572	0.18000			4.57
10	1630460-SO	1630460A-SO	-	-	-	4.600	0.18110			4.60
10	-	1630462A-SO	-	14	-	4.623	0.18200			4.62
10	1630469-SO	1630469A-SO	-	13	-	4.699	0.18500			4.69
10	1630475-SO	1630475A-SO	-	-	-	4.750	0.18701			4.75
10	1630476-SO	1630476A-SO	3/16	-	-	4.763	0.18750	26	62	4.76
10	1630480-SO	1630480A-SO	-	-	-	4.800	0.18898			4.80
10	1630479-SO	1630479A-SO	-	12	-	4.801	0.18900			
10	1630485-SO	1630485A-SO	-	11	-	4.851	0.19100			4.86
10	1630490-SO	1630490A-SO	-	-	-	4.900	0.19291			4.90
10	1630492-SO	1630492A-SO	-	10	-	4.915	0.19350			4.92
10	1630498-SO	1630498A-SO	-	9	-	4.978	0.19600			4.98
10	1630500-SO	1630500A-SO	-	-	-	5.000	0.19685			5.00
10	1630506-SO	1630506A-SO	-	8	-	5.055	0.19900			5.05
10	1630510-SO	1630510A-SO	-	-	-	5.100	0.20079			5.10
10	1630511-SO	1630511A-SO	-	7	-	5.105	0.20100			5.11
10	1630516-SO	1630516A-SO	13/64	-	-	5.159	0.20313			5.16
10	1630518-SO	1630518A-SO	-	6	-	5.182	0.20400			5.18
10	1630520-SO	1630520A-SO	-	-	-	5.200	0.20472			5.20
10	1630522-SO	1630522A-SO	-	5	-	5.220	0.20550			5.22
10	1630530-SO	1630530A-SO	-	-	-	5.300	0.20866			5.30
10	1630532-SO	1630532A-SO	-	4	-	5.309	0.20900	28	66	5.31

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

continued on next page

SOM

Work Material

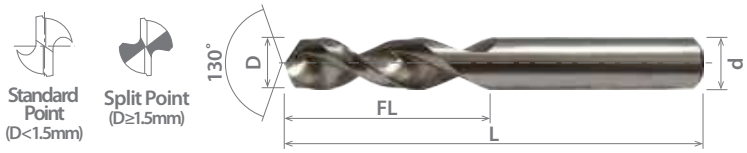
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
163-SO	◎	◎	◎	◎		○	○	○	○	◎		○	○	◎			

○ good ◎ best

List 163-SO (Continued)

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | STUB | 40°

Parabolic Flute, Stub Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤14	+0 / -0.027	+0 / -0.0011

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1630540-SO	1630540A-SO	-	-	-	5.400	0.21260	28	66	5.40
10	1630541-SO	1630541A-SO	-	3	-	5.410	0.21300			5.41
10	1630550-SO	1630550A-SO	-	-	-	5.500	0.21654			5.50
10	1630556-SO	1630556A-SO	7/32	-	-	5.556	0.21875			5.56
10	1630560-SO	1630560A-SO	-	-	-	5.600	0.22047			5.60
10	1630561-SO	1630561A-SO	-	2	-	5.613	0.22100			5.61
10	1630570-SO	1630570A-SO	-	-	-	5.700	0.22441			5.70
10	1630575-SO	1630575A-SO	-	-	-	5.750	0.22638			5.75
10	1630579-SO	1630579A-SO	-	1	-	5.791	0.22800			5.79
10	1630580-SO	1630580A-SO	-	-	-	5.800	0.22835			5.80
10	1630590-SO	1630590A-SO	-	-	-	5.900	0.23228			5.90
10	1630594-SO	1630594A-SO	-	-	A	5.944	0.23400			5.94
10	1630595-SO	1630595A-SO	15/64	-	-	5.953	0.23438			5.95
10	1630600-SO	1630600A-SO	-	-	-	6.000	0.23622			6.00
10	1630605-SO	1630605A-SO	-	-	B	6.045	0.23800	31	70	6.05
10	1630610-SO	1630610A-SO	-	-	-	6.100	0.24016			6.10
10	1630615-SO	1630615A-SO	-	-	C	6.147	0.24200			6.15
10	1630620-SO	1630620A-SO	-	-	-	6.200	0.24409			6.20
10	1630625-SO	1630625A-SO	-	-	D	6.248	0.24600			6.25
10	1630630-SO	1630630A-SO	-	-	-	6.300	0.24803			6.30
10	1630634-SO	1630634A-SO	-	-	E	6.350	0.25000			6.35
10	1630635-SO	1630635A-SO	1/4	-	-					
10	1630640-SO	1630640A-SO	-	-	-	6.400	0.25197			6.40
10	1630650-SO	1630650A-SO	-	-	-	6.500	0.25591			6.50
10	1630653-SO	1630653A-SO	-	-	F	6.528	0.25700			6.53
10	1630660-SO	1630660A-SO	-	-	-	6.600	0.25984			6.60
10	1630663-SO	1630663A-SO	-	-	G	6.629	0.26100			6.63
10	1630670-SO	1630670A-SO	-	-	-	6.700	0.26378			6.70
10	1630677-SO	1630677A-SO	17/64	-	-	6.747	0.26563	34	74	6.75
10	1630676-SO	1630676A-SO	-	-	H	6.756	0.26600			6.76
10	1630680-SO	1630680A-SO	-	-	-	6.800	0.26772			6.80
10	1630690-SO	1630690A-SO	-	-	-	6.900	0.27165			6.90
10	1630691-SO	1630691A-SO	-	-	I	6.909	0.27200			
10	1630700-SO	1630700A-SO	-	-	-	7.000	0.27559			7.00
10	1630704-SO	1630704A-SO	-	-	J	7.036	0.27700			7.04
10	1630710-SO	1630710A-SO	-	-	-	7.100	0.27953			7.10
10	1630713-SO	1630713A-SO	-	-	K	7.137	0.28100			7.14
10	1630714-SO	1630714A-SO	9/32	-	-	7.144	0.28125			
10	1630720-SO	1630720A-SO	-	-	-	7.200	0.28346			7.20
10	-	1630725A-SO	-	-	-	7.250	0.28543			7.25
10	1630730-SO	1630730A-SO	-	-	-	7.300	0.28740			7.30
10	1630737-SO	1630737A-SO	-	-	L	7.366	0.29000			7.37
10	1630740-SO	1630740A-SO	-	-	-	7.400	0.29134			7.40
10	1630749-SO	1630749A-SO	-	-	M	7.493	0.29500			7.49
10	1630750-SO	1630750A-SO	-	-	-	7.500	0.29528			7.50
10	1630754-SO	1630754A-SO	19/64	-	-	7.541	0.29688	37	79	7.54
10	1630760-SO	1630760A-SO	-	-	-	7.600	0.29921			7.60
10	1630767-SO	1630767A-SO	-	-	N	7.671	0.30200			7.67
10	1630770-SO	1630770A-SO	-	-	-	7.700	0.30315			7.70
10	1630780-SO	1630780A-SO	-	-	-	7.800	0.30709			7.80

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

List 163-SO (Continued)

Parabolic Flute, Stub Drills

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | STUB | 40°

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1630790-SO	1630790A-SO	-	-	-	7.900	0.31102	37	79	7.90
10	1630794-SO	1630794A-SO	5/16	-	-	7.938	0.31250			7.94
10	1630800-SO	1630800A-SO	-	-	-	8.000	0.31496			8.00
10	1630803-SO	1630803A-SO	-	-	O	8.026	0.31600			8.03
10	1630810-SO	1630810A-SO	-	-	-	8.100	0.31890			8.10
10	1630820-SO	1630820A-SO	-	-	-	8.200	0.32283			8.20
10	1630821-SO	1630821A-SO	-	-	P	8.204	0.32300			
10	1630830-SO	1630830A-SO	-	-	-	8.300	0.32677			8.30
10	1630833-SO	1630833A-SO	21/64	-	-	8.334	0.32813			8.33
10	1630840-SO	1630840A-SO	-	-	-	8.400	0.33071			8.40
10	1630843-SO	1630843A-SO	-	-	Q	8.433	0.33200			8.43
10	1630850-SO	1630850A-SO	-	-	-	8.500	0.33465			8.50
10	1630860-SO	1630860A-SO	-	-	-	8.600	0.33858	40	84	8.60
10	1630861-SO	1630861A-SO	-	-	R	8.611	0.33900			8.61
10	1630870-SO	1630870A-SO	-	-	-	8.700	0.34252			8.70
10	1630873-SO	1630873A-SO	11/32	-	-	8.731	0.34375			8.73
10	1630880-SO	1630880A-SO	-	-	-	8.800	0.34646			8.80
10	1630884-SO	1630884A-SO	-	-	S	8.839	0.34800			8.84
10	1630890-SO	1630890A-SO	-	-	-	8.900	0.35039			8.90
10	1630900-SO	1630900A-SO	-	-	-	9.000	0.35433			9.00
10	1630909-SO	1630909A-SO	-	-	T	9.093	0.35800			9.09
10	1630910-SO	1630910A-SO	-	-	-	9.100	0.35827			9.10
10	1630913-SO	1630913A-SO	23/64	-	-	9.128	0.35938			9.13
10	1630920-SO	1630920A-SO	-	-	-	9.200	0.36220			9.20
10	1630930-SO	1630930A-SO	-	-	-	9.300	0.36614			9.30
10	1630935-SO	1630935A-SO	-	-	U	9.347	0.36800			9.35
10	1630940-SO	1630940A-SO	-	-	-	9.400	0.37008			9.40
10	1630950-SO	1630950A-SO	-	-	-	9.500	0.37402			9.50
10	1630953-SO	1630953A-SO	3/8	-	-	9.525	0.37500	43	89	9.53
10	1630958-SO	1630958A-SO	-	-	V	9.576	0.37700			9.58
10	1630960-SO	1630960A-SO	-	-	-	9.600	0.37795			9.60
10	1630970-SO	1630970A-SO	-	-	-	9.700	0.38189			9.70
10	1630980-SO	1630980A-SO	-	-	-	9.800	0.38583			9.80
10	1630981-SO	1630981A-SO	-	-	W	9.804	0.38600			
10	1630990-SO	1630990A-SO	-	-	-	9.900	0.38976			9.90
5	1630992-SO	1630992A-SO	25/64	-	-	9.922	0.39063			9.92
5	1631000-SO	1631000A-SO	-	-	-	10.000	0.39370			10.00
5	1631008-SO	1631008A-SO	-	-	X	10.084	0.39700			10.08
5	1631020-SO	1631020A-SO	-	-	-	10.200	0.40157			10.20
5	1631026-SO	1631026A-SO	-	-	Y	10.262	0.40400			10.26
5	1631032-SO	1631032A-SO	13/32	-	-	10.319	0.40625			10.32
5	1631049-SO	1631049A-SO	-	-	Z	10.490	0.41300			10.49
5	1631050-SO	1631050A-SO	-	-	-	10.500	0.41339			10.50
5	1631072-SO	1631072A-SO	27/64	-	-	10.716	0.42188	47	95	10.72
5	1631080-SO	1631080A-SO	-	-	-	10.800	0.42520			10.80
5	1631100-SO	1631100A-SO	-	-	-	11.000	0.43307			11.00

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

continued on next page

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
163-SO	▣	▣	▣	▣		▢	▢	▢	▢	▣		▢	▢	▣			

▢ good ▣ best

List 163-SO (Continued)

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | STUB | 40°

Parabolic Flute, Stub Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤14	+0 / -0.027	+0 / -0.0011

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
5	1631111-SO	1631111A-SO	7/16	-	-	11.113	0.43750	47	95	11.11
5	1631120-SO	1631120A-SO	-	-	-	11.200	0.44094			11.20
5	1631150-SO	1631150A-SO	-	-	-	11.500	0.45276			11.50
5	1631151-SO	1631151A-SO	29/64	-	-	11.509	0.45313			11.51
5	-	1631191A-SO	15/32	-	-	11.906	0.46875	51	102	11.91
5	1631200-SO	1631200A-SO	-	-	-	12.000	0.47244			12.00
5	1631229-SO	1631229A-SO	31/64	-	-	12.303	0.48438			12.30
5	1631250-SO	1631250A-SO	-	-	-	12.500	0.49213			12.50
5	1631269-SO	1631269A-SO	1/2	-	-	12.700	0.50000			12.70
5	1631300-SO	1631300A-SO	-	-	-	13.000	0.51181			13.00
1	1631310-SO	1631310A-SO	33/64	-	-	13.097	0.51563			13.10
1	1631349-SO	-	17/32	-	-	13.494	0.53125	54	107	13.49
1	1631389-SO	1631389A-SO	35/64	-	-	13.891	0.54688			13.89
1	1631400-SO	-	-	-	-	14.000	0.55118			14.00

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
163-SO	▣	▣	▣	▣		▢	▢	▢	▢	▣		▢	▢	▣			

▢ good ▣ best

List 164-SO

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | JOBBERS | 40°

Parabolic Flute, Jobber Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤16	+0 / -0.027	+0 / -0.0011

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Leng1	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1640100-SO	1640100A-SO	-	-	-	1.000	0.03937	12	34	1.00
10	1640102-SO	1640102A-SO	-	60	-	1.016	0.04000			1.02
10	1640104-SO	1640104A-SO	-	59	-	1.041	0.04100			1.04
10	1640107-SO	1640107A-SO	-	58	-	1.067	0.04200	14	36	1.07
10	1640109-SO	1640109A-SO	-	57	-	1.092	0.04300			1.09
10	1640110-SO	1640110A-SO	-	-	-	1.100	0.04331			1.10
10	1640115-SO	1640115A-SO	-	-	-	1.150	0.04528			1.15
10	1640118-SO	1640118A-SO	-	56	-	1.181	0.04650			1.18
10	1640119-SO	1640119A-SO	3/64	-	-	1.191	0.04688	16	38	1.19
10	1640120-SO	1640120A-SO	-	-	-	1.200	0.04724			1.20
10	-	1640125A-SO	-	-	-	1.250	0.04921			1.25
10	1640130-SO	1640130A-SO	-	-	-	1.300	0.05118			1.30
10	1640132-SO	1640132A-SO	-	55	-	1.321	0.05200			1.32
10	1640139-SO	1640139A-SO	-	54	-	1.397	0.05500	18	40	1.40
10	1640140-SO	1640140A-SO	-	-	-	1.400	0.05512			
10	1640145-SO	1640145A-SO	-	-	-	1.450	0.05709			1.45
10	1640150-SO	1640150A-SO	-	-	-	1.500	0.05906			1.50
10	1640152-SO	1640152A-SO	-	53	-	1.511	0.05950	20	43	1.51
10	1640155-SO	1640155A-SO	-	-	-	1.550	0.06102			1.55
10	1640159-SO	1640159A-SO	1/16	-	-	1.588	0.06250			1.59
10	1640160-SO	1640160A-SO	-	-	-	1.600	0.06299			1.60
10	1640161-SO	1640161A-SO	-	52	-	1.613	0.06350			1.61
10	1640162-SO	-	-	-	-	1.620	0.06378			1.62
10	1640165-SO	1640165A-SO	-	-	-	1.650	0.06496			1.65
10	1640167-SO	-	-	-	-	1.670	0.06575			1.67
10	1640170-SO	1640170A-SO	-	-	-	1.700	0.06693			1.70
10	1640169-SO	1640169A-SO	-	51	-	1.702	0.06700			
10	-	1640175A-SO	-	-	-	1.750	0.06890	22	46	1.75
10	1640178-SO	1640178A-SO	-	50	-	1.778	0.07000			1.78
10	1640180-SO	1640180A-SO	-	-	-	1.800	0.07087			1.80
10	1640185-SO	1640185A-SO	-	49	-	1.854	0.07300			1.85
10	1640190-SO	1640190A-SO	-	-	-	1.900	0.07480			1.90
10	1640193-SO	1640193A-SO	-	48	-	1.930	0.07600	24	49	1.93
10	1640198-SO	1640198A-SO	5/64	-	-	1.984	0.07813			1.98
10	1640199-SO	1640199A-SO	-	47	-	1.994	0.07850			1.99
10	1640200-SO	1640200A-SO	-	-	-	2.000	0.07874			2.00
10	1640205-SO	-	-	-	-	2.050	0.08071			2.05
10	1640206-SO	1640206A-SO	-	46	-	2.057	0.08100			2.06
10	1640208-SO	1640208A-SO	-	45	-	2.083	0.08200			2.08
10	1640210-SO	1640210A-SO	-	-	-	2.100	0.08268			2.10

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

continued on next page

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
164-SO	◎	◎	◎	◎		○	○	○	○	◎		○	○	◎			

○ good ◎ best

List 164-SO (Continued)

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | JOBBERS | 40°

Parabolic Flute, Jobber Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤16	+0 / -0.027	+0 / -0.0011

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Leng1	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1640215-SO	1640215A-SO	-	-	-	2.150	0.08465	27	53	2.15
10	1640218-SO	1640218A-SO	-	44	-	2.184	0.08600			2.18
10	1640220-SO	1640220A-SO	-	-	-	2.200	0.08661			2.20
10	1640226-SO	1640226A-SO	-	43	-	2.261	0.08900			2.26
10	1640230-SO	1640230A-SO	-	-	-	2.300	0.09055			2.30
10	1640235-SO	1640235A-SO	-	-	-	2.350	0.09252			2.35
10	1640237-SO	1640237A-SO	-	42	-	2.375	0.09350	30	57	2.37
10	1640238-SO	1640238A-SO	3/32	-	-	2.381	0.09375			2.38
10	1640240-SO	1640240A-SO	-	-	-	2.400	0.09449			2.40
10	1640244-SO	1640244A-SO	-	41	-	2.438	0.09600			2.44
10	1640245-SO	1640245A-SO	-	-	-	2.450	0.09646			2.45
10	1640249-SO	1640249A-SO	-	40	-	2.489	0.09800			2.49
10	1640250-SO	1640250A-SO	-	-	-	2.500	0.09843			2.50
10	1640253-SO	1640253A-SO	-	39	-	2.527	0.09950			2.53
10	1640258-SO	1640258A-SO	-	38	-	2.578	0.10150			2.58
10	1640260-SO	1640260A-SO	-	-	-	2.600	0.10236			2.60
10	1640264-SO	1640264A-SO	-	37	-	2.642	0.10400			2.64
10	1640270-SO	1640270A-SO	-	-	-	2.700	0.10630	33	61	2.70
10	1640271-SO	1640271A-SO	-	36	-	2.705	0.10650			2.71
10	-	1640275A-SO	-	-	-	2.750	0.10827			2.75
10	1640278-SO	1640278A-SO	7/64	-	-	2.778	0.10938			2.78
10	1640279-SO	1640279A-SO	-	35	-	2.794	0.11000			2.79
10	1640280-SO	1640280A-SO	-	-	-	2.800	0.11024			2.80
10	1640282-SO	1640282A-SO	-	34	-	2.819	0.11100			2.82
10	1640287-SO	1640287A-SO	-	33	-	2.870	0.11300			2.87
10	1640290-SO	1640290A-SO	-	-	-	2.900	0.11417			2.90
10	1640295-SO	1640295A-SO	-	32	-	2.946	0.11600			2.95
10	1640300-SO	1640300A-SO	-	-	-	3.000	0.11811			3.00
10	1640305-SO	1640305A-SO	-	31	-	3.048	0.12000	36	65	3.05
10	1640310-SO	1640310A-SO	-	-	-	3.100	0.12205			3.10
10	1640315-SO	1640315A-SO	-	-	-	3.150	0.12402			3.15
10	1640318-SO	1640318A-SO	1/8	-	-	3.175	0.12500			3.18
10	1640320-SO	1640320A-SO	-	-	-	3.200	0.12598			3.20
10	1640326-SO	1640326A-SO	-	30	-	3.264	0.12850			3.26
10	1640330-SO	1640330A-SO	-	-	-	3.300	0.12992			3.30
10	1640335-SO	1640335A-SO	-	-	-	3.350	0.13189			3.35
10	1640340-SO	1640340A-SO	-	-	-	3.400	0.13386	39	70	3.40
10	1640345-SO	1640345A-SO	-	29	-	3.454	0.13600			3.45
10	1640350-SO	1640350A-SO	-	-	-	3.500	0.13780			3.50
10	1640357-SO	1640357A-SO	9/64	-	-	3.572	0.14063			3.57
10	1640360-SO	-	-	-	-	3.600	0.14173			3.60
10	1640366-SO	1640366A-SO	-	27	-	3.658	0.14400			3.66
10	1640370-SO	1640370A-SO	-	-	-	3.700	0.14567			3.70
10	1640373-SO	1640373A-SO	-	26	-	3.734	0.14700			3.73
10	1640379-SO	1640379A-SO	-	25	-	3.797	0.14950	43	75	3.80
10	1640380-SO	1640380A-SO	-	-	-	3.800	0.14961			
10	1640386-SO	1640386A-SO	-	24	-	3.861	0.15200			3.86
10	1640390-SO	1640390A-SO	-	-	-	3.900	0.15354			3.90
10	1640391-SO	1640391A-SO	-	23	-	3.912	0.15400			3.91
10	1640397-SO	1640397A-SO	5/32	-	-	3.969	0.15625			3.97

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

List 164-SO (Continued)

Parabolic Flute, Jobber Drills

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | JOBBERS | 40°

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Leng1	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1640399-SO	1640399A-SO	-	22	-	3.988	0.15700	43	75	3.99
10	1640400-SO	1640400A-SO	-	-	-	4.000	0.15748			4.00
10	1640404-SO	1640404A-SO	-	21	-	4.039	0.15900			4.04
10	1640409-SO	1640409A-SO	-	20	-	4.089	0.16100			4.09
10	1640410-SO	1640410A-SO	-	-	-	4.100	0.16142			4.10
10	1640420-SO	1640420A-SO	-	-	-	4.200	0.16535			4.20
10	1640422-SO	1640422A-SO	-	19	-	4.216	0.16600			4.22
10	1640430-SO	1640430A-SO	-	-	-	4.300	0.16929	47	80	4.30
10	1640431-SO	1640431A-SO	-	18	-	4.305	0.16950			4.31
10	1640437-SO	1640437A-SO	11/64	-	-	4.366	0.17188			4.37
10	1640439-SO	1640439A-SO	-	17	-	4.394	0.17300			4.39
10	1640440-SO	1640440A-SO	-	-	-	4.400	0.17323			4.40
10	1640445-SO	-	-	-	-	4.450	0.17520			4.45
10	1640449-SO	1640449A-SO	-	16	-	4.496	0.17700			4.50
10	1640450-SO	1640450A-SO	-	-	-	4.500	0.17717			
10	1640457-SO	1640457A-SO	-	15	-	4.572	0.18000			4.57
10	-	1640460A-SO	-	-	-	4.600	0.18110			4.60
10	1640462-SO	1640462A-SO	-	14	-	4.623	0.18200			4.62
10	1640469-SO	1640469A-SO	-	13	-	4.699	0.18500			4.69
10	1640476-SO	1640476A-SO	3/16	-	-	4.763	0.18750	52	86	4.76
10	1640480-SO	1640480A-SO	-	-	-	4.800	0.18898			4.80
10	1640479-SO	1640479A-SO	-	12	-	4.801	0.18900			
10	1640485-SO	1640485A-SO	-	11	-	4.851	0.19100			4.86
10	1640490-SO	1640490A-SO	-	-	-	4.900	0.19291			4.90
10	1640492-SO	1640492A-SO	-	10	-	4.915	0.19350			4.92
10	1640498-SO	1640498A-SO	-	9	-	4.978	0.19600			4.98
10	1640500-SO	1640500A-SO	-	-	-	5.000	0.19685			5.00
10	1640506-SO	1640506A-SO	-	8	-	5.055	0.19900			5.05
10	1640510-SO	1640510A-SO	-	-	-	5.100	0.20079			5.10
10	1640511-SO	1640511A-SO	-	7	-	5.105	0.20100			5.11
10	1640516-SO	1640516A-SO	13/64	-	-	5.159	0.20313			5.16
10	1640518-SO	1640518A-SO	-	6	-	5.182	0.20400			5.18
10	1640520-SO	1640520A-SO	-	-	-	5.200	0.20472			5.20
10	1640522-SO	1640522A-SO	-	5	-	5.220	0.20550			5.22
10	1640530-SO	1640530A-SO	-	-	-	5.300	0.20866			5.30
10	1640532-SO	1640532A-SO	-	4	-	5.309	0.20900	57	93	5.31
10	1640540-SO	1640540A-SO	-	-	-	5.400	0.21260			5.40
10	1640541-SO	1640541A-SO	-	3	-	5.410	0.21300			5.41
10	1640550-SO	1640550A-SO	-	-	-	5.500	0.21654			5.50
10	1640556-SO	1640556A-SO	7/32	-	-	5.556	0.21875			5.56
10	1640560-SO	1640560A-SO	-	-	-	5.600	0.22047			5.60
10	1640561-SO	1640561A-SO	-	2	-	5.613	0.22100			5.61
10	1640570-SO	1640570A-SO	-	-	-	5.700	0.22441			5.70
10	1640575-SO	1640575A-SO	-	-	-	5.750	0.22638			5.75
10	1640579-SO	1640579A-SO	-	1	-	5.791	0.22800			5.79
10	1640580-SO	1640580A-SO	-	-	-	5.800	0.22835			5.80

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

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SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
164-SO	◎	◎	◎	◎		○	○	○	○	◎		○	○	◎			

○ good ◎ best

List 164-SO (Continued)

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | JOBBERS | 40°

Parabolic Flute, Jobber Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤16	+0 / -0.027	+0 / -0.0011

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Leng1	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1640590-SO	1640590A-SO	-	-	-	5.900	0.23228	57	93	5.90
10	1640594-SO	1640594A-SO	-	-	A	5.944	0.23400			5.94
10	1640595-SO	1640595A-SO	15/64	-	-	5.953	0.23438			5.95
10	1640600-SO	1640600A-SO	-	-	-	6.000	0.23622			6.00
10	1640605-SO	1640605A-SO	-	-	B	6.045	0.23800	63	101	6.05
10	1640610-SO	1640610A-SO	-	-	-	6.100	0.24016			6.10
10	1640615-SO	1640615A-SO	-	-	C	6.147	0.24200			6.15
10	1640620-SO	1640620A-SO	-	-	-	6.200	0.24409			6.20
10	1640625-SO	1640625A-SO	-	-	D	6.248	0.24600			6.25
10	1640630-SO	1640630A-SO	-	-	-	6.300	0.24803			6.30
10	1640634-SO	1640634A-SO	-	-	E	6.350	0.25000			6.35
10	1640635-SO	1640635A-SO	1/4	-	-					
10	1640640-SO	1640640A-SO	-	-	-	6.400	0.25197			6.40
10	1640650-SO	1640650A-SO	-	-	-	6.500	0.25591			6.50
10	1640653-SO	1640653A-SO	-	-	F	6.528	0.25700			6.53
10	1640660-SO	1640660A-SO	-	-	-	6.600	0.25984			6.60
10	1640663-SO	1640663A-SO	-	-	G	6.629	0.26100			6.63
10	1640670-SO	1640670A-SO	-	-	-	6.700	0.26378			6.70
10	1640677-SO	1640677A-SO	17/64	-	-	6.747	0.26563	69	109	6.75
10	1640676-SO	1640676A-SO	-	-	H	6.756	0.26600			6.76
10	1640680-SO	1640680A-SO	-	-	-	6.800	0.26772			6.80
10	1640690-SO	1640690A-SO	-	-	-	6.900	0.27165			6.90
10	1640691-SO	1640691A-SO	-	-	-	6.910	0.27205			
10	1640700-SO	1640700A-SO	-	-	-	7.000	0.27559			7.00
10	1640704-SO	1640704A-SO	-	-	J	7.036	0.27700			7.04
10	1640710-SO	1640710A-SO	-	-	-	7.100	0.27953			7.10
10	1640713-SO	1640713A-SO	-	-	K	7.137	0.28100			7.14
10	1640714-SO	1640714A-SO	9/32	-	-	7.144	0.28125			
10	1640720-SO	1640720A-SO	-	-	-	7.200	0.28346			7.20
10	1640725-SO	1640725A-SO	-	-	-	7.250	0.28543			7.25
10	1640730-SO	1640730A-SO	-	-	-	7.300	0.28740			7.30
10	1640737-SO	1640737A-SO	-	-	L	7.366	0.29000			7.37
10	1640740-SO	1640740A-SO	-	-	-	7.400	0.29134			7.40
10	1640749-SO	1640749A-SO	-	-	M	7.493	0.29500			7.49
10	1640750-SO	1640750A-SO	-	-	-	7.500	0.29528			7.50
10	1640754-SO	1640754A-SO	19/64	-	-	7.541	0.29688	75	117	7.54
10	1640760-SO	1640760A-SO	-	-	-	7.600	0.29921			7.60
10	1640767-SO	1640767A-SO	-	-	N	7.671	0.30200			7.67
10	1640770-SO	1640770A-SO	-	-	-	7.700	0.30315			7.70
10	1640780-SO	1640780A-SO	-	-	-	7.800	0.30709			7.80
10	1640790-SO	1640790A-SO	-	-	-	7.900	0.31102			7.90
10	1640794-SO	1640794A-SO	5/16	-	-	7.938	0.31250			7.94
10	1640800-SO	1640800A-SO	-	-	-	8.000	0.31496			8.00
10	1640803-SO	1640803A-SO	-	-	O	8.026	0.31600			8.03
10	1640810-SO	1640810A-SO	-	-	-	8.100	0.31890			8.10
10	1640821-SO	1640821A-SO	-	-	P	8.204	0.32300			8.21
10	1640833-SO	-	21/64	-	-	8.334	0.32813			8.33
10	1640843-SO	1640843A-SO	-	-	Q	8.433	0.33200			8.43
10	1640850-SO	1640850A-SO	-	-	-	8.500	0.33465			8.50

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

List 164-SO (Continued)

Parabolic Flute, Jobber Drills

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | TiAlN | JOBBERS | 40°

Pcs per Pack	Bright EDP Number	TiAlN EDP Number	Diameter					Flute Length	Overall Leng1	Shank Diameter
			Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	-	1640861A-SO	-	-	R	8.611	0.33900	81	125	8.61
10	1640870-SO	-	-	-	-	8.700	0.34252			8.70
10	1640873-SO	1640873A-SO	11/32	-	-	8.731	0.34375			8.73
10	1640880-SO	-	-	-	-	8.800	0.34646			8.80
10	1640884-SO	1640884A-SO	-	-	S	8.839	0.34800			8.84
10	1640900-SO	1640900A-SO	-	-	-	9.000	0.35433			9.00
10	1640913-SO	1640913A-SO	23/64	-	-	9.128	0.35938			9.13
10	1640920-SO	1640920A-SO	-	-	-	9.200	0.36220			9.20
10	-	1640930A-SO	-	-	-	9.300	0.36614			9.30
10	1640935-SO	1640935A-SO	-	-	U	9.347	0.36800			9.35
10	1640950-SO	1640950A-SO	-	-	-	9.500	0.37402			9.50
10	1640953-SO	1640953A-SO	3/8	-	-	9.525	0.37500	87	133	9.53
10	1640958-SO	1640958A-SO	-	-	V	9.576	0.37700			9.58
10	1640960-SO	1640960A-SO	-	-	-	9.600	0.37795			9.60
10	1640970-SO	1640970A-SO	-	-	-	9.700	0.38189			9.70
10	1640981-SO	1640981A-SO	-	-	W	9.804	0.38600			9.81
5	1640992-SO	1640992A-SO	25/64	-	-	9.922	0.39063			9.92
5	1641000-SO	1641000A-SO	-	-	-	10.000	0.39370			10.00
5	-	1641026A-SO	-	-	Y	10.262	0.40400			10.26
5	1641032-SO	1641032A-SO	13/32	-	-	10.319	0.40625			10.32
5	-	1641049A-SO	-	-	Z	10.490	0.41300			10.49
5	1641050-SO	1641050A-SO	-	-	-	10.500	0.41339			10.50
5	1641072-SO	1641072A-SO	27/64	-	-	10.716	0.42188	94	142	10.72
5	1641100-SO	1641100A-SO	-	-	-	11.000	0.43307			11.00
5	1641111-SO	1641111A-SO	7/16	-	-	11.113	0.43750			11.11
5	1641150-SO	1641150A-SO	-	-	-	11.500	0.45276			11.50
5	1641151-SO	-	29/64	-	-	11.509	0.45313			11.51
5	1641191-SO	-	15/32	-	-	11.906	0.46875	101	151	11.91
5	1641200-SO	1641200A-SO	-	-	-	12.000	0.47244			12.00
5	1641229-SO	1641229A-SO	31/64	-	-	12.303	0.48438			12.29
5	1641250-SO	1641250A-SO	-	-	-	12.500	0.49213			12.50
5	1641269-SO	1641269A-SO	1/2	-	-	12.700	0.50000			12.70
5	1641300-SO	1641300A-SO	-	-	-	13.000	0.51181			13.00
1	1641310-SO	-	33/64	-	-	13.097	0.51563			13.10
1	1641349-SO	1641349A-SO	17/32	-	-	13.494	0.53125	108	160	13.49
1	1641389-SO	-	35/64	-	-	13.891	0.54690			13.89
1	-	1641400A-SO	-	-	-	14.000	0.55118			14.00
1	1641429-SO	1641429A-SO	9/16	-	-	14.288	0.56250	114	169	14.29
1	1641450-SO	-	-	-	-	14.500	0.57087			14.50
1	1641468-SO	-	37/64	-	-	14.684	0.57813			14.68
1	-	1641508A-SO	19/32	-	-	15.081	0.59375	120	178	15.08
1	1641548-SO	-	39/64	-	-	15.478	0.60938			15.48
1	1641588-SO	-	5/8	-	-	15.875	0.62500			15.88

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

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SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
164-SO	◎	◎	◎	◎		○	○	○	○	◎		○	○	◎			

○ good ◎ best

List 164-SO (Continued)

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | JOBBERS | 40°

SET, Parabolic Flute, Jobber Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤16	+0 / -0.027	+0 / -0.0011

Drill Set EDP Bright Finish	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1640025-SO	-	-	-	1.00	0.03937	12	34	1.0
	-	-	-	1.50	0.05906	18	40	1.5
	-	-	-	2.00	0.07874	24	49	2.0
	-	-	-	2.50	0.09843	30	57	2.5
	-	-	-	3.00	0.11811	33	61	3.0
	-	-	-	3.50	0.13780	39	70	3.5
	-	-	-	4.00	0.15748	43	75	4.0
	-	-	-	4.50	0.17717	47	80	4.5
	-	-	-	5.00	0.19685	52	86	5.0
	-	-	-	5.50	0.21654	57	93	5.5
	-	-	-	6.00	0.23622			6.0
	-	-	-	6.50	0.25591	63	101	6.5
	-	-	-	7.00	0.27559	69	109	7.0
	-	-	-	7.50	0.29528			7.5
	-	-	-	8.00	0.31496	75	117	8.0
	-	-	-	8.50	0.33465			8.5
	-	-	-	9.00	0.35433	81	125	9.0
	-	-	-	9.50	0.37402			9.5
	-	-	-	10.00	0.39370	87	133	10.0
	-	-	-	10.50	0.41339			10.5
	-	-	-	11.00	0.43307	94	142	11.0
	-	-	-	11.50	0.45276			11.5
	-	-	-	12.00	0.47244	101	151	12.0
	-	-	-	12.50	0.49213			12.5
	-	-	-	13.00	0.51181			13.0

EDP's listed above are stocked standard, TiALN coating is available upon request.
Specifiy teatment at time of order.

SOM



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
164-SO	▢	▢	▢	▢		▢	▢	▢	▢	▢		▢	▢	▢			

▢ good ▢ best

List 110-SO

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | LONG | 40°

Parabolic Flute, Long Series Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1100100-SO	-	-	-	1.000	0.03937	33	56	1.00
10	1100102-SO	-	60	-	1.016	0.04000			1.02
10	1100104-SO	-	59	-	1.041	0.04100			1.04
10	1100107-SO	-	58	-	1.067	0.04200	37	60	1.07
10	1100109-SO	-	57	-	1.092	0.04300			1.09
10	1100110-SO	-	-	-	1.100	0.04331			1.10
10	1100118-SO	-	56	-	1.181	0.04650			1.18
10	1100120-SO	-	-	-	1.200	0.04724	41	65	1.20
10	1100130-SO	-	-	-	1.300	0.05118			1.30
10	1100132-SO	-	55	-	1.321	0.05200			1.32
10	1100139-SO	-	54	-	1.397	0.05500	45	70	1.39
10	1100140-SO	-	-	-	1.400	0.05512			1.40
10	1100150-SO	-	-	-	1.500	0.05906			1.50
10	1100152-SO	-	53	-	1.511	0.05950	50	76	1.52
10	1100159-SO	1/16	-	-	1.588	0.06250			1.59
10	1100160-SO	-	-	-	1.600	0.06299			1.60
10	1100161-SO	-	52	-	1.613	0.06350			1.61
10	1100169-SO	-	-	-	1.690	0.06654			1.70
10	1100170-SO	-	51	-	1.702	0.06700			
10	1100178-SO	-	50	-	1.778	0.07000	53	80	1.78
10	1100180-SO	-	-	-	1.800	0.07087			1.80
10	1100185-SO	-	49	-	1.854	0.07300			1.85
10	1100190-SO	-	-	-	1.900	0.07480			1.90
10	1100193-SO	-	48	-	1.930	0.07600	56	85	1.93
10	1100198-SO	5/64	-	-	1.984	0.07813			1.98
10	1100199-SO	-	47	-	1.994	0.07850			1.99
10	1100200-SO	-	-	-	2.000	0.07874			2.00
10	1100206-SO	-	46	-	2.057	0.08100			2.06
10	1100208-SO	-	45	-	2.083	0.08200			2.08
10	1100210-SO	-	-	-	2.100	0.08268			2.10
10	1100218-SO	-	44	-	2.184	0.08600	59	90	2.18
10	1100220-SO	-	-	-	2.200	0.08661			2.20
10	1100226-SO	-	43	-	2.261	0.08900			2.26
10	1100230-SO	-	-	-	2.300	0.09055			2.30

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

continued on next page

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
110-SO	◎	◎	◎	◎		○	○	○	○	◎		○	○	◎			

○ good ◎ best

List 110-SO (Continued)

Parabolic Flute, Long Series Drills

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | LONG | 40°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1100237-SO	-	42	-	2.375	0.09350	62	95	2.37
10	1100238-SO	3/32	-	-	2.381	0.09375			2.38
10	1100240-SO	-	-	-	2.400	0.09449			2.40
10	1100244-SO	-	41	-	2.438	0.09600			2.44
10	1100249-SO	-	40	-	2.489	0.09800			2.49
10	1100250-SO	-	-	-	2.500	0.09843			2.50
10	1100253-SO	-	39	-	2.527	0.09950			2.53
10	1100258-SO	-	38	-	2.578	0.10150			2.58
10	1100260-SO	-	-	-	2.600	0.10236			2.60
10	1100264-SO	-	37	-	2.642	0.10400			2.64
10	1100270-SO	-	-	-	2.700	0.10630	66	100	2.70
10	1100271-SO	-	36	-	2.705	0.10650			2.71
10	1100278-SO	7/64	-	-	2.779	0.10940			2.78
10	1100279-SO	-	35	-	2.794	0.11000			2.79
10	1100280-SO	-	-	-	2.800	0.11024			2.80
10	1100282-SO	-	34	-	2.819	0.11100			2.82
10	1100287-SO	-	33	-	2.870	0.11300			2.87
10	1100290-SO	-	-	-	2.900	0.11417			2.90
10	1100295-SO	-	32	-	2.946	0.11600			2.95
10	1100300-SO	-	-	-	3.000	0.11811			3.00
10	1100305-SO	-	31	-	3.048	0.12000	69	106	3.05
10	1100310-SO	-	-	-	3.100	0.12205			3.10
10	1100318-SO	1/8	-	-	3.175	0.12500			3.18
10	1100320-SO	-	-	-	3.200	0.12598			3.20
10	1100326-SO	-	30	-	3.264	0.12850	69	106	3.26
10	1100330-SO	-	-	-	3.300	0.12992			3.30
10	1100340-SO	-	-	-	3.400	0.13386	73	112	3.40
10	1100345-SO	-	29	-	3.454	0.13600			3.45
10	1100350-SO	-	-	-	3.500	0.13780			3.50
10	1100356-SO	-	28	-	3.569	0.14050			3.56
10	1100357-SO	9/64	-	-	3.572	0.14063			3.57
10	1100360-SO	-	-	-	3.600	0.14173			3.60
10	1100366-SO	-	27	-	3.658	0.14400			3.66
10	1100370-SO	-	-	-	3.700	0.14567			3.70
10	1100373-SO	-	26	-	3.734	0.14700			3.73
10	1100379-SO	-	25	-	3.797	0.14950	78	119	3.79
10	1100380-SO	-	-	-	3.800	0.14961			3.80
10	1100386-SO	-	24	-	3.861	0.15200			3.86
10	1100390-SO	-	-	-	3.900	0.15354			3.90
10	1100391-SO	-	23	-	3.912	0.15400			3.91
10	1100397-SO	5/32	-	-	3.969	0.15625			3.97
10	1100399-SO	-	22	-	3.988	0.15700			3.99
10	1100400-SO	-	-	-	4.000	0.15748			4.00
10	1100404-SO	-	21	-	4.039	0.15900			4.04
10	1100409-SO	-	20	-	4.089	0.16100			4.09
10	1100410-SO	-	-	-	4.100	0.16142			4.10
10	1100420-SO	-	-	-	4.200	0.16535			4.20
10	1100422-SO	-	19	-	4.216	0.16600			4.22

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

List 110-SO (Continued)

Parabolic Flute, Long Series Drills

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | LONG | 40°

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1100430-SO	-	-	-	4.300	0.16929	82	126	4.30
10	1100431-SO	-	18	-	4.305	0.16950			4.31
10	1100437-SO	11/64	-	-	4.366	0.17188			4.37
10	1100439-SO	-	17	-	4.394	0.17300			4.39
10	1100440-SO	-	-	-	4.400	0.17323			4.40
10	1100449-SO	-	16	-	4.496	0.17700			4.49
10	1100450-SO	-	-	-	4.500	0.17717			4.50
10	1100457-SO	-	15	-	4.572	0.18000			4.57
10	1100460-SO	-	-	-	4.600	0.18110			4.60
10	1100462-SO	-	14	-	4.623	0.18200			4.62
10	1100469-SO	-	13	-	4.699	0.18500			4.69
10	1100470-SO	-	-	-	4.700	0.18504			4.70
10	1100476-SO	3/16	-	-	4.763	0.18750	87	132	4.76
10	1100480-SO	-	-	-	4.800	0.18898			4.80
10	1100479-SO	-	12	-	4.801	0.18900			4.79
10	1100485-SO	-	11	-	4.851	0.19100			4.85
10	1100490-SO	-	-	-	4.900	0.19291			4.90
10	1100492-SO	-	10	-	4.915	0.19350			4.92
10	1100498-SO	-	9	-	4.978	0.19600			4.98
10	1100500-SO	-	-	-	5.000	0.19685			5.00
10	1100506-SO	-	8	-	5.055	0.19900			5.06
10	1100510-SO	-	-	-	5.100	0.20079			5.10
10	1100511-SO	-	7	-	5.105	0.20100			5.11
10	1100516-SO	13/64	-	-	5.159	0.20313			5.16
10	1100518-SO	-	6	-	5.182	0.20400			5.18
10	1100520-SO	-	-	-	5.200	0.20472			5.20
10	1100522-SO	-	5	-	5.220	0.20550			5.22
10	1100530-SO	-	-	-	5.300	0.20866			5.30
10	1100532-SO	-	4	-	5.309	0.20900	91	139	5.32
10	1100540-SO	-	-	-	5.400	0.21260			5.40
10	1100541-SO	-	3	-	5.410	0.21300			5.41
10	1100550-SO	-	-	-	5.500	0.21654	91	139	5.50
10	1100556-SO	7/32	-	-	5.556	0.21875			5.56
10	1100560-SO	-	-	-	5.600	0.22047			5.60
10	1100561-SO	-	2	-	5.613	0.22100			5.61
10	1100570-SO	-	-	-	5.700	0.22441			5.70
10	1100579-SO	-	1	-	5.791	0.22800			5.79
10	1100580-SO	-	-	-	5.800	0.22835			5.80
10	1100590-SO	-	-	-	5.900	0.23228			5.90
10	1100595-SO	15/64	-	-	5.953	0.23438			5.95
10	1100600-SO	-	-	-	6.000	0.23622			6.00

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

continued on next page

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
110-SO	▣	▣	▣	▣		▢	▢	▢	▢	▣		▢	▢	▣			

▢ good ▣ best

List 110-SO (Continued)

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | LONG | 40°

Parabolic Flute, Long Series Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1100610-SO	-	-	-	6.100	0.24016	97	148	6.10
10	1100620-SO	-	-	-	6.200	0.24409			6.20
10	1100630-SO	-	-	-	6.300	0.24803			6.30
10	1100635-SO	1/4	-	E	6.350	0.25000			6.35
10	1100640-SO	-	-	-	6.400	0.25197			6.40
10	1100650-SO	-	-	-	6.500	0.25591			6.50
10	1100660-SO	-	-	-	6.600	0.25984			6.60
10	1100670-SO	-	-	-	6.700	0.26378			6.70
10	1100677-SO	17/64	-	-	6.747	0.26563	102	156	6.75
10	1100680-SO	-	-	-	6.800	0.26772			6.80
10	1100690-SO	-	-	-	6.900	0.27165			6.90
10	1100700-SO	-	-	-	7.000	0.27559			7.00
10	1100710-SO	-	-	-	7.100	0.27953			7.10
10	1100714-SO	9/32	-	-	7.144	0.28125			7.14
10	1100720-SO	-	-	-	7.200	0.28346			7.20
10	1100730-SO	-	-	-	7.300	0.28740			7.30
10	1100740-SO	-	-	-	7.400	0.29134			7.40
10	1100750-SO	-	-	-	7.500	0.29528			7.50
10	1100754-SO	19/64	-	-	7.541	0.29688	109	165	7.54
10	1100760-SO	-	-	-	7.600	0.29921			7.60
10	1100770-SO	-	-	-	7.700	0.30315			7.70
10	1100780-SO	-	-	-	7.800	0.30709			7.80
10	1100790-SO	-	-	-	7.900	0.31102			7.90
10	1100794-SO	5/16	-	-	7.938	0.31250			7.94
10	1100800-SO	-	-	-	8.000	0.31496			8.00
10	1100810-SO	-	-	-	8.100	0.31890			8.10
10	1100820-SO	-	-	-	8.200	0.32283			8.20
10	1100830-SO	-	-	-	8.300	0.32677			8.30
10	1100833-SO	21/64	-	-	8.334	0.32813			8.33
10	1100840-SO	-	-	-	8.400	0.33071			8.40
10	1100850-SO	-	-	-	8.500	0.33465			8.50
10	1100860-SO	-	-	-	8.600	0.33858	115	175	8.60
10	1100870-SO	-	-	-	8.700	0.34252			8.70
10	1100873-SO	11/32	-	-	8.731	0.34375			8.73
10	1100880-SO	-	-	-	8.800	0.34646			8.80
10	1100890-SO	-	-	-	8.900	0.35039			8.90
10	1100900-SO	-	-	-	9.000	0.35433			9.00
10	1100910-SO	-	-	-	9.100	0.35827			9.10
10	1100913-SO	-	-	-	9.130	0.35945			9.13
10	1100920-SO	-	-	-	9.200	0.36220			9.20
10	1100930-SO	-	-	-	9.300	0.36614			9.30
10	1100940-SO	-	-	-	9.400	0.37008			9.40
10	1100950-SO	-	-	-	9.500	0.37402			9.50
10	1100953-SO	3/8	-	-	9.525	0.37500	121	184	9.53
10	1100960-SO	-	-	-	9.600	0.37795			9.60
10	1100970-SO	-	-	-	9.700	0.38189			9.70
10	1100980-SO	-	-	-	9.800	0.38583			9.80
10	1100990-SO	-	-	-	9.900	0.38976			9.90

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

List 110-SO (Continued)

NEW | SPEED FEED P393 | HSS-Co5 | TYPE FS | BR | LONG | 40°

Parabolic Flute, Long Series Drills

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
5	1100992-SO	25/64	-	-	9.922	0.39063	121	184	9.92
5	1101000-SO	-	-	-	10.000	0.39370			10.00
5	1101032-SO	13/32	-	-	10.319	0.40625			10.32
5	1101072-SO	27/64	-	-	10.716	0.42188	128	195	10.72
5	1101111-SO	7/16	-	-	11.113	0.43750			11.11
5	1101151-SO	29/64	-	-	11.509	0.45313			11.51
5	1101191-SO	15/32	-	-	11.906	0.46875	134	205	11.91
5	1101230-SO	31/64	-	-	12.303	0.48438			12.30
5	1101270-SO	1/2	-	-	12.700	0.50000			12.70

EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
110-SO	◎	◎	◎	◎		○	○	○	○	◎		○	○	◎			

○ good ◎ best

List 1R5-SO

RED BAND, Ideal for Alloy Steels

NEW | RED BAND TAPS P561-563 648-650 | SPEED FEED P394-395 | HSS-Co5 | TYPE H | TYPE FS | TiAlN | JOBBERS | 30°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1R50100-SO	-	-	-	1.000	0.03937	12	34	1.00
1R50150-SO	-	-	-	1.500	0.05906	18	40	1.50
1R50160-SO	-	-	-	1.600	0.06299	20	43	1.60
1R50198-SO	5/64	-	-	1.984	0.07813	24	49	1.98
1R50199-SO	-	47	-	1.994	0.07850			1.99
1R50200-SO	-	-	-	2.000	0.07874			2.00
1R50206-SO	-	46	-	2.057	0.08100			2.06
1R50208-SO	-	45	-	2.083	0.08200			2.08
1R50210-SO	-	-	-	2.100	0.08268			2.10
1R50218-SO	-	44	-	2.184	0.08600	27	53	2.18
1R50226-SO	-	43	-	2.261	0.08900			2.26
1R50237-SO	-	42	-	2.375	0.09350	30	57	2.37
1R50238-SO	3/32	-	-	2.381	0.09375			2.38
1R50244-SO	-	41	-	2.438	0.09600			2.44
1R50249-SO	-	40	-	2.489	0.09800			2.49
1R50250-SO	-	-	-	2.500	0.09843			2.50
1R50253-SO	-	39	-	2.527	0.09950			2.53
1R50258-SO	-	38	-	2.578	0.10150			2.58
1R50264-SO	-	37	-	2.642	0.10400			2.64
1R50271-SO	-	36	-	2.705	0.10650	33	61	2.71
1R50278-SO	7/64	-	-	2.778	0.10938			2.78
1R50279-SO	-	35	-	2.794	0.11000			2.79
1R50282-SO	-	34	-	2.819	0.11100			2.82
1R50287-SO	-	33	-	2.870	0.11300			2.87
1R50290-SO	-	-	-	2.900	0.11417			2.90
1R50295-SO	-	32	-	2.946	0.11600			2.95
1R50300-SO	-	-	-	3.000	0.11811			3.00
1R50305-SO	-	31	-	3.048	0.12000	36	65	3.05
1R50318-SO	1/8	-	-	3.175	0.12500			3.18
1R50326-SO	-	30	-	3.264	0.12850			3.26
1R50330-SO	-	-	-	3.300	0.12992			3.30
1R50345-SO	-	29	-	3.454	0.13600	39	70	3.45
1R50350-SO	-	-	-	3.500	0.13780			3.50
1R50356-SO	-	28	-	3.569	0.14050			3.57
1R50357-SO	9/64	-	-	3.572	0.14063			
1R50366-SO	-	27	-	3.658	0.14400			3.66
1R50370-SO	-	-	-	3.700	0.14567			3.70
1R50373-SO	-	26	-	3.734	0.14700			3.73
1R50379-SO	-	25	-	3.797	0.14950	43	75	3.80
1R50386-SO	-	24	-	3.861	0.15200			3.86
1R50391-SO	-	23	-	3.912	0.15400			3.91
1R50397-SO	5/32	-	-	3.969	0.15625			3.97
1R50399-SO	-	22	-	3.988	0.15700			3.99
1R50400-SO	-	-	-	4.000	0.15748			4.00
1R50404-SO	-	21	-	4.039	0.15900			4.04
1R50409-SO	-	20	-	4.089	0.16100			4.09
1R50420-SO	-	-	-	4.200	0.16535			4.20
1R50422-SO	-	19	-	4.216	0.16600			4.22

Packed: 1 pc.
Available TiAlN coating only.

SOM

List 1R5-SO (Continued)

RED BAND, Ideal for Alloy Steels

NEW | RED BAND TAPS P561-563 648-650 | SPEED FEED P394-395 | HSS-Co5 | TYPE H | TYPE FS | TiAlN | JOBBERS | 30°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1R50431-SO	-	18	-	4.305	0.16950	47	80	4.31
1R50437-SO	11/64	-	-	4.366	0.17188			4.37
1R50439-SO	-	17	-	4.394	0.17300			4.39
1R50449-SO	-	16	-	4.496	0.17700			4.50
1R50450-SO	-	-	-	4.500	0.17717			
1R50457-SO	-	15	-	4.572	0.18000			4.57
1R50462-SO	-	14	-	4.623	0.18200			4.62
1R50469-SO	-	13	-	4.699	0.18500			4.70
1R50476-SO	3/16	-	-	4.763	0.18750	52	86	4.76
1R50479-SO	-	12	-	4.801	0.18900			4.80
1R50485-SO	-	11	-	4.851	0.19100			4.86
1R50492-SO	-	10	-	4.915	0.19350			4.92
1R50498-SO	-	9	-	4.978	0.19600			4.98
1R50500-SO	-	-	-	5.000	0.19685			5.00
1R50506-SO	-	8	-	5.055	0.19900			5.05
1R50511-SO	-	7	-	5.105	0.20100			5.11
1R50516-SO	13/64	-	-	5.159	0.20313			5.16
1R50518-SO	-	6	-	5.182	0.20400			5.18
1R50522-SO	-	5	-	5.220	0.20550			5.22
1R50532-SO	-	4	-	5.309	0.20900	57	93	5.31
1R50541-SO	-	3	-	5.410	0.21300			5.41
1R50550-SO	-	-	-	5.500	0.21654			5.50
1R50556-SO	7/32	-	-	5.556	0.21875			5.56
1R50561-SO	-	2	-	5.613	0.22100			5.61
1R50579-SO	-	1	-	5.791	0.22800			5.79
1R50595-SO	15/64	-	-	5.953	0.23438			5.95
1R50600-SO	-	-	-	6.000	0.23622			6.00
1R50635-SO	1/4	-	E	6.350	0.25000	63	101	6.35
1R50650-SO	-	-	-	6.500	0.25591			6.50
1R50653-SO	-	-	F	6.528	0.25700			6.53
1R50675-SO	17/64	-	-	6.747	0.26563	69	109	6.75
1R50680-SO	-	-	-	6.800	0.26772			6.80
1R50691-SO	-	-	I	6.909	0.27200			6.90
1R50700-SO	-	-	-	7.000	0.27559			7.00
1R50714-SO	9/32	-	-	7.144	0.28125			7.14
1R50750-SO	-	-	-	7.500	0.29528			7.50
1R50754-SO	19/64	-	-	7.541	0.29688	75	117	7.54
1R50794-SO	5/16	-	-	7.938	0.31250			7.94
1R50800-SO	-	-	-	8.000	0.31496			8.00
1R50833-SO	21/64	-	-	8.334	0.32810			8.33
1R50843-SO	-	-	Q	8.433	0.33200			8.43
1R50850-SO	-	-	-	8.500	0.33465			8.50
1R50873-SO	11/32	-	-	8.731	0.34375	81	125	8.73
1R50900-SO	-	-	-	9.000	0.35433			9.00
1R50913-SO	23/64	-	-	9.128	0.35938			9.13
1R50950-SO	-	-	-	9.500	0.37402			9.50

Packed: 1 pc.
Available TiAlN coating only.

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SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1R5-SO	○	○		◎									○	○	○		

○ good ◎ best

List 1R5-SO (Continued)

NEW | RED BAND TAPS P561-563 648-650 | SPEED FEED P394-395 | HSS-Co5 | TYPE H | TYPE FS | TiAlN | JOBBERS | 30°

RED BAND, Ideal for Alloy Steels



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1R50953-SO	3/8	-	-	9.525	0.37500	87	133	9.53
1R50992-SO	25/64	-	-	9.922	0.39063			9.92
1R51000-SO	-	-	-	10.000	0.39370			10.00
1R51020-SO	-	-	-	10.200	0.40157			10.20
1R51032-SO	13/32	-	-	10.319	0.40625			10.32
1R51050-SO	-	-	-	10.500	0.41339			10.50
1R51072-SO	27/64	-	-	10.716	0.42188	94	142	10.72
1R51100-SO	-	-	-	11.000	0.43307			11.00
1R51111-SO	7/16	-	-	11.113	0.43750			11.11
1R51150-SO	-	-	-	11.500	0.45276			11.50
1R51200-SO	-	-	-	12.000	0.47244	101	151	12.00
1R51250-SO	-	-	-	12.500	0.49213			12.50
1R51269-SO	1/2	-	-	12.700	0.50000			12.70
1R51300-SO	-	-	-	13.000	0.51181			13.00

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1R5-SO	○	○		◎									○	○	○		

○ good ◎ best

List 1BB-SO

BLUE BAND, Ideal for Stainless Steels

NEW | BLUE BAND TAPS P564-566 651-653 | SPEED FEED P394-395 | HSS-Co5 | TYPE VA | TiAlN | JOBBERS | 35°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1BB0100-SO	-	-	-	1.000	0.03937	12	34	1.00
1BB0150-SO	-	-	-	1.500	0.05906	18	40	1.50
1BB0160-SO	-	-	-	1.600	0.06299	20	43	1.60
1BB0198-SO	5/64	-	-	1.984	0.07813	24	49	1.98
1BB0199-SO	-	47	-	1.994	0.07850			1.99
1BB0200-SO	-	-	-	2.000	0.07874			2.00
1BB0206-SO	-	46	-	2.057	0.08100			2.06
1BB0208-SO	-	45	-	2.083	0.08200			2.08
1BB0210-SO	-	-	-	2.100	0.08268			2.10
1BB0218-SO	-	44	-	2.184	0.08600	27	53	2.18
1BB0226-SO	-	43	-	2.261	0.08900			2.26
1BB0237-SO	-	42	-	2.375	0.09350	30	57	2.37
1BB0238-SO	3/32	-	-	2.381	0.09375			2.38
1BB0244-SO	-	41	-	2.438	0.09600			2.44
1BB0249-SO	-	40	-	2.489	0.09800			2.49
1BB0250-SO	-	-	-	2.500	0.09843			2.50
1BB0253-SO	-	39	-	2.527	0.09950			2.53
1BB0258-SO	-	38	-	2.578	0.10150			2.58
1BB0264-SO	-	37	-	2.642	0.10400			2.64
1BB0270-SO	-	-	-	2.700	0.10630	33	61	2.70
1BB0271-SO	-	36	-	2.705	0.10650			2.71
1BB0278-SO	7/64	-	-	2.779	0.10940			2.78
1BB0279-SO	-	35	-	2.794	0.11000			2.79
1BB0282-SO	-	34	-	2.819	0.11100			2.82
1BB0287-SO	-	33	-	2.870	0.11300			2.87
1BB0290-SO	-	-	-	2.900	0.11417			2.90
1BB0295-SO	-	32	-	2.946	0.11600			2.95
1BB0300-SO	-	-	-	3.000	0.11811			3.00
1BB0305-SO	-	31	-	3.048	0.12000	36	65	3.05
1BB0318-SO	1/8	-	-	3.175	0.12500			3.18
1BB0326-SO	-	30	-	3.264	0.12850			3.26
1BB0330-SO	-	-	-	3.300	0.12992			3.30
1BB0345-SO	-	29	-	3.454	0.13600	39	70	3.45
1BB0350-SO	-	-	-	3.500	0.13780			3.50
1BB0356-SO	-	28	-	3.569	0.14050			3.57
1BB0357-SO	9/64	-	-	3.571	0.14060			
1BB0366-SO	-	27	-	3.658	0.14400			3.66
1BB0370-SO	-	-	-	3.700	0.14567			3.70
1BB0373-SO	-	26	-	3.734	0.14700			3.73

Packed: 1 pc.
Available TiAlN coating only.

continued on next page

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1BB-SO						◎	◎	◎				○	○				

○ good ◎ best

List 1BB-SO (Continued)

NEW | BLUE BAND TAPS P564-566 651-653 | SPEED FEED P394-395 | HSS-Co5 | TYPE VA | TiAlN | JOBBERS | 35°

BLUE BAND, Ideal for Stainless Steels



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1BB0379-SO	-	25	-	3.797	0.14950	43	75	3.80
1BB0386-SO	-	24	-	3.861	0.15200			3.86
1BB0391-SO	-	23	-	3.912	0.15400			3.91
1BB0397-SO	5/32	-	-	3.969	0.15625			3.97
1BB0399-SO	-	22	-	3.988	0.15700			3.99
1BB0400-SO	-	-	-	4.000	0.15748			4.00
1BB0404-SO	-	21	-	4.039	0.15900			4.04
1BB0409-SO	-	20	-	4.089	0.16100			4.09
1BB0420-SO	-	-	-	4.200	0.16535			4.20
1BB0422-SO	-	19	-	4.216	0.16600			4.22
1BB0431-SO	-	18	-	4.305	0.16950	47	80	4.31
1BB0437-SO	11/64	-	-	4.366	0.17188			4.37
1BB0439-SO	-	17	-	4.394	0.17300			4.39
1BB0449-SO	-	16	-	4.496	0.17700			4.50
1BB0450-SO	-	-	-	4.500	0.17717			
1BB0457-SO	-	15	-	4.572	0.18000			4.57
1BB0462-SO	-	14	-	4.623	0.18200			4.62
1BB0469-SO	-	13	-	4.699	0.18500			4.70
1BB0476-SO	3/16	-	-	4.763	0.18750	52	86	4.76
1BB0479-SO	-	12	-	4.801	0.18900			4.80
1BB0485-SO	-	11	-	4.851	0.19100			4.86
1BB0492-SO	-	10	-	4.915	0.19350			4.92
1BB0498-SO	-	9	-	4.978	0.19600			4.98
1BB0500-SO	-	-	-	5.000	0.19685			5.00
1BB0506-SO	-	8	-	5.055	0.19900			5.05
1BB0511-SO	-	7	-	5.105	0.20100			5.11
1BB0516-SO	13/64	-	-	5.159	0.20313			5.16
1BB0518-SO	-	6	-	5.182	0.20400			5.18
1BB0522-SO	-	5	-	5.220	0.20550			5.22
1BB0530-SO	-	-	-	5.300	0.20866			5.30
1BB0532-SO	-	4	-	5.309	0.20900	57	93	5.31
1BB0541-SO	-	3	-	5.410	0.21300			5.41
1BB0550-SO	-	-	-	5.500	0.21654			5.50
1BB0556-SO	7/32	-	-	5.556	0.21875			5.56
1BB0561-SO	-	2	-	5.613	0.22100			5.61
1BB0579-SO	-	1	-	5.791	0.22800			5.79
1BB0595-SO	15/64	-	-	5.953	0.23438			5.95
1BB0600-SO	-	-	-	6.000	0.23622			6.00
1BB0634-SO	1/4	-	E	6.350	0.25000	63	101	6.35
1BB0650-SO	-	-	-	6.500	0.25591			6.50
1BB0653-SO	-	-	F	6.528	0.25700			6.53
1BB0675-SO	17/64	-	-	6.747	0.26563	69	109	6.75
1BB0680-SO	-	-	-	6.800	0.26772			6.80
1BB0691-SO	-	-	I	6.909	0.27200			6.90
1BB0700-SO	-	-	-	7.000	0.27559			7.00
1BB0714-SO	9/32	-	-	7.144	0.28125			7.14
1BB0730-SO	-	-	-	7.300	0.28740			7.30
1BB0750-SO	-	-	-	7.500	0.29528			7.50

Packed: 1 pc.
Available TiAlN coating only.

SOM

List 1BB-SO (Continued)

NEW | BLUE BAND TAPS P564-566 651-653 | SPEED FEED P394-395 | HSS-Co5 | TYPE VA | TiAlN | JOBBERS | 35°

BLUE BAND, Ideal for Stainless Steels

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1BB0754-SO	19/64	-	-	7.541	0.29688	75	117	7.54
1BB0780-SO	-	-	-	7.800	0.30709			7.80
1BB0794-SO	5/16	-	-	7.938	0.31250			7.94
1BB0800-SO	-	-	-	8.000	0.31496			8.00
1BB0833-SO	21/64	-	-	8.334	0.32813			8.33
1BB0843-SO	-	-	Q	8.433	0.33200			8.43
1BB0850-SO	-	-	-	8.500	0.33465			8.50
1BB0873-SO	11/32	-	-	8.731	0.34375	81	125	8.73
1BB0880-SO	-	-	-	8.800	0.34646			8.80
1BB0900-SO	-	-	-	9.000	0.35433			9.00
1BB0913-SO	23/64	-	-	9.128	0.35938			9.13
1BB0950-SO	-	-	-	9.500	0.37402			9.50
1BB0953-SO	3/8	-	-	9.525	0.37500	87	133	9.53
1BB0992-SO	25/64	-	-	9.922	0.39063			9.92
1BB1000-SO	-	-	-	10.000	0.39370			10.00
1BB1020-SO	-	-	-	10.200	0.40157			10.20
1BB1032-SO	13/32	-	-	10.319	0.40625			10.32
1BB1050-SO	-	-	-	10.500	0.41339			10.50
1BB1072-SO	27/64	-	-	10.716	0.42188	94	142	10.72
1BB1080-SO	-	-	-	10.800	0.42520			10.80
1BB1100-SO	-	-	-	11.000	0.43307			11.00
1BB1111-SO	7/16	-	-	11.113	0.43750			11.11
1BB1150-SO	-	-	-	11.500	0.45276			11.50
1BB1151-SO	29/64	-	-	11.509	0.45313			11.51
1BB1191-SO	15/32	-	-	11.906	0.46875	101	151	11.91
1BB1200-SO	-	-	-	12.000	0.47244			12.00
1BB1229-SO	31/64	-	-	12.303	0.48438			12.30
1BB1250-SO	-	-	-	12.500	0.49213			12.50
1BB1269-SO	1/2	-	-	12.700	0.50000			12.70
1BB1300-SO	-	-	-	13.000	0.51181			13.00

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

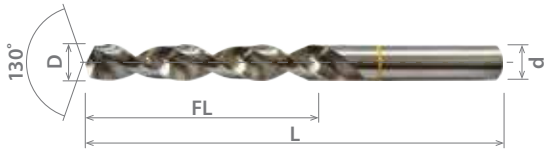
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1BB-SO						◎	◎	◎				○	○				

○ good ◎ best

List 1AQ-SO

NEW | YELLOW BAND TAPS P567-569 654-656 | SPEED FEED P394-395 | HSS | TYPE W | BR | JOBBERS | 40°

YELLOW BAND, Ideal for Aluminum



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.9≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1AQ0090-SO	-	-	-	0.900	0.03543	11	32	0.90
1AQ0100-SO	-	-	-	1.000	0.03937	12	34	1.00
1AQ0110-SO	-	-	-	1.100	0.04331	14	36	1.10
1AQ0120-SO	-	-	-	1.200	0.04724	16	38	1.20
1AQ0130-SO	-	-	-	1.300	0.05118			1.30
1AQ0140-SO	-	-	-	1.400	0.05512	18	40	1.40
1AQ0150-SO	-	-	-	1.500	0.05906			1.50
1AQ0160-SO	-	-	-	1.600	0.06299	20	43	1.60
1AQ0170-SO	-	-	-	1.700	0.06693			1.70
1AQ0175-SO	-	-	-	1.750	0.06890	22	46	1.75
1AQ0180-SO	-	-	-	1.800	0.07087			1.80
1AQ0190-SO	-	-	-	1.900	0.07480			1.90
1AQ0198-SO	5/64	-	-	1.984	0.07813	24	49	1.98
1AQ0199-SO	-	47	-	1.994	0.07850			1.99
1AQ0200-SO	-	-	-	2.000	0.07874			2.00
1AQ0206-SO	-	46	-	2.057	0.08100			2.06
1AQ0208-SO	-	45	-	2.083	0.08200			2.08
1AQ0210-SO	-	-	-	2.100	0.08268			2.10
1AQ0218-SO	-	44	-	2.184	0.08600	27	53	2.18
1AQ0220-SO	-	-	-	2.200	0.08661			2.20
1AQ0225-SO	-	-	-	2.250	0.08858			2.25
1AQ0226-SO	-	43	-	2.261	0.08900			2.26
1AQ0230-SO	-	-	-	2.300	0.09055			2.30
1AQ0237-SO	-	42	-	2.375	0.09350	30	57	2.37
1AQ0238-SO	3/32	-	-	2.381	0.09375			2.38
1AQ0240-SO	-	-	-	2.400	0.09449			2.40
1AQ0244-SO	-	41	-	2.438	0.09600			2.44
1AQ0249-SO	-	40	-	2.489	0.09800			2.49
1AQ0250-SO	-	-	-	2.500	0.09843			2.50
1AQ0253-SO	-	39	-	2.527	0.09950			2.53
1AQ0258-SO	-	38	-	2.578	0.10150			2.58
1AQ0260-SO	-	-	-	2.600	0.10236			2.60
1AQ0264-SO	-	37	-	2.642	0.10400			2.64
1AQ0270-SO	-	-	-	2.700	0.10630	33	61	2.70
1AQ0271-SO	-	36	-	2.705	0.10650			2.71
1AQ0275-SO	-	-	-	2.750	0.10827			2.75
1AQ0278-SO	7/64	-	-	2.778	0.10938			2.78
1AQ0279-SO	-	35	-	2.794	0.11000			2.79
1AQ0280-SO	-	-	-	2.800	0.11024			2.80
1AQ0282-SO	-	34	-	2.819	0.11100			2.82
1AQ0287-SO	-	33	-	2.870	0.11300			2.87
1AQ0290-SO	-	-	-	2.900	0.11417			2.90
1AQ0295-SO	-	32	-	2.946	0.11600			2.95
1AQ0300-SO	-	-	-	3.000	0.11811			3.00
1AQ0305-SO	-	31	-	3.048	0.12000	36	65	3.05
1AQ0310-SO	-	-	-	3.100	0.12205			3.10
1AQ0318-SO	1/8	-	-	3.175	0.12500			3.18
1AQ0320-SO	-	-	-	3.200	0.12598			3.20
1AQ0326-SO	-	30	-	3.264	0.12850			3.26
1AQ0330-SO	-	-	-	3.300	0.12992			3.30

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

List 1AQ-SO (Continued)

NEW | YELLOW BAND TAPS P567-569 654-656 | SPEED FEED P394-395 | HSS | TYPE W | BR | JOBBERS | 40°

YELLOW BAND, Ideal for Aluminum

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1AQ0340-SO	-	-	-	3.400	0.13386	39	70	3.40
1AQ0345-SO	-	29	-	3.454	0.13600			3.45
1AQ0350-SO	-	-	-	3.500	0.13780			3.50
1AQ0356-SO	-	28	-	3.569	0.14050			3.57
1AQ0357-SO	9/64	-	-	3.572	0.14063			
1AQ0360-SO	-	-	-	3.600	0.14173			3.60
1AQ0366-SO	-	27	-	3.658	0.14400			3.66
1AQ0370-SO	-	-	-	3.700	0.14567			3.70
1AQ0373-SO	-	26	-	3.734	0.14700			3.73
1AQ0379-SO	-	25	-	3.797	0.14950	43	75	3.80
1AQ0380-SO	-	-	-	3.800	0.14961			
1AQ0386-SO	-	24	-	3.861	0.15200			3.86
1AQ0390-SO	-	-	-	3.900	0.15354			3.90
1AQ0391-SO	-	23	-	3.912	0.15400			3.91
1AQ0397-SO	5/32	-	-	3.969	0.15625			3.97
1AQ0399-SO	-	22	-	3.988	0.15700			3.99
1AQ0400-SO	-	-	-	4.000	0.15748			4.00
1AQ0404-SO	-	21	-	4.039	0.15900			4.04
1AQ0409-SO	-	20	-	4.089	0.16100			4.09
1AQ0410-SO	-	-	-	4.100	0.16142			4.10
1AQ0420-SO	-	-	-	4.200	0.16535			4.20
1AQ0422-SO	-	19	-	4.216	0.16600			4.22
1AQ0430-SO	-	-	-	4.300	0.16929	47	80	4.30
1AQ0431-SO	-	18	-	4.305	0.16950			4.31
1AQ0437-SO	11/64	-	-	4.366	0.17188			4.37
1AQ0439-SO	-	17	-	4.394	0.17300			4.39
1AQ0440-SO	-	-	-	4.400	0.17323			4.40
1AQ0449-SO	-	16	-	4.496	0.17700			4.50
1AQ0450-SO	-	-	-	4.500	0.17717			
1AQ0457-SO	-	15	-	4.572	0.18000			4.57
1AQ0460-SO	-	-	-	4.600	0.18110			4.60
1AQ0462-SO	-	14	-	4.623	0.18200			4.62
1AQ0469-SO	-	13	-	4.699	0.18500			4.70
1AQ0470-SO	-	-	-	4.700	0.18504	52	86	
1AQ0476-SO	3/16	-	-	4.763	0.18750			4.76
1AQ0479-SO	-	12	-	4.801	0.18900			4.80
1AQ0480-SO	-	-	-	4.800	0.18898			
1AQ0485-SO	-	11	-	4.851	0.19100			4.86
1AQ0490-SO	-	-	-	4.900	0.19291			4.90
1AQ0492-SO	-	10	-	4.915	0.19350			4.92
1AQ0498-SO	-	9	-	4.978	0.19600			4.98
1AQ0500-SO	-	-	-	5.000	0.19685			5.00
1AQ0506-SO	-	8	-	5.055	0.19900			5.05
1AQ0510-SO	-	-	-	5.100	0.20079			5.10
1AQ0511-SO	-	7	-	5.105	0.20100			5.11
1AQ0516-SO	13/64	-	-	5.159	0.20313			5.16

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

continued on next page

Work Material

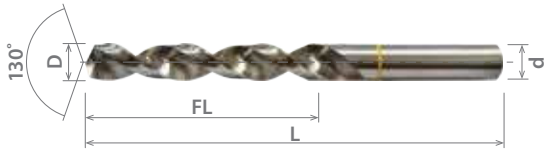
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1AQ-SO	○									◎	○						

○ good ◎ best

List 1AQ-SO (Continued)

NEW | YELLOW BAND TAPS P567-569 654-656 | SPEED FEED P394-395 | HSS | TYPE W | BR | JOBBERS | 40°

YELLOW BAND, Ideal for Aluminum



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.9≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1AQ0518-SO	-	6	-	5.182	0.20400	52	86	5.18
1AQ0520-SO	-	-	-	5.200	0.20472			5.20
1AQ0522-SO	-	5	-	5.220	0.20550			5.22
1AQ0530-SO	-	-	-	5.300	0.20866			5.30
1AQ0532-SO	-	4	-	5.309	0.20900	57	93	5.31
1AQ0540-SO	-	-	-	5.400	0.21260			5.40
1AQ0541-SO	-	3	-	5.410	0.21300			5.41
1AQ0550-SO	-	-	-	5.500	0.21654			5.50
1AQ0556-SO	7/32	-	-	5.556	0.21875			5.56
1AQ0560-SO	-	-	-	5.600	0.22047			5.60
1AQ0561-SO	-	2	-	5.613	0.22100			5.61
1AQ0570-SO	-	-	-	5.700	0.22441			5.70
1AQ0579-SO	-	1	-	5.791	0.22800			5.79
1AQ0580-SO	-	-	-	5.800	0.22835			5.80
1AQ0590-SO	-	-	-	5.900	0.23228			5.90
1AQ0595-SO	15/64	-	-	5.953	0.23438			5.95
1AQ0600-SO	-	-	-	6.000	0.23622			6.00
1AQ0610-SO	-	-	-	6.100	0.24016	63	101	6.10
1AQ0620-SO	-	-	-	6.200	0.24409			6.20
1AQ0630-SO	-	-	-	6.300	0.24803			6.30
1AQ0635-SO	1/4	-	E	6.350	0.25000			6.35
1AQ0640-SO	-	-	-	6.400	0.25197			6.40
1AQ0650-SO	-	-	-	6.500	0.25591			6.50
1AQ0653-SO	-	-	F	6.528	0.25700			6.53
1AQ0660-SO	-	-	-	6.600	0.25984			6.60
1AQ0670-SO	-	-	-	6.700	0.26378			6.70
1AQ0675-SO	17/64	-	-	6.747	0.26563	69	109	6.75
1AQ0680-SO	-	-	-	6.800	0.26772			6.80
1AQ0690-SO	-	-	-	6.900	0.27165			6.90
1AQ0691-SO	-	-	I	6.909	0.27200			
1AQ0700-SO	-	-	-	7.000	0.27559			7.00
1AQ0710-SO	-	-	-	7.100	0.27953			7.10
1AQ0714-SO	9/32	-	-	7.144	0.28125			7.14
1AQ0720-SO	-	-	-	7.200	0.28346			7.20
1AQ0730-SO	-	-	-	7.300	0.28740			7.30
1AQ0740-SO	-	-	-	7.400	0.29134			7.40
1AQ0750-SO	-	-	-	7.500	0.29528			7.50
1AQ0754-SO	19/64	-	-	7.541	0.29688	75	117	7.54
1AQ0760-SO	-	-	-	7.600	0.29921			7.60
1AQ0770-SO	-	-	-	7.700	0.30315			7.70
1AQ0780-SO	-	-	-	7.800	0.30709			7.80
1AQ0790-SO	-	-	-	7.900	0.31102			7.90
1AQ0794-SO	5/16	-	-	7.938	0.31250			7.94
1AQ0800-SO	-	-	-	8.000	0.31496			8.00
1AQ0810-SO	-	-	-	8.100	0.31890			8.10
1AQ0820-SO	-	-	-	8.200	0.32283			8.20
1AQ0830-SO	-	-	-	8.300	0.32677			8.30
1AQ0833-SO	21/64	-	-	8.334	0.32813			8.33
1AQ0840-SO	-	-	-	8.400	0.33071			8.40
1AQ0843-SO	-	-	Q	8.433	0.33200			8.43

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

List 1AQ-SO (Continued)

NEW | YELLOW BAND TAPS P567-569 654-656 | SPEED FEED P394-395 | HSS | TYPE W | BR | JOBBERS | 40°

YELLOW BAND, Ideal for Aluminum

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1AQ0850-SO	-	-	-	8.500	0.33465	75	117	8.50
1AQ0860-SO	-	-	-	8.600	0.33858	81	125	8.60
1AQ0870-SO	-	-	-	8.700	0.34252			8.70
1AQ0873-SO	11/32	-	-	8.731	0.34375			8.73
1AQ0880-SO	-	-	-	8.800	0.34646			8.80
1AQ0890-SO	-	-	-	8.900	0.35039			8.90
1AQ0900-SO	-	-	-	9.000	0.35433			9.00
1AQ0910-SO	-	-	-	9.100	0.35827			9.10
1AQ0913-SO	23/64	-	-	9.128	0.35938			9.13
1AQ0920-SO	-	-	-	9.200	0.36220			9.20
1AQ0930-SO	-	-	-	9.300	0.36614			9.30
1AQ0940-SO	-	-	-	9.400	0.37008			9.40
1AQ0950-SO	-	-	-	9.500	0.37402			9.50
1AQ0953-SO	3/8	-	-	9.525	0.37500	87	133	9.53
1AQ0960-SO	-	-	-	9.600	0.37795			9.60
1AQ0970-SO	-	-	-	9.700	0.38189			9.70
1AQ0980-SO	-	-	-	9.800	0.38583			9.80
1AQ0990-SO	-	-	-	9.900	0.38976			9.90
1AQ0992-SO	25/64	-	-	9.922	0.39063			9.92
1AQ1000-SO	-	-	-	10.000	0.39370			10.00
1AQ1020-SO	-	-	-	10.200	0.40157			10.20
1AQ1032-SO	13/32	-	-	10.319	0.40625			10.32
1AQ1050-SO	-	-	-	10.500	0.41339			10.50
1AQ1072-SO	27/64	-	-	10.716	0.42188	94	142	10.72
1AQ1100-SO	-	-	-	11.000	0.43307			11.00
1AQ1111-SO	7/16	-	-	11.113	0.43750			11.11
1AQ1150-SO	-	-	-	11.500	0.45276			11.50
1AQ1200-SO	-	-	-	12.000	0.47244	101	151	12.00
1AQ1229-SO	31/64	-	-	12.303	0.48438			12.30
1AQ1250-SO	-	-	-	12.500	0.49213			12.50
1AQ1269-SO	1/2	-	-	12.690	0.49961			12.70
1AQ1270-SO	-	-	-	12.700	0.50000			
1AQ1300-SO	-	-	-	13.000	0.51181			13.00

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1AQ-SO	▢									▣	▢						

▢ good ▣ best

List 1W6-SO

WHITE BAND, Ideal for Cast Iron

NEW | WHITE BAND TAPS P570-572 | SPEED FEED P394-395 | HSS-Co5 | TYPE FS | TYPE GG | TiAlN | JOBBERS | 30°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1.98≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1W60198-SO	5/64	-	-	1.984	0.07813	24	49	1.98
1W60199-SO	-	47	-	1.994	0.07850			1.99
1W60206-SO	-	46	-	2.057	0.08100			2.06
1W60208-SO	-	45	-	2.083	0.08200			2.08
1W60218-SO	-	44	-	2.184	0.08600	27	53	2.18
1W60226-SO	-	43	-	2.261	0.08900			2.26
1W60237-SO	-	42	-	2.375	0.09350	30	57	2.37
1W60238-SO	3/32	-	-	2.381	0.09375			2.38
1W60244-SO	-	41	-	2.438	0.09600			2.44
1W60249-SO	-	40	-	2.489	0.09800			2.49
1W60250-SO	-	-	-	2.500	0.09843			2.50
1W60253-SO	-	39	-	2.527	0.09950			2.53
1W60258-SO	-	38	-	2.578	0.10150			2.58
1W60264-SO	-	37	-	2.642	0.10400			2.64
1W60271-SO	-	36	-	2.705	0.10650	33	61	2.71
1W60278-SO	7/64	-	-	2.778	0.10938			2.78
1W60279-SO	-	35	-	2.794	0.11000			2.79
1W60282-SO	-	34	-	2.819	0.11100			2.82
1W60287-SO	-	33	-	2.870	0.11300			2.87
1W60295-SO	-	32	-	2.946	0.11600			2.95
1W60305-SO	-	31	-	3.048	0.12000	36	65	3.05
1W60318-SO	1/8	-	-	3.175	0.12500			3.18
1W60326-SO	-	30	-	3.264	0.12850			3.26
1W60330-SO	-	-	-	3.300	0.12992			3.30
1W60345-SO	-	29	-	3.454	0.13600	39	70	3.45
1W60356-SO	-	28	-	3.569	0.14050			3.57
1W60357-SO	9/64	-	-	3.572	0.14063			
1W60366-SO	-	27	-	3.658	0.14400			3.66
1W60373-SO	-	26	-	3.734	0.14700			3.73
1W60379-SO	-	25	-	3.797	0.14950	43	75	3.80
1W60386-SO	-	24	-	3.861	0.15200			3.86
1W60391-SO	-	23	-	3.912	0.15400			3.91
1W60397-SO	5/32	-	-	3.969	0.15625			3.97
1W60399-SO	-	22	-	3.988	0.15700			3.99
1W60400-SO	-	-	-	4.000	0.15748			4.00
1W60404-SO	-	21	-	4.039	0.15900			4.04
1W60409-SO	-	20	-	4.089	0.16100			4.09
1W60420-SO	-	-	-	4.200	0.16535			4.20
1W60422-SO	-	19	-	4.216	0.16600			4.22
1W60431-SO	-	18	-	4.305	0.16950	47	80	4.31
1W60437-SO	11/64	-	-	4.366	0.17188			4.37
1W60439-SO	-	17	-	4.394	0.17300			4.39
1W60449-SO	-	16	-	4.496	0.17700			4.50
1W60450-SO	-	-	-	4.500	0.17717			
1W60457-SO	-	15	-	4.572	0.18000			4.57
1W60462-SO	-	14	-	4.623	0.18200			4.62
1W60469-SO	-	13	-	4.699	0.18500			4.70
1W60476-SO	3/16	-	-	4.763	0.18750	52	86	4.76
1W60479-SO	-	12	-	4.801	0.18900			4.80
1W60485-SO	-	11	-	4.851	0.19100			4.86
1W60492-SO	-	10	-	4.915	0.19350			4.92
1W60498-SO	-	9	-	4.978	0.19600			4.98

Packed: 1 pc.
Available TiAlN coating only.

List 1W6-SO (Continued)

WHITE BAND, Ideal for Cast Iron

NEW | WHITE BAND TAPS P570-572 | SPEED FEED P394-395 | HSS-Co5 | TYPE FS | TYPE GG | TiAlN | JOBBERS | 30°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1W60500-SO	-	-	-	5.000	0.19685	52	86	5.00
1W60506-SO	-	8	-	5.055	0.19900			5.05
1W60511-SO	-	7	-	5.105	0.20100			5.11
1W60516-SO	13/64	-	-	5.159	0.20313			5.16
1W60518-SO	-	6	-	5.182	0.20400			5.18
1W60522-SO	-	5	-	5.220	0.20550			5.22
1W60532-SO	-	4	-	5.309	0.20900	57	93	5.31
1W60541-SO	-	3	-	5.410	0.21300			5.41
1W60550-SO	-	-	-	5.500	0.21654			5.50
1W60556-SO	7/32	-	-	5.556	0.21875			5.56
1W60561-SO	-	2	-	5.613	0.22100			5.61
1W60579-SO	-	1	-	5.791	0.22800			5.79
1W60595-SO	15/64	-	-	5.953	0.23438			5.95
1W60600-SO	-	-	-	6.000	0.23622			6.00
1W60634-SO	1/4	-	E	6.350	0.25000	63	101	6.35
1W60650-SO	-	-	-	6.500	0.25591			6.50
1W60653-SO	-	-	F	6.528	0.25700			6.53
1W60675-SO	17/64	-	-	6.747	0.26563	69	109	6.75
1W60680-SO	-	-	-	6.800	0.26772			6.80
1W60691-SO	-	-	I	6.909	0.27200			6.90
1W60700-SO	-	-	-	7.000	0.27559			7.00
1W60714-SO	9/32	-	-	7.144	0.28128			7.14
1W60750-SO	-	-	-	7.500	0.29528			7.50
1W60754-SO	19/64	-	-	7.541	0.29688	75	117	7.54
1W60794-SO	5/16	-	-	7.938	0.31250			7.94
1W60800-SO	-	-	-	8.000	0.31496			8.00
1W60833-SO	21/64	-	-	8.334	0.32813			8.33
1W60843-SO	-	-	Q	8.433	0.33200			8.43
1W60850-SO	-	-	-	8.500	0.33465			8.50
1W60873-SO	11/32	-	-	8.731	0.34375	81	125	8.73
1W60900-SO	-	-	-	9.000	0.35433			9.00
1W60913-SO	23/64	-	-	9.128	0.35938			9.13
1W60950-SO	-	-	-	9.500	0.37402			9.50
1W60953-SO	3/8	-	-	9.525	0.37500	87	133	9.53
1W60992-SO	25/64	-	-	9.922	0.39063			9.92
1W61000-SO	-	-	-	10.000	0.39370			10.00
1W61020-SO	-	-	-	10.200	0.40157			10.20
1W61030-SO	13/32	-	-	10.319	0.40625			10.32
1W61050-SO	-	-	-	10.500	0.41339			10.50
1W61072-SO	27/64	-	-	10.716	0.42188	94	142	10.72
1W61100-SO	-	-	-	11.000	0.43307			11.00
1W61111-SO	7/16	-	-	11.113	0.43750			11.11
1W61191-SO	15/32	-	-	11.906	0.46875	101	151	11.91
1W61200-SO	-	-	-	12.000	0.47244			12.00
1W61269-SO	1/2	-	-	12.700	0.50000			12.70

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

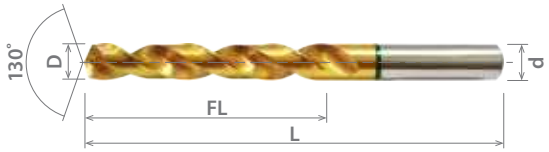
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1W6-SO									◎								

○ good ◎ best

List 1G7-SO

GREEN BAND, Ideal for Carbon Steels

NEW | GREEN BAND TAPS P573-576 657-659 | SPEED FEED P394-395 | HSS-Co5 | TYPE UNI | TiN | JOBBERS | 33°



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1G70100-SO	-	-	-	1.000	0.03937	12	34	1.00
1G70150-SO	-	-	-	1.500	0.05906	18	40	1.50
1G70160-SO	-	-	-	1.600	0.06299	20	43	1.60
1G70170-SO	-	-	-	1.700	0.06693			1.70
1G70190-SO	-	-	-	1.900	0.07480	22	46	1.90
1G70198-SO	5/64	-	-	1.984	0.07813	24	49	1.98
1G70199-SO	-	47	-	1.994	0.07850			1.99
1G70200-SO	-	-	-	2.000	0.07874			2.00
1G70206-SO	-	46	-	2.057	0.08100			2.06
1G70208-SO	-	45	-	2.083	0.08200			2.08
1G70210-SO	-	-	-	2.100	0.08268			2.10
1G70218-SO	-	44	-	2.184	0.08600	27	53	2.18
1G70226-SO	-	43	-	2.261	0.08900			2.26
1G70237-SO	-	42	-	2.375	0.09350	30	57	2.37
1G70238-SO	3/32	-	-	2.381	0.09375			2.38
1G70244-SO	-	41	-	2.438	0.09600			2.44
1G70249-SO	-	40	-	2.489	0.09800			2.49
1G70250-SO	-	-	-	2.500	0.09843			2.50
1G70253-SO	-	39	-	2.527	0.09950			2.53
1G70258-SO	-	38	-	2.578	0.10150			2.58
1G70260-SO	-	-	-	2.600	0.10236			2.60
1G70264-SO	-	37	-	2.642	0.10400			2.64
1G70270-SO	-	-	-	2.700	0.10630	33	61	2.70
1G70271-SO	-	36	-	2.705	0.10650			2.71
1G70278-SO	7/64	-	-	2.778	0.10938			2.78
1G70279-SO	-	35	-	2.794	0.11000			2.79
1G70280-SO	-	-	-	2.800	0.11024			2.80
1G70282-SO	-	34	-	2.819	0.11100			2.82
1G70287-SO	-	33	-	2.870	0.11300			2.87
1G70290-SO	-	-	-	2.900	0.11417			2.90
1G70295-SO	-	32	-	2.946	0.11600			2.95
1G70300-SO	-	-	-	3.000	0.11811			3.00
1G70305-SO	-	31	-	3.048	0.12000	36	65	3.05
1G70310-SO	-	-	-	3.100	0.12205			3.10
1G70318-SO	1/8	-	-	3.175	0.12500			3.18
1G70320-SO	-	-	-	3.200	0.12598			3.20
1G70326-SO	-	30	-	3.264	0.12850			3.26
1G70330-SO	-	-	-	3.300	0.12992			3.30
1G70340-SO	-	-	-	3.400	0.13386	39	70	3.40
1G70345-SO	-	29	-	3.454	0.13600			3.45
1G70350-SO	-	-	-	3.500	0.13780			3.50
1G70356-SO	-	28	-	3.569	0.14050			3.57
1G70357-SO	9/64	-	-	3.572	0.14063			
1G70360-SO	-	-	-	3.600	0.14173			3.60
1G70366-SO	-	27	-	3.658	0.14400			3.66
1G70370-SO	-	-	-	3.700	0.14567			3.70
1G70373-SO	-	26	-	3.734	0.14700			3.73
1G70379-SO	-	25	-	3.797	0.14950	43	75	3.80
1G70380-SO	-	-	-	3.800	0.14961			
1G70386-SO	-	24	-	3.861	0.15200			3.86

Packed: 1 pc.
Available TiN coating only.

SOM

List 1G7-SO (Continued)

NEW | GREEN BAND TAPS P573-576 657-659 | SPEED FEED P394-395 | HSS-Co5 | TYPE UNI | TiN | JOBBERS | 33°

GREEN BAND, Ideal for Carbon Steels

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1G70390-SO	-	-	-	3.900	0.15354	43	75	3.90
1G70391-SO	-	23	-	3.912	0.15400			3.91
1G70397-SO	5/32	-	-	3.969	0.15625			3.97
1G70399-SO	-	22	-	3.988	0.15700			3.99
1G70400-SO	-	-	-	4.000	0.15748			4.00
1G70404-SO	-	21	-	4.039	0.15900			4.04
1G70409-SO	-	20	-	4.089	0.16100			4.09
1G70410-SO	-	-	-	4.100	0.16142			4.10
1G70420-SO	-	-	-	4.200	0.16535	43	75	4.20
1G70422-SO	-	19	-	4.216	0.16600			4.22
1G70430-SO	-	-	-	4.300	0.16929	47	80	4.30
1G70431-SO	-	18	-	4.305	0.16950			4.31
1G70437-SO	11/64	-	-	4.366	0.17188			4.37
1G70439-SO	-	17	-	4.394	0.17300			4.39
1G70449-SO	-	16	-	4.496	0.17700			4.50
1G70450-SO	-	-	-	4.500	0.17717			
1G70457-SO	-	15	-	4.572	0.18000			4.57
1G70462-SO	-	14	-	4.623	0.18200			4.62
1G70469-SO	-	13	-	4.699	0.18500			4.70
1G70476-SO	3/16	-	-	4.763	0.18750	52	86	4.76
1G70479-SO	-	12	-	4.801	0.18900			4.80
1G70480-SO	-	-	-	4.800	0.18898			
1G70485-SO	-	11	-	4.851	0.19100			4.86
1G70492-SO	-	10	-	4.915	0.19350			4.92
1G70498-SO	-	9	-	4.978	0.19600			4.98
1G70500-SO	-	-	-	5.000	0.19685			5.00
1G70506-SO	-	8	-	5.055	0.19900			5.05
1G70510-SO	-	-	-	5.100	0.20079			5.10
1G70511-SO	-	7	-	5.105	0.20100			5.11
1G70516-SO	13/64	-	-	5.159	0.20313			5.16
1G70518-SO	-	6	-	5.182	0.20400			5.18
1G70520-SO	-	-	-	5.200	0.20472			5.20
1G70522-SO	-	5	-	5.220	0.20550			5.22
1G70530-SO	-	-	-	5.300	0.20866			5.30
1G70532-SO	-	4	-	5.309	0.20900	57	93	5.31
1G70541-SO	-	3	-	5.410	0.21300			5.41
1G70550-SO	-	-	-	5.500	0.21654			5.50
1G70556-SO	7/32	-	-	5.556	0.21875			5.56
1G70561-SO	-	2	-	5.613	0.22100			5.61
1G70579-SO	-	1	-	5.791	0.22800			5.79
1G70580-SO	-	-	-	5.800	0.22835			5.80
1G70590-SO	-	-	-	5.900	0.23228			5.90
1G70595-SO	15/64	-	-	5.953	0.23438			5.95
1G70600-SO	-	-	-	6.000	0.23622			6.00
1G70610-SO	-	-	-	6.100	0.24016	63	101	6.10
1G70620-SO	-	-	-	6.200	0.24409			6.20

Packed: 1 pc.
Available TiN coating only.

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SOM

Work Material

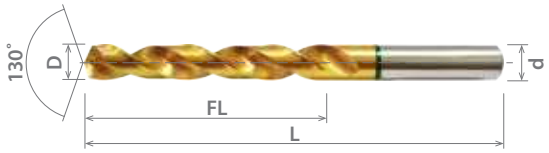
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1G7-SO	▢	▢		○													

○ good ▢ best

List 1G7-SO (Continued)

NEW | GREEN BAND TAPS P573-576 657-659 | SPEED FEED P394-395 | HSS-Co5 | TYPE UNI | TiN | JOBBERS | 33°

GREEN BAND, Ideal for Carbon Steels



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤13	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1G70630-SO	-	-	-	6.300	0.24803	63	101	6.30
1G70635-SO	1/4	-	E	6.350	0.25000			6.35
1G70640-SO	-	-	-	6.400	0.25197			6.40
1G70650-SO	-	-	-	6.500	0.25591			6.50
1G70653-SO	-	-	F	6.528	0.25700			6.53
1G70675-SO	17/64	-	-	6.747	0.26563	69	109	6.75
1G70680-SO	-	-	-	6.800	0.26772			6.80
1G70690-SO	-	-	-	6.900	0.27165			6.90
1G70691-SO	-	-	I	6.909	0.27200			
1G70700-SO	-	-	-	7.000	0.27559			7.00
1G70714-SO	9/32	-	-	7.144	0.28128			7.14
1G70730-SO	-	-	-	7.300	0.28740			7.30
1G70750-SO	-	-	-	7.500	0.29528			7.50
1G70754-SO	19/64	-	-	7.541	0.29688	75	117	7.54
1G70770-SO	-	-	-	7.700	0.30315			7.70
1G70780-SO	-	-	-	7.800	0.30709			7.80
1G70790-SO	-	-	-	7.900	0.31102			7.90
1G70794-SO	5/16	-	-	7.938	0.31250			7.94
1G70800-SO	-	-	-	8.000	0.31496			8.00
1G70810-SO	-	-	-	8.100	0.31890			8.10
1G70820-SO	-	-	-	8.200	0.32283			8.20
1G70833-SO	21/64	-	-	8.334	0.32813			8.33
1G70840-SO	-	-	-	8.400	0.33071			8.40
1G70843-SO	-	-	Q	8.433	0.33200			8.43
1G70850-SO	-	-	-	8.500	0.33465			8.50
1G70870-SO	-	-	-	8.700	0.34252	81	125	8.70
1G70873-SO	11/32	-	-	8.731	0.34375			8.73
1G70880-SO	-	-	-	8.800	0.34646			8.80
1G70890-SO	-	-	-	8.900	0.35039			8.90
1G70900-SO	-	-	-	9.000	0.35433			9.00
1G70913-SO	23/64	-	-	9.128	0.35938			9.13
1G70930-SO	-	-	-	9.300	0.36614			9.30
1G70950-SO	-	-	-	9.500	0.37402			9.50
1G70953-SO	3/8	-	-	9.525	0.37500	87	133	9.53
1G70960-SO	-	-	-	9.600	0.37795			9.60
1G70992-SO	25/64	-	-	9.922	0.39063			9.92
1G71000-SO	-	-	-	10.000	0.39370			10.00
1G71010-SO	-	-	-	10.100	0.39764			10.10
1G71020-SO	-	-	-	10.200	0.40157			10.20
1G71030-SO	-	-	-	10.300	0.40551			10.30
1G71032-SO	13/32	-	-	10.319	0.40625			10.32
1G71050-SO	-	-	-	10.500	0.41339			10.50
1G71060-SO	-	-	-	10.600	0.41732			10.60
1G71070-SO	-	-	-	10.700	0.42126	94	142	10.70
1G71072-SO	27/64	-	-	10.716	0.42188			10.72
1G71080-SO	-	-	-	10.800	0.42520			10.80
1G71100-SO	-	-	-	11.000	0.43307			11.00
1G71111-SO	7/16	-	-	11.113	0.43750			11.11
1G71130-SO	-	-	-	11.300	0.44488			11.30
1G71150-SO	-	-	-	11.500	0.45276			11.50

Packed: 1 pc.
Available TiN coating only.

SOM

List 1G7-SO (Continued)

NEW | GREEN BAND TAPS P573-576 657-659 | SPEED FEED P394-395 | HSS-Co5 | TYPE UNI | TiN | JOBBERS | 33°

GREEN BAND, Ideal for Carbon Steels

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1G71170-SO	-	-	-	11.700	0.46063	94	142	11.70
1G71180-SO	-	-	-	11.800	0.46457			11.80
1G71200-SO	-	-	-	12.000	0.47244	101	151	12.00
1G71250-SO	-	-	-	12.500	0.49213			12.50
1G71269-SO	-	-	-	12.690	0.49961			12.70
1G71270-SO	1/2	-	-	12.700	0.50000			
1G71280-SO	-	-	-	12.800	0.50394			12.80
1G71290-SO	-	-	-	12.900	0.50787			12.90
1G71300-SO	-	-	-	13.000	0.51181			13.00

Packed: 1 pc.
Available TiN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1G7-SO	▢	▢		▢													

▢ good ▢ best

List 101-SO, 102-SO

NEW | SPEED FEED P396 | HSS | TYPE N | S/O | JOBBERS | 30°

Jobber Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.3≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1010030-SO	-	-	-	0.300	0.01181	3	19	0.30
10	1010035-SO	-	-	-	0.350	0.01378	4		0.35
10	1020040-SO	1/64	-	-	0.397	0.01563	5	20	0.40
10	1010040-SO	-	-	-	0.400	0.01575			
10	1010045-SO	-	-	-	0.450	0.01772			0.45
10	1010050-SO	-	-	-	0.500	0.01969	6	22	0.50
10	1010055-SO	-	-	-	0.550	0.02165	7	24	0.55
10	1010060-SO	-	-	-	0.600	0.02362			0.60
10	1010070-SO	-	-	-	0.700	0.02756	9	28	0.70
10	1010075-SO	-	-	-	0.750	0.02953			0.75
10	1020079-SO	1/32	-	-	0.794	0.03125	10	30	0.79
10	1010080-SO	-	-	-	0.800	0.03150			0.80
10	1010090-SO	-	-	-	0.900	0.03543	11	32	0.90
10	1010100-SO	-	-	-	1.000	0.03937	12	34	1.00
10	1010105-SO	-	-	-	1.050	0.04134			1.05
10	1010110-SO	-	-	-	1.100	0.04331	14	36	1.10
10	1010115-SO	-	-	-	1.150	0.04528			1.15
10	1020119-SO	3/64	-	-	1.191	0.04688	16	38	1.19
10	1010120-SO	-	-	-	1.200	0.04724			1.20
10	1010125-SO	-	-	-	1.250	0.04921			1.25
10	1010130-SO	-	-	-	1.300	0.05118			1.30
10	1010135-SO	-	-	-	1.350	0.05315	18	40	1.35
10	1010140-SO	-	-	-	1.400	0.05512			1.40
10	1010145-SO	-	-	-	1.450	0.05709			1.45
10	1010150-SO	-	-	-	1.500	0.05906			1.50
10	1010155-SO	-	-	-	1.550	0.06102	20	43	1.55
10	1020159-SO	1/16	-	-	1.588	0.06250			1.59
10	1010160-SO	-	-	-	1.600	0.06299			1.60
10	1010165-SO	-	-	-	1.650	0.06496			1.65
10	1010170-SO	-	-	-	1.700	0.06693			1.70
10	1010175-SO	-	-	-	1.750	0.06890	22	46	1.75
10	1010180-SO	-	-	-	1.800	0.07087			1.80
10	1010185-SO	-	-	-	1.850	0.07283			1.85
10	1010190-SO	-	-	-	1.900	0.07480			1.90
10	1010195-SO	-	-	-	1.950	0.07677	24	49	1.95
10	1020198-SO	5/64	-	-	1.984	0.07813			1.98
10	1010200-SO	-	-	-	2.000	0.07874			2.00
10	1010205-SO	-	-	-	2.050	0.08071			2.05
10	1010210-SO	-	-	-	2.100	0.08268			2.10
10	1010215-SO	-	-	-	2.150	0.08465	27	53	2.15
10	1010220-SO	-	-	-	2.200	0.08661			2.20
10	1010225-SO	-	-	-	2.250	0.08858			2.25
10	1010230-SO	-	-	-	2.300	0.09055			2.30
10	1010235-SO	-	-	-	2.350	0.09252			2.35

Available Steam Oxide only.

SOM

List 101-SO, 102-SO (Continued)

NEW | SPEED FEED P396 | HSS | TYPE N | S/O | JOBBERS | 30°

Jobber Drills

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1020238-SO	3/32	-	-	2.381	0.09375	30	57	2.38
10	1010240-SO	-	-	-	2.400	0.09449			2.40
10	1010245-SO	-	-	-	2.450	0.09646			2.45
10	1010250-SO	-	-	-	2.500	0.09843			2.50
10	1010255-SO	-	-	-	2.550	0.10039			2.55
10	1010260-SO	-	-	-	2.600	0.10236			2.60
10	1010265-SO	-	-	-	2.650	0.10433			2.65
10	1010270-SO	-	-	-	2.700	0.10630	33	61	2.70
10	1010275-SO	-	-	-	2.750	0.10827			2.75
10	1020278-SO	7/64	-	-	2.778	0.10938			2.78
10	1010280-SO	-	-	-	2.800	0.11024			2.80
10	1010285-SO	-	-	-	2.850	0.11220			2.85
10	1010290-SO	-	-	-	2.900	0.11417			2.90
10	1010295-SO	-	-	-	2.950	0.11614			2.95
10	1010300-SO	-	-	-	3.000	0.11811			3.00
10	1010310-SO	-	-	-	3.100	0.12205	36	65	3.10
10	1020318-SO	1/8	-	-	3.175	0.12500			3.18
10	1010320-SO	-	-	-	3.200	0.12598			3.20
10	1010325-SO	-	-	-	3.250	0.12795			3.25
10	1010330-SO	-	-	-	3.300	0.12992			3.30
10	1010340-SO	-	-	-	3.400	0.13386	39	70	3.40
10	1010350-SO	-	-	-	3.500	0.13780			3.50
10	1020357-SO	9/64	-	-	3.572	0.14063			3.57
10	1010360-SO	-	-	-	3.600	0.14173			3.60
10	1010370-SO	-	-	-	3.700	0.14567			3.70
10	1010380-SO	-	-	-	3.800	0.14961	43	75	3.80
10	1010390-SO	-	-	-	3.900	0.15354			3.90
10	1020397-SO	5/32	-	-	3.969	0.15625			3.97
10	1010400-SO	-	-	-	4.000	0.15748			4.00
10	1010410-SO	-	-	-	4.100	0.16142			4.10
10	1010420-SO	-	-	-	4.200	0.16535			4.20
10	1010425-SO	-	-	-	4.250	0.16732			4.25
10	1010430-SO	-	-	-	4.300	0.16929	47	80	4.30
10	1020437-SO	11/64	-	-	4.366	0.17188			4.37
10	1010440-SO	-	-	-	4.400	0.17323			4.40
10	1010450-SO	-	-	-	4.500	0.17717			4.50
10	1010460-SO	-	-	-	4.600	0.18110			4.60
10	1010470-SO	-	-	-	4.700	0.18504			4.70

Available Steam Oxide only.

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SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
101-SO, 102-SO	○	○	○	○	○	○	○		○	○	○	○	○				

○ good ◎ best

List 101-SO, 102-SO (Continued)

NEW | SPEED FEED P396 | HSS | TYPE N | S/O | JOBBERS | 30°

Jobber Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.3≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1020476-SO	3/16	-	-	4.763	0.18750	52	86	4.76
10	1010480-SO	-	-	-	4.800	0.18898			4.80
10	1010490-SO	-	-	-	4.900	0.19291			4.90
10	1010500-SO	-	-	-	5.000	0.19685			5.00
10	1010510-SO	-	-	-	5.100	0.20079			5.10
10	1020516-SO	13/64	-	-	5.159	0.20313			5.16
10	1010520-SO	-	-	-	5.200	0.20472			5.20
10	1010525-SO	-	-	-	5.250	0.20669			5.25
10	1010530-SO	-	-	-	5.300	0.20866			5.30
10	1010540-SO	-	-	-	5.400	0.21260	57	93	5.40
10	1010550-SO	-	-	-	5.500	0.21654			5.50
10	1020556-SO	7/32	-	-	5.556	0.21875			5.56
10	1010560-SO	-	-	-	5.600	0.22047			5.60
10	1010570-SO	-	-	-	5.700	0.22441			5.70
10	1010575-SO	-	-	-	5.750	0.22638			5.75
10	1010580-SO	-	-	-	5.800	0.22835			5.80
10	1010590-SO	-	-	-	5.900	0.23228			5.90
10	1020595-SO	15/64	-	-	5.953	0.23438			5.95
10	1010600-SO	-	-	-	6.000	0.23622			6.00
10	1010610-SO	-	-	-	6.100	0.24016	63	101	6.10
10	1010620-SO	-	-	-	6.200	0.24409			6.20
10	1010625-SO	-	-	-	6.250	0.24606			6.25
10	1010630-SO	-	-	-	6.300	0.24803			6.30
10	1020635-SO	1/4	-	E	6.350	0.25000			6.35
10	1010640-SO	-	-	-	6.400	0.25197			6.40
10	1010650-SO	-	-	-	6.500	0.25591			6.50
10	1010660-SO	-	-	-	6.600	0.25984			6.60
10	1010670-SO	-	-	-	6.700	0.26378			6.70
10	1020675-SO	17/64	-	-	6.747	0.26563	69	109	6.75
10	1010675-SO	-	-	-	6.750	0.26575			
10	1010680-SO	-	-	-	6.800	0.26772			6.80
10	1010690-SO	-	-	-	6.900	0.27165			6.90
10	1010700-SO	-	-	-	7.000	0.27559			7.00
10	1010710-SO	-	-	-	7.100	0.27953			7.10
10	1020714-SO	9/32	-	-	7.144	0.28125			7.14
10	1010720-SO	-	-	-	7.200	0.28346			7.20
10	1010730-SO	-	-	-	7.300	0.28740			7.30
10	1010740-SO	-	-	-	7.400	0.29134			7.40
10	1010750-SO	-	-	-	7.500	0.29528			7.50
10	1020754-SO	19/64	-	-	7.541	0.29688	75	117	7.54
10	1010760-SO	-	-	-	7.600	0.29921			7.60
10	1010770-SO	-	-	-	7.700	0.30315			7.70
10	1010780-SO	-	-	-	7.800	0.30709			7.80
10	1010790-SO	-	-	-	7.900	0.31102			7.90
10	1020794-SO	5/16	-	-	7.938	0.31250			7.94
10	1010800-SO	-	-	-	8.000	0.31496			8.00
10	1010810-SO	-	-	-	8.100	0.31890			8.10
10	1010820-SO	-	-	-	8.200	0.32283			8.20
10	1010825-SO	-	-	-	8.250	0.32480			8.25
10	1010830-SO	-	-	-	8.300	0.32677			8.30

Available Steam Oxide only.

SOM

List 101-SO, 102-SO (Continued)

NEW | SPEED FEED P396 | HSS | TYPE N | S/O | JOBBERS | 30°

Jobber Drills

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1020833-SO	21/64	-	-	8.334	0.32813	75	117	8.33
10	1010840-SO	-	-	-	8.400	0.33071			8.40
10	1010850-SO	-	-	-	8.500	0.33465			8.50
10	1010860-SO	-	-	-	8.600	0.33858	81	125	8.60
10	1010870-SO	-	-	-	8.700	0.34252			8.70
10	1020873-SO	11/32	-	-	8.731	0.34375			8.73
10	1010875-SO	-	-	-	8.750	0.34449			8.75
10	1010880-SO	-	-	-	8.800	0.34646			8.80
10	1010890-SO	-	-	-	8.900	0.35039			8.90
10	1010900-SO	-	-	-	9.000	0.35433			9.00
10	1010910-SO	-	-	-	9.100	0.35827			9.10
10	1020913-SO	23/64	-	-	9.128	0.35938			9.13
10	1010920-SO	-	-	-	9.200	0.36220			9.20
10	1010925-SO	-	-	-	9.250	0.36417			9.25
10	1010930-SO	-	-	-	9.300	0.36614			9.30
10	1010940-SO	-	-	-	9.400	0.37008			9.40
10	1010950-SO	-	-	-	9.500	0.37402			9.50
10	1020953-SO	3/8	-	-	9.525	0.37500	87	133	9.53
10	1010960-SO	-	-	-	9.600	0.37795			9.60
10	1010970-SO	-	-	-	9.700	0.38189			9.70
10	1010975-SO	-	-	-	9.750	0.38386			9.75
10	1010980-SO	-	-	-	9.800	0.38583			9.80
10	1010990-SO	-	-	-	9.900	0.38976			9.90
5	1020992-SO	25/64	-	-	9.922	0.39063			9.92
5	1011000-SO	-	-	-	10.000	0.39370			10.00
5	1011010-SO	-	-	-	10.100	0.39764			10.10
5	1011020-SO	-	-	-	10.200	0.40157			10.20
5	1011025-SO	-	-	-	10.250	0.40354			10.25
5	1011030-SO	-	-	-	10.300	0.40551			10.30
5	1021032-SO	13/32	-	-	10.319	0.40625			10.32
5	1011040-SO	-	-	-	10.400	0.40945			10.40
5	1011050-SO	-	-	-	10.500	0.41339			10.50
5	1011060-SO	-	-	-	10.600	0.41732			10.60
5	1011070-SO	-	-	-	10.700	0.42126	94	142	10.70
5	1021072-SO	27/64	-	-	10.716	0.42188			10.72
5	1011075-SO	-	-	-	10.750	0.42323			10.75
5	1011080-SO	-	-	-	10.800	0.42520			10.80
5	1011090-SO	-	-	-	10.900	0.42913			10.90
5	1011100-SO	-	-	-	11.000	0.43307			11.00
5	1011110-SO	-	-	-	11.100	0.43701			11.10
5	1021111-SO	7/16	-	-	11.113	0.43750			11.11
5	1011120-SO	-	-	-	11.200	0.44094			11.20
5	1011130-SO	-	-	-	11.300	0.44488			11.30
5	1011140-SO	-	-	-	11.400	0.44882			11.40
5	1011150-SO	-	-	-	11.500	0.45276			11.50
5	1021151-SO	29/64	-	-	11.509	0.45313			11.51

Available Steam Oxide only.

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SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
101-SO, 102-SO	○	○	○	○	○	○	○		○	○	○	○	○				

○ good ◎ best

List 101-SO, 102-SO (Continued)

NEW | SPEED FEED P396 | HSS | TYPE N | S/O | JOBBERS | 30°

Jobber Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
0.3≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤18	+0 / -0.027	+0 / -0.0011
18<D≤20	+0 / -0.033	+0 / -0.0013

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
5	1011160-SO	-	-	-	11.600	0.45669	94	142	11.60
5	1011170-SO	-	-	-	11.700	0.46063			11.70
5	1011180-SO	-	-	-	11.800	0.46457			11.80
5	1011190-SO	-	-	-	11.900	0.46850	101	151	11.90
5	1021191-SO	15/32	-	-	11.906	0.46875			11.91
5	1011200-SO	-	-	-	12.000	0.47244			12.00
5	1011210-SO	-	-	-	12.100	0.47638			12.10
5	1011220-SO	-	-	-	12.200	0.48031			12.20
5	1011225-SO	-	-	-	12.250	0.48228			12.25
5	1011230-SO	-	-	-	12.300	0.48425			12.30
5	1021230-SO	31/64	-	-	12.303	0.48438			
5	1011240-SO	-	-	-	12.400	0.48819			12.40
5	1011250-SO	-	-	-	12.500	0.49213			12.50
5	1011260-SO	-	-	-	12.600	0.49606			12.60
5	1021270-SO	1/2	-	-	12.700	0.50000			12.70
5	1011270-SO	1/2	-	-					
5	1011275-SO	-	-	-	12.750	0.50197			12.75
5	1011280-SO	-	-	-	12.800	0.50394			12.80
5	1011290-SO	-	-	-	12.900	0.50787			12.90
5	1011300-SO	-	-	-	13.000	0.51181			13.00
1	1021310-SO	33/64	-	-	13.097	0.51563			13.10
1	1011310-SO	-	-	-	13.100	0.51575			
1	1011320-SO	-	-	-	13.200	0.51969			13.20
1	1011325-SO	-	-	-	13.250	0.52165	108	160	13.25
1	1011330-SO	-	-	-	13.300	0.52362			13.30
1	1011340-SO	-	-	-	13.400	0.52756			13.40
1	1021349-SO	17/32	-	-	13.494	0.53125			13.49
1	1011350-SO	-	-	-	13.500	0.53150			13.50
1	1011360-SO	-	-	-	13.600	0.53543			13.60
1	1011370-SO	-	-	-	13.700	0.53937			13.70
1	1011380-SO	-	-	-	13.800	0.54331			13.80
1	1021389-SO	35/64	-	-	13.891	0.54688			13.89
1	1011400-SO	-	-	-	14.000	0.55118			14.00
1	1011425-SO	-	-	-	14.250	0.56102	114	169	14.25
1	1021429-SO	9/16	-	-	14.288	0.56250			14.29
1	1011450-SO	-	-	-	14.500	0.57087			14.50
1	1021468-SO	37/64	-	-	14.684	0.57813			14.68
1	1011475-SO	-	-	-	14.750	0.58071			14.75
1	1011500-SO	-	-	-	15.000	0.59055			15.00
1	1011525-SO	-	-	-	15.250	0.60039	120	178	15.25
1	1011550-SO	-	-	-	15.500	0.61024			15.50
1	1011575-SO	-	-	-	15.750	0.62008			15.75
1	1021588-SO	5/8	-	-	15.875	0.62500			15.88
1	1011600-SO	-	-	-	16.000	0.62992			16.00
1	1011650-SO	-	-	-	16.500	0.64961	125	184	16.50
1	1011700-SO	-	-	-	17.000	0.66929			17.00
1	1011750-SO	-	-	-	17.500	0.68898	130	191	17.50
1	1011800-SO	-	-	-	18.000	0.70866			18.00
1	1011850-SO	-	-	-	18.500	0.72835	135	198	18.50
1	1011900-SO	-	-	-	19.000	0.74803			19.00

Available Steam Oxide only.

SOM

List 101-SO, 102-SO (Continued)

NEW | SPEED FEED P396 | HSS | TYPE N | S/O | JOBBERS | 30°

Jobber Drills

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1	1011950-SO	-	-	-	19.500	0.76772	140	205	19.50
1	1012000-SO	-	-	-	20.000	0.78740			20.00

Available Steam Oxide only.

SOM

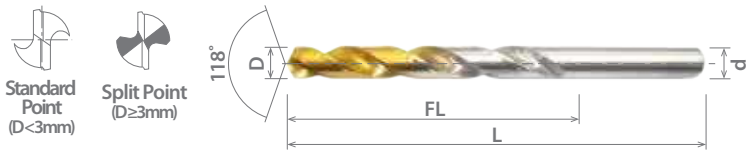
Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
101-SO, 102-SO	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢	▢	▢				

▢ good ▣ best

List 1X6-SO

NEW | SPEED FEED P396 | HSS | TYPE N | TiN | JOBBERS | 30°

Jobber Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤16	+0 / -0.027	+0 / -0.0011

Pcs per Pack	EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
		Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
10	1X60318-SO	1/8	-	-	3.175	0.12500	36	65	3.18
10	1X60357-SO	9/64	-	-	3.572	0.14063	39	70	3.57
10	1X60397-SO	5/32	-	-	3.969	0.15625	43	75	3.97
10	1X60437-SO	11/64	-	-	4.366	0.17188	47	80	4.37
10	1X60476-SO	3/16	-	-	4.763	0.18750	52	86	4.76
10	1X60516-SO	13/64	-	-	5.159	0.20313			5.16
10	1X60556-SO	7/32	-	-	5.556	0.21875	57	93	5.56
10	1X60595-SO	15/64	-	-	5.953	0.23438			5.95
10	1X60635-SO	1/4	-	E	6.350	0.25000	63	101	6.35
10	1X60675-SO	17/64	-	-	6.747	0.26563	69	109	6.75
10	1X60714-SO	9/32	-	-	7.144	0.28125			7.14
10	1X60754-SO	19/64	-	-	7.541	0.29688	75	117	7.54
10	1X60794-SO	5/16	-	-	7.938	0.31250			7.94
10	1X60833-SO	21/64	-	-	8.334	0.32813			8.33
10	1X60873-SO	11/32	-	-	8.731	0.34375	81	125	8.73
10	1X60913-SO	23/64	-	-	9.128	0.35938			9.13
10	1X60953-SO	3/8	-	-	9.525	0.37500	87	133	9.53
5	1X60992-SO	25/64	-	-	9.922	0.39063			9.92
5	1X61032-SO	13/32	-	-	10.319	0.40625			10.32
5	1X61072-SO	27/64	-	-	10.716	0.42188	94	142	10.72
5	1X61111-SO	7/16	-	-	11.113	0.43750			11.11
5	1X61151-SO	29/64	-	-	11.509	0.45313			11.51
5	1X61191-SO	15/32	-	-	11.906	0.46875	101	151	11.91
5	1X61229-SO	31/64	-	-	12.303	0.48438			12.30
5	1X61269-SO	1/2	-	-	12.700	0.50000			12.70
1	1X61309-SO	33/64	-	-	13.097	0.51563			13.10
1	1X61349-SO	17/32	-	-	13.494	0.53125	108	160	13.49
1	1X61389-SO	35/64	-	-	13.891	0.54688			13.89
1	1X61429-SO	9/16	-	-	14.288	0.56250	114	169	14.29
1	1X61468-SO	37/64	-	-	14.684	0.57813			14.68
1	1X61588-SO	5/8	-	-	15.875	0.62500	120	178	15.88

Available TiN coating only.

SOM

Work Material

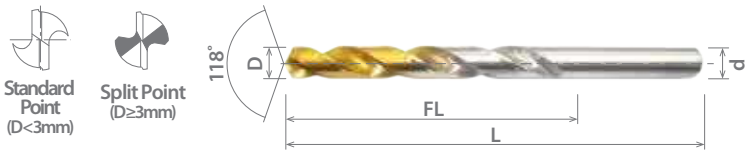
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1X6-SO	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢	▢	▢				

▢ good ▣ best

List 1X6-SO (Continued)

NEW | SPEED FEED P396 | HSS | TYPE N | TiN | JOBBERS | 30°

INCH SET, Jobber Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤16	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1X60030-SO	1/16	-	-	1.588	0.06250	20	43	1.59
	5/64	-	-	1.984	0.07813	24	49	1.98
	3/32	-	-	2.381	0.09375	30	57	2.38
	7/64	-	-	2.778	0.10938	33	61	2.78
	1/8	-	-	3.175	0.12500	36	65	3.18
	9/64	-	-	3.572	0.14063	39	70	3.57
	5/32	-	-	3.969	0.15625	43	75	3.97
	11/64	-	-	4.366	0.17188	47	80	4.37
	3/16	-	-	4.763	0.18750	52	86	4.76
	13/64	-	-	5.159	0.20313			5.16
	7/32	-	-	5.556	0.21875	57	93	5.56
	15/64	-	-	5.953	0.23438			5.95
	1/4	-	E	6.350	0.25000	63	101	6.35
	17/64	-	-	6.747	0.26563	69	109	6.75
	9/32	-	-	7.144	0.28125			7.14
	19/64	-	-	7.541	0.29688	75	117	7.54
	5/16	-	-	7.938	0.31250			7.94
	21/64	-	-	8.334	0.32813			8.33
	11/32	-	-	8.731	0.34375	81	125	8.73
	23/64	-	-	9.128	0.35938			9.13
	3/8	-	-	9.525	0.37500	87	133	9.53
	25/64	-	-	9.922	0.39063			9.92
	13/32	-	-	10.319	0.40625			10.32
	27/64	-	-	10.716	0.42188	94	142	10.72
	7/16	-	-	11.113	0.43750			11.11
	29/64	-	-	11.509	0.45313			11.51
	15/32	-	-	11.906	0.46875	101	151	11.91
	31/64	-	-	12.303	0.48438			12.30
	1/2	-	-	12.700	0.50000			12.70

Packed: 1 pc.
Available TiN coating only.

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SOM



Work Material

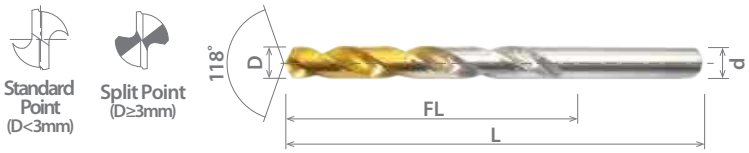
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1X6-SO	○	○	○	○	○	○	○		○	○	○	○	○				

○ good ◎ best

List 1X6-SO (Continued)

NEW | SPEED FEED P396 | HSS | TYPE N | TiN | JOBBERS | 30°

METRIC SET, Jobber Drills



Cutting Diameter Tolerance (h8)		
Size	mm	inch
1≤D≤3	+0 / -0.014	+0 / -0.0006
3<D≤6	+0 / -0.018	+0 / -0.0007
6<D≤10	+0 / -0.022	+0 / -0.0009
10<D≤16	+0 / -0.027	+0 / -0.0011

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
1X60040-SO	-	-	-	1.000	0.03937	12	34	1.00
	-	-	-	1.500	0.05906	18	40	1.50
	-	-	-	2.000	0.07874	24	49	2.00
	-	-	-	2.500	0.09843	30	57	2.50
	-	-	-	3.000	0.11811	33	61	3.00
	-	-	-	3.500	0.13780	39	70	3.50
	-	-	-	4.000	0.15748	43	75	4.00
	-	-	-	4.500	0.17717	47	80	4.50
	-	-	-	5.000	0.19685	52	86	5.00
	-	-	-	5.500	0.21654	57	93	5.50
	-	-	-	6.000	0.23622			6.00
	-	-	-	6.500	0.25591	63	101	6.50
	-	-	-	7.000	0.27559	69	109	7.00
	-	-	-	7.500	0.29528			7.50
	-	-	-	8.000	0.31496	75	117	8.00
	-	-	-	8.500	0.33465			8.50
	-	-	-	9.000	0.35433	81	125	9.00
	-	-	-	9.500	0.37402			9.50
	-	-	-	10.000	0.39370	87	133	10.00
	-	-	-	10.500	0.41339			10.50
	-	-	-	11.000	0.43307	94	142	11.00
	-	-	-	11.500	0.45276			11.50
	-	-	-	12.000	0.47244	101	151	12.00
	-	-	-	12.500	0.49213			12.50
	-	-	-	13.000	0.51181			13.00

Packed: 1 pc.
Available TiN coating only.

SOM



Work Material

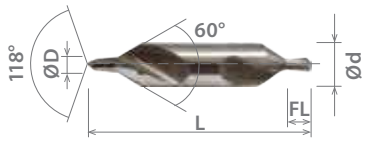
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1X6-SO	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢	▢	▢				

▢ good ▢ best

List 1NA-SO

NEW | SPEED FEED P397 | HSS | BR

Center Drills



EDP Number	Diameter	Tool Number	Flute Length	Overall Length	Shank Diameter
			FL (in)	L (in)	d (in)
1NA0001-SO	3/64	1	0.047	1.260	1/8
1NA0002-SO	5/64	2	0.078	1.890	3/16
1NA0003-SO	7/64	3	0.110	2.008	1/4
1NA0004-SO	1/8	4	0.126	2.126	5/16
1NA0005-SO	3/16	5	0.189	2.756	7/16
1NA0006-SO	7/32	6	0.217	2.992	1/2
1NA0007-SO	1/4	7	0.252	3.268	5/8

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

Work Material

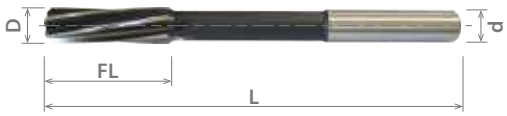
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
1NA-SO	○	○	○	○		○	○		○	○	○	○	○				

○ good ◎ best

List 751-SO, 752-SO

Parallel Shank Machine Chucking Reamers

NEW | SPEED FEED P398 | HSS-Co5 | BR | LHS | 10°



Cutting Diameter Tolerance (h7)		
Size	mm	inch
2≤D≤3	+0 / -0.010	+0 / -0.0003
3<D≤6	+0 / -0.012	+0 / -0.0004
6<D≤10	+0 / -0.015	+0 / -0.0005
10<D≤18	+0 / -0.018	+0 / -0.0007
18<D≤20	+0 / -0.021	+0 / -0.0008

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
7510200-SO	-	-	-	2.000	0.07874	11	49	2.00
7510240-SO	-	-	-	2.400	0.09449	14	57	2.40
7510250-SO	-	-	-	2.500	0.09843			2.50
7510260-SO	-	-	-	2.600	0.10236			2.60
7510270-SO	-	-	-	2.700	0.10630	15	61	2.70
7510280-SO	-	-	-	2.800	0.11024			2.80
7510300-SO	-	-	-	3.000	0.11811			3.00
7510310-SO	-	-	-	3.100	0.12205	16	65	3.10
7520318-SO	1/8	-	-	3.175	0.12500			3.20
7510320-SO	-	-	-	3.200	0.12598			
7510340-SO	-	-	-	3.400	0.13386	18	70	3.40
7510350-SO	-	-	-	3.500	0.13780			3.50
7510360-SO	-	-	-	3.600	0.14173			3.60
7510380-SO	-	-	-	3.800	0.14961	19	75	4.00
7510400-SO	-	-	-	4.000	0.15748			
7510410-SO	-	-	-	4.100	0.16142			
7510420-SO	-	-	-	4.200	0.16535			
7510430-SO	-	-	-	4.300	0.16929	21	80	4.50
7510440-SO	-	-	-	4.400	0.17323			
7510450-SO	-	-	-	4.500	0.17717			
7520476-SO	3/16	-	-	4.763	0.18750	23	86	5.00
7510480-SO	-	-	-	4.800	0.18898			
7510490-SO	-	-	-	4.900	0.19291			
7510500-SO	-	-	-	5.000	0.19685			
7510510-SO	-	-	-	5.100	0.20079			
7510520-SO	-	-	-	5.200	0.20472			
7510530-SO	-	-	-	5.300	0.20866			
7510540-SO	-	-	-	5.400	0.21260	26	93	5.60
7510550-SO	-	-	-	5.500	0.21654			
7510560-SO	-	-	-	5.600	0.22047			
7510570-SO	-	-	-	5.700	0.22441			
7510580-SO	-	-	-	5.800	0.22835			
7510600-SO	-	-	-	6.000	0.23622			
7510610-SO	-	-	-	6.100	0.24016	28	101	6.30
7510620-SO	-	-	-	6.200	0.24409			
7510630-SO	-	-	-	6.300	0.24803			
7520635-SO	1/4	-	E	6.350	0.25000			
7510640-SO	-	-	-	6.400	0.25197			
7510650-SO	-	-	-	6.500	0.25591			
7510660-SO	-	-	-	6.600	0.25984			
7510670-SO	-	-	-	6.700	0.26378			
7510680-SO	-	-	-	6.800	0.26772	31	109	7.10
7510700-SO	-	-	-	7.000	0.27559			
7510710-SO	-	-	-	7.100	0.27953			
7510720-SO	-	-	-	7.200	0.28346			
7510730-SO	-	-	-	7.300	0.28740			
7510750-SO	-	-	-	7.500	0.29528			

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

SOM

List 751-SO, 752-SO (Continued)

Parallel Shank Machine Chucking Reamers

NEW | SPEED FEED P398 | HSS-Co5 | BR | LHS | 10°

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
7510780-SO	-	-	-	7.800	0.30709	33	117	8.00
7510790-SO	-	-	-	7.900	0.31102			
7520794-SO	5/16	-	-	7.938	0.31250			
7510800-SO	-	-	-	8.000	0.31496			
7510810-SO	-	-	-	8.100	0.31890			
7510820-SO	-	-	-	8.200	0.32283			
7510830-SO	-	-	-	8.300	0.32677			
7510840-SO	-	-	-	8.400	0.33071			
7510850-SO	-	-	-	8.500	0.33465			
7510860-SO	-	-	-	8.600	0.33858	36	125	9.00
7510880-SO	-	-	-	8.800	0.34646			
7510890-SO	-	-	-	8.900	0.35039			
7510900-SO	-	-	-	9.000	0.35433			
7510910-SO	-	-	-	9.100	0.35827			
7510950-SO	-	-	-	9.500	0.37402			
7520953-SO	3/8	-	-	9.525	0.37500	38	133	10.00
7510960-SO	-	-	-	9.600	0.37795			
7510970-SO	-	-	-	9.700	0.38189			
7510980-SO	-	-	-	9.800	0.38583			
7510990-SO	-	-	-	9.900	0.38976			
7511000-SO	-	-	-	10.000	0.39370			
7511010-SO	-	-	-	10.100	0.39764			
7511020-SO	-	-	-	10.200	0.40157			
7511030-SO	-	-	-	10.300	0.40551			
7511050-SO	-	-	-	10.500	0.41339			
7511060-SO	-	-	-	10.600	0.41732			
7511070-SO	-	-	-	10.700	0.42126	41	142	
7511080-SO	-	-	-	10.800	0.42520			
7511090-SO	-	-	-	10.900	0.42913			
7511100-SO	-	-	-	11.000	0.43307			
7511110-SO	-	-	-	11.100	0.43701			
7521111-SO	7/16	-	-	11.113	0.43750			
7511150-SO	-	-	-	11.500	0.45276			
7511170-SO	-	-	-	11.700	0.46063			
7511180-SO	-	-	-	11.800	0.46457			
7511190-SO	-	-	-	11.900	0.46850	44	151	
7511200-SO	-	-	-	12.000	0.47244			
7511210-SO	-	-	-	12.100	0.47638			
7511220-SO	-	-	-	12.200	0.48031			
7511230-SO	-	-	-	12.300	0.48425			
7511240-SO	-	-	-	12.400	0.48819			
7511250-SO	-	-	-	12.500	0.49213			
7511260-SO	-	-	-	12.600	0.49606			
7511270-SO	-	-	-	12.700	0.50000			
7521270-SO	1/2	-	-	12.700	0.50000			

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

continued on next page

SOM

Work Material

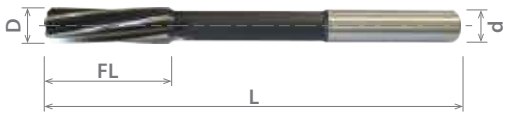
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
751-SO, 752-SO	▢	▢	▢		▢	▢	▢		▢	▢		▢	▢				

▢ good ▢ best

List 751-SO, 752-SO (Continued)

Parallel Shank Machine Chucking Reamers

NEW | SPEED FEED P398 | HSS-Co5 | BR | LHS | 10°



Cutting Diameter Tolerance (h7)		
Size	mm	inch
2≤D≤3	+0 / -0.010	+0 / -0.0003
3<D≤6	+0 / -0.012	+0 / -0.0004
6<D≤10	+0 / -0.015	+0 / -0.0005
10<D≤18	+0 / -0.018	+0 / -0.0007
18<D≤20	+0 / -0.021	+0 / -0.0008

EDP Number	Diameter					Flute Length	Overall Length	Shank Diameter
	Fractional Size	Wire Gage	Letter Size	mm	Inch	FL (mm)	L (mm)	d (mm)
7511280-SO	-	-	-	12.800	0.50394	44	151	10.00
7511290-SO	-	-	-	12.900	0.50787			
7511300-SO	-	-	-	13.000	0.51181			
7511350-SO	-	-	-	13.500	0.53150	47	160	12.50
7511400-SO	-	-	-	14.000	0.55118			
7521429-SO	9/16	-	-	14.288	0.56250	50	162	
7511450-SO	-	-	-	14.500	0.57087			
7511500-SO	-	-	-	15.000	0.59055			
7511550-SO	-	-	-	15.500	0.61024	52	170	
7521588-SO	5/8	-	-	15.875	0.62500			
7511600-SO	-	-	-	16.000	0.62992			
7511700-SO	-	-	-	17.000	0.66929	54	175	14.00
7511800-SO	-	-	-	18.000	0.70866	56	182	
7521905-SO	3/4	-	-	19.050	0.75000	60	195	16.00
7512000-SO	-	-	-	20.000	0.78740			

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specifiy treatment at time of order.

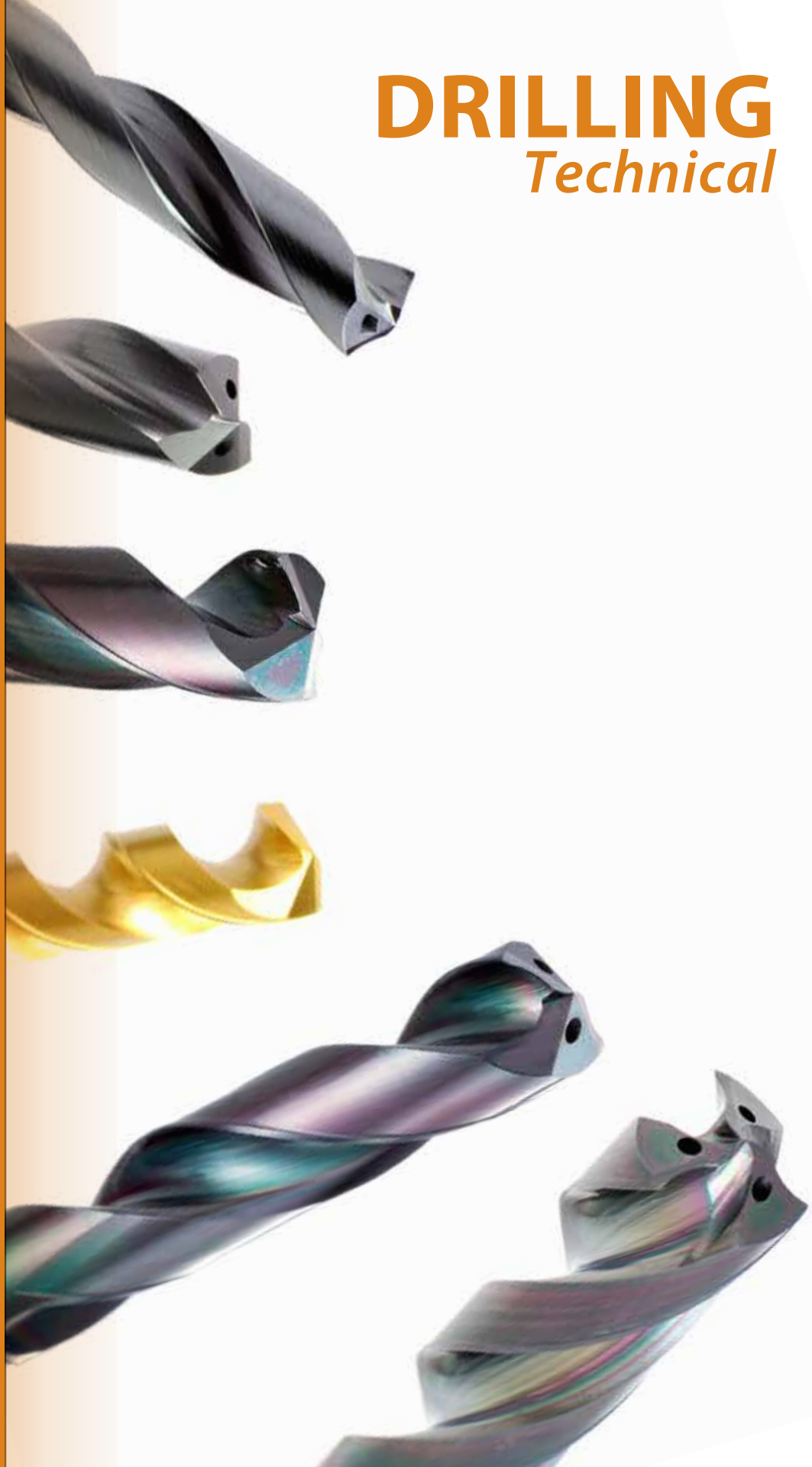
SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
751-SO, 752-SO	○	○	○		○	○	○		○	○		○	○				

○ good ◎ best

DRILLING
Technical



List 6600 - A Brand® ADO-TRS: 3D
List 6610 - A Brand® ADO-TRS: 5D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 400SS, 17-4PH		Cast Iron		Ductile Cast Iron	
Drilling Speed		260-395 SFM		260-395 SFM		130-200 SFM		260-395 SFM		195-330 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
3	-	10,700	0.004 - 0.006	10,700	0.004 - 0.006	5,200	0.004 - 0.006	10,700	0.004 - 0.007	8,400	0.004 - 0.006
-	1/8	10,100	0.004 - 0.006	10,100	0.004 - 0.006	4,900	0.004 - 0.006	10,100	0.004 - 0.007	7,900	0.004 - 0.006
4	-	7,900	0.005 - 0.009	7,900	0.005 - 0.009	4,000	0.005 - 0.007	7,900	0.005 - 0.009	6,350	0.005 - 0.009
-	3/16	6,700	0.007 - 0.010	6,700	0.007 - 0.010	3,300	0.007 - 0.009	6,700	0.007 - 0.011	5,300	0.007 - 0.010
6	-	5,300	0.007 - 0.013	5,300	0.007 - 0.013	2,650	0.007 - 0.009	5,300	0.008 - 0.014	4,250	0.007 - 0.013
-	1/4	5,000	0.007 - 0.014	5,000	0.007 - 0.014	2,500	0.007 - 0.010	5,000	0.009 - 0.015	4,000	0.007 - 0.014
8	-	3,950	0.009 - 0.017	3,950	0.009 - 0.017	2,000	0.009 - 0.013	3,950	0.011 - 0.019	3,200	0.009 - 0.017
-	3/8	3,300	0.012 - 0.021	3,300	0.012 - 0.021	1,700	0.011 - 0.015	3,300	0.013 - 0.023	2,650	0.012 - 0.021
10	-	3,150	0.012 - 0.022	3,150	0.012 - 0.022	1,600	0.012 - 0.016	3,150	0.014 - 0.024	2,550	0.012 - 0.022
-	7/16	2,850	0.013 - 0.023	2,850	0.013 - 0.023	1,450	0.013 - 0.017	2,850	0.015 - 0.026	2,300	0.013 - 0.023
12	-	2,650	0.014 - 0.024	2,650	0.014 - 0.024	1,350	0.014 - 0.019	2,650	0.017 - 0.028	2,100	0.014 - 0.024
-	1/2	2,500	0.015 - 0.025	2,500	0.015 - 0.025	1,250	0.015 - 0.020	2,500	0.018 - 0.028	2,000	0.015 - 0.025
14	-	2,250	0.017 - 0.028	2,250	0.017 - 0.028	1,150	0.017 - 0.022	2,250	0.019 - 0.030	1,800	0.017 - 0.028
-	5/8	2,000	0.019 - 0.031	2,000	0.019 - 0.031	1,000	0.019 - 0.025	2,000	0.022 - 0.034	1,600	0.019 - 0.031
16	–	2,000	0.019 - 0.031	2,000	0.019 - 0.031	1,000	0.019 - 0.025	2,000	0.022 - 0.034	1,600	0.019 - 0.031
18	-	1,750	0.021 - 0.032	1,750	0.021 - 0.032	900	0.021 - 0.028	1,750	0.025 - 0.035	1,400	0.021 - 0.032
-	3/4	1,650	0.023 - 0.034	1,650	0.023 - 0.034	850	0.023 - 0.030	1,650	0.026 - 0.037	1,300	0.023 - 0.034
20	-	1,600	0.024 - 0.035	1,600	0.024 - 0.035	800	0.024 - 0.031	1,600	0.028 -0.039	1,250	0.024 - 0.035

General Drilling Operations

Work Material		Cast Aluminum		Special Alloy Steels, Hardened Steels					
Hardness				26-30 HRC		30-34 HRC		34-43 HRC	
Drilling Speed		260-660 SFM		195-295 SFM		160-230 SFM		130-160 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch								
3	-	14,900	0.004 - 0.009	7,900	0.004 - 0.006	6,500	0.004 - 0.006	4,700	0.004 - 0.005
-	1/8	14,100	0.005 - 0.009	7,500	0.004 - 0.006	6,100	0.004 - 0.006	4,400	0.004 - 0.005
4	-	11,150	0.006 - 0.012	5,590	0.005 - 0.008	4,750	0.005 - 0.008	3,500	0.005 - 0.007
-	3/16	9,400	0.007 - 0.014	5,000	0.006 - 0.009	4,100	0.006 - 0.009	3,000	0.006 - 0.008
6	-	7,450	0.009 - 0.019	3,950	0.007 - 0.012	3,150	0.007 - 0.012	2,350	0.007 - 0.009
-	1/4	7,000	0.010 - 0.020	3,750	0.007 - 0.012	3,000	0.007 - 0.012	2,200	0.007 - 0.010
8	-	5,600	0.013 - 0.025	2,950	0.009 - 0.016	2,350	0.009 - 0.016	1,750	0.009 - 0.013
-	3/8	4,700	0.015 - 0.030	2,500	0.011 - 0.019	2,000	0.011 - 0.019	1,450	0.011 - 0.015
10	-	4,450	0.016 - 0.031	2,400	0.012 - 0.020	1,900	0.012 - 0.020	1,400	0.012 - 0.016
-	7/16	4,000	0.017 - 0.035	2,150	0.013 - 0.022	1,700	0.013 - 0.022	1,250	0.013 - 0.017
12	-	3,700	0.019 - 0.038	2,000	0.014 - 0.024	1,550	0.014 - 0.024	1,150	0.014 - 0.019
-	1/2	3,500	0.020 - 0.040	1,850	0.015 - 0.024	1,500	0.015 - 0.024	1,100	0.015 - 0.020
14	-	3,200	0.022 - 0.044	1,700	0.017 - 0.025	1,350	0.017 - 0.025	1,000	0.017 - 0.022
-	5/8	2,800	0.025 - 0.050	1,500	0.019 - 0.025	1,200	0.019 - 0.025	900	0.019 - 0.025
16	–	2,800	0.025 - 0.050	1,500	0.019 - 0.025	1,200	0.019 - 0.025	900	0.019 - 0.025
18	-	2,500	0.028 - 0.057	1,300	0.021 - 0.028	1,050	0.021 - 0.028	800	0.021 - 0.028
-	3/4	2,350	0.030 - 0.060	1,250	0.023 - 0.030	1,000	0.023 - 0.030	750	0.023 - 0.030
20	-	2,250	0.031 - 0.063	1,200	0.024 - 0.031	950	0.024 - 0.031	700	0.024 - 0.031

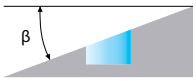
List 5720 - A Brand® ADFO: 3D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		Cast Iron		Ductile Cast Iron		Aluminum Alloy 5052,7075	
Hardness				28-35 HRC									
Drilling Speed		200-330 SFM		100-300 SFM		130-200 SFM		200-400 SFM		165-260 SFM		265-650 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
3	-	10,650	0.002 - 0.004	7,530	0.002 - 0.004	5,300	0.002 - 0.004	10,650	0.002 - 0.004	8,570	0.002 - 0.004	17,000	0.002 - 0.004
-	1/8	10,080	0.002 - 0.004	7,120	0.002 - 0.004	5,040	0.002 - 0.004	10,080	0.002 - 0.004	8,100	0.002 - 0.004	16,040	0.002 - 0.004
4	-	8,000	0.002 - 0.005	5,650	0.002 - 0.005	4,000	0.002 - 0.005	8,000	0.002 - 0.005	6,430	0.002 - 0.005	12,730	0.002 - 0.005
-	3/16	6,720	0.002 - 0.006	4,750	0.002 - 0.006	3,360	0.002 - 0.006	6,720	0.002 - 0.006	5,400	0.002 - 0.006	10,690	0.002 - 0.006
6	-	5,300	0.002 - 0.007	3,770	0.002 - 0.007	2,660	0.002 - 0.007	5,300	0.002 - 0.007	4,280	0.002 - 0.007	8,490	0.002 - 0.007
-	1/4	5,040	0.003 - 0.008	3,560	0.003 - 0.008	2,520	0.003 - 0.008	5,040	0.003 - 0.008	4,050	0.003 - 0.008	8,020	0.003 - 0.008
8	-	4,000	0.003 - 0.009	2,830	0.003 - 0.009	2,000	0.003 - 0.009	4,000	0.003 - 0.009	3,210	0.003 - 0.009	6,370	0.003 - 0.009
-	3/8	3,360	0.004 - 0.011	2,370	0.004 - 0.011	1,680	0.004 - 0.011	3,360	0.004 - 0.011	2,700	0.004 - 0.011	5,350	0.004 - 0.011
10	-	3,200	0.004 - 0.012	2,260	0.004 - 0.012	1,600	0.004 - 0.012	3,200	0.004 - 0.012	2,570	0.004 - 0.012	5,100	0.004 - 0.012
-	7/16	2,880	0.004 - 0.013	2,030	0.004 - 0.013	1,440	0.004 - 0.013	2,880	0.004 - 0.013	2,310	0.004 - 0.013	4,580	0.004 - 0.013
12	-	2,650	0.005 - 0.014	1,880	0.005 - 0.014	1,330	0.005 - 0.014	2,650	0.005 - 0.014	2,140	0.005 - 0.014	4,240	0.005 - 0.014
-	1/2	2,520	0.005 - 0.015	1,780	0.005 - 0.015	1,260	0.005 - 0.015	2,520	0.005 - 0.015	2,020	0.005 - 0.015	4,010	0.005 - 0.015
14	-	2,290	0.006 - 0.017	1,620	0.006 - 0.017	1,140	0.006 - 0.017	2,290	0.006 - 0.017	1,840	0.006 - 0.017	3,640	0.006 - 0.017
-	5/8	2,010	0.006 - 0.019	1,420	0.006 - 0.019	1,010	0.006 - 0.019	2,010	0.006 - 0.019	1,620	0.006 - 0.019	3,210	0.006 - 0.019
16	-	2,000	0.006 - 0.019	1,410	0.006 - 0.019	1,000	0.006 - 0.019	2,000	0.006 - 0.019	1,610	0.006 - 0.019	3,180	0.006 - 0.019
18	-	1,775	0.007 - 0.021	1,260	0.007 - 0.021	890	0.007 - 0.021	1,775	0.007 - 0.021	1,430	0.007 - 0.021	2,830	0.007 - 0.021
-	3/4	1,680	0.008 - 0.023	1,190	0.008 - 0.023	840	0.008 - 0.023	1,680	0.008 - 0.023	1,350	0.008 - 0.023	2,670	0.008 - 0.023
20	-	1,600	0.008 - 0.024	1,130	0.008 - 0.024	800	0.008 - 0.024	1,600	0.008 - 0.024	1,280	0.008 - 0.024	2,550	0.008 - 0.024

General Drilling Operations

Work Material		Cast Aluminum		Hardened Steel- Pre Hardened Steels		Plastic Mold Steels	
Hardness				Up to 50 HRC		Up to 40 HRC	
Drilling Speed		265-650 SFM		65-100 SFM		65-130 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch						
3	-	17,000	0.002 - 0.004	2,670	0.001 - 0.004	3,150	0.002 - 0.004
-	1/8	16,040	0.002 - 0.004	2,520	0.001 - 0.004	2,980	0.002 - 0.004
4	-	12,730	0.002 - 0.005	2,000	0.002 - 0.005	2,360	0.002 - 0.005
-	3/16	10,690	0.002 - 0.006	1,680	0.002 - 0.006	1,980	0.002 - 0.006
6	-	8,490	0.002 - 0.007	1,330	0.002 - 0.007	1,580	0.002 - 0.007
-	1/4	8,020	0.003 - 0.008	1,260	0.003 - 0.008	1,490	0.003 - 0.008
8	-	6,370	0.003 - 0.009	1,000	0.003 - 0.009	1,180	0.003 - 0.009
-	3/8	5,350	0.004 - 0.011	840	0.004 - 0.011	990	0.004 - 0.011
10	-	5,100	0.004 - 0.012	800	0.004 - 0.012	950	0.004 - 0.012
-	7/16	4,580	0.004 - 0.013	720	0.004 - 0.013	850	0.004 - 0.013
12	-	4,240	0.005 - 0.014	670	0.005 - 0.014	790	0.005 - 0.014
-	1/2	4,010	0.005 - 0.015	630	0.005 - 0.015	740	0.005 - 0.015
14	-	3,640	0.006 - 0.017	570	0.006 - 0.017	680	0.006 - 0.017
-	5/8	3,210	0.006 - 0.019	500	0.006 - 0.019	600	0.006 - 0.019
16	-	3,180	0.006 - 0.019	500	0.006 - 0.019	590	0.006 - 0.019
18	-	2,830	0.007 - 0.021	450	0.007 - 0.021	530	0.007 - 0.021
-	3/4	2,670	0.008 - 0.023	420	0.008 - 0.023	500	0.008 - 0.023
20	-	2,550	0.008 - 0.024	400	0.008 - 0.024	470	0.008 - 0.024



Note:

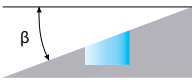
1. The table above assumes a milled-flat surface and water soluble coolant.
2. Use a rigid and precise machine and holder.
3. Please minimize overhang length as much as possible during machining.
4. Adjust the rotational speed and feed in accordance with conditions such as the machining shape, machine rigidity, or work holding.
5. Please set up the drill so that the runout of the cutting edge is under 0.0008".
6. Please select a cutting fluid that is most suitable for the work material with minimal smoke formation.
7. In the case of dry machining, please use air blow to remove chips to prevent clogging.
   - Please do not machine stainless steel dry.
8. When machining an inclined plane, adjust the rotational speed and feed in accordance with the angle of the incline (β).
   - When the machining incline angle (β) is less than 30°, please reduce the feed to 40-60%.
   - When the machining incline angle (β) is over 30°, please reduce the speed to 60-80% , the feed to 20-40%.
9. Please use step drilling when drilling in pre-drilled holes to improve chip separation.
10. If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and feed as indicated above (in accordance with the machining precision requirement).
11. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.

List 5700 - A Brand® ADF: 2D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		Cast Iron		Ductile Cast Iron	
Hardness				28-35 HRC							
Drilling Speed		100-330 SFM		100-300 SFM		35-100 SFM		100-400 SFM		100-260 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
0.2	–	25,000	0.00004 - 0.0002	25,000	0.00004 - 0.0002	25,000	0.00004 - 0.00015	25,000	0.00004 - 0.00024	25,000	0.00004 - 0.00024
–	1/64	25,000	0.00004 - 0.0002	25,000	0.00004 - 0.0002	20,000	0.00004 - 0.00015	25,000	0.00004 - 0.00024	25,000	0.00004 - 0.00024
0.5	–	25,000	0.0001 - 0.0006	25,000	0.0001 - 0.0006	15,900	0.00012 - 0.0004	25,000	0.00012 - 0.0006	25,000	0.00012 - 0.0006
–	1/32	22,000	0.0001 - 0.0006	20,200	0.0001 - 0.0006	10,000	0.00012 - 0.0004	25,000	0.00012 - 0.0006	20,100	0.00012 - 0.0006
1	–	17,500	0.0002 - 0.0012	15,900	0.0002 - 0.0012	8,000	0.0002 - 0.0008	22,500	0.0002 - 0.0012	15,900	0.0002 - 0.0012
–	3/64	14,700	0.0002 - 0.0012	13,500	0.0002 - 0.0012	6,700	0.0002 - 0.0008	21,400	0.0002 - 0.0012	14,200	0.0002 - 0.0012
1.5	–	13,800	0.0003 - 0.0018	12,700	0.0003 - 0.0018	5,300	0.0003 - 0.0012	17,000	0.0003 - 0.0018	11,500	0.0003 - 0.0018
–	1/16	13,100	0.0003 - 0.0018	12,200	0.0003 - 0.0018	5,000	0.0003 - 0.0012	16,000	0.0003 - 0.0018	10,700	0.0003 - 0.0018
2	-	12,850	0.0012 - 0.002	9,700	0.0012 - 0.002	3,980	0.0012 - 0.002	14,550	0.0016 - 0.002	10,310	0.0016 - 0.002
3	-	8,570	0.002 - 0.003	6,470	0.002 - 0.003	2,650	0.002 - 0.003	9,700	0.002 - 0.004	6,870	0.002 - 0.004
-	1/8	8,100	0.002 - 0.003	6,110	0.002 - 0.003	2,500	0.002 - 0.003	9,170	0.002 - 0.004	6,500	0.002 - 0.004
4	-	6,430	0.002 - 0.004	4,850	0.002 - 0.004	1,990	0.002 - 0.004	7,280	0.003 - 0.005	5,150	0.003 - 0.005
-	3/16	5,400	0.002 - 0.004	4,070	0.002 - 0.004	1,670	0.002 - 0.004	6,110	0.003 - 0.005	4,330	0.003 - 0.005
6	-	4,280	0.004 - 0.006	3,230	0.004 - 0.006	1,325	0.004 - 0.006	4,850	0.005 - 0.007	3,440	0.005 - 0.007
-	1/4	4,050	0.004 - 0.006	3,060	0.004 - 0.006	1,250	0.004 - 0.006	4,580	0.005 - 0.007	3,250	0.005 - 0.007
8	-	3,210	0.005 - 0.008	2,430	0.005 - 0.008	995	0.005 - 0.008	3,640	0.006 - 0.009	2,580	0.006 - 0.009
-	3/8	2,700	0.005 - 0.008	2,040	0.005 - 0.008	835	0.005 - 0.008	3,060	0.006 - 0.009	2,160	0.006 - 0.009
10	-	2,570	0.006 - 0.010	1,940	0.006 - 0.010	795	0.006 - 0.010	2,910	0.008 - 0.012	2,060	0.008 - 0.012
-	7/16	2,300	0.006 - 0.010	1,750	0.006 - 0.010	715	0.006 - 0.010	2,620	0.008 - 0.012	1,860	0.008 - 0.012
12	-	2,140	0.007 - 0.012	1,620	0.007 - 0.012	660	0.007 - 0.012	2,430	0.009 - 0.014	1,720	0.009 - 0.014
-	1/2	2,020	0.007 - 0.012	1,530	0.007 - 0.012	625	0.007 - 0.012	2,290	0.009 - 0.014	1,620	0.009 - 0.014
14	-	1,840	0.008 - 0.014	1,390	0.008 - 0.014	570	0.008 - 0.014	2,080	0.011 - 0.017	1,470	0.011 - 0.017
-	5/8	1,620	0.009 - 0.016	1,220	0.009 - 0.016	500	0.009 - 0.016	1,830	0.013 - 0.019	1,300	0.013 - 0.019
16	-	1,610	0.009 - 0.016	1,210	0.009 - 0.016	440	0.009 - 0.016	1,820	0.013 - 0.019	1,290	0.013 - 0.019
18	-	1,430	0.011 - 0.018	1,080	0.011 - 0.018	420	0.011 - 0.018	1,620	0.014 - 0.021	1,150	0.014 - 0.021
-	3/4	1,350	0.012 - 0.020	1,020	0.012 - 0.020	400	0.012 - 0.020	1,530	0.016 - 0.024	1,090	0.016 - 0.024
20	-	1,280	0.012 - 0.020	970	0.012 - 0.020	500	0.012 - 0.020	1,450	0.016 - 0.024	1,030	0.016 - 0.024

Note:



1. The speeds and feeds in the table above apply when drilling on a flat surface with water-soluble coolant.
2. When using non-water soluble oil or water-emulsifiable (over 20 times dilution), reduce cutting speed by 30%.
3. Use a rigid and precise machine and holder.
4. Please minimize tool overhang as much as possible during machining.
5. Adjust the rotational speed and the feed rate in accordance with conditions such as the machining shape, machine rigidity, or work holding.
6. Please set up the drill so that the runout of the cutting edge is under 0.0004 in.
7. When machining an inclined plane,adjust the rotational speed and the feed rate in accordance with the angle of the incline (β).
   - When the machining incline angle(β) is less than 30°, please reduce the feed to 40-60%.
   - When the machining incline angle(β) is over 30°, please reduce the speed to 60-80% , the feed to 40-60%.
8. Please use step drilling in pilot holes to improve cutting chip separation.
9. If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and the feed rate as indicated above (in accordance with the machining precision requirement).

General Drilling Operations

Work Material		Aluminum Alloy 5052,7075		Cast Aluminum		Hardened Steel-Pre Hardened Steel		Plastic Mold Steels	
Hardness						Up to 50 HRC		Up to 40 HRC	
Drilling Speed		100-650 SFM		100-650 SFM		65-100 SFM		65-130 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch								
0.2	–	25,000	0.00004 - 0.00024	25,000	0.00004 - 0.00024	25,000	0.00004 - 0.00016	25,000	0.00004 - 0.00016
–	1/64	25,000	0.00004 - 0.00024	25,000	0.00004 - 0.00024	20,000	0.00004 - 0.00016	24,400	0.00004 - 0.00016
0.5	–	25,000	0.00012 - 0.0006	25,000	0.00012 - 0.0006	15,900	0.00012 - 0.0004	19,000	0.00012 - 0.0004
–	1/32	25,000	0.00012 - 0.0006	25,000	0.00012 - 0.0006	10,000	0.00012 - 0.0004	12,200	0.00012 - 0.0004
1	–	25,000	0.0002 - 0.0012	25,000	0.0002 - 0.0012	7,950	0.0002 - 0.0008	9,550	0.0002 - 0.0008
–	3/64	25,000	0.0002 - 0.0012	25,000	0.0002 - 0.0012	6,700	0.0002 - 0.0008	8,150	0.0002 - 0.0008
1.5	–	25,000	0.0003 - 0.0018	25,000	0.0003 - 0.0018	5,300	0.0003 - 0.0012	6,350	0.0003 - 0.0012
–	1/16	25,000	0.0003 - 0.0018	25,000	0.0003 - 0.0018	5,000	0.0003 - 0.0012	6,100	0.0003 - 0.0012
2	-	22,200	0.0004 - 0.002	22,200	0.0004 - 0.002	4,000	0.0008 - 0.002	4,720	0.0012 - 0.002
3	-	14,800	0.001 - 0.004	14,800	0.001 - 0.004	2,660	0.001 - 0.002	3,150	0.0018 - 0.002
-	1/8	13,980	0.001 - 0.004	13,980	0.001 - 0.004	2,520	0.001 - 0.002	2,980	0.0018 - 0.002
4	-	11,100	0.001 - 0.005	11,100	0.001 - 0.005	2,000	0.002 - 0.003	2,360	0.002 - 0.003
-	3/16	9,320	0.001 - 0.005	9,320	0.001 - 0.005	1,680	0.002 - 0.003	1,980	0.002 - 0.003
6	-	7,400	0.001 - 0.007	7,400	0.001 - 0.007	1,330	0.002 - 0.005	1,570	0.004 - 0.005
-	1/4	6,990	0.001 - 0.007	6,990	0.001 - 0.007	1,260	0.002 - 0.005	1,490	0.004 - 0.005
8	-	5,550	0.002 - 0.009	5,550	0.002 - 0.009	1,000	0.003 - 0.006	1,180	0.005 - 0.006
-	3/8	4,660	0.002 - 0.009	4,660	0.002 - 0.009	840	0.003 - 0.006	990	0.005 - 0.006
10	-	4,440	0.002 - 0.012	4,440	0.002 - 0.012	800	0.004 - 0.008	950	0.006 - 0.008
-	7/16	3,990	0.002 - 0.012	3,990	0.002 - 0.012	720	0.004 - 0.008	850	0.006 - 0.008
12	-	3,700	0.002 - 0.014	3,700	0.002 - 0.014	670	0.005 - 0.009	790	0.007 - 0.009
-	1/2	3,500	0.002 - 0.014	3,500	0.002 - 0.014	630	0.005 - 0.009	744	0.007 - 0.009
14	-	3,170	0.003 - 0.017	3,170	0.003 - 0.017	570	0.006 - 0.011	670	0.008 - 0.011
-	5/8	2,800	0.003 - 0.019	2,800	0.003 - 0.019	500	0.006 - 0.013	590	0.009 - 0.013
16	-	2,790	0.003 - 0.019	2,790	0.003 - 0.019	500	0.006 - 0.013	590	0.009 - 0.013
18	-	2,470	0.004 - 0.021	2,470	0.004 - 0.021	450	0.007 - 0.014	520	0.011 - 0.014
-	3/4	2,330	0.004 - 0.024	2,330	0.004 - 0.024	420	0.008 - 0.016	500	0.012 - 0.016
20	-	2,250	0.004 - 0.024	2,250	0.004 - 0.024	400	0.008 - 0.016	470	0.012 - 0.016

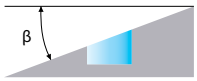
List 5705 - A Brand® ADFLS: 2D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		Cast Iron		Ductile Cast Iron		Aluminum Alloy 5052,7075	
Hardness				28-35 HRC									
Drilling Speed		200-330 SFM		100-300 SFM		65-140 SFM		200-400 SFM		165-260 SFM		265-650 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
2	-	12,850	0.0012 - 0.002	9,700	0.0012 - 0.002	4,980	0.0012 - 0.002	14,550	0.0016 - 0.002	10,310	0.0016 - 0.002	22,200	0.0004 - 0.002
3	-	8,570	0.002 - 0.003	6,470	0.002 - 0.003	3,320	0.002 - 0.003	9,700	0.002 - 0.004	6,870	0.002 - 0.004	14,800	0.001 - 0.004
-	1/8	8,100	0.002 - 0.003	6,110	0.002 - 0.003	3,140	0.002 - 0.003	9,170	0.002 - 0.004	6,500	0.002 - 0.004	13,980	0.001 - 0.004
4	-	6,430	0.002 - 0.004	4,850	0.002 - 0.004	2,890	0.002 - 0.004	7,280	0.003 - 0.005	5,150	0.003 - 0.005	11,100	0.001 - 0.005
-	3/16	5,400	0.002 - 0.004	4,070	0.002 - 0.004	2,090	0.002 - 0.004	6,110	0.003 - 0.005	4,330	0.003 - 0.005	9,320	0.001 - 0.005
6	-	4,280	0.004 - 0.006	3,230	0.004 - 0.006	1,660	0.004 - 0.006	4,850	0.005 - 0.007	3,440	0.005 - 0.007	7,400	0.001 - 0.007
-	1/4	4,050	0.004 - 0.006	3,060	0.004 - 0.006	1,570	0.004 - 0.006	4,580	0.005 - 0.007	3,250	0.005 - 0.007	6,990	0.001 - 0.007
8	-	3,210	0.005 - 0.008	2,430	0.005 - 0.008	1,240	0.005 - 0.008	3,640	0.006 - 0.009	2,580	0.006 - 0.009	5,550	0.002 - 0.009
-	3/8	2,700	0.005 - 0.008	2,040	0.005 - 0.008	1,040	0.005 - 0.008	3,060	0.006 - 0.009	2,160	0.006 - 0.009	4,660	0.002 - 0.009
10	-	2,570	0.006 - 0.010	1,940	0.006 - 0.010	1,000	0.006 - 0.010	2,910	0.008 - 0.012	2,060	0.008 - 0.012	4,440	0.002 - 0.012
-	7/16	2,300	0.006 - 0.010	1,750	0.006 - 0.010	900	0.006 - 0.010	2,620	0.008 - 0.012	1,860	0.008 - 0.012	3,990	0.002 - 0.012
12	-	2,140	0.007 - 0.012	1,620	0.007 - 0.012	830	0.007 - 0.012	2,430	0.009 - 0.014	1,720	0.009 - 0.014	3,700	0.002 - 0.014
-	1/2	2,020	0.007 - 0.012	1,530	0.007 - 0.012	780	0.007 - 0.012	2,290	0.009 - 0.014	1,620	0.009 - 0.014	3,500	0.002 - 0.014
14	-	1,840	0.008 - 0.014	1,390	0.008 - 0.014	710	0.008 - 0.014	2,080	0.011 - 0.017	1,470	0.011 - 0.017	3,170	0.003 - 0.017
-	5/8	1,620	0.009 - 0.016	1,220	0.009 - 0.016	630	0.009 - 0.016	1,830	0.013 - 0.019	1,300	0.013 - 0.019	2,800	0.003 - 0.019
16	-	1,610	0.009 - 0.016	1,210	0.009 - 0.016	620	0.009 - 0.016	1,820	0.013 - 0.019	1,290	0.013 - 0.019	2,790	0.003 - 0.019
18	-	1,430	0.011 - 0.018	1,080	0.011 - 0.018	550	0.011 - 0.018	1,620	0.014 - 0.021	1,150	0.014 - 0.021	2,470	0.004 - 0.021
-	3/4	1,350	0.012 - 0.020	1,020	0.012 - 0.020	520	0.012 - 0.020	1,530	0.016 - 0.024	1,090	0.016 - 0.024	2,330	0.004 - 0.024
20	-	1,280	0.012 - 0.020	970	0.012 - 0.020	500	0.012 - 0.020	1,450	0.016 - 0.024	1,030	0.016 - 0.024	2,250	0.004 - 0.024

General Drilling Operations

Work Material		Cast Aluminum		Hardened Steel-Pre Hardened Steel		Plastic Mold Steels	
Hardness				Up to 50 HRC		Up to 40 HRC	
Drilling Speed		265-650 SFM		65-100 SFM		65-130 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch						
2	-	22,200	0.0004 - 0.002	4,000	0.0008 - 0.002	4,720	0.0012 - 0.002
3	-	14,800	0.001 - 0.004	2,660	0.001 - 0.002	3,150	0.0018 - 0.002
-	1/8	13,980	0.001 - 0.004	2,520	0.001 - 0.002	2,980	0.0018 - 0.002
4	-	11,100	0.001 - 0.005	2,000	0.002 - 0.003	2,360	0.002 - 0.003
-	3/16	9,320	0.001 - 0.005	1,680	0.002 - 0.003	1,980	0.002 - 0.003
6	-	7,400	0.001 - 0.007	1,330	0.002 - 0.005	1,570	0.004 - 0.005
-	1/4	6,990	0.001 - 0.007	1,260	0.002 - 0.005	1,490	0.004 - 0.005
8	-	5,550	0.002 - 0.009	1,000	0.003 - 0.006	1,180	0.005 - 0.006
-	3/8	4,660	0.002 - 0.009	840	0.003 - 0.006	990	0.005 - 0.006
10	-	4,440	0.002 - 0.012	800	0.004 - 0.008	950	0.006 - 0.008
-	7/16	3,990	0.002 - 0.012	720	0.004 - 0.008	850	0.006 - 0.008
12	-	3,700	0.002 - 0.014	670	0.005 - 0.009	790	0.007 - 0.009
-	1/2	3,500	0.002 - 0.014	630	0.005 - 0.009	744	0.007 - 0.009
14	-	3,170	0.003 - 0.017	570	0.006 - 0.011	670	0.008 - 0.011
-	5/8	2,800	0.003 - 0.019	500	0.006 - 0.013	590	0.009 - 0.013
16	-	2,790	0.003 - 0.019	500	0.006 - 0.013	590	0.009 - 0.013
18	-	2,470	0.004 - 0.021	450	0.007 - 0.014	520	0.011 - 0.014
-	3/4	2,330	0.004 - 0.024	420	0.008 - 0.016	500	0.012 - 0.016
20	-	2,250	0.004 - 0.024	400	0.008 - 0.016	470	0.012 - 0.016



Note:

1. The speeds and feeds in the table above apply when drilling on a flat surface with water-soluble coolant.
2. When using non-water soluble oil or water-emulsifiable (over 20 times dilution), reduce cutting speed by 30%.
3. Use a rigid and precise machine and holder.
4. Please minimize tool overhang as much as possible during machining.
5. Adjust the rotational speed and the feed rate in accordance with conditions such as the machining shape, machine rigidity, or work holding.
6. Please set up the drill so that the runout of the cutting edge is under 0.0004 in.
7. When machining an inclined plane,adjust the rotational speed and the feed rate in accordance with the angle of the incline (β).
   - When the machining incline angle(β) is less than 30°, please reduce the feed to 40-60%.
   - When the machining incline angle(β) is over 30°, please reduce the speed to 60-80% , the feed to 40-60%.
8. Please use step drilling in pilot holes to improve cutting chip separation.
9. If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and the feed rate as indicated above (in accordance with the machining precision requirement).

List 6500 - A Brand® ADO: 3D
List 6510 - A Brand® ADO: 5D
List 6520 - A Brand® ADO: 8D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		High Heat Material					
								Ti-Alloy, Ti-6Al-4V		Fe-Base Material, A286		Ni-Base Material, Inconel	
Drilling Speed		260-395 SFM		260-395 SFM		130-230 SFM		100 - 180 SFM		80 - 130 SFM		65 - 110 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
2	-	15,870	0.002-0.004	15,870	0.002-0.004	8,740	0.002-0.004	6,790	0.002-0.003	5,080	0.001-0.002	4,250	0.001-0.002
3	-	10,580	0.002-0.005	10,580	0.002-0.005	5,820	0.002-0.005	4,530	0.002-0.003	3,390	0.002-0.002	2,840	0.001-0.002
-	1/8	10,000	0.003-0.005	10,000	0.003-0.005	5,500	0.003-0.005	4,280	0.002-0.004	3,200	0.002-0.003	2,680	0.002-0.002
4	-	7,940	0.003-0.006	7,940	0.003-0.006	4,370	0.003-0.006	3,400	0.002-0.004	2,540	0.002-0.003	2,130	0.002-0.002
-	3/16	6,670	0.004-0.007	6,670	0.004-0.007	3,670	0.004-0.007	2,850	0.003-0.005	2,130	0.003-0.004	1,790	0.002-0.003
6	-	5,290	0.005-0.009	5,290	0.005-0.009	2,910	0.005-0.009	2,269	0.004-0.005	1,690	0.004-0.005	1,420	0.002-0.004
-	1/4	5,000	0.006-0.009	5,000	0.006-0.009	2,750	0.006-0.009	2,140	0.004-0.006	1,600	0.004-0.006	1,340	0.002-0.004
8	-	3,970	0.006-0.011	3,970	0.006-0.011	2,180	0.006-0.011	1,700	0.005-0.007	1,270	0.005-0.006	1,060	0.003-0.005
-	3/8	3,330	0.008-0.012	3,330	0.008-0.012	1,830	0.008-0.012	1,430	0.005-0.008	1,070	0.005-0.007	890	0.004-0.005
10	-	3,170	0.008-0.012	3,170	0.008-0.012	1,750	0.008-0.012	1,360	0.006-0.009	1,020	0.006-0.008	850	0.004-0.006
-	7/16	2,860	0.008-0.012	2,860	0.008-0.012	1,570	0.008-0.012	1,220	0.007-0.010	910	0.007-0.009	770	0.004-0.007
12	-	2,650	0.008-0.012	2,650	0.008-0.012	1,460	0.008-0.012	1,130	0.007-0.011	850	0.007-0.009	710	0.005-0.007
-	1/2	2,500	0.008-0.012	2,500	0.008-0.012	1,380	0.008-0.012	1,070	0.008-0.012	800	0.008-0.010	670	0.005-0.008
14	-	2,270	0.009-0.014	2,270	0.009-0.014	1,250	0.009-0.014	970	0.008-0.013	730	0.008-0.011	610	0.005-0.008
-	5/8	2,000	0.010-0.014	2,000	0.010-0.014	1,100	0.010-0.014	860	0.009-0.013	640	0.006-0.009	540	0.005-0.008
16	–	2,000	0.010-0.014	2,000	0.010-0.014	1,100	0.010-0.014	860	0.009-0.013	640	0.006-0.009	540	0.005-0.008
18	-	1,760	0.011-0.015	1,760	0.011-0.015	1,090	0.011-0.015	750	0.010-0.014	560	0.008-0.011	470	0.005 -0.008
-	3/4	1,670	0.012-0.015	1,670	0.012-0.015	920	0.012-0.015	710	0.011-0.015	530	0.008-0.011	450	0.005-0.008
20	-	1,590	0.012-0.016	1,590	0.012-0.016	870	0.012-0.016	680	0.012-0.016	510	0.008-0.012	420	0.005-0.008

General Drilling Operations

Work Material		Cast Iron		Ductile Cast Iron		Special Alloy Steels, Hardened Steels							
Hardness						26-30 HRC		30-34 HRC		34-43 HRC		43-48 HRC	
Drilling Speed		260-395 SFM		195-330 SFM		195-295 SFM		130-200 SFM		130-160 SFM		82-115 HRC	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
2	-	15,870	0.002-0.004	12,700	0.002-0.004	11,890	0.002-0.004	8,000	0.002-0.003	7,040	0.002-0.003	4,770	0.001-0.002
3	-	10,580	0.002-0.005	8,470	0.002-0.005	7,920	0.002-0.005	5,330	0.002-0.003	4,690	0.002-0.003	3,180	0.002-0.002
-	1/8	10,000	0.003-0.005	8,000	0.003-0.005	7,490	0.003-0.005	5,040	0.002-0.004	4,430	0.002-0.004	3,010	0.002-0.003
4	-	7,940	0.003-0.006	6,350	0.003-0.006	5,940	0.003-0.006	4,000	0.003-0.004	3,520	0.003-0.004	2,390	0.002-0.003
-	3/16	6,670	0.004-0.007	5,330	0.004-0.007	4,990	0.004-0.007	3,360	0.003-0.005	2,950	0.003-0.005	2,000	0.003-0.004
6	-	5,290	0.005-0.009	4,230	0.005-0.009	3,960	0.005-0.009	2,700	0.005-0.006	2,340	0.005-0.006	1,590	0.004-0.005
-	1/4	5,000	0.006-0.009	4,000	0.006-0.009	3,740	0.006-0.010	2,520	0.005-0.007	2,220	0.005-0.007	1,500	0.004-0.006
8	-	3,970	0.006-0.011	3,170	0.006-0.011	2,970	0.006-0.011	2,000	0.006-0.008	1,760	0.006-0.008	1,190	0.005-0.007
-	3/8	3,330	0.008-0.012	2,670	0.008-0.012	2,500	0.007-0.012	1,680	0.008-0.009	1,480	0.008-0.009	1,000	0.006-0.008
10	-	3,170	0.008-0.012	2,540	0.008-0.012	2,380	0.008-0.012	1,600	0.008-0.010	1,410	0.008-0.010	950	0.007-0.009
-	7/16	2,860	0.008-0.012	2,290	0.008-0.012	2,140	0.008-0.012	1,440	0.009-0.011	1,270	0.009-0.011	860	0.007-0.009
12	-	2,650	0.008-0.012	2,120	0.008-0.012	1,980	0.008-0.012	1,330	0.009-0.012	1,170	0.009-0.012	800	0.007-0.009
-	1/2	2,500	0.008-0.012	2,000	0.008-0.012	1,870	0.008-0.012	1,260	0.010-0.013	1,110	0.010-0.013	750	0.008-0.010
14	-	2,270	0.009-0.014	1,810	0.009-0.014	1,700	0.009-0.014	1,140	0.011-0.014	1,000	0.011-0.014	680	0.008-0.011
-	5/8	2,000	0.010-0.014	1,600	0.010-0.014	1,500	0.010-0.014	1,010	0.012-0.015	890	0.012-0.015	600	0.009-0.013
16	–	2,000	0.010-0.014	1,600	0.010-0.014	1,500	0.010-0.014	1,010	0.012-0.015	890	0.012-0.015	600	0.009-0.013
18	-	1,760	0.011-0.015	1,410	0.011-0.015	1,320	0.011-0.015	890	0.014-0.018	780	0.014-0.018	530	0.010 -0.014
-	3/4	1,670	0.012-0.015	1,330	0.012-0.015	1,250	0.012-0.015	840	0.015-0.019	740	0.015-0.019	500	0.011-0.015
20	-	1,590	0.012-0.016	1,270	0.012-0.016	1,190	0.012-0.016	800	0.016-0.020	700	0.016-0.020	480	0.012-0.016

Note:

1. The indicated speeds and feeds are for drilling with water-soluble oil or MQL.
2. Suitable cutting fluid is water-soluble high density oil (less than 20 times dilution).
3. When using non-water-soluble oil or water-soluble oil (over 20 times dilution), reduce cutting speed by 30%.
4. These conditions are for drilling depth under 8 times the drill diameter.
5. 1D-2D step feeding may be required for drilling high hardened steels and mid-range (8D) work.

List 6530 - A Brand® ADO: 10D
List 6535 - A Brand® ADO: 15D
List 6540 - A Brand® ADO: 20D
List 6550 - A Brand® ADO: 30D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		High Heat Material					
								Ti-Alloy, Ti-6Al-4V		Fe-Base Material, A286		Ni-Base Material, Inconel	
Drilling Speed		260-395 SFM		260-395 SFM		130-230 SFM		100 - 180 SFM		80 - 130 SFM		65 - 110 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
2	-	15,870	0.002-0.004	15,870	0.002-0.004	8,740	0.002-0.004	6,790	0.001-0.003	5,080	0.001-0.002	4,250	0.001-0.002
3	-	10,580	0.002-0.005	10,580	0.002-0.005	5,820	0.002-0.005	4,530	0.002-0.003	3,390	0.002-0.002	2,840	0.001-0.002
-	1/8	10,000	0.003-0.005	10,000	0.003-0.005	5,500	0.003-0.005	4,280	0.002-0.003	3,200	0.002-0.003	2,680	0.002-0.002
4	-	7,940	0.003-0.006	7,940	0.003-0.006	4,370	0.003-0.006	3,400	0.002-0.004	2,540	0.002-0.003	2,130	0.002-0.002
-	3/16	6,670	0.004-0.007	6,670	0.004-0.007	3,670	0.004-0.007	2,850	0.003-0.004	2,130	0.002-0.004	1,790	0.002-0.003
6	-	5,290	0.005-0.009	5,290	0.005-0.009	2,910	0.005-0.009	2,269	0.004-0.005	1,690	0.004-0.005	1,420	0.002-0.004
-	1/4	5,000	0.005-0.010	5,000	0.005-0.010	2,750	0.005-0.010	2,140	0.004-0.006	1,600	0.004-0.006	1,340	0.002-0.005
8	-	3,970	0.006-0.011	3,970	0.006-0.011	2,180	0.006-0.011	1,700	0.005-0.007	1,270	0.005-0.006	1,060	0.003-0.005
-	3/8	3,330	0.007-0.012	3,330	0.007-0.012	1,830	0.007-0.012	1,430	0.005-0.008	1,070	0.005-0.007	890	0.003-0.005
10	-	3,170	0.008-0.012	3,170	0.008-0.012	1,750	0.008-0.012	1,360	0.006-0.009	1,020	0.006-0.008	850	0.004-0.006
-	7/16	2,860	0.008-0.012	2,860	0.008-0.012	1,570	0.008-0.012	1,220	0.007-0.010	910	0.007-0.009	770	0.004-0.007
12	-	2,650	0.008-0.012	2,650	0.008-0.012	1,460	0.008-0.012	1,130	0.007-0.011	850	0.007-0.009	710	0.005-0.007
-	1/2	2,500	0.008-0.012	2,500	0.008-0.012	1,380	0.008-0.012	1,070	0.008-0.012	800	0.008-0.010	670	0.005-0.008
-	9/16	2,220	0.009-0.014	2,220	0.009-0.014	1,220	0.009-0.014	950	0.008-0.013	710	0.008-0.011	600	0.005-0.008

Note:

1. The indicated speeds and feeds are for drilling with water-soluble oil or MQL. (We do not recommend mist drilling with stainless steels.)
2. Water-soluble oil (20-30 times dilution) is recommended.
3. When using non-water-soluble oil, set the cutting speed between 70-100% of the lowest limit.
4. Make a pilot hole before deep drilling; recommended operation is on pages 355-356.
5. A clogged oil hole can lead to breakage. Make sure that a filter is attached to the oil feeder.
6. Peck drilling of 1D-2D is strongly recommended in high hardness materials.

General Drilling Operations

Work Material		Cast Iron		Ductile Cast Iron		Special Alloy Steels, Hardened Steels							
Hardness						26-30 HRC		30-34 HRC		34-43 HRC		43-48 HRC	
Drilling Speed		260-395 SFM		195-330 SFM		195-295 SFM		130-200 SFM		130-160 SFM		82-115 HRC	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
2	-	15,870	0.002-0.004	12,700	0.002-0.004	11,890	0.002-0.004	8,000	0.002-0.003	7,040	0.002-0.003	4,770	0.001-0.002
3	-	10,580	0.002-0.005	8,470	0.002-0.005	7,920	0.002-0.005	5,330	0.002-0.003	4,690	0.002-0.003	3,180	0.002-0.002
-	1/8	10,000	0.003-0.005	8,000	0.003-0.005	7,490	0.003-0.005	5,040	0.003-0.004	4,430	0.003-0.004	3,010	0.002-0.003
4	-	7,940	0.003-0.006	6,350	0.003-0.006	5,940	0.003-0.006	4,000	0.003-0.004	3,520	0.003-0.004	2,390	0.002-0.003
-	3/16	6,670	0.004-0.007	5,330	0.004-0.007	4,990	0.004-0.007	3,360	0.003-0.005	2,950	0.003-0.005	2,000	0.003-0.004
6	-	5,290	0.005-0.009	4,230	0.005-0.009	3,960	0.005-0.009	2,700	0.005-0.006	2,340	0.005-0.006	1,590	0.004-0.005
-	1/4	5,000	0.005-0.010	4,000	0.005-0.010	3,740	0.005-0.010	2,520	0.005-0.007	2,220	0.005-0.007	1,500	0.004-0.006
8	-	3,970	0.006-0.011	3,170	0.006-0.011	2,970	0.006-0.011	2,000	0.006-0.008	1,760	0.006-0.008	1,190	0.005-0.007
-	3/8	3,330	0.007-0.012	2,670	0.007-0.012	2,500	0.007-0.012	1,680	0.007-0.009	1,480	0.007-0.009	1,000	0.006-0.008
10	-	3,170	0.008-0.012	2,540	0.008-0.012	2,380	0.008-0.012	1,600	0.008-0.010	1,410	0.008-0.010	950	0.007-0.009
-	7/16	2,860	0.008-0.012	2,290	0.008-0.012	2,140	0.008-0.012	1,440	0.009-0.011	1,270	0.009-0.011	860	0.007-0.009
12	-	2,650	0.008-0.012	2,120	0.008-0.012	1,980	0.008-0.012	1,330	0.009-0.012	1,170	0.009-0.012	800	0.007-0.009
-	1/2	2,500	0.008-0.012	2,000	0.008-0.012	1,870	0.008-0.012	1,260	0.010-0.013	1,110	0.010-0.013	750	0.008-0.010
-	9/16	2,220	0.009-0.014	1,780	0.009-0.014	1,660	0.009-0.014	1,120	0.011-0.014	980	0.011-0.014	670	0.008-0.011

List 6560 - A Brand® ADO: 40D
List 6570 - A Brand® ADO: 50D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		Cast Iron	
Drilling Speed		195-295 SFM		195-295 SFM		130-195 SFM		195-295 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch								
3	-	7,500	0.002-0.005	7,500	0.002-0.005	5,300	0.002-0.005	7,500	0.002-0.005
-	1/8	7,100	0.003-0.005	7,100	0.003-0.005	5,000	0.003-0.005	7,100	0.003-0.005
4	-	5,600	0.003-0.006	5,600	0.003-0.006	4,000	0.003-0.006	5,600	0.003-0.006
-	3/16	4,700	0.004-0.008	4,700	0.004-0.008	3,300	0.004-0.008	4,700	0.004-0.008
6	-	3,700	0.005-0.009	3,700	0.005-0.009	2,700	0.005-0.009	3,700	0.005-0.009
-	1/4	3,500	0.005-0.010	3,500	0.005-0.010	2,500	0.005-0.010	3,500	0.005-0.010
8	-	2,800	0.006-0.011	2,800	0.006-0.011	2,000	0.006-0.011	2,800	0.006-0.011
-	3/8	2,400	0.008-0.013	2,400	0.008-0.013	1,700	0.008-0.013	2,400	0.008-0.013
10	-	2,300	0.008-0.014	2,300	0.008-0.014	1,600	0.008-0.014	2,300	0.008-0.014

General Drilling Operations

Work Material		Ductile Cast Iron		Special Alloy Steels, Hardened Steels			
Hardness				26-30 HRC		30-34 HRC	
Drilling Speed		165-260 SFM		165-260 SFM		130-230 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch						
3	-	6,400	0.002-0.005	6,400	0.002-0.005	5,300	0.002-0.004
-	1/8	6,000	0.003-0.005	6,000	0.003-0.005	5,000	0.003-0.005
4	-	4,800	0.003-0.006	4,800	0.003-0.006	4,000	0.003-0.006
-	3/16	4,000	0.004-0.008	4,000	0.004-0.008	3,300	0.004-0.007
6	-	3,200	0.005-0.009	3,200	0.005-0.009	2,700	0.005-0.008
-	1/4	3,000	0.005-0.010	3,000	0.005-0.010	2,500	0.005-0.009
8	-	2,400	0.006-0.011	2,400	0.006-0.011	2,000	0.006-0.009
-	3/8	2,000	0.008-0.013	2,000	0.008-0.013	1,700	0.008-0.011
10	-	1,900	0.008-0.014	1,900	0.008-0.014	1,600	0.008-0.012

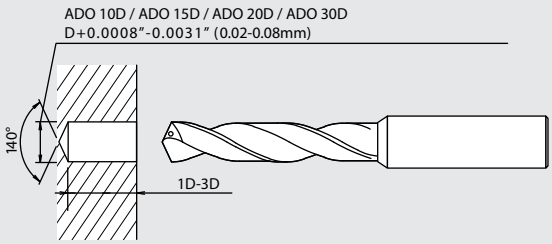
Note:

1. The indicated speeds and feeds are for drilling with water-soluble oil or MQL. (We do not recommend mist drilling with stainless steels.)
2. Water-soluble oil (20-30 times dilution) is recommended.
3. When using non-water-soluble oil, set the cutting speed between 70-100% of the lowest limit.
4. Make a pilot hole before deep drilling; recommended operation is on pages 355-356.
5. A clogged oil hole can lead to breakage. Make sure that a filter is attached to the oil feeder.
6. Peck drilling of 1D-2D is strongly recommended in high hardness materials.
7. If, after piloting with ADO-5D and drilling with ADO-40D/50D, hole condition or accuracy is poor or machining is difficult, ADO-20D/30D may be used as an intermediate drilling step. This three-step process may improve accuracy and condition as well as permit more aggressive parameters than stated above.

Deep Hole Operational Guidelines

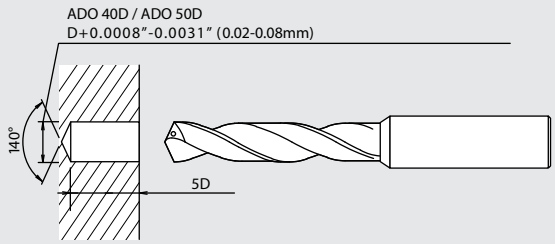
1. Make a pilot hole. (For 10-30D)

For a pilot hole, select 0.0008"-0.0031" (0.02-0.08mm) larger size drill than ADO 10D, ADO 15D, ADO 20D and ADO 30D. If the needed pilot drill size is not available, we recommend using the same diameter drill from ADO 3D.



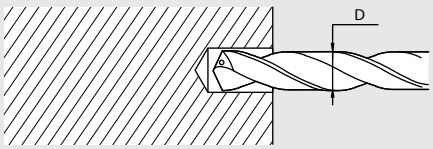
1. Make a pilot hole. (For 40 & 50D)

For a pilot hole, select 0.0008"-0.0031" (0.02-0.08mm) larger size drill than ADO 40D and ADO 50D. If the needed pilot drill size is not available, we recommend using the same diameter drill from ADO 5D or ADO-TRS.

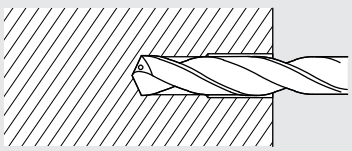


Remaining Steps are the Same for 10-50D

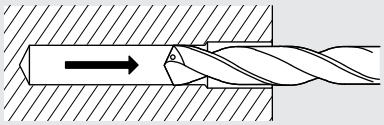
2. Insert the extra long drill into a pilot hole with zero or low revolution (below 500rpm).



3. Increase the revolution to the designated speed and start drilling.



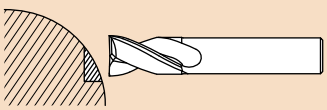
4. After drilling, move the drill away from the bottom of the hole, then reduce its speed while pulling it out of the hole.



Make sure to use an internal coolant supply when drilling.

Drilling a Curved Surface

When working on a curved surface, we recommend piloting with A Brand® ADF flat drill.



Improve Accuracy & Hole Condition

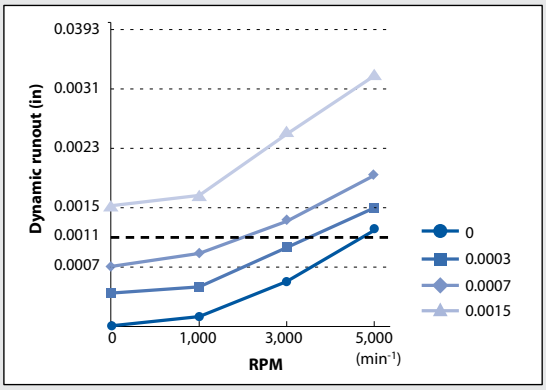
If, after piloting with ADO-5D and drilling with ADO-40D/50D, hole condition or accuracy is poor or machining is difficult, ADO-20D/30D may be used as an intermediate drilling step. This three-step process may improve accuracy and condition as well as permit more aggressive parameters.

continued on next page

Stable Drilling with Long Drills

The runout of a gripped cutting tool increases with the speed, as shown in the graph on the right. To ensure a higher level of work stability, OSG recommends making +0.0008"-0.0031" (+0.02-0.08mm) pilot holes and inserting long drills stopped or at low speeds.

The reason for this is made evident in the graph on the right. Increasing the speed increases the dynamic runout, posing a higher risk of the drill not fitting properly in the pilot hole. Therefore, reducing the speed and minimizing static runout is the recommended drilling method for long drills.



Static runout / RPM (min-1)	0"	0.0003"	0.0007"	0.0015"
1,000	0.0001	0.0005	0.0009	0.0018
3,000	0.0005	0.0010	0.0014	0.0025
5,000	0.0012	0.0015	0.0019	0.0034

Dynamic runout values for Ø6mm 30xD drill.

List 6300 - A Brand® AD: 2D
List 6310 - A Brand® AD: 4D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		High Heat Material					
								Ti-Alloy, Ti-6Al-4V		Fe-Base Material, A286		Ni-Base Material, Inconel	
Drilling Speed		210-315 SFM		210-315 SFM		100-185 SFM		80-145 SFM		65-100 SFM		50-90 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
2	-	12,700	0.002-0.004	12,700	0.002-0.004	6,900	0.002-0.004	5,460	0.002-0.003	4,000	0.001-0.002	3,390	0.001-0.002
3	-	8,470	0.002-0.005	8,470	0.002-0.005	4,610	0.002-0.005	3,640	0.002-0.003	2,670	0.002-0.002	2,260	0.001-0.002
-	1/8	8,000	0.002-0.005	8,000	0.002-0.005	4,350	0.003-0.005	3,440	0.002-0.003	2,520	0.002-0.003	2,140	0.001-0.002
4	-	6,350	0.003-0.006	6,350	0.003-0.006	3,450	0.003-0.006	2,730	0.002-0.004	2,000	0.002-0.003	1,700	0.002-0.002
-	3/16	5,330	0.003-0.006	5,330	0.003-0.006	2,900	0.004-0.007	2,290	0.003-0.005	1,680	0.002-0.004	1,420	0.002-0.003
6	-	4,230	0.005-0.009	4,230	0.005-0.009	2,300	0.005-0.009	1,820	0.004-0.005	1,330	0.004-0.005	1,130	0.002-0.004
-	1/4	4,000	0.005-0.009	4,000	0.005-0.009	2,180	0.005-0.010	1,720	0.004-0.006	1,260	0.004-0.005	1,070	0.002-0.004
8	-	3,170	0.006-0.011	3,170	0.006-0.011	1,730	0.006-0.011	1,360	0.005-0.007	1,000	0.005-0.006	850	0.003-0.005
-	3/8	2,670	0.007-0.012	2,670	0.007-0.012	1,450	0.008-0.012	1,150	0.005-0.008	840	0.006-0.008	710	0.004-0.006
10	-	2,540	0.008-0.012	2,540	0.008-0.012	1,380	0.008-0.012	1,090	0.006-0.009	800	0.006-0.008	680	0.004-0.006
-	7/16	2,290	0.008-0.012	2,290	0.008-0.012	1,240	0.008-0.012	980	0.007-0.010	720	0.007-0.009	610	0.004-0.007
12	-	2,120	0.008-0.012	2,120	0.008-0.012	1,150	0.008-0.012	910	0.007-0.011	670	0.007-0.009	560	0.005-0.007
-	1/2	2,000	0.008-0.012	2,000	0.008-0.012	1,090	0.008-0.012	860	0.008-0.011	630	0.008-0.009	530	0.005-0.008
14	-	1,810	0.009-0.014	1,810	0.009-0.014	990	0.009-0.014	780	0.008-0.013	570	0.008-0.011	480	0.005-0.008
-	5/8	1,600	0.010-0.014	1,600	0.010-0.014	870	0.009-0.014	690	0.009-0.013	500	0.008-0.011	430	0.005-0.008
16	–	1,600	0.010-0.014	1,600	0.010-0.014	870	0.009-0.014	690	0.009-0.013	500	0.008-0.011	430	0.005-0.008
18	-	1,410	0.011-0.015	1,410	0.011-0.015	770	0.011-0.015	610	0.010-0.014	440	0.008-0.011	380	0.005-0.008
-	3/4	1,330	0.012-0.016	1,330	0.012-0.016	720	0.011-0.015	570	0.011-0.015	420	0.008-0.012	360	0.005-0.008
20	-	1,270	0.012-0.016	1,270	0.012-0.016	690	0.012-0.016	550	0.012-0.016	400	0.008-0.012	340	0.005-0.008

General Drilling Operations

Work Material		Cast Iron		Ductile Cast Iron		Special Alloy Steels, Hardened Steels							
Hardness						26-30 HRC		30-34 HRC		34-43 HRC		43-48 HRC	
Drilling Speed		210-315 SFM		156-265 SFM		155-235 SFM		100-160 SFM		100-130 SFM		65-95 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
2	-	12,700	0.002-0.004	10,190	0.002-0.004	9,460	0.002-0.004	6,310	0.002-0.003	5,570	0.002-0.003	3,890	0.001-0.002
3	-	8,470	0.002-0.005	6,790	0.002-0.005	6,310	0.002-0.005	4,210	0.002-0.003	3,720	0.002-0.003	2,590	0.002-0.002
-	1/8	8,000	0.002-0.005	6,420	0.003-0.005	5,960	0.002-0.005	3,980	0.002-0.003	3,510	0.002-0.003	2,450	0.002-0.003
4	-	6,350	0.003-0.006	5,100	0.003-0.006	4,730	0.003-0.006	3,160	0.003-0.004	2,780	0.003-0.004	1,940	0.002-0.003
-	3/16	5,330	0.003-0.006	4,280	0.004-0.007	3,980	0.003-0.006	2,650	0.003-0.005	2,340	0.003-0.005	1,630	0.003-0.004
6	-	4,230	0.005-0.009	3,400	0.005-0.009	3,150	0.005-0.009	2,100	0.005-0.006	1,860	0.005-0.006	1,290	0.004-0.005
-	1/4	4,000	0.005-0.009	3,210	0.006-0.009	2,980	0.005-0.009	1,990	0.005-0.007	1,760	0.005-0.007	1,220	0.004-0.006
8	-	3,170	0.006-0.011	2,550	0.006-0.011	2,360	0.006-0.011	1,580	0.006-0.008	1,390	0.006-0.008	970	0.005-0.007
-	3/8	2,670	0.007-0.012	2,140	0.008-0.012	1,990	0.007-0.012	1,320	0.008-0.009	1,170	0.008-0.009	820	0.006-0.008
10	-	2,540	0.008-0.012	2,040	0.008-0.012	1,890	0.008-0.012	1,260	0.008-0.010	1,110	0.008-0.010	780	0.007-0.009
-	7/16	2,290	0.008-0.012	1,830	0.008-0.012	1,700	0.008-0.012	1,140	0.009-0.011	1,000	0.009-0.011	700	0.007-0.009
12	-	2,120	0.008-0.012	1,700	0.008-0.012	1,580	0.008-0.012	1,050	0.009-0.012	930	0.009-0.012	650	0.007-0.009
-	1/2	2,000	0.008-0.012	1,600	0.008-0.012	1,490	0.008-0.012	990	0.010-0.012	880	0.010-0.012	610	0.008-0.010
14	-	1,810	0.009-0.014	1,460	0.009-0.014	1,350	0.009-0.014	900	0.011-0.014	800	0.011-0.014	550	0.008-0.011
-	5/8	1,600	0.010-0.014	1,280	0.010-0.014	1,190	0.010-0.014	790	0.012-0.015	700	0.012-0.015	490	0.009-0.012
16	–	1,600	0.010-0.014	1,280	0.010-0.014	1,190	0.010-0.014	790	0.012-0.015	700	0.012-0.015	490	0.009-0.012
18	-	1,410	0.011-0.015	1,130	0.011-0.015	1,050	0.011-0.015	700	0.014-0.018	620	0.014-0.018	430	0.010-0.014
-	3/4	1,330	0.012-0.016	1,070	0.012-0.016	990	0.012-0.016	660	0.015-0.019	680	0.015-0.019	410	0.011-0.015
20	-	1,270	0.012-0.016	1,020	0.012-0.016	940	0.012-0.016	630	0.016-0.020	560	0.016-0.020	390	0.012-0.016

Note:

1. The indicated speeds and feeds are for drilling with water-soluble oil.
2. Suitable cutting fluid is water-soluble high density oil (less than 20 times dilution).
3. When using non-water-soluble oil or water-soluble oil (over 20 times dilution), reduce cutting speed by 30%.
4. These conditions are for drilling depth under 3 times the drill diameter.
5. For machines that cannot achieve the speeds indicated in the table please set rotation as high as possible. Tool life may be reduced.

List 5200 - A Brand® ADO-SUS: 3D
List 5210 - A Brand® ADO-SUS: 5D
List 5220 - A Brand® ADO-SUS: 8D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		300 Series Austenitic Stainless Steels				400 Series Ferritic Stainless Steels Martensitic Stainless Steels			
Hardness						≤15HRC		> 15 HRC		≤15HRC		> 15 HRC	
Drilling Speed		260-325 SFM		260-325 SFM		200-330 SFM		130-260 SFM		200-330 SFM		130-260 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
2	-	14,190	0.0013 - 0.003	14,190	0.0013 - 0.003	12,850	0.0013 - 0.003	9,460	0.0013 - 0.003	12,850	0.0013 - 0.003	9,460	0.0013 - 0.003
3	-	9,450	0.002 - 0.005	9,450	0.002 - 0.005	8,570	0.002 - 0.005	6,310	0.002 - 0.005	8,570	0.002 - 0.005	6,310	0.002 - 0.005
-	1/8	8,940	0.002 - 0.005	8,940	0.002 - 0.005	8,100	0.002 - 0.005	5,960	0.002 - 0.005	8,100	0.002 - 0.005	5,960	0.002 - 0.005
4	-	7,090	0.003 - 0.006	7,090	0.003 - 0.006	6,430	0.003 - 0.006	4,730	0.003 - 0.006	6,430	0.003 - 0.006	4,730	0.003 - 0.006
-	3/16	5,960	0.004 - 0.007	5,960	0.004 - 0.007	5,400	0.004 - 0.007	3,970	0.004 - 0.007	5,400	0.004 - 0.007	3,970	0.004 - 0.007
6	-	4,730	0.005 - 0.009	4,730	0.005 - 0.009	4,280	0.005 - 0.008	3,150	0.005 - 0.008	4,280	0.005 - 0.008	3,150	0.005 - 0.008
-	1/4	4,470	0.005 - 0.009	4,470	0.005 - 0.009	4,050	0.005 - 0.008	2,980	0.005 - 0.008	4,050	0.005 - 0.008	2,980	0.005 - 0.008
8	-	3,550	0.006 - 0.011	3,550	0.006 - 0.011	3,210	0.006 - 0.009	2,360	0.006 - 0.009	3,210	0.006 - 0.009	2,360	0.006 - 0.009
-	3/8	2,980	0.007 - 0.012	2,980	0.007 - 0.012	2,700	0.007 - 0.011	1,990	0.007 - 0.011	2,700	0.007 - 0.011	1,990	0.007 - 0.011
10	-	2,840	0.008 - 0.012	2,840	0.008 - 0.012	2,570	0.008 - 0.012	1,890	0.007 - 0.011	2,570	0.007 - 0.011	1,890	0.007 - 0.011
-	7/16	2,550	0.008 - 0.012	2,550	0.008 - 0.012	2,310	0.008 - 0.012	1,700	0.007 - 0.011	2,310	0.007 - 0.011	1,700	0.007 - 0.011
12	-	2,360	0.008 - 0.012	2,360	0.008 - 0.012	2,140	0.008 - 0.012	1,580	0.007 - 0.012	2,140	0.007 - 0.012	1,580	0.007 - 0.012
-	1/2	2,230	0.008 - 0.013	2,230	0.008 - 0.013	2,020	0.008 - 0.012	1,490	0.008 - 0.012	2,020	0.008 - 0.012	1,490	0.008 - 0.012
14	-	2,030	0.009 - 0.014	2,030	0.009 - 0.014	1,840	0.008 - 0.013	1,350	0.008 - 0.013	1,840	0.008 - 0.013	1,350	0.008 - 0.013
-	5/8	1,790	0.010 - 0.015	1,790	0.010 - 0.015	1,620	0.009 - 0.015	1,190	0.009 - 0.015	1,620	0.009 - 0.015	1,190	0.009 - 0.015
16	-	1,770	0.010 - 0.015	1,770	0.010 - 0.015	1,610	0.009 - 0.015	1,180	0.009 - 0.015	1,610	0.009 - 0.015	1,180	0.009 - 0.015
18	-	1,580	0.011 - 0.015	1,580	0.011 - 0.015	1,430	0.010 - 0.016	1,050	0.010 - 0.016	1,430	0.010 - 0.016	1,050	0.010 - 0.016
-	3/4	1,490	0.012 - 0.016	1,490	0.012 - 0.016	1,350	0.011 - 0.016	990	0.011 - 0.016	1,350	0.011 - 0.016	990	0.011 - 0.016
20	-	1,420	0.012 - 0.016	1,420	0.012 - 0.016	1,280	0.011 - 0.016	950	0.011 - 0.016	1,280	0.011 - 0.016	950	0.011 - 0.016

General Drilling Operations

Work Material		Duplex Stainles Steels				Precipitation Hardened Stainless Steels 15-5, 17-4		Ductile Cast Iron/ Cast Iron		Cast Aluminum		Titanium Alloy	
Hardness		≤ 30 HRC		> 30 HRC		≤ 45 HRC						30–35 HRC	
Drilling Speed		130–260 SFM		100–165 SFM		130 -200 SFM		195–330 SFM		325–700 SFM		100–165 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
2	-	9,460	0.0013 - 0.003	6,430	0.0013 - 0.003	8,000	0.0013 - 0.003	12,700	0.0013 - 0.003	24,900	0.002 - 0.004	6,430	0.0013 - 0.003
3	-	6,310	0.002 - 0.005	4,280	0.002 - 0.005	5,330	0.002 - 0.005	8,470	0.002 - 0.005	16,600	0.004 - 0.006	4,280	0.002 - 0.005
-	1/8	5,960	0.002 - 0.005	4,050	0.002 - 0.005	5,040	0.002 - 0.005	8,000	0.002 - 0.005	15,680	0.004 - 0.006	4,050	0.002 - 0.005
4	-	4,730	0.003 - 0.006	3,210	0.003 - 0.006	4,000	0.003 - 0.006	6,350	0.003 - 0.006	12,450	0.005 - 0.007	3,210	0.003 - 0.006
-	3/16	3,970	0.004 - 0.007	2,700	0.004 - 0.007	3,360	0.004 - 0.007	5,330	0.004 - 0.007	10,450	0.006 - 0.008	2,700	0.004 - 0.007
6	-	3,150	0.005 - 0.008	2,140	0.005 - 0.008	2,670	0.005 - 0.008	4,230	0.005 - 0.009	8,300	0.008 - 0.010	2,140	0.005 - 0.008
-	1/4	2,980	0.005 - 0.008	2,020	0.005 - 0.008	2,520	0.005 - 0.008	4,000	0.005 - 0.009	7,840	0.009 - 0.011	2,020	0.005 - 0.008
8	-	2,360	0.006 - 0.009	1,600	0.006 - 0.009	2,000	0.006 - 0.009	3,170	0.006 - 0.011	6,220	0.012 - 0.014	1,600	0.006 - 0.009
-	3/8	1,990	0.007 - 0.011	1,350	0.007 - 0.011	1,680	0.007 - 0.011	2,670	0.007 - 0.012	5,230	0.014 - 0.016	1,350	0.007 - 0.011
10	-	1,890	0.008 - 0.012	1,280	0.007 - 0.011	1,600	0.008 - 0.012	2,540	0.008 - 0.012	4,980	0.015 - 0.017	1,280	0.007 - 0.011
-	7/16	1,700	0.008 - 0.012	1,160	0.007 - 0.011	1,440	0.008 - 0.012	2,290	0.008 - 0.012	4,480	0.017 - 0.019	1,160	0.007 - 0.011
12	-	1,580	0.008 - 0.012	1,070	0.007 - 0.012	1,330	0.008 - 0.012	2,120	0.008 - 0.012	4,150	0.018 - 0.020	1,070	0.007 - 0.012
-	1/2	1,490	0.008 - 0.012	1,010	0.008 - 0.012	1,260	0.008 - 0.012	2,000	0.008 - 0.013	3,920	0.019 - 0.021	1,010	0.008 - 0.012
14	-	1,350	0.008 - 0.013	920	0.008 - 0.013	1,140	0.008 - 0.013	1,810	0.009 - 0.014	3,560	0.021 - 0.023	920	0.008 - 0.013
-	5/8	1,190	0.009 - 0.015	810	0.009 - 0.015	1,010	0.009 - 0.015	1,600	0.010 - 0.015	3,140	0.023 - 0.026	810	0.009 - 0.015
16	-	1,180	0.009 - 0.015	800	0.009 - 0.015	1,000	0.009 - 0.015	1,590	0.010 - 0.015	3,110	0.023 - 0.026	800	0.009 - 0.015
18	-	1,050	0.010 - 0.016	710	0.010 - 0.016	890	0.010 - 0.016	1,410	0.011 - 0.015	2,770	0.026 - 0.030	710	0.010 - 0.016
-	3/4	990	0.011 - 0.016	670	0.011 - 0.016	840	0.011 - 0.016	1,330	0.012 - 0.016	2,610	0.027 - 0.031	670	0.011 - 0.016
20	-	950	0.011 - 0.016	640	0.011 - 0.016	800	0.011 - 0.016	1,270	0.012 - 0.016	2,490	0.028 - 0.032	640	0.011 - 0.016

List 5190 - A Brand® AD-LDS

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Cast Iron		Cast Aluminum Alloy		Special Alloy Steels, Hardened Steels			
Hardness										26-30 HRC		30-34 HRC	
Drilling Speed		200-260 SFM		100-165 SFM		200-325 SFM		260-525 SFM		65-90 SFM		50-75 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	inch												
0.5	-	25,000	0.0002-0.0008	25,000	0.0002-0.0008	25,000	0.0002-0.0006	25,000	0.0008-0.0020	15,000	0.0002-0.0008	12,000	0.0002-0.0008
1.0	-	22,300	0.0004-0.0012	12,600	0.0004-0.0012	25,000	0.0004-0.0012	25,000	0.001-0.004	7,500	0.0004-0.0012	6,000	0.0004-0.0012
2.0	-	11,000	0.001-0.002	6,300	0.001-0.002	12,500	0.001-0.002	19,150	0.002-0.008	3,800	0.001-0.002	3,000	0.001-0.002
3.0	-	7,500	0.001-0.003	4,200	0.001-0.003	8,400	0.002-0.003	12,600	0.004-0.009	2,500	0.001-0.003	2,000	0.001-0.003
4.0	-	5,700	0.002-0.004	3,150	0.002-0.004	6,300	0.003-0.005	9,500	0.005-0.010	1,900	0.002-0.004	1,500	0.002-0.004
6.0	-	3,800	0.002-0.005	2,100	0.002-0.005	4,200	0.005-0.007	6,300	0.005-0.011	1,250	0.002-0.005	1,000	0.002-0.005
-	1/4	3,500	0.002-0.005	2,030	0.002-0.005	4,000	0.005-0.007	6,000	0.005-0.011	1,180	0.002-0.005	950	0.002-0.005
8.0	-	2,800	0.003-0.006	1,575	0.003-0.006	3,200	0.005-0.008	4,730	0.007-0.012	940	0.003-0.006	750	0.003-0.006
-	3/8	2,340	0.004-0.007	1,350	0.004-0.007	2,670	0.007-0.010	4,000	0.009-0.014	785	0.004-0.007	630	0.004-0.007
10.0	-	2,300	0.004-0.007	1,250	0.004-0.007	2,500	0.007-0.010	3,800	0.009-0.014	750	0.004-0.007	600	0.004-0.007
12.0	-	1,900	0.005-0.008	1,050	0.005-0.008	2,100	0.008-0.012	3,150	0.010-0.016	625	0.005-0.008	500	0.005-0.008
-	1/2	1,760	0.005-0.008	1,000	0.005-0.008	2,000	0.008-0.012	3,000	0.010-0.016	590	0.005-0.008	470	0.005-0.008
-	5/8	1,400	0.006-0.011	800	0.006-0.011	1,600	0.009-0.013	3,400	0.012-0.019	470	0.006-0.011	380	0.006-0.011
16.0	-	1,400	0.006-0.011	800	0.006-0.011	1,600	0.009-0.013	2,400	0.012-0.019	470	0.006-0.011	380	0.006-0.011
-	3/4	1,170	0.008-0.013	680	0.008-0.013	1,330	0.010-0.016	2,000	0.016-0.024	390	0.008-0.013	315	0.008-0.013
20.0	-	1,150	0.008-0.013	630	0.008-0.013	1,300	0.010-0.016	1,900	0.016-0.024	375	0.008-0.013	300	0.008-0.013
25.0	-	900	0.010-0.018	500	0.010-0.018	1,000	0.012-0.019	1,500	0.020-0.030	300	0.010-0.018	240	0.010-0.018

1. The indicated speeds and feeds are for drilling with water soluble oil.
2. When using non-water soluble oil, reduce the drilling speed by 20%.
3. When centering on a curved or inclined surface, reduce the feed rate accordingly.
4. For machines that cannot achieve the speeds indicated in the table, please set rotation as high as possible.

List 5600 - EXOPRO® Mega Muscle®: 3D
List 5610 - EXOPRO® Mega Muscle®: 5D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Cast Iron		Ductile Cast Iron		Cast Aluminum	
Drilling Speed		260-395 SFM		200-295 SFM		260-395 SFM		195-330 SFM		260-660 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
4	-	8,000	0.005 - 0.009	6,000	0.005 - 0.009	8,000	0.005 - 0.009	6,300	0.005 - 0.009	11,100	0.006 - 0.012
6	-	5,300	0.008 - 0.012	4,000	0.007 - 0.013	5,300	0.008 - 0.014	4,200	0.008 - 0.013	7,400	0.009 - 0.019
-	1/4	5,000	0.009 - 0.014	3,775	0.007 - 0.014	5,000	0.009 - 0.016	4,000	0.007 - 0.014	7,000	0.010 - 0.020
8	-	4,000	0.011 - 0.016	3,000	0.009 - 0.017	4,000	0.011 - 0.019	3,200	0.009 - 0.017	5,600	0.013 - 0.025
-	3/8	3,300	0.012 - 0.021	2,500	0.012 - 0.021	3,300	0.013 - 0.023	2,700	0.012 - 0.021	4,700	0.015 - 0.030
10	-	3,200	0.013 - 0.020	2,400	0.012 - 0.022	3,200	0.014 - 0.024	2,500	0.012 - 0.022	4,500	0.016 - 0.031
-	7/16	2,900	0.013 - 0.023	2,150	0.013 - 0.023	2,900	0.015 - 0.026	2,300	0.013 - 0.023	4,000	0.017 - 0.035
12	-	2,700	0.016 - 0.024	2,000	0.014 - 0.024	2,700	0.017 - 0.028	2,100	0.014 - 0.024	3,700	0.019 - 0.038
-	1/2	2,500	0.016 - 0.025	1,900	0.015 - 0.025	2,500	0.018 - 0.028	2,000	0.015 - 0.025	3,500	0.020 - 0.040
14	-	2,300	0.019 - 0.028	1,700	0.017 - 0.028	2,300	0.019 - 0.030	1,800	0.017 - 0.028	3,200	0.022 - 0.044
-	5/8	2,000	0.019 - 0.031	1,500	0.019 - 0.031	2,000	0.022 - 0.034	1,600	0.019 - 0.031	2,800	0.025 - 0.050
18	-	1,800	0.021 - 0.032	1,350	0.021 - 0.032	1,800	0.025 - 0.035	1,400	0.021 - 0.032	2,500	0.028 - 0.057
-	3/4	1,700	0.023 - 0.034	1,250	0.023 - 0.034	1,700	0.026 - 0.037	1,330	0.023 - 0.034	2,300	0.030 - 0.060
20	-	1,600	0.024 - 0.035	1,200	0.024 - 0.035	1,600	0.028 -0.039	1,270	0.024 - 0.035	2,200	0.031 - 0.063

General Drilling Operations

Work Material		Special Alloy Steels, Hardened Steels					
Hardness		26-30 HRC		30-34 HRC		34-43 HRC	
Drilling Speed		195-295 SFM		160-230 SFM		130-160 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch						
4	-	6,000	0.005 - 0.008	4,730	0.005 - 0.008	3,500	0.005 - 0.007
6	-	4,000	0.007 - 0.012	3,200	0.007 - 0.012	2,350	0.007 - 0.009
-	1/4	3,700	0.007 - 0.012	3,000	0.007 - 0.012	2,200	0.007 - 0.010
8	-	3,000	0.009 - 0.016	2,400	0.009 - 0.016	1,750	0.009 - 0.013
-	3/8	2,500	0.011 - 0.019	2,000	0.011 - 0.019	1,500	0.011 - 0.015
10	-	2,400	0.012 - 0.020	1,900	0.012 - 0.020	1,400	0.012 - 0.016
-	7/16	2,100	0.013 - 0.022	1,700	0.013 - 0.022	1,300	0.013 - 0.017
12	-	2,000	0.014 - 0.024	1,600	0.014 - 0.024	1,200	0.014 - 0.019
-	1/2	1,900	0.015 - 0.024	1,500	0.015 - 0.024	1,100	0.015 - 0.020
14	-	1,700	0.017 - 0.025	1,350	0.017 - 0.025	1,000	0.017 - 0.022
-	5/8	1,500	0.019 - 0.025	1,200	0.019 - 0.025	900	0.019 - 0.025
18	-	1,300	0.021 - 0.028	1,050	0.021 - 0.028	800	0.021 - 0.028
-	3/4	1,250	0.023 - 0.030	1,000	0.023 - 0.030	700	0.023 - 0.030
20	-	1,200	0.024 - 0.031	950	0.024 - 0.031	700	0.024 - 0.031

List 5630 - EXOPRO® Mega Muscle®: 10D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Cast Iron		Ductile Cast Iron		Cast Aluminum	
Drilling Speed		260-395 SFM		200-295 SFM		260-395 SFM		195-330 SFM		260-660 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
5	-	6,350	0.007 - 0.009	5,750	0.007 - 0.009	6,350	0.007 - 0.011	5,100	0.007 - 0.009	8,900	0.008 - 0.016
6	-	5,300	0.008 - 0.011	4,800	0.008 - 0.011	5,300	0.008 - 0.014	4,200	0.008 - 0.011	7,400	0.009 - 0.019
-	1/4	5,000	0.009 - 0.012	4,550	0.009 - 0.012	5,000	0.009 - 0.016	4,000	0.007 - 0.012	7,000	0.010 - 0.020
8	-	4,000	0.011 - 0.015	3,600	0.011 - 0.015	4,000	0.011 - 0.018	3,200	0.009 - 0.015	5,600	0.013 - 0.025
-	3/8	3,300	0.012 - 0.017	3,050	0.012 - 0.017	3,300	0.012 - 0.020	2,700	0.012 - 0.017	4,700	0.015 - 0.030
10	-	3,200	0.013 - 0.019	2,900	0.013 - 0.019	3,200	0.013 - 0.023	2,500	0.012 - 0.019	4,500	0.016 - 0.031
-	7/16	2,900	0.014 - 0.021	2,600	0.014 - 0.021	2,900	0.014 - 0.025	2,300	0.013 - 0.021	4,000	0.017 - 0.035
12	-	2,700	0.016 - 0.023	2,400	0.016 - 0.023	2,700	0.016 - 0.028	2,100	0.014 - 0.023	3,700	0.019 - 0.038
-	1/2	2,500	0.016 - 0.024	2,250	0.016 - 0.024	2,500	0.016 - 0.028	2,000	0.015 - 0.024	3,500	0.020 - 0.040
14	-	2,300	0.017 - 0.026	2,050	0.017 - 0.026	2,300	0.017 - 0.029	1,800	0.017 - 0.026	3,200	0.022 - 0.044
-	5/8	2,000	0.018 - 0.029	1,800	0.018 - 0.029	2,000	0.018 - 0.030	1,600	0.019 - 0.029	2,800	0.025 - 0.050

General Drilling Operations

Work Material		Special Alloy Steels, Hardened Steels			
Hardness		26-30 HRC		30-34 HRC	
Drilling Speed		195-295 SFM		160-230 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch				
5	-	4,750	0.006 - 0.007	3,750	0.005 - 0.007
6	-	4,000	0.007 - 0.010	3,200	0.007 - 0.010
-	1/4	3,700	0.007 - 0.010	3,000	0.007 - 0.010
8	-	3,000	0.009 - 0.014	2,400	0.009 - 0.014
-	3/8	2,500	0.011 - 0.017	2,000	0.011 - 0.017
10	-	2,400	0.012 - 0.018	1,900	0.012 - 0.018
-	7/16	2,100	0.013 - 0.020	1,700	0.013 - 0.020
12	-	2,000	0.014 - 0.022	1,600	0.014 - 0.022
-	1/2	1,900	0.015 - 0.022	1,500	0.015 - 0.022
14	-	1,700	0.017 - 0.023	1,350	0.017 - 0.023
-	5/8	1,500	0.019 - 0.024	1,200	0.018 - 0.023

List 5950Ni - EXOPRO® WHO-Ni: 3D
List 5955Ni - EXOPRO® WHO-Ni: 5D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Cast Iron		Ductile Cast Iron		Ni-Base Material, Inconel	
Hardness										38-43 HRC	
Drilling Speed		260-395 SFM		260-395 SFM		260-395 SFM		195-330 SFM		35-100 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
3	-	10,600	0.002 - 0.005	10,600	0.002 - 0.005	10,600	0.002 - 0.005	8,500	0.002 - 0.005	2,150	0.001 - 0.002
-	1/8	10,000	0.002 - 0.005	10,000	0.002 - 0.005	10,000	0.002 - 0.005	8,000	0.002 - 0.005	2,050	0.001 - 0.002
4	-	7,900	0.003 - 0.006	7,900	0.003 - 0.006	7,900	0.003 - 0.006	6,350	0.003 - 0.006	1,625	0.001 - 0.003
-	3/16	6,650	0.004 - 0.008	6,650	0.004 - 0.008	6,650	0.004 - 0.008	5,300	0.004 - 0.008	1,350	0.002 - 0.004
6	-	5,300	0.005 - 0.009	5,300	0.005 - 0.009	5,300	0.005 - 0.009	4,200	0.005 - 0.009	1,100	0.002 - 0.005
-	1/4	5,000	0.005 - 0.009	5,000	0.005 - 0.009	5,000	0.005 - 0.009	4,000	0.005 - 0.009	1,025	0.002 - 0.005
8	-	4,000	0.006 - 0.011	4,000	0.006 - 0.011	4,000	0.006 - 0.011	3,200	0.006 - 0.011	800	0.003 - 0.006
-	3/8	3,350	0.007 - 0.012	3,350	0.007 - 0.012	3,350	0.007 - 0.012	2,700	0.007 - 0.012	680	0.003 - 0.007
10	-	3,200	0.008 - 0.012	3,200	0.008 - 0.012	3,200	0.008 - 0.012	2,550	0.008 - 0.012	650	0.004 - 0.008
-	7/16	2,850	0.008 - 0.012	2,850	0.008 - 0.012	2,850	0.008 - 0.012	2,300	0.008 - 0.012	585	0.004 - 0.009
12	-	2,650	0.008 - 0.012	2,650	0.008 - 0.012	2,650	0.008 - 0.012	2,100	0.008 - 0.012	550	0.005 - 0.009
-	1/2	2,500	0.008 - 0.012	2,500	0.008 - 0.012	2,500	0.008 - 0.012	2,000	0.008 - 0.012	500	0.005 - 0.010

General Drilling Operations

Work Material		Special Alloy Steels, Hardened Steels					
Hardness		35-40 HRC		40-45 HRC		45-56 HRC	
Drilling Speed		130-160 SFM		115-150 SFM		65-100 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch						
3	-	4,700	0.002 - 0.003	4,250	0.001 - 0.002	2,650	0.001 - 0.002
-	1/8	4,400	0.002 - 0.003	4,025	0.001 - 0.002	2,500	0.001 - 0.002
4	-	3,500	0.003 - 0.004	3,200	0.001 - 0.003	2,000	0.001 - 0.003
-	3/16	2,950	0.004 - 0.005	2,700	0.002 - 0.004	1,650	0.002 - 0.004
6	-	2,350	0.005 - 0.006	2,100	0.002 - 0.005	1,300	0.002 - 0.005
-	1/4	2,200	0.005 - 0.006	2,000	0.002 - 0.005	1,250	0.002 - 0.005
8	-	1,750	0.006 - 0.008	1,600	0.003 - 0.006	1,000	0.003 - 0.006
-	3/8	1,475	0.007 - 0.009	1,350	0.003 - 0.007	850	0.003 - 0.007
10	-	1,400	0.008 - 0.010	1,300	0.004 - 0.008	800	0.004 - 0.008
-	7/16	1,250	0.009 - 0.011	1,150	0.004 - 0.009	715	0.004 - 0.009
12	-	1,200	0.009 - 0.012	1,050	0.005 - 0.009	660	0.005 - 0.009
-	1/2	1,100	0.010 - 0.013	1,000	0.005 - 0.010	625	0.005 - 0.010

List 5171 - EXOCARB® WH70

Work Material	Hardened Steels			
	D2-S7 55-60 HRC		D2, CPM-9V 60-70 HRC	
Drilling Speed	33-52 SFM		26-42 SFM	
Drill Dia. mm	Speed RPM	Feed IPR	Speed RPM	Feed IPR
2	2,080	0.001 - 0.002	1,670	0.001 - 0.002
3	1,375	0.001 - 0.002	1,100	0.001 - 0.002
4	1,030	0.001 - 0.002	825	0.001 - 0.002
5	825	0.001 - 0.002	660	0.001 - 0.002
6	680	0.001 - 0.002	550	0.001 - 0.002
7	590	0.001 - 0.002	470	0.001 - 0.002
8	515	0.001 - 0.002	410	0.001 - 0.002
9	450	0.001 - 0.002	360	0.001 - 0.002
10	410	0.001 - 0.002	260	0.001 - 0.002
11	375	0.001 - 0.002	300	0.001 - 0.002
12	340	0.001 - 0.002	275	0.001 - 0.002
14	290	0.001 - 0.002	235	0.001 - 0.002
15	270	0.001 - 0.002	220	0.001 - 0.002
16	260	0.001 - 0.002	205	0.001 - 0.002
17	240	0.001 - 0.002	195	0.001 - 0.002
18	230	0.001 - 0.002	180	0.001 - 0.002

1. Use a water soluble oil with high density (5 to 10 times dilution).
2. Tight clamping is critical.
3. For drilling depth > 3D, use a step feed.
4. For materials susceptible to chip packing in the flute, apply a step feed.

List 5172 - EXOCARB® XH

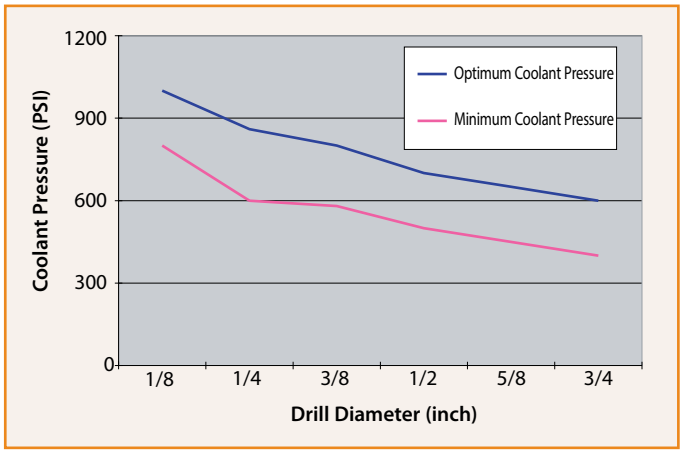
Work Material	Broken Taps & Drills
Drilling Speed	65-80 SFM
Drill Dia. mm	Speed RPM
2	3,190 - 3,930
3	2,100 - 2,590
4	1,580 - 1,940
5	1,260 - 1,550
6	1,050 - 1,290
7	900 - 1,110
8	790 - 970
9	700 - 860
10	630 - 780
11	570 - 705
12	530 - 650

1. Use a drilling speed of 65-80 SFM.
2. Hand feed of 0.0005~0.001 in/rev is normal.
3. Use a rigid holder.
4. Select a high quality cutting oil and apply in sufficient amounts.
5. This tool should not be used to drill soft steels, aluminum alloys or other soft materials.
6. Resharpening should be done periodically.
7. For through hole processing of heat treated steels, use a spare piece of material underneath the material being drilled as this will prevent breakage caused by sudden torque.
8. Cannot be used to remove forming taps.

List 5275 - EXOCARB® MAX-OIL-AL: 15D-30D

Work Material	Aluminum Alloy 2025, 5052		Aluminum Alloy Casting		Copper Alloy C1020	
Drilling Speed	200-390 SFM		260-650 SFM		190-400 SFM	
Drill Dia. mm	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
3	9,500	0.0035 – 0.0059	14,700	0.0035 - 0.0059	9,500	0.0020 - 0.0035
4	7,150	0.0047 – 0.0079	11,000	0.0047 - 0.0079	7,150	0.0024 - 0.0039
5	5,700	0.0059 – 0.0098	8,800	0.0059 - 0.0098	5,700	0.0024 - 0.0039
6	4,770	0.0071 – 0.0118	7,350	0.0071 - 0.0118	4,770	0.0024 - 0.0039
8	3,575	0.0079 – 0.0157	5,500	0.0079 - 0.0157	3,575	0.0031 - 0.0059
10	2,850	0.0098 – 0.0197	4,400	0.0098 - 0.0197	2,850	0.0031 - 0.0059

Recommended Coolant Pressure



List 5310 - EXOCARB® MAX-MINI FHL-GDTS

Work Material	Hardened Steel, Pre-Hardened Steels			Tool Steels H13, D2			Stainless Steels 440		
Drilling Speed	130-160 SFM			110-150 SFM			100-130 SFM		
Drill Dia. mm	Speed RPM	Feed IPR	Pecking (In)	Speed RPM	Feed IPR	Pecking (In)	Speed RPM	Feed IPR	Pecking (In)
1.0	14,000	0.0008-0.0020	0.0008-0.0020	13,000	0.0008-0.0020	0.0008-0.0020	11,000	0.0008-0.0020	0.0008-0.0020
1.1	13,000	0.0008-0.0020	0.0008-0.0020	12,000	0.0008-0.0020	0.0008-0.0020	10,000	0.0008-0.0020	0.0008-0.0020
1.2	12,000	0.0008-0.0020	0.0008-0.0020	11,000	0.0008-0.0020	0.0008-0.0020	9,000	0.0008-0.0020	0.0008-0.0020
1.3	11,000	0.0008-0.0020	0.0008-0.0020	10,000	0.0008-0.0020	0.0008-0.0020	8,600	0.0008-0.0020	0.0008-0.0020
1.4	10,000	0.0008-0.0020	0.0008-0.0020	9,000	0.0008-0.0020	0.0008-0.0020	8,000	0.0008-0.0020	0.0008-0.0020
1.5	9,500	0.0008-0.0020	0.0008-0.0020	8,500	0.0008-0.0020	0.0008-0.0020	7,400	0.0008-0.0020	0.0008-0.0020
1.6	9,000	0.0008-0.0020	0.0008-0.0020	8,000	0.0008-0.0020	0.0008-0.0020	7,000	0.0008-0.0020	0.0008-0.0020
1.7	8,400	0.0008-0.0020	0.0008-0.0020	7,500	0.0008-0.0020	0.0008-0.0020	6,600	0.0008-0.0020	0.0008-0.0020
1.8	8,000	0.0008-0.0020	0.0008-0.0020	7,100	0.0008-0.0020	0.0008-0.0020	6,200	0.0008-0.0020	0.0008-0.0020
1.9	7,500	0.0008-0.0020	0.0008-0.0020	6,700	0.0008-0.0020	0.0008-0.0020	5,900	0.0008-0.0020	0.0008-0.0020
2.0	7,200	0.0008-0.0020	0.0008-0.0020	6,400	0.0008-0.0020	0.0008-0.0020	5,600	0.0008-0.0020	0.0008-0.0020
2.5	5,700	0.0008-0.0020	0.0008-0.0020	5,100	0.0008-0.0020	0.0008-0.0020	4,500	0.0008-0.0020	0.0008-0.0020
3.0	4,800	0.0008-0.0020	0.0008-0.0020	4,200	0.0008-0.0020	0.0008-0.0020	3,700	0.0008-0.0020	0.0008-0.0020

1. Please use in a machine with precise spindle rotation. Tight clamping is critical.
2. The indicated speeds and feeds are for drilling with water-soluble fluid.
3. Please use water-soluble high density fluid (less than 20 times dilution).
4. We recommend the pilot hole operation prior to EXOCARB® MAX-MINI (List 5310).
5. The run out with a drill in the spindle should be less than 0.0001".
6. OSG's Shrink Fit System is the recommended tool holder for these drills.

For machines that cannot achieve the speeds indicated in the above table, please set rotation as high as possible. Tool life may be decreased.

List 5315 - EXOCARB® MAX-MINI UVM-LDS
List 5320 - EXOCARB® MAX-MINI UVM-DRL: 5D
List 5325 - EXOCARB® MAX-MINI UVM-DRL: 10D

Work Material	Stainless Steels 300SS, 400SS, 17-4PH			Special Alloy Steels, Hardened Steels			Aluminum Alloys, Cast Aluminum		
Drilling Speed	2-20 SFM			2-20 SFM			2-30 SFM		
Drill Dia. mm	Speed RPM	Feed IPR	Pecking (In)	Speed RPM	Feed IPR	Pecking (In)	Speed RPM	Feed IPR	Pecking (In)
0.02	25,000	0.00004 - 0.00006	0.00008	25,000	0.00004 - 0.00006	0.00008	25,000	0.0002 - 0.0004	0.00008
0.03	25,000	0.00004 - 0.00006	0.00012	25,000	0.00004 - 0.00006	0.00012	25,000	0.0002 - 0.0004	0.00012
0.04	25,000	0.00004 - 0.00006	0.00016	25,000	0.00004 - 0.00006	0.00016	25,000	0.0002 - 0.0004	0.00016
0.05	21,350	0.00004 - 0.00006	0.00020	21,350	0.00004 - 0.00006	0.00020	25,000	0.0002 - 0.0004	0.00020
0.06	17,790	0.00004 - 0.00006	0.00024	17,790	0.00004 - 0.00006	0.00024	25,000	0.0002 - 0.0004	0.00024
0.07	15,250	0.00004 - 0.00006	0.00027	15,250	0.00004 - 0.00006	0.00027	22,180	0.0002 - 0.0004	0.00027
0.08	13,340	0.00004 - 0.00006	0.00031	13,340	0.00004 - 0.00006	0.00031	19,400	0.0002 - 0.0004	0.00031
0.09	11,860	0.00004 - 0.00006	0.00035	11,860	0.00004 - 0.00006	0.00035	17,250	0.0002 - 0.0004	0.00035
0.10	10,670	0.00004 - 0.00006	0.00040	10,670	0.00004 - 0.00006	0.00040	15,520	0.0002 - 0.0004	0.00040

Work Material	High Heat Material					
	Ti-Alloy			Inconel, Waspaloy		
Drilling Speed	2-7 SFM			2-5 SFM		
Drill Dia. mm	Speed RPM	Feed IPR	Pecking (In)	Speed RPM	Feed IPR	Pecking (In)
0.02	21,830	0.000012 - 0.000028	0.00008	15,650	0.000012 - 0.000028	0.00008
0.03	14,550	0.000012 - 0.000028	0.00012	10,430	0.000012 - 0.000028	0.00012
0.04	10,910	0.000012 - 0.000028	0.00016	7,820	0.000012 - 0.000028	0.00016
0.05	8,730	0.000012 - 0.000028	0.00020	6,260	0.000012 - 0.000028	0.00020
0.06	7,280	0.000012 - 0.000028	0.00024	5,210	0.000012 - 0.000028	0.00024
0.07	6,240	0.000012 - 0.000028	0.00027	4,470	0.000012 - 0.000028	0.00027
0.08	5,460	0.000012 - 0.000028	0.00031	3,910	0.000012 - 0.000028	0.00031
0.09	4,850	0.000012 - 0.000028	0.00035	3,480	0.000012 - 0.000028	0.00035
0.10	4,370	0.000012 - 0.000028	0.00040	3,130	0.000012 - 0.000028	0.00040

1. Please use in a machine with precise spindle rotation. Tight clamping is critical.
2. The indicated feeds and speeds are for drilling with water-soluble fluid.
3. Please use water-soluble high density fluid (less than 20 times dilution).
4. Please utilize pecking cycle as specified in table.
5. The run out with a drill in the spindle should be less than 0.0001".
6. OSG's Shrink Fit System is the recommended tool holder for these drills.

For machines that cannot achieve the speeds indicated in the above table, please set rotation as high as possible. Tool life may be decreased.

List 5330 - EXOCARB® MAX-MINI WX-MS

General Drilling Operations

Work Material	Carbon Steels 1010, 1050		Alloy Steels 4140, 4130		Martensitic, Ferritic Stainless Steels 420, 430, 430F, 440		Aluminum Alloy 6061, 7075	
Drilling Speed	65-260 SFM		65-180 SFM		65-120 SFM		100-260 SFM	
Drill Dia. mm	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
0.2	25,000	0.00008	25,000	0.00008	25,000	0.00008	25,000	0.0001
0.3	25,000	0.00012	25,000	0.00012	25,000	0.00012	25,000	0.0003
0.5	25,000	0.0003	20,000	0.0003	15,000	0.0003	25,000	0.0006
1.0	15,000	0.0008	11,000	0.0008	6,400	0.0004	15,000	0.0012
1.5	10,000	0.0008 - 0.0016	8,400	0.0008 - 0.0016	4,800	0.0005 - 0.0012	10,000	0.0012 - 0.0031
2.0	8,000	0.0012 - 0.0019	6,500	0.0012 - 0.0019	4,000	0.0006 - 0.0016	8,000	0.0016 - 0.0040
3.0	5,500	0.0016 - 0.0028	4,500	0.0016 - 0.0028	3,000	0.0009 - 0.0024	6,500	0.0024 - 0.0059
4.0	4,000	0.0024 - 0.0040	3,200	0.0024 - 0.0040	2,500	0.0012 - 0.0031	5,000	0.0031 - 0.0079
5.0	3,200	0.0027 - 0.0047	2,600	0.0027 - 0.0047	2,000	0.0016 - 0.004	4,000	0.0040 - 0.0098

General Drilling Operations

Work Material	Cast Aluminum		Copper, Copper Alloys C1020, S2600	
Drilling Speed	100-200 SFM		65-150 SFM	
Drill Dia. mm	Speed RPM	Feed IPR	Speed RPM	Feed IPR
0.2	25,000	0.00008	25,000	0.00008
0.3	25,000	0.0001	25,000	0.00012
0.5	25,000	0.0003	20,000	0.0003
1.0	14,500	0.0004	10,000	0.0004
1.5	10,000	0.0005 - 0.0012	4,800	0.0005 - 0.0012
2.0	8,000	0.0006 - 0.0016	4,000	0.0006 - 0.0016
3.0	6,500	0.0009 - 0.0024	3,000	0.0009 - 0.0024
4.0	5,000	0.0012 - 0.0031	2,500	0.0012 - 0.0031
5.0	4,000	0.0016 - 0.0040	2,000	0.0016 - 0.0040

1. Please use in a machine with precise spindle rotation. Tight clamping is critical.
2. The indicated feeds and speeds are for drilling with water-soluble fluid.
3. Please use water-soluble high density fluid (less than 20 times dilution).
4. These tables are applicable for less than 3xD deep drilling operations.
   When drilling deeper than 3xD, please peck every 0.25-0.5xD accordingly.
5. The run out with a drill in the spindle should be less than 0.0001".
6. OSG's Shrink Fit System is the recommended tool holder for these drills.

For machines that cannot achieve the speeds indicated in the above table, please set rotation as high as possible. Tool life may be decreased.

List 5340 - EXOCARB® MAX-MINI MRS

General Drilling Operations

Work Material	Carbon Steels 1015, 1050		Alloy Steels 4140, 4130		Austenitic Stainless Steels 304, 316		Martensitic, Ferritic Stainless Steels 420, 430, 430F, 440		Precipitation Hardened Stainless Steels 17-4, 15-5	
Drilling Speed	65-260 SFM		65-180 SFM		50-130 SFM		65-165 SFM		50-130 SFM	
Drill Dia. mm	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
0.5	25,000	0.0003	23,300	0.0003	17,465	0.0002 - 0.0006	22,300	0.0002 - 0.0006	17,465	0.0002 - 0.0006
1.0	15,700	0.0008	11,600	0.0008	8,730	0.0004 - 0.0012	11,150	0.0004 - 0.0012	8,730	0.0004 - 0.0012
1.5	10,000	0.0008 - 0.0016	7,750	0.0008 - 0.0016	5,820	0.0006 - 0.0018	7,440	0.0006 - 0.0018	5,820	0.0006 - 0.0018
2.0	8,000	0.0012 - 0.0019	5,800	0.0012 - 0.0019	4,365	0.0008 - 0.0024	5,580	0.0008 - 0.0024	4,365	0.0008 - 0.0024
2.5	6,400	0.0014 - 0.0025	4,660	0.0014 - 0.0025	3,500	0.0009 - 0.0030	4,460	0.0009 - 0.0030	3,500	0.0009 - 0.0030
3.0	5,500	0.0016 - 0.0028	3,900	0.0016 - 0.0028	2,900	0.0012 - 0.0035	3,720	0.0012 - 0.0035	2,900	0.0012 - 0.0035

General Drilling Operations

Work Material	Aluminum Alloy 6061, 7075		Cast Aluminum		Copper, Copper Alloys C1020, S2600		Special Alloy Steels, Hardened Steels	
Drilling Speed	100-260 SFM		100-200 SFM		65-150 SFM		65-120 SFM	
Drill Dia. mm	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
0.5	25,000	0.0006	25,000	0.0003	21,000	0.0003	17,500	0.0003
1.0	16,000	0.0012	14,500	0.0004	10,600	0.0004	8,800	0.0008
1.5	10,000	0.0012 - 0.0031	9,700	0.0005 - 0.0012	7,100	0.0005 - 0.0012	5,850	0.0012 - 0.0019
2.0	8,000	0.0016 - 0.0040	7,300	0.0006 - 0.0016	5,300	0.0006 - 0.0016	4,400	0.0016 - 0.0024
2.5	6,400	0.0020 - 0.0049	5,800	0.0007 - 0.0020	4,270	0.0007 - 0.0020	3,500	0.0020 - 0.0030
3.0	5,300	0.0024 - 0.0059	4,800	0.0009 - 0.0024	3,560	0.0009 - 0.0024	2,900	0.0024 - 0.0035

1. Please use in a machine with precise spindle rotation. Tight clamping is critical.
2. The indicated feeds and speeds are for drilling with water-soluble fluid.
3. Please use water-soluble high density fluid (less than 20 times dilution).
4. These tables are applicable for less than 3xD deep drilling operations.
   When drilling deeper than 3xD, please peck every 0.25-0.5xD accordingly.
5. The run out with a drill in the spindle should be less than 0.0001".
6. OSG's Shrink Fit System is the recommended tool holder for these drills.

For machines that cannot achieve the speeds indicated in the above table, please set rotation as high as possible. Tool life may be decreased.

List 7501 - EXOPRO® AERO-STAD
List 7520 - EXOPRO® AERO-LHX
List 7500 - EXOPRO® AERO-D-REAM
List 257 - CARBIDE AERO-D-REAM

Work Material	Carbon & Glass Fiber Reinforced Plastics	
Cutting Speed	165 - 260 SFM	
Drill Diameter (in)	Speed RPM	Feed IPR
#40	8,000	0.0008 - 0.0020
#30	6,100	0.0008 - 0.0030
#20	4,900	0.0012 - 0.0030
#11	4,100	0.0012 - 0.0030
#2	3,550	0.0014 - 0.0040
1/4	3,100	0.0016 - 0.0040
5/16	3,170	0.0016 - 0.0040
3/8	2,100	0.0020 - 0.0040
7/16	1,790	0.0020 - 0.0040
1/2	1,570	0.0020 - 0.0040

1. Coolant is not needed, however, make sure dust is efficiently collected.
2. Peck drilling is not needed if drilling depth is less than 3D.
3. The machinability of CFRP depends on physical makeup and percentage of contents, both speed & feed may need adjustments depending on material.
4. Feed rate can be and should be adjusted depending on surface layer makeup.
5. Feed rates can be increased when an approved coolant is utilized.
6. Please contact OSG for specific application questions.

List 7530 - EXOPRO® AERO-S

Work Material	Carbon & Glass Fiber Reinforced Plastics		CFRP + Aluminum Stack	
Cutting Speed	165 - 260 SFM		200-400 SFM	
Drill Diameter (in)	Speed RPM	Feed IPR	Speed RPM	Feed IPR
#40	8,000	0.0008 - 0.0020	11,700	0.0010 - 0.0030
#30	6,100	0.0008 - 0.0030	8,900	0.0030 - 0.0040
#20	4,900	0.0012 - 0.0030	7,100	0.0040 - 0.0050
#11	4,100	0.0012 - 0.0030	6,000	0.0040 - 0.0050
#2	3,550	0.0014 - 0.0040	5,200	0.0050 - 0.0060
1/4	3,100	0.0016 - 0.0040	4,500	0.0060 - 0.0070
5/16	3,170	0.0016 - 0.0040	3,600	0.0070 - 0.0080
3/8	2,100	0.0020 - 0.0040	3,000	0.0090 - 0.0100
7/16	1,790	0.0020 - 0.0040	2,600	0.0100 - 0.0110
1/2	1,570	0.0020 - 0.0040	2,300	0.0120 - 0.0130

1. Feed rates can and should be adjusted depending on stack makeup, with higher feed rates in the composite portion and lower feeds in the metal portion.
2. Peck drilling may be necessary for enhanced quality and proper chip evacuation.
3. There are many factors that can effect successful stack drilling; please contact OSG about your specific application for best recommendation.

List 7532 - EXOPRO® AERO-H
List 5732 - EXOCARB® AERO-H

Work Material	Carbon & Glass Fiber Reinforced Plastics		CFRP + Aluminum Stack		CFRP + Titanium Stack		CFRP + CRES Stack	
Cutting Speed	165 - 260 SFM		200-400 SFM		40-60 SFM		30-50 SFM	
Drill Dia. (in)	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
#40	8,000	0.0008 - 0.0020	11,700	0.0010 - 0.0030	1,900	0.0002 - 0.0007	1,550	0.0002 - 0.0007
#30	6,100	0.0008 - 0.0030	8,900	0.0030 - 0.0040	1,500	0.0004 - 0.0009	1,150	0.0004 - 0.0009
#20	4,900	0.0012 - 0.0030	7,100	0.0040 - 0.0050	1,225	0.0006 - 0.0011	950	0.0006 - 0.0011
#11	4,100	0.0012 - 0.0030	6,000	0.0040 - 0.0050	1,000	0.0007 - 0.0012	800	0.0007 - 0.0012
#2	3,550	0.0014 - 0.0040	5,200	0.0050 - 0.0060	875	0.0009 - 0.0014	675	0.0009 - 0.0014
1/4	3,100	0.0016 - 0.0040	4,500	0.0060 - 0.0070	750	0.0010 - 0.0015	600	0.0010 - 0.0015
5/16	3,170	0.0016 - 0.0040	3,600	0.0070 - 0.0080	625	0.0013 - 0.0018	475	0.0013 - 0.0018
3/8	2,100	0.0020 - 0.0040	3,000	0.0090 - 0.0100	500	0.0016 - 0.0021	400	0.0016 - 0.0021
7/16	1,790	0.0020 - 0.0040	2,600	0.0100 - 0.0110	425	0.0019 - 0.0024	350	0.0019 - 0.0024
1/2	1,570	0.0020 - 0.0040	2,300	0.0120 - 0.0130	375	0.0023 - 0.0028	275	0.0023 - 0.0028

1. Feed rates can and should be adjusted depending on stack makeup, with higher feed rates in the composite portion and lower feeds in the metal portion.
2. Peck drilling may be necessary for enhanced quality and proper chip evacuation.
3. There are many factors that can effect successful stack drilling; please contact OSG about your specific application for best recommendation.

List HP700 - HY-PRO® CARB NEPTUNE®

Work Material	Carbon & Glass Fiber Reinforced Plastics		CFRP + Aluminum Stack		CFRP + Titanium Stack		CFRP + CRES Stack	
Cutting Speed	150-300 SFM		200-400 SFM		40-60 SFM		30-50 SFM	
Drill Diameter (in)	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
#40	8,900	0.001-0.002	11,690	0.001-0.003	1,900	0.0002-0.0007	1,550	0.0002-0.0007
#30	6,700	0.001-0.002	9,000	0.003-0.004	1,500	0.0004-0.0009	1,190	0.0004-0.0009
#20	5,250	0.001-0.002	7,000	0.004-0.005	1,180	0.0006-0.0011	950	0.0006-0.0011
#11	4,500	0.001-0.002	6,000	0.004-0.005	1,000	0.0007-0.0012	800	0.0007-0.0012
1/4	3,350	0.001-0.003	4,500	0.006-0.007	750	0.0010-0.0015	600	0.0009-0.0014

List HP243 - HY-PRO® CARB: 3D
List HP245 - HY-PRO® CARB: 5D

General Drilling Operations

Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		Cast Iron		Ductile Cast Iron		Aluminum Alloy	
Drilling Speed		240-350 SFM		230-325 SFM		130-200 SFM		240-385 SFM		175-300 SFM		200-380 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
1	-	25,000	0.001-0.002	25,000	0.001-0.002	16,010	0.001-0.002	25,000	0.001-0.002	23,090	0.001-0.002	25,000	0.001-0.002
-	1/16	18,030	0.001-0.002	16,930	0.001-0.002	10,080	0.001-0.002	19,620	0.001-0.002	14,550	0.001-0.002	17,720	0.001-0.002
2	-	14,310	0.002-0.003	13,430	0.001-0.003	8,010	0.001-0.003	15,130	0.001-0.003	11,540	0.001-0.003	14,070	0.002-0.003
-	3/32	12,020	0.002-0.004	11,280	0.002-0.004	6,720	0.002-0.003	13,080	0.002-0.004	9,700	0.002-0.004	11,820	0.002-0.004
3	-	9,540	0.002-0.005	8,960	0.002-0.005	5,340	0.002-0.004	10,090	0.002-0.005	7,700	0.002-0.005	9,380	0.003-0.005
-	1/8	9,010	0.003-0.005	8,460	0.003-0.005	5,040	0.003-0.004	9,810	0.002-0.005	7,270	0.003-0.005	8,860	0.004-0.005
4	-	7,160	0.003-0.006	6,720	0.003-0.006	4,000	0.003-0.005	7,560	0.003-0.006	5,770	0.003-0.006	7,040	0.004-0.006
-	3/16	6,010	0.004-0.008	5,640	0.004-0.008	3,360	0.004-0.006	6,540	0.004-0.007	4,850	0.004-0.007	5,910	0.005-0.007
6	-	4,770	0.005-0.009	4,480	0.005-0.009	2,670	0.005-0.007	5,040	0.005-0.009	3,850	0.005-0.009	4,690	0.006-0.008
-	1/4	4,510	0.005-0.010	4,230	0.005-0.010	2,520	0.006-0.008	4,910	0.005-0.010	3,640	0.005-0.010	4,430	0.007-0.009
8	-	3,580	0.006-0.011	3,360	0.006-0.011	2,000	0.006-0.009	3,780	0.006-0.011	2,890	0.006-0.011	3,520	0.008-0.010
-	3/8	3,010	0.007-0.011	2,820	0.007-0.011	1,680	0.007-0.009	3,270	0.007-0.011	2,420	0.007-0.011	2,950	0.009-0.011
10	-	2,860	0.008-0.012	2,680	0.008-0.012	1,600	0.008-0.010	3,030	0.008-0.012	2,310	0.008-0.012	2,810	0.011-0.013
-	7/16	2,580	0.008-0.012	2,420	0.008-0.012	1,440	0.008-0.010	2,800	0.008-0.012	2,080	0.008-0.012	2,530	0.012-0.014
12	-	2,380	0.008-0.012	2,240	0.008-0.012	1,330	0.008-0.010	2,520	0.008-0.012	1,920	0.008-0.012	2,340	0.013-0.015
-	1/2	2,250	0.009-0.013	2,120	0.009-0.013	1,260	0.008-0.011	2,450	0.008-0.013	1,820	0.008-0.013	2,210	0.014-0.016
14	-	2,040	0.009-0.014	1,920	0.009-0.014	1,140	0.009-0.011	2,160	0.009-0.014	1,650	0.009-0.014	2,010	0.016-0.018
-	5/8	1,810	0.010-0.014	1,690	0.010-0.014	1,010	0.010-0.012	1,960	0.010-0.014	1,450	0.010-0.014	1,770	0.018-0.020
16	–	1,810	0.010-0.014	1,690	0.010-0.014	1,010	0.010-0.012	1,960	0.010-0.014	1,450	0.010-0.014	1,770	0.018-0.020
18	-	1,590	0.011-0.015	1,490	0.011-0.015	890	0.011-0.013	1,682	0.011-0.015	1,280	0.011-0.015	1,560	0.020-0.022
-	3/4	1,500	0.012-0.015	1,410	0.012-0.015	840	0.011-0.013	1,580	0.011-0.015	1,210	0.012-0.015	1,480	0.021 -0.023
20	-	1,430	0.012-0.016	1,340	0.012-0.016	800	0.012-0.014	1,514	0.012-0.016	1,150	0.012-0.016	1,410	0.022-0.024

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General Drilling Operations

Work Material		Cast Aluminum		Copper		Special Alloy Steels, Hardened Steels							
Hardness						26-30 HRC		30-34 HRC		34-43 HRC		43-48 HRC	
Drilling Speed		260- 640 SFM		190-320 SFM		160-240 SFM		110-185 SFM		100-150 SFM		75-100 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
1	-	25,000	0.002-0.003	24,740	0.001-0.002	19,400	0.001-0.002	14,260	0.001-0.002	12,130	0.001-0.001	8,440	0.0005-0.001
-	1/16	25,000	0.002-0.003	15,580	0.001-0.002	12,220	0.001-0.002	8,980	0.001-0.002	7,640	0.001-0.002	5,320	0.0005-0.001
2	-	21,831	0.003-0.004	12,370	0.002-0.003	9,700	0.001-0.003	7,130	0.001-0.003	6,060	0.001-0.002	4,220	0.001-0.001
-	3/32	18,336	0.004-0.005	10,390	0.002-0.004	8,150	0.002-0.004	5,990	0.002-0.003	5,090	0.002-0.003	3,540	0.001-0.002
3	-	14,550	0.004-0.006	8,250	0.003-0.005	6,470	0.002-0.005	4,750	0.002-0.003	4,040	0.002-0.003	2,810	0.001-0.002
-	1/8	13,750	0.005-0.006	7,790	0.003-0.005	6,110	0.003-0.005	4,490	0.003-0.004	3,820	0.003-0.004	2,660	0.002-0.003
4	-	10,920	0.005-0.007	6,180	0.004-0.006	4,850	0.003-0.006	3,560	0.003-0.004	3,030	0.003-0.004	2,110	0.002-0.003
-	3/16	9,170	0.006-0.008	5,190	0.005-0.007	4,070	0.004-0.008	2,990	0.004-0.005	2,550	0.004-0.005	1,770	0.002-0.003
6	-	7,270	0.008-0.010	4,120	0.006-0.008	3,230	0.005-0.009	2,380	0.005-0.006	2,020	0.005-0.006	1,410	0.002-0.004
-	1/4	6,870	0.010-0.012	3,890	0.007-0.009	3,050	0.005-0.010	2,240	0.006-0.007	1,910	0.006-0.007	1,330	0.002-0.004
8	-	5,460	0.012-0.014	3,090	0.008-0.010	2,420	0.006-0.011	1,780	0.006-0.008	1,520	0.006-0.008	1,050	0.003-0.005
-	3/8	4,580	0.013-0.015	2,590	0.009-0.011	2,040	0.007-0.011	1,490	0.007-0.009	1,270	0.007-0.009	880	0.003-0.005
10	-	4,360	0.015-0.017	2,470	0.011-0.013	1,940	0.008-0.012	1,420	0.008-0.010	1,210	0.008-0.010	840	0.004-0.006
-	7/16	3,930	0.016-0.018	2,220	0.012-0.014	1,740	0.008-0.012	1,280	0.008-0.011	1,090	0.009-0.011	760	0.004-0.006
12	-	3,640	0.018-0.020	2,060	0.013-0.015	1,620	0.008-0.012	1,190	0.009-0.012	1,010	0.009-0.012	700	0.005-0.007
-	1/2	3,440	0.019-0.021	1,950	0.014-0.016	1,530	0.009-0.013	1,120	0.010-0.013	950	0.010-0.013	660	0.005-0.007
14	-	3,120	0.021-0.023	1,770	0.016-0.018	1,390	0.009-0.014	1,020	0.011-0.014	860	0.011-0.014	600	0.006-0.008
-	5/8	2,750	0.022-0.026	1,560	0.018-0.020	1,220	0.010-0.014	900	0.012-0.016	760	0.013-0.016	530	0.006-0.008
16	–	2,750	0.022-0.026	1,560	0.018-0.020	1,220	0.010-0.014	900	0.012-0.016	760	0.013-0.016	530	0.006-0.008
18	-	2,420	0.026-0.030	1,370	0.020-0.022	1,080	0.011-0.015	790	0.014-0.018	670	0.015-0.018	470	0.007 -0.009
-	3/4	2,290	0.027-0.031	1,300	0.021-0.023	1,020	0.012-0.015	750	0.015-0.019	640	0.016-0.019	440	0.008-0.010
20	-	2,180	0.028-0.032	1,240	0.022-0.024	970	0.012-0.016	710	0.016-0.020	610	0.016-0.020	420	0.008-0.011

List HP253 - HY-PRO® CARB: 3D Coolant-Through
List HP255 - HY-PRO® CARB: 5D Coolant-Through
List HP258 - HY-PRO® CARB: 8D Coolant-Through

General Drilling Operations

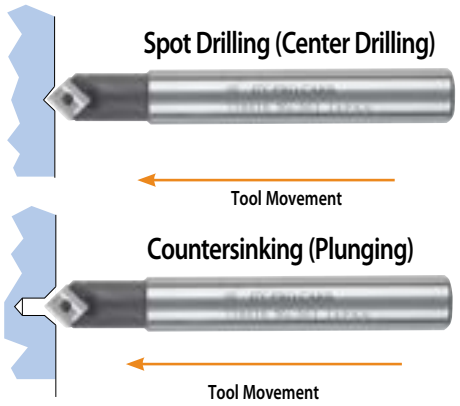
Work Material		Carbon Steels, Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		Cast Iron		Ductile Cast Iron		Aluminum Alloy	
Drilling Speed		310-455 SFM		265-380 SFM		145-220 SFM		285-420 SFM		215-350 SFM		260-450 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
3	-	12,370	0.002-0.005	10,430	0.002-0.005	5,900	0.002-0.004	11,400	0.002-0.005	9,140	0.002-0.005	11,480	0.003-0.005
-	1/8	11,690	0.002-0.005	9,860	0.002-0.005	5,580	0.002-0.004	10,770	0.002-0.005	8,630	0.002-0.005	10,850	0.003-0.005
4	-	9,280	0.003-0.006	7,820	0.003-0.006	4,430	0.003-0.005	8,550	0.003-0.006	6,850	0.003-0.006	8,610	0.004-0.006
-	3/16	7,790	0.004-0.007	6,570	0.004-0.007	3,720	0.004-0.006	7,180	0.004-0.007	5,760	0.004-0.007	7,230	0.005-0.007
6	-	6,190	0.005-0.009	5,220	0.005-0.009	2,950	0.005-0.007	5,700	0.005-0.009	4,570	0.005-0.009	5,740	0.006-0.008
-	1/4	5,840	0.005-0.010	4,930	0.005-0.010	2,790	0.006-0.008	5,390	0.005-0.010	4,320	0.005-0.010	5,420	0.007-0.009
8	-	4,640	0.006-0.011	3,910	0.006-0.011	2,210	0.006-0.009	4,280	0.006-0.011	3,430	0.006-0.011	4,310	0.008-0.010
-	3/8	3,900	0.007-0.011	3,290	0.007-0.011	1,860	0.007-0.009	3,590	0.007-0.011	2,880	0.007-0.011	3,620	0.009-0.011
10	-	3,710	0.008-0.012	3,130	0.008-0.012	1,770	0.008-0.010	3,420	0.008-0.012	2,740	0.008-0.012	3,440	0.011-0.013
-	7/16	3,340	0.008-0.012	2,820	0.008-0.012	1,590	0.008-0.010	3,080	0.008-0.012	2,470	0.008-0.012	3,100	0.012-0.014
12	-	3,090	0.008-0.012	2,610	0.008-0.012	1,480	0.008-0.010	2,850	0.008-0.012	2,280	0.008-0.012	2,870	0.013-0.015
-	1/2	2,920	0.008-0.013	2,460	0.008-0.013	1,390	0.008-0.010	2,690	0.008-0.013	2,160	0.008-0.013	2,710	0.014-0.016
14	-	2,650	0.009-0.014	2,240	0.009-0.014	1,260	0.009-0.011	2,440	0.009-0.014	1,960	0.009-0.014	2,460	0.016-0.018
-	5/8	2,340	0.010-0.014	1,970	0.010-0.014	1,120	0.010-0.012	2,150	0.010-0.014	1,730	0.010-0.014	2,170	0.018-0.020
16	–	2,340	0.010-0.014	1,970	0.010-0.014	1,120	0.010-0.012	2,150	0.010-0.014	1,730	0.010-0.014	2,170	0.018-0.020
18	-	2,060	0.011-0.015	1,740	0.011-0.015	980	0.011-0.013	1,900	0.011-0.015	1,520	0.011-0.015	1,910	0.020-0.022
-	3/4	1,950	0.011-0.015	1,640	0.011-0.015	930	0.011-0.013	1,800	0.011-0.015	1,440	0.011-0.015	1,810	0.021-0.023
20	-	1,860	0.012-0.016	1,560	0.012-0.016	890	0.012-0.014	1,710	0.012-0.016	1,370	0.012-0.016	1,720	0.022-0.024

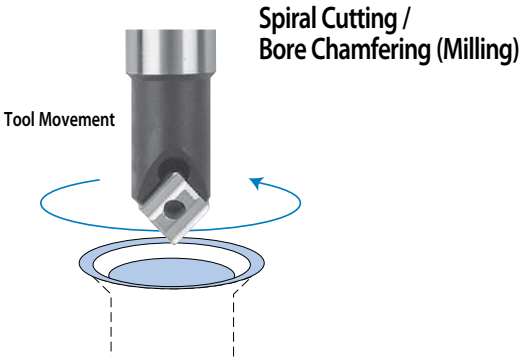
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General Drilling Operations

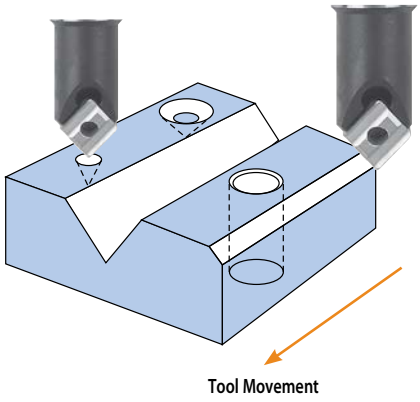
Work Material		Cast Aluminum		Copper		Special Alloy Steels, Hardened Steels							
Hardness						26-30 HRC		30-34 HRC		34-43 HRC		43-48 HRC	
Drilling Speed		325- 700 SFM		230-380 SFM		185-295 SFM		130-210 SFM		120-180 SFM		80-110 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
3	-	16,580	0.004-0.006	9,860	0.003-0.005	7,760	0.002-0.005	5,500	0.002-0.003	4,850	0.002-0.003	3,090	0.001-0.002
-	1/8	15,660	0.004-0.006	9,320	0.003-0.005	7,330	0.002-0.005	5,200	0.002-0.003	4,560	0.002-0.003	2,930	0.001-0.003
4	-	12,430	0.005-0.007	7,400	0.004-0.006	5,820	0.003-0.006	4,120	0.003-0.004	3,640	0.003-0.004	2,320	0.002-0.003
-	3/16	10,440	0.006-0.008	6,210	0.005-0.007	4,890	0.004-0.007	3,460	0.004-0.005	3,040	0.004-0.005	1,950	0.002-0.004
6	-	8,290	0.008-0.010	4,930	0.006-0.008	3,880	0.005-0.009	2,750	0.005-0.006	2,410	0.005-0.006	1,550	0.002-0.004
-	1/4	7,830	0.009-0.011	4,660	0.007-0.009	3,670	0.005-0.010	2,600	0.005-0.007	2,290	0.005-0.007	1,460	0.003-0.005
8	-	6,220	0.012-0.014	3,700	0.008-0.010	2,910	0.006-0.011	2,060	0.006-0.008	1,810	0.006-0.008	1,160	0.003-0.005
-	3/8	5,220	0.013-0.015	3,110	0.009-0.011	2,440	0.007-0.011	1,730	0.007-0.009	1,520	0.007-0.009	980	0.003-0.005
10	-	4,970	0.015-0.017	2,960	0.011-0.013	2,330	0.008-0.012	1,650	0.008-0.010	1,450	0.008-0.010	930	0.004-0.006
-	7/16	4,470	0.016-0.018	2,660	0.012-0.014	2,090	0.008-0.012	1,480	0.008-0.011	1,300	0.008-0.011	840	0.004-0.006
12	-	4,140	0.018-0.020	2,470	0.013-0.015	1,940	0.008-0.012	1,370	0.009-0.012	1,210	0.009-0.012	770	0.005-0.007
-	1/2	3,920	0.019-0.021	2,330	0.014-0.016	1,830	0.008-0.013	1,300	0.010-0.013	1,140	0.010-0.013	730	0.005-0.007
14	-	3,550	0.021-0.023	2,110	0.016-0.018	1,660	0.009-0.014	1,180	0.011-0.014	1,030	0.011-0.014	660	0.006-0.008
-	5/8	3,130	0.022-0.024	1,860	0.018-0.020	1,470	0.010-0.014	1,040	0.012-0.015	900	0.013-0.016	580	0.006-0.008
16	–	3,130	0.022-0.024	1,860	0.018-0.020	1,470	0.010-0.014	1,040	0.012-0.015	900	0.013-0.016	580	0.006-0.008
18	-	2,760	0.026-0.030	1,640	0.020-0.022	1,290	0.011-0.015	920	0.014-0.018	810	0.015-0.018	520	0.007 -0.009
-	3/4	2,610	0.027 -0.031	1,550	0.021-0.023	1,220	0.011-0.015	870	0.015-0.019	760	0.015-0.019	490	0.007-0.009
20	-	2,490	0.028-0.032	1,480	0.022-0.024	1,160	0.012-0.016	820	0.016-0.020	720	0.016-0.020	460	0.008-0.011

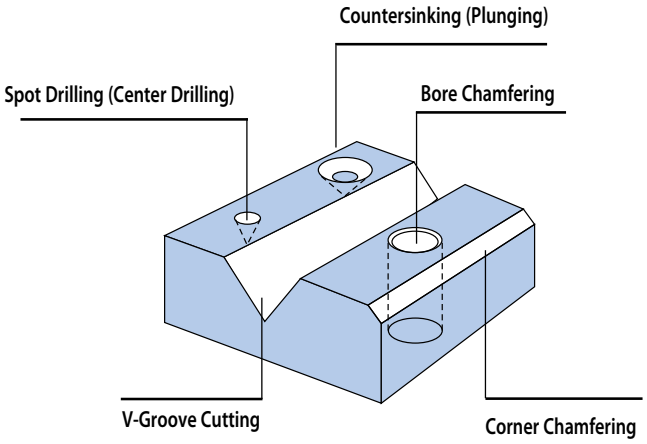
List 738





"V" Grooving / Corner Chamfering (Milling)





Eccentric Pin Lock (Pat. Pend.)







Place insert over Eccentric Pin in loading position. Rotate pin **counter-clockwise**, with supplied allen wrench, to lock insert solidly against machined faces of tool holder.

Center Drilling & V-Grooving

Materials	RPM	IPM	Grade
Mild Steels	3,000	3.20	NK2020
Stainless	2,000	2.00	NK2020
Die Steels	3,000	2.00	NK2020
Cast Iron	3,200	8.00	NK1010
Aluminum	4,000	6.00	NK1010

Chamfer Milling (Down Cut)

Materials	RPM	IPM	Grade
Mild Steels	3,000	8.00	NK2020
Stainless	2,500	6.00	NK2020
Die Steels	3,000	6.00	NK2020
Cast Iron	3,000	8.00	NK1010
Aluminum	4,000	12.00	NK1010

List 215, 220D, 200 & 233*

General Drilling Operations

Work Material		Mild Steels, Carbon Steels		Alloy Tool Steels, Tool Steels		Cast Iron		Aluminum	
Hardness				Up to 30 HRC					
Drilling Speed		280-320 SFM		250-270 SFM		250-350 SFM		550-650 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch								
1	-	25,000	0.0010 - 0.0012	25,000	0.0003 - 0.0005	25,000	0.0007 - 0.0009	25,000	0.0006 - 0.0008
-	1/16	18,300	0.0016 - 0.0018	15,900	0.0004 - 0.0006	18,300	0.0011 - 0.0013	25,000	0.0010 - 0.0012
2	-	14,600	0.0020 - 0.0022	12,600	0.0006 - 0.0008	14,600	0.0014 - 0.0016	25,000	0.0013 - 0.0015
-	3/32	12,200	0.0024 - 0.0026	10,600	0.0007 - 0.0009	12,200	0.0017 - 0.0019	24,400	0.0015 - 0.0017
3	-	9,700	0.0027 - 0.0029	8,400	0.0012 - 0.0014	9,700	0.0021 - 0.0023	19,400	0.0020 - 0.0022
-	1/8	9,200	0.0028 - 0.0030	7,950	0.0012 - 0.0015	9,200	0.0022 - 0.0024	18,300	0.0022 - 0.0024
4	-	7,300	0.0030 - 0.0032	6,300	0.0013 - 0.0015	7,300	0.0023 - 0.0025	14,500	0.0029 - 0.0031
-	3/16	6,100	0.0035 - 0.0037	5,300	0.0015 - 0.0017	6,100	0.0027 - 0.0029	12,200	0.0034 - 0.0036
6	-	4,850	0.0040 - 0.0042	4,200	0.0020 - 0.0022	4,850	0.0037 - 0.0039	9,700	0.0045 - 0.0047
-	1/4	4,600	0.0042 - 0.0044	3,950	0.0021 - 0.0023	4,600	0.0039 - 0.0041	9,150	0.0047 - 0.0049
8	-	3,650	0.0048 - 0.0050	3,150	0.0024 - 0.0026	3,650	0.0044 - 0.0046	7,250	0.0054 - 0.0056
-	3/8	3,050	0.0065 - 0.0067	2,650	0.0033 - 0.0035	3,050	0.0047 - 0.0049	6,100	0.0066 - 0.0068
10	-	2,900	0.0067 - 0.0069	2,500	0.0033 - 0.0036	2,900	0.0048 - 0.0050	5,800	0.0068 - 0.0070
-	7/16	2,600	0.0068 - 0.0070	2,250	0.0034 - 0.0036	2,600	0.0049 - 0.0051	5,200	0.0072 - 0.0074
12	-	2,400	0.0074 - 0.0076	2,100	0.0034 - 0.0036	2,400	0.0054 - 0.0056	4,800	0.0078 - 0.0080
-	1/2	2,250	0.0078 - 0.0080	1,950	0.0035 - 0.0036	2,250	0.0057 - 0.0059	4,550	0.0082 - 0.0084

General Drilling Operations

Work Material		Titanium Alloys (Annealed)		Inconel, Titanium Alloys (Solution Treated and Aged)		Hardened Steels, Prehardened Steels			
Hardness						30-38 HRC		38-45 HRC	
Drilling Speed		120-140 SFM		50-70 SFM		210-230 SFM		160-180 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch								
1	-	12,600	0.0003 - 0.0005	5,800	0.0002 - 0.0004	20,850	0.0002 - 0.0004	16,500	0.0002 - 0.0004
-	1/16	8,000	0.0004 - 0.0006	3,700	0.0003 - 0.0005	13,150	0.0004 - 0.0006	10,400	0.0004 - 0.0006
2	-	6,300	0.0006 - 0.0008	2,900	0.0004 - 0.0006	10,400	0.0005 - 0.0007	8,250	0.0005 - 0.0007
-	3/32	5,300	0.0007 - 0.0009	2,400	0.0005 - 0.0007	8,750	0.0007 - 0.0009	6,950	0.0007 - 0.0009
3	-	4,200	0.0010 - 0.0012	1,900	0.0008 - 0.0010	6,950	0.0011 - 0.0013	5,500	0.0011 - 0.0013
-	1/8	4,000	0.0011 - 0.0012	1,850	0.0008 - 0.0010	6,600	0.0012 - 0.0014	5,200	0.0012 - 0.0014
4	-	3,150	0.0011 - 0.0013	1,450	0.0009 - 0.0010	5,200	0.0013 - 0.0015	4,100	0.0013 - 0.0015
-	3/16	2,650	0.0013 - 0.0015	1,200	0.0010 - 0.0012	4,400	0.0015 - 0.0017	3,450	0.0015 - 0.0017
6	-	2,100	0.0015 - 0.0017	950	0.0013 - 0.0015	3,500	0.0023 - 0.0025	2,750	0.0023 - 0.0025
-	1/4	2,000	0.0016 - 0.0018	900	0.0014 - 0.0015	3,300	0.0024 - 0.0026	2,600	0.0024 - 0.0026
8	-	1,550	0.0018 - 0.0020	730	0.0015 - 0.0017	2,600	0.0028 - 0.0030	2,050	0.0028 - 0.0030
-	3/8	1,300	0.0023 - 0.0025	600	0.0018 - 0.0020	2,200	0.0039 - 0.0041	1,700	0.0039 - 0.0041
10	-	1,250	0.0024 - 0.0026	580	0.0019 - 0.0021	2,130	0.0040 - 0.0042	1,650	0.0040 - 0.0042
-	7/16	1,140	0.0025 - 0.0026	520	0.0019 - 0.0021	1,920	0.0041 - 0.0043	1,450	0.0041 - 0.0043
12	-	1,050	0.0025 - 0.0027	490	0.0020 - 0.0022	1,780	0.0041 - 0.0043	1,350	0.0041 - 0.0043
-	1/2	990	0.0026 - 0.0027	460	0.0020 - 0.0022	1,680	0.0042 - 0.0043	1,300	0.0042 - 0.0043

*When using our List 233 three flute drills, we recommend the same RPM but feed rates should be increased by 25-35%.

continued on next page

List 215, 220D, 200 & 233* (Continued)

Aerospace Operations

Work Material		Graphite Composite		Epoxy Fiber		Acrylic Plastics		Graphite Composite Titanium Stack	
Drilling Speed		200-220 SFM		200-220 SFM		150-170 SFM		12-20 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch								
3	–	6,800	0.0017-0.0022	6,800	0.0017-0.0022	5,200	0.0017-0.0022	520	0.0008-0.0013
–	1/8	6,400	0.0015-0.0025	6,400	0.0015-0.0025	4,900	0.0015-0.0025	490	0.0010-0.0015
4	–	5,100	0.0020-0.0030	5,100	0.0020-0.0030	3,900	0.0020-0.0030	390	0.0010-0.0020
–	3/16	4,250	0.0025-0.0035	4,250	0.0025-0.0035	3,250	0.0025-0.0035	325	0.0015-0.0025
6	–	3,400	0.0035-0.0045	3,400	0.0035-0.0045	2,580	0.0035-0.0045	260	0.0015-0.0025
–	1/4	3,200	0.0035-0.0045	3,200	0.0035-0.0045	2,450	0.0035-0.0045	245	0.0020 -0.0030
8	–	2,550	0.0045-0.0055	2,550	0.0045-0.0055	1,950	0.0045-0.0055	195	0.0025-0.0035
–	3/8	2,140	0.0055-0.0065	2,140	0.0055-0.0065	1,630	0.0055-0.0065	165	0.0030-0.0040
10	–	2,030	0.0055-0.0065	2,030	0.0055-0.0065	1,550	0.0055-0.0065	155	0.0035-0.0045
–	7/16	1,830	0.0060-0.0070	1,830	0.0060-0.0070	1,400	0.0060-0.0070	140	0.0035-0.0045
12	–	1,700	0.0065-0.0075	1,700	0.0065-0.0075	1,280	0.0065-0.0075	130	0.0040-0.0050
–	1/2	1,600	0.0065-0.0075	1,600	0.0065-0.0075	1,200	0.0065-0.0075	120	0.0040-0.0050

The chart above is for materials typically used in aircraft structures. Speeds may be less than optimal because of limitations in the portable machine tools utilized.
*When using our List 233 three flute drills we recommend the same RPM but feed rates should be increased by 25-35%.

Hole Depth Diameters	Reduce Spindle Speed	Reduce Feed Rate
3 x Dia.	10%	10%
4 x Dia.	20%	10%
5 x Dia.	30%	20%
6 x Dia.	35%	20%
8 x Dia.	40%	20%

When drilling deep holes, the recommended speeds and feeds should be reduced proportionately based on the hole depth. To the left are guidelines for reducing the speeds and feeds.

List 300D

General Drilling Operations

Work Material		Mild Steels, Carbon Steels		Alloy Tool Steels, Tool Steels		Cast Iron		Aluminum	
Hardness				Up to 30 HRC					
Drilling Speed		200-230 SFM		160-190 SFM		250-350 SFM		370-470 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch								
1	-	20,850	0.0010-0.0014	16,950	0.0010-0.0014	25,000	0.0007-0.0012	25,000	0.0008-0.0013
-	1/16	13,150	0.0015-0.0021	10,700	0.0015-0.0021	18,340	0.0012-0.0017	25,000	0.0012-0.0018
2	-	10,400	0.0022-0.0028	8,500	0.0022-0.0028	14,550	0.0017-0.0023	20,350	0.0017-0.0022
-	3/32	8,750	0.0026-0.0033	7,150	0.0026-0.0033	12,220	0.0022-0.0028	17,100	0.0023-0.0027
3	-	6,950	0.0033-0.0040	5,650	0.0032-0.0040	9,700	0.0032-0.0038	13,550	0.0027-0.0033
-	1/8	6,550	0.0034-0.0042	5,350	0.0033-0.0042	9,170	0.0035-0.0042	12,800	0.0028-0.0036
4	-	5,200	0.0040-0.0050	4,250	0.0040-0.0050	7,280	0.0044-0.0052	10,200	0.0034-0.0044
-	3/16	4,400	0.0048-0.0058	3,550	0.0045-0.0055	6,110	0.0056-0.0064	8,550	0.0040-0.0050
6	-	3,450	0.0060-0.0070	2,830	0.0057-0.0067	4,850	0.0070-0.0080	6,800	0.0051-0.0061
-	1/4	3,300	0.0062-0.0072	2,670	0.0060-0.0070	4,580	0.0070-0.0080	6,400	0.0055-0.0065
8	-	2,600	0.0076-0.0086	2,120	0.0070-0.0080	3,640	0.0080-0.0090	5,100	0.0065-0.0075
-	3/8	2,200	0.0090-0.0100	1,780	0.0082-0.0092	3,060	0.0100-0.0110	4,250	0.0075-0.0085
10	-	2,050	0.0095-0.0105	1,690	0.0087-0.0097	2,910	0.0110-0.0120	4,050	0.0080-0.0090
-	7/16	1,850	0.0105-0.0115	1,520	0.0090-0.0100	2,620	0.0120-0.0130	3,650	0.0090-0.0100
12	-	1,700	0.0115-0.0125	1,400	0.0105-0.0115	2,430	0.0130-0.0140	3,350	0.0095-0.0105
-	1/2	1,600	0.0120-0.0130	1,320	0.0108-0.0118	2,290	0.0133-0.0143	3,150	0.0100-0.0112

General Drilling Operations

Work Material		Titanium Alloys (Annealed)		Inconel, Titanium Alloys		Hardened Steels, Prehardened Steels			
Hardness						30-38 HRC		38-45 HRC	
Drilling Speed		75-90 SFM		45-50 SFM		135-155 SFM		100-120 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch								
1	-	7,950	0.0008-0.0013	4,650	0.0008-0.0013	14,050	0.0010-0.0014	10,650	0.0008-0.0013
-	1/16	5,000	0.0012-0.0018	2,950	0.0012-0.0018	8,850	0.0015-0.0021	6,700	0.0012-0.0018
2	-	3,950	0.0017-0.0022	2,300	0.0017-0.0022	7,000	0.0022-0.0028	5,300	0.0017-0.0022
-	3/32	3,350	0.0023-0.0027	1,950	0.0023-0.0027	5,900	0.0026-0.0033	4,500	0.0020-0.0028
3	-	2,650	0.0027-0.0033	1,550	0.0027-0.0033	4,700	0.0032-0.0040	3,550	0.0025-0.0033
-	1/8	2,500	0.0028-0.0036	1,450	0.0028-0.0036	4,450	0.0033-0.0042	3,350	0.0025-0.0035
4	-	1,950	0.0031-0.0041	1,160	0.0032-0.0040	3,500	0.0040-0.0050	2,650	0.0033-0.0043
-	3/16	1,650	0.0037-0.0047	970	0.0036-0.0046	2,950	0.0045-0.0055	2,250	0.0040-0.0050
6	-	1,300	0.0048-0.0058	770	0.0048-0.0058	2,350	0.0057-0.0067	1,750	0.0048-0.0058
-	1/4	1,250	0.0049-0.0059	730	0.0049-0.0059	2,200	0.0060-0.0070	1,650	0.0050-0.0060
8	-	1,000	0.0058-0.0068	580	0.0058-0.0068	1,750	0.0070-0.0080	1,300	0.0060-0.0070
-	3/8	830	0.0068-0.0078	480	0.0068-0.0078	1,450	0.0082-0.0092	1,100	0.0070-0.0080
10	-	790	0.0073-0.0083	460	0.0073-0.0083	1,400	0.0087-0.0097	1,050	0.0073-0.0083
-	7/16	710	0.0080-0.0090	410	0.0080-0.0090	1,250	0.0090-0.0100	950	0.0080-0.0090
12	-	660	0.0087-0.0097	380	0.0087-0.0097	1,150	0.0105-0.0115	880	0.0088-0.0098
-	1/2	620	0.0090-0.0100	360	0.0090-0.0100	1,100	0.0108-0.0118	830	0.0093-0.0103

List 0CS-SO
List 0CJ-SO
List 01S-SO
List 01J-SO

Work Material		Carbon Steels Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300, 400, 17-4PH		Cast Iron		Ductile Cast Iron	
Drilling Speed		395-500 SFM		165-400 SFM		130-295 SFM		245-495 SFM		245-495 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
1	-	42,970	0.0010-0.0012	27,058	0.0007-0.0008	20,692	0.0007-0.0008	35,813	0.0008-0.0010	35,813	0.0008-0.0010
2	-	21,485	0.0020-0.0024	13,529	0.0014-0.0016	10,346	0.0014-0.0016	17,906	0.0016-0.0020	17,906	0.0016-0.0020
-	3/32	18,045	0.0023-0.0028	11,363	0.0017-0.0019	8,689	0.0017-0.0019	15,039	0.0019-0.0023	15,039	0.0019-0.0023
3	-	14,323	0.0030-0.0035	9,019	0.0021-0.0024	6,897	0.0021-0.0024	11,938	0.0024-0.0030	11,938	0.0024-0.0030
-	1/8	13,534	0.0031-0.0038	8,522	0.0023-0.0025	6,517	0.0023-0.0025	11,280	0.0025-0.0031	11,280	0.0025-0.0031
4	-	10,743	0.0039-0.0047	6,765	0.0029-0.0031	5,173	0.0029-0.0031	8,953	0.0031-0.0039	8,953	0.0031-0.0039
-	3/16	9,023	0.0047-0.0056	5,682	0.0034-0.0038	4,345	0.0034-0.0038	7,520	0.0038-0.0047	7,520	0.0038-0.0047
6	-	7,162	0.0059-0.0071	4,510	0.0043-0.0047	3,449	0.0043-0.0047	5,969	0.0047-0.0059	5,969	0.0047-0.0059
-	1/4	6,767	0.0063-0.0075	4,261	0.0045-0.0050	3,259	0.0045-0.0050	5,640	0.0050-0.0063	5,640	0.0050-0.0063
8	-	5,371	0.0079-0.0094	3,382	0.0057-0.0063	2,586	0.0057-0.0063	4,477	0.0063-0.0079	4,477	0.0063-0.0079
-	3/8	4,511	0.0094-0.0113	2,841	0.0068-0.0075	2,172	0.0068-0.0075	3,760	0.0075-0.0094	3,760	0.0075-0.0094
10	-	4,297	0.0098-0.0118	2,706	0.0071-0.0079	2,069	0.0071-0.0079	3,581	0.0079-0.0098	3,581	0.0079-0.0098
-	7/16	3,867	0.0109-0.0131	2,435	0.0079-0.0088	1,862	0.0079-0.0088	3,223	0.0088-0.0109	3,223	0.0088-0.0109
12	-	3,581	0.0118-0.0142	2,255	0.0086-0.0094	1,724	0.0086-0.0094	2,984	0.0094-0.0118	2,984	0.0094-0.0118
-	1/2	3,383	0.0125-0.0150	2,131	0.0091-0.0100	1,629	0.0091-0.0100	2,820	0.0100-0.0125	2,820	0.0100-0.0125
14	-	3,069	0.0138-0.0165	1,933	0.0100-0.0110	1,478	0.0100-0.0110	2,558	0.0110-0.0138	2,558	0.0110-0.0138

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Work Material		Aluminum				Copper		Synthetics		High Heat Material			
		Alloy		Casting						Ti-Alloy, Ti-6Al-4V		Ni-Base Material, Inconel	
Drilling Speed		495-655 SFM		150-490 SFM		165-260 SFM		325-985 SFM		65-200 SFM		65-230 SFM	
Drill Dia.		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
mm	Inch	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
1	-	55,708	0.0010-0.0012	31,038	0.0010-0.0012	20,692	0.0010-0.0012	63,667	0.0012-0.0018	12,733	0.0007-0.0008	14,325	0.0007-0.0008
2	-	27,854	0.0020-0.0024	15,519	0.0020-0.0024	10,346	0.0020-0.0024	31,833	0.0025-0.0033	6,367	0.0014-0.0016	7,163	0.0014-0.0016
-	3/32	23,395	0.0023-0.0028	13,034	0.0023-0.0028	8,689	0.0023-0.0028	26,737	0.0034-0.0039	5,347	0.0017-0.0019	6,016	0.0017-0.0019
3	-	18,569	0.0030-0.0035	10,346	0.0030-0.0035	6,897	0.0030-0.0035	21,222	0.0044-0.0050	4,244	0.0021-0.0024	4,775	0.0021-0.0024
-	1/8	17,546	0.0031-0.0038	9,776	0.0031-0.0038	6,517	0.0031-0.0038	20,052	0.0044-0.0050	4,010	0.0023-0.0025	4,512	0.0023-0.0025
4	-	13,927	0.0039-0.0047	7,759	0.0039-0.0047	5,173	0.0039-0.0047	15,917	0.0060-0.0065	3,183	0.0029-0.0031	3,581	0.0029-0.0031
-	3/16	11,697	0.0047-0.0056	6,517	0.0047-0.0056	4,345	0.0047-0.0056	13,368	0.0070-0.0075	2,674	0.0034-0.0038	3,008	0.0034-0.0038
6	-	9,285	0.0059-0.0071	5,173	0.0059-0.0071	3,449	0.0059-0.0071	10,611	0.0090-0.0095	2,122	0.0043-0.0047	2,388	0.0043-0.0047
-	1/4	8,773	0.0063-0.0075	4,888	0.0063-0.0075	3,259	0.0063-0.0075	10,026	0.0093-0.0100	2,005	0.0045-0.0050	2,256	0.0045-0.0050
8	-	6,964	0.0079-0.0094	3,880	0.0079-0.0094	2,586	0.0079-0.0094	7,958	0.0120-0.0126	1,592	0.0057-0.0063	1,791	0.0057-0.0063
-	3/8	5,849	0.0094-0.0113	3,259	0.0094-0.0113	2,172	0.0094-0.0113	6,684	0.0145-0.0150	1,337	0.0068-0.0075	1,504	0.0068-0.0075
10	-	5,571	0.0098-0.0118	3,104	0.0098-0.0118	2,069	0.0098-0.0118	6,367	0.0154-0.0157	1,273	0.0071-0.0079	1,433	0.0071-0.0079
-	7/16	5,013	0.0109-0.0131	2,793	0.0109-0.0131	1,862	0.0109-0.0131	5,729	0.0169-0.0175	1,146	0.0079-0.0088	1,289	0.0079-0.0088
12	-	4,642	0.0118-0.0142	2,586	0.0118-0.0142	1,724	0.0118-0.0142	5,306	0.0184-0.0189	1,061	0.0086-0.0094	1,194	0.0086-0.0094
-	1/2	4,386	0.0125-0.0150	2,444	0.0125-0.0150	1,629	0.0125-0.0150	5,013	0.0195-0.0200	1,003	0.0091-0.0100	1,128	0.0091-0.0100
14	-	3,979	0.0138-0.0165	2,217	0.0138-0.0165	1,478	0.0138-0.0165	4,548	0.0210-0.0220	910	0.0100-0.0110	1,023	0.0100-0.0110

List 1900 - VPH GDS: Stub
List 1950 - VPH GDR: Jobbers

General Drilling Operations

Work Material		Low Carbon Steels 1010, 1018		Carbon Steels 1045, 1050		Alloy Steels 4140, 4330		Tool Steels D2, H13		Cast Iron	
Drilling Speed		125-160 SFM		80-120 SFM		80-100 SFM		30-50 SFM		130-200 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
0.5	-	25,000	0.001-0.002	19,410	0.001-0.002	17,470	0.001-0.002	7,760	0.001-0.002	25,000	0.001-0.002
-	3/64	11,610	0.001-0.003	8,150	0.002-0.003	7,330	0.002-0.003	3,260	0.002-0.003	13,450	0.002-0.003
2	-	6,910	0.002-0.004	4,850	0.002-0.004	4,370	0.002-0.004	1,940	0.002-0.004	8,000	0.003-0.004
-	3/32	5,810	0.003-0.005	4,070	0.003-0.005	3,670	0.003-0.005	1,630	0.003-0.005	6,720	0.003-0.005
3	-	4,610	0.003-0.005	3,230	0.003-0.005	2,910	0.003-0.005	1,290	0.003-0.005	5,340	0.004-0.006
-	1/8	4,350	0.003-0.005	3,060	0.003-0.005	2,750	0.003-0.005	1,220	0.003-0.005	5,040	0.004-0.006
4	-	3,460	0.004-0.006	2,430	0.004-0.006	2,180	0.004-0.006	970	0.004-0.006	4,000	0.005-0.007
-	3/16	2,900	0.005-0.007	2,040	0.005-0.007	1,830	0.005-0.007	810	0.005-0.007	3,360	0.006-0.008
6	-	2,300	0.005-0.007	1,620	0.005-0.007	1,460	0.005-0.007	650	0.005-0.007	2,670	0.007-0.010
-	1/4	2,180	0.005-0.008	1,530	0.005-0.008	1,380	0.005-0.008	610	0.005-0.008	2,520	0.007-0.010
8	-	1,730	0.006-0.009	1,210	0.006-0.009	1,090	0.006-0.009	490	0.006-0.009	2,000	0.008-0.012
-	3/8	1,450	0.008-0.011	1,020	0.008-0.011	920	0.008-0.011	410	0.008-0.011	1,680	0.010-0.013
10	-	1,380	0.008-0.011	970	0.008-0.011	870	0.008-0.011	390	0.008-0.011	1,600	0.010-0.014
-	7/16	1,240	0.009-0.012	870	0.009-0.012	790	0.009-0.012	350	0.009-0.012	1,440	0.011-0.016
12	-	1,150	0.009-0.013	810	0.009-0.013	730	0.009-0.013	320	0.009-0.013	1,330	0.012-0.017
-	1/2	1,090	0.010-0.014	760	0.010-0.014	690	0.010-0.014	310	0.010-0.014	1,260	0.012-0.017
14	-	990	0.011-0.014	690	0.011-0.014	620	0.011-0.014	280	0.011-0.014	1,140	0.014-0.019
-	5/8	870	0.012-0.016	610	0.012-0.016	550	0.012-0.016	240	0.012-0.016	1,010	0.016-0.021
16	–	870	0.012-0.016	610	0.012-0.016	550	0.012-0.016	240	0.012-0.016	1,010	0.016-0.021
18	-	770	0.014-0.018	540	0.014-0.018	490	0.014-0.018	220	0.014-0.018	890	0.018-0.025
-	3/4	730	0.015-0.019	510	0.015-0.019	460	0.015-0.019	200	0.015-0.019	840	0.019-0.026
20	-	690	0.016-0.020	490	0.016-0.020	440	0.016-0.020	190	0.016-0.020	800	0.020-0.027

1. The indicated speeds and feeds are when water soluble oil is used.
2. Suitable cutting fluid is water-emulsifiable, high density oil (less than 20 times dilution).
3. When using non-water soluble oil or water-emulsifiable oil (over 20 times dilution), reduce drilling speed by 20%.
4. Pecking is necessary when drilling depth of the hole exceeds 3 times drill diameter for lathe/horizontal machines.

D: Drill Diameter

Drilling Depth	≤4D	≤5D	≤6D
Coefficient for reducing RPM	x0.9	x0.8	x0.75

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Work Material		High Heat Material						Hardened Steels					
		Ti Alloy Ti-6Al-4V		Fe Base Material Incoloy 901, A286		Ni & Co Base Material Inconel718, Waspaloy		33-43 HRC		43-48 HRC		48-53 HRC	
Drilling Speed		20-26 SFM		20-26 SFM		20-26 SFM		40-60 SFM		20-32 SFM		15-25 SFM	
Drill Dia.		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
mm	Inch	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
0.5	-	4,460	0.0005-0.0008	4,460	0.0005-0.0008	3,880	0.0005-0.0008	9,700	0.001	5,040	0.001	3,880	0.001
-	3/64	1,870	0.0006-0.0010	1,870	0.0006-0.0010	1,630	0.0006-0.0010	4,070	0.001-0.002	2,120	0.001	1,630	0.001
2	-	1,120	0.0008-0.0012	1,120	0.0008-0.0012	970	0.0008-0.0012	2,430	0.001-0.002	1,250	0.001-0.002	970	0.001-0.002
-	3/32	940	0.0010-0.0014	940	0.0010-0.0014	810	0.0010-0.0014	2,040	0.001-0.003	1,060	0.001-0.002	810	0.001-0.002
3	-	740	0.0012-0.0018	740	0.0012-0.0018	650	0.0012-0.0018	1,620	0.001-0.003	850	0.001-0.002	650	0.001-0.002
-	1/8	700	0.0013-0.0019	700	0.0013-0.0019	610	0.0013-0.0019	1,530	0.001-0.003	800	0.001-0.002	610	0.001-0.002
4	-	560	0.0016-0.0024	560	0.0016-0.0024	490	0.0016-0.0024	1,210	0.002-0.004	640	0.002-0.003	490	0.002-0.003
-	3/16	470	0.0019-0.0028	470	0.0019-0.0028	410	0.0019-0.0028	1,020	0.002-0.005	540	0.002-0.004	410	0.002-0.004
6	-	370	0.0024-0.0035	370	0.0024-0.0035	320	0.0024-0.0035	810	0.002-0.006	430	0.002-0.005	320	0.002-0.005
-	1/4	350	0.0026-0.0037	350	0.0026-0.0037	310	0.0026-0.0037	760	0.002-0.006	400	0.002-0.005	310	0.002-0.005
8	-	280	0.0031-0.0047	280	0.0031-0.0047	240	0.0031-0.0047	610	0.003-0.008	320	0.003-0.006	240	0.003-0.006
-	3/8	230	0.0037-0.0056	230	0.0037-0.0056	200	0.0037-0.0056	510	0.004-0.009	260	0.004-0.008	200	0.004-0.008
10	-	220	0.0039-0.0059	220	0.0039-0.0059	190	0.0039-0.0059	490	0.004-0.010	250	0.004-0.008	190	0.004-0.008
-	7/16	200	0.0043-0.0066	200	0.0043-0.0066	170	0.0043-0.0066	440	0.004-0.011	230	0.004-0.009	170	0.004-0.009
12	-	190	0.0047-0.0071	190	0.0047-0.0071	160	0.0047-0.0071	400	0.005-0.012	210	0.005-0.009	160	0.005-0.009
-	1/2	180	0.0050-0.0075	180	0.0050-0.0075	150	0.0050-0.0075	380	0.005-0.013	200	0.005-0.010	150	0.005-0.010
14	-	160	0.0055-0.0083	160	0.0055-0.0083	140	0.0055-0.0083	350	0.005-0.014	180	0.005-0.011	140	0.005-0.011
-	5/8	140	0.0062-0.0093	140	0.0062-0.0093	120	0.0062-0.0093	310	0.006-0.016	160	0.006-0.012	120	0.006-0.012
16	–	140	0.0062-0.0093	140	0.0062-0.0093	120	0.0062-0.0093	310	0.006-0.016	160	0.006-0.012	120	0.006-0.012
18	-	120	0.0071-0.0106	120	0.0071-0.0106	110	0.0071-0.0106	270	0.007-0.018	140	0.007-0.014	110	0.007-0.014
-	3/4	115	0.0075-0.0112	115	0.0075-0.0112	105	0.0075-0.0112	250	0.007-0.019	130	0.007-0.015	105	0.007-0.015
20	-	110	0.0079-0.0118	110	0.0079-0.0118	100	0.0079-0.0118	240	0.008-0.020	125	0.008-0.016	100	0.008-0.016

List 2000 - VP® GDR

General Drilling Operations

Work Material		Low Carbon Steels 1010, 1018		Carbon Steels 1045, 1050		Alloy Steels 4140, 4330		Tool Steels D2, H13		Cast Iron		Cast Aluminum	
Drilling Speed		125-160 SFM		80-120 SFM		80-100 SFM		30-50 SFM		130-200 SFM		230-400 SFM	
Drill Dia.		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
mm	Inch	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
2	-	6,900	0.002-0.004	4,840	0.002-0.004	4,360	0.002-0.004	1,940	0.002-0.004	8,000	0.003-0.004	15,270	0.005-0.007
3	-	4,600	0.004-0.005	3,230	0.004-0.005	2,900	0.004-0.005	1,290	0.004-0.005	5,330	0.004-0.006	10,180	0.008-0.011
-	1/8	4,350	0.004-0.005	3,050	0.004-0.005	2,740	0.004-0.005	1,220	0.004-0.005	5,030	0.004-0.006	9,620	0.008-0.012
4	-	3,450	0.004-0.006	2,420	0.004-0.006	2,180	0.004-0.006	970	0.004-0.006	4,000	0.005-0.007	7,630	0.009-0.015
-	3/16	2,900	0.005-0.007	2,030	0.005-0.007	1,830	0.005-0.007	810	0.005-0.007	3,360	0.006-0.008	6,410	0.011-0.016
6	-	2,300	0.005-0.007	1,610	0.005-0.007	1,450	0.005-0.007	640	0.005-0.007	2,660	0.007-0.010	5,090	0.013-0.019
-	1/4	2,170	0.005-0.008	1,520	0.005-0.008	1,370	0.005-0.008	610	0.005-0.008	2,520	0.007-0.010	4,810	0.013-0.019
8	-	1,700	0.006-0.009	1,210	0.006-0.009	1,090	0.006-0.009	480	0.006-0.009	2,000	0.008-0.012	3,820	0.015-0.021
-	3/8	1,450	0.007-0.011	1,010	0.007-0.011	910	0.007-0.011	400	0.007-0.011	1,680	0.009-0.013	3,200	0.017-0.024
10	-	1,380	0.008-0.011	960	0.008-0.011	870	0.008-0.011	390	0.008-0.011	1,600	0.010-0.014	3,050	0.018-0.025
-	7/16	1,240	0.009-0.012	870	0.009-0.012	780	0.009-0.012	350	0.009-0.012	1,440	0.011-0.015	2,750	0.020-0.028
12	-	1,150	0.009-0.013	800	0.009-0.013	720	0.009-0.013	320	0.009-0.013	1,330	0.012-0.017	2,550	0.021-0.030
-	1/2	1,080	0.010-0.014	760	0.010-0.014	680	0.010-0.014	300	0.010-0.014	1,260	0.012-0.017	2,400	0.021-0.031
14	-	980	0.011-0.015	690	0.011-0.015	620	0.011-0.015	270	0.011-0.015	1,140	0.013-0.017	2,180	0.022-0.032
-	5/8	870	0.012-0.016	610	0.012-0.016	550	0.012-0.016	240	0.012-0.016	1,010	0.013-0.018	1,920	0.023-0.033
16	-	860	0.012-0.017	600	0.012-0.017	540	0.012-0.017	240	0.012-0.017	1,000	0.013-0.018	1,910	0.024-0.033
18	-	760	0.013-0.019	540	0.013-0.019	480	0.013-0.019	210	0.013-0.019	890	0.014-0.020	1,700	0.025-0.035
-	3/4	720	0.013-0.020	510	0.013-0.020	450	0.013-0.020	200	0.013-0.020	840	0.015-0.021	1,600	0.026-0.037
20	-	690	0.014-0.020	480	0.014-0.020	430	0.014-0.020	190	0.014-0.020	800	0.016-0.022	1,530	0.027-0.039
22	-	620	0.016-0.022	440	0.016-0.022	400	0.016-0.022	170	0.016-0.022	730	0.017-0.023	1,390	0.029-0.042
24	-	570	0.016-0.024	400	0.016-0.024	370	0.016-0.024	160	0.016-0.024	660	0.018-0.026	1,270	0.030-0.044
26	-	530	0.017-0.026	370	0.017-0.026	340	0.017-0.026	150	0.017-0.026	610	0.019-0.027	1,170	0.032-0.047
28	-	490	0.018-0.028	340	0.018-0.028	320	0.018-0.028	140	0.018-0.028	570	0.020-0.029	1,090	0.033-0.050
30	-	460	0.019-0.030	320	0.019-0.030	300	0.019-0.030	130	0.019-0.030	530	0.021-0.031	1,020	0.034-0.052
32	-	430	0.020-0.031	300	0.020-0.031	280	0.020-0.031	120	0.020-0.031	500	0.023-0.033	960	0.035-0.054

1. The indicated speeds and feeds are when water soluble oil is used.
2. Suitable cutting fluid is water-emulsifiable, high density oil (less than 10 times dilution).
3. With the exception of using milling chucks, pay careful attention to ensure that drill is rigidly clamped and keep deflection at a minimum.
4. In case of drilling depth: >4D, reduce drilling speed as below.
5. When using non-water soluble oil or water-emulsifiable oil (over 10 times dilution), reduce drilling speed by 20%.
6. Step process should be used when drilling depth of the hole exceeds 4 times drill diameter for vertical machines or 3 times drill diameter for horizontal lathe machines.

D: Drill Diameter

Drilling Depth	≤5D	≤6D
Coefficient for reducing RPM	x0.9	x0.7

List 1700 - V-HO GDR: Coolant-Through

General Drilling Operations

Work Material	Low Carbon Steels 1010, 1018		Carbon Steels 1045, 1050		Tool Steels D2, H13		Tool Steels H13 (20 HRC)		Cast Iron		Cast Aluminum	
Drilling Speed	120-160 SFM		100-140 SFM		83-120 SFM		50-90 SFM		150-200 SFM		250-400 SFM	
Drill Dia. Inch	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
1/4	2,140	0.005-0.007	1,830	0.005-0.007	1,530	0.005-0.007	1,070	0.005-0.007	2,680	0.008-0.010	4,970	0.013-0.019
9/32	1,900	0.006-0.008	1,630	0.006-0.008	1,360	0.006-0.008	950	0.006-0.008	2,380	0.008-0.011	4,420	0.014-0.020
5/16	1,710	0.007-0.009	1,470	0.007-0.009	1,220	0.007-0.009	860	0.007-0.009	2,140	0.008-0.012	3,970	0.015-0.021
11/32	1,560	0.007-0.009	1,330	0.007-0.009	1,110	0.007-0.009	780	0.007-0.009	1,950	0.009-0.013	3,610	0.016-0.022
3/8	1,430	0.008-0.011	1,220	0.008-0.011	1,020	0.008-0.011	710	0.008-0.011	1,780	0.010-0.014	3,310	0.017-0.025
13/32	1,320	0.008-0.011	1,130	0.008-0.011	940	0.008-0.011	660	0.008-0.011	1,650	0.010-0.014	3,060	0.018-0.026
7/16	1,220	0.009-0.012	1,050	0.009-0.012	870	0.009-0.012	610	0.009-0.012	1,530	0.011-0.015	2,840	0.019-0.027
15/32	1,140	0.009-0.012	980	0.009-0.012	820	0.009-0.012	570	0.009-0.012	1,430	0.011-0.015	2,650	0.020-0.028
1/2	1,070	0.010-0.013	920	0.010-0.013	760	0.010-0.013	540	0.010-0.013	1,340	0.013-0.017	2,480	0.021-0.030
9/16	950	0.011-0.014	820	0.011-0.014	680	0.011-0.014	480	0.011-0.014	1,190	0.013-0.017	2,210	0.022-0.031
5/8	860	0.012-0.015	730	0.012-0.015	610	0.012-0.015	430	0.011-0.014	1,070	0.014-0.018	1,990	0.023-0.032
11/16	780	0.013-0.016	670	0.013-0.016	560	0.013-0.016	390	0.012-0.015	970	0.014-0.018	1,810	0.024-0.033
3/4	710	0.014-0.017	610	0.014-0.017	510	0.014-0.017	360	0.013-0.016	890	0.015-0.019	1,660	0.025-0.034
13/16	660	0.016-0.021	560	0.016-0.021	470	0.016-0.021	330	0.015-0.020	820	0.017-0.022	1,530	0.028-0.040
7/8	610	0.017-0.022	520	0.017-0.022	440	0.017-0.022	310	0.017-0.022	760	0.018-0.023	1,420	0.030-0.042
15/16	570	0.018-0.023	490	0.018-0.023	410	0.018-0.023	290	0.018-0.023	710	0.020-0.025	1,320	0.032-0.044
1	540	0.019-0.024	460	0.019-0.024	380	0.019-0.024	270	0.019-0.024	670	0.021-0.026	1,240	0.033-0.045
1-1/8	480	0.020-0.025	410	0.020-0.025	340	0.020-0.025	240	0.020-0.025	590	0.022-0.027	1,100	0.034-0.046
1-1/4	430	0.021-0.026	370	0.021-0.026	310	0.021-0.026	210	0.020-0.025	540	0.023-0.028	990	0.035-0.047

1. Speeds and feeds are based on using soluble oil where applicable 1:5 to 1:10 concentration.
2. When other than an end mill collet is used, make sure the drill shank is firmly attached.
3. For deep holes (4 times the drill diameter or deeper) use the lower recommended feed rate as a starting point and increase as needed for the best result.
4. Recommended feeds and speeds are starting points only. Actual performance will be determined by specific material, the condition of equipment being used, and coolant.

List 1750 - HELIOS®:10D
List 1760 - HELIOS®:15D
List 1770 - HELIOS®:20D

General Drilling Operations

Work Material		Carbon Steels Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Tool Steels Die Steels D2, H13, P20, S7		Stainless Steels 300, 400, 17-4 PH	
Drilling Speed		65-80 SFM		60-75 SFM		40-55 SFM		20-45 SFM	
Drill Dia.		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
mm	Inch	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
2	-	3,510	0.001-0.002	3,270	0.001-0.002	2,300	0.001-0.002	1,570	0.001-0.002
-	3/32	2,950	0.001-0.002	2,750	0.001-0.002	1,930	0.001-0.002	1,320	0.001-0.002
3	-	2,340	0.001-0.003	2,180	0.001-0.003	1,530	0.001-0.003	1,050	0.001-0.003
-	1/8	2,210	0.001-0.003	2,060	0.001-0.003	1,450	0.001-0.003	990	0.001-0.003
4	-	1,750	0.002-0.004	1,630	0.002-0.004	1,150	0.002-0.004	790	0.002-0.004
-	3/16	1,470	0.002-0.005	1,370	0.002-0.005	970	0.002-0.005	660	0.002-0.005
5	-	1,400	0.002-0.005	1,310	0.002-0.005	920	0.002-0.005	630	0.002-0.005
-	7/32	1,260	0.002-0.005	1,180	0.002-0.005	830	0.002-0.005	570	0.002-0.005
6	-	1,170	0.002-0.006	1,090	0.002-0.006	770	0.002-0.006	520	0.002-0.006
-	1/4	1,100	0.003-0.006	1,030	0.003-0.006	720	0.003-0.006	500	0.003-0.006
8	-	880	0.003-0.008	820	0.003-0.008	580	0.003-0.008	400	0.003-0.007
-	3/8	740	0.004-0.009	690	0.004-0.009	480	0.004-0.009	330	0.004-0.009
10	-	700	0.004-0.010	650	0.004-0.010	460	0.004-0.010	315	0.004-0.009
-	7/16	630	0.004-0.011	590	0.004-0.011	410	0.004-0.011	280	0.004-0.010
12	-	580	0.005-0.012	550	0.005-0.012	380	0.005-0.012	260	0.005-0.011
-	1/2	550	0.005-0.012	520	0.005-0.012	360	0.005-0.012	250	0.005-0.011
14	-	500	0.005-0.014	470	0.005-0.014	330	0.005-0.014	225	0.005-0.012
-	9/16	490	0.006-0.014	460	0.006-0.014	320	0.006-0.014	220	0.006-0.012

For Stainless Steel and Aluminum Alloys, peck cycles may be necessary.

General Drilling Operations

Work Material		Ductile Cast Iron		Cast Iron		Aluminum Alloy, Cast Aluminum	
Drilling Speed		55-65 SFM		60-80 SFM		105-205 SFM	
Drill Dia.		Speed	Feed	Speed	Feed	Speed	Feed
mm	Inch	RPM	IPR	RPM	IPR	RPM	IPR
2	-	2,910	0.001-0.002	3,390	0.001-0.002	7,510	0.002-0.003
-	3/32	2,440	0.001-0.002	2,850	0.002-0.003	6,310	0.003-0.004
3	-	1,940	0.001-0.003	2,260	0.002-0.004	5,010	0.004-0.005
-	1/8	1,830	0.001-0.003	2,140	0.002-0.004	4,730	0.004-0.005
4	-	1,450	0.001-0.004	1,700	0.003-0.005	3,760	0.005-0.006
-	3/16	1,220	0.001-0.005	1,420	0.004-0.006	3,150	0.006-0.007
5	-	1,160	0.001-0.005	1,350	0.004-0.006	3,000	0.006-0.008
-	7/32	1,050	0.001-0.005	1,225	0.004-0.007	2,700	0.007-0.009
6	-	970	0.001-0.006	1,130	0.005-0.008	2,500	0.007-0.009
-	1/4	920	0.002-0.006	1,070	0.005-0.008	2,360	0.008-0.010
8	-	730	0.002-0.008	850	0.006-0.010	1,880	0.009-0.013
-	3/8	610	0.002-0.009	710	0.008-0.012	1,580	0.011-0.015
10	-	580	0.002-0.010	680	0.008-0.013	1,500	0.012-0.016
-	7/16	525	0.003-0.011	610	0.009-0.014	1,350	0.013-0.018
12	-	485	0.003-0.012	570	0.009-0.015	1,250	0.014-0.019
-	1/2	460	0.003-0.012	535	0.010-0.016	1,180	0.015-0.020
14	-	415	0.003-0.014	485	0.011-0.018	1,070	0.016-0.022
-	9/16	405	0.003-0.014	475	0.011-0.018	1,050	0.017-0.022

For Stainless Steel and Aluminum Alloys, peck cycles may be necessary.
For deep hold drilling procedure please refer to page: 347.

List 1800 - V-Select

General Drilling Operations

Work Material	Low Carbon Steels 1010, 1018		Carbon Steels		Alloy Steels 4140, 4340		Tool Steels D2, H13		Cast Iron		Cast Aluminum	
Drilling Speed	72-132 SFM		52-99 SFM		40-82 SFM		26-52 SFM		72-131 SFM		164-328 SFM	
Drill Dia. mm	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
2	4,950	0.002-0.004	3,660	0.002-0.004	2,960	0.002-0.004	1,900	0.002-0.004	4,920	0.003-0.004	12,000	0.005-0.007
3	3,300	0.004-0.005	2,800	0.004-0.005	2,400	0.004-0.005	1,320	0.004-0.005	3,850	0.004-0.006	10,000	0.008-0.011
4	2,470	0.004-0.006	2,100	0.004-0.006	1,800	0.004-0.006	950	0.004-0.006	2,900	0.005-0.007	7,500	0.009-0.015
5	1,980	0.005-0.007	1,600	0.005-0.007	1,400	0.005-0.007	750	0.005-0.007	2,260	0.006-0.009	6,300	0.011-0.016
6	1,650	0.005-0.007	1,320	0.005-0.007	1,180	0.005-0.007	630	0.005-0.007	1,900	0.007-0.010	5,000	0.013-0.019
8	1,240	0.006-0.009	1,000	0.006-0.009	900	0.006-0.009	480	0.006-0.009	1,400	0.008-0.012	4,000	0.015-0.021
10	990	0.008-0.011	800	0.008-0.011	710	0.008-0.011	380	0.008-0.011	1,120	0.010-0.014	3,150	0.018-0.025
12	820	0.009-0.013	670	0.009-0.013	600	0.009-0.013	320	0.009-0.013	950	0.012-0.017	2,650	0.021-0.030
13	760	0.010-0.014	620	0.010-0.014	550	0.010-0.014	300	0.010-0.014	880	0.012-0.017	2,450	0.022-0.031

List 1150 - NEXUS GDS: Stub
List 1650 - NEXUS GDR: Jobbers

General Drilling Operations

Work Material		Low Carbon Steels Mild Steels 1010, 1018		Medium Carbon Steels 1035, 1045		Alloy Steels 4140, 4130		Tool Steels D2, H13		Stainless Steels			
										Austenitic 304 (Sulfur < 0.02%)		Austenitic 304 (Sulfur > 0.02%) 303, 317	
Drilling Speed		130-195 SFM		80-150 SFM		60-125 SFM		40-80 SFM		40-50 SFM		41-50 SFM	
Drill Dia.		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
mm	Inch	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
1	-	15,750	0.001-0.002	11,160	0.001-0.002	8,970	0.001-0.002	5,820	0.001-0.002	4,360	0.0005-0.001	4,410	0.001-0.002
-	1/16	9,920	0.001-0.003	7,000	0.001-0.003	5,650	0.001-0.003	3,650	0.001-0.003	2,750	0.0005-0.001	2,780	0.001-0.002
2	-	7,880	0.002-0.004	5,580	0.002-0.004	4,480	0.002-0.004	2,910	0.002-0.004	2,180	0.001-0.002	2,200	0.002-0.003
-	3/32	6,620	0.003-0.004	4,680	0.003-0.004	3,760	0.003-0.004	2,440	0.003-0.004	1,830	0.001-0.002	1,850	0.002-0.003
3	-	5,250	0.004-0.005	3,720	0.004-0.005	2,990	0.004-0.005	1,940	0.004-0.005	1,450	0.001-0.003	1,470	0.003-0.004
-	1/8	4,960	0.004-0.005	3,500	0.004-0.005	2,820	0.004-0.005	1,830	0.004-0.005	1,370	0.001-0.003	1,390	0.003-0.004
4	-	3,940	0.004-0.006	2,790	0.004-0.006	2,240	0.004-0.006	1,455	0.004-0.006	1,090	0.002-0.003	1,100	0.003-0.005
-	3/16	3,310	0.005-0.007	2,340	0.005-0.007	1,880	0.005-0.007	1,220	0.005-0.007	915	0.002-0.004	925	0.004-0.006
6	-	2,630	0.005-0.008	1,860	0.005-0.008	1,490	0.005-0.008	970	0.005-0.008	725	0.003-0.005	735	0.005-0.007
-	1/4	2,480	0.005-0.008	1,750	0.005-0.008	1,410	0.005-0.008	910	0.005-0.008	685	0.003-0.005	695	0.005-0.007
8	-	1,970	0.007-0.009	1,395	0.007-0.009	1,120	0.007-0.009	725	0.007-0.009	545	0.003-0.006	550	0.006-0.009
-	3/8	1,650	0.008-0.011	1,170	0.008-0.011	940	0.008-0.011	610	0.008-0.011	460	0.004-0.007	460	0.007-0.011
10	-	1,575	0.008-0.011	1,115	0.008-0.011	900	0.008-0.011	580	0.008-0.011	435	0.004-0.008	440	0.008-0.011
-	7/16	1,420	0.009-0.012	1,000	0.009-0.012	810	0.009-0.012	520	0.009-0.012	390	0.005-0.009	400	0.009-0.012
12	-	1,310	0.009-0.013	930	0.009-0.013	750	0.009-0.013	485	0.009-0.013	365	0.005-0.009	370	0.009-0.013
-	1/2	1,240	0.010-0.014	870	0.010-0.014	705	0.010-0.014	450	0.010-0.014	345	0.005-0.010	350	0.010-0.014

1. The indicated speeds and feeds are for drilling with water soluble coolant.
2. The most suitable cutting fluid is water-emulsifiable high density oil (less than 10 times dilution)
3. When drilling cast surface (ie.not ground surface), reduce drilling speed by 20%.
4. For drilling depth>3D, reduce drilling speed (using the table below).
5. Step feeding is required for drilling depth>4D.
6. When using non-water soluble coolant or water-emulsifiable (over 10 times dilution), reduce the drilling speed by 20%.

D: Drill Diameter

Drilling Depth	≤4D	≤5D	≤6D
Coefficient for reducing RPM	x0.9	x0.8	x0.75

continued on next page

Work Material		Stainless Steels						Cast Iron		Aluminum Alloy 5052, 7075		Cast Aluminum		Copper Copper Alloy	
		Martensitic 420, 440		Ferritic 430, 405		15-5PH 17-4PH									
Drilling Speed		42-50 SFM		43-50 SFM		44-50 SFM		110-195 SFM		105-205 SFM		205-325 SFM		130-195 SFM	
Drill Dia.		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
mm	Inch	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
1	-	4,460	0.0005-0.001	4,510	0.0005-0.001	4,550	0.0005-0.001	14,780	0.001-0.002	15,000	0.001-0.002	25,000	0.001-0.002	15,750	0.0005-0.001
-	1/16	2,810	0.0005-0.001	2,840	0.0005-0.001	2,870	0.0005-0.001	9,310	0.002-0.003	9,460	0.001-0.003	16,180	0.001-0.003	9,920	0.001-0.002
2	-	2,230	0.001-0.002	2,250	0.001-0.002	2,280	0.001-0.002	7,390	0.003-0.004	7,510	0.002-0.005	12,840	0.002-0.005	7,870	0.001-0.002
-	3/32	1,870	0.001-0.002	1,900	0.001-0.002	1,915	0.001-0.002	6,210	0.003-0.004	6,310	0.002-0.006	10,790	0.002-0.006	6,600	0.002-0.003
3	-	1,490	0.002-0.003	1,500	0.002-0.003	1,520	0.002-0.003	4,930	0.004-0.006	5,010	0.003-0.007	8,560	0.003-0.007	5,250	0.002-0.004
-	1/8	1,405	0.002-0.003	1,420	0.002-0.003	1,435	0.002-0.003	4,660	0.004-0.006	4,730	0.003-0.007	8,100	0.003-0.007	4,960	0.002-0.004
4	-	1,115	0.002-0.003	1,130	0.002-0.003	1,140	0.002-0.003	3,700	0.006-0.008	3,760	0.003-0.009	6,420	0.003-0.009	3,940	0.003-0.004
-	3/16	935	0.002-0.004	950	0.003-0.004	960	0.003-0.004	3,100	0.006-0.009	3,150	0.004-0.011	5,400	0.004-0.011	3,310	0.004-0.005
6	-	740	0.002-0.005	750	0.004-0.005	760	0.004-0.005	2,460	0.008-0.010	2,500	0.005-0.014	4,280	0.005-0.014	2,620	0.005-0.006
-	1/4	700	0.002-0.005	710	0.004-0.005	720	0.004-0.005	2,330	0.008-0.010	2,360	0.005-0.015	4,050	0.005-0.015	2,480	0.005-0.006
8	-	560	0.003-0.006	565	0.005-0.006	570	0.005-0.006	1,850	0.008-0.012	1,880	0.006-0.018	3,210	0.006-0.018	1,970	0.006-0.008
-	3/8	470	0.003-0.007	475	0.006-0.007	480	0.006-0.007	1,550	0.009-0.013	1,580	0.007-0.021	2,700	0.007-0.021	1,650	0.007-0.009
10	-	445	0.004-0.008	450	0.006-0.008	455	0.006-0.008	1,480	0.010-0.014	1,500	0.008-0.022	2,570	0.008-0.022	1,570	0.008-0.010
-	7/16	400	0.004-0.009	405	0.007-0.009	410	0.007-0.009	1,330	0.010-0.015	1,350	0.009-0.024	2,310	0.009-0.024	1,420	0.009-0.011
12	-	370	0.005-0.009	375	0.007-0.009	380	0.007-0.009	1,230	0.011-0.015	1,250	0.009-0.026	2,140	0.009-0.026	1,310	0.009-0.012
-	1/2	350	0.005-0.010	355	0.008-0.010	360	0.008-0.010	1,160	0.011-0.015	1,180	0.010-0.027	2,020	0.010-0.027	1,240	0.010-0.013

List 1000 - EX-GOLD®: Stub
List 1500 - EX-GOLD®: Jobbers

General Drilling Operations

Work Material		Low Carbon Steels 1010, 1018		Meduim Carbon Steels 1035, 1045		Alloy Steels 4140, 4340		Tool Steels D2, H13		Cast Iron		Cast Aluminum	
Drilling Speed		105-130 SFM		70-100 SFM		65-80 SFM		25-40 SFM		105-130 SFM		205-330 SFM	
Drill Dia.		Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
mm	Inch	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
2	-	5,710	0.002-0.004	4,120	0.002-0.004	3,520	0.002-0.004	1,570	0.002-0.004	5,700	0.003-0.004	13,000	0.006-0.008
-	3/32	4,790	0.003-0.004	3,460	0.003-0.004	2,960	0.003-0.004	1,320	0.003-0.004	4,790	0.003-0.004	10,900	0.007-0.009
3	-	3,800	0.004-0.005	2,750	0.004-0.005	2,350	0.004-0.005	1,050	0.004-0.005	3,800	0.004-0.006	8,650	0.008-0.011
-	1/8	3,590	0.004-0.005	2,600	0.004-0.005	2,220	0.004-0.005	990	0.004-0.005	3,590	0.004-0.006	8,180	0.008-0.011
4	-	2,850	0.004-0.006	2,060	0.004-0.006	1,760	0.004-0.006	790	0.004-0.006	2,850	0.006-0.008	6,480	0.010-0.013
-	3/16	2,390	0.005-0.007	1,730	0.005-0.007	1,480	0.005-0.007	660	0.005-0.007	2,390	0.006-0.009	5,450	0.011-0.016
6	-	1,900	0.005-0.007	1,370	0.005-0.007	1,170	0.005-0.007	530	0.005-0.007	1,900	0.007-0.010	4,320	0.013-0.018
-	1/4	1,800	0.005-0.007	1,300	0.005-0.007	1,110	0.005-0.007	500	0.005-0.007	1,800	0.008-0.010	4,090	0.013-0.019
8	-	1,430	0.007-0.009	1,030	0.007-0.009	880	0.007-0.009	390	0.007-0.009	1,430	0.008-0.012	3,240	0.015-0.021
-	3/8	1,200	0.008-0.011	870	0.008-0.011	740	0.008-0.011	330	0.008-0.011	1,200	0.010-0.014	2,730	0.017-0.025
10	-	1,140	0.008-0.011	820	0.008-0.011	700	0.008-0.011	320	0.008-0.011	1,140	0.010-0.014	2,600	0.018-0.025
-	7/16	1,030	0.009-0.012	740	0.009-0.012	630	0.009-0.012	280	0.009-0.012	1,030	0.011-0.015	2,340	0.019-0.027
12	-	950	0.009-0.012	680	0.009-0.012	580	0.009-0.012	260	0.009-0.012	950	0.011-0.016	2,160	0.020-0.028
-	1/2	900	0.010-0.013	650	0.010-0.013	550	0.010-0.013	250	0.010-0.013	900	0.012-0.017	2,040	0.021-0.030
14	-	810	0.011-0.014	590	0.011-0.014	500	0.011-0.014	230	0.011-0.014	820	0.012-0.017	1,850	0.022-0.031
-	5/8	720	0.012-0.015	520	0.012-0.015	440	0.012-0.015	200	0.011-0.014	720	0.013-0.018	1,640	0.023-0.032
18	-	630	0.013-0.016	450	0.013-0.016	390	0.013-0.016	180	0.012-0.015	630	0.013-0.018	1,440	0.024-0.033
-	3/4	600	0.014-0.017	430	0.014-0.017	370	0.014-0.017	170	0.013-0.016	600	0.014-0.019	1,360	0.025-0.034

1. Speeds and feeds are based on using soluble oil where applicable 1:5 to 1:10 concentration.
2. When other than an end mill collet is used, make sure the drill shank is firmly attached.
3. For deep holes (4 times the drill diameter or deeper) use the lower recommended feed rate as a starting point and increase as needed for the best result.
4. Recommended feeds and speeds are starting points only. Actual performance will be determined by specific material, the condition of equipment being used, and coolant.

List 1100 - EX-SUS-GOLD: Stub
List 1600 - EX-SUS-GOLD: Jobbers

General Drilling Operations

Work Material		Low Carbon Steels Mild Steels 1010, 1018		Stainless Steels								Aluminum 5052, 7075		Cast Aluminum		Copper Copper Alloy	
				Austenitic 304, 316		Martensitic 420, 440		Ferritic 430, 405		15-5PH 17-4PH							
Drilling Speed		100-130 SFM		40-60 SFM		50-65 SFM		50-65 SFM		25-40 SFM		105 - 205 SFM		205-325 SFM		80 - 160 SFM	
Drill Dia. mm	Drill Dia. Inch	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
1	-	11,150	0.001-0.002	4,800	0.001-0.002	5,550	0.001-0.002	5,550	0.0005-0.001	3,200	0.0005-0.001	15,000	0.001-0.002	25,000	0.001-0.002	11,630	0.0005-0.001
-	1/16	7,020	0.002-0.003	3,000	0.001-0.003	3,600	0.001-0.003	3,600	0.0005-0.001	2,000	0.0005-0.001	9,460	0.001-0.004	16,180	0.002-0.004	7,330	0.001-0.002
2	-	5,570	0.002-0.004	2,400	0.002-0.003	2,850	0.002-0.003	2,850	0.001-0.002	1,600	0.001-0.002	7,510	0.002-0.005	12,840	0.002-0.005	5,820	0.001-0.002
-	3/32	4,680	0.003-0.004	2,000	0.002-0.003	2,400	0.002-0.003	2,400	0.001-0.002	1,350	0.001-0.002	6,310	0.002-0.006	10,790	0.002-0.006	4,890	0.001-0.003
3	-	3,710	0.004-0.005	1,600	0.002-0.004	1,900	0.002-0.004	1,900	0.002-0.003	1,100	0.002-0.003	5,010	0.002-0.007	8,560	0.002-0.007	3,880	0.002-0.004
-	1/8	3,510	0.004-0.005	1,500	0.003-0.004	1,800	0.002-0.004	1,800	0.002-0.003	1,000	0.002-0.003	4,730	0.003-0.007	8,090	0.003-0.007	3,660	0.002-0.004
4	-	2,790	0.004-0.006	1,200	0.003-0.005	1,450	0.003-0.005	1,450	0.002-0.003	800	0.002-0.003	3,760	0.003-0.009	6,420	0.003-0.009	2,910	0.003-0.004
-	3/16	2,340	0.005-0.007	1,000	0.004-0.006	1,200	0.004-0.006	1,200	0.003-0.004	680	0.003-0.004	3,150	0.004-0.011	5,390	0.004-0.011	2,440	0.004-0.005
6	-	1,860	0.005-0.008	800	0.005-0.007	950	0.006-0.007	950	0.004-0.005	550	0.004-0.005	2,500	0.005-0.014	4,280	0.005-0.014	1,940	0.005-0.006
-	1/4	1,750	0.006-0.008	750	0.005-0.007	900	0.006-0.007	900	0.004-0.005	510	0.004-0.005	2,360	0.005-0.015	4,050	0.005-0.015	1,830	0.005-0.007
8	-	1,400	0.007-0.009	600	0.006-0.009	720	0.008-0.009	720	0.005-0.006	400	0.005-0.006	1,880	0.006-0.018	3,210	0.006-0.018	1,450	0.006-0.008
-	3/8	1,170	0.008-0.010	500	0.007-0.010	600	0.009-0.011	600	0.006-0.007	340	0.006-0.007	1,580	0.007-0.021	2,700	0.007-0.021	1,220	0.007-0.009
10	-	1,110	0.008-0.011	480	0.008-0.011	570	0.010-0.012	570	0.006-0.008	320	0.006-0.008	1,500	0.008-0.022	2,570	0.008-0.022	1,160	0.008-0.010
-	7/16	1,000	0.009-0.012	430	0.008-0.012	520	0.011-0.013	520	0.006-0.009	300	0.006-0.009	1,350	0.008-0.024	2,310	0.008-0.024	1,050	0.009-0.011
12	-	930	0.009-0.013	400	0.009-0.013	480	0.012-0.014	480	0.007-0.009	280	0.007-0.009	1,250	0.009-0.026	2,140	0.009-0.026	970	0.009-0.012
-	1/2	880	0.010-0.014	380	0.010-0.014	450	0.013-0.015	450	0.007-0.010	260	0.007-0.010	1,180	0.010-0.027	2,020	0.010-0.027	920	0.010-0.012
14	-	800	0.011-0.015	340	0.011-0.015	410	0.014-0.018	410	0.008-0.012	225	0.008-0.012	1,070	0.011-0.029	1,830	0.011-0.029	830	0.010-0.013
-	5/8	700	0.011-0.016	300	0.012-0.017	360	0.015-0.020	360	0.009-0.012	200	0.009-0.012	950	0.012-0.032	1,620	0.012-0.032	735	0.011-0.014
16	-	695	0.011-0.017	300	0.012-0.017	355	0.015-0.020	355	0.009-0.013	200	0.009-0.013	940	0.012-0.033	1,600	0.012-0.033	725	0.011-0.015
18	-	620	0.013-0.019	265	0.013-0.019	320	0.016-0.021	320	0.010-0.014	175	0.010-0.014	835	0.013-0.037	1,420	0.013-0.037	650	0.011-0.016
-	3/4	585	0.013-0.020	250	0.013-0.019	300	0.016-0.021	300	0.010-0.015	165	0.010-0.015	790	0.013-0.038	1,350	0.013-0.038	610	0.012-0.016
20	-	555	0.013-0.021	240	0.013-0.020	285	0.016-0.022	285	0.010-0.016	160	0.010-0.016	750	0.014-0.039	1,280	0.014-0.039	580	0.012-0.017
22	-	510	0.015-0.022	215	0.014-0.021	260	0.017-0.024	260	0.011-0.017	145	0.011-0.017	680	0.015-0.043	1,170	0.015-0.043	530	0.013-0.019
24	-	465	0.015-0.024	200	0.015-0.022	240	0.017-0.026	240	0.012-0.019	135	0.012-0.019	625	0.016-0.045	1,070	0.016-0.045	480	0.013-0.021
26	-	430	0.016-0.026	185	0.016-0.024	220	0.018-0.028	220	0.013-0.021	120	0.013-0.021	580	0.017-0.048	990	0.017-0.048	450	0.013-0.022
28	-	400	0.017-0.028	170	0.016-0.025	200	0.018-0.029	200	0.013-0.022	115	0.013-0.022	535	0.018-0.051	920	0.018-0.051	410	0.014-0.023
30	-	370	0.018-0.030	160	0.017-0.026	190	0.018-0.031	190	0.014-0.024	105	0.014-0.024	500	0.019-0.053	860	0.019-0.053	390	0.014-0.025
32	-	350	0.019-0.032	150	0.017-0.028	180	0.018-0.032	180	0.015-0.025	100	0.015-0.025	470	0.020-0.056	800	0.020-0.056	360	0.015-0.026

List 1200 - EX-SPOT TiN-NC-LDS
List 1250 - EX-SPOT LS-NC-LDS

General Drilling Operations

Work Material	Carbon Steels, Mild Steel 1010, 1050		Alloy Steels 4140, 4130		Stainless Steels 300SS, 400SS, 17-4PH		Cast Iron		Cast Aluminum		Tool Steels, Hardened Steels			
Hardness											26-30 HRC		30-34 HRC	
Drilling Speed	105-130 SFM		65-85 SFM		25-40 SFM		85-105 SFM		165-325 SFM		30-45 SFM		25-40 SFM	
Drill Dia. mm	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
3	3,850	0.001-0.003	2,400	0.001-0.003	1,060	0.001-0.003	3,100	0.001-0.003	8,000	0.004-0.009	1,220	0.001-0.003	1,060	0.001-0.003
4	2,900	0.002-0.004	1,800	0.002-0.004	800	0.002-0.004	2,400	0.002-0.005	6,000	0.005-0.010	910	0.002-0.004	800	0.002-0.004
6	1,900	0.002-0.005	1,180	0.002-0.005	530	0.002-0.005	1,600	0.002-0.005	4,000	0.005-0.011	610	0.002-0.005	530	0.002-0.005
8	1,400	0.003-0.006	900	0.003-0.006	400	0.003-0.006	1,200	0.003-0.006	3,000	0.007-0.012	450	0.003-0.006	400	0.003-0.006
10	1,120	0.004-0.007	710	0.004-0.007	320	0.004-0.007	950	0.004-0.007	2,400	0.009-0.014	360	0.004-0.007	320	0.004-0.007
12	950	0.005-0.008	600	0.005-0.008	270	0.005-0.008	800	0.005-0.008	2,000	0.010-0.016	300	0.005-0.008	270	0.005-0.008
16	720	0.006-0.011	450	0.006-0.011	200	0.006-0.011	600	0.006-0.011	1,500	0.012-0.019	220	0.006-0.011	200	0.006-0.011
20	560	0.008-0.013	360	0.008-0.013	160	0.008-0.013	480	0.008-0.013	1,200	0.016-0.024	180	0.008-0.013	160	0.008-0.013
25	450	0.010-0.018	290	0.010-0.018	130	0.010-0.018	380	0.010-0.018	960	0.020-0.029	150	0.010-0.018	130	0.010-0.018

1. The indicated speeds and feeds are for drilling with water soluble oil.
2. When using non-water soluble oil, reduce the drilling speed by 20%.
3. When entering on a curved or inclined surface, reduce the feed rate accordingly.
4. When using a coated tool, the drilling speed can be increased by 1.2 times the value in the table.

List 163-SO
List 164-SO
List 110-SO

Work Material		Carbon Steels Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300, 400, 17-4PH		Cast Iron		Ductile Cast Iron	
Drilling Speed		80-230 SFM		66-130 SFM		25-105 SFM		80-180 SFM		40-115 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
1	-	15,119	0.0008-0.0010	9,550	0.0004-0.0007	6,367	0.0004-0.0012	12,733	0.0006-0.0007	7,481	0.0004-0.0006
2	-	7,559	0.0016-0.0020	4,775	0.0009-0.0014	3,183	0.0008-0.0024	6,367	0.0012-0.0014	3,740	0.0009-0.0012
-	3/32	6,349	0.0019-0.0023	4,010	0.0010-0.0017	2,674	0.0010-0.0029	5,347	0.0014-0.0017	3,142	0.0010-0.0014
3	-	5,040	0.0024-0.0030	3,183	0.0013-0.0021	2,122	0.0012-0.0036	4,244	0.0018-0.0021	2,494	0.0013-0.0018
-	1/8	4,762	0.0025-0.0031	3,008	0.0014-0.0023	2,005	0.0013-0.0038	4,010	0.0019-0.0023	2,356	0.0014-0.0019
4	-	3,780	0.0031-0.0039	2,388	0.0017-0.0028	1,592	0.0017-0.0048	3,183	0.0024-0.0028	1,870	0.0017-0.0024
-	3/16	3,175	0.0038-0.0047	2,005	0.0021-0.0034	1,337	0.0020-0.0058	2,674	0.0028-0.0034	1,571	0.0021-0.0028
6	-	2,520	0.0047-0.0059	1,592	0.0026-0.0043	1,061	0.0025-0.0073	2,122	0.0035-0.0043	1,247	0.0026-0.0035
-	1/4	2,381	0.0050-0.0063	1,504	0.0028-0.0045	1,003	0.0027-0.0077	2,005	0.0038-0.0045	1,178	0.0028-0.0038
8	-	1,890	0.0063-0.0079	1,194	0.0035-0.0057	796	0.0034-0.0097	1,592	0.0047-0.0057	935	0.0035-0.0047
-	3/8	1,587	0.0075-0.0094	1,003	0.0041-0.0068	668	0.0041-0.0116	1,337	0.0056-0.0068	785	0.0041-0.0056
10	-	1,512	0.0079-0.0098	955	0.0043-0.0071	637	0.0043-0.0122	1,273	0.0059-0.0071	748	0.0043-0.0059
-	7/16	1,361	0.0088-0.0109	859	0.0048-0.0079	573	0.0048-0.0135	1,146	0.0066-0.0079	673	0.0048-0.0066
12	-	1,260	0.0094-0.0118	796	0.0052-0.0085	531	0.0051-0.0146	1,061	0.0071-0.0085	623	0.0052-0.0071
-	1/2	1,190	0.0100-0.0125	752	0.0055-0.0090	501	0.0055-0.0155	1,003	0.0075-0.0090	589	0.0055-0.0075
14	-	1,080	0.0110-0.0138	682	0.0061-0.0099	455	0.0060-0.0170	910	0.0083-0.0099	534	0.0061-0.0083
-	19/32	1,002	0.1190-0.0148	633	0.0065-0.0107	422	0.0065-0.0184	844	0.0089-0.0106	496	0.0065-0.0089
16	-	945	0.0126-0.0157	597	0.0069-0.0113	398	0.0069-0.0195	796	0.0094-0.0113	468	0.0069-0.0094

Work Material		Aluminum				Copper		Synthetics		High Heat Material			
		Alloy		Casting						Ti-Alloy, Ti-6Al-4V		Ni-Base Material, Inconel	
Drilling Speed		245-410 SFM		90-380 SFM		90-350 SFM		50-410 SFM		15-115 SFM		15-80 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch												
1	-	31,833	0.0009-0.0018	22,602	0.0009-0.0018	21,010	0.0009-0.0018	22,283	0.0007-0.0018	6,367	0.0003-0.0004	4,775	0.0003-0.0007
2	-	15,917	0.0018-0.0035	11,301	0.0017-0.0035	10,505	0.0017-0.0035	11,142	0.0015-0.0035	3,183	0.0005-0.0009	2,388	0.0005-0.0014
-	3/32	13,368	0.0022-0.0042	9,492	0.0021-0.0042	8,823	0.0021-0.0042	9,358	0.0018-0.0042	2,674	0.0006-0.0010	2,005	0.0006-0.0017
3	-	10,611	0.0027-0.0053	7,534	0.0026-0.0053	7,003	0.0026-0.0053	7,428	0.0022-0.0053	2,122	0.0008-0.0013	1,592	0.0008-0.0021
-	1/8	10,026	0.0029-0.0056	7,119	0.0028-0.0056	6,617	0.0028-0.0056	7,018	0.0024-0.0056	2,005	0.0008-0.0014	1,504	0.0008-0.0023
4	-	7,958	0.0036-0.0071	5,650	0.0035-0.0071	5,253	0.0035-0.0071	5,571	0.0030-0.0071	1,592	0.0010-0.0017	1,194	0.0010-0.0028
-	3/16	6,684	0.0043-0.0084	4,746	0.0041-0.0084	4,412	0.0041-0.0084	4,679	0.0036-0.0084	1,337	0.0012-0.0021	1,003	0.0012-0.0034
6	-	5,306	0.0054-0.0106	3,767	0.0052-0.0106	3,502	0.0052-0.0106	3,714	0.0045-0.0106	1,061	0.0015-0.0026	796	0.0015-0.0043
-	1/4	5,013	0.0058-0.0113	3,559	0.0055-0.0113	3,309	0.0055-0.0113	3,509	0.0048-0.0113	1,003	0.0016-0.0028	752	0.0016-0.0045
8	-	3,979	0.0072-0.0142	2,825	0.0069-0.0142	2,626	0.0069-0.0142	2,785	0.0060-0.0142	796	0.0020-0.0035	597	0.0020-0.0057
-	3/8	3,342	0.0086-0.0169	2,373	0.0083-0.0169	2,206	0.0083-0.0169	2,339	0.0071-0.0169	668	0.0024-0.0041	501	0.0024-0.0068
10	-	3,183	0.0091-0.0177	2,260	0.0087-0.0177	2,101	0.0087-0.0177	2,228	0.0075-0.0177	637	0.0026-0.0043	478	0.0026-0.0071
-	7/16	2,865	0.0101-0.0197	2,034	0.0096-0.0197	1,891	0.0096-0.0197	2,005	0.0083-0.0197	573	0.0028-0.0048	430	0.0028-0.0079
12	-	2,653	0.0109-0.0213	1,883	0.0104-0.0213	1,751	0.0104-0.0213	1,857	0.0090-0.0213	531	0.0031-0.0052	398	0.0031-0.0085
-	1/2	2,507	0.0115-0.0225	1,780	0.0110-0.0225	1,654	0.0110-0.0225	1,755	0.0095-0.0225	501	0.0033-0.0055	376	0.0033-0.0090
14	-	2,274	0.0127-0.0248	1,614	0.0121-0.0248	1,501	0.0121-0.0248	1,592	0.0105-0.0248	455	0.0036-0.0061	341	0.0036-0.0099
-	19/32	2,110	0.0136-0.0267	1,500	0.0136-0.0267	1390	0.0130-0.0267	1,480	0.0112-0.0267	420	0.0038-0.0065	320	0.0038-0.0106
16	-	1,990	0.0144-0.0283	1,410	0.0144-0.0283	1310	0.0138-0.0283	1,390	0.0119-0.0283	400	0.0040-0.0069	300	0.0040-0.0113

List 1R5-SO
List 1BB-SO
List 1AQ-SO
List 1W6-SO
List 1G7-SO

Work Material		Carbon Steels Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300, 400, 17-4PH		Cast Iron		Ductile Cast Iron	
Drilling Speed		80-165 SFM		30-100 SFM		30-75 SFM		115-150 SFM		50-115 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
1	-	11,936	0.0004-0.0016	6,367	0.0004-0.0008	5,093	0.0004-0.0011	12,733	0.0007-0.0016	7,958	0.0004-0.0008
2	-	5,968	0.0008-0.0031	3,183	0.0008-0.0016	2,547	0.0008-0.0022	6,367	0.0014-0.0031	3,979	0.0008-0.0016
-	3/32	5,012	0.0010-0.0038	2,674	0.0010-0.0019	2,139	0.0010-0.0027	5,347	0.0017-0.0038	3,342	0.0010-0.0019
3	-	3,979	0.0012-0.0047	2,122	0.0012-0.0024	1,698	0.0012-0.0033	4,244	0.0021-0.0047	2,653	0.0012-0.0024
-	1/8	3,759	0.0013-0.0050	2,005	0.0013-0.0026	1,604	0.0013-0.0035	4,010	0.0023-0.0050	2,507	0.0013-0.0026
4	-	2,984	0.0017-0.0063	1,592	0.0017-0.0033	1,273	0.0017-0.0045	3,183	0.0028-0.0063	1,990	0.0017-0.0033
-	3/16	2,506	0.0020-0.0075	1,337	0.0020-0.0039	1,069	0.0020-0.0053	2,674	0.0034-0.0075	1,671	0.0020-0.0039
6	-	1,989	0.0025-0.0094	1,061	0.0025-0.0049	849	0.0025-0.0067	2,122	0.0043-0.0094	1,326	0.0025-0.0049
-	1/4	1,880	0.0026-0.0100	1,003	0.0026-0.0052	802	0.0026-0.0071	2,005	0.0045-0.0100	1,253	0.0026-0.0052
8	-	1,492	0.0033-0.0126	796	0.0033-0.0065	637	0.0033-0.0089	1,592	0.0057-0.0126	995	0.0033-0.0065
-	3/8	1,253	0.0039-0.0150	668	0.0039-0.0078	535	0.0039-0.0106	1,337	0.0068-0.0150	836	0.0039-0.0078
10	-	1,194	0.0041-0.0157	637	0.0041-0.0081	509	0.0041-0.0112	1,273	0.0071-0.0157	796	0.0041-0.0081
-	7/16	1,074	0.0046-0.0175	573	0.0046-0.0090	458	0.0046-0.0124	1,146	0.0079-0.0175	716	0.0046-0.0090
12	-	995	0.0050-0.0189	531	0.0050-0.0098	424	0.0050-0.0134	1,061	0.0085-0.0189	663	0.0050-0.0098
-	1/2	940	0.0053-0.0200	501	0.0053-0.0103	401	0.0053-0.0142	1,003	0.0090-0.0200	627	0.0053-0.0103
13	-	918	0.0054-0.0205	490	0.0054-0.0106	392	0.0054-0.0145	979	0.0092-0.0205	612	0.0054-0.0106

continued on next page

Work Material		Aluminum				Copper		High Heat Material			
		6061, 7075		Casting				Ti-Alloy, Ti-6Al-4V		Ni-Base Material, Inconel	
Drilling Speed		115-200 SFM		75-130 SFM		50-90 SFM		20-105 SFM		15-50 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
1	-	15,121	0.0006-0.0016	10,028	0.0006-0.0011	6,844	0.0004-0.0008	6,048	0.0004-0.0008	3,024	0.0003-0.0011
2	-	7,560	0.0011-0.0031	5,014	0.0011-0.0022	3,422	0.0008-0.0016	3,024	0.0008-0.0016	1,512	0.0006-0.0022
-	3/32	6,350	0.0013-0.0038	4,211	0.0013-0.0027	2,874	0.0010-0.0019	2,540	0.0010-0.0019	1,270	0.0008-0.0027
3	-	5,040	0.0017-0.0047	3,343	0.0017-0.0033	2,281	0.0012-0.0024	2,016	0.0012-0.0024	1,008	0.0009-0.0033
-	1/8	4,762	0.0018-0.0050	3,158	0.0018-0.0035	2,156	0.00130-0.0026	1,905	0.0013-0.0026	952	0.0010-0.0035
4	-	3,780	0.0022-0.0063	2,507	0.0022-0.0045	1,711	0.0017-0.0033	1,512	0.0017-0.0033	756	0.0013-0.0045
-	3/16	3,175	0.0026-0.0075	2,106	0.0026-0.0053	1,437	0.0020-0.0039	1,270	0.0020-0.0039	635	0.0015-0.0053
6	-	2,520	0.0033-0.0094	1,671	0.0033-0.0067	1,141	0.0025-0.0049	1,008	0.0025-0.0049	504	0.0019-0.0067
-	1/4	2,381	0.0035-0.0100	1,579	0.0035-0.0071	1,078	0.0026-0.0052	952	0.0026-0.0052	476	0.0020-0.0071
8	-	1,890	0.0044-0.0126	1,253	0.0044-0.0089	856	0.0033-0.0065	756	0.0033-0.0065	378	0.0025-0.0089
-	3/8	1,587	0.0053-0.0150	1,053	0.0053-0.0106	719	0.0039-0.0078	635	0.0039-0.0078	317	0.0030-0.0106
10	-	1,512	0.0055-0.0157	1,003	0.0055-0.0112	684	0.0041-0.0081	605	0.0041-0.0081	302	0.0031-0.0112
-	7/16	1,361	0.0061-0.0175	902	0.0061-0.0124	616	0.0046-0.0090	544	0.0046-0.0090	272	0.0035-0.0124
12	-	1,260	0.0066-0.0189	836	0.0066-0.0134	570	0.0050-0.0098	504	0.0050-0.0098	252	0.0038-0.0134
-	1/2	1,191	0.0070-0.0200	790	0.0070-0.0142	539	0.0053-0.0103	476	0.0053-0.0103	238	0.0040-0.0142
13	-	1,163	0.0072-0.0205	771	0.0072-0.0145	526	0.0054-0.0106	465	0.0054-0.0106	233	0.0041-0.0145

List 101-SO, 102-SO
List 1X6-SO

Work Material		Carbon Steels Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300, 400, 17-4PH		Cast Iron		Ductile Cast Iron	
Drilling Speed		30-100 SFM		30-100 SFM		30-50 SFM		80-115 SFM		50-100 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
1	-	6,366	0.0003-0.0010	4,457	0.0004-0.0008	3,502	0.0002-0.0007	9,550	0.0004-0.0008	7,163	0.0004-0.0008
2	-	3,183	0.0005-0.0020	2,228	0.0009-0.0016	1,751	0.0005-0.0014	4,775	0.0009-0.0016	3,581	0.0009-0.0016
-	3/32	2,673	0.0006-0.0023	1,872	0.0010-0.0019	1,471	0.0006-0.0017	4,010	0.0010-0.0019	3,008	0.0010-0.0019
3	-	2,122	0.0008-0.0030	1,486	0.0013-0.0024	1,167	0.0007-0.0021	3,183	0.0013-0.0024	2,388	0.0013-0.0024
-	1/8	2,005	0.0008-0.0031	1,404	0.0014-0.0026	1,103	0.0008-0.0023	3,008	0.0014-0.0026	2,256	0.0014-0.0026
4	-	1,591	0.0010-0.0039	1,114	0.0017-0.0033	875	0.0009-0.0028	2,388	0.0017-0.0033	1,791	0.0017-0.0033
-	3/16	1,337	0.0012-0.0047	936	0.0021-0.0039	735	0.0011-0.0034	2,005	0.0021-0.0039	1,504	0.0021-0.0039
6	-	1,061	0.0015-0.0059	743	0.0026-0.0049	584	0.0014-0.0043	1,592	0.0026-0.0049	1,194	0.0026-0.0049
-	1/4	1,002	0.0016-0.0063	702	0.0028-0.0052	551	0.0015-0.0045	1,504	0.0028-0.0052	1,128	0.0028-0.0052
8	-	796	0.0020-0.0079	557	0.0035-0.0065	438	0.0019-0.0057	1,194	0.0035-0.0065	895	0.0035-0.0065
-	3/8	668	0.0024-0.0094	468	0.0041-0.0078	368	0.0023-0.0068	1,003	0.0041-0.0078	752	0.0041-0.0078
10	-	637	0.0026-0.0098	446	0.0043-0.0081	350	0.0024-0.0071	955	0.0043-0.0081	716	0.0043-0.0081
-	7/16	573	0.0028-0.0109	401	0.0048-0.0090	315	0.0026-0.0079	859	0.0048-0.0090	645	0.0048-0.0090
12	-	530	0.0031-0.0118	371	0.0052-0.0098	292	0.0028-0.0085	796	0.0052-0.0098	597	0.0052-0.0098
-	1/2	501	0.0033-0.0125	351	0.0055-0.0103	276	0.0030-0.0090	752	0.0055-0.0103	564	0.0055-0.0103
14	-	455	0.0036-0.0138	318	0.0061-0.0114	250	0.0033-0.0099	682	0.0061-0.0114	512	0.0061-0.0114
-	9/16	446	0.0036-0.0140	312	0.0061-0.0116	245	0.0033-0.0101	668	0.0078-0.0116	501	0.0065-0.0118
16	-	398	0.0040-0.0157	279	0.0069-0.0130	219	0.0037-0.0113	597	0.0081-0.0132	448	0.0072-0.0132
18	-	354	0.0046-0.0177	248	0.0077-0.0146	195	0.0042-0.0127	531	0.0085-0.0148	398	0.0078-0.0148
20	-	318	0.0051-0.0197	223	0.0087-0.0163	175	0.0047-0.0142	478	0.0087-0.0163	358	0.0087-0.0163

Work Material		Aluminum				Copper		High Heat Material			
		6061, 7075		Casting				Ti-Alloy, Ti-6Al-4V		Ni-Base Material, Inconel	
Drilling Speed		30-100 SFM		100-330 SFM		50-165 SFM		25-80 SFM		15-35 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
1	-	11,938	0.0010-0.0013	20,692	0.0010-0.0013	10,346	0.0010-0.0013	5,093	0.0003-0.0006	2,388	0.0001-0.0004
2	-	5,969	0.0020-0.0025	10,346	0.0020-0.0025	5,173	0.0020-0.0025	2,547	0.0005-0.0011	1,194	0.0005-0.0009
-	3/32	5,013	0.0023-0.0030	8,689	0.0023-0.0030	4,345	0.0023-0.0030	2,139	0.0006-0.0013	1,003	0.0005-0.0010
3	-	3,979	0.0030-0.0038	6,897	0.0030-0.0038	3,449	0.0030-0.0038	1,698	0.0008-0.0017	796	0.0010-0.0013
-	1/8	3,760	0.0031-0.0040	6,517	0.0031-0.0040	3,259	0.0031-0.0040	1,604	0.0008-0.0018	752	0.0010-0.0014
4	-	2,984	0.0039-0.0050	5,173	0.0039-0.0050	2,586	0.0039-0.0050	1,273	0.0010-0.0022	597	0.0014-0.0017
-	3/16	2,507	0.0047-0.0060	4,345	0.0047-0.0060	2,172	0.0047-0.0060	1,069	0.0012-0.0026	501	0.0018-0.0021
6	-	1,990	0.0059-0.0076	3,449	0.0059-0.0076	1,724	0.0059-0.0076	849	0.0015-0.0033	398	0.0020-0.0026
-	1/4	1,880	0.0063-0.0080	3,259	0.0063-0.0080	1,629	0.0063-0.0080	802	0.0016-0.0035	376	0.0024-0.0028
8	-	1,492	0.0079-0.0101	2,586	0.0079-0.0101	1,293	0.0079-0.0101	637	0.0020-0.0044	298	0.0030-0.0035
-	3/8	1,253	0.0094-0.0120	2,172	0.0094-0.0120	1,086	0.0094-0.0120	535	0.0024-0.0053	251	0.0037-0.0041
10	-	1,194	0.0098-0.0126	2,069	0.0098-0.0126	1,035	0.0098-0.0126	509	0.0026-0.0055	239	0.0039-0.0043
-	7/16	1,074	0.0109-0.0140	1,862	0.0109-0.0140	931	0.0109-0.0140	458	0.0028-0.0061	215	0.0044-0.0048
12	-	995	0.0118-0.0151	1,724	0.0118-0.0151	862	0.0118-0.0151	424	0.0031-0.0066	199	0.0047-0.0052
-	1/2	940	0.0125-0.0160	1,629	0.0125-0.0160	815	0.0125-0.0160	401	0.0033-0.0070	188	0.0050-0.0055
14	-	853	0.0138-0.0176	1,478	0.0138-0.0176	739	0.0138-0.0176	364	0.0036-0.0077	171	0.0055-0.0061
-	9/16	836	0.0140-0.0180	1,448	0.0140-0.0182	724	0.0140-0.0180	356	0.0036-0.0078	167	0.0061-0.0065
16	-	746	0.0157-0.0187	1,293	0.0157-0.0191	647	0.0157-0.0201	318	0.0040-0.0088	149	0.0065-0.0077
18	-	663	0.0177-0.0195	1,150	0.0177-0.0187	575	0.0177-0.0226	283	0.0046-0.0099	133	0.0077-0.0081
20	-	597	0.0197-0.0252	1,035	0.0197-0.0252	517	0.0197-0.0252	255	0.0051-0.0110	119	0.0081-0.0087

List 1NA-SO

Work Material		Carbon Steels Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Stainless Steels 300, 400, 17-4PH		Cast Iron		Ductile Cast Iron	
Drilling Speed		30-100 SFM		15-80 SFM		20-50 SFM		50-115 SFM		50-100 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
1.19	No. 1	5,349	0.0014-0.0035	3,745	0.0014-0.0035	2,943	0.0014-0.0035	8,025	0.0014-0.0035	6,019	0.0014-0.0035
1.98	No. 2	3,215	0.0023-0.0058	2,251	0.0023-0.0058	1,769	0.0023-0.0058	4,823	0.0023-0.0058	3,617	0.0023-0.0058
2.78	No. 3	2,290	0.0033-0.0082	1,603	0.0033-0.0082	1,260	0.0033-0.0082	3,435	0.0033-0.0082	2,576	0.0033-0.0082
3.18	No. 4	2,002	0.0063-0.0225	1,401	0.0063-0.0225	1,101	0.0063-0.0225	3,003	0.0063-0.0225	2,252	0.0063-0.0225
4.76	No. 5	1,337	0.0094-0.0337	936	0.0094-0.0337	736	0.0094-0.0337	2,006	0.0094-0.0337	1,505	0.0094-0.0337
5.56	No. 6	1,145	0.0219-0.0613	802	0.0219-0.0613	630	0.0219-0.0613	1,718	0.0219-0.0613	1,288	0.0219-0.0613
6.35	No. 7	1,002	0.0250-0.0700	702	0.0250-0.0700	551	0.0250-0.0700	1,504	0.0250-0.0700	1,128	0.0250-0.0700

Work Material		Aluminum				Copper		High Heat Material			
		6061, 7075		Casting				Ti-Alloy, Ti-6Al-4V		Ni-Base Material, Inconel	
Drilling Speed		30-100 SFM		100-330 SFM		50-165 SFM		25-80 SFM		15-20 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch										
1.19	No. 1	10,032	0.0014-0.0035	17,388	0.0014-0.0035	8,694	0.0014-0.0035	4,280	0.0014-0.0035	1,338	0.0014-0.0035
1.98	No. 2	6,029	0.0023-0.0058	10,450	0.0023-0.0058	5,225	0.0023-0.0058	2,572	0.0023-0.0058	804	0.0023-0.0058
2.78	No. 3	4,294	0.0033-0.0082	7,443	0.0033-0.0082	3,722	0.0033-0.0082	1,832	0.0033-0.0082	573	0.0033-0.0082
3.18	No. 4	3,754	0.0063-0.0225	6,507	0.0063-0.0225	3,253	0.0063-0.0225	1,602	0.0063-0.0225	501	0.0063-0.0225
4.76	No. 5	2,508	0.0094-0.0337	4,347	0.0094-0.0337	2,173	0.0094-0.0337	1,070	0.0094-0.0337	334	0.0094-0.0337
5.56	No. 6	2,147	0.0219-0.0613	3,722	0.0219-0.0613	1,861	0.0219-0.0613	916	0.0219-0.0613	286	0.0219-0.0613
6.35	No. 7	1,880	0.0250-0.0700	3,259	0.0250-0.0700	1,629	0.0250-0.0700	802	0.0250-0.0700	251	0.0250-0.0700

List 751-SO
List 752-SO

Work Material		Carbon Steels Mild Steels 1010, 1050, 12L14		Alloy Steels 4140, 4130		Tool Steel		Stainless Steels 300, 400, 17-4PH	
Drilling Speed		50-80 SFM		15-50 SFM		15-25 SFM		20-40 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch								
2	-	3,155	0.003-0.004	1,575	0.002-0.004	970	0.002-0.003	1,455	0.002-0.004
-	3/32	2,650	0.003-0.005	1,325	0.003-0.004	815	0.002-0.003	1,220	0.003-0.005
3	-	2,100	0.004-0.007	1,505	0.003-0.005	645	0.002-0.004	970	0.003-0.007
-	1/8	1,985	0.005-0.008	995	0.004-0.006	610	0.003-0.004	915	0.004-0.008
4	-	1,575	0.005-0.008	790	0.004-0.007	485	0.003-0.005	730	0.004-0.008
-	3/16	1,325	0.005-0.009	660	0.004-0.007	405	0.003-0.005	610	0.004-0.009
6	-	1,050	0.006-0.010	525	0.005-0.008	325	0.004-0.006	485	0.005-0.010
-	1/4	995	0.006-0.010	495	0.005-0.008	305	0.004-0.007	460	0.005-0.010
8	-	790	0.006-0.011	395	0.005-0.009	245	0.004-0.007	365	0.005-0.011
-	3/8	660	0.007-0.012	330	0.006-0.010	205	0.005-0.008	305	0.006-0.012
10	-	630	0.008-0.013	315	0.006-0.010	195	0.005-0.008	290	0.006-0.013
-	7/16	570	0.008-0.013	285	0.007-0.011	175	0.005-0.009	260	0.007-0.013
12	-	525	0.008-0.014	265	0.007-0.012	160	0.005-0.009	245	0.007-0.014
-	1/2	495	0.009-0.015	250	0.008-0.013	155	0.006-0.010	230	0.008-0.015
14	-	450	0.010-0.016	225	0.008-0.013	140	0.006-0.010	210	0.008-0.016
-	3/4	330	0.010-0.016	165	0.008-0.014	100	0.006-0.011	155	0.008-0.016
20	-	315	0.012-0.019	160	0.009-0.015	95	0.007-0.012	145	0.009-0.019

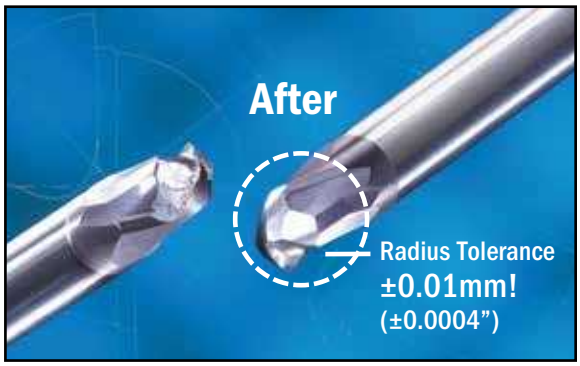
Work Material		Cast Iron		Ductile Cast Iron		High Heat Material			
						Ti-Alloy, Ti-6Al-4V		Ni-Base Material, Inconel	
Drilling Speed		40-60 SFM		30-50 SFM		10-40 SFM		5-15 SFM	
Drill Dia.		Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR	Speed RPM	Feed IPR
mm	Inch								
2	-	2,425	0.003-0.007	1,940	0.003-0.004	1,215	0.002-0.004	485	0.003-0.005
-	3/32	2,035	0.004-0.008	1,630	0.003-0.005	1,020	0.003-0.005	405	0.003-0.007
3	-	1,615	0.005-0.009	1,295	0.004-0.007	810	0.003-0.007	325	0.004-0.008
-	1/8	1,530	0.005-0.011	1,220	0.005-0.008	765	0.004-0.008	305	0.005-0.009
4	-	1,215	0.006-0.011	970	0.005-0.008	605	0.004-0.008	245	0.005-0.009
-	3/16	1,020	0.006-0.012	815	0.005-0.009	510	0.004-0.009	205	0.005-0.010
6	-	810	0.007-0.015	645	0.006-0.010	405	0.005-0.010	160	0.006-0.012
-	1/4	765	0.007-0.016	610	0.006-0.010	380	0.005-0.010	155	0.006-0.012
8	-	605	0.008-0.017	485	0.006-0.011	305	0.005-0.011	120	0.006-0.013
-	3/8	510	0.009-0.018	405	0.007-0.012	255	0.006-0.012	100	0.007-0.015
10	-	485	0.009-0.019	390	0.008-0.013	245	0.006-0.013	95	0.008-0.016
-	7/16	435	0.010-0.020	350	0.008-0.013	220	0.007-0.013	85	0.008-0.017
12	-	405	0.011-0.021	325	0.008-0.014	200	0.007-0.014	80	0.008-0.018
-	1/2	380	0.011-0.023	305	0.009-0.015	190	0.008-0.015	75	0.009-0.019
14	-	345	0.012-0.024	275	0.010-0.016	175	0.008-0.016	70	0.010-0.020
-	3/4	255	0.012-0.025	205	0.010-0.016	125	0.008-0.016	50	0.010-0.020
20	-	245	0.014-0.026	195	0.012-0.019	120	0.009-0.019	50	0.012-0.023

Drill
Reconditioning



OSG Tool Reconditioning

OSG's Bensenville facility is the special cutting tool and regrinding authority based in the Chicago area. Through accurate and expedient regrinds of high-end cutting tools, OSG helps customers extend tool life and save money by restoring their used cutting tools to their original condition. In addition to regrinding, the Bensenville facility also manufactures custom drills, reamers, and other special cutting tools, performs product modifications and provides premium coating services.





As part of the OSG Corporation (headquartered in Japan), the regrind facility is the only OSG authorized regrinding source in America. The regrinding program uses the same OSG manufacturing drawings, adheres to OSG's strict quality control standards and uses the same equipment for OSG manufacturing and inspection procedures. As one of the world's leading cutting tool manufacturers, OSG offers a global network of support to our customers.

Tool Reconditioning Lowers Costs

The primary benefit of tool reconditioning is clear: the reduction in overall tooling costs. As part of normal production, tool wear, chipping and breakage occurs often affecting tool performance and increasing manufacturing costs. By reconditioning high performance drills, end mills and taps, OSG helps manufacturers realize substantial cost savings through extended tool life without jeopardizing production quality or performance. Because OSG's reconditioned tools are manufactured to the same high level of quality and held to the same exacting standards that new tools are, customers of OSG's tool reconditioning services can expect the same high performance and quality they are accustomed with OSG's new tools even after regrinding multiple times.

Engineering & Sales Support

OSG reconditions OSG tools using the same prints as the original tools made in our plants around the world. By using original part drawings, tools are accurately reconditioned to the original specifications, so customers are assured that reconditioned tools realize the same high level of performance. Manufacturers can also work directly with OSG design engineers to customize tools for enhanced performance or to meet specific requirements.



OSG's national sales team provides tooling expertise in the field for onsite evaluations and recommendations for manufacturers to implement a customized reconditioning program. The goal is to help manufacturers reduce tool costs and inventory, optimize performance and enhance overall profits.

Contact your OSG representative or distributor to review your tool reconditioning program.



CNC Training

OSG CNC technicians are extensively trained on proper setup methodologies and reconditioning processes by an on-staff CNC trainer. Through their development, the CNC Technician training program moves operators through three levels where they are diligently monitored and certified/reevaluated annually to maintain consistency and quality in our tools. Technicians are also trained and certified/reevaluated annually by Quality Assurance to perform inspections to print on first piece and in process tools.

Inspector Training

In order to guarantee that our tools are reconditioned to the highest standards, inspectors also undergo annual training and certifications which involve standardized procedures. These are the same methods that are used in the OSG manufacturing facilities in Japan and around the world. Inspectors are trained to inspect and measure tools completely to the original tool prints.

Throughout the reconditioning process, the tools are also continuously inspected until 100% visual inspection ensures that no chipped or defective tools are received by the customer. The high tech inspection equipment used at the reconditioning facility is the same equipment used at all OSG locations. This includes in-house developed tool analyzers and state-of-the-art equipment with up to 300x magnification capabilities. The key to inspecting high performance, accurate reconditioned tools is assuring that they are held to the same inspection standards through the use of the same inspection methods as new OSG tools.

The Bensenville plant is subject to OSG's stringent JQA regrinding standards and is certified regularly by OSG Japan.

Equipment and Facility

In 2015, OSG opened a reconditioning facility which is equipped with state-of-the-art production and inspection equipment. The facility uses high precision 5-Axis CNC grinders throughout the reconditioning process for improved repeatability and precision.

OSG's weekly equipment Preventive Maintenance (PM) program ensures consistency and accuracy throughout the reconditioning process. Through this PM program, OSG's tool reconditioning performance will be consistent year after year.





THREADING

The A Brand®

OSG's premium tooling brand. Features products that are designed to exceed the evolving manufacturing needs of our customers.

EXOPRO®

OSG's ultra-premium tooling series. Features supreme performance threading products with OSG's proprietary coatings for maximum cost-efficiency and productivity.

EXOCARB® *Thread Mill*

Premium sub-micrograin carbide thread mills suited for cast iron, steels, exotics and difficult-to-machine materials.

EXOCARB®

Ultra-high performance taps made from premium micrograin carbide used in automotive production, tapping hardened steels and threading the most abrasive of composite materials.

EXOTAP®

Ultra-premium taps made from VC-10 powdered metal high speed steel. EXOTAP® is the industry solution for difficult materials and applications, when no other tap seems to do the job.

HY-PRO®

Premium taps made from vanadium high speed steel and designed for a wide range of applications and industries.

HY-PRO® *SEVEN*

Semi-premium taps made from premium high speed steel for general purpose tapping applications.

GENERAL PURPOSE

Premium general purpose taps for general machining applications. Available in a variety of styles and coatings.

SOMTA

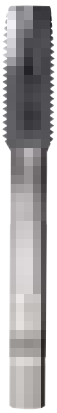
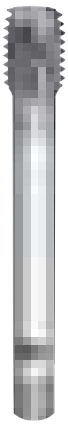
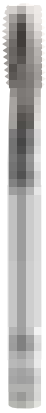
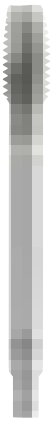
Value taps for a wide range of applications.



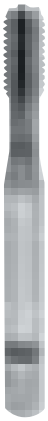
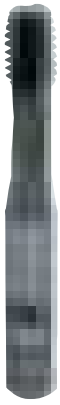
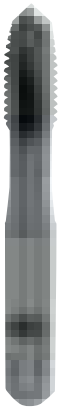
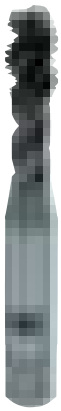
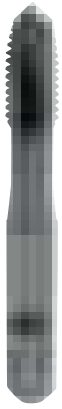
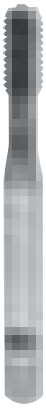




Featured Threading Products

	A Brand® A-SFT & A-POT				EXOPRO® XPF		EXOPRO® WHR-Ni				EXOPRO® CC-SUS	
	P492-502		P577-585		P448-464		P506-508		P588-590		P503-505	
												
Inch/Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Size Range	No. 4 - 2"	M1.4 - M56	No. 2 - 1"	M1.4 - M24	No. 0 - 1-3/4"	M1 - M45	No. 2 - 1"	M2.5 - M24	No. 2 - 1"	M2.5 - M24	No. 2 - 1"	M2 - M24
Type	Spiral Flute		Spiral Point		Form Tap		Spiral Flute		Spiral Point		Spiral Flute	
Number of Flutes	2, 3 & 4				Fluteless		2, 3 & 4	3 & 4	2, 3 & 4		2, 3 & 4	
Solid/Coolant-Through	Solid & Coolant-Through				Solid & Coolant-Through		Solid				Solid	
Overall Length	DIN & Long Shank				DIN & Long Shank		DIN				DIN	
Limit/Tolerance	H	D	H	D	H	D	H	D	H	D	H	D
Substrate	VC-10				HSS-CO		VC-10				HSSE	
Coating	V				V		HR				TiN	
Chamfer Length	Bottom & Modified Bottom		Plug		Bottom, Modified Bottom & Plug		Modified Bottom		Plug		Modified Bottom	

P	Carbon Steels (1010, 1018)	✖		✖		✖					○	
	Mild Steels, Alloy Steels (1050, 4140)	✖		✖		✖					○	
	Die Steels (H13, D2)	✖		✖		✖					○	
M	Stainless Steel (304SS, 420SS)	○		○		○					✖	
K	Cast Iron	✖										
	Ductile Cast Iron	✖										
N	Aluminum Alloys (6061, 7075)	○		✖								
S	Heat Resistant Alloys (Inconel 718)			○		✖						
	Titanium Alloy (Ti-6Al-4V)			○								
H	Pre-Hardened Steel (P20)	○		○		○						
	Die Cast Steels (A2, S7)	○										
	Hardened Steels (D2)											

EXOPRO® Ti		EXOTAP® DC		EXOTAP® VC-10 Series (VC-10Ti, VC-10Ni, VC-10)				EXOTAP® VA-3				EXOTAP® VCX		EXOCARB® VX	
P586-587		P674-683		P510-522		P591-603		P523-529		P604-609		P671-672		P662-663	
															
Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
No. 2 - 1/2″	M2.5 - M.12	1/4″ - 1″	M6 - M24	No. 2 - 1″	M2.5 - M24	No. 2 - 1″	M2.5 - M24	No. 2 - 1″	M3 - M24	No. 2 - 1″	M3 - M24	No. 6 - 1″	M3 - M24	No. 4 - 1/2″	M2.6 - M20
Spiral Point		Straight Flute		Spiral Flute		Spiral Point		Spiral Flute		Spiral Point		Straight Flute		Straight Flute	
2 & 3	3	3, 4 & 5		2, 3 & 4	3 & 4	2, 3 & 4		2, 3 & 4	3 & 4	2 & 3	3	4 & 5		4 & 5	4, 5 & 6
Solid		Solid & Coolant-Through		Solid & Coolant-Through				Solid & Coolant-Through				Solid		Solid	
ANSI		ANSI & DIN		ANSI & DIN				ANSI, DIN & Long Shank				ANSI		DIN	
H	D	H	D	H	D	H	D	H	D	H	D	H	D	H	D
VC-10		VC-10		VC-10				HSSE				XPM		Carbide	
V		V		S/O & V				S/O, TiN, & V				V		V	
Plug		Bottom		Bottom & Modified Bottom		Plug		Bottom & Modified Bottom		Plug		Modified Bottom		Modified Bottom	

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For OSG's complete tap offering please refer to the Application Guide on pages 406-407 or the Illustrated Index starting on page 408.

✖ 1st Choice ✖ 2nd Choice ☆ Recommended

	Work Material	Material Designation	Material Condition	Hardness	
				BHN	HRC
P	Low Carbon Steel	1010, 1018	Normalized	~190	~10
P	Medium Carbon Steel	1035, 1045	Normalized	~208	~15
P	High Carbon Steel	1065, 1095	Normalized	~253	~25
P	Alloy Steel	4140, 4340, 8620	Normalized	253~301	25~32
P		4140, 4340, 8620	Hardened	327~390	35~42
M	Stainless Steel	300 Series / 400 Series	Annealed	~253	~25
M		300 Series / 400 Series	Hardened	327~390	35~42
M		17-4, 15-5, A286	Annealed	~253	~25
M		17-4, 15-5, A286	Hardened	327~390	35~42
K	Cast Iron	Nodular, Grey	As Cast	~208	~15
N	Aluminum Alloy	6061, 7075, 2011	Normalized	~150	
N	Die Cast Aluminum	356AL, 390AL	As Cast	~150	
S	Nickel Based Alloy	Inconel 718, 625	Annealed	253~301	25~32
S		Inconel 718	Hardened	327~390	35~42
S		Hastelloy, Waspaloy	Normalized		25~40
S		Kovar	Normalized		25~40
S	Titanium Alloy	6Al4V	Annealed	253~301	25~32
S		6Al4V, 6AL6V	Hardened	327~390	35~42
H	Tool Steel	D2, H13, P20, S7	Annealed	190~253	10~25
H		H13	Hardened	327~450	35~48
H		D2, A2	Hardened		48~55
H		D2, A2	Hardened		55~70



Form Taps				Cut Taps									Pipe Taps	
468-488	453-464	488-452	465-467	See Index	See Index	492-497 500-502	498-499	577-580 583-585	581-582	623-624	662-663	See Index	735-739	740-751
EXOTAP® NRT & HY-PRO® NRT	EXOPRO® XPF	EXOPRO® XPF-OIL *Coolant-Through*	EXOCARB® Carbide	General	General *Coolant-Through*	A Brand® A-SFT	A Brand® A-OIL-SFT *Coolant-Through*	A Brand® A-POT	A Brand® A-OIL-POT *Coolant-Through*	HY-PRO® Synchro AL	EXOCARB® VX	Carbide	A Brand® A-Pipe Taps	Pipe Taps
35-130	50-115	75-130	40-145	25-80	50-120	80-120	100-200	80-120	100-200	85-105	-	35-100	5-35	15-40
20-50	50-115	75-130	25-60	20-50	45-110	80-120	100-200	80-120	100-200	85-105	-	30-70	5-35	10-25
15-30	50-85	65-100	20-35	20-45	40-100	80-120	100-200	80-120	100-200	70-85	-	30-60	5-35	10-20
15-30	50-85	65-100	20-35	20-50	45-110	35-50	50-100	40-65	50-120	70-85	-	30-70	5-20	10-25
-	10-40	20-50	-	15-20	20-60	20-40	40-80	35-55	45-110	-	-	20-35	5-20	10-15
15-40	15-40	20-50	20-60	20-45	30-70	15-35	25-70	25-75	40-120	-	-	25-55	5-20	10-25
15-35	15-35	20-45	20-50	12-20	20-50	15-35	25-70	25-75	40-120	-	-	15-30	5-20	8-12
15-25	15-30	20-40	20-40	15-20	20-50	15-25	25-50	25-60	40-100	-	-	20-35	-	8-12
-	10-25	15-30	-	8-20	15-40	15-25	25-50	25-60	40-100	-	-	10-25	-	8-12
-	-	-	-	25-75	40-100	50-80	60-150	60-100	80-160	-	-	40-90	-	15-50
50-150	65-115	80-130	60-160	40-80	50-125	70-120	90-220	70-120	90-220	300-800	-	50-100	5-20	15-40
45-130	65-90	75-110	55-120	40-65	50-110	70-120	90-220	70-120	90-220	200-700	-	50-80	5-35	20-35
-	8-12	8-10	-	8-15	-	-	-	-	-	-	-	10-20	-	-
-	8-10	-	-	8-15	-	-	-	-	-	-	-	10-20	-	-
-	-	-	-	8-15	-	-	-	-	-	-	-	10-20	-	-
-	-	-	-	8-15	-	-	-	-	-	-	-	10-20	5-10	-
-	8-15	8-10	-	15-20	-	-	-	-	-	-	-	20-30	5-10	-
-	8-12	-	-	3-10	-	-	-	-	-	-	-	5-12	-	-
20-45	15-50	20-65	25-60	15-35	20-60	30-55	50-110	40-65	60-120	-	-	20-50	5-35	10-20
10-15	12-25	20-35	15-30	8-15	15-50	-	-	20-50	30-80	-	-	10-20	-	8-12
-	-	-	-	3-10	-	-	-	15-40	25-75	-	5-12	5-12	-	-
-	-	-	-	3-8	-	-	-	-	-	-	3-10	3-10	-	-

For Thread Mills please refer to page 787-791.
For conversions to RPM please refer to page 762.

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page	
Thread Mills									
16625		A Brand® AT-1	Inch	Carbide	EgiAs	1/4" - 1"	Helical Flute	432	789
16620		A Brand® AT-1	Metric	Carbide	EgiAs	M6 - M24	Helical Flute	433	789
16630		A Brand® AT-1	Inch	Carbide	EgiAs	1/16" - 2"	NPT, Helical Flute	434	789
16631		A Brand® AT-1	Inch	Carbide	EgiAs	1/16" - 2"	NPTF, Helical Flute	435	789
41200		EXOCARB® Mini	Inch	Carbide	WXS® SS	No. 0 - No. 8	Miniature, Helical Flute	436	791
41300		EXOCARB® Mini	Metric	Carbide	WXS® SS	M1 - M5	Miniature, Helical Flute	437	791
41000		EXOCARB®	Inch	Carbide	EXO®	No. 10 - 1″	Helical Flute	438-439	790
41100		EXOCARB®	Metric	Carbide	EXO®	M6 - M24	Helical Flute	440	790
41050		EXOCARB® Oil	Inch	Carbide	EXO®	1/4" - 1"	Coolant-Through, Helical Flute	441	790
41150		EXOCARB® Oil	Metric	Carbide	EXO®	M6 - M24	Coolant-Through, Helical Flute	442	790
42000		EXOCARB® Pipe	Inch	Carbide	EXO®	1/16" - 2-1/2"	NPT, Helical Flute	443	790
42001		EXOCARB® Pipe	Inch	Carbide	EXO®	1/16" - 2-1/2"	NPTF, Helical Flute	444	790
Diameter Correction Tool									
15015		NEW GENERAL	Inch	HSS	TiN	No. 5 - 1"	Diameter Correction Tool	445	
15010		NEW GENERAL	Metric	HSS	TiN	M3 - M16	Diameter Correction Tool	446	
15020		NEW GENERAL	-	-	-	-	Diameter Correction Tool Accessories	447	
Forming Taps									
16050		EXOPRO® XPF-OIL	Inch	HSS-Co	V	1/4" - 1-3/4"	Coolant-Through, DIN OAL	448-449	
16150		EXOPRO® XPF-OIL	Metric	HSS-Co	V	M6 - M45	Coolant-Through, DIN OAL	450-452	
16250		EXOPRO® XPF	Inch	HSS-Co	V	No. 0 - 1-3/4"	DIN OAL	453-456	
16350		EXOPRO® XPF	Metric	HSS-Co	V	M1 - M45	DIN OAL	457-460	
16255		EXOPRO® XPF-LS	Inch	HSS-Co	V	No. 5 - 1″	Long Shank	461-462	
16355		EXOPRO® XPF-LS	Metric	HSS-Co	V	M3 - M20	Long Shank	463-464	

Thread Mills

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16625	◎	◎	◎	◎		◎	○	○	◎	◎	◎			◎	◎		
16620	◎	◎	◎	◎		◎	○	○	◎	◎	◎			◎	◎		
16630	◎	◎	◎	◎		◎	○	○	◎	◎	◎			◎	◎		
16631	◎	◎	◎	◎		◎	○	○	◎	◎	◎			◎	◎		
41200	○	○	○	○		◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	○
41300	○	○	○	○		◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	○
41000	◎	◎	○	○		○	○	○	◎	◎	◎			○	○		
41100	◎	◎	○	○		○	○	○	◎	◎	◎	○	○	○	○		
41050	○	◎	◎	◎		○	○	○	○					◎	◎		
41150	○	◎	◎	◎		○	○	○	○					◎	◎		
42000	◎	◎	○	○		○	○	○	◎	◎	◎			○	○		
42001	◎	◎	○	○		○	○	○	◎	◎	◎			○	○		

Forming Taps

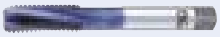
16050	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	◎	○		
16150	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	◎	○		
16250	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	◎	○		
16350	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	◎	○		
16255	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	◎	○		
16355	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	◎	○		

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List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Forming Taps								
14153		EXOCARB®	Metric	Carbide	Bright	M6 - M10	Carbide Inlaid, DIN/DIN	465
369		EXOCARB®	Metric	Carbide	Bright	M3 - M12	JIS	466
357		EXOCARB®	Metric	Carbide	Bright	M6 - M12	JIS, Long Shank	467
14050		EXOTAP® NRT®	Inch	VC-10	V	No. 0 - 3/8″		468-470
14150		EXOTAP® NRT®	Metric	VC-10	V	M1.6 - M12		471-472
14001		HY-PRO® NRT®	Inch	HSS-CO	TiCN, TiN, Bright, S/O	No. 0 - 3/4"		473-485
14101		HY-PRO® NRT®	Metric	HSS-CO	TiCN, TiN, Bright, S/O	M1.6 - M12		486-488
285		HY-PRO® SEVEN	Inch	HSS	TiCN, TiN, Bright	No. 0 - 1/2"		489
286		HY-PRO® SEVEN	Metric	HSS	TiCN, TiN, Bright	M3 - M12		489
Spiral Fluted Taps								
16605		A Brand® A-CSF	Inch	Carbide	Bright	1/4" - 1/2"	Coolant-Through, DIN OAL	490
16600		A Brand® A-CSF	Metric	Carbide	Bright	M5 - M12	Coolant-Through, DIN OAL	491
16505		A Brand® A-SFT	Inch	VC-10	V	No. 4 - 2″	Variable Helix, DIN OAL	492-494
16500		A Brand® A-SFT	Metric	VC-10	V	M1.4 - M56	Variable Helix, DIN OAL	495-497
16545		A Brand® A-OIL-SFT	Inch	VC-10	V	1/4" - 2″	Variable Helix, Coolant-Through, DIN OAL	498
16540		A Brand® A-OIL-SFT	Metric	VC-10	V	M6 - M56	Variable Helix, Coolant-Through, DIN OAL	499
16525		A Brand® A-LT-SFT	Inch	VC-10	V	No. 4 - 1″	Variable Helix, Long Shank	500
16520		A Brand® A-LT-SFT	Metric	VC-10	V	M3 - M24	Variable Helix, Long Shank	501-502
16450		EXOPRO® CC-SUS	Inch	HSSE	TiN	No. 2- 1″	Variable Helix, DIN OAL	503-504
16455		EXOPRO® CC-SUS	Metric	HSSE	TiN	M2 - M24	Variable Helix, DIN OAL	505
335Ni		EXOPRO® WHR-Ni	Inch	VC10	HR	No. 2 - 1″	DIN OAL	506-507
336Ni		EXOPRO® WHR-Ni	Metric	VC10	HR	M2.5 - M24	DIN OAL	508
389		EXOCARB®	Metric	Carbide	Bright	M3 - M12	JIS	509

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
Forming Taps																	
14153										◎	◎						
369										◎	◎						
357										◎	◎						
14050	◎	◎	◎	◎	◎	◎	◎	○		◎	◎			○			
14150	◎	◎	◎	◎	◎	◎	◎	○		◎	◎			○			
14001	◎	◎	◎	○	○	○	○	○		◎	◎			○			
14101	◎	◎	◎	○	○	○	○	○		◎	◎			○			
285	◎	○								◎	◎						
286	◎	○								◎	◎						
Spiral Fluted Taps																	
16605									◎	◎	◎						
16600									◎	◎	◎						
16505	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16500	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16545	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16540	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16525	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16520	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16450	○	○	○	◎		◎	◎	○									
16455	○	○	○	◎		◎	◎	○									
335Ni								○				◎				○	
336Ni								○				◎				○	
389									◎	◎	◎						

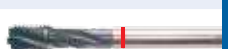
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List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Spiral Fluted Taps								
313Ti		EXOTAP® VC-10 Ti	Inch	VC-10	V	No. 2 - 1″		510-511
345Ti		EXOTAP® VC-10 Ti	Metric	VC-10	V	M2.5 - M12		512
317Ti		EXOTAP® VC-10 Ti Oil	Inch	VC-10	V	1/4" - 1"	Coolant-Through, DIN OAL	513
348Ti		EXOTAP® VC-10 Ti Oil	Metric	VC-10	V	M8 - M24	Coolant-Through, DIN OAL	514
313Ni		EXOTAP® VC-10 Ni	Inch	VC-10	V, S/O	No. 2 - 1″		515-516
345Ni		EXOTAP® VC-10 Ni	Metric	VC-10	S/O	M2.5 - M12		517
313		EXOTAP® VC-10	Inch	VC-10	V, S/O	No. 2 - 3/4″		518-519
345		EXOTAP® VC-10	Metric	VC-10	V, S/O	M3 - M12		520
317		EXOTAP® VC-10 Oil	Inch	VC-10	V	5/16" - 1"	Coolant-Through, DIN OAL	521
351		EXOTAP® VC-10 Oil	Metric	VC-10	V	M8 - M24	Coolant-Through, DIN OAL	522
303		EXOTAP VA-3®	Inch	HSSE	V, TiN, S/O	No. 2 - 1″		523-525
343		EXOTAP VA-3®	Metric	HSSE	V, TiN, S/O	M3 - M18		526
307		EXOTAP VA-3® Oil	Inch	HSSE	V	1/4" - 1"	Coolant-Through, DIN OAL	527
347		EXOTAP VA-3® Oil	Metric	HSSE	V	M6 - M24	Coolant-Through, DIN OAL	528
398		EXOTAP VA-3®	Inch	HSSE	S/O	No. 4 - 5/8″	Long Shank	529
220		HY-PRO® DIN	Inch	HSSE	S/O	No. 4 - 2″	DIN OAL	530
229		HY-PRO® DIN	Metric	HSSE	S/O	M3 - M20	DIN OAL	531
230		HY-PRO® DIN	Inch	HSSE	TiN	1/4" - 1″	Coolant-Through, DIN OAL	532
239		HY-PRO® DIN	Metric	HSSE	TiN	M6 - M20	Coolant-Through, DIN OAL	533
13013		HY-PRO® ALLOY	Inch	HSSE	V	1/4" - 3/4″	Coolant-Through, DIN OAL	534
13113		HY-PRO® ALLOY	Metric	HSSE	V	M6 - M20	Coolant-Through, DIN OAL	535
13014		HY-PRO® HXL	Inch	HSSE	S/O	1/2" - 2-1/2″	DIN OAL	536
13024		HY-PRO® HXL-OIL	Inch	HSSE	S/O	1/2" - 2-1/2″	Coolant-Through, DIN OAL	537

Spiral Fluted Taps

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
313Ti				○				○				◎	◎	○	○		
345Ti				○				○				◎	◎	○	○		
317Ti				○				○				◎	◎	○	◎		
348Ti				○				○				◎	◎	○	◎		
313Ni								○				◎	○	○	○		
345Ni								○				◎	○	○	○		
313				◎	○		○	◎				○	○	◎	○		
345				◎	○		○	◎				○	○	◎	○		
317				◎	○		○	◎				○	○	◎	○		
351				◎	○		○	◎				○	○	◎	○		
303	◎	○	○			◎	◎	○									
343	◎	○	○			◎	◎	○									
307	◎	○	○			◎	◎	○									
347	◎	○	○			◎	◎	○									
398	◎	○	○			◎	◎	○									
220	○	○	◎	◎	○	○	○	○	○					○			
229	○	○	◎	◎	○	○	○	○	○					○			
230	○	○	◎	◎	◎	○	○	○	○	○	○			○			
239	○	○	◎	◎	◎	○	○	○	○	○	○			○			
13013			○	◎	○				○		○			○	○		
13113			○	◎	○				○		○			○	○		
13014	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
13024	◎	◎	◎	◎	○	○	○	○	◎					◎	○		

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List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Spiral Fluted Taps								
13015		HY-PRO® VXL	Inch	HSSE	S/O	1/2" - 2-1/2"	DIN OAL	538
13025		HY-PRO® VXL-OIL	Inch	HSSE	S/O	1/2" - 2-1/2"	Coolant-Through, DIN OAL	539
13116		HY-PRO® HXL-W	Metric	HSSE	S/O	M16 - M42	DIN OAL	540
13126		HY-PRO® HXL-W-OIL	Metric	HSSE	S/O	M16 - M42	Coolant-Through, DIN OAL	541
13117		HY-PRO® VXL-W	Metric	HSSE	S/O	M16 - M42	DIN OAL	542
13127		HY-PRO® VXL-W-OIL	Metric	HSSE	S/O	M16 - M42	Coolant-Through, DIN OAL	543
13058		HY-PRO® SYNCHRO AL	Inch	HSSE	V	No. 6 - 1/2"	Synchronized	544
13158		HY-PRO® SYNCHRO AL	Metric	HSSE	V	M3 - M12	Synchronized	545
295		HY-PRO® AL	Inch	HSSE	Bright	No. 4 - 3/8"		546
296		HY-PRO® AL	Metric	HSSE	Bright	M3 - M10		547
13019		HY-PRO® AL-DIN	Inch	HSSE	N	No. 2 - 1/2"	DIN OAL	548
13119		HY-PRO® AL-DIN	Metric	HSSE	N	M3 - M12	DIN OAL	549
290		HY-PRO®	Inch	HSSE	TiCN, S/O, Bright	No. 2 - 1-1/2"		550-552
299		HY-PRO®	Metric	HSSE	TiCN, S/O, Bright	M3 - M30		553
297		HY-PRO® SEVEN	Inch	HSS	TiN, S/O, Bright	No. 3 - 1/2"		554
298		HY-PRO® SEVEN	Metric	HSS	TiN, S/O, Bright	M3 - M12		555
107		GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	No. 3 - 3/4"		556
143		GENERAL PURPOSE	Metric	HSS	TiCN, TiN, S/O, Bright	M3 - M12		557
13020		GENERAL PURPOSE	Inch	HSSE	S/O	No. 6 - 5/8"		558
123		GENERAL PURPOSE	Metric	HSSE	Bright	M3 - M24	JIS	559
918		GENERAL PURPOSE	Inch	HSS	Bright	No. 4 - 5/8"	Long Shank	560
5BA-SO, 5BL-SO	 NEW	SOMTA	Inch	HSSE-V3	TiALN	No. 4 - 1-1/4"	Red Band, Ideal for Alloy Steel	561-562
5EA-SO, 5EL-SO	 NEW	SOMTA	Metric	HSSE-V3	TiALN	M3 - M24	Red Band, Ideal for Alloy Steel	563

Spiral Fluted Taps

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13015	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
13025	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
13116	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
13126	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
13117	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
13127	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
13058										◎	◎						
13158										◎	◎						
295										◎	◎						
296										◎	◎						
13019										◎	◎						
13119										◎	◎						
290	○	◎	◎	◎	○	○	○	○	○					○			
299	○	◎	◎	◎	○	○	○	○	○					○			
297	◎	◎								○	○						
298	◎	◎								○	○						
107	○	○	○						○	○	○						
143	○	○	○						○	○	○						
13020	○	○	○						○	○	○						
123	○	○	○						○	○	○						
918	○	○	○						○	○	○						
5BA-SO, 5BL-SO	○	○	○	◎	◎				○	○		◎	○	◎	◎		
5EA-SO, 5EL-SO	○	○	○	◎	◎				○	○		◎	○	◎	◎		

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List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Spiral Fluted Taps								
5BB-SO, 5BM-SO	 NEW	SOMTA	Inch	HSSE-V3	TiALN	No. 4 - 1-1/4"	Blue Band, Ideal for Stainless Steel	564-565
5EB-SO, 5EM-SO	 NEW	SOMTA	Metric	HSSE-V3	TiALN	M3 - M24	Blue Band, Ideal for Stainless Steel	566
5BC-S0, 5BN-SO	 NEW	SOMTA	Inch	HSSE-V3	Bright	No. 4 - 1-1/4"	Yellow Band, Ideal for Aluminum	567-568
5EC-SO, 5EN-SO	 NEW	SOMTA	Metric	HSSE-V3	Bright	M3 - M24	Yellow Band, Ideal for Aluminum	569
5BD-SO, 5BP-SO	 NEW	SOMTA	Inch	HSSE-V3	TiALN	No. 4 - 1-1/4"	White Band, Ideal for Cast Iron	570-571
5ED-SO, 5EP-SO	 NEW	SOMTA	Metric	HSSE-V3	TiALN	M3 - M24	White Band, Ideal for Cast Iron	572
5BE-SO, 5BK-SO	 NEW	SOMTA	Inch	HSSE-V3	TiN	No. 4 - 1-1/4"	Green Band, Ideal for Carbon Steel	573-574
5EV-SO	 NEW	SOMTA	Metric	HSSE-V3	TiN	M3 - M24	Green Band, Ideal for Carbon Steel	575
5EW-SO	 NEW	SOMTA	Metric	HSSE-V3	TiN	M3 - M24	Green Band, Ideal for Carbon Steel	576
Spiral Pointed Taps								
16515		A Brand® A-POT	Inch	VC-10	V	No. 2 - 1″	DIN OAL	577-578
16510		A Brand® A-POT	Metric	VC-10	V	M1.4 - M24	DIN OAL	579-580
16555		A Brand® A-OIL-POT	Inch	VC-10	V	1/4" - 1″	Coolant-Through, DIN OAL	581
16550		A Brand® A-OIL-POT	Metric	VC-10	V	M6 - M24	Coolant-Through, DIN OAL	582
16535		A Brand® A-LT-POT	Inch	VC-10	V	No. 4 - 1″	Long Shank	583
16530		A Brand® A-LT-POT	Metric	VC-10	V	M3 - M24	Long Shank	584-585
13063		EXOPRO® Ti	Inch	VC-10	V	No. 2 - 1/2″	RHC/LHS	586
13163		EXOPRO® Ti	Metric	VC-10	V	M2.5 - M12	RHC/LHS	587
337Ni		EXOPRO® WHR-Ni	Inch	VC-10	HR	No. 2 - 1″	DIN OAL	588-589
338Ni		EXOPRO® WHR-Ni	Metric	VC-10	HR	M2.5 - M24	DIN OAL	590
312Ti		EXOTAP® VC-10 Ti	Inch	VC-10	V	No. 2 - 1″		591-592
344Ti		EXOTAP® VC-10 Ti	Metric	VC-10	V	M3 - M12		593
316Ti		EXOTAP® VC-10 Ti Oil	Inch	VC-10	V	1/4" - 1″	Coolant-Through, DIN OAL	594

Spiral Fluted Taps

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BB-SO, 5BM-SO						◎	◎	○					◎				
5EB-SO, 5EM-SO						◎	◎	○					◎				
5BC-S0, 5BN-SO	◎	◎	◎							◎	◎						
5EC-SO, 5EN-SO	◎	◎	◎							◎	◎						
5BD-SO, 5BP-SO									◎								
5ED-SO, 5EP-SO									◎								
5BE-SO, 5BK-SO	◎	◎	◎			○			○	○	○	○					
5EV-SO	◎	◎	◎			○			○	○	○	○					
5EW-SO	◎	◎	◎			○			○	○	○	○					

Spiral Pointed Taps

16515	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16510	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16555	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16550	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16535	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
16530	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
13063				○				○					◎	○			
13163				○				○					◎	○			
337Ni								○				◎				○	
338Ni								○				◎				○	
312Ti				○				○				◎	◎	○	○		
344Ti				○				○				◎	◎	○	○		
316Ti				○				○				◎	◎	○	○		

○ good ◎ best

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Spiral Pointed Taps								
347Ti		EXOTAP® VC-10 Ti Oil	Metric	VC-10	V	M8 - M24	Coolant-Through, DIN OAL	595
312Ni		EXOTAP® VC-10 Ni	Inch	VC-10	V, S/O	No. 2 - 1"		596-597
344Ni		EXOTAP® VC-10 Ni	Metric	VC-10	V, S/O	M2.5 - M12		598
312		EXOTAP® VC-10	Inch	VC-10	V, S/O	No. 2 - 3/4"		599-600
344		EXOTAP® VC-10	Metric	VC-10	V, S/O	M3 - M12		601
316		EXOTAP® VC-10 Oil	Inch	VC-10	V	1/4" - 1"	Coolant-Through, DIN OAL	602
350		EXOTAP® VC-10 Oil	Metric	VC-10	V	M6 - M24	Coolant-Through, DIN OAL	603
300		EXOTAP VA-3®	Inch	HSSE	V, TiN, S/O	No. 2 - 1"		604-605
342		EXOTAP VA-3®	Metric	HSSE	V, TiN, S/O	M3 - M18		606
306		EXOTAP VA-3® Oil	Inch	HSSE	V	1/4" - 1"	Coolant-Through, DIN OAL	607
346		EXOTAP VA-3® Oil	Metric	HSSE	V	M6 - M24	Coolant-Through, DIN OAL	608
397		EXOTAP VA-3®	Inch	HSSE	S/O	No. 4 - 5/8"	Long Shank	609
320		EXOTIN	Inch	HSSE	TiN	No. 4 - 3/4"		610
250		HY-PRO® DIN	Inch	HSSE	S/O	No. 4 - 3/4"	DIN OAL	611
259		HY-PRO® DIN	Metric	HSSE	S/O	M3 - M20	DIN OAL	612
260		HY-PRO® DIN	Inch	HSSE	TiN	1/4" - 1"	Coolant-Through, DIN OAL	613
269		HY-PRO® DIN	Metric	HSSE	TiN	M6 - M20	Coolant-Through, DIN OAL	614
11015		HY-PRO® AERO-F	Inch	HSS-Co	TiN	No. 4 - 1"		615-619
11115		HY-PRO® AERO-F	Metric	HSS-Co	TiN	M3 - M14		620-621
13118		HY-PRO® RXL-W	Metric	HSSE	V	M16 - M42	DIN OAL & Extended OAL, For Through Holes, LHS	622
13059		HY-PRO® SYNCHRO AL	Inch	HSSE	V	No. 6 - 1/2"	Synchronized, RHC/LHS	623
13159		HY-PRO® SYNCHRO AL	Metric	HSSE	V	M3 - M12	Synchronized, RHC/LHS	624

Spiral Pointed Taps

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
347Ti				○				◎				◎	◎	○	○		
312Ni								○				◎	○	○	○		
344Ni								○				◎	○	○	○		
312				◎	○		○	◎				○	○	◎	○		
344				◎	○		○	◎				○	○	◎	○		
316				◎	○		○	◎				○	○	◎	○		
350				◎	○		○	◎				○	○	◎	○		
300	◎	○	○			◎	◎	○									
342	◎	○	○			◎	◎	○									
306	◎	○	○			◎	◎	○									
346	◎	○	○			◎	◎	○									
397	◎	○	○			◎	◎	○									
320	○	○	◎	◎	◎	○	○	○	○	○	○			○			
250	○	○	◎	◎	○	○	○	○	○					○			
259	○	○	◎	◎	○	○	○	○	○					○			
260	○	○	◎	◎	◎	○	○	○	○	○	○			○			
269	○	○	◎	◎	◎	○	○	○	○	○	○			○			
11015	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○			
11115	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○			
13118	◎	◎	◎	◎	◎	○	○	○	◎	○	○			◎	○		
13059										◎	◎						
13159										◎	◎						

○ good ◎ best

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Spiral Pointed Taps								
11016		HY-PRO® AL-DIN	Inch	HSSE	N	No. 2 - 1/2"	DIN OAL	625
11116		HY-PRO® AL-DIN	Metric	HSSE	N	M3 - M12	DIN OAL	626
11017		HY-PRO® V DIN	Inch	HSSE	V	No. 4 - 1/2"	DIN OAL	627
11117		HY-PRO® V DIN	Metric	HSSE	V	M3 - M12	DIN OAL	628
280		HY-PRO®	Inch	HSSE	TiCN, S/O, Bright	No. 2 - 1-1/2"		629-631
289		HY-PRO®	Metric	HSSE	TiCN, S/O, Bright	M3 - M30		632
287		HY-PRO® SEVEN	Inch	HSS	TiN, S/O, Bright	No. 0 - 1/2"		633
288		HY-PRO® SEVEN	Metric	HSS	TiN, S/O, Bright	M3 - M12		634
105		GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	No. 0 - 3/4"		635-637
105B		GENERAL PURPOSE	Inch	HSS	S/O, Bright	No. 0 - 7/16"		638
105A		GENERAL PURPOSE	Inch	HSS	S/O, Bright	No. 4 - 1/2"	Assembly Type Taps	639
105+		GENERAL PURPOSE	Inch	HSS	TiN, Bright	No. 4 - No. 10	H7 Taps	640
105H		GENERAL PURPOSE	Inch	HSS	TiCN, S/O, Bright	No. 6 - 3/4"	+.005" Oversize	641
142H		GENERAL PURPOSE	Metric	HSS	Bright	M4 - M12	+.005" Oversize	642
142		GENERAL PURPOSE	Metric	HSS	TiCN, TiN, S/O, Bright	M1.6 - M20		643
122		GENERAL PURPOSE	Metric	HSSE	S/O, Bright	M3 - M24	JIS	644
917		GENERAL PURPOSE	Inch	HSS	S/O, Bright	No. 4 - 5/8"	Long Shank	645
11118		GENERAL PURPOSE	Metric	HSS	S/O	M4 - M12	Extended Length	646
S111		GENERAL PURPOSE	Inch	HSS	Bright	No. 00	Miniature	647
5BF-SO, 5BS-SO	 NEW	SOMTA	Inch	HSSE-V3	TiALN	No. 4 - 1-1/4"	Red Band, Ideal for Alloy Steel	648-649
5EF-SO, 5ES-SO	 NEW	SOMTA	Metric	HSSE-V3	TiALN	M3 - M24	Red Band, Ideal for Alloy Steel	650
5BG-SO, 5BT-SO	 NEW	SOMTA	Inch	HSSE-V3	TiALN	No. 4 - 1-1/4"	Blue Band, Ideal for Stainless Steel	651-652

Spiral Pointed Taps

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11016										◎	◎						
11116										◎	◎						
11017	◎	◎	◎	◎	◎	◎	◎	○	◎					○			
11117	◎	◎	◎	◎	◎	◎	◎	○	◎					○			
280	○	◎	◎	◎	○	○	○	○	○					○			
289	○	◎	◎	◎	○	○	○	○	○					○			
287	◎	◎								○	○						
288	◎	◎								○	○						
105	○	○	○						○	○	○						
105B	○	○	○						○	○	○						
105A	○	○	○						○	○	○						
105+	○	○	○						○	○	○						
105H	○	○	○						○	○	○						
142H	○	○	○						○	○	○						
142	○	○	○						○	○	○						
122	○	○	○						○	○	○						
917	○	○	○						○	○	○						
11118	○	○	○						○	○	○						
S111	○	○	○						○	○	○						
5BF-SO, 5BS-SO	○	○	○	◎	◎				○	○		◎	○	◎	◎		
5EF-SO, 5ES-SO	○	○	○	◎	◎				○	○		◎	○	◎	◎		
5BG-SO, 5BT-SO						◎	◎	○					◎				

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List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Spiral Pointed Taps								
5EG-SO, 5ET-SO	 NEW	SOMTA	Metric	HSSE-V3	TiALN	M3 - M24	Blue Band, Ideal for Stainless Steel	653
5BH-SO, 5BU-SO	 NEW	SOMTA	Inch	HSSE-V3	Bright	No. 4 - 1-1/4"	Yellow Band, Ideal for Aluminum	654-655
5EH-SO, 5EU-SO	 NEW	SOMTA	Metric	HSSE-V3	Bright	M3 - M24	Yellow Band, Ideal for Aluminum	656
5BJ-SO, 5BV-SO	 NEW	SOMTA	Inch	HSSE-V3	TiN	No. 4 - 1-1/4"	Green Band, Ideal for Carbon Steel	657-658
5EX-SO	 NEW	SOMTA	Metric	HSSE-V3	TiN	M3 - M24	Green Band, Ideal for Carbon Steel	659
Straight Fluted Taps								
16615		A Brand® A-CHT	Inch	Carbide	Bright	No. 12 - 1/2"	Coolant-Through, DIN OAL	660
16610		A Brand® A-CHT	Metric	Carbide	Bright	M5 - M12	Coolant-Through, DIN OAL	661
311		EXOCARB® VX	Inch	Carbide	V	No. 4 - 1/2"	DIN OAL	662
341		EXOCARB® VX	Metric	Carbide	V	M2.6 - M20	JIS	663
329		EXOCARB® Diamond	Inch	Carbide	DIA	No. 4 - 1/2"	UNJC, UNJF, DIN OAL	664
359		EXOCARB® Diamond	Metric	Carbide	DIA	M3 - M12	JIS	665
319		EXOCARB®	Inch	Carbide	Bright	No. 4 - 1/2"	DIN OAL	666
10059		EXOCARB®	Inch	Carbide	Bright	No. 10 - 3/8"		667
10061		EXOCARB®	Metric	Carbide	Bright	M3 - M10	DIN OAL	668
349		EXOCARB®	Metric	Carbide	Bright	M1.4 - M24	JIS	669
356		EXOCARB®	Metric	Carbide	Bright	M6 - M12	JIS, Long Shank	670
10051		EXOTAP® VCX	Inch	XPM	V	No. 6 -1"		671
11051		EXOTAP® VCX	Metric	XPM	V	M3 - M24		672
305		EXOTAP-MOLD®	Inch	HSS-CO	Bright	No. 4 - 3/4"		673
10052		EXOTAP® DC	Inch	VC-10	V	1/4" - 1"	DIN OAL	674
11052		EXOTAP® DC	Metric	VC-10	V	M6 - M24	DIN OAL	675
10053		EXOTAP® DC-OIL	Inch	VC-10	V	1/4" - 1"	Coolant-Through, DIN OAL	676

Spiral Pointed Taps

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5EG-SO, 5ET-SO						◉	◉	○					◉				
5BH-SO, 5BU-SO	◉	◉	◉							◉	◉						
5EH-SO, 5EU-SO	◉	◉	◉							◉	◉						
5BJ-SO, 5BV-SO	◉	◉	◉			○			○	◉	◉	○					
5EX-SO	◉	◉	◉			○			○	◉	◉	○					

Straight Fluted Taps

16615									◉	◉	◉						
16610									◉	◉	◉						
311																○	◉
341																○	◉
329										◉	◉						
359										◉	◉						
319									◉	◉	◉						
10059									◉	◉	◉						
10061									◉	◉	◉						
349									◉	◉	◉						
356									◉	◉	◉						
10051				○												◉	
11051				○												◉	
305				○	◉									◉	○		
10052									◉		◉						
11052									◉		◉						
10053									◉		◉						

○ good ◉ best

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Straight Fluted Taps								
11053		EXOTAP® DC-OIL	Metric	VC-10	V	M6 - M24	Coolant-Through, DIN OAL	677
11054		EXOTAP® DC	Metric	VC-10	V	M6 - M10	DIN Shank, DIN OAL	678
11055		EXOTAP® DC-OIL	Metric	VC-10	V	M6 - M12	Coolant-Through, DIN Shank, DIN OAL	679
10056		EXOTAP® DC	Inch	VC-10	V	1/4" - 3/4"		680
11056		EXOTAP® DC	Metric	VC-10	V	M6 - M14		681
10057		EXOTAP® DC-OIL	Inch	VC-10	V	1/4" - 1/2"	Coolant-Through	682
11057		EXOTAP® DC-OIL	Metric	VC-10	V	M6 - M14	Coolant-Through	683
240		HYPRO® DC	Inch	HSSE	N, Bright	No. 2 - 1/2"		684
241		HYPRO® DC	Metric	HSSE	N	M3 - M12		685
101C		GENERAL PURPOSE	Inch	HSS	N, S/O	1/4" - 3/4"		686
141C		GENERAL PURPOSE	Metric	HSS	N, S/O	M6 - M12		687
101		GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	1/4" - 1-1/2"		688-689
101H		GENERAL PURPOSE	Inch	HSS	TiCN, S/O, Bright	1/4" - 3/4"	+.005" Oversize	690
102		GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	No. 0 - No. 12		691-692
102H		GENERAL PURPOSE	Inch	HSS	S/O, Bright	No. 6 - No. 10	+.005" Oversize	693
103		GENERAL PURPOSE	Inch	HSS	TiN, S/O, Bright	No. 8 - 1/2"	Three Flutes	694
104		GENERAL PURPOSE	Inch	HSS	S/O, Bright	No. 2 - 5/16"	Two Flutes	695
101N		GENERAL PURPOSE	Inch	HSS	Bright	No. 12 - 1"	UNEF	696
141		GENERAL PURPOSE	Metric	HSS	S/O, Bright	M1.6 - M36		697
121		GENERAL PURPOSE	Metric	HSS	S/O, Bright	M2 - M36	JIS	698-699
916		GENERAL PURPOSE	Inch	HSS	S/O	1/4" - 3/4"	Pulley Taps, Long Shank	700
S110		GENERAL PURPOSE	Inch	HSS	Bright	No. 00 - No. 000	Miniature	701
114		GENERAL PURPOSE	Inch	HSS-CO	N	No. 2 - 1/4"	For Plastics	702

Straight Fluted Taps

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11053									◎		◎						
11054									◎		◎						
11055									◎		◎						
10056									◎		◎						
11056									◎		◎						
10057									◎		◎						
11057									◎		◎						
240									◎	○	◎						
241									◎	○	◎						
101C									◎		◎						
141C									◎		◎						
101	○	○	○						○	○	○						
101H	○	○	○						○	○	○						
102	○	○	○						○	○	○						
102H	○	○	○						○	○	○						
103	○	○	○						○	○	○						
104	○	○	○						○	○	○						
101N	○	○	○						○	○	○						
141	○	○	○						○	○	○						
121	○	○	○						○	○	○						
916	○	○	○						○								
S110	○	○	○						○	○	○						
114																	

○ good ◎ best

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Straight Fluted Taps								
180		GENERAL PURPOSE	Inch	HSS	Bright	1-1/8" - 2-1/4"	8 Pitch	703
101L		GENERAL PURPOSE	Inch	HSS	Bright	No. 6 - 1"	Left Hand	704
Screw Thread Insert Taps								
16260		EXOPRO® XPF	Inch	HSS-CO	V	No. 2 - 1"	STI, Forming Tap, DIN OAL	705-706
16360		EXOPRO® XPF	Metric	HSS-CO	V	M2 - M24	STI, Forming Tap, DIN OAL	707
315Ti		EXOTAP® VC-10 Ti	Inch	VC-10	V	No. 2 - 1/2"	STI, Spiral Fluted	708
315Ni		EXOTAP® VC-10 Ni	Inch	VC-10	V	No. 2 - 1/2"	STI, Spiral Fluted	709
315		EXOTAP® VC-10	Inch	VC-10	V, S/O	No. 2 - 1"	STI, Spiral Fluted	710-711
345STI		EXOTAP® VC-10	Metric	VC-10	V, S/O	M2 - M24	STI, Spiral Fluted	712
302		EXOTAP VA-3®	Inch	HSSE	V, S/O	No. 2 - 1"	STI, Spiral Fluted	713-714
343STI		EXOTAP VA-3®	Metric	HSSE	V, S/O	M2 - M24	STI, Spiral Fluted	715
13039		HYPRO® AL	Inch	HSSE	Bright, V	No. 2 - 1/2"	STI, Spiral Fluted	716
S108		GENERAL PURPOSE	Inch	HSS	Bright	No. 2 - 1"	STI, Spiral Fluted	717-718
S109		GENERAL PURPOSE	Metric	HSS	Bright	M2 - M24	STI, Spiral Fluted	719
314Ti		EXOTAP® VC-10 Ti	Inch	VC-10	V	No. 2 - 1/2"	STI, Spiral Pointed	720
314Ni		EXOTAP® VC-10 Ni	Inch	VC-10	V	No. 2 - 1/2"	STI, Spiral Pointed	721
314		EXOTAP® VC-10	Inch	VC-10	V, S/O	No. 2 - 1"	STI, Spiral Pointed	722-723
344STI		EXOTAP® VC-10	Metric	VC-10	V, S/O	M2 - M24	STI, Spiral Pointed	724
301		EXOTAP VA-3®	Inch	HSSE	V, S/O	No. 2 - 1"	STI, Spiral Pointed	725-726
342STI		EXOTAP VA-3®	Metric	HSSE	V, S/O	M2 - M24	STI, Spiral Pointed	727
11036		HYPRO® AL	Inch	HSSE	Bright, V	No. 2 - 1/2"	STI, Spiral Pointed	728
125		GENERAL PURPOSE	Inch	HSS	Bright	No. 2 - 1"	STI, Spiral Pointed	729-730

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
Straight Fluted Taps																	
180	○	○	○						○	○	○						
101L	○	○	○						○	○	○						
Screw Thread Insert Taps																	
16260	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	◎	○		
16360	◎	◎	◎	◎	◎	◎	◎	◎		◎	◎	○	○	◎	○		
315Ti				○				○				○	◎	○	○		
315Ni								○				◎	○	○	○		
315				◎	○		○	◎				○	○	◎	○		
345STI				◎	○		○	◎				○	○	◎	○		
302	◎	○	○			◎	◎	○									
343STI	◎	○	○			◎	◎	○									
13039										◎	◎						
S108	○	○	○						○	○	○						
S109	○	○	○						○	○	○						
314Ti				○				○				○	◎	○	○		
314Ni								○				◎	○	○	○		
314				◎	○		○	◎				○	○	◎	○		
344STI				◎	○		○	◎				○	○	◎	○		
301	◎	○	○			◎	◎	○									
342STI	◎	○	○			◎	◎	○									
13036										◎	◎						
125	○	○	○						○	○	○						

○ good ◎ best

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Screw Thread Insert Taps								
127		GENERAL PURPOSE	Metric	HSS	Bright	M2 - M24	STI, Spiral Pointed	731
126		GENERAL PURPOSE	Inch	HSS	Bright	No. 2 - 1″	STI, Straight Fluted	732-733
128		GENERAL PURPOSE	Metric	HSS	Bright	M2 - M24	STI, Straight Fluted	734
Pipe Taps								
16570	NEW 	A Brand® A-NPT	Inch	HSSE	V	1/16" - 1″	NPT, Interrupted	735
16575	NEW 	A Brand® A-LT-NPT	Inch	HSSE	V	1/16" - 1″	NPT, Long shank, Interrupted	736
16590	NEW 	A Brand® A-NPS	Inch	HSSE	V	1/16" - 1″	NPS	737
16585	NEW 	A Brand® A-BSPT	Inch	HSSE	V	1/8" - 1″	BSPT	738
16580	NEW 	A Brand® A-BSPP	Inch	HSSE	V	1/8" - 1″	BSPP	739
308		EXOPIPE®	Inch	HSSE	TiN, S/O	1/16" - 1″	NPT	740
318		EXOPIPE®	Inch	HSSE	TiN, S/O	1/16" - 1″	NPTF	741
12053		HY-PRO® PIPE	Inch	HSSE	TiCN	1/8" - 1″	NPT, Interrupted	742
12054		HY-PRO® PIPE	Inch	HSSE	TiCN	1/8" - 1″	NPTF, Interrupted	742
328		EXOTAP-MOLD®	Inch	HSS-CO	Bright	1/8" - 3/4"	NPT, ANPT	743
108		GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	1/16" - 2″	NPT, ANPT	744
108AL		GENERAL PURPOSE	Inch	HSS	Bright	1/8" - 1″	NPT	745
118		GENERAL PURPOSE	Inch	HSS	TiCN, TiN, S/O, Bright	1/16" - 2″	NPTF	746
108G		GENERAL PURPOSE	Inch	HSS	TiCN, S/O, Bright	1/8" - 2″	NPT, NPTF, ANPT, Interrupted Thread	747
S125		GENERAL PURPOSE	Inch	HSS	TiCN, S/O, Bright	1/8" - 1″	NPT, NPTF, Short Projection	748
12006		GENERAL PURPOSE	Inch	HSS	Bright	1/8" - 3/4"	NPTF, Special Short Projection	749
12007		GENERAL PURPOSE	Inch	HSS	Bright	1/8" - 3/4"	NPT	750
109		GENERAL PURPOSE	Inch	HSS	S/O, Bright	1/8" - 1″	NPS, NPSF	751

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
Screw Thread Insert Taps																	
127	○	○	○						○	○	○						
126	○	○	○						○	○	○						
128	○	○	○						○	○	○						
Pipe Taps																	
16570	◎	◎	◎	◎	○	○	○		○		◎		○	◎			
16575	◎	◎	◎	◎	○	○	○		○		◎		○	◎			
16590	◎	◎	◎	◎	○	○	○		○		◎		○	◎			
16585	◎	◎	◎	◎	○	○	○		○		◎		○	◎			
16580	◎	◎	◎	◎	○	○	○		○		◎		○	◎			
308	○	○				◎	◎	◎									
318	○	○				◎	◎	◎									
12053	○	◎	◎	◎	◎	○	○	○	○					○	○		
12054	○	◎	◎	◎	◎	○	○	○	○					○	○		
328	○	○	○	◎	◎	○	○	○						◎	○		
108	○	○	○						○	○	○						
108AL										◎	◎						
118	○	○	○						○	○	○						
108G	○	○	○						○	○	○						
S125	○	○	○						○	○	○						
12006	○	○	○						○	○	○						
12007	○	○	○						○	○	○						
109	○	○	○						○	○	○						

○ good ◎ best

List	Item	Brand	Inch/ Metric	Material	Coating	Size Range	Features	Product Page/ Tech Page
Round Dies								
134		GENERAL	Inch	HSS	Bright	No. 0 - 1-1/2"	Solid & Adjustable Round Split Dies	752-754
134P		GENERAL	Inch	HSS	Bright	1/8" - 1/2"	Adjustable Round Split Dies, Taper Pipe	755
135		GENERAL	Metric	HSS	Bright	M2 - M30	Adjustable Round Split Dies	756
Thread Gages								
15001		GENERAL	Inch	HSS	Bright	No. 2 - 1-1/2"	GO/NOGO Set, Class 2B	757
15002		GENERAL	Metric	HSS	Bright	M3 - M24	GO/NOGO Set, Class 6H	758

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC

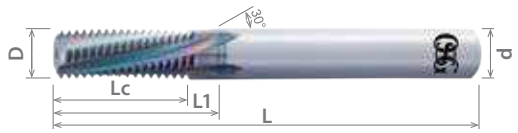
▢ good ▣ best

List 16625

SPEED FEED P789 | CARBIDE | EgiAs | 11° | SHANK h6

AT-1, Helical Flute

Type 1



Type 2



Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			EgiAs
1/4	20	0.179	3.000	0.600	0.700	1/4	4	1	1662500017
	28			0.607	0.680				1662500117
	32			0.563	0.625				1662500217
5/16	18	0.224		0.778	0.889				1662500317
	24			0.750	0.833				1662500417
	32			0.688	0.750				1662500517
3/8	16	0.264	3.500	0.875	1.000	5/16			1662500617
	24				0.958				1662500717
	32			0.813	0.875				1662500817
7/16	14	0.303		1.071	-			2	1662500917
	20			1.000	-				1662501017
	28			0.964	-				1662501117
1/2	13	0.343		1.154	1.308	3/8	5	1	1662501217
	20			1.100	1.200				1662501317
	28			1.107	1.178				1662501417
9/16	12	0.382	5.000	1.333	1.500	1/2			1662501517
	18			1.278	1.389				1662501617
	24			1.250	1.333				1662501717
5/8	11	0.421		1.454	1.636				1662501817
	18			1.389	1.500				1662501917
	24			1.374	1.458				1662502017
3/4	10	0.461		1.700	1.900				1662502117
	16			1.626	1.750				1662502217
	20			1.600	1.700				1662502317
7/8	9	0.539	5.500	2.000	2.222	5/8			1662502417
	14			1.928	2.071				1662502517
	20			1.850	1.950				1662502617
1	8	0.736	6.000	2.250	2.500	3/4	6		1662502717
	12			2.167	2.334				1662502817
	20			2.100	2.200				1662502917

Packed: 1 pc.
Available in EgiAs coating only.
For internal threads only.

ATP

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16625	◎	◎	◎	◎		◎	○	○	◎	◎	◎			◎	◎		

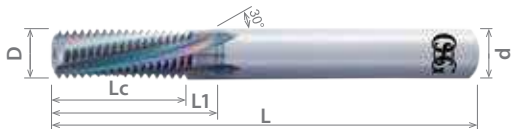
○ good ◎ best

List 16620

SPEED FEED P789 | CARBIDE | EgiAs | 11° | SHANK h6

AT-1, Helical Flute

Type 1



Type 2



Units: mm

Size	Pitch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			EgiAs
M6	1.00	4.50	75.00	14.00	16.00	6.00	4	1	8331001
	0.75			13.50					8331000
M8	1.25	5.70	75.00	18.75	-			2	8331004
	1.00			18.00	-				8331003
M10	1.50	7.70	85.00	24.00	-	8.00			8331007
	1.25			22.50	-				8331006
	1.00			22.00	-				8331005
M12	1.75	9.70	100.00	28.00	-	10.00	5		8331011
	1.50			27.00	-				8331010
	1.25			27.50	-				8331009
	1.00			26.00	-				8331008
M14	2.00	9.70	100.00	32.00	-				8331016
	1.50	10.70	120.00	31.50	34.50	12.00		1	8331015
M16	2.00	11.70		36.00	-			2	8331019
	1.50	13.70	135.00		39.00	16.00		1	8331018
M18	2.50	11.70	120.00	42.50	-	12.00		2	8331020
M20	2.50	13.70	135.00	45.00	50.00	16.00		1	8331022
	1.50	15.70		43.50	-			2	8331021
M24	3.00	19.70	150.00	54.00	-	20.00	6		8331025
	2.00			52.00	-				8331024

Packed: 1 pc.
Available in EgiAs coating only.
For internal threads only.

ATP

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16620	◎	◎	◎	◎		◎	○	○	◎	◎	◎			◎	◎		

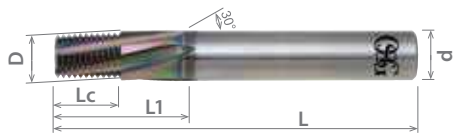
○ good ◎ best

List 16630

SPEED FEED P789 | CARBIDE | EgiAs | 11° | SHANK h6

AT-1, NPT

Type 3



Type 4



Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			EgiAs
1/16 or 1/8	27	0.223	3.000	0.407	0.480	1/4	4	3	1663000017
1/8		0.302	3.500		-	5/16		4	1663000117
1/4 or 3/8	18	0.381		0.611	0.720	1/2	5	3	1663000217
3/8		0.461							1663000317
1/2 or 3/4	14	0.617	4.000	0.786	-	5/8		4	1663000417
1 thru 2	11-1/2	0.737		0.957	-	3/4	6		1663000517

Packed: 1 pc.
Available in EgiAs coating only.
For internal and external threads.

ATP

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16630	▢	▢	▢	▢		▢	○	○	▢	▢	▢			▢	▢		

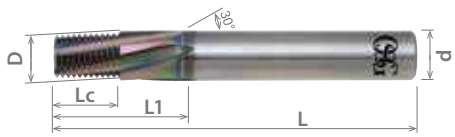
○ good ▢ best

List 16631

SPEED FEED P789 | CARBIDE | EgiAs | 11° | SHANK h6

AT-1, NPTF

Type 3



Type 4



Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			EgiAs
1/16 or 1/8	27	0.223	3.000	0.407	0.480	1/4	4	3	1663100017
1/8		0.302	3.500		-	5/16		4	1663100117
1/4 or 3/8	18	0.381		0.611	0.720	1/2	5	3	1663100217
3/8		0.459							1663100317
1/2 or 3/4	14	0.617	4.000	0.786	-	5/8		4	1663100417
1 thru 2	11-1/2	0.737		0.957	-	3/4	6		1663100517

Packed: 1 pc.
Available in EgiAs coating only.
For internal and external threads.

ATP

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

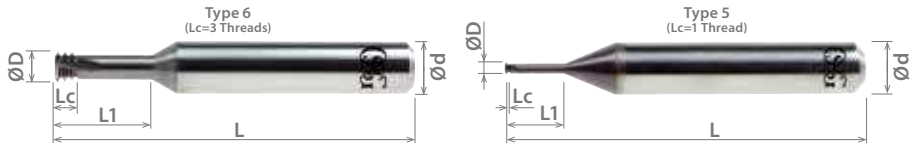
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16631	▢	▢	▢	▢		▢	○	○	▢	▢	▢			▢	▢		

○ good ▢ best

List 41200

SPEED FEED P791 | CARBIDE | SS | WXS | 11° | SHANK h6

WH-VM-PNC, Miniature, Helical Flute



Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number	
		D	L	Lc	L1	d			SS	WXS®
0	80	0.045	1.625	0.013	0.162	1/8	3	5	4120000115	-
1	64	0.055		0.016	0.198				-	4120000315
1	72			0.014	0.196				4120000215	-
2	64	0.064	1.661	0.047	0.189	1/4		6	-	4120000513
2, 3	56			0.054					-	4120000413
3, 4	48	0.074		0.063	0.220				-	4120000613
4, 5, 6	40	0.083		0.075	0.248				-	4120000713
5	44	0.096		0.068	0.272				-	4120000813
6, 8	32	0.103		0.094	0.307				-	4120000913
8	36	0.129		0.083	0.354				-	4120001013

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Super Smooth or WXS® coatings as shown above.
For internal threads only.

HTE

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

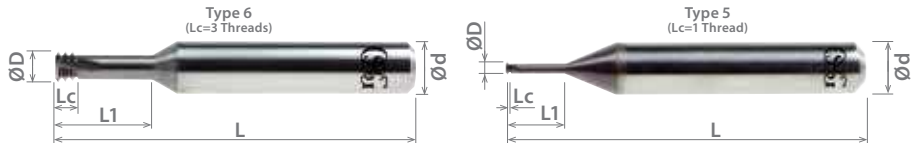
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
41200	○	○	○	○		◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	○

○ good ◎ best

List 41300

SPEED FEED P791 | CARBIDE | SS | WXS | 11° | SHANK h6

WH-VM-PNC, Miniature, Helical Flute



Units: mm

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number	
		D	L	Lc	L1	d			SS	WXS®
M1	0.25	0.72	40.00	0.26	2.75	3.00	3	5	3900495	-
M1.2		0.91			3.25				3900496	-
M1.4	0.30	1.05		0.31	3.80				3900497	-
M1.6	0.35	1.20		0.36	4.35				3900498	-
M1.7, M1.8		1.30			4.85				3900499	-
M2	0.40	1.50		1.20	4.40	6.00		6	-	3900500
M2.5, M2.6	0.45	1.90	41.00	1.35	5.60				-	3900501
M3	0.50	2.40		1.50	6.50				-	3900502
M4	0.70	3.10		2.10	8.70					3900503
M5	0.80	4.00		2.40	10.80				-	3900504

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Super Smooth or WXS® coatings as shown above.
For internal threads only.

HTE

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

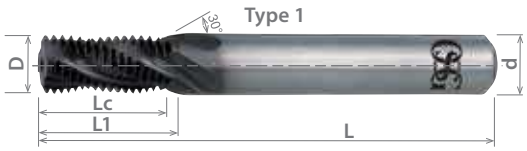
List No.	P					M			K	N		S		H			
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	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
41300	○	○	○	○		◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	○

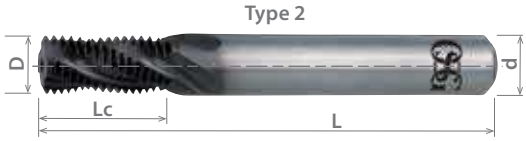
○ good ◎ best

List 41000

SPEED FEED P790 | CARBIDE | EXO | 11-30° | SHANK h6

OT-SFT-PNGT, UNC/UNF/UNEF/UNS, Regular & Long Length, Helical Flute





Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			
10	24 UNC	0.130	2.500	0.374	0.437	3/16	3	1	4100000411
	32 UNF								4100000511
12	24 UNC	0.160	3.000	0.331	0.374	1/4			4100000611
	28 UNF			0.323	0.358				4100000711
1/4	20 UNC	0.180		0.402	0.449				4100000811
				0.551	0.598				4100003211
	28 UNF			0.394	0.429				4100000911
				0.535	0.571				4100003311
	32 UNEF	0.190		0.374	0.406				4100002811
5/16	18 UNC	0.245		0.500	-			2	4100001011
				0.720	-				4100003411
	24 UNF			0.500	-				4100001111
				0.752	-				4100003511
	32 UNEF	0.250		0.469	-				4100002911
3/8	16 UNC	0.300		0.594	-	5/16			4100001211
				0.874	-				4100003611
	24 UNF			0.583	-				4100001311
				0.874	-				4100003711
	32 UNEF	0.310		0.563	-				4100003011
7/16	14 UNC	0.350		0.713	0.783	3/8		1	4100001411
				1.071	1.142				4100003811
	20 UNF			0.701	0.752				4100001511
				1.051	1.098				4100003911
1/2	13 UNC	0.370		0.768	-		4	2	4100001611
				1.079	-				4100004011
	20 UNF			0.750	-				4100001711
				1.098	-				4100004111
	32 UNS	0.375		0.752	-				4100003111
9/16	12 UNC	0.430	4.000	0.917	1.000	1/2		1	4100001811
				1.335	1.417				4100004211
	18 UNF	0.450		0.890	0.945				4100001911
				1.390	1.445				4100004311
5/8	11 UNC	0.430		1.000	1.091				4100002011
				1.453	1.547				4100004411
	18 UNF	0.495		0.945	-			2	4100002111
				1.500	-				4100004511
3/4	10 UNC	0.620		1.201	-	5/8			4100002211
				1.701	-				4100004611
	16 UNF			1.126	-				4100002311
			4.500	1.689	-				4100004711
7/8	9 UNC	0.745	4.000	1.335	-	3/4			4100002411
			5.000	2.000	-				4100004811
	14 UNF		4.000	1.358	-				4100002511
			5.000	2.000	-				4100004911

Packed: 1 pc.
Available EXO® coating only.
For internal threads only.

HTE

List 41000 (Continued)

SPEED FEED P790 | CARBIDE | EXO | 11-30° | SHANK h6

OT-SFT-PNGT, UNC/UNF/UNEF/UNS, Regular & Long Length, Helical Flute

Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			
1	8 UNC	0.745	4.000	1.626	-	3/4	4	2	4100002611
			5.000	2.000	-				4100005011
	12 UNF		4.000	1.583	-				4100002711
			5.000	2.000	-				4100005111

Packed: 1 pc.
Available EXO® coating only.
For internal threads only.

HTE

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

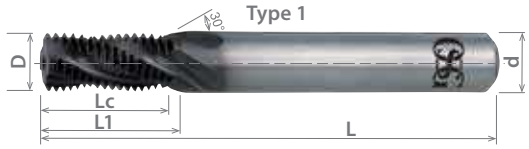
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
41000	◎	◎	○	○		○	○	○	◎	◎	◎			○	○		

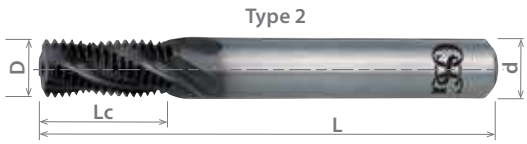
○ good ◎ best

List 41100

SPEED FEED P790 | CARBIDE | EXO® | 11-30° | SHANK h6

OT-SFT-PNGT & WX-PNC, Regular & Long Length, Helical Flute





Units: mm

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			
M6	1.00	4.50	60.00	10.00	15.00	6.00	3	1	4110000111
				13.00					3900001
M8	1.25	6.00	65.00	13.80	-			2	4110000311
				17.50	-				3900012
	1.00			13.00	-				4110000211
				17.00	-				3900011
M10	1.50	7.50	70.00	16.50	26.00	8.00		1	4110000611
				22.50					3900023
	1.25			16.25					4110000511
	1.00			16.00					4110000411
				21.00					3900021
M12	1.75	9.50	85.00	26.30	28.00	10.00	4		4110000811
				20.00					3900034
	1.25			26.30					4110000711
				24.00	-				3900032
M14	2.00	10.00		30.00	-			2	4110001011
				22.50	-				3900044
	1.50			30.00	-				4110000911
				34.00	-				3900043
M16	2.00	12.00	95.00	25.50	-	12.00			3900054
	1.50			34.50	-				4110001111
				42.50	-				3900053
M20	2.50	16.00	105.00	31.50	-	16.00			3900075
	1.50			42.00	-				4110001211
				51.00	-				3900073
M24	3.00	20.00	120.00	50.00	-	20.00	5		3900086
M27	2.00								3900084

Packed: 1 pc.
Available EXO®coating only.
For internal threads only.

HTE

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

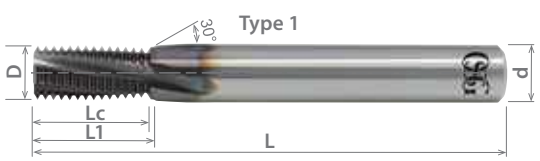
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
41100	◎	◎	○	○		○	○	○	◎	◎	◎	○	○	○	○		

○ good ◎ best

List 41050

SPEED FEED P790 | CARBIDE | EXO® | 11° | SHANK h6

WXO-ST-PNC, UNC/UNF, Coolant-Through, Helical Flute





Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			
1/4	20 UNC	0.180	3.000	0.401	0.448	1/4	4	1	4105000111
	28 UNF			0.393	0.429				4105000211
5/16	18 UNC	0.245		0.500	-			2	4105000311
	24 UNF				-				4105000411
3/8	16 UNC	0.300		0.562	-	5/16			4105000511
	24 UNF			0.582	-				4105000611
7/16	14 UNC	0.350		0.712	0.783	3/8		1	4105000711
	20 UNF			0.700	0.751				4105000811
1/2	13 UNC	0.370		0.767	-		5	2	4105000911
	20 UNF			0.750	-				4105001011
9/16	12 UNC	0.430	4.000	0.917	1.000	1/2		1	4105001111
	18 UNF	0.450		0.889	0.944				4105001211
5/8	11 UNC	0.430		1.000	1.090				4105001311
	18 UNF	0.495		0.944	-			2	4105001411
3/4	10 UNC	0.620		1.200	-	5/8			4105001511
	16 UNF			1.125	-				4105001611
7/8	9 UNC	0.745		1.330	-	3/4	6		4105001711
	14 UNF			1.358	-				4105001811
1	8 UNC	0.745		1.625	-				4105001911
	12 UNF			1.582	-				4105002011

Packed: 1 pc.
Available EXO®coating only.
For internal threads only.

HTE

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

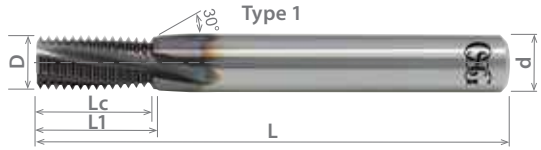
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
41050	▢	▣	▣	▣		▢	▢	▢	▢					▣	▣		

▢ good ▣ best

List 41150

SPEED FEED P790 | CARBIDE | EXO | 11° | SHANK h6

WXO-ST-PNC, Coolant-through, Helical Flute





Units: mm

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			
M6	1.00	4.50	60.00	13.00	15.00	6.00	4	1	8304701
M8		6.00	65.00	17.00	-			2	8304711
	1.25			17.50	-				8304712
M10	1.50	7.50	70.00	22.50	26.00	8.00		1	8304723
	1.00			21.00					8304721
M12	1.75	9.50	85.00	26.30	28.00	10.00	5		8304734
	1.25								8304732
M14	2.00	10.00		30.00	-			2	8304744
	1.50				-				8304743
M16	2.00	12.00	95.00	34.00	-	12.00			8304754
	1.50			34.50	-				8304753
M20	2.50	16.00	105.00	42.50	-	16.00			8304775
	1.50			42.00	-				8304773
M24	3.00	20.00	120.00	51.00	-	20.00	6		8304786
	2.00			50.00	-				8304784

Packed: 1 pc.
Available EXO®coating only.
For internal threads only.

HTE

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
41150	○	◎	◎	◎		○	○	○	○					◎	◎		

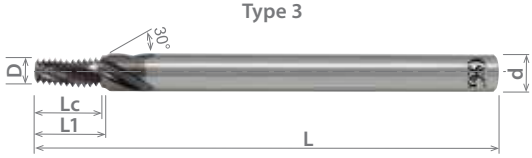
○ good ◎ best

List 42000

SPEED FEED P790 | CARBIDE | EXO | 30° | SHANK h6

OT-SFT-PNGT, NPT, Helical Flute

Type 3



Type 4



Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			
1/16	27	0.186	3.000	0.409	0.440	1/4	3	3	4200000111
1/8		0.286			-	5/16		4	4200000211
1/4 or 3/8	18	0.334		0.610	-	3/8	4		4200000311
1/2 or 3/4	14	0.575	4.000	0.787	-	5/8			4200000411
1 thru 2	11-1/2	0.785		0.957	1.040	1		3	4200000511
2-1/2	8	0.917		1.358	-			4	4200000611

Packed: 1 pc.
Available EXO®coating only.
For internal threads only.

HTE

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
42000	◎	◎	○	○		○	○	○	◎	◎	◎			○	○		

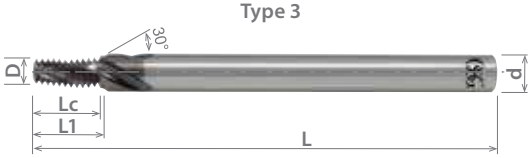
○ good ◎ best

List 42001

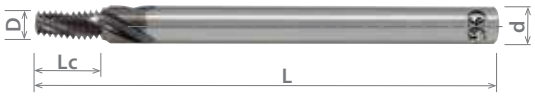
SPEED FEED P790 | CARBIDE | EXO | 30° | SHANK h6

OT-SFT-PNGT, NPTF, Helical Flute

Type 3



Type 4



Units: Inch

Size	Threads Per Inch	Cutter Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter	No. of Flutes	Type	EDP Number
		D	L	Lc	L1	d			
1/16	27	0.186	3.000	0.409	0.440	1/4	3	3	4200100111
1/8		0.286			-	5/16		4	4200100211
1/4 or 3/8	18	0.335		0.610	-	3/8	4		4200100311
1/2	14	0.575	4.000	0.787	-	5/8			4200100411
3/4					-				4200100711
1 or 1-1/4	11-1/2	0.785		0.957	1.040	1		3	4200100511
1-1/2 or 2									4200100811
2-1/2	8	0.917		1.358	-			4	4200100611

Packed: 1 pc.
Available EXO®coating only.
For internal threads only.

HTE

For more information on thread mill applications, including ThreadPro software, visit: www.osgtool.com/ThreadPro.

ThreadPro

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
42001	◎	◎	○	○		○	○	○	◎	◎	◎			○	○		

○ good ◎ best

List 15015

NEW | HSS | TiN

DCT75



Size (Inch)	Thread Length (mm)	Shank Diameter (mm)	EDP
No.5 - 44 UNF	5.0	6.0	1501500105
No.6 - 32 UNC	5.0		1501500205
No.10 - 24 UNC	5.9		1501500305
No.10 - 32 UNF	5.0		1501500405
1/4 - 20 UNC	7.0	10.0	9342028
1/4 - 28 UNF	5.0		9342029
1/4 - 32 UNEF	5.0		1501500505
5/16 - 18 UNC	7.8		9342030
5/16 - 24UNF	7.0		9342031
3/8 - 16 UNC	8.8		9342033
3/8 - 24 UNF	7.0		9342034
7/16 - 14 UNC	10.0	12.0	9342035
7/16 - 20 UNF	7.0		9342036
1/2 - 13 UNC	10.8	13.0	9342037
1/2 - 20 UNF	7.0		9342038
1/2 - 32 UN	5.0		1501500605
9/16 - 18 UNF	7.8	15.0	1501500705
5/8 - 11 UNC	12.7	16.0	1501500805
5/8 - 18 UNF	7.8		1501500905
3/4 - 10 UNC	14.0	20.0	1501501005
3/4 - 16 UNF	8.8		1501501105
7/8 - 9 UNC	15.6	23.0	1501501205
7/8 - 14 UNF	10.0		1501501305
1 - 8 UNC	17.5	25.5	1501501405
1 - 12 UNF	11.7		1501501505

Since it is made to measure class 2B, it can also be used as is for 3B. If the internal thread is a blind hole, please confirm that the internal thread length is longer than the screw length of DCT75. The selection of the Height Master is required if the nominal diameter of the internal thread has a chamfer or counterbore over 1.5mm. Please consult with your local sales representative.

EXT

Sleeve and Height Master Selection Chart

Shank Diameter	Inch Sizes	Sleeve Hole Dia.	Height Master Dia.
6mm	No. 5 - No.10	6.5mm	6mm
10mm - 16mm	1/4" - 5/8"	17.5mm (included with the Digimatic Indicator)	16mm
20mm - 25.5mm	3/4" - 1	26.5mm	

List 15010

NEW HSS TiN

DCT75



Units: mm

Size	Thread Length	Shank Diameter	EDP
M3 x 0.5	5.0	6	1501000105
M4 x 0.7	5.0	6	1501000205
M6 x 1	6.2	10	9342019
M8 x 1.25	7.3	10	9342020
M8 x 1	6.2	10	9342021
M10 x 1.5	8.3	10	9342022
M12 x 1.75	9.7	12	9342025
M16 x 1.5	8.7	16	9342027

Packed: 1 pcs.
Since it is made to measure class 6H, it can also be used as is for 4H, 5H, JIS I and JIS II. If the internal thread is a blind hole, please confirm that the internal thread length is longer than the screw length of DCT75. The selection of the Height Master is required if the nominal diameter of the internal thread has a chamfer or counterbore over 1.5mm. Please consult with your local sales representative.

EXT

Sleeve and Height Master Selection Chart

Shank Diameter	Metric Sizes	Sleeve Hole Dia.	Height Master Dia.
6mm	M3 - M4	6.5mm	6mm
10mm - 16mm	M6 - M16	17.5mm (included with the Digimatic Indicator)	16mm

List 15020

NEW

DCT75 Accessories

Units: mm

	Item Name	Size	EDP No.
	Digimatic Indicator with 17.5mm Sleeve	-	9342054
	Sleeve for Digimatic Indicator	6.5mm Hole Dia.	1502000100
		26.5mm Hole Dia.	1502000200
	Height Master	D 6mm x L 29mm	1502000300
		D 6mm x L 29.25mm	1502000400
		D 6mm x L 29.5mm	1502000500
		D 6mm x L 29.75mm	1502000600
		D 6mm x L 30mm	1502000700
		D 16mm x L 29mm	9342047
		D 16mm x L 29.25mm	9342048
		D 16mm x L 29.5mm	9342049
		D 16mm x L 29.75mm	9342050
		D 16mm x L 30mm	9342051

Please be sure to purchase the DCT75 and the Height Master as a set.

EXT

1. Hold the sleeve against the entrance of the internal thread. Please confirm the position of the sleeve and ensure that it is not in the way.
2. After confirming the shape of the internal thread, the sleeve's outer diameter and the hole diameter, please confirm the shape of the internal thread's entrance where the sleeve is fitted against.
3. The digital unit uses the Digimatic Indicator manufactured by Mitutoyo, paired with programs exclusively made for the DCT75.

List 16050

HSS-Co | V

OIL-S-XPF, Coolant-Through, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
1/4 -20 UNC	1.5P	H6	1605014216	3.150	0.500	1.181	0.255	0.191	0.311	0.2245	0.2295	H6	H4
	2.5P	H4	1605014204										
		H6	1605014206										
	4.5P		1605014246										
1/4 - 28 UNF	1.5P		1605014816							0.2318	0.2354		
	2.5P	H4	1605014284										
		H6	1605014286										
	4.5P		1605014846										
5/16 - 18 UNC	1.5P	H7	1605051617	3.543	0.555	1.378	0.318	0.238	0.374	0.2842	0.2898	H7	H5
	2.5P	H5	1605056185										
		H7	1605056187										
	4.5P		1605051647										
5/16 - 24 UNF	1.5P		1605056217							0.2912	0.0296		
	2.5P	H5	1605056245										
		H7	1605056247										
	4.5P		1605056447										
3/8-16 UNC	1.5P		1605038117	3.937	0.626	1.575	0.381	0.286	0.437	0.3431	0.3495		
	2.5P	H5	1605038165										
		H7	1605038167										
	4.5P		1605038147										
3/8 - 24 UNF	1.5P		1605038217							0.3537	0.3580		
	2.5P	H5	1605038245										
		H7	1605038247										
	4.5P		1605038447										
7/16 - 14 UNC	1.5P	H8	1605076118		0.713	1.713	0.323	0.242	0.406	0.4011	0.4084	H8	
	2.5P	H5	1605076145										
		H8	1605076148										
	4.5P		1605076448										
7/16 - 20 UNF	1.5P		1605076218							0.4120	0.4171		
	2.5P	H5	1605076205										
		H8	1605076208										
	4.5P		1605076248										
1/2 - 13 UNC	1.5P		1605012118	4.331	0.768	1.933	0.367	0.275	0.437	0.4608	0.4686		
	2.5P	H5	1605012135										
		H8	1605012138										
	4.5P		1605012148										
1/2-20 UNF	1.5P		1605012218	3.937						0.4745	0.4796		
	2.5P	H5	1605012205										
		H8	1605012208										
	4.5P		1605012248										
9/16 - 12 UNC	1.5P	H10	1605091110	4.331	0.835	1.972	0.429	0.322	0.500	0.5200	0.5285	H10	H7
	2.5P	H7	1605096127										
		H10	1605096120										
	4.5P		1605091140										
9/16 - 18 UNF	1.5P		1605091810	3.937						0.5342	0.5398		
	2.5P	H7	1605096187										
		H10	1605096180										
	4.5P		1605091840										
5/8 - 11 UNC	1.5P		1605058150	4.331	0.909	2.126	0.480	0.360	0.563	0.5787	0.5879		
	2.5P	H7	1605058117										
		H10	1605058110										
	4.5P		1605058140										

Packed: 1 pc.
Available V coating only.

EP

List 16050 (Continued)

HSS-Co | V

OIL-S-XPF, Coolant-Through, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)

Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
5/8 - 18 UNF	1.5P	H10	1605058810	3.937	0.909	2.126	0.480	0.360	0.563	0.5967	0.6023	H10	H7
	2.5P	H7	1605058187										
		H10	1605058180										
	4.5P		1605058840										
3/4 - 10 UNC	1.5P		1605034110	4.921	1.000	2.433	0.590	0.442	0.689	0.6990	0.7092		
	2.5P	H7	1605034107										
		H10	1605034100										
	4.5P		1605034140										
3/4 - 16 UNF	1.5P		1605034610	4.331						0.7181	0.7245		
	2.5P	H7	1605034167										
		H10	1605034160										
	4.5P		1605034640										
7/8 - 9 UNC	1.5P	H11	1605078911	5.512	1.110	2.654	0.697	0.523	0.752	0.8183	0.8297	H11	H8
	2.5P	H8	1605078908										
		H11	1605078901										
	4.5P		1605078941										
7/8 - 14 UNF	1.5P		1605078111	4.920						0.8386	0.8459		
	2.5P	H8	1605078148										
		H11	1605078141										
	4.5P	H8	1605078149										
		H11	1605078142										
1 - 8 UNC	1.5P		1605018111	6.300	1.252	3.012	0.800	0.600	0.811	0.9363	0.9490		
	2.5P	H8	1605001088										
		H11	1605001081										
	4.5P		1605018411										
1 - 12 UNF	1.5P		1605011211	5.510			1.194			0.9575	0.9660		
	2.5P	H8	1605001128										
		H11	1605001121										
	4.5P		1605011241										
1, 1/8 - 7 UNC	2.5P	H13	1605011878	7.087	0.858	2.835	0.896	0.672	0.874	1.0521	1.0667	H13	-
1, 1/8 - 8 UNS		H11	1605011888							1.0613	1.0740	H11	-
1, 1/8 - 12 UNF			1605011826	5.906	0.835	2.362				1.0825	1.0910		-
1, 1/4 - 7 UNC		H13	1605012578	7.087	0.858	2.835	1.021	0.766	1.000	1.1771	1.1917	H13	-
1, 1/4 - 8 UNS		H11	1605012588							1.1863	1.1990	H11	-
1, 1/4 - 12 UNF			1605012526	5.906	0.835	2.362			0.961	1.2075	1.2160		-
1, 3/8 - 6 UNC		H14	1605013768	7.874	1.000	3.150	1.108	0.831	1.063	1.2900	1.3070	H14	-
1, 3/8 - 8 UNS		H13	1605013788							1.3113	1.3240	H13	-
1, 3/8 - 12 UNF		H11	1605013126	6.693	0.835	2.677				1.3325	1.3410	H11	-
1, 1/2 - 6 UNC		H15	1605011268	7.874	1.000	3.150	1.233	0.925	1.126	1.4150	1.4320	H15	-
1, 1/2 - 8 UNS		H13	1605011288							1.4363	1.4490	H13	-
1, 1/2 - 12 UNF		H11	1605012126	6.693	0.835	2.677				1.4575	1.4660	H11	-
1, 5/8 - 8 UNS		H13	1605016288	7.874	1.000	3.150	1.305	0.979		1.5613	1.5740	H13	-
1, 3/4 - 5 UNC		H16	1605017558	8.661	1.201	3.465	1.430	1.072	1.252	1.6480	1.6684	H16	-
1, 3/4 - 8 UNS		H13	1605017588	7.874		3.150				1.6863	1.6990	H13	-

Packed: 1 pc.
Available V coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16050	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	75-130	75-130	65-100	65-100	20-65	20-50	20-45	15-40		80-130	75-110	8-10	8-10	50-100	8-20		

*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 16150

HSS-Co | V

OIL-S-XPF, Coolant-Through, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
M6 x 1.0	1.5P	D8	1615060118	80.00	10.00	30.00	6.47	4.85	7.30	5.49	5.59	D8	D5
	2.5P	D5	1615006015										
		D8	1615006018										
	4.5P		1615060148										
M6 x 0.75	1.5P	D7	1615067517							5.62	5.69	D7	D4
	2.5P	D4	1615006754										
		D7	1615006757										
	4.5P		1615067547										
M7 x 1.0	1.5P	D8	1615070118		12.00	35.00	8.07	6.05	9.50	6.49	6.59	D8	D5
	2.5P	D5	1615007015										
		D8	1615007018										
	4.5P		1615070148										
M8 x 1.25	1.5P	D9	1615081219	90.00						7.36	7.49	D9	
	2.5P	D5	1615008255										
		D9	1615008259										
	4.5P		1615081249										
M8 x 1.0	1.5P	D8	1615080118							7.49	7.59	D8	
	2.5P	D5	1615008015										
		D8	1615008018										
	4.5P		1615080148										
M8 x 0.75	1.5P	D7	1615087517	80.00		30.00				7.62	7.69	D7	D4
	2.5P	D4	1615008754										
		D7	1615008757										
	4.5P		1615087547										
M10 X 1.5	1.5P	D10	1615010110	100.00	15.00	39.00	9.67	7.26	11.10	9.24	9.39	D10	D6
	2.5P	D6	1615010156										
		D10	1615010150										
	4.5P		1615010140										
M10 x 1.25	1.5P	D9	1615010119							9.36	9.49	D9	D5
	2.5P	D5	1615010255										
		D9	1615010259										
	4.5P		1615010149										
M10 x 1.0	1.5P	D8	1615010118	90.00		35.00				9.49	9.59	D8	
	2.5P	D5	1615010015										
		D8	1615010018										
	4.5P		1615010148										
M12 x 1.75	1.5P	D11	1615012711	110.00	17.00	49.10	9.32	6.98		11.11	11.23	D11	D6
	2.5P	D6	1615012756										
		D11	1615010751										
	4.5P		1615012541										
M12 x 1.5	1.5P	D11	1615012111	100.00						11.24	11.39		
	2.5P	D6	1615012156										
		D11	1615012151										
	4.5P		1615012141										
M12 x 1.25	1.5P	D10	1615012210							11.36	11.49	D10	
	2.5P	D6	1615012256										
		D10	1615012250										
	4.5P		1615012240										
M12 x 1.0	1.5P	D10	1615012110							11.49	11.59		
	2.5P	D6	1615012106										
		D10	1615012100										
	4.5P		1615012140										

Packed: 1 pc.
Available V coating only.

EP

List 16150 (Continued)

HSS-Co | V

OIL-S-XPF, Coolant-Through, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)

Units: mm

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
M14 x 2.0	1.5P	D12	1615014212	110.00	20.00	50.10	10.89	8.18	12.70	12.98	13.18	D12	D7
	2.5P	D7	1615014027										
		D12	1615014022										
	4.5P		1615014242										
M14 x 1.5	1.5P	D11	1615014511	100.00						13.24	13.39	D11	D6
	2.5P	D6	1615014156										
		D11	1615014151										
	4.5P		1615014541										
M16 x 2.0	1.5P	D12	1615016212	110.00		54.00	12.19	9.14	14.30	14.98	15.18	D12	D7
	2.5P	D7	1615016207										
		D12	1615016202										
	4.5P		1615016242										
M16 x 1.5	1.5P	D11	1615016111	100.00						15.24	15.39	D11	D6
	2.5P	D6	1615016152										
		D11	1615016151										
	4.5P		1615016141										
M18 x 2.5	1.5P	D12	1615018212	125.00	25.00	55.00	13.76	10.31	15.90	16.73	16.98	D12	D7
	2.5P	D7	1615018257										
		D12	1615018252										
	4.5P		1615018242										
M18 x 1.5	1.5P	D11	1615018111	110.00						17.24	17.39	D11	D6
	2.5P	D6	1615018156										
		D11	1615018151										
	4.5P		1615018141										
M20 x 2.5	1.5P	D12	1615020212	140.00		61.80	16.56	12.42	17.50	18.73	18.98	D12	D7
	2.5P	D7	1615020257										
		D12	1615020252										
	4.5P		1615020242										
M20 x 1.5	1.5P	D11	1615020111	125.00						19.24	19.39	D11	D6
	2.5P	D6	1615020156										
		D11	1615020151										
	4.5P		1615020141										
M22 x 2.5	1.5P	D12	1615022512	140.00		67.40	17.70	13.28	19.10	20.73	20.98	D12	D7
	2.5P	D7	1615022257										
		D12	1615022252										
	4.5P		1615022542										
M22 x 2.0	1.5P		1615022212							20.98	21.18		
	2.5P	D7	1615022207										
		D12	1615022202										
	4.5P		1615022242										
M22 x 1.5	1.5P	D11	1615022111	125.00						21.24	21.39	D11	D6
	2.5P	D6	1615022156										
		D11	1615022151										
	4.5P		1615022141										

Packed: 1 pc.
Available V coating only.

continued on next page

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16150	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	75-130	75-130	65-100	65-100	20-65	20-50	20-45	15-40		80-130	75-110	8-10	8-10	50-100	8-20		

*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 16150 (Continued)

HSS-Co | V

OIL-S-XPF, Coolant-Through, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
M24 x 3.0	1.5P	D15	1615024315	160.00	30.00	68.40	19.30	14.48	19.10	22.47	22.78	D15	D9
	2.5P	D9	1615024309										
		D15	1615024305										
	4.5P	D9	1615024349										
		D15	1615024345										
M24 x 2.0	1.5P	D13	1615024223	140.00						22.98	23.18	D13	D7
	2.5P	D7	1615024207										
		D13	1615024203										
	4.5P		1615024243										
M24 x 1.5	1.5P	D11	1615024111		25.00					23.24	23.39	D11	D6
	2.5P	D6	1615024156										
		D11	1615024151										
	4.5P		1615024141										
M27 x 3.0	2.5P	D15	1615027309	160.00	18.00	64.00	22.75	17.07	22.20	25.47	25.78	D15	-
M30 x 3.5			1615030350	180.00	21.00	72.00	25.93	19.46	25.40	28.22	28.57		-
M33 x 3.5		D16	1615033350				28.14	21.11	27.00	31.22	31.57	D16	-
M36 x 4.0		D17	1615036411	200.00	24.00	80.00	31.31	23.50	28.60	33.96	34.37	D17	-
M42 x 4.5			1615042451		27.00		36.32	27.23	31.80	39.71	40.16		-
M45 x 4.5			1615045451	220.00		88.00	38.58	28.93		42.71	43.16		-

Packed: 1 pc.
Available V coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16150	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	75-130	75-130	65-100	65-100	20-65	20-50	20-45	15-40		80-130	75-110	8-10	8-10	50-100	8-20		

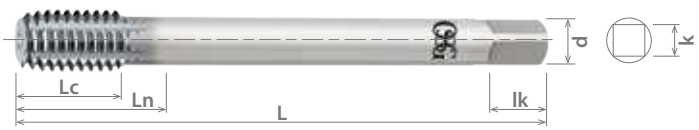
*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 16250

HSS-Co V

S-XPF, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
0 - 80 UNF	1.5P	H3	1625008013	1.575	0.324	0.363	0.141	0.110	0.188	0.0536	0.0549	H3	H2
	2.5P	H2	1625000802		0.321	0.360							
		H3	1625000803										
	4.5P		1625008043		0.315	0.354							
1 - 64 UNC	1.5P		1625016413	1.772	0.329	0.369				0.0650	0.0666		
	2.5P	H2	1625001642		0.326	0.365							
		H3	1625001643										
	4.5P		1625016443		0.315	0.354							
1 - 72 UNF	1.5P		1625017213		0.327	0.366				0.0659	0.0673		
	2.5P	H2	1625001722		0.324	0.363							
		H3	1625001723		0.323								
	4.5P		1625017243		0.315	0.354							
2 - 56 UNC	1.5P		1625025613		0.389	0.428				0.0769	0.0787		
	2.5P	H2	1625002562		0.385	0.424							
		H3	1625002563		0.384								
	4.5P		1625025643		0.374	0.413							
2 - 64 UNF	1.5P		1625026413		0.385	0.424				0.0780	0.0796		
	2.5P	H2	1625002642		0.381	0.421							
		H3	1625002643										
	4.5P		1625026443		0.374	0.413							
3 - 48 UNC	1.5P		1625034813	1.969	0.390	0.429				0.0884	0.0905		
	2.5P	H2	1625003482		0.385	0.424							
		H3	1625003483										
	4.5P		1625034843		0.370	0.409							
3 - 56 UNF	1.5P		1625035613		0.385	0.425				0.0899	0.0917		
	2.5P	H2	1625003562		0.381	0.421							
		H3	1625003563										
	4.5P		1625035643		0.370	0.409							
4 - 40 UNC	1.5P	H5	1625044015	2.205	0.317	0.727				0.0993	0.1018	H5	H3
	2.5P	H3	1625004403		0.312	0.721							
		H5	1625004405		0.311								
	4.5P		1625044045		0.295	0.705							
4 - 48 UNF	1.5P		1625044815		0.315	0.724				0.1014	0.1035		
	2.5P	H3	1625004483		0.311	0.720							
		H5	1625004485		0.310								
	4.5P		1625044845		0.299	0.709							
5 - 40 UNC	1.5P		1625054015		0.318	0.728				0.1123	0.1148		
	2.5P	H3	1625005403		0.313	0.722							
		H5	1625005405		0.312								

Packed: 1 pc.
Available V coating only.

continued on next page

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16250	▢	▢	▢	▢	▢	▢*	▢*	▢*		▢	▢	○	○	▢	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

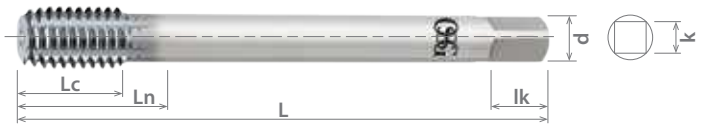
*For Stainless Steel, please use non-water-soluble coolant.

○ good ▢ best

List 16250 (Continued)

HSS-Co V

S-XPF, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
5 - 40 UNC	4.5P	H5	1625054045	2.205	0.299	0.709	0.141	0.110	0.188	0.1123	0.1148	H5	H3
5 - 44 UNF	1.5P	H5	1625054415		0.315	0.724				0.1134	0.1157		
	2.5P	H3	1625005443		0.310	0.719							
		H5	1625005445		0.309								
	4.5P	H5	1625054445		0.299	0.709							
6 - 32 UNC	1.5P	H5	1625063215		0.399	0.812				0.1221	0.1252		
	2.5P	H3	1625006323		0.392	0.805							
		H5	1625006325		0.391								
	4.5P	H5	1625063245		0.370	0.783							
6 - 40 UNF	1.5P	H5	1625064015		0.394	0.807				0.1253	0.1278		
	2.5P	H3	1625006403		0.388	0.802							
		H5	1625006405										
	4.5P	H5	1625064045		0.374	0.787							
8 - 32 UNC	1.5P	H5	1625083215	2.480	0.400	0.853	0.168	0.131	0.250	0.1481	0.1512		
	2.5P	H3	1625008323		0.393	0.846							
		H5	1625008325										
	4.5P	H5	1625083245		0.374	0.827							
8 - 36 UNF	1.5P	H5	1625083615		0.395	0.848				0.1498	0.1526		
	2.5P	H3	1625008363		0.389	0.842							
		H5	1625008365										
	4.5P	H5	1625083645		0.374	0.827							
10 - 24 UNC	1.5P	H6	1625010216	2.756	0.530	0.975	0.194	0.152	0.250	0.1688	0.1729	H6	H4
	2.5P	H4	1625010244		0.521	0.966							
		H6	1625010246		0.520	0.965							
	4.5P	H6	1625010249		0.492	0.937							
10 - 32 UNF	1.5P	H6	1625010316		0.523	0.968				0.1741	0.1772		
	2.5P	H4	1625010324		0.516	0.961							
		H6	1625010326										
	4.5P	H6	1625010346		0.500	0.945							
12 - 24 UNC	1.5P	H7	1625012417	3.150	0.532	1.134	0.220	0.165	0.281	0.1948	0.1989	H7	H5
	2.5P	H5	1625012245		0.522	1.124							
		H7	1625012247										
	4.5P	H7	1625012447		0.496	1.098							
12 - 28 UNF	1.5P	H7	1625012817		0.523	1.130				0.1978	0.2014		
	2.5P	H5	1625012285		0.519	1.121							
		H7	1625012287										
	4.5P	H7	1625012847		0.500	1.102							
1/4 - 20 UNC	1.5P	H6	1625014216		0.538	1.219	0.255	0.191	0.313	0.2245	0.2295	H6	H4
	2.5P	H4	1625014204		0.526	1.207							
		H6	1625014206										
	4.5P	H6	1625014246		0.496	1.374							
1/4 - 28 UNF	1.5P	H6	1625014816		0.517	1.198				0.2318	0.2354		
	2.5P	H4	1625014284		0.509	1.190							
		H6	1625014286		0.508	1.189							
	4.5P	H6	1625014846		0.496	1.177							
5/16 - 18 UNC	1.5P	H7	1625051617	3.543	0.555	1.378	0.318	0.238	0.375	0.2842	0.2898	H7	H5
	2.5P	H5	1625056185										
		H7	1625056187										
	4.5P	H7	1625051647										

Packed: 1 pc.
Available V coating only.

EP

List 16250 (Continued)

HSS-Co | V

S-XPF, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)

Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
5/16 - 24 UNF	1.5P	H7	1625056217	3.543	0.555	1.378	0.318	0.238	0.375	0.2912	0.2955	H7	H5
	2.5P	H5	1625056245										
		H7	1625056247										
	4.5P		1625056249										
3/8 - 16 UNC	1.5P		1625038117	3.937	0.625	1.575	0.381	0.286	0.438	0.3431	0.3495		
	2.5P	H5	1625038165										
		H7	1625038167										
	4.5P		1625038147										
3/8 - 24 UNF	1.5P		1625038217							0.3537	0.3580		
	2.5P	H5	1625038245										
		H7	1625038247										
	4.5P		1625038249										
7/16 - 14 UNC	1.5P	H8	1625076118		0.712	1.693	0.323	0.242	0.406	0.4011	0.4084	H8	
	2.5P	H5	1625076145										
		H8	1625076148										
	4.5P		1625076149										
7/16 - 20 UNF	1.5P		1625076218							0.4120	0.4171		
	2.5P	H5	1625076205										
		H8	1625076208										
	4.5P		1625076248										
1/2 - 13 UNC	1.5P		1625012118	4.331	0.767	1.929	0.367	0.275	0.438	0.4608	0.4686		
	2.5P	H5	1625012135										
		H8	1625012138										
	4.5P		1625012148										
1/2 - 20 UNF	1.5P		1625012218	3.937						0.4745	0.4796		
	2.5P	H5	1625012205										
		H8	1625012208										
	4.5P		1625012248										
9/16 - 12 UNC	1.5P	H7	1625091117	4.331	0.834	1.969	0.429	0.322	0.500	0.5200	0.5280	H10	H7
	2.5P	H10	1625096127										
		H7	1625096120										
	4.5P		1625091147										
9/16 - 18 UNF	1.5P	H10	1625091810	3.937						0.5342	0.5398		
	2.5P	H7	1625096187										
		H10	1625096180										
	4.5P		1625091840										
5/8 - 11 UNC	1.5P		1625058410	4.331	0.909	2.126	0.480	0.360	0.563	0.5787	0.5879		
	2.5P	H7	1625058117										
		H10	1625058110										
	4.5P		1625058140										
5/8 - 18 UNF	1.5P		1625058810	3.937						0.5967	0.6023		
	2.5P	H7	1625058187										
		H10	1625058180										
	4.5P		1625058840										

Packed: 1 pc.
Available V coating only.

continued on next page EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16250	▢	▢	▢	▢	▢	▢*	▢*	▢*		▢	▢	▢	▢	▢	▢		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

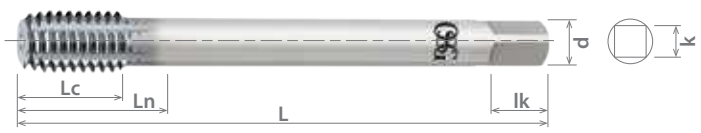
*For Stainless Steel, please use non-water-soluble coolant.

▢ good ▢ best

List 16250 (Continued)

HSS-Co V

S-XPF, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
3/4 - 10 UNC	1.5P	H10	1625034110	4.921	1.00	2.441	0.590	0.442	0.688	0.6990	0.7092	H10	H7
	2.5P	H7	1625034107										
		H10	1625034100										
	4.5P		1625034140										
3/4 - 16 UNF	1.5P		1625034610	4.331						0.7181	0.7245		
	2.5P	H7	1625034167										
		H10	1625034160										
	4.5P		1625034640										
7/8 - 9 UNC	1.5P	H11	1625078911	5.512	1.110	2.638	0.697	0.523	0.750	0.8183	0.8297	H11	H8
	2.5P	H8	1625078908										
		H11	1625078901										
	4.5P		1625078941										
7/8 - 14 UNF	1.5P		1625078111	4.921						0.8386	0.8459		
	2.5P	H8	1625078148										
		H11	1625078141										
	4.5P		1625078149										
1 - 8 UNC	1.5P		1625018111	6.299	1.251	2.992	0.800	0.600	0.813	0.9363	0.9490		
	2.5P	H8	1625001088										
		H11	1625001081										
	4.5P		1625018411										
1 - 12 UNF	1.5P		1625011211	5.512						0.9575	0.9660		
	2.5P	H8	1625001128										
		H11	1625001121										
	4.5P		1625011241										
1, 1/8 - 7 UNC	2.5P	H13	1625011878	7.087	0.858	2.834	0.896	0.672	0.875	1.0521	1.0667	H13	-
1, 1/8 - 8 UNS		H11	1625011888							1.0613	1.0740	H11	-
1, 1/8 - 12 UNF			1625011826	5.906	0.835	2.362				1.0825	1.0910		-
1, 1/4 - 7 UNC		H13	1625012578	7.087	0.858	2.834	1.021	0.766	1.000	1.1771	1.1917	H13	-
1, 1/4 - 8 UNS		H11	1625012588							1.1863	1.1990	H11	-
1, 1/4 - 12 UNF			1625012526	5.906	0.835	2.362				1.2075	1.2160		-
1, 3/8 - 6 UNC		H14	1625013768	7.870	1.000	3.149	1.108	0.831	1.063	1.2900	1.3070	H14	-
1, 3/8 - 8 UNS		H13	1625013788							1.3113	1.3240	H13	-
1, 3/8 - 12 UNF		H11	1625013126	6.693	0.835	2.677				1.3325	1.3410	H11	-
1, 1/2 - 6 UNC		H15	1625011268	7.874	1.000	3.149	1.233	0.925	1.125	1.4150	1.4320	H15	-
1, 1/2 - 8 UNS		H13	1625011288							1.4363	1.4490	H13	-
1, 1/2 - 12 UNF		H11	1625012126	6.693	0.835	2.677				1.4575	1.4660	H11	-
1, 5/8 - 8 UNS		H13	1625016288	7.874	1.000	3.149	1.305	0.979		1.5613	1.5740	H13	-
1, 3/4 - 5 UNC		H16	1625017558	8.661	1.201	3.464	1.430	1.072	1.250	1.6480	1.6684	H16	-
1, 3/4 - 8 UNS		H13	1625017588	7.874		3.149				1.6863	1.6990	H13	-

Packed: 1 pc.
Available V coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16250	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

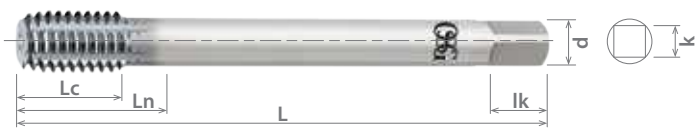
*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 16350

HSS-Co | V

S-XPF, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	6H	4H
M1 x 0.25	1.5P	D5	1635012515	40.00	5.50	6.50	3.581	2.79	4.80	0.88	0.90	D5	D3
	2.5P		1635012525										
	4.5P		1635012545										
M1.2 x 0.25	1.5P		1635012215							1.08	1.10		
	2.5P		1635012225										
	4.5P		1635012245										
M1.4 x 0.3	1.5P		1635014315		7.00	8.00				1.26	1.28		
	2.5P		1635014325										
	4.5P		1635014345										
M1.6 x 0.35	1.5P		1635016315		8.00	9.00				1.42	1.46		
	2.5P	D3	1635016353										
		D5	1635016355										
	4.5P		1635016345										
M1.7 x 0.35	1.5P		1635017315							1.52	1.56		
	2.5P	D3	1635017353										
		D5	1635017355										
	4.5P		1635017345										
M1.8 X 0.35	1.5P		1635018315							1.62	1.66		
	2.5P	D3	1635018353										
		D5	1635018355										
	4.5P		1635018345										
M2 x 0.4	1.5P		1635024155	45.00						1.80	1.84		
	2.5P	D3	1635002043										
		D5	1635002045										
	4.5P		1635024455										
M2.5 x 0.45	1.5P		1635025415	50.00	9.80	10.80				2.27	2.32		
	2.5P	D3	1635025453										
		D5	1635025455										
	4.5P		1635025445										
M2.6 x 0.45	1.5P		1635026415							2.38	2.42		
	2.5P		1635026425										
	4.5P		1635026445										
M3 x 0.5	1.5P		1635030515	56.00	6.00	18.00				2.75	2.80		
	2.5P	D3	1635003053										
		D5	1635003055										
	4.5P		1635030545										
M3 x 0.35	1.5P		1635033515							2.83	2.89		
	2.5P	D3	1635003353										
		D5	1635003355										
	4.5P		1635033545										

Packed: 1 pc.
Available V coating only.

continued on next page

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16350	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

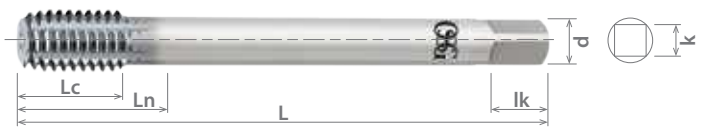
*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 16350 (Continued)

HSS-Co | V

S-XPF, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	6H	4H
M3.5 x 0.6	1.5P	D6	1635035616	56.00	7.20	20.30	3.581	2.79	4.80	3.19	3.26	D6	D4
	2.5P	D4	1635035064										
		D6	1635035066										
	4.5P		1635035646										
M4 x 0.7	1.5P	D6	1635040716	63.00	8.50	21.10	4.267	3.33	6.40	3.64	3.71		
	2.5P	D4	1635004074										
		D6	1635004076										
	4.5P		1635040746										
M4 x 0.5	1.5P	D6	1635040516							3.75	3.80		
	2.5P	D4	1635004054										
		D6	1635004056										
	4.5P		1635040546										
M4.5 x 0.75	1.5P	D6	1635045716	70.00	9.10	25.10	4.928	3.86		4.13	4.19		
	2.5P	D4	1635045754										
		D6	1635045756										
	4.5P		1635045746										
M5 x 0.8	1.5P	D7	1635050817		9.60	25.00				4.59	4.67		
	2.5P	D4	1635005084										
		D7	1635005087										
	4.5P		1635050847										
M5 x 0.5	1.5P	D5	1635050515							4.75	4.80	D5	D3
	2.5P	D3	1635005053										
		D5	1635005055										
	4.5P		1635050545										
M6 x 1.0	1.5P	D8	1635060118	80.00	10.00	30.00	6.477	4.85	7.90	5.49	5.59	D8	D5
	2.5P	D5	1635006015										
		D8	1635006018										
	4.5P		1635060148										
M6 X 0.75	1.5P	D7	1635067517							5.62	5.69	D6	D4
	2.5P	D4	1635006754										
		D7	1635006757										
	4.5P		1635067547										
M7 x 1.0	1.5P	D8	1635070118		12.00	30.00	8.077	6.05	9.50	6.49	6.59	D8	D5
	2.5P	D5	1635007015										
		D8	1635007018										
	4.5P		1635070148										
M8 x 1.25	1.5P	D9	1635081219	90.00		35.00				7.36	7.49	D9	
	2.5P	D5	1635008255										
		D9	1635008259										
	4.5P		1635081249										
M8 x 1.0	1.5P	D8	1635080118							7.49	7.59	D8	
	2.5P	D5	1635008015										
		D8	1635008018										
	4.5P		1635080148										
M8 x 0.75	1.5P	D7	1635087517	80.00		30.00				7.62	7.69	D6	D4
	2.5P	D4	1635008754										
		D7	1635008757										
	4.5P		1635087547										

Packed: 1 pc.
Available V coating only.

EP

List 16350 (Continued)

HSS-Co | V

S-XPF, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)

Units: mm

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	6H	4H
M10 x 1.5	1.5P	D10	1635010110	100.00	15.00	39.00	9.677	7.26	11.10	9.24	9.39	D10	D6
	2.5P	D6	1635010156										
		D10	1635010150										
	4.5P		1635010140										
M10 x 1.25	1.5P	D9	1635010119							9.36	9.49	D9	D5
	2.5P	D5	1635010255										
		D9	1635010259										
	4.5P		1635010149										
M10 x 1.0	1.5P	D8	1635010118	90.00		35.00				9.49	9.59	D8	
	2.5P	D5	1635010015										
		D8	1635010018										
	4.5P		1635010148										
M12 x 1.75	1.5P	D11	1635012171	110.00	17.00	49.10	9.322	6.98		11.11	11.23	D11	D6
	2.5P	D6	1635012756										
		D11	1635012751										
	4.5P		1635012541										
M12 x 1.5	1.5P		1635012111	100.00						11.24	11.39		
	2.5P	D6	1635012156										
		D11	1635012151										
	4.5P		1635012141										
M12 x 1.25	1.5P	D10	1635012210							11.36	11.49	D10	
	2.5P		1635012220										
	4.5P		1635012240										
M12 x 1.0	1.5P		1635012110							11.49	11.59		
	2.5P		1635012120										
	4.5P		1635012140										
M14 x 2.0	1.5P	D12	1635014212	110.00	20.00	50.10	10.897	8.18	12.70	12.98	13.18	D12	D7
	2.5P	D7	1635014027										
		D12	1635014022										
	4.5P		1635014242										
M14 x 1.5	1.5P	D11	1635014511	100.00						13.24	13.39	D11	D6
	2.5P	D6	1635014156										
		D11	1635014151										
	4.5P		1635014541										
M16 x 2.0	1.5P	D12	1635016212	110.00		54.00	12.192	9.14	14.30	14.98	15.18	D12	D7
	2.5P	D7	1635016207										
		D12	1635016202										
	4.5P		1635016242										
M16 x 1.5	1.5P	D11	1635016111	100.00						15.24	15.39	D11	D6
	2.5P	D6	1635016156										
		D11	1635016151										
	4.5P		1635016141										
M18 x 2.5	1.5P	D12	1635018212	125.00	25.00	55.00	13.767	10.31	15.90	16.73	16.98	D12	D7
	2.5P	D7	1635018257										
		D12	1635018252										
	4.5P		1635018242										

Packed: 1 pc.
Available V coating only.

continued on next page

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16350	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

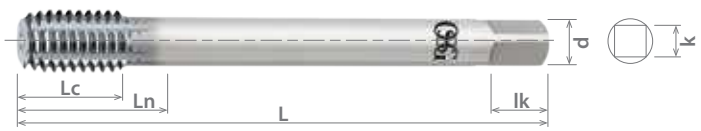
*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 16350 (Continued)

HSS-Co V

S-XPF, DIN Overall Length, Bottom (1.5P-2P), Modified Bottom (2.5P-3P), Plug (4P-4.5P)



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	6H	4H
M18 x 1.5	1.5P	D11	1635018111	110.00	25.00	55.00	13.767	10.31	15.90	17.24	17.39	D11	D6
	2.5P	D6	1635018156										
		D11	1635018151										
	4.5P		1635018141										
M20 x 2.5	1.5P	D12	1635020212	140.00		61.80	16.561	12.42	17.50	18.73	18.98	D12	D7
	2.5P	D7	1635020257										
		D12	1635020252										
	4.5P		1635020242										
M20 x 1.5	1.5P	D11	1635020111	125.00						19.24	19.39	D11	D6
	2.5P	D6	1635020156										
		D11	1635020151										
	4.5P		1635020141										
M22 x 2.5	1.5P	D12	1635022512	140.00		67.40	17.704	13.28	19.10	20.73	20.98	D12	-
	2.5P		1635022522										-
	4.5P		1635022542										-
M22 x 2.0	1.5P		1635022212							20.98	21.18		-
	2.5P		1635022222										-
	4.5P		1635022242										-
M22 x 1.5	1.5P	D11	1635022111	125.00						21.24	21.39	D11	-
	2.5P		1635022121										-
	4.5P		1635022141										-
M24 x 3.0	1.5P	D15	1635024315	160.00	30.00	68.40	19.304	14.48		22.47	22.78	D15	-
	2.5P		1635024325										-
	4.5P		1635024345										-
M24 x 2.0	1.5P	D13	1635024123	140.00						22.98	23.18	D13	-
	2.5P		1635024223										-
	4.5P		1635024243										-
M24 x 1.5	1.5P	D11	1635024111		25.00					23.24	23.39	D11	-
	2.5P		1635024121										-
	4.5P		1635024141										-
M27 x 3.0	2.5P	D15	1635027039	160.00	18.00	64.00	22.758	17.07	22.2	22.47	22.78	D15	-
M30 x 3.5			1635030350	180.00	21.00	72.00	22.933	19.46	25.4	28.22	28.57	D15	-
M33 x 3.5		D16	1635033350				28.143	21.11	27.0	31.22	31.57	D16	-
M36 x 4.0		D17	1635036411	200.00	24.00	80.00	31.318	23.50	28.6	33.96	34.37	D17	-
M42 x 4.5			1635042451		27.00		36.322	27.23	31.8	39.71	40.16	D17	-
M45 x 4.5			1635045451	220.00		88.00	38.583	28.93		42.71	43.16	D17	-

Packed: 1 pc.
Available V coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16350	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

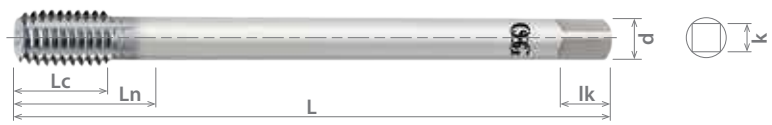
*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 16255

HSS-Co | V

LT-S-XPF, Long Shank, Modified Bottom (2.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
5 - 40 UNC	2.5P	H5	1625554025	3.150	0.312	0.722	0.141	0.110	0.188	0.1123	0.1148	H5	H3
			1625554255	4.724									
5 - 44 UNF			1625554425	3.150						0.1134	0.1157		
			1625554205	4.724									
6 - 32 UNC			1625563225	3.150	0.391	0.805				0.1221	0.1252		
			1625563255	4.724									
6 - 40 UNF			1625564025	3.150	0.388	0.801				0.1253	0.1278		
			1625564255	4.724									
8 - 32 UNC			1625583225	3.150	0.393	0.846	0.168	0.131	0.250	0.1481	0.1512		
			1625583255	4.724									
8 - 36 UNF			1625583625	3.150	0.389	0.841				0.1498	0.1526		
			1625586255	4.724									
10 - 24 UNC		H6	1625510226	3.937	0.520	0.965	0.194	0.152		0.1688	0.1729	H6	H4
			1625510426	5.906									
10 - 32 UNF			1625510326	3.937	0.516	0.961				0.1741	0.1772		
			1625510256	5.906									
12 - 24 UNC		H7	1625512227	3.937	0.522	1.124	0.220	0.165	0.281	0.1948	0.1989	H7	H5
			1625512427	5.906									
12 - 28 UNF			1625512827	3.937	0.519	1.121				0.1978	0.2014		
			1625512257	5.906									
1/4 - 20 UNC		H6	1625514226	3.937	0.526	1.207	0.255	0.191	0.313	0.2245	0.2295	H6	H4
			1625514026	5.906									
1/4 - 28 UNF			1625514826	3.937						0.2318	0.2354		
			1625514256	5.906									
5/16 - 18 UNC		H7	1625551127	4.331	0.555	1.378	0.318	0.238	0.375	0.2842	0.2898	H7	H5
			1625556127	5.906									
5/16 - 24 UNF			1625551227	4.331						0.2912	0.2955		
			1625551427	5.906									
3/8 - 16 UNC			1625538127	4.724	0.626	1.575	0.381	0.286	0.438	0.3431	0.3495		
			1625538627	5.906									
3/8 - 24 UNF			1625538227	4.724						0.3537	0.3580		
			1625538427	5.906									
7/16 - 14 UNC		H8	1625571128	4.724	0.713	1.713	0.323	0.242	0.406	0.4011	0.4084	H8	
			1625576128	5.906									
7/16 - 20 UNF			1625571228	4.724						0.4120	0.4171		
			1625576228	5.906									
1/2 - 13 UNC			1625512128	5.906	0.768	1.933	0.367	0.275	0.438	0.4608	0.4686		
			1625512328	7.087									

Packed: 1 pc.
Available V coating only.

continued on next page

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16255	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 16255 (Continued)

HSS-Co | V

LT-S-XPF, Long Shank, Modified Bottom (2.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
1/2 - 20 UNF	2.5P	H8	1625512228	5.906	0.768	1.933	0.367	0.275	0.438	0.4745	0.4796	H8	H5
			1625512028	7.087									
9/16 - 12 UNC		H7	1625591127	5.906	0.835	1.972	0.429	0.322	0.500	0.5200	0.5285	H10	H7
			1625591227	7.087									
9/16 - 18 UNF			1625591827	5.906						0.5342	0.5398		
			1625596827	7.087									
5/8 - 11 UNC			1625558127	5.906	0.909	2.126	0.480	0.360	0.563	0.5787	0.5879		
			1625558257	7.087									
5/8 - 18 UNF			1625558827	5.906						0.5967	0.6023		
			1625551827	7.087									
3/4 - 10 UNC			1625534127	7.087	1.000	2.433	0.590	0.442	0.688	0.6990	0.7092		
			1625534027	8.661									
3/4 - 16 UNF			1625534627	7.087						0.7181	0.7245		
			1625531627	8.661									
7/8 - 9 UNC		H8	1625579828	7.087	1.110	2.654	0.697	0.523	0.750	0.8183	0.8297	H11	H8
			1625575258	8.661									
7/8 - 14 UNF			1625578128	7.087						0.8386	0.8459		
			1625578428	8.661									
1 - 8 UNC			1625518208	7.087	1.252	3.012	0.800	0.600	0.813	0.9363	0.9490		
			1625518258	8.661									
1 - 12 UNF			1625511428	7.087						0.9575	0.9660		
			1625514208	8.661									

Packed: 1 pc.
Available V coating only.

EP

Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16255	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

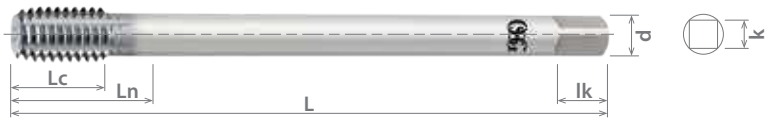
*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 16355

HSS-Co | V

LT-S-XPF, Long Shank, Modified Bottom (2.5P)



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
M3 x 0.5	2.5P	D5	1635530525	80.00	6.00	18.00	3.581	2.79	4.80	2.75	2.80	D5	D3
			1635535025	120.00									
M3 x 0.35			1635530325	80.00						2.83	2.89		
			1635533525	120.00									
M3.5 x 0.6		D6	1635535226	80.00	7.20	20.30				3.19	3.26	D6	D4
			1635535626	120.00									
M4 x 0.7			1635540726	80.00	8.50	21.10	4.267	3.33	6.40	3.64	3.71		
			1635547256	120.00									
M4 x 0.5			1635540526	80.00						3.75	3.80		
			1635545256	120.00									
M4.5 x 0.75			1635545726	90.00	9.10	25.00	4.928	3.86		4.13	4.19		
			1635545526	120.00									
M5 x 0.8		D7	1635550827	100.00	9.60					4.59	4.67	D7	
			1635550257	150.00									
M5 x 0.5		D5	1635550525	100.00						4.75	4.80	D5	D3
			1635550255	150.00									
M6 x 1.0		D8	1635561028	100.00	10.00	30.00	6.477	4.85	7.30	5.49	5.59	D8	D5
			1635561258	150.00									
M6 x 0.75		D7	1635560727	100.00						5.62	5.69	D7	D4
			1635567527	150.00									
M7 x 1.0		D8	1635571258	100.00	12.00	30.00	8.077	6.05	9.50	6.49	6.59	D8	D5
			1635571028	150.00									
M8 x 1.25		D9	1635581229	110.00		35.00				7.36	7.49	D9	
			1635582529	150.00									
M8 x 1.0		D8	1635581258	110.00						7.49	7.59	D8	
			1635581028	150.00									
M8 x 0.75		D7	1635580727	110.00		30.00				7.62	7.69	D7	D4
			1635587527	150.00									
M10 x 1.5		D10	1635510120	120.00	15.00	39.00	9.677	7.26	11.10	9.24	9.39	D10	D6
			1635510520	150.00									
M10 x 1.25		D9	1635510129	120.00						9.36	9.49	D9	D5
			1635510229	150.00									
M10 x 1.0		D8	1635510128	120.00		35.00				9.49	9.59	D8	
			1635510258	150.00									
M12 x 1.75		D11	1635512721	180.00	17.00	49.10	9.322	6.98		11.11	11.23	D11	D6
			1635512751	180.00									
M12 x 1.5			1635512121	150.00						11.24	11.39		
			1635512251	180.00									

Packed: 1 pc.
Available V coating only.

continued on next page

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16355	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

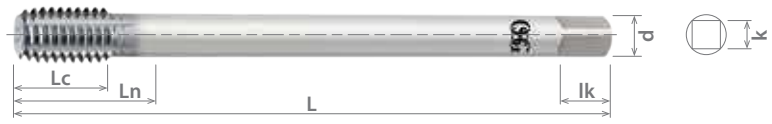
*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 16355 (Continued)

HSS-Co V

LT-S-XPF, Long Shank, Modified Bottom (2.5P)



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
M12 x 1.25	2.5P	D10	1635512520	150.00	17.00	49.10	9.322	6.98	11.10	11.41	11.49	D10	D6
			1635512250	180.00									
M12 x 1.0			1635512120	150.00						11.52	11.59		
			1635512210	180.00									
M14 x 2.0		D12	1635514222	150.00	20.00	51.10	10.897	8.18	12.70	12.98	13.18		D7
			1635514252	180.00									
M14 x 1.5		D11	1635514121	150.00						13.24	13.39	D11	D6
			1635514521	180.00									
M16 x 2.0		D12	1635516222	150.00		54.00	12.192	9.14	14.30	14.98	15.18	D12	D7
			1635516252	180.00									
M16 x 1.5		D11	1635516121	150.00						15.24	15.39	D11	D6
			1635516521	180.00									
M18 x 2.5		D12	1635518252	150.00	25.00	55.00	13.767	10.31	15.90	16.73	16.98	D12	D7
			1635518552	180.00									
M18 x 1.5		D11	1635518121	150.00						17.24	17.39	D11	D6
			1635518521	180.00									
M20 x 2.5		D12	1635520252	180.00		61.80	16.561	12.42	17.50	18.73	18.98	D12	D7
			1635520222	220.00									
M20 x 1.5		D11	1635520121	180.00						19.24	19.39	D11	D6
			1635520521	220.00									

Packed: 1 pc.
Available V coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16355	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	8-25		

*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 14153

CARBIDE BR

OTC-NRT, JIS, Carbide Inlaid, DIN/DIN, Bottom (1.5P - 2P)



Units: mm

Tap Size	Thread Limit	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
		Bottom (1.5P-2P)						
		Bright	L	Lc	Ln	d	k	lk
M6 x 1.0	RH7	1415310100	80.00	12.00	30.00	6.00	4.90	8.00
M8 x 1.25		1415310200	90.00	15.00	35.00	8.00	6.20	9.00
M10 x 1.5		1415310400	100.00	18.00	39.00	10.00	8.00	11.00
M10 x 1.25		1415310300						

Packed: 1 pc.
Available Bright finish only.
See page 784 for tap drill recommendations.

HTE

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14153										◎	◎						
SFM										65-150	50-120						

○ good ◎ best

List 369

CARBIDE | BR

OT-NRT, JIS, Plug (4P - 4.5P), Bottom (1.5P - 2P)



Units: mm

Tap Size	Thread Limit	EDP Number		Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
		Plug	Bottom						
		Bright	Bright	L	Lc	Ln	d	k	lk
M3 x 0.5	RH5	8315054	-	46.00	10.00	19.00	4.00	3.20	6.00
		-	8315055						
M4 x 0.7	RH6	8315060	-	52.00	13.00	21.00	5.00	4.00	7.00
		-	8315061						
M5 x 0.8		8315066	-	60.00	15.90	23.90	5.50	4.50	
		-	8315067						
M6 x 1.0	RH7	8315072	8315073	62.00	19.00	29.00	6.00		
M8 x 1.25		8315084	8315085	70.00	22.00	-	6.20	5.00	8.00
M10 x 1.5		8315096	8315097	75.00	24.00	-	7.00	5.50	
M10x 1.25		8315102	8315103			-			
M12 x 1.75	RH8	8315114	8315115	82.00	29.00	-	8.50	6.50	9.00
M12 x 1.5	RH7	8315120	8315121			-			
M12 x 1.25		8315126	8315127			-			

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
See page 784 for tap drill recommendations.

HTE

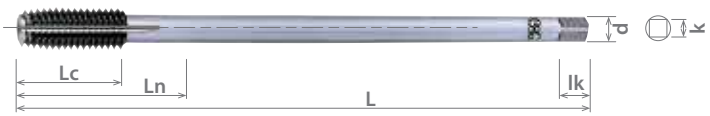
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
369										◎	◎						
SFM										65-150	50-120						

○ good ◎ best

List 357

CARBIDE | BR

OT-LT-NRT, JIS, Long Shank, Bottom (1.5P - 2P)



Units: mm

Tap Size	Thread Limit	EDP Number Bottom (1.5P-2P) Bright	Long Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M6 x 1.0	RH7	8315633	100.00	19.00	29.00	6.00	4.50	7.00
M8 x 1.25		8315639	150.00	22.00	-	6.20	5.00	8.00
M10 x 1.5		8315645		24.00	-	7.00	5.50	
M10 x 1.25		8315649			-			
M12 x 1.75	RH8	8315653		29.00	-	8.50	6.50	9.00
M12 x 1.5	RH7	8315657			-			
M12 x 1.25	RH8	8315661			-			

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
See page 784 for tap drill recommendations.

HTE

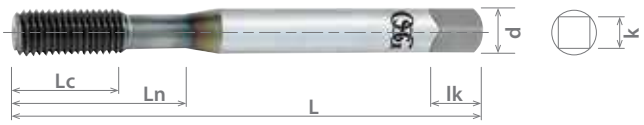
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
357										◎	◎						
SFM										65-150	50-120						

○ good ◎ best

List 14050

VP-NRT, Bottom (2P-2.5P), Short Bottom (1P-1.5P)

EXOTAP VC10 V



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
0 - 80 UNF	1.5P	H2	1405000008	1.625	0.311	0.350	0.141	0.110	0.188	0.0536	0.0549	H3	H2
		H3	1405000108										
	2.5P	H2	1405000208										
		H3	1405000308										
1 - 64 UNC	1.5P	H2	1405000408	1.688	0.374	0.413				0.0650	0.0666		
		H3	1405000508										
	2.5P	H2	1405000608										
		H3	1405000708										
2 - 56 UNC	1.5P	H2	1405000808	1.750	0.437	0.476				0.0769	0.0787		
		H3	1405000908										
		H4	1405001008										
	2.5P	H2	1405001108										
		H3	1405001208										
		H4	1405001308										
3 - 48 UNC	1.5P	H2	1405001408	1.813	0.496	0.535				0.0884	0.0905		
		H3	1405001508										
		H4	1405001608										
	2.5P	H2	1405001708										
		H3	1405001808										
		H4	1405001908										
4 - 40 UNC	1.5P	H3	1405002008	1.875	0.295	0.559				0.0993	0.1018	H5	H3
		H4	1405002108										
		H5	1405002208										
	2.5P	H3	1405002308										
		H4	1405002408										
		H5	1405002508										
5 - 40 UNC	1.5P	H3	1405002608	1.938	0.299	0.626				0.1123	0.1148		
		H4	1405002708										
		H5	1405002808										
	2.5P	H3	1405002908										
		H4	1405003008										
		H5	1405003108										
6 - 32 UNC	1.5P	H3	1405003208	2.000	0.370	0.685				0.1221	0.1253		
		H4	1405003308										
		H5	1405003408										
		H6	1405003508										
	2.5P	H3	1405003608										
		H4	1405003708										
		H5	1405003808										
		H6	1405003908										
8 - 32 UNC	1.5P	H3	1405004008	2.125	0.374	0.752	0.168	0.131	0.250	0.1481	0.1513		
		H4	1405004108										
		H5	1405004208										
		H6	1405004308										
	2.5P	H3	1405004408										
		H4	1405004508										
		H5	1405004608										
		H6	1405004708										

Packed: 1 pc.
Available V coating only.

EXT

List 14050 (Continued)

VP-NRT, Bottom (2P-2.5P), Short Bottom (1P-1.5P)

EXOTAP VC10 V

Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
10 - 24 UNC	1.5P	H3	1405004808	2.375	0.492	0.866	0.194	0.152	0.250	0.1688	0.1730	H6	H4
		H4	1405004908										
		H5	1405005008										
		H6	1405005108										
	2.5P	H3	1405005208										
		H4	1405005308										
		H5	1405005408										
		H6	1405005508										
10 - 32 UNF	1.5P	H3	1405005608							0.1741	0.1773		
		H4	1405005708										
		H5	1405005808										
		H6	1405005908										
	2.5P	H3	1405006008										
		H4	1405006108										
		H5	1405006208										
		H6	1405006308										
12 - 24 UNC	1.5P	H5	1405006408		0.496	0.933	0.220	0.165	0.281	0.1948	0.1990	H7	H5
		H7	1405006508										
	2.5P	H5	1405006608										
		H7	1405006708										
1/4 - 20 UNC	1.5P	H5	1405006808	2.500	0.594	0.996	0.255	0.191	0.313	0.2245	0.2296	H6	H4
		H6	1405006908										
		H7	1405007008										
		H8	1405007108										
	2.5P	H5	1405007208										
		H6	1405007308										
		H7	1405007408										
		H8	1405007508										
1/4 - 28 UNF	1.5P	H4	1405007608							0.2318	0.2354		
		H5	1405007708										
		H6	1405007808										
		H7	1405007908										
	2.5P	H4	1405008008										
		H5	1405008108										
		H6	1405008208										
		H7	1405008308										
5/16 - 18 UNC	1.5P	H5	1405008408	2.719	0.665	1.126	0.318	0.238	0.375	0.2842	0.2898	H7	H5
		H6	1405008508										
		H7	1405008608										
		H8	1405008708										
		H9	1405008808										

Packed: 1 pc.
Available V coating only.

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EXT

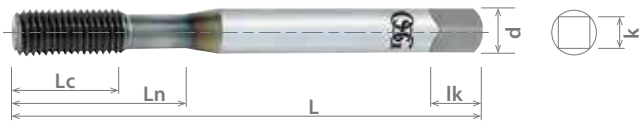
Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14050	◎	◎	◎	◎	◎	◎	◎	○		◎	◎			○			
SFM	35-130	20-50	15-30	15-30	15-20	15-50	15-50	15-40		65-150	65-130			10-15			

○ good ◎ best

List 14050 (Continued)

VP-NRT, Bottom (2P-2.5P), Short Bottom (1P-1.5P)

VC10 | V



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
5/16 - 18 UNC	2.5P	H5	1405008908	2.719	0.665	1.126	0.318	0.238	0.375	0.2842	0.2898	H7	H5
		H6	1405009008										
		H7	1405009108										
		H8	1405009208										
		H9	1405009308										
5/16 - 24 UNF	1.5P	H4	1405009408							0.2913	0.2955		
		H5	1405009508										
		H6	1405009608										
		H7	1405009708										
		H8	1405009808										
	2.5P	H4	1405009908										
		H5	1405010008										
		H6	1405010108										
		H7	1405010208										
		H8	1405010308										
3/8 - 16 UNC	1.5P	H5	1405010408	2.938	0.752	1.252	0.381	0.286	0.438	0.3431	0.3495		
		H6	1405010508										
		H7	1405010608										
		H8	1405010708										
		H9	1405010808										
	2.5P	H5	1405010908										
		H6	1405011008										
		H7	1405011108										
		H8	1405011208										
		H9	1405011308										
3/8 - 24 UNF	1.5P	H4	1405011408							0.3538	0.358		
		H5	1405011508										
		H6	1405011608										
		H7	1405011708										
		H8	1405011808										
	2.5P	H4	1405011908										
		H5	1405012008										
		H6	1405012108										
		H7	1405012208										
		H8	1405012308										

Packed: 1 pc.
Available V coating only.

EXT

Work Material

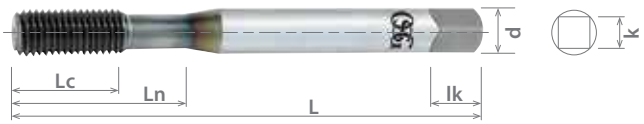
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14050	◎	◎	◎	◎	◎	◎	◎	○		◎	◎			○			
SFM	35-130	20-50	15-30	15-30	15-20	15-50	15-50	15-40		65-150	65-130			10-15			

○ good ◎ best

List 14150

VP-NRT, Bottom (2P-2.5P), Short Bottom (1P-1.5P)

VC10 | V



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
M1.6 x 0..35	2.5P	D3	1415000008	41.30	7.90	8.90	3.581	2.79	4.80	1.42	1.46	D5	D3
		D5	1415000108										
M1.7 x 0.35		D3	1415000208	42.90	9.50	10.50				1.52	1.56		
		D5	1415000308										
M2 x 0.4		D3	1415000408	44.50	11.10	12.10				1.80	1.84		
		D5	1415000508										
M2.5 x 0.45		D3	1415000608	46.00	12.80	13.80				2.27	2.32		
		D5	1415000708										
M2.6 x 0.45		D3	1415000808	47.60	12.70	13.70				2.37	2.42		
		D5	1415000908										
M3 x 0.5	1.5P	D3	1415001008	49.20	6.20	16.00				2.75	2.80		
		D5	1415001108										
	2.5P	D3	1415001208										
		D5	1415001308										
M3.5 x 0.6	1.5P	D4	1415001408	50.80	6.20	17.50				3.19	3.26	D6	D4
		D6	1415001508										
	2.5P	D4	1415001608										
		D6	1415001708										
M4 x 0.7	1.5P	D4	1415001808	54.00	8.40	19.60	4.267	3.33	6.40	3.64	3.71		
		D6	1415001908										
	2.5P	D4	1415002008										
		D6	1415002108										
M5 x 0.8	1.5P	D4	1415002208	60.30	9.60	22.20	4.928	3.86		4.59	4.67	D7	
		D7	1415002308										
	2.5P	D4	1415002408										
		D7	1415002508										
M6 x 1.0	1.5P	D5	1415002608	63.50	12.00	25.40	6.477	4.85	7.80	5.49	5.59	D8	D5
		D8	1415002708										
	2.5P	D5	1415002808										
		D8	1415002908										
M8 x 1.25	1.5P	D5	1415003008	69.10	15.00	28.60	8.077	6.05	9.50	7.36	7.49	D9	
		D9	1415003108										
	2.5P	D5	1415003208										
		D9	1415003308										
M10 x 1.5	1.5P	D6	1415003808	74.60	18.00	31.80	9.677	7.26	11.10	9.24	9.39	D10	D6
		D10	1415003908										
	2.5P	D6	1415004008										
		D10	1415004108										

Packed: 1 pc.
Available V coating only.

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EXT

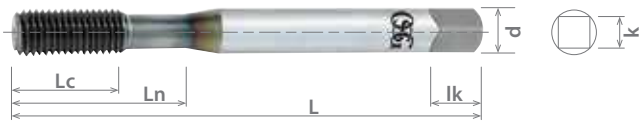
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14150	◎	◎	◎	◎	◎	◎	◎	○		◎	◎			○			
SFM	35-130	20-50	15-30	15-30	15-20	15-50	15-50	15-40		65-150	65-130			10-15			

○ good ◎ best

List 14150 (Continued)

VP-NRT, Bottom (2P-2.5P), Short Bottom (1P-1.5P)

VC10 | V



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
			V	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
M10 x 1.25	1.5P	D5	1415004608	74.60	18.00	31.80	9.677	7.26	11.10	9.36	9.49	D9	D5
		D9	1415004708										
	2.5P	D5	1415004808										
		D9	1415004908										
M10 x 1.0	1.5P	D5	1415003408							9.49	9.59		
		D9	1415003508										
	2.5P	D5	1415003608										
		D9	1415003708										
M12 x 1.75	1.5P	D6	1415004208	85.70	21.00	49.00	9.322	6.98		11.11	11.29	D11	D6
		D11	1415004308										
	2.5P	D6	1415004408										
		D11	1415004508										

Packed: 1 pc.
Available V coating only.

EXT

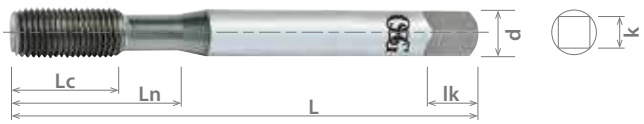
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14150	◎	◎	◎	◎	◎	◎	◎	○		◎	◎			○			
SFM	35-130	20-50	15-30	15-30	15-20	15-50	15-50	15-40		65-150	65-130			10-15			

○ good ◎ best

List 14001

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
0 - 80 UNF	1.5P	H2	14001000	00	01	05	1.625	0.311	0.350	0.141	0.110	0.188	0.0536	0.0549	H3	H2
		H3	14001001	00	01	05										
	2.5P	H2	14001002	00	01	05										
		H3	14001003	00	01	05										
		H4	14001004	00	01	05										
		H5	14001005	00	01	05										
		H6	14001006	00	01	-										
		H7	14001007	00	01	-										
1 - 64 UNC	2.5P	H2	14001008	00	01	05	1.688	0.374	0.413				0.0650	0.0666		
		H3	14001009	00	01	05										
		H4	14001010	00	01	05										
		H5	14001011	00	01	05										
		H6	14001012	00	01	-										
		H7	14001013	00	01	-										
1 - 72 UNF	1.5P	H2	14001014	00	01	05							0.0659	0.0673		
		H3	14001015	00	01	05										
	2.5P	H2	14001016	00	01	05										
		H3	14001017	00	01	05										
		H4	14001018	00	01	05										
		H5	14001019	00	01	05										
		H6	14001020	00	01	05										
		H7	14001021	00	01	-										
2 - 56 UNC	1.5P	H2	14001022	00	01	05	1.750	0.437	0.476				0.0769	0.0787		
		H3	14001023	00	01	05										
		H4	14001024	00	01	05										
	2.5P	H2	14001025	00	01	05										
		H3	14001026	00	01	05										
		H4	14001027	00	01	05										
		H5	14001028	00	01	05										
		H6	14001029	00	01	05										
		H7	14001030	00	01	05										
		H8	14001578	00	-	-										
		H9	14001579	00	-	-										
2 - 64 UNF	2.5P	H2	14001031	00	01	05							0.0780	0.0796		
		H3	14001032	00	01	05										
		H4	14001033	00	01	05										
		H5	14001034	00	01	-										
		H6	14001035	00	01	-										
		H7	14001036	00	01	-										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

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HYT

Work Material

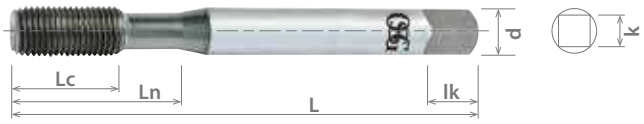
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14001	◎	◎	◎	○	○	○	○	○		◎	◎			○			
SFM	35-100	20-50	15-25	15-25	15-20	15-40	15-40	10-25		50-90	45-100			10-15			

○ good ◎ best

List 14001 (Continued)

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
3 - 48 UNC	2.5P	H2	14001037	00	01	05	1.813	0.496	0.535	0.141	0.110	0.188	0.0884	0.0905	H3	H2
		H3	14001038	00	01	05										
		H4	14001039	00	01	05										
		H5	14001040	00	01	-										
		H6	14001041	00	01	-										
		H7	14001042	00	01	-										
3 - 56 UNF	2.5P	H2	14001043	00	01	05							0.0899	0.0917		
		H3	14001044	00	01	05										
		H4	14001045	00	01	05										
		H5	14001046	00	01	05										
		H6	14001047	00	01	05										
		H7	14001048	00	01	-										
4 - 40 UNC	1.5P	H3	14001049	00	01	05	1.875	0.295	0.559				0.0993	0.1018	H5	H3
		H4	14001050	00	01	05										
		H5	14001051	00	01	05										
		H6	14001573	00	01	05										
		H7	14001574	00	01	05										
	2.5P	H2	14001052	00	01	05										
		H3	14001053	00	01	05										
		H4	14001054	00	01	05										
		H5	14001055	00	01	05										
		H6	14001056	00	01	05										
		H7	14001057	00	01	05										
		H8	14001580	00	-	-										
		H9	14001581	00	-	-										
		H10	14001582	00	-	-										
		H14	14001598	00	-	-										
	4.5P	H2	14001058	00	01	05										
		H3	14001059	00	01	05										
		H4	14001060	00	01	05										
		H5	14001061	00	01	05										
		H6	14001062	00	01	05										
		H7	14001063	00	01	05										
4 - 48 UNF	2.5P	H2	14001064	00	01	05							0.1014	0.1035		
		H3	14001065	00	01	05										
		H4	14001066	00	01	05										
		H5	14001067	00	01	05										
		H6	14001068	00	01	-										
		H7	14001069	00	01	-										
	4.5P	H2	14001070	00	01	05										
		H3	14001071	00	01	05										
		H4	14001072	00	01	-										
		H5	14001073	00	01	-										
		H6	14001074	00	01	-										
		H7	14001075	00	01	-										
5 - 40 UNC	2.5P	H2	14001076	00	01	-	1.938	0.299	0.626				0.1123	0.1148		
		H3	14001077	00	01	05										
		H4	14001078	00	01	-										
		H5	14001079	00	01	05										
		H6	14001080	00	01	05										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

List 14001 (Continued)

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)

Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
5 - 40 UNC	2.5P	H7	14001081	00	01	05	1.938	0.299	0.626	0.141	0.110	0.188	0.1123	0.1148	H5	H3
	4.5P	H2	14001082	00	01	05										
		H3	14001083	00	01	05										
		H4	14001084	00	01	05										
		H5	14001085	00	01	05										
		H6	14001086	00	01	05										
		H7	14001087	00	01	05										
5 - 44 UNF	2.5P	H2	14001088	00	01	05							0.1135	0.1157		
		H3	14001089	00	01	05										
		H4	14001090	00	01	05										
		H5	14001091	00	01	05										
		H6	14001092	00	01	05										
		H7	14001093	00	01	05										
	4.5P	H2	14001094	00	01	05										
		H3	14001095	00	01	05										
		H4	14001096	00	01	05										
		H5	14001097	00	01	05										
		H6	14001098	00	01	05										
		H7	14001099	00	01	05										
6 - 32 UNC	1.5P	H3	14001100	00	01	05	2.000	0.370	0.685				0.1221	0.1253		
		H4	14001101	00	01	05										
		H5	14001102	00	01	05										
		H6	14001575	00	01	-										
		H7	14001576	00	01	-										
		H8	14001577	00	01	-										
	2.5P	H2	14001103	00	01	05										
		H3	14001104	00	01	05										
		H4	14001105	00	01	05										
		H5	14001106	00	01	05										
		H6	14001107	00	01	05										
		H7	14001108	00	01	05										
		H8	14001109	00	01	05										
		H9	14001110	00	01	05										
		H10	14001111	00	01	05										
		H11	14001583	00	-	-										
		H12	14001584	00	-	-										
		H14	14001599	00	-	-										
	4.5P	H2	14001112	00	01	05										
		H3	14001113	00	01	05										
		H4	14001114	00	01	05										
		H5	14001115	00	01	05										
		H6	14001116	00	01	05										
		H7	14001117	00	01	05										
		H8	14001118	00	01	05										
		H9	14001119	00	01	05										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

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HYT

Work Material

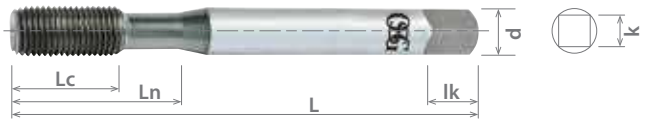
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14001	◎	◎	◎	○	○	○	○	○		◎	◎			○			
SFM	35-100	20-50	15-25	15-25	15-20	15-40	15-40	10-25		50-90	45-100			10-15			

○ good ◎ best

List 14001 (Continued)

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
6 - 32 UNC	4.5P	H10	14001120	00	01	05							0.1221	0.1253		
6 - 40 UNF	2.5P	H2	14001121	00	01	05										
		H3	14001122	00	01	05										
		H4	14001123	00	01	05										
		H5	14001124	00	01	05										
		H6	14001125	00	01	05										
		H7	14001126	00	01	05										
		H8	14001127	00	01	05										
		H9	14001128	00	01	05										
		H10	14001129	00	01	05	2.000	0.370	0.685	0.141	0.110	0.188	0.1253	0.1278		
	4.5P	H2	14001130	00	01	05										
		H3	14001131	00	01	05										
		H4	14001132	00	01	05										
		H5	14001133	00	01	05										
		H6	14001134	00	01	05										
		H7	14001135	00	01	05										
		H8	14001136	00	01	05										
		H9	14001137	00	01	05										
		H10	14001138	00	01	05										
8 - 32 UNC	1.5P	H3	14001139	00	01	05									H5	H3
		H4	14001140	00	01	05										
		H5	14001141	00	01	05										
	2.5P	H2	14001142	00	01	05										
		H3	14001143	00	01	05										
		H4	14001144	00	01	05										
		H5	14001145	00	01	05										
		H6	14001146	00	01	05										
		H7	14001147	00	01	05										
		H8	14001148	00	01	05										
		H9	14001149	00	01	05										
		H10	14001150	00	01	05										
		H11	14001585	00	-	-							0.1481	0.1513		
		H12	14001586	00	-	-										
		H14	14001600	00	-	-										
	4.5P	H2	14001151	00	01	05	2.125	0.374	0.752	0.168	0.131	0.250				
		H3	14001152	00	01	05										
		H4	14001153	00	01	05										
		H5	14001154	00	01	05										
		H6	14001155	00	01	05										
		H7	14001156	00	01	05										
		H8	14001157	00	01	05										
		H9	14001158	00	01	05										
		H10	14001159	00	01	05										
8 - 36 UNF	2.5P	H2	14001160	00	01	05							0.1498	0.1527		
		H3	14001161	00	01	05										
		H4	14001162	00	01	05										
		H5	14001163	00	01	05										
		H6	14001164	00	01	05										
		H7	14001165	00	01	05										
		H8	14001166	00	01	05										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

List 14001 (Continued)

HY-PRO HSS-Co TiN S/O BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)

Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
8 - 36 UNF	2.5P	H9	14001167	00	01	05	2.125	0.374	0.752	0.168	0.131	0.250	0.1498	0.1527	H5	H3
		H10	14001168	00	01	05										
	4.5P	H2	14001169	00	01	05										
		H3	14001170	00	01	05										
		H4	14001171	00	01	05										
		H5	14001172	00	01	05										
		H6	14001173	00	01	05										
		H7	14001174	00	01	05										
		H8	14001175	00	01	05										
		H9	14001176	00	01	05										
		H10	14001177	00	01	05										
10 - 24 UNC	1.5P	H3	14001178	00	01	05	2.375	0.492	0.866	0.194	0.152		0.1688	0.1730	H6	H4
		H4	14001179	00	01	05										
		H5	14001180	00	01	05										
		H6	14001571	00	01	05										
	2.5P	H2	14001181	00	01	05										
		H3	14001182	00	01	05										
		H4	14001183	00	01	05										
		H5	14001184	00	01	05										
		H6	14001185	00	01	05										
		H7	14001186	00	01	05										
		H8	14001187	00	01	05										
		H9	14001188	00	01	05										
		H10	14001189	00	01	05										
	4.5P	H2	14001190	00	01	05										
		H3	14001191	00	01	05										
		H4	14001192	00	01	05										
		H5	14001193	00	01	05										
		H6	14001194	00	01	05										
		H7	14001195	00	01	05										
		H8	14001196	00	01	05										
		H9	14001197	00	01	05										
		H10	14001198	00	01	05										
10 - 32 UNF	1.5P	H3	14001199	00	01	05							0.1741	0.1776		
		H4	14001200	00	01	05										
		H5	14001201	00	01	05										
		H6	14001572	00	01	05										
	2.5P	H2	14001202	00	01	05										
		H3	14001203	00	01	05										
		H4	14001204	00	01	05										
		H5	14001205	00	01	05										
		H6	14001206	00	01	05										
		H7	14001207	00	01	05										
		H8	14001208	00	01	05										
		H9	14001209	00	01	05										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

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HYT

Work Material

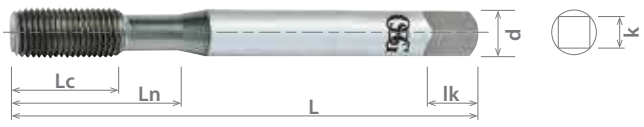
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14001	◎	◎	◎	○	○	○	○	○		◎	◎			○			
SFM	35-100	20-50	15-25	15-25	15-20	15-40	15-40	10-25		50-90	45-100			10-15			

○ good ◎ best

List 14001 (Continued)

HY-PRO HSS-Co TiN S/O BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
10 - 32 UNF	2.5P	H10	14001210	00	01	05	2.375	0.492	0.866	0.194	0.152	0.250	0.1741	0.1776	H6	H4
		H11	14001587	00	-	-										
		H12	14001588	00	-	-										
		H14	14001601	00	-	-										
	4.5P	H2	14001211	00	01	05										
		H3	14001212	00	01	05										
		H4	14001213	00	01	05										
		H5	14001214	00	01	05										
		H6	14001215	00	01	05										
		H7	14001216	00	01	05										
		H8	14001217	00	01	05										
		H9	14001218	00	01	05										
		H10	14001219	00	01	05										
12 - 24 UNC	2.5P	H2	14001220	00	01	05	2.375	0.496	0.933	0.220	0.165	0.281	0.1948	0.1990	H7	H5
		H3	14001221	00	01	05										
		H4	14001222	00	01	05										
		H5	14001223	00	01	05										
		H6	14001224	00	01	05										
		H7	14001225	00	01	05										
		H8	14001226	00	01	05										
		H9	14001227	00	01	05										
		H10	14001228	00	01	05										
	4.5P	H2	14001229	00	01	05										
		H3	14001230	00	01	05										
		H4	14001231	00	01	05										
		H5	14001232	00	01	05										
		H6	14001233	00	01	05										
		H7	14001234	00	01	05										
		H8	14001235	00	01	05										
		H9	14001236	00	01	05										
		H10	14001237	00	01	05										
12 - 28 UNF	2.5P	H2	14001238	00	01	05							0.1978	0.2014		
		H3	14001239	00	01	05										
		H4	14001240	00	01	05										
		H5	14001241	00	01	05										
		H6	14001242	00	01	05										
		H7	14001243	00	01	05										
		H8	14001244	00	01	05										
		H9	14001245	00	01	05										
		H10	14001246	00	01	05										
	4.5P	H2	14001247	00	01	05										
		H3	14001248	00	01	05										
		H4	14001249	00	01	05										
		H5	14001250	00	01	05										
		H6	14001251	00	01	05										
		H7	14001252	00	01	05										
		H8	14001253	00	01	05										
		H9	14001254	00	01	05										
		H10	14001255	00	01	05										
1/4 - 20 UNC	1.5P	H5	14001256	00	01	05	2.500	0.594	0.996	0.255	0.191	0.313	0.2245	0.2296	H6	H4

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

List 14001 (Continued)

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)

Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
1/4 - 20 UNC	1.5P	H6	14001257	00	01	05	2.375	0.496	0.933	0.255	0.191	0.281	0.2245	0.2296	H6	H4
		H7	14001258	00	01	05										
		H8	14001259	00	01	05										
	2.5P	H2	14001260	00	01	05										
		H3	14001261	00	01	05										
		H4	14001262	00	01	05										
		H5	14001263	00	01	05										
		H6	14001264	00	01	05										
		H7	14001265	00	01	05										
		H8	14001266	00	01	05										
		H9	14001267	00	01	05										
		H10	14001268	00	01	05										
		H11	14001589	00	-	-										
		H12	14001590	00	-	-										
		H13	14001591	00	-	-										
	4.5P	H2	14001269	00	01	05										
		H3	14001270	00	01	05										
		H4	14001271	00	01	05										
		H5	14001272	00	01	05										
		H6	14001273	00	01	05										
		H7	14001274	00	01	05										
		H8	14001275	00	01	05										
		H9	14001276	00	01	05										
		H10	14001277	00	01	05										
1/4 - 28 UNF	1.5P	H4	14001278	00	01	05							0.2318	0.2354		
		H5	14001279	00	01	05										
		H6	14001280	00	01	05										
		H7	14001281	00	01	05										
	2.5P	H2	14001282	00	01	05										
		H3	14001283	00	01	05										
		H4	14001284	00	01	05										
		H5	14001285	00	01	05										
		H6	14001286	00	01	05										
		H7	14001287	00	01	05										
		H8	14001288	00	01	05										
		H9	14001289	00	01	05										
		H10	14001290	00	01	05										
		H11	14001592	00	-	-										
	4.5P	H2	14001291	00	01	05										
		H3	14001292	00	01	05										
		H4	14001293	00	01	05										
		H5	14001294	00	01	05										
		H6	14001295	00	01	05										
		H7	14001296	00	01	05										
		H8	14001297	00	01	05										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

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HYT

Work Material

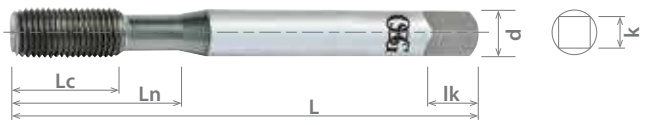
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14001	◎	◎	◎	○	○	○	○	○		◎	◎			○			
SFM	35-100	20-50	15-25	15-25	15-20	15-40	15-40	10-25		50-90	45-100			10-15			

○ good ◎ best

List 14001 (Continued)

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
1/4 - 28 UNF	4.5P	H9	14001298	00	01	05	2.375	0.496	0.933	0.255	0.191	0.281	0.2318	0.2354	H6	H4
		H10	14001299	00	01	05										
5/16 - 18 UNC	1.5P	H6	14001300	00	01	05	2.719	0.665	1.126	0.318	0.238	0.375	0.2842	0.2898	H7	H5
		H7	14001301	00	01	05										
		H8	14001302	00	01	05										
		H9	14001303	00	01	05										
	2.5P	H2	14001304	00	01	05										
		H3	14001305	00	01	05										
		H4	14001306	00	01	05										
		H5	14001307	00	01	05										
		H6	14001308	00	01	05										
		H7	14001309	00	01	05										
		H8	14001310	00	01	05										
		H9	14001311	00	01	05										
		H10	14001312	00	01	05										
		H11	14001593	00	-	-										
	4.5P	H2	14001313	00	01	05										
		H3	14001314	00	01	05										
		H4	14001315	00	01	05										
		H5	14001316	00	01	05										
		H6	14001317	00	01	05										
		H7	14001318	00	01	05										
		H8	14001319	00	01	05										
		H9	14001320	00	01	05										
		H10	14001321	00	01	05										
5/16 - 24 UNF	1.5P	H4	14001322	00	01	05							0.2913	0.2955		
		H5	14001323	00	01	05										
		H6	14001324	00	01	05										
		H7	14001325	00	01	05										
		H8	14001326	00	01	05										
	2.5P	H2	14001327	00	01	05										
		H3	14001328	00	01	05										
		H4	14001329	00	01	05										
		H5	14001330	00	01	05										
		H6	14001331	00	01	05										
		H7	14001332	00	01	05										
		H8	14001333	00	01	05										
		H9	14001334	00	01	05										
		H10	14001335	00	01	05										
	4.5P	H2	14001336	00	01	05										
		H3	14001337	00	01	05										
		H4	14001338	00	01	05										
		H5	14001339	00	01	05										
		H6	14001340	00	01	05										
		H7	14001341	00	01	05										
		H8	14001342	00	01	05										
		H9	14001343	00	01	05										
		H10	14001344	00	01	05										
		H12	14001594	00	-	-										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

List 14001 (Continued)

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)

Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
3/8 - 16 UNC	1.5P	H5	14001345	00	01	05	2.938	0.752	1.252	0.381	0.286	0.438	0.3431	0.3495	H7	H5
		H6	14001346	00	01	05										
		H7	14001347	00	01	05										
		H8	14001348	00	01	05										
		H9	14001349	00	01	05										
	2.5P	H4	14001350	00	01	05										
		H5	14001351	00	01	05										
		H6	14001352	00	01	05										
		H7	14001353	00	01	05										
		H8	14001354	00	01	05										
		H9	14001355	00	01	05										
		H10	14001356	00	01	05										
		H11	14001357	00	01	05										
		H12	14001358	00	01	05										
	4.5P	H4	14001359	00	01	05										
		H5	14001360	00	01	05										
		H6	14001361	00	01	05										
		H7	14001362	00	01	05										
		H8	14001363	00	01	05										
		H9	14001364	00	01	05										
		H10	14001365	00	01	05										
		H11	14001366	00	01	05										
		H12	14001367	00	01	05										
3/8 - 24 UNF	1.5P	H4	14001368	00	01	05							0.3538	0.358		
		H5	14001369	00	01	05										
		H6	14001370	00	01	05										
		H7	14001371	00	01	05										
		H8	14001372	00	01	05										
	2.5P	H4	14001373	00	01	05										
		H5	14001374	00	01	05										
		H6	14001375	00	01	05										
		H7	14001376	00	01	05										
		H8	14001377	00	01	05										
		H9	14001378	00	01	05										
		H10	14001379	00	01	05										
		H11	14001380	00	01	05										
		H12	14001381	00	01	05										
	4.5P	H4	14001382	00	01	05										
		H5	14001383	00	01	05										
		H6	14001384	00	01	05										
		H7	14001385	00	01	05										
		H8	14001386	00	01	05										
		H9	14001387	00	01	05										
		H10	14001388	00	01	05										
		H11	14001389	00	01	05										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

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HYT

Work Material

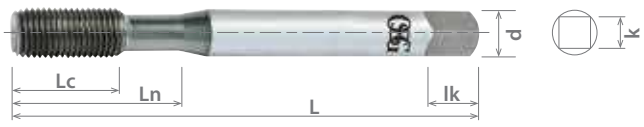
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14001	◎	◎	◎	○	○	○	○	○		◎	◎			○			
SFM	35-100	20-50	15-25	15-25	15-20	15-40	15-40	10-25		50-90	45-100			10-15			

○ good ◎ best

List 14001 (Continued)

HY-PRO HSS-Co TiN S/O BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
3/8 - 24 UNF	4.5P	H12	14001390	00	01	05	2.938	0.752	1.252	0.381	0.286	0.438	0.3538	0.358	H7	H5
		H13	14001595	00	-	-										
7/16 - 14 UNC	2.5P	H4	14001391	00	01	05	3.156	0.858	1.713	0.323	0.242	0.406	0.4011	0.4084	H8	
		H5	14001392	00	01	05										
		H6	14001393	00	01	05										
		H7	14001394	00	01	05										
		H8	14001395	00	01	05										
		H9	14001396	00	01	05										
		H10	14001397	00	01	05										
		H11	14001398	00	01	05										
		H12	14001399	00	01	05										
	4.5P	H4	14001400	00	01	05										
		H5	14001401	00	01	05										
		H6	14001402	00	01	05										
		H7	14001403	00	01	05										
		H8	14001404	00	01	05										
		H9	14001405	00	01	05										
		H10	14001406	00	01	05										
		H11	14001407	00	01	05										
		H12	14001408	00	01	05										
7/16 - 20 UNF	2.5P	H4	14001409	00	01	05							0.4120	0.4171		
		H5	14001410	00	01	05										
		H6	14001411	00	01	05										
		H7	14001412	00	01	05										
		H8	14001413	00	01	05										
		H9	14001414	00	01	05										
		H10	14001415	00	01	05										
		H11	14001416	00	01	05										
		H12	14001417	00	01	05										
	4.5P	H4	14001418	00	01	05										
		H5	14001419	00	01	05										
		H6	14001420	00	01	05										
		H7	14001421	00	01	05										
		H8	14001422	00	01	05										
		H9	14001423	00	01	05										
		H10	14001424	00	01	05										
		H11	14001425	00	01	05										
		H12	14001426	00	01	05										
1/2 - 13 UNC	2.5P	H4	14001427	00	01	05	3.375	0.921	1.933	0.367	0.275	0.438	0.4608	0.4686		
		H5	14001428	00	01	05										
		H6	14001429	00	01	05										
		H7	14001430	00	01	05										
		H8	14001431	00	01	05										
		H9	14001432	00	01	05										
		H10	14001433	00	01	05										
		H11	14001434	00	01	05										
		H12	14001435	00	01	05										
	4.5P	H4	14001436	00	01	05										
		H5	14001437	00	01	05										
		H6	14001438	00	01	05										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

List 14001 (Continued)

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)

Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
1/2 - 13 UNC	4.5P	H7	14001439	00	01	05	3.375	0.921	1.933	0.367	0.275	0.438	0.4608	0.4686	H8	H5
		H8	14001440	00	01	05										
		H9	14001441	00	01	05										
		H10	14001442	00	01	05										
		H11	14001443	00	01	05										
		H12	14001444	00	01	05										
1/2- 20 UNF	2.5P	H4	14001445	00	01	05							0.4745	0.4796		
		H5	14001446	00	01	05										
		H6	14001447	00	01	05										
		H7	14001448	00	01	05										
		H8	14001449	00	01	05										
		H9	14001450	00	01	05										
		H10	14001451	00	01	05										
		H11	14001452	00	01	05										
		H12	14001453	00	01	05										
	4.5P	H4	14001454	00	01	05										
		H5	14001455	00	01	05										
		H6	14001456	00	01	05										
		H7	14001457	00	01	05										
		H8	14001458	00	01	05										
		H9	14001459	00	01	05										
		H10	14001460	00	01	05										
		H11	14001461	00	01	05										
		H12	14001462	00	01	05										
		H13	14001596	00	-	-										
		H14	14001597	00	-	-										
9/16 - 12 UNC	2.5P	H4	14001463	00	01	05	3.594	1.000	1.972	0.429	0.322	0.500	0.5200	0.5285	H10	H7
		H5	14001464	00	01	05										
		H6	14001465	00	01	05										
		H7	14001466	00	01	05										
		H8	14001467	00	01	05										
		H9	14001468	00	01	05										
		H10	14001469	00	01	05										
		H11	14001470	00	01	05										
		H12	14001471	00	01	05										
	4.5P	H4	14001472	00	01	05										
		H5	14001473	00	01	05										
		H6	14001474	00	01	05										
		H7	14001475	00	01	05										
		H8	14001476	00	01	05										
		H9	14001477	00	01	05										
		H10	14001478	00	01	05										
		H11	14001479	00	01	05										
		H12	14001480	00	01	05										
9/16 - 18 UNF	2.5P	H4	14001481	00	01	05							0.5342	0.5398		

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

continued on next page

HYT

Work Material

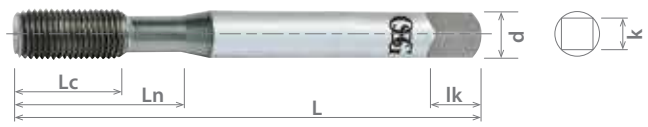
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14001	◎	◎	◎	○	○	○	○	○		◎	◎			○			
SFM	35-100	20-50	15-25	15-25	15-20	15-40	15-40	10-25		50-90	45-100			10-15			

○ good ◎ best

List 14001 (Continued)

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
9/16 - 18 UNF	2.5P	H5	14001482	00	01	05	3.594	1.000	1.972	0.429	0.322	0.500	0.5342	0.5398	H10	H7
		H6	14001483	00	01	05										
		H7	14001484	00	01	05										
		H8	14001485	00	01	05										
		H9	14001486	00	01	05										
		H10	14001487	00	01	05										
		H11	14001488	00	01	05										
		H12	14001489	00	01	05										
	4.5P	H4	14001490	00	01	05										
		H5	14001491	00	01	05										
		H6	14001492	00	01	05										
		H7	14001493	00	01	05										
		H8	14001494	00	01	05										
		H9	14001495	00	01	05										
		H10	14001496	00	01	05										
		H11	14001497	00	01	05										
		H12	14001498	00	01	05										
5/8 - 11 UNC	2.5P	H4	14001499	00	01	05	3.813	1.091	2.126	0.480	0.360	0.563	0.5786	0.5879		
		H5	14001500	00	01	05										
		H6	14001501	00	01	05										
		H7	14001502	00	01	05										
		H8	14001503	00	01	05										
		H9	14001504	00	01	05										
		H10	14001505	00	01	05										
		H11	14001506	00	01	05										
		H12	14001507	00	01	05										
	4.5P	H4	14001508	00	01	05										
		H5	14001509	00	01	05										
		H6	14001510	00	01	05										
		H7	14001511	00	01	05										
		H8	14001512	00	01	05										
		H9	14001513	00	01	05										
		H10	14001514	00	01	05										
		H11	14001515	00	01	05										
		H12	14001516	00	01	05										
5/8 - 18 UNF	2.5P	H4	14001517	00	01	05							0.5967	0.6023		
		H5	14001518	00	01	05										
		H6	14001519	00	01	05										
		H7	14001520	00	01	05										
		H8	14001521	00	01	05										
		H9	14001522	00	01	05										
		H10	14001523	00	01	05										
		H11	14001524	00	01	05										
		H12	14001525	00	01	05										
	4.5P	H4	14001526	00	01	05										
		H5	14001527	00	01	05										
		H6	14001528	00	01	05										
		H7	14001529	00	01	05										
		H8	14001530	00	01	05										
		H9	14001531	00	01	05										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

List 14001 (Continued)

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)

Units: Inch

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	2B	3B
5/8 - 18 UNF	4.5P	H10	14001532	00	01	05	3.813	1.091	2.126	0.480	0.360	0.563	0.5967	0.6023	H10	H7
		H11	14001533	00	01	05										
		H12	14001534	00	01	05										
3/4 - 10 UNC	2.5P	H6	14001535	00	01	05	4.250	1.201	2.433	0.590	0.442	0.688	0.6990	0.7092		
		H7	14001536	00	01	05										
		H8	14001537	00	01	05										
		H9	14001538	00	01	05										
		H10	14001539	00	01	05										
		H11	14001540	00	01	05										
		H12	14001541	00	01	05										
		H13	14001542	00	01	05										
		H14	14001543	00	01	05										
	4.5P	H6	14001544	00	01	05										
		H7	14001545	00	01	05										
		H8	14001546	00	01	05										
		H9	14001547	00	01	05										
		H10	14001548	00	01	05										
		H11	14001549	00	01	05										
		H12	14001550	00	01	05										
		H13	14001551	00	01	05										
		H14	14001552	00	01	05										
3/4 - 16 UNF	2.5P	H6	14001553	00	01	05							0.7181	0.7245		
		H7	14001554	00	01	05										
		H8	14001555	00	01	05										
		H9	14001556	00	01	05										
		H10	14001557	00	01	05										
		H11	14001558	00	01	05										
		H12	14001559	00	01	05										
		H13	14001560	00	01	05										
		H14	14001561	00	01	05										
	4.5P	H6	14001562	00	01	05										
		H7	14001563	00	01	05										
		H8	14001564	00	01	05										
		H9	14001565	00	01	05										
		H10	14001566	00	01	05										
		H11	14001567	00	01	05										
		H12	14001568	00	01	05										
		H13	14001569	00	01	05										
		H14	14001570	00	01	05										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

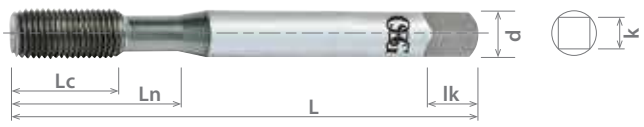
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14001	◎	◎	◎	○	○	○	○	○		◎	◎			○			
SFM	35-100	20-50	15-25	15-25	15-20	15-40	15-40	10-25		50-90	45-100			10-15			

○ good ◎ best

List 14101

HY-PRO HSS-Co TiN S/O BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	6H	4H
M1.6 x 0.35	2.5P	D3	14101000	00	01	05	41.30	7.90	8.90	3.581	2.79	4.80	1.42	1.46	D5	D3
		D5	14101001	00	01	05										
M1.7 x 0.35	2.5P	D3	14101002	00	01	05	42.90	9.50	10.50				1.52	1.56		
		D5	14101003	00	01	05										
M2 x 0.4	1.5P	D3	14101004	00	01	05	44.30	11.10	12.10				1.8	1.84		
		D5	14101005	00	01	05										
	2.5P	D3	14101006	00	01	05										
		D4	14101061	00	-	-										
		D5	14101007	00	01	05										
		D6	14101062	00	-	-										
		D7	14101063	00	-	-										
		D8	14101064	00	-	-										
M2.5 x 0.45	1.5P	D3	14101008	00	01	05	46.00	12.80	13.80				2.27	2.32		
		D5	14101009	00	01	05										
	2.5P	D3	14101010	00	01	05										
		D4	14101065	00	-	-										
		D5	14101011	00	01	05										
		D6	14101066	00	-	-										
		D7	14101067	00	-	-										
		D8	14101068	00	-	-										
M2.6 x 0.45	2.5P	D3	14101012	00	01	05		12.70	13.70				2.37	2.42		
		D5	14101013	00	01	05										
M3 x 0.5	1.5P	D3	14101014	00	01	05	49.20	6.20	16.00				2.75	2.80		
		D5	14101015	00	01	05										
		D6	14101060	00	-	-										
	2.5P	D3	14101016	00	01	05										
		D4	14101069	00	-	-										
		D5	14101017	00	01	05										
		D6	14101070	00	-	-										
		D7	14101071	00	-	-										
		D8	14101072	00	-	-										
		D9	14101073	00	-	-										
		D10	14101074	00	-	-										
		D11	14101075	00	-	-										
	4.5P	D5	14101107	00	-	-										
M3.5 x 0.6	1.5P	D4	14101018	00	01	05	50.80	6.20	17.50				3.19	3.26	D6	D4
		D6	14101019	00	01	05										
	2.5P	D4	14101020	00	01	05										
		D5	14101076	00	-	-										
		D6	14101021	00	01	05										
		D7	14101077	00	-	-										
		D8	14101078	00	-	-										
	4.5P	D4	14101022	00	01	05										
		D6	14101023	00	01	05										
M4 x 0.7	1.5P	D4	14101024	00	01	05	54.00	8.40	19.60	4.267	3.33	6.40	3.64	3.71		
		D6	14101025	00	01	05										
	2.5P	D4	14101026	00	01	05										
		D5	14101079	00	-	-										
		D6	14101027	00	01	05										
		D7	14101080	00	-	-										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

List 14101 (Continued)

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)

HY-PRO | HSS-Co | TiN | S/O | BR

Units: mm

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	6H	4H
M4 x 0.7	2.5P	D8	14101081	00	-	-	54.00	8.40	19.60	4.267	3.33	6.40	3.64	3.71	D6	D4
		D9	14101082	00	-	-										
		D10	14101083	00	-	-										
		D11	14101084	00	-	-										
	4.5P	D4	14101028	00	01	05										
		D6	14101029	00	01	05										
M5 x 0.8	1.5P	D4	14101030	00	01	05	60.30	10.00	22.20	4.920	3.86		4.59	4.67	D7	
		D7	14101031	00	01	05										
	2.5P	D4	14101032	00	01	05										
		D5	14101085	00	-	-										
		D6	14101086	00	-	-										
		D7	14101033	00	01	05										
		D8	14101087	00	-	-										
		D9	14101088	00	-	-										
		D10	14101089	00	-	-										
		D11	14101090	00	-	-										
		D14	14101105	00	-	-										
	4.5P	D4	14101034	00	01	05										
		D7	14101035	00	01	05										
M6 x 1.0	1.5P	D5	14101036	00	01	05	63.50	12.00	25.40	6.477	4.85	7.9	5.49	5.59	D8	D5
		D8	14101037	00	01	05										
	2.5P	D5	14101038	00	01	05										
		D6	14101091	00	-	-										
		D7	14101092	00	-	-										
		D8	14101039	00	01	05										
		D9	14101093	00	-	-										
		D10	14101094	00	-	-										
		D11	14101095	00	-	-										
		D12	14101096	00	-	-										
		D13	14101097	00	-	-										
		D14	14101106	00	-	-										
	4.5P	D5	14101040	00	01	05										
		D8	14101041	00	01	05										
M8 x 1.25	1.5P	D5	14101042	00	01	05	69.10	15.00	28.60	8.077	6.05	9.5	7.36	7.49	D9	
		D9	14101043	00	01	05										
	2.5P	D5	14101044	00	01	05										
		D9	14101045	00	01	05										
	4.5P	D5	14101046	00	01	05										
		D9	14101047	00	01	05										
M10 x 1.5	1.5P	D6	14101048	00	01	05	74.60	18.00	31.80	9.677	7.26	11.10	9.24	9.39	D10	D6
		D10	14101049	00	01	05										
	2.5P	D6	14101050	00	01	05										
		D7	14101098	00	-	-										
		D8	14101099	00	-	-										
		D9	14101100	00	-	-										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

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HYT

Work Material

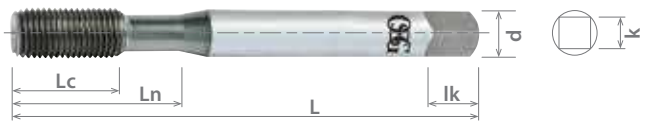
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14101	◎	◎	◎	○	○	○	○	○		◎	◎			○			
SFM	35-100	20-50	15-25	15-25	15-20	15-40	15-40	10-25		50-90	45-100			10-15			

○ good ◎ best

List 14101 (Continued)

HY-PRO | HSS-Co | TiN | S/O | BR

NRT, Plug (4P-4.5P), Bottom (2P-2.5P), Short Bottom (1P-1.5P)



Units: mm

Tap Size	Lead	Thread Limit	EDP Number	Coating Suffix			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Tap Drill Size		Class of Fit	
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk	Min	Max	6H	4H
M10 x 1.5	2.5P	D10	14101051	00	01	05	74.60	18.00	31.80	9.677	7.26	11.10	9.24	9.39	D10	D6
		D11	14101101	00	-	-										
		D12	14101102	00	-	-										
		D13	14101103	00	-	-										
	4.5P	D6	14101052	00	01	05										
		D10	14101053	00	01	05										
M12 x 1.75	1.5P	D6	14101054	00	01	05	85.70	21.00	49.1	9.322	6.98		11.11	11.29	D11	
		D11	14101055	00	01	05										
	2.5P	D6	14101056	00	01	05										
		D11	14101057	00	01	05										
	4.5P	D6	14101058	00	01	05										
		D11	14101059	00	01	05										

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
14101	◎	◎	◎	○	○	○	○	○		◎	◎			○			
SFM	35-100	20-50	15-25	15-25	15-20	15-40	15-40	10-25		50-90	45-100			10-15			

○ good ◎ best

List 285

HY-PRO HSS TiCN TiN BR

NRT, Bottom (1.5P-2P)



Units: Inch

Tap Size	Class of Fit	EDP Number	Coating Suffix Bottom (1.5P-2P)			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bright	TiN	TiCN	L	Lc	Ln	d	k	lk
0 - 80 UNF	2B	28642	00	05	08	1.625	0.311	0.350	0.141	0.11	0.188
2 - 56 UNC		28644	00	05	08	1.750	0.437	0.476			
3 - 48 UNC		28646	00	05	08	1.813	0.496	0.535			
4 - 40 UNC		28648	00	05	08	1.875	0.295	0.559			
6 - 32 UNC		28650	00	05	08	2.000	0.370	0.685			
8 - 32 UNC		28652	00	05	08	2.125	0.374	0.752	0.168	0.131	0.250
10 - 24 UNC		28654	00	05	08	2.375	0.492	0.866	0.194	0.152	
10 - 32 UNF		28656	00	05	08						
1/4 - 20 UNC		28658	00	05	08	2.500	0.594	0.996	0.255	0.191	0.313
1/4 - 28 UNF		28660	00	05	08						
5/16 - 18 UNC		28662	00	05	08	2.719	0.665	1.126	0.318	0.238	0.375
5/16 - 24 UNF		28664	00	05	08						
3/8 - 16 UNC		28666	00	05	08	2.938	0.752	1.252	0.381	0.286	0.438
3/8 - 24 UNF		28668	00	05	08						
7/16 - 14 UNC		28670	00	05	08	3.156	0.858	1.713	0.323	0.242	0.406
7/16 - 20 UNF		28672	00	05	08						
1/2 - 13 UNC		28674	00	05	08	3.375	0.921	1.933	0.367	0.275	0.438
1/2 - 20 UNF		28676	00	05	08						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
See page 782 for tap drill recommendations.

HY7

List 286

HY-PRO HSS TiCN TiN BR

NRT, Bottom (1.5P-2P)

Units: mm

Tap Size	Class of Fit	EDP Number	Coating Suffix Bottom (1.5P-2P)			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bright	TiN	TiCN	L	Lc	Ln	d	k	lk
M3 x 0.5	6H	28681	00	05	08	50.00	6.00	16.00	3.581	2.79	4.80
M4 x 0.7		28683	00	05	08	55.00	8.40	19.10	4.267	3.33	6.40
M5 x 0.8		28685	00	05	08	62.00	9.60	22.20	4.928	3.86	
M6 x 1.0		28687	00	05	08	65.00	12.00	25.40	6.477	4.85	7.30
M8 x 1.25		28689	00	05	08	75.00	15.00	28.60	8.077	6.05	8.70
M10 x 1.5		28691	00	05	08	82.00	18.00	31.80	9.677	7.26	10.10
M12 x 1.75		28693	00	05	08	85.00	21.00	49.10	9.322	6.98	11.10

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
See page 784 for tap drill recommendations.

HY7

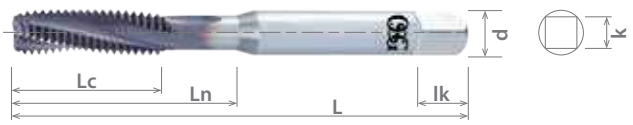
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	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
285	◎	○								◎	◎						
286	◎	○								◎	◎						
SFM	35-100	20-50								45-100	45-100						

○ good ◎ best

List 16605

CARBIDE | BR | 15°

A-CSF, Coolant - Through, DIN Overall Length, Modified Bottom (2.5P), Bottom (1.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)	Mod Bottom (2.5P)						
			Bright	Bright	L	Lc	Ln	d	k	lk
1/4 - 20 UNC	H5	3	1660500100	1660500000	3.140	0.598	1.181	0.255	0.191	0.313
1/4 - 28 UNF	H4		1660500300	1660500200						
5/16 - 18 UNC	H5		1660500500	1660500400	3.540	0.665	1.377	0.318	0.238	0.375
3/8 - 16 UNC			1660500700	1660500600	3.930	0.751		0.381	0.286	0.438
7/16 - 14 UNC			1660500900	1660500800		0.858	-	0.322	0.242	0.406
1/2 - 13 UNC			1660501100	1660501000	4.330	0.921	-	0.367	0.275	0.438

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
Note: Reduce SFM 50% - 70% while using external coolant.

ATP

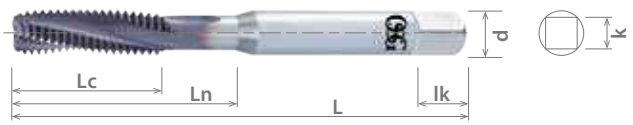
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16605									◎	◎	◎						
SFM									15-50	30-330	30-330						

○ good ◎ best

List 16600

CARBIDE | BR | 15°

A-CSF, Coolant - Through, DIN Overall Length, Modified Bottom (2.5P), Bottom (1.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)	Mod Bottom (2.5P)						
			Bright	Bright	L	Lc	Ln	d	k	lk
M5 x 0.8	D4	3	1660000000	1660000100	70.00	10.00	25.00	4.928	3.86	6.4
M6 x 1.0	D5		1660000200	1660000300	80.00	12.00	31.00	6.477	4.85	7.9
M8 x 1.25			1660000400	1660000500	90.00	15.00	35.00	8.077	6.05	9.5
M10 x 1.5	D6		1660000600	1660000700	100.00	18.00	39.00	9.677	7.26	11.1
M10 x 1.25	D5		1660000800	1660000900						
M12 x 1.75	D6		1660001000	1660001100	110.00	21.00	-	9.322	6.98	

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
Note: Reduce SFM 50% - 70% while using external coolant.

ATP

Work Material

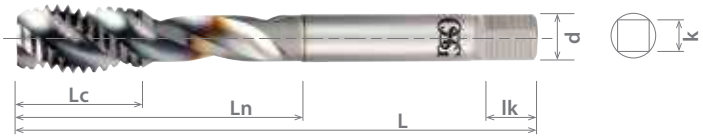
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16600									◎	◎	◎						
SFM									15-50	30-330	30-330						

○ good ◎ best

List 16505

VC10 | V | Var.°

A-SFT, DIN Overall Length, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)	Mod Bottom (2.5P)						
			V	V	L	Lc	Ln	d	k	lk
4 - 40 UNC	H2	2	1650508908	1650500108	2.205	0.196	0.704	0.141	0.110	0.188
4 - 48 UNF			1650509008	1650500208						
5 - 40 UNC			1650509108	1650500308		0.200	0.708			
5 - 44 UNF			1650509208	1650500408						
6-32 UNC		3	1650509308	1650513108		0.248	0.783			
	H3		1650509408	-						
	H2	2	-	1650500608						
	H3		1650513208	1650500508						
6 - 40 UNF	H2	3	1650509508	-						
		2	-	1650500708						
8 - 32 UNC		3	1650509608	-	2.480	0.251	0.826	0.168	0.131	0.250
	H3		1650509708	-						
	H2	2	-	1650500908						
	H3		-	1650500808						
8 - 36 UNF	H2	3	1650509808	-						
		2	-	1650501008						
10 - 24 UNC	H3	3	1650509908	-	2.756	0.326	0.976	0.194	0.152	
		2	-	1650501108						
10 - 32 UNF	H2	3	1650510008	-			1.059			
	H3		1650510108	-						
	H2	2	-	1650501308			0.976			
	H3		-	1650501208						
12 - 24 UNC		3	1650510208	-	3.150	0.330	1.177	0.220	0.165	0.281
		2	-	1650501408						
12 - 28 UNF		3	1650510308	-						
		2	-	1650501508						
12 - 32 UNEF		3	1650510408	-						
		2	-	1650505608						
1/4 - 20 UNC		3	1650510608	-		0.397		0.255	0.191	0.313
	H5		1650510708	-						
	H3	2	-	1650501708						
	H5		-	1650501608						
1/4 - 28 UNF	H3	3	1650510908	-						
	H4		1650510808	-						
	H3	2	-	1650501908						
	H4		-	1650501808						
1/4 - 32 UNEF	H3	2	1650510508	1650505708						
		3	1650511008	-						
5/16 - 18 UNC			1650511108	1650502108	3.543	0.444	1.377	0.318	0.238	0.375
	H5		1650511208	1650502008						
5/16 - 24 UNF	H3		1650511308	1650502308						
	H4		1650511408	1650502208						
5/16 - 32 UNEF	H3		1650511508	1650505808	3.150					
3/8 - 16 UNC			1650511608	1650502508	3.937	0.500	1.535	0.310	0.286	0.438
	H5		1650511708	1650502408						
3/8 - 24 UNF	H3		1650511808	1650502708	3.543		1.377			
	H4		1650511908	1650502608						
3/8 - 32 UNEF	H3		1650512008	-						
			-	1650505908						

Packed: 1 pc.
Available V coating only.

ATP

List 16505 (Continued)

VC10 | V | Var.°

A-SFT, DIN Overall Length, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)	Mod Bottom (2.5P)						
			V	V	L	Lc	Ln	d	k	lk
7/16 - 14 UNC	H3	3	1650512108	1650502908	3.937	0.570	1.712	0.323	0.242	0.406
	H5		1650512208	1650502808						
7/16 - 20 UNF	H3		1650512308	1650503108						
	H5		1650512408	1650503008						
7/16 - 28 UNEF	H4		1650512508	1650506008	3.543					
1/2 - 13 UNC	H3		1650512608	1650503308	4.331	0.614	1.933	0.367	0.275	0.438
	H5		1650512708	1650503208						
1/2 - 20 UNF	H3		1650512808	1650503508	3.937					
	H5		1650512908	1650503408						
1/2 - 28 UNEF	H4		1650513008	1650506108						
9/16 - 12 UNC	H3		-	1650503708	4.331	0.665	1.972	0.429	0.322	0.500
	H5		-	1650503608						
9/16 - 18 UNF	H3		-	1650503908	3.937					
	H5		-	1650503808						
9/16 - 24 UNEF	H4		-	1650506208						
5/8-11 UNC	H3		-	1650504108	4.331	0.728	2.125	0.480	0.360	0.563
	H5		-	1650504008						
5/8 - 18 UNF	H3		-	1650504308	3.937					
	H5		-	1650504208						
5/8 - 24 UNEF	H4		-	1650506308						
11/16 - 24 UNEF		4	-	1650506408	4.331	0.909	2.165	0.542	0.406	0.625
3/4 - 10 UNC	H3		-	1650504508	4.921	1.000	2.433	0.590	0.442	0.688
	H5		-	1650504408						
3/4 - 16 UNF	H3		-	1650504708	4.331					
	H5		-	1650504608						
3/4 - 20 UNEF			-	1650506508						
13/16 - 20 UNEF			-	1650506608	4.921			0.652	0.489	
7/8 - 9 UNC	H4		-	1650504908	5.512	1.110	2.653	0.697	0.523	0.750
	H6		-	1650504808						
7/8 - 14 UNF	H4		-	1650505108	4.921					
	H6		-	1650505008						
7/8 - 20 UNEF	H5		-	1650506708						
15/16 - 20 UNEF			-	1650506808	5.512		2.692	0.760	0.570	
1 - 8 UNC	H4		-	1650505308	6.299	1.251	3.011	0.800	0.600	0.813
	H6		-	1650505208						
	H8		-	1650507008						
1 - 12 UNF	H6		-	1650505408	5.512					
	H4		-	1650505508	6.299					
1 - 14 UNS	H6		-	1650513308	5.512					
1 - 20 UNEF	H5		-	1650506908						
1,1/8 - 7 UNC	H9		-	1650507108	7.087	0.944	3.818	0.896	0.672	0.875
1,1/8 - 8 UN			-	1650507208		0.826				
1,1/8 - 12 UNF	H8		-	1650507308	5.906		3.070			
1,1/4 - 7 UNC	H10		-	1650507408	7.087	0.944	3.937	1.021	0.766	1.000
1,1/4 - 8 UN	H9		-	1650507508		0.826				

Packed: 1 pc.
Available V coating only.

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ATP

Work Material

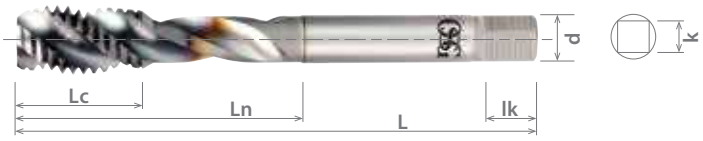
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	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16505	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

○ good ◎ best

List 16505 (Continued)

VC10 | V | Var.°

A-SFT, DIN Overall Length, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)	Mod Bottom (2.5P)						
			V	V	L	Lc	Ln	d	k	lk
1,1/4 - 12 UNF	H8	4	-	1650507608	5.906	0.826	3.070	1.021	0.766	1.000
1,3/8 - 6 UNC	H10		-	1650507708	7.874	1.102	4.527	1.108	0.831	1.063
1,3/8 - 8 UN	H9		-	1650507808		0.826				
1,3/8 - 12 UNF	H8		-	1650507908	6.693		3.582			
1,1/2 - 6 UNC	H10		-	1650508008	7.874	1.102	4.527	1.233	0.925	1.125
1,1/2 - 8 UN	H9		-	1650508108		0.826				
1,1/2 - 12 UNF	H8		-	1650508208	6.693		3.582			
1,5/8 - 8 UN	H10		-	1650508308	7.874		4.330	1.305	0.979	
1,3/4 - 5 UNC	H11		-	1650508408	8.661	1.299	4.724	1.430	1.072	1.250
1,3/4 - 8 UN	H10		-	1650508508	7.874	0.826	3.976			
1,7/8 - 8 UN			-	1650508608	8.858		4.921	1.519	1.139	
2 - 4,1/2 UNC	H12		-	1650508708	9.843	1.456	5.511	1.644	1.233	1.375
2 - 8 UN	H10		-	1650508808	8.858	0.826	4.803			

Packed: 1 pc.
Available V coating only.

ATP

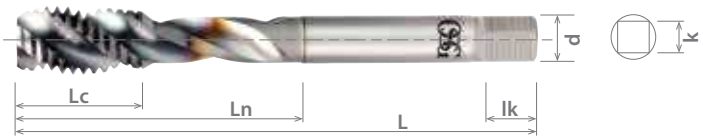
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	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16505	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

○ good ◎ best

List 16500

VC10 | V | Var.°

A-SFT, DIN Overall Length, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)	Mod Bottom (2.5P)						
			V	V	L	Lc	Ln	d	k	lk
M1.4 x 0.3	D2	2	-	1650003008	40.00	6.00	11.50	3.581	2.79	4.80
M1.6 x 0.35	D3		-	1650003108		7.00	13.60			
M1.7 x 0.35			-	1650003208		8.00	13.40			
M2 x 0.4	D2		-	1650003408	45.00	3.30	10.00			
M2 x 0.25			-	1650003308						
M2.2 x 0.45	D3		-	1650003608			11.00			
M2.2 x 0.25	D2		-	1650003508						
M2.3 x 0.4	D3		-	1650003708		3.20	11.90			
M2.5 x 0.45			-	1650003908	50.00	3.70	13.00			
M2.5 x 0.35			-	1650003808						
M2.6 x 0.45			-	1650004008						
M3 x 0.5		3	1650009808	1650000108	56.00	4.00	18.00			
M3 x 0.35	D2		1650009708	-						
	D3		-	1650004108						
M3.5 x 0.6			1650010008	1650004308		4.80	20.00			
M3.5 x 0.35			1650009908	1650004208						
M4 x 0.7	D4		1650010208	1650000308	63.00	5.60	20.90	4.267	3.33	6.40
M4 x 0.5	D3		1650010108	1650000208						
M4.5 x 0.75	D4		1650010408	1650004508	70.00	6.10	24.90	4.928	3.86	
M4.5 x 0.5	D3		1650010308	1650004408						
M5 x 0.8	D4		1650010608	1650000508		6.40	25.10			
M5 x 0.5	D3		1650010508	1650000408						
M5.5 x 0.5			1650010708	1650004608	80.00	7.30	30.10	5.588	4.19	7.10
M6 x 1.0	D5		1650011008	1650000808		8.00	29.90	6.477	4.85	7.90
M6 x 0.75	D4		1650010908	1650000708						
M6 x 0.5	D3		1650010808	1650000608						
M7 x 1.0	D5		1650011208	1650004808			30.00	8.077	6.05	9.50
M7 x 0.75	D4		1650011108	1650004708						
M8 x 1.25	D5		1650011508	1650001008	90.00	10.00	35.00			
M8 x 1.0			1650011408	1650000908						
M8 x 0.75	D4		1650011308	1650004908	80.00	8.00	33.00			
M9 x 1.25	D5		1650011808	1650005208	90.00	10.00	35.00	9.677	7.26	11.10
M9 x 1.0			1650011708	1650005108						
M9 x 0.75	D4		1650011608	1650005008		8.00				
M10 x 1.5	D6		1650012208	1650001308	100.00	12.00	39.00			
M10 x 1.25	D5		1650012108	1650001208						
M10 x 1.0			1650012008	1650001108	90.00	10.00	35.00			
M10 X 0.75	D4		1650011908	1650005308						

Packed: 1 pc.
Available V coating only.

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ATP

Work Material

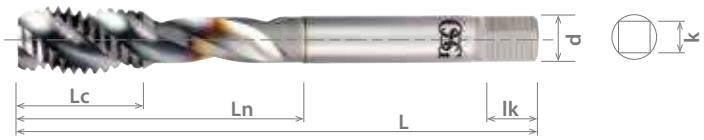
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16500	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

○ good ◎ best

List 16500 (Continued)

VC10 | V | Var.°

A-SFT, DIN Overall Length, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)	Mod Bottom (2.5P)						
			V	V	L	Lc	Ln	d	k	lk
M11 x 1.5	D6	3	1650012608	1650005608	100.00	12.00	43.50	8.204	6.15	10.30
M11 x 1.25	D5		1650012508	-						
M11 X 1.0			1650012408	1650005508	90.00					
M11 x 0.75	D4		1650012308	1650005408		8.00				
M12 x 1.75	D6		1650013008	1650001708	110.00	14.00	49.10	9.322	6.98	11.10
M12 x 1.5			1650012908	1650001608	100.00					
M12 x 1.25			1650012808	1650001508		12.00				
M12 x 1.0	D5		1650012708	1650001408						
M14 x 2.0	D7		-	1650001908	110.00	16.00	50.10	10.897	8.18	12.70
M14 x 1.5	D6		-	1650001808	100.00	12.00				
M14 x 1.25			-	1650005808						
M14 x 1.0	D5		-	1650005708						
M15 x 1.25	D6		-	1650013208			54.00	12.192	9.14	14.30
M15 X 1.5			-	1650006008		16.00				
M15 x 2	D7		-	1650013108	110.00					
M15 x 1.0	D5		-	1650005908	100.00	12.00				
M16 x 2.0	D7		-	1650002108	110.00	16.00				
M16 x 1.25	D6		-	1650013308	100.00	12.00				
M16 x 1.5			-	1650002008		16.00				
M16 x 1.0	D5		-	1650006108		12.00				
M17 x 1.5	D6		-	1650006208		16.00	55.00	13.767	10.31	15.90
M17 x 1.25			-	1650013408		12.00				
M17 x 1.0	D5		-	1650006308					9.31	14.90
M18 x 2.5	D7	4	-	1650002308	125.00	25.00			10.31	15.90
M18 x 2.0			-	1650006508						
M18 x 1.5	D6		-	1650002208	110.00	16.00				
M18 x 1.25			-	1650013508						
M18 x 1.0	D5		-	1650006408	100.00					
M20 x 2.5	D7		-	1650002508	140.00	25.00	61.80	16.561	12.42	17.50
M20 x 2.0			-	1650006708						
M20 x 1.5	D6		-	1650002408	125.00	16.00				
M20 x 1.0	D5		-	1650006608						
M22 x 2.5	D7		-	1650002708	140.00	25.00	67.40	17.704	13.28	19.10
M22 x 2.0			-	1650006908						
M22 x 1.5	D6		-	1650002608	125.00	16.00				
M22 x 1.0	D5		-	1650006808						
M24 x 3.0	D8		-	1650002908	160.00	30.00	68.40	19.304	14.48	
M24 x 2.0	D7		-	1650007108	140.00					
M24 x 1.5	D6		-	1650002808		16.00				
M24 x 1.0	D5		-	1650007008						
M27 x 3.0	D10		-	1650007408	160.00	36.00	80.00	22.758	17.07	22.20
M27 x 2.0	D8		-	1650007308	140.00	24.00	60.00			
M27 x 1.5	D8		-	1650007208						
M30 x 3.5	D11		-	1650007708	180.00	42.00	100.00	25.933	19.46	25.40
M30 x 2.0	D9		-	1650007608	150.00	36.00	70.00			
M30 x 1.5	D8		-	1650007508						
M33 x 3.5	D11		-	1650008008	180.00	42.00	95.00	28.143	21.11	27.00
M33 x 2.0	D9		-	1650007908	160.00	36.00	75.00			
M33 x 1.5	D8		-	1650007808						

Packed: 1 pc.
Available V coating only.

ATP

List 16500 (Continued)

VC10 | V | Var.°

A-SFT, DIN Overall Length, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P)	Mod Bottom (2.5P)						
			V	V	L	Lc	Ln	d	k	lk
M36 x 4.0	D11	4	-	1650008408	200.00	48.00	115.00	31.318	23.50	28.60
M36 X 3.0	D10		-	1650008308		36.00				
M36 x 2.0	D9		-	1650008208	170.00		85.00			
M36 x 1.5	D8		-	1650008108						
M39 x 4.0	D11		-	1650008508	200.00	48.00	110.00	33.147	24.87	
M42 x 3.0	D10		-	1650008808			100.00	36.322	27.23	31.80
M42 x 2.0	D9		-	1650008708	170.00		70.00			
M42 x 4.5	D12		-	1650008908	200.00	54.00	100.00			
M42 x 1.5	D8		-	1650008608	170.00	48.00	70.00			
M45 x 4.5	D12		-	1650009108	220.00	54.00	120.00	38.583	28.93	
M45 x 3.0	D10		-	1650009008	200.00	48.00	100.00			
M48 x 5.0	D13		-	1650009508	250.00	60.00	140.00	41.758	31.32	34.90
M48 x 3.0	D11		-	1650009408	225.00	48.00	115.00			
M48 x 2.0	D9		-	1650009308	190.00		80.00			
M48 x 1.5	D8		-	1650009208						
M56 x 5.5	D14		-	1650009608	250.00	66.00	130.00	48.108	36.07	36.50

Packed: 1 pc.
Available V coating only.

ATP

Work Material

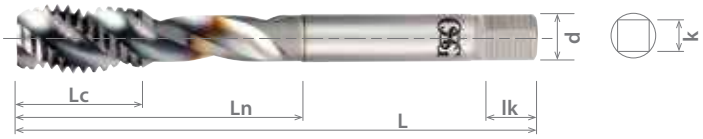
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16500	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

○ good ◎ best

List 16545

VC10 | V | Var.°

A-OIL-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Mod Bottom (2.5P-3P)						
			V	L	Lc	Ln	d	k	lk
1/4 - 20 UNC	H5	3	1654500108	3.150	0.402	1.181	0.255	0.191	0.313
1/4 - 28 UNF	H4		1654500208		0.402	1.181			
5/16 - 18 UNC	H5		1654500308	3.543	0.445	1.378	0.318	0.238	0.375
5/16 - 24 UNF	H4		1654500408		0.445	1.378			
3/8 - 16 UNC	H5		1654500508	3.937	0.500	1.535	0.381	0.286	0.438
3/8 - 24 UNF	H4		1654500608	3.543	0.500	1.378			
7/16 - 14 UNC	H5		1654500708	3.937	0.571	1.713	0.323	0.242	0.406
7/16 - 20 UNF			1654500808		0.571	1.713			
1/2 - 13 UNC			1654500908	4.331	0.614	1.933	0.367	0.275	0.438
1/2 - 20 UNF			1654501008	3.937	0.614	1.933			
9/16 - 12 UNC			1654501108	4.331	0.665	1.972	0.429	0.322	0.500
9/16 - 18 UNF			1654501208	3.937	0.665	1.972			
5/8 - 11 UNC			1654501308	4.331	0.728	2.126	0.480	0.360	0.563
5/8 - 18 UNF			1654501408	3.937	0.728	2.126			
3/4 - 10 UNC		4	1654501508	4.921	1.000	2.433	0.590	0.442	0.688
3/4 - 16 UNF			1654501608	4.331	1.000	2.433			
7/8 - 9 UNC	H6		1654501708	5.512	1.110	2.654	0.697	0.523	0.750
7/8 - 14 UNF			1654501808	4.921	1.110	2.654			
1 - 8 UNC			1654501908	6.299	1.252	3.012	0.800	0.600	0.813
	H8		1654502008		1.252	3.012			
1 - 12 UNF	H6		1654502108	5.512	1.252	3.012			
1,1/8 - 7 UNC	H9		1654502208	7.087	1.732	3.819	0.896	0.672	0.875
1,1/8 - 8 UN			1654502308		1.496	3.819			
1,1/8 - 12 UNF	H8		1654502408	5.906	1.496	3.071			
1,1/4 - 7 UNC	H10		1654502508	7.087	1.732	3.937	1.021	0.766	1.000
1,1/4 - 8 UN	H9		1654502608		1.496	3.937			
1,1/4-12 UNF	H8		1654502708	5.906	1.496	3.071			
1,3/8 - 6 UNC	H10		1654502808	7.874	2.008	4.528	1.108	0.831	1.063
1,3/8 - 8 UN	H9		1654502908		1.496	4.528			
1,3/8 - 12 UNF	H8		1654503008	6.693	1.496	3.583			
1,1/2 - 6 UNC	H10		1654503108	7.874	2.008	4.528	1.233	0.925	1.125
1,1/2 - 8 UN	H9		1654503208		1.496	4.528			
1,1/2 - 12 UNF	H8		1654503308	6.693	1.496	3.583			
1,5/8 - 8 UN	H10		1654503408	7.874	1.496	4.331	1.305	0.979	
1,3/4 - 5 UNC	H11		1654503508	8.661	2.402	4.724	1.430	1.072	1.250
1,3/4 - 8 UN	H10		1654503608	7.874	2.008	3.976			
1,7/8 - 8 UN			1654503708	8.858	2.008	4.921	1.519	1.139	
2 - 4,1/2 UNC	H12		1654503808	9.843	2.677	5.512	1.644	1.233	1.375
2 - 8 UN	H10		1654503908	8.858	2.008	4.803			

Packed: 1 pc.
Available V coating only.

ATP

Work Material

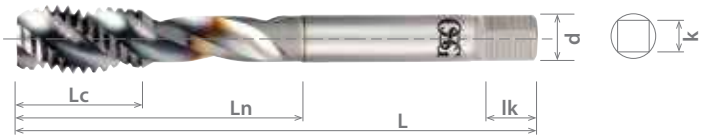
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16545	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	100-200	100-200	100-200	50-100	40-80	25-70	25-70	25-50	60-150	90-220	90-220			50-100			

○ good ◎ best

List 16540

VC10 | V | Var.°

A-OIL-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2.5P-3P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M6 x 1.0	D5	3	1654000208	80.00	8.00	30.00	6.48	4.85	7.90
M6 x 0.75	D4		1654000108						
M7 x 1.0	D5		1654000308				8.08	6.05	9.50
M8 x 1.25			1654000608	90.00	10.00	35.00			
M8 x 1.0			1654000508						
M8 X 0.75	D4		1654000408	80.00	8.00	33.00			
M9 x 1.25	D5		1654000708	90.00	10.00	35.00	9.68	7.26	11.10
M10 x 1.5	D6		1654001008	100.00	12.00	39.00			
M10 x 1.25	D5		1654000908						
M10 x 1.0			1654000808	90.00	10.00	35.00			
M11 x 1.5	D6		1654001108	100.00	12.00	43.50	8.20	6.15	10.30
M12 x 1.75			1654001508	110.00	14.00	49.10	9.32	6.98	11.10
M12 x 1.5			1654001408	100.00					
M12 x 1.25			1654001308		12.00				
M12 x 1.0	D5		1654001208						
M14 x 2.0	D7		1654001708	110.00	16.00	50.10	10.90	8.18	12.70
M14 x 1.5	D6		1654001608	100.00					
M15 x 1.5			1654001808			54.00	12.19	9.14	14.30
M16 x 2.0	D7		1654002008	110.00					
M16 x 1.5	D6		1654001908	100.00					
M17 x 1.5			1654002108			55.00	13.77	10.31	15.90
M18 x 2.5	D7	4	1654002308	125.00	25.00				
M18 x 1.5	D6		1654002208	110.00	16.00				
M20 x 2.5	D7		1654002508	140.00	25.00	61.80	16.56	12.42	17.50
M20 x 1.5	D6		1654002408	125.00	16.00				
M22 x 2.5	D7		1654002808	140.00	25.00	67.40	17.70	13.28	19.10
M22 x 2.0			1654002708						
M22 x 1.5	D6		1654002608	125.00	16.00				
M24 x 3.0	D8		1654003108	160.00	30.00	68.40	19.30	14.48	
M24 x 2.0	D7		1654003008	140.00					
M24 x 1.5	D6		1654002908		16.00				
M27 x 3.0	D10		1654003208	160.00	36.00	80.00	22.76	17.07	22.20
M30 x 3.5	D11		1654003308	180.00	42.00	100.00	25.93	19.46	25.40
M33 x 3.5			1654003408			95.00	28.14	21.11	27.00
M36 x 4.0			1654003508	200.00	48.00	115.00	31.32	23.50	28.60
M39 x 4.0			1654003608			110.00	33.15	24.87	
M42 x 4.5	D12		1654003708		54.00	100.00	36.32	27.23	31.80
M45 x 4.5			1654003808	220.00		120.00	38.58	28.93	
M48 x 5.0	D13		1654003908	250.00	60.00	140.00	41.76	31.32	34.90
M56 x 5.5	D14		1654004008		66.00	130.00	48.11	36.07	36.50

Packed: 1 pc.
Available V coating only.

ATP

Work Material

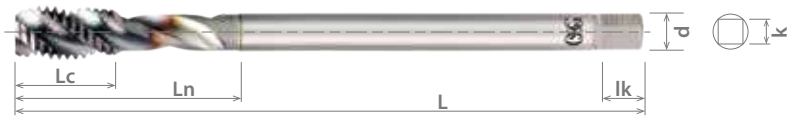
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16540	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	100-200	100-200	100-200	50-100	40-80	25-70	25-70	25-50	60-150	90-220	90-220			50-100			

○ good ◎ best

List 16525

VC10 | V | Var.°

A-LT-SFT, Long Shank, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2.5P-3P) V	Long Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H2	2	1652505608	3.150	0.197	0.705	0.141	0.110	0.188
4 - 48 UNF			1652505708						
5 - 40 UNC			1652500308	3.937	0.201	0.709			
5 - 44 UNF			1652505908						
6 - 32 UNC	H3		1652500608	4.724	0.248	0.783			
6 - 40 UNF	H2		1652500708	3.937					
8 - 32 UNC	H3		1652500908	4.724	0.252	0.827	0.168	0.131	0.250
8 - 36 UNF	H2		1652501008	3.937					
10 - 24 UNC	H3		1652501108	4.921	0.327	0.976	0.194	0.152	
10 - 32 UNF			1652501308	5.906					
12 - 24 UNC			1652501408	4.921	0.331	1.177	0.220	0.165	0.281
12 - 28 UNF			1652501508						
1/4 - 20 UNC	H5		1652501708	5.906	0.398		0.255	0.191	0.313
1/4 - 28 UNF	H4		1652501908						
5/16 - 18 UNC	H5	3	1652502108		0.445	1.378	0.318	0.238	0.375
5/16 - 24 UNF	H4		1652502308						
3/8 - 16 UNC	H5		1652502508		0.500	1.535	0.381	0.286	0.438
3/8 - 24 UNF	H4		1652502708			1.378			
7/16 - 14 UNC	H5		1652502908		0.571	2.362	0.323	0.242	0.406
7/16 - 20 UNF			1652503108						
1/2 - 13 UNC			1652503308	7.087	0.614	2.835	0.367	0.275	0.438
1/2 - 20 UNF			1652503508						
9/16 - 12 UNC			1652503708		0.665		0.429	0.322	0.500
9/16 - 18 UNF			1652503908						
5/8 - 11 UNC			1652504108		0.728		0.480	0.360	0.563
5/8 - 18 UNF			1652504308						
3/4 - 10 UNC		4	1652504508	7.874	1.000	3.150	0.590	0.442	0.688
3/4 - 16 UNF			1652504708						
7/8 - 9 UNC	H6		1652504908		1.110		0.697	0.523	0.750
7/8 - 14 UNF			1652505108						
1 - 8 UNC			1652505308		1.252	3.465	0.800	0.600	0.813
1 - 12 UNF			1652505508						

Packed: 1 pc.
Available V coating only.

ATP

Work Material

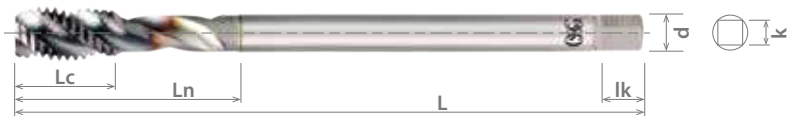
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16525	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

○ good ◎ best

List 16520

A-LT-SFT, Long Shank, Modified Bottom (2.5P-3P)

VC10 | V | Var.°



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2.5P-3P) V	Long Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D3	3	1652001308	100.00	4.10	18.10	3.58	2.79	4.80
M3 x 0.35			1652001208						
M3.5 x 0.6			1652001508		4.80	20.00			
M3.5 x 0.35			1652001408						
M4 x 0.7	D4		1652001708		5.60	21.00	4.27	3.33	6.40
M4 x 0.5	D3		1652001608						
M4.5 x 0.75	D4		1652001908		6.10	25.10	4.93	3.86	
M4.5 x 0.5	D3		1652001808						
M5 x 0.8	D4		1652002108	125.00	6.40	25.00			
M5 x 0.5	D3		1652002008						
M5.5 x 0.5			1652002208		7.30	30.10	5.59	4.19	7.10
M6 x 1.0	D5		1652002708	150.00	8.00	30.00	6.48	4.85	7.90
M6 x 0.75	D4		1652002508						
M6 x 0.5	D3		1652002308	125.00					
M8 x 1.25	D5		1652003708	150.00	10.00	35.00	8.08	6.05	9.50
M8 x 1.0			1652003508						
M8 x 0.75	D4		1652003308		8.00	33.00			
M10 x 1.5	D6		1652005108		12.00	39.00	9.68	7.26	11.10
M10 x 1.25	D5		1652004908						
M10 x 1.0			1652004708		10.00	35.00			
M10 x 0.75	D4		1652004508						
M12 x 1.75	D6		1652006708	180.00	14.00	72.00	9.32	6.98	
M12 x 1.5			1652006508						
M12 x 1.25			1652006308		12.00				
M12 x 1.0	D5		1652006108						
M14 x 2	D7		1652007108	150.00	16.00	60.00	10.90	8.18	12.70
M14 x 1.5	D6		1652007008						
M14 x 1.25			1652006908		12.00				
M14 x 1.0	D5		1652006808						
M15 x 1.5	D6		1652007308	160.00	16.00	64.00	12.19	9.14	14.30
M15 x 1.0	D5		1652007208		12.00				
M16 x 2.0	D7		1652007708	180.00	16.00	72.00			
M16 x 1.5	D6		1652007508	160.00		64.00			
M16 x 1.0	D5		1652007408		12.00				
M18 x 2.5	D7	4	1652008308	180.00	25.00	72.00	13.77	10.31	15.90
M18 x 2.0			1652008208						
M18 x 1.5	D6		1652008108		16.00				
M18 x 1.0	D5		1652008008						
M20 x 2.5	D7		1652008708	200.00	25.00	80.00	16.56	12.42	17.50
M20 x 2.0			1652008608						

Packed: 1 pc.
Available V coating only.

continued on next page

ATP

Work Material

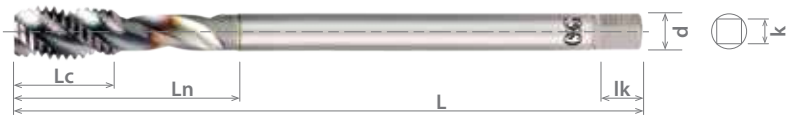
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16520	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

○ good ◎ best

List 16520 (Continued)

VC10 | V | Var.°

A-LT-SFT, Long Shank, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2.5P-3P) V	Long Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M20 x 1.5	D6	4	1652008508	200.00	16.00	80.00	16.56	12.42	17.50
M20 x 1.0	D5		1652008408						
M22 x 2.5	D7		1652009108		25.00		17.70	13.28	19.10
M22 x 2.0			1652009008						
M22 x 1.5	D6		1652008908		16.00				
M22 x 1.0	D5		1652008808						
M24 x 3.0	D8		1652009508		30.00	83.00	19.30	14.48	
M24 x 2.0	D7		1652009408						
M24 x 1.5	D6		1652009308		16.00				
M24 x 1.0	D5		1652009208						

Packed: 1 pc.
Available V coating only.

ATP

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16520	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	35-50	20-40	15-35	15-35	15-25	50-80	70-120	70-120			30-55			

○ good ◎ best

List 16450

HSSE | TiN | Var.°

CC-SUS-SFT, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P) TiN	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	1645002562	1.772	0.142	0.472	0.141	0.110	0.188
3 - 48 UNC	H2	2	1645003482	1.969	0.161	0.531	0.141	0.110	0.188
4 - 40 UNC	H2	2	1645004402	2.205	0.197	0.705	0.141	0.110	0.188
4 - 48 UNF	H2	2	1645004482	2.205	0.197	0.705	0.141	0.110	0.188
5 - 40 UNC	H2	2	1645005402	2.205	0.201	0.709	0.141	0.110	0.188
6 - 32 UNC	H2	2	1645006322	2.205	0.248	0.783	0.141	0.110	0.188
	H3	2	1645006323	2.205	0.248	0.783	0.141	0.110	0.188
6 - 40 UNF	H2	2	1645006402	2.205	0.248	0.783	0.141	0.110	0.188
8 - 32 UNC	H2	2	1645008322	2.480	0.252	0.827	0.168	0.131	0.250
	H3	2	1645008323	2.480	0.252	0.827	0.168	0.131	0.250
8 - 36 UNF	H2	2	1645008362	2.480	0.252	0.827	0.168	0.131	0.250
10 - 24 UNC	H2	2	1645010242	2.756	0.327	0.976	0.194	0.152	0.250
	H3	2	1645010243	2.756	0.327	0.976	0.194	0.152	0.250
10 - 32 UNF	H2	2	1645010322	2.756	0.327	0.976	0.194	0.152	0.250
	H3	2	1645010323	2.756	0.327	0.976	0.194	0.152	0.250
12 - 24 UNC	H3	2	1645012243	3.150	0.331	1.177	0.220	0.165	0.281
12 - 28 UNF	H3	2	1645012283	3.150	0.331	1.177	0.220	0.165	0.281
1/4 - 20 UNC	H3	2	1645014203	3.150	0.398	1.177	0.255	0.191	0.313
	H5	2	1645014205	3.150	0.398	1.177	0.255	0.191	0.313
1/4 - 28 UNF	H3	2	1645014283	3.150	0.398	1.177	0.255	0.191	0.313
	H4	2	1645014284	3.150	0.398	1.177	0.255	0.191	0.313
5/16 - 18 UNC	H3	3	1645056183	3.543	0.445	1.378	0.318	0.238	0.375
	H5	3	1645056185	3.543	0.445	1.378	0.318	0.238	0.375
5/16 - 24 UNF	H3	3	1645056243	3.543	0.445	1.378	0.318	0.238	0.375
	H4	3	1645056244	3.543	0.445	1.378	0.318	0.238	0.375
3/8 - 16 UNC	H3	3	1645038163	3.937	0.500	1.535	0.381	0.286	0.438
	H5	3	1645038165	3.937	0.500	1.535	0.381	0.286	0.438
3/8 - 24 UNF	H3	3	1645038243	3.543	0.500	1.378	0.381	0.286	0.438
	H4	3	1645038244	3.543	0.500	1.378	0.381	0.286	0.438
7/16 - 14 UNC	H3	3	1645076143	3.937	0.571	1.713	0.323	0.242	0.406
	H5	3	1645076145	3.937	0.571	1.713	0.323	0.242	0.406
7/16 - 20 UNF	H3	3	1645076203	3.937	0.571	1.713	0.323	0.242	0.406
	H5	3	1645076205	3.937	0.571	1.713	0.323	0.242	0.406
1/2 - 13 UNC	H3	3	1645012133	4.331	0.614	1.933	0.367	0.275	0.438
	H5	3	1645012135	4.331	0.614	1.933	0.367	0.275	0.438
1/2 - 20 UNF	H3	3	1645012203	3.937	0.614	1.933	0.367	0.275	0.438
	H5	3	1645012205	3.937	0.614	1.933	0.367	0.275	0.438

Packed: 1 pc.
Available TiN coating only.
*Recommended drill is ADO-SUS drills for stainless steel.

continued on next page EP

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16450	○	○	○	◎		◎	◎	○									
SFM	50-80	50-80	30-80	50-100		20-35	20-35	15-25									

○ good ◎ best

List 16450 (Continued)

HSSE | TiN | Var.°

CC-SUS-SFT, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P) TiN	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
9/16 - 12 UNC	H3	3	1645096123	4.331	0.665	1.972	0.429	0.322	0.500
	H5		1645096125						
9/16 - 18 UNF	H3		1645096183	3.937					
	H5		1645096185						
5/8 - 11 UNC	H3		1645058113	4.331	0.728	2.126	0.480	0.360	0.563
	H5		1645058115						
5/8- 18 UNF	H3		1645058183	3.937					
	H5		1645058185						
3/4 - 10 UNC	H3	4	1645034103	4.921	1.000	2.433	0.590	0.442	0.688
	H5		1645034105						
3/4 - 16 UNF	H3		1645034163	4.331					
	H5		1645034165						
7/8 - 9 UNC	H4		1645078094	5.512	1.110	2.654	0.697	0.523	0.750
	H6		1645078096						
7/8 - 14 UNF	H4		1645078144	4.921					
	H6		1645078146						
1 - 8 UNC	H4		1645010084	6.299	1.252	3.012	0.800	0.600	0.813
	H6		1645010086						
1 - 12 UNF	H4		1645010124	5.512					
	H6		1645010126						

Packed: 1 pc.
Available TiN coating only.
*Recommended drill is ADO-SUS drills for stainless steel.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16450	○	○	○	◎		◎	◎	○									
SFM	50-80	50-80	30-80	50-100		20-35	20-35	15-25									

○ good ◎ best

List 16455

HSSE | TiN | Var.°

CC-SUS-SFT, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Modified Bottom (2.5P-3P)						
			TiN	L	Lc	Ln	d	k	lk
M2 x 0.4	D3	2	1645502043	45.00	3.20	12.00	3.58	2.79	4.80
M2.5 x 0.45			1645525453	50.00	3.70	14.10			
M2.6 x 0.45			1645526453		3.60	16.00			
M3 x 0.5	D4		1645503054	56.00	4.10	18.10			
M4 x 0.7			1645504074	63.00	5.60	21.00	4.27	3.33	6.40
M5 x 0.8			1645505084	70.00	6.40	25.00	4.93	3.86	
M6 x 1	D3		1645506103	80.00	8.00	30.00	6.48	4.85	7.90
	D5		1645506105						
M8 X 1.25	D4	3	1645508124	90.00	10.00	35.00	8.08	6.05	9.50
	D6		1645508126						
M10 x 1.5	D4		1645510154	100.00	12.00	39.00	9.68	7.26	11.10
	D6		1645510156						
M12 x 1.75	D4		1645512174	110.00	14.00	49.10	9.32	6.98	
	D6		1645512176						
M14 x 2	D5		1645514205		16.00	50.10	10.90	8.18	12.70
	D7		1645514207						
M16 x 2	D5		1645516205			54.00	12.19	9.14	14.30
	D7		1645516207						
M18 x 2.5		4	1645518257	125.00	25.00	55.00	13.77	10.31	15.90
M20 x 2.5	D8		1645520258	140.00		61.80	16.56	12.42	17.50
M24 x 3	D9		1645524309	160.00	30.00	68.40	19.30	14.48	19.10

Packed: 1 pc.
Available TiN coating only.
*Recommended drill is ADO-SUS drills for stainless steel.

EP

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16455	▢	▢	▢	◻		◻	◻	▢									
SFM	50-80	50-80	30-80	50-100		20-35	20-35	15-25									

▢ good ◻ best

List 335Ni

VC10 | HR | 11°

WHR-Ni-SFT, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P) HR	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	3350002562	1.772	0.437	-	0.141	0.110	0.188
4 - 40 UNC	H2	3	3350004402	2.205	0.563	-			
	H3		3350004403			-			
6 - 32 UNC	H2		3350006322		0.689	-			
	H3		3350006323			-			
8 - 32 UNC	H2		3350008322	2.480	0.748	-	0.168	0.131	0.250
	H3		3350008323			-			
10 - 24 UNC	H2		3350010243	2.756	0.874	-	0.194	0.152	
	H5		3350010245			-			
10 - 32 UNF	H2		3350010322		0.866	-			
	H3		3350010323			-			
1/4 - 20 UNC	H3		3350014203	3.150	1.000	-	0.255	0.191	0.313
	H5		3350014205			-			
1/4 - 28 UNF	H3		3350014283		0.992	-			
	H4		3350014284			-			
5/16 - 18 UNC	H3		3350516183	3.543	0.665	1.378	0.318	0.238	0.375
	H5		3350516185						
5/16 - 24 UNF	H3		3350516243						
	H5		3350516245						
3/8 - 16 UNC	H3		3350038163	3.937	0.752	1.535	0.381	0.286	0.438
	H5		3350038165						
3/8 - 24 UNF	H3		3350038243	3.543		1.378			
	H4		3350038244						
7/16 - 14 UNC	H3		3350716143	3.937	0.858	1.713	0.323	0.242	0.406
	H5		3350716145						
7/16 - 20 UNF	H3		3350716203						
	H5		3350716205						
1/2 - 13 UNC	H3		3350012133	4.331	0.921	1.933	0.367	0.275	0.438
	H5		3350012135						
1/2 - 20 UNF	H3		3350012203	3.937					
	H5		3350012205						
9/16 - 18 UNF	H3	4	3350096183		1.000	1.972	0.429	0.322	0.500
	H5		3350096185						
5/8 - 11 UNC	H3		3350058113	4.331	1.091	2.126	0.480	0.360	0.563
	H5		3350058115						
5/8 - 18 UNF	H3		3350058183	3.937					
	H5		3350058185						
3/4 - 10 UNC	H3		3350034103	4.921	1.201	2.433	0.590	0.442	0.688
	H5		3350034105						
3/4 - 16 UNF	H3		3350034163	4.331					
	H5		3350034165						
7/8 - 9 UNC	H3		3350078093	5.512	1.335	2.654	0.697	0.523	0.750
	H5		3350078095						
7/8 - 14 UNF	H3		3350078143	4.921					
	H5		3350078145						

Packed: 1 pc.
Available HR coating only.

EP

List 335Ni (Continued)

VC10 | HR | 11°

WHR-Ni-SFT, DIN Overall Length, Modified Bottom (2.5P-3P)

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			HR	L	Lc	Ln	d	k	lk
1 - 8 UNC	H3	4	3350001083	6.299	1.500	3.012	0.800	0.600	0.813
	H5		3350001085						
1 - 12 UNF	H3		3350001123	5.512					
	H5		3350001125						

Packed: 1 pc.
Available HR coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
335Ni								▢				▣				▢	
SFM								8-20				8-15				8-12	

▢ good ▣ best

List 336Ni

VC10 | HR | 11°

WHR-Ni-SFT, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			HR	L	Lc	Ln	d	k	lk
M2.5 x 0.45	D3	3	3360250453	50.00	12.70	-	3.58	2.79	4.80
M3 x 0.5			3360003053	56.00	15.90	-			
M4 x 0.7	D4		3360004074	63.00	19.00	-	4.27	3.33	6.40
M5 x 0.8			3360005084	70.00	22.20	-	4.93	3.86	
M6 x 1.0	D5		3360006105	80.00	25.40	-	6.48	4.85	7.90
M6 x 0.75			3360006755		25.30	-			
M8 x 1.25			3360008255	90.00	15.00	35.00	8.08	6.05	9.50
M8 x 1.0			3360008105						
M10 x 1.5	D6		3360010156	100.00	18.00	39.00	9.68	7.26	11.10
M10 x 1.25	D5		3360010255						
M12 x 1.75	D6		3360012756	110.00	21.00	49.10	9.32	6.98	
M12 x 1.5			3360012156	100.00					
M14 x 2.0	D7		3360014207	110.00	24.00	50.10	10.90	8.18	12.70
M14 x 1.5	D6		3360014156	100.00					
M16 x 2.0	D7		3360016207	110.00			12.19	9.14	14.30
M16 x 1.5	D6		3360016156	100.00					
M18 x 2.5	D7		3360018257	125.00		54.00	13.77	10.31	15.90
M18 x 1.5	D6		3360018156	110.00					
M20 x 2.5	D8		3360020258	140.00	30.00	61.80	16.56	12.42	17.50
M20 x 1.5	D6		3360020156	125.00					
M22 x 2.5	D8		3360022258	140.00		67.40	17.70	13.28	19.10
M22 x 1.5	D6		3360022156	125.00					
M24 x 3.0	D8	4	3360024308	160.00	36.00	68.40	19.30	14.48	
M24 x 1.5	D6		3360024156	140.00					

Packed: 1 pc.
Available HR coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
336Ni								▢				▢				▢	
SFM								8-20				8-15				8-12	

▢ good ▢ best

List 389

CARBIDE | BR | 15°

OT-SFT, JIS, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P - 2P)	Modified Bottom (2.5P - 3P)						
			Bright	Bright	L	Lc	Ln	d	k	lk
M3 x 0.5	OH3	3	8315255	8315254	46.00	11.00	19.00	4.00	3.20	6.00
M4 x 0.7			8315261	8315260	52.00	13.00	21.00	5.00	4.00	7.00
M5 x 0.8			8315267	8315266	60.00	15.90	23.90	5.50	4.50	
M6 x 1.0			8315273	8315272	62.00	19.00	29.00	6.00		
M8 x 1.25	OH4		8315285	8315284	70.00	22.00	-	6.20	5.00	8.00
M10 x 1.5			8315297	8315296	75.00	24.00	-	7.00	5.50	
M10 x 1.25			8315303	8315302			-			
M12 x 1.75			8315315	8315314	82.00	29.00	-	8.50	6.50	9.00

Packed: 1 pc.
Other coatings available upon request.
Specify treatment at time of order.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
389									◎	◎	◎						
SFM									40-90	50-100	50-80						

○ good ◎ best

List 313Ti

V-Ti-SFT, Modified Bottom (2.5P-3P)

VC10 | V | 10°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P) V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	3	1305710108	1.750	0.437	-	0.141	0.110	0.188
4 - 40 UNC			1305710208	1.875	0.559	-			
6 - 32 UNC			1305710408	2.000	0.685	-			
	H3		1305710508			-			
6 - 40 UNF	H2		1305710608			-			
8 - 32 UNC			1305710708	2.125	0.752	-	0.168	0.131	0.250
	H3		1305710808			-			
8 - 36 UNF	H2		1305710908			-			
10 - 24 UNC	H3		1305711008	2.375	0.866	-	0.194	0.152	
10 - 32 UNF	H2		1305711108			-			
	H3		1305711208			-			
1/4 - 20 UNC			1305711308	2.500	0.996	-	0.255	0.191	0.313
	H5		1305711408			-			
1/4 - 28 UNF	H3		1305711508			-			
	H4		1305711608			-			
	H5		1305714608			-			
5/16 - 18 UNC	H3		1305711708	2.719	0.445	1.126	0.318	0.238	0.375
	H5		1305711808						
5/16 - 24 UNF	H3		1305711908						
	H4		1305712008						
3/8 - 16 UNC	H3		1305712108	2.938	0.500	1.252	0.381	0.286	0.438
	H5		1305712208						
3/8 - 24 UNF	H3		1305712308						
	H4		1305712408						
7/16 - 14 UNC	H3		1305712508	3.156	0.571	1.713	0.323	0.242	0.406
	H5		1305712608						
7/16 - 20 UNF	H3		1305712708						
	H5		1305712808						
1/2 - 13 UNC	H3		1305712908	3.375	0.614	1.933	0.367	0.275	0.438
	H5		1305713008						
1/2 - 20 UNF	H3		1305713108						
	H5		1305713208						
9/16 - 18 UNF	H3	4	1305713308	3.594	0.665	1.972	0.429	0.322	0.500
	H5		1305713408						
5/8-11 UNC	H3		1305713508	3.813	0.728	2.126	0.480	0.360	0.563
5/8 - 18 UNF			1305713608						
	H5		1305713708						
3/4 - 10 UNC			1305713808	4.250	0.799	2.433	0.590	0.442	0.688
3/4 - 16 UNF	H3		1305713908						
	H5		1305714008						

Packed: 1 pc.
Available V coating only.

EXT

List 313Ti (Continued)

V-Ti-SFT, Modified Bottom (2.5P-3P)

EXOTAP | VC10 | V | 10°

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
7/8 - 9 UNC	H3	4	1305714208	4.688	0.890	2.654	0.697	0.523	0.750
	H5		1305714308						
7/8 - 14 UNF	H3		1305714408						
	H5		1305714508						
1 - 8 UNC			1305714108	5.125	1.000	3.012	0.800	0.600	0.813

Packed: 1 pc.
Available V coating only.

EXT

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
313Ti				▢				▢				◻	◻	▢	▢		
SFM				15-30				8-20				8-15	8-15	15-35	10-20		

▢ good ◻ best

List 345Ti

V-Ti-SFT, Modified Bottom (2.5P-3P)

VC10 | V | 10°



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M2.5 x 0.45	D3	3	1316210008	46.00	12.70	-	3.58	2.79	4.80
M3 x 0.5			1316210108	49.20	16.00	-			
M4 x 0.7	D4		1316210208	54.00	19.10	-	4.27	3.33	6.40
M5 x 0.8			1316210308	60.30	22.20	-	4.93	3.86	
M6 x 1.0	D5		1316210408	63.50	25.40	-	6.48	4.85	7.90
M8 x 1.25			1316210508	69.10	10.00	28.60	8.08	6.05	9.50
M10 x 1.5	D6		1316210708	74.60	12.00	31.80	9.68	7.26	11.10
M10 x 1.25	D5		1316210608						
M12 x 1.75	D6		1316210808	85.70	14.00	49.10	9.32	6.98	
M12 x 1.25	D5		1316210908						

Packed: 1 pc.
Available V coating only.

EXT

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065	4140 4340													
345Ti				▢				▢				▣	▣	▢	▢		
SFM				15-30				8-20				8-15	8-15	15-35	10-20		

▢ good ▣ best

List 317Ti

VPO-Ti-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)

VC10 | V | 10°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 28 UNF	H3	3	31721408	3.150	1.000	-	0.255	0.191	0.313
	H4		31721508			-			
5/16 - 24 UNF	H3		31721808	3.543	0.445	1.378	0.318	0.238	0.375
	H4		31721908						
3/8 - 24 UNF	H3		31722208		0.500		0.381	0.286	0.438
	H4		31722308						
7/16 - 20 UNF	H3		31722608	3.937	0.571	1.713	0.323	0.242	0.406
	H5		31722708						
1/2 - 20 UNF	H3		31723008		0.614	1.933	0.367	0.275	0.438
	H5		31723108						
9/16 - 18 UNF	H3	4	31723408		0.665	1.972	0.429	0.322	0.500
	H5		31723508						
5/8 - 18 UNF	H3		31723808		0.728	2.126	0.480	0.360	0.563
	H5		31723908						
3/4 - 16 UNF	H3		31724208	4.331	0.799	2.433	0.590	0.442	0.688
	H5		31724308						
7/8 - 14 UNF	H4		31724608	4.921	0.890	2.654	0.697	0.523	0.750
	H6		31724708						
1 - 12 UNF	H4		31725008	5.512	1.000	3.012	0.800	0.600	0.813
	H6		31725108						

Packed: 1 pc.
Available V coating only.

EXT

Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065	4140 4340													
317Ti				▢				▢				◎	◎	▢	▢		
SFM				15-30				8-20				8-15	8-15	15-35	10-20		

▢ good ◎ best

List 348Ti

VPO-Ti-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)

VC10 | V | 10°



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M8 x 1.0	D5	3	34820608	90.00	10.00	35.00	8.08	6.05	9.50
M10 x 1.25			34820808	100.00	12.00	39.00	9.68	7.26	11.10
M12 x 1.25			34821008		14.00	49.10	9.32	6.98	
M12 x 1.5	D6		34821108						
M14 x 1.5			34821308		16.00	50.10	10.90	8.18	12.70
M16 x 1.5		4	34821508			54.00	12.19	9.14	14.30
M18 x 1.5			34821708	110.00	20.00	55.00	13.77	10.31	15.90
M20 x 1.5			34821908	125.00		61.80	16.56	12.42	17.50
M22 x 1.5			34822108			67.40	17.70	13.28	19.10
M24 x 1.5			34822308	140.00	24.00	68.40	19.30	14.48	

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
348Ti				○				○				◎	◎	○	○		
SFM				15-30				8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 313Ni

Ni-SFT, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

VC10 | V | S/O | 10°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)		Modified Bottom (2.5P - 3P)			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix	EDP Number	Coating Suffix							
				S/O		S/O	V	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	2	-	-	17707	01	-	1.750	0.437	-	0.141	0.110	0.188
4 - 40 UNC	H2	3	17705	01	17190	01	08	1.875	0.559	-			
	H3		17706	01	17191	01	-						
6 - 32 UNC	H2		01401	01	17207	01	-	2.000	0.685	-			
	H3		17700	01	17091	01	08			-			
	H5		-	-	17092	01	-			-			
	H7		-	-	17701	01	-			-			
8 - 32 UNC	H2		01402	01	-	-	-	2.125	0.752	-	0.168	0.131	0.250
	H3		-	-	17093	01	08			-			
	H5		-	-	17094	01	-			-			
10 - 24 UNC	H3		-	-	17195	01	08	2.375	0.866	-	0.194	0.152	
	H5		-	-	17196	01	-			-			
10 - 32 UNF	H2		01403	01	17702	01	-			-			
	H3		17703	01	17095	01	08			-			
	H4		-	-	17704	01	-			-			
	H5		-	-	17096	01	-			-			
1/4 - 20 UNC	H3		01404	01	17197	01	08	2.500	0.996	-	0.255	0.191	0.313
	H5		-	-	17198	01	-			-			
	H7		-	-	17714	01	-			-			
1/4 - 28 UNF	H3		01405	01	17097	01	08			-			
	H4		01406	01	-	-	-			-			
	H5		-	-	17098	01	-			-			
5/16 - 18 UNC	H3		-	-	17199	01	08	2.719	0.445	1.126	0.318	0.238	0.375
	H5		-	-	17200	01	-						
	H7		-	-	17712	01	-						
5/16 - 24 UNF	H3		01407	01	17099	01	08						
	H4		-	-	01408	01	-						
	H5		-	-	17100	01	-						
3/8 - 16 UNC	H3		17710	01	17201	01	08	2.938	0.500	1.252	0.381	0.286	0.438
	H5		-	-	17202	01	-						
	H7		-	-	17711	01	-						
3/8 - 24 UNF	H3		01409	01	17101	01	08						
	H4		01410	01	-	-	-						
	H5		-	-	17102	01	-						
7/16 - 14 UNC	H3		-	-	17203	01	-	3.156	0.571	1.713	0.323	0.242	0.406
	H5		-	-	17204	01	-						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

continued on next page

EXT

Work Material

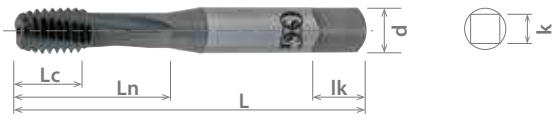
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
313Ni								▢				◻	▢	▢	▢		
SFM								8-15				8-15	8-15	15-35	10-20		

▢ good ◻ best

List 313Ni (Continued)

Ni-SFT, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

EXOTAP | VC10 | V | S/O | 10°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)		Modified Bottom (2.5P - 3P)			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix	EDP Number	Coating Suffix							
				S/O		S/O	V	L	Lc	Ln	d	k	lk
7/16 - 20 UNF	H3	3	01411	01	17103	01	-	3.156	0.571	1.713	0.323	0.242	0.406
	H5		01412	01	17104	01	-						
1/2 - 13 UNC	H3		17709	01	17205	01	08	3.375	0.614	1.933	0.367	0.275	0.438
	H5		-	-	17206	01	-						
1/2 - 20 UNF	H3		01413	01	17105	01	08						
	H5		01414	01	17106	01	-						
	H7		-	-	17713	01	-						
9/16 - 18 UNF	H3		01415	01	-	-	-	3.594	0.665	1.972	0.429	0.322	0.500
	H5		01416	01	-	-	-						
5/8 - 11 UNC	H3	4	-	-	17107	01	-	3.813	0.728	2.126	0.480	0.360	0.563
5/8 - 18 UNF			-	-	17108	01	-						
	H5		-	-	17109	01	-						
3/4 - 10 UNC	H3		-	-	17708	01	-	4.250	0.799	2.433	0.590	0.442	0.688
	H5		-	-	17110	01	-						
3/4 - 16 UNF	H3		-	-	17111	01	-						
	H5		-	-	17112	01	-						
7/8 - 9 UNC	H3		-	-	17114	01	-	4.688	0.890	2.654	0.697	0.523	0.750
	H5		-	-	17115	01	-						
7/8 - 14 UNF	H3		-	-	17116	01	-						
	H5		-	-	17117	01	-						
1 - 8 UNC			-	-	17113	01	-	5.125	1.000	3.012	0.800	0.600	0.813

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
313Ni								▢				▣	▢	▢	▢		
SFM								8-20				8-15	8-15	15-35	10-20		

▢ good ▣ best

List 345Ni

Ni-SFT, Modified Bottom (2.5P-3P)

VC10 | S/O | 10°



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3.P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			S/O	L	Lc	Ln	d	k	lk
M2.5 x 0.45	D3	3	1316110001	46.00	12.70	-	3.58	2.79	4.80
M3 x 0.5			1316110101	49.20	16.00	-			
M4 x 0.7	D4		1316110201	54.00	19.10	-	4.27	3.33	6.40
M5 x 0.8			1316110301	60.30	22.20	-	4.93	3.86	
M6 x 1.0	D5		1316110401	63.50	25.40	-	6.48	4.85	7.90
M8 x 1.25			1316110501	69.10	10.00	28.60	8.08	6.05	9.50
M10 x 1.5	D6		1316110701	74.60	12.00	31.80	9.68	7.26	11.10
M10 x 1.25	D5		1316110601						
M12 x 1.75	D6		1316110801	85.70	14.00	49.10	9.32	6.98	

Packed: 1 pc.
Available Steam Oxide finish only.

EXT

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
345Ni								▢				◻	▢	▢	▢			
SFM								8-20				8-15	8-15	15-35	10-20			

▢ good ◻ best

List 313

Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

VC10 | V | S/O | 15°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P-2P) EDP Number	Bottom (1.5P-2P) Coating Suffix S/O	Bottom (1.5P-2P) Coating Suffix V	Modified Bottom (2.5P-3.P) EDP Number	Modified Bottom (2.5P-3.P) Coating Suffix S/O	Modified Bottom (2.5P-3.P) Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	01417	01	08	17540	01	08	1.750	0.437	-	0.141	0.110	0.188
4 - 40 UNC	H2		01418	01	08	17520	01	08	1.875	0.157	0.559			
	H3		-	-	-	17541	01	08						
	H4		-	-	-	17542	01	08						
5 - 40 UNC	H2		-	-	-	17521	01	08	1.938	0.201	0.634			
6 - 32 UNC	H2		-	-	-	17543	01	08	2.000	0.248	0.685			
	H3		01419	01	08	17522	01	08						
	H4		01420	01	08	17544	01	08						
	H5		-	-	-	17545	01	08						
8 - 32 UNC	H2		01421	01	08	17546	01	08	2.125	0.252	0.752	0.168	0.131	
	H3		01422	01	08	17523	01	08						
	H4		01423	01	08	17547	01	08						
	H5		-	-	-	17548	01	08						
	H6		-	-	-	17549	01	08						
10 - 24 UNC	H3		-	-	-	17524	01	08	2.375	0.327	0.866	0.194	0.152	0.250
	H5		-	-	-	17030	01	08						
10 - 32 UNF	H2		01424	01	08	17031	01	08						
	H3		01425	01	08	17525	01	08						
	H4		01426	01	08	17032	01	08						
	H5		-	-	-	17033	01	08						
	H6		-	-	-	17034	01	08						
1/4 - 20 UNC	H3		-	-	-	17526	01	08	2.500	0.398	0.996	0.255	0.191	0.313
	H5		-	-	-	17035	01	08						
1/4 - 28 UNF	H3		01427	01	08	17527	01	08						
	H4		01428	01	08	17036	01	08						
	H5		-	-	-	17037	01	08						
	H6		-	-	-	17038	01	08						
5/16 - 18 UNC	H3		-	-	-	17528	01	08	2.719	0.445	1.126	0.318	0.238	0.375
	H5		-	-	-	17039	01	08						
5/16 - 24 UNF	H3	3	01429	01	08	17529	01	08						
	H4		01430	01	08	17040	01	08						
	H5		-	-	-	17041	01	08						
	H6		-	-	-	17042	01	08						
3/8 - 16 UNC	H3		-	-	-	17530	01	08	2.938	0.500	1.252	0.381	0.286	0.438
	H5		-	-	-	17043	01	08						
3/8 - 24 UNF	H3		01431	01	08	17531	01	08						
	H4		01432	01	08	17044	01	08						
3/8 - 24 UNF	H5		-	-	-	17045	01	08						
	H6		-	-	-	17046	01	08						
7/16 - 14 UNC	H3		-	-	-	17532	01	08	3.156	0.571	1.713	0.323	0.242	0.406
	H5		-	-	-	17047	01	08						
7/16 - 20 UNF	H3		01433	01	08	17533	01	08						
	H5		01434	01	08	17048	01	08						
1/2 - 13 UNC	H3		-	-	-	17534	01	08	3.375	0.614	1.933	0.367	0.275	0.438
	H5		-	-	-	17049	01	08						
1/2 - 20 UNF	H3		01435	01	08	17535	01	08						
	H5		01436	01	08	17050	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

List 313 (Continued)

Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

EXOTAP | VC10 | V | S/O | 15°

Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P-2P) EDP Number	Bottom Coating Suffix S/O	Bottom Coating Suffix V	Modified Bottom (2.5P-3.P) EDP Number	Modified Bottom Coating Suffix S/O	Modified Bottom Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
5/8 - 11 UNC	H3	4	-	-	-	17536	01	08	3.813	0.728	2.126	0.480	0.360	0.563
5/8 - 18 UNF	H3		-	-	-	17537	01	08						
	H5		-	-	-	17051	01	08						
3/4 - 10 UNC	H3		-	-	-	17538	01	08	4.250	0.799	2.433	0.590	0.442	0.688
3/4 - 16 UNF			-	-	-	17539	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
313				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 345

Modified Bottom (2.5P-3P)

VC10 | V | S/O | 15°



Units: mm

Tap Size	Thread Limit	No. of Flutes	Modified Bottom (2.5P-3.P)			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix							
				S/O	V	L	Lc	Ln	d	k	lk
M3 x 0.5	D3	3	17055	01	08	49.20	4.10	16.00	3.58	2.79	4.80
M4 x 0.7	D4		17056	01	08	54.00	5.60	19.10	4.27	3.33	6.40
M5 x 0.8			17057	01	08	60.30	6.40	22.20	4.93	3.86	
M6 x 1.0	D5		17058	01	08	63.50	8.00	25.40	6.48	4.85	7.90
M8 x 1.25			17059	01	08	69.10	10.00	28.60	8.08	6.05	9.50
M10 x 1.5	D6		17061	01	08	74.60	12.00	31.80	9.68	7.26	11.10
M10 x 1.25	D5		17060	01	08						
M12 x 1.75	D6		17062	01	08	85.70	14.00	49.10	9.32	6.98	

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
345				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 317

VC10 | V | 15°

VPO-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
5/16 - 18 UNC	H3	3	31701508	3.543	0.445	1.378	0.318	0.238	0.375
	H5		31701608						
5/16 - 24 UNF	H3		31701708						
	H4		31701808						
3/8 - 16 UNC	H3		31701908	3.937	0.500	1.535	0.381	0.286	0.438
	H5		31702008						
3/8 - 24 UNF	H3		31702108	3.543		1.378			
	H4		31702208						
7/16 - 14 UNC	H3		31702308	3.937	0.571	1.713	0.323	0.242	0.406
	H5		31702408						
7/16 - 20 UNF	H3		31702508						
	H5		31702608						
1/2 - 13 UNC	H3		31702708	4.331	0.614	1.933	0.367	0.275	0.438
	H5		31702808						
1/2 - 20 UNF	H3		31702908	3.937					
	H5		31703008						
9/16 - 12 UNC	H3		31704908	4.331	0.665	1.972	0.429	0.322	0.500
	H5		31705008						
9/16 - 18 UNF	H3		31703108	3.937					
	H5		31703208						
5/8 - 11 UNC	H3	4	31703308	4.331	0.728	2.126	0.480	0.360	0.563
	H5		31703408						
5/8 - 18 UNF	H3		31703508	3.937					
	H5		31703608						
3/4 - 10 UNC	H3		31703708	4.921	0.799	2.433	0.590	0.442	0.688
	H5		31703808						
3/4 - 16 UNF	H3		31703908	4.331					
	H5		31704008						
7/8 - 9 UNC	H4		31704108	5.512	0.890	2.654	0.697	0.523	0.750
	H6		31704208						
7/8 - 14 UNF	H4		31704308	4.921					
	H6		31704408						
1 - 8 UNC	H4		31704508	6.299	1.000	3.012	0.800	0.600	0.813
	H6		31704608						
1 - 12 UNF	H4		31704708	5.512					
	H6		31704808						

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
317				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 351

VC10 | V | 15°

VPO-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M8 x 1.0	D5	3	35100608	90.00	10.00	35.00	8.08	6.05	9.50
M8 x 1.25			35100708						
M10 x 1.25			35100808	100.00	12.00	39.00	9.68	7.26	11.10
M10 x 1.5	D6		35100908						
M12 x 1.25	D5		35101008		14.00	49.10	9.32	6.98	
M12 x 1.5	D6		35101108						
M12 x 1.75			35101208	110.00					
M14 x 1.5			35101308	100.00	16.00	50.10	10.90	8.18	12.70
M14 x 2.0	D7		35101408	110.00					
M16 x 1.5	D6		35101508	100.00		54.00	12.19	9.14	14.30
M16 x 2.0	D7		35101608	110.00					
M18 x 1.5	D6	4	35101708		20.00	55.00	13.77	10.31	15.90
M18 x 2.5	D7		35101808	125.00					
M20 x 1.5	D6		35101908			61.80	16.56	12.42	17.50
M20 x 2.5	D7		35102008	140.00					
M22 x 1.5	D6		35102108	125.00		67.40	17.70	13.28	19.10
M22 x 2.5	D7		35102208	140.00					
M24 x 1.5	D6		35102308		24.00	68.40	19.30	14.48	
M24 x 3.0	D8		35102408	160.00					

Packed: 1 pc.
Available V coating only.

EXT

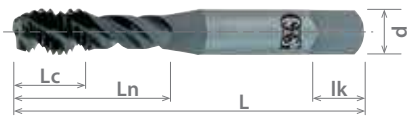
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
351				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 303

Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

HSSE | V | TiN | S/O | 45°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)			Modified Bottom (2.5P - 3P)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix		EDP Number	Coating Suffix								
				S/O	V		S/O	TiN	V	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	2	01354	01	08	17489	01	-	-	1.750	0.437	0.476	0.141	0.110	0.188
3 - 48 UNC			01355	01	08	17487	01	-	-	1.813	0.496	0.535			
4 - 40 UNC			-	-	-	17639	01	05	08	1.875	0.197	0.559			
		3	01356	01	08	17320	01	-	08						
	H3	2	-	-	-	17480	01	-	-						
		3	01357	01	08	17220	01	-	08						
	H4	2	-	-	-	17481	01	-	-						
	H5		17483	01	-	17482	01	-	-						
	H6		-	-	-	17484	01	-	-						
4 - 48 UNF	H2		-	-	-	17488	01	-	-						
		3	01358	01	08	-	-	-	-						
5 - 40 UNC			01359	01	08	17321	01	-	08	1.938	0.201	0.626			
6 - 32 UNC			01360	01	08	17242	01	-	08	2.000	0.248	0.685			
	H3		01361	01	08	17322	01	05	08						
	H4		-	-	-	17467	01	-	-						
	H5		17468	01	-	17222	01	-	08						
	H7		-	-	-	17469	01	-	-						
6 - 40 UNF	H2		01362	01	08	17485	01	-	-						
	H3		-	-	-	17486	01	-	-						
8 - 32 UNC	H2		01363	01	08	17243	01	-	08	2.125	0.252	0.752	0.168	0.131	0.250
	H3		01364	01	08	17323	01	05	08						
	H4		-	-	-	17470	01	-	-						
	H5		17471	01	-	17223	01	-	08						
	H6		-	-	-	17472	01	-	-						
	H7		-	-	-	17473	01	-	-						
8 - 36 UNF	H3		01365	01	08	-	-	-	-						
10 - 24 UNC	H2		01366	01	08	17245	01	-	08	2.375	0.327	0.866	0.194	0.152	
	H3		01367	01	08	17324	01	05	08						
	H5		17495	01	-	17494	01	-	-						
	H7		-	-	-	17496	01	-	-						
10 - 32 UNF	H2		01368	01	08	17246	01	-	08						
	H3		01369	01	08	17325	01	05	08						
	H4		-	-	-	17474	01	-	-						
	H5		17475	01	-	17225	01	-	08						
	H6		-	-	-	17476	01	-	-						
	H7		-	-	-	17477	01	-	-						
12 - 24 UNC	H3		01370	01	08	17497	01	-	-		0.331	0.933	0.220	0.165	0.281
12 - 28 UNF			-	-	-	17498	01	-	-						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide, V or TiN coatings as shown above.

continued on next page

EXT

Work Material

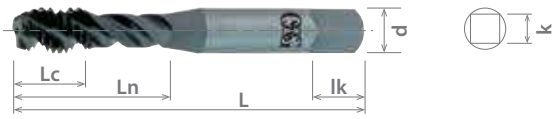
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
303	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 303 (Continued)

Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

EXOTAP | HSSE | V | TiN | S/O | 45°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)			Modified Bottom (2.5P - 3P)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix		EDP Number	Coating Suffix								
				S/O	V		S/O	TiN	V	L	Lc	Ln	d	k	lk
1/4 - 20 UNC	H2	3	-	-	-	17626	01	-	-	2.500	0.398	0.996	0.255	0.191	0.313
	H3		01371	01	08	17326	01	05	08						
	H5		01372	01	08	17226	01	-	08						
	H7		-	-	-	17627	01	-	-						
1/4 - 28 UNF	H2		-	-	-	17634	01	-	-						
	H3		01373	01	08	17327	01	05	08						
	H4		01374	01	08	17227	01	-	08						
	H5		17636	01	-	17635	01	-	-						
	H6		-	-	-	17637	01	-	-						
	H7		-	-	-	17638	01	-	-						
5/16 - 18 UNC	H3		01375	01	08	17328	01	05	08	2.719	0.445	1.126	0.318	0.238	0.375
	H5		01376	01	08	17228	01	-	08						
	H7		-	-	-	17622	01	-	-						
5/16 - 24 UNF	H3		01377	01	08	17329	01	05	08						
	H4		01378	01	08	17229	01	-	08						
	H5		17632	01	-	17631	01	-	-						
	H7		-	-	-	17633	01	-	-						
3/8 - 16 UNC	H3		01379	01	08	17330	01	05	08	2.938	0.500	1.252	0.381	0.286	0.438
	H5		01380	01	08	17230	01	-	08						
	H7		-	-	-	17618	01	-	-						
3/8 - 24 UNF	H3		01381	01	08	17331	01	05	08						
	H4		01382	01	08	17231	01	-	08						
	H5		17630	01	-	17629	01	-	-						
7/16 - 14 UNC	H3		01383	01	08	17332	01	05	08	3.156	0.571	1.713	0.323	0.242	0.406
	H5		-	-	-	17232	01	-	08						
	H7		-	-	-	17617	01	-	-						
7/16 - 20 UNF	H3		01384	01	08	17333	01	05	08						
	H5		01385	01	08	17233	01	-	08						
	H7		-	-	-	17628	01	-	-						
1/2 - 13 UNC	H3		01386	01	08	17334	01	05	08	3.375	0.614	1.933	0.367	0.275	0.438
	H5		01387	01	08	17234	01	-	08						
	H7		-	-	-	17500	01	-	-						
1/2 - 20 UNF	H3		01388	01	08	17335	01	05	08						
	H5		01389	01	08	17235	01	-	08						
	H6		-	-	-	17624	01	-	-						
	H7		-	-	-	17625	01	-	-						
9/16 - 12 UNC	H3	3	-	-	-	17499	01	05	08	3.594	0.665	1.972	0.429	0.322	0.500
		4	01390	01	08	17260	01	-	08						
9/16 - 18 UNF	H3	3	-	-	-	17623	01	05	08						
		4	01391	01	08	17261	01	-	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide, V or TiN coatings as shown above.

EXT

List 303 (Continued)

Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

EXOTAP | HSSE | V | TiN | S/O | 45°

Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)			Modified Bottom (2.5P - 3P)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix		EDP Number	Coating Suffix								
				S/O	V		S/O	TiN	V	L	Lc	Ln	d	k	lk
5/8 - 11 UNC	H3	3	-	-	-	17491	01	05	08	3.813	0.728	2.126	0.480	0.360	0.563
		4	01392	01	08	17336	01	-	08						
	H5	3	-	-	-	17492	01	-	-						
		4	01393	01	08	-	-	-	-						
	H7	3	-	-	-	17493	01	-	-						
5/8 - 18 UNF	H3		-	-	-	17619	-	05	08						
		4	01394	01	08	17337	01	-	08						
	H5	3	-	-	-	17620	01	-	-						
		4	01395	01	08	-	-	-	-						
	H7	3	-	-	-	17621	01	-	-						
3/4 - 10 UNC	H3	4	01396	01	08	17338	01	05	08	4.250	0.799	2.433	0.590	0.442	0.688
	H6		01397	01	08	-	-	-	-						
3/4 - 16 UNF	H3		01398	01	08	17339	01	05	08						
	H5		01399	01	08	-	-	-	-						
7/8 - 9 UNC	H4		-	-	-	17262	01	-	08	4.688	0.890	2.654	0.697	0.523	0.750
7/8 - 14 UNF			01400	01	08	17263	01	-	08						
1 - 8 UNC			-	-	-	17264	01	-	08	5.125	1.000	3.012	0.800	0.600	0.813
1 - 12 UNF			-	-	-	17490	01	-	-						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide, V or TiN coatings as shown above.

EXT

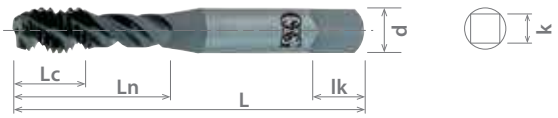
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
303	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 343

Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

HSSE | V | TiN | S/O | 45°



Units: mm

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)		Modified Bottom (2.5P - 3P)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix	EDP Number	Coating Suffix								
				S/O		S/O	TiN	V	L	Lc	Ln	d	k	lk
M3 x 0.5	D3	3	17550	01	17551	01	-	-	49.21	4.10	16.00	3.58	2.79	4.80
M3.5 x 0.6	D4		-	-	17464	01	-	-						
M4 x 0.7			17553	01	17554	01	05	08	53.98	5.60	19.10	4.27	3.33	6.40
M5 x 0.8			17556	01	17557	01	05	08	60.33	6.40	22.20	4.93	3.86	
M6 x 1.0	D5		17559	01	17560	01	05	08	63.50	8.00	25.40	6.48	4.85	7.90
M8 x 1.25			17562	01	17563	01	05	08	69.06	10.00	28.60	8.08	6.05	9.50
M8 x 1.0			17465	01	17466	01	-	-						
M10 x 1.5	D6		17565	01	17566	01	05	08	74.61	12.00	31.80	9.68	7.26	11.10
M10 X 1.25	D5		-	-	17457	01	-	-						
M12 x 1.75	D6		17568	01	17569	01	05	08	85.73	14.00	49.10	9.32	6.98	
M12 x 1.25	D5		-	-	17458	01	-	-						
M14 x 2.0	D7		17558	01	17460	01	-	-	91.28	16.00	50.10	10.90	8.18	12.70
M14 x 1.5	D6		17561	01	17459	01	-	-						
M16 x 2.0	D7		17555	01	17462	01	-	-	96.84		54.00	12.19	9.14	14.30
M16 x 1.5	D6		17552	01	17461	01	-	-						
M18 x 1.5		4	-	-	17463	01	-	-	102.39	20.00	55.00	13.77	10.31	15.90

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide, V or TiN coatings as shown above.

EXT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
343	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 307

HSSE | V | 45°

OIL-V-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
1/4 - 20 UNC	H3	3	30701708	3.150	0.402	1.181	0.255	0.191	0.313
	H5		30701808						
1/4 - 28 UNF	H3		30701908						
	H4		30702008						
5/16 - 18 UNC	H3		30702108	3.543	0.445	1.378	0.318	0.238	0.375
	H5		30702208						
5/16 - 24 UNF	H4		30702308						
	H5		30702408						
3/8 - 16 UNC	H3		30702508	3.937	0.500	1.535	0.381	0.286	0.438
	H5		30702608						
3/8 - 24 UNF	H3		30702708	3.543		1.378			
	H4		30702808						
7/16 - 14 UNC	H3		30702908	3.937	0.571	1.291	0.323	0.242	0.406
	H5		30703008						
7/16 - 20 UNF	H3		30703108						
	H5		30703208						
1/2 - 13 UNC	H3		30703308	4.331	0.614	1.354	0.367	0.275	0.438
	H5		30703408						
1/2 - 20 UNF	H3		30703508	3.397					
	H5		30703608						
9/16 - 12 UNC	H3	4	30703708	4.331	0.665	1.472	0.429	0.322	0.500
	H5		30703808						
9/16 - 18 UNF	H3		30703908	3.937					
	H5		30704008						
5/8 - 11 UNC	H3		30704108	4.331	0.728	1.563	0.480	0.360	0.563
	H5		30704208						
5/8 - 18 UNF	H3		30704308	3.937					
	H5		30704408						
3/4 - 10 UNC	H3		30704508	4.921	0.799	1.713	0.590	0.442	0.688
	H5		30704608						
3/4 - 16 UNF	H3		30704708	4.331					
	H5		30704808						
7/8 - 9 UNC	H4		30704908	5.512	0.890	1.886	0.697	0.523	0.750
	H6		30705008						
7/8 - 14 UNF	H4		30705108	4.921					
	H6		30705208						
1 - 8 UNC	H4		30705308	6.299	1.000	2.091	0.800	0.600	0.813
	H6		30705408						
1 - 12 UNF	H4		30705508	5.512					
	H6		30705608						

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
307	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 347

HSSE | V | 45°

OIL-V-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M6 x 1.0	D5	3	34700508	80.00	8.00	30.00	6.48	4.85	7.90
M8 x 1.0			34700608	90.00	10.00	35.00	8.08	6.05	9.50
M8 x 1.25			34700708						
M10 x 1.25			34700808	100.00	12.00	39.00	9.68	7.26	11.10
M10 x 1.5	D6		34700908						
M12 x 1.25	D5		34701008		14.00	49.10	9.32	6.98	
M12 x 1.5	D6		34701108						
M12 x 1.75			34701208	110.00					
M14 x 1.5			34701308	100.00	16.00	50.10	10.90	8.18	12.70
M14 x 2.0	D7		34701408	110.00					
M16 x 1.5	D6		34701508	100.00		54.00	12.19	9.14	14.30
M16 x 2.0	D7		34701608	110.00					
M18 x 1.5	D6	4	34701708		20.00	55.00	13.77	10.31	15.90
M18 x 2.5	D7		34701808	125.00					
M20 x 1.5	D6		34701908			61.80	16.56	12.42	17.50
M20 x 2.5	D7		34702008	140.00					
M22 x 1.5	D6		34702108	125.00		67.40	17.70	13.28	19.10
M22 x 2.5	D7		34702208	140.00					
M24 x 1.5	D6		34702308		24.00	68.40	19.30	14.48	
M24 x 3.0	D8		34702408	160.00					

Packed: 1 pc.
Available V coating only.

EXT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
347	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 398

Long Shank, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

EXOTAP | HSSE | S/O | 45°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number		Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P - 2P)	Modified Bottom (2.5P - 3P)						
			S/O	S/O	L	Lc	Ln	d	k	lk
4 - 40 UNC	H2	3	–	1766101	4.000	0.197	0.839	0.141	0.110	0.188
			0143701	–	6.000					
6 - 32 UNC	H3		–	1766301	4.000	0.248	1.028			
			0143801	1766501	6.000					
8 - 32 UNC			–	1766701	4.000	0.252	1.126	0.168	0.131	0.250
			0143901	1766901	6.000					
10 - 24 UNC			–	1767101	4.000	0.327	1.303	0.194	0.152	
			–	1767301	6.000					
10 - 32 UNF			–	1767501	4.000					
			0144001	1767701	6.000					
1/4 - 20 UNC			–	1767901	4.000	0.398	1.496	0.255	0.191	0.313
			0144101	1768101	6.000					
1/4 - 28 UNF			0144201	1768301						
5/16 - 18 UNC			0144301	1768501		0.445	1.689	0.318	0.238	0.375
5/16 - 24 UNF			–	1768601			1.677			
3/8 - 16 UNC			0144401	1768701		0.500	1.874	0.381	0.286	0.438
3/8 - 24 UNF			0144501	1768801						
7/16 - 14 UNC			0144601	1768901		0.571	1.713	0.323	0.242	0.406
7/16 - 20 UNF			–	1769001						
1/2 - 13 UNC			–	1769101		0.614	1.933	0.367	0.275	0.438
1/2 - 20 UNF			–	1769201						
5/8 - 11 UNC		4	–	1769301		0.728	2.126	0.480	0.360	0.563

Packed: 1 pc.
Available Steam Oxide finish only.
Neck length is designed for reaching 50% deeper holes than ANSI standard taps.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
398	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 220

HSSE | S/O | 45°

DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40UNC	2B	3	2211401	2.205	0.196	0.704	0.141	0.110	0.188
6 - 32 UNC			2212401		0.248	0.783			
8 - 32 UNC			2217801	2.480	0.251	0.826	0.168	0.131	0.250
10 - 24 UNC			2213401	2.756	0.326	0.976	0.194	0.152	
10 - 32 UNF			2218801						
1/4 - 20 UNC			2230001	3.150	0.397	1.177	0.255	0.191	0.313
1/4 - 28 UNF			2230401						
5/16 - 18 UNC			2230801	3.543	0.444	1.377	0.318	0.238	0.375
5/16 - 24 UNF			2231201						
3/8 - 16 UNC			2231601	3.937	0.500		0.381	0.286	0.438
3/8 - 24 UNF			2231801						
7/16 - 14 UNC			2232001		0.570	1.712	0.323	0.242	0.406
7/16 - 20 UNF			2232201						
1/2 - 13 UNC			2232401	4.331	0.614	1.933	0.367	0.275	0.438
1/2 - 20 UNF			2232601	3.937					
5/8 - 11 UNC		4	2233201	4.331	0.728	2.125	0.480	0.360	0.563
5/8 -18 UNF			2233401	3.937					
3/4 - 10 UNC			2233601	4.921	0.799	2.433	0.590	0.442	0.688
3/4 - 16 UNF			2233801	4.331					
7/8 - 9 UNC			2244001	5.512	0.889	2.952	0.697	0.523	0.750
7/8 - 14 UNF			2239201	4.921		2.653			
1 - 8 UNC			2244401	6.299	1.000	3.543	0.800	0.600	0.813
1 - 12 UNF			2239601	5.512		3.011			
1,1/8 - 7 UNC			2247201	7.087	1.141	3.937	0.896	0.672	0.875
1,1/8 - 12 UNF			2245001	5.906		3.074			
1,1/8 - 8 UN			2247601	7.087		3.937			
1,1/4 - 7 UNC			2247701				1.021	0.766	1.000
1,1/4 - 12 UNF			2245601	5.906		3.074			
1,1/4 - 8 UN			2247901	7.087		3.937			
1,3/8 - 6 UNC			2248001	7.874	1.334	4.527	1.108	0.831	1.063
1,3/8 - 8 UN			2248201						
1,3/8 - 12 UNF			2246201	6.693		3.590			
1,1/2- 6 UNC			2248301	7.874		4.527	1.233	0.925	1.125
1,1/2 - 8 UN			2248501						
1,1/2 - 12 UNF			2246801	6.693		3.590			
1,5/8 - 8 UN			2248601	7.874		4.330	1.305	0.979	
1,3/4 - 5 UNC			2248701	8.661	1.598	4.724	1.430	1.072	1.250
1,3/4 - 8 UN			2248801	7.874		3.976			
1,7/8 - 8 UN			2248901	8.858		4.921	1.519	1.139	
2 - 4,1/2 UNC		5	2249001	9.843	1.779	5.511	1.644	1.233	1.375
2 - 8 UN			2249101	8.858		4.921			

Packed: 1 pc.
Available Steam Oxide finish only.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
220	▢	▢	◎	◎	▢	▢	▢	▢	▢					▢			
SFM	25-80	20-50	20-45	20-50	15-30	20-45	20-40	15-20	25-75					15-35			

▢ good ◎ best

List 229

HSSE | S/O | 45°

DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	6H	3	2290401	56.00	4.10	18.10	3.58	2.79	4.80
M4 x 0.7			2290601	63.00	5.60	21.00	4.27	3.33	6.40
M5 x 0.8			2290801	70.00	6.40	25.00	4.93	3.86	
M6 x 1.0			2291001	80.00	8.00	30.00	6.48	4.85	7.90
M8 x 1.25			2291401	90.00	10.00	35.00	8.08	6.05	9.50
M10 x 1.5			2291801	100.00	12.00	39.00	9.68	7.26	11.10
M10 x 1.25			2291701						
M12 x 1.75			2292301	110.00	14.00	49.10	9.32	6.98	
M12 x 1.5			2292201	100.00					
M12 x 1.25			2292101						
M14 x 2.0			2292601	110.00	16.00	50.10	10.90	8.18	12.70
M14 x 1.5			2292501	100.00					
M16 x 2.0			2292901	110.00		54.00	12.19	9.14	14.30
M16 x 1.5			2292801	100.00					
M18 x 2.5		4	2293201	125.00	20.00	55.00	13.77	10.31	15.90
M18 x 1.5			2293001	110.00					
M20 x 2.5			2293601	140.00		61.80	16.56	12.42	17.50
M20 x 1.5			2293401	125.00					

Packed: 1 pc.
Available Steam Oxide finish only.

HYT

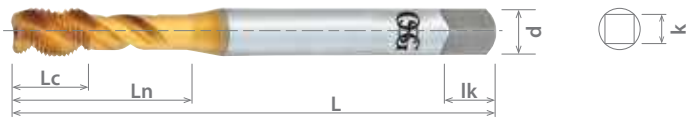
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
229	▢	▢	◫	◫	▢	▢	▢	▢	▢					▢			
SFM	25-80	20-50	20-45	20-50	15-30	20-45	20-40	15-20	25-75					15-35			

▢ good ◫ best

List 230

HSSE | TiN | 45°

OIL-TIN-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) TiN	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 20 UNC	2B	3	2330005	3.150	0.402	1.181	0.255	0.191	0.313
1/4 - 28 UNF			2330405						
5/16 - 18 UNC			2330805	3.543	0.445	1.378	0.318	0.238	0.375
5/16 - 24 UNF			2331205						
3/8 - 16 UNC			2331605	3.937	0.500		0.381	0.286	0.438
3/8 - 24 UNF			2331805						
7/16 - 14 UNC			2332005		0.571	1.713	0.323	0.242	0.406
7/16 - 20 UNF			2332205						
1/2 - 13 UNC			2332405	4.331	0.614	1.933	0.367	0.275	0.438
1/2 - 20 UNF			2332605	3.937					
9/16 - 18 UNF		4	2333005		0.665	1.972	0.429	0.322	0.500
5/8 - 11 UNC			2333205	4.331	0.728	2.126	0.480	0.360	0.563
5/8 - 18 UNF			2333405	3.937					
3/4 - 10 UNC			2333605	4.921	0.799	2.433	0.590	0.442	0.688
3/4 - 16 UNF			2333805	4.331					
7/8 - 9 UNC			2334005	5.512	0.890	2.654	0.697	0.523	0.750
7/8 - 14 UNF			2334205	4.921					
1 - 8 UNC			2334405	6.299	1.000	3.012	0.800	0.600	0.813

Packed: 1 pc.
Available TiN finish only.

HYT

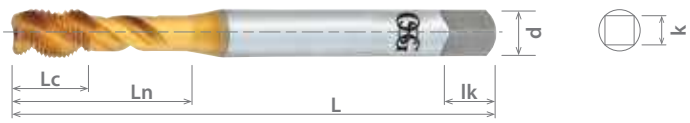
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
230	○	○	◎	◎	◎	○	○	○	○	○	○			○			
SFM	50-120	45-110	40-100	45-110	20-60	20-70	30-50	20-50	40-100	50-125	50-110			20-60			

○ good ◎ best

List 239

HY-PRO | HSSE | TiN | 45°

OIL-TIN-SFT, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			TiN	L	Lc	Ln	d	k	lk
M6 x 1.0	6H	3	2391005	80.00	8.00	30.00	6.48	4.85	7.90
M8 x 1.25			2391405	90.00	10.00	35.00	8.08	6.05	9.50
M10 x 1.5			2391805	100.00	12.00	39.00	9.68	7.26	11.10
M10 x 1.25			2391705						
M12 x 1.75			2392305	110.00	14.00	49.10	9.32	6.98	
M12 x 1.5			2392205	100.00					
M12 x 1.25			2392105						
M14 x 2.0			2392605	110.00	16.00	50.10	10.90	8.18	12.70
M14 x 1.5			2392505	100.00					
M16 x 2.0			2392905	110.00		54.00	12.19	9.14	14.30
M16 x 1.5			2392805	100.00					
M18 x 2.5		4	2393205	125.00	20.00	55.00	13.77	10.31	15.90
M18 x 1.5			2393005	110.00					
M20 x 2.5			2393605	140.00		61.80	16.56	12.42	17.50
M20 x 1.5			2393405	125.00					

Packed: 1 pc.
Available TiN finish only.

HYT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
239	▢	▢	▣	▣	▣	▢	▢	▢	▢	▢	▢			▢			
SFM	50-120	45-110	40-100	45-110	20-60	20-70	30-50	20-50	40-100	50-125	50-110			20-60			

▢ good ▣ best

List 13013

HSSE | V | 15°

OIL-V-SFT, Coolant-Through, DIN Overall Length, Bottom (1.5P-2P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
1/4 - 20 UNC	2B	3	1301300508	3.150	0.402	1.181	0.255	0.191	0.313
1/4 - 28 UNF			1301300608						
5/16 - 18 UNC			1301300708	3.543	0.445	1.378	0.318	0.238	0.375
5/16 - 24 UNF			1301300808						
3/8 - 16 UNC			1301300908	3.937	0.500		0.381	0.286	0.438
3/8 - 24 UNF			1301301008						
7/16 - 14 UNC			1301301108		0.571	1.713	0.323	0.242	0.406
7/16 - 20 UNF			1301301208						
1/2 - 13 UNC			1301301308	4.331	0.614	1.933	0.367	0.275	0.438
1/2 - 20 UNF			1301301408	3.937					
5/8 - 11 UNC		4	1301301508	4.331	0.728	2.126	0.480	0.360	0.563
5/8 - 18 UNF			1301301608	3.937					
3/4 - 10 UNC			1301301708	4.921	0.799	2.433	0.590	0.442	0.688
3/4 - 16 UNF			1301301808	4.331					

Packed: 1 pc.
Available V coating only.

HYT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13013			▢	▣	▢				▢		▢			▢	▢		
SFM			40-100	45-110	20-60				40-100		50-110			20-60	15-50		

▢ good ▣ best

List 13113

HSSE | V | 15°

OIL-V-SFT, Coolant-Through, DIN Overall Length, Bottom (1.5P-2P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M6 x 1.0	6H	3	1311300508	80.00	8.00	30.00	6.48	4.85	7.90
M8 x 1.25			1311300608	90.00	10.00	35.00	8.08	6.05	9.50
M10 x 1.5			1311300808	100.00	12.00	38.90	9.67	7.26	11.10
M10 x 1.25			1311300708						
M12 x 1.75			1311301108	110.00	14.00	49.00	9.32	6.98	
M12 x 1.5			1311301008	100.00					
M12 x 1.25			1311300908						
M14 x 2.0			1311301308	110.00	16.00	50.00	10.89	8.18	12.70
M14 x 1.5			1311301208	100.00					
M16 x 2.0			1311301508	110.00		54.00	12.19	9.14	14.30
M16 x 1.5			1311301408	100.00					
M18 x 2.5		4	1311301708	125.00	20.00	54.90	13.76	10.31	15.90
M18 x 1.5			1311301608	110.00					
M20 x 2.5			1311301908	140.00		61.80	16.56	12.42	17.50
M20 x 1.5			1311301808	125.00					

Packed: 1 pc.
Available V coating only.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13113			▢ good	▢ best	▢ good				▢ good		▢ good			▢ good	▢ good		
SFM			40-100	45-110	20-60				40-100		50-110			20-60	15-50		

List 13014

HSSE | S/O | 15°

HXL-SFT, Horizontal Applications, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/2 - 13 UNC	2B	4	1301402601	4.331	0.614	-	0.367	0.275	0.438
1/2 - 20 UNF			1301402701	3.937		1.000			
9/16 - 12 UNC			1301400101	4.331	0.665	-	0.429	0.322	0.500
9/16 - 18 UNF			1301400201	3.937		1.126			
5/8 - 11 UNC			1301400301	4.331	0.728	-	0.480	0.360	0.563
5/8 - 18 UNF			1301400401	3.937		1.252			
3/4 - 10 UNC			1301400501	4.921	0.799	-	0.590	0.442	0.688
3/4 - 16 UNF			1301402801	4.331		1.500			
7/8 - 9 UNC			1301400601	5.512	0.890	-	0.697	0.523	0.750
7/8 - 14 UNF			1301402901	4.921		1.752			
1 - 8 UNC		5	1301400701	6.299	1.000	-	0.800	0.600	0.813
1 - 12 UNF			1301403001	5.512	0.665	2.000			
1,1/8 - 7 UNC			1301400901	7.087	1.142	-	0.896	0.672	0.875
1,1/8 - 8 UN			1301401101		1.000	2.252			
1,1/8 - 12 UNF			1301403101	5.906	0.665				
1,1/4 - 7 UNC			1301401201	7.087	1.142	2.500	1.021	0.766	1.000
1,1/4 - 8 UN			1301401401		1.000				
1,1/4 - 12 UNF			1301403201	5.906	0.665				
1,3/8 - 6 UNC			1301401501	7.874	1.335	-	1.108	0.831	1.063
1,3/8 - 8 UN			1301401701		1.000	2.752			
1,3/8 - 12 UNF			1301403901	6.693					
1,1/2 - 6 UNC			1301401801	7.874	1.335	-	1.233	0.925	1.125
1,1/2 - 8 UN			1301402001		1.000	3.000			
1,1/2 - 12 UNF			1301403301	6.693	0.665				
1,5/8 - 8 UN		6	1301402101	7.874	1.000	3.252	1.305	0.979	
1,3/4 - 5 UNC			1301403501	8.661	1.598	-	1.430	1.072	1.250
1,3/4 - 8 UN			1301402201	7.874	1.000	3.500			
1,7/8 - 8 UN			1301402301	8.858		3.752	1.519	1.138	
2 - 4,1/2 UNC			1301403601	9.843	1.780	-	1.644	1.233	1.375
2 - 8 UN			1301402401	8.858	1.000	4.000			
2,1/4 - 4,1/2 UNC			1301403701	11.024	1.780	-	1.894	1.420	1.438
2,1/4 - 8 UN			1301404001	9.843	1.000	4.500			
2,1/2 - 4 UNC			1301403801	12.402	2.000	-	2.100	1.575	1.500
2,1/2 - 8 UN			1301402501	10.827	1.000	5.000			

Packed: 1 pc.
Available Steam Oxide finish only.

HYL

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13014	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
SFM	25-80	20-50	20-45	20-50	15-20	20-45	20-45	15-20	25-75					15-35	8-15		

○ good ◎ best

List 13024

HSSE | S/O | 15°

HXL-OIL-SFT, Horizontal Applications, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/2 - 13 UNC	2B	4	1302402601	4.331	0.614	-	0.367	0.275	0.438
1/2 - 20 UNF			1302402701	3.937		1.000			
9/16 - 12 UNC			1302400101	4.331	0.665	-	0.429	0.322	0.500
9/16 - 18 UNF			1302400201	3.937		1.125			
5/8 - 11 UNC			1302400301	4.331	0.728	-	0.480	0.360	0.563
5/8 - 18 UNF			1302400401	3.937		1.251			
3/4 - 10 UNC			1302400501	4.921	0.799	-	0.590	0.442	0.688
3/4 - 16 UNF			1302402801	4.331		1.500			
7/8 - 9 UNC			1302400601	5.512	0.889	-	0.697	0.523	0.750
7/8 - 14 UNF			1302402901	4.921		1.751			
1 - 8 UNC		5	1302400701	6.299	1.000	-	0.800	0.600	0.813
1 - 12 UNF			1302403001	5.512	0.665	2.000			
1,1/8 - 7 UNC			1302400901	7.087	1.141	-	0.896	0.672	0.875
1,1/8 - 8 UN			1302401101		1.000	2.251			
1,1/8 - 12 UNF			1302403101	5.906	0.665				
1,1/4 - 7 UNC			1302401201	7.087	1.141	2.500	1.021	0.766	1.000
1,1/4 - 8 UN			1302401401		1.000				
1,1/4 - 12 UNF			1302403201	5.906	0.665				
1,3/8 - 6 UNC			1302401501	7.874	1.334	-	1.108	0.831	1.063
1,3/8 - 8 UN			1302401701		1.000	2.751			
1,3/8 -12 UNF			1302403901	6.693					
1,1/2 - 6 UNC			1302401801	7.874	1.334	-	1.233	0.925	1.125
1,1/2 - 8 UN			1302402001		1.000	3.000			
1,1/2 - 12 UNF			1302403301	6.693	0.665				
1,5/8 - 8 UN		6	1302402101	7.874	1.000	3.251	1.305	0.979	
1,3/4 - 5 UNC			1302403501	8.661	1.598	-	1.430	1.072	1.250
1,3/4 - 8 UN			1302402201	7.874	1.000	3.500			
1,7/8 - 8 UN			1302402301	8.858		3.751	1.519	1.138	
2 - 4,1/2 UNC			1302403601	9.843	1.779	-	1.644	1.233	1.375
2 - 8 UN			1302402401	8.858	1.000	4.000			
2,1/4 - 4,1/2 UNC			1302403701	11.024	1.779	-	1.894	1.420	1.438
2,1/4 - 8 UN			1302404001	9.843	1.000	4.500			
2,1/2 - 4 UNC			1302403801	12.402	2.000	-	2.100	1.575	1.500
2,1/2 - 8 UN			1302402501	10.827	1.000	5.000			

Packed: 1 pc.
Available Steam Oxide finish only.

HYL

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13024	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
SFM	50-120	45-110	40-100	45-110	20-60	30-70	30-70	20-50	40-100					20-60	15-50		

○ good ◎ best

List 13015

HSSE | S/O | 45°

VXL-SFT, Vertical Applications, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/2 - 13 UNC	2B	3	1301502601	4.331	0.614	-	0.367	0.275	0.438
1/2 - 20 UNF		4	1301502701	3.937		1.000			
9/16 - 12 UNC			1301500101	4.331	0.665	-	0.429	0.322	0.500
9/16 - 18 UNF			1301500201	3.937		1.125			
5/8 - 11 UNC			1301500301	4.331	0.728	-	0.480	0.360	0.563
5/8 - 18 UNF			1301500401	3.937		1.251			
3/4 - 10 UNC			1301500501	4.921	0.799	-	0.590	0.442	0.688
3/4 - 16 UNF			1301502801	4.331		1.500			
7/8 - 9 UNC			1301500601	5.512	0.889	-	0.697	0.523	0.750
7/8 - 14 UNF			1301502901	4.921		1.751			
1 - 8 UNC			1301500701	6.299	1.000	-	0.800	0.600	0.813
1 - 12 UNF			1301503001	5.512	0.665	2.000			
1,1/8 - 7 UNC			1301500901	7.087	1.141	-	0.896	0.672	0.875
1,1/8 - 8 UN			1301501101		1.000	2.251			
1,1/8 - 12 UNF		5	1301503101	5.906	0.665				
1,1/4 - 7 UNC			1301501201	7.087	1.141	2.500	1.021	0.766	1.000
1,1/4 - 8 UN			1301501401		1.000				
1,1/4 - 12 UNF			1301503201	5.906	0.665				
1,3/8 - 6 UNC			1301501501	7.874	1.334	-	1.108	0.831	1.063
1,3/8 - 8 UN			1301501701		1.000	2.751			
1,3/8 - 12 UNF			1301503401	6.693					
1,1/2 - 6 UNC			1301501801	7.874	1.334	-	1.233	0.925	1.125
1,1/2 - 8 UN			1301502001		1.000	3.000			
1,1/2 - 12 UNF			1301503301	6.693	0.665				
1,5/8 - 8 UN		6	1301502101	7.874	1.000	3.251	1.305	0.979	
1,3/4 - 5 UNC			1301503501	8.661	1.598	-	1.430	1.072	1.250
1,3/4 - 8 UN			1301502201	7.874	1.000	3.500			
1,7/8 - 8 UN			1301502301	8.858		3.751	1.519	1.138	
2 - 4,1/2 UNC			1301503601	9.843	1.779	-	1.644	1.233	1.375
2 - 8 UN			1301502401	8.858	1.000	4.000			
2,1/4 - 4,1/2 UNC			1301503701	11.024	1.779	-	1.894	1.420	1.438
2,1/4 - 8 UN			1301504001	9.843	1.000	4.500			
2,1/2 - 4 UNC			1301503801	12.402	2.000	-	2.100	1.575	1.500
2,1/2 - 8 UN			1301502501	10.827	1.000	5.000			

Packed: 1 pc.
Available Steam Oxide finish only.

HYL

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13015	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
SFM	25-80	20-50	20-45	20-50	15-20	20-45	20-45	15-20	25-75					15-35	8-15		

○ good ◎ best

List 13025

HSSE | S/O | 45°

VXL-OIL-SFT, Vertical Applications, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			S/O	L	Lc	Ln	d	k	lk
1/2 - 13 UNC	2B	3	1302502601	4.331	0.614	-	0.367	0.275	0.438
1/2 - 20 UNF		4	1302502701	3.937		1.000			
9/16 - 12 UNC			1302500101	4.331	0.665	-	0.429	0.322	0.500
9/16 - 18 UNF			1302500201	3.937		1.125			
5/8 - 11 UNC			1302500301	4.331	0.728	-	0.480	0.360	0.563
5/8 - 18 UNF			1302500401	3.937		1.251			
3/4 - 10 UNC			1302500501	4.921	0.799	-	0.590	0.442	0.688
3/4 - 16 UNF			1302502801	4.331		1.500			
7/8 - 9 UNC			1302500601	5.512	0.889	-	0.697	0.523	0.750
7/8 - 14 UNF			1302502901	4.921		1.751			
1 - 8 UNC			1302500701	6.299	1.000	-	0.800	0.600	0.813
1 - 12 UNF			1302503001	5.512	0.665	2.000			
1,1/8 - 7 UNC			1302500901	7.087	1.141	-	0.896	0.672	0.875
1,1/8 - 8 UN			1302501101		1.000	2.251			
1,1/8 - 12 UNF		5	1302503101	5.906	0.665				
1,1/4 - 7 UNC			1302501201	7.087	1.141	2.500	1.021	0.766	1.000
1,1/4 - 8 UN			1302501401		1.000				
1,1/4 - 12 UNF			1302503201	5.906	0.665				
1,3/8 - 6 UNC			1302501501	7.874	1.334	-	1.108	0.831	1.063
1,3/8 - 8 UN			1302501701		1.000	2.751			
1,3/8 - 12 UNF			1302503901	6.693					
1,1/2 - 6 UNC			1302501801	7.874	1.334	-	1.233	0.925	1.125
1,1/2 - 8 UN			1302502001		1.000	3.000			
1,1/2 - 12 UNF			1302503301	6.693	0.665				
1,5/8 - 8 UN		6	1302502101	7.874	1.000	3.251	1.305	0.979	
1,3/4 - 5 UNC			1302503501	8.661	1.598	-	1.430	1.072	1.250
1,3/4 - 8 UN			1302502201	7.874	1.000	3.500			
1,7/8 - 8 UN			1302502301	8.858		3.751	1.519	1.138	
2 - 4,1/2 UNC			1302503601	9.843	1.779	-	1.644	1.233	1.375
2 - 8 UN			1302502401	8.858	1.000	4.000			
2,1/4 - 4,1/2 UNC			1302503701	11.024	1.779	-	1.894	1.420	1.438
2,1/4 - 8 UN			1302504001	9.843	1.000	4.500			
2,1/2 - 4 UNC			1302503801	12.402	2.000	-	2.100	1.575	1.500
2,1/2 - 8 UN			1302502501	10.827	1.000	5.000			

Packed: 1 pc.
Available Steam Oxide finish only.

HYL

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13025	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
SFM	50-120	45-110	40-100	45-110	20-60	30-70	30-70	20-50	40-100					20-60	15-50		

○ good ◎ best

List 13116

HSSE | S/O | 15°

HXL-SFT, Horizontal Applications, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M16 x 2.0	D7	4	1311602401	110.00	16.00	58.00	12.19	9.14	14.30
			1311602501	180.00		93.00			
	D17 (6H +0.005")		1311602301	110.00		58.00			
M20 x 2.5	D8		1311600101	140.00	20.00	73.00	16.56	12.42	17.50
			1311600201	200.00		103.00			
	D18 (6H +0.005")		1311601601	140.00		73.00			
M24 x 3.0	D9	5	1311600401	160.00	24.00	88.00	19.30	14.48	19.10
			1311600501	200.00		108.00			
	D19 (6H +0.005")		1311601701	160.00		88.00			
M27 x 3.0	D9		1311600601				22.76	17.07	22.20
			1311600701	200.00		108.00			
	D19 (6H +0.005")		1311601801	160.00		88.00			
M30 x 3.5	D10		1311600801	180.00	28.00	103.00	25.93	19.46	25.40
			1311600901	250.00		138.00			
	D20 (6H +0.005")		1311601901	180.00		103.00			
M33 x 3.5	D10		1311601001			93.00	28.14	21.11	27.00
			1311601101	250.00		128.00			
	D20 (6H +0.005")		1311602001	180.00		93.00			
M36 x 4.0	D11		1311601201	200.00	32.00	118.00	31.32	23.50	28.60
			1311601301	250.00		143.00			
	D21 (6H +0.005")		1311602101	200.00		118.00			
M42 x 4.5	D11	6	1311601401		36.00	98.00	36.32	27.23	31.80
			1311601501	300.00		148.00			
	D21 (6H +0.005")		1311602201	200.00		98.00			

Packed: 1 pc.
Available Steam Oxide finish only.
Note: +0.005" available for threads that will be heat treated after tapping.

HYL

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13116	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
SFM	25-80	20-50	20-45	20-50	15-20	20-45	20-45	15-20	25-75					15-35	8-15		

○ good ◎ best

List 13126

HSSE | S/O | 15°

HXL-OIL-SFT, Horizontal Applications, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M16 x 2.0	D7	4	1312602401	110.00	16.00	58.00	12.19	9.14	14.30
			1312602501	180.00		96.00			
	D17 (6H +0.005")		1312602301	110.00		58.00			
M20 x 2.5	D8		1312600101	140.00	20.00	73.00	16.56	12.42	17.50
			1312600201	200.00		103.00			
	D18 (6H +0.005")		1312601601	140.00		73.00			
M24 x 3.0	D9	5	1312600401	160.00	24.00	88.00	19.30	14.48	19.10
			1312600501	200.00		108.00			
	D19 (6H +0.005")		1312601701	160.00		88.00			
M27 x 3.0	D9		1312600601				22.76	17.07	22.20
			1312600701	200.00		108.00			
	D19 (6H +0.005")		1312601801	160.00		88.00			
M30 x 3.5	D10		1312600801	180.00	28.00	103.00	25.93	19.46	25.40
			1312600901	250.00		138.00			
	D20 (6H +0.005")		1312601901	180.00		103.00			
M33 x 3.5	D10		1312601001			93.00	28.14	21.11	27.00
			1312601101	250.00		128.00			
	D20 (6H +0.005")		1312602001	180.00		93.00			
M36 x 4.0	D11		1312601201	200.00	32.00	118.00	31.32	23.50	28.60
			1312601301	250.00		143.00			
	D21 (6H +0.005")		1312602101	200.00		118.00			
M42 x 4.5	D11	6	1312601401		36.00	98.00	36.32	27.23	31.80
			1312601501	300.00		148.00			
	D21 (6H +0.005")		1312602201	200.00		98.00			

Packed: 1 pc.
Available Steam Oxide finish only.
Note: +0.005" available for threads that will be heat treated after tapping.

HYL

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13126	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
SFM	50-120	45-110	40-100	45-110	20-60	30-70	30-70	20-50	40-100					20-60	15-50		

○ good ◎ best

List 13117

HSSE | S/O | 45°

VXL-SFT, Vertical Applications, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M16 x 2.0	D7	4	1311702401	110.00	16.00	-	12.19	9.14	14.30
			1311702501	180.00		-			
	D17 (6H +0.005")		1311702301	110.00		-			
M20 x 2.5	D8		1311700101	140.00	20.00	-	16.56	12.42	17.50
			1311700201	200.00		-			
	D18 (6H +0.005")		1311701601	140.00		-			
M24 x 3.0	D9	5	1311700401	160.00	24.00	-	19.30	14.48	19.10
			1311700501	200.00		-			
	D19 (6H +0.005")		1311701701	160.00		-			
M27 x 3.0	D9		1311700601			-	22.76	17.07	22.20
			1311700701	200.00		-			
	D19 (6H +0.005")		1311701801	160.00		-			
M30 x 3.5	D10		1311700801	180.00	28.00	-	25.93	19.46	25.40
			1311700901	250.00		-			
	D20 (6H + 0.005)		1311701901	180.00		-			
M33 x 3.5	D10		1311701001			-	28.14	21.11	27.00
			1311701101	250.00		-			
	D20 (6H + 0.005)		1311702001	180.00		-			
M36 x 4.0	D11		1311701201	200.00	32.00	-	31.32	23.50	28.60
			1311701301	250.00		-			
	D21 (6H + 0.005)		1311702101	200.00		-			
M42 x 4.5	D11	6	1311701401		36.00	-	36.32	27.23	31.80
			1311701501	300.00		-			
	D21 (6H + 0.005)		1311702201	200.00		-			

Packed: 1 pc.
Available Steam Oxide finish only.
Note: +0.005" available for threads that will be heat treated after tapping.

HYL

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13117	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
SFM	25-80	20-50	20-45	20-50	15-20	20-45	20-45	15-20	25-75					15-35	8-15		

○ good ◎ best

List 13127

HSSE | S/O | 45°

VXL-OIL-SFT, Vertical Applications, Coolant-Through, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M16 x 2.0	D7	4	1312702401	110.00	16.00	-	12.19	9.14	14.30
			1312702501	180.00		-			
	D17 (6H +0.005")		1312702301	110.00		-			
M20 x 2.5	D8		1312700101	140.00	19.00	-	16.56	12.42	17.50
			1312700201	200.00		-			
	D18 (6H +0.005")		1312701601	140.00		-			
M24 x 3.0	D9	5	1312700401	160.00	24.00	-	19.30	14.48	19.10
			1312700501	200.00		-			
	D19 (6H +0.005")		1312701701	160.00		-			
M27 x 3.0	D9		1312700601			-	22.76	17.07	22.20
			1312700701	200.00		-			
	D19 (6H +0.005")		1312701801	160.00		-			
M30 x 3.5	D10		1312700801	180.00	27.00	-	25.93	19.46	25.40
			1312700901	250.00		-			
	D20 (6H +0.005")		1312701901	180.00		-			
M33 x 3.5	D10		1312701001			-	28.14	21.11	27.00
			1312701101	250.00		-			
	D20 (6H +0.005")		1312702001	180.00		-			
M36 x 4.0	D11		1312701201	199.00	32.00	-	31.32	23.50	28.60
			1312701301	250.00		-			
	D21 (6H +0.005")		1312702101	200.00		-			
M42 x 4.5	D11	6	1312701401		36.00	-	36.32	27.23	31.80
			1312701501	300.00		-			
	D21 (6H +0.005")		1312702201	200.00		-			

Packed: 1 pc.
Available Steam Oxide finish only.
Note: +0.005" available for threads that will be heat treated after tapping.

HYL

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13127	◎	◎	◎	◎	○	○	○	○	◎					◎	○		
SFM	50-120	45-110	40-100	45-110	20-60	30-70	30-70	20-50	40-100					20-60	15-50		

○ good ◎ best

List 13058

HSSE | V | 45°

US-AL-SFT, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
6 - 32 UNC	2B	2	1305800108	2.000	0.248	0.685	0.141	0.110	0.188
8 - 32 UNC			1305800208	2.125	0.252	0.752	0.168	0.131	0.250
10 - 24 UNC			1305800308	2.375	0.327	0.866	0.194	0.152	
10 - 32 UNF			1305800408						
1/4 - 20 UNC			1305800508	2.500	0.398	0.996	0.255	0.191	0.281
1/4 - 28 UNF			1305800608						
5/16 - 18 UNC			1305800708	2.719	0.445	1.126	0.318	0.238	0.375
5/16 - 24 UNF			1305800808						
3/8 - 16 UNC			1305800908	2.938	0.500	1.252	0.381	0.286	0.438
3/8 - 24 UNF			1305801008						
1/2 - 13 UNC			1305801108	3.375	0.614	1.933	0.367	0.275	
1/2 - 20 UNF			1305801208						

Packed: 1 pc.
Available V coating only.

HYT

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13058										◎	◎						
SFM										300-800	200-700						

○ good ◎ best

List 13158

HSSE | V | 45°

US-AL-SFT, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M3 x 0.5	6H	2	1315800108	49.20	4.10	16.00	3.58	2.79	4.80
M4 x 0.7			1315800208	54.00	5.60	19.10	4.26	3.33	6.40
M5 x 0.8			1315800308	60.30	6.40	22.20	4.92	3.86	
M6 x 1.0			1315800408	63.50	8.00	25.40	6.47	4.85	7.90
M8 x 1.25			1315800508	69.10	10.00	28.60	8.07	6.05	9.50
M10 x 1.5			1315800708	74.60	12.00	31.80	9.67	7.26	11.10
M10 x 1.25			1315800608						
M12 x 1.75			1315800908	85.70	14.00	49.10	9.32	6.98	
M12 x 1.5			1315800808						

Packed: 1 pc.
Available V coating only.

HYT

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13158										◎	◎						
SFM										300-800	200-700						

○ good ◎ best

List 295

HSSE | BR | 50°

EX-AL-SFT, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H2	2	2951300	1.875	0.196	0.559	0.141	0.110	0.188
	H3		2951400						
6 - 32 UNC	H2		2952500	2.000	0.248	0.685			
	H3		2952600						
8 - 32 UNC	H2		2953100	2.125	0.251	0.751	0.168	0.131	0.250
	H3		2953200						
10 - 24 UNC			2953800	2.375	0.326	0.866	0.194	0.152	
10 - 32 UNF	H2		2954300						
	H3		2954400						
	H5		2954600						
1/4 - 20 UNC	H3		2955000	2.500	0.397	0.996	0.255	0.191	0.313
	H5		2955200						
1/4 - 28 UNF	H3		2955600						
5/16 - 18 UNC	H3		2956200	2.719	0.444	1.125	0.318	0.238	0.375
	H5		2956400						
5/16 - 24 UNF	H3		2956800						
	H4		2956900						
3/8 - 16 UNC	H3		2957400	2.938	0.500	1.251	0.381	0.286	0.438
	H5		2957600						
3/8 - 24 UNF	H3		2958000						

Packed: 1 pc.
Other coatings available upon request.
Specify treatment at time of order.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
295										◎	◎						
SFM										40-80	40-65						

○ good ◎ best

List 296

HSSE | BR | 50°

EX-AL-SFT, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D3	2	2963300	49.20	4.10	16.00	3.58	2.79	4.80
M4 x 0.7	D4		2963400	54.00	5.60	19.10	4.26	3.33	6.40
M5 x 0.8	D5		2963500	60.30	6.40	22.19	4.92	3.86	
M6 x 1.0			2963600	63.50	8.00	25.40	6.47	4.85	7.90
M8 x 1.25			2963800	69.10	10.00	28.60	8.07	6.05	9.50
M10 x 1.5	D6		2964100	74.60	11.98	31.80	9.67	7.26	11.10
M10 x 1.25	D5		2964000						

Packed: 1 pc.
Other coatings available upon request.
Specify treatment at time of order.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
296										◎	◎						
SFM										40-80	40-65						

○ good ◎ best

List 13019

HSSE | N | 50°

EX-AL-SFT, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) N	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	1301900103	1.772	0.437	-	0.141	0.110	0.188
4 - 40 UNC			1301900203	2.205	0.196	0.704			
6 - 32 UNC	H3	3	1301900303		0.248	0.783			
8 - 32 UNC			1301900403	2.480	0.251	0.826	0.168	0.131	0.250
10 - 24 UNC			1301900503	2.756	0.326	0.976	0.194	0.152	
10 - 32 UNF			1301900603						
1/4 - 20 UNC			1301900703	3.150	0.397	1.177	0.255	0.191	0.313
	H5		1301900803						
1/4 - 28 UNF	H3		1301900903						
5/16 - 18 UNC			1301901003	3.543	0.444	1.377	0.318	0.238	0.375
	H5		1301901103						
5/16 - 24 UNF	H3		1301901203						
3/8 - 16 UNC			1301901303	3.937	0.500	1.535	0.381	0.286	0.438
	H5		1301901403						
3/8 - 24 UNF	H3		1301901503	3.543		1.377			
7/16 - 14 UNC			1301901603	3.937	0.570	1.712	0.323	0.242	0.406
	H5		1301901703						
7/16 - 20 UNF	H3		1301901803						
1/2 - 13 UNC			1301901903	4.331	0.614	1.933	0.367	0.275	0.438
	H5		1301902003						
1/2 - 20 UNF	H3		1301902103	3.937					

Packed: 1 pc.
Available Nitride finish only.

HYT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13019										◎	◎						
SFM										40-80	40-65						

○ good ◎ best

List 13119

HSSE | N | 50°

EX-AL-SFT, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			N	L	Lc	Ln	d	k	lk
M3 x 0.5	D3	3	1311900103	56.00	5.00	19.30	3.58	2.79	4.80
M4 x 0.7	D4		1311900303	63.00		21.00	4.27	3.33	6.40
M5 x 0.8			1311900403	70.00	8.00	27.20	4.93	3.86	
M6 x 1.0	D5		1311900503	80.00	10.00	28.00	6.48	4.85	7.90
M8 x 1.25			1311900803	90.00		35.00	8.08	6.05	9.50
M10 x 1.5	D6		1311901003	100.00	12.00	39.00	9.68	7.26	11.10
M10 x 1.25	D5		1311900903						
M12 x 1.75	D6		1311901303	110.00	14.00	49.10	9.32	6.98	
M12 x 1.5	D5		1311901203	100.00					
M12 x 1.25			1311901103						

Packed: 1 pc.
Available Nitride finish only.

HYT

Work Material

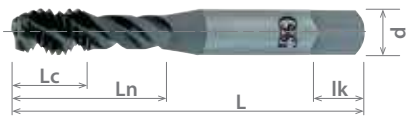
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13119										◎	◎						
SFM										40-80	40-65						

○ good ◎ best

List 290

Modified Bottom (2.5P-3P)

HY-PRO | HSSE | TiCN | S/O | BR | 45°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Modified Bottom (2.5P - 3P)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix								
				Bright	S/O	TiCN	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	2	29056	00	01	08	1.750	0.437	0.476	0.141	0.110	0.188
3 - 48 UNC			29060	00	01	08	1.813	0.496	0.535			
4 - 40 UNC	H2	3	29064	00	01	08	1.875	0.196	0.559			
	H3		29114	00	01	08						
	H4		29165	00	01	08						
	H5		29166	00	01	08						
4 - 48 UNF	H2		29168	00	01	08						
5 - 40 UNC			29070	00	01	08	1.938	0.200	0.625			
6 - 32 UNC	H2		29074	00	01	08	2.000	0.248	0.685			
	H3		29124	00	01	08						
	H5		29174	00	01	08						
	H7		29175	00	01	08						
	H11		29177	00	01	08						
6 - 40 UNF	H2		29072	00	01	08						
8 - 32 UNC	H2		29078	00	01	08	2.125	0.251	0.751	0.168	0.131	0.250
	H3		29128	00	01	08						
	H5		29178	00	01	08						
	H7		29180	00	01	08						
	H11		29181	00	01	08						
10 - 24 UNC	H3		29134	00	01	08	2.375	0.326	0.866	0.194	0.152	
	H5		29184	00	01	08						
	H11		29234	00	01	08						
10 - 32 UNF	H2		29088	00	01	08						
	H3		29138	00	01	08						
	H5		29188	00	01	08						
	H7		29190	00	01	08						
	H11		29191	00	01	08						
12 - 24 UNC	H3		29236	00	01	08		0.330	0.933	0.220	0.165	0.281
12 - 28 UNF			29238	00	01	08						
1/4 - 20 UNC	H2		29280	00	01	08	2.500	0.397	0.996	0.255	0.191	0.313
	H3		29300	00	01	08						
	H5		29400	00	01	08						
	H7		29402	00	01	08						
	H11		29403	00	01	08						
1/4 - 28 UNF	H2		29303	00	01	08						
	H3		29304	00	01	08						
	H4		29354	00	01	08						
	H5		29404	00	01	08						
	H7		29406	00	01	08						
	H11		29407	00	01	08						
5/16 - 18 UNC	H2		29306	00	01	08	2.719	0.444	1.125	0.318	0.238	0.375
	H3		29308	00	01	08						
	H5		29408	00	01	08						
	H7		29410	00	01	08						
	H11		29411	00	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

List 290 (Continued)

Modified Bottom (2.5P-3P)

HY-PRO | HSSE | TiCN | S/O | BR | 45°

Units: Inch

Tap Size	Thread Limit	No. of Flutes	Modified Bottom (2.5P - 3P) EDP Number	Coating Suffix: Bright	S/O	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
5/16 - 24 UNF	H2	3	29264	00	01	08	2.719	0.444	1.125	0.318	0.238	0.375
	H3		29312	00	01	08						
	H4		29362	00	01	08						
	H5		29412	00	01	08						
	H6		29413	00	01	08						
	H7		29414	00	01	08						
	H11		29415	00	01	08						
3/8 - 16 UNC	H2		29315	00	01	08	2.938	0.500	1.251	0.381	0.286	0.438
	H3		29316	00	01	08						
	H5		29416	00	01	08						
	H7		29421	00	01	08						
	H11		29419	00	01	08						
3/8 - 24 UNF	H2		29268	00	01	08						
	H3		29318	00	01	08						
	H4		29368	00	01	08						
	H5		29418	00	01	08						
	H7		29417	00	01	08						
	H11		29423	00	01	08						
7/16 - 14 UNC	H3		29320	00	01	08	3.156	0.570	1.712	0.323	0.242	0.406
	H5		29420	00	01	08						
	H7		29431	00	01	08						
	H11		29433	00	01	08						
7/16 - 20 UNF	H3		29322	00	01	08						
	H5		29422	00	01	08						
	H7		29490	00	01	08						
	H11		29428	00	01	08						
1/2 - 13 UNC	H3		29324	00	01	08	3.375	0.614	1.933	0.367	0.275	0.438
	H5		29424	00	01	08						
	H7		29425	00	01	08						
	H11		29427	00	01	08						
1/2 - 20 UNF	H2		29276	00	01	08						
	H3		29326	00	01	08						
	H5		29426	00	01	08						
	H7		29429	00	01	08						
	H11		29430	00	01	08						
9/16 - 12 UNC	H3	4	29486	00	01	08	3.594	0.665	1.972	0.429	0.322	0.500
9/16 - 18 UNF	H3		29488	00	01	08						
5/8 - 11 UNC	H5		29332	00	01	08	3.813	0.728	2.125	0.480	0.360	0.563
			29432	00	01	08						
5/8 - 18 UNF	H3		29334	00	01	08						
3/4 - 10 UNC	H5		29336	00	01	08	4.250	0.799	2.433	0.590	0.442	0.688
			29436	00	01	08						
3/4 - 16 UNF	H3		29338	00	01	08						
	H5		29438	00	01	08		0.818				
7/8 - 9 UNC			29440	00	01	08	4.688	0.889	2.653	0.697	0.523	0.750
7/8 - 14 UNF	H4		29392	00	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

continued on next page

HYT

Work Material

List No.	P: Carbon Steels: Low 1010 1018	P: Carbon Steels: Med. 1035 1045	P: Carbon Steels: High 1065	P: Alloy Steels 4140 4340	P: Die Steels	M: Stainless Steels: 300	M: Stainless Steels: 400	M: Stainless Steels: 17-4 PH	K: Cast Iron	N: Aluminum: 6061 7075	N: Aluminum: Casting	S: Nickel Alloy: Inconel	S: Titanium: 6Al4V (30 HRC)	H: Hardened Steels: ~35 HRC	H: Hardened Steels: 35-45 HRC	H: Hardened Steels: 45-50 HRC	H: Hardened Steels: 50-70 HRC
290	▢	◎	◎	◎	▢	▢	▢	▢	▢					▢			
SFM	50-90	40-80	40-60	40-80	20-60	40-80	40-80	30-50	30-80					20-60			

▢ good ◎ best

List 290 (Continued)

HY-PRO | HSSE | TiCN | S/O | BR | 45°

Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Modified Bottom (2.5P - 3P) EDP Number	Coating Suffix Bright	S/O	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1 - 8 UNC	H5	4	29444	00	01	08	5.125	1.000	3.011	0.800	0.600	0.813
1 - 12 UNF	H4		29396	00	01	08						
1,1/8 - 7 UNC	H6		29472	-	01	-	5.438	1.141	3.074	0.896	0.672	0.875
1,1/8 - 8 UNS			29476	-	01	-						
1,1/8 - 12 UNF	H5		29450	-	01	-						
1,1/4 - 7 UNC	H6		29477	-	01	-	5.750			1.021	0.766	1.000
1,1/4 - 8 UNS			29479	-	01	-						
1,1/4 - 12 UNF	H5		29456	-	01	-						
1,3/8 - 6 UNC	H6		29480	-	01	-	6.063	1.334	3.590	1.108	0.831	1.063
1,3/8 - 8 UNS			29482	-	01	-						
1,3/8 -12 UNF	H5		29462	-	01	-						
1,1/2 - 6 UNC	H6		29483	-	01	-	6.375			1.233	0.925	1.125
1,1/2 - 8 UNS			29485	-	01	-						
1,1/2 - 12 UNF	H5		29468	-	01	-						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
290	▢	▣	▣	▣	▢	▢	▢	▢	▢					▢			
SFM	50-90	40-80	40-60	40-80	20-60	40-80	40-80	30-50	30-80					20-60			

▢ good ▣ best

List 299

HY-PRO | HSSE | TiCN | S/O | BR | 45°

Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	Modified Bottom (2.5P - 3P) EDP Number	Coating Suffix Bright	S/O	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D3	3	29904	00	01	08	49.20	4.08	16.00	3.58	2.79	4.80
	D11		29931	-	01	-						
M3.5 x 0.6	D4		29905	00	01	08	50.80		17.50			
	D11		29933	-	01	-						
M4 x 0.7	D4		29906	00	01	08	54.00	4.80	19.10	4.27	3.33	6.40
	D11		29935	-	01	-						
M5 x 0.8	D4		29908	00	01	08	60.30	5.58	22.19	4.93	3.86	
	D11		29937	-	01	-						
M6 x 1.0	D5		29910	00	01	08	63.50	8.00	25.40	6.48	4.85	7.90
	D11		29939	-	01	-						
M7 x 1.0	D5		29911	00	01	08	69.10		28.60	8.08	6.05	9.50
	D11		29941	-	01	-						
M8 x 1.25	D5		29914	00	01	08		10.00				
	D11		29945	-	01	-						
M8 x 1.0	D5		29913	00	01	08						
	D11		29943	-	01	-						
M10 x 1.5	D6		29918	00	01	08	74.60	11.98	31.80	9.68	7.26	11.10
	D11		29951	-	01	-						
M10 x 1.25	D5		29917	00	01	08						
	D11		29949	-	01	-						
M10 x 1.0	D5		29916	00	01	08						
	D11		29947	-	01	-						
M12 x 1.75	D6		29923	00	01	08	85.70	13.99	49.09	9.32	6.98	
	D11		29957	-	01	-						
M12 x 1.5	D6		29922	00	01	08						
	D11		29955	-	01	-						
M12 x 1.25	D5		29921	00	01	08						
	D11		29952	-	01	-						
M14 x 2.0	D7		29926	-	01	-	91.30	16.00	50.08	10.90	8.18	12.70
M14 x 1.5	D6		29925	-	01	-						
M16 x 2.0	D7		29929	-	01	-	96.80		54.00	12.19	9.14	14.30
M16 x 1.5	D6		29928	-	01	-						
M18 x 2.5	D7	4	29932	-	01	-	102.40	19.98	54.99	13.77	10.31	15.90
M18 x 1.5	D6		29930	-	01	-						
M20 x 2.5	D8		29936	-	01	-	113.50		61.79	16.56	12.42	17.50
M20 x 1.5	D6		29934	-	01	-						
M22 x 2.5	D8		29940	-	01	-	119.10		67.41	17.70	13.28	19.10
M22 x 1.5	D6		29938	-	01	-						
M24 x 3.0	D8		29944	-	01	-	124.60	24.00	68.40	19.30	14.48	
M24 x 1.5	D6		29942	-	01	-						
M27 x 3.0	D8		29948	-	01	-	130.20		76.50	22.76	17.07	22.20
M27 x 1.5	D6		29946	-	01	-	101.60		51.10			
M30 x 3.5	D9		29953	-	01	-	138.10	27.99	78.10	25.93	19.46	25.40
M30 x 1.5	D6		29950	-	01	-						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
299	○	◎	◎	◎	○	○	○	○	○					○			
SFM	50-90	40-80	40-60	40-80	20-60	40-80	40-80	30-50	30-80					20-60			

○ good ◎ best

List 297

Bottom (1.5P-2P)

HY-PRO | HSS | TiN | S/O | BR | 50°



Units: Inch

Tap Size	Class of Fit	No. of Flutes	Bottom (1.5P - 2P) EDP Number	Coating Suffix: Bright	S/O	TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
3 - 48 UNC	2B	2	29845	00	01	05	1.813	0.496	0.535	0.141	0.110	0.188
3 - 56 UNF			29846	00	01	05						
4 - 40 UNC			29850	00	01	05	1.875	0.295	0.559			
4 - 48 UNF			29864	00	01	05						
5 - 40 UNC			29865	00	01	05	1.938	0.311	0.625			
6 - 32 UNC			29852	00	01	05	2.000	0.370	0.685			
6 - 40 UNF			29866	00	01	05						
8 - 32 UNC		3	29853	00	01	05	2.125	0.374	0.751	0.168	0.131	0.250
8 - 36 UNF			29867	00	01	05						
10 - 24 UNC			29854	00	01	05	2.375	0.492	0.866	0.194	0.152	
10 - 32 UNF			29855	00	01	05						
12 - 24 UNC			29868	00	01	05		0.496	0.933	0.220	0.165	0.281
1/4 - 20 UNC			29856	00	01	05	2.500	0.594	0.996	0.255	0.191	0.313
1/4 - 28 UNF			29857	00	01	05						
5/16 - 18 UNC			29858	00	01	05	2.719	0.665	1.125	0.318	0.238	0.375
5/16 - 24 UNF			29859	00	01	05						
3/8 - 16 UNC			29860	00	01	05	2.938	0.751	1.251	0.381	0.286	0.438
3/8 - 24 UNF			29861	00	01	05						
7/16 - 14 UNC			29869	00	01	05	3.156	0.858	1.712	0.323	0.242	0.406
7/16 - 20 UNF			29870	00	01	05						
1/2 - 13 UNC			29862	00	01	05	3.375	0.921	1.933	0.367	0.275	0.438
1/2 - 20 UNF			29863	00	01	05						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request. Specify treatment at time of order.

HY7

Work Material

List No.	P: Carbon Steels: Low (1010 1018)	P: Carbon Steels: Med. (1035 1045)	P: Carbon Steels: High (1065)	P: Alloy Steels (4140 4340)	P: Die Steels	M: Stainless Steels: 300	M: Stainless Steels: 400	M: Stainless Steels: 17-4 PH	K: Cast Iron	N: Aluminum: 6061 7075	N: Aluminum: Casting	S: Nickel Alloy: Inconel	S: Titanium: 6Al4V (30 HRC)	H: Hardened Steels: ~35 HRC	H: Hardened Steels: 35-45 HRC	H: Hardened Steels: 45-50 HRC	H: Hardened Steels: 50-70 HRC
297	◎	◎								○	○						
SFM	50-90	40-90								30-80	30-80						

○ good ◎ best

List 298

HY-PRO | HSS | TiN | S/O | BR | 50°

Bottom (1.5P-2P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	Bottom (1.5P - 2P)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix								
				Bright	S/O	TiN	L	Lc	Ln	d	k	lk
M3 x 0.5	6H	2	29880	00	01	05	49.20	8.00	16.00	3.58	2.79	4.80
M4 x 0.7		3	29881	00	01	05	54.00	8.97	19.10	4.27	3.33	6.40
M5 x 0.8			29882	00	01	05	60.30	12.70	22.19	4.93	3.86	
M6 x 1.0			29883	00	01	05	63.50	15.18	25.40	6.48	4.85	7.90
M8 x 1.25			29884	00	01	05	69.10	16.89	28.60	8.08	6.05	9.50
M10 x 1.5			29885	00	01	05	74.60	19.10	31.80	9.68	7.26	11.10
M12 x 1.75			29886	00	01	05	85.70	21.00	49.09	9.32	6.98	

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request. Specify treatment at time of order.

HY7

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
298	◎	◎								○	○						
SFM	50-90	40-80								30-80	30-80						

○ good ◎ best

List 107

HSS | TiCN | TiN | S/O | BR | 50°

Plug (4P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P) EDP Number	Bottom Coating Suffix: Bright	S/O	TiN	TiCN	Plug (4P - 4.5P) EDP Number	Plug Coating Suffix: Bright	S/O	TiN	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
3 - 48 UNC	H2	2	14061	00	-	-	-	14060	00	-	-	-	1.813	0.496	0.535	0.141	0.110	0.188
4 - 40 UNC			14065	00	01	05	08	14064	00	01	05	08	1.875	0.326				
5 - 40 UNC			14071	00	-	-	08	14070	00	-	-	08	1.938	0.330	0.618			
6 - 32 UNC			50015	00	-	05	08	50014	00	-	05	-	2.000	0.397	0.685			
	H3		14125	00	01	05	08	14124	00	01	05	08						
8 - 32 UNC	H2	3	50019	00	-	-	08	50018	00	-	-	08	2.125	0.401	0.759	0.168	0.131	0.250
	H3		14129	00	01	05	08	14128	00	-	05	08						
10 - 24 UNC			14133	00	01	05	08	14132	00	-	05	08	2.375	0.511	0.874	0.194	0.152	
10 - 32 UNF	H2		50027	00	-	05	08	50026	00	-	-	-						
	H3		14135	00	01	05	08	14134	00	-	05	08						
12 - 24 UNC			14137	00	01	-	08	14136	00	-	-	-		0.515	0.937	0.220	0.165	0.281
1/4 - 20 UNC			14301	00	01	05	08	14300	00	01	05	08	2.500	0.645	1.007	0.255	0.191	0.313
	H5		50035	00	-	05	08	50034	00	-	05	08						
1/4 - 28 UNF	H3		14303	00	-	05	08	14302	00	-	05	08						
5/16 - 18 UNC			14305	00	01	05	08	14304	00	01	05	08	2.719	0.708	1.129	0.318	0.238	0.375
	H5		50047	00	-	05	08	50046	00	-	-	08						
5/16 - 24 UNF	H3		14307	00	-	05	08	14306	00	-	05	08						
3/8 - 16 UNC			14309	00	01	05	08	14308	00	01	05	08	2.938	0.771	1.251	0.381	0.286	0.438
	H5		50055	00	-	05	08	50054	00	-	-	08						
3/8 - 24 UNF	H3		14311	00	-	05	08	14310	00	-	05	08						
7/16 - 14 UNC			14313	00	-	05	08	14312	00	-	05	08	3.156	0.901	1.708	0.323	0.242	0.406
	H5		50062	00	-	05	-	-	-	-	-	-						
7/16 - 20 UNF	H3		14317	00	-	05	08	14316	00	-	05	08						
1/2 - 13 UNC			14321	00	01	05	08	14320	00	01	05	08	3.375	0.960	1.929	0.367	0.275	0.438
	H5		50071	00	-	-	08	50070	00	-	-	08						
1/2 - 20 UNF	H3		14325	00	-	05	08	14324	00	-	05	08						
5/8 - 11 UNC		4	14329	00	-	05	08	14328	00	-	-	08	3.813	1.110	2.129	0.480	0.360	0.563
5/8 - 18 UNF			14333	00	-	05	08	14332	00	-	-	08						
3/4 - 10 UNC			14337	00	-	05	08	14336	00	-	05	08	4.250	1.240	2.429	0.590	0.442	0.688
3/4 - 16 UNF			14341	00	-	05	08	14340	00	-	-	08						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

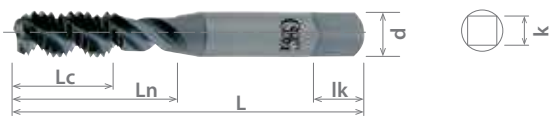
List No.	P: Carbon Steels Low	P: Carbon Steels Med.	P: Carbon Steels High	P: Alloy Steels	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
	1010 1018	1035 1045	1065	4140 4340													
107	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 143

HSS | TiCN | TiN | S/O | BR | 50°

Plug (4P-4.5P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)				Plug (4P - 4.5P)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix			EDP Number	Coating Suffix								
				Bright	S/O	TiCN		Bright	TiN	TiCN	L	Lc	Ln	d	k	lk
M3 x 0.5	D3	2	19852	00	01	08	19851	00	05	–	49.20	8.30	15.79	3.58	2.79	4.80
M4 x 0.7	D4	3	19855	00	01	08	19854	00	05	08	54.00	10.00	19.30	4.27	3.33	6.40
M5 x 0.8			19858	00	01	08	19857	00	05	08	60.30	13.00	22.40	4.93	3.86	
M6 x 1.0	D5		19861	00	01	08	19860	00	05	08	63.50	16.30	25.70	6.48	4.85	7.90
M8 x 1.25			19864	00	01	08	19863	00	05	08	69.10	18.00	28.70	8.08	6.05	9.50
M10 x 1.5	D6		19867	00	01	08	19866	00	05	08	74.60	19.50	31.69	9.68	7.26	11.10
M12 x 1.75			19870	00	01	08	19869	00	05	08	85.70	24.40	48.99	9.32	6.98	

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
143	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 13020

HSS | S/O | 45°

Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number		Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P - 2P)	Plug (3.5P - 4.5P)						
			S/O	S/O	L	Lc	Ln	d	k	lk
6 - 32 UNC	H3	3	1302001401	1302000101	2.000	0.248	0.685	0.141	0.110	0.188
8 - 32 UNC			1302001501	1302000201	2.125	0.251	0.751	0.168	0.131	0.250
10 - 24 UNC			1302001601	1302000301	2.375	0.326	0.866	0.194	0.152	
10 - 32 UNF			1302001701	1302000401						
1/4 - 20 UNC			1302001801	1302000501	2.500	0.397	0.996	0.255	0.191	0.313
1/4 - 28 UNF			1302001901	1302000601						
5/16 - 18 UNC			1302002001	1302000701	2.719	0.444	1.125	0.318	0.238	0.375
5/16 - 24 UNF			1302002101	1302000801						
3/8 - 16 UNC			1302002201	1302000901	2.938	0.500	1.251	0.381	0.286	0.438
3/8 - 24 UNF			1302002301	1302001001						
1/2 - 13 UNC			1302002401	1302001101	3.375	0.614	1.933	0.367	0.275	
5/8 - 11 UNC		4	1302002501	1302001201	3.813	0.728	2.125	0.480	0.360	0.563
5/8 - 18 UNF			1302002601	1302001301						

Packed: 1 pc.
Available Steam Oxide only.

STT

Work Material

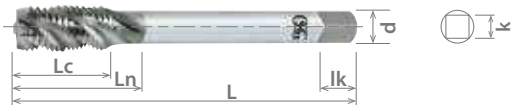
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13020	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 123

HSSE | BR | 50°

EX-SFT, JIS, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	2	3	11544	47.00	6.00	19.00	4.00	3.20	6.00
M4 x 0.7			11556	55.00	8.40	22.70	5.00	4.00	7.00
M5 x 0.8			11571	64.00	10.00	26.10	5.50	4.50	
M6 x 1.0			11583	67.00	12.00	31.60	6.00		
M8 x 1.25			11601	70.00	15.00	37.00	6.20	5.00	8.00
M10 x 1.5			11621	75.00	18.00	41.00	7.00	5.50	
M10 x 1.25			11624						
M12 x 1.75			11650	82.00	21.00	48.00	8.50	6.50	9.00
M12 x 1.5			11653						
M14 x 2.0			11680	88.00	30.00		10.50	8.00	11.00
M14 x 1.5			11683						
M16 x 2.0			11705	95.00	32.00	52.00	12.50	10.00	13.00
M16 x 1.5			11708						
M18 x 2.5		4	11730	100.00	37.00	55.00	14.00	11.00	14.00
M18 x 1.5			11735						
M20 x 2.5			11757	105.00		58.00	15.00	12.00	15.00
M20 x 1.5			11762						
M22 x 2.5			11772	115.00	38.00	63.00	17.00	13.00	16.00
M24 x 3.0			11799	120.00	45.00	66.00	19.00	15.00	18.00

Packed: 1 pc.
Other coatings available upon request.
Specify treatment at time of order.
Note: List 123 Taps will normally produce JIS Class II and ISO 6H Limits.

STT

Work Material

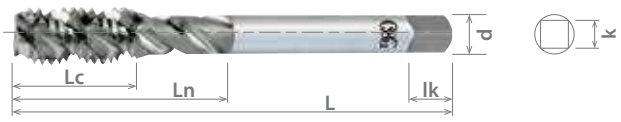
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
123	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 918

HSS | BR | 50°

Long Shank, Plug (4P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	EDP Number Plug (4P - 4.5P)	Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bright	Bright	L	Lc	Ln	d	k	lk
4 - 40 UNC	H2	2	1296100	1296000	4	0.326	0.555	0.141	0.110	0.188
6 - 32 UNC	H3	2	1296300	1296200	4	0.397	0.685			
			1296500	1296400	6					
8 - 32 UNC		3	1296700	1296600	4	0.401	0.759	0.168	0.131	0.250
			1296900	1296800	6	0.472	0.830			
10 - 24 UNC			1297100	1297000	4	0.511	0.874	0.194	0.152	
			1297300	1297200	6					
10 - 32 UNF			1297500	1297400	4					
			1297700	1297600	6					
1/4 - 20 UNC			1297900	1297800	4	0.645	1.007	0.255	0.191	0.313
			1298100	1298000	6					
1/4 - 28 UNF			1298300	1298200						
5/16 - 18 UNC			1298500	1298400		0.708	1.129	0.318	0.238	0.375
3/8 - 16 UNC			1298700	1298600		0.771	1.251	0.381	0.286	0.438
7/16 - 14 UNC			1298900	1298800		0.901	1.708	0.323	0.242	0.406
1/2 - 13 UNC			1299100	1299000		0.960	1.929	0.367	0.275	0.438
5/8 - 11 UNC		4	1299300	1299200		1.110	2.129	0.480	0.360	0.563

Packed: 1 pc.
Other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
918	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▢ best

List 5BA-SO, 5BL-SO

NEW | RED BAND DRILLS P316-318 | HSSE V3 | TYPE H | TiAlN | 15°

RED BAND, Ideal for Alloy Steel



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H3	3	5BA0280-SO	1.890	0.236	0.141	0.110	0.197
	H5		5BA0290-SO					
4 - 48 UNF	H3		5BL0280-SO					
	H5		5BL0290-SO					
5 - 40 UNC	H3		5BA0320-SO					
	H5		5BA0330-SO					
5 - 44 UNF	H3		5BL0320-SO					
	H5		5BL0330-SO					
6 - 32 UNC	H3		5BA0350-SO	1.969	0.315			
	H5		5BA0360-SO					
6 - 40 UNF	H3		5BL0350-SO					
	H5		5BL0360-SO					
8 - 32 UNC	H3		5BA0420-SO	2.087		0.168	0.131	0.256
	H5		5BA0430-SO					
8 - 36 UNF	H3		5BL0420-SO					
	H5		5BL0430-SO					
10 - 24 UNC	H3		5BA0480-SO	2.303	0.394	0.194	0.152	
	H5		5BA0490-SO					
10 - 32 UNF	H3		5BL0480-SO					
	H5		5BL0490-SO					
12 - 24 UNC	H3		5BA0550-SO	2.402		0.220	0.165	0.276
	H5		5BA0560-SO					
12 - 28 UNF	H3		5BL0550-SO					
	H5		5BL0560-SO					
1/4 - 20 UNC	H3		5BA0640-SO	2.559	0.472	0.255	0.191	0.315
	H5		5BA0650-SO					
1/4 - 28 UNF	H3		5BL0640-SO					
	H5		5BL0650-SO					
5/16 - 18 UNC	H3		5BA0790-SO	2.756	0.551	0.318	0.238	0.374
	H5		5BA0800-SO					
5/16 - 24 UNF	H3		5BL0790-SO					
	H5		5BL0800-SO					
3/8 - 16 UNC	H3	4	5BA0950-SO	3.031	0.630	0.381	0.286	0.433
	H5		5BA0960-SO					
3/8 - 24 UNF	H3		5BL0950-SO					
	H5		5BL0960-SO					

Packed: 1 pc.
Available TiAlN only.

continued on next page

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BA-SO, 5BL-SO	○	○	○	◎	◎				○	○		◎	○	◎	◎		
SFM	59-89	59-89	59-89	59-79	59-79				59-88	78-118		16-36	20-40	30-50	30-50		

○ good ◎ best

List 5BA-SO, 5BL-SO (Continued)

NEW | RED BAND DRILLS P316-318 | HSSE V3 | TYPE H | TiAlN | 15°

RED BAND, Ideal for Alloy Steel



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
7/16 - 14 UNC	H3	4	5BA1110-SO	3.228	0.709	0.323	0.242	0.413
	H5		5BA1120-SO					
7/16 - 20 UNF	H3		5BL1110-SO					
	H5		5BL1120-SO					
1/2 - 13 UNC	H3		5BA1270-SO	3.425	0.827	0.367	0.275	0.433
	H5		5BA1280-SO					
1/2 - 20 UNF	H3		5BL1270-SO					
	H5		5BL1280-SO					
9/16 - 12 UNC	H3		5BA1430-SO	3.661	0.866	0.429	0.322	0.492
	H5		5BA1440-SO					
9/16 - 18 UNF	H3		5BL1430-SO					
	H5		5BL1440-SO					
5/8 - 11 UNC	H3		5BA1590-SO	3.878	0.906	0.480	0.360	0.571
	H5		5BA1600-SO					
5/8 - 18 UNF	H3		5BL1590-SO					
	H5		5BL1600-SO					
3/4 - 10 UNC	H3		5BA1910-SO	4.252	0.984	0.590	0.442	0.689
	H5		5BA1920-SO					
3/4 - 16 UNF	H3		5BL1910-SO					
	H5		5BL1920-SO					
7/8 - 9 UNC	H3	4	5BA2220-SO	4.685	1.102	0.697	0.523	0.748
	H5		5BA2230-SO					
7/8 - 14 UNF	H3		5BL2220-SO					
	H5		5BL2230-SO					
1 - 8 UNC	H3		5BA2540-SO	5.118	1.260	0.800	0.600	0.807
	H5		5BA2550-SO					
1 - 12 UNF	H3		5BL2540-SO					
	H5		5BL2550-SO					
1,1/8 - 7 UNC	H3		5BA2860-SO	5.433	1.417	0.896	0.672	0.866
	H5		5BA2870-SO					
1,1/8 - 12 UNF	H3		5BL2860-SO					
	H5		5BL2870-SO					
1,1/4 - 7 UNC	H3		5BA3180-SO	5.748		1.021	0.766	1.004
	H5		5BA3190-SO					
1,1/4 - 12 UNF	H3		5BL3180-SO					
	H5		5BL3190-SO					

Packed: 1 pc.
Available TiAlN only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BA-SO, 5BL-SO	○	○	○	◎	◎				○	○		◎	○	◎	◎		
SFM	59-89	59-89	59-89	59-79	59-79				59-88	78-118		16-36	20-40	30-50	30-50		

○ good ◎ best

List 5EA-SO, 5EL-SO

NEW | RED BAND DRILLS P316-318 | HSSE V3 | TYPE H | TiAlN | 15°

RED BAND, Ideal for Alloy Steel



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D4	3	5EA0300-SO	48.00	6.00	3.58	2.79	5.00
M3.5 x 0.6			5EA0350-SO	50.00	8.00			
M4 x 0.7			5EA0400-SO	53.00		4.27	3.33	6.50
M5 x 0.8			5EA0500-SO	58.50	10.00	4.93	4.93	
M6 x 1.0			5EA0600-SO	65.00	12.00	6.48	4.85	8.00
M6 x 0.75			5EL0600-SO					
M7 x 1.0			5EA0700-SO	69.00		8.08	6.05	9.50
M8 x 1.25			5EA0800-SO	70.00	14.00			
M8 x 1.0			5EL0800-SO					
M10 x 1.5		4	5EA1000-SO	77.00	16.00	9.68	7.26	11.00
M10 x 1.25			5EL1010-SO					
M12 x 1.75			5EA1200-SO	87.00	18.00	9.32	9.32	
	D6		5EA1214-SO					
M12 x 1.5	D4		5EL1200-SO					
M12 x 1.25			5EL1190-SO					
M14 x 2.0			5EA1400-SO	93.00	22.00	10.90	10.90	13.00
	D6		5EA1414-SO					
M14 x 1.5	D4		5EL1400-SO					
	D6		5EL1414-SO					
M16 x 2.0	D4		5EA1600-SO	98.50	23.00	12.19	12.19	14.00
	D6		5EA1614-SO					
M16 x 1.5	D4		5EL1600-SO					
	D6		5EL1614-SO					
M18 x 2.5	D4		5EA1800-SO	108.00	25.00	13.76	13.76	15.88
	D6		5EA1814-SO					
M18 x 1.5	D4		5EL1800-SO					
	D6		5EL1814-SO					
M20 x 2.5	D4		5EA2000-SO	114.00		16.56	16.56	17.50
M20 x 1.5			5EL2000-SO					
M22 x 2.5			5EA2200-SO	119.00	28.00	17.70	13.28	19.05
M22 x 1.5			5EL2200-SO					
M24 x 3.0			5EA2400-SO	125.00	30.00	19.30	14.48	

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5EA-SO, 5EL-SO	○	○	○	◎	◎				○	○		◎	○	◎	◎		
SFM	59-89	59-89	59-89	59-79	59-79				59-88	78-118		16-36	20-40	30-50	30-50		

○ good ◎ best

List 5BB-SO, 5BM-SO

NEW | BLUE BAND DRILLS P319-321 | HSSE V3 | TYPE VA | TiAlN | 40°

BLUE BAND, Ideal for Stainless Steel



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H3	3	5BB0284-SO	1.890	0.236	0.141	0.110	0.197
	H5		5BB0294-SO					
4 - 48 UNF	H3		5BM0284-SO					
	H5		5BM0294-SO					
5 - 40 UNC	H3		5BB0324-SO					
	H5		5BB0334-SO					
5 - 44 UNF	H3		5BM0324-SO					
	H5		5BM0334-SO					
6 - 32 UNC	H3		5BB0354-SO	1.969	0.315			
	H5		5BB0364-SO					
6 - 40 UNF	H3		5BM0354-SO					
	H5		5BM0364-SO					
8 - 32 UNC	H3		5BB0424-SO	2.087		0.168	0.131	0.256
	H5		5BB0434-SO					
8 - 36 UNF	H3		5BM0424-SO					
	H5		5BM0434-SO					
10 - 24 UNC	H3		5BB0484-SO	2.303	0.394	0.194	0.152	
	H5		5BB0494-SO					
10 - 32 UNF	H3		5BM0484-SO					
	H5		5BM0494-SO					
12 - 24 UNC	H3		5BB0554-SO	2.402		0.220	0.165	0.276
	H5		5BB0564-SO					
12 - 28 UNF	H3		5BM0554-SO					
	H5		5BM0564-SO					
1/4 - 20 UNC	H3		5BB0644-SO	2.559	0.472	0.255	0.191	0.315
	H5		5BB0654-SO					
1/4 - 28 UNF	H3		5BM0644-SO					
	H5		5BM0654-SO					
5/16 - 18 UNC	H3		5BB0794-SO	2.756	0.551	0.318	0.238	0.374
	H5		5BB0804-SO					
5/16 - 24 UNF	H3		5BM0794-SO					
	H5		5BM0804-SO					
3/8 - 16 UNC	H3		5BB0954-SO	3.031	0.630	0.381	0.286	0.433
	H5		5BB0964-SO					
3/8 - 24 UNF	H3		5BM0954-SO					
	H5		5BM0964-SO					
7/16 - 14 UNC	H3		5BB1114-SO	3.228	0.709	0.323	0.242	0.413
	H5		5BB1124-SO					
7/16 - 20 UNF	H3		5BM1114-SO					
	H5		5BM1124-SO					
1/2 - 13 UNC	H3		5BB1274-SO	3.425	0.827	0.367	0.275	0.433
	H5		5BB1284-SO					
1/2 - 20 UNF	H3		5BM1274-SO					
	H5		5BM1284-SO					

Packed: 1 pc.
Available TiAlN coating only.

SOM

List 5BB-SO, 5BM-SO (Continued)

NEW | BLUE BAND DRILLS P319-321 | HSSE V3 | TYPE VA | TiAlN | 40°

BLUE BAND, Ideal for Stainless Steel

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
9/16 - 12 UNC	H3	3	5BB1434-SO	3.661	0.866	0.429	0.322	0.492
	H5		5BB1444-SO					
9/16 - 18 UNF	H3		5BM1434-SO					
	H5		5BM1444-SO					
5/8 - 11 UNC	H3		5BB1594-SO	3.878	0.906	0.480	0.360	0.571
	H5		5BB1604-SO					
5/8 - 18 UNF	H3		5BM1594-SO					
	H5		5BM1604-SO					
3/4 - 10 UNC	H3		5BB1914-SO	4.252	0.984	0.590	0.442	0.689
	H5		5BB1924-SO					
3/4 - 16 UNF	H3		5BM1914-SO					
	H5		5BM1924-SO					
7/8 - 9 UNC	H3		5BB2224-SO	4.685	1.102	0.697	0.523	0.748
	H5		5BB2234-SO					
7/8 - 14 UNF	H3		5BM2224-SO					
	H5		5BM2234-SO					
1 - 8 UNC	H3	4	5BB2544-SO	5.118	1.260	0.800	0.600	0.807
	H5		5BB2554-SO					
1 - 12 UNF	H3		5BM2544-SO					
	H5		5BM2554-SO					
1,1/8 - 7 UNC	H3		5BB2864-SO	5.433	1.417	0.896	0.672	0.866
	H5		5BB2874-SO					
1,1/8 - 12 UNF	H3		5BM2864-SO					
	H5		5BM2874-SO					
1,1/4 - 7 UNC	H3		5BB3184-SO	5.748		1.021	0.766	1.004
	H5		5BB3194-SO					
1,1/4 - 12 UNF	H3		5BM3184-SO					
	H5		5BM3194-SO					

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BB-SO, 5BM-SO						◎	◎	○					◎				
SFM						29-49	26-49	25-45					20-60				

○ good ◎ best

List 5EB-SO, 5EM-SO

NEW | BLUE BAND DRILLS P319-321 | HSSE V3 | TYPE VA | TiAlN | 40°

BLUE BAND, Ideal for Stainless Steel



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	Overall Length	Thread Length	Shank Dia.	Square Width	Square Length
			Mod Bottom (2P-3P)					
			TiAlN	L	Lc	d	k	lk
M3 x 0.5	D4	3	5EB0304-SO	48.00	6.00	3.58	2.79	5.00
M3.5 x 0.6			5EB0354-SO	50.00	8.00			
M4 x 0.7			5EB0404-SO	53.00		4.27	3.33	6.50
M5 x 0.8			5EB0504-SO	58.50	10.00	4.93	3.86	
M6 x 1.0			5EB0604-SO	65.00	12.00	6.48	4.85	8.00
	D6		5EB0614-SO					
M6 x 0.75	D4		5EM0604-SO					
M7 x 1.0			5EB0704-SO	69.00		8.08	6.05	9.50
	D6		5EB0714-SO					
M8 x 1.25	D4		5EB0804-SO	70.00	14.00			
	D6		5EB0814-SO					
M8 x 1.0	D4		5EM0804-SO					
	D6		5EM0814-SO					
M10 x 1.5	D4		5EB1004-SO	77.00	16.00	9.68	7.26	11.00
	D6		5EB1014-SO					
M10 x 1.25	D4		5EM1014-SO					
M10 x 1			5EM1004-SO					
M12 x 1.75	D6		5EB1204-SO	87.00	18.00	9.32	6.99	
			5EB1214-SO					
M12 x 1.5	D4		5EM1204-SO					
M12 x 1.25			5EM1194-SO					
M14 x 2.0	D6		5EB1404-SO	93.00	22.00	10.90	8.18	13.00
			5EB1414-SO					
M14 x 1.5	D4		5EM1404-SO					
	D6		5EM1414-SO					
M16 x 2.0	D4		5EB1604-SO	98.50	23.00	12.19	9.14	14.00
	D6		5EB1614-SO					
M16 x 1.5	D4		5EM1604-SO					
	D6		5EM1614-SO					
M18 x 2.5	D4		5EB1804-SO	108.00	25.00	13.76	10.30	15.88
	D6		5EB1814-SO					
M18 x 1.5	D4		5EM1804-SO					
	D6		5EM1814-SO					
M20 x 2.5	D4		5EB2004-SO	114.00		16.56	12.42	17.50
M20 x 1.5			5EM2004-SO					
M22 x 2.5			5EB2204-SO	119.00	28.00	17.70	13.28	19.05
M22 x 1.5			5EM2204-SO					
M24 x 3.0		4	5EB2404-SO	125.00	30.00	19.30	14.48	

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

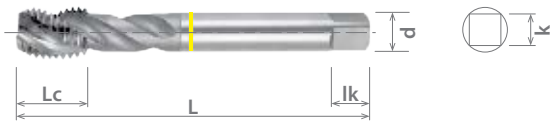
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5EB-SO, 5EM-SO						◎	◎	○					◎				
SFM						29-49	26-49	25-45					20-60				

○ good ◎ best

List 5BC-S0, 5BN-SO

NEW | YELLOW BAND DRILLS P322-325 | HSSE V3 | TYPE W | BR | 40°

YELLOW BAND, Ideal for Aluminum



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) Bright	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H3	2	5BC0280-SO	1.890	0.236	0.141	0.110	0.197
	H5		5BC0290-SO					
4 - 48 UNF	H3		5BN0280-SO					
	H5		5BN0290-SO					
5 - 40 UNC	H3		5BC0320-SO					
	H5		5BC0330-SO					
5 - 44 UNF	H3		5BN0320-SO					
	H5		5BN0330-SO					
6 - 32 UNC	H3		5BC0350-SO	1.969	0.315			
	H5		5BC0360-SO					
6 - 40 UNF	H3		5BN0350-SO					
	H5		5BN0360-SO					
8 - 32 UNC	H3		5BC0420-SO	2.087		0.168	0.131	0.256
	H5		5BC0430-SO					
8 - 36 UNF	H3		5BN0420-SO					
	H5		5BN0430-SO					
10 - 24 UNC	H3		5BC0480-SO	2.303	0.394	0.194	0.152	
	H5		5BC0490-SO					
10 - 32 UNF	H3		5BN0480-SO					
	H5		5BN0490-SO					
12 - 24 UNC	H3		5BC0550-SO	2.402		0.220	0.165	0.276
	H5		5BC0560-SO					
12 - 28 UNF	H3		5BN0550-SO					
	H5		5BN0560-SO					
1/4 - 20 UNC	H3		5BC0640-SO	2.559	0.472	0.255	0.191	0.315
	H5		5BC0650-SO					
1/4 - 28 UNF	H3		5BN0640-SO					
	H5		5BN0650-SO					
5/16 - 18 UNC	H3		5BC0790-SO	2.756	0.551	0.318	0.238	0.374
	H5		5BC0800-SO					
5/16 - 24 UNF	H3		5BN0790-SO					
	H5		5BN0800-SO					
3/8 - 16 UNC	H3	3	5BC0950-SO	3.031	0.630	0.381	0.286	0.433
	H5		5BC0960-SO					
3/8 - 24 UNF	H3		5BN0950-SO					
	H5		5BN0960-SO					

Packed: 1 pc.
EDPs listed above are stock standard, other coatings available upon request.
Specify treatment at the time of order.

continued on next page

SOM

Work Material

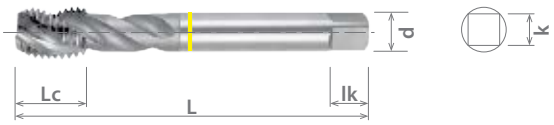
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BC-S0,5BN-SO	▢	▢	▢							▢	▢						
SFM	58-88	58-88	58-88							78-170	40-65						

▢ good ▢ best

List 5BC-S0, 5BN-SO (Continued)

NEW | YELLOW BAND DRILLS P322-325 | HSSE V3 | TYPE W | BR | 40°

YELLOW BAND, Ideal for Aluminum



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) Bright	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
7/16 - 14 UNC	H3	3	5BC1110-SO	3.228	0.709	0.323	0.242	0.413
	H5		5BC1120-SO					
7/16 - 20 UNF	H3		5BN1110-SO					
	H5		5BN1120-SO					
1/2 - 13 UNC	H3		5BC1270-SO	3.425	0.827	0.367	0.275	0.433
	H5		5BC1280-SO					
1/2 - 20 UNF	H3		5BN1270-SO					
	H5		5BN1280-SO					
9/16 - 12 UNC	H3		5BC1430-SO	3.661	0.866	0.429	0.322	0.492
	H5		5BC1440-SO					
9/16 - 18 UNF	H3		5BN1430-SO					
	H5		5BN1440-SO					
5/8 - 11 UNC	H3		5BC1590-SO	3.878	0.906	0.480	0.360	0.571
	H5		5BC1600-SO					
5/8 - 18 UNF	H3		5BN1590-SO					
	H5		5BN1600-SO					
3/4 - 10 UNC	H3		5BC1910-SO	4.252	0.984	0.590	0.442	0.689
	H5		5BC1920-SO					
3/4 - 16 UNF	H3		5BN1910-SO					
	H5		5BN1920-SO					
7/8 - 9 UNC	H3		5BC2220-SO	4.685	1.102	0.697	0.523	0.748
	H5		5BC2230-SO					
7/8 - 14 UNF	H3		5BN2220-SO					
	H5		5BN2230-SO					
1 - 8 UNC	H3		5BC2540-SO	5.118	1.260	0.800	0.600	0.807
	H5		5BC2550-SO					
1 - 12 UNF	H3		5BN2540-SO					
	H5		5BN2550-SO					
1,1/8 - 7 UNC	H3		5BC2860-SO	5.433	1.417	0.896	0.672	0.866
	H5		5BC2870-SO					
1,1/8 - 12 UNF	H3		5BN2860-SO					
	H5		5BN2870-SO					
1,1/4 - 7 UNC	H3		5BC3180-SO	5.748		1.021	0.766	1.004
	H5		5BC3190-SO					
1,1/4 - 12 UNF	H3		5BN3180-SO					
	H5		5BN3190-SO					

Packed: 1 pc.
EDPs listed above are stock standard, other coatings available upon request.
Specify treatment at the time of order.

SOM

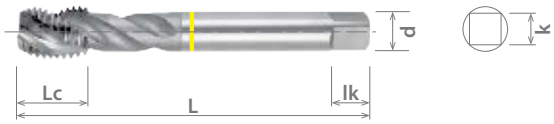
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BC-S0,5BN-SO	◎	◎	◎							◎	◎						
SFM	58-88	58-88	58-88							78-170	40-65						

○ good ◎ best

List 5EC-SO, 5EN-SO

NEW | YELLOW BAND DRILLS P322-325 | HSSE V3 | TYPE W | BR | 40°

YELLOW BAND, Ideal for Aluminum



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) Bright	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D4	2	5EC0300-SO	48.00	6.00	3.58	2.79	5.00
M4 x 0.7	D4	2	5EC0400-SO	53.00	8.00	4.27	3.33	6.50
M5 x 0.8	D4	2	5EC0500-SO	58.50	10.00	4.93	3.86	6.50
M5 x 0.8	D6	2	5EC0514-SO	58.50	10.00	4.93	3.86	6.50
M6 x 1.0	D4	2	5EC0600-SO	65.00	12.00	6.48	4.85	8.00
M6 x 1.0	D6	2	5EC0614-SO	65.00	12.00	6.48	4.85	8.00
M6 x 0.75	D4	2	5EN0600-SO	65.00	12.00	6.48	4.85	8.00
M7 x 1.0	D4	2	5EC0700-SO	69.00	12.00	6.48	4.85	8.00
M8 x 1.25	D4	2	5EC0800-SO	70.00	14.00	8.08	6.05	9.50
M8 x 1.25	D6	2	5EC0814-SO	70.00	14.00	8.08	6.05	9.50
M8 x 1.0	D4	2	5EN0800-SO	70.00	14.00	8.08	6.05	9.50
M8 x 1.0	D6	2	5EN0814-SO	70.00	14.00	8.08	6.05	9.50
M10 x 1.5	D4	3	5EC1000-SO	77.00	16.00	9.68	7.26	11.00
M10 x 1.5	D6	3	5EC1014-SO	77.00	16.00	9.68	7.26	11.00
M10 x 1.25	D4	3	5EN1010-SO	77.00	16.00	9.68	7.26	11.00
M10 x 1.0	D4	3	5EN1000-SO	77.00	16.00	9.68	7.26	11.00
M10 x 1.0	D6	3	5EN1014-SO	77.00	16.00	9.68	7.26	11.00
M12 x 1.75	D4	3	5EC1200-SO	87.00	18.00	9.32	6.99	11.00
M12 x 1.5	D4	3	5EN1200-SO	87.00	18.00	9.32	6.99	11.00
M12 x 1.5	D6	3	5EN1214-SO	87.00	18.00	9.32	6.99	11.00
M14 x 2.0	D4	3	5EC1400-SO	93.00	22.00	10.90	8.18	13.00
M14 x 1.5	D4	3	5EN1400-SO	93.00	22.00	10.90	8.18	13.00
M16 x 2.0	D4	3	5EC1600-SO	98.50	23.00	12.19	9.14	14.00
M16 x 1.5	D4	3	5EN1600-SO	98.50	23.00	12.19	9.14	14.00
M18 x 2.5	D4	3	5EC1800-SO	108.00	25.00	13.76	10.30	15.88
M18 x 1.5	D4	3	5EN1800-SO	108.00	25.00	13.76	10.30	15.88
M20 x 2.5	D4	3	5EC2000-SO	114.00	25.00	16.56	12.42	17.50
M20 x 1.5	D4	3	5EN2000-SO	114.00	25.00	16.56	12.42	17.50
M22 x 2.5	D4	3	5EC2200-SO	119.00	28.00	17.70	13.28	19.05
M22 x 1.5	D4	3	5EN2200-SO	119.00	28.00	17.70	13.28	19.05
M24 x 3.0	D4	3	5EC2400-SO	125.00	30.00	19.30	14.48	19.05

Packed: 1 pc.
EDPs listed above are stock standard, other coatings available upon request.
Specify treatment at the time of order.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5EC-SO, 5EN-SO	▢	▢	▢							▢	▢						
SFM	58-88	58-88	58-88							78-170	40-65						

▢ good ▢ best

List 5BD-SO, 5BP-SO

NEW | WHITE BAND DRILLS P326-327 | HSSE V3 | TYPE GG | TiAlN | 15°

WHITE BAND, **Ideal for Cast Iron**



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number	Overall Length	Thread Length	Shank Dia.	Square Width	Square Length
			Mod Bottom (2P-3P)					
			TiAlN	L	Lc	d	k	lk
4 - 40 UNC	H3	3	5BD0285-SO	1.890	0.236	0.141	0.110	0.197
	H5		5BD0295-SO					
4 - 48 UNF	H3		5BP0285-SO					
	H5		5BP0295-SO					
5 - 40 UNC	H3		5BD0325-SO					
	H5		5BD0335-SO					
5 - 44 UNF	H3		5BP0325-SO					
	H5		5BP0335-SO					
6 - 32 UNC	H3		5BD0355-SO	1.969	0.315			
	H5		5BD0365-SO					
6 - 40 UNF	H3		5BP0355-SO					
	H5		5BP0365-SO					
8 - 32 UNC	H3		5BD0425-SO	2.087		0.168	0.131	0.256
	H5		5BD0435-SO					
8 - 36 UNF	H3		5BP0425-SO					
	H5		5BP0435-SO					
10 - 24 UNC	H3		5BD0485-SO	2.303	0.394	0.194	0.152	
	H5		5BD0495-SO					
10 - 32 UNF	H3		5BP0485-SO					
	H5		5BP0495-SO					
12 - 24 UNC	H3		5BD0555-SO	2.402		0.220	0.165	0.276
	H5		5BD0565-SO					
12 - 28 UNF	H3		5BP0555-SO					
	H5		5BP0565-SO					
1/4 - 20 UNC	H3		5BD0645-SO	2.559	0.472	0.255	0.191	0.315
	H5		5BD0655-SO					
1/4 - 28 UNF	H3		5BP0645-SO					
	H5		5BP0655-SO					
5/16 - 18 UNC	H3		5BD0795-SO	2.756	0.551	0.318	0.238	0.374
	H5		5BD0805-SO					
5/16 - 24 UNF	H3		5BP0795-SO					
	H5		5BP0805-SO					
3/8 - 16 UNC	H3	4	5BD0955-SO	3.031	0.630	0.381	0.286	0.433
	H5		5BD0965-SO					
3/8 - 24 UNF	H3		5BP0955-SO					
	H5		5BP0965-SO					
7/16 - 14 UNC	H3		5BD1115-SO	3.228	0.709	0.323	0.242	0.413
	H5		5BD1125-SO					
7/16 - 20 UNF	H3		5BP1115-SO					
	H5		5BP1125-SO					
1/2 - 13 UNC	H3		5BD1275-SO	3.425	0.827	0.367	0.275	0.433
	H5		5BD1285-SO					
1/2 - 20 UNF	H3		5BP1275-SO					
	H5		5BP1285-SO					

Packed: 1 pc.
Available TiAlN coating only.

SOM

List 5BD-SO, 5BP-SO (Continued)

NEW | WHITE BAND DRILLS P326-327 | HSSE V3 | TYPE GG | TiAlN | 15°

WHITE BAND, **Ideal for Cast Iron**

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
9/16 - 12 UNC	H3	4	5BD1435-SO	3.661	0.866	0.429	0.322	0.492
	H5		5BD1445-SO					
9/16 - 18 UNF	H3		5BP1435-SO					
	H5		5BP1445-SO					
5/8 - 11 UNC	H3		5BD1595-SO	3.878	0.906	0.480	0.360	0.571
	H5		5BD1605-SO					
5/8 - 18 UNF	H3		5BP1595-SO					
	H5		5BP1605-SO					
3/4 - 10 UNC	H3		5BD1915-SO	4.252	0.984	0.590	0.442	0.689
	H5		5BD1925-SO					
3/4 - 16 UNF	H3		5BP1915-SO					
	H5		5BP1925-SO					
7/8 - 9 UNC	H3		5BD2225-SO	4.685	1.102	0.697	0.523	0.748
	H5		5BD2235-SO					
7/8 - 14 UNF	H3		5BP2225-SO					
	H5		5BP2235-SO					
1 - 8 UNC	H3		5BD2545-SO	5.118	1.260	0.800	0.600	0.807
	H5		5BD2555-SO					
1 - 12 UNF	H3		5BP2545-SO					
	H5		5BP2555-SO					
1,1/8 - 7 UNC	H3		5BD2865-SO	5.433	1.417	0.896	0.672	0.866
	H5		5BD2875-SO					
1,1/8 - 12 UNF	H3		5BP2865-SO					
	H5		5BP2875-SO					
1,1/4 - 7 UNC	H3		5BD3185-SO	5.748		1.021	0.766	1.004
	H5		5BD3195-SO					
1,1/4 - 12 UNF	H3		5BP3185-SO					
	H5		5BP3195-SO					

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BD-SO, 5BP-SO									◎								
SFM									30-85								

○ good ◎ best

List 5ED-SO, 5EP-SO

NEW | WHITE BAND DRILLS P326-327 | HSSE V3 | TYPE GG | TiAlN | 15°

WHITE BAND, **Ideal for Cast Iron**



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	Overall Length	Thread Length	Shank Dia.	Square Width	Square Length
			Mod Bottom (2P-3P)					
			TiAlN	L	Lc	d	k	lk
M3 x 0.5	D4	3	5ED0305-SO	48.00	6.00	3.58	2.79	5.00
M3.5 X 6			5ED0355-SO	50.00	8.00			
M4 x 0.7			5ED0405-SO	53.00		4.27	3.33	6.50
M5 x 0.8			5ED0505-SO	58.00	10.00	4.93	3.86	
M6 x 1.0			5ED0605-SO	65.00	12.00	6.48	4.85	8.00
M6 x 0.75			5EP0605-SO					
M7 x 1.0			5ED0705-SO	69.00		8.08	6.05	9.50
M7 x 0.75			5EP0705-SO					
M8 x 1.25			5ED0805-SO	70.00	14.00			
M8 x 1.0			5EP0805-SO					
M10 x 1.5		4	5ED1005-SO	77.00	16.00	9.68	7.26	11.00
M10 x 1.25			5EP0995-SO					
M10 x 1.0			5EP1005-SO					
	D6		5EP1015-SO					
M12 x 1.75	D4		5ED1205-SO	87.00	18.00	9.32	6.99	
M12 x 1.5			5EP1214-SO					
	D6		5EP1235-SO					
M12 x 1.25	D4		5EP1205-SO					
M14 x 2.0			5ED1405-SO	93.00	22.00	10.90	8.18	13.00
M14 x 1.5			5EP1405-SO					
M16 x 2.0			5ED1605-SO	98.50	23.00	12.19	9.14	13.00
M16 x 1.5			5EP1605-SO					
M18 x 2.5			5ED1805-SO	108.00	25.00	13.76	10.30	14.00
M18 x 1.5			5EP1805-SO					
M20 x 2.5			5ED2005-SO	114.00		16.56	12.42	17.50
M20 x 1.5			5EP2005-SO					
M22 x 2.5			5ED2205-SO	119.00	28.00	17.70	13.28	19.05
M22 x 1.5			5EP2205-SO					
M24 x 3.0			5ED2405-SO	125.00	30.00	19.30	14.48	

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5ED-SO, 5EP-SO									◎								
SFM									30-85								

○ good ◎ best

List 5BE-SO, 5BK-SO

NEW | GREEN BAND DRILLS P328-331 | HSSE V3 | TYPE UNI | TiN | 35°

GREEN BAND, **Ideal for Carbon Steel**



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) TiN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H3	3	5BE0280-SO	1.890	0.236	0.141	0.110	0.197
	H5		5BE0290-SO					
4 - 48 UNF	H3		5BK0280-SO					
	H5		5BK0290-SO					
5 - 40 UNC	H3		5BE0320-SO					
	H5		5BE0330-SO					
5 - 44 UNF	H3		5BK0320-SO					
	H5		5BK0330-SO					
6 - 32 UNC	H3		5BE0350-SO	1.969	0.315			
	H5		5BE0360-SO					
6 - 40 UNF	H3		5BK0350-SO					
	H5		5BK0360-SO					
8 - 32 UNC	H3		5BE0420-SO	2.087		0.168	0.131	0.256
	H5		5BE0430-SO					
8 - 36 UNF	H3		5BK0420-SO					
	H5		5BK0430-SO					
10 - 24 UNC	H3		5BE0480-SO	2.303	0.394	0.194	0.152	
	H5		5BE0490-SO					
10 - 32 UNF	H3		5BK0480-SO					
	H5		5BK0490-SO					
12 - 24 UNC	H3		5BE0550-SO	2.402		0.220	0.165	0.276
	H5		5BE0560-SO					
12 - 28 UNF	H3		5BK0550-SO					
	H5		5BK0560-SO					
1/4 - 20 UNC	H3		5BE0640-SO	2.559	0.472	0.255	0.191	0.315
	H5		5BE0650-SO					
1/4 - 28 UNF	H3		5BK0640-SO					
	H5		5BK0650-SO					
5/16 - 18 UNC	H3		5BE0790-SO	2.756	0.551	0.318	0.238	0.374
	H5		5BE0800-SO					
5/16 - 24 UNF	H3		5BK0790-SO					
	H5		5BK0800-SO					
3/8 - 16 UNC	H3		5BE0950-SO	3.031	0.630	0.381	0.286	0.433
	H5		5BE0960-SO					
3/8 - 24 UNF	H3		5BK0950-SO					
	H5		5BK0960-SO					

Packed: 1 pc.
Available TiN coating only.

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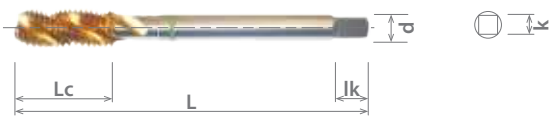
Work Material																			
	P					M			K	N			S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum			Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High																
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)		~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BE-SO, 5BK-SO	◎	◎	◎			○			○	○	○	○						
SFM	59-88	59-88	59-79			59-79			30-85	78-170	30-80	19-39						

○ good ◎ best

List 5BE-SO, 5BK-SO (Continued)

NEW | GREEN BAND DRILLS P328-331 | HSSE V3 | TYPE UNI | TiN | 35°

GREEN BAND, Ideal for Carbon Steel



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) TiN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
7/16 - 14 UNC	H3	3	5BE1110-SO	3.228	0.709	0.323	0.242	0.413
	H5		5BE1120-SO					
7/16 - 20 UNF	H3		5BK1110-SO					
	H5		5BK1120-SO					
1/2 - 13 UNC	H3		5BE1270-SO	3.425	0.827	0.367	0.275	0.433
	H5		5BE1280-SO					
1/2 - 20 UNF	H3		5BK1270-SO					
	H5		5BK1280-SO					
9/16 - 12 UNC	H3		5BE1430-SO	3.661	0.866	0.429	0.322	0.492
	H5		5BE1440-SO					
9/16 - 18 UNF	H3		5BK1430-SO					
	H5		5BK1440-SO					
5/8 - 11 UNC	H3		5BE1590-SO	3.878	0.906	0.480	0.360	0.571
	H5		5BE1600-SO					
5/8 - 18 UNF	H3		5BK1590-SO					
	H5		5BK1600-SO					
3/4 - 10 UNC	H3	4	5BE1910-SO	4.252	0.984	0.590	0.442	0.689
	H5		5BE1920-SO					
3/4 - 16 UNF	H3		5BK1910-SO					
	H5		5BK1920-SO					
7/8 - 9 UNC	H3		5BE2220-SO	4.685	1.102	0.697	0.523	0.748
	H5		5BE2230-SO					
7/8 - 14 UNF	H3		5BK2220-SO					
	H5		5BK2230-SO					
1 - 8 UNC	H3		5BE2540-SO	5.118	1.260	0.800	0.600	0.807
	H5		5BE2550-SO					
1 - 12 UNF	H3		5BK2540-SO					
	H5		5BK2550-SO					
1,1/8 - 7 UNC	H3		5BE2860-SO	5.433	1.417	0.896	0.672	0.807
	H5		5BE2870-SO					
1,1/8 - 12 UNF	H3		5BK2860-SO					
	H5		5BK2870-SO					
1,1/4 - 7 UNC	H3		5BE3180-SO	5.748		1.021	0.766	1.004
	H5		5BE3190-SO					
1,1/4 - 12 UNF	H3		5BK3180-SO					
	H5		5BK3190-SO					

Packed: 1 pc.
Available TiN coating only.

SOM

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BE-SO, 5BK-SO	◎	◎	◎			○			○	○	○	○					
SFM	59-88	59-88	59-79			59-79			30-85	78-170	30-80	19-39					

○ good ◎ best

List 5EV-SO

NEW | GREEN BAND DRILLS P328-331 | HSSE V3 | TYPE UNI | TiN | 15°

GREEN BAND, **Ideal for Carbon Steel**



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number	Overall Length	Thread Length	Shank Dia.	Square Width	Square Length
			Mod Bottom (2P-3P)					
			TiN	L	Lc	d	k	lk
M3 x 0.5	D4	3	5EV0300-SO	48.00	6.00	3.58	2.79	5.00
M4 x 0.7			5EV0400-SO	53.00	8.00	4.27	3.33	6.50
M5 x 0.8			5EV0500-SO	58.50	10.00	4.93	3.86	
M6 x 1.0			5EV0600-SO	65.00	12.00	6.48	4.85	8.00
M8 x 1.25			5EV0800-SO	70.00	14.00	8.08	6.05	9.50
M10 x 1.5	D6		5EV1000-SO	77.00	16.00	9.68	7.26	11.00
M12 x 1.75			5EV1200-SO	87.00	18.00	9.32	6.99	
M14 x 2.0			5EV1400-SO	93.00	22.00	10.90	8.18	13.00
M16 x 2.0			5EV1600-SO	98.50	23.00	12.19	9.14	14.00
M18 x 2.5		4	5EV1800-SO	108.00	25.00	13.76	10.30	15.88
M20 x 2.5	D4		5EV2000-SO	114.00		16.56	12.42	17.50
M22 x 2.5			5EV2200-SO	119.00	28.00	17.70	13.28	19.05
M24 x 3.0			5EV2400-SO	125.00	30.00	19.30	14.48	

Packed: 1 pc.
Available TiN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5EV-SO	◎	◎	◎			○			○	○	○	○					
SFM	59-88	59-88	59-79			59-79			30-85	78-170	30-80	19-39					

○ good ◎ best

List 5EW-SO

NEW | GREEN BAND DRILLS P328-331 | HSSE V3 | TYPE UNI | TiN | 35°

GREEN BAND, **Ideal for Carbon Steel**



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Mod Bottom (2P-3P) TiN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D4	3	5EW0300-SO	48.00	6.00	3.58	2.79	5.00
M4 x 0.7			5EW0400-SO	53.00	8.00	4.27	3.33	6.50
M5 x 0.8			5EW0500-SO	58.50	10.00	4.93	3.86	
M6 x 1.0			5EW0600-SO	65.00	12.00	6.48	4.85	8.00
M8 x 1.25			5EW0800-SO	70.00	14.00	8.08	6.05	9.50
M10 x 1.5	D6		5EW1000-SO	77.00	16.00	9.68	7.26	11.00
M12 x 1.75			5EW1200-SO	87.00	18.00	9.32	6.99	
M14 x 2.0			5EW1400-SO	93.00	22.00	10.90	8.18	13.00
M16 x 2.0			5EW1600-SO	98.50	23.00	12.19	9.14	14.00
M18 x 2.5		4	5EW1800-SO	108.00	25.00	13.76	10.30	15.88
M20 x 2.5	D4		5EW2000-SO	114.00		16.56	12.42	17.50
M22 x 2.5			5EW2200-SO	119.00	28.00	17.70	13.28	19.05
M24 x 3.0			5EW2400-SO	125.00	30.00	19.30	14.48	

Packed: 1 pc.
Available TiN coating only.

SOM

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5EW-SO	◎	◎	◎			○			○	○	○	○					
SFM	59-88	59-88	59-79			59-79			30-85	78-170	30-80	19-39					

○ good ◎ best

List 16515

VC10 | V

A-POT, DIN Overall Length, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	1651505608	1.772	0.437	0.476	0.141	0.110	0.188
2 - 64 UNF			1651505708						
3 - 48 UNC			1651505808	1.969	0.500	0.539			
3 - 56 UNF			1651505908						
4 - 40 UNC			1651500108	2.205	0.295	0.704			
4 - 48 UNF			1651500208						
5 - 40 UNC		3	1651500308		0.299	0.708			
5 - 44 UNF			1651500408						
6 - 32 UNC			1651500608		0.370	0.783			
	H3		1651500508						
6 - 40 UNF	H2		1651500708						
8 - 32 UNC			1651500908	2.480	0.374	0.826	0.168	0.131	0.250
	H3		1651500808						
8 - 36 UNF	H2		1651501008						
10 - 24 UNC	H3		1651501108	2.756	0.492	0.976	0.194	0.152	
10 - 32 UNF	H2		1651501308						
	H3		1651501208						
12 - 24 UNC			1651501408	3.150	0.496	1.177	0.220	0.165	0.281
12 - 28 UNF			1651501508						
12 - 32 UNEF			1651506008						
1/4 - 20 UNC			1651501708		0.594		0.255	0.191	0.313
	H5		1651501608						
1/4 - 28 UNF	H3		1651501908		0.590	1.173			
	H4		1651501808						
1/4 - 32 UNEF	H3		1651506108		0.586	1.169			
5/16 - 18 UNC			1651502108	3.543	0.665	1.377	0.318	0.238	0.375
	H5		1651502008						
5/16 - 24 UNF	H3		1651502308		0.661	1.374			
	H4		1651502208						
5/16 - 32 UNEF	H3		1651506208	3.150	0.653	1.366			
3/8 - 16 UNC			1651502508	3.937	0.751	1.535	0.381	0.286	0.438
	H5		1651502408						
3/8 - 24 UNF	H3		1651502708	3.543		1.377			
	H4		1651502608						
3/8 - 32 UNEF	H3		1651506308		0.744	1.370			
7/16 - 14 UNC			1651502908	3.937	0.858	1.291	0.323	0.242	0.406
	H5		1651502808						
7/16 - 20 UNF	H3		1651503108						
	H5		1651503008						

Packed: 1 pc.
Available V coating only.

continued on next page

ATP

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16515	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	40-65	35-55	25-75	25-60	25-60	60-100	70-120	70-120			40-65			

○ good ◎ best

List 16515 (Continued)

VC10 | V

A-POT, DIN Overall Length, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
7/16 - 28 UNEF	H4	3	1651506408	3.543	0.858	1.291	0.323	0.242	0.406
1/2 - 13 UNC	H3		1651503308	4.331	0.921	1.354	0.367	0.275	0.438
	H5		1651503208						
1/2 - 20 UNF	H3		1651503508	3.937					
	H5		1651503408						
1/2 - 28 UNEF	H4		1651506508						
9/16 - 12 UNC	H3		1651503708	4.331	1.000	1.472	0.429	0.322	0.500
	H5		1651503608						
9/16 - 18 UNF	H3		1651503908	3.937					
	H5		1651503808						
9/16 - 24 UNEF	H4		1651506608						
5/8 - 11 UNC	H3		1651504108	4.331	1.090	1.562	0.480	0.360	0.563
	H5		1651504008						
5/8 - 18 UNF	H3		1651504308	3.937					
	H5		1651504208						
5/8 - 24 UNEF	H4		1651506708						
11/16 - 24 UNEF			1651506808	4.331	1.200	1.712	0.542	0.406	0.625
3/4 - 10 UNC	H3		1651504508	4.921			0.590	0.442	0.688
	H5		1651504408						
3/4 - 16 UNF	H3		1651504708	4.331					
	H5		1651504608						
3/4 - 20 UNEF			1651506908						
13/16 - 20 UNEF			1651507008	4.921			0.652	0.489	
7/8 - 9 UNC	H4		1651504908	5.512	1.334	1.885	0.697	0.523	0.750
	H6		1651504808						
7/8 - 14 UNF	H4		1651505108	4.921					
	H6		1651505008						
7/8 - 20 UNEF	H5		1651507108						
15/16 - 20 UNEF			1651507208	5.512	1.500	2.090	0.760	0.570	0.750
1 - 8 UNC	H4		1651505308	6.299			0.800	0.600	0.813
	H6		1651505208						
1 - 12 UNF	H4		1651505508	5.512					
	H6		1651505408						
1 - 14 UNS			1651507408						
1 - 20 UNEF	H5		1651507308						

Packed: 1 pc.
Available V coating only.

ATP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16515	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	40-65	35-55	25-75	25-60	25-60	60-100	70-120	70-120			40-65			

○ good ◎ best

List 16510

VC10 | V

A-POT, DIN Overall Length, Plug (3.5P-4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M1.4 x 0.3	D2	2	1651003008	40.00	7.90	8.90	3.58	2.79	4.80
M1.6 x 0.35	D3		1651003108						
M1.7 x 0.35			1651003208		9.50	10.50			
M2 x 0.4			1651003408	45.00	11.10	12.10			
M2 x 0.25	D2		1651003308						
M2.2 x 0.45	D3		1651003608						
M2.2 x 0.25	D2		1651003508						
M2.3 x 0.4	D3		1651003708						
M2.5 x 0.45			1651003908	50.00	12.80	13.80			
M2.5 x 0.35			1651003808						
M2.6 x 0.45			1651004008						
M3 x 0.5		3	1651000108	56.00	6.10	18.10			
M3 x 0.35			1651004108						
M3.5 x 0.6			1651004308		7.20	19.80			
M3.5 x 0.35			1651004208						
M4 x 0.7	D4		1651000308	63.00	8.40	21.00	4.27	3.33	6.40
M4 x 0.5	D3		1651000208						
M4.5 x 0.75	D4		1651004508	70.00	9.10	24.80	4.93	3.86	
M4.5 x 0.5	D3		1651004408						
M5 x 0.8	D4		1651000508						
M5 x 0.5	D3		1651000408						
M5.5 x 0.5			1651004608	80.00	10.80	29.70	5.59	4.19	7.10
M6 x 1.0	D5		1651000808		12.00		6.48	4.85	7.90
M6 x 0.75	D4		1651000708						
M6 x 0.5	D3		1651000608						
M7 x 1.0	D5		1651004808		12.10		8.08	6.05	9.50
M7 x 0.75	D4		1651004708						
M8 x 1.25	D5		1651001008	90.00	15.40	34.80			
M8 x 1.0			1651000908						
M8 x 0.75	D4		1651004908	80.00		30.00			
M9 x 1.25	D5		1651005208	90.00		34.70	9.68	7.26	11.10
M9 x 1.0			1651005108		14.00				
M9 x 0.75	D4		1651005008						
M10 x 1.5	D6		1651001308	100.00	18.00	38.90			
M10 x 1.25	D5		1651001208		17.00				
M10 x 1.0			1651001108	90.00	18.00	34.80			
M10 x 0.75	D4		1651005308		17.00				
M11 x 1.5	D6		1651005608	100.00	18.00	29.00	8.20	6.15	10.30
M11 x 1.0	D5		1651005508	90.00					

Packed: 1 pc.
Available V coating only.

continued on next page

ATP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16510	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	40-65	35-55	25-75	25-60	25-60	60-100	70-120	70-120			40-65			

○ good ◎ best

List 16510 (Continued)

VC10 | V

A-POT, DIN Overall Length, Plug (3.5P-4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M11 x 0.75	D4	3	1651005408	90.00	18.00	29.00	8.20	6.15	10.30
M12 x 1.75	D6		1651001708	110.00	21.00	32.00	9.32	6.98	11.10
M12 x 1.5			1651001608	100.00					
M12 x 1.25			1651001508						
M12 x 1.0	D5		1651001408						
M14 x 2.0	D7		1651001908	110.00	24.00	36.00	10.90	8.18	12.70
M14 x 1.5	D6	4	1651001808	100.00					
M14 x 1.25			1651005808						
M14 x 1.0	D5		1651005708						
M15 x 2.0	D7	3	1651007208	110.00			12.19	9.14	14.30
M15 x 1.5	D6	4	1651006008	100.00					
M15 x 1.25			1651007308						
M15 x 1.0	D5		1651005908						
M16 x 2.0	D7	3	1651002108	110.00					
M16 x 1.5	D6	4	1651002008	100.00					
M16 x 1.25			1651007408						
M16 x 1.0	D5		1651006108						
M17 x 1.5	D6		1651006308				13.77	10.31	15.90
M17 x 1.25			1651007508						
M17 x 1.0	D5		1651006208						
M18 x 2.5	D7	3	1651002308	125.00	30.00	43.00			
M18 x 2.0		4	1651006508						
M18 x 1.25	D6		1651007608	110.00					
M18 x 1.5			1651002208						
M18 x 1.0	D5		1651006408						
M20 x 2.5	D7	3	1651002508	140.00		44.00	16.56	12.42	17.50
M20 x 2.0		4	1651006708						
M20 x 1.5	D6		1651002408	125.00					
M20 x 1.0	D5		1651006608						
M22 x 2.5	D7	3	1651002708	140.00			17.70	13.28	19.10
M22 x 2.0		4	1651006908						
M22 x 1.5	D6		1651002608	125.00					
M22 x 1.0	D5		1651006808						
M24 x 3.0	D8	3	1651002908	160.00	36.00	51.00	19.30	14.48	
M24 x 2.0	D7	4	1651007108	140.00					
M24 x 1.5	D6		1651002808						
M24 x 1.0	D5		1651007008						

Packed: 1 pc.
Available V coating only.

ATP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16510	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	40-65	35-55	25-75	25-60	25-60	60-100	70-120	70-120			40-65			

○ good ◎ best

List 16555

VC10 | V

A-OIL-POT, Coolant-Through, DIN Overall Length, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 20 UNC	H5	3	1655500108	3.150	0.598	1.181	0.255	0.191	0.313
1/4 - 28 UNF	H4		1655500208						
5/16 - 18 UNC	H5		1655500308	3.543	0.665	1.377	0.318	0.238	0.375
5/16 - 24 UNF	H4		1655500408						
3/8 - 16 UNC	H5		1655500508	3.937	0.751	1.535	0.381	0.286	0.438
3/8 - 24 UNF	H4		1655500608	3.543		1.377			
7/16 - 14 UNC	H5		1655500708	3.937	0.858	1.291	0.323	0.242	0.406
7/16 - 20 UNF			1655500808						
1/2 - 13 UNC			1655500908	4.331	0.921	1.354	0.367	0.275	0.438
1/2 - 20 UNF			1655501008	3.937					
9/16 - 12 UNC			1655501108	4.331	1.000	1.472	0.429	0.322	0.500
9/16 - 18 UNF			1655501208	3.937					
5/8 - 11 UNC			1655501308	4.331	1.090	1.562	0.480	0.360	0.563
5/8 - 18 UNF			1655501408	3.937					
3/4 - 10 UNC			1655501508	4.921	1.200	1.712	0.590	0.442	0.688
3/4 - 16 UNF			1655501608	4.331					
7/8 - 9 UNC	H6		1655501708	5.512	1.334	1.885	0.697	0.523	0.750
7/8 - 14 UNF			1655501808	4.921					
1 - 8 UNC			1655501908	6.299	1.500	2.090	0.800	0.600	0.813
1 - 12 UNF			1655502008	5.512					

Packed: 1 pc.
Available V coating only.

ATP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16555	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	100-200	100-200	100-200	50-120	45-110	40-120	40-120	40-100	80-160	90-220	90-220			60-120			

○ good ◎ best

List 16550

VC10 | V

A-OIL-POT, Coolant-Through, DIN Overall Length, Plug (3.5P-4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M6 x 1.0	D5	3	1655000208	80.00	12.00	30.00	6.48	4.85	7.90
M6 x 0.75	D4		1655000108						
M7 x 1.0	D5		1655000308				8.08	6.05	9.50
M8 x 1.25			1655000608	90.00	15.00	35.00			
M8 x 1.0			1655000508						
M8 x 0.75	D4		1655000408	80.00		30.00			
M9 x 1.25	D5		1655000708	90.00		35.00	9.68	7.26	11.10
M10 x 1.5	D6		1655001008	100.00	18.00	39.00			
M10 x 1.25	D5		1655000908						
M10 x 1.0			1655000808	90.00		35.00			
M11 x 1.5			1655001108	100.00		29.00	8.20	6.15	10.30
M12 x 1.75	D6		1655001508	110.00	21.00	32.00	9.32	6.98	11.10
M12 x 1.5			1655001408	100.00					
M12 x 1.25			1655001308						
M12 x 1.0	D5		1655001208						
M14 x 2.0	D7	4	1655001708	110.00	24.00	36.00	10.90	8.18	12.70
M14 x 1.5	D6		1655001608	100.00					
M15 x 1.5			1655001808				12.19	9.14	14.30
M16 x 2.0	D7	3	1655002008	110.00					
M16 x 1.5	D6	4	1655001908	100.00					
M17 x 1.5			1655002108				13.77	10.31	15.90
M18 x 2.5	D7	3	1655002308	125.00	30.00	43.00			
M18 x 1.5	D6	4	1655002208	110.00					
M20 x 2.5	D7	3	1655002508	140.00		44.00	16.56	12.42	17.50
M20 x 1.5	D6	4	1655002408	125.00					
M22 x 2.5	D7	3	1655002808	140.00			17.70	13.28	19.10
M22 x 2.0		4	1655002708						
M22 x 1.5	D6		1655002608	125.00					
M24 x 3.0	D8	3	1655003108	160.00	36.00	51.00	19.30	14.48	
M24 x 2.0	D7	4	1655003008	140.00					
M24 x 1.5	D6		1655002908						

Packed: 1 pc.
Available V coating only.

ATP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16550	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	100-200	100-200	100-200	50-120	45-110	40-120	40-120	40-100	80-160	90-220	90-220			60-120			

○ good ◎ best

List 16535

VC10 | V

A-LT-POT, Long Shank, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) V	Long Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H2	2	1653506008	3.149	0.342	0.751	0.140	0.109	0.188
4 - 48 UNF			1653506108						
5 - 40 UNC		3	1653500708	3.937	0.350	0.759			
5 - 44 UNF			1653506308						
6 - 32 UNC	H3		1653501008	4.724	0.429	0.842			
6 - 40 UNF	H2		1653501108	3.937	0.433	0.846			
8 - 32 UNC	H3		1653501308	4.724	0.444	0.897	0.167	0.131	0.251
8 - 36 UNF	H2		1653501408	3.937					
10 - 24 UNC	H3		1653501508	4.921	0.574	1.059	0.194	0.151	
10 - 32 UNF			1653501708	5.906	0.582	1.066			
12 - 24 UNC			1653501808	4.921	0.590	1.271	0.220	0.164	0.279
12 - 28 UNF			1653501908						
1/4 - 20 UNC	H5		1653502108	5.906	0.704	1.366	0.255	0.190	0.287
1/4 - 28 UNF	H4		1653502308						
5/16 - 18 UNC	H5		1653502508		0.803	1.633	0.317	0.238	0.342
5/16 - 24 UNF	H4		1653502708						
3/8 - 16 UNC	H5		1653502908		0.917	1.897	0.380	0.285	0.397
3/8 - 24 UNF	H4		1653503108		0.929				
7/16 - 14 UNC	H5		1653503308		0.858	2.362	0.322	0.242	0.405
7/16 - 20 UNF			1653503508						
1/2 - 13 UNC			1653503708	7.087	0.921	2.834	0.367	0.274	0.437
1/2 - 20 UNF			1653503908						
9/16 - 12 UNC			1653504108		1.000		0.429	0.322	0.500
9/16 - 18 UNF			1653504308						
5/8 - 11 UNC			1653504508		1.090		0.480	0.359	0.562
5/8 - 18 UNF			1653504708						
3/4 - 10 UNC			1653504908	7.874	1.200	3.149	0.590	0.442	0.688
3/4 - 16 UNF			1653505108						
7/8 - 9 UNC	H6		1653505308		1.334		0.697	0.522	0.751
7/8 - 14 UNF			1653505508						
1 - 8 UNC			1653505708				0.800	0.600	0.811
1 - 12 UNF			1653505908						

Packed: 1 pc.
Available V coating only.

ATP

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16535	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	40-65	35-55	25-75	25-60	25-60	60-100	70-120	70-120			40-65			

○ good ◎ best

List 16530

VC10 | V

A-LT-POT, Long Shank, Plug (3.5P-4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) V	Long Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D3	3	1653001308	100.00	6.00	20.00	3.58	2.79	4.80
M3 x 0.35			1653001208						
M3.5 x 0.6			1653001508		7.00	23.00			
M3.5 x 0.35			1653001408						
M4 x 0.7	D4		1653001708		8.00	27.00	4.26	3.32	6.40
M4 x 0.5	D3		1653001608						
M4.5 x 0.75	D4		1653001908		9.00	30.00	4.92	3.86	
M4.5 x 0.5			1653001808						
M5 x 0.8	D4		1653002108	125.00		32.90			
M5 x 0.5	D3		1653002008						
M5.5 x 0.5			1653002208		10.00	35.90	5.58	4.19	7.10
M6 x 1.0	D5		1653002708	150.00	11.00	40.00	6.47	4.85	7.80
M6 x 0.75	D4		1653002508						
M6 x 0.5	D3		1653002308	125.00					
M8 x 1.25	D5		1653003708	150.00	15.00	51.90	8.07	6.04	9.40
M8 x 1.0			1653003508						
M8 x 0.75	D4		1653003308						
M10 x 1.5	D6		1653005108		18.00	59.90	9.67	7.26	11.00
M10 x 1.25	D5		1653004908						
M10 x 1.0			1653004708						
M10 x 0.75	D4		1653004508						
M12 x 1.75	D6		1653006708	180.00	21.00	72.00	9.32	6.98	
M12 x 1.5			1653006508						
M12 x 1.25			1653006308						
M12 x 1.0	D5		1653006108						
M14 x 2.0	D7		1653007108	150.00	24.00	59.90	10.89	8.17	12.70
M14 x 1.5	D6	4	1653007008						
M14 x 1.25			1653006908						
M14 x 1.0	D5		1653006808						
M15 x 1.5	D6		1653007308	160.00		64.00	12.19	9.14	14.30
M15 x 1.0	D5		1653007208						
M16 x 2.0	D7	3	1653007708			72.00			
M16 x 1.5	D6		1653007508			64.00			
M16 x 1.0	D4		1653007408						
M18 x 2.5	D7	3	1653008308	180.00	29.00	72.00	13.76	10.31	15.90
M18 x 2.0		4	1653008208						
M18 x 1.5	D6		1653008108						
M18 x 1.0	D5		1653008008						
M20 x 2.5	D7	3	1653008708	200.00		80.00	16.56	12.42	17.50
M20 x 2.0		4	1653008608						
M20 x 1.5	D6		1653008508						
M20 x 1.0	D5		1653008408						
M22 x 2.5	D7	3	1653009108				17.70	13.28	19.10
M22 x 2.0		4	1653009008						
M22 x 1.5	D6		1653008908						
M22 x 1.0	D5		1653008808						

Packed: 1 pc.
Available V coating only.

ATP

List 16530 (Continued)

VC10 | V

A-LT-POT, Long Shank, Plug (3.5P-4.5P)

Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)	Long Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M24 x 3.0	D8	3	1653009508	200.00	35.00	80.00	19.30	14.47	19.10
M24 x 2.0	D7	4	1653009408						
M24 x 1.5	D6		1653009308						
M24 x 1.0	D5		1653009208						

Packed: 1 pc.
Available V coating only.

ATP

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16530	◎	◎	◎	◎	○	◎	◎	◎	○	○	○			◎			
SFM	80-120	80-120	80-120	40-65	35-55	25-75	25-60	25-60	60-100	70-120	70-120			40-65			

○ good ◎ best

List 13063

VC10 | V | LHS | 21°

V-CPM-RFT, RHC/LHS for Through Hole, Plug (4P - 4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P - 4.5P) V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	1306300108	1.752	0.437	0.476	0.141	0.110	0.189
4 - 40 UNC		3	1306300208	1.874	0.295	0.559			
6 - 32 UNC	H3		1306300308	2.000	0.370	0.685			
8 - 32 UNC			1306300408	2.126	0.374	0.752	0.168	0.131	0.252
10 - 24 UNC			1306300508	2.374	0.492	0.866	0.194	0.152	
10 - 32 UNF			1306300608						
1/4 - 20 UNC			1306300708	2.500	0.594	0.996	0.255	0.191	0.287
	H5		1306300808						
1/4 - 28 UNF	H3		1306300908						
5/16 - 18 UNC			1306301008	2.720	0.665	1.126	0.318	0.238	0.374
	H5		1306301108						
5/16 - 24 UNF	H3		1306301208						
3/8 - 16 UNC			1306301308	2.937	0.752	1.252	0.381	0.286	0.437
	H5		1306301408						
3/8 - 24 UNF	H3		1306301508						
7/16 - 14 UNC			1306301608	3.157	0.858	1.291	0.323	0.242	0.406
7/16 - 20 UNF			1306301708						
1/2 - 13 UNC			1306301808	3.374	0.921	1.354	0.367	0.275	0.437
	H5		1306301908						
1/2 - 20 UNF	H3		1306302008						

Packed: 1 pc.
Available V coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13063				○				○					◎	○			
SFM				15-50				8-20					8-20	15-35			

○ good ◎ best

List 13163

VC10 | V | LHS | 21°

V-CPM-RFT, RHC/LHS for Through Hole, Plug (4P - 4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P - 4.5P) V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M2.5 x 0.45	D3	3	1316300108	47.60	12.00	13.80	3.58	2.79	4.80
M3 x 0.5			1316300208	50.80	6.00	16.00			
M4 x 0.7	D4		1316300308	55.80	8.00	19.10	4.26	3.33	6.40
M5 x 0.8			1316300408	62.40	9.00	22.20	4.92	3.86	
M6 x 1.0	D5		1316300508	65.50	12.00	25.40	6.47	4.85	7.30
M8 x 1.25			1316300808	69.10	15.00	28.60	8.07	6.05	9.50
M10 x 1.5	D6		1316301008	74.60	18.00	31.80	9.67	7.26	11.10
M10 x 1.25	D5		1316300908						
M12 x 1.75	D6		1316301308	85.70	21.00	32.00	9.32	6.98	
M12 x 1.25	D5		1316301108						

Packed: 1 pc.
Available V coating only.

EP

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13163				○				○					◎	○			
SFM				15-50				8-20					8-20	15-35			

○ good ◎ best

List 337Ni

VC10 | HR

WHR-Ni-POT, DIN Overall Length, Plug (5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			HR	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	2	3370002562	1.772	0.437	0.476	0.140	0.109	0.188
4 - 40 UNC	H2	3	3370004402	2.205	0.562	0.602			
	H3		3370004403						
4 - 48 UNF	H2		3370004482						
6 - 32 UNC	H2		3370006322		0.688	-			
	H3		3370006323			-			
8 - 32 UNC	H2		3370008322	2.480	0.751	-	0.167	0.131	0.251
	H3		3370008323			-			
10 - 24 UNC	H2		3370010242	2.756	0.874	-	0.194	0.151	
	H3		3370010243			-			
10 - 32 UNF	H2		3370010322		0.870	-			
	H3		3370010323			-			
1/4 - 20 UNC	H3		3370014203	3.150	1.000	-	0.255	0.190	0.287
	H5		3370014205			-			
1/4 - 28 UNF	H3		3370014283		0.992	-			
	H4		3370014284			-			
5/16 - 18 UNC	H3		3370516183	3.543	0.665	1.377	0.317	0.238	0.342
	H5		3370516185						
5/16 - 24 UNF	H3		3370516243		0.657	1.370			
	H5		3370516245						
3/8 - 16 UNC	H3		3370038163	3.937	0.751	1.535	0.380	0.285	0.397
	H5		3370038165						
3/8 - 24 UNF	H3		3370038243	3.543	0.740	1.377			
	H5		3370038245						
7/16 - 14 UNC	H3		3370716143	3.937	0.858	1.291	0.322	0.242	0.405
	H5		3370716145						
7/16 - 20 UNF	H3		3370716203						
	H5		3370716205						
1/2 - 13 UNC	H3		3370012133	4.331	0.921	1.354	0.367	0.274	0.437
	H5		3370012135						
1/2 - 20 UNF	H3		3370012203	3.937					
	H5		3370012205						
9/16 - 18 UNF	H3		3370916183		1.000	1.472	0.429	0.322	0.500
	H5		3370916185						
5/8 - 11 UNC	H3		3370058113	4.331	1.090	1.562	0.480	0.359	0.562
	H5		3370058115						
5/8 - 18 UNF	H3		3370058183	3.937					
	H5		3370058185						
3/4 - 10 UNC	H3	4	3370034103	4.921	1.200	1.712	0.590	0.442	0.688
	H5		3370034105						
3/4 - 16 UNF	H3		3370034163	4.331					
	H5		3370034165						

Packed: 1 pc.
Available HR coating only.

EP

List 337Ni (Continued)

VC10 | HR

WHR-Ni-POT, DIN Overall Length, Plug (5P)

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			HR	L	Lc	Ln	d	k	lk
7/8 - 9 UNC	H3	4	3370078093	5.512	1.334	1.885	0.697	0.522	0.751
	H5		3370078095						
7/8 - 14 UNF	H3		3370078143	4.921					
	H5		3370078145						
1 - 8 UNC	H3		3370001083	6.299	1.500	2.090	0.800	0.600	0.811
	H5		3370001085						
1 - 12 UNF	H3		3370001123	5.512					
	H5		3370001125						

Packed: 1 pc.
Available HR coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
337Ni								▢				◻				▢	
SFM								8-20				8-15				8-12	

▢ good ◻ best

List 338Ni

VC10 | HR

WHR-Ni-POT, DIN Overall Length, Plug (5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (5P) HR	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M2.5 x 0.45	D3	2	3380250453	50.00	12.00	13.80	3.58	2.79	4.80
M3 x 0.5		3	3380003053	56.00	16.00	21.00			
M4 x 0.7	D4		3380004074	63.00	19.00	25.50	4.26	3.33	6.40
M5 x 0.8			3380005084	70.00	22.00	-	4.92	3.86	
M6 x 1.0	D5		3380006105	80.00	25.00	33.90	6.47	4.85	7.30
M6 x 0.75			3380006755						
M8 x 1.25			3380008255	90.00	15.00	35.00	8.07	6.05	8.70
M8 x 1.0			3380008105						
M10 x 1.5	D6		3380010156	100.00	22.00	43.50	9.67	7.26	10.10
M10 x 1.25	D5		3380010255						
M12 x 1.75	D6		3380012756	110.00	21.00	32.00	9.32	6.98	11.10
M12 x 1.5			3380012156	100.00					
M14 x 2.0	D7		3380014207	110.00	24.00	36.00	10.89	8.18	12.70
M14 x 1.5	D6		3380014156	100.00					
M16 x 2.0	D7		3380016207	110.00			12.19	9.14	14.30
M16 x 1.5	D6		3380016156	100.00					
M18 x 2.5	D7		3380018257	125.00	30.00	43.00	13.76	10.31	15.90
M18 x 1.5	D6		3380018156	110.00					
M20 x 2.5	D8		3380020258	140.00		44.00	16.56	12.42	17.50
M20 x 1.5	D6		3380020156	125.00					
M22 x 2.5	D8		3380022258	140.00			17.70	13.28	19.10
M22 x 1.5	D6		3380022156	125.00					
M24 x 3.0	D8	4	3380024308	160.00	36.00	51.00	19.30	14.48	
M24 x 1.5	D6		3380024156	140.00					

Packed: 1 pc.
Available HR coating only.

EP

Work Material

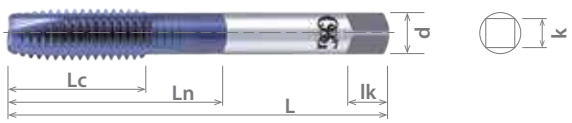
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
338Ni								▢				▢				▢	
SFM								8-20				8-15				8-12	

▢ good ▢ best

List 312Ti

V-Ti-POT, Plug (4.5P-5.5P)

VC10 | V



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4.5P-5.5P) V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	3	1105610108	1.752	0.437	-	0.140	0.109	0.188
4 - 40 UNC	H2		1105610208	1.874	0.562	-			
6 - 32 UNC	H2		1105610408	2.000	0.688	-			
	H3		1105610508			-			
6 - 40 UNF	H2		1105610608			-			
8 - 32 UNC	H2		1105610708	2.126	0.751	-	0.167	0.131	0.251
	H3		1105610808			-			
8 - 36 UNF	H2		1105610908			-			
10 - 24 UNC	H3		1105611008	2.374	0.874	-	0.194	0.151	
10 -32 UNF	H2		1105611108		0.866	-			
	H3		1105611208			-			
1/4 - 20 UNC	H3		1105611308	2.500	1.000	-	0.255	0.190	0.311
	H5		1105611408			-			
1/4 - 28 UNF	H3		1105611508		0.988	-			
	H4		1105611608			-			
5/16 - 18 UNC	H3		1105611708	2.720	0.665	1.125	0.317	0.238	0.374
	H5		1105611808						
5/16 - 24 UNF	H3		1105611908		0.657	1.118			
	H4		1105612008						
3/8 - 16 UNC	H3		1105612108	2.937	0.751	1.251	0.380	0.285	0.437
	H5		1105612208						
3/8 - 24 UNF	H3		1105612308		0.740	1.240			
	H4		1105612408						
7/16 - 14 UNC	H3		1105612508	3.157	0.858	1.291	0.322	0.242	0.405
	H5		1105612608						
7/16 - 20 UNF	H3		1105612708						
	H5		1105612808						
1/2 - 13 UNC	H3		1105612908	3.374	0.921	1.354	0.367	0.274	0.437
	H5		1105613008						
1/2 - 20 UNF	H3		1105613108						
	H5		1105613208						
9/16 - 18 UNF	H3		1105613308	3.594	1.000	1.472	0.429	0.322	0.500
	H5		1105613408						
5/8 - 11 UNC	H3		1105613508	3.811	1.090	1.562	0.480	0.359	0.562
5/8 - 18 UNF			1105613608						
	H5		1105613708						

Packed: 1 pc.
Available V coating only.

continued on next page

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
312Ti				○				○				◎	◎	○	○		
SFM				15-30				8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 312Ti (Continued)

V-Ti-POT, Plug (4.5P-5.5P)

VC10 | V



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4.5P-5.5P) V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
3/4 - 10 UNC	H5	4	1105613808	4.252	1.200	1.712	0.590	0.442	0.688
3/4 - 16 UNF	H3		1105613908						
	H5		1105614008						
7/8 - 9 UNC	H3		1105614208	4.689	1.334	1.885	0.697	0.522	0.751
	H5		1105614308						
7/8 - 14 UNF	H3		1105614408						
	H5		1105614508			1.956			
1 - 8 UNC			1105614108	5.126	1.500	2.090	0.800	0.600	0.811

Packed: 1 pc.
Available V coating only.

EXT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
312Ti				○				◎				◎	◎	○	○		
SFM				15-30				8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 344Ti

V-Ti-POT, Plug (4.5P-5.5P)

VC10 | V



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4.5P-5.5P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M3 x 0.5	D3	3	1115810108	49.20	15.90	20.90	3.58	2.79	4.80
M4 x 0.7	D4		1115810208	54.00	19.00	25.40	4.26	3.33	6.40
M5 x 0.8			1115810308	60.30	22.20	-	4.92	3.86	
M6 x 1.0	D5		1115810408	63.50	25.30	33.80	6.47	4.85	7.90
M8 x 1.25			1115810508	69.10	15.00	28.60	8.07	6.05	9.50
M10 x 1.5	D6		1115810708	74.00	18.00	31.80	9.67	7.26	11.10
M10 x 1.25	D5		1115810608						
M12 x 1.75	D6		1115810808	85.70	21.00	32.00	9.32	6.98	

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
344Ti				○				◎				◎	◎	○	○		
SFM				15-30				8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 316TI

VPO-Ti-POT, Coolant-Through, DIN Overall Length, Plug (5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
1/4 - 28 UNF	H3	3	31621408	3.140	1.000	-	0.255	0.191	0.313
	H4		31621508			-			
5/16 - 24 UNF	H3		31621808	3.540	0.665	1.378	0.318	0.238	0.375
	H4		31621908						
3/8 - 24 UNF	H3		31622208		0.752		0.381	0.286	0.438
	H4		31622308						
7/16 - 20 UNF	H3		31622608	3.930	0.858	1.291	0.323	0.242	0.406
	H4		31622708						
1/2 - 20 UNF	H3		31623008		0.921	1.354	0.367	0.275	0.438
	H5		31623108						
9/16 - 18 UNF	H3		31623408		1.000	1.472	0.429	0.322	0.500
	H5		31623508						
5/8 - 18 UNF	H3		31623808		1.091	1.563	0.480	0.360	0.563
	H4		31623908						
3/4 - 16 UNF	H3	4	31624208	4.330	1.201	1.713	0.590	0.442	0.688
	H4		31624308						
7/8 - 14 UNF	H4		31624608	4.920	1.335	1.886	0.697	0.523	0.750
	H6		31624708						
1 - 12 UNF	H4		31625008	5.510	1.500	2.091	0.800	0.600	0.813
	H6		31625108						

Packed: 1 pc.
Available V coating only.

EXT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
316Ti				▢				▢				▣	▣	▢	▢		
SFM				15-30				8-20				8-15	8-15	15-35	10-20		

▢ good ▣ best

List 347TI

VPO-Ti-POT, Coolant-Through, DIN Overall Length, Plug (5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M8 x 1.0	D5	3	34720508	90.00	15.00	35.00	8.07	6.04	9.50
M10 x 1.25			34720708	100.00	18.00	39.00	9.67	7.26	11.10
M12 x 1.25			34720908		21.00	32.00	9.32	6.98	
M12 x 1.5	D6		34721008						
M14 x 1.5			34721208		24.00	36.00	10.89	8.17	12.70
M16 x 1.5			34721408				12.19	9.14	14.20
M18 x 1.5			34721608	110.00	30.00	43.00	13.76	10.31	15.80
M20 x 1.5			34721808	125.00		44.00	16.56	12.42	17.40
M22 x 1.5			34722008				17.70	13.28	19.00
M24 x 1.5		4	34722208	140.00	36.00	51.00	19.30	14.47	

Packed: 1 pc.
Available V coating only.

EXT

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
347Ti				○				○				◎	◎	○	○		
SFM				15-30				8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 312Ni

Ni-POT, Plug (4.5P-5.5P)

VC10 | V | S/O



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P-5.5P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	17722	01	-	1.752	0.472	-	0.140	0.109	0.188
4 - 40 UNC	H2	3	17762	01	08	1.874	0.606	-			
	H3		17763	01	-			-			
	H4	2	17720	01	-			-			
4 - 48 UNF	H2		17721	01	-			-			
6 - 32 UNC	H2	3	17715	01	-	2.000	0.744	-			
	H3		17063	01	08			-			
	H5		17064	01	-			-			
	H7		17716	01	-			-			
8 - 32 UNC	H3		17065	01	08	2.126	0.822	-	0.167	0.131	0.251
	H4		17717	01	-			-			
	H5		17066	01	-			-			
10 - 24 UNC	H3		17067	01	08	2.374	0.948	-	0.194	0.151	
	H5		17068	01	-			-			
10 - 32 UNF	H2		17718	01	-			-			
	H3		17069	01	08			-			
	H4		17719	01	-			-			
	H5		17070	01	-			-			
1/4 - 20 UNC	H3		17071	01	08	2.500	1.102	-	0.255	0.190	0.311
	H5		17072	01	-			-			
	H7		17723	01	-			-			
1/4 - 28 UNF	H3		17073	01	08			-			
	H4		17724	01	-			-			
	H5		17074	01	-			-			
5/16 - 18 UNC	H3		17075	01	08	2.720	0.799	1.259	0.317	0.238	0.374
	H5		17076	01	-						
5/16 - 24 UNF	H3		17077	01	08						
	H5		17078	01	-						
3/8 - 16 UNC	H3		17079	01	08	2.937	0.917	1.417	0.380	0.285	0.437
	H5		17080	01	-						
3/8 - 24 UNF	H3		17081	01	08						
	H5		17082	01	-						
7/16 - 14 UNC	H3		17083	01	-	3.157	0.858	1.291	0.322	0.242	0.405
	H5		17084	01	-						
7/16 - 20 UNF	H3		17085	01	08						
	H5		17086	01	-						
1/2 - 13 UNC	H3		17087	01	08	3.374	0.921	1.354	0.367	0.274	0.437
	H5		17088	01	-						
1/2 - 20 UNF	H3		17089	01	08						
	H5		17090	01	-						
9/16 - 18 UNF	H3		17172	01	-	3.594	1.000	1.472	0.429	0.322	0.500
	H5		17173	01	-						
5/8 - 11 UNC	H3		17174	01	-	3.811	1.090	1.562	0.480	0.359	0.562
5/8 - 18 UNF	H3		17175	01	-						
	H5		17176	01	-						
3/4 - 10 UNC	H3		17725	01	-	4.252	1.200	1.712	0.590	0.442	0.688
	H5	4	17177	01	-						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

List 312Ni (Continued)

Ni-POT, Plug (4.5P-5.5P)

VC10 | V | S/O

Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P-5.5P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
3/4 - 16 UNF	H3	4	17178	01	-	4.252	1.200	1.712	0.590	0.442	0.688
	H5		17179	01	-						
7/8 - 9 UNC	H3		17181	01	-	4.689	1.334	1.885	0.697	0.522	0.751
	H5		17182	01	-						
7/8 - 14 UNF	H3		17183	01	-						
	H5		17184	01	-						
1 - 8 UNC	H5		17180	01	-	5.126	1.500	2.090	0.800	0.600	0.811

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
312Ni								▢				◻	▢	▢	▢		
SFM								8-20				8-15	8-15	15-35	10-20		

▢ good ◻ best

List 344Ni

Ni-POT, Plug (4.5P-5.5P)

VC10 | V | S/O



Units: mm

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P-5.5P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M2.5 x 0.45	D3	2	11157100	01	08	46.00	12.00	13.70	3.58	2.79	4.80
M3 x 0.5		3	11157101	01	08	49.20	16.00	23.10			
M4 x 0.7	D4		11157102	01	08	54.00	19.00	25.70	4.26	3.32	6.40
M5 x 0.8			11157103	01	08	60.30	22.00	-	4.92	3.86	
M6 x 1.0	D5		11157104	01	08	63.50	25.00	33.70	6.47	4.85	7.80
M8 x 1.25			11157105	01	08	69.09	15.00	28.80	8.07	6.04	9.40
M10 x 1.25			11157106	01	08	74.60	18.00	32.00	9.67	7.26	11.00
M10 x 1.5	D6		11157107	01	08						
M12 x 1.75			11157108	01	08	85.70	21.00		9.32	6.98	

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065	4140 4340													
344Ni								○				◎	○	○	○		
SFM								8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 312

Plug (4.5P-5.5P)

EXOTAP | VC10 | V | S/O



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P-5.5P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	17590	01	08	1.752	0.437	0.476	0.140	0.109	0.188
4 - 40 UNC	H2		17570	01	08	1.874	0.303	0.566			
	H3		17591	01	08						
	H4		17592	01	08						
	H5		17593	01	08						
5 - 40 UNC	H2	3	17571	01	08	1.937	0.307	0.633			
6 - 32 UNC	H2		17594	01	08	2.000	0.377	0.692			
	H3		17572	01	08						
	H4		17595	01	08						
	H5		17596	01	08						
	H6		17597	01	08						
8 - 32 UNC	H2		17598	01	08	2.126	0.381	0.759	0.167	0.131	0.251
	H3		17573	01	08						
	H4		17599	01	08						
	H5		17600	01	08						
	H6		17601	01	08						
10 - 24 UNC	H3		17574	01	08	2.374	0.500	0.874	0.194	0.151	
	H5		17602	01	08						
10 - 32 UNF	H2		17603	01	08						
	H3		17575	01	08						
	H4		17604	01	08						
	H5		17605	01	08						
	H6		17606	01	08						
1/4 - 20 UNC	H3		17576	01	08	2.500	0.602	1.003	0.255	0.190	0.311
	H5		17002	01	08						
1/4 - 28 UNF	H3		17577	01	08						
	H4		17003	01	08						
	H5		17004	01	08						
	H6		17005	01	08						
5/16 - 18 UNC	H3		17578	01	08	2.720	0.669	1.129	0.317	0.238	0.374
	H5		17006	01	08						
5/16 - 24 UNF	H3		17579	01	08						
	H4		17007	01	08						
	H5		17008	01	08						
	H6		17009	01	08						
3/8 - 16 UNC	H3		17580	01	08	2.937	0.759	1.259	0.380	0.285	0.437
	H5		17010	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

continued on next page

EXT

Work Material

List No.	P: Carbon Steels Low 1010 1018	P: Carbon Steels Med. 1035 1045	P: Carbon Steels High 1065	P: Alloy Steels 4140 4340	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
312				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 312 (Continued)

Plug (4.5P-5.5P)

VC10 | V | S/O



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P-5.5P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
3/8 - 24 UNF	H3	3	17581	01	08	2.937	0.759	1.259	0.380	0.285	0.437
	H4		17011	01	08						
	H5		17012	01	08						
	H6		17013	01	08						
7/16 - 14 UNC	H3		17582	01	08	3.157	0.893	1.291	0.322	0.242	0.405
	H5		17014	01	08						
7/16 - 20 UNF	H3		17583	01	08		0.858				
	H5		17015	01	08						
1/2 - 13 UNC	H3		17584	01	08	3.374	0.960	1.354	0.367	0.274	0.437
	H5		17016	01	08						
1/2 - 20 UNF	H3		17585	01	08		0.921				
	H5		17017	01	08						
5/8 - 11 UNC	H3		17586	01	08	3.811	1.137	1.562	0.480	0.359	0.562
5/8 - 18 UNF			17587	01	08		1.118				
	H5		17018	01	08						
3/4 - 10 UNC	H3	4	17588	01	08	4.252	1.251	1.712	0.590	0.442	0.688
3/4 - 16 UNF			17589	01	08		1.232				

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
312				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 344

Plug (4.5P-5.5P)

VC10 | V | S/O



Units: mm

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P-5.5P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D3	3	17022	01	08	49.20	6.00	16.00	3.58	2.79	4.80
M4 x 0.7	D4		17023	01	08	54.00	8.00	19.10	4.26	3.33	6.40
M5 x 0.8			17024	01	08	60.30	9.00	22.20	4.92	3.86	
M6 x 1.0	D5		17025	01	08	63.50	12.00	25.40	6.47	4.85	7.90
M8 x 1.25			17026	01	08	69.10	15.00	28.60	8.07	6.05	9.50
M10 x 1.5	D6		17028	01	08	74.60	17.00	31.70	9.67	7.26	11.10
M10 x 1.25	D5		17027	01	08			31.60			
M12 x 1.75	D6		17029	01	08	85.70	21.00	32.00	9.32	6.98	

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
344				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 316

VPO-POT, Coolant-Through, DIN Overall Length, Plug (5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (5P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 20 UNC	H3	3	31601108	3.140	0.598	1.181	0.318	0.238	0.375
	H5		31601208						
1/4 - 28 UNF	H3		31601308						
	H4		31601408						
5/16 - 18 UNC	H3		31601508	3.540	0.665	1.378			
	H5		31601608						
5/16 - 24 UNF	H3		31601708						
	H4		31601808						
3/8 - 16 UNC	H3		31601908	3.930	0.752	1.535	0.381	0.275	0.438
	H5		31602008						
3/8 - 24 UNF	H3		31602108	3.540					
	H4		31602208						
7/16 - 14 UNC	H3		31602308	3.930	0.858	1.291	0.323	0.242	0.406
	H5		31602408						
7/16 - 20 UNF	H3		31602508						
	H5		31602608						
1/2 - 13 UNC	H3		31602708	4.330	0.921	1.354	0.367	0.275	0.438
	H5		31602808						
1/2 - 20 UNF	H3		31602908	3.930					
	H5		31603008						
9/16 - 12 UNC	H3		31603108	4.330	1.000	1.472	0.429	0.322	0.500
	H5		31603208						
9/16 - 18 UNF	H3		31603308	3.930					
	H5		31603408						
5/8- 11 UNC	H3		31603508	4.330	1.091	1.563	0.480	0.360	0.563
	H5		31603608						
5/8 - 18 UNF	H3		31603708	3.930					
	H5		31603808						
3/4 - 10 UNC	H3	4	31603908	4.920	1.201	1.713	0.590	0.442	0.688
	H5		31605008						
3/4 - 16 UNF	H3		31604008	4.330					
	H5		31604108						
7/8 - 9 UNC	H4		31604208	5.510	1.335	1.886	0.697	0.523	0.750
	H6		31604308						
7/8 - 14 UNF	H4		31604408	4.920					
	H6		31604508						
1 - 8 UNC	H4		31604608	6.290	1.500	2.091	0.800	0.600	0.813
	H6		31604708						
1 - 12 UNF	H4		31604808	5.510					
	H6		31604908						

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
316				best	good		good	best				good	good	best	good		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

good best

List 350

VPO-POT, Coolant-Through, DIN Overall Length, Plug (5P)

EXOTAP | VC10 | V



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M6 x 1.0	D5	3	35000408	80.00	12.00	30.00	6.47	4.85	7.90
M8 x 1.0			35000508	90.00	15.00	35.00	8.07	6.04	9.50
M8 x 1.25			35000608						
M10 x 1.25			35000708	100.00	18.00	39.00	9.67	7.26	11.10
M10 x 1.5	D6		35000808						
M12 x 1.25	D5		35000908		21.00	32.00	9.32	6.98	
M12 x 1.5	D6		35001008						
M12 x 1.75			35001108	110.00					
M14 x 1.5			35001208	100.00	24.00	36.00	10.89	8.17	12.70
M14 x 2.0	D7		35001308	110.00					
M16 x 1.5	D6	4	35001408	100.00			12.19	9.14	14.20
M16 x 2.0	D7		35001508	110.00					
M18 x 1.5	D6		35001608		30.00	43.00	13.76	10.31	15.80
M18 x 2.5	D7		35001708	125.00					
M20 x 1.5	D6		35001808			44.00	16.56	12.42	17.40
M20 x 2.5	D7		35001908	140.00					
M22 x 1.5	D6		35002008	125.00			17.70	13.28	19.00
M22 x 2.5	D7		35002108	140.00					
M24 x 1.5	D6		35002208		36.00	51.00	19.30	14.47	
M24 x 3.0	D8		35002308	160.00					

Packed: 1 pc.
Available V coating only.

EXT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
350				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 300

Plug (3.5P-4.5P)

HSSE | V | TiN | S/O



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix S/O	TiN	V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	17346	01	-	08	1.752	0.437	0.476	0.140	0.109	0.188
	H3		17347	01	-	08						
	H4		17255	01	-	-						
3 - 48 UNC	H2		17256	01	-	-	1.811	0.496	0.535			
4 - 40 UNC			17300	01	05	08	1.874	0.303	0.566			
	H3		17348	01	-	08						
	H4		17258	01	-	-						
	H5		17349	01	-	08						
	H6		17268	01	-	-						
4 - 48 UNF	H2		17269	01	-	-		0.295	0.559			
	H4		17270	01	-	-						
5 - 40 UNC	H2		17301	01	-	08	1.937	0.307	0.633			
6 - 32 UNC			17358	01	-	08	2.000	0.377	0.692			
	H3		17302	01	-	08						
			17398	01	05	08						
	H4		17271	01	-	-						
	H5		17371	01	-	08						
	H7		17272	01	-	-						
6 - 40 UNF	H2		17273	01	-	-		0.370	0.685			
	H3		17274	01	-	-						
8 - 32 UNC	H2	3	17359	01	-	08	2.126	0.381	0.759	0.167	0.131	0.251
	H3		17303	01	05	08						
	H4		17275	01	-	-						
	H5		17372	01	-	08						
	H7		17276	01	-	-						
8 - 36 UNF	H2		17277	01	-	-		0.374	0.752			
10 - 24 UNC	H3		17304	01	05	08	2.374	0.500	0.874	0.194	0.151	
	H4		17278	01	-	-						
	H5		17279	01	-	-						
10 - 32 UNF	H2		17365	01	-	08						
	H3		17305	01	05	08						
	H4		17764	01	-	08						
	H5		17373	01	-	08						
	H6		17280	01	-	-						
	H7		17281	01	-	-						
12 - 24 UNC	H3		17282	01	-	-		0.508	0.937	0.220	0.164	0.279
12 - 28 UNF			17283	01	-	-		0.503	0.940			
1/4 - 20 UNC	H2		17366	01	-	08	2.500	0.602	1.003	0.255	0.190	0.311
	H3		17306	01	05	08						
	H5		17374	01	-	08						
	H7		17284	01	-	-						
1/4 - 28 UNF	H2		17367	01	-	08						
	H3		17307	01	05	08						
	H4		17368	01	-	08						
	H5		17285	01	-	-						
	H6		17286	01	-	-						
	H7		17287	01	-	-						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide, TiN or V coatings as shown above.

EXT

List 300 (Continued)

Plug (3.5P-4.5P)

HSSE | V | TiN | S/O

Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix S/O	Coating Suffix TiN	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
5/16 - 18 UNC	H3	3	17308	01	05	08	2.720	0.669	1.129	0.317	0.238	0.374
	H5		17383	01	-	08						
	H7		17288	01	-	-						
5/16 - 24 UNF	H3		17309	01	05	08						
	H4		17369	01	-	08						
	H5		17289	01	-	-						
	H6		17290	01	-	-						
	H7		17291	01	-	-						
3/8 - 16 UNC	H3		17310	01	05	08	2.937	0.759	1.259	0.380	0.285	0.437
	H5		17384	01	-	08						
	H7		17292	01	-	-						
3/8 - 24 UNF	H3		17311	01	05	08						
	H4		17370	01	-	08						
	H5		17293	01	-	-						
	H7		17294	01	-	-						
7/16 - 14 UNC	H3		17312	01	05	08	3.157	0.893	1.291	0.322	0.242	0.405
	H5		17385	01	-	08		0.881				
7/16 - 20 UNF	H3		17313	01	05	08						
	H5		17386	01	-	08						
1/2 - 13 UNC	H3		17314	01	05	08	3.374	0.960	1.354	0.367	0.274	0.437
	H5		17387	01	-	08						
	H7		17295	01	-	-						
1/2 - 20 UNF	H3		17315	01	05	08		0.944				
	H5		17388	01	-	08		0.921				
9/16 - 12 UNC	H3		17250	01	05	08	3.594	1.043	1.472	0.429	0.322	0.500
9/16 - 18 UNF			17251	01	05	08		1.027				
5/8 - 11 UNC			17316	01	05	08	3.811	1.137	1.562	0.480	0.359	0.562
	H5		17389	01	-	08						
	H7		17296	01	-	-						
5/8 - 18 UNF	H3		17317	01	05	08		1.118				
	H5		17297	01	-	-						
	H7		17298	01	-	-						
3/4 - 10 UNC	H3		17318	01	05	08	4.252	1.251	1.712	0.590	0.442	0.688
3/4 - 16 UNF			17319	01	05	08		1.232				
7/8 - 9 UNC	H4		17252	01	05	08	4.689	1.389	1.885	0.697	0.522	0.751
7/8 - 14 UNF			17253	01	05	08		1.370				
1 - 8 UNC			17254	01	05	08	5.126	1.562	2.090	0.800	0.600	0.811
1 - 12 UNF			17299	01	-	-		1.543				

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide, TiN or V coatings as shown above.

EXT

Work Material

List No.	P: Carbon Steels Low 1010 1018	P: Carbon Steels Med. 1035 1045	P: Carbon Steels High 1065	P: Alloy Steels 4140 4340	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
300	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 342

Plug (3.5P-4.5P)

EXOTAP | HSSE | V | TiN | S/O



Units: mm

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix S/O	Coating Suffix TiN	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D3	3	17501	01	-	08	49.20	6.00	16.00	3.58	2.79	4.80
M3.5 x 0.6	D4		17729	01	-	-	50.80	7.00	17.50			
M4 x 0.7			17504	01	05	08	54.00	8.00	19.10	4.26	3.33	6.40
M5 x 0.8			17507	01	05	08	60.30	9.00	22.20	4.92	3.86	
M6 x 1.0	D5		17510	01	05	08	63.50	12.00	25.40	6.47	4.85	7.90
M7 x 1.0			17734	01	-	-	69.10		28.70	8.07	6.05	9.50
M8 x 1.25			17513	01	05	08		15.00	28.60			
M8 x 1.0			17732	01	-	-						
M10 x 1.5	D6		17516	01	05	08	74.60	18.00	31.80	9.67	7.26	11.10
M10 x 1.25	D5		17731	01	-	-		17.00	31.70			
M12 x 1.75	D6		17519	01	05	08	85.70	21.00	32.00	9.32	6.98	
M12 x 1.25	D5		17727	01	-	-						
M14 x 2.0	D7		17726	01	-	-	91.30	24.00	36.00	10.89	8.18	12.70
M14 x 1.5	D6		17728	01	-	-						
M16 x 1.5			17730	01	-	-	96.80			12.19	9.14	14.30
M16 x 2.0	D7		17735	01	-	-						
M18 x 1.5	D6		17733	01	-	-	102.40	30.00	43.00	13.76	10.31	15.90

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide, TiN or V coatings as shown above.

EXT

Work Material

List No.	P: Carbon Steels Low	P: Carbon Steels Med.	P: Carbon Steels High	P: Alloy Steels	P: Die Steels	M: Stainless Steels			K: Cast Iron	N: Aluminum		N: Nickel Alloy	S: Titanium	H: Hardened Steels			
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
342	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 306

OIL-V-POT, Coolant-Through, DIN Overall Length, Plug (4P)

HSSE | V



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 20 UNC	H3	3	30601708	3.140	0.598	1.181	0.255	0.191	0.287
	H5		30601808						
1/4 - 28 UNF	H3		30601908						
	H4		30602008						
5/16 - 18 UNC	H3		30602108	3.540	0.665	1.378	0.318	0.238	0.375
	H5		30602208						
5/16 - 24 UNF	H3		30602308						
	H4		30602408						
3/8 - 16 UNC	H3		30602508	3.930	0.752	1.535	0.381	0.286	0.438
	H5		30602608						
3/8 - 24 UNF	H3		30602708	3.540		1.378			
	H4		30602808						
7/16 - 14 UNC	H3		30602908	3.930	0.858	1.291	0.323	0.242	0.406
	H5		30603008						
7/16 - 20 UNF	H3		30603108						
	H5		30603208						
1/2 - 13 UNC	H3		30603308	4.330	0.921	1.354	0.367	0.275	0.438
	H5		30603408						
1/2 - 20 UNF	H3		30603508	3.930					
	H5		30603608						
9/16 - 12 UNC	H3		30603708	4.330	1.000	1.472	0.429	0.322	0.500
	H5		30603808						
9/16 - 18 UNF	H3		30603908	3.930					
	H5		30604008						
5/8 - 11 UNC	H3		30604108	4.330	1.091	1.563	0.480	0.360	0.563
	H5		30604208						
5/8 - 18 UNF	H3		30604308	3.930					
	H5		30604408						
3/4 - 10 UNC	H3		30604508	4.920	1.201	1.713	0.590	0.442	0.688
	H5		30604608						
3/4 - 16 UNF	H3		30604708	4.330					
	H5		30604808						
7/8 - 9 UNC	H4		30604908	5.510	1.335	1.886	0.697	0.523	0.750
	H6		30605008						
7/8 - 14 UNF	H4		30605108	4.920					
	H6		30605208						
1 - 8 UNC	H4		30605308	6.290	1.500	2.091	0.800	0.600	0.813
	H6		30605408						
1 - 12 UNF	H4		30605508	5.510					
	H6		30605608						

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
306	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 346

OIL-V-POT, Coolant-Through, DIN Overall Length, Plug (4P)

HSSE | V



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M6 x 1.0	D5	3	34600508	80.00	12.00	30.00	6.48	4.85	7.90
M8 x 1.0			34600608	90.00	15.00	35.00	8.08	6.04	9.50
M8 x 1.25			34600708						
M10 x 1.25			34600808	100.00	18.00	39.00	9.68	7.26	11.10
M10 x 1.5	D6		34600908						
M12 x 1.25	D5		34601008		21.00	32.00	9.32	6.98	
M12 x 1.5	D6		34601108						
M12 x 1.75			34601208	110.00					
M14 x 1.5			34601308	100.00	24.00	36.00	10.90	8.18	12.70
M14 x 2.0	D7		34601408	110.00					
M16 x 1.5	D6		34601508	100.00			12.19	9.14	14.30
M16 x 2.0	D7		34601608	110.00					
M18 x 1.5	D6		34601708		30.00	43.00	13.77	10.31	15.90
M18 x 2.5	D7		34601808	125.00					
M20 x 1.5	D6		34601908			44.00	16.56	12.42	17.50
M20 x 2.5	D7		34602008	140.00					
M22 x 1.5	D6		34602108	125.00			17.70	13.28	19.10
M22 x 2.5	D7		34602208	140.00					
M24 x 1.5	D6		34602308		36.00	51.00	19.30	14.48	
M24 x 3.0	D8		34602408	160.00					

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
346	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 397

Long Shank, Plug (3.5P-4.5P)

EXOTAP® HSSE S/O



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) S/O	Long Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H2	2	1764001	4.000	0.295	0.839	0.141	0.110	0.188
			1766201	6.000					
6 - 32 UNC	H3		1764101	4.000	0.370	1.039			
			1764201	6.000		1.028			
8 - 32 UNC		3	1764301	4.000	0.374	1.126	0.168	0.131	0.250
			1764401	6.000					
10 - 24 UNC			1764501	4.000	0.492	1.303	0.194	0.152	
			1764601	6.000					
10 - 32 UNF			1764701	4.000					
			1764801	6.000					
1/4 - 20 UNC			1764901	4.000	0.594	1.496	0.255	0.191	0.313
			1765001	6.000					
1/4 - 28 UNF			1765101						
5/16 - 18 UNC			1765201		0.665	1.689	0.318	0.238	0.375
5/16 - 24 UNF			1765701						
3/8 - 16 UNC			1765301		0.752	1.874	0.381	0.286	0.438
3/8 - 24 UNF			1765801						
7/16 - 14 UNC			1765401		0.858	1.291	0.323	0.242	0.406
7/16 - 20 UNF			1765901						
1/2 - 13 UNC			1765501		0.921	1.354	0.367	0.275	0.438
1/2 - 20 UNF			1766001						
5/8 - 11 UNC			1765601		1.091	1.563	0.480	0.360	0.563

Packed: 1 pc.
Available Steam Oxide finish only.
Note: Neck length is designed for reaching 50% deeper holes than ANSI standard taps.

EXT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
397	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 320

Plug (3.5P-4.5P)

EXOTAP® HSSE TiN



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H2	2	1740005	1.874	0.295	0.559	0.141	0.110	0.188
5 - 40 UNC			1740105	1.937	0.299	0.626			
6 - 32 UNC	H3		1740205	2.000	0.370	0.685			
	H5		1742005						
	H7		1742105						
8 - 32 UNC	H3	3	1740305	2.126	0.374	0.752	0.168	0.131	0.250
10 - 24 UNC			1740405	2.374	0.492	0.866	0.194	0.152	
10 - 32 UNF			1740505						
	H5		1742205						
	H7		1742305						
1/4 - 20 UNC	H3		1740605	2.500	0.594	0.996	0.255	0.191	0.313
1/4 - 28 UNF			1740705						
	H5		1742405						
	H7		1742505						
5/16 - 18 UNC	H3		1740805	2.720	0.665	1.126	0.318	0.238	0.375
5/16 - 24 UNF			1740905		0.657	1.118			
	H5		1742605						
	H7		1742705						
3/8 - 16 UNC	H3		1741005	2.937	0.752	1.252	0.381	0.286	0.438
3/8 - 24 UNF			1741105		0.740	1.240			
	H5		1742805						
7/16 - 14 UNC	H3		1741205	3.157	0.858	1.291	0.323	0.242	0.406
7/16 - 20 UNF			1741305						
1/2 - 13 UNC			1741405						
1/2 - 20 UNF			1741505	3.374	0.921	1.354	0.367	0.275	0.438
5/8 - 11 UNC			1741605						
5/8 - 18 UNF			1741705	3.811	1.091	1.563	0.480	0.360	0.563
3/4 - 10 UNC			1741805						
3/4 - 16 UNF			1741905	4.252	1.201	1.713	0.590	0.442	0.688

Packed: 1 pc.
Available TiN coating only.

EXT

Work Material

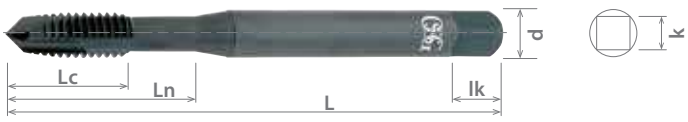
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
320	○	○	◎	◎	◎	○	○	○	○	○	○			○			
SFM	25-80	20-50	20-45	20-50	15-20	20-45	15-20	8-20	25-75	40-80	40-65			15-35			

○ good ◎ best

List 250

HSSE | S/O

DIN Overall Length, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	2B	2	2511401	2.205	0.295	0.705	0.141	0.110	0.188
6 - 32 UNC			2512401		0.370	0.783			
8 - 32 UNC		3	2517801	2.480	0.374	0.827	0.168	0.131	0.250
10 - 24 UNC			2513401	2.756	0.492	0.976	0.194	0.152	
10 - 32 UNF			2518801			0.984			
1/4 - 20 UNC			2530001	3.150	0.594	1.177	0.255	0.191	0.313
1/4 - 28 UNF			2530401			1.189			
5/16 - 18 UNC			2530801	3.543	0.665	1.378	0.318	0.238	0.375
5/16 - 24 UNF			2531201		0.657				
3/8 - 16 UNC			2531601	3.937	0.752		0.381	0.286	0.438
3/8 - 24 UNF			2531801		0.740				
7/16 - 14 UNC			2532001		0.858	1.291	0.323	0.242	0.406
7/16 - 20 UNF			2532201						
1/2 - 13 UNC			2532401	4.331	0.921	1.354	0.367	0.275	0.438
1/2 - 20 UNF			2532601	3.937					
5/8 - 11 UNC			2533201	4.331	1.091	1.563	0.480	0.360	0.563
5/8 - 18 UNF			2533401	3.937					
3/4 - 10 UNC			2533601	4.921	1.201	1.713	0.590	0.442	0.688
3/4 - 16 UNF			2533801	4.331					

Packed: 1 pc.
Available Steam Oxide finish only.

HYT

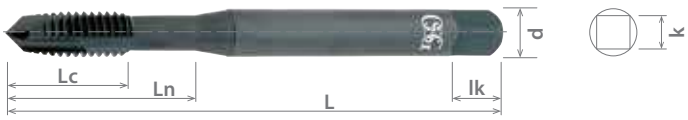
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
250	○	○	◎	◎	○	○	○	○	○					○			
SFM	25-80	20-50	20-45	20-50	15-30	20-45	20-40	15-20	25-75					15-35			

○ good ◎ best

List 259

HY-PRO HSSE S/O

DIN Overall Length, Plug (3.5P-4.5P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) S/O	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	6H	3	2590401	56.00	6.00	18.00	3.58	2.79	4.80
M4 x 0.7			2590601	63.00	8.40	21.00	4.27	3.33	6.40
M5 x 0.8			2590801	70.00	9.60	25.00	4.93	3.86	
M6 x 1.0			2591001	80.00	12.00	30.00	6.48	4.85	7.90
M8 x 1.25			2591401	90.00	15.00	35.00	8.08	6.05	9.50
M10 x 1.5			2591801	100.00	18.00	39.00	9.68	7.26	11.10
M10 x 1.25			2591701						
M12 x 1.75			2592301	110.00	21.00	32.00	9.32	6.98	
M12 x 1.5			2592201	100.00					
M12 x 1.25			2592101						
M14 x 2.0			2592601	110.00	24.00	36.00	10.90	8.18	12.70
M14 x 1.5			2592501	100.00					
M16 x 2.0			2592901	110.00			12.19	9.14	14.30
M16 x 1.5			2592801	100.00					
M18 x 2.5			2593201	125.00	30.00	43.00	13.77	10.31	15.90
M18 x 1.5			2593001	110.00					
M20 x 2.5			2593601	140.00		44.00	16.56	12.42	17.50
M20 x 1.5			2593401	125.00					

Packed: 1 pc.
Available Steam Oxide finish only.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
259	▢	▢	◻	◻	▢	▢	▢	▢	▢					▢			
SFM	25-80	20-50	20-45	20-50	15-30	20-45	20-40	15-20	25-75					15-35			

▢ good ◻ best

List 260

HSSE | TiN

OIL-TiN-POT, Coolant-Through, DIN Overall Length, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) TiN	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 20 UNC	2B	3	2630005	3.150	0.598	1.181	0.255	0.191	0.313
1/4 - 28 UNF			2630405						
5/16 - 18 UNC			2630805	3.543	0.665	1.378	0.318	0.238	0.375
5/16 - 24 UNF			2631205						
3/8 - 16 UNC			2631605	3.937	0.752		0.381	0.286	0.438
3/8 - 24 UNF			2631805						
7/16 - 14 UNC			2632005		0.858	1.291	0.323	0.242	0.406
7/16 - 20 UNF			2632205						
1/2 - 13 UNC			2632405	4.331	0.921	1.354	0.367	0.275	0.438
1/2 - 20 UNF			2632605	3.937					
9/16 - 18 UNF			2633005		1.000	1.472	0.429	0.322	0.500
5/8 - 11 UNC			2633205	4.331	1.091	1.563	0.480	0.360	0.563
5/8 - 18 UNF			2633405	3.937					
3/4 - 10 UNC			2633605	4.921	1.201	1.713	0.590	0.442	0.688
3/4 - 16 UNF			2633805	4.331					
7/8 - 9 UNC			2634005	5.512	1.335	1.886	0.697	0.523	0.750
7/8 - 14 UNF			2634205	4.921					
1 - 8 UNC		4	2634405	6.299	1.500	2.091	0.800	0.600	0.813

Packed: 1 pc.
Available TiN coating only.

HYT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
260	○	○	◎	◎	◎	○	○	○	○	○	○			○			
SFM	50-120	45-110	40-100	45-110	20-60	20-70	30-50	20-50	40-100	50-125	50-110			20-60			

○ good ◎ best

List 269

HSSE | TiN

OIL-TiN-POT, Coolant-Through, DIN Overall Length, Plug (3.5P-4.5P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) TiN	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M6 x 1.0	6H	3	2691005	80.00	12.00	30.00	6.48	4.85	7.90
M8 x 1.25			2691405	90.00	15.00	35.00	8.08	6.04	9.50
M10 x 1.5			2691805	100.00	18.00	38.90	9.68	7.26	11.10
M10 x 1.25			2691705						
M12 x 1.75			2692305	110.00	21.00	32.00	9.32	6.98	
M12 x 1.5			2692205	100.00					
M12 x 1.25			2692105						
M14 x 2.0			2692605	110.00	24.00	35.90	10.90	8.17	12.70
M14 x 1.5			2692505	100.00					
M16 x 2.0			2692905	110.00			12.19	9.14	14.30
M16 x 1.5			2692805	100.00					
M18 x 2.5			2693205	125.00	30.00	43.00	13.77	10.31	15.90
M18 x 1.5			2693005	110.00					
M20 x 2.5			2693605	140.00		43.90	16.56	12.42	17.50
M20 x 1.5			2693405	125.00					

Packed: 1 pc.
Available TiN coating only.

HYT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
269	○	○	◎	◎	◎	○	○	○	○	○	○			○			
SFM	50-120	45-110	40-100	45-110	20-60	20-70	30-50	20-50	40-100	50-125	50-110			20-60			

○ good ◎ best

List 11015

HY-PRO | HSS-Co | TiN

Plug (4P-5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P - 5P) TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H3	3	1101500105	1.875	0.382	0.693	0.141	0.110	0.188
	H4		1101505605						
	H5		1101500205						
	H6		1101500305						
	H7		1101505705						
	H8		1101515505						
4 - 48 UNF	H3		1101515605						
	H4		1101515705						
	H5		1101515805						
	H6		1101515905						
	H7		1101506505						
	H8		1101506605						
6 - 32 UNC	H3		1101500405	2.000	0.433	0.811			
	H4		1101505805						
	H5		1101500505						
	H6		1101500605						
	H7		1101500705						
	H8		1101500805						
	H9		1101506705						
	H10		1101506805						
	H11		1101506905						
6 - 40 UNF	H3		1101507005		0.374				
	H4		1101507105						
	H5		1101507205						
	H6		1101507305						
	H7		1101507405						
	H8		1101507505						
	H9		1101507605						
	H10		1101507705						
	H11		1101507805						
8 - 32 UNC	H3		1101500905	2.125	0.437	0.878	0.168	0.131	0.250
	H4		1101501005						
	H5		1101501105						
	H6		1101501205						
	H7		1101501305						
	H8		1101501405						
	H9		1101507905						
	H10		1101508005						
	H11		1101508105						

Packed: 1 pc.
Available TiN coating only.

continued on next page

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11015	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○			
SFM	25-80	20-50	20-45	20-50	15-30	20-45	20-45	15-20	25-75	40-80	40-65	8-15	8-15	15-35			

○ good ◎ best

List 11015 (Continued)

HY-PRO HSS-Co TiN

Plug (4P-5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P - 5P) TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
8 - 36 UNF	H3	3	1101508205	2.125	0.437	0.878	0.168	0.131	0.250
	H4		1101508305						
	H5		1101508405						
	H6		1101508505						
	H7		1101508605						
	H8		1101508705						
	H9		1101508805						
	H10		1101508905						
	H11		1101509005						
10 - 24 UNC	H3		1101509105	2.374	0.630	1.000	0.194	0.152	
	H4		1101509205						
	H5		1101509305						
	H6		1101509405						
	H7		1101509505						
	H8		1101509605						
	H9		1101509705						
	H10		1101509805						
	H11		1101509905						
10 - 32 UNF	H3		1101501505		0.508				
	H4		1101501605						
	H5		1101501705						
	H6		1101501805						
	H7		1101501905						
	H8		1101502005						
	H9		1101502105						
	H10		1101506005						
	H11		1101506105						
	H12		1101506205						
	H13		1101516005						
12 - 28 UNC	H3		1101516105		0.543	1.067	0.220	0.165	0.281
	H4		1101516205						
	H5		1101516305						
	H6		1101516405						
	H7		1101516505						
	H8		1101516605						
	H9		1101516705						
	H10		1101516805						
	H11		1101516905						
1/4 - 20 UNC	H3		1101510005	2.500	0.752	1.122	0.255	0.191	0.313
	H4		1101510105						
	H5		1101510205						
	H6		1101510305						
	H7		1101510405						
	H8		1101510505						
	H9		1101510605						
	H10		1101510705						
	H11		1101510805						

Packed: 1 pc.
Available TiN coating only.

HYT

List 11015 (Continued)

HY-PRO HSS-Co TiN

Plug (4P-5P)

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P - 5P) TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 28 UNF	H3	3	1101502205	2.500	0.563	1.114	0.255	0.191	0.313
	H4		1101505505						
	H5		1101502305						
	H6		1101502405						
	H7		1101502505						
	H8		1101502605						
	H9		1101502705						
	H10		1101502805						
	H11		1101506305						
	H12		1101506405						
5/16 - 18 UNC	H3		1101510905	2.719	0.874	1.283	0.318	0.238	0.375
	H4		1101511005						
	H5		1101511105						
	H6		1101511205						
	H7		1101511305						
	H8		1101511405						
	H9		1101511505						
	H10		1101511605						
	H11		1101511705						
5/16 - 24 UNF	H3		1101502905		0.689	1.244			
	H4		1101505905						
	H5		1101503005						
	H6		1101503105						
	H7		1101503205						
	H8		1101503305						
	H9		1101503405						
	H10		1101503505						
	H11		1101511805						
3/8 - 16 UNC	H3		1101511905	2.938	0.976	1.417	0.381	0.286	0.438
	H4		1101512005						
	H5		1101512105						
	H6		1101512205						
	H7		1101512305						
	H8		1101512405						
	H9		1101512505						
	H10		1101512605						
	H11		1101512705						
	H12		1101512805						
3/8 - 24 UNF	H3		1101503605		0.831	1.406			
	H4		1101512905						
	H5		1101503705						
	H6		1101503805						
	H7		1101503905						
	H8		1101504005						
	H9		1101504105						
	H10		1101504205						
	H11		1101513005						

Packed: 1 pc.
Available TiN coating only.

continued on next page

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11015	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○			
SFM	25-80	20-50	20-45	20-50	15-30	20-45	20-45	15-20	25-75	40-80	40-65	8-15	8-15	15-35			

○ good ◎ best

List 11015 (Continued)

HY-PRO HSS-Co TiN

Plug (4P-5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P - 5P) TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
7/16 - 14 UNC	H3	3	1101513105	3.157	1.098	1.496	0.323	0.242	0.406
	H4		1101513205						
	H5		1101513305						
	H6		1101513405						
	H7		1101513505						
	H8		1101513605						
	H9		1101513705						
	H10		1101513805						
	H11		1101513905						
7/16 - 20 UNF	H3		1101504305		0.799	1.417			
	H4		1101514005						
	H5		1101504405						
	H6		1101504505						
	H7		1101504605						
	H8		1101504705						
	H9		1101504805						
	H10		1101514105						
	H11		1101514205						
1/2 - 13 UNC	H3		1101514305	3.375	1.197	1.591	0.367	0.275	0.438
	H4		1101514405						
	H5		1101514505						
	H6		1101514605						
	H7		1101514705						
	H8		1101514805						
	H9		1101514905						
	H10		1101515005						
	H11		1101515105						
1/2 - 20 UNF	H3		1101504905		0.799	1.480			
	H4		1101515205						
	H5		1101505005						
	H6		1101505105						
	H7		1101505205						
	H8		1101505305						
	H9		1101505405						
	H10		1101515305						
	H11		1101515405						
9/16 - 18 UNF	H3	4	1101517005	3.594	0.862	1.307	0.429	0.322	0.500
	H5		1101517105						
	H6		1101517205						
	H7		1101517305						
	H8		1101517405						
	H9		1101517505						
5/8 - 11 UNC	H3		1101517605	3.813	1.406	1.835	0.480	0.360	0.563
	H5		1101517705						

Packed: 1 pc.
Available TiN coating only.

HYT

List 11015 (Continued)

HY-PRO HSS-Co TiN

Plug (4P-5P)

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P - 5P) TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
5/8 - 18 UNF	H3	4	1101517805	3.813	0.862	1.307	0.480	0.360	0.563
	H5		1101517905						
	H6		1101518005						
	H7		1101518105						
	H8		1101518205						
	H9		1101518305						
	H10		1101518405						
	H11		1101518505						
3/4 - 10 UNC	H3		1101518605	4.250	1.547	2.012	0.590	0.442	0.688
	H5		1101518705						
3/4 - 16 UNF	H3		1101518805		0.969	1.449			
	H5		1101518905						
	H6		1101519005						
	H7		1101519105						
	H8		1101519205						
	H9		1101519305						
	H10		1101519405						
	H11		1101519505						
7/8 - 9 UNC	H6	5	1101519605	4.688	1.720	2.217	0.697	0.523	0.750
7/8 - 14 UNF			1101519705		1.106	1.622			
	H7		1101519805						
	H8		1101519905						
	H9		1101520005						
	H10		1101520105						
	H11		1101520205						
	H12		1101520305						
1 - 12 UNF	H6		1101520405	5.125	1.291	1.843	0.800	0.600	0.813
	H7		1101520505						
	H8		1101520605						
	H9		1101520705						
	H10		1101520805						
	H11		1101520905						
	H12		1101521005						

Packed: 1 pc.
Available TiN coating only.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11015	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○			
SFM	25-80	20-50	20-45	20-50	15-30	20-45	20-45	15-20	25-75	40-80	40-65	8-15	8-15	15-35			

○ good ◎ best

List 11115

HY-PRO HSS-Co TiN

Plug (4P-5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P - 5P) TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	H3	3	1111500105	49.20	9.60	19.20	3.58	2.79	4.80
	H5		1111500205						
	H4		1111500905						
	H6		1111501005						
	H7		1111501105						
	H8		1111501205						
	H9		1111501305						
	H10		1111501405						
	H11		1111501505						
M4 x 0.7	H4		1111500305	54.00	11.10	20.60	4.27	3.33	6.40
	H5		1111500405						
	H6		1111501605						
	H7		1111501705						
	H8		1111501805						
	H9		1111501905						
	H10		1111502005						
	H11		1111502105						
M5 x 0.8	H4		1111500505	60.30	12.70	25.40	4.93	3.86	
	H5		1111500605						
	H6		1111502205						
	H7		1111502305						
	H8		1111502405						
	H9		1111502505						
	H10		1111502605						
	H11		1111502705						
M6 x 1.0	H5		1111500705	63.50	14.30	28.60	6.48	4.85	7.90
	H6		1111502805						
	H7		1111502905						
	H8		1111503005						
	H9		1111503105						
	H10		1111503205						
	H11		1111503305						
	H12		1111503405						
M8 x 1.25	H5		1111500805	69.00	17.60	31.90	8.08	6.05	9.50
	H6		1111503505						
	H7		1111503605						
	H8		1111503705						
	H9		1111503805						
	H10		1111503905						
	H11		1111504005						
	H12		1111504105						
M8 x 1.0	H5		1111507005		15.00	29.50			
	H6		1111507105						
	H7		1111507205						
	H8		1111507305						
	H9		1111507405						
	H10		1111507505						
	H11		1111507605						

Packed: 1 pc.
Available TiN coating only.
Note: List 11115 metric taps are manufactured to H-limits rather than D-limits.

HYT

List 11115 (Continued)

HY-PRO HSS-Co TiN

Plug (4P-5P)

Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P - 5P) TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M10 x 1.5	H5	3	1111504905	74.60	22.20	35.00	9.68	7.26	11.10
	H6		1111505005						
	H7		1111505105						
	H8		1111505205						
	H9		1111505305						
	H10		1111505405						
	H11		1111505505						
	H12		1111505605						
M10 x 1.25	H5		1111504205		19.10	34.80			
	H6		1111504305						
	H7		1111504405						
	H8		1111504505						
	H9		1111504605						
	H10		1111504705						
	H11		1111504805						
M12 x 1.75	H6		1111507705	85.70	26.30	37.30	9.32	6.98	
	H7		1111507805						
	H8		1111507905						
	H9		1111508005						
	H10		1111508105						
	H11		1111508205						
M12 x 1.5	H6		1111506405		22.20	35.00			
	H7		1111506505						
	H8		1111506605						
	H9		1111506705						
	H10		1111506805						
	H11		1111506905						
M12 x 1.25	H5		1111505705		19.10				
	H6		1111505805						
	H7		1111505905						
	H8		1111506005						
	H9		1111506105						
	H10		1111506205						
	H11		1111506305						
M14 x 1.5	H6	4	1111508305	91.30	22.50	34.50	10.90	8.18	12.70
	H7		1111508405						
	H8		1111508505						
	H9		1111508605						
	H10		1111508705						
	H11		1111508805						

Packed: 1 pc.
Available TiN coating only.
Note: List 11115 metric taps are manufactured to H-limits rather than D-limits.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11115	◎	◎	◎	○	○	◎	◎	○	○	○	○	○	○	○			
SFM	25-80	20-50	20-45	20-50	15-30	20-45	20-45	15-20	25-75	40-80	40-65	8-15	8-15	15-35			

○ good ◎ best

List 13118

HSSE | V | LHS | 15°

RXL-RFT, DIN Overall Length & Extended Length, Plug (4.5P-5.5P),
RHC/LHS for Through Holes



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4.5P - 5.5P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M16 x 2.0	D7	4	1311802408	110.00	24.00	-	12.19	9.14	14.30
			1311802508	180.00		-			
	D17 (6H +0.005")		1311802308	110.00		-			
M20 x 2.5	D8	5	1311800108	140.00	30.00	-	16.56	12.42	17.50
			1311800208	200.00		-			
	D18 (6H +0.005")		1311801608	140.00		-			
M24 x 3.0	D9		1311800408	160.00	36.00	-	19.30	14.48	19.10
			1311800508	200.00		-			
	D19 (6H +0.005")		1311801708	160.00		-			
M27 x 3.0	D9		1311800608			-	22.76	17.07	22.20
			1311800708	200.00		-			
	D19 (6H +0.005")		1311801808	160.00		-			
M30 x 3.5	D10		1311800808	180.00	42.00	-	25.93	19.46	25.40
			1311800908	250.00		-			
	D20 (6H +0.005")		1311801908	180.00		-			
M33 x 3.5	D10		1311801008			-	28.14	21.11	27.00
			1311801108	250.00		-			
	D20 (6H +0.005")		1311802008	180.00		-			
M36 x 4.0	D11	6	1311801208	200.00	48.00	-	31.32	23.50	28.60
			1311801308	250.00		-			
	D21 (6H +0.005")		1311802108	200.00		-			
M42 x 4.5	D11		1311801408		54.00	-	36.32	27.23	31.80
			1311801508	300.00		-			
	D21 (6H +0.005")		1311802208	200.00		-			

Packed: 1 pc.
Available V coating only.
Note: +0.005" available for threads that will be heat treated after tapping.

HYL

Work Material

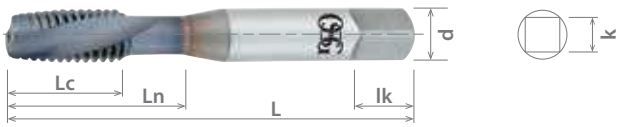
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13118	◎	◎	◎	◎	◎	○	○	○	◎	○	○			◎	○		
SFM	50-120	45-110	40-100	45-110	20-60	30-70	30-70	20-50	40-100	30-80	30-80			20-60	15-50		

○ good ◎ best

List 13059

HSSE | V | LHS | 20°

US-AL-RFT, Synchronized, Plug (5.5P-6.5P), RHC/LHS for Through Holes



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (5.5P - 6.5P) V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
6 - 32 UNC	2B	2	1305900108	1.992	0.370	0.685	0.141	0.110	0.188
8 - 32 UNC			1305900208	2.118	0.374	0.752	0.168	0.131	0.250
10 - 24 UNC			1305900308	2.358	0.492	0.866	0.194	0.152	
10 - 32 UNF			1305900408						
1/4 - 20 UNC			1305900508	2.457	0.594	0.996	0.255	0.191	0.313
1/4 - 28 UNF			1305900608						
5/16 - 18 UNC			1305900708	2.457	0.665	1.126	0.318	0.238	0.375
5/16 - 24 UNF			1305900808						
3/8 - 16 UNC			1305900908	2.937	0.752	1.252	0.381	0.286	0.438
3/8 - 24 UNF			1305901008						
1/2 - 13 UNC			1305901108	3.374	0.921	1.933	0.367	0.275	
1/2 - 20 UNF			1305901208						

Packed: 1 pc.
Available V coating only.

HYT

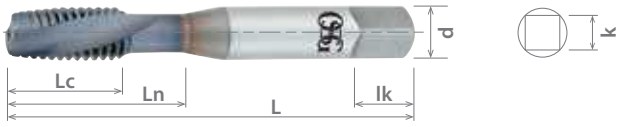
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13059										◎	◎						
SFM										300-800	200-700						

○ good ◎ best

List 13159

HSSE | V | LHS | 20°

US-AL-RFT, Synchronized, Plug (5.5P-6.5P), RHC/LHS for Through Holes



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (5.5P - 6.5P) V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	6H	2	1315900108	49.20	6.10	16.00	3.58	2.79	4.80
M4 x 0.7			1315900208	53.80	8.40	19.10	4.27	3.33	6.40
M5 x 0.8			1315900308	60.10	9.60	22.20	4.93	3.86	
M6 x 1.0			1315900408	62.50	12.00	25.40	6.48	4.85	7.90
M8 x 1.25			1315900508	69.10	15.00	28.60	8.08	6.05	9.50
M10 x 1.5			1315900708	74.60	18.00	31.80	9.68	7.26	11.10
M10 x 1.25			1315900608						
M12 x 1.75			1315900908	85.70	21.00	49.10	9.32	6.98	
M12 x 1.5			1315900808						

Packed: 1 pc.
Available V coating only.

HYT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
13159										◎	◎						
SFM										300-800	200-700						

○ good ◎ best

List 11016

HSSE | N

DIN Overall Length, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			N	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	2	1101600103	1.772	0.437	0.476	0.141	0.110	0.188
4 - 40 UNC			1101600203	2.201	0.295	0.705			
6 - 32 UNC	H3	3	1101600303		0.370	0.783			
8 - 32 UNC			1101600403	2.480	0.374	0.827	0.168	0.131	0.250
10 - 24 UNC			1101600503	2.748	0.492	1.059	0.194	0.152	
10 - 32 UNF			1101600603			0.984			
1/4 - 20 UNC			1101600703	3.146	0.594	1.177	0.255	0.191	0.313
	H5		1101600803						
1/4 - 28 UNF	H3		1101600903			1.189			
5/16 - 18 UNC			1101601003	3.677	0.799	1.512	0.318	0.238	0.375
	H5		1101601103						
5/16 - 24 UNF	H3		1101601203			1.520			
3/8 - 16 UNC			1101601303	4.102	0.917	1.543	0.381	0.286	0.438
	H5		1101601403			1.555			
3/8 - 24 UNF	H3		1101601503						0.406
7/16 - 14 UNC			1101601603	3.937	0.858	1.291	0.323	0.242	
	H5		1101601703						
7/16 - 20 UNF	H3		1101601803						
1/2 - 13 UNC			1101601903	4.331	0.921	1.354	0.367	0.275	0.438
	H5		1101602003						
1/2 - 20 UNF	H3		1101602103	3.937					

Packed: 1 pc.
Available Nitride treatment only.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11016										▢	▢						
SFM										40-80	40-65						

▢ good ▢ best

List 11116

HSSE | N

DIN Overall Length, Plug (3.5P-4.5P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			N	L	Lc	Ln	d	k	lk
M3 x 0.5	D3	3	1111600103	56.00	7.30	19.30	3.58	2.79	4.80
M4 x 0.7	D4		1111600303	63.00	10.10	22.70	4.27	3.33	6.40
M5 x 0.8			1111600403	70.00	11.80	27.20	4.93	3.86	
M6 x 1.0	D5		1111600503	80.00	14.60	32.60	6.48	4.85	7.90
M8 x 1.25			1111600803	90.00	18.50	38.50	8.08	6.05	9.50
M10 x 1.5	D6		1111601003	100.00	22.50	43.50	9.68	7.26	11.10
M10 x 1.25	D5		1111600903						
M12 x 1.75	D6		1111601303	110.00	21.00	32.00	9.32	6.98	
M12 x 1.5	D5		1111601203	100.00					
M12 x 1.25			1111601103						

Packed: 1 pc.
Available Nitride treatment only.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11116										▣	▣						
SFM										40-80	40-65						

▢ good ▣ best

List 11017

HY-PRO HSSE V

DIN Overall Length, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
4 - 40 UNC	H2	2	1101700108	2.205	0.303	0.713	0.141	0.110	0.188
6 - 32 UNC	H3		1101700208		0.378	0.791			
8 - 32 UNC		3	1101700308	2.480	0.382	0.835	0.168	0.131	0.250
10 - 24 UNC			1101700408	2.756	0.500	0.984	0.194	0.152	
10 - 32 UNF			1101700508			0.992			
1/4 - 20 UNC			1101700608	3.150	0.602	1.185	0.255	0.191	0.313
1/4 - 28 UNF			1101700708			1.197			
5/16 - 18 UNC			1101700808	3.543	0.669	1.382	0.318	0.238	0.375
5/16 - 24 UNF			1101700908			1.390			
3/8 - 16 UNC			1101701008	3.937	0.760	1.386	0.381	0.286	0.438
3/8 - 24 UNF			1101701108			1.398			
7/16 - 14 UNC			1101701208		0.894	1.291	0.323	0.242	0.406
7/16 - 20 UNF			1101701308		0.858				
1/2 - 13 UNC			1101701408	4.331	0.961	1.354	0.367	0.275	0.438
1/2 - 20 UNF			1101701508	3.937	0.921				

Packed: 1 pc.
Available V coating only.

HYT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11017	◎	◎	◎	◎	◎	◎	◎	○	◎					○			
SFM	50-90	40-80	40-60	40-80	20-60	40-80	40-80	30-50	30-80					20-60			

○ good ◎ best

List 11117

HSSE V

DIN Overall Length, Plug (3.5P-4.5P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M3 x 0.5	D3	3	1111700108	56.00	6.30	18.30	3.58	2.79	4.80
M4 x 0.7	D4		1111700308	63.00	8.60	21.20	4.27	3.33	6.40
M5 x 0.8			1111700408	70.00	9.80	25.20	4.93	3.86	
M6 x 1.0	D5		1111700508	80.00	12.20	30.20	6.48	4.85	7.90
M8 x 1.25			1111700808	90.00	15.20	35.20	8.08	6.05	9.50
M10 x 1.5	D6		1111701008	100.00	18.20	39.20	9.68	7.26	11.10
M12 x 1.75			1111701308	110.00	21.90	32.00	9.32	6.98	

Packed: 1 pc.
Available V coating only.

HYT

Work Material

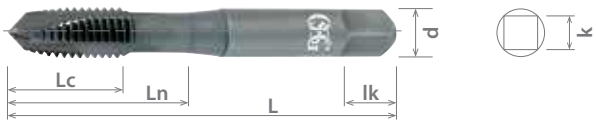
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11117	▢	▢	▢	▢	▢	▢	▢	○	▢					○			
SFM	50-90	40-80	40-60	40-80	20-60	40-80	40-80	30-50	30-80					20-60			

○ good ▢ best

List 280

HY-PRO HSSE | TiCN | S/O | BR

Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix Bright	S/O	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	28056	00	01	08	1.752	0.437	-	0.141	0.110	0.188
3 - 48 UNC	H2	2	28060	00	01	08	1.811	0.500	-	0.141	0.110	0.188
4 - 40 UNC	H2	2	28064	00	01	08	1.874	0.295	0.559	0.141	0.110	0.188
	H3	2	28114	00	01	08						
	H4	2	28163	00	01	08						
	H5	2	28164	00	01	08						
4 - 48 UNF	H2	2	28165	00	01	08						
5 - 40 UNC	H2	2	28070	00	01	08	1.937	0.299	0.626	0.141	0.110	0.188
6 - 32 UNC	H2	2	28074	00	01	08	2.000	0.370	0.685	0.141	0.110	0.188
	H3	2	28124	00	01	08						
	H4	2	28125	00	01	08						
	H5	2	28174	00	01	08						
	H6	2	28175	00	01	08						
	H7	2	28176	00	01	08						
	H11	2	28177	00	01	08						
6 - 40 UNF	H2	2	28076	00	01	08						
8 - 32 UNC	H2	3	28078	00	01	08	2.126	0.374	0.752	0.168	0.131	0.250
	H3	3	28128	00	01	08						
	H4	3	28129	00	01	08						
	H5	3	28178	00	01	08						
	H6	3	28179	00	01	08						
	H7	3	28180	00	01	08						
	H11	3	28181	00	01	08						
8 - 36 UNF	H2	3	28080	00	01	08						
10 - 24 UNC	H3	3	28134	00	01	08	2.374	0.492	0.866	0.194	0.152	0.250
	H5	3	28184	00	01	08						
	H11	3	28234	00	01	08						
10 - 32 UNF	H2	3	28088	00	01	08						
	H3	3	28138	00	01	08						
	H4	3	28139	00	01	08						
	H5	3	28188	00	01	08						
	H6	3	28189	00	01	08						
	H7	3	28190	00	01	08						
	H11	3	28191	00	01	08						
12 - 24 UNC	H3	3	28090	00	01	08		0.496	0.933	0.220	0.165	0.281
12 - 28 UNF	H3	3	28092	00	01	08						
1/4 - 20 UNC	H2	3	28094	00	01	08	2.500	0.594	0.996	0.255	0.191	0.313
	H3	3	28300	00	01	08						
	H5	3	28400	00	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

continued on next page

HYT

Work Material

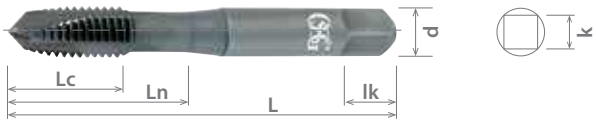
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
280	○	◎	◎	◎	○	○	○	○	○					○			
SFM	50-90	40-80	40-60	40-80	20-60	40-80	40-80	30-50	30-80					20-60			

○ good ◎ best

List 280 (Continued)

HY-PRO | HSSE | TiCN | S/O | BR

Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix Bright	S/O	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 20 UNC	H7	3	28548	00	01	08	2.500	0.594	0.996	0.255	0.191	0.313
	H11		28550	00	01	08						
1/4 - 28 UNF	H2		28096	00	01	08						
	H3		28304	00	01	08						
	H4		28354	00	01	08						
	H5		28404	00	01	08						
	H6		28405	00	01	08						
	H7		28406	00	01	08						
	H11		28407	00	01	08						
5/16 - 18 UNC	H3		28308	00	01	08	2.720	0.665	1.126	0.318	0.238	0.375
	H5		28408	00	01	08						
	H7		28556	00	01	08						
	H11		28558	00	01	08						
5/16 - 24 UNF	H2		28264	00	01	08		0.657	1.118			
	H3		28312	00	01	08						
	H4		28362	00	01	08						
	H5		28412	00	01	08						
	H6		28413	00	01	08						
	H7		28414	00	01	08						
	H11		28415	00	01	08						
3/8 - 16 UNC	H3		28316	00	01	08	2.937	0.752	1.252	0.381	0.285	0.438
	H5		28416	00	01	08						
	H7		28564	00	01	08						
	H11		28566	00	01	08						
3/8 - 24 UNF	H2		28268	00	01	08		0.740	1.240			
	H3		28318	00	01	08						
	H4		28368	00	01	08						
	H5		28418	00	01	08						
	H6		28419	00	01	08						
	H7		28417	00	01	08						
	H11		28568	00	01	08						
7/16 - 14 UNC	H3		28320	00	01	08	3.157	0.858	1.291	0.323	0.242	0.406
	H5		28420	00	01	08						
	H7		28421	00	01	08						
	H11		28423	00	01	08						
7/16 - 20 UNF	H3		28322	00	01	08						
	H5		28422	00	01	08						
	H7		28425	00	01	08						
	H11		28430	00	01	08						
1/2 -13 UNC	H3		28324	00	01	08	3.374	0.921	1.354	0.367	0.275	0.438
	H5		28424	00	01	08						
	H7		28428	00	01	08						
	H11		28574	00	01	08						
1/2 - 20 UNF	H2		28276	00	01	08						
	H3		28326	00	01	08						
	H5		28426	00	01	08						
	H7		28427	00	01	08						
	H11		28429	00	01	08						
9/16 - 12 UNC	H3		28576	00	01	08	3.594	1.000	1.472	0.429	0.322	0.500
9/16 - 18 UNF			28578	00	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

List 280 (Continued)

HSSE | TiCN | S/O | BR

Plug (3.5P-4.5P)

Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix Bright	S/O	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
5/8 - 11 UNC	H3	3	28332	00	01	08	3.811	1.091	1.563	0.480	0.360	0.563
	H5		28432	00	01	08						
5/8 - 18 UNF	H3		28334	00	01	08						
	H5		28434	00	01	08						
	H7		28580	00	01	08						
3/4 - 10 UNC	H3		28336	00	01	08	4.252	1.201	1.713	0.590	0.442	0.688
	H5		28436	00	01	08						
3/4 - 16 UNF	H3		28338	00	01	08						
	H5		28438	00	01	08						
7/8 - 9 UNC			28440	00	01	08	4.689	1.335	1.886	0.697	0.523	0.750
7/8 - 14 UNF	H4		28392	00	01	08						
1 - 8 UNC	H5	4	28444	00	01	08	5.126	1.500	2.091	0.800	0.600	0.813
1 - 12 UNF	H4		28396	00	01	08						
1,1/8 - 7 UNC	H6		28498	-	01	-	5.437	1.713	2.303	0.896	0.672	0.875
1,1/8 - 8 UNS			28502	-	01	-						
1,1/8 - 12 UNF	H5		28450	-	01	-						
1,1/4 - 7 UNC	H6		28504	-	01	-	5.752		2.382	1.021	0.766	1.000
1,1/4 - 8 UNS			28508	-	01	-						
1,1/4 - 12 UNF	H5		28456	-	01	-						
1,3/8 - 6 UNC	H6		28510	-	01	-	6.063	2.000	2.748	1.108	0.831	1.063
1,3/8 - 8 UNS			28514	-	01	-						
1,3/8 - 12 UNF	H5		28462	-	01	-						
1,1/2 - 6 UNC	H6		28516	-	01	-	6.374		2.787	1.233	0.925	1.125
1,1/2 - 8 UNS			28520	-	01	-						
1,1/2 - 12 UNF	H5		28468	-	01	-						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

Work Material

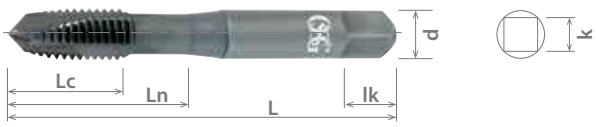
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
280	○	◎	◎	◎	○	○	○	○	○					○			
SFM	50-90	40-80	40-60	40-80	20-60	40-80	40-80	30-50	30-80					20-60			

○ good ◎ best

List 289

HY-PRO | HSSE | TiCN | S/O | BR

Plug (3.5P-4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix Bright	S/O	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D3	3	28904	00	01	08	49.20	6.00	15.90	3.58	2.79	4.80
	D11		28931	-	01	08						
M3.5 x 0.6	D4		28905	00	01	08	50.80	7.20	17.50			
	D11		28933	-	01	08						
M4 x 0.7	D4		28906	00	01	08	54.00	8.30	19.00	4.27	3.33	6.40
	D11		28935	-	01	08						
M5 x 0.8	D4		28908	00	01	08	60.30	9.70	22.30	4.93	3.86	
	D11		28937	-	01	08						
M6 x 1.0	D5		28910	00	01	08	63.50	11.90	25.30	6.48	4.85	7.90
	D11		28939	-	01	08						
M7 x 1.0	D5		28911	00	01	08	69.10	12.10	28.60	8.08	6.05	9.50
	D11		28941	-	01	08						
M8 x 1.25	D5		28914	00	01	08		15.00				
	D11		28945	-	01	08						
M8 x 1.0	D5		28913	00	01	08						
	D11		28943	-	01	08						
M10 x 1.5	D6		28918	00	01	08	74.60	18.00	31.80	9.68	7.26	11.10
	D11		28951	-	01	08						
M10 x 1.25	D5		28917	00	01	08						
	D11		28949	-	01	08						
M10 x 1.0	D5		28916	00	01	08						
	D11		28947	-	01	08						
M12 x 1.75	D6		28923	00	01	08	85.70	21.00	32.00	9.32	6.98	
	D11		28957	-	01	08						
M12 x 1.5	D6		28922	00	01	08						
	D11		28955	-	01	08						
M12 x 1.25	D5		28921	00	01	08						
	D11		28952	-	01	08						
M14 x 2.0	D7		28926	-	01	08	91.30	24.00	36.00	10.90	8.18	12.70
M14 x 1.5	D6		28925	-	01	08						
M16 x 2.0	D7		28929	-	01	08	96.80			12.19	9.14	14.30
M16 x 1.5	D6		28928	-	01	08						
M18 x 2.5	D7		28932	-	01	08	102.40	30.00	43.00	13.77	10.31	15.90
M18 x 1.5	D6		28930	-	01	08						
M20 x 2.5	D8		28936	-	01	08	113.50		44.00	16.56	12.42	17.50
M20 x 1.5	D6		28934	-	01	08						
M22 x 2.5	D8		28940	-	01	-	119.10			17.70	13.28	19.10
M22 x 1.5	D6		28938	-	01	-						
M24 x 3.0	D8	4	28944	-	01	-	124.60	36.00	51.00	19.30	14.48	
M24 x 1.5	D6		28942	-	01	-						
M27 x 3.0	D8		28948	-	01	-	130.20			22.76	17.07	22.20
M27 x 1.5	D6		28946	-	01	-						
M30 x 3.5	D9		28953	-	01	-	138.10	42.00	58.00	25.93	19.46	25.40
M30 x 1.5	D6		28950	-	01	-		38.10	54.10			

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

Work Material

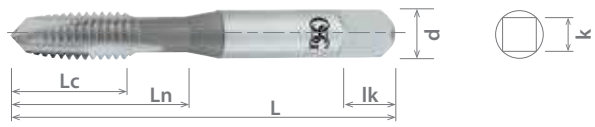
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
289	○	◎	◎	◎	○	○	○	○	○					○			
SFM	50-90	40-80	40-60	40-80	20-60	40-80	40-80	30-50	30-80					20-60			

○ good ◎ best

List 287

HY-PRO | HSS | TiN | S/O | BR

Plug (4.5P-5.5P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	Plug (4.5P - 5.5P) EDP Number	Coating Suffix Bright	S/O	TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
0 - 80 UNF	2B	2	28841	00	01	05	1.625	0.311	-	0.141	0.110	0.188
1 - 64 UNC			28842	00	01	05	1.688	0.374	-			
1 - 72 UNF			28843	00	01	05			-			
2 - 56 UNC			28844	00	01	05	1.750	0.437	-			
3 - 48 UNC			28845	00	01	05	1.813	0.496	-			
3 - 56 UNF			28846	00	01	05			-			
4 - 40 UNC			28850	00	01	05	1.875	0.319	0.559			
	3B		28800	00	01	05						
4 - 48 UNF	2B		28864	00	01	05						
5 - 40 UNC			28865	00	01	05	1.938	0.323	0.618			
6 - 32 UNC			28852	00	01	05	2.000	0.390	0.685			
	3B		28802	00	01	05						
6 - 40 UNF	2B		28866	00	01	05						
8 - 32 UNC			28853	00	01	05	2.125		0.756	0.168	0.131	0.250
	3B		28803	00	01	05						
8 - 36 UNF	2B		28867	00	01	05						
10 - 24 UNC			28854	00	01	05	2.375	0.504	0.874	0.194	0.152	
	3B		28804	00	01	05						
10 - 32 UNF	2B		28855	00	01	05						
	3B		28805	00	01	05						
12 - 24 UNC	2B		28868	00	01	05		0.508	0.937	0.220	0.165	0.281
1/4 - 20 UNC			28856	00	01	05	2.500	0.638	1.008	0.255	0.191	0.313
	3B		28806	00	01	05						
1/4 - 28 UNC	2B	3	28857	00	01	05						
	3B		28807	00	01	05						
5/16 - 18 UNC	2B	2	28858	00	01	05	2.719	0.720	1.150	0.318	0.238	0.375
	3B		28808	00	01	05						
5/16 - 24 UNF	2B	3	28859	00	01	05		0.717	1.146			
	3B		28809	00	01	05						
3/8 - 16 UNC	2B		28860	00	01	05	2.938	0.787	1.276	0.381	0.286	0.438
	3B		28810	00	01	05						
3/8 - 24 UNF	2B		28861	00	01	05		0.776	1.264			
	3B		28811	00	01	05						
7/16 - 14 UNC	2B		28869	00	01	05	3.156	0.882	1.315	0.323	0.242	0.406
7/16 - 20 UNF			28870	00	01	05						
1/2 - 13 UNC			28862	00	01	05	3.375	0.941	1.374	0.367	0.275	0.438
	3B		28812	00	01	05						
1/2 - 20 UNF	2B		28863	00	01	05						
	3B		28813	00	01	05						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HY7

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
287	◎	◎								○	○						
SFM	50-90	40-80								30-80	30-80						

○ good ◎ best

List 288

HSS | TiN | S/O | BR

Plug (4.5P-5.5P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	Plug (4.5P - 5.5P) EDP Number	Coating Suffix Bright	Coating Suffix S/O	Coating Suffix TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	6H	2	28880	00	01	05	49.20	8.30	15.80	3.58	2.79	4.80
M4 x 0.7			28881	00	01	05	54.00	10.00	19.30	4.27	3.33	6.40
M5 x 0.8			28882	00	01	05	60.30	13.00	22.40	4.93	3.86	
M6 x 1.0			28883	00	01	05	63.50	16.50	25.90	6.48	4.85	7.90
M8 x 1.25			28884	00	01	05	69.10	18.00	28.80	8.08	6.05	9.50
M10 x 1.5			28885	00	01	05	74.60	20.10	32.50	9.68	7.26	11.10
M12 x 1.75			28886	00	01	05	85.70	23.90	34.90	9.32	6.98	

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HY7

Work Material

List No.	P: Carbon Steels Low	P: Carbon Steels Med.	P: Carbon Steels High	P: Alloy Steels	P: Die Steels	M: Stainless Steels			K: Cast Iron	N: Aluminum		N: Nickel Alloy	S: Titanium	H: Hardened Steels			
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
288	▢	▢								▢	▢						
SFM	50-90	40-90								30-80	30-80						

▢ good ▢ best

List 105

HSS | TiCN | TiN | S/O | BR

No. 0 ~ No. 6 (4.5P-5.5P), >No. 8 (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P - 5.5P) EDP Number	Coating Suffix Bright	S/O	TiN	TiCN	Plug (3.5P - 4.5P) EDP Number	Coating Suffix Bright	S/O	TiN	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
0 - 80 UNF	H1		12000	00	01	-	08	-	-	-	-	-						
	H2		12050	00	01	05	08	-	-	-	-	-	1.625	0.350	-			
	H3		12100	00	01	-	08	-	-	-	-	-						
1 - 64 UNC	H1		12002	00	01	-	08	-	-	-	-	-						
	H2		12052	00	01	-	08	-	-	-	-	-	1.688	0.370	-			
1 - 72 UNF	H1		12004	00	01	-	08	-	-	-	-	-						
	H2		12054	00	01	05	08	-	-	-	-	-						
2 - 56 UNC	H1		12006	00	-	05	08	-	-	-	-	-						
	H2		12056	00	01	05	08	-	-	-	-	-						
	H3		12106	00	01	-	08	-	-	-	-	-	1.750	0.441	-			
	H5		12156	00	01	-	08	-	-	-	-	-						
2 - 64 UNF	H1		12008	00	-	-	08	-	-	-	-	-						
	H2		12058	00	01	05	08	-	-	-	-	-		0.429				
3 - 48 UNC	H1		12010	00	-	-	08	-	-	-	-	-						
	H2		12060	00	01	05	08	-	-	-	-	-						
	H3		12110	00	01	-	08	-	-	-	-	-	1.813	0.496	-			
	H5	2	20021	00	-	-	08	-	-	-	-	-						
3 - 56 UNF	H1		12012	00	-	-	08	-	-	-	-	-						
	H2		12062	00	01	05	08	-	-	-	-	-						
4 - 36 UNS	H2		12068	00	01	-	-	-	-	-	-	-						
4 - 40 UNC	H1		12014	00	-	05	08	-	-	-	-	-						
	H2		12064	00	01	05	08	-	-	-	-	-						
	H3		12114	00	01	-	08	-	-	-	-	-	1.875	0.319	0.559			
	H5		12164	00	01	-	08	-	-	-	-	-						
4 - 48 UNF	H1		12016	00	-	-	-	-	-	-	-	-						
	H2		12066	00	01	05	08	-	-	-	-	-						
5 - 40 UNC	H1		12020	00	-	-	08	-	-	-	-	-						
	H2		12070	00	01	05	08	-	-	-	-	-	1.938	0.323	0.618			
	H5		20033	00	-	-	08	-	-	-	-	-						
5 - 44 UNF	H2		12072	00	01	05	08	-	-	-	-	-						
6 - 32 UNC	H1		12024	00	-	05	08	-	-	-	-	-						
	H2		12074	00	01	05	08	-	-	-	-	-						
	H3		12124	00	01	05	08	-	-	-	-	-						
		3	12126	-	-	-	08	-	-	-	-	-						
	H4		20039	00	-	05	08	-	-	-	-	-	2.000	0.390	0.685			
	H5		12174	00	01	-	08	-	-	-	-	-						
6 - 40 UNF	H1	2	12026	00	-	-	-	-	-	-	-	-						
	H2		12076	00	01	05	08	-	-	-	-	-						
	H5		20042	00	-	-	08	-	-	-	-	-						

0.141 | 0.110 | 0.188

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

continued on next page

STT

Work Material

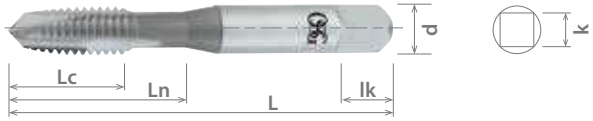
List No.	P: Carbon Steels Low	P: Carbon Steels Med.	P: Carbon Steels High	P: Alloy Steels	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
	1010 1018	1035 1045	1065	4140 4340													
105	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▢ best

List 105 (Continued)

HSS | TiCN | TiN | S/O | BR

No. 0 ~ No. 6 (4.5P-5.5P), >No. 8 (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P - 5.5P) EDP Number	Coating Suffix Bright	S/O	TiN	TiCN	Plug (3.5P - 4.5P) EDP Number	Coating Suffix Bright	S/O	TiN	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
8 - 32 UNC	H1	2	-	-	-	-	-	12028	00	-	05	08	2.125	0.390	0.756	0.168	0.131	0.250
	H2		-	-	-	-	-	12078	00	01	05	08						
	H3		-	-	-	-	-	12128	00	01	05	08						
	H4		-	-	-	-	-	20050	00	-	05	08						
		3	-	-	-	-	-	12132	-	01	-	-						
	H5	2	-	-	-	-	-	12178	00	01	-	08						
8 - 36 UNF	H1		-	-	-	-	-	12032	00	-	-	08						
	H2		-	-	-	-	-	12082	00	01	05	08						
10 - 24 UNC	H1	2	-	-	-	-	-	12034	00	-	05	08	2.375	0.504	0.874	0.194	0.152	
		3	-	-	-	-	-	12136	-	01	-	-						
	H2	2	-	-	-	-	-	12084	00	01	05	08						
	H3		-	-	-	-	-	12134	00	01	05	08						
	H4		-	-	-	-	-	20065	00	-	-	08						
	H5		-	-	-	-	-	20066	00	-	05	08						
10 - 32 UNF	H1	2	-	-	-	-	-	12038	00	-	05	08						
	H3	3	-	-	-	-	-	12140	-	01	-	-						
	H2	2	-	-	-	-	-	12088	00	01	-	08						
	H3		-	-	-	-	-	12138	00	01	05	08						
	H4		-	-	-	-	-	20060	00	-	-	08						
	H5		-	-	-	-	-	12188	00	01	-	08						
12 - 24 UNC	H1	2	-	-	-	-	-	12042	00	-	-	-	2.375	0.520	0.949	0.220	0.165	0.281
	H3		-	-	-	-	-	12142	00	01	05	08						
12 - 28 UNF			-	-	-	-	-	12144	00	01	05	08						
1/4 - 20 UNC	H1	2	-	-	-	-	-	12200	00	01	05	08	2.500	0.638	1.008	0.255	0.191	0.313
	H2		-	-	-	-	-	12250	00	01	05	08						
	H3		-	-	-	-	-	12300	00	01	05	08						
		3	-	-	-	-	-	12302	00	01	05	08						
	H5	2	-	-	-	-	-	12400	00	01	05	08						
		3	-	-	-	-	-	12402	00	-	-	08						
1/4 - 28 UNF	H1	2	-	-	-	-	-	12204	00	-	-	08						
	H2		-	-	-	-	-	12254	00	-	05	08						
		3	-	-	-	-	-	12256	00	-	05	08						
	H3	2	-	-	-	-	-	12304	00	01	05	08						
	H4		-	-	-	-	-	12354	00	-	-	08						
		3	-	-	-	-	-	12356	00	-	-	08						
5/16 - 18 UNC	H1	2	-	-	-	-	-	12208	00	-	05	08	2.719	0.724	1.154	0.318	0.238	0.375
	H2		-	-	-	-	-	12258	00	-	05	08						
	H3		-	-	-	-	-	12308	00	01	05	08						
		3	-	-	-	-	-	12310	00	01	05	08						
	H5	2	-	-	-	-	-	12408	00	-	05	08						
		3	-	-	-	-	-	12410	00	01	05	08						
5/16 - 24 UNF	H1	2	-	-	-	-	-	12212	00	-	-	08						
	H2		-	-	-	-	-	12262	00	-	05	08						
		3	-	-	-	-	-	12264	00	-	05	08						
	H3	2	-	-	-	-	-	12312	00	01	05	08						
	H4		-	-	-	-	-	12362	00	-	-	08						
		3	-	-	-	-	-	12364	00	-	-	08						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

List 105 (Continued)

HSS | TiCN | TiN | S/O | BR

No. 0 ~ No. 6 (4.5P-5.5P), >No. 8 (3.5P-4.5P)

Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P - 5.5P)					Plug (3.5P - 4.5P)					Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix				EDP Number	Coating Suffix									
				Bright	S/O	TiN	TiCN		Bright	S/O	TiN	TiCN	L	Lc	Ln	d	k	lk
3/8 - 16 UNC	H1	3	-	-	-	-	-	12216	00	-	-	08	2.938	0.787	1.276	0.381	0.286	0.438
	H2		-	-	-	-	-	12266	00	01	05	08						
	H3		-	-	-	-	-	12316	00	01	05	08						
	H5		-	-	-	-	-	12416	00	01	05	08						
3/8 - 24 UNF	H1		-	-	-	-	-	12218	00	-	-	08						
	H2		-	-	-	-	-	12268	00	-	05	08						
	H3		-	-	-	-	-	12318	00	01	05	08						
	H4		-	-	-	-	-	12368	00	-	05	08						
7/16 - 14 UNC	H2		-	-	-	-	-	12270	00	-	-	08	3.156	0.882	1.315	0.323	0.242	0.406
	H3		-	-	-	-	-	12320	00	01	05	08						
	H5		-	-	-	-	-	12420	00	-	05	08						
7/16 - 20 UNF	H2		-	-	-	-	-	12272	00	-	-	08						
	H3		-	-	-	-	-	12322	00	01	05	08						
	H5		-	-	-	-	-	12422	00	-	05	08						
1/2 - 13 UNC	H1		-	-	-	-	-	12224	00	-	-	08	3.375	0.941	1.374	0.367	0.275	0.438
	H2		-	-	-	-	-	12274	00	-	05	08						
	H3		-	-	-	-	-	12324	00	01	05	08						
	H5		-	-	-	-	-	12424	00	-	05	08						
1/2 - 20 UNF	H1		-	-	-	-	-	12226	00	-	-	08						
	H2		-	-	-	-	-	12276	00	-	-	08						
	H3		-	-	-	-	-	12326	00	01	05	08						
	H5		-	-	-	-	-	12426	00	-	-	08						
5/8 - 11 UNC	H3		-	-	-	-	-	12332	00	01	05	08	3.813	1.091	1.563	0.480	0.360	0.563
	H5		-	-	-	-	-	12432	00	-	05	08						
5/8 - 18 UNF	H3		-	-	-	-	-	12334	00	01	05	08						
	H5		-	-	-	-	-	20130	00	-	05	08						
3/4 - 10 UNC	H3		-	-	-	-	-	12336	00	01	05	08	4.250	1.220	1.713	0.590	0.442	0.688
	H5		-	-	-	-	-	12436	00	-	05	08						
3/4 - 16 UNF	H3		-	-	-	-	-	12338	00	01	-	08						
	H5		-	-	-	-	-	20134	00	-	05	08						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

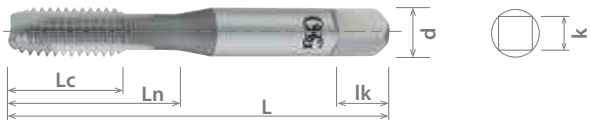
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
105	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▢ best

List 105B

HSS | S/O | BR

Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P) EDP Number	Coating Suffix Bright	Coating Suffix S/O	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
0 - 80 UNF	H1	2	12001	00	-	1.625	0.311	-	0.141	0.110	0.188
	H2		30001	00	-						
1 - 64 UNC			12053	00	-	1.680	0.370	-			
1 - 72 UNC	H1		12005	00	-						
	H2		12055	00	-						
2 - 56 UNC	H1		12007	00	-	1.750	0.441	-			
	H2		12057	00	01						
3 - 48 UNC			12061	00	01	1.813	0.496	-			
3 - 56 UNF			12063	00	-						
4 - 40 UNC			12065	00	01	1.875	0.319	0.559			
4 - 48 UNF			12067	00	-						
5 - 40 UNC			12071	00	01	1.938	0.323	0.618			
5 - 44 UNF			12073	00	-						
6 - 32 UNC	H3		12075	00	-	2.000	0.390	0.685			
	H7		12125	00	01						
			30031	00	-						
6 - 40 UNF	H2		12077	00	01						
8 - 32 UNC	H3		12079	00	-	2.125	0.390	0.756	0.168	0.131	0.250
	H7		12129	00	01						
8 - 36 UNF	H2		12147	00	-						
10 - 24 UNC	H3		12083	00	-	2.375	0.504	0.874	0.194	0.152	
10 - 32 UNF	H1		12085	00	-						
	H2		12135	00	01						
12 - 24 UNC	H3		12009	00	-						
12 - 28 UNF			12089	00	-						
1/4 - 20 UNC			12139	00	01						
1/4 - 28 UNF	H2		12143	00	01		0.508	0.937	0.220	0.165	0.281
	H3		12145	00	01						
5/16 - 18 UNC			12301	00	01	2.500	0.638	1.008	0.255	0.191	0.313
5/16 - 24 UNF	H4		12255	00	-						
			12305	00	01						
3/8 - 16 UNC	H3	3	12309	00	01	2.719	0.724	1.154	0.318	0.238	0.375
7/16 - 14 UNC			12313	00	01						
			12365	00	-						
			12317	00	01	2.938	0.787	1.276	0.381	0.286	0.438
			12321	00	-	3.156	0.882	1.315	0.323	0.242	0.406

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
105B	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 105A

HSS | S/O | BR

Assembly Type Tap, Plug (4P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4P - 4.5P) EDP Number	Coating Suffix: Bright	Coating Suffix: S/O	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H2	2	16054	00	01	1.875	0.319	0.559	0.141	0.110	0.188
5 - 40 UNC			16060	00	-	1.938	0.323	0.618			
6 - 32 UNC	H3		16114	00	01	2.000	0.390	0.685			
8 - 32 UNC			16118	00	01	2.125		0.756	0.168	0.131	0.250
10 - 24 UNC			16122	00	01	2.375	0.500	0.874	0.194	0.152	
10 - 32 UNF			16124	00	01						
12 - 24 UNC			16126	00	01		0.508	0.937	0.220	0.165	0.281
1/4 - 20 UNC			16300	00	01	2.500	0.638	1.008	0.255	0.191	0.313
5/16 - 18 UNC			16304	00	-	2.719	0.724	1.154	0.318	0.238	0.375
3/8 - 16 UNC		3	16308	00	-	2.938	0.787	1.276	0.381	0.286	0.438
1/2 - 13 UNC			16316	00	-	3.375	0.941	1.374	0.367	0.275	

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P: Carbon Steels: Low (1010 1018)	P: Carbon Steels: Med. (1035 1045)	P: Carbon Steels: High (1065)	P: Alloy Steels (4140 4340)	P: Die Steels	M: Stainless Steels: 300	M: Stainless Steels: 400	M: Stainless Steels: 17-4 PH	K: Cast Iron	N: Aluminum: 6061 7075	N: Aluminum: Casting	S: Nickel Alloy: Inconel	S: Titanium: 6Al4V (30 HRC)	H: Hardened Steels: ~35 HRC	H: Hardened Steels: 35-45 HRC	H: Hardened Steels: 45-50 HRC	H: Hardened Steels: 50-70 HRC
105A	○	○	○						○	○	○						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

○ good ◎ best

List 105+ (H7)

HSS | TiN | BR

No. 4 ~ No. 6 (4.5P-5.5P), >No. 8 (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P - 5.5P)			Plug (3.5P - 4.5P)			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix		EDP Number	Coating Suffix							
				Bright	TiN		Bright	TiN	L	Lc	Ln	d	k	lk
4 - 40 UNC	H7	2	20031	00	-	-	-	-	1.875	0.319	0.559	0.141	0.110	0.188
6 - 32 UNC			17208	00	05	-	-	-	2.000	0.390	0.685			
8 - 32 UNC			-	-	-	17212	00	05	2.125		0.756	0.168	0.131	0.250
10 - 24 UNC			-	-	-	17216	00	-	2.375	0.504	0.874	0.194	0.152	
10 - 32 UNF			-	-	-	17218	00	05						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
105+	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 105H

HSS | TiCN | S/O | BR

+.005" Oversize, Plug (4P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4P - 4.5P) EDP Number	Coating Suffix Bright	S/O	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
6 - 32 UNC	+0.005	2	15920	00	01	08	2.000	0.390	0.685	0.141	0.110	0.188
8 - 32 UNC			15928	00	01	08	2.125		0.756	0.168	0.131	0.250
10 - 24 UNC			15934	00	01	08	2.375	0.504	0.874	0.194	0.152	
10 - 32 UNF			15936	00	01	08						
1/4 - 20 UNC			15900	00	01	08	2.500	0.638	1.008	0.255	0.191	0.313
1/4 - 28 UNF			15902	00	01	08						
5/16 - 18 UNC			15908	00	01	08	2.719	0.724	1.154	0.318	0.238	0.375
5/16 - 24 UNF			15912	00	-	08						
3/8 - 16 UNC		3	15916	00	01	08	2.938	0.787	1.276	0.381	0.286	0.438
3/8 - 24 UNF			15918	00	01	08						
7/16 - 14 UNC			15940	00	01	08	3.156	0.882	1.315	0.323	0.242	0.406
7/16 - 20 UNF			15942	00	01	08						
1/2 - 13 UNC			15924	00	01	08	3.375	0.941	1.374	0.367	0.275	0.438
1/2 - 20 UNF			15926	00	01	08						
5/8 - 11 UNC			15932	00	01	08	3.813	1.091	1.563	0.480	0.360	0.563
3/4 - 10 UNF			15938	00	01	08	4.250	1.220	1.713	0.590	0.442	0.688

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P: Carbon Steels Low 1010 1018	P: Carbon Steels Med. 1035 1045	P: Carbon Steels High 1065	P: Alloy Steels 4140 4340	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
105H	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 142H

HSS BR

+.005" Oversize, Plug (3.5P-4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5 - 4.5P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M4 x 0.7	+0.005"	2	1101200100	54.00	10.20	19.30	4.27	3.33	6.40
M5 x 0.8			1101200300	60.30	13.20	22.40	4.93	3.86	
M6 x 1.0			1101200500	63.50	16.50	25.70	6.48	4.85	7.90
M8 x 1.25		3	1101200700	69.10	18.00	28.70	8.08	6.05	9.50
M10 x 1.5			1101200900	74.60	20.40	32.60	9.68	7.26	11.10
M12 x 1.75			1101201100	85.70	24.40	34.80	9.32	6.98	

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
142H	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 142

HSS | TiCN | TiN | S/O | BR

Plug (3.5P-4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix Bright	S/O	TiN	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M1.6 x 0.35	D3	2	19815	00	-	-	-	41.30	7.90	-	3.58	2.79	4.80
M2 x 0.4			19820	00	01	-	-	44.50	11.10				
M2.5 x 0.45			19821	00	01	-	-	46.00	12.80				
M3 x 0.5			19801	00	01	05	08	49.20	8.30	15.80			
M3.5 x 0.6	D4		19822	00	01	-	-	50.80	10.00	17.50			
M4 x 0.7			19804	00	01	05	08	54.00		19.30	4.27	3.33	6.40
M4.5 x 0.75			19823	00	01	-	-	60.30	12.80	22.20	4.93	3.86	
M5 x 0.8			19807	00	01	05	-		13.00	22.40			
M6 x 1.0	D5		19810	00	01	05	08	63.50	16.30	25.70	6.48	4.85	7.90
M7 x 1.0			19824	00	01	-	-	69.10	17.90	28.70	8.08	6.05	9.50
M8 x 1.25			19813	00	01	05	08		18.00	28.80			
		3	19814	00	01	-	-						
M8 x 1.0			19825	00	01	-	-						
M10 x 1.5	D6		19816	00	01	05	08	74.60	19.80	32.20	9.68	7.26	11.10
M10 x 1.25	D5		19827	00	01	-	-						
M10 x 1.0			19826	00	01	-	-						
M12 x 1.75	D6		19819	00	01	05	08	85.70	23.90	34.90	9.32	6.98	
M12 x 1.5			19829	00	-	-	-						
M12 x 1.25	D5		19828	00	01	-	-						
M14 x 2.0	D7		19831	00	01	-	-	91.30	25.40	37.40	10.90	8.18	12.70
M14 x 1.5	D6		19838	00	-	-	-						
M14 x 1.25	D5		19830	00	01	-	-						
M16 x 2.0	D7		19833	00	-	-	-	96.80	27.70	39.70	12.19	9.14	14.30
M16 x 1.5	D6		19832	00	01	-	-						
M18 x 2.5	D7		19835	00	-	-	-	102.40		40.70	13.77	10.31	15.90
M18 x 1.5	D6		19834	00	01	-	-						
M20 x 2.5	D7		19837	00	-	-	-	113.50	31.00	45.00	16.56	12.42	17.50
		4	19839	00	-	-	-						
M20 x 1.5	D6	3	19836	00	-	-	-						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
142	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 122

HSSE | S/O | BR

EX-POT, JIS, Plug (4.5P-5.5P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Plug (4.5P - 5.5P)		Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bright	S/O	L	Lc	Ln	d	k	lk
M3 x 0.5	JIS 2	3	15368	16710	46.00	11.00	19.00	4.00	6.00	3.20
M4 x 0.7			15386	16714	52.00	13.00	21.00	5.00	7.00	4.00
M5 x 0.8			15401	-	60.00	15.90	23.90	5.50		4.50
M6 x 1.0			15413	16722	62.00	19.00	29.00	6.00		
M8 x 1.25			15431	16728	70.00	22.00	37.00	6.20	8.00	5.00
M10 x 1.5			15456	16734	75.00	24.00	41.00	7.00		5.50
M10 x 1.25			15460	-						
M12 x 1.75			15480	-	82.00	29.00	48.00	8.50	9.00	6.50
M12 x 1.5			15483	-						
M14 x 2.0			15509	-	88.00	30.00		10.50	11.00	8.00
M14 x 1.5			15512	-						
M16 x 2.0			15557	-	95.00	32.00	52.00	12.50	13.00	10.00
M16 x 1.5			15560	-						
M18 x 2.5			15593	-	100.00	37.00	55.00	14.00	14.00	11.00
M18 x 1.5			15601	-						
M20 x 2.5			15629	-	105.00		58.00	15.00	15.00	12.00
M20 x 1.5			15637	-						
M22 x 2.5			15645	-	115.00	38.00	63.00	17.00	16.00	13.00
M24 x 3.0			15673	-	120.00	45.00	66.00	19.00	18.00	15.00

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

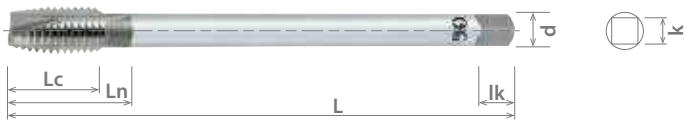
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
122	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 917

HSS | S/O | BR

Long Shank*, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix Bright	Coating Suffix S/O	Long Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H2	2	12940	00	-	4.000	0.319	0.559	0.141	0.110	0.188
6 - 32 UNC	H3	2	12941	00	-	4.000	0.390	0.685	0.141	0.110	0.188
		2	12942	00	01	6.000	0.390	0.685	0.141	0.110	0.188
8 - 32 UNC		2	12943	00	01	4.000	0.390	0.756	0.168	0.131	0.250
		2	12944	00	01	6.000	0.390	0.756	0.168	0.131	0.250
10 - 24 UNC		2	12945	00	01	4.000	0.516	0.886	0.194	0.152	0.250
		2	12946	00	01	6.000	0.516	0.886	0.194	0.152	0.250
10 - 32 UNF		2	12947	00	01	4.000	0.516	0.886	0.194	0.152	0.250
		2	12948	00	01	6.000	0.516	0.886	0.194	0.152	0.250
1/4 - 20 UNC		2	12949	00	01	4.000	0.638	1.008	0.255	0.191	0.313
		2	12950	00	01	6.000	0.638	1.008	0.255	0.191	0.313
1/4 - 28 UNF		2	12939	-	01	4.000	0.638	1.008	0.255	0.191	0.313
		2	12951	00	01	6.000	0.638	1.008	0.255	0.191	0.313
5/16 - 18 UNC		2	21030	00	-	4.000	0.724	1.154	0.318	0.238	0.375
		2	12952	00	-	6.000	0.724	1.154	0.318	0.238	0.375
		3	12935	-	01	4.000	0.724	1.154	0.318	0.238	0.375
		3	12937	-	01	6.000	0.724	1.154	0.318	0.238	0.375
5/16 - 24 UNF		3	12957	-	01	4.000	0.724	1.154	0.318	0.238	0.375
		2	21036	00	-	6.000	0.724	1.154	0.318	0.238	0.375
		3	12933	-	01	6.000	0.724	1.154	0.318	0.238	0.375
3/8 - 16 UNC		3	21038	00	01	4.000	0.787	1.276	0.381	0.286	0.438
		3	12953	00	01	6.000	0.787	1.276	0.381	0.286	0.438
3/8 - 24 UNF		3	12958	-	01	4.000	0.787	1.276	0.381	0.286	0.438
		3	21044	00	01	6.000	0.787	1.276	0.381	0.286	0.438
7/16 - 14 UNC		3	12954	00	01	6.000	0.882	1.315	0.323	0.242	0.406
7/16 - 20 UNF		3	21052	00	-	6.000	0.882	1.315	0.323	0.242	0.406
1/2 - 13 UNC		3	12994	-	01	4.000	0.941	1.374	0.367	0.275	0.438
		3	12955	00	01	6.000	0.941	1.374	0.367	0.275	0.438
1/2 - 20 UNF		3	21060	00	-	6.000	0.941	1.374	0.367	0.275	0.438
5/8 - 11 UNC		3	12956	00	-	6.000	1.091	1.563	0.480	0.360	0.563

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P: Carbon Steels Low 1010 1018	P: Carbon Steels Med. 1035 1045	P: Carbon Steels High 1065	P: Alloy Steels 4140 4340	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
917	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▢ best

List 11118

HSS S/0

Extended Length, Plug (3.5P-4.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) S/O	Long Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M4 x 0.7	D4	2	1111800201	101.60	10.00	19.30	4.27	3.33	6.40
			1111800301	152.40					
M5 x 0.8			1111800401	101.60	13.00	22.40	4.93	3.86	
			1111800501	152.40					
M6 x 1.0	D5		1111800601	101.60	16.30	26.00	6.48	4.85	7.90
			1111800701	152.40					
M8 x 1.25		3	1111800801	101.60	18.00	29.80	8.08	6.05	9.50
			1111800901	152.40					
M10 x 1.5	D6		1111801001	101.60	20.10	32.50	9.68	7.26	11.10
			1111801101	152.40					
M12 x 1.75			1111801201	101.60	23.90	34.90	9.32	6.98	11.10
			1111801301	152.40					

Packed: 1 pc.
Available Steam Oxide coating only.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11118	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List S111

HSS | BR

Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
00 - 90 UNS	H1	2	1050000	1.625	0.256	-	0.141	0.110	0.188
	H2		1320000						
00 - 96 UNS	H1		1080000						
	H2		2056000						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Suggested Hole Size Limits for Different Lengths of Engagement

Tap Size	Basic O.D.	Basic P.D.	Depth of Thread Hole					
			Up to 1/3D		1/3 to 1/2D		1/2 to 3D	
			Min.	Max.	Min.	Max.	Min.	Max.
00-90	0.047	0.0398	0.0373	0.0385	0.0380	0.0392	0.0388	0.0400
00-96	0.047	0.0402	0.0379	0.0393	0.0388	0.0406	0.0397	0.0415

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
S111	▢	▢	▢						▢	▢	▢							
SFM	25-80	20-50	20-45						25-75	40-80	40-65							

▢ good ▢ best

List 5BF-SO, 5BS-SO

NEW | RED BAND DRILLS P316-318 | HSSE V3 | TYPE H | TiAlN

RED BAND, Ideal for Alloy Steel



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H3	3	5BF0280-SO	1.890	0.433	0.141	0.110	0.197
	H5		5BF0290-SO					
4 - 48 UNF	H3		5BS0280-SO					
	H5		5BS0290-SO					
5 - 40 UNC	H3		5BF0320-SO					
	H5		5BF0330-SO					
5 - 44 UNF	H3		5BS0320-SO					
	H5		5BS0330-SO					
6 - 32 UNC	H3		5BF0350-SO	1.969	0.512			
	H5		5BF0360-SO					
6 - 40 UNF	H3		5BS0350-SO					
	H5		5BS0360-SO					
8 - 32 UNC	H3		5BF0420-SO	2.087		0.168	0.131	0.256
	H5		5BF0430-SO					
8 - 36 UNF	H3		5BS0420-SO					
	H5		5BS0430-SO					
10 - 24 UNC	H3		5BF0480-SO	2.303	0.630	0.194	0.152	
	H5		5BF0490-SO					
10 - 32 UNF	H3		5BS0480-SO					
	H5		5BS0490-SO					
12 - 24 UNC	H3		5BF0550-SO	2.402		0.220	0.165	0.276
	H5		5BF0560-SO					
12 - 28 UNF	H3		5BS0550-SO					
	H5		5BS0560-SO					
1/4 - 20 UNC	H3		5BF0640-SO	2.559	0.748	0.255	0.191	0.315
	H5		5BF0650-SO					
1/4 - 28 UNF	H3		5BS0640-SO					
	H5		5BS0650-SO					
5/16 - 18 UNC	H3		5BF0790-SO	2.756	0.866	0.318	0.238	0.374
	H5		5BF0800-SO					
5/16 - 24 UNF	H3		5BS0790-SO					
	H5		5BS0800-SO					
3/8 - 16 UNC	H3	4	5BF0950-SO	3.031	0.945	0.381	0.286	0.433
	H5		5BF0960-SO					
3/8 - 24 UNF	H3		5BS0950-SO					
	H5		5BS0960-SO					
7/16 - 14 UNC	H3		5BF1110-SO	3.228	0.984	0.323	0.242	0.413
	H5		5BF1120-SO					
7/16 - 20 UNF	H3		5BS1110-SO					
	H5		5BS1120-SO					
1/2 - 13 UNC	H3		5BF1270-SO	3.425	1.142	0.367	0.275	0.433
	H5		5BF1280-SO					
1/2 - 20 UNF	H3		5BS1270-SO					
	H5		5BS1280-SO					
9/16 - 12 UNC	H3		5BF1430-SO	3.661	1.181	0.429	0.322	0.492
	H5		5BF1440-SO					
9/16 - 18 UNF	H3		5BS1430-SO					
	H5		5BS1440-SO					

Packed: 1 pc.
Available TiAlN coating only.

SOM

List 5BF-SO, 5BS-SO (Continued)

NEW | RED BAND DRILLS P316-318 | HSSE V3 | TYPE H | TiAlN

RED BAND, Ideal for Alloy Steel

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
5/8 - 11 UNC	H3	4	5BF1590-SO	3.878	1.260	0.480	0.360	0.571
	H5		5BF1600-SO					
5/8 - 18 UNF	H3		5BS1590-SO					
	H5		5BS1600-SO					
3/4 - 10 UNC	H3		5BF1910-SO	4.252	1.457	0.590	0.442	0.689
	H5		5BF1920-SO					
3/4 - 16 UNF	H3		5BS1910-SO					
	H5		5BS1920-SO					
7/8 - 9 UNC	H3		5BF2220-SO	4.685	1.339	0.697	0.523	0.748
	H5		5BF2230-SO					
7/8 - 14 UNF	H3		5BS2220-SO					
	H5		5BS2230-SO					
1 - 8 UNC	H3		5BF2540-SO	5.118	1.772	0.800	0.600	0.807
	H5		5BF2550-SO					
1 - 12 UNF	H3		5BS2540-SO					
	H5		5BS2550-SO					
1,1/8 - 7 UNC	H3		5BF2860-SO	5.433	1.890	0.896	0.672	0.866
	H5		5BF2870-SO					
1,1/8 - 12 UNF	H3		5BS2860-SO					
	H5		5BS2870-SO					
1,1/4 - 7 UNC	H3		5BF3180-SO	5.748	2.008	1.021	0.766	1.004
	H5		5BF3190-SO					
1,1/4 - 12 UNF	H3		5BS3180-SO					
	H5		5BS3190-SO					

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BF-SO, 5BS-SO	▢	▢	▢	◎	◎				▢	▢		◎	▢	◎	◎		
SFM	59-89	59-89	59-89	59-79	59-79				59-88	78-118		16-36	20-40	30-50	30-50		

▢ good ◎ best

List 5EF-SO, 5ES-SO

NEW | RED BAND DRILLS P316-318 | HSSE V3 | TYPE H | TiAlN

RED BAND, Ideal for Alloy Steel



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D4	3	5EF0300-SO	48.00	11.00	3.58	2.79	5.00
M3.5 x 0.6			5EF0350-SO	50.00	13.00			
M4 x 0.7			5EF0400-SO	53.00		4.27	3.33	6.50
M4.5 X 0.75			5EF0450-SO	58.50	16.00	4.93	3.86	
M5 x 0.8			5EF0500-SO					
M6 x 1.0			5EF0600-SO	65.00	19.00	6.48	4.85	8.00
M6 x 0.75			5ES0600-SO					
M7 x 1.0			5EF0700-SO	69.00		8.08	6.05	9.50
M8 x 1.25			5EF0800-SO	70.00	22.00			
M8 x 1.0			5ES0800-SO					
M10 x 1.5		4	5EF1000-SO	77.00	24.00	9.68	7.26	11.00
M10 x 1.25	D6		5ES1010-SO					
M10 x 1	D4		5ES1000-SO					
M12 x 1.75			5EF1200-SO	87.00	29.00	9.32	6.99	
M12 x 1.5			5ES1200-SO					
M12 x 1.25	D6		5ES1210-SO					
M14 x 2.0	D4		5EF1400-SO	93.00	30.00	10.90	8.18	13.00
	D6		5EF1410-SO					
M14 x 1.5	D4		5ES1400-SO					
	D6		5ES1410-SO					
M16 x 2.0	D4		5EF1600-SO	98.50	32.00	12.19	9.14	14.00
	D6		5EF1610-SO					
M16 x 1.5	D4		5ES1600-SO					
	D6		5ES1610-SO					
M18 x 2.5	D4		5EF1800-SO	108.00	37.00	13.76	10.31	15.88
	D6		5EF1810-SO					
M18 x 1.5	D4		5ES1800-SO					
	D6		5ES1810-SO					
M20 x 2.5	D4		5EF2000-SO	114.00	34.00	16.56	12.42	17.50
M20 x 1.5			5ES2000-SO					
M22 x 2.5			5EF2200-SO	119.00		17.70	13.28	19.05
M22 x 1.5			5ES2200-SO					
M24 x 3.0			5EF2400-SO	125.00	45.00	19.30	14.48	

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

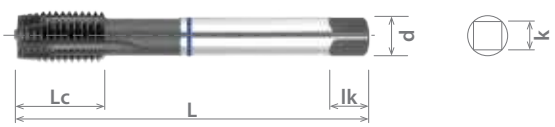
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5EF-SO, 5ES-SO	○	○	○	◎	◎				○	○		◎	○	◎	◎		
SFM	59-89	59-89	59-89	59-79	59-79				59-88	78-118		16-36	20-40	30-50	30-50		

○ good ◎ best

List 5BG-SO, 5BT-SO

NEW | BLUE BAND DRILLS P319-321 | HSSE V3 | TYPE VA | TiAlN

BLUE BAND, Ideal for Stainless Steel



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H3	3	5BG0284-SO	1.890	0.433	0.141	0.110	0.197
	H5		5BG0294-SO					
4 - 48 UNF	H3		5BT0284-SO					
	H5		5BT0294-SO					
5 - 40 UNC	H3		5BG0324-SO					
	H5		5BG0334-SO					
5 - 44 UNF	H3		5BT0324-SO					
	H5		5BT0334-SO					
6 - 32 UNC	H3		5BG0354-SO	1.969	0.512			
	H5		5BG0364-SO					
6 - 40 UNF	H3		5BT0354-SO					
	H5		5BT0364-SO					
8 - 32 UNC	H3		5BG0424-SO	2.087		0.168	0.131	0.256
	H5		5BG0434-SO					
8 - 36 UNF	H3		5BT0424-SO					
	H5		5BT0434-SO					
10 - 24 UNC	H3		5BG0484-SO	2.303	0.630	0.194	0.152	
	H5		5BG0494-SO					
10 - 32 UNF	H3		5BT0484-SO					
	H5		5BT0494-SO					
12 - 24 UNC	H3		5BG0554-SO	2.402		0.220	0.165	0.276
	H5		5BG0564-SO					
12 - 28 UNF	H3		5BT0554-SO					
	H5		5BT0564-SO					
1/4 - 20 UNC	H3		5BG0644-SO	2.559	0.748	0.255	0.191	0.315
	H5		5BG0654-SO					
1/4 - 28 UNF	H3		5BT0644-SO					
	H5		5BT0654-SO					
5/16 - 18 UNC	H3		5BG0794-SO	2.756	0.866	0.318	0.238	0.374
	H5		5BG0804-SO					
5/16 - 24 UNF	H3		5BT0794-SO					
	H5		5BT0804-SO					
3/8 - 16 UNC	H3		5BG0954-SO	3.031	0.945	0.381	0.286	0.433
	H5		5BG0964-SO					
3/8 - 24 UNF	H3		5BT0954-SO					
	H5		5BT0964-SO					

Packed: 1 pc.
Available TiAlN coating only.

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SOM

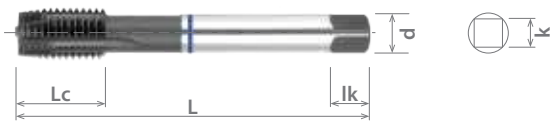
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BG-SO, 5BT-SO						◎	◎	○					◎				
SFM						29-49	26-49	25-45					20-60				

○ good ◎ best

List 5BG-SO, 5BT-SO (Continued)

NEW | BLUE BAND DRILLS P319-321 | HSSE V3 | TYPE VA | TiAlN

BLUE BAND, Ideal for Stainless Steel



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
7/16 - 14 UNC	H3	3	5BG1114-SO	3.228	0.984	0.323	0.242	0.413
	H5		5BG1124-SO					
7/16 - 20 UNF	H3		5BT1114-SO					
	H5		5BT1124-SO					
1/2 - 13 UNC	H3		5BG1274-SO	3.425	1.142	0.367	0.275	0.433
	H5		5BG1284-SO					
1/2 - 20 UNF	H3		5BT1274-SO					
	H5		5BT1284-SO					
9/16 - 12 UNC	H3		5BG1434-SO	3.661	1.181	0.429	0.322	0.492
	H5		5BG1444-SO					
9/16 - 18 UNF	H3		5BT1434-SO					
	H5		5BT1444-SO					
5/8 - 11 UNC	H3		5BG1594-SO	3.878	1.260	0.480	0.360	0.571
	H5		5BG1604-SO					
5/8 - 18 UNF	H3		5BT1594-SO					
	H5		5BT1604-SO					
3/4 - 10 UNC	H3	4	5BG1914-SO	4.252	1.457	0.590	0.442	0.689
	H5		5BG1924-SO					
3/4 - 16 UNF	H3		5BT1914-SO					
	H5		5BT1924-SO					
7/8 - 9 UNC	H3		5BG2224-SO	4.685	1.339	0.697	0.523	0.748
	H5		5BG2234-SO					
7/8 - 14 UNF	H3		5BT2224-SO					
	H5		5BT2234-SO					
1 - 8 UNC	H3		5BG2544-SO	5.118	1.772	0.800	0.600	0.807
	H5		5BG2554-SO					
1 - 12 UNF	H3		5BT2544-SO					
	H5		5BT2554-SO					
1,1/8 - 7 UNC	H3		5BG2864-SO	5.433	1.890	0.896	0.672	0.866
	H5		5BG2874-SO					
1,1/8 - 12 UNF	H3		5BT2864-SO					
	H5		5BT2874-SO					
1,1/4 - 7 UNC	H3		5BG3184-SO	5.748	2.008	1.021	0.766	1.004
	H5		5BG3194-SO					
1,1/4 - 12 UNF	H3		5BT3184-SO					
	H5		5BT3194-SO					

Packed: 1 pc.
Available TiAlN coating only.

SOM

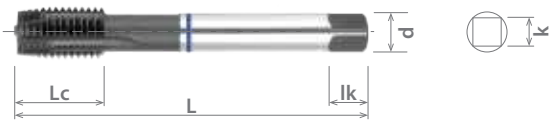
Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BG-SO, 5BT-SO						◎	◎	○					◎				
SFM						29-49	26-49	25-45					20-60				

○ good ◎ best

List 5EG-SO, 5ET-SO

NEW | BLUE BAND DRILLS P319-321 | HSSE V3 | TYPE VA | TiAlN

BLUE BAND, Ideal for Stainless Steel



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) TiAlN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D4	3	5EG0304-SO	48.00	11.00	3.58	2.79	5.00
M3.5 x 0.6	D6		5EG0354-SO	50.00	13.00			
M4 x 0.7	D4		5EG0404-SO	53.00		4.27	3.33	6.50
M4.5 X 0.75			5EG0454-SO	58.50	16.00	4.93	3.86	
M5 x 0.8			5EG0504-SO					
M6 x 1.0			5EG0604-SO	65.00	19.00	6.48	4.85	8.00
	D6		5EG0614-SO					
M6 x 0.75	D4		5ET0604-SO					
M7 x 1.0			5EG0704-SO	69.00		8.08	6.05	9.50
	D6		5EG0714-SO					
M8 x 1.25	D4		5EG0804-SO	70.00	22.00			
	D6		5EG0814-SO					
M8 x 1.0	D4		5ET0804-SO					
	D6		5ET0814-SO					
M10 x 1.5	D4		5EG1004-SO	77.00	24.00	9.68	7.26	11.00
	D6		5EG1014-SO					
M10 x 1.25	D4		5ET1014-SO					
M10 x 1			5ET1004-SO					
M12 x 1.75			5EG1204-SO	87.00	29.00	9.32	6.99	
	D6		5EG1214-SO					
M12 x 1.5	D4		5ET1204-SO					
M12 x 1.25			5ET1194-SO					
M14 x 2.0			5EG1404-SO	93.00	30.00	10.90	8.18	13.00
	D6		5EG1414-SO					
M14 x 1.5	D4		5ET1404-SO					
	D6		5ET1414-SO					
M16 x 2.0	D4		5EG1604-SO	98.50	32.00	12.19	9.14	14.00
	D6		5EG1614-SO					
M16 x 1.5	D4		5ET1604-SO					
	D6		5ET1614-SO					
M18 x 2.5	D4	4	5EG1804-SO	108.00	37.00	13.76	10.31	15.88
	D6		5EG1814-SO					
M18 x 1.5	D4		5ET1804-SO					
	D6		5ET1814-SO					
M20 x 2.5	D4		5EG2004-SO	114.00	34.00	16.56	12.42	17.50
M20 x 1.5			5ET2004-SO					
M22 x 2.5			5EG2204-SO	119.00		17.70	13.28	19.05
M22 x 1.5			5ET2204-SO					
M24 x 3.0			5EG2404-SO	125.00	45.00	19.30	14.48	

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

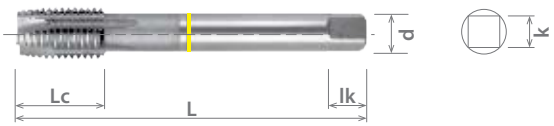
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5EG-SO, 5ET-SO						◎	◎	○					◎				
SFM						29-49	26-49	25-45					20-60				

○ good ◎ best

List 5BH-SO, 5BU-SO

NEW | YELLOW BAND DRILLS P322-325 | HSSE V3 | TYPE W | BR

YELLOW BAND, Ideal for Aluminum



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) Bright	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H3	2	5BH0280-SO	1.890	0.433	0.141	0.110	0.197
	H5		5BH0290-SO					
4 - 48 UNF	H3		5BU0280-SO					
	H5		5BU0290-SO					
5 - 40 UNC	H3		5BH0320-SO					
	H5		5BH0330-SO					
5 - 44 UNF	H3		5BU0320-SO					
	H5		5BU0330-SO					
6 - 32 UNC	H3		5BH0350-SO	1.969	0.512			
	H5		5BH0360-SO					
6 - 40 UNF	H3		5BU0350-SO					
	H5		5BU0360-SO					
8 - 32 UNC	H3		5BH0420-SO	2.087		0.168	0.131	0.256
	H5		5BH0430-SO					
8 - 36 UNF	H3		5BU0420-SO					
	H5		5BU0430-SO					
10 - 24 UNC	H3		5BH0480-SO	2.303	0.630	0.194	0.152	
	H5		5BH0490-SO					
10 - 32 UNF	H3		5BU0480-SO					
	H5		5BU0490-SO					
12 - 24 UNC	H3		5BH0550-SO	2.402		0.220	0.165	0.276
	H5		5BH0560-SO					
12 - 28 UNF	H3		5BU0550-SO					
	H5		5BU0560-SO					
1/4 - 20 UNC	H3		5BH0640-SO	2.559	0.748	0.255	0.191	0.315
	H5		5BH0650-SO					
1/4 - 28 UNF	H3		5BU0640-SO					
	H5		5BU0650-SO					
5/16 - 18 UNC	H3		5BH0790-SO	2.756	0.866	0.318	0.238	0.374
	H5		5BH0800-SO					
5/16 - 24 UNF	H3		5BU0790-SO					
	H5		5BU0800-SO					
3/8 - 16 UNC	H3	3	5BH0950-SO	3.031	0.945	0.381	0.286	0.433
	H5		5BH0960-SO					
3/8 - 24 UNF	H3		5BU0950-SO					
	H5		5BU0960-SO					
7/16 - 14 UNC	H3		5BH1110-SO	3.228	0.984	0.323	0.242	0.413
	H5		5BH1120-SO					
7/16 - 20 UNF	H3		5BU1110-SO					
	H5		5BU1120-SO					
1/2 - 13 UNC	H3		5BH1270-SO	3.425	1.142	0.367	0.275	0.433
	H5		5BH1280-SO					
1/2 - 20 UNF	H3		5BU1270-SO					
	H5		5BU1280-SO					
9/16 - 12 UNC	H3		5BH1430-SO	3.661	1.181	0.429	0.322	0.492
	H5		5BH1440-SO					
9/16 - 18 UNF	H3		5BU1430-SO					
	H5		5BU1440-SO					

Packed: 1 pc.
EDPs listed above are stock standard, other coatings available upon request.
Specify treatment at the time of order.

SOM

List 5BH-SO, 5BU-SO (Continued)

NEW | YELLOW BAND DRILLS P322-325 | HSSE V3 | TYPE W | BR

YELLOW BAND, Ideal for Aluminum

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) Bright	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
5/8 - 11 UNC	H3	3	5BH1590-SO	3.878	1.260	0.480	0.360	0.571
	H5		5BH1600-SO					
5/8 - 18 UNF	H3		5BU1590-SO					
	H5		5BU1600-SO					
3/4 - 10 UNC	H3		5BH1910-SO	4.252	1.457	0.590	0.442	0.689
	H5		5BH1920-SO					
3/4 - 16 UNF	H3		5BU1910-SO					
	H5		5BU1920-SO					
7/8 - 9 UNC	H3		5BH2220-SO	4.685	1.339	0.697	0.523	0.748
	H5		5BH2230-SO					
7/8 - 14 UNF	H3		5BU2220-SO					
	H5		5BU2230-SO					
1 - 8 UNC	H3		5BH2540-SO	5.118	1.772	0.800	0.600	0.807
	H5		5BH2541-SO					
1 - 12 UNF	H3		5BU2540-SO					
	H5		5BU2550-SO					
1,1/8 - 7 UNC	H3		5BH2860-SO	5.433	1.890	0.896	0.672	0.866
	H5		5BH2870-SO					
1,1/8 - 12 UNF	H3		5BU2860-SO					
	H5		5BU2870-SO					
1,1/4 - 7 UNC	H3		5BH3180-SO	5.748	2.008	1.021	0.766	1.004
	H5		5BH3190-SO					
1,1/4 - 12 UNF	H3		5BU3180-SO					
	H5		5BU3190-SO					

Packed: 1 pc.
EDPs listed above are stock standard, other coatings available upon request.
Specify treatment at the time of order.

SOM

Work Material

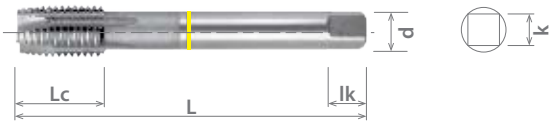
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BH-SO, 5BU-SO	◎	◎	◎							◎	◎						
SFM	58-88	58-88	58-88							78-170	40-65						

○ good ◎ best

List 5EH-SO, 5EU-SO

NEW | YELLOW BAND DRILLS P322-325 | HSSE V3 | TYPE W | BR

YELLOW BAND, Ideal for Aluminum



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) Bright	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D4	2	5EH0300-SO	48.00	11.00	3.58	2.79	5.00
M4 x 0.7	D4	2	5EH0400-SO	53.00	13.00	4.27	3.33	6.50
M5 x 0.8	D4	2	5EH0500-SO	58.50	16.00	4.93	3.86	6.50
M6 x 1.0	D4	2	5EH0600-SO	65.00	19.00	6.48	4.85	8.00
M6 x 1.0	D6	2	5EH0610-SO	65.00	19.00	6.48	4.85	8.00
M6 x 0.75	D4	2	5EU0600-SO	65.00	19.00	6.48	4.85	8.00
M7 x 1.0	D4	2	5EH0700-SO	69.00	19.00	6.48	4.85	8.00
M8 x 1.25	D4	2	5EH0800-SO	70.00	22.00	8.08	6.05	9.50
M8 x 1.25	D6	2	5EH0810-SO	70.00	22.00	8.08	6.05	9.50
M8 x 1.0	D4	2	5EU0800-SO	70.00	22.00	8.08	6.05	9.50
M8 x 1.0	D6	2	5EU0810-SO	70.00	22.00	8.08	6.05	9.50
M10 x 1.5	D4	3	5EH1000-SO	77.00	24.00	9.68	7.26	11.00
M10 x 1.5	D6	3	5EH1010-SO	77.00	24.00	9.68	7.26	11.00
M10 x 1	D4	3	5EU1000-SO	77.00	24.00	9.68	7.26	11.00
M12 x 1.75	D4	3	5EH1200-SO	87.00	29.00	9.32	6.99	11.00
M12 x 1.75	D6	3	5EH1210-SO	87.00	29.00	9.32	6.99	11.00
M12 x 1.5	D4	3	5EU1200-SO	87.00	29.00	9.32	6.99	11.00
M12 x 1.5	D6	3	5EU1210-SO	87.00	29.00	9.32	6.99	11.00
M14 x 2.0	D4	3	5EH1400-SO	93.00	30.00	10.90	8.18	13.00
M14 x 1.5	D4	3	5EU1400-SO	93.00	30.00	10.90	8.18	13.00
M16 x 2.0	D4	3	5EH1600-SO	98.50	32.00	12.19	9.14	14.00
M16 x 1.5	D4	3	5EU1600-SO	98.50	32.00	12.19	9.14	14.00
M18 x 2.5	D4	3	5EH1800-SO	108.00	37.00	13.76	10.31	15.88
M18 x 1.5	D4	3	5EU1800-SO	108.00	37.00	13.76	10.31	15.88
M20 x 2.5	D4	3	5EH2000-SO	114.00	34.00	16.56	12.42	17.50
M20 x 1.5	D4	3	5EU2000-SO	114.00	34.00	16.56	12.42	17.50
M22 x 2.5	D4	3	5EH2200-SO	119.00	34.00	17.70	13.28	19.05
M22 x 1.5	D4	3	5EU2200-SO	119.00	34.00	17.70	13.28	19.05
M24 x 3.0	D4	3	5EH2400-SO	125.00	45.00	19.30	14.48	19.05

Packed: 1 pc.
EDPs listed above are stock standard, other coatings available upon request.
Specify treatment at the time of order.

SOM

Work Material

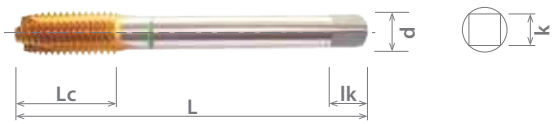
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5EH-SO, 5EU-SO	◎	◎	◎							◎	◎						
SFM	58-88	58-88	58-88							78-170	40-65						

○ good ◎ best

List 5BJ-SO, 5BV-SO

NEW | GREEN BAND DRILLS P328-331 | HSSE V3 | TYPE UNI | TiN

GREEN BAND, Ideal for Carbon Steel



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) TiN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H3	3	5BJ0280-SO	1.890	0.433	0.141	0.110	0.197
	H5		5BJ0290-SO					
4 - 48 UNF	H3		5BV0280-SO					
	H5		5BV0290-SO					
5 - 40 UNC	H3		5BJ0320-SO					
	H5		5BJ0330-SO					
5 - 44 UNF	H3		5BV0320-SO					
	H5		5BV0330-SO					
6 - 32 UNC	H3		5BJ0350-SO	1.969	0.512			
	H5		5BJ0360-SO					
6 - 40 UNF	H3		5BV0350-SO					
	H5		5BV0360-SO					
8 - 32 UNC	H3		5BJ0420-SO	2.087		0.168	0.131	0.256
	H5		5BJ0430-SO					
8 - 36 UNF	H3		5BV0420-SO					
	H5		5BV0430-SO					
10 - 24 UNC	H3		5BJ0480-SO	2.303	0.630	0.194	0.152	
	H5		5BJ0490-SO					
10 - 32 UNF	H3		5BV0480-SO					
	H5		5BV0490-SO					
12 - 24 UNC	H3		5BJ0550-SO	2.402		0.220	0.165	0.276
	H5		5BJ0560-SO					
12 - 28 UNF	H3		5BV0550-SO					
	H5		5BV0560-SO					
1/4 - 20 UNC	H3		5BJ0640-SO	2.559	0.748	0.255	0.191	0.315
	H5		5BJ0650-SO					
1/4 - 28 UNF	H3		5BV0640-SO					
	H5		5BV0650-SO					
5/16 - 18 UNC	H3		5BJ0790-SO	2.756	0.866	0.318	0.238	0.374
	H5		5BJ0800-SO					
5/16 - 24 UNF	H3		5BV0790-SO					
	H5		5BV0800-SO					
3/8 - 16 UNC	H3		5BJ0950-SO	3.031	0.945	0.381	0.286	0.433
	H5		5BJ0960-SO					
3/8 - 24 UNF	H3		5BV0950-SO					
	H5		5BV0960-SO					

Packed: 1 pc.
Available TiN coating only.

continued on next page

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BJ-SO, 5BV-SO	◎	◎	◎			○			○	○	○	○					
SFM	59-88	59-88	59-79			59-79			30-85	78-170	30-80	19-39					

○ good ◎ best

List 5BJ-SO, 5BV-SO

NEW | GREEN BAND DRILLS P328-331 | HSSE V3 | TYPE UNI | TiN

GREEN BAND, Ideal for Carbon Steel



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) TiN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
7/16 - 14 UNC	H3	3	5BJ1110-SO	3.228	0.984	0.323	0.242	0.413
	H5		5BJ1120-SO					
7/16 - 20 UNF	H3		5BV1110-SO					
	H5		5BV1120-SO					
1/2 - 13 UNC	H3		5BJ1270-SO	3.425	1.142	0.367	0.275	0.433
	H5		5BJ1280-SO					
1/2 - 20 UNF	H3		5BV1270-SO					
	H5		5BV1280-SO					
9/16 - 12 UNC	H3		5BJ1430-SO	3.661	1.181	0.429	0.322	0.492
	H5		5BJ1440-SO					
9/16 - 18 UNF	H3		5BV1430-SO					
	H5		5BV1440-SO					
5/8 - 11 UNC	H3	4	5BJ1590-SO	3.878	1.260	0.480	0.360	0.571
	H5		5BJ1600-SO					
5/8 - 18 UNF	H3		5BV1590-SO					
	H5		5BV1600-SO					
3/4 - 10 UNC	H3		5BJ1910-SO	4.252	1.457	0.590	0.442	0.689
	H5		5BJ1920-SO					
3/4 - 16 UNF	H3		5BV1910-SO					
	H5		5BV1920-SO					
7/8 - 9 UNC	H3		5BJ2220-SO	4.685	1.339	0.697	0.523	0.748
	H5		5BJ2230-SO					
7/8 - 14 UNF	H3		5BV2220-SO					
	H5		5BV2230-SO					
1 - 8 UNC	H3		5BJ2540-SO	5.118	1.772	0.800	0.600	0.807
	H5		5BJ2550-SO					
1 - 12 UNF	H3		5BV2540-SO					
	H5		5BV2550-SO					
1,1/8 - 7 UNC	H3		5BJ2860-SO	5.433	1.890	0.896	0.672	0.866
	H5		5BJ2870-SO					
1,1/8 - 12 UNF	H3		5BV2860-SO					
	H5		5BV2870-SO					
1,1/4 - 7 UNC	H3		5BJ3180-SO	5.748	2.008	1.021	0.766	1.004
	H5		5BJ3190-SO					
1,1/4 - 12 UNF	H3		5BV3180-SO					
	H5		5BV3190-SO					

Packed: 1 pc.
Available TiN coating only.

SOM

Work Material

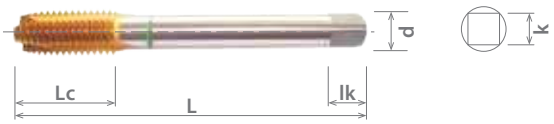
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
5BJ-SO, 5BV-SO	◎	◎	◎			○			○	○	○	○					
SFM	59-88	59-88	59-79			59-79			30-85	78-170	30-80	19-39					

○ good ◎ best

List 5EX-SO

NEW | GREEN BAND DRILLS P328-331 | HSSE V3 | TYPE UNI | TiN

GREEN BAND, Ideal for Carbon Steel



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (4P-5P) TiN	Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D4	3	5EX0300-SO	48.00	11.00	3.58	2.79	5.00
M4 x 0.7			5EX0400-SO	53.00	13.00	4.27	3.33	6.50
M5 x 0.8			5EX0500-SO	58.50	16.00	4.93	3.86	
M6 x 1.0			5EX0600-SO	65.00	19.00	6.48	4.85	8.00
M8 x 1.25			5EX0800-SO	70.00	22.00	8.08	6.05	9.50
M10 x 1.5	D6		5EX1000-SO	77.00	24.00	9.68	7.26	11.00
M12 x 1.75			5EX1200-SO	87.00	29.00	9.32	6.99	
M14 x 2.0			5EX1400-SO	93.00	30.00	10.90	8.18	13.00
M16 x 2.0		4	5EX1600-SO	98.50	32.00	12.18	9.14	14.00
M18 x 2.5			5EX1800-SO	108.00	37.00	13.76	10.31	15.88
M20 x 2.5			5EX2000-SO	114.00	34.00	16.56	12.42	17.50
M22 x 2.5			5EX2200-SO	119.00		17.70	13.28	19.05
M24 x 3.0			5EX2400-SO	125.00	45.00	19.30	14.48	

Packed: 1 pc.
Available TiN coating only.

SOM

Work Material																		
	P					M			K	N			S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum			Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
5EX-SO	◎	◎	◎			○			○	○	○	○						
SFM	59-88	59-88	59-79			59-79			30-85	78-170	30-80	19-39						

○ good ◎ best

List 16615

CARBIDE BR

A-CHT, Coolant-Through, DIN Overall Length, Bottom (1.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P) Bright	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
12 - 24 UNC	H3	3	1661500200	3.150	0.500	0.945	0.220	0.165	0.281
12 - 28 UNF			1661500300						
1/4 - 20 UNC	H5		1661500400		0.598	1.181	0.255	0.191	0.313
1/4 - 28 UNF	H4		1661500500						
5/16 - 18 UNC	H5	4	1661500600	3.543	0.665	1.378	0.318	0.238	0.375
5/16 - 24 UNF	H4		1661500700						
3/8 - 16 UNC	H5		1661500800	3.937	0.752		0.381	0.286	0.438
3/8 - 24 UNF	H4		1661500900	3.543					
7/16 - 14 UNC	H5		1661501000	3.937	0.858	-	0.323	0.242	0.406
7/16 - 20 UNF			1661501100						
1/2 - 13 UNC			1661501200	4.331	0.921		0.367	0.275	0.438
1/2 - 20 UNF			1661501300	3.937					

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
Note: Reduce SFM 50% - 70% while using external coolant.

ATP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16615									◎		◎						
SFM									15-50		30-330						

○ good ◎ best

List 16610

CARBIDE BR

A-CHT, Coolant-Through, DIN Overall Length, Bottom (1.5P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P) Bright	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M5 x 0.8	D4	3	1661000000	70.00	10.00	25.00	4.93	3.86	6.35
M6 x 1.0	D5		1661000100	80.00	12.00	31.00	6.48	4.85	7.92
M8 x 1.25		4	1661000200	90.00	15.00	35.00	8.08	6.05	9.52
M10 x 1.5	D6		1661000300	100.00	18.00	39.00	9.68	7.26	11.11
M10 x 1.25	D5		1661000400						
M12 x 1.75	D6		1661000500	110.00	21.00	-	9.32	6.98	
M12 x 1.5			1661000600	100.00					
M12 x 1.25			1661000700						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
Note: Reduce SFM 50% - 70% while using external coolant.

ATP

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16610									◎		◎						
SFM									15-50		30-330						

○ good ◎ best

List 311

CARBIDE V

VX-OT, DIN Overall Length, Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Recommended WH-70 Drill Size
			V	L	Lc	Ln	d	k	lk	
4 - 40 UNC	2B	4	3110108	2.205	0.295	0.705	0.141	0.110	0.188	2.3mm
6 - 32 UNC			3110208		0.370	0.783				2.8mm
8 - 32 UNC			3110308	2.480	0.374	0.827	0.168	0.131	0.250	3.5mm
10 - 24 UNC			3110408	2.756	0.492	0.976	0.194	0.152		4.0mm
10 - 32 UNF			3110508		0.500	0.984				4.2mm
1/4 - 20 UNC		5	3110608	3.150	0.594	1.177	0.255	0.191	0.313	5.3mm
1/4 - 28 UNF			3110708		0.606	1.189				5.6mm
5/16 - 18 UNC			3110808	3.543	0.665	1.378	0.318	0.238	0.375	6.8mm
5/16 - 24 UNF			3110908							7.1mm
3/8 - 16 UNC			3111008	3.937	0.752		0.381	0.286	0.438	8.2mm
3/8 - 24 UNF			3111108							8.7mm
7/16 - 14 UNC			3111208		0.858	-	0.323	0.242	0.406	9.6mm
7/16 - 20 UNF			3111308							10.1mm
1/2 - 13 UNC			3111408	4.331	0.921		0.367	0.275	0.438	11.1mm
1/2 - 20 UNF			3111508							11.7mm

Packed: 1 pc.
Available V coating only.

HTE

Tapping Guidelines

1. Set tapping speed between 3 ~ 10 SFM.
2. Choose largest hole-size possible, within the recommended tolerance range.
3. Use a non-water soluble cutting fluid.
4. Use highly rigid machine and tool holders.
5. Tapping by hand is NOT recommended.
6. For tapping length over 1.5D, step feed is recommended.

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
311																▢	▢
SFM																3-10	3-10

▢ good ▢ best

List 341

CARBIDE V

VX-OT, JIS, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Recommended WH-70 Drill Size
			V	L	Lc	Ln	d	k	lk	
M2.6 x 0.45	OH3	4	8330049	44.00	14.00	-	3.00	2.50	5.00	2.2mm
M3 x 0.5			8330055	45.90	11.00	19.00	4.00	3.20	6.00	2.6mm
M4 x 0.7			8330061	51.90	13.00	21.00	5.00	4.00	7.00	3.4mm
M5 x 0.8			8330067	59.90	15.90	23.90	5.50	4.50		4.3mm
M6 x 1.0		5	8330073	61.80	19.00	29.00	6.00			5.2mm
M8 x 1.25			8330085	70.00	22.00	-	6.20	5.00	8.00	7.0mm
M8 x 1.0			8330087							7.2mm
M10 x 1.5			8330097	75.00	24.00	-	7.00	5.50		8.8mm
M10 x 1.25			8330099							9.0mm
M10 x 1.0			8330101							9.2mm
M12 x 1.75			8330115	82.00	29.00	-	8.50	6.50	9.00	10.6mm
M12 x 1.5			8330117							10.8mm
M12 x 1.25	OH4		8330119							11.0mm
M12 x 1.0	OH3		8330121							11.2mm
M14 x 2.0	OH4	6	8330123	88.00	30.00	-	10.50	8.00	11.00	12.4mm
M14 x 1.5	OH3		8330125							12.8mm
M16 x 2.0	OH4		8330131	95.00	32.00	-	12.50	10.00	13.00	14.4mm
M16 x 1.5	OH3		8330133							14.8mm
M18 x 2.5	OH4		8330139	100.00	37.00	-	14.00	11.00	14.00	16.0mm
M18 x 1.5			8330141							16.8mm
M20 x 2.5			8330147	105.00		-	15.00	12.00	15.00	18.0mm
M20 x 1.5			8330149							18.8mm

Packed: 1 pc.
Available V coating only.

HTE

Tapping Guidelines

1. Set tapping speed between 3 ~ 10 SFM.
2. Choose largest hole-size possible, within the recommended tolerance range.
3. Use a non-water soluble cutting fluid.
4. Use highly rigid machine and tool holders.
5. Tapping by hand is NOT recommended.
6. For tapping length over 1.5D, step feed is recommended.

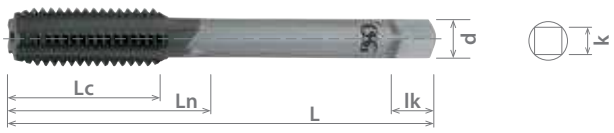
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
341																○	◎
SFM																3-10	3-10

○ good ◎ best

List 329

CARBIDE DIA

DIA-OTT, UNJF, DIN Overall Length, Bottom (1.5P), Modified Bottom (2.5P-3P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Bottom (1.5P)	EDP Number Modified Bottom (2.5P - 3P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Diamond		L	Lc	Ln	d	k	lk
4 - 40 UNC	2B	3	–	3297016	2.205	0.295	0.705	0.141	0.110	0.188
	3B		3291216	–						
6 - 32 UNC	2B		–	3297116		0.370	0.783			
	3B		3291316	–						
8 - 32 UNC	2B		–	3297216	2.480	0.374	0.827	0.168	0.131	0.250
	3B		3291416	–						
10 - 24 UNC	2B	4	–	3297316	2.756	0.500	0.984	0.194	0.152	
	3B		3291516	–						
10 - 32 UNF	2B		–	3297416						
	3B		3291616	–						
1/4 - 20 UNC	2B		–	3297516	3.150	0.606	1.189	0.255	0.191	0.313
	3B		3291716	–						
1/4 - 28 UNF	2B		–	3297616						
	3B		3291816	–						
5/16 - 18 UNC	2B		–	3297716	3.543	0.665	1.378	0.318	0.238	0.375
	3B		3298516	–						
5/16 - 24 UNF	2B		–	3297816						
	3B		3298616	–						
3/8 - 16 UNC	2B		–	3297916	3.937	0.752		0.381	0.286	0.438
	3B		3298716	–						
3/8 - 24 UNF	2B		–	3298016						
	3B		3298816	–						
7/16 - 14 UNC	2B	5	–	3298116		0.858	-	0.323	0.242	0.406
	3B		3298916	–						
7/16 - 20 UNF	2B		–	3298216						
	3B		3299016	–						
1/2 - 13 UNC	2B		–	3298316	4.331	0.921	-	0.367	0.275	0.438
	3B		3299116	–						
1/2 - 20 UNF	2B		–	3298416						
	3B		3299216	–						

Packed: 1 pc.
Available Diamond coating only.
*3B fit taps conform to UNJ Aerospace internal threading applications.

HTE

Work Material																			
	P					M			K	N		S		Other				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	MMC	Copper Alloys	Fiberglass	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
329										◎	◎			◎	○	◎	
SFM										60-160	55-120			30-60	40-80	30-60	

○ good ◎ best

List 359

CARBIDE | DIA

DIA-OTT, JIS, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Class of Fit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) Diamond	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	6H	3	3590116	46.00	11.00	19.00	4.00	3.20	6.00
M4 x 0.7		4	3590216	52.00	13.00	21.00	5.00	4.00	7.00
M5 x 0.8			3590316	60.00	16.00	24.00	5.50	4.50	7.00
M6 x 1.0			3590416	62.00	19.00	29.00	6.00	4.50	7.00
M8 x 1.25			3590516	70.00	22.00	-	6.20	5.00	8.00
M10 x 1.5		5	3590616	75.00	24.00	-	7.00	5.50	8.00
M12 x 1.75			3590716	82.00	29.00	-	8.50	6.50	9.00

Packed: 1 pc.
Available Diamond coating only.

HTE

Work Material

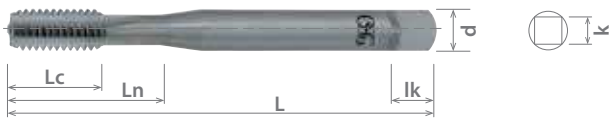
List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	MMC	Copper Alloys	Fiberglass	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
359										◎	◎			◎	○	◎	
SFM										60-160	55-120			30-60	40-80	30-60	

○ good ◎ best

List 319

CARBIDE BR

DIN Overall Length, Bottom (1.5P-2P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Bottom (1.5P - 2P) Bright	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	2B	3	3190000	2.205	0.295	0.704	0.141	0.110	0.188
6 - 32 UNC			3190100		0.370	0.783			
8 - 32 UNC			3190200	2.480	0.374	0.826	0.168	0.131	0.250
10 - 24 UNC			3190300	2.756	0.492	0.976	0.194	0.152	
10 - 32 UNF			3190400		0.500	0.984			
1/4 - 20 UNC			3190500	3.150	0.594	1.177	0.255	0.191	0.313
1/4 - 28 UNF			3190600		0.606	1.188			
5/16 - 18 UNC		4	3190700	3.543	0.665	1.377	0.318	0.238	0.375
5/16 - 24 UNF			3191500						
3/8 - 16 UNC			3190900	3.937	0.751		0.381	0.286	0.438
3/8 - 24 UNF			3191000	3.543					
7/16 - 14 UNC			3191100	3.937	0.858		0.323	0.242	0.406
7/16 - 20 UNF			3191200			-			
1/2 - 13 UNC			3191300	4.331	0.921	-	0.367	0.275	0.438
1/2 - 20 UNF			3191400	3.937		-			

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HTE

Work Material																			
	P					M			K	N		S		Other				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	MMC	Copper Alloys	Fiberglass	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
319									◎	◎	◎				◎	○	◎
SFM									40-90	60-160	55-120				40-80	30-60	15-40

○ good ◎ best

List 10059

CARBIDE | BR

Bottom (1.5P-2P)



Units: Inch

Tap Size	Class of Fit	No. of Flutes	EDP Number Bottom (1.5P - 2P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
10 - 24 UNC	2B	4	1005910100	2.375	0.492	0.866	0.194	0.152	0.250
10 - 32 UNF			1005910200		0.500	0.874			
12 - 24 UNC			1005910300		0.496	0.933	0.220	0.165	0.281
1/4 - 20 UNC			1005910400	2.500	0.594	0.996	0.255	0.191	0.313
1/4 - 28 UNF			1005910500		0.606	1.007			
5/16 - 18 UNC			1005910600	2.719	0.665	1.125	0.318	0.238	0.375
5/16 - 24 UNF			1005910700						
3/8 - 16 UNC			1005910800	2.938	0.751	1.251	0.381	0.286	0.438
3/8 - 24 UNF			1005910900						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	MMC	Copper Alloys	Fiberglass	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
10059									◎	◎	◎				◎	○	◎
SFM									40-90	60-160	55-120				40-80	30-60	15-40

○ good ◎ best

List 10061

CARBIDE BR

DIN Overall Length, Plug (4P-4.5P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P - 2P)	Plug (4P - 4.5P)						
			Bright	Bright	L	Lc	Ln	d	k	lk
M3 x 0.5	D3	3	1006101100	1006100100	49.20	6.20	16.00	3.581	2.79	4.80
M4 x 0.7	D4	4	1006101300	1006100300	54.00	8.40	19.10	4.267	3.33	6.40
M5 x 0.8			1006101400	1006100400	60.30	9.60	22.20	4.928	3.86	
M6 x 1.0	D5		1006101500	1006100500	63.50	12.00	25.80	6.477	4.85	7.90
M8 x 1.25			1006101800	1006100800	69.10	15.00	28.60	8.077	6.05	9.50
M8 x 1.0			1006101700	1006100700						
M10 x 1.5	D6		1006102000	1006101000	74.60	18.00	31.80	9.677	7.26	11.10
M10 x 1.25	D5		1006101900	1006100900						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	MMC	Copper Alloys	Fiberglass	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
10061									◎	◎	◎				◎	○	◎
SFM									40-90	60-160	55-120				40-80	30-60	15-40

○ good ◎ best

List 349

CARBIDE | BR

JIS, Modified Bottom (2.5P-3.5P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P - 2P)	Modified Bottom (2.5P - 3.5P)						
			Bright	Bright	L	Lc	Ln	d	k	lk
M1.4 x 0.3	OH2	3	22800	24000	34.00	9.00	11.50	3.00	2.50	5.00
M1.6 x 0.35	OH3		22801	24001	36.00	10.00	13.50			
M1.7 x 0.35			22802	24002		11.00				
M1.8 x 0.35			22803	24003						
M2 x 0.4			22804	24004	40.00	12.00	16.00			
M2.3 x 0.4			22806	24006	42.00	13.00				
M2.5 x 0.45			22807	24007	44.00	14.00	17.00			
M2.6 x 0.45			22808	24008						
M3 x 0.5			22810	24010	46.00	11.00	13.00	3.98	3.20	6.00
M4 x 0.7			22814	24014	52.00	13.00	14.30	5.00	4.00	7.00
M5 x 0.8			22817	24017	60.00	16.00	17.80	5.50	4.50	
M6 x 1.0			22820	24020	62.00	19.00	-	6.00		
M8 x 1.25	OH4	4	22830	24030	70.00	22.00	-	6.20	5.00	8.00
M8 x 1.0	OH3		22831	24031			-			
M10 x 1.5	OH4		22833	24033	75.00	24.00	-	7.00	5.50	
M10 x 1.25			22834	24034		20.00	-			
M10 x 1.0	OH3		22835	24035			-			
M12 x 1.75	OH5		22837	24037	82.00	29.00	-	8.50	6.50	9.00
M12 x 1.5	OH4		22839	24039			-			
M12 x 1.25			22840	24040	80.00	24.00	-			
M12 x 1.0	OH3		22841	24041			-			
*M14 x 2.0	OH4		24046	24045	88.00	29.00	-	10.50	8.00	10.90
*M14 x 1.5			24048	24047		21.00	-			
*M16 x 2.0	OH5		24052	24051	95.00	29.00	-	12.50	10.00	13.00
*M16 x 1.5	OH4		24054	24053			-			
*M18 x 2.5	OH5		24056	24055	100.00	35.00	-	14.00	11.00	13.90
*M18 x 1.5	OH4		24060	24059	95.00	29.00	-			
*M20 x 2.5	OH5		24062	24061	105.00	35.00	-	15.00	12.00	15.00
*M20 x 1.5	OH4		24066	24065	95.00	29.00	-			
*M22 x 2.5	OH5		24068	24067	115.00	35.00	-	17.00	13.00	16.00
*M22 x 1.5	OH4		24072	24071	95.00	29.00	-			
*M24 x 3.0	OH5		24074	24073	120.00	35.00	-	19.00	15.00	18.00
*M24 x 1.5	OH4		24078	24077	95.00	29.00	-			

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
*Brazed Carbide

HTE

Work Material

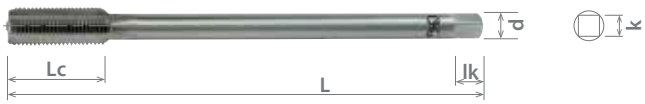
List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	MMC	Copper Alloys	Fiberglass	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
349									◎	◎	◎				◎	○	◎
SFM									40-90	60-160	55-120				40-80	30-60	15-40

○ good ◎ best

List 356

CARBIDE BR

LT-OTT, JIS, Long Shank, Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P) Bright	Long Overall Length L	Thread Length Lc	Shank Dia. d	Square Width k	Square Length lk
M6 x 1.0	OH3	3	22929	100.00	24.00	6.00	4.50	7.00
M8 x 1.25	OH4	4	22933	150.00	22.00	6.20	5.00	8.00
M10 x 1.5			22941		24.00	7.00	5.50	
M10 x 1.25			22945					
M10 x 1.0			22949					
M12 x 1.75			22953		29.00	8.50	6.50	9.00

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HTE

Work Material

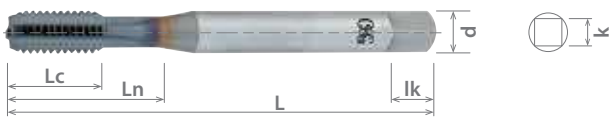
List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	MMC	Copper Alloys	Fiberglass	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
356									◎	◎	◎				◎	○	◎
SFM									40-90	60-160	55-120				40-80	30-60	15-40

○ good ◎ best

List 10051

V-XPM-HT, Modified Bottom (2.5P-3P)

XPM | V



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
6 - 32 UNC	H3	4	1005110508	2.000	0.374	0.688	0.141	0.110	0.188
8 - 32 UNC			1005110808	2.125		0.751	0.168	0.131	0.250
10 - 24 UNC			1005111008	2.375	0.500	0.874	0.194	0.152	
10 - 32 UNF			1005111208						
1/4 - 20 UNC	H5		1005111408	2.500	0.598	1.000	0.255	0.191	0.313
1/4 - 28 UNF	H4		1005111608		0.586	0.988			
5/16 - 18 UNC	H5	5	1005111808	2.719	0.665	1.125	0.318	0.238	0.375
5/16 - 24 UNF	H4		1005112008						
3/8 - 16 UNC	H5		1005112208	2.938	0.751	1.251	0.381	0.286	0.438
3/8 - 24 UNF	H4		1005112408						
1/2 - 13 UNC	H5		1005113008	3.375	0.921	1.933	0.367	0.275	
1/2 - 20 UNF			1005113208						
9/16 - 12 UNC			1005113408	3.594	1.000	1.972	0.429	0.322	0.500
9/16 - 18 UNF			1005113608						
5/8 - 11 UNC	H6		1005113808	3.813	1.091	2.126	0.480	0.360	0.563
5/8 - 18 UNF	H5		1005114008						
3/4 - 10 UNC	H6		1005114208	4.250	1.201	2.433	0.590	0.442	0.688
3/4 - 16 UNF	H5		1005114408						
7/8 - 9 UNC	H7		1005114608	4.688	1.335	2.654	0.697	0.523	0.750
7/8 - 14 UNF	H6		1005114808						
1 - 8UNC	H7		1005115008	5.125	1.500	3.012	0.800	0.600	0.813
1 - 12 UNF	H6		1005115208						

Packed: 1 pc.
Available V coating only.

EXT

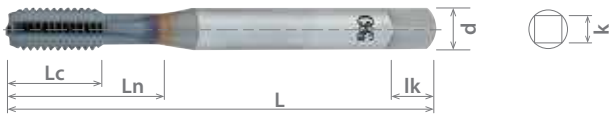
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
10051				▢												▣	
SFM				15-20												8-15	

▢ good ▣ best

List 11051

XPM | V

V-XPM-HT, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M3 x 0.5	D3	4	1105100108	49.20	6.20	16.10	3.581	2.79	4.80
M4 x 0.7	D4		1105100208	54.00	8.40	19.10	4.267	3.33	6.40
M5 x 0.8			1105100308	60.30	9.60	22.20	4.928	3.86	
M6 x 1.0	D5		1105100408	63.00	12.00	25.40	6.477	4.85	7.90
M8 x 1.25		5	1105100508	69.10	15.00	28.60	8.077	6.05	9.50
M8 x 1.0			1105100608						
M10 x 1.5	D6		1105100708	74.60	18.00	31.80	9.677	7.26	11.10
M10 x 1.25	D5		1105100808						
M10 x 1.0			1105100908						
M12 x 1.75	D6		1105101008	85.70	21.00	49.10	9.322	6.98	
M12 x 1.5			1105101108						
M12 x 1.25			1105101208						
M14 x 2.0	D7		1105101308	91.30	24.00	50.10	10.897	8.17	12.70
M14 x 1.5	D6		1105101408						
M16 x 2.0	D7		1105101508	96.80		54.00	12.192	9.14	14.30
M16 x 1.5	D6		1105101608						
M18 x 2.5	D7		1105101708	102.40	30.00	55.00	13.767	10.31	15.90
M18 x 1.5	D6		1105101808						
M20 x 2.5	D7		1105101908	113.50		61.80	16.561	12.42	17.50
M20 x 1.5	D6		1105102008						
M22 x 2.5	D7		1105102108	119.10		67.40	17.704	13.28	19.10
M22 x 1.5	D6		1105102208						
M24 x 3.0	D8		1105102308	124.60	36.00	68.40	19.304	14.48	
M24 x 1.5	D6		1105102408						

Packed: 1 pc.
Available V coating only.

EXT

Work Material

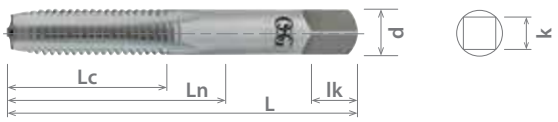
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11051				○												◎	
SFM				15-20												8-15	

○ good ◎ best

List 305

Plug (3.5P-4.5P)

EXOTAP HSS-Co BR



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
4 - 40 UNC	H2	3	1745000	1.875	0.562	0.598	0.141	0.110	0.188
6 - 32 UNC	H3	3	1745100	2.000	0.688	-			
8 - 32 UNC	H3	3	1745200	2.125	0.751	-	0.168	0.131	0.250
10 - 24 UNC	H3	3	1745300	2.375	0.874	-	0.194	0.152	
10 - 32 UNF	H3	3	1745400			-			
1/4 - 20 UNC	H3	3	1745500	2.500	1.000	-	0.255	0.191	0.313
	H3	4	1734000			-			
1/4 - 28 UNF	H3	3	1745600			-			
	H3	4	1739000			-			
5/16 - 18 UNC	H3	4	1734100	2.719	1.125	-	0.318	0.238	0.375
5/16 - 24 UNF	H3	4	1739100			-			
3/8 - 16 UNC	H3	4	1734200	2.938	1.251	-	0.381	0.286	0.438
3/8 - 24 UNF	H3	4	1739200			-			
7/16 - 14 UNC	H3	4	1739600	3.156	1.437	-	0.323	0.242	0.406
7/16 - 20 UNF	H3	4	1739700			-			
1/2 - 13 UNC	H3	4	1734300	3.375	1.657	-	0.367	0.275	0.438
1/2 - 20 UNF	H3	4	1739300			-			
5/8 - 11 UNC	H3	4	1734400	3.813	1.811	-	0.480	0.360	0.563
5/8 - 18 UNF	H3	4	1739400			-			
3/4 - 10 UNC	H3	4	1734500	4.250	2.000	-	0.590	0.442	0.688
3/4 - 16 UNF	H3	4	1739500			-			

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

EXT

Work Material

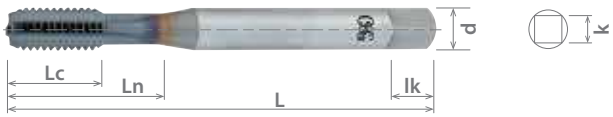
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
305				○	◎									◎	○		
SFM				20-40	15-20									15-35	8-15		

○ good ◎ best

List 10052

VP-DC-HT, DIN Overall Length, Bottom (1.5P-2P)

VC10 | V



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 20 UNC	H3	4	1005200108	3.150	0.598	1.181	0.255	0.191	0.313
	H5		1005200208						
1/4 - 28 UNF	H3		1005200308						
5/16 - 18 UNC			1005200408	3.543	0.665	1.377	0.318	0.238	0.375
	H5		1005200508						
5/16 - 24 UNF	H3		1005200608						
3/8 - 16 UNC			1005200708	3.937	0.751		0.381	0.286	0.438
	H5		1005200808						
3/8 - 24 UNF	H3		1005200908						
7/16 - 14 UNC			1005201008		0.858	1.712	0.323	0.242	0.406
	H5		1005201108						
7/16 - 20 UNF	H3		1005201208						
	H5		1005201308						
1/2 - 13 UNC	H3		1005201408	4.331	0.921	1.933	0.367	0.275	0.438
	H5		1005201508						
1/2 - 20 UNF	H3		1005201608	3.937					
	H5		1005201708						
9/16 - 12 UNC	H3	5	1005201808	4.331	1.000	1.972	0.429	0.322	0.500
	H5		1005201908						
9/16 - 18 UNF	H3		1005202008	3.937					
	H5		1005202108						
5/8 - 11 UNC	H3		1005202208	4.331	1.090	2.125	0.480	0.360	0.563
	H5		1005202308						
5/8 - 18 UNF	H3		1005202408	3.937					
	H5		1005202508						
3/4 - 10 UNC	H3		1005202608	4.921	1.200	2.433	0.590	0.442	0.688
	H5		1005202708						
3/4 - 16 UNF	H3		1005202808	4.331					
	H5		1005202908						
7/8 - 9 UNC	H3		1005203008	5.512	1.334	2.653	0.697	0.523	0.750
	H5		1005203108						
7/8 - 14 UNF	H3		1005203208	4.921					
	H5		1005203308						
1 - 8 UNC	H3		1005203408	6.299	1.500	3.011	0.800	0.600	0.813
	H5		1005203508						

Packed: 1 pc.
Available V coating only.

EXT

Work Material

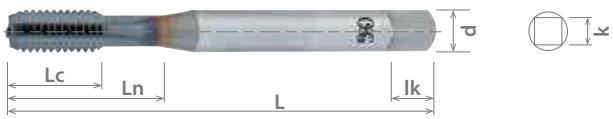
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
10052									◎		◎						
SFM									25-75		40-65						

○ good ◎ best

List 11052

VC10 | V

VP-DC-HT, DIN Overall Length, Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M6 x 1.0	D5	3	1105200108	80.00	12.00	30.00	6.477	4.85	7.90
M8 x 1.25			1105200208	90.00	15.00	35.00	8.077	6.05	9.50
M10 x 1.5	D6		1105200508	100.00	18.00	39.00	9.677	7.26	11.10
M10 x 1.25			1105200408						
M10 x 1.0	D5	4	1105200308	90.00					
M12 x 1.75	D6		1105200808	110.00	21.00	49.10	9.322	6.98	
M12 x 1.5			1105200708	100.00					
M12 x 1.25			1105200608						
M14 x 2.0	D7	5	1105201008	110.00	24.00	50.10	10.897	8.18	12.70
M14 x 1.5			1105200908	100.00					
M16 x 2.0			1105201208	110.00		54.00	12.192	9.14	14.30
M16 x 1.5	D6		1105201108	100.00					
M18 x 2.5	D7		1105201508	125.00	30.00	55.00	13.767	10.31	15.90
M18 x 2.0			1105201408						
M18 x 1.5	D6		1105201308	110.00					
M20 x 2.5	D7		1105201808	140.00		61.80	16.561	12.42	17.50
M20 x 2.0			1105201708						
M20 x 1.5	D6		1105201608	125.00					
M22 x 2.5	D8		1105202108	140.00		67.40	17.704	13.28	19.10
M22 x 2.0			1105202008						
M22 x 1.5	D6		1105201908	125.00					
M24 x 3.0	D8		1105202408	160.00	36.00	68.40	19.304	14.48	
M24 x 2.0			1105202308	140.00					
M24 x 1.5	D6		1105202208						

Packed: 1 pc.
Available V coating only.

EXT

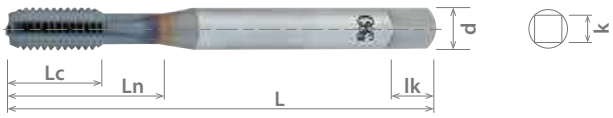
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11052									◎		◎						
SFM									25-75		40-65						

○ good ◎ best

List 10053

VPO-DC-HT, Coolant-Through, DIN Overall Length, Bottom (1.5P-2P)

VC10 | V



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
1/4 - 20 UNC	H3	4	1005300108	3.150	0.598	1.181	0.255	0.190	0.313
	H5		1005300208						
1/4 - 28 UNF	H3		1005300308						
5/16 - 18 UNC			1005300408	3.543	0.665	1.377	0.318	0.238	0.375
	H5		1005300508						
5/16 - 24 UNF	H3		1005300608						
3/8 - 16 UNC			1005300708	3.937	0.751		0.380	0.286	0.438
	H5		1005300808						
3/8 - 24 UNF	H3		1005300908						
7/16 - 14 UNC			1005301008		0.858	1.712	0.323	0.242	0.406
	H5		1005301108						
7/16 - 20 UNF	H3		1005301208						
	H5		1005301308						
1/2 - 13 UNC	H3		1005301408	4.331	0.921	1.933	0.367	0.275	0.438
	H5		1005301508						
1/2 - 20 UNF	H3		1005301608	3.937					
	H5		1005301708						
9/16 - 12 UNC	H3	5	1005301808	4.331	1.000	1.972	0.429	0.322	0.500
	H5		1005301908						
9/16 - 18 UNF	H3		1005302008	3.937					
	H5		1005302108						
5/8 - 11 UNC	H3		1005302208	4.331	1.090	2.125	0.480	0.360	0.563
	H5		1005302308						
5/8 - 18 UNF	H3		1005302408	3.937					
	H5		1005302508						
3/4 - 10 UNC	H3		1005302608	4.921	1.200	2.433	0.590	0.442	0.688
	H5		1005302708						
3/4 - 16 UNF	H3		1005302808	4.331					
	H5		1005302908						
7/8 - 9 UNC	H3		1005303008	5.512	1.334	2.653	0.697	0.523	0.750
	H5		1005303108						
7/8 - 14 UNF	H3		1005303208	4.921					
	H5		1005303308						
1 - 8 UNC	H3		1005303408	6.299	1.500	3.011	0.800	0.600	0.813
	H5		1005303508						

Packed: 1 pc.
Available V coating only.

EXT

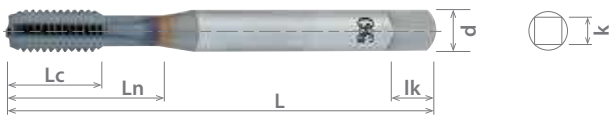
Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065	4140 4340													
10053									◎		◎						
SFM									40-100		50-110						

○ good ◎ best

List 11053

VPO-DC-HT, Coolant-Through, DIN Overall Length, Bottom (1.5P-2P)

EXOTAP | VC10 | V



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	DIN Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M6 x 1.0	D5	3	1105300108	80.00	12.00	30.00	6.477	4.85	7.90
M8 x 1.25		4	1105300208	90.00	15.00	35.00	8.077	6.05	9.50
M10 x 1.5	D6		1105300408	100.00	18.00	39.00	9.677	7.26	11.10
M10 x 1.25			1105300308						
M12 x 1.75			1105300608	110.00	21.00	49.10	9.322	6.98	
M12 x 1.5			1105300508	100.00					
M12 x 1.25			1105302508						
M14 x 2.0	D7	5	1105300808	110.00	24.00	50.10	10.897	8.18	12.70
M14 x 1.5			1105300708	100.00					
M16 x 2.0			1105301208	110.00		54.00	12.192	9.14	14.30
M16 x 1.5	D6		1105301108	100.00					
M18 x 2.5	D7		1105301508	125.00	30.00	55.00	13.767	10.31	15.90
M18 x 2.0			1105301408						
M18 x 1.5	D6		1105301308	110.00					
M20 x 2.5	D7		1105301808	140.00		61.80	16.561	12.42	17.50
M20 x 2.0			1105301708						
M20 x 1.5	D6		1105301608	125.00					
M22 x 2.5	D8		1105302108	140.00		67.40	17.704	13.28	19.10
M22 x 2.0			1105302008						
M22 x 1.5	D6		1105301908	125.00					
M24 x 3.0	D8		1105302408	160.00	36.00	68.40	19.304	14.48	
M24 x 2.0			1105302308	140.00					
M24 x 1.5	D6		1105302208						

Packed: 1 pc.
Available V coating only.

EXT

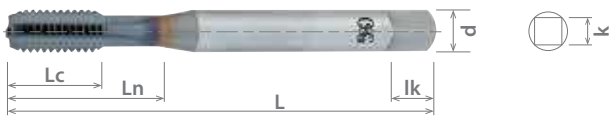
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11053									◎		◎						
SFM									40-100		50-110						

○ good ◎ best

List 11054

VP-DC-HT, DIN Shank, DIN Overall Length, Bottom (1.5P-2P)

VC10 | V



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	DIN Overall Length	Thread Length	Neck Length	DIN Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M6 x 1.0	D5	3	1105400108	80.00	12.00	30.00	6.00	4.90	8.00
M8 x 1.25		4	1105400208	90.00	15.00	35.00	8.00	6.20	8.90
M10 x 1.5	D6		1105400308	100.00	18.00	39.00	10.00	8.00	10.90

Packed: 1 pc.
Available V coating only.

EXT

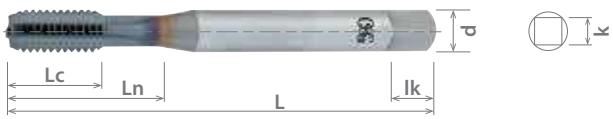
Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11054									◎		◎						
SFM									25-75		40-65						

○ good ◎ best

List 11055

VPO-DC-HT, Coolant-Through, DIN Shank, DIN Overall Length, Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	DIN Overall Length	Thread Length	Neck Length	DIN Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M6 x 1.0	D5	3	1105500108	80.00	12.00	30.00	6.00	4.90	8.00
M8 x 1.25		4	1105500208	90.00	14.00	34.90	8.00	6.20	9.00
M10 x 1.5	D6		1105500308	100.00	17.00	38.90	10.00	8.00	11.00
M12 x 1.75			1105500408	110.00	20.00	43.90	9.00	7.00	10.00

Packed: 1 pc.
Available V coating only.

EXT

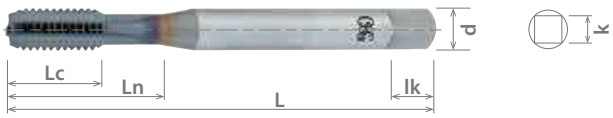
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11055									◎		◎						
SFM									40-100		50-110						

○ good ◎ best

List 10056

VP-DC-HT, Bottom (1.5P-2P)

VC10 | V



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P) V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 20 UNC	H3	4	1005600108	2.500	0.598	1.000	0.255	0.191	0.313
	H5		1005600208						
1/4 - 28 UNF	H3		1005600308						
5/16 - 18 UNC			1005600408	2.720	0.665	1.125	0.318	0.238	0.375
	H5		1005600508						
5/16 - 24 UNF	H3		1005600608						
3/8 - 16 UNC			1005600708	2.930	0.751	1.251	0.381	0.286	0.438
	H5		1005600808						
3/8 - 24 UNF	H3		1005600908						
7/16 - 14 UNC			1005601008	3.150	0.858	1.712	0.323	0.242	0.406
	H5		1005601108						
7/16 - 20 UNF	H3		1005601208						
	H5		1005601308						
1/2 - 13 UNC	H3		1005601408	3.370	0.921	1.933	0.367	0.275	0.438
	H5		1005601508						
1/2 - 20 UNF	H3		1005601608						
	H5		1005601708						
9/16 - 12 UNC	H3	5	1005601808	3.590	1.000	1.972	0.429	0.322	0.500
	H5		1005601908						
9/16 - 18 UNF	H3		1005602008						
	H5		1005602108						
5/8 - 11 UNC	H3		1005602208	3.810	1.090	2.125	0.480	0.360	0.563
	H5		1005602308						
5/8 - 18 UNF	H3		1005602408						
	H5		1005602508						
3/4 - 10 UNC	H3		1005602608	4.250	1.200	2.433	0.590	0.442	0.688
	H5		1005602708						
3/4 - 16 UNF	H3		1005602808						
	H5		1005602908						

Packed: 1 pc.
Available V coating only.

EXT

Work Material

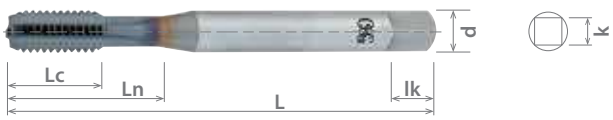
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
10056									◎		◎						
SFM									25-75		40-65						

○ good ◎ best

List 11056

VP-DC-HT, Bottom (1.5P-2P)

VC10 | V



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M6 x 1.0	D5	3	1105600108	63.50	12.00	25.40	6.477	4.85	7.90
M8 x 1.25		4	1105600208	69.10	15.00	28.60	8.077	6.05	9.50
M10 x 1.5	D6		1105600508	74.60	18.00	31.80	9.677	7.26	11.10
M10 x 1.25			1105600408						
M10 x 1.0	D5		1105600308						
M12 x 1.75	D6	4	1105600808	85.70	21.00	49.10	9.322	6.98	
M12 x 1.5			1105600708						
M12 x 1.25			1105600608						
M14 x 2.0	D7	5	1105601008	91.30	24.00	50.10	10.897	8.18	12.70
M14 x 1.5			1105600908						

Packed: 1 pc.
Available V coating only.

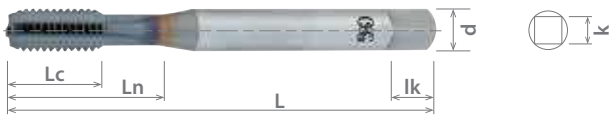
EXT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11056									◎		◎						
SFM									25-75		40-65						

○ good ◎ best

List 10057

VPO-DC-HT, Coolant-Through, Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
1/4 - 20 UNC	H3	4	1005700108	2.500	0.598	1.000	0.255	0.191	0.313
	H5		1005700208						
1/4 - 28 UNF	H3		1005700308						
5/16 - 18 UNC			1005700408	2.719	0.665	1.125	0.318	0.238	0.375
	H5		1005700508						
5/16 - 24 UNF	H3		1005700608						
3/8 - 16 UNC			1005700708	2.938	0.751	1.251	0.381	0.286	0.438
	H5		1005700808						
3/8 - 24 UNF	H3		1005700908						
7/16 - 14 UNC			1005701008	3.156	0.858	1.712	0.323	0.242	0.406
	H5		1005701108						
7/16 - 20 UNF	H3		1005701208						
	H5		1005701308						
1/2 - 13 UNC	H3		1005701408	3.375	0.921	1.933	0.367	0.275	0.438
	H5		1005701508						
1/2 - 20 UNF	H3		1005701608						
	H5		1005701708						

Packed: 1 pc.
Available V coating only.

EXT

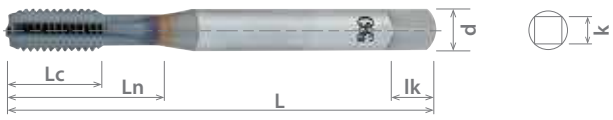
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
10057									◎		◎						
SFM									40-100		50-110						

○ good ◎ best

List 11057

VPO-DC-HT, Coolant-Through, Bottom (1.5P-2P)

VC10 | V



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
M6 x 1.0	D5	3	1105700108	63.50	12.00	25.40	6.48	4.85	7.90
M8 x 1.25		4	1105700208	69.10	15.00	28.60	8.08	6.05	9.50
M10 x 1.5	D6		1105700408	74.60	18.00	31.80	9.68	7.26	11.10
M10 x 1.25			1105700308						
M12 x 1.75			1105700608	85.70	21.00	49.10	9.32	6.98	
M12 x 1.5			1105700508						
M14 x 2.0	D7	5	1105700808	91.30	24.00	50.10	10.90	8.18	12.70
M14 x 1.5			1105700708						

Packed: 1 pc.
Available V coating only.

EXT

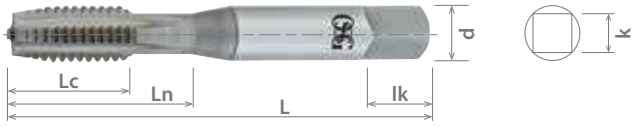
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
11057									◎		◎						
SFM									40-100		50-110						

○ good ◎ best

List 240

HSSE | N | BR

EX-DC-HT, Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)			Plug (3.5P - 4.5P)			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix		EDP Number	Coating Suffix							
				Bright	Nitride		Bright	Nitride	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	3	24929	00	-	24928	00	-	1.811	0.437	0.476	0.141	0.110	0.189
4 - 40 UNC			24931	00	-	24930	00	-	1.874	0.295	0.559			
5 - 40 UNC	H3		24012	-	03	24011	-	03	1.937	0.299	0.626			
6 - 32 UNC			24016	-	03	24015	-	03	2.000	0.370	0.685			
8 - 32 UNC			24932	-	03	24019	-	03	2.126	0.374	0.752	0.168	0.131	0.252
10 - 24 UNC			24024	-	03	24023	-	03	2.374	0.492	0.866	0.194	0.152	
10 - 32 UNF			24028	-	03	24027	-	03						
1/4 - 20 UNC			24032	-	03	24933	-	03	2.500	0.594	0.996	0.255	0.191	0.287
	H5		24036	-	03	24934	-	03						
1/4 - 28 UNF	H3		24936	-	03	24935	-	03						
5/16 - 18 UNC		4	24044	-	03	24043	-	03	2.720	0.665	1.126	0.318	0.238	0.374
	H5		24938	-	03	24937	-	03						
5/16 - 24 UNF	H3		24940	-	03	24939	-	03						
3/8 - 16 UNC			24942	-	03	24941	-	03	2.937	0.752	1.252	0.381	0.286	0.437
	H5		24944	-	03	24943	-	03						
3/8 - 24 UNF	H3		24064	-	03	24063	-	03						
7/16 - 14 UNC			24946	-	03	24945	-	03	3.157	0.858	1.713	0.323	0.242	0.406
7/16 - 20 UNF			24948	-	03	24947	-	03						
1/2 - 13 UNC			24076	-	03	24075	-	03	3.374	0.921	1.933	0.367	0.275	0.437
1/2 - 20 UNF			24080	-	03	24079	-	03						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
240									◎	○	◎						
SFM									25-75	40-80	40-65						

○ good ◎ best

List 241

HY-PRO | HSSE | N

EX-DC-HT, Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number		Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P - 2P)	Plug (3.5P - 4.5P)						
			Nitride	Nitride	L	Lc	Ln	d	k	lk
M3 x 0.5	D3	3	2410203	2494903	49.20	7.30	17.20	3.58	2.79	4.80
M4 x 0.7	D4		2495003	2410303	54.00	10.10	20.80	4.27	3.33	6.40
M5 x 0.8	D5		2410603	2495103	60.30	11.80	24.40	4.93	3.86	
M6 x 1.0			2410803	2495203	63.50	14.60	28.00	6.48	4.85	7.90
M8 x 1.25		4	2411203	2411103	69.10	15.00	28.60	8.08	6.05	9.50
M10 x 1.5	D6		2495403	2411703	74.60	18.00	31.80	9.68	7.26	11.10
M10 x 1.25	D5		2411603	2495303						
M12 x 1.75	D6		2495503	2412103	85.70	21.00	49.10	9.32	6.98	

Packed: 1 pc.
Available Nitride treatment only.

HYT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
241									◎	○	◎						
SFM									25-75	40-80	40-65						

○ good ◎ best

List 101C

HSS | N S/O

Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	EDP Number Plug (3.5P - 4.5P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Nitride-S/O	Nitride-S/O	L	Lc	Ln	d	k	lk
1/4 - 20 UNC	H3	4	1600207	1600107	2.500	0.756	1.189	0.255	0.191	0.311
	H5		1600407	1600307						
1/4 - 28 UNF	H3		1600607	1600507						
5/16 - 18 UNC			1600807	1600707	2.720	0.835	1.323	0.318	0.238	0.374
	H5		1601007	1600907						
5/16 - 24 UNF	H3		1601207	1601107						
3/8 - 16 UNC			1601407	1601307	2.937	0.937	1.413	0.381	0.286	0.437
	H5		1601607	1601507						
3/8 - 24 UNF	H3		1601807	1601707						
7/16 - 14 UNC			1602007	1601907	3.157	1.071	1.689	0.323	0.242	0.406
	H5		1602207	1602107						
7/16 - 20 UNF	H3		1602407	1602307						
	H5		1602607	1602507						
1/2 - 13 UNC	H3		1602807	1602707	3.374	1.177	1.811	0.367	0.275	0.437
	H5		1603007	1602907						
1/2 - 20 UNF	H3		1603207	1603107						
	H5		1603407	1603307						
9/16 - 12 UNC	H3		1603607	1603507	3.594	1.280	1.941	0.429	0.322	0.500
9/16 - 18 UNF			1603807	1603707						
	H5		1600007	–						
5/8 - 11 UNC	H3		1604007	1603907	3.811	1.390	2.000	0.480	0.360	0.563
	H5		1604807	1604707						
5/8 - 18 UNF	H3		1604207	1604107						
	H5		1605207	–						
3/4 - 10 UNC	H3		1604407	1604307	4.252	1.531	2.220	0.590	0.442	0.689
3/4 - 16 UNF			1604607	1604507						
	H5		1605007	1604907						

Packed: 1 pc.
Available Nitride/Steam Oxide treatment only.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
101C									◎		◎						
SFM									25-75		40-65						

○ good ◎ best

List 141C

HSS | N S/O

Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	EDP Number Plug (3.5P - 4.5P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Nitride-S/O	Nitride-S/O	L	Lc	Ln	d	k	lk
M6 x 1.0	D5	3	1608207	1608107	63.50	17.80	30.90	6.48	4.85	7.90
M8 x 1.25		4	1608407	1608307	69.10	18.80	33.60	8.08	6.05	9.50
M10 x 1.5	D6		1608607	1608507	74.60	22.50	35.10	9.68	7.26	11.10
M12 x 1.75			1608807	1608707	85.70	27.20	46.00	9.32	6.98	

Packed: 1 pc.
Available Nitride/Steam Oxide treatment only.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
141C									◎		◎						
SFM									25-75		40-65						

○ good ◎ best

List 101

HSS | TiCN | TiN | S/O | BR

Taper (5P and up), Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)				Plug (3.5P - 4.5P)					Taper (5P and up)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix			EDP Number	Coating Suffix				EDP Number	Coating Suffix								
				Bright	S/O	TiCN		Bright	S/O	TiN	TiCN		Bright	S/O	TiCN	L	Lc	Ln	d	k	lk
1/4 - 20 UNC	H1	4	11002	00	-	08	11001	00	-	-	08	11000	00	-	08	2.500	0.748	1.181	0.255	0.191	0.311
	H2		11102	00	-	08	11101	00	-	-	08	11100	00	-	08						
	H3		11202	00	01	08	11201	00	01	05	08	11200	00	01	08						
	H5		11402	00	-	08	11401	00	-	-	08	-	-	-	-						
1/4 - 28 UNF	H1		11005	00	-	-	11004	00	-	-	-	-	-	-	-						
	H2		11105	00	-	08	11104	00	-	-	-	-	-	-	-						
	H3		11205	00	01	08	11204	00	01	05	08	11203	00	-	08						
	H4		11305	00	-	-	11304	00	-	-	-	-	-	-	-						
5/16 - 18 UNC	H1		11008	00	-	-	11007	00	-	-	-	-	-	-	-	2.720	0.835	1.323	0.318	0.238	0.374
	H2		11108	00	-	-	11107	00	-	-	08	10088	00	-	-						
	H3		11208	00	01	08	11207	00	01	05	08	11206	00	01	08						
	H5		11408	00	-	08	11407	00	-	-	08	-	-	-	-						
5/16 - 24 UNF	H1		11011	00	-	-	11010	00	-	-	-	-	-	-	-						
	H2		11111	00	-	08	11110	00	-	-	-	-	-	-	-						
	H3		11211	00	01	08	11210	00	01	05	08	11209	00	01	08						
	H4		11311	00	-	08	11310	00	-	-	-	-	-	-	-						
3/8 - 16 UNC	H1		11014	00	-	-	11013	00	-	-	-	-	-	-	-	2.937	0.937	1.413	0.381	0.286	0.437
	H2		11114	00	-	-	11113	00	-	-	-	-	-	-	-						
	H3		11214	00	01	08	11213	00	01	05	08	11212	00	01	08						
	H5		11414	00	-	08	11413	00	-	-	08	-	-	-	-						
3/8 - 24 UNF	H1		11017	00	-	08	11016	00	-	-	-	-	-	-	-						
	H2		11117	00	-	-	11116	00	-	-	08	-	-	-	-						
	H3		11217	00	01	08	11216	00	01	05	08	11215	00	01	08						
	H4		11317	00	-	08	11316	00	-	-	08	-	-	-	-						
7/16 - 14 UNC	H2		-	-	-	-	10516	00	-	-	08	-	-	-	-	3.157	1.071	1.689	0.323	0.242	0.406
	H3		11220	00	-	08	11219	00	-	-	08	11218	00	-	08						
	H5		11420	00	-	-	11419	00	-	-	-	-	-	-	-						
7/16 - 20 UNF	H2		-	-	-	-	11122	00	-	-	-	-	-	-	-						
	H3		11223	00	01	08	11222	00	01	05	08	11221	00	01	08						
	H5		11423	00	-	08	11422	00	-	-	08	-	-	-	-						
1/2 - 13 UNC	H1		11026	00	-	-	11025	00	-	-	-	-	-	-	-	3.374	1.154	1.811	0.367	0.275	0.437
	H2		11126	00	-	-	11125	00	-	-	-	-	-	-	-						
	H3		11226	00	01	08	11225	00	01	05	08	11224	00	01	08						
	H5		11426	00	-	-	11425	00	-	-	08	-	-	-	-						
1/2 - 20 UNF	H1		11029	00	-	-	11028	00	-	-	-	-	-	-	-						
	H3		11229	00	01	08	11228	00	01	05	08	11227	00	01	08						
	H5		11429	00	-	08	11428	00	-	-	-	-	-	-	-						
9/16 - 12 UNC	H3		11232	00	01	08	11231	00	01	-	08	11230	00	01	08	3.594	1.252	1.941	0.429	0.322	0.500
	H5		10611	00	-	08	11431	00	-	-	08	-	-	-	-						
9/16 - 18 UNF	H2		-	-	-	-	11134	00	-	-	-	-	-	-	-						
	H3		11235	00	01	08	11234	00	01	-	08	11233	00	01	08						
	H5		11435	00	-	08	11434	00	-	-	08	-	-	-	-						
5/8 - 11 UNC	H1		-	-	-	-	11037	00	-	-	-	-	-	-	-	3.811	1.362	2.000	0.480	0.360	0.563
	H2		10632	00	-	-	11137	00	-	-	-	-	-	-	-						
	H3		11238	00	01	08	11237	00	01	05	08	11236	00	01	08						
	H5		11438	00	-	08	11437	00	-	-	08	-	-	-	-						
5/8 - 18 UNF	H1		-	-	-	-	11040	00	-	-	-	-	-	-	-						
	H2		-	-	-	-	11140	00	-	-	-	-	-	-	-						
	H3		11241	00	01	08	11240	00	01	05	08	11239	00	01	08						
	H5		11441	00	-	08	11440	00	-	-	08	-	-	-	-						
11/16 - 11 UNS	H3		11244	00	-	08	11243	00	-	-	08	11242	00	-	-	4.031		2.130	0.542	0.406	0.626

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

List 101 (Continued)

HSS | TiCN | TiN | S/O | BR

Taper (5P and up), Plug (3.5P-4.5P), Bottom (1.5P-2P)

Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)				Plug (3.5P - 4.5P)					Taper (5P and up)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix			EDP Number	Coating Suffix				EDP Number	Coating Suffix								
				Bright	S/O	TiCN		Bright	S/O	TiN	TiCN		Bright	S/O	TiCN	L	Lc	Ln	d	k	lk
11/16 - 16 UNS	H3	4	11247	00	-	08	11246	00	-	-	08	11245	00	-	08	4.031	1.362	2.130	0.542	0.406	0.626
3/4 - 10 UNC	H1		10665	00	-	-	10089	00	-	-	-	-	-	-	-	4.252	1.500	2.220	0.590	0.442	0.689
	H2		-	-	-	-	11149	00	-	-	-	-	-	-	-						
	H3		11250	00	01	08	11249	00	01	05	08	11248	00	-	08						
	H5		11450	00	-	08	11449	00	-	-	08	-	-	-	-						
3/4 - 16 UNF	H1		-	-	-	-	11052	00	-	-	08	-	-	-	-						
	H2		-	-	-	-	11152	00	-	-	-	-	-	-	-						
	H3		11253	00	01	08	11252	00	01	05	08	11251	00	-	08						
	H5		11453	00	-	08	11452	00	-	-	08	-	-	-	-						
7/8 - 9 UNC	H1		10692	00	-	-	-	-	-	-	-	-	-	-	-	4.689	1.665	2.500	0.697	0.523	0.752
	H2		-	-	-	-	10090	00	-	-	-	-	-	-	-						
	H4		11356	00	01	08	11355	00	01	05	08	11354	00	-	08						
	H6		-	-	-	-	11455	00	-	08	-	-	-	-	-						
7/8 - 14 UNF	H2		-	-	-	-	11158	00	-	-	-	-	-	-	-						
	H4		11359	00	01	08	11358	00	01	05	08	11357	00	-	08						
	H6		-	-	-	-	11458	00	-	-	08	-	-	-	-						
1 - 8 UNC	H1		10719	00	-	-	10718	00	-	-	08	-	-	-	-	5.126	1.874	2.720	0.800	0.600	0.811
	H2		-	-	-	-	11161	00	-	-	-	-	-	-	-						
	H4		11362	00	01	08	11361	00	01	05	08	11360	00	01	08						
	H6		-	-	-	-	11461	00	-	-	08	-	-	-	-						
1 - 12 UNF	H4		11365	00	-	08	11364	00	-	-	08	11363	00	-	08						
1 - 14 UNS	H2		-	-	-	-	11167	00	-	-	08	-	-	-	-						
	H4		11368	00	01	08	11367	00	01	-	08	11366	00	01	08						
1, 1/8 - 7 UNC	H4		11371	00	01	08	11370	00	01	-	08	11369	00	-	08	5.437	2.142	2.941	0.896	0.672	0.874
1,1/8 - 12 UNF			11374	00	01	08	11373	00	01	-	08	11372	00	01	08		1.874				
1,1/4 - 7 UNC			11377	00	01	08	11376	00	-	-	08	11375	00	-	08	5.752	2.142	3.000	1.021	0.766	1.000
1,1/4 - 12 UNF		6	11380	00	01	08	11379	00	01	-	08	11378	00	-	08		1.874				
1,3/8 - 6 UNC		4	11383	00	-	08	11382	00	-	-	08	11381	00	01	-	6.063	2.500	3.161	1.108	0.831	1.063
1,3/8 - 12 UNF		6	11386	00	01	08	11385	00	01	-	08	11384	00	01	08		1.874				
1,1/2 - 6 UNC		4	11389	00	01	08	11388	00	01	-	08	11387	00	01	08	6.374	2.500	3.382	1.233	0.925	1.126
1,1/2 - 12 UNF		6	11392	00	01	08	11391	00	01	-	08	11390	00	01	08		1.874				

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

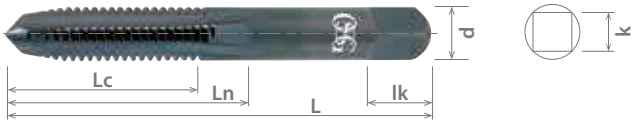
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
101	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▢ best

List 101H

HSS | TiCN | S/O | BR

+.005" Oversize, Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)			Plug (3.5P - 4.5P)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix		EDP Number	Coating Suffix								
				Bright	TiCN		Bright	S/O	TiCN	L	Lc	Ln	d	k	lk
1/4 - 20 UNC	+ 0.005	4	10091	00	08	15901	00	01	08	2.500	0.748	1.181	0.255	0.191	0.311
1/4 - 28 UNF			-	-	-	15903	00	01	08						
5/16 - 18 UNC			10092	00	08	15907	00	01	08	2.720	0.835	1.323	0.318	0.238	0.374
5/16 - 24 UNF			-	-	-	15911	00	-	08						
3/8 - 16 UNC			10093	00	08	15913	00	-	08	2.937	0.937	1.413	0.381	0.286	0.437
3/8 - 24 UNF			-	-	-	15915	00	-	08						
7/16 - 14 UNC			-	-	-	15919	00	-	-	3.157	1.071	1.689	0.323	0.242	0.406
7/16 - 20 UNF			-	-	-	15921	00	-	-						
1/2 - 13 UNC			10094	00	08	15925	00	-	08	3.374	1.154	1.811	0.367	0.275	0.437
1/2 - 20 UNF			-	-	-	15927	00	-	08						
5/8 - 11 UNC			11257	00	08	15937	00	-	08	3.811	1.362	2.000	0.480	0.360	0.563
5/8 - 18 UNF			-	-	-	11259	00	01	08						
3/4 - 10 UNC			-	-	-	15947	00	01	-	4.252	1.500	2.220	0.590	0.442	0.689

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
101H	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 102

HSS | TiCN | TiN | S/O | BR

Taper (5P and up), Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P) EDP Number	Bottom Coating Suffix: Bright	S/O	TiN	TiCN	Plug (3.5P - 4.5P) EDP Number	Plug Coating Suffix: Bright	S/O	TiN	TiCN	Taper (5P and up) EDP Number	Taper Coating Suffix: Bright	S/O	TiN	TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
0 - 80 UNF	H1	2	10002	00	01	05	08	10001	00	01	05	08	10000	00	01	-	08	1.626	0.311	-	0.141	0.110	0.189
	H2		10102	00	-	-	08	10101	00	-	05	08	-	-	-	-	-			-			
1 - 64 UNC	H1		10005	00	01	-	-	10004	00	01	-	-	10003	00	-	-	-	1.689	0.370	-			
	H2		10080	00	-	-	08	10104	00	-	-	08	-	-	-	-	-			-			
1 - 72 UNF	H1		10008	00	01	-	-	10007	00	01	-	-	10006	00	01	-	08			-			
	H2		10108	00	-	-	08	10107	00	-	-	08	-	-	-	-	-			-			
2 - 56 UNC	H1	3	10011	00	-	-	08	10010	00	-	-	-	10009	00	-	-	-	1.752	0.437	-			
	H2		10111	00	01	05	08	10110	00	01	05	08	10109	00	01	-	08			-			
2 - 64 UNF	H1		10014	00	-	-	-	10013	00	-	-	-	-	-	-	-	-			-			
	H2		10114	00	01	-	-	10113	00	01	-	-	10112	00	-	-	-			-			
3 - 48 UNC	H1		-	-	-	-	-	10016	00	-	-	-	-	-	-	-	-	1.811	0.496	-			
	H2		10117	00	01	-	08	10116	00	01	-	08	10115	00	01	-	08			-			
3 - 56 UNF	H1		-	-	-	-	-	10019	00	-	-	-	-	-	-	-	-			-			
	H2		10120	00	01	-	08	10119	00	01	-	08	10118	00	01	-	-			-			
4 - 36 UNS			10129	00	01	-	-	10128	00	-	-	-	10127	00	-	-	-						
4 - 40 UNC	H1		10023	00	-	-	-	10022	00	-	-	-	10021	00	-	-	-	1.874	0.370	0.681			
	H2		10123	00	01	05	08	10122	00	01	05	08	10121	00	01	-	08						
4 - 48 UNF	H1		-	-	-	-	-	10025	00	-	-	-	-	-	-	-	-						
	H2		10126	00	01	-	08	10125	00	01	-	08	10124	00	-	-	08						
5 - 40 UNC	H1		10032	00	-	-	-	10031	00	-	-	-	-	-	-	-	-	1.937	0.374	0.744			
	H2		10132	00	01	05	08	10131	00	01	05	08	10130	00	01	-	08						
5 - 44 UNF	H1		-	-	-	-	-	10034	00	-	-	08	-	-	-	-	-						
	H2		10135	00	01	-	08	10134	00	01	-	08	10133	00	01	-	08						
6 - 32 UNC	H1		10038	00	-	-	-	10037	00	-	-	-	10036	00	-	-	-	2.000	0.465	0.799			
	H2		10138	00	-	05	08	10137	00	-	05	08	10136	00	-	-	08						
	H3		10238	00	01	05	08	10237	00	01	05	08	10236	00	01	-	08						
6 - 40 UNF	H2	2	-	-	-	-	-	10681	-	-	05	-	-	-	-	-	-						
		3	10141	00	01	05	-	10140	00	01	05	-	10139	00	-	-	08						
8 - 32 UNC	H1	4	10044	00	-	-	-	10043	00	-	-	08	10042	00	-	-	08	2.126	0.469	0.933	0.168	0.131	0.252
	H2		10144	00	-	05	-	10143	00	-	05	08	10142	00	-	-	-						
	H3		10244	00	01	05	08	10243	00	01	05	08	10242	00	01	-	08						
	H7	3	10199	00	-	-	-	10198	00	-	-	-	-	-	-	-	-						
8 - 36 UNF	H1	4	-	-	-	-	-	10046	00	-	-	-	-	-	-	-	-						
	H2		10147	00	01	05	-	10146	00	01	05	-	10145	00	01	-	-						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

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STT

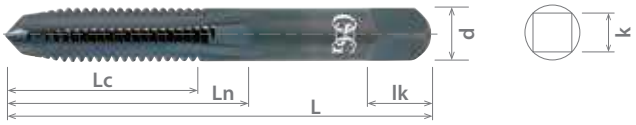
Work Material																				
	P					M			K	N		S		H					
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels					
	Low	Med.	High																
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC		
102	○	○	○						○	○	○								
SFM	25-80	20-50	20-45						25-75	40-80	40-65								

○ good ◎ best

List 102 (Continued)

HSS | TiCN | TiN | S/O | BR

Taper (5P and up), Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)					Plug (3.5P - 4.5P)					Taper (5P and up)					Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix				EDP Number	Coating Suffix				EDP Number	Coating Suffix									
				Bright	S/O	TiN	TiCN		Bright	S/O	TiN	TiCN		Bright	S/O	TiN	TiCN	L	Lc	Ln	d	k	lk
10 - 24 UNC	H1	4	10050	00	01	-	-	10049	00	-	-	-	10048	00	-	-	-	2.374	0.618	1.047	0.194	0.152	0.252
	H2		10150	00	-	-	08	10149	00	-	-	-	10148	00	-	05	08						
	H3		10250	00	01	05	08	10249	00	01	05	08	10248	00	01	-	-						
	H7	3	10087	00	-	-	-	10086	00	-	-	-	-	-	-	-	-						
10 - 32 UNF	H1	4	10053	00	-	-	-	10052	00	-	-	-	10051	00	-	-	-						
	H2		10153	00	-	05	08	10152	00	-	-	08	10151	00	-	05	-						
	H3		10253	00	01	05	08	10252	00	01	05	08	10251	00	01	05	08						
	H7	3	10286	00	-	-	-	10285	00	-	-	-	-	-	-	-	-						
12 - 24 UNC	H1	4	-	-	-	-	-	10055	00	-	-	-	-	-	-	-	-		0.622	1.110	0.220	0.165	0.280
	H3		10256	00	01	-	08	10255	00	01	05	08	10254	00	01	-	08						
12 - 28 UNF	H1		-	-	-	-	-	10058	00	-	-	-	-	-	-	-	-						
	H3		10259	00	01	05	08	10258	00	01	-	08	10257	00	01	-	08						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
102	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 102H

HSS | S/O | BR

+.005" Oversize, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)		Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bright	S/O	L	Lc	Ln	d	k	lk
6 - 32 UNC	+ 0.005	3	1593500	–	2.000	0.465	0.799	0.141	0.110	0.189
8 - 32 UNC		4	1594300	–	2.126	0.469	0.933	0.168	0.131	0.252
10 - 24 UNC			1594900	–	2.374	0.618	1.047	0.194	0.152	
10 - 32 UNF			1595100	1595101						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
102H	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 103

HSS | TiN | S/O | BR

Three Flute, Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)				Plug (3.5P - 4.5P)				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix			EDP Number	Coating Suffix								
				Bright	S/O	TiN		Bright	S/O	TIN	L	Lc	Ln	d	k	lk
8 - 32 UNC	H1		10402	00	-	-	10401	00	-	-						
	H2		10452	00	-	-	10451	00	-	-	2.126	0.469	0.933	0.168	0.131	
	H3		10502	00	-	-	10501	00	-	-						
10 - 24 UNC	H1		-	-	-	-	10407	00	-	-						0.252
	H2		-	-	-	-	10457	00	-	-						
	H3		10508	00	-	-	10507	00	-	-	2.374	0.618	1.047	0.194	0.152	
10 - 32 UNF	H2		10461	00	-	-	10460	00	-	-						
	H3		10511	00	01	05	10510	00	01	05						
1/4 - 20 UNC	H1		10593	00	-	-	11601	00	-	-						
	H2		10356	00	-	-	11651	00	-	-						
	H3		11702	00	01	05	11701	00	01	05	2.500	0.748	1.181	0.255	0.191	0.311
	H5		11802	00	-	-	11801	00	-	-						
1/4 - 28 UNF	H3	3	11705	00	01	05	11704	00	01	05						
5/16 - 18 UNC	H1		-	-	-	-	11607	00	-	-						
	H3		11708	00	-	-	11707	00	-	05	2.720	0.835	1.323	0.318	0.238	0.374
	H5		11808	00	-	-	11807	00	-	-						
5/16 - 24 UNF	H3		11711	00	01	05	11710	00	01	05						
3/8 - 16 UNC	H1		10462	00	-	-	11613	00	-	-						
	H3		11714	00	01	05	11713	00	01	05	2.937	0.937	1.413	0.381	0.286	0.437
	H5		11814	00	-	-	11813	00	-	-						
3/8 - 24 UNF			11717	00	01	05	11716	00	01	05						
7/16 - 14 UNC			11720	00	-	-	11719	00	-	-	3.157	1.071	1.689	0.323	0.242	0.406
7/16 - 20 UNF	H3		10547	00	-	-	11722	00	-	-						
1/2 - 13 UNC			11726	00	01	05	11725	00	01	05	3.374	1.154	1.811	0.367	0.275	0.437
1/2 - 20 UNF			10593	00	-	-	11728	00	-	-						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
103	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 104

HSS | S/O | BR

Two Flute, Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P) EDP Number	Bottom Coating Suffix Bright	Bottom Coating Suffix S/O	Plug (3.5P - 4.5P) EDP Number	Plug Coating Suffix Bright	Plug Coating Suffix S/O	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H1	2	10602	00	-	10601	00	-	1.752	0.472	0.512	0.141	0.110	0.189
	H2		10652	00	-	10651	00	-						
3 - 48 UNC			10658	00	-	10657	00	-	1.811	0.539	0.579			
4 - 40 UNC	H1		10079	00	-	10613	00	-	1.874	0.370	0.681			
	H2		10664	00	-	10663	00	-						
5 - 40 UNC			10673	00	-	10672	00	-	1.937	0.425	0.795			
5 - 44 UNF			-	-	-	10675	00	-						
6 - 32 UNC	H1		10081	00	-	10628	00	-	2.000	0.524	0.858			
	H2		10679	00	-	10678	00	-						
	H3		10729	00	01	10728	00	01						
6 - 40 UNF	H2		10164	00	-	10681	00	-						
8 - 32 UNC			10685	00	-	10684	00	-	2.126	0.539	1.004	0.168	0.131	0.252
	H3		10735	00	01	10734	00	01						
10 - 24 UNC	H2		10691	00	-	10690	00	-	2.374	0.701	1.130	0.194	0.152	
	H3		10741	00	01	10740	00	01						
10 - 32 UNF	H1		10262	00	-	10261	00	-						
	H2		10694	00	-	10693	00	-						
	H3		10744	00	01	10743	00	01						
1/4 - 20 UNC			11952	00	01	11951	00	01	2.500	0.854	1.287	0.255	0.191	0.311
1/4 - 28 UNF			11955	00	01	11954	00	01						
5/16 - 18 UNC			11958	00	-	11957	00	-	2.720		1.323	0.318	0.238	0.374

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

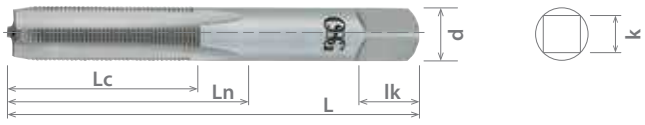
Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
104	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 101N

HSS BR

UNEF, Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	EDP Number Plug (3.5P - 4.5P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bright	Bright	L	Lc	Ln	d	k	lk
12 - 32 UNEF	H3	4	1670200	1670100	2.374	0.622	1.110	0.220	0.165	0.280
1/4 - 32 UNEF			1680200	1680100	2.500	0.748	1.181	0.255	0.191	0.311
5/16 - 32 UNEF			1680400	1680300	2.720	0.835	1.323	0.318	0.238	0.374
3/8 - 32 UNEF			1680600	1680500	2.937	0.937	1.413	0.381	0.286	0.437
7/16 - 28 UNEF			1680800	1680700	3.157	0.992	1.689	0.323	0.242	0.406
1/2 - 28 UNEF			1681000	1680900	3.374	1.154	1.811	0.367	0.275	0.437
9/16 - 24 UNEF			1681200	1681100	3.594	1.252	1.941	0.429	0.322	0.500
5/8 - 24 UNEF		6	1681400	1681300	3.811	1.362	2.000	0.480	0.360	0.563
11/16 - 24 UNEF			1681600	1681500	4.031		2.130	0.542	0.406	0.626
3/4 - 20 UNEF			1681800	1681700	4.252	1.500	2.220	0.590	0.442	0.689
13/16 - 20 UNEF			1682000	1681900	4.469		2.382	0.652	0.489	
7/8 - 20 UNEF			1682200	1682100	4.689	1.665	2.500	0.697	0.523	0.752
15/16 - 20 UNEF			1682400	1682300	4.906	1.500		0.760	0.570	0.752
1 - 20 UNEF			1682600	1682500	5.126	1.874	2.720	0.800	0.600	0.811

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
101N	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 141

HSS | S/O | BR

Taper (5P and up), Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P)			Plug (3.5P - 4.5P)			Taper (5P and up)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix		EDP Number	Coating Suffix		EDP Number						
				Bright	S/O		Bright	S/O	Bright	L	Lc	Ln	d	k	lk
M1.6 x 0.35	D3	3	-	-	-	19788	00	-	-	41.30	7.90	8.90	3.58	2.79	4.80
M2 x 0.4			19774	00	-	19773	00	-	-	44.50	11.10	12.10			
M2.5 x 0.45			19723	00	01	19722	00	01	-	46.00	12.80	13.80			
M3 x 0.5			19702	00	01	19701	00	01	1970000	49.20	7.50	18.90			
M3.5 x 0.6	D4		19726	00	01	19725	00	01	-	50.80	9.00	20.40			
M4 x 0.7		4	19705	00	01	19704	00	01	1970300	54.00	10.50	23.70	4.27	3.33	6.40
M4.5 x 0.75			19729	00	01	19728	00	01	-	60.30	12.20	26.70	4.93	3.86	
M5 x 0.8			19708	00	01	19707	00	01	1970600		12.10	26.90			
M6 x 1.0	D5		19711	00	01	19710	00	01	1970900	63.50	15.90	30.00	6.48	4.85	7.90
M7 x 1.0			19732	00	01	19731	00	01	-	69.10	15.00	33.60	8.08	6.05	9.50
M8 x 1.25			19714	00	01	19713	00	01	1971200		18.80				
M8 x 1.0			19735	00	01	19734	00	01	-						
M10 x 1.5	D6		19717	00	01	19716	00	01	1971500	74.60	22.50	35.10	9.68	7.26	11.10
M10 x 1.25	D5		19741	00	01	19740	00	01	-						
M10 x 1.0			19738	00	01	19737	00	01	-						
M12 x 1.75	D6		19720	00	01	19719	00	01	1971800	85.70	27.20	46.00	9.32	6.98	
M12 x 1.5			19747	00	-	19746	00	-	-		26.30				
M12 x 1.25	D5		19744	00	01	19743	00	01	-						
M14 x 2.0	D7		19753	00	-	19752	00	01	1975100	91.30	31.00	49.30	10.90	8.18	12.70
M14 x 1.5	D6		19777	00	-	19776	00	-	-		30.80				
M14 x 1.25	D5		19750	00	-	19749	00	-	-		30.00				
M16 x 2.0	D7		19759	00	01	19758	00	01	1975700	96.80	31.00	50.80	12.19	9.14	14.30
M16 x 1.5	D6		19756	00	01	19755	00	01	-		30.00				
M18 x 2.5	D7		19765	00	-	19764	00	01	-	102.40	38.80	54.10	13.77	10.31	15.90
M18 x 1.5	D6		19762	00	01	19761	00	-	-		37.50				
M20 x 2.5	D7		19771	00	01	19770	00	01	1966900	113.50	38.80	60.50	16.56	12.42	17.50
M20 x 1.5	D6		19768	00	01	19767	00	-	-		37.50				
M24 x 3.0	D8		19772	00	-	19775	00	-	1978000	124.60	45.00	63.50	19.30	14.48	19.10
M30 x 3.5	D9		19782	00	-	19783	00	-	1978400	138.10	52.50	74.70	25.93	19.46	25.40
M36 x 4.0			-	-	-	19786	00	-	1978700	154.00	60.00	80.00	31.32	23.50	28.60

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
141	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 121

HSS | S/O | BR

JIS, Taper (5P and up), Plug (4.5P-5.5P), Bottom (1.5P-2P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number					Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P - 2P)		Plug (4.5P - 5.5P)		Taper (5P and up)						
			Bright	S/O	Bright	S/O	Bright	L	Lc	Ln	d	k	lk
M2 x 0.4	JIS 2	3	233	-	232	-	-	40.00	8.00	12.00	3.00	2.50	5.00
M2.3 x 0.4			293	-	292	-	-	42.00	9.00	-			
M2.6 x 0.45			353	-	352	-	-	44.00		-			
M3 x 0.5			393	22606	392	22605	391	46.00	11.00	19.00	4.00	3.20	6.00
M3.5 x 0.6			413	-	412	-	411	48.00	13.00	20.00			
M4 x 0.7			453	22612	452	22611	451	52.00		21.00	5.00	4.00	7.00
M4.5 x 0.75			-	-	482	-	-	55.00					
M5 x 0.8			513	22618	512	22617	511	60.00	16.00	24.00	5.50	4.50	
M6 x 1.0			583	22622	582	22621	581	62.00	19.00	29.00	6.00		
M6 x 0.75			593	-	592	-	591						
M7 x 1.0		4	-	-	612	-	-	65.00		33.00	6.20	5.00	8.00
M8 x 1.25			643	22628	642	22627	641	70.00	22.00	37.00			
M8 x 1.0			653	-	652	-	651						
M8 x 0.75			-	-	662	-	-		20.00	35.00			
M9 x 1.25			-	-	692	-	-	72.00	22.00	38.00	7.00	5.50	
M10 x 1.5			733	22634	732	22633	731	75.00	24.00	41.00			
M10 x 1.25			743	22638	742	22637	741						
M10 x 1.0			753	-	752	-	751						
M11 x 1.5			-	-	792	-	-	80.00	25.00	48.00	8.00	6.00	9.00
M12 x 1.75			853	22644	852	22643	851	82.00	29.00		8.50	6.50	
M12 x 1.5			-	-	862	-	-						
M12 x 1.25			873	-	872	-	871						
M12 x 1.0			883	-	882	-	881						
M14 x 2.0			983	-	982	-	981	88.00	30.00		10.50	8.00	11.00
M14 x 1.5			993	-	992	-	991						
M14 x 1.25			1003	-	1002	-	1001						
M16 x 2.0			1113	-	1112	-	1111	95.00	32.00	52.00	12.50	10.00	13.00
M16 x 1.5			1123	-	1122	-	1121						
M16 x 1.0			-	-	1142	-	-		30.00	50.00			
M18 x 2.5			1253	-	1252	-	1251	100.00	37.00	55.00	14.00	11.00	14.00
M18 x 2.0			-	-	1262	-	-						
M18 x 1.5			1273	-	1272	-	1271						
M20 x 2.5			1393	-	1392	-	1391	105.00		58.00	15.00	12.00	15.00
M20 x 1.5			1413	-	1412	-	1411						
M22 x 2.5			1503	-	1502	-	1501	115.00	38.00	63.00	17.00	13.00	16.00
M22 x 1.5			1523	-	1522	-	-						
M24 x 3.0			1603	-	1602	-	1601	120.00	45.00	66.00	19.00	15.00	18.00
M24 x 1.5			-	-	1632	-	-						
M26 x 3.0			1713	-	1712	-	1711	130.00		71.00	20.00		
M26 x 1.5			1733	-	1732	-	1731						
M28 x 1.5			1823	-	1822	-	1821			60.00	21.00	17.00	20.00
M30 x 3.5			1843	-	1842	-	1841	135.00	51.00	74.00	23.00		
M30 x 1.5			1873	-	1872	-	1871	130.00	45.00	60.00			
M32 x 1.5			1933	-	1932	-	1931	105.00	37.00	47.00	24.00	19.00	22.00
M33 x 1.5			1983	-	1982	-	1981	110.00			25.00		

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

List 121 (Continued)

HSS | S/O | BR

JIS, Taper (5P and up), Plug (4.5P-5.5P), Bottom (1.5P-2P)

Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number					Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P - 2P)		Plug (4.5P - 5.5P)		Taper (5P and up)						
			Bright	S/O	Bright	S/O	Bright	L	Lc	Ln	d	k	lk
M34 x 1.5	JIS 2	4	2033	-	2032	-	2031	110.00	37.00	47.00	26.00	21.00	24.00
M36 x 1.5			2143	-	2142	-	2141				28.00		

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
121	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▢ best

List 916

HSS | S/O

Long Shank, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) S/O	Long Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/4 - 20 UNC	H3	4	1290001	6.000	1.000	1.689	0.255	0.191	0.311
			1290201	8.000					
5/16 - 18 UNC			1290401	6.000	1.126	1.756	0.318	0.238	0.374
			1290601	8.000					
3/8 - 16 UNC			1290801	6.000	1.252	1.882	0.381	0.286	0.437
			1291001	8.000					
			1291201	10.000					
7/16 - 14 UNC			1291401	6.000	1.437	2.224	0.444	0.333	0.500
			1291601	8.000					
1/2 - 13 UNC			1292001	6.000	1.657	2.445	0.507	0.380	0.563
			1292201	8.000					
			1292401	10.000					
			1292601	12.000					
5/8 - 11 UNC			1292801	6.000	1.811	2.598	0.633	0.475	0.689
			1293001	8.000					
			1293201	10.000					
			1293401	12.000					
3/4 - 10 UNC			1293601	10.000	2.000	2.787	0.759	0.569	0.748
			1293801	12.000					

Packed: 1 pc.
Available Steam Oxide finish only.

STT

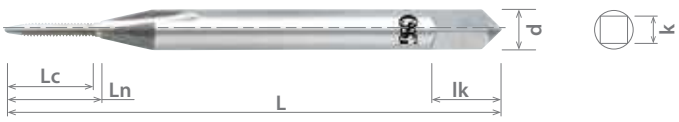
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
916	▢	▢	▢						▢								
SFM	25-80	20-50	20-45						25-75								

▢ good ▢ best

List S110

HSS | BR

Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P) Bright	EDP Number Plug (3.5P - 4.5P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk	Basic O.D.	Basic P.D.
000 - 120 UNC	H1	2	1020000	1010000	1.571	0.201	0.260	0.141	0.110	0.189	0.034	0.0286
	H2		2054000	1929000								
00 - 90 UNC	H1		1040000	1030000	1.728	0.280	0.339				0.047	0.0402
	H2		2055000	3370000								
00 - 96 UNC	H1		1070000	1060000								0.0398
	H2		1322000	3380000								

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Suggested Hole Size Limits for Different Lengths of Engagement

Tap Size	Basic O.D.	Basic P.D.	Depth of Thread Hole					
			Up to 1/3D		1/3 to 1/2D		1/2 to 3D	
			Min.	Max.	Min.	Max.	Min.	Max.
000-120	0.0340	0.0286	0.0260	0.0270	0.0270	0.0280	0.0275	0.0285
00-90	0.0470	0.0398	0.0373	0.0385	0.0380	0.0392	0.0388	0.0400
00-96	0.0470	0.0402	0.0379	0.0393	0.0388	0.0406	0.0397	0.0415

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
S110	▢	▢	▢						▢	▢	▢							
SFM	25-80	20-50	20-45						25-75	40-80	40-65							

▢ good ▢ best

List 114

HSS-Co | N

Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	EDP Number Plug (3.5P - 4.5P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Nitride	Nitride	L	Lc	Ln	d	k	lk
2 - 56 UNC	2B+	3	3141903	3141803	1.752	0.437	-	0.141	0.110	0.189
	H7		3141303	3141203			-			
4 - 40 UNC	2B+	4	3142903	3142803	1.874	0.295	0.559			
	H7		3142303	3142203						
6 - 32 UNC	2B+		3144903	3144803	2.000	0.370	0.685			
	H7		3144303	3144203		0.362				
8 - 32 UNC	2B+		3145903	3145803	2.126	0.374	0.752	0.168	0.131	0.252
	H7		3145303	3145203						
10 - 24 UNC	2B+		3146903	3146803	2.374	0.492	0.866	0.194	0.152	
	H7		3146303	3146203						
10 - 32 UNF	2B+		3146503	3146403						
	H7		3146703	3146603						
1/4 - 20 UNC	2B+		3147903	3147803	2.500	0.594	0.996	0.255	0.191	0.311
	H7		3147303	3147203						

Packed: 1 pc.
Available Nitride treatment only.

STT

The H7 series are designed for tapping thermoplastic materials such as nylon and vinyl.

The 2B+ are designed for tapping thermosetting, reinforced plastics and laminated plastics such as epoxy, bakelite, fiberglass, etc. The 2B+ limit is based on the actual products limit and machining properties, taking the guess work out of H limit selection.

Oversize 2B+ Series = +.0005"~.001" over 2B thread limit.

Work Material

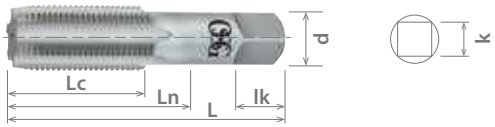
List No.	P					M			K	N		S		Other	
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Thermo Plastics	Thermosetting Plastics
	Low	Med.	High												
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)		
114														▢ best	▢ best
SFM														33-66	33-66

▢ good ▢ best

List 180

HSS | BR

Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	EDP Number Plug (3.5P - 4.5P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bright	Bright	L	Lc	Ln	d	k	lk
1,1/8 - 8	H5	4	1690200	1690100	5.437	1.874	2.941	0.896	0.672	0.874
1,1/4 - 8			1690500	1690400	5.752		3.000	1.021	0.766	1.000
1,3/8 - 8		6	1690800	1690700	6.063		3.161	1.108	0.831	1.063
1,1/2 - 8			1691100	1691000	6.374		3.382	1.233	0.925	1.126
1,5/8 - 8	H6		1691400	1691300	6.689			1.305	0.979	
1,3/4 - 8			1691700	1691600	7.000		3.591	1.430	1.072	1.252
2 - 8			1692300	1692200	7.626		3.811	1.644	1.233	1.374
2,1/4 - 8			8020000	8019000	8.252		4.000	1.894	1.420	1.437

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

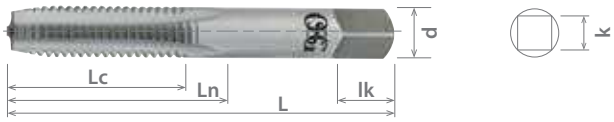
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
180	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▢ best

List 101L

HSS | BR | LH

Left Hand, Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	EDP Number Plug (3.5P - 4.5P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bright	Bright	L	Lc	Ln	d	k	lk
6 - 32 UNC	H3	3	1650200	1650100	2.000	0.523	0.858	0.140	0.109	0.188
6 - 40 UNF	H2		1650400	1650300						
8 - 32 UNC	H3	4	1650600	1650500	2.126	0.539	1.003	0.167	0.131	0.251
8 - 36 UNF	H2		1650800	1650700						
10 - 24 UNC	H3		1651000	1650900	2.374	0.700	1.129	0.194	0.151	
10 - 32 UNF			1651200	1651100						
1/4 - 20 UNC			1660200	1660100	2.500	0.854	1.287	0.255	0.190	0.311
1/4 - 28 UNF			1660400	1660300						
5/16 - 18 UNC			1660600	1660500	2.720	0.834	1.322	0.317	0.238	0.374
5/16 - 24 UNF			1660800	1660700						
3/8 - 16 UNC			1661000	1660900	2.937	0.937	1.413	0.380	0.285	0.437
3/8 - 24 UNF			1661200	1661100						
7/16 - 14 UNC			1661400	1661300	3.157	1.070	1.688	0.322	0.242	0.405
7/16 - 20 UNF			1661600	1661500						
1/2 - 13 UNC			1661800	1661700	3.374	1.153	1.811	0.367	0.274	0.437
1/2 - 20 UNF			1662000	1661900						
9/16 - 12 UNC			1662200	1662100	3.594	1.251	1.940	0.429	0.322	0.500
9/16 - 18 UNF			1662400	1662300						
5/8 - 11 UNC			1662600	1662500	3.811	1.362	2.000	0.480	0.359	0.562
5/8 - 18 UNF			1662800	1662700						
3/4 - 10 UNC			1663400	1663300	4.252	1.500	2.220	0.590	0.442	0.688
3/4 - 16 UNF			1663600	1663500						
7/8 - 9 UNC	H4		1663800	1663700	4.689	1.665	2.500	0.697	0.522	0.751
7/8 - 14 UNF			1664000	1663900						
1 - 8 UNC			1664200	1664100	5.126	1.874	2.720	0.800	0.600	0.811
1 - 12 UNF			1664400	1664300						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

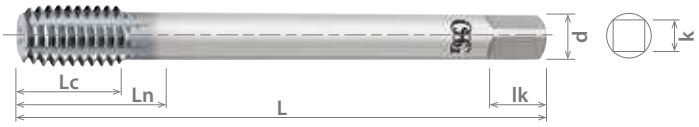
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
101L	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 16260

HSS-Co | V | STI

HL-S-XPF, DIN Overall Length, Modified Bottom (2.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number Modified Bottom (2.5P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk	Tap Drill Size Min	Tap Drill Size Max	Class of Fit 2B	Class of Fit 3B
2 - 56 UNC	2.5P	H1	1626000108	2.274	0.261	0.718	0.140	0.109	0.188	0.0994	0.1013	H2	H1
		H2	1626000208										
4 - 40 UNC		H2	1626000308	2.554	0.365	0.841				0.1309	0.1333	H3	H2
		H3	1626000408		0.364								
4 - 48 UNF		H2	1626000508	2.274	0.362	0.800				0.1281	0.1299		
		H3	1626000608										
6 - 32 UNC		H2	1626000708	2.858	0.456	1.003	0.194	0.151	0.251	0.1613	0.1637		
		H3	1626000808										
6 - 40 UNF		H2	1626000908	2.839	0.449	0.996	0.167	0.131		0.1569	0.1590		
		H3	1626001008										
8 - 32 UNC		H2	1626001108	3.257	0.454	1.198	0.220	0.164	0.279	0.1873	0.1895		
		H3	1626001208										
8 - 36 UNF		H2	1626001308		0.452	1.196				0.1849	0.1870		
		H3	1626001408										
10 - 24 UNC		H3	1626001508		0.605	1.203	0.255	0.190	0.287	0.2210	0.2238	H4	H3
		H4	1626001608										
10 - 32 UNF		H3	1626001708	3.246	0.600	1.199				0.2138	0.2160		
		H4	1626001808										
1/4 - 20 UNC		H3	1626001908	3.543	0.500	1.377	0.317	0.238	0.374	0.2868	0.2899		
		H4	1626002008										
1/4 - 28 UNF		H3	1626002108							0.2769	0.2789		
		H4	1626002208										
5/16 - 18 UNC		H4	1626002308	3.937	0.555	1.535	0.380	0.285	0.437	0.3537	0.3568	H5	H4
		H5	1626002408										
5/16 - 24 UNF		H4	1626002508	3.543		1.377				0.3440	0.3462		
		H5	1626002608										
3/8 - 16 UNC		H5	1626002708	3.937	0.625	1.933	0.367	0.274		0.4215	0.4248	H6	H5
		H6	1626002808										
3/8 - 24 UNF		H5	1626002908	3.543		1.712	0.322	0.242	0.405	0.4070	0.4091		
		H6	1626003008										
7/16 - 14 UNC		H5	1626003108	4.331	0.712	1.972	0.429	0.322	0.500	0.4907	0.4938	H7	
		H7	1626003208										
7/16 - 20 UNF		H5	1626003308	3.937		1.933	0.367	0.274	0.437	0.4758	0.4777		
		H7	1626003408										
1/2 - 13 UNC		H5	1626003508	4.331	0.767	2.125	0.480	0.359	0.562	0.5570	0.5600		
		H7	1626003608										

Packed: 1 pc.
Available V coating only.

continued on next page

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16260	▢ best	▢ best	▢ best	▢ best	▢ best	▢* best	▢* best	▢* best		▢ best	▢ best	○ good	○ good	▢ best	○ good		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	12-25		

*For Stainless Steel, please use non-water-soluble coolant.

○ good ▢ best

List 16260 (Continued)

HSS-Co | V | STI

HL-S-XPF, DIN Overall Length, Modified Bottom (2.5P)



Units: Inch

Tap Size	Lead	Thread Limit	EDP Number Modified Bottom (2.5P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk	Tap Drill Size Min	Tap Drill Size Max	Class of Fit 2B	Class of Fit 3B
1/2 - 20 UNF	2.5P	H5	1626003708	3.937	0.767	1.972	0.429	0.322	0.500	0.5383	0.5402	H7	H5
		H7	1626003808										
9/16 - 12 UNC		H7	1626003908	4.331	0.834	2.165	0.542	0.405	0.625	0.6251	0.6282	H9	H7
		H9	1626004008										
9/16 - 18 UNF		H7	1626004108	3.937		2.125	0.480	0.359	0.562	0.6057	0.6077		
		H9	1626004208										
5/8 - 11 UNC		H7	1626004308	4.921	0.909	2.433	0.590	0.442	0.688	0.6928	0.6961		
		H9	1626004408										
5/8 - 18 UNF		H7	1626004508	4.331		2.165	0.542	0.405	0.625	0.6682	0.6702		
		H9	1626004608										
3/4 - 10 UNC		H7	1626004708	5.512	1.000	2.653	0.697	0.522	0.751	0.8241	0.8276		
		H9	1626004808										
3/4 - 16 UNF		H7	1626004908	4.921		2.433	0.652	0.488	0.688	0.7980	0.8002		
		H9	1626005008										
7/8 - 9 UNC		H7	1626005108	6.299	1.110	3.011	0.800	0.600	0.811	0.9573	0.9606	H10	
		H10	1626005208										
7/8 - 14 UNF		H7	1626005308	5.512						0.9297	0.9316		
		H10	1626005408										
1 - 8 UNC		H8	1626005508	7.087	1.251	3.114	1.020	0.766	1.000	1.0925	1.0966	H11	H8
		H11	1626005608										
1 - 12 UNF		H8	1626005708	5.512			0.895	0.672	0.874	1.0636	1.0658		
		H11	1626005808										

Packed: 1 pc.
Available V coating only.

EP

Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
16260	▣	▣	▣	▣	▣	▣*	▣*	▣*		▣	▣	▢	▢	▣	▢			
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	12-25			

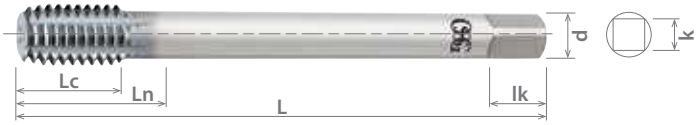
*For Stainless Steel, please use non-water-soluble coolant.

▢ good ▣ best

List 16360

HSS-Co | V | STI

HL-S-XPF, DIN Overall Length, Modified Bottom (2.5P)



Units: mm

Tap Size	Lead	Thread Limit	EDP Number Modified Bottom (2.5P) V	DIN Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk	Tap Drill Size Min	Tap Drill Size Max
M2 x 0.4	2.5P	D3	1636000108	50.00	8.00	9.21	3.58	2.79	4.80	2.32	2.35
M2.5 x 0.45			1636000208	56.00	6.00	18.26				2.85	2.89
M3 x 0.5			1636000308	63.00	7.00	21.32				3.39	3.43
M4 x 0.7		D4	1636000408	70.00	10.00	25.37	4.92	3.86	6.40	4.54	4.59
M5 x 0.8			1636000508	80.00	11.00	30.46	6.47	4.85	7.30	5.61	5.67
M6 x 1.0		D5	1636000608	90.00	10.00	35.00	8.07	6.05	9.50	6.76	6.83
M8 x 1.25		D6	1636000708	100.00	12.00	39.00	9.67	7.26	11.10	8.95	9.03
M10 x 1.5		D8	1636000808		15.00	49.10	9.32	6.98		11.15	11.23
M12 x 1.75		D9	1636000908	110.00	17.00	50.10	10.89	8.18	12.70	13.33	13.43
M14 x 2.0		D10	1636001008		20.00	55.00	13.76	10.31	15.90	15.52	15.63
M16 x 2.0			1636001108	125.00		61.80	14.98	11.23	17.50	17.52	17.63
M18 x 2.5			1636001208	140.00	25.00	67.40	17.70	13.28	19.10	19.87	20.00
M20 x 2.5			1636001308	160.00		68.40	19.30	14.48		21.87	22.00
M22 x 2.5			1636001408			76.50	20.32	15.24	20.60	23.87	24.00
M24 x 3.0		D11	1636001508		30.00	79.10	22.75	17.07	22.20	26.23	26.38

Packed: 1 pc.
Available V coating only.

EP

Work Material

List No.	P: Carbon Steels: Low 1010 1018	P: Carbon Steels: Med. 1035 1045	P: Carbon Steels: High 1065	P: Alloy Steels 4140 4340	P: Die Steels	M: Stainless Steels: 300	M: Stainless Steels: 400	M: Stainless Steels: 17-4 PH	K: Cast Iron	N: Aluminum: 6061 7075	N: Aluminum: Casting	S: Nickel Alloy: Inconel	S: Titanium: 6Al4V (30 HRC)	H: Hardened Steels: ~35 HRC	H: Hardened Steels: 35-45 HRC	H: Hardened Steels: 45-50 HRC	H: Hardened Steels: 50-70 HRC
16360	◎	◎	◎	◎	◎	◎*	◎*	◎*		◎	◎	○	○	◎	○		
SFM	50-115	50-115	50-85	50-85	20-65	15-40	15-35	10-30		65-115	65-90	8-12	8-15	50-100	12-25		

*For Stainless Steel, please use non-water-soluble coolant.

○ good ◎ best

List 315Ti

V-HL-Ti-SFT, Spiral Fluted, Modified Bottom (2.5P-3P)

EXOTAP | VC10 | V | STI | 10°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	3	31540108	1.944	0.574	0.614	0.140	0.109	0.188
4 - 40 UNC			31540208	2.058	0.688	-			
6 - 32 UNC	H3		31540308	2.451	0.870	1.066	0.194	0.151	0.251
8 - 32 UNC			31540408	2.464	0.937	-	0.220	0.164	0.279
10 - 32 UNF			31540508	2.500	1.000	1.196	0.255	0.190	0.287
1/4 - 28 UNF			31540608	2.720	0.500	1.125	0.317	0.238	0.374
5/16 - 24 UNF			31540708	2.937	0.555	1.251	0.380	0.285	0.437
3/8 - 24 UNF			31540808	3.157	0.625	1.712	0.322	0.242	0.405
7/16 - 20 UNF	H4		31540908	3.374	0.712	1.933	0.367	0.274	0.437
1/2 - 20 UNF			31541008	3.594	0.767	1.972	0.429	0.322	0.500

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
315Ti				○				○				○	◎	○	○		
SFM				15-30				8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 315Ni

V-HL-Ni-SFT, Spiral Fluted, Modified Bottom (2.5P-3P)

EXOTAP | VC10 | V | STI | 10°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P-3P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	3	31520108	1.880	0.559	0.598	0.140	0.109	0.188
4 - 40 UNC			31520208	2.058	0.688	-			
6 - 32 UNC	H3		31520308	2.380	0.870	1.067	0.194	0.151	0.251
8 - 32 UNC			31520408		0.937	-	0.220	0.164	0.279
10 - 32 UNF			31520508	2.500	1.000	1.197	0.255	0.190	0.311
1/4 - 28 UNF			31520608	2.720	0.500	1.125	0.317	0.238	0.374
5/16 - 24 UNF			31520708	2.937	0.555	1.251	0.380	0.285	0.437
3/8 - 24 UNF			31520808	3.157	0.625	1.712	0.322	0.242	0.405
7/16 - 20 UNF	H4		31520908	3.374	0.712	1.933	0.367	0.274	0.437
1/2 - 20 UNF			31521008	3.594	0.767	1.972	0.429	0.322	0.500

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
315Ni								▢				▣	▢	▢	▢		
SFM								8-15				8-15	8-15	15-35	10-20		

▢ good ▣ best

List 315

V-HL-SFT, Spiral Fluted, Modified Bottom (2.5P-3P)

EXOTAP | VC10 | V | S/O | STI | 15°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Modified Bottom (2.5P - 3P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	17157	01	08	1.933	0.177	0.562	0.140	0.109	0.188
3 - 48 UNC	H2	2	315001	01	08	1.996	0.208	0.625	0.140	0.109	0.188
4 - 40 UNC	H2	2	17158	01	08	2.059	0.251	0.688	0.140	0.109	0.188
4 - 48 UNF	H2	2	315002	01	08	2.075	0.267	0.704	0.140	0.109	0.188
6 - 32 UNC	H2	3	17159	01	08	2.457	0.311	0.874	0.194	0.151	0.251
	H3	3	17160	01	08						
6 - 40 UNF	H2	3	315003	01	08	2.213	0.326	0.767	0.167	0.131	
8 - 32 UNC	H2	3	17161	01	08	2.465	0.311	0.937	0.220	0.164	0.279
	H3	3	17162	01	08						
8 - 36 UNF	H2	3	315004	01	08	2.484	0.330	0.956			
10 - 24 UNC	H2	3	315005	01	08	2.524	0.440	1.023	0.255	0.190	0.287
	H3	3	315006	01	08						
10 - 32 UNF	H2	3	17163	01	08	2.500	0.417	1.000			
	H3	3	17164	01	08						
1/4 - 20 UNC	H2	3	315007	01	08	2.720	0.500	1.125	0.317	0.238	0.374
	H3	3	315008	01	08						
1/4 - 28 UNF	H2	3	17165	01	08						
	H3	3	17166	01	08						
5/16 - 18 UNC	H3	3	315009	01	08	2.937	0.555	1.251	0.380	0.285	0.437
	H4	3	315010	01	08						
5/16 - 24 UNF	H2	3	315011	01	08						
	H3	3	17167	01	08						
3/8 - 16 UNC	H3	3	315012	01	08	3.374	0.625	1.933	0.367	0.274	
	H4	3	315013	01	08						
3/8 - 24 UNF	H2	3	315014	01	08	3.157		1.712	0.322	0.242	0.405
	H3	3	315015	01	08						
7/16 - 14 UNC	H3	3	315016	01	08	3.594	0.712	1.972	0.429	0.322	0.500
	H4	3	315017	01	08						
7/16 - 20 UNF	H3	3	315018	01	08	3.374		1.933	0.367	0.274	0.437
	H4	3	315019	01	08						
1/2 - 13 UNC	H3	3	315020	01	08	3.811	0.767	2.125	0.480	0.359	0.562
	H4	3	315021	01	08						
1/2 - 20 UNF	H3	3	315022	01	08	3.594		1.972	0.429	0.322	0.500
	H4	3	315023	01	08						
9/16 - 12 UNC	H3	4	315024	01	08	4.031	0.834	2.165	0.542	0.405	0.625
	H4	4	315025	01	08						
9/16 - 18 UNF	H3	4	315026	01	08	3.811		2.125	0.480	0.359	0.562
	H4	4	315027	01	08						
5/8 - 11 UNC	H3	4	315028	01	08	4.252	0.909	2.433	0.590	0.442	0.688
	H4	4	315029	01	08						
5/8 - 18 UNF	H3	4	315030	01	08	4.031		2.165	0.542	0.405	0.625
	H4	4	315031	01	08						
3/4 - 10 UNC	H3	4	315032	01	08	4.689	1.000	2.653	0.697	0.522	0.751
	H5	4	315033	01	08						
3/4 - 16 UNF	H3	4	315034	01	08	4.469		2.433	0.652	0.488	0.688
	H4	4	315035	01	08						
7/8 - 9 UNC	H3	4	315036	01	08	5.126	1.110	3.011	0.800	0.600	0.811
	H5	4	315037	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

List 315 (Continued)

V-HL-SFT, Spiral Fluted, Modified Bottom (2.5P-3P)

EXOTAP | VC10 | V | S/O | STI | 15°

Units: Inch

Tap Size	Thread Limit	No. of Flutes	Modified Bottom (2.5P - 3P)			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix							
				S/O	V	L	Lc	Ln	d	k	lk
7/8 - 14 UNF	H3	4	315038	01	08	5.126	1.110	3.011	0.800	0.600	0.811
	H4		315039	01	08						
1 - 8 UNC			315040	01	08	5.572	1.251	3.114	1.020	0.766	1.000
	H6		315041	01	08						
1 - 12 UNF	H4		315042	01	08	5.437			0.895	0.672	0.874
	H6		315043	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

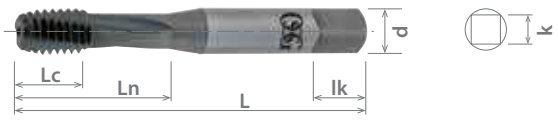
Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
315				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 345STI

Spiral Fluted, Modified Bottom (2.5P-3P)

EXOTAP | VC10 | V | S/O | STI | 15°



Units: mm

Tap Size	Thread Limit	No. of Flutes	Modified Bottom (2.5P - 3P)			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix							
				S/O	V	L	Lc	Ln	d	k	lk
M2 x 0.4	D2	2	345001	01	08	47.80	12.00	13.90	3.58	2.79	4.80
M2.5 x 0.45			345002	01	08	49.30	4.00	15.90			
M3 x 0.5		3	345003	01	08	50.80	5.00	17.60			
M4 x 0.7	D3		345004	01	08	60.50	7.00	22.20	4.92	3.86	6.40
M5 x 0.8			345005	01	08	63.50	8.00	25.50	6.47	4.85	7.30
M6 x 1			345006	01	08	69.10	10.00	28.60	8.07	6.05	9.50
M8 x 1.25			345007	01	08	74.70	12.00	31.80	9.67	7.26	11.10
M10 x 1.5	D4		345008	01	08	85.90	15.00	49.10	9.32	6.98	
M12 x 1.75			345009	01	08	91.30	17.00	50.10	10.89	8.18	12.70
M14 x 2	D5	4	345010	01	08	102.40	20.00	55.00	13.76	10.31	15.90
M16 x 2			345011	01	08	108.00		61.80	14.98	11.23	17.50
M18 x 2.5			345012	01	08	119.10	25.00	67.40	17.70	13.28	19.10
M20 x 2.5			345013	01	08	124.60		68.40	19.30	14.48	
M22 x 2.5			345014	01	08	130.20		76.50	20.32	15.24	20.60
M24 x 3	D6		345015	01	08	138.10	30.00	79.10	22.75	17.07	22.20

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material																			
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
345STI				◎	○		○	◎				○	○	◎	○			
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20			

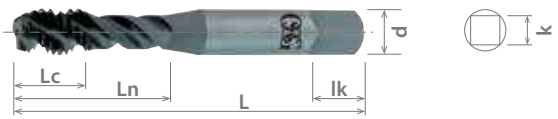
○ good ◎ best

List 302

Spiral Fluted, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

EXOTAP

HSSE | V | S/O | STI | 45°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P) EDP Number	Bottom Coating Suffix S/O	Bottom Coating Suffix V	Modified Bottom (2.5P - 3P) EDP Number	Modified Bottom Coating Suffix S/O	Modified Bottom Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	01447	01	08	17135	01	-	1.882	0.176	0.565	0.141	0.110	0.189
3 - 48 UNC			302001	01	08	-	-	-	1.941	0.209	0.626			
4 - 40 UNC		3	01448	01	08	17136	01	-	2.000	0.252	0.689			
4 - 48 UNF			302002	01	08	-	-	-						
6 - 32 UNC			01449	01	08	17137	01	-	2.382	0.313	0.876	0.194	0.152	0.252
	H3		01450	01	08	17138	01	-						
6 - 40 UNF	H2		01451	01	08	302003	01	08	2.130		0.754	0.168	0.131	
8 - 32 UNC	H2		01452	01	08	17139	01	-	2.382	0.311	0.937	0.220	0.165	0.280
	H3		01453	01	08	17140	01	-						
	H4		01454	01	08	302004	01	08						
8 - 36 UNF	H2		302005	01	08	-	-	-						
10 - 24 UNC	H2		01455	01	08	302007	01	08	2.500	0.418	1.000	0.255	0.191	0.311
	H3		01456	01	08	302008	01	08						
10 - 32 UNF	H2		01457	01	08	17141	01	-		0.419	1.001			
	H3		01458	01	08	17142	01	-						
	H4		01459	01	08	-	-	-						
1/4 - 20 UNC	H2		01460	01	08	302010	01	08	2.720	0.500	1.126	0.318	0.238	0.374
	H3		01461	01	08	302011	01	08						
1/4 - 28 UNF	H2		01462	01	08	17143	01	-						
	H3		01463	01	08	17144	01	-						
5/16 - 18 UNC	H3		01464	01	08	302012	01	08	2.941	0.555	1.252	0.381	0.286	0.437
	H4		01465	01	08	302013	01	08						
5/16 - 24 UNF	H2		01466	01	08	17145	01	-						
	H3		01467	01	08	302014	01	08						
3/8 - 16 UNC	H3		01468	01	08	302015	01	08	3.382	0.626	1.933	0.367	0.275	
	H4		01469	01	08	302016	01	08						
3/8 - 24 UNF	H2		01470	01	08	302017	01	08	3.161		1.713	0.323	0.242	0.406
	H3		01471	01	08	302018	01	08						
7/16 - 14 UNC	H3		01472	01	08	302019	01	08	3.591	0.713	1.972	0.429	0.322	0.500
	H4		01473	01	08	302021	01	08						
7/16 - 20 UNF	H3		01474	01	08	302022	01	08	3.382		1.933	0.367	0.275	0.437
	H4		01475	01	08	302023	01	08						
1/2 - 13 UNC	H3	4	01476	01	08	302024	01	08	3.811	0.768	2.126	0.480	0.360	0.563
	H4		01477	01	08	302025	01	08						
1/2 - 20 UNF	H3		01478	01	08	302026	01	08	3.591		1.972	0.429	0.322	0.500
	H4		01479	01	08	302027	01	08						
9/16 - 12 UNC	H3		302029	01	08	302028	01	08	4.031	0.835	2.126	0.542	0.406	0.626
	H4		302032	01	08	302031	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

continued on next page

EXT

Work Material

List No.	P: Carbon Steels Low 1010 1018	P: Carbon Steels Med. 1035 1045	P: Carbon Steels High 1065	P: Alloy Steels 4140 4340	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
302	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

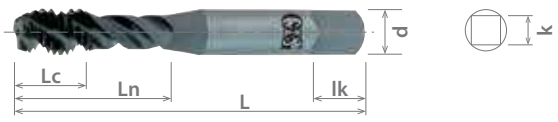
○ good ◎ best

List 302 (Continued)

Spiral Fluted, Modified Bottom (2.5P-3P), Bottom (1.5P-2P)

EXOTAP

HSSE | V | S/O | STI | 45°



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Bottom (1.5P - 2P) EDP Number	Bottom Coating Suffix S/O	Bottom Coating Suffix V	Modified Bottom (2.5P - 3P) EDP Number	Modified Bottom Coating Suffix S/O	Modified Bottom Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
9/16 - 18 UNF	H3	4	01480	01	08	302033	01	08	3.810	0.835	2.126	0.480	0.360	0.563
	H4		302035	01	08	302034	01	08						
5/8 - 11 UNC	H3		302037	01	08	302036	01	08	4.252	0.909	2.433	0.590	0.442	0.689
	H4		302039	01	08	302038	01	08						
5/8 - 18 UNF	H3		01481	01	08	302041	01	08	4.031		2.165	0.542	0.406	0.626
	H4		302043	01	08	302042	01	08						
3/4 - 10 UNC	H3		302045	01	08	302044	01	08	4.689	1.000	2.654	0.697	0.523	0.752
	H5		302047	01	08	302046	01	08						
3/4 - 16 UNF	H3		302049	01	08	302048	01	08	4.467		2.433	0.652	0.489	0.689
	H4		01482	01	08	302051	01	08						
7/8 - 9 UNC	H3		302053	01	08	302052	01	08	5.130	1.110	3.012	0.800	0.600	0.811
	H5		302055	01	08	302054	01	08						
7/8 - 14 UNF	H3		302057	01	08	302056	01	08						
	H4		01483	01	08	302059	01	08						
1 - 8 UNC	H6		302063	01	08	302062	01	08	5.752	1.252	3.075	1.021	0.766	1.000
			302065	01	08	302064	01	08						
1 - 12 UNF	H4		302067	01	08	302066	01	08	5.441			0.896	0.672	0.874
	H6		302069	01	08	302068	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material

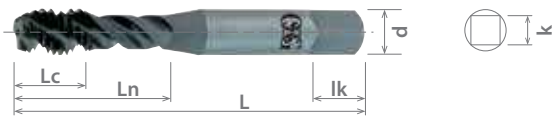
List No.	P: Carbon Steels Low	P: Carbon Steels Med.	P: Carbon Steels High	P: Alloy Steels	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
302	◎	○	○			◎	◎	○									
SFM	25-80	20-45	20-45			20-45	20-45	8-20									

○ good ◎ best

List 343STI

Spiral Fluted, Modified Bottom (2.5P-3P)

EXOTAP | HSSE | V | S/O | STI | 45°



Units: mm

Tap Size	Thread Limit	No. of Flutes	Modified Bottom (2.5P - 3P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M2 x 0.4	D2	2	343001	01	08	46.00	12.70	13.70	3.58	2.79	4.80
M2.5 x 0.45			343002	01	08	49.30	4.60	16.00			
M3 x 0.5		3	343003	01	08	50.80	5.20	17.70			
M4 x 0.7	D3		343004	01	08	60.50	7.10	22.30	4.92	3.86	6.40
M5 x 0.8			343005	01	08	63.50	8.10	25.50	6.47	4.85	7.90
M6 x 1.0			343006	01	08	69.10	10.00	28.60	8.07	6.05	9.50
M8 x 1.25			343007	01	08	74.70	12.50	31.80	9.67	7.26	11.10
M10 x 1.5	D4		343008	01	08	85.90	15.00	49.10	9.32	6.98	
M12 x 1.75			343009	01	08	91.20	17.50	50.10	10.89	8.18	12.70
M14 x 2.0	D5	4	343010	01	08	102.40	20.00	55.00	13.76	10.31	15.90
M16 x 2.0			343011	01	08	108.00		61.80	14.98	11.23	17.50
M18 x 2.5			343012	01	08	119.10		67.40	17.70	13.28	19.10
M20 x 2.5			343013	01	08	124.60	25.00	68.40	19.30	14.48	
M22 x 2.5			343014	01	08	130.20		76.50	20.32	15.24	20.60
M24 x 3.0	D6		343015	01	08	138.10	30.00	79.10	22.75	17.07	22.20

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
343STI	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 13039

HY-PRO | HSSE | V | BR | STI | 50°

Spiral Fluted, Modified Bottom (2.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Modified Bottom (2.5P - 3P) EDP Number	Coating Suffix Bright	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	13039001	00	08	1.882	0.177	0.562	0.140	0.109	0.188
4 - 40 UNC			13039002	00	08	2.000	0.251	0.688			
6 - 32 UNC			13039003	00	08	2.382	0.311	0.874	0.194	0.151	0.251
8 - 32 UNC			13039004	00	08			0.937	0.220	0.164	0.279
10 - 32 UNF			13039005	00	08	2.500	0.417	1.000	0.255	0.190	0.311
1/4 - 20 UNC	H3		13039006	00	08	2.720	0.500	1.125	0.317	0.238	0.374
1/4 - 28 UNF			13039007	00	08						
5/16 - 18 UNC			13039008	00	08	2.941	0.555	1.251	0.380	0.285	0.437
5/16 - 24 UNF			13039009	00	08						
3/8 - 16 UNC			13039010	00	08	3.382	0.625	1.933	0.367	0.274	
3/8 - 24 UNF			13039011	00	08	3.161		1.712	0.322	0.242	0.405
7/16 - 20 UNF	H4		13039012	00	08	3.382	0.712	1.933	0.367	0.274	0.437
1/2 - 20 UNF			13039013	00	08	3.591	0.767	1.972	0.429	0.322	0.500

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

Work Material

List No.	P: Carbon Steels Low 1010 1018	P: Carbon Steels Med. 1035 1045	P: Carbon Steels High 1065	P: Alloy Steels 4140 4340	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
13039										◎	◎						
SFM										40-80	40-65						

○ good ◎ best

List S108

HSS | BR | STI | 50°

Spiral Fluted, Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	8003000	1.882	0.188	0.574	0.140	0.109	0.188
3 - 48 UNC	H2	2	10800100	1.941	0.208	0.625	0.140	0.109	0.188
4 - 40 UNC	H2	2	8003600	2.000	0.251	0.688	0.140	0.109	0.188
4 - 48 UNF	H2	3	10800200	2.000	0.251	0.688	0.140	0.109	0.188
6 - 32 UNC	H3	3	8005400	2.382	0.314	0.885	0.194	0.151	0.251
	H3	3	8005700	2.382	0.314	0.885	0.194	0.151	0.251
6 - 40 UNF	H2	3	10800300	2.130	0.314	0.755	0.167	0.131	0.251
8 - 32 UNC	H2	3	8006900	2.382	0.311	0.940	0.220	0.164	0.279
	H3	3	8007200	2.382	0.311	0.940	0.220	0.164	0.279
8 - 36 UNF	H2	3	10800400	2.382	0.311	0.937	0.220	0.164	0.279
10 - 24 UNC	H2	3	8007800	2.500	0.417	1.000	0.255	0.190	0.311
	H3	3	8008100	2.500	0.417	1.000	0.255	0.190	0.311
10 - 32 UNF	H2	3	8008700	2.500	0.417	1.000	0.255	0.190	0.311
	H3	3	8009000	2.500	0.417	1.000	0.255	0.190	0.311
1/4 - 20 UNC	H2	3	8010900	2.720	0.500	1.129	0.317	0.238	0.338
	H3	3	8011200	2.720	0.500	1.129	0.317	0.238	0.338
1/4 - 28 UNF	H2	3	8011800	2.720	0.500	1.129	0.317	0.238	0.338
	H3	3	8012100	2.720	0.500	1.129	0.317	0.238	0.338
5/16 - 18 UNC	H3	3	8013000	2.937	0.555	1.251	0.380	0.285	0.397
	H4	3	8013300	2.937	0.555	1.251	0.380	0.285	0.397
5/16 - 24 UNF	H2	3	8013600	2.937	0.555	1.251	0.380	0.285	0.397
	H3	3	8013700	2.937	0.555	1.251	0.380	0.285	0.397
3/8 - 16 UNC	H4	3	8015700	3.374	0.625	1.933	0.367	0.274	0.437
3/8 - 24 UNF	H2	3	8015800	3.157	0.625	1.712	0.322	0.242	0.405
	H3	3	8015900	3.157	0.625	1.712	0.322	0.242	0.405
7/16 - 14 UNC	H4	4	10800500	3.594	0.712	1.972	0.429	0.322	0.500
7/16 - 20 UNF	H3	3	8017400	3.374	0.712	1.933	0.367	0.274	0.437
	H4	3	8017500	3.374	0.712	1.933	0.367	0.274	0.437
1/2 - 13 UNC	H3	4	8018000	3.811	0.767	2.125	0.480	0.359	0.562
	H4	4	10800600	3.811	0.767	2.125	0.480	0.359	0.562
1/2 - 20 UNF	H3	4	8018400	3.594	0.767	1.972	0.429	0.322	0.500
	H4	4	10800700	3.594	0.767	1.972	0.429	0.322	0.500
9/16 - 12 UNC	H3	4	10800800	4.031	0.834	2.125	0.542	0.405	0.625
	H4	4	10800900	4.031	0.834	2.125	0.542	0.405	0.625
9/16 - 18 UNF	H3	4	10801000	3.811	0.834	2.125	0.480	0.359	0.562
	H4	4	10801100	3.811	0.834	2.125	0.480	0.359	0.562

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

continued on next page

STT

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
S108	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List S108 (Continued)

HSS | BR | STI | 50°

Spiral Fluted, Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
5/8 - 11 UNC	H3	4	10801200	4.252	0.909	2.433	0.590	0.442	0.688
	H4		10801300						
5/8 - 18 UNF	H3		10801400	4.031		2.165	0.542	0.405	0.625
	H4		10801500						
3/4 - 10 UNC	H3		10801600	4.689	1.000	2.653	0.697	0.522	0.751
	H5		10801700						
3/4 - 16 UNF	H3		10801800	4.469		2.433	0.652	0.488	0.688
	H4		10801900						
7/8 - 9 UNC	H3		10802000	5.126	1.110	3.011	0.800	0.600	0.811
	H5		10802100						
7/8 - 14 UNF	H3		10802200						
	H4		10802300						
1 - 8 UNC	H4		10802400	5.752	1.251	3.074	1.020	0.766	1.000
	H6		10802500						
1 - 12 UNF	H4		10802600	5.437			0.895	0.672	0.874
	H6		10802700						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
S108	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List S109

HSS | BR | STI | 50°

Spiral Fluted, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M2 x 0.4	D2	2	10900100	46.00	12.70	-	3.58	2.79	4.80
M2.5 x 0.45			10900200	49.30	4.50	15.90			
M3 x 0.5		3	10900300	50.80	5.00	17.50			
M4 x 0.7	D3		10900400	60.50	7.00	22.20	4.92	3.86	6.40
M5 x 0.8			10900500	63.50	8.00	25.40	6.47	4.85	7.90
M6 x 1.0			10900600	69.10	10.00	28.60	8.07	6.05	9.50
M8 x 1.25			10900700	74.70	12.50	31.80	9.67	7.26	11.10
M10 x 1.5	D4		10900800	85.90	15.00	49.10	9.32	6.98	
M12 x 1.75			10900900	91.20	17.50	50.10	10.89	8.18	12.70
M14 x 2.0	D5	4	10901000	102.40	20.00	55.00	13.76	10.31	15.90
M16 x 2.0			10901100	108.00		61.80	14.98	11.23	17.50
M18 x 2.5			10901200	119.10	25.00	67.40	17.70	13.28	19.10
M20 x 2.5			10901300	124.60		68.40	19.30	14.48	
M22 x 2.5			10901400	130.20		76.50	20.32	15.24	20.60
M24 x 3.0	D6		10901500	138.10	30.00	79.10	22.75	17.07	22.20

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
S109	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▢ best

List 314Ti

V-HL-Ti-POT, Spiral Pointed, Plug (3.5P-4.5P)

VC10 | V | STI



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	2	31440108	1.882	0.562	0.601	0.140	0.109	0.188
4 - 40 UNC		3	31440208	2.000	0.688	-			
6 - 32 UNC	H3		31440308	2.382	0.874	1.071	0.194	0.151	0.251
8 - 32 UNC			31440408		0.933	-	0.220	0.164	0.279
10 - 32 UNF			31440508	2.500	1.000	1.197	0.255	0.190	0.311
1/4 - 28 UNF			31440608	2.720	0.696	1.122	0.317	0.238	0.374
5/16 - 24 UNF			31440708	2.941	0.779	1.251	0.380	0.285	0.437
3/4 - 24 UNF			31440808	3.161	0.874	1.307	0.322	0.242	0.405
7/16 - 20 UNF	H4		31440908	3.382	1.000	1.433	0.367	0.274	0.437
1/2 - 20 UNF			31441008	3.591	1.078	1.551	0.429	0.322	0.500

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
314Ti				▢				▢				▢	▣	▢	▢		
SFM				15-35				8-20				8-15	8-15	15-35	10-20		

▢ good ▣ best

List 314Ni

V-HL-Ni-POT, Spiral Pointed, Plug (3.5P-4.5P)

VC10 | V | STI



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			V	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	3	31420108	1.933	0.562	0.602	0.140	0.109	0.188
4 - 40 UNC			31420208	2.059	0.688	-			
6 - 32 UNC	H3		31420308	2.457	0.874	1.070	0.194	0.151	0.251
8 - 32 UNC			31420408	2.461	0.933	-	0.220	0.164	0.279
10 - 32 UNF			31420508	2.579	1.000	1.196	0.255	0.190	0.287
1/4 - 28 UNF			31420608	2.815	0.696	1.122	0.317	0.238	0.342
5/16 - 24 UNF			31420708	3.055	0.779	1.251	0.380	0.285	0.397
3/8 - 24 UNF			31420808	3.157	0.874	1.307	0.322	0.242	0.405
7/16 - 20 UNF	H4		31420908	3.374	1.000	1.433	0.367	0.274	0.437
1/2 - 20 UNF			31421008	3.594	1.078	1.551	0.429	0.322	0.500

Packed: 1 pc.
Available V coating only.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
314Ni								▢				▣	▢	▢	▢		
SFM								8-20				8-15	8-15	15-35	10-20		

▢ good ▣ best

List 314

Spiral Pointed, Plug (4.5P-5.5P)

EXOTAP | VC10 | V | S/0 | STI



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P - 5.5P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	17146	01	08	1.882	0.299	0.610	0.140	0.109	0.188
3 - 48 UNC	H2	3	314001	01	08	1.941	0.346	0.681			
4 - 40 UNC	H2	3	17147	01	08	2.000	0.413	0.751			
4 - 48 UNF	H2	3	314002	01	08						
6 - 32 UNC	H2	3	17148	01	08	2.382	0.515	0.952	0.194	0.151	0.251
	H3	3	17149	01	08						
6 - 40 UNF	H2	3	314003	01	08	2.130		0.830	0.167	0.131	
8 - 32 UNC	H2	3	17150	01	08	2.382	0.527	1.027	0.220	0.164	0.279
	H3	3	17151	01	08						
8 - 36 UNF	H2	3	314004	01	08						
10 - 24 UNC	H2	3	314005	01	08	2.500	0.688	1.106	0.255	0.190	0.287
	H3	3	314006	01	08						
10 - 32 UNF	H2	3	17152	01	08						
	H3	3	17153	01	08						
1/4 - 20 UNC	H2	3	314007	01	08	2.720	0.842	1.267	0.317	0.238	0.342
	H3	3	314008	01	08						
1/4 - 28 UNC	H2	3	17154	01	08		0.838	1.263			
	H3	3	17155	01	08						
5/16 - 18 UNC	H2	3	314009	01	08	2.941	0.956	1.429	0.380	0.285	0.397
	H3	3	314010	01	08						
5/16 - 24 UNF	H2	3	314011	01	08		0.952	1.425			
	H3	3	17156	01	08			1.251			
3/8 - 16 UNC	H4	3	314012	01	08	3.382	0.874	1.307	0.367	0.274	0.437
	H4	3	314013	01	08						
3/8 - 24 UNF	H2	3	314014	01	08	3.161			0.322	0.242	0.405
	H3	3	314015	01	08						
7/16 - 14 UNC	H4	3	314016	01	08	3.594	1.000	1.472	0.429	0.322	0.500
	H4	3	314017	01	08						
7/16 - 20 UNF	H3	3	314018	01	08	3.382		1.433	0.367	0.274	0.437
	H4	3	314019	01	08						
1/2 - 13 UNC	H3	3	314020	01	08	3.811	1.078	1.551	0.480	0.359	0.562
	H4	3	314021	01	08						
1/2 - 20 UNF	H3	3	314022	01	08	3.591			0.429	0.322	0.500
	H4	3	314023	01	08						
9/16 - 12 UNC	H3	4	314024	01	08	4.031	1.165	1.677	0.542	0.405	0.625
	H4	4	314025	01	08						
9/16 - 18 UNF	H3	4	314026	01	08	3.811			0.480	0.359	0.562
	H4	4	314027	01	08						
5/8 - 11 UNC	H3	4	314028	01	08	4.252	1.271	1.822	0.590	0.442	0.688
	H4	4	314029	01	08						
5/8 - 18 UNF	H3	4	314030	01	08	4.031		1.783	0.542	0.405	0.625
	H4	4	314031	01	08						
3/4 - 10 UNC	H3	4	314032	01	08	4.689	1.401	1.992	0.697	0.522	0.751
	H5	4	314033	01	08						
3/4 - 16 UNF	H3	4	314034	01	08	4.469		1.952	0.652	0.488	0.688
	H4	4	314035	01	08						
7/8 - 9 UNC	H3	4	314036	01	08	5.126	1.555	2.145	0.800	0.600	0.811
	H5	4	314037	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

List 314 (Continued)

Spiral Pointed, Plug (4.5P-5.5P)

EXOTAP | VC10 | V | S/O | STI

Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P - 5.5P) EDP Number	Plug (4.5P - 5.5P) Coating Suffix S/O	Plug (4.5P - 5.5P) Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
7/8 - 14 UNF	H3	4	314038	01	08	5.126	1.555	2.145	0.800	0.600	0.811
	H4		314039	01	08						
1 - 8 UNC	H4		314040	01	08	5.752	1.751	2.381	1.020	0.766	1.000
	H6		314041	01	08						
1 - 12 UNF	H4		314042	01	08	5.441			0.895	0.672	0.874
	H6		314043	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065	4140 4340													
314				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 344STI

Spiral Pointed, Plug (4.5P-5.5P)

EXOTAP | VC10 | V | S/O | STI



Units: mm

Tap Size	Thread Limit	No. of Flutes	Plug (4.5P - 5.5P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M2 X 0.4	D2	2	344001	01	08	48.59	12.65	-	3.58	2.79	4.80
M2.5 X 0.45			344002	01	08	49.30	6.30	15.90			
M3 X 0.5		3	344003	01	08	50.80	7.21	17.70			
M4 X 0.7	D3		344004	01	08	60.50	9.93	22.35	4.92	3.86	6.40
M5 X 0.8			344005	01	08	63.50	11.38	25.58	6.47	4.85	7.90
M6 X 1.0			344006	01	08	69.09	14.22	28.83	8.07	6.04	9.50
M8 X 1.25			344007	01	08	74.70	17.91	32.00	9.67	7.26	11.10
M10 X 1.5	D4		344008	01	08	85.90	21.01		9.32	6.98	
M12 X 1.75			344009	01	08	91.21	24.51	36.50	10.89	8.17	12.70
M14 X 2.0	D5	4	344010	01	08	102.39	27.99	41.00	13.76	10.31	15.90
M16 X 2.0			344011	01	08	108.00		42.01	14.98	11.22	17.50
M18 X 2.5			344012	01	08	119.10	35.00	49.00	17.70	13.28	19.10
M20 X 2.5			344013	01	08	124.61		50.01	19.30	14.47	
M22 X 2.5			344014	01	08	130.20			20.32	15.24	20.60
M24 X 3.0	D6		344015	01	08	138.10	42.01	57.99	22.75	17.06	22.20

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material

List No.	P: Carbon Steels Low 1010 1018	P: Carbon Steels Med. 1035 1045	P: Carbon Steels High 1065	P: Alloy Steels 4140 4340	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
344STI				◎	○		○	◎				○	○	◎	○		
SFM				15-30	10-25		12-45	8-20				8-15	8-15	15-35	10-20		

○ good ◎ best

List 301

Spiral Pointed, Plug (3.5P-4.5P)

EXOTAP | HSSE | V | S/O | STI



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	17124	01	08	1.882	0.259	0.570	0.140	0.109	0.188
3 - 48 UNC	H2	2	301001	01	08	1.941	0.307	0.633	0.140	0.109	0.188
4 - 40 UNC	H2	2	17125	01	08	2.000	0.362	0.700	0.140	0.109	0.188
4 - 48 UNF	H2	2	301002	01	08	2.000	0.362	0.700	0.140	0.109	0.188
6 - 32 UNC	H3	3	17126	01	08	2.382	0.440	0.877	0.194	0.151	0.251
6 - 32 UNC	H3	3	17127	01	08	2.382	0.440	0.877	0.194	0.151	0.251
6 - 40 UNF	H3	3	301003	01	08	2.130	0.381	0.759	0.167	0.131	0.251
8 - 32 UNC	H2	3	17128	01	08	2.382	0.440	0.940	0.220	0.164	0.279
8 - 32 UNC	H3	3	17129	01	08	2.382	0.440	0.940	0.220	0.164	0.279
8 - 36 UNF	H2	3	301004	01	08	2.382	0.440	0.940	0.220	0.164	0.279
10 - 24 UNC	H2	3	301005	01	08	2.500	0.590	1.007	0.255	0.190	0.311
10 - 24 UNC	H3	3	301006	01	08	2.500	0.590	1.007	0.255	0.190	0.311
10 - 32 UNF	H2	3	17130	01	08	2.500	0.590	1.007	0.255	0.190	0.311
10 - 32 UNF	H3	3	17131	01	08	2.500	0.590	1.007	0.255	0.190	0.311
1/4 - 20 UNC	H2	3	301007	01	08	2.720	0.708	1.133	0.317	0.238	0.374
1/4 - 20 UNC	H3	3	301008	01	08	2.720	0.708	1.133	0.317	0.238	0.374
1/4 - 28 UNF	H2	3	17132	01	08	2.720	0.708	1.133	0.317	0.238	0.374
1/4 - 28 UNF	H3	3	17133	01	08	2.720	0.708	1.133	0.317	0.238	0.374
5/16 - 18 UNC	H4	3	301009	01	08	2.941	0.791	1.263	0.380	0.285	0.397
5/16 - 18 UNC	H4	3	301011	01	08	2.941	0.791	1.263	0.380	0.285	0.397
5/16 - 24 UNF	H2	3	301012	01	08	2.941	0.791	1.263	0.380	0.285	0.397
5/16 - 24 UNF	H3	3	17134	01	08	2.941	0.791	1.263	0.380	0.285	0.397
3/8 - 16 UNC	H4	3	301013	01	08	3.374	0.921	1.354	0.367	0.274	0.437
3/8 - 16 UNC	H4	3	301014	01	08	3.374	0.921	1.354	0.367	0.274	0.437
3/8 - 24 UNF	H2	3	301015	01	08	3.157	0.858	1.291	0.322	0.242	0.405
3/8 - 24 UNF	H3	3	301016	01	08	3.157	0.858	1.291	0.322	0.242	0.405
7/16 - 14 UNC	H4	3	301017	01	08	3.594	1.000	1.472	0.429	0.322	0.500
7/16 - 14 UNC	H4	3	301018	01	08	3.594	1.000	1.472	0.429	0.322	0.500
7/16 - 20 UNF	H3	3	301019	01	08	3.374	0.921	1.354	0.367	0.274	0.437
7/16 - 20 UNF	H4	3	301021	01	08	3.374	0.921	1.354	0.367	0.274	0.437
1/2 - 13 UNC	H3	3	301022	01	08	3.811	1.090	1.562	0.480	0.359	0.562
1/2 - 13 UNC	H4	3	301023	01	08	3.811	1.090	1.562	0.480	0.359	0.562
1/2 - 20 UNF	H3	3	301024	01	08	3.594	1.000	1.472	0.429	0.322	0.500
1/2 - 20 UNF	H4	3	301025	01	08	3.594	1.000	1.472	0.429	0.322	0.500
9/16 - 12 UNC	H3	3	301026	01	08	4.031	1.200	1.712	0.542	0.405	0.629
9/16 - 12 UNC	H4	3	301027	01	08	4.031	1.200	1.712	0.542	0.405	0.629
9/16 - 18 UNF	H3	3	301028	01	08	3.811	1.090	1.562	0.480	0.359	0.562
9/16 - 18 UNF	H4	3	301029	01	08	3.811	1.090	1.562	0.480	0.359	0.562

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

continued on next page

EXT

Work Material

List No.	P: Carbon Steels Low (1010 1018)	P: Carbon Steels Med. (1035 1045)	P: Carbon Steels High (1065)	P: Alloy Steels (4140 4340)	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
301	best	good	good			best	best	good									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

good best

List 301 (Continued)

Spiral Pointed, Plug (3.5P-4.5P)

EXOTAP | HSSE | V | S/O | STI



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix S/O	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
5/8 - 11 UNC	H3	3	301031	01	08	4.252	1.200	1.712	0.590	0.442	0.688
	H4		301032	01	08						
5/8 - 18 UNF	H3		301033	01	08	4.031			0.542	0.405	0.629
	H4		301034	01	08						
3/4 - 10 UNC	H3		301035	01	08	4.689	1.334	1.885	0.697	0.522	0.751
	H5		301036	01	08						
3/4 - 16 UNF	H3		301037	01	08	4.469			0.652	0.488	0.688
	H4		301038	01	08						
7/8 - 9 UNC	H3		301039	01	08	5.126	1.500	2.090	0.800	0.600	0.811
	H5		301041	01	08						
7/8 - 14 UNF	H3		301042	01	08						
	H4		301043	01	08						
1 - 8 UNC			301044	01	08	5.752	1.712	2.381	1.020	0.766	1.000
	H6		301045	01	08						
1 - 12 UNF	H4		301046	01	08	5.437		2.303	0.895	0.672	0.874
	H6		301047	01	08						

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
301	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 342STI

Spiral Pointed, Plug (3.5P-4P)

EXOTAP

HSSE | V | S/O | STI



Units: mm

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P)			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			EDP Number	Coating Suffix							
				S/O	V	L	Lc	Ln	d	k	lk
M2 x 0.4	D2	2	342001	01	08	46.00	6.40	13.10	3.58	2.79	4.80
M2.5 x 0.45			342002	01	08	49.30	7.60	15.90			
M3 x 0.5		3	342003	01	08	50.80	9.50	17.50			
M4 x 0.7	D3		342004	01	08	60.50	12.70	22.20	4.92	3.86	6.40
M5 x 0.8			342005	01	08	63.50	15.20	25.40	6.47	4.85	7.90
M6 x 1.0			342006	01	08	69.10	16.90	28.60	8.07	6.05	9.50
M8 x 1.25			342007	01	08	74.70	19.20	31.90	9.67	7.26	11.10
M10 x 1.5	D4		342008	01	08	85.90	23.40	34.40	9.32	6.98	
M12 x 1.75			342009	01	08	91.20	25.40	37.40	10.89	8.18	12.70
M14 x 2.0	D5		342010	01	08	102.40	27.70	40.70	13.76	10.31	16.00
M16 x 2.0			342011	01	08	108.00	30.50	43.50	14.98	11.23	17.50
M18 x 2.5			342012	01	08	119.10	33.90	47.90	17.70	13.28	19.10
M20 x 2.5			342013	01	08	124.60			19.30	14.48	
M22 x 2.5			342014	01	08	130.20	38.10	53.10	20.32	15.24	20.60
M24 x 3.0	D6	4	342015	01	08	138.10	43.50	58.50	22.75	17.07	22.20

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or V coatings as shown above.

EXT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
342STI	◎	○	○			◎	◎	○									
SFM	25-80	20-50	20-45			20-45	20-45	8-20									

○ good ◎ best

List 11036

HY-PRO | HSSE | BR | V | STI

Spiral Pointed, Plug (3.5P - 4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	Plug (3.5P - 4.5P) EDP Number	Coating Suffix Bright	Coating Suffix V	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	11036001	00	08	1.882	0.295	0.559	0.140	0.109	0.188
4 - 40 UNC			11036002	00	08	2.000	0.366	0.681			
6 - 32 UNC		3	11036003	00	08	2.382	0.492	0.874	0.194	0.151	0.251
8 - 32 UNC	H3		11036004	00	08		0.500	0.937	0.220	0.164	0.279
10 - 32 UNF			11036005	00	08	2.500	0.598	1.000	0.255	0.190	0.311
1/4 - 20 UNC			11036006	00	08	2.720	0.669	1.129	0.317	0.238	0.374
1/4 - 28 UNF			11036007	00	08						
5/16 - 18 UNC			11036008	00	08	2.941	0.417	1.244	0.380	0.285	0.437
5/16 - 24 UNF			11036009	00	08		0.751				
3/8 - 16 UNC			11036010	00	08	3.382	0.921	1.354	0.367	0.274	
3/8 - 24 UNF			11036011	00	08	3.161	0.858	1.291	0.322	0.242	0.405
7/16 - 20 UNF	H4		11036012	00	08	3.382	0.921	1.354	0.367	0.274	0.437
1/2 - 20 UNF			11036013	00	08	3.591	1.000	1.472	0.429	0.322	0.500

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYT

Work Material

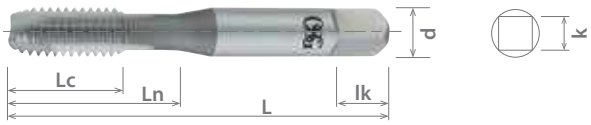
List No.	P: Carbon Steels Low 1010 1018	P: Carbon Steels Med. 1035 1045	P: Carbon Steels High 1065	P: Alloy Steels 4140 4340	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
11036										◎	◎						
SFM										40-80	40-65						

○ good ◎ best

List 125

HSS | BR | STI

Spiral Pointed, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
2 - 56 UNC	H2	2	7002600	1.882	0.322	0.559	0.140	0.109	0.188
3 - 48 UNC			7003200	1.941		0.618			
4 - 40 UNC	H1		1820400	2.000	0.389	0.688			
	H2		1824000						
4 - 48 UNF			7004400						
5 - 40 UNC			7005000	2.130		0.755	0.167	0.131	0.251
6 - 32 UNC			1824800	2.382	0.507	0.877	0.194	0.151	
	H3		1830400						
6 - 40 UNF	H2		7007100	2.130	0.393	0.759	0.167	0.131	
8 - 32 UNC			1825200	2.382	0.511	0.940	0.220	0.164	0.279
	H3		1830800						
8 - 36 UNF	H2		7008600						
10 - 24 UNC			1825600	2.500	0.641	1.007	0.255	0.190	0.311
	H3		7009800						
10 - 32 UNF	H2		1825800						
	H3		7010700						
1/4 - 20 UNC	H2	3	1826400	2.720	0.700	1.129	0.317	0.238	0.374
	H3		1832000						
1/4 - 28 UNF	H2		1826600						
	H3		1832200						
5/16 - 18 UNC			7014700	2.941	0.763	1.251	0.380	0.285	0.437
	H4		7015300						
5/16 - 24 UNF	H2		7015900						
	H3		7016200						
3/8 - 16 UNC			7017100	3.382	0.940	1.374	0.367	0.274	
	H4		7017400						
3/8 - 24 UNF	H2		7018000	3.161	0.881	1.314	0.322	0.242	0.405
	H3		7018300						
7/16 - 14 UNC			12500100	3.591	1.000	1.472	0.429	0.322	0.500
	H4		12500200						
7/16 - 20 UNF	H3		12500300	3.382	0.940	1.374	0.367	0.274	0.437
	H4		12500400						
1/2 - 13 UNC	H3		12500500	3.811	1.090	1.562	0.480	0.359	0.562
	H4		12500600						
1/2 - 20 UNF	H3		12500700	3.591	1.000	1.472	0.429	0.322	0.500
	H4		12500800						
9/16 - 12 UNC	H3		12500900	4.031	1.090	1.562	0.542	0.405	0.625
	H4		12501000						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

continued on next page

STT

Work Material

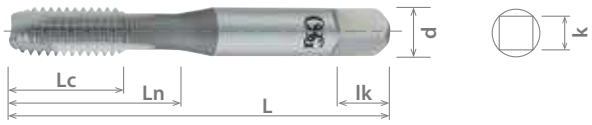
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
125	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▢ best

List 125 (Continued)

HSS | BR | STI

Spiral Pointed, Plug (3.5P-4.5P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4.5P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
9/16 - 18 UNF	H3	3	12501100	3.811	1.090	1.562	0.480	0.359	0.562
	H4		12501200						
5/8 - 11 UNC	H3		12501300	4.252	1.220	1.712	0.590	0.442	0.688
	H4		12501400						
5/8 - 18 UNF	H3		12501500	4.031	1.090	1.562	0.542	0.405	0.625
	H4		12501600						
3/4 - 10 UNC	H3		12501700	4.689	1.334	1.885	0.697	0.522	0.751
	H5		12501800						
3/4 - 16 UNF	H3		12501900	4.469	1.417	1.771	0.652	0.488	0.688
	H4		12502000						
7/8 - 9 UNC	H3		12502100	5.130	1.500	2.090	0.800	0.600	0.811
	H5		12502200						
7/8 - 14 UNF	H3		12502300						
	H4		12502400						
1 - 8 UNC		4	12502500	5.752	1.712	2.381	1.020	0.766	1.000
	H6		12502600						
1 - 12 UNF	H4		12502700	5.441		2.303	0.895	0.672	0.874
	H6		12502800						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

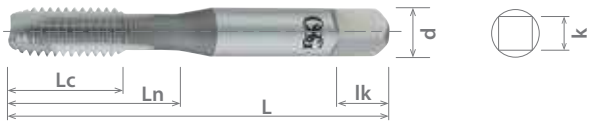
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
125	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 127

HSS | BR | STI

Spiral Pointed, Plug (3.5P-4P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Plug (3.5P - 4P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M2 x 0.4	D2	2	12700100	46.00	6.40	13.10	3.58	2.79	4.80
M2.5 x 0.45			12700200	49.30	8.20	15.70			
M3 x 0.5			12700300	50.80	10.00	17.50			
M4 x 0.7	D3		12700400	60.50	13.00	22.40	4.93	3.86	6.40
M5 x 0.8			12700500	63.50	16.30	25.70	6.48	4.85	7.90
M6 x 1.0		3	12700600	69.10	17.80	28.70	8.08	6.05	9.50
M8 x 1.25			12700700	74.70	19.40	31.80	9.68	7.26	11.10
M10 x 1.5	D4		12700800	85.90	23.90	34.90	9.32	6.98	
M12 x 1.75			12700900	91.20	25.40	37.40	10.90	8.18	12.70
M14 x 2.0	D5		12701000	102.40	27.70	40.70	13.77	10.31	15.90
M16 x 2.0			12701100	108.00	31.00	43.50	14.99	11.23	17.50
M18 x 2.5			12701200	119.10	33.90	47.90	17.70	13.28	19.10
M20 x 2.5			12701300	124.60	33.90		19.30	14.48	
M22 x 2.5			12701400	130.20	38.10	53.10	20.32	15.24	20.60
M24 x 3.0	D6	4	12701500	138.10	43.50	58.50	22.76	17.07	22.20

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

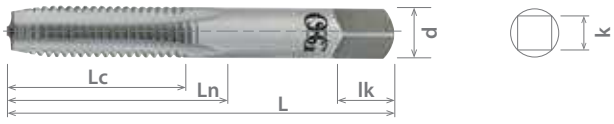
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
127	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 126

HSS | BR | STI

Straight Fluted, Plug (3.5P-4.5P), Bottom (1.5P-2P)



Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number		Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bottom (1.5P - 2P)	Plug (3.5P - 4.5P)						
			Bright	Bright	L	Lc	Ln	d	k	lk
2 - 56 UNC	H2	3	6002700	6002600	1.886	0.279	0.696	0.140	0.109	0.188
3 - 48 UNC			6003300	6003200	1.941	0.314	0.748			
4 - 40 UNC	H1		6004600	6004500	2.000	0.374	0.803			
	H2		1804100	1804000						
4 - 48 UNF			12600200	12600100	2.059					
5 - 40 UNC			6006100	6006000	2.197		0.933	0.167	0.131	0.251
			6006700	-	2.268	0.444	1.003			
6 - 32 UNC			-	6006600	2.382	0.476	1.055	0.194		
	H3		1810500	1810400						
6 - 40 UNF	H2		6007600	-	2.201	0.472	0.937	0.167		
			-	6007500	2.276	0.547	1.011			
8 - 32 UNC			6008200	-	2.465	0.468	1.114	0.220	0.164	0.279
			-	6008100	2.555	0.559	1.204			
	H3		1810900	-	2.465	0.468	1.114			
			-	1810800	2.555	0.559	1.204			
8 - 36 UNF	H2		12600400	-	2.465	0.468	1.114			
			-	12600300	2.555	0.559	1.204			
10 - 24 UNC			1805700	-	2.496	0.625	1.185	0.255	0.190	0.287
			-	1805600	2.602	0.732	1.291			
	H3		6010300	-	2.575	0.625	1.185			
			-	6010200	2.602	0.732	1.291			
10 - 32 UNF	H2		1805900	-	2.496	0.625	1.185			0.311
			-	1805800	2.602	0.732	1.291			
	H3		1811500	-	2.496	0.625	1.185			
			-	1811400	2.602	0.732	1.291			
1/4 - 20 UNC	H2		6013300	6013200	2.720	0.751	1.322	0.317	0.238	0.374
	H3		1812100	1812000						
1/4 - 28 UNF	H2		1806700	1806600						
	H3		6014500	6014400						
5/16 - 18 UNC		4	1812500	1812400	2.937	0.834	1.413	0.380	0.285	0.437
	H4		6015700	6015600						
5/16 - 24 UNF	H2		12600600	12600500						
	H3		6016600	6016500						
3/8 - 16 UNC			1812900	1812800	3.37	0.937	1.811	0.367	0.274	0.437
	H4		12600800	12600700						
3/8 - 24 UNF	H2		6018400	6018300	3.157		1.688	0.322	0.242	0.405
	H3		6018700	6018600						
7/16 - 14 UNC			6019600	1813200	3.594	1.070	1.940	0.429	0.322	0.500
	H4		6019900	6019800						
7/16 - 20 UNF	H3		1813500	1813400	3.374		1.811	0.367	0.274	0.437
	H4		12601000	12600900						
1/2 - 13 UNC	H3		6022000	1813600	3.811	1.153	2.000	0.480	0.359	0.562
	H4		12601200	12601100						
1/2 - 20 UNF	H3		1813900	1813800	3.594		1.940	0.429	0.322	0.500
	H4		12601400	12601300						
9/16 - 12 UNC	H3		12601600	12601500	4.031	1.165	2.165	0.542	0.405	0.625
	H4		12601800	12601700						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

List 126 (Continued)

HSS | BR | STI

Straight Fluted, Plug (3.5P-4.5P), Bottom (1.5P-2P)

Units: Inch

Tap Size	Thread Limit	No. of Flutes	EDP Number Bottom (1.5P - 2P)	EDP Number Plug (3.5P - 4.5P)	Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
			Bright	Bright	L	Lc	Ln	d	k	lk
9/16 - 18 UNF	H3	4	12602000	12601900	3.811	1.165	2.125	0.480	0.359	0.562
	H4		12602200	12602100						
5/8 - 11 UNC	H3		12602400	12602300	4.252	1.271	2.433	0.590	0.442	0.688
	H4		12602600	12602500						
5/8 - 18 UNF	H3		12602800	12602700	4.031		2.165	0.542	0.405	0.625
	H4		12603000	12602900						
3/4 - 10 UNC	H3		12603200	12603100	4.689	1.401	2.653	0.697	0.522	0.751
	H5		12603400	12603300						
3/4 - 16 UNF	H3		12603600	12603500	4.469		2.433	0.652	0.488	0.688
	H4		12603800	12603700						
7/8 - 9 UNC	H3		12604000	12603900	5.126	1.555	3.011	0.800	0.600	0.811
	H5		12604200	12604100						
7/8 - 14 UNF	H3		12604400	12604300						
	H4		12604600	12604500						
1 - 8 UNC	H6		12604800	12604700	5.752	1.751	3.074	1.020	0.766	1.000
			12605000	12604900						
1 - 12 UNF	H4		12605200	12605100	5.437			0.895	0.672	0.881
	H6		12605400	12605300						

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

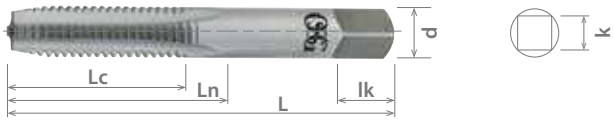
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
126	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▢ best

List 128

HSS | BR | STI

Straight Fluted, Modified Bottom (2.5P-3P)



Units: mm

Tap Size	Thread Limit	No. of Flutes	EDP Number Modified Bottom (2.5P - 3P) Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
M2 x 0.4	D2	2	12800100	47.80	13.00	14.00	3.58	2.79	4.80
M2.5 x 0.45			12800200	49.30	6.70	16.30			
M3 x 0.5		3	12800300	50.80	7.10	17.60			
M4 x 0.7	D3		12800400	60.50	10.30	22.70	4.92	3.86	6.40
M5 x 0.8			12800500	63.50	11.30	25.50	6.47	4.85	7.90
M6 x 1.0			12800600	69.10	14.00	28.60	8.07	6.05	9.50
M8 x 1.25		4	12800700	74.70	17.50	31.80	9.67	7.26	11.10
M10 x 1.5	D4		12800800	85.90	21.00	49.10	9.32	6.98	
M12 x 1.75			12800900	91.20	24.50	50.10	10.89	8.18	12.70
M14 x 2.0	D5		12801000	102.40	28.00	55.00	13.76	10.31	15.90
M16 x 2.0			12801100	108.00	28.00	61.80	14.98	11.23	17.50
M18 x 2.5			12801200	119.10	35.00	67.40	17.70	13.28	19.10
M20 x 2.5			12801300	124.60	35.00	68.40	19.30	14.48	
M22 x 2.5			12801400	130.20	35.00	76.50	20.32	15.24	20.60
M24 x 3.0	D6		12801500	138.10	42.00	79.10	22.75	17.07	22.40

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
128	▢	▢	▢						▢	▢	▢						
SFM	25-80	20-50	20-45						25-75	40-80	40-65						

▢ good ▣ best

List 16570

NEW | HSSE | V | 40°

A-NPT, Interrupted



Units: Inch

Size	Number of Flutes	EDP Number NPT V	Overall Length L	Length of Cut Lc	Neck Length Ln	Shank Diameter d	Square Width k	Square Length lk
1/16 - 27	3	1657001008	3.543	0.689	1.417	0.313	0.234	0.374
1/8 - 27 (Sm. Shk)		1657002008		0.752	1.457			
1/8 - 27 (Lg. Shk)		1657003008				0.438	0.328	
1/4 - 18		1657004008	3.937	1.063	1.929	0.563	0.421	0.437
3/8 - 18	4	1657005008			1.969	0.700	0.531	0.500
1/2 - 14		1657006008	4.921	1.374	2.362	0.688	0.515	0.626
3/4 - 14		1657007008	5.511		2.913	0.906	0.679	0.689
1 - 11,1/2		1657008008	6.299	1.752	3.150	1.125	0.843	0.811

Packed: 1 pc.
Available in V coating only.

ATP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16570	◎	◎	◎	◎	○	○	○		○		◎		○	◎			
SFM	5-35	5-35	5-35	5-20	5-20	5-20	5-20		5-20		5-35		5-10	5-20			

○ good ◎ best

List 16575

NEW | HSSE | V | 40°

A-LT-NPT, Long Shank, NPT, Interrupted



Units: Inch

Size	Number of Flutes	EDP Number NPT V	Overall Length L	Length of Cut Lc	Neck Length Ln	Shank Diameter d	Square Width k	Square Length lk
1/16 - 27	3	1657501008	4.000	0.689	1.614	0.313	0.234	0.374
		1657502008	6.000		2.402			
1/8 - 27 (Sm. Shk)		1657503008	4.000	0.752	1.614			
		1657504008	6.000		2.402			
1/8 - 27 (Lg. Shk)		1657505008	4.000		1.614	0.438	0.328	
		1657506008	6.000		2.402			
1/4 - 18		1657507008	4.000	1.063	1.929	0.563	0.421	0.437
		1657508008	6.000		2.402			
3/8 - 18	4	1657509008	4.000		1.969	0.700	0.531	0.500
		1657510008	6.000		2.402			
1/2 - 14		1657511008	4.000	1.374	2.362	0.688	0.515	0.626
		1657512008	6.000		2.402			
3/4 - 14		1657513008	4.000		2.504	0.906	0.679	0.689
		1657514008	6.000		2.913			
1 - 11,1/2		1657515008	4.000	1.752	2.504	1.125	0.843	0.811
		1657516008	6.000		3.150			

Packed: 1 pc.
Available in V coating only.

ATP

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16575	▢	▢	▢	▢	▢	▢	▢		▢		▢		▢	▢			
SFM	5-35	5-35	5-35	5-20	5-20	5-20	5-20		5-20		5-35		5-10	5-20			

▢ good ▢ best

List 16590

NEW | HSSE | V | 40°

A-NPS



Units: Inch

Size	Number of Flutes	EDP Number	Overall Length	Length of Cut	Neck Length	Shank Diameter	Square Width	Square Length
		NPS						
		V	L	Lc	Ln	d	k	lk
1/16 - 27	3	1659001008	3.543	0.551	1.417	0.313	0.234	0.374
1/8 - 27 (Sm. Shk)		1659002008			1.457			
1/8 - 27 (Lg. Shk)		1659003008				0.438	0.328	
1/4 - 18		1659004008	3.937	0.748	1.929	0.563	0.421	0.437
3/8 - 18	4	1659005008		0.827	1.969	0.700	0.531	0.500
1/2 - 14		1659006008	4.921	1.024	2.362	0.688	0.515	0.626
3/4 - 14		1659007008	5.511	1.102	2.913	0.906	0.679	0.689
1 - 11,1/2		1659008008	6.299	1.299	3.150	1.125	0.843	0.811

Packed: 1 pc.
Available in V coating only.

ATP

Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16590	◎	◎	◎	◎	○	○	○		○		◎		○	◎			
SFM	5-35	5-35	5-35	5-20	5-20	5-20	5-20		5-20		5-35		5-10	5-20			

○ good ◎ best

List 16585

NEW | HSSE | V | 40°

A-BSPT, Interrupted Thread



Units: Inch

Size	Number of Flutes	EDP Number NPT	Overall Length	Length of Cut	Neck Length	Shank Diameter	Square Width	Square Length
		V	L	Lc	Ln	d	k	lk
1/8 - 28	3	1658501008	3.543	0.591	1.457	0.313	0.234	0.374
1/4 - 19		1658502008	3.937	0.748	1.929	0.563	0.421	0.437
3/8 - 19	4	1658503008		0.827	1.969	0.700	0.531	0.500
1/2 - 14		1658504008	4.921	1.024	2.362	0.688	0.515	0.626
3/4 - 14		1658505008	5.511	1.102	2.913	0.906	0.679	0.689
1 - 11		1658506008	6.299	1.299	3.150	1.125	0.843	0.811

Packed: 1 pc.
Available in V coating only.

ATP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16585	◎	◎	◎	◎	○	○	○		○		◎		○	◎			
SFM	5-35	5-35	5-35	5-20	5-20	5-20	5-20		5-20		5-35		5-10	5-20			

○ good ◎ best

List 16580

NEW | HSSE | V | 40°

A-BSPP



Units: Inch

Size	Number of Flutes	EDP Number	Overall Length	Length of Cut	Neck Length	Shank Diameter	Square Width	Square Length
		NPT						
		V	L	Lc	Ln	d	k	lk
1/8 - 28	3	1658001008	3.543	0.591	1.457	0.313	0.234	0.374
1/4 - 19		1658002008	3.937	0.748	1.929	0.563	0.421	0.437
3/8 - 19	4	1658003008		0.827	1.969	0.700	0.531	0.500
1/2 - 14		1658004008	4.921	1.024	2.362	0.688	0.515	0.626
3/4 - 14		1658005008	5.511	1.102	2.913	0.906	0.679	0.689
1 - 11		1658006008	6.299	1.299	3.150	1.125	0.843	0.811

Packed: 1 pc.
Available in V coating only.

ATP

Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
16580	◎	◎	◎	◎	○	○	○		○		◎		○	◎			
SFM	5-35	5-35	5-35	5-20	5-20	5-20	5-20		5-20		5-35		5-10	5-20			

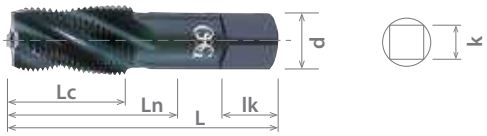
○ good ◎ best

List 308

NPT

EXOTAP

HSSE | TiN | S/O | 15°



Units: Inch

Tap Size	No. of Flutes	NPT EDP Number	NPT Coating Suffix S/O	NPT Coating Suffix TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/16 - 27	4	17350	01	05	2.126	0.689	0.925	0.313	0.234	0.374
1/8 - 27 (Sm. Shk)		17352	01	05		0.752	-			
1/8 - 27 (Lg. Shk)		17351	01	05			0.988	0.438	0.328	
1/4 - 18		17353	01	05	2.437	1.091	1.346	0.563	0.421	0.437
3/8 - 18		17354	01	05	2.563			0.700	0.531	0.500
1/2 - 14		17355	01	05	3.126	1.409	-	0.688	0.515	0.626
3/4 - 14		17448	-	05	3.252	1.374	-	0.906	0.679	0.689
	5	17356	01	-			-			
1 - 11,1/2	4	17449	-	05	3.752	1.752	-	1.125	0.843	0.811
	5	17357	01	-			-			

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or TiN coatings as shown above.

EXT

Work Material

List No.	P: Carbon Steels Low	P: Carbon Steels Med.	P: Carbon Steels High	P: Alloy Steels	P: Die Steels	M: Stainless Steels 300	M: Stainless Steels 400	M: Stainless Steels 17-4 PH	K: Cast Iron	N: Aluminum 6061 7075	N: Aluminum Casting	S: Nickel Alloy Inconel	S: Titanium 6Al4V (30 HRC)	H: Hardened Steels ~35 HRC	H: Hardened Steels 35-45 HRC	H: Hardened Steels 45-50 HRC	H: Hardened Steels 50-70 HRC
	1010 1018	1035 1045	1065	4140 4340													
308	▢	▢				▣	▣	▣									
SFM	15-40	10-25				10-25	10-25	8-12									

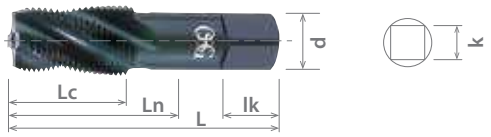
▢ good ▣ best

List 318

NPTF

EXOTAP

HSSE | TiN | S/O | 15°



Units: Inch

Tap Size	No. of Flutes	NPTF EDP Number	NPTF Coating Suffix S/O	NPTF Coating Suffix TiN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/16 - 27	4	17375	01	05	2.126	0.688	0.925	0.312	0.233	0.374
1/8 - 27 (Sm. Shk)		17377	01	05		0.751	-			
1/8 - 27 (Lg. Shk)		17376	01	05			0.988	0.437	0.327	
1/4 - 18		17378	01	05	2.437	1.090	1.346	0.562	0.420	0.437
3/8 - 18		17379	01	05	2.563		1.346	0.700	0.531	0.500
1/2 - 14		17380	01	05	3.126	1.374	-	0.687	0.514	0.625
3/4 - 14		17399	-	05	3.252		-	0.906	0.679	0.688
	5	17381	01	-			-			
1 - 11,1/2	4	17446	-	05	3.752	1.751	-	1.125	0.842	0.811
	5	17382	01	-			-			

Packed: 1 pc.
EDP's listed above are stocked standard.
Available in Steam Oxide or TiN coatings as shown above.

EXT

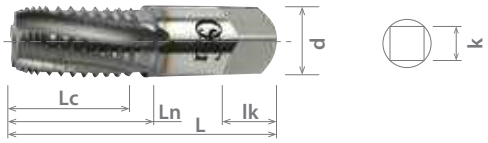
Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	1010 1018	1035 1045	1065	4140 4340													
318	▢	▢				▣	▣	▣									
SFM	15-40	10-25				10-25	10-25	8-12									

▢ good ▣ best

List 12053

HY-PRO | HSSE | TiCN | 10°

NPT, Interrupted



Units: Inch

Tap Size	No. of Flutes	EDP Number NPT, Interrupted TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/8 - 27 (Sm. Shk)	3	1205300108	2.126	0.751	-	0.312	0.233	0.374
1/8 - 27 (Lg. Shk)		1205300208			1.007	0.437	0.327	
1/4 - 18		1205300308	2.441	1.062	1.318	0.562	0.420	0.437
3/8 - 18	5	1205300408	2.563			0.700	0.531	0.500
1/2 - 14		1205300508	3.126	1.374	-	0.687	0.514	0.625
3/4 - 14		1205300608	3.252		-	0.906	0.679	0.688
1 - 11,1/2		1205300708	3.752	1.751	-	1.125	0.842	0.811

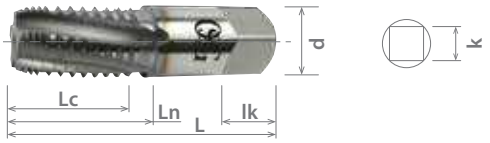
Packed: 1 pc.
Available TiCN coating only.

HYT

List 12054

HY-PRO | HSSE | TiCN | 10°

NPTF, Interrupted



Units: Inch

Tap Size	No. of Flutes	EDP Number NPTF, Interrupted TiCN	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/8 - 27 (Sm. Shk)	3	1205400108	2.126	0.751	-	0.312	0.233	0.374
1/8 - 27 (Lg. Shk)		1205400208			1.007	0.437	0.327	
1/4 - 18		1205400308	2.441	1.062	1.318	0.562	0.420	0.437
3/8 - 18	5	1205400408	2.563			0.700	0.531	0.500
1/2 - 14		1205400508	3.126	1.374	-	0.687	0.514	0.625
3/4 - 14		1205400608	3.252		-	0.906	0.679	0.688
1 - 11,1/2		1205400708	3.752	1.751	-	1.125	0.842	0.811

Packed: 1 pc.
Available TiCN coating only.

HYT

Work Material

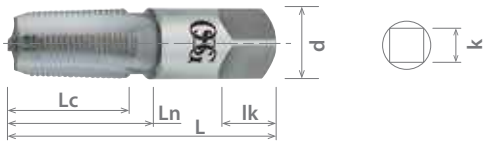
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
12053	▢	◎	◎	◎	◎	▢	▢	▢	▢					▢	▢		
12054	▢	◎	◎	◎	◎	▢	▢	▢	▢					▢	▢		
SFM	15-40	10-25	10-20	10-25	10-15	10-25	10-25	8-12	15-50					10-20	8-12		

▢ good ◎ best

List 328

NPT, ANPT

EXOTAP | HSS-Co | BR



Units: Inch

Tap Size	No. of Flutes	EDP Number NPT, ANPT Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/8 - 27 (Lg. Shk)	4	1736000	2.126	0.751	0.992	0.437	0.327	0.374
1/4 - 18		1736100	2.437	1.062	1.318	0.562	0.420	0.437
3/8 - 18		1736200	2.563			0.700	0.531	0.500
1/2 - 14		1736300	3.126	1.374	-	0.687	0.514	0.625
3/4 - 14	5	1736400	3.252		-	0.906	0.679	0.688

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

EXT

Work Material

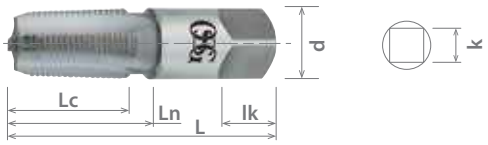
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
328	○	○	○	◎	◎	○	○	○						◎	○		
SFM	15-40	10-25	10-20	10-25	10-15	10-25	10-25	8-12						10-20	8-12		

○ good ◎ best

List 108

HSS | TiCN | TiN | S/O | BR

NPT, ANPT



Units: Inch

Tap Size	No. of Flutes	NPT, ANPT					Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
		EDP Number	Coating Suffix									
			Bright	S/O	TiN	TiCN	L	Lc	Ln	d	k	lk
1/16 - 27	4	13100	00	01	05	08	2.126	0.688	0.925	0.312	0.233	0.374
1/8 - 27 (Sm. Shk)		13102	00	01	05	08		0.751				
1/8 - 27 (Lg. Shk)		13101	00	01	05	08			-	0.437	0.327	
1/4 - 18		13103	00	01	05	08	2.437	1.062	1.318	0.562	0.420	0.437
3/8 - 18		13104	00	01	05	08	2.563			0.700	0.531	0.500
1/2 - 14		13105	00	01	05	08	3.126	1.374	-	0.687	0.514	0.625
3/4 - 14	5	13106	00	01	05	08	3.252		-	0.906	0.679	0.688
1 - 11,1/2		13107	00	01	05	08	3.752	1.751	-	1.125	0.842	0.811
1,1/4 - 11,1/2		13108	00	01	-	08	4.000		-	1.312	0.983	0.937
1,1/2 - 11,1/2	7	13109	00	01	-	08	4.252		-	1.500	1.125	1.000
2 - 11,1/2		13110	00	01	-	08	4.500		-	1.875	1.405	1.125

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

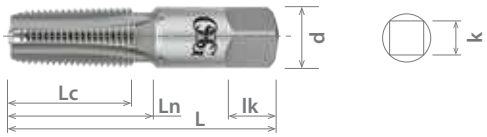
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
108	▢	▢	▢						▢	▢	▢						
SFM	15-40	10-25	10-20						15-50	15-40	20-35						

▢ good ▣ best

List 108AL

HSS | BR

NPT, For Aluminum



Units: Inch

Tap Size	No. of Flutes	EDP Number NPT Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/8 - 27 (Lg. Shk)	4	1311100	2.126	0.752	0.988	0.438	0.328	0.374
1/4 - 18		1311200	2.437	1.063	1.319	0.563	0.421	0.437
3/8 - 18		1311400	2.563			0.700	0.531	0.500
1/2 - 14		1311800	3.126	1.374	-	0.688	0.515	0.626
3/4 - 14	5	1311500	3.252		-	0.906	0.679	0.689
1 - 11,1/2		1311600	3.752	1.752	-	1.125	0.843	0.811

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

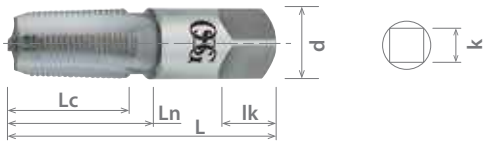
Work Material																	
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
108AL										◎	◎						
SFM										15-40	20-35						

○ good ◎ best

List 118

HSS | TiCN | TiN | S/O | BR

NPTF



Units: Inch

Tap Size	No. of Flutes	NPTF					Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
		EDP Number	Coating Suffix									
			Bright	S/O	TiN	TiCN	L	Lc	Ln	d	k	lk
1/16 - 27	4	13125	00	01	05	08	2.126	0.688	0.885	0.312	0.233	0.374
1/8 - 27 (Sm. Shk)		13127	00	01	05	08		0.751	0.948			
1/8 - 27 (Lg. Shk)		13126	00	01	05	08				0.437	0.327	
1/4 - 18		13128	00	01	05	08	2.437	1.062	1.279	0.562	0.420	0.437
3/8 - 18		13129	00	01	05	08	2.563			0.700	0.531	0.500
1/2 - 14		13130	00	01	05	08	3.126	1.374	-	0.687	0.514	0.625
3/4 - 14	5	13131	00	01	05	08	3.252		-	0.906	0.679	0.688
1 - 11,1/2		13132	00	01	-	08	3.752	1.751	-	1.125	0.842	0.811
1,1/4 - 11,1/2		13133	00	01	-	08	4.000		-	1.312	0.983	0.937
1,1/2 - 11,1/2	7	13134	00	01	-	08	4.252		-	1.500	1.125	1.000
2 - 11,1/2		13135	00	01	-	08	4.500		-	1.875	1.405	1.125

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request. Specify treatment at time of order.

STT

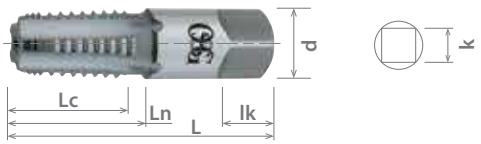
Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
118	○	○	○						○	○	○							
SFM	15-40	10-25	10-20						15-50	15-40	20-35							

○ good ◎ best

List 108G

HSS | TiCN | S/O | BR

Interrupted Thread, NPT, NPTF, ANPT



Units: Inch

Tap Size	No. of Flutes	NPT, ANPT, Interrupted Thread				NPTF, Interrupted Thread				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
		EDP Number	Coating Suffix			EDP Number	Coating Suffix								
			Bright	S/O	TiCN		Bright	S/O	TiCN	L	Lc	Ln	d	k	lk
1/8 - 27 (Sm. Shk)	5	13152	00	01	08	33105	00	01	08	2.126	0.752	-	0.313	0.234	0.374
1/8 - 27 (Lg. Shk)		13151	00	01	08	33101	00	01	08			0.988	0.438	0.328	
1/4 - 18		13153	00	01	08	33109	00	01	08	2.437	1.063	1.319	0.563	0.421	0.437
3/8 - 18		13154	00	01	08	13113	00	01	08	2.563			0.700	0.531	0.500
1/2 - 14		13155	00	01	08	13117	00	01	08	3.126	1.374	-	0.688	0.515	0.626
3/4 - 14		13156	00	01	08	13121	00	01	08	3.252		-	0.906	0.679	0.689
1 - 11,1/2		13157	00	01	08	33125	00	01	08	3.752	1.752	-	1.125	0.843	0.811
1,1/4 - 11,1/2		13158	00	01	08	33129	00	01	08	4.000		-	1.313	0.984	0.937
1,1/2 - 11,1/2	7	13159	00	01	08	-	-	-	-	4.252		-	1.500	1.125	1.000
2 - 11,1/2		13160	00	01	-	-	-	-	-	4.500		-	1.875	1.406	1.126

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

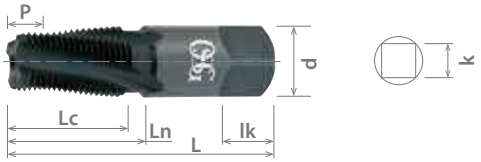
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
108G	▢	▢	▢						▢	▢	▢						
SFM	15-40	10-25	10-20						15-50	15-40	20-35						

▢ good ▣ best

List S125

HSS | TiCN | S/O | BR | 15°

Short Projection, NPT, NPTF



Units: Inch

Tap Size	No. of Flutes	NPT, ANPT				NPTF				Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length	Projection
		EDP Number	Coating Suffix			EDP Number	Coating Suffix									
			Bright	S/O	TiCN		Bright	S/O	TiCN	L	Lc	Ln	d	k	lk	P
1/8 - 27 (Lg. Shk)	4	12505	00	01	08	12506	00	01	08	2.126	0.751	0.988	0.437	0.327	0.374	0.234
1/4 - 18		12513	00	01	08	12514	00	01	08	2.437	1.062	1.318	0.562	0.420	0.437	0.375
3/8 - 18		12517	00	01	08	12518	00	01	08	2.563			0.700	0.531	0.500	
1/2 - 14		12521	00	01	08	12522	00	01	08	3.126	1.374	-	0.687	0.514	0.625	0.468
3/4 - 14	5	12525	00	01	08	12526	00	01	08	3.252		-	0.906	0.679	0.688	0.453
1 - 11,1/2		12529	00	01	08	12530	00	01	08	3.752	1.751	-	1.125	0.842	0.811	0.578

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

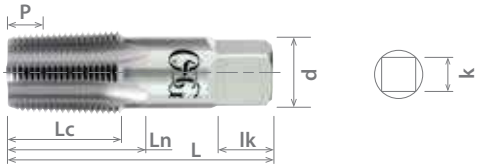
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
S125	▢	▢	▢						▢	▢	▢						
SFM	15-40	10-25	10-20						15-50	15-40	20-35						

▢ good ▢ best

List 12006

HSS | BR

Short Projection, NPTF



Units: Inch

Tap Size	No. of Flutes	EDP Number NPTF, Short Projection Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk	Projection P
1/8 - 27 (Lg. Shk)	4	1200600100	2.126	0.752	0.988	0.438	0.328	0.374	0.204
		1200600600							0.167
1/4 - 18		1200600200	2.437	1.063	1.319	0.563	0.421	0.437	0.306
		1200600700							0.251
3/8 - 18		1200600300	2.563			0.700	0.531	0.500	0.306
		1200600800							0.251
1/2 - 14		1200600400	3.126	1.374	-	0.688	0.515	0.626	0.393
		1200600900			-				0.322
3/4 - 14	5	1200600500	3.252		-	0.906	0.679	0.689	0.393
		1200601000			-				0.322

Packed: 1 pc.
Available Bright finish only.

STT

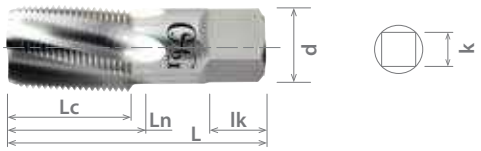
Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
12006	▢	▢	▢						▢	▢	▢							
SFM	15-40	10-25	10-20						15-50	15-40	20-35							

▢ good ▢ best

List 12007

HSS | BR | 15°

NPT



Units: Inch

Tap Size	No. of Flutes	EDP Number NPT Bright	Overall Length L	Thread Length Lc	Neck Length Ln	Shank Dia. d	Square Width k	Square Length lk
1/8 - 27 (Lg. Shk)	4	1200700200	2.126	0.751	0.948	0.437	0.327	0.374
1/4 - 18		1200700400	2.437	1.062	1.279	0.562	0.420	0.437
3/8 - 18		1200700500	2.563			0.700	0.531	0.500
1/2 - 14		1200700600	3.126	1.374	-	0.687	0.514	0.625
3/4 - 14	5	1200700700	3.252		-	0.906	0.679	0.688

Packed: 1 pc.
Available Bright finish only.

STT

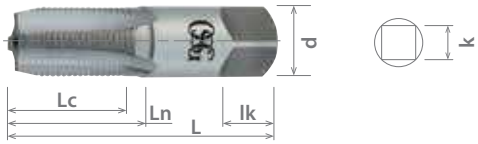
Work Material																		
	P					M			K	N		S		H				
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
12007	▢	▢	▢						▢	▢	▢						
SFM	15-40	10-25	10-20						15-50	15-40	20-35						

▢ good ▣ best

List 109

HSS | S/O | BR

NPS, NPSF



Units: Inch

Tap Size	No. of Flutes	NPS			NPSF			Overall Length	Thread Length	Neck Length	Shank Dia.	Square Width	Square Length
		EDP Number	Coating Suffix		EDP Number	Coating Suffix							
			Bright	S/O		Bright	S/O	L	Lc	Ln	d	k	lk
1/8 - 27 (Sm. Shk)	4	13302	00	01	13327	00	01	2.126	0.752	-	0.313	0.234	0.374
1/8 - 27 (Lg. Shk)		13301	00	01	13326	00	01			0.949	0.438	0.328	
1/4 - 18		13303	00	01	13328	00	01	2.437	1.063	1.260	0.563	0.421	0.437
3/8 - 18		13304	00	01	13329	00	01	2.563			0.700	0.531	0.500
1/2 - 14		13305	00	01	13330	00	01	3.126	1.374	-	0.688	0.515	0.626
3/4 - 14	5	13306	00	01	13331	00	01	3.252		-	0.906	0.679	0.689
1 - 11,1/2		13307	00	01	13332	00	01	3.752	1.752	-	1.125	0.843	0.811

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STT

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
109	▢	▢	▢						▢	▢	▢						
SFM	15-40	10-25	10-20						15-50	15-40	20-35						

▢ good ▣ best

List 134

HSS BR

Solid Round Dies, Special Alloy Tool Steel



Units: Inch

Size	Major Diameter	Outside Diameter	Thickness	EDP Number
0 - 80 UNF	0.060	5/8	1/4	2723000
1 - 72 UNF	0.073			2723300
2 - 56 UNC	0.086			2723400
2 - 64 UNF				2723500
3 - 56 UNF	0.099			2723700
4 - 40 UNC	0.112			2724000
4 - 48 UNF				2724100

Packed: 1 pc.
Available Bright finish only.

STT

Size	Major Diameter	Outside Diameter	Thickness	EDP Number
5 - 40 UNC	0.125	5/8	1/4	2724200
6 - 32 UNC	0.138			2724400
6 - 40 UNF				2724600
8 - 32 UNC	0.164			2724700

Packed: 1 pc.
Available Bright finish only.

STT

List 134 (Continued)

HSS | BR

Adjustable Round Split Dies, Special Alloy Tool Steel



Units: Inch

Size	Major Diameter	Outside Diameter	Thickness	EDP Number
0 - 80 UNF	0.060	13/16	1/4	2726000
1/16 - 64 UNC	0.062			2700100
1 - 64 UNC	0.073			2726200
1 - 72 UNF				2726300
2 - 56 UNC	0.086			2726400
2 - 64 UNF				2726500
3/32 - 48 UNC	0.093			2700200
3 - 48 UNC	0.099			2726600
3 - 56 UNF				2726700
4 - 36 UNS	0.112			2726900
4 - 40 UNC				2727000
4 - 48 UNF				2727100
5 - 40 UNC	0.125			2727200
5 - 44 UNF				2727300
1/8 - 40 UNC	0.125			2700300
6 - 32 UNC	0.138			2727400
		1	3/8	2728800
6 - 40 UNF		13/16	1/4	2727600
5/32 - 32 UNC	0.156			2700400
5/32 - 36 UNF				2700500
8 - 32 UNC	0.164			2727700
		1	3/8	2729100
8 - 36 UNF		13/16	1/4	2727800
3/16 - 24 UNC	0.187			2700600
		1	3/8	2702400
3/16 - 32 UNF		13/16	1/4	2700700
		1	3/8	2702500
10 - 24 UNC	0.190	13/16	1/4	2728000
		1	3/8	2729400
10 - 32 UNF		13/16	1/4	2728200
		1	3/8	2729600
12 - 24 UNC	0.216	13/16	1/4	2728300
		1	3/8	2729700
12 - 28 UNF		13/16	1/4	2728400
7/32 - 24 UNC	0.218			2700800
1/4 - 20 UNC	0.250			2701000
		1	3/8	2702800
		1 - 5/16	7/16	2704100
		1 - 1/2	1/2	2706100
		2	5/8	2710000
1/4 - 24 UNS		1	3/8	2702900
1/4 - 28 UNF		13/16	1/4	2701200
		1	3/8	2703000
		1 - 5/16	7/16	2704300
		1 - 1/2	1/2	2706300
		2	5/8	2710100
1/4 - 32 UNEF		1	3/8	2703100

Packed: 1 pc.
Available Bright finish only.

STT

Size	Major Diameter	Outside Diameter	Thickness	EDP Number
5/16 - 18 UNC	0.312	13/16	1/4	2701400
		1	3/8	2703200
		1 - 5/16	7/16	2704500
		1 - 1/2	1/2	2706500
		2	5/8	2710400
5/16 - 24 UNF		13/16	1/4	2701500
		1	3/8	2703300
		1 - 5/16	7/16	2704600
		1 - 1/2	1/2	2706600
		2	5/8	2710500
5/16 - 32 UNEF		1	3/8	2703400
3/8 - 16 UNC	0.375			2703500
		1 - 5/16	7/16	2704800
		1 - 1/2	1/2	2706800
		2	5/8	2710700
3/8 - 24 UNF		1	3/8	2703600
		1 - 5/16	7/16	2704900
		1 - 1/2	1/2	2706900
		2	5/8	2710800
7/16 - 14 UNC	0.437	1	3/8	2703700
		1 - 5/16	7/16	2705000
		1 - 1/2	1/2	2707000
		2	5/8	2710900
7/16 - 20 UNF		1	3/8	2703800
		1 - 5/16	7/16	2705100
		1 - 1/2	1/2	2707100
		2	5/8	2711000
1/2 - 13 UNC	0.500	1 - 5/16	7/16	2705200
		1 - 1/2	1/2	2707200
		2	5/8	2711100
1/2 - 20 UNF		1 - 5/16	7/16	2705300
		1 - 1/2	1/2	2707300
		2	5/8	2711200
9/16 - 12 UNC	0.562	1 - 1/2	1/2	2707400
		2	5/8	2711300
9/16 - 18 UNF		1 - 1/2	1/2	2707500
		2	5/8	2711400
5/8 - 11 UNC	0.625	1 - 1/2	1/2	2707600
		2	5/8	2711500
		2 - 1/2	3/4	2713400
5/8 - 18 UNF		1 - 1/2	1/2	2707700
		2	5/8	2711600
11/16 - 11 UNS	0.687			2711700
11/16 - 16 UNS				2711800
3/4 - 10 UNC	0.750			2712000
		2 - 1/2	3/4	2713800
3/4 - 16 UNF		2	5/8	2712100
		2 - 1/2	3/4	2713900
7/8 - 9 UNC	0.875	2	5/8	2712200
		2 - 1/2	3/4	2714000
7/8 - 14 UNF		2	5/8	2712300
		2 - 1/2	3/4	2714100

Packed: 1 pc.
Available Bright finish only.

continued on next page

STT

List 134 (Continued)

HSS BR

Adjustable Round Split Dies, Special Alloy Tool Steel



Units: Inch

Size	Major Diameter	Outside Diameter	Thickness	EDP Number
1 - 8 UNC	1.000	2 - 1/2	3/4	2714200
		3	1	2715000
1 - 12 UNF		2 - 1/2	3/4	2714300
		3	1	2715100
1 - 14 UNS		2 - 1/2	3/4	2714400
		3	1	2715200
1,1/8 - 7 UNC	1.125			2715300
1,1/8 - 12 UNF				2715400

Packed: 1 pc.
Available Bright finish only.

STT

Size	Major Diameter	Outside Diameter	Thickness	EDP Number
1,1/4 - 7 UNC	1.250	3	1	2715500
1,1/4 - 12 UNF				2715600
1,3/8 - 6 UNC	1.375			2715700
1,3/8 - 12 UNF				2715800
1,1/2 - 6 UNC	1.500			2715900
1,1/2 - 12 UNF				2716000

Packed: 1 pc.
Available Bright finish only.

STT

List 134P

HSS BR

Adjustable Round Split Dies, Taper Pipe



Units: Inch

Size	Outside Diameter	Thickness	EDP Number
1/8 - 27	1	3/8	2734000
	1-1/2	1/2	2734100
1/4 - 18			2734200
	2	5/8	2734400

Packed: 1 pc.
Available Bright finish only.

STT

Size	Outside Diameter	Thickness	EDP Number
3/8 - 18	1-1/2	1/2	2734300
	2	5/8	2734500
1/2 - 14			2734600

Packed: 1 pc.
Available Bright finish only.

STT

List 135

HSS BR

Adjustable Round Split Dies



Units: Inch

Size	Outside Diameter	Thickness	EDP Number
M2 X 0.4	20	7	46011
M2.3 X 0.4			46015
M2.5 X 0.45			46017
M2.6 X 0.45			46020
M3 X 0.5			46023
M3.5 X 0.6	25	9	46064
M4 X 0.7	20	7	46029
M4 X 0.7	25	9	46068
M4.5 X 0.75			46070
M5 X 0.8	20	7	46034
M5 X 0.8	25	9	46074
M6 X 1.0	20	7	46038
	25	9	46079
M6 X 0.75			46080
M7 X 1.0			46082
M8 X 1.25			46085
M8 X 1.0			46086
M8 X 0.75			46087
M9 X 1.25			46089
M10 X 1.5			46093
M10 X 1.5	38	13	46142
M10 X 1.25			46143
M10 X 1.0			46144
M11 X 1.5			46147

Packed: 1 pc.
Available Bright finish only.

STT

Size	Outside Diameter	Thickness	EDP Number
M12 X 1.75	25	9	1351120
M12 X 1.75	38	13	46152
M12 X 1.5			46153
M12 X 1.25			46154
M12 X 1.0			46155
M14 X 2.0			46163
M14 X 1.5			46164
M14 X 1.25			46165
M16 X 2.0	50	16	46227
M16 X 1.5			46228
M16 X 1.0			46230
M18 X 2.5			46239
M18 X 1.5			46241
M20 X 2.5			46251
M20 X 1.5			46253
M22 X 2.5			46263
M22 X 1.5			46265
M24 X 3.0			46276
M24 X 1.5			46279
M26 X 3.0	57	20	46329
M26 X 1.5			46331
M28 X 1.5			46341
M30 X 3.5			46344
M30 X 1.5			46347

Packed: 1 pc.
Available Bright finish only.

STT

List 15001

HSS | BR

Go/NoGo, Class 2B



Units: Inch

Gage Size	Class of Fit	Gage Length (Inch)		Pitch Diameter (Inch)		EDP Number
		Go	NoGo	Go	NoGo	Short Form*
2 - 56 UNC	2B	1/4	3/16	0.0744	0.0772	1500100100
2 - 64 UNF				0.0759	0.0786	1500100200
3 - 48 UNC				0.0855	0.0885	1500100300
3 - 56 UNF				0.0874	0.0902	1500100400
4 - 40 UNC		5/16	7/32	0.0958	0.0991	1500100500
4 - 48 UNF				0.0985	0.1016	1500100600
5 - 40 UNC				0.1088	0.1121	1500100700
5 - 44 UNF				0.1102	0.1134	1500100800
6 - 32 UNC				0.1177	0.1214	1500100900
6 - 40 UNF				0.1218	0.1252	1500101000
8 - 32 UNC		13/32	9/32	0.1437	0.1475	1500101100
8 - 36 UNF				0.1460	0.1496	1500101200
10 - 24 UNC				0.1629	0.1672	1500101300
10 - 32 UNF				0.1697	0.1736	1500101400
12 - 24 UNC				0.1889	0.1933	1500101500
12 - 28 UNF				0.1928	0.1970	1500101600
1/4 - 20 UNC		1/2	5/16	0.2175	0.2224	1500101700
1/4 - 28 UNF				0.2268	0.2311	1500101800
5/16 - 18 UNC				0.2764	0.2817	1500101900
5/16 - 24 UNF				0.2854	0.2902	1500102000
3/8 - 16 UNC		3/4	3/8	0.3344	0.3401	1500102100
3/8 - 24 UNF				0.3479	0.3528	1500102200
7/16 - 14 UNC				0.3911	0.3972	1500102300
7/16 - 20 UNF				0.4050	0.4104	1500102400
1/2 - 13 UNC				0.4500	0.4565	1500102500
1/2 - 20 UNF				0.4675	0.4731	1500102600
9/16 - 12 UNC		7/8	1/2	0.5084	0.5152	1500102700
9/16 - 18 UNF				0.5264	0.5323	1500102800
5/8 - 11 UNC				0.5660	0.5732	1500102900
5/8 - 18 UNF				0.5889	0.5949	1500103000
3/4 - 10 UNC				0.6850	0.6927	1500103100
3/4 - 16 UNF				0.7094	0.7159	1500103200
7/8 - 9 UNC		1	5/8	0.8028	0.8110	1500103300
7/8 - 14 UNF				0.8286	0.8356	1500103400
1 - 8 UNC				0.9188	0.9276	1500103500
1 - 12 UNF				0.9459	0.9535	1500103600
1 - 14 UNS				0.9536	0.9609	1500103700
1,1/8 - 7 UNC				1.0322	1.0416	1500103800
1,1/8 - 12 UNF				1.0709	1.0787	1500103900
1,1/4 - 7 UNC		1 1/4	3/4	1.1572	1.1668	1500104000
1,1/4 - 12 UNF		1		1.1959	1.2039	1500104100
1,3/8 - 6 UNC		1 1/4		1.2667	1.2771	1500104200
1,3/8 - 12 UNF		1		1.3209	1.3291	1500104300
1,1/2 - 6 UNC		1 1/4		1.3917	1.4022	1500104400
1,1/2 - 12 UNF		1		1.4459	1.4542	1500104500

Packed: 1 pc.
Available Bright finish only.

EXT

OSG Inch Thread Plug Gages are manufactured to Class X tolerances per ANSI B1.2 (Unified Inch Screw Threads).
OSG Thread Gages are made from High Speed Steel (HSS) to 64 HRC.
Short Form Certificates of Conformance are available with gages for no charge.

***Long Form Certificates available upon request.**

List 15002

HSS BR

Go/NoGo, Class 6H



Units: mm

Gage Size	Class of Fit	Gage Length (mm)		Pitch Diameter (mm)		EDP Number
		Go	NoGo	Go	NoGo	Short Form*
M3 x 0.5	6H	7.9	5.6	2.675	2.775	1500200100
M3.5 x 0.6				3.110	3.222	1500200200
M4 x 0.7		10.3	7.1	3.545	3.663	1500200300
M5 x 0.8				4.480	4.605	1500200400
M6 x 0.75		12.7	7.9	5.513	5.645	1500200500
M6 x 1.0				5.350	5.500	1500200600
M7 x 1.0				6.350	6.500	1500200700
M8 x 1.0				7.350	7.500	1500200800
M8 x 1.25				7.188	7.348	1500200900
M10 x 1.0		19	9.5	9.350	9.500	1500201000
M10 x 1.25				9.188	9.348	1500201100
M10 x 1.5				9.026	9.206	1500201200
M12 x 1.25				11.188	11.368	1500201300
M12 x 1.5				11.026	11.216	1500201400
M12 x 1.75				10.863	11.063	1500201500
M14 x 1.5		22.2	12.7	13.026	13.216	1500201600
M14 x 2.0				12.701	12.913	1500201700
M16 x 1.5				15.026	15.216	1500201800
M16 x 2.0				14.701	14.913	1500201900
M18 x 1.5				17.026	17.216	1500202000
M18 x 2.5				16.376	16.600	1500202100
M20 x 1.5				19.026	19.216	1500202200
M20 x 2.5				18.376	18.600	1500202300
M22 x 1.5		25.4	15.9	21.026	21.216	1500202400
M22 x 2.5				20.376	20.600	1500202500
M24 x 1.5				23.026	23.226	1500202600
M24 x 2.0				22.701	22.925	1500202700
M24 x 3.0				22.051	22.316	1500202800

Packed: 1 pc.
Available Bright finish only.

EXT

OSG Metric Thread Plug Gages are manufactured to Class X tolerances per ANSI B1.16M (Metric M Series Screw Threads).
OSG Thread Gages are made from High Speed Steel (HSS) to 64 HRC.
Short Form Certificates of Conformance are available with gages for no charge.

***Long Form Certificates available upon request.**

THREADING
Technical



Tap and Screw Thread Terminology

Allowance: The minimum clearance or maximum interference which is intended between mating parts.

Angle of Thread: The angle included between the flanks of a thread measured in an axial plane.

Back Taper: A slight taper on the threaded portion of the tap, making the pitch diameter near the shank smaller than that at the chamfer.

Basic: The theoretical or nominal standard size from which all variations are made.

Chamfer: The tapered and relieved cutting teeth at the front end of the threaded section. Common types of chamfer are taper (8 to 10 threads long), plug (3 to 5 threads), semi (or modified) bottom (2.5 to 3 threads), and bottoming (1-1/2 threads).

Crest: The top surface joining the two sides or flanks of a thread.

Cutting Face: The leading side of the land.

Flute: The longitudinal channels formed on a tap to create cutting edges on the thread profile.

Heel: The following side of the land.

Height of Thread: In profile, distance between crest and bottom section of thread measured to the axis.

Hook Face: A concave cutting face of the land. This may be varied for different materials and conditions.

Interrupted Thread: Alternate teeth are removed in the thread helix on a tap having an odd number of flutes.

Land: Threaded sections between the flutes of a tap.

Lead of Thread: The distance a screw thread advances axially in one turn.

Major Diameter: The largest diameter of the screw or nut on a straight screw thread.

Minor Diameter: The smallest diameter of the screw or nut on a straight screw thread.

Neck: The reduced diameter, on some taps, between the threaded portion and the shank.

Pitch: The distance from a point on one thread to a corresponding point on the next thread, measured parallel to the axis of rotation.

Pitch Diameter: On a straight screw thread, the diameter of an imaginary cylinder where the width of the thread and the width of the space between threads is equal.

Point Diameter: The diameter at the leading end of the chamfered portion.

Rake Angle: The angle of the cutting face of the land in relation to an axial plane intersecting the cutting face at the major diameter.

Relief: The removal of metal behind the cutting edge to provide clearance between the part being threaded and a portion of the threaded land. Also, see back taper.

- **Chamfer Relief**: The gradual decrease in land height from cutting edge to heel on the chamfered portion of the tap land to provide radial clearance for the cutting edge.
- **Con-eccentric Relief**: Radial relief in the thread form starting back of a concentric margin.
- **Eccentric Thread Relief**: Radial relief in the thread form starting at the cutting edge and continuing to the heel.

Root: The bottom surface joining the flanks of two adjacent threads.

Side or Flank Thread: The surface of the thread which connects the crest to the root.

Shank: The portion of the tap by which it is held.

Spiral Point: An oblique cutting edge ground into the lands to provide a shear cutting action on the first few threads.

Square: The squared end of the tap shank by which the tap is driven.

Thread: The helical formed portion of the tap which produces the pitch in a pre-existing hole.

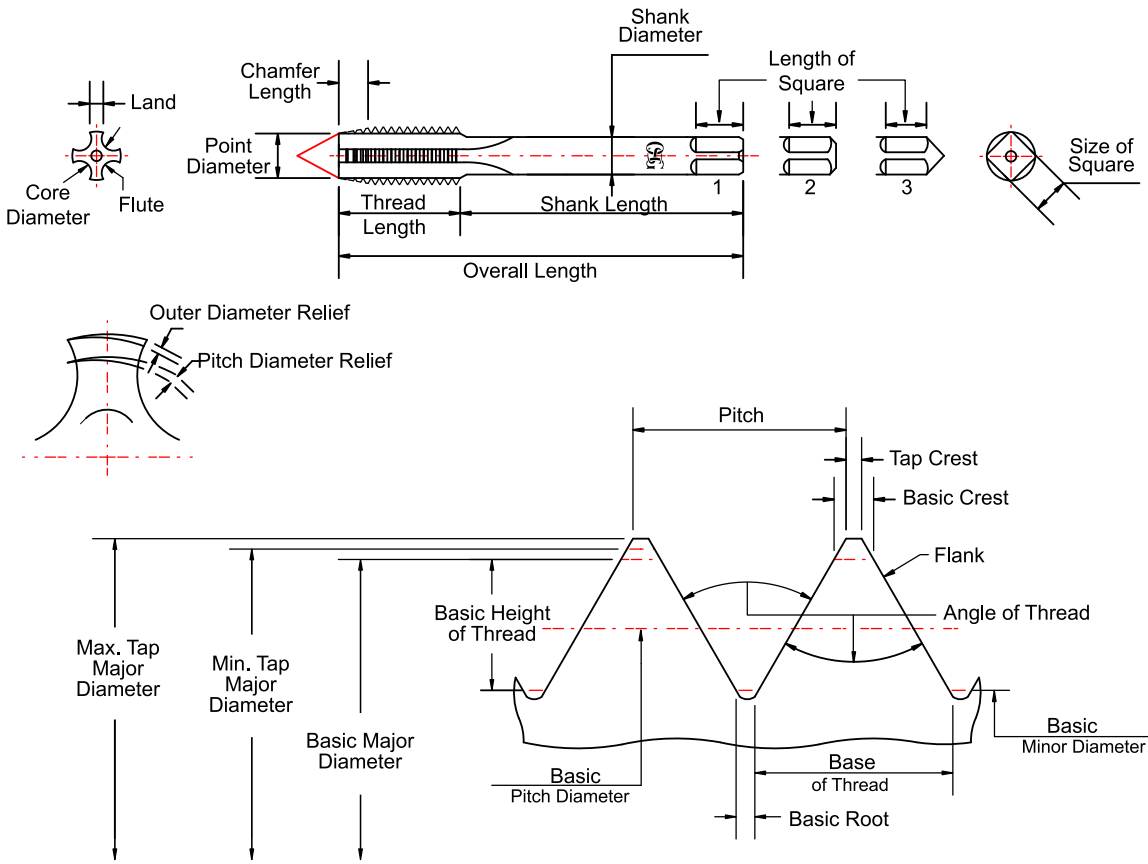
Thread Lead Angle: The angle made by the helix of the thread at the pitch diameter, with a plane perpendicular to the axis.

Threads per Inch: The number of threads in one inch of length.

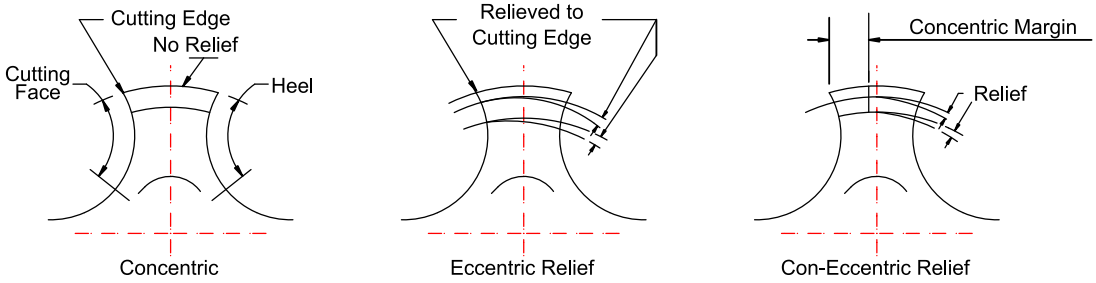
Thread:

Single:	A thread in which lead is equal to pitch.
Double:	A thread in which lead is equal to twice the pitch.
Triple:	A thread in which lead is equal to triple the pitch.

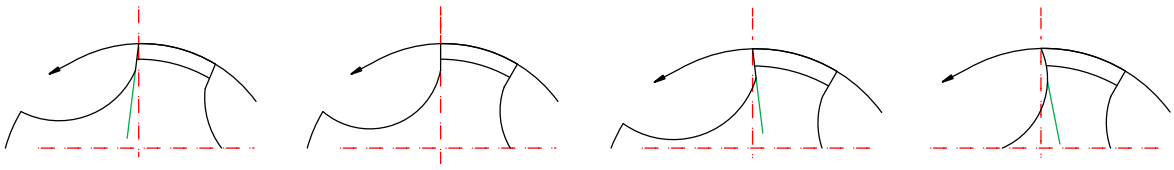
Illustration of Tap Terms



Relief Styles



Cutting Angles



Tapping Speed Guide

SFM to RPM Conversion charts

Surface Footage	Conversion Table - Surface Feet Per Minute (SFM) to Revolutions Per Minute (RPM) - Inch														
	5	10	15	20	25	30	40	50	60	70	80	90	100	125	150
Tap Size	Revolutions Per Minute														
0	318	637	955	1273	1592	1910	2547	3183	3820	4457	5093	5730	6367	7958	9550
1	262	523	785	1047	1308	1570	2093	2616	3140	3663	4186	4710	5233	6541	7849
2	222	444	666	888	1110	1333	1777	2221	2665	3109	3553	3998	4442	5552	6663
3	193	386	579	772	965	1158	1543	1929	2315	2701	3087	3473	3859	4823	5788
4	171	341	512	682	853	1023	1364	1705	2046	2388	2729	3070	3411	4263	5116
5	153	306	458	611	764	917	1222	1528	1834	2139	2445	2750	3056	3820	4584
6	138	277	415	554	692	830	1107	1384	1661	1938	2214	2491	2768	3460	4152
8	116	233	349	466	582	699	932	1165	1398	1630	1863	2086	2329	2912	3494
10	101	201	302	402	503	603	804	1005	1206	1407	1608	1809	2011	2513	3016
12	88	177	265	354	442	531	707	884	1061	1238	1415	1592	1769	2211	2653
1/4	76	153	229	306	382	458	611	764	917	1070	1222	1375	1528	1910	2292
5/16	61	122	183	244	306	367	489	611	733	856	978	1100	1222	1528	1834
3/8	51	102	153	204	255	306	407	509	611	713	815	917	1019	1273	1528
7/16	44	87	131	175	218	262	349	437	524	611	699	786	873	1091	1310
1/2	38	76	115	153	191	229	306	382	458	535	611	688	764	955	1146
9/16	34	68	102	136	170	204	272	340	407	475	543	611	679	849	1019
5/8	31	61	92	122	153	183	244	306	367	428	489	550	611	764	914
3/4	25	51	76	102	127	153	204	255	306	357	407	458	509	637	764
7/8	22	44	65	87	109	131	175	218	262	306	349	393	437	546	655
1	19	38	57	76	96	115	153	191	229	267	306	344	382	478	573
1 1/8	17	34	51	68	85	102	136	170	204	238	272	306	340	424	509
1 1/4	15	31	46	61	76	92	122	153	183	214	244	275	306	382	458
1 3/8	14	28	42	56	69	83	111	139	167	194	222	250	278	347	417
1 1/2	13	25	38	51	64	76	102	127	153	178	204	229	255	318	382
1 5/8	12	24	35	47	59	71	94	118	141	165	188	212	235	294	353
1 3/4	11	22	33	44	55	65	87	109	131	153	175	196	218	273	327
2	10	19	29	38	48	57	76	96	115	134	153	172	191	239	287
2 1/8	9	18	27	36	45	54	72	90	108	126	144	162	180	225	270

Surface Footage	Conversion Table - Surface Feet Per Minute (SFM) to Revolutions Per Minute (RPM) - Metric														
	5	10	15	20	25	30	40	50	60	70	80	90	100	125	150
Tap Size	Revolutions Per Minute														
M2	243	485	728	970	1213	1455	1941	2426	2911	3396	3881	4366	4851	6064	7277
M3	162	323	485	647	809	970	1294	1617	1941	2264	2587	2911	3234	4043	4851
M4	121	243	364	485	606	728	970	1213	1455	1698	1941	2183	2426	3032	3639
M5	97	194	291	388	485	582	776	970	1164	1358	1552	1747	1941	2426	2911
M6	81	162	243	323	404	485	647	809	970	1132	1294	1455	1617	2021	2426
M8	61	121	182	243	303	364	485	606	728	849	970	1092	1213	1516	1819
M10	49	97	146	194	243	291	388	485	582	679	776	873	970	1213	1455
M12	40	81	121	162	202	243	323	404	485	566	647	728	809	1011	1213
M14	35	69	104	139	173	208	277	347	416	485	554	624	693	866	1040
M16	30	61	91	121	152	182	243	303	364	424	485	546	606	758	910
M18	27	54	81	108	135	162	216	270	323	377	431	485	539	674	809
M20	24	49	73	97	121	146	194	243	291	340	388	437	485	606	728
M24	20	40	61	81	101	121	162	202	243	283	323	364	404	505	606
M27	18	36	54	72	90	108	144	180	216	252	287	323	359	449	539
M30	16	32	49	65	81	97	129	162	194	226	259	291	323	404	485
M33	15	29	44	59	74	88	118	147	176	206	235	265	294	368	441
M36	13	27	40	54	67	81	108	135	162	189	216	243	270	337	404
M39	12	25	37	50	62	75	100	124	149	174	199	224	249	311	373
M42	12	23	35	46	58	69	92	116	139	162	185	208	231	289	347
M45	11	22	32	43	54	65	86	108	129	151	172	194	216	270	323
M48	10	20	30	40	51	61	81	101	121	142	162	182	202	253	303
M56	9	17	26	35	43	52	69	87	104	121	139	156	173	217	260

Formulas

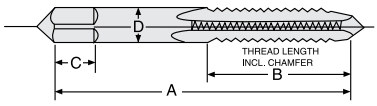
SFM (Surface Feet per Minute) = 0.262 x RPM x D

RPM (Revolutions Per Minute) = (3.82 x SFM) / D

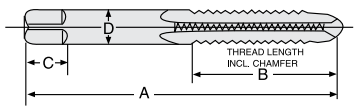
Note: D = Diameter (Must be in inches)

ANSI General Tap Dimensions (USCTI Table 302)

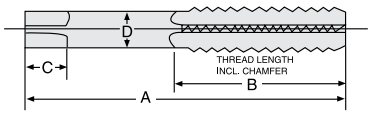
Blank Style 1



Blank Style 2



Blank Style 3



Nominal Diameter Range - Inches		Mach. Screw Size No.	Nominal Fractional Diameter Inches	Nominal Metric Diameter Millimeters	Style	Tap Dimensions - Inches				
Over	To (Incl.)					Overall Length A	Thread Length B	Square Length C	Shank Diameter D	Size of Square
0.052	0.065	0	1/16	–	1	1 5/8	5/16	3/16	0.141	0.110
0.065	0.078	1	–	M1.8	1	1 11/16	3/8	3/16	0.141	0.110
0.078	0.091	2	–	M2, M2.2	1	1 3/4	7/16	3/16	0.141	0.110
0.091	0.104	3	3/32	M2.5	1	1 13/16	1/2	3/16	0.141	0.110
0.104	0.117	4	–	–	1	1 7/8	9/16	3/16	0.141	0.110
0.117	0.130	5	1/8	M3, M3.15	1	1 15/16	5/8	3/16	0.141	0.110
0.130	0.145	6	–	M3.5	1	2	11/16	3/16	0.141	0.110
0.145	0.171	8	5/32	M4	1	2 1/8	3/4	1/4	0.168	0.131
0.171	0.197	10	3/16	M4.5, M5	1	2 3/8	7/8	1/4	0.194	0.152
0.197	0.223	12	7/32	–	1	2 3/8	15/16	9/32	0.220	0.165
0.223	0.260	14	1/4	M6, M6.3	2	2 1/2	1	5/16	0.255	0.191
0.260	0.323	–	5/16	M7, M8	2	2 23/32	1 1/8	3/8	0.318	0.238
0.323	0.385	–	3/8	M10	2	2 15/16	1 1/4	7/16	0.381	0.286
0.385	0.448	–	7/16	–	3	3 5/32	1 7/16	13/32	0.323	0.242
0.448	0.510	–	1/2	M12, M12.5	3	3 3/8	1 21/32	7/16	0.367	0.275
0.510	0.573	–	9/16	M14	3	3 19/32	1 21/32	1/2	0.429	0.322
0.573	0.635	–	5/8	M16	3	3 13/16	1 13/16	9/16	0.480	0.360
0.635	0.709	–	11/16	M18	3	4 1/32	1 13/16	5/8	0.542	0.406
0.709	0.760	–	3/4	–	3	4 1/4	2	11/16	0.590	0.442
0.760	0.823	–	13/16	M20	3	4 15/32	2	11/16	0.652	0.489
0.823	0.885	–	7/8	M22	3	4 11/16	2 7/32	3/4	0.697	0.523
0.885	0.948	–	15/16	M24	3	4 29/32	2 7/32	3/4	0.760	0.570
0.948	1.010	–	1	M25	3	5 1/8	2 1/2	13/16	0.800	0.600
1.010	1.073	–	1 1/16	M27	3	5 1/8	2 1/2	7/8	0.896	0.672
1.073	1.135	–	1 1/8	–	3	5 7/16	2 9/16	7/8	0.896	0.672
1.135	1.198	–	1 3/16	M30	3	5 7/16	2 9/16	1	1.021	0.766
1.198	1.260	–	1 1/4	–	3	5 3/4	2 9/16	1	1.021	0.766
1.260	1.323	–	1 5/16	M33	3	5 3/4	2 9/16	1 1/16	1.108	0.831
1.323	1.385	–	1 3/8	–	3	6 1/16	3	1 1/16	1.108	0.831
1.385	1.448	–	1 7/16	M36	3	6 1/16	3	1 1/8	1.233	0.925
1.448	1.510	–	1 1/2	–	3	6 3/8	3	1 1/8	1.233	0.925
1.510	1.635	–	1 5/8	M39	3	6 11/16	3 3/16	1 1/8	1.305	0.979
1.635	1.760	–	1 3/4	M42	3	7	3 3/16	1 1/4	1.430	1.072
1.760	1.885	–	1 7/8	–	3	7 5/16	3 9/16	1 1/4	1.519	1.139
1.885	2.010	–	2	M48	3	7 5/8	3 9/16	1 3/8	1.644	1.233
2.010	2.135	–	2 1/8	–	3	8	3 9/16	1 3/8	1.769	1.327
2.135	2.260	–	2 1/4	M56	3	8 1/4	3 9/16	1 7/16	1.894	1.420
2.260	2.385	–	2 3/8	–	3	8 1/2	4	1 7/16	2.019	1.514
2.385	2.510	–	2 1/2	–	3	8 3/4	4	1 1/2	2.100	1.575
2.510	2.635	–	2 5/8	M64	3	8 3/4	4	1 1/2	2.250	1.669
2.635	2.760	–	2 3/4	–	3	9 1/4	4	1 9/16	2.350	1.762
2.760	2.885	–	2 7/8	M72	3	9 1/4	4	1 9/16	2.475	1.856
2.885	3.010	–	3	–	3	9 3/4	4 9/16	1 5/8	2.543	1.907
3.010	3.135	–	3 1/8	–	3	9 3/4	4 9/16	1 5/8	2.668	2.001
3.135	3.260	–	3 1/4	M80	3	10	4 9/16	1 3/4	2.793	2.095
3.260	3.385	–	3 3/8	–	3	10	4 9/16	1 3/4	2.883	2.162
3.385	3.510	–	3 1/2	–	3	10 1/4	4 15/16	2	3.008	2.256
3.510	3.635	–	3 5/8	M90	3	10 1/4	4 15/16	2	3.133	2.350
3.635	3.760	–	3 3/4	–	3	10 1/2	5 5/16	2 1/8	3.217	2.413
3.760	3.885	–	3 7/8	–	3	10 1/2	5 5/16	2 1/8	3.342	2.506
3.885	4.010	–	4	M100	3	10 3/4	5 5/16	2 1/2	3.467	2.600

Note: Unless otherwise specified, all OSG taps conform to the dimensions listed above in USCTI Table 302.

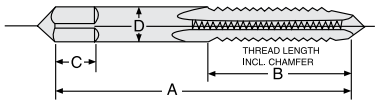
Spiral Pointed and Spiral Fluted, JIS (Table 350)

Diameter	Pitch	General Dimensions - Metric					Ground Thread Limits Class	Pitch Diameter Limit		
		Overall Length A	Length of Thread B	Length of Square C	Shank Diam. D	Size of Square E		Basic	Minimum	Maximum
M2	0.4	40	15	5	3	2.5	2	1.740	1.750	1.770
M2.3	0.4	42	15	5	3	2.5	2	2.040	2.050	2.070
M2.6	0.45	44	16	5	3	2.5	2	2.308	2.318	2.333
M3	0.5	46	18	6	4	3.2	2	2.675	2.685	2.700
M3.5	0.6	48	18	6	4	3.2	2	3.110	3.120	3.135
M4	0.7	52	20	7	5	4	2	3.545	3.555	3.575
M4.5	0.75	55	20	7	5	4	2	4.013	4.023	4.043
M5	0.8	60	22	7	5.5	4.5	2	4.480	4.490	4.510
M6	0.75	62	20	7	6	4.5	2	5.513	5.523	5.543
	1	62	24	7	6	4.5	2	5.350	5.360	5.380
M7	1	65	6	8	6.2	5	2	6.350	6.360	6.380
M8	0.75	62	20	8	6.2	5	2	7.513	7.525	7.550
	1	70	30	8	6.2	5	2	7.350	7.360	7.380
	1.25	70	30	8	6.2	5	2	7.188	7.198	7.223
M9	1.25	72	30	8	7	5.5	2	8.188	8.198	8.223
M10	1	70	30	8	7	5.5	2	9.350	9.362	9.387
	1.25	75	32	8	7	5.5	2	9.188	9.198	9.223
	1.5	75	32	8	7	5.5	2	9.026	9.041	9.066
M11	1.5	80	38	9	8	6	2	10.026	10.041	10.066
M12	1	70	30	9	8.5	6.5	2	11.350	11.365	11.395
	1.25	80	38	9	8.5	6.5	2	11.188	11.203	11.233
	1.5	82	38	9	8.5	6.5	2	11.026	11.041	11.071
	1.75	82	38	9	8.5	6.5	2	10.863	10.878	10.908
M14	1.25	80	38	11	10.5	8	2	13.188	13.203	13.233
	1.5	88	42	11	10.5	8	2	13.026	13.041	13.071
	2	88	42	11	10.5	8	2	12.701	12.716	12.746
M16	1	75	30	13	12.5	10	2	15.350	15.365	15.395
	1.5	95	45	13	12.5	10	2	15.026	15.041	15.071
	2	95	45	13	12.5	10	2	14.701	14.716	14.746
M18	1.5	95	45	14	14	11	2	17.026	17.041	17.071
	2	95	45	14	14	11	2	16.701	16.716	16.751
	2.5	100	48	14	14	11	2	16.376	16.396	16.431
M20	1.5	95	45	15	15	12	2	19.026	19.041	19.076
	2.5	100	48	15	15	12	2	18.376	19.396	18.431
M22	1.5	95	45	16	17	13	2	21.026	21.041	21.076
	2.5	115	55	16	17	13	2	20.376	20.396	20.431
M24	1.5	95	45	18	19	15	2	23.026	23.041	23.076
	3	120	58	18	19	15	2	22.051	22.071	22.111
M26	1.5	95	45	18	20	15	2	25.026	25.041	25.076
	3	130	62	18	20	15	2	24.051	24.071	24.076
M28	1.5	105	45	8	21	17	2	27.026	27.041	27.076
M30	1.5	105	45	20	23	17	2	29.026	29.041	29.076
	3.5	135	65	20	23	17	2	27.727	27.747	27.787
M32	1.5	105	45	22	24	19	2	31.026	31.041	31.076
M33	1.5	110	45	22	25	19	2	32.026	32.041	32.076
M34	1.5	110	45	24	26	21	2	33.026	33.041	33.076
M36	1.5	110	45	24	28	21	2	35.026	35.041	35.076

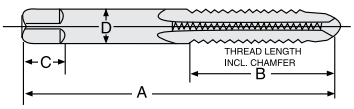
Note: Dimensions are in millimeters

Screw Thread Inserts General Tap Dimensions - Inch (USCTI Table 322)

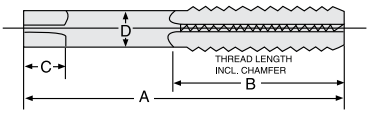
Blank Style 1



Blank Style 2



Blank Style 3

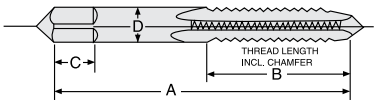


Nominal Slze	Threads Per Inch		Blank Design No.	Tap Dimensions (Inch)					Table 302 Blank Equivalent
	UNC	UNF		A	B	C	D	Size of Square	
1	64	–	1	1.810	0.500	0.190	0.141	0.110	No. 3
2	56	–	1	1.880	0.560	0.190	0.141	0.110	No. 4
	–	64	1	1.880	0.560	0.190	0.141	0.110	No. 4
3	48	–	1	1.940	0.630	0.190	0.141	0.110	No. 5
	–	56	1	1.940	0.630	0.190	0.141	0.110	No. 5
4	40	–	1	2.000	0.690	0.190	0.141	0.110	No. 6
	–	48	1	2.000	0.690	0.190	0.141	0.110	No. 6
5	40	–	1	2.130	0.750	0.250	0.168	0.131	No. 8
6	32	–	1	2.380	0.880	0.250	0.194	0.152	No. 10
	–	40	1	2.130	0.750	0.250	0.168	0.131	No. 8
8	32	–	1	2.380	0.940	0.280	0.220	0.165	No. 12
	–	36	1	2.380	0.940	0.280	0.220	0.165	No. 12
10	24	–	2	2.500	1.000	0.310	0.255	0.191	1/4
	–	32	2	2.500	1.000	0.310	0.255	0.191	1/4
12	12	–	2	2.720	1.130	0.380	0.318	0.238	5/16
1/4	20	–	2	2.720	1.130	0.380	0.318	0.238	5/16
	–	28	2	2.720	1.130	0.380	0.318	0.238	5/16
5/16	18	–	2	2.940	1.250	0.440	0.381	0.286	3/8
	–	24	2	2.940	1.250	0.440	0.381	0.286	3/8
3/8	16	–	3	3.380	1.660	0.440	0.367	0.275	1/2
	–	24	3	3.160	1.440	0.410	0.323	0.242	7/16
7/16	14	–	3	3.590	1.660	0.500	0.429	0.322	9/16
	–	20	3	3.380	1.660	0.440	0.367	0.275	1/2
1/2	13	–	3	3.810	1.810	0.560	0.480	0.360	5/8
	–	20	3	3.590	1.660	0.500	0.429	0.322	9/16
9/16	12	–	3	4.030	1.810	0.630	0.542	0.406	11/16
	–	18	3	3.810	1.810	0.560	0.480	0.360	5/8
5/8	11	–	3	4.250	2.000	0.690	0.590	0.442	3/4
	–	18	3	4.030	1.810	0.630	0.542	0.406	11/16
3/4	10	–	3	4.690	2.220	0.750	0.697	0.523	7/8
	–	16	3	4.470	2.000	0.690	0.652	0.489	13/16
7/8	9	–	3	5.130	2.500	0.810	0.800	0.600	1"
	–	14	3	5.130	2.500	0.810	0.800	0.600	1"
1	8	–	3	5.750	2.560	1.000	1.021	0.766	1 1/4
	–	12	3	5.440	2.560	0.880	0.896	0.672	1 1/8

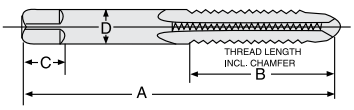
These taps are oversize to the extent that the internal thread they produce will accommodate a helical coil screw thread insert, which, at final assembly, will accept a screw thread of the normal size and pitch.

Screw Thread Inserts General Tap Dimensions - Metric (USCTI Table 322A)

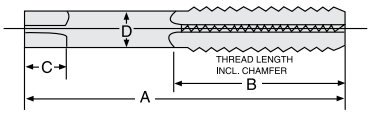
Blank Style 1



Blank Style 2



Blank Style 3



Nominal SIze	Pitch		Blank Design No.	Tap Dimensions (Inch)					Table 302 Blank Equivalent
	M	MF		A	B	C	D	Size of Square	
M2.2	0.45	–	1	1.880	0.560	0.190	0.141	0.110	No. 4
M2.5	0.45	–	1	1.940	0.630	0.190	0.141	0.110	No. 5
M3	0.5	–	1	2.000	0.690	0.190	0.141	0.110	No. 6
M3.5	0.6	–	1	2.130	0.750	0.250	0.117	0.131	No. 8
M4	0.7	–	1	2.380	0.880	0.250	0.194	0.152	No. 10
M5	0.8	–	2	2.500	1.000	0.310	0.255	0.191	1/4
M6	1	–	2	2.720	1.130	0.380	0.318	0.238	5/16
M7	1	–	2	2.940	1.250	0.440	0.381	0.286	3/8
M8	1.25	–	2	2.940	1.250	0.440	0.381	0.286	3/8
	–	1	2	2.940	1.250	0.440	0.381	0.286	3/8
M10	1.5	–	3	3.380	1.660	0.440	0.367	0.275	1/2
	–	1.25	3	3.380	1.660	0.440	0.367	0.275	1/2
	–	1	3	3.160	1.440	0.410	0.323	0.242	7/16
M12	1.75	–	3	3.590	1.660	0.500	0.429	0.322	9/16
	–	1.5	3	3.590	1.660	0.500	0.429	0.322	9/16
	–	1.25	3	3.590	1.660	0.500	0.429	0.322	9/16
M14	2	–	3	4.030	1.810	0.630	0.542	0.406	11/16
	–	1.5	3	3.810	1.810	0.560	0.480	0.360	5/8
M16	2	–	3	4.250	2.000	0.690	0.590	0.442	3/4
	–	1.5	3	4.030	1.810	0.630	0.542	0.406	11/16
M18	2.5	–	3	4.690	2.220	0.750	0.697	0.523	7/8
	–	2	3	4.470	2.000	0.690	0.652	0.489	13/16
	–	1.5	3	4.470	2.000	0.690	0.652	0.489	13/16
M20	2.5	–	3	4.910	2.220	0.750	0.760	0.570	15/16
	–	2	3	4.910	2.220	0.750	0.760	0.570	15/16
	–	1.5	3	4.690	2.220	0.750	0.697	0.523	7/8
M22	2.5	–	3	5.130	2.500	0.810	0.800	0.600	1"
	–	2	3	5.130	2.500	0.810	0.800	0.600	1"
	–	1.5	3	4.910	2.220	0.750	0.760	0.570	15/16
M24	3	–	3	5.440	2.560	0.880	0.896	0.672	1 1/8
	–	2	3	5.130	2.500	0.880	0.896	0.672	1 1/16

These taps are oversize to the extent that the internal thread they produce will accommodate a helical coil screw thread insert, which, at final assembly, will accept a screw thread of the normal size and pitch.

Classes and Tap Recommendations

Size	Threads Per Inch		Basic Pitch Diameter	Unified Classes of Thread				American National Classes of Thread			
				CLASS 2B For General Applications		CLASS 3B For Closer Fits		CLASS 2		CLASS 3	
	NC UNC	NF UNF	All Classes Minimum	Pitch Diam. Limits Maximum	Rec. Taps	Pitch Diam. Limits Maximum	Rec. Taps	Pitch Diam. Limits Maximum	Rec. Taps	Pitch Diam. Limits Maximum	Rec. Taps
0	—	80	0.0519	0.0542	H2	0.0536	H1	0.0536	H1	0.0532	H1
1	64	—	0.0629	0.0655	H2	0.0648	H1	0.0648	H1	0.0643	H1
1	—	72	0.0640	0.0665	H2	0.0659	H1	0.0658	H1	0.0653	H1
2	56	—	0.0744	0.0772	H2	0.0765	H1	0.0764	H1	0.0759	H1
2	—	64	0.0759	0.0786	H2	0.0779	H1	0.0778	H1	0.0773	H1
3	48	—	0.0855	0.0885	H2	0.0877	H1	0.0877	H1	0.0871	H1
3	—	56	0.0874	0.0902	H2	0.0895	H1	0.0894	H1	0.0889	H1
4	40	—	0.0958	0.0991	H2	0.0982	H2	0.0982	H2	0.0975	H1
4	—	48	0.0985	0.1016	H2	0.1008	H1	0.1007	H1	0.1001	H1
5	40	—	0.1088	0.1121	H2	0.1113	H2	0.1112	H2	0.1105	H1
5	—	44	0.1102	0.1134	H2	0.1126	H1	0.1125	H1	0.1118	H1
6	32	—	0.1177	0.1214	H3	0.1204	H2	0.1204	H2	0.1196	H1
6	—	40	0.1218	0.1252	H2	0.1243	H2	0.1242	H2	0.1235	H1
8	32	—	0.1437	0.1475	H3	0.1465	H2	0.1464	H2	0.1456	H1
8	—	36	0.1460	0.1496	H2	0.1487	H2	0.1485	H2	0.1478	H1
10	24	—	0.1629	0.1672	H3	0.1661	H3	0.1662	H3	0.1653	H1
10	—	32	0.1697	0.1736	H3	0.1726	H2	0.1724	H2	0.1716	H1
12	24	—	0.1889	0.1933	H3	0.1922	H3	0.1922	H3	0.1913	H1
12	—	28	0.1928	0.1970	H3	0.1959	H3	0.1959	H3	0.1950	H1
1/4	20	—	0.2175	0.2224	H5	0.2211	H3	0.2211	H3	0.2201	H2
1/4	—	28	0.2268	0.2311	H4	0.2300	H3	0.2299	H3	0.2290	H1
5/16	18	—	0.2764	0.2817	H5	0.2803	H3	0.2805	H3	0.2794	H2
5/16	—	24	0.2854	0.2902	H4	0.2890	H3	0.2887	H3	0.2878	H1
3/8	16	—	0.3344	0.3401	H5	0.3387	H3	0.3389	H3	0.3376	H2
3/8	—	24	0.3479	0.3528	H4	0.3516	H3	0.3512	H3	0.3503	H1
7/16	14	—	0.3911	0.3972	H5	0.3957	H3	0.3960	H5	0.3947	H3
7/16	—	20	0.4050	0.4104	H5	0.4091	H3	0.4086	H3	0.4076	H1
1/2	13	—	0.4500	0.4565	H5	0.4548	H3	0.4552	H5	0.4537	H3
1/2	—	20	0.4675	0.4731	H5	0.4717	H3	0.4711	H3	0.4701	H1
9/16	12	—	0.5084	0.5152	H5	0.5135	H3	0.5140	H5	0.5124	H3
9/16	—	18	0.5264	0.5323	H5	0.5308	H3	0.5305	H3	0.5294	H2
5/8	11	—	0.5660	0.5732	H5	0.5714	H3	0.5719	H5	0.5702	H3
5/8	—	18	0.5889	0.5949	H5	0.5934	H3	0.5930	H3	0.5919	H2
3/4	10	—	0.6850	0.6927	H5	0.6907	H5	0.6914	H5	0.6895	H3
3/4	—	16	0.7094	0.7159	H5	0.7143	H3	0.7139	H3	0.7126	H2
7/8	9	—	0.8028	0.8110	H6	0.8089	H4	0.8098	H6	0.8077	H4
7/8	—	14	0.8286	0.8356	H6	0.8339	H4	0.8335	H4	0.8322	H2
1	8	—	0.9188	0.9276	H6	0.9254	H4	0.9264	H4	0.9242	H4
1	—	12	0.9459	0.9535	H6	0.9516	H4	0.9515	H4	0.9499	H4
1	—	14	0.9536	0.9609	H6	0.9590	H4	0.9585	H4	0.9572	H4
1-1/8	7	—	1.0322	1.0416	H8	1.0393	H4	1.0407	H4	1.0381	H4
1-1/8	—	12	1.0709	1.0787	H6	1.0768	H4	1.0765	H4	1.0749	H4
1-1/4	7	—	1.1572	1.1668	H8	1.1644	H4	1.1657	H4	1.1631	H4
1-1/4	—	12	1.1959	1.2039	H6	1.2019	H4	1.2015	H4	1.1999	H4
1-3/8	6	—	1.2667	1.2771	H8	1.2745	H4	1.2768	H4	1.2738	H4
1-3/8	—	12	1.3209	1.3291	H6	1.3270	H4	1.3265	H4	1.3249	H4
1-1/2	6	—	1.3917	1.4022	H8	1.3996	H4	1.4018	H4	1.3988	H4
1-1/2	—	12	1.4459	1.4542	H6	1.4522	H4	1.4515	H4	1.4499	H4
1-1/2	—	8	1.4188	1.4283	H7	1.4259	H5	1.4278	H7	1.4251	H5
1-5/8	—	8	1.5438	1.5535	H8	1.5510	H6	1.5531	H7	1.5503	H5
1-3/4	5	—	1.6201	1.6317	H9	1.6288	H7	1.6317	H9	1.6283	H7
1-3/4	8	8	1.6688	1.6786	H8	1.6762	H6	1.6785	H8	1.6756	H5
1-7/8	8	8	1.7938	1.8037	H8	1.8013	H6	1.8038	H8	1.8008	H6
2	4.5	—	1.8557	1.8681	H10	1.8650	H7	1.8684	H10	1.8646	H7
2	—	8	1.9188	1.9289	H8	1.9264	H6	1.9292	H8	1.9261	H6

ISO Metric Class of Threads				
CLASS 6H For Commercial Threads				
Size mm	Pitch mm	Pitch Dia. Limits (Inch)		Rec. Taps
		Min.	Max.	
M1.6	0.35	0.0541	0.0574	D3
M2	0.4	0.0686	0.0720	D3
M2.5	0.45	0.0870	0.0906	D3
M3	0.5	0.1054	0.1092	D3
M3.5	0.6	0.1225	0.1268	D4
M4	0.7	0.1396	0.1442	D4
M5	0.8	0.1764	0.1812	D4
M6	1.0	0.2107	0.2165	D5
M8	1.25	0.2830	0.2892	D5
M10	1.5	0.3554	0.3624	D6
M12	1.75	0.4277	0.4355	D6
M14	2.0	0.5001	0.5083	D7
M16	2.0	0.5788	0.5871	D7
M20	2.5	0.7235	0.7322	D7
M24	3.0	0.8682	0.8785	D8
M30	3.5	1.0917	1.1026	D9
M36	4.0	1.3151	1.3268	D9
M39	4.0	1.4331	1.4450	D9
M42	4.5	1.5385	1.5509	D10
M42	3.0	1.5768	1.5873	D8
M42	2.0	1.6024	1.6112	D7
M42	1.5	1.6152	1.6231	D6
M45	4.5	1.6566	1.6690	D10
M45	3.0	1.6949	1.7054	D8
M48	5.0	1.7619	1.7751	D10
M48	3.0	1.8130	1.8241	D9
M48	2.0	1.8386	1.8479	D7
M48	1.5	1.8514	1.8598	D6
M56	5.5	2.0641	2.0781	D11

FORMULAS

D3 = Basic PD + 0.0009″ to Basic PD + 0.0015″
D4 = Basic PD + 0.0012″ to Basic PD + 0.0020″
D5 = Basic PD + 0.0015″ to Basic PD + 0.0025″
D6 = Basic PD + 0.0018″ to Basic PD + 0.0030″
D7 = Basic PD + 0.0019″ to Basic PD + 0.0035″
D8 = Basic PD + 0.0024″ to Basic PD + 0.0040″
D9 = Basic PD + 0.0025″ to Basic PD + 0.0045″

Sizes Through 1″ Dia.
H1 = Basic PD to Basic PD + 0.0005″
H2 = Basic PD + 0.0005″ to Basic PD + 0.0010″
H3 = Basic PD + 0.0010″ to Basic PD + 0.0015″
H4 = Basic PD + 0.0015″ to Basic PD + 0.0020″
H5 = Basic PD + 0.0020″ to Basic PD + 0.0025
H6 = Basic PD + 0.0025″ to Basic PD + 0.0030″

Sizes Above 1″ Through 1-1/2″ Dia.
H4 = Basic PD + 0.0010″ to Basic PD + 0.0020″

Classes 2A, 3A and 2B, 3B, Unified Thread Form
Classes 2 and 3, American National Thread Form

Size	Threads Per Inch		External Thread (Bolt)							Internal Thread (Nut)				
			Unified				American National			Basic Pitch Dia.	Unified		American National	
			Maximum		Minimum		Max.	Minimum			Maximum		Minimum	
	NC UNC	NF UNF	Class 2A	Class 3A Basic No.	Class 2A	Class 3A	Classes 2, 3 Basic Size No.	Class 2 No.	Class 3	All Classes Min. Size No.	2B Size No.	3B Size No.	2 Size No.	3 Size No.
0	–	80	0.0514	0.0519	0.0496	0.0506	0.0519	0.0502	0.0506	0.0519	0.0542	0.0536	0.0536	0.0532
1	64	–	0.0623	0.0629	0.0603	0.0614	0.0629	0.0610	0.0615	0.0629	0.0655	0.0648	0.0648	0.0643
	–	72	0.0634	0.0640	0.0615	0.0626	0.0640	0.0622	0.0627	0.0640	0.0665	0.0659	0.0658	0.0653
2	56	–	0.0738	0.0744	0.0717	0.0728	0.0744	0.0724	0.0729	0.0744	0.0772	0.0765	0.0764	0.0759
	–	64	0.0753	0.0759	0.0733	0.0744	0.0759	0.0740	0.0745	0.0759	0.0786	0.0779	0.0778	0.0773
3	48	–	0.0848	0.0855	0.0825	0.0838	0.0855	0.0833	0.0839	0.0855	0.0885	0.0877	0.0877	0.0871
	–	56	0.0867	0.0874	0.0845	0.0858	0.0874	0.0854	0.0859	0.0874	0.0902	0.0895	0.0894	0.0889
4	40	–	0.0950	0.0958	0.0925	0.0939	0.0958	0.0934	0.0941	0.0958	0.0991	0.0982	0.0982	0.0975
		48	0.0978	0.0985	0.0954	0.0967	0.0985	0.0963	0.0969	0.0985	0.1016	0.1008	0.1007	0.1001
5	40	–	0.1080	0.1088	0.1054	0.1069	0.1088	0.1064	0.1071	0.1088	0.1121	0.1113	0.1112	0.1105
	–	44	0.1095	0.1102	0.1070	0.1083	0.1102	0.1079	0.1086	0.1102	0.1134	0.1126	0.1125	0.1118
6	32	–	0.1169	0.1177	0.1141	0.1156	0.1177	0.1150	0.1158	0.1177	0.1214	0.1204	0.1204	0.1196
	–	40	0.1210	0.1218	0.1184	0.1198	0.1218	0.1194	0.1201	0.1218	0.1252	0.1243	0.1242	0.1235
8	32	–	0.1428	0.1437	0.1399	0.1415	0.1437	0.1410	0.1418	0.1437	0.1475	0.1465	0.1464	0.1456
	–	36	0.1452	0.1460	0.1424	0.1439	0.1460	0.1435	0.1442	0.1460	0.1496	0.1487	0.1485	0.1478
10	24	–	0.1619	0.1629	0.1586	0.1604	0.1629	0.1596	0.1605	0.1629	0.1672	0.1661	0.1662	0.1653
	–	32	0.1688	0.1697	0.1658	0.1674	0.1697	0.1670	0.1678	0.1697	0.1736	0.1726	0.1724	0.1716
12	24	–	0.1879	0.1889	0.1845	0.1863	0.1889	0.1856	0.1865	0.1889	0.1933	0.1922	0.1922	0.1913
	–	28	0.1918	0.1928	0.1886	0.1904	0.1928	0.1897	0.1906	0.1928	0.1970	0.1959	0.1959	0.1950
1/4	20	–	0.2164	0.2175	0.2127	0.2147	0.2175	0.2139	0.2149	0.2175	0.2224	0.2211	0.2211	0.2201
	–	28	0.2258	0.2268	0.2225	0.2243	0.2268	0.2237	0.2246	0.2268	0.2311	0.2300	0.2299	0.2290
5/16	18	–	0.2752	0.2764	0.2712	0.2734	0.2764	0.2723	0.2734	0.2764	0.2817	0.2803	0.2805	0.2794
	–	24	0.2843	0.2854	0.2806	0.2827	0.2854	0.2821	0.2830	0.2854	0.2902	0.2890	0.2887	0.2878
3/8	16	–	0.3331	0.3344	0.3287	0.3311	0.3344	0.3299	0.3312	0.3344	0.3401	0.3387	0.3389	0.3376
	–	24	0.3468	0.3479	0.3430	0.3450	0.3479	0.3446	0.3455	0.3479	0.3528	0.3516	0.3512	0.3503
7/16	14	–	0.3897	0.3911	0.3850	0.3876	0.3911	0.3862	0.3875	0.3911	0.3972	0.3957	0.3960	0.3947
	–	20	0.4037	0.4050	0.3995	0.4019	0.4050	0.4014	0.4024	0.4050	0.4104	0.4091	0.4086	0.4076
1/2	13	–	0.4485	0.4500	0.4435	0.4463	0.4500	0.4448	0.4463	0.4500	0.4565	0.4548	0.4552	0.4537
	–	20	0.4662	0.4675	0.4619	0.4643	0.4675	0.4639	0.4649	0.4675	0.4731	0.4717	0.4711	0.4701
9/16	12	–	0.5068	0.5084	0.5016	0.5045	0.5084	0.5028	0.5044	0.5084	0.5152	0.5135	0.5140	0.5124
	–	18	0.5250	0.5264	0.5205	0.5230	0.5264	0.5223	0.5234	0.5264	0.5323	0.5308	0.5305	0.5294
5/8	11	–	0.5644	0.5660	0.5589	0.5619	0.5660	0.5601	0.5618	0.5660	0.5732	0.5714	0.5719	0.5702
	–	18	0.5875	0.5889	0.5828	0.5854	0.5889	0.5848	0.5859	0.5889	0.5949	0.5934	0.5930	0.5919
3/4	10	–	0.6832	0.6850	0.6773	0.6806	0.6850	0.6786	0.6805	0.6850	0.6927	0.6907	0.6914	0.6985
	–	16	0.7079	0.7094	0.7029	0.7056	0.7094	0.7049	0.7062	0.7094	0.7159	0.7143	0.7139	0.7126
7/8	9	–	0.8009	0.8028	0.7946	0.7981	0.8028	0.7958	0.7979	0.8028	0.8110	0.8089	0.8098	0.8077
	–	14	0.8270	0.8286	0.8216	0.8245	0.8286	0.8237	0.8250	0.8286	0.8356	0.8339	0.8335	0.8322
1	8	–	0.9168	0.9188	0.9100	0.9137	0.9188	0.9112	0.9134	0.9188	0.9276	0.9254	0.9264	0.9242
	–	12	0.9441	0.9459	0.9382	0.9415	0.9459	0.9403	0.9419	0.9459	0.9535	0.9516	0.9515	0.9499
	–	14NS	0.9519	0.9536	0.9463	0.9494	0.9536	0.9487	0.9500	0.9536	0.9609	0.9590	0.9585	0.9572
1 1/8	7	–	1.0300	1.0322	1.0228	1.0268	1.0322	1.0237	1.0263	1.0322	1.0416	1.0393	1.0407	1.0381
	–	12	1.0691	1.0709	1.0631	1.0664	1.0709	1.0653	1.0669	1.0709	1.0787	1.0768	1.0765	1.0749
1 1/4	7	–	1.1550	1.1572	1.1476	1.1517	1.1572	1.1487	1.1513	1.1572	1.1668	1.1644	1.1657	1.1631
	–	12	1.1941	1.1959	1.1879	1.1913	1.1959	1.1903	1.1919	1.1959	1.2039	1.2019	1.2015	1.1999
1 3/8	6	–	1.2643	1.2667	1.2563	1.2607	1.2667	1.2566	1.2596	1.2667	1.2771	1.2745	1.2768	1.2738
	–	12	1.3190	1.3321	1.3127	1.3162	1.3209	1.3153	1.3169	1.3209	1.3291	1.3270	1.3265	1.3249
1 1/2	6	–	1.3893	1.3917	1.3812	1.3856	1.3917	1.3816	1.3846	1.3917	1.4022	1.3996	1.4018	1.3988
	–	12	1.4440	1.4459	1.4376	1.4411	1.4459	1.4403	1.4419	1.4459	1.4542	1.4522	1.4515	1.4499

Classes and Tap Recommendations (USCTI Table 323)

Size	Threads Per Inch		Tap Major Diameter		Unified Classes of Thread					
					Class 2B For General Applications			Class 3B For Closer Fits		
	NC UNC	NF UNF	Minimum	Maximum	H Limit	Minimum	Maximum	H Limit	Minimum	Maximum
2	56	-	0.1107	0.1117	H2	0.0981	0.0986	H1	0.0976	0.0981
3	48	-	0.1279	0.1289	H2	0.1131	0.1136	H1	0.1126	0.1131
4	40	-	0.1463	0.1473	H2	0.1288	0.1293	H1	0.1283	0.1288
4	-	48	0.1409	0.1419	H2	0.1261	0.1266	H1	0.1256	0.1261
6	32	-	0.1807	0.1817	H3	0.1593	0.1598	H2	0.1588	0.1593
6	-	40	0.1723	0.1733	H2	0.1548	0.1553	H1	0.1543	0.1548
8	32	-	0.2067	0.2077	H3	0.1853	0.1858	H2	0.1848	0.1853
8	-	36	0.2022	0.2032	H2	0.1826	0.1831	H1	0.1821	0.1826
10	24	-	0.2465	0.2475	H3	0.2180	0.2185	H2	0.2175	0.2180
10	-	32	0.2327	0.2337	H3	0.2113	0.2118	H2	0.2108	0.2113
1/4	20	-	0.3177	0.3187	H3	0.2835	0.2840	H2	0.2830	0.2835
1/4	-	28	0.2985	0.2995	H3	0.2742	0.2747	H2	0.2737	0.2742
5/16	18	-	0.3874	0.3884	H4	0.3501	0.3506	H3	0.3496	0.3501
5/16	-	24	0.3690	0.3700	H3	0.3405	0.3410	H2	0.3400	0.3405
3/8	16	-	0.4592	0.4602	H4	0.4171	0.4176	H3	0.4166	0.4171
3/8	-	24	0.4315	0.4325	H3	0.4030	0.4035	H2	0.4025	0.4030
7/16	14	-	0.5333	0.5343	H4	0.4854	0.4859	H3	0.4849	0.4854
7/16	-	20	0.5052	0.5062	H4	0.4715	0.4720	H3	0.4710	0.4715
1/2	13	-	0.6032	0.6042	H4	0.5514	0.5519	H3	0.5509	0.5514
1/2	-	20	0.5677	0.5687	H4	0.5340	0.5345	H3	0.5335	0.5340
9/16	12	-	0.6741	0.6751	H4	0.6182	0.6187	H3	0.6177	0.6182
9/16	-	18	0.6374	0.6384	H4	0.6001	0.6006	H3	0.5996	0.6001
5/8	11	-	0.7467	0.7477	H4	0.6856	0.6861	H3	0.6851	0.6856
5/8	-	18	0.6999	0.7009	H4	0.6626	0.6631	H3	0.6621	0.6626
3/4	10	-	0.8835	0.8850	H5	0.8169	0.8174	H3	0.8159	0.8164
3/4	-	16	0.8342	0.8352	H4	0.7921	0.7926	H3	0.7916	0.7921
7/8	9	-	1.0232	1.0247	H5	0.9491	0.9496	H3	0.9481	0.9486
7/8	-	14	0.9708	0.9718	H4	0.9234	0.9239	H3	0.9224	0.9229
1	8	-	1.1666	1.1681	H6	1.0832	1.0842	H4	1.0822	1.0832
1	-	12	1.1116	1.1126	H6	1.0562	1.0572	H4	1.0552	1.0562

ISO Metric Class of Threads				
Class 6H For Commercial Threads				
Size mm	Pitch mm	Pitch Diameter Limits		Recommended Taps
		Min.	Max	
M2	0.40	0.0889	0.0909	D2
M2.5	0.45	0.1099	0.1120	D2
M3	0.50	0.1309	0.1332	D2
M4	0.70	0.1753	0.1783	D3
M5	0.80	0.2173	0.2203	D3
M6	1.00	0.2618	0.2654	D3
M8	1.25	0.3469	0.3508	D3
M10	1.50	0.4320	0.4357	D4
M12	1.75	0.5172	0.5224	D4
M14	2.00	0.6023	0.6078	D5
M16	2.00	0.6810	0.6867	D5
M18	2.50	0.7725	0.7786	D5
M20	2.50	0.8371	0.8574	D5
M22	2.50	0.9300	0.9361	D5
M24	3.00	1.0216	1.0289	D6

Machine Screw Taps – Ground Thread Unified and American National Form (USCTI Table 329)

Tap Size In	Threads Per Inch			Major Diameter			Basic Pitch Diam.	Pitch Diameter Limits							
	NC UNC	UF UNF	NS	Basic	Min.	Max.		H1 Limit		H2 Limit		H3 Limit		H7 Limit*	
								Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
0	–	80	–	0.0600	0.0605	0.0616	0.0519	0.0519	0.0524	0.0524	0.0529	–	–	–	–
1	64	–	–	0.0730	0.0736	0.0750	0.0629	0.0629	0.0634	0.0634	0.0639	–	–	–	–
1	–	72	–	0.0730	0.0736	0.0748	0.0640	0.0640	0.0645	0.0645	0.0650	–	–	–	–
2	56	–	–	0.0860	0.0867	0.0883	0.0744	0.0744	0.0749	0.0749	0.0754	–	–	–	–
2	–	64	–	0.0860	0.0866	0.0880	0.0759	0.0759	0.0764	0.0764	0.0769	–	–	–	–
3	48	–	–	0.0990	0.0999	0.1017	0.0855	0.0855	0.0860	0.0860	0.0865	–	–	–	–
3	–	56	–	0.0990	0.0997	0.1013	0.0874	0.0874	0.0879	0.0879	0.0884	–	–	–	–
4	–	–	36	0.1120	0.1135	0.1156	0.0940	–	–	0.0945	0.0950	–	–	–	–
4	40	–	–	0.1120	0.1133	0.1152	0.0958	0.0958	0.0963	0.0963	0.0968	–	–	–	–
4	–	48	–	0.1120	0.1129	0.1147	0.0985	0.0985	0.0990	0.0990	0.0995	–	–	–	–
5	40	–	–	0.1250	0.1263	0.1282	0.1088	0.1088	0.1093	0.1093	0.1098	–	–	–	–
5	–	44	–	0.1250	0.1263	0.1280	0.1102	–	–	0.1107	0.1112	–	–	–	–
6	32	–	–	0.1380	0.1401	0.1421	0.1177	0.1177	0.1182	0.1182	0.1187	0.1187	0.1192	0.1207	0.1212
6	–	40	–	0.1380	0.1393	0.1412	0.1218	0.1218	0.1223	0.1223	0.1228	–	–	–	–
8	32	–	–	0.1640	0.1661	0.1681	0.1437	0.1437	0.1442	0.1442	0.1447	0.1447	0.1452	0.1467	0.1472
8	–	36	–	0.1640	0.1655	0.1676	0.1460	0.1460	0.1465	0.1465	0.1470	–	–	–	–
10	24	–	–	0.1900	0.1927	0.1954	0.1629	0.1629	0.1634	0.1634	0.1639	0.1639	0.1644	0.1659	0.1664
10	–	32	–	0.1900	0.1921	0.1941	0.1697	0.1697	0.1702	0.1702	0.1707	0.1707	0.1712	0.1727	0.1732
12	24	–	–	0.2160	0.2187	0.2214	0.1889	0.1889	0.1894	–	–	0.1899	0.1904	–	–
12	–	28	–	0.2160	0.2183	0.2206	0.1928	0.1928	0.1933	–	–	0.1938	0.1943	–	–

*Major diameter for H7 Limit Taps is 0.002″ larger than values shown in min. and max. columns.

LEAD TOLERANCE
A maximum lead deviation of plus or minus 0.0005″ within any two threads not farther apart than one inch is permitted.

ANGLE TOLERANCE
6 to 9 threads per inch incl. = ±25′ in 1/2 angle.
10 to 80 threads per inch incl., = ±30′ in 1/2 angle.

FORMULA
Maximum major diameter = Basic +A.
Minimum major diameter = Basic +B.
For values of A and B see table 331.

PITCH DIAMETER LIMITS FOR TAPS THROUGH 1″ DIAMETER
H1 Limit = Basic PD to basic PD + 0.0005″.
H2 Limit = Basic PD + 0.0005″ to Basic PD + 0.0010″.
H3 Limit = Basic PD + 0.0010″ to Basic PD + 0.0015″.
H4 Limit = Basic PD + 0.0015″ to Basic PD + 0.0020″.
H5 Limit = Basic PD + 0.0020″ to Basic PD + 0.0025″.
H6 Limit = Basic PD + 0.0025″ to Basic PD + 0.0030″.

PITCH DIAMETER LIMITS FOR TAPS OVER 1″ DIAMETER THROUGH 1-1/2″ DIAMETER
H4 Limit = Basic PD + 0.0010″ to Basic PD + 0.0020″.

Fractional Size Taps – Ground Thread Unified and American National Form (USCTI Table 327)

Tap Size Inches	Threads Per Inch			Major Diameter			Basic Pitch Diam.	Pitch Diameter Limits											
	NC UNC	UF UNF	NS	Basic	Min.	Max.		H1 Limit		H2 Limit		H3 Limit		H4 Limit		H5 Limit		H6 Limit	
								Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/4	20	–	–	0.2500	0.2533	0.2565	0.2175	0.2175	0.2180	0.2180	0.2185	0.2185	0.2190	–	–	0.2195	0.2200	–	–
1/4	–	28	–	0.2500	0.2523	0.2546	0.2268	0.2268	0.2273	0.2273	0.2278	0.2278	0.2283	0.2283	0.2288	–	–	–	–
5/16	18	–	–	0.3125	0.3161	0.3197	0.2764	0.2764	0.2769	0.2769	0.2774	0.2774	0.2779	–	–	0.2784	0.2789	–	–
5/16	–	24	–	0.3125	0.3152	0.3179	0.2854	0.2854	0.2859	0.2859	0.2864	0.2864	0.2869	0.2869	0.2874	–	–	–	–
3/8	16	–	–	0.3750	0.3790	0.3831	0.3344	0.3344	0.3349	0.3349	0.3354	0.3354	0.3359	–	–	0.3364	0.3369	–	–
3/8	–	24	–	0.3750	0.3777	0.3804	0.3479	0.3479	0.3484	0.3484	0.3489	0.3489	0.3494	0.3494	0.3499	–	–	–	–
7/16	14	–	–	0.4375	0.4422	0.4468	0.3911	0.3911	0.3916	0.3916	0.3921	0.3921	0.3926	–	–	0.3931	0.3936	–	–
7/16	–	20	–	0.4375	0.4408	0.4440	0.4050	0.4050	0.4055	0.4055	0.4060	0.4060	0.4065	–	–	0.4070	0.4075	–	–
1/2	13	–	–	0.5000	0.5050	0.5100	0.4500	0.4500	0.4505	0.4505	0.4510	0.4510	0.4515	–	–	0.4520	0.4525	–	–
1/2	–	20	–	0.5000	0.5033	0.5065	0.4675	0.4675	0.4680	0.4680	0.4685	0.4685	0.4690	–	–	0.4695	0.4700	–	–
9/16	12	–	–	0.5625	0.5679	0.5733	0.5084	0.5084	0.5089	0.5089	0.5094	0.5094	0.5099	–	–	0.5104	0.5109	–	–
9/16	–	18	–	0.5625	0.5661	0.5697	0.5264	0.5264	0.5269	0.5269	0.5274	0.5274	0.5279	–	–	0.5284	0.5289	–	–
5/8	11	–	–	0.6250	0.6309	0.6368	0.5660	0.5660	0.5665	0.5665	0.5670	0.5670	0.5675	–	–	0.5680	0.5685	–	–
5/8	–	18	–	0.6250	0.6286	0.6322	0.5889	0.5889	0.5894	0.5894	0.5899	0.5899	0.5904	–	–	0.5909	0.5914	–	–
11/16	–	–	11	0.6875	0.6934	0.6993	0.6285	–	–	–	–	0.6295	0.6300	–	–	–	–	–	–
11/16	–	–	16	0.6875	0.6915	0.6956	0.6469	–	–	–	–	0.6479	0.6484	–	–	–	–	–	–
3/4	10	–	–	0.7500	0.7565	0.7630	0.6850	0.6850	0.6855	0.6855	0.6860	0.6860	0.6865	–	0.8048	0.6870	0.6875	–	–
3/4	–	16	–	0.7500	0.7540	0.7581	0.7094	0.7094	0.7099	0.7099	0.7104	0.7104	0.7109	–	0.8306	0.7114	0.7119	–	–
7/8	9	–	–	0.8750	0.8822	0.8894	0.8028	0.8028	0.8033	0.8033	0.8038	–	–	0.8043	0.9208	–	–	0.8053	0.8058
7/8	–	14	–	0.8750	0.8797	0.8843	0.8286	0.8286	0.8291	0.8291	0.8296	–	–	0.8301	0.9479	–	–	0.8311	0.8316
1	8	–	–	1.0000	1.0081	1.0162	0.9188	0.9188	0.9193	0.9193	0.9198	–	–	0.9203	0.9556	–	–	0.9213	0.9218
1	–	12	–	1.0000	1.0054	1.0108	0.9459	–	–	–	–	–	–	0.9474	1.0342	–	–	–	–
1	–	–	14	1.0000	1.0047	1.0093	0.9536	–	–	0.9541	0.9546	–	–	0.9551	1.0729	–	–	0.9561	0.9566
1 1/8	7	–	–	1.1250	1.1343	1.1436	1.0322	–	–	–	–	–	–	1.0332	1.1592	–	–	–	–
1 1/8	–	12	–	1.1250	1.1304	1.1358	1.0709	–	–	–	–	–	–	1.0719	1.1979	–	–	–	–
1 1/4	7	–	–	1.2500	1.2593	1.2686	1.1572	–	–	–	–	–	–	1.1582	1.2687	–	–	–	–
1 1/4	–	12	–	1.2500	1.2554	1.2608	1.1959	–	–	–	–	–	–	1.1969	1.3229	–	–	–	–
1 3/8	6	–	–	1.3750	1.3859	1.3967	1.2667	–	–	–	–	–	–	1.2677	1.3937	–	–	–	–
1 3/8	–	12	–	1.3750	1.3804	1.3858	1.3209	–	–	–	–	–	–	1.3219	1.4479	–	–	–	–
1 1/2	6	–	–	1.5000	1.5109	1.5217	1.3917	–	–	–	–	–	–	1.3927	–	–	–	–	–
1 1/2	–	12	–	1.5000	1.5054	1.5108	1.4459	–	–	–	–	–	–	1.4469	–	–	–	–	–

Ground Thread Taps (USCTI Table 331)

The following tables and formula are used in determining the limits and tolerances for ground thread taps having a thread lead angle not in excess of 5˚, unless otherwise specified.

LEAD TOLERANCE

A maximum lead deviation of ±0.0005", within any two threads not farther apart than 1" is permitted.

ANGLE TOLERANCE

Threads Per Inch	Deviation in Half Angle
4 to 5-1/2 incl.	±20′
6 to 9 incl.	±25′
10 to 80 incl.	±30′

FORMULA

Max. Major Dia. = Basic + A
Min. Major Dia. = Basic + B
Max. Pitch Dia. = Min. + D
Min. Pitch Dia. = Basic + C

In the above formula:
A = Constant to add = 0.130P for all Pitches
B = Major Diameter Tolerance = 0.087P for 48 Through 80 TPI
= 0.076P for 36 Through 47 TPI
= 0.065P for 4 Through 35 TPI
C = Amount over basic for minimum pitch diameter
D = Pitch diameter tolerance

Note: When the tap major diameter must be determined from a specified tap pitch diameter, the maximum major diameter equals the minimum specified pitch diameter minus Constant C, plus 0.64952P, plus Constant A.

Threads Per Inch	A	B	C			D			
			To 5/8" Incl.	Over 5/8" to 2 1/2 Incl.	Over 2 1/2"	To 1" Incl.	Over 1" to 1 1/2" Incl.	Over 1 1/2" to 2 1/2" Incl.	Over 2 1/2"
80	0.0016	0.0011	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
72	0.0018	0.0012	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
64	0.0020	0.0014	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
56	0.0023	0.0016	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
48	0.0027	0.0018	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
44	0.0030	0.0017	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
40	0.0032	0.0019	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
36	0.0036	0.0021	0.0005	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
32	0.0041	0.0020	0.0010	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
28	0.0046	0.0023	0.0010	0.0010	0.0015	0.0005	0.0010	0.0010	0.0015
24	0.0054	0.0027	0.0010	0.0010	0.0015	0.0005	0.0010	0.0015	0.0015
20	0.0065	0.0032	0.0010	0.0010	0.0015	0.0005	0.0010	0.0015	0.0015
18	0.0072	0.0036	0.0010	0.0010	0.0015	0.0005	0.0010	0.0015	0.0015
16	0.0081	0.0041	0.0010	0.0010	0.0015	0.0005	0.0010	0.0015	0.0020
14	0.0093	0.0046	0.0010	0.0015	0.0015	0.0005	0.0010	0.0015	0.0020
13	0.0100	0.0050	0.0010	0.0015	0.0015	0.0005	0.0010	0.0015	0.0020
12	0.0108	0.0054	0.0010	0.0015	0.0015	0.0005	0.0010	0.0015	0.0020
11	0.0118	0.0059	0.0010	0.0015	0.0020	0.0005	0.0010	0.0015	0.0020
10	0.0130	0.0065	–	0.0015	0.0020	0.0005	0.0010	0.0015	0.0020
9	0.0144	0.0072	–	0.0015	0.0020	0.0005	0.0010	0.0015	0.0020
8	0.0162	0.0081	–	0.0015	0.0020	0.0005	0.0010	0.0015	0.0020
7	0.0186	0.0093	–	0.0015	0.0020	0.0010	0.0010	0.0020	0.0025
6	0.0217	0.0108	–	0.0015	0.0020	0.0010	0.0010	0.0020	0.0025
5 1/2	0.0236	0.0118	–	0.0015	0.0020	0.0010	0.0015	0.0020	0.0025
5	0.0260	0.0130	–	0.0015	0.0020	0.0010	0.0015	0.0020	0.0025
4 1/2	0.0289	0.0144	–	0.0015	0.0020	0.0010	0.0015	0.0020	0.0025
4	0.0325	0.0162	–	0.0015	0.0020	0.0010	0.0015	0.0020	0.0025

For intermediate pitches, use values for next coarser pitch for C and D, but use formulas for A and B.

Metric Size Taps – Ground Thread (USCTI Table 337)

Nominal Size	Pitch	Major Diameter Inches			Standard Pitch Diameter Limits Inches													
		Basic	Min.	Max.	Basic Pitch Diam.	D3 Limits		D4 Limits		D5 Limits		D6 Limits		D7 Limits		D8 Limits		D9 Limits	
mm	mm					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1.6	0.35	0.062992	0.0641	0.0651	0.054042	0.0550	0.0556	–	–	–	–	–	–	–	–	–	–	–	–
2.0	0.4	0.078740	0.0801	0.0811	0.068511	0.0695	0.0701	–	–	–	–	–	–	–	–	–	–	–	–
2.5	0.45	0.098425	0.0999	0.1009	0.086918	0.0879	0.0885	–	–	–	–	–	–	–	–	–	–	–	–
3.0	0.5	0.118110	0.1198	0.1208	0.105324	0.1063	0.1069	–	–	–	–	–	–	–	–	–	–	–	–
3.5	0.6	0.137795	0.1397	0.1407	0.122452	–	–	0.1237	0.1245	–	–	–	–	–	–	–	–	–	–
4.0	0.7	0.157480	0.1597	0.1613	0.139580	–	–	0.1408	0.1416	–	–	–	–	–	–	–	–	–	–
5.0	0.8	0.196850	0.1994	0.2010	0.176393	–	–	0.1776	0.1784	–	–	–	–	–	–	–	–	–	–
6.0	1.0	0.236220	0.2395	0.2411	0.210648	–	–	–	–	0.2122	0.2132	–	–	–	–	–	–	–	–
8.0	1.25	0.314960	0.3189	0.3214	0.282995	–	–	–	–	0.2843	0.2855	–	–	–	–	–	–	–	–
10	1.5	0.393700	0.3985	0.4010	0.355343	–	–	–	–	–	–	0.3572	0.3584	–	–	–	–	–	–
12	1.75	0.472440	0.4780	0.4805	0.427690	–	–	–	–	–	–	0.4295	0.4307	–	–	–	–	–	–
14	2.0	0.551180	0.5575	0.5600	0.500037	–	–	–	–	–	–	–	–	0.5020	0.5036	–	–	–	–
16	2.0	0.629920	0.6363	0.6388	0.578777	–	–	–	–	–	–	–	–	0.5807	0.5823	–	–	–	–
20	2.5	0.787400	0.7954	0.7979	0.723471	–	–	–	–	–	–	–	–	0.7254	0.7270	–	–	–	–
24	3.0	0.944880	0.9544	0.9583	0.868165	–	–	–	–	–	–	–	–	–	–	0.8706	0.8722	–	–
30	3.5	1.181100	1.1922	1.1961	1.091599	–	–	–	–	–	–	–	–	–	–	–	–	1.0942	1.0962
36	4.0	1.417320	1.4300	1.4339	1.315034	–	–	–	–	–	–	–	–	–	–	–	–	1.3176	1.3196

LEAD TOLERANCE

A maximum lead deviation of ±0.013 mm within any two threads not farther apart than 25 mm is permitted.

ANGLE TOLERANCE

Pitch (mm)	Deviation in Half Angle
Over 0.25 to 2.5 Incl.	±30′
Over 2.5 to 4 Incl.	±25′
Over 4 to 6 Incl.	±20″

FORMULA

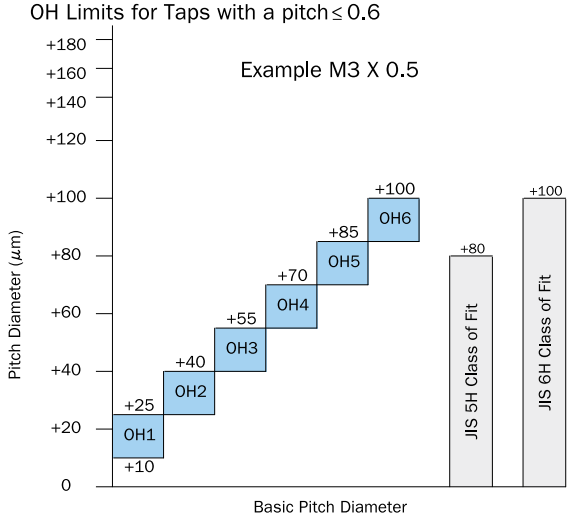
Min. Major Dia. = Basic + W
Max. Major Dia. = Min. + X
For Values of W, Y & Z, See Table 341

Max. Pitch Dia. = Basic + Y
Min. Pitch Dia. = Max. - Z

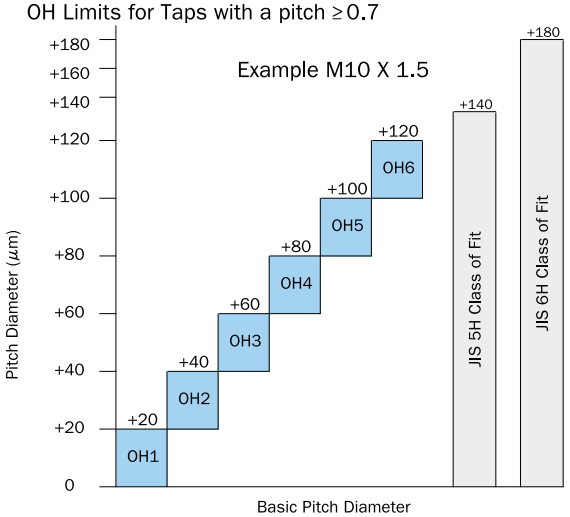
In all cases, the tap major and pitch diameter inch conversions have been rounded upwards to the next ten thousandth of an inch. Basic values agree with B1 Report—ISO Metric Screw Threads, Table 9B.

OH Tap Limits

OH Limits for Taps with a pitch ≤ 0.6



OH Limits for Taps with a pitch ≥ 0.7



Ground Thread Tap Limits (USCTI Table 341)

The following tables and formula are used in determining the limits and tolerances for ground thread metric taps unless otherwise specified. They apply only to metric threads having a 60° form with a P/8 flat at the major diameter of the basic thread form.

LEAD TOLERANCE

A maximum lead deviation of ±0.013 mm within any two threads not farther apart than 25 mm is permitted.

ANGLE TOLERANCE

Pitch (mm)	Deviation in Half Angle
Over 0.25 to 2.5 incl.	±30′
Over 2.5 to 4. incl.	±25′
Over 4 to 6 incl.	±20′

FORMULA

Min. Major Dia = Basic + W
Max. Major Dia. = Min. + X
Max. Pitch Dia. = Basic + Y
Min. Pitch Dia. = Max. - Z

W = Constant to add to Basic Major Diameter*
X = Major Diameter Tolerance
Y = Amount over Basic for Maximum Pitch Diameter
Z = Pitch Diameter Tolerance

*W = .080P Converted to inches

Note: When the tap major diameter must be determined from a specified tap pitch diameter, the minimum major diameter equals the maximum specified tap pitch diameter minus constant Y, plus the basic single height of thread, plus constant W.

Pitch		Symetrical Thread Height	Tap Limits for Metric Threads (inch)									
			W	X	Y				Z			
mm	Inch Equiv.	0.64952P (Inch)			M1.6 To M6.3 Incl.	Over M6.3 to M25 Incl.	Over M25 To M90 Incl.	Over M90	M1.6 To M6.3 Incl.	Over M6.3 to M25 Incl.	Over M25 To M90 Incl.	Over M90
0.3	0.011811	0.007671	0.0009	0.0010	0.0015	0.0015	0.0020	0.0020	0.0006	0.0006	0.0008	0.0008
0.35	0.013779	0.008950	0.0011	0.0010	0.0015	0.0015	0.0020	0.0020	0.0006	0.0006	0.0008	0.0008
0.4	0.015748	0.010229	0.0013	0.0010	0.0015	0.0020	0.0020	0.0020	0.0006	0.0006	0.0008	0.0010
0.45	0.017716	0.011507	0.0014	0.0010	0.0015	0.0020	0.0020	0.0020	0.0006	0.0008	0.0008	0.0010
0.5	0.019685	0.012786	0.0016	0.0010	0.0015	0.0020	0.0020	0.0025	0.0006	0.0008	0.0010	0.0010
0.6	0.236220	0.015343	0.0019	0.0010	0.0020	0.0020	0.0025	0.0025	0.0008	0.0008	0.0010	0.0010
0.7	0.027559	0.017900	0.0022	0.0016	0.0020	0.0020	0.0025	0.0025	0.0008	0.0008	0.0010	0.0010
0.75	0.029527	0.019178	0.0024	0.0016	0.0020	0.0025	0.0025	0.0030	0.0008	0.0010	0.0010	0.0012
0.8	0.031496	0.020457	0.0025	0.0016	0.0020	0.0025	0.0025	0.0030	0.0008	0.0010	0.0010	0.0012
0.9	0.035433	0.023014	0.0028	0.0016	0.0020	0.0025	0.0025	0.0030	0.0008	0.0010	0.0010	0.0012
1.0	0.039370	0.025572	0.0032	0.0016	0.0025	0.0025	0.0030	0.0030	0.0010	0.0010	0.0012	0.0012
1.25	0.049212	0.031964	0.0039	0.0025	0.0025	0.0025	0.0030	0.0035	0.0010	0.0012	0.0012	0.0016
1.5	0.059055	0.038357	0.0047	0.0025	0.0025	0.0030	0.0030	0.0035	0.0010	0.0012	0.0012	0.0016
1.75	0.068897	0.044750	0.0055	0.0025	–	0.0030	0.0035	0.0040	–	0.0012	0.0016	0.0016
2.0	0.078740	0.051143	0.0063	0.0025	–	0.0035	0.0035	0.0040	–	0.0016	0.0016	0.0016
2.5	0.098425	0.063929	0.0079	0.0025	–	0.0035	0.0040	0.0045	–	0.0016	0.0016	0.0020
3.0	0.118110	0.076715	0.0095	0.0039	–	0.0040	0.0040	0.0050	–	0.0016	0.0020	0.0020
3.5	0.137795	0.089501	0.0110	0.0039	–	0.0040	0.0045	0.0050	–	0.0016	0.0020	0.0020
4.0	0.157480	0.102286	0.0126	0.0039	–	0.0040	0.0045	0.0055	–	0.0020	0.0020	0.0025
4.5	0.177165	0.115072	0.0142	0.0039	–	–	0.0050	0.0055	–	0.0020	0.0020	0.0025
5.0	0.196850	0.127858	0.0158	0.0039	–	–	0.0050	0.0060	–	–	0.0025	0.0025
5.5	0.216535	0.140644	0.0173	0.0039	–	–	0.0055	0.0060	–	–	0.0025	0.0025
6.0	0.236220	0.153430	0.0189	0.0039	–	–	0.0055	0.0060	–	–	0.0025	0.0025

For intermediate pitches use value for next coarser pitch.
Symmetrical Thread Height; Equivalent to the basic height, h, of the original American National Form.

ISO TOLERANCE SYSTEM

The ISO Metric Screw Thread Tolerance System provides for tolerance grades and tolerance positions (allowances) for the pitch diameter and crest diameter.

TOLERANCE GRADES

A series of numbers, 3 through 9, were established as symbols, to reflect the size of the tolerance; the higher the number the larger the tolerance.

FOR EXTERNAL THREADS - (LOWER CASE LETTER SYMBOLS)

- Tolerance Position "e" has a large allowance. The upper limit is below basic by a large amount.
- Tolerance Position "g" has a small allowance. The upper limit is below basic by a small amount.
- Tolerance Position "h" has no allowance and the upper limit is basic.

FOR INTERNAL THREADS - (CAPITAL LETTER SYMBOLS)

- Tolerance Position "G" has a small allowance. The lower limit is above basic by a small amount.
- Tolerance Position "H" has no allowance and the lower limit is basic.

SELECTION OF TOLERANCE CLASSES

Two factors determine the selection of a suitable tolerance class:

1. Length of thread engagement (short, normal or long)
2. Quality requirement (fine, medium or coarse) See table below for preferred tolerance classes.

TOLERANCE POSITIONS

They define the maximum-material limits of the pitch and crest diameters and indicate their relationship to the basic profile. For plating requirements and ease of assembly, a series of tolerance positions were established.

PREFERRED TOLERANCE CLASSES

Quality Requirement	External Thread (Bolts)									Internal Thread (Nuts)					
	Tolerance Position e (Large Allowance)			Tolerance Position g (Small Allowance)			Tolerance Position h (No Allowance)			Tolerance Position G (Small Allowance)			Tolerance Position H (No Allowance)		
	Length of Thread Engagement			Length of Thread Engagement			Length of Thread Engagement			Length of Thread Engagement			Length of Thread Engagement		
	Short	Normal	Long	Short	Normal	Long	Short	Normal	Long	Short	Normal	Long	Short		
FINE Close Fit Applications							3h-4h	4h	5h-4h				4H		
MEDIUM General Purpose Applications		6e	7e-6e	5g-6g	6g	7g-6g	5h-6h	6h	7h-6h	5G	6G	7G	5H		
COARSE Difficult Manufacturing Applications					8g	9g-8g					7G	8G			

Tolerance Position "e" is not to be applied to pitches finer than 0.5 mm. Tolerance classes 6g and 6H are for commercial screw, bolt and nut threads.

THREAD DESIGNATIONS

Basic Designations: The letter "M" and the nominal size (basic major diameter in millimeters) followed by "X" and the pitch in millimeters, designates metric screw threads. For coarse series thread, the "X" and pitch may be omitted.
Example: Coarse series threads; M6
other threads; M8 x 1

A complete designation comprises, in addition to the basic designation, the tolerance class symbol separated by a dash. When the pitch and crest diameter tolerance classes are identical, the symbol need only be given once.
Example: M20 x 2—6H

When the pitch and crest diameters have different tolerance classes, the pitch diameter symbol is followed by the crest diameter symbol.
Example: M6 x 0.75—5g—6g
To indicate a specified thread fit between mating parts, the internal thread tolerance class symbol is followed by that of the external thread, separated by a slash.
Example: M20 x 2—6H/5g—6g
When rounded root external threads are to be specified, the minimum root radius value shall be added to the tolerance class designation.
Example: M6—5g —6g 0.100R

Limiting Dimensions of Standard Series Threads for Commercial Screws, Bolts and Nuts (Inches)

Nominal Size Diam	Pitch P	Basic Thread Designation	External Thread (Bolt)								Internal Thread (Nut)						
			Tol Cl.	Allowance	Major Diameter		Pitch Diameter			Minor Diameter		Tol Cl.	Minor Diameter		Pitch Diameter			Major Dia.
mm	mm				Max.	Min.	Max.	Min.	Tol.	Max.	Min.		Min.	Max.	Min.	Max.	Tol.	Min.
1.6	0.35	M1.6	6g	0.0008	0.0622	0.0589	0.0533	0.0509	0.0024	0.0453	0.0419	6H	0.0481	0.0520	0.0541	0.0574	0.0033	0.0630
1.8	0.35	M1.8	6g	0.0008	0.0701	0.0668	0.0611	0.0588	0.0023	0.0531	0.0498	6H	0.0560	0.0598	0.0620	0.0652	0.0032	0.0709
2	0.4	M2.0	6g	0.0009	0.0779	0.0743	0.0677	0.0652	0.0025	0.0586	0.0549	6H	0.0617	0.0661	0.0686	0.0720	0.0034	0.0788
2.2	0.45	M2.2	6g	0.0009	0.0858	0.0819	0.0743	0.0716	0.0027	0.0640	0.0601	6H	0.0675	0.0723	0.0752	0.0788	0.0036	0.0867
2.5	0.45	M2.5	6g	0.0009	0.0976	0.0938	0.0861	0.0834	0.0027	0.0759	0.0719	6H	0.0793	0.0841	0.0870	0.0906	0.0036	0.0985
3	0.5	M3.0	6g	0.0009	0.1173	0.1132	0.1045	0.1016	0.0029	0.0931	0.0889	6H	0.0969	0.1023	0.1054	0.1092	0.0038	0.1182
3.5	0.6	M3.5	6g	0.0009	0.1369	0.1321	0.1216	0.1183	0.0033	0.1079	0.1030	6H	0.1123	0.1185	0.1225	0.1268	0.0043	0.1378
4	0.7	M4.0	6g	0.0009	0.1566	0.1512	0.1387	0.1352	0.0034	0.1227	0.1173	6H	0.1277	0.1347	0.1396	0.1442	0.0046	0.1575
4.5	0.75	M4.5	6g	0.0010	0.1762	0.1708	0.1571	0.1536	0.0035	0.1400	0.1345	6H	0.1452	0.1526	0.1580	0.1626	0.0046	0.1772
5	0.8	M5.0	6g	0.0010	0.1959	0.1900	0.1754	0.1717	0.0037	0.1572	0.1513	6H	0.1628	0.1706	0.1764	0.1812	0.0048	0.1969
6	1.0	M6.0	6g	0.0012	0.2351	0.2282	0.2096	0.2052	0.0044	0.1868	0.1797	6H	0.1936	0.2028	0.2107	0.2165	0.0058	0.2363
7	1.0	M7.0	6g	0.0011	0.2745	0.2675	0.2489	0.2446	0.0043	0.2262	0.2191	6H	0.2330	0.2422	0.2501	0.2559	0.0058	0.2756
8	1.25	M8.0	6g	0.0012	0.3138	0.3056	0.2818	0.2773	0.0045	0.2535	0.2454	6H	0.2617	0.2721	0.2830	0.2892	0.0062	0.3150
8	1.0	M8 x 1.0	6g	0.0011	0.3139	0.3069	0.2883	0.2840	0.0043	0.2656	0.2584	6H	0.2724	0.2816	0.2894	0.2952	0.0058	0.3150
10	1.5	M10	6g	0.0013	0.3924	0.3832	0.3540	0.3489	0.0051	0.3199	0.3102	6H	0.3298	0.3415	0.3554	0.3624	0.0070	0.3937
10	1.25	M10 x 1.25	6g	0.0012	0.3925	0.3843	0.3606	0.3560	0.0046	0.3322	0.3241	6H	0.3404	0.3508	0.3618	0.3680	0.0062	0.3937
12	1.75	M12	6g	0.0014	0.4711	0.4607	0.4263	0.4205	0.0058	0.3865	0.3758	6H	0.3979	0.4110	0.4277	0.4355	0.0078	0.4725
12	1.25	M12 x 1.25	6g	0.0012	0.4713	0.4630	0.4393	0.4342	0.0051	0.4109	0.4023	6H	0.4192	0.4295	0.4405	0.4475	0.0070	0.4725
14	2.0	M14	6g	0.0016	0.5496	0.5387	0.4985	0.4923	0.0062	0.4530	0.4412	6H	0.4660	0.4807	0.5001	0.5083	0.0082	0.5512
14	1.5	M14 x 1.5	6g	0.0013	0.5499	0.5407	0.5115	0.5061	0.0054	0.4774	0.4677	6H	0.4873	0.4990	0.5129	0.5203	0.0074	0.5512
16	2.0	M16	6g	0.0016	0.6284	0.6175	0.5772	0.5710	0.0062	0.5318	0.5199	6H	0.5447	0.5594	0.5788	0.5871	0.0083	0.6300
16	1.5	M16 x 1.5	6g	0.0014	0.6286	0.6194	0.5903	0.5849	0.0054	0.5561	0.5465	6H	0.5660	0.5777	0.5916	0.5990	0.0074	0.6300
18	2.5	M18	6g	0.0017	0.7070	0.6939	0.6430	0.6364	0.0066	0.5862	0.5725	6H	0.6022	0.6198	0.6448	0.6535	0.0087	0.7087
18	1.5	M18 x 1.5	6g	0.0013	0.7074	0.6982	0.6690	0.6636	0.0054	0.6349	0.6252	6H	0.6448	0.6565	0.6704	0.6777	0.0073	0.7087
20	2.5	M20	6g	0.0018	0.7857	0.7726	0.7218	0.7152	0.0066	0.6649	0.6513	6H	0.6809	0.6985	0.7235	0.7322	0.0087	0.7875
20	1.5	M20 x 1.5	6g	0.0014	0.7861	0.7769	0.7477	0.7423	0.0054	0.7136	0.7039	6H	0.7235	0.7352	0.7491	0.7565	0.0074	0.7875
22	2.5	M22	6g	0.0018	0.8644	0.8513	0.8005	0.7939	0.0066	0.7437	0.7300	6H	0.7597	0.7773	0.8023	0.8110	0.0087	0.8662
22	1.5	M22 x 1.5	6g	0.0014	0.8648	0.8556	0.8265	0.8211	0.0054	0.7924	0.7827	6H	0.8023	0.8140	0.8278	0.8352	0.0074	0.8662
24	3.0	M24	6g	0.0020	0.9429	0.9283	0.8662	0.8584	0.0078	0.7980	0.7817	6H	0.8171	0.8366	0.8682	0.8785	0.0103	0.9449
24	2.0	M24 x 2.0	6g	0.0016	0.9433	0.9324	0.8922	0.8856	0.0066	0.8467	0.8345	6H	0.8597	0.8744	0.8938	0.9025	0.0087	0.9449
27	3.0	M27	6g	0.0019	1.0611	1.0464	0.9843	0.9765	0.0078	0.9161	0.8999	6H	0.9352	0.9548	0.9863	0.9966	0.0103	1.0630
27	2.0	M27 x 2.0	6g	0.0016	1.0614	1.0505	1.0103	1.0037	0.0066	0.9648	0.9526	6H	0.9778	0.9925	1.0119	1.0206	0.0087	1.0630
30	3.5	M30	6g	0.0022	1.1790	1.1623	1.0895	1.0812	0.0083	1.0099	0.9917	6H	1.0320	1.0539	1.0917	1.1026	0.0109	1.1812
30	2.0	M30 x 2.0	6g	0.0016	1.1796	1.1686	1.1284	1.1218	0.0066	1.0829	1.0707	6H	1.0959	1.1106	1.1300	1.1387	0.0087	1.1812
33	3.5	M33	6g	0.0022	1.2971	1.2804	1.2076	1.1993	0.0083	1.1280	1.1099	6H	1.1501	1.1720	1.2098	1.2207	0.0109	1.2993
33	2.0	M33 x 2.0	6g	0.0016	1.2977	1.2867	1.2465	1.2399	0.0066	1.2011	1.1888	6H	1.2140	1.2287	1.2481	1.2568	0.0087	1.2993
36	4.0	M36	6g	0.0025	1.4149	1.3963	1.3126	1.3039	0.0087	1.2217	1.2017	6H	1.2469	1.2704	1.3151	1.3268	0.0117	1.4174
36	3.0	M36 x 3.0	6g	0.0020	1.4154	1.4007	1.3386	1.3309	0.0077	1.2705	1.2542	6H	1.2895	1.3091	1.3406	1.3510	0.0104	1.4174
39	4.0	M39	6g	0.0025	1.5330	1.5144	1.4307	1.4220	0.0087	1.3398	1.3198	6H	1.3650	1.3885	1.4332	1.4449	0.0117	1.5355
39	3.0	M39 x 3.0	6g	0.0020	1.5335	1.5188	1.4568	1.4490	0.0078	1.3886	1.3723	6H	1.4076	1.4272	1.4587	1.4691	0.0104	1.5355

Excerpt from American National Standard B1. 16-1972, American Gaging Practices for Metric Screw Threads; "In all cases the inch conversion values have been rounded toward the interior of the tolerance zone, that is, maximum limits have been rounded downward and minimum limits have been rounded upward. Due to the fact that the majority of machinery and measuring equipment in the United States is based on the inch system, all gages should be made to the inch conversions."

TAP RECOMMENDATIONS: The pitch diameter high limits of the recommended tap for 6H tolerance class is 40% of the product tolerance rounded to the nearest .0005."

Example: M10 x 1.5; product tolerance = .00070" x .40 = .0028" rounded to .0030". This is the amount over basic pitch diameter. Based on .0005" increments over basic pitch diameter, the recommended tap has a D6 high limit (.0030 ÷ .0005").

General Dimensions (USCTI Table 311)

Nominal Size (inch)	Dimensions (inch)				
	Overall Length A	Thread Length B	Length of Square C	Shank Diameter D	Size of Square E
1/16	2-1/8	11/16	3/8	0.3125	0.234
1/8	2-1/8	3/4	3/8	0.3125	0.234
1/8	2-1/8	3/4	3/8	0.4375	0.328
1/4	2-7/16	1-1/16	7/16	0.5625	0.421
3/8	2-9/16	1-1/16	1/2	0.7000	0.531
1/2	3-1/8	1-3/8	5/8	0.6875	0.515
3/4	3-1/4	1-3/8	11/16	0.9063	0.679
1	3-3/4	1-3/4	13/16	1.1250	0.843
1-1/4	4	1-3/4	15/16	1.3125	0.984
1-1/2	4-1/4	1-3/4	1	1.5000	1.125
2	4-1/2	1-3/4	1-1/8	1.8750	1.406

Tolerances

Element	Range (inch)	Direction	Tolerance (inch)	
			Cut Thread	Ground Thread
Overall Length-A	1/16 to 3/4 incl.	Plus or Minus	1/32	1/32
	1 to 4 incl.	Plus or Minus	1/16	1/16
Thread Length-B	1/16 to 3/4 incl.	Plus or Minus	1/16	1/16
	1 to 1-1/4 incl.	Plus or Minus	3/32	3/32
	1-1/2 to 4 incl.	Plus or Minus	1/8	1/8
Length of Square-C	1/16 to 3/4 incl.	Plus or Minus	1/32	1/32
	1 to 4 incl.	Plus or Minus	1/16	1/16
Shank Diameter-D	1/16 to 1/8 incl.	Minus	0.0070	0.0015
	1/4 to 1/2 incl.	Minus	0.0070	0.0020
	3/4 to 1 incl.	Minus	0.0090	0.0020
	1-1/4 to 4 incl.	Minus	0.0090	0.0030
Size of Square-E	1/16 to 1/8 incl.	Minus	0.0040	0.0040
	1/4 to 3/4 incl.	Minus	0.0060	0.0060
	1 to 4 incl.	Minus	0.0080	0.0080

Thread Limits

Nominal Size (inch)	Threads per Inch NPT	*Gage Measurement (inch)			Taper per Foot (inch)			
		Projection	Tolerance (+/-)		Cut Thread		Ground Thread	
			Cut Thread	Ground Thread	Min.	Max.	Min.	Max.
1/16	27	.312	1/16	1/16	23/32	27/32	23/32	25/32
1/8	27	.312	1/16	1/16	23/32	27/32	23/32	25/32
1/4	18	.459	1/16	1/16	23/32	27/32	23/32	25/32
3/8	18	.454	1/16	1/16	23/32	27/32	23/32	25/32
1/2	14	.579	1/16	1/16	23/32	13/16	23/32	25/32
3/4	14	.565	1/16	1/16	23/32	13/16	23/32	25/32
1	11-1/2	.678	3/32	3/32	23/32	13/16	23/32	25/32
1-1/4	11-1/2	.686	3/32	3/32	23/32	13/16	23/32	25/32
1-1/2	11-1/2	.699	3/32	3/32	23/32	13/16	23/32	25/32
2	11-1/2	.667	3/32	3/32	23/32	13/16	23/32	25/32

*Distance small end of tap projects through American Standard Pipe Thread Ring Gage.

Taper Pipe Taps Ground Thread (USCTI Table 338)

American National Standard Taper Pipe Thread Form (NPT)
Aeronautical National Taper Pipe Thread Form (ANPT)
Dryseal American National Standard Taper Pipe Thread Form (NPTF)

Thread Limits

Nominal Size (inch)	Threads per Inch NPT	*Gage Measurement (inch)		Taper per Foot (inch)	
		Projection	Tolerance (+/-)	Min.	Max.
1/16	27	0.312	1/16	23/32	25/32
1/8	27	0.312	1/16	23/32	25/32
1/4	18	0.459	1/16	23/32	25/32
3/8	18	0.454	1/16	23/32	25/32
1/2	14	0.579	1/16	23/32	25/32
3/4	14	0.565	1/16	23/32	25/32
1	11-1/2	0.678	3/32	23/32	25/32
1 1/4	11-1/2	0.686	3/32	23/32	25/32
1 1/2	11-1/2	0.699	3/32	23/32	25/32
2	11-1/2	0.667	3/32	23/32	25/32
2 1/2	8	0.925	3/32	47/64	25/32
3	8	0.925	3/32	47/64	25/32
3 1/2	8	0.938	1/8	47/64	25/32
4	8	0.950	1/8	47/64	25/32

*Distance small end of tap projects through an L1 American Standard Taper Pipe Thread Ring Gage (See Table 357 page 668).

Angle Tolerance

Threads Per Inch	Tolerance Half Angle
8	±25′
11-1/2 to 27 inclusive	±30′

Formula Values

Threads Per Inch	A	B	C	D	E
27	0.0267	0.0296	0.0257	0.0234	0.0251
18	0.0408	0.0444	0.0401	0.0377	0.0395
14	0.0535	0.0571	0.0525	0.0515	0.0533
11 1/2	0.0658	0.0696	0.0647	0.0614	0.0649
8	0.0966	0.1000	0.0946		

For essential dimensions of American National Standard Pipe Threads (See Table 357 page 440).

Ground Thread American Standard Pipe Form Taps made to this table are to be marked NPT. Ground Thread Dryseal American National Standard Pipe Taps made to this table are to be marked NPTF. Ground Thread Taps, Aeronautical National Thread Form, made to this table are marked ANPT.

Width of Flats - Taps

Threads Per Inch	Element	Width of Flats at Tap Crest and Roots			
		NPT		NPTF	
		Min.	Max.	Min.	Max.
27	Major Dia. Minor Dia.	0.0014	.0041 .0041	0.0040	.0055 .0040
18	Major Dia. Minor Dia.	0.0021	.0057 .0057	0.0050	.0065 .0050
14	Major Dia. Minor Dia.	0.0027	.0064 .0064	0.0050	.0065 .0050
11 1/2	Major Dia. Minor Dia.	0.0033	.0073 .0073	0.0060	.0083 .0060
8	Major Dia. Minor Dia.	0.0048	.0090 .0090	0.0080	.0103 .0030

Minimum minor diameter flats are not specified. May be as sharp as practicable. Ground Thread Taps marked NPT may be used for NPT and ANPT applications.

LEAD TOLERANCE

A maximum lead deviation of ±.0005″ within any two threads not farther apart than one inch is permitted.

FORMULA FOR AMERICAN NATIONAL STANDARD PIPE FORM

Minimum major diameter = Measured pitch diameter +A.
Maximum major diameter = Measured pitch diameter +B.
Minimum minor diameter = Measured pitch diameter -B.
Maximum minor diameter = Measured pitch diameter -C.

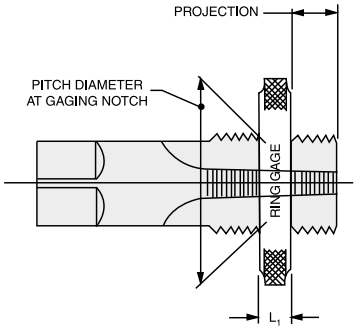
FORMULA FOR DRYSEAL AMERICAN NATIONAL STANDARD PIPE FORM

Minimum major diameter = Measured pitch diameter +D.
Maximum major diameter = Measured pitch diameter +E.
Minimum minor diameter = Maximum or smaller.
Maximum minor diameter = Measured pitch diameter -E.

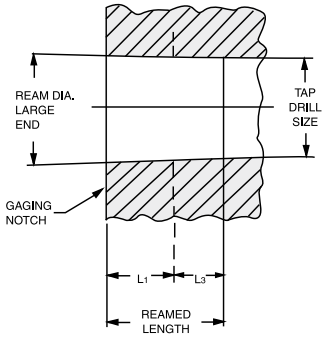
Measurement of Taper Pipe Taps, Reaming Data and Tap Drill Sizes (ref. USCTI Table 338)

Size	Projection				Ream Dia. Large End	Gage Width L1	Reamed Length L1 + L3	Tap Drill for Use w/ Reaming	Tap Drill for Use w/o Reaming
	NPT & NTF		SAE-SHORT						
	Min.	Max.	Min.	Max.					
1/16-27	0.250	0.375	0.222	0.259	0.2515	0.1600	0.2711	15/64	C
1/8-27	0.250	0.375	0.222	0.259	0.3340	0.1615	0.2726	21/64	Q
1/4-18	0.397	0.521	0.333	0.389	0.4472	0.2278	0.3945	27/64	7/16
3/8-18	0.392	0.516	0.333	0.389	0.5826	0.240	0.4067	9/16	9/16
1/2-14	0.517	0.641	0.429	0.500	0.7213	0.320	0.5343	11/16	45/64
3/4-14	0.503	0.627	0.429	0.500	0.9317	0.339	0.5533	57/64	29/32
1-11½	0.584	0.772	–	–	1.1691	0.400	0.6609	1-1/8	1-9/64
1¼-11½	0.592	0.780	–	–	1.1538	0.420	0.6809	1-15/32	1-31/64
1½-11½	0.606	0.792	–	–	1.7528	0.420	0.6809	1-45/64	1-23/32
2-11½	0.574	0.760	–	–	2.2267	0.436	0.6969	2-3/16	2-3/16

Projection Thru Ring Gage



Reamed Hole Data



Straight Pipe Taps Ground Thread (USCTI Table 335)
Ground Threads
American National Standard Straight Pipe Thread Form
(NPS) (NPSC) (NPSM)

Thread Limits

Nominal Sizes (inch)	Threads Per Inch	Major Diameter			Pitch Diameter		
		Plug at Gaging Notch	Min. G	Max. H	Plug at Gaging Notch E	Min. K	Max. L
1/8	27	0.3983	0.4022	0.4032	0.3736	0.3746	0.3751
1/4	18	0.5286	0.5347	0.5357	0.4916	0.4933	0.4938
3/8	18	0.6640	0.6701	0.6711	0.6270	0.6287	0.6292
1/2	14	0.8260	0.8347	0.8357	0.7784	0.7806	0.7811
3/4	14	1.0364	1.0447	1.0457	0.9889	0.9906	0.9916
1	11-1/2	1.2966	1.3062	1.3077	1.2386	1.2402	1.2412
1-1/4	11-1/2	1.6413	1.6507	1.6522	1.5834	1.5847	1.5862
1-1/2	11-1/2	1.8803	0.1890	1.8912	1.8223	1.8237	1.8252
2	11-1/2	2.3542	2.3639	2.3654	2.2963	2.2979	2.2994
2-1/2	8	2.8454	2.8604	2.8619	2.7622	2.7640	2.7660
3	8	3.4718	3.4868	3.4883	3.3885	3.3904	3.3924
3-1/2	8	3.9721	3.9872	3.9887	3.8888	3.8908	3.8928
4	8	4.4704	4.4855	4.4870	4.3871	4.3891	4.3911

LEAD TOLERANCE
A maximum lead deviation of plus of minus .0005" within any two threads not farther apart than one inch is permitted.

Note
Taps made to these specifications are marked NPS and used for NPS, NPSC, and NPSM.

Angle Tolerance

Threads Per Inch	Deviation in Half Angle
8	± 25'
11 1/2 to 27 Incl.	± 30'

Formula for American National Standard Dryseal Pipe Form (NPS)

The maximum Pitch Diameter of tap is based upon an allowance deducted from the maximum product pitch diameter of NPSC or NPSM, whichever is smaller. The minimum Pitch Diameter of tap is derived by subtracting the ground thread pitch diameter tolerance for actual equivalent size as shown in Table 331, page 433, Col. D.

Nominal Size (inch)	Major Diameter		Minor Diameter
	Min. G	Max. H	Max.
1/8	H - 0.0010	K + A - 0.0010	M - B
1/4 to 3/4 Incl.	H - 0.0010	K + A - 0.0020	M - B
1 to 4 Incl.	H - 0.0015	K + A - 0.0021	M - B

Formula Values

Threads Per Inch	A	B	M
27	0.0296	0.0257	Actual
18	0.0444	0.0401	Measured
14	0.0571	0.0525	Pitch
11-1/2	0.0696	0.0647	Diameter
8	0.1000	0.0946	

Straight Pipe Taps Ground Thread (USCTI Table 335-A)
Ground Thread
American National Standard Straight Dryseal
Pipe Thread Form (NPSF)

Thread Limits

Nominal Size (inch)	Threads Per Inch	Major Diameter			Pitch Diameter		
		Min. G	Max. H	Plug at Gaging Notch E	Min. K	Max. L	Minor* Diam. Flat Max.
1/16	27	0.3008	0.3018	0.2812	0.2772	0.2777	0.004
1/8	27	0.3932	0.3942	0.3736	0.3696	0.3701	0.004
1/4	18	0.5239	0.5249	0.4916	0.4859	0.4864	0.005
3/8	18	0.6593	0.6603	0.6270	0.6213	0.6218	0.005
1/2	14	0.8230	0.8240	0.7784	0.7712	0.7717	0.005
3/4	14	1.0335	1.0345	0.9889	0.9817	0.9822	0.005
1	11-1/2	1.2933	1.2943	1.2386	1.2295	1.2305	0.006

*As specified or sharper.
The major diameter of standard taper pipe plug gages and the minor diameter of standard taper pipe ring gages used for gaging dryseal threads will be truncated .20p minimum to .25p maximum for all pitches.

Angle Tolerance

Threads Per Inch	Deviation in Half Angles
11-1/2 to 27 Incl.	± 30'

Formula for American National Standard Dryseal Pipe Form (NPSF)

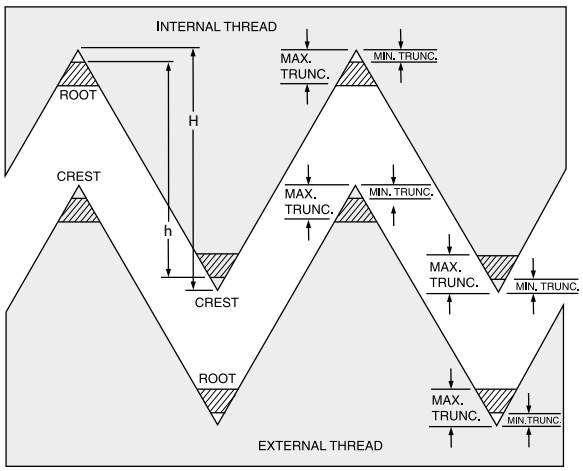
Nominal Size (inch)	Major Diameter		Pitch Diameter		Max. Minor Diam.
	Min. G	Max. H	Min. K	Max. L	
1/6	H - 0.0010	K + Q - 0.0005	L - 0.0005	E - F	M - Q
1/8	H - 0.0010	K + Q - 0.0005	L - 0.0005	E - F	M - Q
1/4	H - 0.0010	K + Q - 0.0005	L - 0.0005	E - F	M - Q
3/8	H - 0.0010	K + Q - 0.0005	L - 0.0005	E - F	M - Q
1/2	H - 0.0010	K + Q - 0.0005	L - 0.0005	E - F	M - Q
3/4	H - 0.0010	K + Q - 0.0005	L - 0.0005	E - F	M - Q
1	H - 0.0010	K + Q - 0.0001	L - 0.0010	E - F	M - Q

Formula Values

Threads Per Inch	E	F	M	Q
27	Pitch Diameter	0.0035	Actual	0.0251
18	of plug	0.0052	Measured	0.0395
14	at gaging	0.0067	Pitch	0.0533
11-1/2	notch	0.0081	Diameter	0.0649

LEAD TOLERANCE
A maximum lead deviation of ±.0005" within any two threads not farther apart than one inch is permitted.

American National General Pipe Threads (USCTI Table 357)

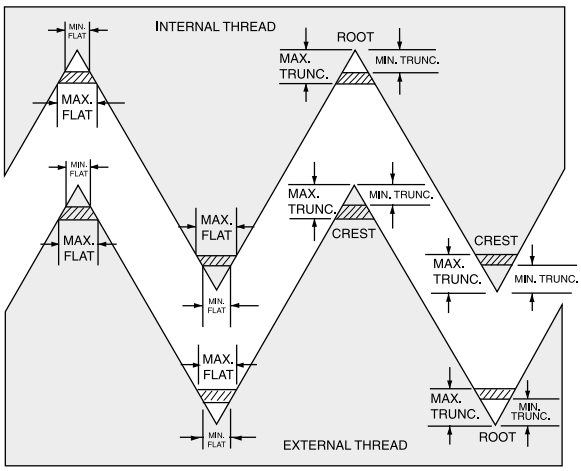


Crest and root limits for American National Standard External and Internal Taper Pipe Thread (NPT)

Threads Per Inch	Height Sharp V Thread (inch)	Height Pipe Thread Max (inch)	Truncation (inch)		Equivalent Width of Flat (inch)	
	H	h	Min	Max.	Min.	Max.
27	0.03208	0.02963	0.0012	0.0036	0.0014	0.0041
18	0.04811	0.04444	0.0018	0.0049	0.0021	0.0057
14	0.06186	0.05714	0.0024	0.0056	0.0027	0.0064
11 1/2	0.07531	0.06957	0.0029	0.0063	0.0033	0.0073
8	0.10825	0.10000	0.0041	0.0078	0.0048	0.0090

The limits specified above are intended to serve as a guide for establishing limits for the thread elements of taps, dies, and thread chasers. These limits may be required on the product. For complete specifications see latest edition of USE Standard B2.1. The Military Aeronautical Specification MIL-P-7105 agrees with all values given in this table.

Dryseal American National Standard Pipe Threads



Crest and root limits for Dryseal American National Standard External and Internal Pipe Threads (NPTF)

Threads Per Inch		Height Sharp V Thread (inch)	Truncation (inch)		Equivalent Width of Flat (inch)	
		H	Min	Max.	Min.	Max.
27	Crest	0.03208	0.0017	0.0035	0.0020	0.0040
	Root		0.0035	0.0052	0.0040	0.0060
18	Crest	0.04811	0.0026	0.0043	0.0030	0.0050
	Root		0.0043	0.0061	0.0050	0.0070
14	Crest	0.06186	0.0026	0.0043	0.0030	0.0050
	Root		0.0043	0.0061	0.0050	0.0070
11 1/2	Crest	0.07531	0.0035	0.0052	0.0040	0.0060
	Root		0.0052	0.0078	0.0060	0.0090
8	Crest	0.10825	0.0052	0.0069	0.0060	0.0080
	Root		0.0069	0.0095	0.0080	0.0110

The major diameter of standard taper pipe plug gages and the minor diameter of standard taper pipe ring gages used for gaging dryseal threads will be truncated .20p minimum to .25p maximum for all pitches.

Tap Drill Sizes - Fractional Cut Taps

To minimize tapping problems and lengthen tool life, use the largest drill possible to produce a minor diameter that will result in the lowest percentage of full thread consistent with adequate strength. A minor diameter that provides a 55% to 65% thread is sufficient for most requirements, but in some cases a higher percentage of thread may be necessary to conform with the minor diameter limits of the thread class specified.

* Generally, deeper than 1-1/2 times the hole diameter.

Suggested Percentage of Full Thread in Tapped Holes

Material		*Deep Hole Tapping	Average Commercial Work	Thin Sheet Stock or Stamping
Free Cutting	Aluminum, Brass, Bronze, Cast Iron, Copper, Mild Steel, Tool Steel	60% - 70%	65% - 70%	75% - 85%
Hard or Tough Cutting	Cast Steel, Drop Forging, Monel Metal, Nickel Steel, Stainless Steel	55% - 65%	60% - 70%	

Tap Size	Threads Per Inch			Minor Diameter		Tap Drill Diameter - Cut Taps				
	UNC	UNF	8-Pitch	Min. 2B	Max. 2B	80% Thread	75% Thread	70% Thread	65% Thread	60% Thread
						(in)	(in)	(in)	(in)	(in)
0	–	80	–	0.0465	0.0514	0.0470	0.0478	0.0486	0.0494	0.0503
1	64	–	–	0.0561	0.0623	0.0568	0.0578	0.0588	0.0598	0.0608
	–	72	–	0.0580	0.0635	0.0586	0.0595	0.0604	0.0613	0.0622
2	56	–	–	0.0667	0.0737	0.0674	0.0686	0.0698	0.0709	0.0721
	–	64	–	0.0691	0.0752	0.0698	0.0708	0.0718	0.0728	0.0738
3	48	–	–	0.0764	0.0845	0.0774	0.0787	0.0801	0.0814	0.0828
	–	56	–	0.0797	0.0865	0.0804	0.0816	0.0828	0.0839	0.0851
4	40	–	–	0.0849	0.0939	0.0860	0.0876	0.0893	0.0909	0.0925
	–	48	–	0.0894	0.0968	0.0904	0.0917	0.0931	0.0944	0.0958
5	40	–	–	0.0979	0.1062	0.0990	0.1006	0.1023	0.1039	0.1055
	–	44	–	0.1004	0.1079	0.1014	0.1029	0.1043	0.1058	0.1073
6	32	–	–	0.1040	0.1140	0.1055	0.1076	0.1096	0.1116	0.1136
	–	40	–	0.1110	0.1190	0.1120	0.1136	0.1153	0.1169	0.1185
8	32	–	–	0.1300	0.1390	0.1315	0.1336	0.1356	0.1376	0.1396
	–	36	–	0.1340	0.1420	0.1351	0.1369	0.1387	0.1405	0.1424
10	24	–	–	0.1450	0.1560	0.1467	0.1494	0.1521	0.1548	0.1575
	–	32	–	0.1560	0.1640	0.1575	0.1596	0.1616	0.1636	0.1656
12	24	–	–	0.1710	0.1810	0.1727	0.1754	0.1781	0.1808	0.1835
	–	28	–	0.1770	0.1860	0.1789	0.1812	0.1835	0.1858	0.1882
1/4	20	–	–	0.1960	0.2070	0.1980	0.2013	0.2045	0.2078	0.2110
	–	28	–	0.2110	0.2200	0.2129	0.2152	0.2175	0.2198	0.2222
5/16	18	–	–	0.2520	0.2650	0.2548	0.2584	0.2620	0.2656	0.2692
	–	24	–	0.2670	0.2770	0.2692	0.2719	0.2746	0.2773	0.2800
3/8	16	–	–	0.3070	0.3210	0.3101	0.3141	0.3182	0.3222	0.3263
	–	24	–	0.3300	0.3400	0.3317	0.3344	0.3371	0.3398	0.3425
7/16	14	–	–	0.3600	0.3760	0.3633	0.3679	0.3726	0.3772	0.3818
	–	20	–	0.3830	0.3950	0.3855	0.3888	0.3920	0.3953	0.3985
1/2	13	–	–	0.4170	0.4340	0.4201	0.4251	0.4301	0.4351	0.4400
	–	20	–	0.4460	0.4570	0.4480	0.4513	0.4545	0.4578	0.4610
9/16	12	–	–	0.4720	0.4900	0.4759	0.4813	0.4867	0.4921	0.4976
	–	18	–	0.5020	0.5150	0.5048	0.5084	0.5120	0.5156	0.5192
5/8	11	–	–	0.5270	0.5460	0.5305	0.5364	0.5423	0.5482	0.5541
	–	18	–	0.5650	0.5780	0.5673	0.5709	0.5745	0.5781	0.5817
3/4	10	–	–	0.6420	0.6630	0.6461	0.6526	0.6591	0.6656	0.6721
	–	16	–	0.6820	0.6960	0.6851	0.6891	0.6932	0.6972	0.7013
7/8	9	–	–	0.7550	0.7780	0.7595	0.7668	0.7740	0.7812	0.7884
	–	14	–	0.7980	0.8140	0.8008	0.8054	0.8101	0.8147	0.8193
1	8	–	–	0.8650	0.8900	0.8701	0.8782	0.8863	0.8945	0.9026
	–	12	–	0.9100	0.9280	0.9134	0.9188	0.9242	0.9296	0.9351
1-1/8	7	–	–	0.9700	0.9980	0.9765	0.9858	0.9951	1.0044	1.0137
	–	12	–	1.0350	1.0530	1.0384	1.0438	1.0492	1.0546	1.0601
	–	–	8	0.9900	1.0150	0.9951	1.0032	1.0113	1.0195	1.0276
1-1/4	7	–	–	1.0950	1.1230	1.1015	1.1108	1.1201	1.1294	1.1387
	–	12	–	1.1600	1.1780	1.1634	1.1688	1.1742	1.1796	1.1851
	–	–	8	1.1150	1.1400	1.1201	1.1282	1.1363	1.1445	1.1526
1-3/8	6	–	–	1.1950	1.2250	1.2018	1.2126	1.2235	1.2343	1.2451
	–	12	–	1.2850	1.3030	1.2884	1.2938	1.2992	1.3046	1.3101
	–	–	8	1.2400	1.2650	1.2451	1.2532	1.2613	1.2695	1.2776
1-1/2	6	–	–	1.3200	1.3500	1.3268	1.3376	1.3485	1.3593	1.3701
	–	12	–	1.4100	1.4280	1.4134	1.4188	1.4242	1.4296	1.4351
	–	–	8	1.3650	1.3900	1.3701	1.3782	1.3863	1.3945	1.4026
1-5/8	–	–	8	1.4900	1.5150	1.4951	1.5032	1.5113	1.5195	1.5276
1-3/4	5	–	–	1.5330	1.5670	1.5422	1.5551	1.5681	1.5811	1.5941
	–	–	8	1.6150	1.6400	1.6201	1.6282	1.6363	1.6445	1.6526
1-7/8	–	–	8	1.7400	1.7650	1.7451	1.7532	1.7613	1.7695	1.7776
2	4-1/2	–	–	1.7590	1.7950	1.7691	1.7835	1.7979	1.8124	1.8268
	–	–	8	1.8650	1.8900	1.8701	1.8782	1.8863	1.8945	1.9026
2-1/4	4-1/2	–	–	2.0090	2.0450	2.0191	2.0335	2.0479	2.0624	2.0768
	–	–	8	2.1150	2.1400	2.1201	2.1282	2.1363	2.1445	2.1526
2-1/2	4	–	–	2.2290	2.2670	2.2402	2.2564	2.2727	2.2889	2.3051
	–	–	8	2.3650	2.3900	2.3701	2.3782	2.3863	2.3945	2.4026

FORMULA: TAP DRILL SIZE

$$\text{Drill Size} = \text{Tap Major Dia} - \frac{0.01299 \times \%\text{ of Full Thread}}{\text{\# of Threads Per Inch}}$$

Example: to determine drill size for 1/4"-20 UNC tap, 70% thread

Tap Major Ø = 0.2500"
% of Full Thread = 70%
# of Threads per Inch = 20

$$\text{Drill Size} = 0.2500" - \frac{(0.01299 \times 70\%)}{20}$$

Drill Size = 0.2500" - 0.0455" = **0.2045"**

FORMULA: PERCENTAGE OF FULL THREAD

$$\%\text{ of Full Thread} = \text{Threads Per Inch} \times \frac{\text{Tap Major Dia} - \text{Drill Dia}}{0.01299}$$

Example: to determine the % of thread for 1/4"-20 UNC using 0.2045" drill

\# Threads per Inch = 20
Tap Major Ø = 0.2500"
Drill Ø = 0.2045"

$$\%\text{ of Thread} = 20 \times \frac{(0.2500 - 0.8245)}{0.01299}$$

% of Thread = 20 x 3.50 = **70%**

Tap Drill Sizes - Fractional Form Taps

To minimize tapping problems and lengthen tool life, use the largest drill possible to produce a minor diameter that will result in the lowest percentage of full thread consistent with adequate strength. A minor diameter that provides a 55% to 65% thread is sufficient for most requirements, but in some cases a higher percentage of thread may be necessary to conform with the minor diameter limits of the thread class specified.

* Generally, deeper than 1 1/2 times the hole diameter.

Suggested Percentage of Full Thread in Tapped Holes

Material		*Deep Hole Tapping	Average Commercial Work	Thin Sheet Stock or Stamping
Free Cutting	Aluminum, Brass, Bronze, Cast Iron, Copper, Mild Steel, Tool Steel	60% - 70%	65% - 70%	75% - 85%
Hard or Tough Cutting	Cast Steel, Drop Forging, Monel Metal, Nickel Steel, Stainless Steel	55% - 65%	60% - 70%	

Tap Size	Threads Per Inch			Minor Diameter		Tap Drill Diameter - Form Taps				
	UNC	UNF	8-Pitch	Min. 2B	Max. 2B	75% Thread	70% Thread	65% Thread	60% Thread	55% Thread
						(in)	(in)	(in)	(in)	(in)
0	–	80	–	0.0465	0.0514	0.0536	0.0540	0.0545	0.0549	0.0554
1	64	–	–	0.0561	0.0623	0.0650	0.0655	0.0661	0.0666	0.0672
	–	72	–	0.0580	0.0635	0.0659	0.0663	0.0669	0.0673	0.0679
2	56	–	–	0.0667	0.0737	0.0769	0.0774	0.0781	0.0787	0.0794
	–	64	–	0.0691	0.0752	0.0780	0.0785	0.0791	0.0796	0.0802
3	48	–	–	0.0764	0.0845	0.0884	0.0890	0.0898	0.0905	0.0913
	–	56	–	0.0797	0.0865	0.0899	0.0904	0.0911	0.0917	0.0924
4	40	–	–	0.0849	0.0939	0.0993	0.1000	0.1010	0.1018	0.1028
	–	48	–	0.0894	0.0968	0.1014	0.1020	0.1028	0.1035	0.1043
5	40	–	–	0.0979	0.1062	0.1123	0.1130	0.1140	0.1148	0.1158
	–	44	–	0.1004	0.1079	0.1134	0.1141	0.1150	0.1157	0.1166
6	32	–	–	0.1040	0.1140	0.1221	0.1230	0.1243	0.1252	0.1264
	–	40	–	0.1110	0.1190	0.1253	0.1260	0.1270	0.1278	0.1288
8	32	–	–	0.1300	0.1390	0.1481	0.1490	0.1503	0.1512	0.1524
	–	36	–	0.1340	0.1420	0.1498	0.1507	0.1518	0.1526	0.1537
10	24	–	–	0.1450	0.1560	0.1688	0.1700	0.1716	0.1729	0.1746
	–	32	–	0.1560	0.1640	0.1741	0.1750	0.1762	0.1772	0.1784
12	24	–	–	0.1710	0.1810	0.1948	0.1960	0.1976	0.1989	0.2006
	–	28	–	0.1770	0.1860	0.1978	0.1990	0.2002	0.2014	0.2028
1/4	20	–	–	0.1960	0.2070	0.2245	0.2260	0.2279	0.2295	0.2315
	–	28	–	0.2110	0.2200	0.2318	0.2329	0.2342	0.2354	0.2389
5/16	18	–	–	0.2520	0.2650	0.2842	0.2861	0.2879	0.2898	0.2917
	–	24	–	0.2670	0.2770	0.2912	0.2927	0.2941	0.2955	0.2969
3/8	16	–	–	0.3070	0.3210	0.3431	0.3452	0.3474	0.3495	0.3516
	–	24	–	0.3300	0.3400	0.3537	0.3552	0.3566	0.3580	0.3594
7/16	14	–	–	0.3600	0.3760	0.4011	0.4035	0.4059	0.4084	0.4108
	–	20	–	0.3830	0.3950	0.4120	0.4137	0.4154	0.4171	0.4188
1/2	13	–	–	0.4170	0.4340	0.4608	0.4634	0.4660	0.4686	0.4712
	–	20	–	0.4460	0.4570	0.4745	0.4762	0.4779	0.4796	0.4813
9/16	12	–	–	0.4720	0.4900	0.5200	0.5229	0.5257	0.5285	0.5313
	–	18	–	0.5020	0.5150	0.5342	0.5361	0.5379	0.5398	0.5417
5/8	11	–	–	0.5270	0.5460	0.5787	0.5817	0.5848	0.5879	0.5910
	–	18	–	0.5650	0.5780	0.5967	0.5986	0.6004	0.6023	0.6042
3/4	10	–	–	0.6420	0.6630	0.6990	0.7024	0.7058	0.7092	0.7126
	–	16	–	0.6820	0.6960	0.7181	0.7202	0.7224	0.7245	0.7266
7/8	9	–	–	0.7550	0.7780	0.8183	0.8221	0.8259	0.8297	0.8334
	–	14	–	0.7980	0.8140	0.8386	0.8410	0.8434	0.8459	0.8483
1	8	–	–	0.8650	0.8900	0.9363	0.9405	0.9448	0.9490	0.9533
	–	12	–	0.9100	0.9280	0.9575	0.9603	0.9632	0.9660	0.9866

FORMULA: TAP DRILL SIZE

$$\text{Drill Size} = \text{Tap Major Dia} - \frac{0.0068 \times \%\text{ of Full Thread}}{\#\text{ of Threads Per Inch}}$$

Example: to determine drill size for 1/4"-20UNC tap, 70% thread

Tap Major Ø = 0.2500"
% of Full Thread = 70%
# of Threads per Inch = 20

$$\text{Drill Size} = 0.2500" - \frac{(0.0068 \times 70\%)}{20}$$

Drill Size = 0.2500" - 0.0238" = **0.2262"**

FORMULA: PERCENTAGE OF FULL THREAD

$$\%\text{ of Full Thread} = \text{Threads Per Inch} \times \frac{\text{Tap Major Dia - Drill Dia}}{0.0068}$$

Example: to determine the % of thread for 1/4"-20UNC Tap using 1.9603" drill

Threads per Inch = 20
Tap Major Ø = 0.2500"
Drill Ø = 0.2045"

$$\%\text{ of Thread} = 20 \times \frac{(0.2500 - 0.2262)}{0.0068}$$

% of Thread = 20 x 3.5 = **70%**

Suggested Pipe Tap Drill Sizes

Tap Size		1/16	1/8	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4
Drill Sizes	Taper Pipe Tap*	C	Q	7/16	9/16	45/64	29/32	1-9/64	1-31/64	1-23/32	2-3/16	2-5/8	3-1/4	3-3/4	4-1/4
	Straight Pipe Tap†	1/4	11/32	7/16	37/64	23/32	59/64	1-5/32	1-1/2	1-3/4	2-7/32	2-21/32			

*Sizes given permit direct tapping without reaming the hole, but only give a full thread for the first two or three threads.
†For Dryseal Straight Pipe Threads suggested drill sizes are as shown, except; 1/4" pipe, use .444 drill size.

Tap Drill Sizes - Metric Cut Taps

To minimize tapping problems and lengthen tool life, use the largest drill possible to produce a minor diameter that will result in the lowest percentage of full thread consistent with adequate strength. A minor diameter that provides a 55% to 65% thread is sufficient for most requirements, but in some cases a higher percentage of thread may be necessary to conform with the minor diameter limits of the thread class specified.

* Generally, deeper than 1 1/2 times the hole diameter.

Suggested Percentage of Full Thread in Tapped Holes

Material		*Deep Hole Tapping	Average Commercial Work	Thin Sheet Stock or Stamping
Free Cutting	Aluminum, Brass, Bronze, Cast Iron, Copper, Mild Steel, Tool Steel	60% - 70%	65% - 70%	75% - 85%
Hard or Tough Cutting	Cast Steel, Drop Forging, Monel Metal, Nickel Steel, Stainless Steel	55% - 65%	60% - 70%	

Tap Size	Pitch		Minor Dia. (mm)		Tap Drill Diameter - Cut Taps									
	M	MF	Min. 6H	Max. 6H	80% Thread		75% Thread		70% Thread		65% Thread		60% Thread	
					(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
M1.6	0.35	–	1.221	1.321	1.24	0.0488	1.26	0.0496	1.28	0.0504	1.30	0.0512	1.33	0.0524
M1.7	0.35	–	1.321	1.421	1.33	0.0524	1.36	0.0535	1.38	0.0543	1.40	0.0551	1.42	0.0559
M1.8	0.35	–	1.422	1.519	1.44	0.0567	1.46	0.0575	1.48	0.0583	1.50	0.0591	1.53	0.0602
M2	0.4	–	1.567	1.679	1.58	0.0622	1.61	0.0634	1.64	0.0646	1.66	0.0654	1.69	0.0665
M2.2	0.45	–	1.715	1.836	1.73	0.0681	1.76	0.0693	1.79	0.0705	1.82	0.0717	1.85	0.0728
M2.5	0.45	–	2.013	2.138	2.03	0.0799	2.06	0.0811	2.09	0.0823	2.12	0.0835	2.15	0.0846
M2.6	0.45	–	2.113	2.238	2.13	0.0839	2.16	0.0850	2.19	0.0862	2.22	0.0874	2.25	0.0886
M3	0.5	–	2.459	2.599	2.48	0.0976	2.51	0.0988	2.55	0.1004	2.58	0.1016	2.61	0.1028
	–	0.35	2.621	2.721	2.63	0.1035	2.66	0.1047	2.68	0.1055	2.70	0.1063	2.72	0.1071
M3.5	0.6	–	2.850	3.010	2.88	0.1134	2.92	0.1150	2.95	0.1161	2.99	0.1177	3.03	0.1193
M4	0.7	–	3.242	3.422	3.27	0.1287	3.32	0.1307	3.36	0.1323	3.41	0.1343	3.45	0.1358
	–	0.5	3.459	3.599	3.48	0.1370	3.51	0.1382	3.54	0.1394	3.58	0.1409	3.61	0.1421
M4.5	0.75	–	3.688	3.876	3.72	0.1465	3.77	0.1484	3.82	0.1504	3.87	0.1524	3.92	0.1543
M5	0.8	–	4.134	4.334	4.17	0.1642	4.22	0.1661	4.27	0.1681	4.32	0.1701	4.38	0.1724
	–	0.5	4.458	4.600	4.48	0.1764	4.51	0.1776	4.54	0.1787	4.58	0.1803	4.61	0.1815
M6	1	–	4.917	5.153	4.96	0.1953	5.03	0.1980	5.09	0.2004	5.16	0.2031	5.22	0.2055
	–	0.75	5.187	5.377	5.22	0.2055	5.27	0.2075	5.32	0.2094	5.37	0.2114	5.41	0.2130
M7	1	–	5.918	6.152	5.96	0.2346	6.03	0.2374	6.09	0.2398	6.16	0.2425	6.22	0.2449
M8	1.25	–	6.647	6.912	6.70	0.2638	6.78	0.2669	6.86	0.2701	6.94	0.2732	7.03	0.2768
	–	1	6.917	7.153	6.96	0.2740	7.03	0.2768	7.09	0.2791	7.16	0.2819	7.22	0.2843
	–	0.75	7.187	7.377	7.22	0.2843	7.27	0.2862	7.32	0.2882	7.37	0.2902	7.41	0.2917
M10	1.5	–	8.376	8.676	8.44	0.3323	8.54	0.3362	8.64	0.3402	8.73	0.3437	8.83	0.3476
	–	1.25	8.647	8.912	8.70	0.3425	8.78	0.3457	8.86	0.3488	8.94	0.3520	9.03	0.3555
	–	1	8.917	9.153	8.96	0.3528	9.03	0.3555	9.09	0.3579	9.16	0.3606	9.22	0.3630
	–	0.75	9.188	9.378	9.22	0.3630	9.27	0.3650	9.32	0.3669	9.37	0.3689	9.41	0.3705
M12	1.75	–	10.106	10.441	10.18	0.4008	10.30	0.4055	10.41	0.4098	10.52	0.4142	10.64	0.4189
	–	1.5	10.376	10.676	10.44	0.4110	10.54	0.4150	10.64	0.4189	10.73	0.4224	10.83	0.4264
	–	1.25	10.647	10.912	10.70	0.4213	10.78	0.4244	10.86	0.4276	10.94	0.4307	11.03	0.4343
	–	1	10.917	11.153	10.96	0.4315	11.03	0.4343	11.09	0.4366	11.16	0.4394	11.22	0.4417
M14	2	–	11.835	12.210	11.92	0.4693	12.05	0.4744	12.18	0.4795	12.31	0.4846	12.44	0.4898
	–	1.5	12.376	12.676	12.44	0.4898	12.54	0.4937	12.64	0.4976	12.73	0.5012	12.83	0.5051
M16	2	–	13.835	14.210	13.92	0.5480	14.05	0.5531	14.18	0.5583	14.31	0.5634	14.44	0.5685
	–	1.5	14.376	14.676	14.44	0.5685	14.54	0.5724	14.64	0.5764	14.73	0.5799	14.83	0.5839
M18	2.5	–	15.296	15.743	15.40	0.6063	15.56	0.6126	15.73	0.6193	15.89	0.6256	16.05	0.6319
	–	1.5	16.376	16.676	16.44	0.6472	16.54	0.6512	16.64	0.6551	16.73	0.6587	16.83	0.6626
M20	2.5	–	17.294	17.744	17.40	0.6850	17.56	0.6913	17.73	0.6980	17.89	0.7043	18.05	0.7106
	–	1.5	18.376	18.676	18.44	0.7260	18.54	0.7299	18.64	0.7339	18.73	0.7374	18.83	0.7413
	–	1	18.917	19.153	18.96	0.7465	19.03	0.7492	19.09	0.7516	19.16	0.7543	19.22	0.7567
M22	2.5	–	19.294	19.744	19.40	0.7638	19.56	0.7701	19.73	0.7768	19.89	0.7831	20.05	0.7894
	–	2	19.835	20.210	19.92	0.7843	20.05	0.7894	20.18	0.7945	20.31	0.7996	20.44	0.8047
	–	1.5	20.376	20.676	20.44	0.8047	20.54	0.8087	20.64	0.8126	20.73	0.8161	20.83	0.8201
M24	3	–	20.752	21.252	20.88	0.8220	21.08	0.8299	21.27	0.8374	21.47	0.8453	21.66	0.8528
	–	2	21.835	22.210	21.92	0.8630	22.05	0.8681	22.18	0.8732	22.31	0.8783	22.44	0.8835
	–	1.5	22.376	22.676	22.44	0.8835	22.54	0.8874	22.64	0.8913	22.73	0.8949	22.83	0.8988
M27	3	–	23.752	24.252	23.88	0.9402	24.08	0.9480	24.27	0.9555	24.47	0.9634	24.66	0.9709
	–	2	24.835	25.210	24.92	0.9811	25.05	0.9862	25.18	0.9913	25.31	0.9965	25.44	1.0016
	–	1.5	25.376	25.676	25.44	1.0016	25.54	1.0055	25.64	1.0094	25.73	1.0130	25.83	1.0169
M30	3.5	–	26.211	26.771	26.36	1.0378	26.59	1.0469	26.82	1.0559	27.04	1.0646	27.27	1.0736
	–	2	27.835	28.210	27.92	1.0992	28.05	1.1043	28.18	1.1094	28.31	1.1146	28.44	1.1197
	–	1.5	28.376	28.676	28.44	1.1197	28.54	1.1236	28.64	1.1276	28.73	1.1311	28.83	1.1350
M33	3.5	–	29.211	29.771	29.36	1.1559	29.59	1.1650	29.82	1.1740	30.04	1.1827	30.27	1.1917
	–	2	30.835	31.210	30.92	1.2173	31.05	1.2224	31.18	1.2276	31.31	1.2327	31.44	1.2378
M36	4	–	31.670	32.270	31.84	1.2535	32.10	1.2638	32.36	1.2740	32.62	1.2843	32.88	1.2945
	–	3	32.752	33.252	32.88	1.2945	33.08	1.3024	33.27	1.3098	33.47	1.3177	33.66	1.3252
	–	2	33.835	34.210	33.92	1.3354	34.05	1.3406	34.18	1.3457	34.31	1.3508	34.44	1.3559
M39	4	–	34.670	35.270	34.84	1.3717	35.10	1.3819	35.36	1.3921	35.62	1.4024	35.88	1.4126
	–	2	36.835	37.210	36.92	1.4535	37.05	1.4587	37.18	1.4638	37.31	1.4689	37.44	1.4740
M42	4.5	–	37.129	37.799	37.32	1.4693	37.62	1.4811	37.91	1.4925	38.20	1.5039	38.49	1.5154
	–	3	38.752	39.252	38.88	1.5307	39.08	1.5386	39.27	1.5461	39.47	1.5539	39.66	1.5614
	–	2	39.835	40.210	39.92	1.5717	40.05	1.5768	40.18	1.5819	40.31	1.5870	40.44	1.5921

FORMULA: TAP DRILL SIZE

$$\text{Drill Size} = \text{Tap Major Dia} - \frac{\text{Pitch} \times \% \text{ of Full Thread}}{76.980}$$

Example: to determine drill size for M12 x 1.75 tap, 70% thread

Tap Major Ø = 12mm
% of Full Thread = 70%
Pitch = 1.75mm

$$\text{Drill Size} = 12\text{mm} - \frac{(1.75 \times 70\%)}{76.980}$$

Drill Size = 12mm - 1.591mm = 10.409mm

FORMULA: PERCENTAGE OF FULL THREAD

$$\% \text{ of Full Thread} = \text{Threads Per Inch} \times \frac{76.980}{\text{Pitch}}$$

Example: to determine the % of thread for M12 x 1.75 Tap using 10.41mm drill

Threads per Inch = 20
Tap Major Ø = 0.2500"
Drill Ø = 0.2045"

$$\% \text{ of Thread} = (12\text{mm} - 10.409\text{mm}) \times \frac{(0.2500 - 0.2262)}{0.0068}$$

% of Thread = 1.591mm x 43.989 = 70%

Tap Drill Sizes - Metric Form Taps

To minimize tapping problems and lengthen tool life, use the largest drill possible to produce a minor diameter that will result in the lowest percentage of full thread consistent with adequate strength. A minor diameter that provides a 55% to 65% thread is sufficient for most requirements, but in some cases a higher percentage of thread may be necessary to conform with the minor diameter limits of the thread class specified.

* Generally, deeper than 1-1/2 times the hole diameter.

Suggested Percentage of Full Thread in Tapped Holes

Material		*Deep Hole Tapping	Average Commercial Work	Thin Sheet Stock or Stamping
Free Cutting	Aluminum, Brass, Bronze, Cast Iron, Copper, Mild Steel, Tool Steel	60% - 70%	65% - 70%	75% - 85%
Hard or Tough Cutting	Cast Steel, Drop Forging, Monel Metal, Nickel Steel, Stainless Steel	55% - 65%	60% - 70%	

Tap Size	Pitch		Minor Diameter (mm)		Tap Drill Diameter - Form Taps									
	M	MF	Min. 6H	Max. 6H	75% Thread		70% Thread		65% Thread		60% Thread		55% Thread	
					(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)
M1.6	0.35	–	1.221	1.321	1.42	0.0559	1.43	0.0563	1.45	0.0571	1.46	0.0575	1.47	0.0579
M1.7	0.35	–	1.321	1.421	1.56	0.0617	1.57	0.0620	1.58	0.0623	1.59	0.0627	1.60	0.0630
M1.8	0.35	–	1.422	1.519	1.62	0.0638	1.63	0.0642	1.65	0.0650	1.66	0.0654	1.67	0.0657
M2	0.4	–	1.567	1.679	1.80	0.0709	1.81	0.0713	1.82	0.0717	1.84	0.0724	1.85	0.0728
M2.2	0.45	–	1.715	1.836	1.97	0.0776	1.99	0.0783	2.00	0.0787	2.02	0.0795	2.03	0.0799
M2.5	0.45	–	2.013	2.138	2.27	0.0894	2.29	0.0902	2.30	0.0906	2.32	0.0913	2.33	0.0917
M2.6	0.45	–	2.113	2.238	2.41	0.0949	2.42	0.0953	2.43	0.0957	2.44	0.0962	2.45	0.0966
M3	0.5	–	2.459	2.599	2.75	0.1083	2.76	0.1087	2.78	0.1094	2.80	0.1102	2.81	0.1106
	–	0.35	2.621	2.721	2.86	0.1126	2.87	0.1130	2.88	0.1134	2.89	0.1138	2.90	0.1142
M3.5	0.6	–	2.850	3.010	3.19	0.1256	3.21	0.1264	3.23	0.1272	3.26	0.1283	3.28	0.1291
M4	0.7	–	3.242	3.422	3.64	0.1433	3.67	0.1445	3.69	0.1453	3.71	0.1461	3.74	0.1472
	–	0.5	3.459	3.599	3.75	0.1476	3.76	0.1480	3.78	0.1488	3.80	0.1496	3.81	0.1500
M4.5	0.75	–	3.688	3.876	4.12	0.1622	4.14	0.1630	4.17	0.1642	4.19	0.1650	4.22	0.1661
M5	0.8	–	4.134	4.334	4.59	0.1807	4.62	0.1819	4.65	0.1831	4.67	0.1839	4.70	0.1850
	–	0.5	4.458	4.600	4.75	0.1870	4.76	0.1874	4.78	0.1882	4.80	0.1890	4.81	0.1894
M6	1	–	4.917	5.153	5.49	0.2161	5.52	0.2173	5.56	0.2189	5.59	0.2201	5.63	0.2217
	–	0.75	5.187	5.377	5.62	0.2213	5.64	0.2220	5.67	0.2232	5.69	0.2240	5.72	0.2252
M7	1	–	5.918	6.152	6.49	0.2555	6.52	0.2567	6.56	0.2583	6.59	0.2594	6.63	0.2610
M8	1.25	–	6.647	6.912	7.36	0.2898	7.41	0.2917	7.45	0.2933	7.49	0.2949	7.53	0.2965
	–	1	6.917	7.153	7.49	0.2949	7.52	0.2961	7.56	0.2976	7.59	0.2988	7.63	0.3004
	–	0.75	7.187	7.377	7.62	0.3000	7.64	0.3008	7.67	0.3020	7.69	0.3028	7.72	0.3039
M10	1.5	–	8.376	8.676	9.24	0.3638	9.29	0.3657	9.34	0.3677	9.39	0.3697	9.44	0.3717
	–	1.25	8.647	8.912	9.36	0.3685	9.41	0.3705	9.45	0.3720	9.49	0.3736	9.53	0.3752
	–	1	8.917	9.153	9.49	0.3736	9.52	0.3748	9.56	0.3764	9.59	0.3776	9.63	0.3791
	–	0.75	9.188	9.378	9.62	0.3787	9.64	0.3795	9.67	0.3807	9.69	0.3815	9.72	0.3827
M12	1.75	–	10.106	10.441	11.11	0.4374	11.17	0.4398	11.23	0.4421	11.29	0.4445	11.35	0.4469
	–	1.5	10.376	10.676	11.24	0.4425	11.29	0.4484	11.34	0.4465	11.39	0.4484	11.44	0.4504
	–	1.25	10.647	10.912	11.36	0.4472	11.41	0.4492	11.45	0.4508	11.49	0.4524	11.53	0.4539
	–	1	10.917	11.153	11.49	0.4524	11.52	0.4535	11.56	0.4551	11.59	0.4563	11.63	0.4579
M14	2	–	11.835	12.210	12.98	0.5110	13.05	0.5138	13.12	0.5165	13.18	0.5189	13.25	0.5217
	–	1.5	12.376	12.676	13.24	0.5213	13.29	0.5232	13.34	0.5252	13.39	0.5272	13.44	0.5291
M16	2	–	13.835	14.210	14.98	0.5898	15.05	0.5925	15.12	0.5953	15.18	0.5976	15.25	0.6004
	–	1.5	14.376	14.676	15.24	0.6000	15.29	0.6020	15.34	0.6039	15.39	0.6059	15.44	0.6079
M18	2.5	–	15.296	15.743	16.73	0.6587	16.81	0.6618	16.90	0.6654	16.98	0.6685	17.07	0.6720
	–	1.5	16.376	16.676	17.24	0.6787	17.29	0.6807	17.34	0.6827	17.39	0.6846	17.44	0.6866
M20	2.5	–	17.294	17.744	18.73	0.7374	18.81	0.7406	18.90	0.7441	18.98	0.7472	19.07	0.7508
	–	1.5	18.376	18.676	19.24	0.7575	19.29	0.7594	19.34	0.7614	19.39	0.7634	19.44	0.7654
	–	1	18.917	19.153	19.49	0.7673	19.52	0.7685	19.56	0.7701	19.59	0.7713	19.63	0.7728
M22	2.5	–	19.294	19.744	20.73	0.8161	20.81	0.8193	20.90	0.8228	20.98	0.8260	21.07	0.8295
	–	2	19.835	20.210	20.98	0.8260	21.05	0.8287	21.12	0.8315	21.18	0.8339	21.25	0.8366
	–	1.5	20.376	20.676	21.24	0.8362	21.29	0.8382	21.34	0.8402	21.39	0.8421	21.44	0.8441
M24	3	–	20.752	21.252	22.47	0.8846	22.57	0.8886	22.67	0.8925	22.78	0.8969	22.88	0.9008
	–	2	21.835	22.210	22.98	0.9047	23.05	0.9075	23.12	0.9102	23.18	0.9126	23.25	0.9154
	–	1.5	22.376	22.676	23.24	0.9150	23.29	0.9169	23.34	0.9189	23.39	0.9209	23.44	0.9228

FORMULA: TAP DRILL SIZE

$$\text{Drill Size} = \text{Tap Major Dia} - \frac{\text{Pitch} \times \% \text{ of Full Thread}}{147.059}$$

Example: to determine drill size for M12 x 1.75 tap, 70% thread

Tap Major Ø = 12mm
% of Full Thread = 70%
Pitch = 1.75mm

$$\text{Drill Size} = 12\text{mm} - \frac{(1.75 \times 70\%)}{147.059}$$

Drill Size = 12mm - 0.833mm = 11.167mm

FORMULA: PERCENTAGE OF FULL THREAD

$$\% \text{ of Full Thread} = (\text{Tap Major Dia} - \text{Drill Dia}) \times \frac{147.059}{\text{Pitch}}$$

Example: to determine the % of thread for M12 x 1.75 Tap using 11.17mm drill

Threads per Inch = 20
Tap Major Ø = 0.2500"
Drill Ø = 0.2045"

$$\% \text{ of Thread} = (12\text{mm} - 11.167\text{mm}) \times \frac{147.059}{1.75}$$

% of Thread = (0.833mm) x 84.03 = 70%

Tap Drill Sizes - STI Taps - Inch

Tap Size	Threads Per Inch		Minor Diameter (in) (After Tapping)		Tap Drill Diameter (in)	
	UNC	UNF	Min	Max	Aluminum	Steel, Magnesium, Plastic
2	56	–	0.0899	0.0961	0.0938	0.0960
3	48	–	0.1036	0.1104	0.1065	0.1094
	–	56	0.1029	0.1086	0.1040	0.1065
4	40	–	0.1175	0.1252	0.1200	0.1200
	–	48	0.1166	0.1229	0.1181	0.1200
5	40	–	0.1305	0.1373	0.1339	0.1360
6	32	–	0.1448	0.1527	0.1470	0.1495
	–	40	0.1435	0.1503	0.1470	0.1495
8	32	–	0.1708	0.1781	0.1730	0.1770
	–	36	0.1701	0.1771	0.1730	0.1770
10	24	–	0.1990	0.2000	0.2031	0.2055
	–	32	0.1968	0.2041	0.2010	0.2031
12	24	–	0.2250	0.2340	0.2280	0.2280
1/4	20	–	0.2608	0.2704	0.2660	0.2660
	–	28	0.2577	0.2646	0.2610	0.2638
5/16	18	–	0.3245	0.3342	0.3320	0.3320
	–	24	0.3215	0.3288	0.3281	0.3281
3/8	16	–	0.3885	0.3987	0.3970	0.3970
	–	24	0.3840	0.3910	0.3906	0.3906
7/16	14	–	0.4530	0.4639	0.4531	0.4531
	–	20	0.4483	0.4561	0.4531	0.4531
1/2	13	–	0.5166	0.5273	0.5156	0.5156
	–	20	0.5108	0.5186	0.5156	0.5156
9/16	12	–	0.5806	0.5918	0.5781	0.5938
	–	18	0.5745	0.5826	0.5781	0.5781
5/8	11	–	0.6447	0.6564	0.6562	0.6562
	–	18	0.6370	0.6451	0.6406	0.6406
3/4	10	–	0.7716	0.7838	0.7812	0.7812
	–	16	0.7635	0.7720	0.7656	0.7656
7/8	9	–	0.8990	0.9119	0.9062	0.9062
	–	14	0.8905	0.8994	0.8906	0.8906
1"	8	–	1.0271	1.0421	1.0312	1.0312
	–	12	1.0181	1.0281	1.0156	1.0312

The suggested drill sizes for aluminum listed in the table are within the minor diameter limits for STI tapped holes specified in MS 33537. Alternate drill sizes are suggested in many instances for magnesium, steel and plastics to provide for maximum tap wear life. In the case of magnesium, the larger size is recommended to allow for material close-in. There are suggested drill sizes and any special requirements or specifications will supersede these recommendations.

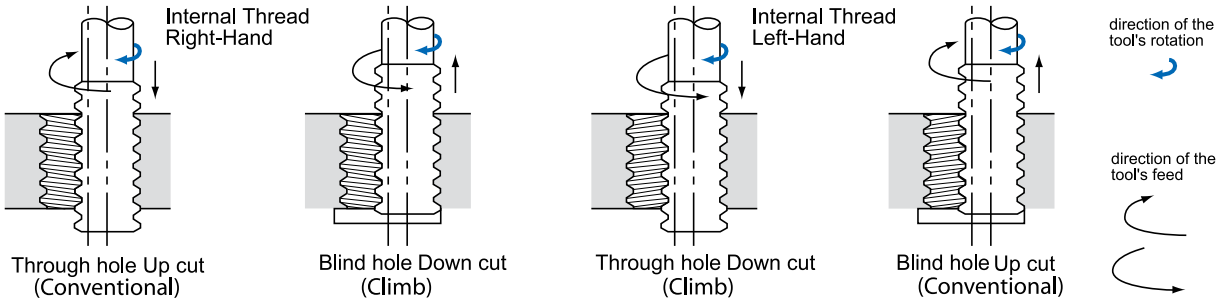
Tap Drill Sizes - STI Taps - Metric

Tap Size	Pitch	Minor Diameter (in) (After Tapping)		Tap Drill Diameter (Metric)	
		Min	Max	Aluminum	Steel, Magnesium, Plastic
M2	0.4	2.087	2.199	2.1	2.1
M2.5	0.45	2.597	2.722	2.3	2.35
M3	0.5	3.108	3.248	3.15	3.2
M4	0.7	4.152	4.332	4.2	4.25
M5	0.8	5.174	5.374	5.2	5.3
M6	1.0	6.217	6.407	6.25	6.3
M8	1.25	8.271	8.483	8.3	8.4
M10	1.5	10.324	10.560	10.5	10.5
M12	1.75	12.379	12.644	12.5	12.5
M14	2	14.433	14.733	14.5	14.5
M16	2	16.433	16.733	16.5	16.5
M18	2.5	18.541	18.896	18.75	18.75
M20	2.5	20.541	20.896	20.75	20.75
M22	2.5	22.541	22.896	22.75	22.75
M24	3	22.649	25.049	24.75	24.75

The suggested drill sizes for aluminum listed in the table are within the minor diameter limits for STI tapped holes specified in MS 33537. Alternate drill sizes are suggested in many instances for magnesium, steel and plastics to provide for maximum tap wear life. In the case of magnesium, the larger size is recommended to allow for material close-in. There are suggested drill sizes and any special requirements or specifications will supersede these recommendations.

Machining Technique

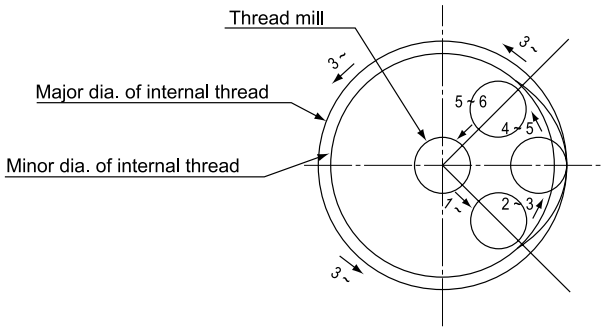
OSG's A Brand® & EXOCARB® Thread Mills have been developed for thread milling on a 3-Axis CNC controlled machine tool. Threads are produced by advancing one pitch feed per revolution in the axial direction, utilizing the planet-like rotation and revolution movements of the tool. Internal and right/left hand threads can all be produced with this one tool by simply changing the direction of feed.



Threading Process

1-2 Move to edge (maintain clearance)
2-3 Cut with helical milling
3-4 Mill the circumference of the circle
4-5 Pull away from the edge
5-6 Remove tool

The transition between the start and finish of the milling operation must be smooth, and the appropriate amount of feed is essential for minimizing milling resistance. There are many different methods for using this tool, but our research has shown that this technique provides the most precise and efficient operation.

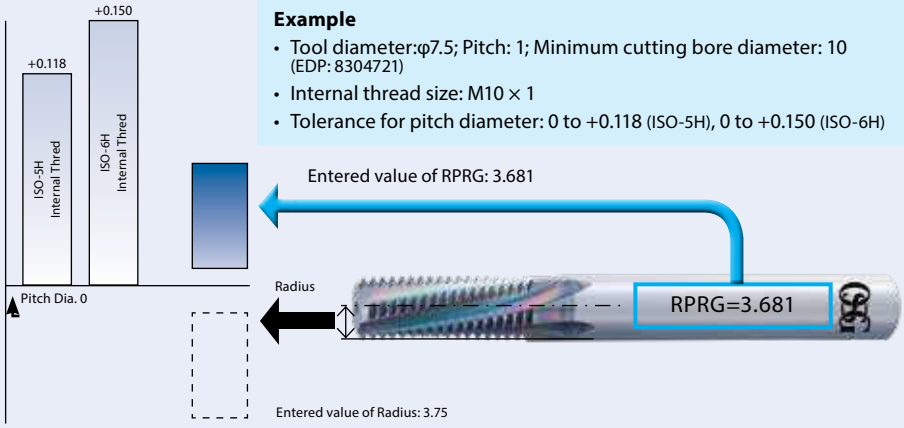


Thread Milling Process (view from above)

Radius Offset (RPRG)

RPRG is the reference value of tool radius offset.

Conventionally, the tool radius was entered during setup as a parameter of the NC system, which was corrected by checking the thread with a gauge. However, it has become possible to reduce the checking and correction simply by entering the RPRG value indicated on the tool shank.



Example

- Tool diameter:φ7.5; Pitch: 1; Minimum cutting bore diameter: 10 (EDP: 8304721)
- Internal thread size: M10 × 1
- Tolerance for pitch diameter: 0 to +0.118 (ISO-5H), 0 to +0.150 (ISO-6H)

NOTES:

1. RPRG are reference values. Determine optimal values after trial cutting as values depend on machining environment.
2. RPRG values are optimally established to achieve ISO:5H (formerly Grade 1) internal thread limits for metric threads and ANSI:3B internal thread limits for unified threads. RPRG values established for taper pipes (R/Rc) are effective when using the thread milling NC code generator software ThreadPro available on our website.
3. For diameters of thread mills, RPRG values are calculated based on the minimum cutting bore diameter (the minimum cutting internal thread size of the tool diameter). To cut other diameters, it is necessary to use a smaller value than RPRG.

ThreadPro (Thread Milling NC Code Generator Software)

www.osgtool.com/threadpro



- Available in 12 different languages
- Supports 8 NC programming languages
- Incorporates RPRG* value to further simplify process

ThreadPro

* RPRG = reference value of tool radius offset

Powered by AUTODESK

List 16620/16625 - A Brand® AT-1
List 16630/16631 - A Brand® AT-1 NPT/NPTF

Work Material		Cutting Speed SFM	Feed Rate (in/t)
Low Carbon Steel	~C0.25%	260 - 790	0.0004 - 0.002
Medium Carbon Steel	C0.25%~0.45%	260 - 790	0.0004 - 0.002
High Carbon Steel	C0.45%~	260 - 790	0.0004 - 0.002
Alloy Steel	4140, 4340, 8620	200 - 650	0.0004 - 0.002
Hardened Steel	25-45 HRC	260 - 650	0.0004 - 0.002
	45-55 HRC	-	-
	50-60 HRC	-	-
Stainless Steel	300-series, 400-series	200 - 790	0.0004 - 0.002
Tool Steel	D2, H13, A6	-	-
Cast Steel	-	200 - 790	0.0004 - 0.002
Cast Iron	-	260 - 790	0.0004 - 0.002
Ductile Cast Iron	-	200 - 790	0.0004 - 0.002
Copper	-	260 - 790	0.001 - 0.004
Brass	B21, B36	260 - 790	0.001 - 0.004
Brass Casting	B62	260 - 790	0.001 - 0.004
Bronze	B124, B103, B159	260 - 790	0.001 - 0.004
Aluminum	6061, 7075, 2014	260 - 790	0.001 - 0.004
Aluminum Alloy Casting	-	330 - 1000	0.002 - 0.008
Magnesium Alloy Casting	-	330 - 1000	0.002 - 0.008
Zinc Alloy Casting	-	330 - 1000	0.002 - 0.008
Titanium Alloy	Ti-6Al-4V	-	-
Nickel Alloy	Inconel	-	-
Thermosetting Plastic	-	260 - 650	0.001 - 0.004
Thermo Plastic	-	260 - 650	0.001 - 0.004

1. The indicated speeds and feeds are for water-soluble coolant.
2. Water-soluble coolant is not suitable for threading magnesium alloy.
3. Please adjust the cutting conditions depending on the rigidity of the machine, tool holders, and workpiece clamping.
4. If the threading length is long, or when machining a large-pitch thread, reduce the feed rate and take multiple passes.
5. If a machined parallel internal thread is tapered and prevents the go-gauge from going through, add a zero cut/spring pass.

List 41000/41100 - EXOCARB® Thread Mill
List 41050/41150 - EXOCARB® Thread Mill Oil
List 42000/42001 - EXOCARB® Thread Mill NPT/NPTF

Work Material	SFM	Feed Rate (Inch/Tooth)	No. of Passes
Low Carbon Steel	300 - 420	0.0016 - 0.0050	1
Medium Carbon Steel	300 - 420	0.0016 - 0.0050	1
High Carbon Steel	250 - 420	0.0016 - 0.0050	1
Alloy Steel	180 - 350	0.0008 - 0.0040	1-2
Heat Treated Steel (28-34HRC)	160 - 300	0.0008 - 0.0040	1
Heat Treated Steel (34-40HRC)	130 - 260	0.0004 - 0.0040	1-2
Heat Treated Steel (40-50HRC)	65 - 250	0.0004 - 0.0040	2-4
Stainless Steel (300 - Series)	200 - 450	0.0016 - 0.0060	1-2
Stainless Steel (400 - Series)	165 - 400	0.0016 - 0.0060	1-2
Stainless Steel (15-5, 17-4PH)	130 - 350	0.0016 - 0.0060	2
Cast Iron	250 - 400	0.0008 - 0.0035	1
Ductile Cast Iron	210 - 280	0.0012 - 0.0040	1
Aluminum Alloy	300 - 500	0.0012 - 0.0040	1
Aluminum Alloy Casting Si [12]%	280 - 550	0.0012 - 0.0050	1
Aluminum Alloy Casting Si [12-16]%	250 - 460	0.0012 - 0.0040	1
Aluminum Alloy Casting with Si [16-20]%	210 - 400	0.0012 - 0.0040	1
Aluminum Alloy Casting with Si [20-25]%	200 - 350	0.0012 - 0.0040	1
Copper, Copper Casting	300 - 510	0.0012 - 0.0040	1
Brass, Brass Casting	300 - 510	0.0012 - 0.0040	1
Bronze, Bronze Casting (C6***,PB,PBC)	300 - 500	0.0012 - 0.0040	1
Magnesium Alloy Casting	210 - 410	0.0012 - 0.0050	1
Zinc Alloy Casting	180 - 380	0.0012 - 0.0050	1
Titanium Alloy (Ti-6AI-4V)	100 - 330	0.0012 - 0.0025	2
High Heat Resistance Alloy (Inconel)	65 - 260	0.0008 - 0.0020	2
High Heat Resistance Alloy (Inconel >40HRC)	65 - 200	0.0008 - 0.0020	4
Thermoplastic	220 - 510	0.0012 - 0.0050	1
Cobalt/Chrome Alloy (Stellite)	65 - 200	0.0016 - 0.0060	3

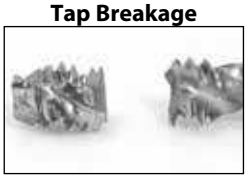
For chip loads, the smaller cutter diameters use a smaller chip load per tooth within a given range.
Larger cutter diameters use the larger chip load per tooth within the given range.
For programming help or other information, please contact our Engineering Department at 800-837-2223.

List 41200/41300 - EXOCARB® Thread Mill Mini

Work Material	Thread Sizes Under #2/M2			Thread Sizes #2/M2 & Larger		
	SFM	Feed Rate (Inch/Tooth)	No. of Passes	SFM	Feed Rate (Inch/Tooth)	No. of Passes
Low Carbon Steel	200 - 300	0.0008 - 0.0020	2	200 - 300	0.0008 - 0.0030	1
Medium Carbon Steel	200 - 300	0.0008 - 0.0020	2	200 - 300	0.0008 - 0.0030	1
High Carbon Steel	200 - 300	0.0008 - 0.0020	2	200 - 300	0.0008 - 0.0030	1
Alloy Steel	—	—	—	100 - 200	0.0004 - 0.0012	1-2
Heat Treated Steel (28-34HRC)	—	—	—	100 - 200	0.0004 - 0.0012	1
Heat Treated Steel (34-40HRC)	—	—	—	100 - 200	0.0004 - 0.0012	1-2
Heat Treated Steel (40-50HRC)	—	—	—	100 - 200	0.0004 - 0.0012	2-4
Stainless Steel (300 Series)	200 - 300	0.0008 - 0.0020	2-3	200 - 300	0.0008 - 0.0030	1-2
Stainless Steel (400 Series)	200 - 300	0.0008 - 0.0020	2-3	200 - 300	0.0008 - 0.0030	1-2
Stainless Steel (15-5, 17-4PH)	200 - 300	0.0008 - 0.0020	3	200 - 300	0.0008 - 0.0030	2
Cast Iron	130 - 200	0.0008 - 0.0020	2	165 - 330	0.0012 - 0.0040	1
Ductile Cast Iron	130 - 300	0.0008 - 0.0020	2	165 - 230	0.0012 - 0.0040	1
Aluminum Alloy	230 - 330	0.0015 - 0.0030	2	165 - 330	0.0008 - 0.0025	1
Aluminum Alloy Casting	230 - 330	0.0015 - 0.0030	2	165 - 330	0.0008 - 0.0025	1
Copper, Copper Casting	—	—	—	—	—	—
Brass, Brass Casting	200 - 330	0.0015 - 0.0030	2	165 - 330	0.0008 - 0.0025	1
Bronze, Bronze Casting	—	—	—	165 - 330	0.0008 - 0.0025	1
Magnesium Alloy Casting	230 - 330	0.0015 - 0.0030	2	165 - 330	0.0008 - 0.0025	1
Zinc Alloy Casting	230 - 330	0.0015 - 0.0030	2	165 - 330	0.0008 - 0.0025	1
Titanium Alloy (Ti-6Al-4V)	65 - 130	0.0004 - 0.0012	3	65 - 200	0.0004 - 0.0012	2
High Heat Resistance Alloy (Inconel)	—	—	—	65 - 200	0.0004 - 0.0012	2
High Heat Resistance Alloy (Inconel >40HRC)	—	—	—	65 - 200	0.0004 - 0.0012	4
Thermoplastic	165 - 330	0.0015 - 0.0030	2	165 - 330	0.0008 - 0.0025	1
Cobalt/Chrome Alloy (Stellite)	—	—	—	—	—	—

For chip loads, the smaller cutter diameters use a smaller chip load per tooth within a given range.
Larger cutter diameters use the larger chip load per tooth within the given range.
For programming help or other information, please contact our Engineering Department at 800-837-2223.

PROBLEM	CAUSE	SOLUTION
Chip Packing (Back Threaded Portion) 	Inappropriate spindle speed	Adjust RPM (lower or higher) for proper chip form
	Helix angle too large	Decrease helix angle or choose tap with low helix angle
	Chips not coiling / breaking properly	Use alternate coating
Chip Packing (Single Thread) 	*Occurs predominantly in horizontal applications*	
	Weak rake angle (positive)	Decrease rake angle
	Chips not evacuating properly	Use a POT style tap or a LHH / RHF
	Chips not coiling / breaking properly	Use alternate coating
Chipping During Reversal 	Chips left behind in flute during tap reversal	Improve wear resistance of tap
		Improve / add surface treatment / coating
	Material shrinkage	Increase coolant volume / concentration to control heat
Chipping Due to Wear 	Tap substrate not suitable for work material	Improve wear resistance of tap
		Improve / add surface treatment / coating
	Cutting action work hardened material	Shorten chamfer length
Chipping of Land Edge 	Occurs when tap either hits bottom or entrance of hole	Avoid hitting the bottom of the hole, check stroke length, alignment and hole size
Chipping of Land Axially 	Occurs when tap either hits bottom or entrance of hole	Avoid hitting the bottom of the hole, check stroke length, alignment and hole size
Chipping of Chamfer 	Tap substrate not suitable for work material	Improve wear resistance of tap
	Inappropriate pre-drill size	Select suitable pre-drill size

PROBLEM	CAUSE	SOLUTION
Premature Tap Wear 	Inappropriate spindle speed	Reduce spindle speed
	Possible work hardening of pre-drilled hole	Prevent work hardening of pre-drilled hole
	Inappropriate thread relief	Use proper thread relief
	Inappropriate chamfer length	Adjust chamfer length
	Inappropriate lubrication	Change coolant method
		Increase volume / concentration
		Apply surface coating / treatment
Welding / Galling 	Inappropriate spindle speed	Reduce spindle speed
	Inappropriate lubrication	Change coolant method
		Increase volume / concentration
		Apply surface coating / treatment
Deformed Lobes 	Possible work hardening of pre-drilled hole	Prevent work hardening of pre-drilled hole
	Inappropriate spindle speed	Reduce spindle speed
	Inappropriate pre-drill size	Increase pre-drill hole size as much as possible
	Inappropriate lubrication	Change coolant method
		Increase volume / concentration
		Apply surface coating / treatment
	Tap substrate not suitable for material	Improve wear resistance of tap
Tap Breakage 	Possible chip packing	Avoid chip packing
	Inappropriate pre-drill size	Increase pre-drill hole size as much as possible
	Inappropriate spindle speed	Reduce spindle speed
	Possible runout or tapered hole	Reduce runout and assure hole is straight
	Too high of torque generated	Use tap holder with torque adjustment / limiting feature
	Possible tap collision with bottom of hole	Avoid hitting the bottom of the hole, check stroke length, alignment and hole size
Overcutting / Oversized Threads 	Inconsistent feed of spiral fluted style tap	Use compensating tension / compression tap holder
		Adjust feed rate appropriately
		Check CNC program
	Inconsistent feed of spiral pointed style tap	Use compensating tension / compression tap holder
		Adjust feed rate appropriately
		Check CNC program
Tearing on Flanks 	Inappropriate thread relief / rake angle	Use sharper / freer cutting relief and angle
	Inappropriate lubrication	Change coolant method
		Increase volume / concentration
		Apply surface coating / treatment
Extremely Torn Threads 	Possible welding / galling	Select appropriate cutting conditions
	Possible chip packing	Select appropriate cutting conditions
	Inappropriate thread relief	Use sharper thread relief
	Inappropriate lubrication	Change coolant method
		Increase volume / concentration
		Apply surface coating / treatment
Chips Remain at Bottom 	Inappropriate geometry of tap	Reduce chamfer relief angle
		Use thinner land width
		Reduce chamfer length
		Reduce cutting angle



MILLING



MILLING

The A Brand®

OSG's premium tooling brand. Features products that are designed to exceed the evolving manufacturing needs of our customers.

EXOPRO®

OSG's ultra-premium tooling series, featuring our latest innovative technologies when the absolute best performance is needed.

EXOCARB® WXL®

The new standard in high performance end mills for high speed machining, featuring our WXL® nanocoating technology.

EXOCARB® WXS®

The new standard in high performance end mills for hard milling, featuring our WXS® nanocoating technology.

EXOCARB® MAX

Maximum performance end mills designed exclusively for hard milling. Features technologies including WXS® and CBN.

EXOCARB® DIAMOND

OSG's patented CVD diamond coated end mills for die/mold and aerospace applications in non-ferrous materials like graphite, aluminum and CFRP.

EXOCARB® AERO

High performance carbide end mills for aircraft materials.

HY-PRO® CARB

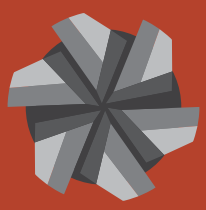
Performance sub-micrograin carbide end mills with OSG TiAlN coating. The perfect blend of performance and cost-efficiency.

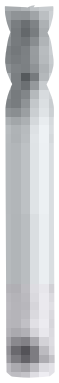
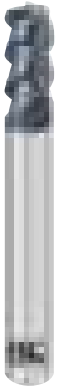
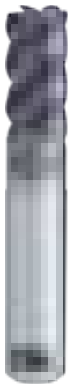
CARBIDE

All-purpose micrograin carbide end mills for general machining applications.

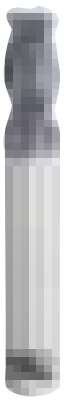
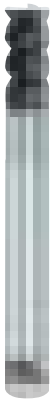
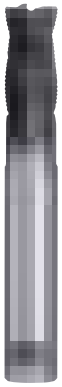
SOMTA

Value carbide and HSS-cobalt and mills for a wide range of applications.



	A Brand® A-End Mill Series		EXOPRO® UVX-Ni		EXOPRO® PHX		EXOCARB® UVX-Ti	
	P830-840		P841		P842-852		P925-930	
								
Inch/Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
Size Range	5/64 - 1"	3 - 25mm	1/4 - 1"	–	–	0.06-20mm	1/2 - 1-1/4"	12 - 25mm
Number of Flutes	4		5		3, 4		5	
Square	✓	✓					✓	✓
Corner Radius/Chamfer	✓	✓	✓			✓	✓	✓
Ball Nose						✓		
Long Neck, Pencil Neck, Rib	✓	✓				✓	✓	✓
Coolant-Through								
Unequal Index, Variable Helix	✓	✓	✓				✓	✓
Substrate	Carbide		Carbide		Carbide		Carbide	
Coating	DURARISE		EXO®		WXS®/EXO®		EXO®	

P	Carbon Steels (1010, 1018)	✖		○		
	Mild Steels, Alloy Steels (1050, 4140)	✖		○		
	Die Steels (H13, D2)	○		✖		
M	Stainless Steel (304SS, 420SS)	✖	○	○		
K	Cast Iron	○		✖		
	Ductile Cast Iron	○		✖		
N	Aluminum Alloys (6061, 7075)	○				
S	Heat Resistant Alloys (Inconel 718)	✖	✖			
	Titanium Alloy (Ti-6Al-4V)	✖			✖	
H	Pre-Hardened Steel (P20)	○	○	✖		
	Die Cast Steels (A2, S7)	○		✖		
	Hardened Steels (D2)			✖		

EXOCARB® WXL® Series		EXOCARB® WXS® Series		EXOCARB® AERO DLC		EXOCARB® AERO UVX Silent Rougher		EXOCARB® AERO BLIZZARD®		HY-PRO® CARB VGX Series	
P853-883		P884-904		P932-941		P921-923		P942-950		P960-968	
											
Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric
1/64 - 3/4"	0.1 - 26mm	1/32 - 3/4"	0.1 - 13mm	1/2 - 1"	12 - 25mm	1/4 - 1"	6 - 25mm	1/8 - 1"	–	1/8 - 1 1/4"	–
2, 4		2, 3, 4, 6		2, 3		4		2, 3		4, 5	
✓	✓	✓	✓	✓	✓			✓		✓	
✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
✓	✓	✓	✓					✓		✓	
✓	✓		✓			✓	✓	✓		✓	
				✓	✓						
						✓	✓			✓	
Carbide		Carbide		Carbide		Carbide		Carbide		Carbide	
WXL®		WXS®		DLC		WXL®		Bright/DLC		TiAlN	

✱	○		○		○
○	○		○		✱
○	✱		○		○
○	○		○		✱
○	○		✱		○
○	○		✱		○
○		✱	○	✱	
○					○
○			○		○
✱			○		○
✱	○				○
○	✱				○

For OSG's complete end mill offering please refer to the Illustrated Index starting on page 784.

✱ 1st Choice ✱ 2nd Choice ○ Recommended

List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
A Brand®										
8200	NEW SIZES 	Inch	4	Variable	Carbide	Duarise	5/64" - 1"	AE-VMS	830	1112-1113
8205	NEW SIZES 	Metric	4	Regular	Carbide	Duarise	3mm - 25mm	AE-VMS	831	1112-1113
8210		Inch	4	Variable	Carbide	Duarise	3/16" - 1"	AE-CR-VMS, Corner Radius	832	1114-1115
8215		Metric	4	Regular	Carbide	Duarise	3mm - 12mm	AE-CR-VMS, Corner Radius	833	1114-1115
8220		Inch	4	Variable	Carbide	Duarise	1/4" - 1"	AE-LN-CR-VMS, Long Neck, Corner Radius	834	1119
8206	NEW 	Metric	4	Stub	Carbide	Duarise	3mm - 12mm	AE-VMSS	835	1116-1117
8230	NEW 	Inch	4	Stub	Carbide	Duarise	1/4" - 1"	AE-LN-VMSS, Long Neck	836	1118
8235	NEW 	Metric	4	Stub	Carbide	Duarise	6mm - 12mm	AE-LN-VMSS, Long Neck	837	1118
8201	NEW 	Inch	4	Long	Carbide	Duarise	1/4" - 1/2"	AE-VML	838	1120-1123
8207	NEW 	Metric	4	Long	Carbide	Duarise	6mm - 12mm	AE-VML	839	1120-1123
8202	NEW 	Inch	4	Long	Carbide	Duarise	1/4" - 1/2"	AE-NIK-VML, Nicks	840	1120-1123
8208	NEW 	Metric	4	Long	Carbide	Duarise	6mm - 12mm	AE-NIK-VML, Nicks	840	1120-1123
EXOPRO®										
2055		Inch	5	Variable	Carbide	EXO®	1/4" - 1"	UVX-Ni, Corner Radius	841	1124
9510		Metric	3	Stub	Carbide	EXO®	1mm - 20mm	Phoenix® Deep Feed, Ball End	842	1125-1127
9590		Metric	3	Stub	Carbide	WXS®	0.6mm - 6mm	Phoenix® Long Neck, Ball End	843	1125-1127
9581		Metric	3	Stub	Carbide	WXS®	1mm - 12mm	Phoenix® Pencil-Neck, Deep Feed, Ball End	844-845	1125-1127
9592		Metric	4	Stub	Carbide	WXS®	0.8mm - 3mm	Phoenix® Pencil Neck, Deep Feed, Corner Radius	846	1131
9575		Metric	3	Stub	Carbide	WXS®	6mm - 20mm	Phoenix® Deep Feed, Corner Radius	847	1128-1130
9576		Metric	3	Stub	Carbide	WXS®	4mm - 16mm	Phoenix® Long Neck, Deep Feed, Corner Radius	848	1128-1130
9580		Metric	3	Stub	Carbide	WXS®	2mm - 12mm	Phoenix® Pencil Neck, Deep Feed, Corner Radius	849-851	1128-1130
9570		Metric	3	Stub	Carbide	EXO®	1mm - 20mm	Phoenix® High-Feed, Corner Radius	852	1128-1130

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC

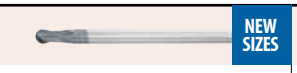
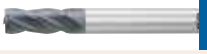
A Brand®

8200	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	○		
8205	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	○		
8210	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	◉	○	
8215	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	◉	○	
8220	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	◉	○	
8206	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	○		
8230	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	○		
8235	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	○		
8201	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	◉	○	
8207	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	◉	○	
8202	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	◉	○	
8208	◉	◉	◉	◉	◉	◉	◉	◉	◉	○	○	○	○	◉	◉	○	

EXOPRO®

2055						○	○	○				◉				○	
9510	◉	◉	◉	◉	◉	○	○	○	○					◉	◉	◉	○
9590	◉	◉	◉	◉	◉	○	○	○	○					◉	◉	◉	○
9581	◉	◉	◉	◉	◉	○	○	○	○					◉	◉	◉	○
9592	○	○	○	○	○									○	◉	◉	○
9575	◉	◉	◉	◉	◉	○	○	○	○					◉	◉	◉	○
9576	◉	◉	◉	◉	◉	○	○	○	○					◉	◉	◉	○
9580	◉	◉	◉	◉	◉	○	○	○	○					◉	◉	◉	○
9570	◉	◉	◉	◉	◉	○	○	○	○					◉	◉	◉	○

○ good ◉ best

List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
EXOCARB® WXL®										
3610	 NEW SIZES	Inch	2	Regular	Carbide	WXL®	1/32" - 1/2"	Ball End	853	1135
3710		Metric	2	Regular	Carbide	WXL®	0.1mm - 20mm	Ball End	854	1136
3670	 NEW SIZES	Inch	4	Regular	Carbide	WXL®	1/16" - 1"	Corner Radius	855	1137
3604	 NEW SIZES	Inch	4	Regular	Carbide	WXL®	1/16" - 1"		856	1138
3690		Inch	2	Regular	Carbide	WXL®	1/64" - 1/4"	Ball End, Long Neck, ±5µm Radius Tolerance	857	1139-1148
3790		Metric	2	Regular	Carbide	WXL®	0.1mm - 6mm	Ball End, Long Neck, ±5µm Radius Tolerance	858-860	1139-1148
3619	 NEW	Inch	2	Stub	Carbide	WXL®	1/16" - 1/2"		861	1149
3620		Inch	2	Stub	Carbide	WXL®	1/16" - 3/4"		862	1150
3621		Inch	2	Regular	Carbide	WXL®	1/16" - 3/4"		863	1150
3704		Metric	4	Regular	Carbide	WXL®	1mm - 12mm		864	1151
3742		Metric	4	Long	Carbide	WXL®	3mm - 26mm		865	1152
3791		Metric	2	Stub	Carbide	WXL®	0.2mm - 5mm	Long Neck	866-867	1154-1157
3711		Metric	2	Stub	Carbide	WXL®	1mm - 18mm	Ball End, Long Shank	868	1153
3720		Metric	2	Stub	Carbide	WXL®	0.1mm - 6mm		869	1158-1159
3721		Metric	2	Stub	Carbide	WXL®	0.1mm - 20mm		870	1160-1161
3712		Metric	2	Stub	Carbide	WXL®	0.2mm - 6mm	Pencil Neck, Ball End	871-876	1162-1169
3722		Metric	2	Regular	Carbide	WXL®	0.1mm - 20mm		877	1170-1171
3723		Metric	2	Long	Carbide	WXL®	0.2mm - 12mm		878	1172-1173
3770		Metric	2	Regular	Carbide	WXL®	0.6mm - 12mm	Corner Radius	879	1174
3771		Metric	4	Regular	Carbide	WXL®	3mm - 12mm	Corner Radius	880	1175
3794		Metric	4	Stub	Carbide	WXL®	1mm - 3mm	Long Neck	881-882	1176-1177
4445		Inch	4	Regular	Carbide	WXL®	1/8" - 1/2"	High Helix, Corner Radius	883	1178

EXOCARB® WXL®

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3610	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3710	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3670	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	○	
3604	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	○	
3690	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3790	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3619	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3620	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3621	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3704	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	○	
3742	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	○	
3791	◎	◎	◎	◎	◎	○	○	○	◎	○	○	○	○	◎	◎	○	○
3711	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3720	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3721	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3712	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3722	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3723	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3770	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3771	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○
3794	◎	◎	◎	◎	◎	○	○	○	◎	○	○	○	○	◎	◎	○	
4445	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○

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List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
EXOCARB® WXS®										
4410		Inch	2	Stub	Carbide	WXS®	1/32" - 1/2"	Ball End	884	1179
4510		Metric	2	Stub	Carbide	WXS®	1mm - 12mm	Ball End	885	1180
4440		Inch	4, 6	Regular	Carbide	WXS®	1/16" - 3/4"		886	1181
4540	 NEW SIZES	Metric	4, 6	Regular	Carbide	WXS®	1mm - 25mm		887	1182
4471		Inch	4	Stub	Carbide	WXS®	1/16" - 1/2"	Corner Radius	888	1183
4571		Metric	4	Stub	Carbide	WXS®	3mm - 12mm	Corner Radius	889	1184
4470		Inch	3, 4	Stub	Carbide	WXS®	1/8" - 1/2"	Corner Radius, High Feed	890	1185
4570		Metric	3, 4	Stub	Carbide	WXS®	2mm - 13mm	Corner Radius, High Feed	890	1186
4472		Inch	5	Stub	Carbide	WXS®	1/8" - 1/2"	Corner Radius, High Feed	891	1187
4572		Metric	4, 5	Stub	Carbide	WXS®	2mm - 12mm	Corner Radius, High Feed	892	1188
4592		Metric	2	Stub	Carbide	WXS®	0.4mm - 3mm	Corner Radius, Long Neck, ±5µm Radius Tolerance	893-895	1189
4590		Metric	2	Stub	Carbide	WXS®	0.1mm - 6mm	Ball End, Long Neck, ±5µm Radius Tolerance	896-898	1190-1192
4430		Inch	4	Regular	Carbide	WXS®	1/4" - 1/2"	Ball End, True 4 Flute	899	1193
4530		Metric	4	Regular	Carbide	WXS®	6mm - 12mm	Ball End, True 4 Flute	900	1194
4413	 NEW	Inch	2	Regular	Carbide	WXS®	1/16" - 1/2"	Ball End, Sphere Type	901	1195
4513	 NEW SIZES	Metric	2	Regular	Carbide	WXS®	1mm - 12mm	Ball End, Sphere Type	902	1196
4581		Metric	4	Variable	Carbide	WXS®	1mm - 2.5mm	Ball End, Tapered	903	1197
4541		Metric	4, 6	Regular	Carbide	WXS®	3mm - 12mm	Corner Radius	904	1198
EXOCARB® MAX										
9010		Inch	2	Stub	Carbide	WXS®	1/32" - 1/2"	Ball End	905	1199
9110		Metric	2	Stub	Carbide	WXS®	1mm - 10mm	Ball End	905	1199
9011		Inch	2	Stub	Carbide	WXS®	1/32" - 3/8"	Ball End, Long Shank	906	1199
9111		Metric	2	Stub	Carbide	WXS®	1mm - 10mm	Ball End, Long Shank	906	1199
9140		Metric	6	Regular	Carbide	WXS®	3mm - 12mm	Square End	907	1204-1205

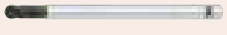
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
EXOCARB® WXS®																	
4410	◉	◉	◉	◉	◉	◉	◉	◉	◉			○	○	◉	◉	◉	◉
4510	◉	◉	◉	◉	◉	◉	◉	◉	◉			○	○	◉	◉	◉	◉
4440	◉	◉	◉	◉	◉	○	○	○	◉			○	○	◉	◉	◉	◉
4540	◉	◉	◉	◉	◉	○	○	○	◉			○	○	◉	◉	◉	◉
4471	◉	◉	◉	◉	◉	○	○	○	◉			○	○	◉	◉	◉	◉
4571	◉	◉	◉	◉	◉	○	○	○	◉			○	○	◉	◉	◉	◉
4470	◉	◉	◉	◉	◉	○	○	○	◉					◉	◉	◉	◉
4570	◉	◉	◉	◉	◉	○	○	○	◉					◉	◉	◉	◉
4472	◉	◉	◉	◉	◉	◉	○		◉			○	○	◉	◉	◉	◉
4572	◉	◉	◉	◉	◉	◉	○		◉			○	○	◉	◉	◉	◉
4592	◉	◉	◉	◉	◉	◉	◉	◉						◉	◉	◉	◉
4590	○	○	○	○	○	○	○	○	○			○	○	○	◉	◉	◉
4430	◉	◉	◉	◉	◉	○	○	○	◉					◉	◉	◉	◉
4530	◉	◉	◉	◉	◉	○	○	○	◉					◉	◉	◉	◉
4413	◉	◉	◉	◉	◉	○	○	○	◉					◉	◉	◉	◉
4513	◉	◉	◉	◉	◉	○	○	○	◉					◉	◉	◉	◉
4581	◉	◉	◉	◉	◉	○	○	○	◉					◉	◉	◉	○
4541	◉	◉	◉	◉	◉	○	○	○	◉			○	○	◉	◉	◉	◉
EXOCARB® MAX																	
9010	◉	◉	◉	◉	◉	○	○	○	◉			○	○	◉	◉	◉	◉
9110	◉	◉	◉	◉	◉	○	○	○	◉			○	○	◉	◉	◉	◉
9011	◉	◉	◉	◉	◉	○	○	○	◉			○	○	◉	◉	◉	○
9111	◉	◉	◉	◉	◉	○	○	○	◉			○	○	◉	◉	◉	○
9140	◉	◉	◉	◉	◉	○	○	○	◉			○	○	◉	◉	◉	◉

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EXOCARB® MAX

List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
9144		Metric	6	Regular	Carbide	WXS®	6mm - 12mm	Corner Radius	907	1204-1205
9191		Metric	2	Stub	CBN	Bright	0.4mm - 3mm	CBN, Ball End	908	1202
9192		Metric	2	Stub	CBN	Bright	0.4mm - 3mm	CBN, Super Long Neck, Ball Nose	908	1203
9181		Metric	2	Stub	CBN	Bright	0.5mm - 3mm	CBN, Corner Radius	909	1200
9182		Metric	2	Stub	CBN	Bright	0.5mm - 3mm	Long Neck, CBN, Corner Radius	909	1201

EXOCARB® Diamond

List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
7020		Inch	2	Stub	Carbide	Diamond	1/64" - 1/2"		910	1206-1207
7120		Metric	2	Regular	Carbide	Diamond	1mm - 12mm		911	1206-1207
7040		Inch	4	Stub	Carbide	Diamond	1/16" - 1/2"		911	1206-1207
7041		Inch	4	Long	Carbide	Diamond	1/8" - 1/2"		912	1206-1207
7042		Inch	4	Stub	Carbide	Diamond	1/16" - 1/2"	Long Shank	912	1206-1207
7072		Inch	4	Stub	Carbide	Diamond	1/8" - 1/2"	Long Shank, Corner Radius	913	1206-1207
7010		Inch	2	Regular	Carbide	Diamond	1/32" - 1/2"	Ball End	913	1206-1207
7110		Metric	2	Regular	Carbide	Diamond	1mm - 12mm	Ball End	914	1206-1207
7030		Inch	4	Regular	Carbide	Diamond	1/32" - 1/2"	Ball End	914	1206-1207
7031		Inch	4	Long	Carbide	Diamond	3/16" - 1/2"	Ball End	915	1206-1207
7032		Inch	4	Stub	Carbide	Diamond	1/16" - 1/2"	Ball End, Long Shank	915	1206-1207
7173		Metric	4	Stub	Carbide	Diamond	0.5mm - 12mm	Ball End, Long Shank	916	1206-1207
7132		Metric	4	Stub	Carbide	Diamond	3mm - 12mm	Long Shank, Corner Radius	917	1206-1207
7140		Metric	4	Regular	Carbide	Diamond	1mm - 12mm		917	1206-1207
7230		Inch	2, 4	Regular	Carbide	Diamond	1/64" - 1/4"	High Precision, Ball End	918	1208
7231		Inch	2, 4	Regular	Carbide	Diamond	1/64" - 1/4"	High Precision, Ball End, Long Reach	918	1208

EXOCARB® MAX

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9144	◎	◎	◎	◎	◎	○	○	○	◎			○	○	◎	◎	◎	◎
9191															○	◎	◎
9192															○	◎	◎
9181															○	◎	◎
9182															○	◎	◎

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EXOCARB® Diamond

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum Alloys	Copper Alloys	Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH				Inconel	6Al4V (30 HRC)				
7020										◎	◎					◎	
7120										◎	◎					◎	
7040										◎	◎					◎	
7041										◎	◎					◎	
7042										◎	◎					◎	
7072										◎	◎					◎	
7010										◎	◎					◎	
7110										◎	◎					◎	
7030										◎	◎					◎	
7031										◎	◎					◎	
7032										◎	◎					◎	
7173										◎	◎					◎	
7132										◎	◎					◎	
7140										◎	◎					◎	
7230										◎	◎					◎	
7231										◎	◎					◎	

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List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
EXOCARB® AERO										
2050		Inch	4	Variable	Carbide	EXO®	1/8" - 1"	UVX , Square End, for Exotics	919	1209
2052		Inch	4	Variable	Carbide	EXO®	1/8" - 1"	UVX , Corner Radius, for Exotics	920	1209
3815		Inch	4	Regular	Carbide	WXL®	1/4" - 1"	UVX Silent Rougher, Low Helix, Corner Chamfer	921	1210-1211
3820		Inch	4	Regular	Carbide	WXL®	1/4" - 1"	UVX Silent Rougher, High Helix, Corner Chamfer	921	1210-1211
3915		Metric	4	Regular	Carbide	WXL®	6mm - 25mm	UVX SIlent Rougher, Low Helix, Corner Chamfer	922	1210-1211
3920		Metric	4	Regular	Carbide	WXL®	6mm - 25mm	UVX SIlent Rougher, High Helix, Corner Chamfer	922	1210-1211
3825		Inch	4	Regular	Carbide	WXL®	1/4" - 1"	UVX Silent Rougher, Low Helix, Long Neck, Corner Chamfer	923	1210-1211
3830		Inch	4	Regular	Carbide	WXL®	1/4" - 1"	UVX Silent Rougher, High Helix, Long Neck, Corner Chamfer	923	1210-1211
2015		Inch	4	Regular	Carbide	TiAlN	1/4" - 1"	Rougher, for Exotics	924	1212
2100		Inch	5	Multiple	Carbide	EXO®	1/2" - 1-1/4"	UVX-Ti	925	1213
2106		Inch	5	Multiple	Carbide	EXO®	1/2" - 1-1/4"	UVX-Ti, Corner Radius	926-927	1213
2104		Metric	5	Regular	Carbide	EXO®	12mm - 25mm	UVX-Ti, Reduced Neck	928	1214
2102		Inch	5	Regular	Carbide	EXO®	1/2" - 1-1/4"	UVX-Ti, Reduced Neck	928	1213
2108		Inch	5	Regular	Carbide	EXO®	1/2" - 1-1/4"	UVX-Ti, Reduced Neck, Corner Radius	929	1213
2110		Metric	5	Regular	Carbide	EXO®	12mm - 20mm	UVX-Ti, Reduced Neck, Corner Radius	930	1214
2080		Inch	6,8	Regular	Carbide	Bright	5/8" - 1"	HFC-Ti, High Feed Radius Cutter for Titanium	931	1215
2081		Metric	6,8	Regular	Carbide	Bright	16mm - 25mm	HFC-Ti, High Feed Radius Cutter for Titanium	931	1215
2863		Inch	2	Stub	Carbide	DLC	1/2" - 1"	AERO-DLC, Corner Radius	932	1216
2963		Metric	2	Stub	Carbide	DLC	12mm - 25mm	AERO-DLC, Corner Radius	933	1216
2873		Inch	3	Stub	Carbide	DLC	1/2" - 1"	AERO-DLC, Corner Radius/ Square	934	1217
2973		Metric	3	Stub	Carbide	DLC	12mm - 25mm	AERO-DLC, Corner Radius/ Square	935	1217
2874		Inch	3	Stub	Carbide	DLC	5/8" - 1"	AERO-DLC, Coolant-Through, Corner Radius/Square	936	1217
2974		Metric	3	Stub	Carbide	DLC	20mm - 25mm	AERO-DLC, Coolant-Through, Corner Radius/Square	937	1218

EXOCARB® AERO

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2050	◎	◎	◎	◎	◎	◎	◎	◎	○			◎	◎	◎	○		
2052	◎	◎	◎	◎	◎	◎	◎	◎	○			◎	◎	◎	○		
3815	◎	◎	◎	○	○	○	○	○	◎	○			○	○			
3820	○	○	○	○	○	◎	◎	◎	○	○		○	◎	◎	○		
3915	◎	◎	◎	○	○	○	○	○	◎	○			○	○			
3920	○	○	○	○	○	◎	◎	◎	○	○		○	◎	◎	○		
3825	◎	◎	◎	○	○	○	○	○	◎	○			○	○			
3830	○	○	○	○	○	◎	◎	◎	○	○		○	◎	◎	○		
2015	◎	◎	◎	◎	◎	◎	◎	◎	○			◎	◎	◎	○		
2100						○	○	○					◎				
2106						○	○	○					◎				
2104						○	○	○					◎				
2102						○	○	○					◎				
2108						○	○	○					◎				
2110						○	○	○					◎				
2080													◎				
2081													◎				
2863										◎	◎						
2963										◎	◎						
2873										◎	◎						
2973										◎	◎						
2874										◎	◎						
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List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
EXOCARB® AERO										
2843		Inch	3	Long	Carbide	DLC	1/2" - 1"	AERO-DLC, Long Length, Corner Radius/Square	938	1218
2943		Metric	3	Long	Carbide	DLC	12mm - 20mm	AERO-DLC, Long Length, Corner Radius/Square	939	1218
2853		Inch	3	Extra Long	Carbide	DLC	3/4"	AERO-DLC, Extra Long Length, Corner Radius/Square	940	1219
2953		Metric	3	Extra Long	Carbide	DLC	20mm	AERO-DLC, Extra Long Length, Corner Radius/Square	941	1219

List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
EXOCARB® AERO										
2021		Inch	2	Stub	Carbide	Bright	1/8" - 1"	BLIZZARD® Square & Corner Radius	942	1220
2022		Inch	2	Regular	Carbide	Bright	1/8" - 1"	BLIZZARD® Square & Corner Radius	943	1220
2023		Inch	2	Regular	Carbide	Bright	1/4" - 1"	BLIZZARD®, Reduced Neck,Square & Corner Radius	944	1220
2024		Inch	2	Long	Carbide	Bright	1/4" - 1"	BLIZZARD®, Reduced Neck, Square & Corner Radius	945	1220
2041		Inch	3	Stub	Carbide	Bright	1/8" - 1"	BLIZZARD® Square & Corner Radius	946	1221
2042		Inch	3	Regular	Carbide	Bright	1/8" - 1"	BLIZZARD® Square & Corner Radius	947	1222
2043		Inch	3	Regular	Carbide	Bright	1/4" - 1"	BLIZZARD®, Reduced Neck,Square & Corner Radius	948	1222
2048		Inch	3	Long	Carbide	Bright	1/4" - 1"	BLIZZARD®, Reduced Neck, Square & Corner Radius	949	1222
2010		Inch	2	Regular	Carbide	Bright	1/8" - 1"	BLIZZARD®, Ball End	950	1223
8120		Metric	2	Regular	Carbide	Bright	1mm - 16mm		951	1224

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC

EXOCARB® AERO

2843										▢	▢						
2943										▢	▢						
2853										▢	▢						
2953										▢	▢						

▢ good ▢ best

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum Alloys	Copper Alloys	Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH				Inconel	6Al4V (30 HRC)				

EXOCARB® AERO

2021										▢	▢						
2022										▢	▢						
2023										▢	▢						
2024										▢	▢						
2041										▢	▢						
2042										▢	▢						
2043										▢	▢						
2048										▢	▢						
2010										▢	▢						
8120										▢	▢						

▢ good ▢ best

List	Item	Brand/Series	Inch/ Metric	Material	Coating	Size Range	Features	Page	Tech Page
Composite Routers									
2061		EXOPRO® AERO-BNC	Inch	Carbide	Diamond	1/8" - 1/2"	Nick Router	952	1225
2066		EXOPRO® AERO-HBC	Inch	Carbide	Diamond	1/8" - 1/2"	Compression Router, 30˚ Helix	953	1225
2064		EXOPRO® AERO-HBC 45	Inch	Carbide	Diamond	1/4" - 1/2"	Compression Router, 45˚ Helix	954	1225
2068		EXOPRO® AERO-HBC 60	Inch	Carbide	Diamond	1/4" - 1/2"	Compression Router, 60˚ Helix	955	1226
2680		EXOPRO® AERO-REC	Inch	Carbide	Diamond	15/64" - 1/2"	Rougher Router	956	1227
2650		EXOPRO® AERO-MFR	Inch	Carbide	Diamond	1/4" - 1/2"	Finishing Router	957	1228
668		AERO-HBC 60	Inch	Carbide	Bright	1/4" - 1/2"	Compression Router, 60˚ Helix	958	1226
641R		AERO-HFR	Inch	Carbide	Bright	3/16" - 1/2"	Hand Router	959	1229

List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
HY-PRO® CARB VGX (Variable Geometry)										
VG441		Inch	4	Multiple	Carbide	TiAlN	1/8" - 1"	Square End	960	1230
VG434		Inch	4	Multiple	Carbide	TiAlN	1/8" - 1"	Corner Radius	961	1230
VG436		Inch	4	Multiple	Carbide	TiAlN	1/8" - 1"	Corner Chamfer	962	1230
VG446		Inch	4	Multiple	Carbide	TiAlN	1/4" - 1"	Red. Neck, Corner Radius/ Corner Chamfer	963	1231
VG464		Inch	4	Multiple	Carbide	TiAlN	1/4" - 1"	Extended Length, Square End/ Corner Chamfer	964	1231
VG441BN		Inch	4	Multiple	Carbide	TiAlN	1/8" - 1-1/4"	Ball Nose	965	1232
VG541		Inch	5	Multiple	Carbide	TiAlN	1/8" - 1"	Square End	966	1233
VG534		Inch	5	Multiple	Carbide	TiAlN	3/16" - 1"	Corner Radius	967-968	1233

Composite Routers

List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/CRES Stack
				CFRP/ Nomex	GFRP/ Nomex	AFRP	CFRP/Al	Al/Al				
2061	◎	○		○	○		○	○	◎			
2066	◎	◎	○	○	○	○	○	○				
2064	◎	◎	○	○	○	○	○	○				
2068	◎	◎	○	◎	◎	◎	◎	◎				
2680	◎	◎		○	○		○	○	◎			
2650	◎	◎		○	○		○	○	◎			
668			◎	◎	◎	◎	◎	◎				
641R	◎	◎		○	○		○	○	○			

○ Good ◎ Best

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC

HY-PRO® CARB VGX (Variable Geometry)

VG441	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	○	
VG434	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	○	
VG436	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	○	
VG446	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	○	
VG464	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	○	
VG441BN	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	○	
VG541	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	○	
VG534	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	○	

○ good ◎ best

List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
HY-PRO® CARB Square End										
HP421		Inch/ Metric	2		Carbide	TiAlN	3/64" - 1", 3mm-25mm		969-970	1234-1238
HP441		Inch/ Metric	4		Carbide	TiAlN	3/64" - 1", 3mm-25mm		969-970	1234-1238
HP460		Inch/ Metric	3		Carbide	TiAlN	1/8" - 1", 3mm-25mm	High Helix	971	1239-1240
HP450		Inch/ Metric	4, 6, 8		Carbide	TiAlN	1/8" - 1", 3mm-25mm		972	1241
HP453		Metric	4		Carbide	TiAlN	4mm - 20mm	Super Tough Mills	973	1243
HP456		Metric	4		Carbide	TiAlN	6mm - 12mm	Super Tough Mills, Corner Radius	973	1243
HP451		Inch/ Metric	4		Carbide	TiAlN	1/8" - 1", 4mm-20mm	Super Tough Mills	974	1242-1243
HP400		Inch/ Metric	4		Carbide	TiAlN	1/4" - 1", 3mm - 25mm	Rougher	975	1244-1245
HP410		Inch/ Metric	2		Carbide	TiAlN	1/32" - 3/16", 0.5mm-2.5mm	Short Length, Long Neck	976-977	1246
HP411		Inch/ Metric	4		Carbide	TiAlN	1/8" - 1/4", 3mm - 6mm	Short Length, Long Neck	978	1247
HP455		Inch/ Metric	5		Carbide	TiAlN	1/8" - 1", 3mm - 25mm	Corner Protection	979	1248
HY-PRO® CARB Ball End										
HP421BN		Inch/ Metric	2		Carbide	TiAlN	3/64" - 1", 1mm-20mm	Ball End	980-981	1249-1250
HP441BN		Inch/ Metric	4		Carbide	TiAlN	3/64" - 1", 1mm-20mm	Ball End	980-981	1249-1250
HP416		Inch/ Metric	2		Carbide	TiAlN	1/32" - 1/2", 1mm-25mm	Ball End	982	1251-1252
HP418		Inch/ Metric	2		Carbide	TiAlN	3/32" - 3/8", 1mm-12mm	Ball End, Pencil Neck	983	1253-1254
HP419		Inch/ Metric	2		Carbide	TiAlN	1/32" - 3/16", 0.5mm-6mm	Ball End, Long Neck	984	1255-1256
HP419L		Metric	2		Carbide	TiAlN	0.6mm - 3mm	Ball End, Long Neck	985	1255-1256
HP413		Inch/ Metric	2		Carbide	TiAlN	1/32" - 3/16", 1mm-6mm	Ball End	986	1255-1256

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HY-PRO® CARB Square End																	
HP421	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	
HP441	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	
HP460	▢	▢	▢	▢		▢	▢	▢	▢				▢	▢	▢	▢	
HP450	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	
HP453	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢	▢	▢	
HP456	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢	▢	▢	
HP451	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢	▢	▢	
HP400	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	
HP410	▢	▢	▢	▢	▢				▢					▢	▢	▢	
HP411	▢	▢	▢	▢	▢				▢					▢	▢		
HP455	▢	▢	▢	▢	▢	▢	▢	▢	▢			▣	▣	▢	▢	▢	
HY-PRO® CARB Ball End																	
HP421BN	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	
HP441BN	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	
HP416	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢		
HP418	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢		
HP419	▢	▢	▢	▢	▢				▢					▢	▢		
HP419L	▢	▢	▢	▢	▢				▢					▢	▢		
HP413	▢	▢	▢	▢	▢				▢					▢	▢		

▢ good ▣ best

List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
HY-PRO® CARB Corner Radius										
HP432		Inch/ Metric	2		Carbide	TiAlN	1/8" - 1",3mm-12mm	Corner Radius	987-988	1257-1260
HP434		Inch/ Metric	4		Carbide	TiAlN	1/8" - 1", 3mm-12mm	Corner Radius	987-988	1257-1260
HP433		Metric	2		Carbide	TiAlN	3mm - 12mm	Corner Radius	989	1257-1260
HP435		Metric	4		Carbide	TiAlN	3mm - 12mm	Corner Radius	990	1258-1260
Square & Corner Radius										
400		Inch/ Metric	4		Carbide	Bright*	1/4" - 1", 6mm-25mm	Roughy Mills	991	1272-1273
415		Inch			Carbide	Bright*	1/8" - 1"	Toughy Mills, Standard Cut	992	–
415C		Inch			Carbide	Bright*	1/8" - 1"	Toughy Mills, Coarse Cut	992	–
402		Inch/ Metric	2		Carbide	TiAlN, TiCN, Bright*	1/32" - 1", 5mm-25mm	General Purpose	993-995	1261-1267
403		Inch/ Metric	3		Carbide	TiAlN, Bright*	1/32" - 1", 5mm-25mm	General Purpose	993-995	1261-1267
404		Inch/ Metric	4		Carbide	TiAlN, Bright*	1/32" - 1", 5mm-25mm	General Purpose	993-995	1261-1267
408		Inch	Multiple		Carbide	Bright*	1/8" - 1"	Slow Spiral	996	1265-1267
409		Inch	4		Carbide	Bright*	1/16" - 1"	Slow Spiral	996	1265-1267
452		Inch	2		Carbide	TiALN, Bright*	1/16" - 1"	Plus Tolerance	997	1261-1267
454		Inch	4		Carbide	Bright*	1/16" - 1"	Plus Tolerance	997	1261-1267
412		Inch/ Metric	2		Carbide	Bright*	1/32" - 3/4", 1mm-12mm	Stub Length	998-999	1261-1267
414		Inch/ Metric	4		Carbide	TiALN, Bright*	1/32" - 3/4", 1mm-12mm	Stub Length	998-999	1261-1267
462		Inch/ Metric	2		Carbide	TiCN, TiALN, Bright*	1/8" - 1", 3mm-25mm	Long Length	1000-1001	1261-1267
464		Inch/ Metric	4		Carbide	TiCN, TiALN, Bright*	1/8" - 1", 3mm-25mm	Long Length	1000-1001	1261-1267
482		Inch/ Metric	2		Carbide	TiCN, TiALN, Bright*	1/8" - 1", 3mm-25mm	Extra-Long Length	1002-1003	1261-1267
484		Inch/ Metric	4		Carbide	TiCN, TiALN, Bright*	1/8" - 1", 3mm-25mm	Extra-Long Length	1002-1003	1261-1267

* Other coatings are available on request.

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HY-PRO® CARB Corner Radius																	
HP432	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	
HP434	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	
HP433	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢		
HP435	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	
Square & Corner Radius																	
400	▢	▢		▢		▢	▢	▢	▢	▢	▢			▢	▢	▢	
415			▢	▢										▢	▢	▢	
415C			▢	▢										▢	▢	▢	
402	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		
403	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
404	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
408	▢	▢	▢	▢	▢				▢					▢	▢	▢	
409	▢	▢	▢	▢	▢				▢					▢	▢	▢	
452	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
454	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
412	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
414	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
462	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
464	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	▢
482	▢	▢	▢						▢	▢	▢			▢			
484	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		

▢ good ▢ best

List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
Square & Corner Radius										
495		Inch	2		Carbide	Bright*	1/8" - 1"	Corner Radius	1004	1261-1267
496		Inch	4		Carbide	TiALN, Bright*	1/8" - 1"	Corner Radius	1004	1261-1267
Square End										
455C		Inch	5		Carbide	TiCN, TiALN, Bright*	1/8" - 1"	Corner Protection	1005	1265-1267
460C		Inch/ Metric	3		Carbide	Bright*	1/8" - 1", 6mm - 25mm	High Helix	1006	1261-1264
445		Inch/ Metric	3		Carbide	Bright*	1/16" - 1", 1mm-20mm		1007	1261-1264
461		Inch/ Metric	6		Carbide	TiALN, Bright*	1/8" - 1", 3mm-25mm		1008	1265-1267
447		Inch	4		Carbide	TiALN, Bright*	1/16" - 1"	RHC/LHS	1009	1265-1267
492		Inch	2		Carbide	Bright*	0.015" - 0.060"	Miniature	1010	1274
494		Inch	4		Carbide	Bright*	0.015" - 0.060"	Miniature	1010	1274
Ball End										
402BN		Inch/ Metric	2		Carbide	TiAlN, Bright*	1/32" - 1", 0.5mm-25mm	Ball End	1011-1013	1269-1271
403BN		Inch/ Metric	3		Carbide	TiAlN, Bright*	1/32" - 1", 0.5mm-25mm	Ball End	1011-1013	1269-1271
404BN		Inch/ Metric	4		Carbide	TiAlN, Bright*	1/32" - 1", 0.5mm-25mm	Ball End	1011-1013	1269-1271
452BN		Inch	2		Carbide	Bright*	1/16" - 1"	Ball End, Plus Tolerance	1014	1269
412BN		Inch/ Metric	2		Carbide	TiALN, Bright*	1/32" - 3/4", 1mm - 12mm	Ball End, Stub Length	1015-1016	1269-1271
414BN		Inch/ Metric	4		Carbide	TiCN, TiALN, Bright*	1/32" - 3/4", 1mm - 12mm	Ball End, Stub Length	1015-1016	1269-1271
462BN		Inch/ Metric	2		Carbide	TiCN, Bright*	1/8" - 1", 3mm-25mm	Ball End, Long Length	1017	1269-1271
464BN		Inch/ Metric	4		Carbide	TiCN, TiALN, Bright*	1/8" - 1", 3mm-25mm	Ball End, Long Length	1017	1269-1271
482BN		Inch/ Metric	2		Carbide	TiALN, Bright*	1/8" - 1", 3mm-25mm	Ball End, Extra Long Length	1018-1019	1269-1271
484BN		Inch/ Metric	4		Carbide	TiALN, Bright*	1/8" - 1", 3mm-25mm	Ball End, Extra Long Length	1018-1019	1269-1271
497		Inch/ Metric	2		Carbide	Bright*	1/8" - 1", 3mm-20mm	Ball End, Long Shank	1020	1268

* Other coatings are available on request.

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
Square & Corner Radius																	
495	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	▢
496	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	▢
Square End																	
455C	▢	▢	▢	▢	▢				▢			▢	▢	▢	▢	▢	
460C	▢	▢	▢			▢	▢	▢	▢	▢	▢	▢		▢	▢		
445	▢	▢	▢	▢		▢	▢		▢	▢	▢			▢	▢		
461	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	
447	▢	▢	▢	▢		▢	▢		▢	▢	▢			▢	▢	▢	
492	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		
494	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		
Ball End																	
402BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		
403BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
404BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
452BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
412BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
414BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
462BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		
464BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
482BN	▢	▢	▢						▢	▢	▢			▢			
484BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		
497	▢	▢	▢	▢	▢	▢	▢		▢					▢	▢		

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Double End

List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
442		Inch	2		Carbide	TiALN, Bright*	1/8" - 1/2"		1021	1261-1267
444		Inch	4		Carbide	TiALN, Bright*	1/8" - 1/2"		1021	1261-1267
422		Inch	2		Carbide	TiALN, Bright*	1/32" - 1/2"	Stub Length	1022	1261-1267
423		Inch	3		Carbide	TiALN, Bright*	1/32" - 1/2"	Stub Length	1022	1261-1267
424		Inch	4		Carbide	TiALN, Bright*	1/32" - 1/2"	Stub Length	1022	1261-1267
442BN		Inch	2		Carbide	Bright*	1/8" - 1/2"	Ball End	1023	1269-1271
444BN		Inch	4		Carbide	TiALN, Bright*	1/8" - 1/2"	Ball End	1023	1269-1271
422BN		Inch	2		Carbide	TiALN, Bright*	1/32" - 1/2"	Ball End, Stub Length	1024	1269-1271
423BN		Inch	3		Carbide	Bright*	1/32" - 1/2"	Ball End, Stub Length	1024	1269-1271
424BN		Inch	4		Carbide	TiALN, Bright*	1/32" - 1/2"	Ball End, Stub Length	1024	1269-1271

* Other coatings are available on request.

Carbide Routers

List	Item	Inch/ Metric	Length of Cut	Material	Coating	Size Range	Features	Product Page
500		Inch		Carbide	Bright	3/32" - 1/2"	2 Flute, Straight	1025
502		Inch		Carbide	Bright	3/32" - 1/2"	3 Flute, Straight	1025
640		Inch		Carbide	Bright	1/16" - 1/2"	Fiberglass Routers, Diamond Cut	1026

Double End

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
442	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
444	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
422	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
423	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
424	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
442BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
444BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
422BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
423BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
424BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

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List	Item		Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
SOMTA											
04V-SO		NEW	Inch/ Metric	4	Stub	Carbide	TiALN	3/16" - 3/4", 5mm-20mm	Variable Index	1027	1275-1276
03V-SO		NEW	Inch/ Metric	4	Regular	Carbide	TiALN	1/4"-1", 5mm~20mm	Variable Index	1028-1029	1275-1276
05V-SO		NEW	Inch/ Metric	5	Regular	Carbide	TiALN	3/16"-3/4", 5mm~20mm	Variable Index	1030-1031	1277-1278
03A-SO		NEW	Metric	2	Regular	Carbide	TiALN	1mm - 20mm	Square	1032	1279
03K-SO		NEW	Metric	4	Regular	Carbide	TiALN	1mm - 20mm	Square	1033	1280
03M-SO		NEW	Metric	2	Regular	Carbide	TiALN	1mm - 20mm	Ball Nose	1034	1279
03P-SO		NEW	Metric	4	Regular	Carbide	TiALN	1mm - 20mm	Ball Nose	1035	1280
03E-SO		NEW	Inch/ Metric	4	Regular	Carbide	TiALN	1/4"-1", 6mm-20mm	Fine Pitch, Rougher	1036	1281
03C-SO		NEW	Inch	3	Regular	Carbide	Bright	1/4" - 1"	Coarse Pitch, Rougher	1037	1282
03F-SO		NEW	Inch/ Metric	4	Regular	Carbide	TiALN	1/4"-1", 6mm-20mm	Fine Pitch, Flat Crest, Rougher	1038-1039	1283
03D-SO		NEW	Inch	3	Regular	Carbide	TiALN	1/4" - 1"	Coarse Pitch, Flat Crest, Rougher	1040	1284
EXOMINI VC-10											
673			Inch	2	Regular	VC-10	TiN	1/32" - 3/16"		1041	1297-1298
676			Inch	4	Stub	VC-10	TiN	1/16" - 3/16"		1042	1299-1300
677			Inch	4	Regular	VC-10	TiN	1/16" - 3/16"		1042	1299-1300
EXOMILL VC-10											
620			Inch	2	Regular	VC-10	Bright*	1/8" - 1-1/2"		1043	1297-1298
621			Inch	2	Regular	VC-10	Bright*	1/8" - 1-1/2"	Ball End	1043	1301
641			Inch	4, 6	Regular	VC-10	Bright*	1/8" - 2"		1044	1299-1300
644			Inch	4, 6	Regular	VC-10	Bright*	3/8" - 1-1/2"	Ball End	1045	1301
646			Inch	4, 6	Long	VC-10	Bright*	1/4" - 2"		1046	1299-1300
660			Inch	3, 4	Regular	VC-10	Bright*	1/4" - 1"	High Helix	1046	1294

* Other coatings are available on request.

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC

SOMTA

04V-SO	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	○			
03V-SO	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	○			
05V-SO	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	○			
03A-SO	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○			
03K-SO	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○			
03M-SO	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○			
03P-SO	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○			
03E-SO	◎	◎	◎	◎	◎	◎	◎	◎	◎				◎	○			
03C-SO										◎	◎						
03F-SO	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎				
03D-SO	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎				

EXOMINI VC-10

673	○	○	○	◎	◎	◎	◎	◎	○	○	○		○	◎	○		
676	○	○	○	◎	◎	◎	◎	◎	○	○	○		○	◎	○		
677	○	○	○	◎	◎	◎	◎	◎	○	○	○		○	◎	○		

EXOMILL VC-10

620	○	○	○	◎	◎	◎	◎	◎	◎	○	○		○	◎	○		
621	○	○	○	◎	◎	◎	◎	◎	◎	○	○		○	◎	○		
641	○	○	○	◎	◎	◎	◎	◎	◎	○	○		○	◎	○		
644	○	○	○	◎	◎	◎	◎	◎	◎	○	○		○	◎	○		
646	○	○	○	◎	◎	◎	◎	◎	○	○	○		○	◎	○		
660	○	○	○	◎	◎	◎	◎	◎	○	○	○		○	○			

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List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
HY-PRO® V										
573		Inch	2	Regular	HSSE	TiCN, Bright*	1/8" - 1"		1047	1295
574		Inch	4, 6	Regular	HSSE	TiCN, Bright*	1/8" - 1"		1048	1295-1296
Roughing End Mills										
690		Inch	Multiple	Regular	HSSE	TiN	1/4" - 2"	EXOTIN®, Non Center-Cutting	1049	1293
450		Inch	Multiple	Stub, Reg., Long	HSS-Co	TiCN, Bright*	3/16" - 2"	Fine Pitch, Non Center-Cutting	1050	1285
455		Inch	Multiple	Stub, Reg., Long	HSS-Co	TiCN, TiAlN	1/4" - 2"	Fine Pitch	1051	1286
420		Inch	3, 4, 6	Stub	HSS-Co	Bright*	1/4" - 1-1/2"	Fine Pitch, Center Cutting	1052	1285
460		Inch	4, 5, 6	Regular, Long	HSS-Co	Bright*	1/2" - 1-1/2"	Fine Pitch, Center Cutting	1052	1291-1292
410		Inch	3	Stub	HSS-Co	Bright*	1/2" - 1"		1053	1289
430E		Inch	3	Reg., Med., Long	HSS-Co	Bright*	3/8" - 1-1/2"		1053	1288
490		Inch	Multiple	Stub, Reg., Med., Long	HSS-Co	Bright*	1/4" - 2"	General Purpose, Non Center-Cutting	1054	1289
440		Inch	4, 6, 8	Reg., Long	HSS-Co	Bright*	1/2" - 2"	Ball End, General Purpose	1055	1287
470		Inch	Multiple	Stub, Reg., Long	HSS-Co	Bright*	1/4" - 2"	Rough & Finish	1056	1290
Single End Mills										
520		Inch	2	Regular	HSS-Co	TiN, Bright*	1/8" - 2"		1057	1297-1298
580		Metric	2	Regular	HSS-Co	Bright*	3mm - 50mm		1058	1302
525		Inch	2	Long	HSS-Co	Bright*	3/8" - 2"		1059	1297-1298
527		Inch	2	Regular	HSS-Co	Bright*	1/8" - 1-1/4"	Reduced Neck	1059	1297-1298
530		Inch	2	Regular	HSS-Co	Bright*	1/4" - 2"	High Helix	1060	1297-1298
535		Inch	2	Long	HSS-Co	Bright*	1/4" - 2"	High Helix	1060	1297-1298
521		Inch	2	Regular	HSS-Co	Bright*	1/8" - 1-1/2"	Ball End	1061	1301
526		Inch	2	Regular	HSS-Co	Bright*	1/8" - 1"	Ball End, Reduced Neck	1061	1301

* Other coatings are available on request.

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HY-PRO® V																	
573	◎	◎	◎	◎	◎	○	○		◎	◎	◎		○	○	○		
574	◎	◎	◎	◎	◎	○	○		◎	◎	◎		○	○	○		
Roughing End Mills																	
690	○	○	○	○	○	◎	◎	○	○	○	○		○	◎	○		
450	○	○	○	○	○	◎	○	○	○		○		○	○	○		
455	○	○	○	○	○	◎	◎	○	○		○		○	◎	○		
420	○	○	○	○	○	◎	○	○	○		○		○	○	○		
460	○	○	○	○	○	◎	○	○	○		○		○	○	○		
410	○	○	○	○	○	○	○	○	○	○	○		○	○			
430E										◎	◎						
490	○	○	○	○	○	○	○	○	○	○	○		○	○			
440	○	○	○	○	○	○	○	○	○	○	○		○	○			
470	○	○	○	○	○	○	○	○	○	○	○			○			
Single End Mills																	
520	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
580	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
525	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
527	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
530	○					○	○			◎	◎						
535	○					○	○			◎	◎						
521	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
526	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		

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List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
Single End Multiple Flute										
531		Inch	3	Regular	HSS-Co	Bright*	1/8" - 2"		1062	1304
581		Metric	4, 6	Regular	HSS-Co	Bright*	3mm - 45mm	Non Center-Cutting	1063	1303
536		Inch	3	Long	HSS-Co	Bright*	1/4" - 2"		1064	1304
541		Inch	4, 6	Regular	HSS-Co	TiCN, TiN, TiAlN, Bright*	1/8" - 2"		1065	1299-1300
548		Inch	4	Medium	HSS-Co	TiCN, Bright*	5/8" - 1-1/2"		1066	1299-1300
546		Inch	4, 6	Long	HSS-Co	TiCN, Bright*	1/4" - 2"		1066	1299-1300
558		Inch	4, 6	Extra Long	HSS-Co	TiCN, Bright*	1/4" - 2"		1067	1299-1300
544		Inch	4	Regular	HSS-Co	Bright*	3/8" - 1-1/2"	Ball End	1068	1301
540		Inch	4, 6, 8	Regular	HSS-Co	TiN, Bright*	1/8" - 2"	Non Center-Cutting	1069	1299-1300
547		Inch	4, 6, 8	Medium	HSS-Co	Bright*	1" - 2"	Non Center-Cutting	1070	1299-1300
545		Inch	4, 6, 8	Long	HSS-Co	Bright*	1/4" - 2"	Non Center-Cutting	1070	1299-1300
557		Inch	4, 6	Extra Long	HSS-Co	Bright*	1/4" - 2"	Non Center-Cutting	1071	1299-1300
Single End Tapered										
591		Inch	3	Reg., Long, Extra Long	HSS-Co	Bright*	1/16" - 5/8"	1° Taper per Side	1072	1305
593		Inch	3	Reg., Long, Extra Long	HSS-Co	Bright*	1/16" - 5/8"	2° Taper per Side	1072	1306
594		Inch	3	Reg., Long, Extra Long	HSS-Co	Bright*	3/32" - 1/2"	3° Taper per Side	1073	1306
595		Inch	3	Reg., Long, Extra Long	HSS-Co	Bright*	3/32" - 1/2"	5° Taper per Side	1074	1307
596		Inch	3	Regular, Long	HSS-Co	Bright*	5/64" - 1/2"	7° Taper per Side	1075	1307
597		Inch	3	Regular, Long	HSS-Co	Bright*	3/32" - 1/4"	10° Taper per Side	1075	1308

* Other coatings are available on request.

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
Single End Multiple Flute																	
531	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
581	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
536	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
541	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
548	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
546	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
558	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
544	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
540	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
547	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
545	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
557	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
Single End Tapered																	
591	○	○	○	◎	◎	○	○	○	○	○	○		○	○	○		
593	○	○	○	◎	◎	○	○	○	○	○	○		○	○	○		
594	○	○	○	◎	◎	○	○	○	○	○	○		○	○	○		
595	○	○	○	◎	◎	○	○	○	○	○	○		○	○	○		
596	○	○	○	◎	◎	○	○	○	○	○	○		○	○	○		
597	○	○	○	◎	◎	○	○	○	○	○	○		○	○	○		

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List	Item	Inch/ Metric	No. of Flutes	Length of Cut	Material	Coating	Size Range	Features	Product Page	Tech Page
Double End Mills										
522		Inch	2	Regular	HSS-Co	TiN, Bright*	1/8" - 1"		1076	1297-1298
582		Metric	2	Regular	HSS-Co	Bright*	1mm - 25mm		1077	1302
532		Inch	3	Regular	HSS-Co	Bright*	1/8" - 1"		1078	1304
542		Inch	4	Regular	HSS-Co	TiN, Bright*	1/8" - 1"	Non Center-Cutting	1079	1299-1300
543		Inch	4	Regular	HSS-Co	Bright*	1/8" - 1"		1080	1299-1300
523		Inch	2	Regular	HSS-Co	Bright*	1/8" - 1"	Ball End	1080	1301
562		Inch	2	Stub	HSS-Co	Bright*	1/32" - 3/16"	Miniature	1081	–
563		Inch	2	Regular	HSS-Co	Bright*	1/32" - 3/16"	Miniature	1081	–
564		Inch	2	Long	HSS-Co	Bright*	1/16" - 3/16"	Miniature	1082	–
566		Inch	4	Stub	HSS-Co	Bright*	1/16" - 3/16"	Miniature	1082	–
567		Inch	4	Regular	HSS-Co	Bright*	1/16" - 3/16"	Miniature, Non Center-Cutting	1083	–
568		Inch	4	Long	HSS-Co	Bright*	1/16" - 3/16"	Miniature, Non Center-Cutting	1083	–
570		Inch	2	Stub	HSS-Co	Bright*	1/16" - 3/16"	Ball End, Miniature	1084	–
571		Inch	2	Regular	HSS-Co	Bright*	1/16" - 3/16"	Ball End, Miniature	1084	–
SOMTA										
310-SO	 NEW	Metric	2	Regular	HSS-Co8	TiALN	2mm - 25mm	Square	1085	1309
314-SO	 NEW	Metric	4, 6	Regular	HSS-Co8	TiALN	3mm - 25mm	Square	1086	1310
312-SO	 NEW	Metric	2	Regular	HSS-Co8	TiALN	2mm - 25mm	Ball Nose	1087	1309

* Other coatings are available on request.

Double End Mills

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
522	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
582	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
532	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
542	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
543	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		
523	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
562	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
563	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
564	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
566	◎	◎	◎	○	○	○	○	○	○	○	○		○	○	○		
567	◎	◎	◎	○	○	○	○	○	○	○	○		○	○	○		
568	◎	◎	◎	○	○	○	○	○	○	○	○		○	○	○		
570	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
571	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		

SOMTA

310-SO	◎	◎	◎	◎		○	○	○	○	○	○		○				
314-SO	◎	◎	◎	◎		○	○	○	○	○	○		○				
312-SO	◎	◎	◎	◎		○	○	○	○	○	○		○				

○ good ◎ best

List No.	Item	Inch/ Metric	Material	Coating	Feature	Product Page
Carbide Burs 1/4" Shank						
801		Inch, Metric	Carbide	Bright	Cylindrical, Medium Tough Cut	1089
802		Inch, Metric	Carbide	Bright	Cylindrical Ball End, Medium Tough Cut	1089
803		Inch, Metric	Carbide	Bright	Round Nose Tree, Medium Tough Cut	1089
901		Inch, Metric	Carbide	Bright	Cylindrical, Medium Right Hand Spiral	1090
902		Inch, Metric	Carbide	Bright	Cylindrical Ball End, Medium Right Hand Spiral	1090
903		Inch, Metric	Carbide	Bright	Round Nose Tree, Medium Right Hand Spiral	1090
804		Inch, Metric	Carbide	Bright	Pointed Tree, Medium Tough Cut	1091
805		Inch, Metric	Carbide	Bright	Pointed Cone, Medium Tough Cut	1091
806		Inch, Metric	Carbide	Bright	Egg Shape, Medium Tough Cut	1091
904		Inch, Metric	Carbide	Bright	Pointed Tree, Medium Right Hand Spiral	1092
905		Inch, Metric	Carbide	Bright	Pointed Cone, Medium Right Hand Spiral	1092
906		Inch, Metric	Carbide	Bright	Egg Shape, Medium Right Hand Spiral	1092
807		Inch, Metric	Carbide	Bright	14° Included Angle, Medium Tough Cut	1093
808		Inch, Metric	Carbide	Bright	Ball Shape, Medium Tough Cut	1093
849		Inch, Metric	Carbide	Bright	90° Cone, Medium Tough Cut	1093
907		Inch, Metric	Carbide	Bright	14°Included Angle, Medium Right Hand Spiral	1094
908		Inch, Metric	Carbide	Bright	Ball Shape, Medium Right Hand Spiral	1094
949		Inch, Metric	Carbide	Bright	90° Cone, Medium Right Hand Spiral	1094
850		Inch, Metric	Carbide	Bright	60° Cone, Medium Tough Cut	1095
851		Inch, Metric	Carbide	Bright	Flame Shape, Medium Tough Cut	1095
852		Inch, Metric	Carbide	Bright	Inverted Taper, Medium Tough Cut	1095
950		Inch, Metric	Carbide	Bright	60° Cone, Medium Right Hand Spiral	1096
951		Inch, Metric	Carbide	Bright	Flame Shape, Medium Right Hand Spiral	1096
952		Inch, Metric	Carbide	Bright	Inverted Taper, Medium Right Hand Spiral	1096

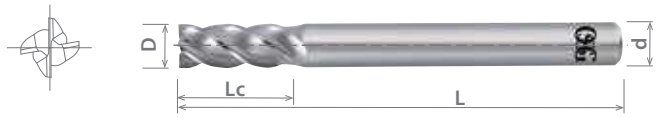
List No.	Item	Inch/ Metric	Material	Coating	Feature	Product Page
Carbide Burs 6" Long Shank						
861		Inch, Metric	Carbide	Bright	Cylindrical, Medium Tough Cut	1097
862		Inch, Metric	Carbide	Bright	Cylindrical Ball End, Medium Tough Cut	1097
863		Inch, Metric	Carbide	Bright	Round Nose Tree, Medium Tough Cut	1097
961		Inch, Metric	Carbide	Bright	Cylindrical, Medium Right Hand Spiral	1098
962		Inch, Metric	Carbide	Bright	Cylindrical Ball End, Medium Right Hand Spiral	1098
963		Inch, Metric	Carbide	Bright	Round Nose Tree, Medium Right Hand Spiral	1098
867		Inch, Metric	Carbide	Bright	14° Included Angle, Medium Tough Cut	1099
868		Inch, Metric	Carbide	Bright	Ball Shape, Medium Tough Cut	1099
967		Inch, Metric	Carbide	Bright	14° Included Angle, Medium Right Hand Spiral	1100
968		Inch, Metric	Carbide	Bright	Ball Shape, Medium Right Hand Spiral	1100
Carbide Burs for Aluminum						
881		Inch, Metric	Carbide	Bright	Cylindrical, Aluminum Cut	1101
882		Inch, Metric	Carbide	Bright	Cylindrical Ball End, Aluminum Cut	1101
883		Inch, Metric	Carbide	Bright	Round Nose Tree, Aluminum Cut	1101
885		Inch, Metric	Carbide	Bright	Flame Shape, Aluminum Cut	1102
886		Inch, Metric	Carbide	Bright	Egg Shape, Aluminum Cut	1102
887		Inch, Metric	Carbide	Bright	14° Included Angle, Aluminum Cut	1102
888		Inch, Metric	Carbide	Bright	Ball Shape, Aluminum Cut	1102
Carbide Burs 1-1/2" OAL						
800		Inch, Metric	Carbide	Bright	Tough Cut	1103-1104
900		Inch, Metric	Carbide	Bright	Medium Right Hand Spiral	1105-1106
815		Inch, Metric	Carbide	Bright	Tough Cut	1107
915		Inch, Metric	Carbide	Bright	Medium Right Hand Spiral	1108
820		Inch, Metric	Carbide	Bright	Tough Cut	1109
920		Inch, Metric	Carbide	Bright	Medium Right Hand Spiral	1110

List 8200

AE-VMS, 4 Flute, Multiple Lengths

NEW SIZES | SPEED FEED P1112-1113 | CARBIDE | DUR | Var.° | SHRINK FIT

Milling Diameter Tolerance	
D < 1/2	0/-.0008"
D ≥ 1/2	0/-0.0012"



Units: Inch

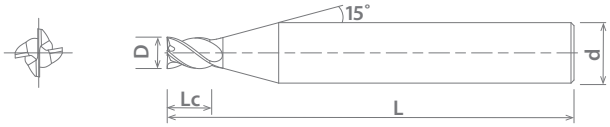
EDP Number	Mill Diameter D	OAL L	Length of Cut Lc	Shank Diameter d	Type
82004421	5/64	2	0.117	1/8	1
82004621	3/32	2	9/64	1/8	1
82004821	7/64	2	0.164	1/8	1
82005021	1/8	2	3/16	1/8	1
82005221	9/64	2	0.211	3/16	1
82005421	5/32	2	15/64	3/16	1
82000021	3/16	2	7/16	3/16	2
82000221	1/4	2-1/2	7/16	1/4	2
82000421	5/16	2-1/2	13/16	5/16	2
82000621	3/8	2-1/2	1/2	3/8	2
82000821	3/8	2-1/2	7/8	3/8	2
82001021	7/16	2-3/4	1	7/16	2

EDP Number	Mill Diameter D	OAL L	Length of Cut Lc	Shank Diameter d	Type
82001221	1/2	2-1/2	5/8	1/2	2
82001421	1/2	3	1	1/2	2
82001621	1/2	3-1/2	1-1/4	1/2	2
82001821	5/8	3	3/4	5/8	2
82002021	5/8	3-1/2	1-1/4	5/8	2
82002221	5/8	5	1-5/8	5/8	2
82002421	3/4	3-1/2	7/8	3/4	2
82002621	3/4	4	1-1/2	3/4	2
82002821	3/4	4	1-5/8	3/4	2
82003021	1	4	1-1/2	1	2
82003221	1	5	2	1	2
82003421	1	5	2-1/2	1	2

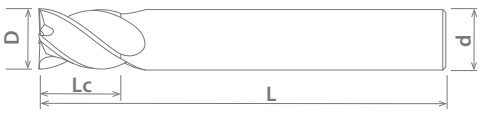
Packed: 1 pc.
Available Duarise coating only.

AEM

Type 1



Type 2



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8200	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		

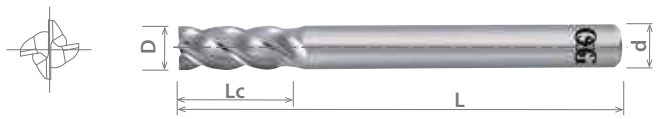
▢ good ▢ best

List 8205

AE-VMS, 4 Flute, Regular Length

NEW SIZES | SPEED FEED P1112-1113 | CARBIDE | DUR | Var.° | SHRINK FIT

Milling Diameter Tolerance	
D≤12mm	0/-0.020mm
D>12mm	0/-0.030mm



Units: mm

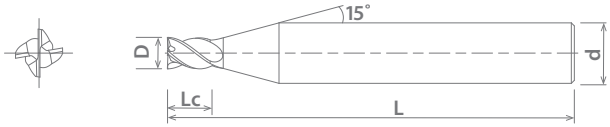
EDP Number	Mill Diameter D	OAL L	Length of Cut Lc	Shank Diameter d	Type
8555830	3	60	8	6	1
8555840	4	60	11	6	1
8555850	5	60	13	6	1
8555860	6	60	13	6	2
8555880	8	70	19	8	2

EDP Number	Mill Diameter D	OAL L	Length of Cut Lc	Shank Diameter d	Type
8555900	10	80	22	10	2
8555920	12	90	26	12	2
8555960	16	100	32	16	2
8556000	20	110	40	20	2
8556010	25	120	50	25	2

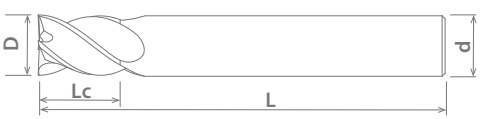
Packed: 1 pc.
Available Duarise coating only.

AEM

Type 1



Type 2



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8205	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	○		

○ good ◎ best

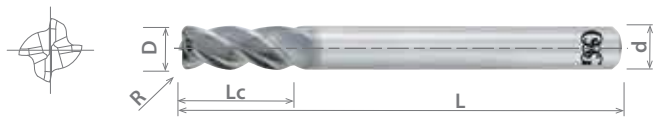
List 8210

AE-CR-VMS, 4 Flute, Multiple Lengths, Corner Radius

SPEED FEED P1114-1115 | CARBIDE | DUR | Var.° | SHRINK FIT

Milling Diameter Tolerance	
D < 1/2	0/-.0008"
D ≥ 1/2	0/-0.0012"

Radius Tolerance	
0.015≤R≤0.125	0/-0.0008"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	OAL	Length of Cut	Shank Diameter
	D	R	L	Lc	d
82100021	3/16	0.015	2	7/16	3/16
82100221	3/16	0.030	2	7/16	3/16
82100421	1/4	0.015	2-1/2	7/16	1/4
82100621	1/4	0.030	2-1/2	7/16	1/4
82100821	5/16	0.015	2-1/2	13/16	5/16
82101021	5/16	0.030	2-1/2	13/16	5/16
82101221	3/8	0.015	2-1/2	1/2	3/8
82101421	3/8	0.030	2-1/2	1/2	3/8
82101621	3/8	0.045	2-1/2	1/2	3/8
82101821	3/8	0.060	2-1/2	1/2	3/8
82102021	3/8	0.015	2-1/2	7/8	3/8
82102221	3/8	0.030	2-1/2	7/8	3/8
82102421	3/8	0.045	2-1/2	7/8	3/8
82102621	3/8	0.060	2-1/2	7/8	3/8
82102821	7/16	0.015	2-3/4	1	7/16
82103021	7/16	0.030	2-3/4	1	7/16
82103221	1/2	0.015	2-1/2	5/8	1/2
82103421	1/2	0.030	2-1/2	5/8	1/2
82103621	1/2	0.045	2-1/2	5/8	1/2
82103821	1/2	0.060	2-1/2	5/8	1/2
82104021	1/2	0.090	2-1/2	5/8	1/2
82104221	1/2	0.015	3	1	1/2
82104421	1/2	0.030	3	1	1/2
82104621	1/2	0.045	3	1	1/2
82104821	1/2	0.060	3	1	1/2
82105021	1/2	0.090	3	1	1/2

EDP Number	Mill Diameter	Corner Radius	OAL	Length of Cut	Shank Diameter
	D	R	L	Lc	d
82105221	1/2	0.015	3-1/2	1-1/4	1/2
82105421	1/2	0.030	3-1/2	1-1/4	1/2
82105621	1/2	0.045	3-1/2	1-1/4	1/2
82105821	1/2	0.060	3-1/2	1-1/4	1/2
82106021	1/2	0.090	3-1/2	1-1/4	1/2
82106221	5/8	0.030	3	3/4	5/8
82106421	5/8	0.060	3	3/4	5/8
82106621	5/8	0.090	3	3/4	5/8
82106821	5/8	0.125	3	3/4	5/8
82107021	5/8	0.030	3-1/2	1-1/4	5/8
82107221	5/8	0.060	3-1/2	1-1/4	5/8
82107421	5/8	0.090	3-1/2	1-1/4	5/8
82107621	5/8	0.125	3-1/2	1-1/4	5/8
82107821	3/4	0.030	3-1/2	7/8	3/4
82108021	3/4	0.060	3-1/2	7/8	3/4
82108221	3/4	0.090	3-1/2	7/8	3/4
82108421	3/4	0.125	3-1/2	7/8	3/4
82108621	3/4	0.030	4	1-1/2	3/4
82108821	3/4	0.060	4	1-1/2	3/4
82109021	3/4	0.090	4	1-1/2	3/4
82109221	3/4	0.125	4	1-1/2	3/4
82109421	1	0.030	4	1-1/2	1
82109621	1	0.060	4	1-1/2	1
82109821	1	0.090	4	1-1/2	1
82109921	1	0.125	4	1-1/2	1

AEM

Packed: 1 pc.
Available Duarise coating only.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8210	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	

▢ good ▢ best

List 8215

AE-CR-VMS, 4 Flute, Regular Length, Corner Radius

SPEED FEED P1114-1115 | CARBIDE | DUR | Var.° | SHRINK FIT

Milling Diameter Tolerance	
D≤12mm	0/-0.020mm
D>12mm	0/-0.030mm

Radius Tolerance	
0.2≤R≤3	0/-0.02mm



Units: mm

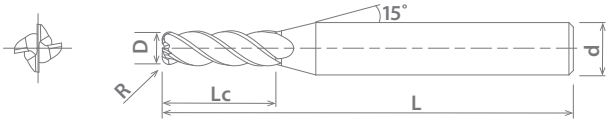
EDP Number	Mill Diameter D	Corner Radius R	OAL L	Length of Cut Lc	Shank Diameter d	Type
8556050	3	0.2	60	8	6	1
8556060	3	0.5	60	8	6	1
8556070	4	0.2	60	11	6	1
8556080	4	0.5	60	11	6	1
8556090	4	1.0	60	11	6	1
8556100	5	0.2	60	13	6	1
8556110	5	0.5	60	13	6	1
8556120	5	1.0	60	13	6	1
8556130	6	0.3	60	13	6	2
8556140	6	0.5	60	13	6	2
8556150	6	1.0	60	13	6	2
8556160	8	0.3	70	19	8	2
8556170	8	0.5	70	19	8	2
8556180	8	1.0	70	19	8	2

EDP Number	Mill Diameter D	Corner Radius R	OAL L	Length of Cut Lc	Shank Diameter d	Type
8556190	8	1.5	70	19	8	2
8556200	8	2.0	70	19	8	2
8556210	10	0.3	80	22	10	2
8556220	10	0.5	80	22	10	2
8556230	10	1.0	80	22	10	2
8556240	10	1.5	80	22	10	2
8556250	10	2.0	80	22	10	2
8556260	10	3.0	80	22	10	2
8556270	12	0.5	90	26	12	2
8556280	12	1.0	90	26	12	2
8556290	12	1.5	90	26	12	2
8556300	12	2.0	90	26	12	2
8556310	12	3.0	90	26	12	2

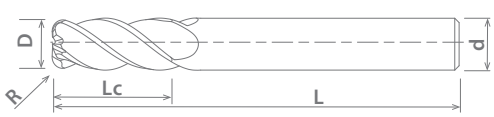
AEM

Packed: 1 pc.
Available Duarise coating only.

Type 1



Type 2



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8215	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	○	

○ good ▢ best

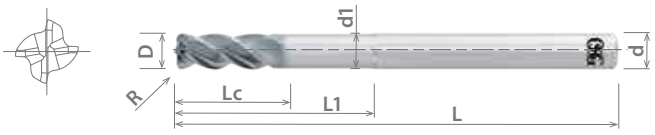
List 8220

AE-LN-CR-VMS, 4 Flute, Long Neck, Long Reach, Corner Radius

SPEED FEED P1119 | CARBIDE | DUR | Var.° | SHRINK FIT

Milling Diameter Tolerance	
D < 1/2	0/-.0008"
D ≥1/2	0/-0.0012"

Radius Tolerance	
0.015≤R≤0.125	0/-0.0008"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	OAL	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d1	d
82200021	1/4	0.015	4	0.375	1.250	0.235	1/4
82200221	1/4	0.030	4	0.375	1.250	0.235	1/4
82200421	1/4	0.060	4	0.375	1.250	0.235	1/4
82200621	5/16	0.015	4	0.438	1.562	0.295	5/16
82200821	5/16	0.030	4	0.438	1.562	0.295	5/16
82201021	3/8	0.015	4	0.500	1.875	0.353	3/8
82201221	3/8	0.030	4	0.500	1.875	0.353	3/8
82201421	3/8	0.045	4	0.500	1.875	0.353	3/8
82201621	3/8	0.060	4	0.500	1.875	0.353	3/8
82201821	7/16	0.015	4	0.547	1.968	0.400	7/16
82202021	7/16	0.030	4	0.547	1.968	0.400	7/16
82202221	1/2	0.015	4	0.625	2.250	0.470	1/2
82202421	1/2	0.030	4	0.625	2.250	0.470	1/2
82202621	1/2	0.045	4	0.625	2.250	0.470	1/2
82202821	1/2	0.060	4	0.625	2.250	0.470	1/2
82203021	1/2	0.090	4	0.625	2.250	0.470	1/2
82203221	5/8	0.030	4-1/8	0.780	2.250	0.588	5/8
82203421	5/8	0.060	4-1/8	0.780	2.250	0.588	5/8
82203621	5/8	0.090	4-1/8	0.780	2.250	0.588	5/8
82203821	5/8	0.125	4-1/8	0.780	2.250	0.588	5/8
82204021	3/4	0.030	5-1/4	1.000	3.250	0.705	3/4
82204221	3/4	0.060	5-1/4	1.000	3.250	0.705	3/4
82204421	3/4	0.090	5-1/4	1.000	3.250	0.705	3/4
82204621	3/4	0.125	5-1/4	1.000	3.250	0.705	3/4
82204821	1	0.030	5-1/2	1.125	3.250	0.940	1
82205021	1	0.060	5-1/2	1.125	3.250	0.940	1
82205221	1	0.090	5-1/2	1.125	3.250	0.940	1
82205421	1	0.125	5-1/2	1.125	3.250	0.940	1

Packed: 1 pc.
Available Duarise coating only.

AEM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8220	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	○	

○ good ▢ best

List 8206

NEW | SPEED FEED P1116-1117 | CARBIDE | DUR | Var.° | SHRINK FIT

AE-VMSS, 4 Flute, Stub Length

Milling Diameter Tolerance	
D<= 12mm	0/-0.020mm
D>12mm	0/-0.030mm



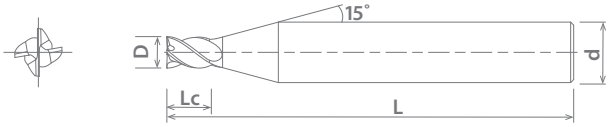
Units: mm

EDP Number	Mill Diameter	OAL	Length of Cut	Shank Diameter	Type
	D	L	Lc	d	
8556430	3	45	4.5	6	1
8556440	4	45	6.0	6	1
8556450	5	45	7.5	6	1
8556460	6	45	9.0	6	2
8556480	8	60	12.0	8	2
8556500	10	70	15.0	10	2
8556520	12	75	18.0	12	2

Packed: 1 pc.
Available Duarise coating only.

AEM

Type 1



Type 2



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8206	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		

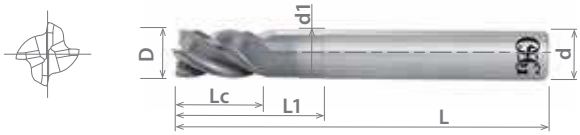
▢ good ▢ best

List 8230

NEW | SPEED FEED P1118 | CARBIDE | DUR | Var.° | SHRINK FIT

AE-LN-VMSS, 4 Flute, Stub Length, Long Neck

Milling Diameter Tolerance	
D < 1/2	0/-.0008"
D ≥ 1/2	0/-0.0012"



Units: Inch

EDP Number	Mill Diameter	OAL	Length of Cut	Neck Diameter	Neck Length	Shank Diameter
	D	L	Lc	L1	d1	d
82300021	1/4	3	3/8	0.235	3/4	1/4
82300121	1/4	4	3/8	0.243	1-1/4	1/4
82300221	5/16	4	7/16	0.303	1	5/16
82300321	5/16	4	7/16	0.303	1-9/16	5/16
82300421	3/8	4	1/2	0.364	1-3/16	3/8
82300521	3/8	4	1/2	0.364	1-7/8	3/8
82300621	7/16	4	35/64	0.400	1-5/16	7/16
82300721	7/16	4	35/64	0.400	1-7/8	7/16
82300821	1/2	4	5/8	0.485	1-1/2	1/2
82300921	1/2	4	5/8	0.485	2-1/4	1/2
82301021	5/8	4-1/8	0.78	0.588	2-1/4	5/8
82301121	5/8	5	0.78	0.588	3-1/8	5/8
82301221	3/4	5	1	0.705	2-1/4	3/4
82301321	3/4	5-1/4	1	0.705	3-1/4	3/4
82301421	1	5-1/2	1-1/8	0.940	3-1/4	1
82301521	1	7	1-1/8	0.940	5	1

Packed: 1 pc.
Available Duarise coating only.

AEM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8230	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		

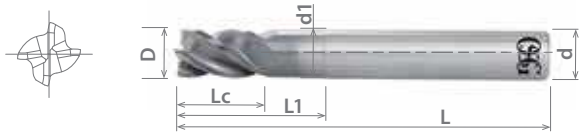
▢ good ▢ best

List 8235

NEW | SPEED FEED P1118 | CARBIDE | DUR | Var.° | SHRINK FIT

AE-LN-VMSS, 4 Flute, Stub Length, Long Neck

Milling Diameter Tolerance	
D ≤ 12mm	0/-0.020mm
D > 12mm	0/-0.030mm



Units: mm

EDP Number	Mill Diameter	OAL	Length of Cut	Neck Diameter	Neck Length	Shank Diameter
	D	L	Lc	L1	d1	d
8556618	6	60	9	5.8	18	6
8556630	6	70	9	5.8	30	6
8556724	8	70	12	7.7	24	8
8556740	8	80	12	7.7	40	8
8556830	10	80	15	9.7	30	10
8556850	10	100	15	9.7	50	10
8556936	12	90	18	11.7	36	12
8556960	12	110	18	11.7	60	12

Packed: 1 pc.
Available Duarise coating only.

AEM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8235	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		

▢ good ▢ best

List 8201

NEW | SPEED FEED P1120-1123 | CARBIDE | DUR | Var.° | SHRINK FIT

AE-VML, 4 Flute, Long Length

Milling Diameter Tolerance	
D < 1/2	0/-.0008"
D ≥ 1/2	0/-0.0012"



Units: Inch

EDP Number	Mill Diameter	OAL	Length of Cut	Shank Diameter
	D	L	Lc	d
82010021	1/4	2-3/4	3/4	1/4
82010121	1/4	2-3/4	1	1/4
82010221	5/16	3-1/2	15/16	5/16
82010321	5/16	3-1/2	1-1/4	5/16
82010421	3/8	3-3/4	1-1/8	3/8
82010521	3/8	4	1-1/2	3/8
82010621	1/2	4	1-1/2	1/2
82010721	1/2	4-1/2	2	1/2

Packed: 1 pc.
Available Duarise coating only.

AEM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8201	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	○	

○ good ▢ best

List 8207

AE-VML, 4 Flute, Long Length

NEW | SPEED FEED P1120-1123 | CARBIDE | DUR | Var.° | SHRINK FIT

Milling Diameter Tolerance	
D ≤ 12mm	0/-0.020mm
D >12mm	0/-0.030mm



Units: mm

EDP Number	Mill Diameter	OAL	Length of Cut	Shank Diameter
	D	L	Lc	d
8556320	6	70	19	6
8556328	6	70	24	6
8556322	8	80	25	8
8556330	8	90	32	8
8556324	10	90	31	10
8556332	10	100	40	10
8556326	12	100	38	12
8556334	12	110	48	12

Packed: 1 pc.
Available Duarise coating only.

AEM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8207	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	

▢ good ▢ best

List 8202

NEW | SPEED FEED P1120-1123 | CARBIDE | DUR | Var.° | SHRINK FIT

AE-NIK-VML, 4 Flute, Long Length, Nicked

Milling Diameter Tolerance	
D < 1/2	0/-.0008"
D ≥ 1/2	0/-0.0012"



Units: Inch

EDP Number	Mill Diameter	OAL	Length of Cut	Shank Diameter
	D	L	Lc	d
82020021	1/4	2-3/4	3/4	1/4
82020121	1/4	2-3/4	1	1/4
82020221	5/16	3-1/2	15/16	5/16
82020321	5/16	3-1/2	1-1/4	5/16
82020421	3/8	3-3/4	1-1/8	3/8
82020521	3/8	4	1-1/2	3/8
82020621	1/2	4	1-1/2	1/2
82020721	1/2	4-1/2	2	1/2

Packed: 1 pc.
Available Duarise coating only.

AEM

List 8208

NEW | SPEED FEED P1120-1123 | CARBIDE | DUR | Var.° | SHRINK FIT

AE-NIK-VML, 4 Flute, Long Length, Nicked

Milling Diameter Tolerance	
D ≤ 12mm	0/-0.020mm
D >12mm	0/-0.030mm



Units: mm

EDP Number	Mill Diameter	OAL	Length of Cut	Shank Diameter
	D	L	Lc	d
8556321	6	70	19	6
8556329	6	70	24	6
8556323	8	80	25	8
8556331	8	90	32	8
8556325	10	90	31	10
8556333	10	100	40	10
8556327	12	100	38	12
8556335	12	110	48	12

Packed: 1 pc.
Available Duarise coating only.

AEM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8202	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	○	
8208	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	○	

○ good ▢ best

List 2055

UVX-Ni, 5 Flute, Multiple Lengths, Corner Radius

SPEED FEED P1124 | CARBIDE | EXO | Var.°

Milling Diameter Tolerance	
1/4≤D≤1	+0/-0.0015"



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Mill Diameter	Corner Radius	OAL	Length of Cut	Shank Diameter
		D	R	L	Lc	d
20552501	-	1/4	0.015	2-1/2	5/8	1/4
20552502	-	1/4	0.030	2-1/2	5/8	1/4
20552503	-	1/4	0.060	2-1/2	5/8	1/4
20553121	-	5/16	0.015	2-1/2	3/4	5/16
20553122	-	5/16	0.030	2-1/2	3/4	5/16
20553123	-	5/16	0.060	2-1/2	3/4	5/16
-	20553751	3/8	0.015	2-1/2	7/8	3/8
-	20553752	3/8	0.030	2-1/2	7/8	3/8
-	20553753	3/8	0.060	2-1/2	7/8	3/8
-	20555001	1/2	0.030	2-1/2	5/8	1/2
-	20555002	1/2	0.030	3	1	1/2
-	20555003	1/2	0.060	3	1	1/2
-	20555004	1/2	0.015	3-1/2	1-1/4	1/2
-	20555005	1/2	0.030	3-1/2	1-1/4	1/2
-	20555006	1/2	0.060	3-1/2	1-1/4	1/2
-	20555007	1/2	0.090	3-1/2	1-1/4	1/2
-	20555008	1/2	0.120	3-1/2	1-1/4	1/2
-	20556251	5/8	0.030	3-1/2	1-1/4	5/8
-	20556252	5/8	0.060	3-1/2	1-1/4	5/8
-	20556253	5/8	0.090	3-1/2	1-1/4	5/8
-	20556254	5/8	0.120	3-1/2	1-1/4	5/8
-	20557501	3/4	0.030	4	1-1/2	3/4
-	20557502	3/4	0.060	4	1-1/2	3/4
-	20557503	3/4	0.090	4	1-1/2	3/4
-	20557504	3/4	0.120	4	1-1/2	3/4
-	20551001	1	0.030	4	1-1/2	1
-	20551002	1	0.060	4	1-1/2	1
-	20551003	1	0.090	4	1-1/2	1
-	20551004	1	0.120	4	1-1/2	1

Packed: 1 pc.
Available EXO® coating only.

EP

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO®CARB VGX - List VG534 (p. 967-968)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2055						○	○	○				◎				○	

○ good ◎ best

List 9510

PHX-DBT, 3 Flute, Deep Feed, Ball End

SPEED FEED P1125-1127 | CARBIDE | EXO® | 45° | SHANK h6

Milling Diameter Tolerance	
1≤D≤5	+0 / -0.015mm
6<D≤20	+0.01mm / -0.005mm

Radius Tolerance	
0.5≤R≤10	+0.01 / -0.01mm



Units: mm

EDP Number	Mill Diameter D	OAL L	Length of Cut Lc	Shank Diameter d	Type
3090202	1	60	1.5	6	1
3090204	2	60	3.0	6	1
3090206	3	70	4.5	6	1
3090208	4	70	6.0	6	1
3090210	5	70	7.5	6	1
3090212	6	80	9.0	6	2
3090312	6	110	9.0	6	2
3090216	8	90	12.0	8	2

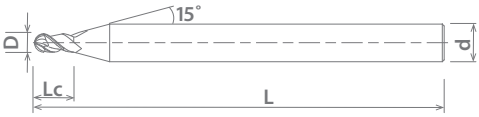
EDP Number	Mill Diameter D	OAL L	Length of Cut Lc	Shank Diameter d	Type
3090316	8	120	12.0	8	2
3090220	10	100	15.0	10	2
3090320	10	130	15.0	10	2
3090222	12	100	18.0	12	2
3090322	12	140	18.0	12	2
3090226	16	150	24.0	16	2
3090230	20	150	30.0	20	2
3090330	20	200	30.0	20	2

Packed: 1 pc.
Available EXO® coating only.

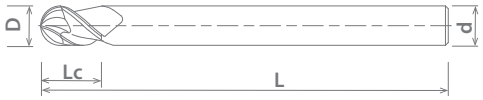
EP



Type 1



Type 2



OSG's Performance & Savings

Not machining steel over 54 HRC? Try EXOCARB® WXL® - List 3710 (p. 854)
Don't require ultra-high performance? Try EXOCARB® WXS® - List 4510 (p. 885)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9510	▢	▢	▢	▢	▢	○	○	○	○					▢	▢	▢	○

○ good ▢ best

List 9590

PHX-LN-DBT, 3 Flute, Long Neck, Ball End

SPEED FEED P1125-1127 | CARBIDE | WXS | 45° | SHANK h6

Milling Diameter Tolerance	
0.6≤D≤6	+0.007mm / -0.007mm

Radius Tolerance	
0.3≤R≤3	+0.007mm / -0.007mm



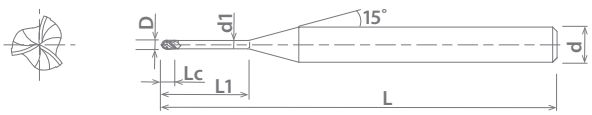
Units: mm

EDP Number	Mill Diameter	OAL	Length of Cut	Neck Length	Neck Diameter	Effective Neck Length (Based on Inclined Angle)						Shank Diameter	Type
	D	L	Lc	L1	d1	α						d	
						0.5°	1°	1.5°	2°	2.5°	3°		
3194901	0.6	50	0.45	1	0.55	1.02	1.05	1.08	1.11	1.14	1.17	4	1
3194902	0.6	50	0.45	2	0.55	2.06	2.12	2.18	2.26	2.33	2.42	4	1
3194903	0.6	50	0.45	3	0.55	3.09	3.19	3.29	3.41	3.53	3.66	4	1
3194904	0.6	50	0.45	4	0.55	4.12	4.26	4.4	4.56	4.72	4.9	4	1
3194906	0.6	50	0.45	6	0.55	6.19	6.4	6.62	6.86	7.11	7.39	4	1
3195004	1.0	50	0.75	4	0.95	4.26	4.50	4.74	4.96	5.18	5.39	4	1
3195006	1.0	50	0.75	6	0.95	6.39	6.72	7.03	7.32	7.95	7.88	4	1
3195008	1.0	50	0.75	8	0.95	8.50	8.92	9.28	9.62	9.98	10.36	4	1
3195010	1.0	50	0.75	10	0.95	10.61	11.09	11.51	11.92	12.37	12.85	4	1
3195012	1.0	50	0.75	12	0.95	12.71	13.25	13.71	14.12	14.49	14.83	4	1
3195014	1.0	50	0.75	14	0.95	14.81	15.40	15.90	16.34	16.73	17.82	4	1
3195016	1.0	50	0.75	16	0.95	16.90	17.54	18.07	18.54	19.53	20.31	4	1
3195106	1.5	50	1.12	6	1.45	6.37	6.70	7.00	7.28	7.54	7.82	4	1
3195108	1.5	50	1.12	8	1.45	8.49	8.89	9.25	9.58	9.93	10.30	4	1
3195110	1.5	50	1.12	10	1.45	10.60	11.07	11.48	11.88	12.32	12.79	4	1
3195112	1.5	50	1.12	12	1.45	12.70	13.23	13.69	14.09	14.46	14.80	4	1
3195116	1.5	50	1.12	16	1.45	16.89	17.52	18.05	18.51	18.93	19.31	4	1
3195206	2.0	50	1.50	6	1.95	6.35	6.65	6.94	7.21	7.46	7.73	4	1
3195208	2.0	50	1.50	8	1.95	8.46	8.85	9.20	9.52	9.85	10.21	4	1
3195210	2.0	50	1.50	10	1.95	10.57	11.03	11.43	11.82	12.24	12.70	4	1
3195212	2.0	50	1.50	12	1.95	12.67	13.19	13.64	14.12	14.63	15.19	4	1
3195214	2.0	50	1.50	14	1.95	14.77	15.34	15.86	16.42	17.02	17.67	4	1
3195216	2.0	50	1.50	16	1.95	16.86	17.48	18.08	18.72	19.41	-	4	1
3195218	2.0	60	1.50	18	1.95	18.94	19.62	20.29	21.02	21.80	-	4	1
3195220	2.0	60	1.50	20	1.95	21.03	21.76	22.51	23.18	-	-	4	1
3195222	2.0	60	1.50	22	1.95	23.13	23.89	24.50	25.03	-	-	4	1
3195312	3.0	60	2.25	12	2.85	12.61	13.10	13.57	14.08	-	-	4	1
3195316	3.0	60	2.25	16	2.85	16.77	17.38	17.01	-	-	-	4	1
3195320	3.0	60	2.25	20	2.85	20.92	21.65	-	-	-	-	4	1
3195325	3.0	60	2.25	25	2.85	26.10	-	-	-	-	-	4	1
3195416	4.0	60	3.00	16	3.85	-	-	-	-	-	-	4	2
3195420	4.0	60	3.00	20	3.85	-	-	-	-	-	-	4	2
3195425	4.0	60	3.00	25	3.85	-	-	-	-	-	-	4	2
3195520	6.0	70	4.50	20	5.85	-	-	-	-	-	-	6	2
3195530	6.0	70	4.50	30	5.85	-	-	-	-	-	-	6	2

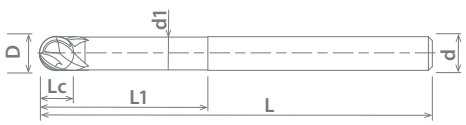
Packed: 1 pc. Available WXS® coating only.

EP

Type 1



Type 2



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9590	▣	▣	▣	▣	▣	▢	▢	▢	▢					▣	▣	▣	▢

▢ good ▣ best

List 9581

PHX-PC-DBT, 3 Flute, Pencil-Neck, Deep Feed, Ball End



SPEED FEED	CARBIDE	WXS		45°	SHANK
P1125-1127					h6

Milling Diameter Tolerance	
1≤D≤12	+ 0 / -0.015mm

Radius Tolerance	
0.5≤R≤6	+0.01mm / -0.01mm

Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Min. Neck Diameter	Max. Neck Diameter	Neck Length	Effective Draft Angle	Neck Draft Angle	Shank Diameter	Type
	D	L	Lc	d1	d2	L1	α	β	d	
3095125	1.0	60	1.50	0.95	1.20	16.0	0.38°	0.5°	6	1
3095141	1.0	60	1.50	0.95	1.10	6.0	0.56°	1.0°	6	1
3095142	1.0	60	1.50	0.95	1.17	8.0	0.68°	1.0°	6	1
3095143	1.0	60	1.50	0.95	1.24	10.0	0.75°	1.0°	6	1
3095144	1.0	60	1.50	0.95	1.31	12.0	0.79°	1.0°	6	1
3095145	1.0	60	1.50	0.95	1.45	16.0	0.85°	1.0°	6	1
3095146	1.0	60	1.50	0.95	1.59	20.0	0.88°	1.0°	6	1
3095147	1.0	70	1.50	0.95	1.77	25.0	0.91°	1.0°	6	1
3095155	1.0	60	1.50	0.95	1.65	15.0	1.30°	1.5°	6	1
3095157	1.0	70	1.50	0.95	2.18	25.0	1.39°	1.5°	6	1
3095191	1.0	70	1.50	0.95	5.43	30.0	4.30°	4.5°	6	1
3095211	1.5	60	2.25	1.45	1.58	6.0	0.45°	1.0°	6	1
3095212	1.5	60	2.25	1.45	1.68	9.0	0.65°	1.0°	6	1
3095213	1.5	60	2.25	1.45	1.79	12.0	0.74°	1.0°	6	1
3095214	1.5	60	2.25	1.45	1.89	15.0	0.80°	1.0°	6	1
3095215	1.5	60	2.25	1.45	2.10	21.0	0.86°	1.0°	6	1
3095216	1.5	70	2.25	1.45	2.41	30.0	0.90°	1.0°	6	1
3095223	2.0	60	3.00	1.95	2.24	20.0	0.38°	0.5°	6	1
3095241	2.0	60	3.00	1.95	2.19	10.0	0.62°	1.0°	6	1
3095242	2.0	60	3.00	1.95	2.36	15.0	0.76°	1.0°	6	1
3095243	2.0	60	3.00	1.95	2.54	20.0	0.82°	1.0°	6	1
3095244	2.0	70	3.00	1.95	2.71	25.0	0.86°	1.0°	6	1
3095245	2.0	80	3.00	1.95	2.89	30.0	0.89°	1.0°	6	1
3095246	2.0	80	3.00	1.95	3.24	40.0	0.92°	1.0°	6	1
3095247	2.0	100	3.00	1.95	3.59	50.0	0.93°	1.0°	6	1
3095251	2.0	80	3.00	1.95	3.88	40.0	1.39°	1.5°	6	1
3095262	2.0	100	3.00	1.95	5.81	60.3	1.94°	2.0°	6	2
3095273	2.0	80	3.00	1.95	5.75	41.2	2.85°	3.0°	6	2
3095281	2.0	80	3.00	1.95	5.67	30.0	3.95°	3.8°	6	2
3095321	3.0	80	4.50	2.90	3.17	20.0	0.27°	0.5°	6	1
3095341	3.0	80	4.50	2.90	3.44	20.0	0.69°	1.0°	6	1
3095342	3.0	80	4.50	2.90	3.61	25.0	0.76°	1.0°	6	1
3095343	3.0	80	4.50	2.90	3.79	30.0	0.80°	1.0°	6	1
3095344	3.0	80	4.50	2.90	4.13	40.0	0.85°	1.0°	6	1
3095345	3.0	100	4.50	2.90	4.48	50.0	0.88°	1.0°	6	1
3095346	3.0	100	4.50	2.90	4.83	60.0	0.90°	1.0°	6	1
3095356	3.0	100	4.50	2.90	5.74	60.8	1.45°	1.5°	6	2
3095365	3.0	100	4.50	2.90	5.70	46.5	1.92°	2.0°	6	2
3095374	3.0	80	4.50	2.90	5.60	32.1	2.81°	3.0°	6	2
3095421	4.0	80	6.00	3.90	4.23	25.0	0.29°	0.5°	6	1
3095441	4.0	80	6.00	3.90	4.73	30.0	0.76°	1.0°	6	1
3095442	4.0	80	6.00	3.90	5.08	40.0	0.82°	1.0°	6	1
3095443	4.0	100	6.00	3.90	5.43	50.0	0.86°	1.0°	6	1
3095444	4.0	100	6.00	3.90	5.76	61.3	0.97°	1.0°	6	2
3095445	4.0	120	6.00	3.90	6.48	80.0	0.92°	1.0°	8	1
3095453	4.0	80	6.00	3.90	5.70	42.2	1.43°	1.5°	6	2
3095454	4.0	120	6.00	3.90	7.69	80.4	1.47°	1.5°	8	2
3095462	4.0	120	6.00	3.90	7.63	61.3	1.94°	2.0°	8	2
3095472	4.0	100	6.00	3.90	7.50	42.2	2.85°	3.0°	8	2
3095541	5.0	100	7.50	4.90	5.86	35.0	0.76°	1.0°	8	1
3095542	5.0	100	7.50	4.90	6.38	50.0	0.84°	1.0°	8	1
3095543	5.0	130	7.50	4.90	7.08	70.0	0.89°	1.0°	8	1

Packed: 1 pc. Available WXS® coating only.

EP

List 9581 (Continued)

SPEED FEED P1125-1127 | CARBIDE | WXS | 45° | SHANK h6

PHX-PC-DBT, 3 Flute, Pencil-Neck, Deep Feed, Ball End

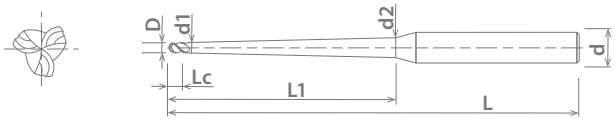
Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Min. Neck Diameter	Max. Neck Diameter	Neck Length	Effective Draft Angle	Neck Draft Angle	Shank Diameter	Type
	D	L	Lc	d1	d2	L1	α	β	d	
3095544	5.0	130	7.50	4.90	7.72	90.4	0.98°	1.0°	8	2
3095553	5.0	130	7.50	4.90	7.64	61.8	1.45°	1.5°	8	2
3095562	5.0	130	7.50	4.90	7.56	47.5	1.91°	2.0°	8	2
3095641	6.0	100	9.00	5.90	6.98	40.0	0.77°	1.0°	8	1
3095642	6.0	100	9.00	5.90	7.33	50.0	0.82°	1.0°	8	1
3095643	6.0	130	9.00	5.90	7.69	62.3	0.97°	1.0°	8	2
3095644	6.0	130	9.00	5.90	8.72	90.0	0.90°	1.0°	10	1
3095651	6.0	100	9.00	5.90	7.60	43.2	1.43°	1.5°	8	2
3095653	6.0	130	9.00	5.90	9.59	81.4	1.47°	1.5°	10	2
3095661	6.0	100	9.00	5.90	7.50	33.6	1.87°	2.0°	8	2
3095662	6.0	130	9.00	5.90	9.49	62.3	1.94°	2.0°	10	2
3095841	8.0	120	12.00	7.90	9.22	50.0	0.77°	1.0°	10	1
3095842	8.0	120	12.00	7.90	9.62	63.3	0.97°	1.0°	10	2
3095843	8.0	150	12.00	7.90	10.62	90.0	0.88°	1.0°	12	1
3095844	8.0	180	12.00	7.90	11.62	120.6	0.99°	1.0°	12	2
3095851	8.0	120	12.00	7.90	9.50	44.2	1.43°	1.5°	10	2
3095853	8.0	150	12.00	7.90	11.49	82.4	1.47°	1.5°	12	2
3095862	8.0	120	12.00	7.90	11.35	63.3	1.94°	2.0°	12	2
3096041	10.0	120	15.00	9.90	11.56	64.3	0.97°	1.0°	12	2
3096042	10.0	160	15.00	9.90	12.16	80.0	0.83°	1.0°	16	1
3096043	10.0	160	15.00	9.90	12.86	100.0	0.87°	1.0°	16	1
3096044	10.0	180	15.00	9.90	13.56	120.0	0.89°	1.0°	16	1
3096045	10.0	200	15.00	9.90	14.26	140.0	0.91°	1.0°	16	1
3096046	10.0	220	15.00	9.90	14.96	160.0	0.92°	1.0°	16	1
3096051	10.0	120	15.00	9.90	11.40	45.2	1.43°	1.5°	12	2
3096053	10.0	180	15.00	9.90	15.38	121.6	1.48°	1.5°	16	2
3096061	10.0	120	15.00	9.90	11.24	35.6	1.87°	2.0°	12	2
3096064	10.0	160	15.00	9.90	15.21	92.9	1.96°	2.0°	16	2
3096241	12.0	120	18.00	11.90	13.36	60.0	0.73°	1.0°	16	1
3096242	12.0	180	18.00	11.90	14.76	100.0	0.85°	1.0°	16	1
3096243	12.0	180	18.00	11.90	15.48	122.6	0.99°	1.0°	16	2
3096244	12.0	220	18.00	11.90	16.85	160.0	0.91°	1.0°	20	1
3096254	12.0	220	18.00	11.90	19.27	160.8	1.48°	1.5°	20	2

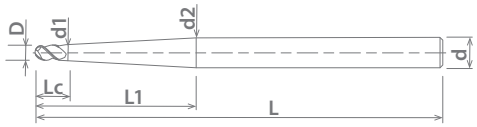
Packed: 1 pc. Available WXS® coating only.

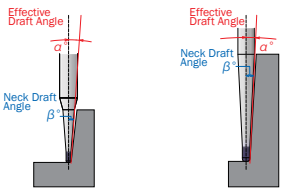
EP

Type 1



Type 2





* The tool may deflect and interfere with the draft area depending on the milling condition.

* For convenience, the Neck Draft Angle (β°) is shown the same as the Effective Draft Angle (α°), but actually it is different. (It does not interfere with the Effective Draft Angle (α°)

Work Material

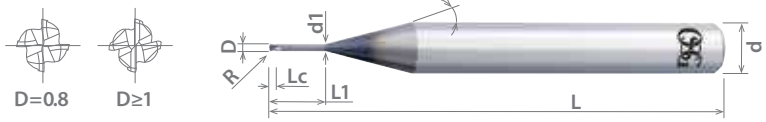
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9581	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢	▢	▢	▢

▢ good ▢ best

List 9592

SPEED FEED P1131 | CARBIDE | WXS | 54° D=0.8 | 30° D≥1 | SHANK h6

PHX-LN-CRE, 4 Flute, Pencil-Neck, Deep Feed, Corner Radius, Rib Processor



Milling Diameter Tolerance	
0.8≤D≤3	+0 / -0.01mm

Radius Tolerance	
0.1≤R≤0.3	+0.007mm / -0.007mm

Neck Length Tolerance	
0.8≤D≤3	+0 / -0.1mm

Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Dia.	Effective Neck Length (le)			Shank Diameter
	D	R	L	Lc	L1	d1	α			d
							0°	0.5°	1°	
3190800	0.8	0.1	50	0.32	2	0.75	2.00	2.16	2.32	4
3190801	0.8	0.1	50	0.32	4	0.75	4.00	4.29	4.57	4
3190802	0.8	0.1	50	0.32	6	0.75	6.00	6.42	6.78	4
3190803	0.8	0.1	50	0.32	8	0.75	8.00	8.54	8.97	4
3191006	1.0	0.1	50	0.40	4	0.95	4.00	4.29	4.56	4
3191007	1.0	0.1	50	0.40	6	0.95	6.00	6.41	6.77	4
3191008	1.0	0.1	50	0.40	8	0.95	8.00	8.53	8.96	4
3191009	1.0	0.1	50	0.40	10	0.95	10.00	10.63	11.13	4
3191010	1.0	0.1	50	0.40	12	0.95	12.00	12.73	13.29	4
3191011	1.0	0.2	50	0.40	4	0.95	4.00	4.29	4.56	4
3191012	1.0	0.2	50	0.40	6	0.95	6.00	6.41	6.77	4
3191013	1.0	0.2	50	0.40	8	0.95	8.00	8.53	8.96	4
3191014	1.0	0.2	50	0.40	10	0.95	10.00	10.63	11.13	4
3191015	1.0	0.2	50	0.40	12	0.95	12.00	12.73	13.29	4
3191018	1.0	0.3	50	0.40	4	0.95	4.00	4.29	4.56	4
3191019	1.0	0.3	50	0.40	6	0.95	6.00	6.41	6.77	4
3191501	1.5	0.1	50	0.60	4	1.45	4.00	4.29	4.56	4
3191503	1.5	0.1	50	0.60	8	1.45	8.00	8.53	8.96	4
3191505	1.5	0.1	50	0.60	12	1.45	12.00	12.73	13.29	4
3191506	1.5	0.2	50	0.60	4	1.45	4.00	4.29	4.56	4
3191507	1.5	0.2	50	0.60	6	1.45	6.00	6.41	6.77	4
3191508	1.5	0.2	50	0.60	8	1.45	8.00	8.53	8.96	4
3192001	2.0	0.1	50	0.80	8	1.95	8.00	8.53	8.96	4
3192002	2.0	0.1	50	0.80	10	1.95	10.00	10.63	11.13	4
3192003	2.0	0.1	50	0.80	12	1.95	12.00	12.73	13.29	4
3192004	2.0	0.1	50	0.80	16	1.95	16.00	16.92	17.57	4
3192013	2.0	0.3	50	0.80	8	1.95	8.00	8.53	8.96	4
3192015	2.0	0.3	50	0.80	12	1.95	12.00	12.73	13.29	4
3192019	2.0	0.5	50	0.80	6	1.95	6.00	6.41	6.77	4
3192020	2.0	0.5	50	0.80	8	1.95	8.00	8.53	8.96	4
3192021	2.0	0.5	50	0.80	10	1.95	10.00	10.63	11.13	4
3192022	2.0	0.5	50	0.80	12	1.95	12.00	12.73	13.29	4
3193008	3.0	0.3	50	1.20	12	2.85	12.00	12.73	13.29	4

Packed: 1 pc.
Available WXS® coating only.
Center Cutting applies only to diameter sizes over 0.8mm.

EP

OSG's Performance & Savings

Don't require ultra-high performance? Try EXOCARB® WXS® - List 4592 (p. 893-895)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9592	○	○	○	○	○	○	○	○	○					○	◎	◎	○

○ good ◎ best

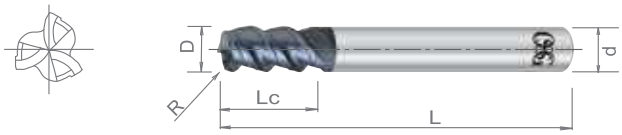
List 9575

PHX-DFR, 3 Flute, Deep Feed, Corner Radius

SPEED FEED P1128-1130 | CARBIDE | WXS | 55° | SHANK h6

Milling Diameter Tolerance	
6≤D≤20	+0.01mm / -0.01mm

Radius Tolerance	
1.5≤R≤3	+0.03mm / -0.03mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
3090512	6	1.5	80	12	6
3090516	8	2.0	90	16	8
3090520	10	2.0	100	20	10
3090522	12	2.0	120	24	12
3090526	16	3.0	130	32	16
3090530	20	3.0	150	40	20

Packed: 1 pc.
Available WXS® coating only.

EP

OSG's Performance & Savings

Not machining steel over 54 HRC? Try EXOCARB® WXL® - List 3771 (p. 880)
Don't require ultra-high performance? Try EXOCARB® WXS® - List 4571 (p. 889)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9575	▣	▣	▣	▣	▣	▢	▢	▢	▢					▣	▣	▣	▣

▢ good ▣ best

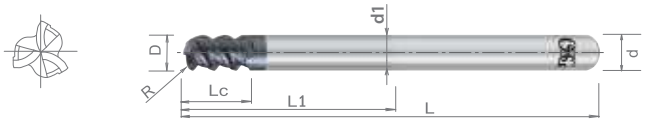
List 9576

PHX-LN-DFR, 3 Flute, Long Neck, Deep Feed, Corner Radius

SPEED FEED P1128-1130 | CARBIDE | WXS | 55° | SHANK h6

Milling Diameter Tolerance	
4≤D≤16	+0.01mm / -0.01mm

Radius Tolerance	
1≤R≤3	+0.03mm / -0.03mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d1	d
3092041	4	1.0	70	6	20	3.8	4
3092042	4	1.0	70	6	28	3.8	4
3092061	6	1.5	80	9	30	5.8	6
3092062	6	1.5	90	9	42	5.8	6
3092063	6	1.5	100	9	54	5.8	6
3092081	8	2.0	85	12	40	7.7	8
3092082	8	2.0	100	12	56	7.7	8
3092083	8	2.0	120	12	72	7.7	8
3092101	10	2.0	100	15	50	9.7	10
3092102	10	2.0	120	15	70	9.7	10
3092103	10	2.0	140	15	90	9.7	10
3092121	12	2.0	110	18	60	11.7	12
3092122	12	2.0	135	18	84	11.7	12
3092123	12	2.0	160	18	108	11.7	12
3092161	16	3.0	140	24	80	15.5	16
3092162	16	3.0	175	24	120	15.5	16

Packed: 1 pc.
Available WXS® coating only.

EP

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9576	◎	◎	◎	◎	◎	○	○	○	○					◎	◎	◎	○

○ good ◎ best

List 9580

PHX-PC-DFR, 3 Flute, Pencil Neck, Deep Feed, Corner Radius

SPEED FEED P1128-1130 | CARBIDE | WXS | 55° | SHANK h6

Milling Diameter Tolerance	
2≤D≤12	+0 / -0.015mm

Radius Tolerance	
0.5≤R≤2	+0.03mm / -0.03mm



Units: mm

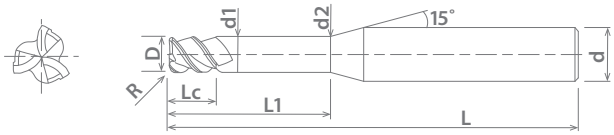
EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Min. Neck Diameter	Maximum Neck Diameter	Neck Length	Effective Draft Angle	Neck Draft Angle	Shank Diameter	Type
	D	R	L	Lc	d1	d2	L1	α	β	d	
3097223	2	0.5	60	3.0	1.95	2.25	20.0	0.36°	0.5°	6	1
3097224	2	0.5	70	3.0	1.95	2.33	25.0	0.39°	0.5°	6	1
3097225	2	0.5	80	3.0	1.95	2.42	30.0	0.41°	0.5°	6	1
3097226	2	0.5	80	3.0	1.95	2.51	35.0	0.42°	0.5°	6	1
3097227	2	0.5	80	3.0	1.95	2.60	40.0	0.43°	0.5°	6	1
3097241	2	0.5	60	3.0	1.95	2.19	10.0	0.59°	1°	6	1
3097242	2	0.5	60	3.0	1.95	2.37	15.0	0.73°	1°	6	1
3097243	2	0.5	60	3.0	1.95	2.54	20.0	0.80°	1°	6	1
3097244	2	0.5	70	3.0	1.95	2.72	25.0	0.84°	1°	6	1
3097245	2	0.5	80	3.0	1.95	2.89	30.0	0.87°	1°	6	1
3097246	2	0.5	80	3.0	1.95	3.07	35.0	0.89°	1°	6	1
3097247	2	0.5	80	3.0	1.95	3.24	40.0	0.90°	1°	6	1
3097248	2	0.5	100	3.0	1.95	3.42	45.0	0.91°	1°	6	1
3097249	2	0.5	100	3.0	1.95	3.59	50.0	0.92°	1°	6	1
3097251	2	0.5	80	3.0	1.95	3.89	40.0	1.37°	1.5°	6	1
3097262	2	0.5	100	3.0	1.95	6.00	60.3	2.00°	2°	6	2
3097273	2	0.5	100	3.0	1.95	6.00	41.2	3.00°	3°	6	2
3097321	3	0.8	80	4.5	2.90	3.17	20.0	0.25°	0.5°	6	1
3097341	3	0.8	80	4.5	2.90	3.44	20.0	0.66°	1°	6	1
3097342	3	0.8	80	4.5	2.90	3.62	25.0	0.73°	1°	6	1
3097343	3	0.8	80	4.5	2.90	3.79	30.0	0.78°	1°	6	1

Packed: 1 pc.
Available WXS® coating only.

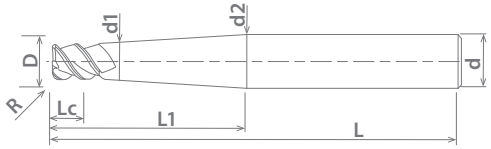
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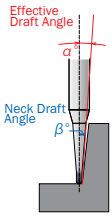
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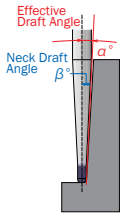
Type 1



Type 2







* The tool may deflect and interfere with the draft area depending on the milling condition.

* For convenience, the Neck Draft Angle (β°) is shown the same as the Effective Draft Angle (α°), but actually it is different. (It does not interfere with the Effective Draft Angle (α°)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9580	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢	▢	▢	▢

▢ good ▢ best

List 9580 (Continued)

PHX-PC-DFR, 3 Flute, Pencil Neck, Deep Feed, Corner Radius

SPEED FEED P1128-1130 | CARBIDE | WXS | 55° | SHANK h6

Milling Diameter Tolerance	
2≤D≤12	+0 / -0.015mm

Radius Tolerance	
0.5≤R≤2	+0.03mm / -0.03mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Min. Neck Diameter	Maximum Neck Diameter	Neck Length	Effective Draft Angle	Neck Draft Angle	Shank Diameter	Type
	D	R	L	Lc	d1	d2	L1	α	β	d	
3097344	3	0.8	80	4.5	2.90	4.14	40.0	0.83°	1°	6	1
3097345	3	0.8	100	4.5	2.90	4.49	50.0	0.87°	1°	6	1
3097346	3	0.8	100	4.5	2.90	4.84	60.0	0.89°	1°	6	1
3097356	3	0.8	100	4.5	2.90	6.00	60.8	1.50°	1.5°	6	2
3097365	3	0.8	100	4.5	2.90	6.00	46.5	2.00°	2°	6	2
3097374	3	0.8	100	4.5	2.90	6.00	32.1	3.00°	3°	6	2
3097421	4	1.0	80	6.0	3.90	4.23	25.0	0.28°	0.5°	6	1
3097422	4	1.0	80	6.0	3.90	4.32	30.0	0.31°	0.5°	6	1
3097423	4	1.0	80	6.0	3.90	4.41	35.0	0.34°	0.5°	6	1
3097424	4	1.0	80	6.0	3.90	4.49	40.0	0.36°	0.5°	6	1
3097425	4	1.0	80	6.0	3.90	4.58	45.0	0.38°	0.5°	6	1
3097426	4	1.0	100	6.0	3.90	4.67	50.0	0.39°	0.5°	6	1
3097441	4	1.0	80	6.0	3.90	4.74	30.0	0.73°	1°	6	1
3097442	4	1.0	80	6.0	3.90	5.09	40.0	0.80°	1°	6	1
3097443	4	1.0	100	6.0	3.90	5.44	50.0	0.84°	1°	6	1
3097444	4	1.0	100	6.0	3.90	6.00	61.3	1.00°	1°	6	2
3097453	4	1.0	80	6.0	3.90	6.00	42.2	1.50°	1.5°	6	2
3097454	4	1.0	120	6.0	3.90	8.00	80.4	1.50°	1.5°	8	2
3097461	4	1.0	80	6.0	3.90	6.00	32.6	2.00°	2°	6	2
3097462	4	1.0	120	6.0	3.90	8.00	61.3	2.00°	2°	8	2
3097472	4	1.0	100	6.0	3.90	8.00	42.2	3.00°	3°	8	2
3097627	6	1.5	130	9.0	5.90	6.79	60.0	0.39°	0.5°	8	1
3097641	6	1.5	100	9.0	5.90	6.98	40.0	0.73°	1°	8	1
3097642	6	1.5	100	9.0	5.90	7.33	50.0	0.79°	1°	8	1
3097643	6	1.5	130	9.0	5.90	8.00	62.3	1.00°	1°	8	2
3097651	6	1.5	100	9.0	5.90	8.00	43.2	1.50°	1.5°	8	2
3097653	6	1.5	130	9.0	5.90	10.00	81.4	1.50°	1.5°	10	2
3097661	6	1.5	100	9.0	5.90	8.00	33.6	2.00°	2°	8	2
3097662	6	1.5	130	9.0	5.90	10.00	62.3	2.00°	2°	10	2
3097826	8	2.0	150	12.0	7.90	9.09	80.0	0.40°	0.5°	10	1
3097841	8	2.0	120	12.0	7.90	9.23	50.0	0.73°	1°	10	1
3097842	8	2.0	150	12.0	7.90	10.00	63.3	1.00°	1°	10	2
3097844	8	2.0	180	12.0	7.90	12.00	120.6	1.00°	1°	12	2
3097851	8	2.0	120	12.0	7.90	10.00	44.2	1.50°	1.5°	10	2
3097853	8	2.0	150	12.0	7.90	12.00	82.4	1.50°	1.5°	12	2
3097861	8	2.0	120	12.0	7.90	10.00	34.6	2.00°	2°	10	2
3097862	8	2.0	120	12.0	7.90	12.00	63.3	2.00°	2°	12	2
3098026	10	2.0	150	15.0	9.90	11.38	100.0	0.40°	0.5°	12	1
3098041	10	2.0	120	15.0	9.90	12.00	64.3	1.00°	1°	12	2
3098042	10	2.0	160	15.0	9.90	12.17	80.0	0.80°	1°	16	1
3098043	10	2.0	160	15.0	9.90	12.87	100.0	0.84°	1°	16	1
3098044	10	2.0	180	15.0	9.90	13.57	120.0	0.87°	1°	16	1
3098045	10	2.0	200	15.0	9.90	14.26	140.0	0.88°	1°	16	1
3098046	10	2.0	220	15.0	9.90	14.96	160.0	0.90°	1°	16	1
3098051	10	2.0	120	15.0	9.90	12.00	45.2	1.50°	1.5°	12	2
3098053	10	2.0	180	15.0	9.90	16.00	121.6	1.50°	1.5°	16	2
3098061	10	2.0	120	15.0	9.90	12.00	35.6	2.00°	2°	12	2

Packed: 1 pc.
Available WXS® coating only.

EP

List 9580 (Continued)

SPEED FEED P1128-1130 | CARBIDE | WXS | 55° | SHANK h6

PHX-PC-DFR, 3 Flute, Pencil Neck, Deep Feed, Corner Radius

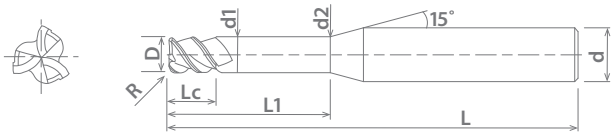
Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Min. Neck Diameter	Maximum Neck Diameter	Neck Length	Effective Draft Angle	Neck Draft Angle	Shank Diameter	Type
	D	R	L	Lc	d1	d2	L1	α	β	d	
3098064	10	2.0	220	15.0	9.90	16.00	92.9	2.00°	2°	16	2
3098224	12	2.0	180	18.0	11.90	13.68	120.0	0.41°	0.5°	16	1
3098241	12	2.0	120	18.0	11.90	13.37	60.0	0.67°	1°	16	1
3098242	12	2.0	180	18.0	11.90	14.76	100.0	0.81°	1°	16	1
3098243	12	2.0	180	18.0	11.90	16.00	122.6	1.00°	1°	16	2
3098244	12	2.0	220	18.0	11.90	16.86	160.0	0.88°	1°	20	1
3098254	12	2.0	220	18.0	11.90	20.00	160.8	1.50°	1.5°	20	2

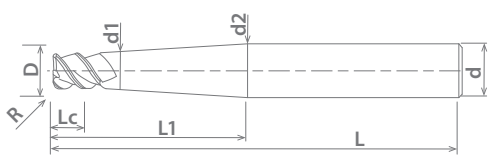
Packed: 1 pc.
Available WXS® coating only.

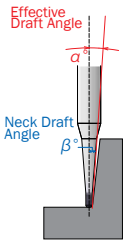
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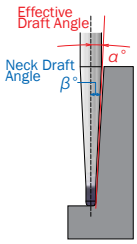
Type 1



Type 2







* The tool may deflect and interfere with the draft area depending on the milling condition.

* For convenience, the Neck Draft Angle (β°) is shown the same as the Effective Draft Angle (α°), but actually it is different. (It does not interfere with the Effective Draft Angle (α°)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9580	▢	▢	▢	▢	▢	○	○	○	○					▢	▢	▢	○

○ good ▢ best

List 9570

PHX-CRT, 3 Flute, High Feed, Corner Radius

SPEED FEED P1128-1130 | CARBIDE | EXO® | 55° | SHANK h6

Milling Diameter Tolerance	
1≤D≤5	+0 / -0.015mm
6≤D≤20	+0.01mm / -0.005mm

Radius Tolerance	
0.3≤R≤3	+0.01mm / -0.01mm



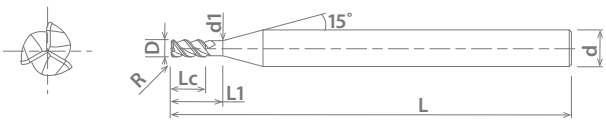
Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Effective Neck Length (Le) (Based on Inclined Angle)				Shank Diameter	Type
	D	R	L	Lc	L1	d1	α				d	
							0.5°	1°	2°	3°		
3090002	1.0	0.3	60	2	4.0	0.95	4.29	4.56	5.05	5.50	6	1
3090003	1.5	0.3	60	3	4.5	1.45	4.82	5.11	5.64	6.12	6	1
3090004	2.0	0.5	60	4	6.0	1.95	6.41	6.77	7.39	7.89	6	1
3090006	3.0	0.8	70	6	9.0	2.85	9.46	9.87	10.62	11.48	6	1
3090008	4.0	1.0	70	8	12.0	3.85	12.60	13.09	14.07	15.21	6	1
3090010	5.0	1.0	70	10	15.0	4.85	15.72	16.30	–	–	6	1
3090012	6.0	1.5	80	12	–	–	–	–	–	–	6	2
3090016	8.0	2.0	90	16	–	–	–	–	–	–	8	2
3090020	10.0	2.0	100	20	–	–	–	–	–	–	10	2
3090022	12.0	2.0	120	24	–	–	–	–	–	–	12	2
3090026	16.0	3.0	130	32	–	–	–	–	–	–	16	2
3090030	20.0	3.0	150	40	–	–	–	–	–	–	20	2

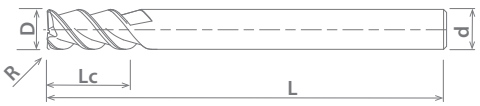
Packed: 1 pc.
Available EXO® coating only.

EP

Type 1



Type 2



OSG's Performance & Savings

Don't require ultra-high performance? Try EXOCARB® WXS® - List 4570 (p. 890)

Work Material

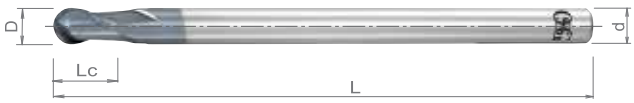
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9570	▢	▢	▢	▢	▢	○	○	○	○					▢	▢	▢	○

○ good ▢ best

List 3610

NEW SIZES | SPEED FEED P1135 | CARBIDE | WXL | REG | 30° | SHANK h6

WXL-EBD, 2 Flute, Regular Length, Ball End



Radius Tolerance	
1/32≤D≤3/16	+0.0002" / -0.0002"
1/4≤D≤1/2	+0.0001" / -0.0003"

Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
36100111	1/32	2-1/2	1/32	1/4
36100211	1/16	2-1/2	1/16	1/4
36100311	3/32	2-1/2	3/32	1/4
36100411	1/8	3	1/8	1/4
36101011	5/32	2-1/2	5/32	1/4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
36100511	3/16	3	3/16	1/4
36100611	1/4	3	1/4	1/4
36100711	5/16	4	5/16	5/16
36100811	3/8	4	3/8	3/8
36100911	1/2	4	1/2	1/2

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP421BN, HP416 or HP413 (p. 980-981, 982 or 986)

Machining steel over 54 HRC? Try EXOCARB® WXS® - List 4410 (p. 884)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3610	▣	▣	▣	▣	▣	▣	▣	▣	▣	○	○	○	○	▣	▣	▣	○

○ good ▣ best

List 3710

WXL-EBD, 2 Flute, Regular Length, Ball End

SPEED FEED	CARBIDE	WXL		REG	30°	SHANK
P1136						h6

Radius Tolerance	
R<3	+0.005mm / -0.005mm
3 ≤ R ≤ 6	+0.003mm / -0.007mm
6 > R	+0.01mm / -0.01mm



Units: mm

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
3105010	0.1	40	0.2	4
3105020	0.2	40	0.4	4
3105030	0.3	40	0.6	4
3105040	0.4	40	0.8	4
3105050	0.5	40	1.1	4
3105060	0.6	40	1.1	4
3105080	0.8	40	2.0	4
3105100	1.0	50	1.5	4
3106100	1.0	60	2.5	6
3105120	1.2	50	3.0	4
3105140	1.4	50	3.5	4
3105150	1.5	50	2.0	4
3106150	1.5	50	4.0	6
3105160	1.6	50	4.0	4
3105200	2.0	50	3.0	4
3106200	2.0	50	5.0	6
3105250	2.5	50	3.0	4
3106250	2.5	60	6.0	6
3105300	3.0	60	4.5	4
3106301	3.0	60	8.0	6

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
3106350	3.5	70	8.0	6
3105400	4.0	60	8.0	4
3106400	4.0	70	6.0	6
3106500	5.0	80	8.0	6
3106502	5.0	80	12.0	6
3106600	6.0	90	10.0	6
3106601	6.0	90	12.0	6
3106610	7.0	90	14.0	6
3106620	8.0	100	12.0	8
3106621	8.0	100	14.0	8
3106630	9.0	100	18.0	8
3106640	10.0	100	15.0	10
3106641	10.0	100	18.0	10
3106650	11.0	100	22.0	10
3106660	12.0	110	18.0	12
3106661	12.0	110	22.0	12
3106670	14.0	110	26.0	12
3106680	16.0	140	30.0	16
3106690	18.0	140	34.0	16
3106700	20.0	160	38.0	20

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP421BN, HP416 or HP413 (p. 980-981, 982 or 986)

Machining steel over 54 HRC? Try EXOCARB® WXS® - List 4510 (p. 885)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3710	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	▢	○

○ good ▢ best

List 3670

WXL-CR-EMS, 4 Flute, Regular Length, Corner Radius

NEW SIZES | SPEED FEED P1137 | CARBIDE | WXL | REG | 30° | SHANK h6

Milling Diameter Tolerance	
1/16 ≤ D ≤ 1	+0 / -0.0008"



Units: Inch

EDP Number	Mill Diameter D	Corner Radius R	Overall Length L	Length of Cut Lc	Shank Diameter d
36700111	1/16	0.010	1-1/2	3/16	1/8
36700211	5/64	0.010	1-1/2	1/4	1/8
36700311	3/32	0.010	1-1/2	3/8	1/8
36700411	7/64	0.010	1-1/2	3/8	1/8
36700511	1/8	0.010	1-1/2	1/2	1/8
36700611	1/8	0.020	1-1/2	1/2	1/8
36700711	1/8	0.030	1-1/2	1/2	1/8
36700811	5/32	0.020	2	9/16	3/16
36700911	5/32	0.030	2	9/16	3/16
36701011	3/16	0.020	2	5/8	3/16
36701111	3/16	0.030	2	5/8	3/16
36701211	7/32	0.020	2-1/2	5/8	1/4
36701311	7/32	0.030	2-1/2	5/8	1/4
36701411	1/4	0.020	2-1/2	3/4	1/4
36701511	1/4	0.030	2-1/2	3/4	1/4
36701611	1/4	0.045	2-1/2	3/4	1/4
36701711	1/4	0.060	2-1/2	3/4	1/4
36701811	5/16	0.020	2-1/2	13/16	5/16
36701911	5/16	0.030	2-1/2	13/16	5/16
36703011	5/16	0.060	2-1/2	13/16	5/16
36702011	3/8	0.020	2-1/2	1	3/8
36702111	3/8	0.030	2-1/2	1	3/8
36702211	3/8	0.045	2-1/2	1	3/8

EDP Number	Mill Diameter D	Corner Radius R	Overall Length L	Length of Cut Lc	Shank Diameter d
36702311	3/8	0.060	2-1/2	1	3/8
36703111	3/8	0.090	2-1/2	1	3/8
36702411	7/16	0.020	2-3/4	1	7/16
36702511	7/16	0.030	2-3/4	1	7/16
36703211	7/16	0.060	2-3/4	1	7/16
36702611	1/2	0.020	3	1	1/2
36702711	1/2	0.030	3	1	1/2
36702811	1/2	0.045	3	1	1/2
36702911	1/2	0.060	3	1	1/2
36703311	1/2	0.090	3	1	1/2
36703411	5/8	0.030	3-1/2	1-1/4	5/8
36703511	5/8	0.060	3-1/2	1-1/4	5/8
36703611	5/8	0.090	3-1/2	1-1/4	5/8
36703711	5/8	0.125	3-1/2	1-1/4	5/8
36703811	3/4	0.030	4	1-1/2	3/4
36703911	3/4	0.060	4	1-1/2	3/4
36704011	3/4	0.090	4	1-1/2	3/4
36704111	3/4	0.125	4	1-1/2	3/4
36704211	1	0.030	4	1-1/2	1
36704311	1	0.060	4	1-1/2	1
36704411	1	0.090	4	1-1/2	1
36704511	1	0.125	4	1-1/2	1

HTE

Packed: 1 pc.
Available WXL® coating only.

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP434 (p. 987-988)
Machining steel over 54 HRC? Try EXOCARB® WXS® - List 4471 (p. 888)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3670	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	○	

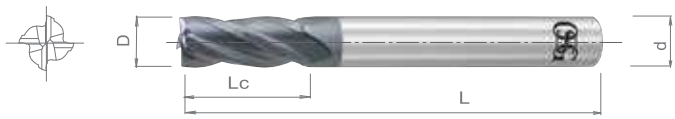
○ good ◎ best

List 3604

WXL-EMS, 4 Flute, Regular Length

NEW SIZES | SPEED FEED P1138 | CARBIDE | WXL | REG | 30° | SHANK h6

Milling Diameter Tolerance	
1/16 ≤ D ≤ 1	+0 / -0.0008"



Units: Inch

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
36040111	1/16	1-1/2	3/16	1/8
36040211	5/64	1-1/2	1/4	1/8
36040311	3/32	1-1/2	3/8	1/8
36040411	7/64	1-1/2	3/8	1/8
36040511	1/8	1-1/2	1/2	1/8
36040611	5/32	2	9/16	3/16
36040711	3/16	2	5/8	3/16
36040811	7/32	2-1/2	5/8	1/4
36040911	1/4	2-1/2	3/4	1/4

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
36041011	9/32	2-1/2	3/4	5/16
36041111	5/16	2-1/2	13/16	5/16
36041211	3/8	2-1/2	1	3/8
36041311	7/16	2-3/4	1	7/16
36041411	1/2	3	1	1/2
36041511	5/8	3-1/2	1-1/4	5/8
36041611	3/4	4	1-1/2	3/4
36041711	1	4	1-1/2	1

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP441 (p. 969-970)
Machining steel over 54 HRC? Try EXOCARB® WXS® - List 4440 (p. 886)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3604	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	○	

○ good ▢ best

List 3690

WXL-LN-EBD, 2 Flute, Regular Length, Long Neck, Ball End, Rib Processing

SPEED FEED P1139-1148 | CARBIDE | WXL | REG | 30° | SHANK h6

±5µm (±0.0002") Radius Tolerance



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d1	d
36900111	1/64	2-1/2	1/64	3/64	0.013	1/8
36900211	1/64	2-1/2	1/64	3/32	0.013	1/8
36900311	1/32	2-1/2	1/32	5/32	0.029	1/4
36900411	1/32	2-1/2	1/32	5/16	0.029	1/4
36900511	1/32	2-1/2	1/32	13/32	0.029	1/4
36900611	1/16	2-1/2	1/16	5/16	0.061	1/4
36900711	1/16	2-1/2	1/16	5/8	0.061	1/4
36900811	1/16	3	1/16	13/16	0.061	1/4
36900911	3/32	2-1/2	3/32	15/32	0.092	1/4
36901011	3/32	2-7/8	3/32	15/16	0.092	1/4
36901111	3/32	3-1/8	3/32	1-13/32	0.092	1/4
36901211	1/8	3	1/8	5/8	0.123	1/4
36901311	1/8	3	1/8	1-1/4	0.123	1/4
36901411	1/8	3-3/4	1/8	1-7/8	0.123	1/4
36901511	3/16	3-1/2	3/16	15/16	0.185	1/4
36901611	3/16	4	3/16	1-7/8	0.185	1/4
36901711	1/4	4	1/4	1-1/4	0.248	1/4
36901811	1/4	4-1/2	1/4	2	0.248	1/4

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP419 (p. 984)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3690	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	▢	○

○ good ▢ best

List 3790

WXL-LN-EBD, 2 Flute, Regular Length, Long Neck, Ball End, Rib Processing

SPEED FEED P1139-1148 | CARBIDE | WXL | REG | 30° | SHANK h6

±5µm Radius Tolerance



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Diameter
	D	L	Lc	L1	d2	d
3110103	0.1	45	0.1	0.3	0.085	4
3110105	0.1	45	0.1	0.5	0.085	4
3110203	0.2	45	0.2	0.3	0.18	4
3110205	0.2	45	0.2	0.5	0.18	4
3110207	0.2	45	0.16	0.75	0.18	4
3110210	0.2	45	0.2	1.0	0.18	4
3110212	0.2	45	0.16	1.25	0.18	4
3110215	0.2	45	0.2	1.5	0.18	4
3110217	0.2	45	0.16	1.75	0.18	4
3110220	0.2	45	0.16	2.0	0.18	4
3110225	0.2	45	0.16	2.5	0.18	4
3110230	0.2	45	0.16	3.0	0.18	4
3110305	0.3	45	0.24	0.5	0.28	4
3110306	0.3	45	0.24	0.6	0.28	4
3110307	0.3	45	0.24	0.75	0.28	4
3110310	0.3	45	0.2	1.0	0.28	4
3110312	0.3	45	0.24	1.25	0.28	4
3110315	0.3	45	0.2	1.5	0.28	4
3110317	0.3	45	0.24	1.75	0.28	4
3110320	0.3	45	0.2	2.0	0.28	4
3110322	0.3	45	0.24	2.25	0.28	4
3110325	0.3	45	0.24	2.5	0.28	4
3110327	0.3	45	0.24	2.75	0.28	4
3110330	0.3	45	0.24	3.0	0.28	4
3110335	0.3	45	0.24	3.5	0.28	4
3110340	0.3	45	0.24	4.0	0.28	4
3110345	0.3	45	0.24	4.5	0.28	4
3110350	0.3	45	0.24	5.0	0.28	4
3110405	0.4	45	0.3	0.5	0.37	4
3110407	0.4	45	0.3	0.75	0.37	4
3110410	0.4	45	0.3	1.0	0.37	4
3110415	0.4	45	0.3	1.5	0.37	4
3110420	0.4	45	0.3	2.0	0.37	4
3110425	0.4	45	0.3	2.5	0.37	4
3110430	0.4	45	0.3	3.0	0.37	4
3110435	0.4	45	0.3	3.5	0.37	4
3110440	0.4	45	0.3	4.0	0.37	4
3110445	0.4	45	0.3	4.5	0.37	4
3110450	0.4	45	0.3	5.0	0.37	4
3110455	0.4	45	0.3	5.5	0.37	4
3110460	0.4	45	0.3	6.0	0.37	4
3110510	0.5	45	0.4	1.0	0.45	4
3110515	0.5	45	0.4	1.5	0.45	4
3110520	0.5	45	0.4	2.0	0.45	4
3110525	0.5	45	0.4	2.5	0.45	4
3110530	0.5	45	0.4	3.0	0.45	4
3110535	0.5	45	0.4	3.5	0.45	4
3110540	0.5	45	0.4	4.0	0.45	4
3110545	0.5	45	0.4	4.5	0.45	4
3110550	0.5	45	0.4	5.0	0.45	4
3110555	0.5	45	0.4	5.5	0.45	4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Diameter
	D	L	Lc	L1	d2	d
3110560	0.5	45	0.4	6.0	0.45	4
3110570	0.5	45	0.4	7.0	0.45	4
3110580	0.5	45	0.4	8.0	0.45	4
3110590	0.5	45	0.4	9.0	0.45	4
3110600	0.5	45	0.4	10	0.45	4
3110610	0.6	45	0.5	1.0	0.55	4
3110615	0.6	45	0.5	1.5	0.55	4
3110620	0.6	45	0.5	2.0	0.55	4
3110625	0.6	45	0.5	2.5	0.55	4
3110630	0.6	45	0.5	3.0	0.55	4
3110635	0.6	45	0.5	3.5	0.55	4
3110640	0.6	45	0.5	4.0	0.55	4
3110645	0.6	45	0.5	4.5	0.55	4
3110650	0.6	45	0.5	5.0	0.55	4
3110655	0.6	45	0.5	5.5	0.55	4
3110660	0.6	45	0.5	6.0	0.55	4
3110665	0.6	45	0.5	6.5	0.55	4
3110670	0.6	45	0.5	7.0	0.55	4
3110675	0.6	45	0.5	7.5	0.55	4
3110680	0.6	45	0.5	8.0	0.55	4
3110685	0.6	45	0.5	8.5	0.55	4
3110690	0.6	45	0.5	9.0	0.55	4
3110695	0.6	45	0.5	9.5	0.55	4
3110700	0.6	45	0.5	10	0.55	4
3110711	0.6	45	0.5	11	0.55	4
3110712	0.6	45	0.5	12	0.55	4
3110820	0.8	45	0.6	2.0	0.75	4
3110830	0.8	45	0.5	3.0	0.75	4
3110840	0.8	45	0.6	4.0	0.75	4
3110850	0.8	45	0.6	5.0	0.75	4
3110860	0.8	45	0.6	6.0	0.75	4
3110870	0.8	45	0.6	7.0	0.75	4
3110880	0.8	45	0.6	8.0	0.75	4
3110890	0.8	45	0.6	9.0	0.75	4
3110900	0.8	45	0.6	10	0.75	4
3110912	0.8	45	0.5	12	0.75	4
3111025	1.0	45	0.8	2.5	0.95	4
3111030	1.0	45	0.8	3.0	0.95	4
3111040	1.0	45	0.8	4.0	0.95	4
3111050	1.0	45	0.8	5.0	0.95	4
3111060	1.0	45	0.8	6.0	0.95	4
3111070	1.0	45	0.8	7.0	0.95	4
3111080	1.0	45	0.8	8.0	0.95	4
3111090	1.0	45	0.8	9.0	0.95	4
3111100	1.0	45	0.8	10	0.95	4
3111112	1.0	45	0.8	12	0.95	4
3111114	1.0	50	0.8	14	0.95	4
3111116	1.0	50	0.8	16	0.95	4
3111118	1.0	55	0.8	18	0.95	4
3111120	1.0	55	0.8	20	0.95	4
3111240	1.2	45	1.0	4.0	1.15	4

Packed: 1 pc.
Available WXL® coating only.

HTE

List 3790 (Continued)

WXL-LN-EBD, 2 Flute, Regular Length, Long Neck, Ball End, Rib Processing

SPEED FEED P1139-1148 | CARBIDE | WXL | REG | 30° | SHANK h6

±5µm Radius Tolerance

Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Diameter
	D	L	Lc	L1	d2	d
3111260	1.2	45	1.0	6.0	1.15	4
3111280	1.2	45	1.0	8.0	1.15	4
3111300	1.2	45	1.0	10	1.15	4
3111312	1.2	45	1.0	12	1.15	4
3111314	1.2	50	1.0	14	1.15	4
3111316	1.2	50	1.0	16	1.15	4
3111318	1.2	55	1.0	18	1.15	4
3111320	1.2	60	1.0	20	1.15	4
3111324	1.2	60	1.0	24	1.15	4
3111480	1.4	45	1.1	8.0	1.35	4
3111512	1.4	45	1.1	12	1.35	4
3111516	1.4	50	1.1	16	1.35	4
3111530	1.5	45	1.2	3.0	1.45	4
3111540	1.5	45	1.2	4.0	1.45	4
3111560	1.5	45	1.2	6.0	1.45	4
3111580	1.5	45	1.2	8.0	1.45	4
3111600	1.5	45	1.2	10	1.45	4
3111612	1.5	45	1.2	12	1.45	4
3111614	1.5	50	1.2	14	1.45	4
3111616	1.5	55	1.2	16	1.45	4
3111618	1.5	55	1.2	18	1.45	4
3111620	1.5	55	1.2	20	1.45	4
3111622	1.5	55	1.2	22	1.45	4
3111630	1.5	65	1.2	30	1.45	4
3111640	1.6	45	1.3	4.0	1.55	4
3111680	1.6	45	1.3	8.0	1.55	4
3111712	1.6	45	1.3	12	1.55	4
3111716	1.6	50	1.3	16	1.55	4
3111720	1.6	55	1.3	20	1.55	4
3111880	1.8	45	1.4	8.0	1.75	4
3111912	1.8	45	1.4	12	1.75	4
3111916	1.8	50	1.4	16	1.75	4
3111920	1.8	55	1.4	20	1.75	4
3112030	2.0	45	1.6	3.0	1.95	4
3112040	2.0	45	1.6	4.0	1.95	4
3112060	2.0	45	1.6	6.0	1.95	4
3112080	2.0	45	1.6	8.0	1.95	4
3112100	2.0	45	1.6	10	1.95	4
3112112	2.0	45	1.6	12	1.95	4
3112114	2.0	50	1.6	14	1.95	4
3112116	2.0	50	1.6	16	1.95	4
3112118	2.0	55	1.6	18	1.95	4
3112120	2.0	55	1.6	20	1.95	4
3112122	2.0	60	1.6	22	1.95	4
3112125	2.0	65	1.6	25	1.95	4
3112130	2.0	70	1.6	30	1.95	4
3112135	2.0	75	1.6	35	1.95	4
3112140	2.0	80	1.6	40	1.95	4
3112560	2.5	45	2.0	6.0	2.45	4
3112600	2.5	50	2.0	10	2.45	4
3112615	2.5	55	2.0	15	2.45	4
3112620	2.5	60	2.0	20	2.45	4
3112625	2.5	65	2.0	25	2.45	4
3112630	2.5	70	2.0	30	2.45	4
3112635	2.5	70	2.0	35	2.45	4
3123060	3.0	50	2.4	6.0	2.85	6
3123080	3.0	50	2.4	8.0	2.85	6
3123100	3.0	50	2.4	10	2.85	6
3123112	3.0	55	2.4	12	2.85	6
3123114	3.0	55	2.4	14	2.85	6
3123115	3.0	55	2.4	15	2.85	6
3123116	3.0	55	2.4	16	2.85	6
3123120	3.0	60	2.4	20	2.85	6
3123125	3.0	65	2.4	25	2.85	6
3123130	3.0	70	2.4	30	2.85	6
3123135	3.0	80	2.4	35	2.85	6
3123140	3.0	85	2.4	40	2.85	6
3123600	3.5	60	2.8	10	3.35	6
3123615	3.5	60	2.8	15	3.35	6
3123620	3.5	65	2.8	20	3.35	6
3123625	3.5	65	2.8	25	3.35	6
3123630	3.5	70	2.8	30	3.35	6
3123635	3.5	80	2.8	35	3.35	6
3123640	3.5	90	2.8	40	3.35	6
3123645	3.5	90	2.8	45	3.35	6
3124080	4.0	60	3.2	8.0	3.85	6
3124100	4.0	60	3.2	10	3.85	6
3124112	4.0	60	3.2	12	3.85	6
3124114	4.0	60	3.2	14	3.85	6
3124115	4.0	60	3.2	15	3.85	6
3124116	4.0	60	3.2	16	3.85	6
3124120	4.0	65	3.2	20	3.85	6
3124125	4.0	70	3.2	25	3.85	6
3124130	4.0	80	3.2	30	3.85	6
3124135	4.0	80	3.2	35	3.85	6
3124140	4.0	90	3.2	40	3.85	6
3124145	4.0	90	3.2	45	3.85	6
3124150	4.0	100	3.2	50	3.85	6
3125100	5.0	65	5.0	10	4.85	6
3125115	5.0	70	5.0	15	4.85	6
3125120	5.0	70	4.0	20	4.85	6
3125125	5.0	70	4.0	25	4.85	6
3125130	5.0	80	4.0	30	4.85	6
3125135	5.0	80	4.0	35	4.85	6

Packed: 1 pc.
Available WXL® coating only.

continued on next page

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3790	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○

○ good ◎ best

List 3790 (Continued)

WXL-LN-EBD, 2 Flute, Regular Length, Long Neck, Ball End, Rib Processing

SPEED FEED P1139-1148 | CARBIDE | WXL | REG | 30° | SHANK h6

±5µm Radius Tolerance



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Diameter
	D	L	Lc	L1	d2	d
3125140	5.0	90	5.0	40	4.85	6
3125145	5.0	100	5.0	45	4.85	6
3125150	5.0	100	5.0	50	4.85	6
3126100	6.0	60	6.0	10	5.85	6
3126120	6.0	70	6.0	20	5.85	6
3126125	6.0	70	6.0	25	5.85	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Diameter
	D	L	Lc	L1	d2	d
3126130	6.0	80	4.8	30	5.85	6
3126135	6.0	80	6.0	35	5.85	6
3126140	6.0	90	4.8	40	5.85	6
3126145	6.0	100	6.0	45	5.85	6
3126150	6.0	120	4.8	50	5.85	6

HTE

Packed: 1 pc.
Available WXL® coating only.

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP419 or HP419L (p. 984 or 985)
Machining steel over 54 HRC? Try EXOCARB® WXS® - List 4590 (p. 896-898)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3790	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	▢	○

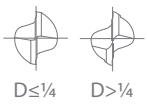
○ good ▢ best

List 3619

WXL-1.5D-DE, 2 Flute, Stub Length

NEW | SPEED FEED P1149 | CARBIDE | WXL | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
1/16≤D≤7/16	+0 / -0.0008"
D=1/2	+0 / -0.0012"





Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
36190001	1/16	2	3/32	1/8
36190002	5/64	2	1/8	1/8
36190003	3/32	2	9/64	1/8
36190004	7/64	2	11/64	1/8
36190005	1/8	2	3/16	1/8
36190006	5/32	2	15/64	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
36190007	3/16	2	9/32	3/16
36190008	1/4	2-1/2	3/8	1/4
36190009	5/16	2-1/2	15/32	5/16
36190010	3/8	2-3/4	9/16	3/8
36190011	7/16	3	21/32	7/16
36190012	1/2	3	3/4	1/2

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP421 (p. 969-970)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3619	▣	▣	▣	▣	▣	▣	▣	▣	▣	○	○	○	○	▣	▣	▣	○

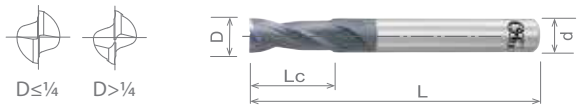
○ good ▣ best

List 3620

WXL-2D-DE, 2 Flute, Stub Length

SPEED FEED P1150 | CARBIDE | WXL | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
1/16≤D≤7/16	+0 / -0.0008"
1/2≤D≤3/4	+0 / -0.0012"



Units: Inch

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
36200001	1/16	2	1/8	1/8
36200002	5/64	2	5/32	1/8
36200003	3/32	2	3/16	1/8
36200004	7/64	2	7/32	1/8
36200005	1/8	2	1/4	1/8
36200006	5/32	2	5/16	3/16
36200007	3/16	2	3/8	3/16
36200008	7/32	2	7/16	1/4

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
36200009	1/4	2-1/2	1/2	1/4
36200010	9/32	2-1/2	9/16	5/16
36200011	5/16	2-1/2	5/8	5/16
36200012	3/8	2-3/4	3/4	3/8
36200013	7/16	3	7/8	7/16
36200014	1/2	3	1	1/2
36200015	5/8	3-1/2	1-1/4	5/8
36200016	3/4	4	1-1/2	3/4

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP421 (p. 969-970)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3620	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○

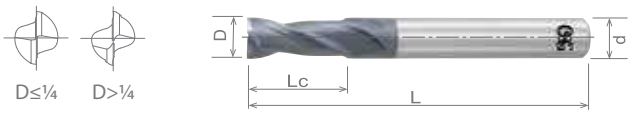
○ good ◎ best

List 3621

WXL-3D-DE, 2 Flute, Regular Length

SPEED FEED P1150 | CARBIDE | WXL | REG | 35° | SHANK h6

Milling Diameter Tolerance	
1/16≤D≤7/16	+0 / -0.0008"
1/2≤D≤3/4	+0 / -0.0012"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
36210001	1/16	2	3/16	1/8
36210002	5/64	2	15/64	1/8
36210003	3/32	2	9/32	1/8
36210004	7/64	2	21/64	1/8
36210005	1/8	2	3/8	1/8
36210006	5/32	2	15/32	3/16
36210007	3/16	2-1/4	9/16	3/16
36210008	7/32	2-1/2	21/32	1/4
36210009	1/4	2-1/2	3/4	1/4
36210010	9/32	2-3/4	27/32	5/16
36210011	5/16	2-3/4	15/16	5/16
36210012	3/8	3	1-1/8	3/8
36210013	7/16	3-1/4	1-5/16	7/16
36210014	1/2	3-1/2	1-1/2	1/2
36210015	5/8	4-1/4	1-7/8	5/8
36210016	3/4	5	2-1/4	3/4

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP421 (p. 969-970)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3621	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○

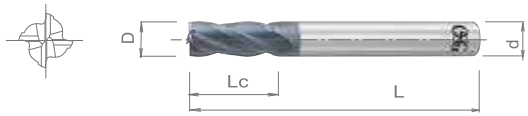
○ good ◎ best

List 3704

WXL-EMS, 4 Flute, Regular Length

SPEED FEED P1151 | CARBIDE | WXL | REG | 30° | SHANK h6

Milling Diameter Tolerance	
1≤D≤12	+0 / -0.02mm



Units: mm

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
3130510	1.0	40	2.5	4
3130515	1.5	40	4	4
3130520	2.0	40	6	4
3130525	2.5	40	8	4
3130530	3.0	45	8	6
3130535	3.5	45	10	6
3130540	4.0	45	11	6
3130545	4.5	45	11	6

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
3130550	5.0	50	13	6
3130560	6.0	50	13	6
3130570	7.0	60	16	8
3130580	8.0	60	19	8
3130590	9.0	70	19	10
3130600	10.0	70	22	10
3130620	12.0	75	26	12

HTE

Packed: 1 pc.
Available WXL® coating only.

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP441 (p. 969-970)
Machining steel over 54 HRC? Try EXOCARB® WXS® - List 4540 (p. 887)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3704	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	○	

○ good ▢ best

List 3742

WXL-EML, 4 Flute, Long Length

SPEED FEED P1152 | CARBIDE | WXL | LONG | 30° | SHANK h6

Milling Diameter Tolerance	
3≤D≤26	+0 / -0.03mm



Units: mm

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
37420000	3.0	50	12	6
37420001	3.5	50	14	6
37420002	4.0	50	17	6
37420003	4.5	50	17	6
37420004	5.0	60	20	6
37420005	5.5	60	20	6
37420006	6.0	60	20	6
37420007	6.5	70	24	8
37420008	7.0	70	24	8
37420009	7.5	70	24	8
37420010	8.0	70	28	8
37420011	8.5	80	28	10
37420012	9.0	80	28	10
37420013	9.5	80	28	10
37420014	10.0	80	34	10

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
37420015	10.5	90	34	12
37420016	11.0	90	34	12
37420017	11.5	90	34	12
37420018	12.0	90	40	12
37420019	13.0	100	40	12
37420020	14.0	100	40	12
37420021	15.0	105	40	16
37420022	16.0	115	48	16
37420023	18.0	115	48	16
37420024	20.0	125	56	20
37420025	23.0	140	67	25
37420026	24.0	140	67	25
37420027	25.0	140	67	25
37420028	26.0	140	67	25

HTE

Packed: 1 pc.
Available WXL® coating only.

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP441 (p. 969-970)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3742	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	○	

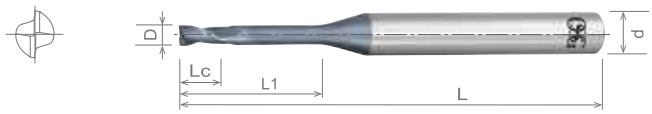
○ good ▢ best

List 3791

WXL-LN-EDS, 2 Flute, Stub Length, Long Neck, Rib Processing

SPEED FEED P1154-1157 | CARBIDE | WXL | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
0.2≤D≤5	+0 / -0.015mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	L	Lc	L1	d
3131201	0.2	45	0.30	0.5	4
3131202	0.2	45	0.30	1.0	4
3131203	0.2	45	0.30	1.5	4
3131204	0.2	45	0.30	2.0	4
3131205	0.2	45	0.30	2.5	4
3131206	0.2	45	0.30	3.0	4
3131207	0.2	45	0.30	3.5	4
3131208	0.2	45	0.30	4.0	4
3131302	0.3	45	0.45	1.0	4
3131303	0.3	45	0.45	1.5	4
3131304	0.3	45	0.45	2.0	4
3131305	0.3	45	0.45	2.5	4
3131306	0.3	45	0.45	3.0	4
3131308	0.3	45	0.45	4.0	4
3131310	0.3	45	0.45	5.0	4
3131312	0.3	45	0.45	6.0	4
3131318	0.3	45	0.45	9.0	4
3131403	0.4	45	0.60	1.5	4
3131404	0.4	45	0.60	2.0	4
3131406	0.4	45	0.60	3.0	4
3131408	0.4	45	0.60	4.0	4
3131410	0.4	45	0.60	5.0	4
3131412	0.4	45	0.60	6.0	4
3131414	0.4	45	0.60	7.0	4
3131416	0.4	45	0.60	8.0	4
3131418	0.4	45	0.60	9.0	4
3131420	0.4	45	0.60	10.0	4
3131424	0.4	45	0.60	12.0	4
3131501	0.5	45	0.70	1.5	4
3131502	0.5	45	0.70	2.0	4
3131503	0.5	45	0.70	3.0	4
3131504	0.5	45	0.70	4.0	4
3131505	0.5	45	0.70	5.0	4
3131506	0.5	45	0.70	6.0	4
3131507	0.5	45	0.70	7.0	4
3131508	0.5	45	0.70	8.0	4
3131509	0.5	45	0.70	9.0	4
3131510	0.5	45	0.70	10.0	4
3131512	0.5	45	0.70	12.0	4
3131515	0.5	50	0.70	15.0	4
3131602	0.6	45	0.90	2.0	4
3131603	0.6	45	0.90	3.0	4
3131604	0.6	45	0.90	4.0	4
3131605	0.6	45	0.90	5.0	4
3131606	0.6	45	0.90	6.0	4
3131607	0.6	45	0.90	7.0	4
3131608	0.6	45	0.90	8.0	4
3131610	0.6	45	0.90	10.0	4
3131612	0.6	45	0.90	12.0	4
3131615	0.6	50	0.90	15.0	4
3131618	0.6	50	0.90	18.0	4
3131702	0.7	45	1.00	2.0	4
3131704	0.7	45	1.00	4.0	4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	L	Lc	L1	d
3131706	0.7	45	1.00	6.0	4
3131708	0.7	45	1.00	8.0	4
3131710	0.7	45	1.00	10.0	4
3131804	0.8	45	1.20	4.0	4
3131806	0.8	45	1.20	6.0	4
3131808	0.8	45	1.20	8.0	4
3131810	0.8	45	1.20	10.0	4
3131812	0.8	45	1.20	12.0	4
3131814	0.8	50	1.20	14.0	4
3131816	0.8	50	1.20	16.0	4
3131820	0.8	55	1.20	20.0	4
3131824	0.8	60	1.20	24.0	4
3131904	0.9	45	1.35	4.0	4
3131906	0.9	45	1.35	6.0	4
3131908	0.9	45	1.35	8.0	4
3131910	0.9	45	1.35	10.0	4
3131915	0.9	50	1.35	15.0	4
3132003	1.0	45	1.50	3.0	4
3132004	1.0	45	1.50	4.0	4
3132005	1.0	45	1.50	5.0	4
3132006	1.0	45	1.50	6.0	4
3132007	1.0	45	1.50	7.0	4
3132008	1.0	45	1.50	8.0	4
3132009	1.0	45	1.50	9.0	4
3132010	1.0	45	1.50	10.0	4
3132012	1.0	45	1.50	12.0	4
3132014	1.0	50	1.50	14.0	4
3132016	1.0	50	1.50	16.0	4
3132018	1.0	55	1.50	18.0	4
3132020	1.0	55	1.50	20.0	4
3132022	1.0	60	1.50	22.0	4
3132025	1.0	60	1.50	25.0	4
3132030	1.0	70	1.50	30.0	4
3132204	1.2	45	1.80	4.0	4
3132206	1.2	45	1.80	6.0	4
3132208	1.2	45	1.80	8.0	4
3132210	1.2	45	1.80	10.0	4
3132212	1.2	45	1.80	12.0	4
3132214	1.2	50	1.80	14.0	4
3132216	1.2	50	1.80	16.0	4
3132220	1.2	55	1.80	20.0	4
3132406	1.4	45	2.10	6.0	4
3132408	1.4	45	2.10	8.0	4
3132410	1.4	45	2.10	10.0	4
3132412	1.4	45	2.10	12.0	4
3132414	1.4	50	2.10	14.0	4
3132416	1.4	50	2.10	16.0	4
3132422	1.4	60	2.10	22.0	4
3132504	1.5	45	2.30	4.0	4
3132506	1.5	45	2.30	6.0	4
3132508	1.5	45	2.30	8.0	4
3132510	1.5	45	2.30	10.0	4
3132512	1.5	45	2.30	12.0	4

Packed: 1 pc.
Available WXL® coating only.

List 3791 (Continued)

SPEED FEED P1154-1157 | CARBIDE | WXL | STUB | 30° | SHANK h6

WXL-LN-EDS, 2 Flute, Stub Length, Long Neck, Rib Processing

Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	L	Lc	L1	d
3132514	1.5	50	2.30	14.0	4
3132516	1.5	50	2.30	16.0	4
3132518	1.5	55	2.30	18.0	4
3132520	1.5	55	2.30	20.0	4
3132525	1.5	60	2.30	25.0	4
3132530	1.5	70	2.30	30.0	4
3132538	1.5	80	2.30	38.0	4
3132540	1.5	80	2.30	40.0	4
3132545	1.5	80	2.30	45.0	4
3132606	1.6	45	2.40	6.0	4
3132608	1.6	45	2.40	8.0	4
3132610	1.6	45	2.40	10.0	4
3132612	1.6	45	2.40	12.0	4
3132614	1.6	50	2.40	14.0	4
3132616	1.6	50	2.40	16.0	4
3132618	1.6	55	2.40	18.0	4
3132620	1.6	55	2.40	20.0	4
3132806	1.8	45	2.70	6.0	4
3132808	1.8	45	2.70	8.0	4
3132810	1.8	45	2.70	10.0	4
3132812	1.8	45	2.70	12.0	4
3132814	1.8	50	2.70	14.0	4
3132816	1.8	50	2.70	16.0	4
3132818	1.8	55	2.70	18.0	4
3132820	1.8	55	2.70	20.0	4
3132825	1.8	60	2.70	25.0	4
3133006	2.0	45	3.00	6.0	4
3133008	2.0	45	3.00	8.0	4
3133010	2.0	45	3.00	10.0	4
3133012	2.0	45	3.00	12.0	4
3133014	2.0	50	3.00	14.0	4
3133016	2.0	50	3.00	16.0	4
3133018	2.0	55	3.00	18.0	4
3133020	2.0	55	3.00	20.0	4
3133025	2.0	60	3.00	25.0	4
3133030	2.0	70	3.00	30.0	4
3133035	2.0	80	3.00	35.0	4
3133040	2.0	90	3.00	40.0	4
3133050	2.0	100	3.00	50.0	4
3133060	2.0	110	3.00	60.0	4
3133508	2.5	45	3.70	8.0	4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	L	Lc	L1	d
3133510	2.5	45	3.70	10.0	4
3133512	2.5	45	3.70	12.0	4
3133514	2.5	50	3.70	14.0	4
3133516	2.5	55	3.70	16.0	4
3133518	2.5	55	3.70	18.0	4
3133520	2.5	60	3.70	20.0	4
3133525	2.5	70	3.70	25.0	4
3133530	2.5	80	3.70	30.0	4
3133540	2.5	90	3.70	40.0	4
3133550	2.5	100	3.70	50.0	4
3134008	3.0	45	4.50	8.0	6
3134010	3.0	45	4.50	10.0	6
3134012	3.0	45	4.50	12.0	6
3134014	3.0	50	4.50	14.0	6
3134016	3.0	55	4.50	16.0	6
3134018	3.0	55	4.50	18.0	6
3134020	3.0	60	4.50	20.0	6
3134025	3.0	65	4.50	25.0	6
3134030	3.0	80	4.50	30.0	6
3134035	3.0	90	4.50	35.0	6
3134040	3.0	90	4.50	40.0	6
3134050	3.0	100	4.50	50.0	6
3135012	4.0	50	6.00	12.0	6
3135016	4.0	60	6.00	16.0	6
3135020	4.0	60	6.00	20.0	6
3135025	4.0	70	6.00	25.0	6
3135030	4.0	80	6.00	30.0	6
3135035	4.0	90	6.00	35.0	6
3135040	4.0	90	6.00	40.0	6
3135045	4.0	100	6.00	45.0	6
3135050	4.0	100	6.00	50.0	6
3135060	4.0	110	6.00	60.0	6
3136016	5.0	60	7.50	16.0	6
3136020	5.0	70	7.50	20.0	6
3136025	5.0	70	7.50	25.0	6
3136030	5.0	90	7.50	30.0	6
3136035	5.0	90	7.50	35.0	6
3136040	5.0	100	7.50	40.0	6
3136050	5.0	110	7.50	50.0	6
3136060	5.0	120	7.50	60.0	6

HTE

Packed: 1 pc.
Available WXL® coating only.

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP410 (p. 976-977)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3791	◎	◎	◎	◎	◎	○	○	○	◎	○	○	○	○	◎	◎	○	

○ good ◎ best

List 3711

WXL-LS-EBD, 2 Flute, Stub Length, Long Shank, Ball End

SPEED FEED P1153 | CARBIDE | WXL | STUB | 30° | SHANK h6

Radius Tolerance	
1≤D<4	+/-0.005mm
5≤D≤18	+/-0.01mm



Units: mm

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
37110000	1	70	2.5	3
37110001	2	70	5.0	3
37110002	3	80	8.0	3
37110003	4	100	8.0	4
37110004	5	100	10.0	4
37110005	6	140	12.0	6
37110006	7	140	14.0	6

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
37110007	8	160	14.0	8
37110008	10	180	18.0	10
37110009	12	200	22.0	12
37110010	14	200	26.0	12
37110011	16	220	30.0	16
37110012	18	220	34.0	16

HTE

Packed: 1 pc.
Available WXL® coating only.

OSG's Performance & Savings

Machining steel over 54 HRC? Try EXOCARB® Max - List 9111 (p. 906)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3711	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	▢	○

○ good ▢ best

List 3720

WXL-1.5D-DE, 2 Flute, Stub Length

SPEED FEED P1158-1159 | CARBIDE | WXL | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
0.1≤D≤6	+0 / -0.02mm



Units: mm

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
3181801	0.1	45	0.15	4
3181802	0.2	45	0.30	4
3181803	0.3	45	0.45	4
3181804	0.4	45	0.60	4
3181805	0.5	45	0.75	4
3181806	0.6	45	0.90	4
3181807	0.7	45	1.10	4
3181808	0.8	45	1.20	4
3181809	0.9	45	1.40	4
3181810	1.0	45	1.50	4
3181811	1.1	45	1.70	4
3181812	1.2	45	1.80	4
3181813	1.3	45	2.00	4
3181814	1.4	45	2.10	4
3181815	1.5	45	2.30	4
3181816	1.6	45	2.40	4
3181817	1.7	45	2.60	4
3181818	1.8	45	2.70	4
3181819	1.9	45	2.90	4
3181820	2.0	45	3.00	4
3181821	2.1	45	3.20	4
3181822	2.2	45	3.30	4
3181823	2.3	45	3.50	4
3181824	2.4	45	3.60	4
3181825	2.5	45	3.80	4
3181826	2.6	45	3.90	4
3181827	2.7	45	4.10	4
3181828	2.8	45	4.20	4
3181829	2.9	45	4.40	4
3181830	3.0	45	4.50	6

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
3181831	3.1	45	4.70	6
3181832	3.2	45	4.80	6
3181833	3.3	45	5.00	6
3181834	3.4	45	5.10	6
3181835	3.5	45	5.30	6
3181836	3.6	45	5.40	6
3181837	3.7	45	5.60	6
3181838	3.8	45	5.70	6
3181839	3.9	45	5.90	6
3181840	4.0	45	6.00	6
3181841	4.1	50	6.20	6
3181842	4.2	50	6.30	6
3181843	4.3	50	6.50	6
3181844	4.4	50	6.60	6
3181845	4.5	50	6.80	6
3181846	4.6	50	6.90	6
3181847	4.7	50	7.10	6
3181848	4.8	50	7.20	6
3181849	4.9	50	7.40	6
3181850	5.0	50	7.50	6
3181851	5.1	50	7.70	6
3181852	5.2	50	7.80	6
3181853	5.3	50	8.00	6
3181854	5.4	50	8.10	6
3181855	5.5	50	8.30	6
3181856	5.6	50	8.40	6
3181857	5.7	50	8.60	6
3181858	5.8	50	8.70	6
3181859	5.9	50	8.90	6
3181860	6.0	50	9.00	6

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP421 (p. 969-970)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3720	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	▢	○

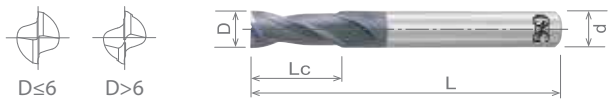
○ good ▢ best

List 3721

WXL-2D-DE, 2 Flute, Stub Length

SPEED FEED P1160-1161 | CARBIDE | WXL | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
0.1≤D≤12	+0 / -0.02mm
12<D≤20	+0 / -0.03mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
3182001	0.1	45	0.2	4
3182002	0.2	45	0.4	4
3182003	0.3	45	0.6	4
3182004	0.4	45	0.8	4
3182005	0.5	45	1.0	4
3182006	0.6	45	1.2	4
3182007	0.7	45	1.4	4
3182008	0.8	45	1.6	4
3182009	0.9	45	1.8	4
3182010	1.0	45	2.0	4
3182011	1.1	45	2.2	4
3182012	1.2	45	2.4	4
3182013	1.3	45	2.6	4
3182014	1.4	45	2.8	4
3182015	1.5	45	3.0	4
3182016	1.6	45	3.2	4
3182017	1.7	45	3.4	4
3182018	1.8	45	3.6	4
3182019	1.9	45	3.8	4
3182020	2.0	45	4.0	4
3182021	2.1	45	4.2	4
3182022	2.2	45	4.4	4
3182023	2.3	45	4.6	4
3182024	2.4	45	4.8	4
3182025	2.5	45	5.0	4
3182026	2.6	45	5.2	4
3182027	2.7	45	5.4	4
3182028	2.8	45	5.6	4
3182029	2.9	45	5.8	4
3182030	3.0	45	6.0	6
3182031	3.1	45	6.2	6
3182032	3.2	45	6.4	6
3182033	3.3	45	6.6	6
3182034	3.4	45	6.8	6
3182035	3.5	45	7.0	6
3182036	3.6	45	7.2	6
3182037	3.7	45	7.4	6
3182038	3.8	45	7.6	6
3182039	3.9	45	7.8	6
3182040	4.0	45	8.0	6
3182041	4.1	50	8.2	6
3182042	4.2	50	8.4	6
3182043	4.3	50	8.6	6
3182044	4.4	50	8.8	6
3182045	4.5	50	9.0	6
3182046	4.6	50	9.2	6
3182047	4.7	50	9.4	6
3182048	4.8	50	9.6	6
3182049	4.9	50	9.8	6
3182050	5.0	50	10.0	6
3182051	5.1	50	10.2	6
3182052	5.2	50	10.4	6
3182053	5.3	50	10.6	6
3182054	5.4	50	10.8	6
3182055	5.5	50	11.0	6
3182056	5.6	50	11.2	6
3182057	5.7	50	11.4	6
3182058	5.8	50	11.6	6
3182059	5.9	50	11.8	6
3182060	6.0	50	12.0	6
3182065	6.5	60	13.0	8
3182070	7.0	60	14.0	8
3182075	7.5	60	15.0	8
3182080	8.0	60	16.0	8
3182085	8.5	70	17.0	10
3182090	9.0	70	18.0	10
3182095	9.5	70	19.0	10
3182100	10.0	70	20.0	10
3182110	11.0	75	22.0	12
3182120	12.0	75	24.0	12
3182160	16.0	90	32.0	16
3182180	18.0	90	36.0	16
3182200	20.0	100	40.0	20

HTE

Packed: 1 pc. Available WXL® coating only.

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP421 (p. 969-970)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3721	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	▢	○

○ good ▢ best

List 3712

WXL-PC-EBD, 2 Flute, Stub Length, Pencil Neck, Ball End

SPEED FEED P1162-1169 | CARBIDE | WXL | STUB | 30° | SHANK h6

Radius Tolerance	
0.2≤D≤6	+/-0.005mm



Units: mm

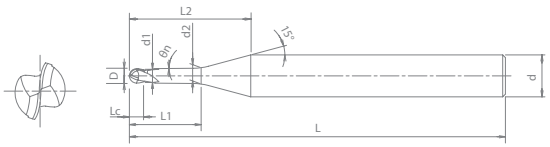
EDP Number	Mill Diameter	Overall Length	Length of Cut	Minimum Neck Diameter	Effective Neck Length	Neck Taper	Shank Diameter	Type
	D	L	Lc	d1	L1	θn	d	
3170011	0.2	45	0.16	0.19	1.0	0.5°	4	1
3170012	0.2	45	0.16	0.19	1.5	0.5°	4	1
3170013	0.2	45	0.16	0.19	2.0	0.5°	4	1
3170014	0.2	45	0.16	0.19	2.5	0.5°	4	1
3170015	0.2	45	0.16	0.19	3.0	0.5°	4	1
3170021	0.2	45	0.16	0.19	2.0	1.0°	4	1
3170022	0.2	45	0.16	0.19	2.5	1.0°	4	1
3170023	0.2	45	0.16	0.19	3.0	1.0°	4	1
3170031	0.3	45	0.24	0.29	2.0	0.5°	4	1
3170032	0.3	45	0.24	0.29	3.0	0.5°	4	1
3170041	0.3	45	0.24	0.29	3.0	1.0°	4	1
3170042	0.3	45	0.24	0.29	4.0	1.0°	4	1
3170051	0.4	45	0.30	0.38	2.0	0.5°	4	1
3170052	0.4	45	0.30	0.38	3.0	0.5°	4	1
3170053	0.4	45	0.30	0.38	4.0	0.5°	4	1
3170054	0.4	45	0.30	0.38	5.0	0.5°	4	1
3170055	0.4	45	0.30	0.38	6.0	0.5°	4	1
3170061	0.4	45	0.30	0.38	4.0	1.0°	4	1
3170062	0.4	45	0.30	0.38	5.0	1.0°	4	1
3170063	0.4	45	0.30	0.38	6.0	1.0°	4	1
3170071	0.5	45	0.40	0.48	4.0	0.5°	4	1
3170072	0.5	45	0.40	0.48	6.0	0.5°	4	1

Packed: 1 pc.
Available WXL® coating only.

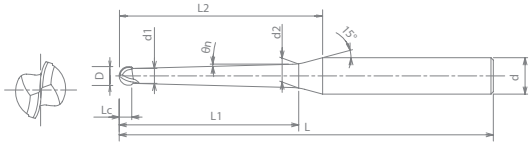
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HTE

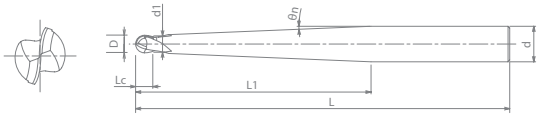
Type 1



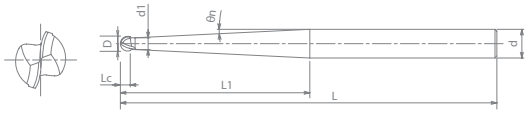
Type 2



Type 3



Type 4



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3712	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢

▢ good ▢ best

List 3712 (Continued)

WXL-PC-EBD, 2 Flute, Stub Length, Pencil Neck, Ball End

SPEED FEED P1162-1169 | CARBIDE | WXL | STUB | 30° | SHANK h6

Radius Tolerance	
0.2≤D≤6	+/-0.005mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Minimum Neck Diameter	Effective Neck Length	Neck Taper	Shank Diameter	Type
	D	L	Lc	d1	L1	θn	d	
3170073	0.5	45	0.40	0.48	8.0	0.5°	4	1
3170074	0.5	45	0.40	0.48	10.0	0.5°	4	1
3170081	0.5	45	0.40	0.48	4.0	1.0°	4	1
3170082	0.5	45	0.40	0.48	6.0	1.0°	4	1
3170083	0.5	45	0.40	0.48	8.0	1.0°	4	1
3170084	0.5	45	0.40	0.48	10.0	1.0°	4	1
3170085	0.5	50	0.40	0.48	12.0	1.0°	4	1
3170091	0.6	45	0.50	0.58	2.0	0.5°	4	1
3170092	0.6	45	0.50	0.58	4.0	0.5°	4	1
3170093	0.6	45	0.50	0.58	6.0	0.5°	4	1
3170094	0.6	45	0.50	0.58	8.0	0.5°	4	1
3170095	0.6	45	0.50	0.58	10.0	0.5°	4	1
3170096	0.6	45	0.50	0.58	12.0	0.5°	4	1
3170097	0.6	50	0.50	0.58	16.0	0.5°	4	1
3170101	0.6	45	0.50	0.58	4.0	1.0°	4	1
3170102	0.6	45	0.50	0.58	6.0	1.0°	4	1
3170103	0.6	45	0.50	0.58	8.0	1.0°	4	1
3170104	0.6	45	0.50	0.58	10.0	1.0°	4	1
3170105	0.6	45	0.50	0.58	12.0	1.0°	4	1
3170106	0.6	50	0.50	0.58	16.0	1.0°	4	1
3170111	0.8	45	0.60	0.78	4.0	0.5°	4	1
3170112	0.8	45	0.60	0.78	6.0	0.5°	4	1
3170113	0.8	45	0.60	0.78	8.0	0.5°	4	1
3170114	0.8	45	0.60	0.78	12.0	0.5°	4	1
3170121	0.8	45	0.60	0.78	8.0	1.0°	4	1
3170122	0.8	45	0.60	0.78	12.0	1.0°	4	1
3170123	0.8	50	0.60	0.78	16.0	1.0°	4	1
3170131	1.0	45	0.63	0.95	6.0	0.5°	4	3
3170132	1.0	45	0.63	0.95	8.0	0.5°	4	3
3170133	1.0	45	0.63	0.95	10.0	0.5°	4	3
3170134	1.0	45	0.63	0.95	12.0	0.5°	4	3
3170135	1.0	50	0.63	0.95	16.0	0.5°	4	3
3170136	1.0	55	0.63	0.95	18.0	0.5°	4	3
3170137	1.0	55	0.63	0.95	20.0	0.5°	4	3
3170138	1.0	60	0.63	0.95	25.0	0.5°	4	3
3170139	1.0	65	0.63	0.95	30.0	0.5°	4	3
3170140	1.0	70	0.63	0.95	35.0	0.5°	4	3
3170141	1.0	45	0.63	0.95	10.0	1.0°	4	3
3170142	1.0	50	0.63	0.95	16.0	1.0°	4	3
3170143	1.0	55	0.63	0.95	20.0	1.0°	4	3
3170144	1.0	60	0.63	0.95	25.0	1.0°	4	3
3170145	1.0	65	0.63	0.95	30.0	1.0°	4	3
3170146	1.0	70	0.63	0.95	35.0	1.0°	4	3
3170147	1.0	80	0.63	0.95	40.0	1.0°	4	3
3170148	1.0	90	0.63	0.95	50.0	1.0°	4	3
3170149	1.0	100	0.63	0.95	60.0	1.0°	4	3
3170150	1.0	110	0.63	0.95	70.0	1.0°	4	3
3170151	1.0	45	0.63	0.95	8.0	1.5°	4	3
3170152	1.0	45	0.63	0.95	10.0	1.5°	4	3
3170153	1.0	45	0.63	0.95	12.0	1.5°	4	3

Packed: 1 pc.
Available WXL® coating only.

HTE

List 3712 (Continued)

SPEED FEED P1162-1169 | CARBIDE | WXL | STUB | 30° | SHANK h6

WXL-PC-EBD, 2 Flute, Stub Length, Pencil Neck, Ball End

Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Minimum Neck Diameter	Effective Neck Length	Neck Taper	Shank Diameter	Type
	D	L	Lc	d1	L1	θn	d	
3170154	1.0	50	0.63	0.95	16.0	1.5°	4	3
3170155	1.0	55	0.63	0.95	20.0	1.5°	4	3
3170156	1.0	60	0.63	0.95	25.0	1.5°	4	3
3170157	1.0	65	0.63	0.95	30.0	1.5°	4	3
3170158	1.0	70	0.63	0.95	35.0	1.5°	4	3
3170161	1.0	80	0.63	0.95	45.0	2.0°	4	4
3170171	1.2	45	0.76	1.15	12.0	0.5°	4	3
3170172	1.2	60	0.76	1.15	25.0	0.5°	4	3
3170181	1.2	45	0.76	1.15	12.0	1.0°	4	3
3170182	1.2	60	0.76	1.15	25.0	1.0°	4	3
3170191	1.2	45	0.76	1.15	12.0	1.5°	4	3
3170192	1.2	60	0.76	1.15	25.0	1.5°	4	3
3170211	1.5	45	0.95	1.42	8.0	0.5°	4	3
3170212	1.5	45	0.95	1.42	10.0	0.5°	4	3
3170213	1.5	45	0.95	1.42	12.0	0.5°	4	3
3170214	1.5	55	0.95	1.42	16.0	0.5°	4	3
3170215	1.5	55	0.95	1.42	20.0	0.5°	4	3
3170216	1.5	60	0.95	1.42	25.0	0.5°	4	3
3170217	1.5	65	0.95	1.42	30.0	0.5°	4	3
3170218	1.5	70	0.95	1.42	35.0	0.5°	4	3
3170221	1.5	45	0.95	1.42	10.0	1.0°	4	3
3170222	1.5	45	0.95	1.42	12.0	1.0°	4	3
3170223	1.5	55	0.95	1.42	16.0	1.0°	4	3
3170224	1.5	55	0.95	1.42	20.0	1.0°	4	3
3170225	1.5	60	0.95	1.42	25.0	1.0°	4	3

Packed: 1 pc.
Available WXL® coating only.

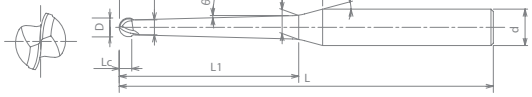
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HTE

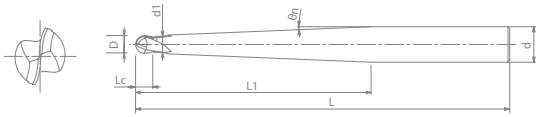
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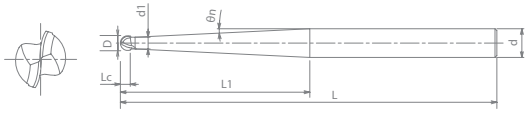
Type 2



Type 3



Type 4



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3712	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	▢	○

○ good ▢ best

List 3712 (Continued)

WXL-PC-EBD, 2 Flute, Stub Length, Pencil Neck, Ball End

SPEED FEED P1162-1169 | CARBIDE | WXL | STUB | 30° | SHANK h6

Radius Tolerance	
0.2≤D≤6	+/-0.005mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Minimum Neck Diameter	Effective Neck Length	Neck Taper	Shank Diameter	Type
	D	L	Lc	d1	L1	θn	d	
3170226	1.5	65	0.95	1.42	30.0	1.0°	4	3
3170227	1.5	70	0.95	1.42	35.0	1.0°	4	3
3170230	1.5	45	0.95	1.42	10.0	1.5°	4	3
3170231	1.5	45	0.95	1.42	12.0	1.5°	4	3
3170232	1.5	55	0.95	1.42	16.0	1.5°	4	3
3170233	1.5	55	0.95	1.42	20.0	1.5°	4	3
3170234	1.5	60	0.95	1.42	25.0	1.5°	4	3
3170235	1.5	65	0.95	1.42	30.0	1.5°	4	3
3170236	1.5	70	0.95	1.42	35.0	1.5°	4	3
3170241	1.5	70	0.95	1.42	38.6	2.0°	4	4
3170271	2.0	45	1.26	1.93	8.0	0.5°	4	3
3170272	2.0	45	1.26	1.93	10.0	0.5°	4	3
3170273	2.0	45	1.26	1.93	12.0	0.5°	4	3
3170274	2.0	50	1.26	1.93	16.0	0.5°	4	3
3170275	2.0	55	1.26	1.93	20.0	0.5°	4	3
3170276	2.0	65	1.26	1.93	26.0	0.5°	4	3
3170277	2.0	70	1.26	1.93	30.0	0.5°	4	3
3170278	2.0	75	1.26	1.93	35.0	0.5°	4	3
3170279	2.0	80	1.26	1.93	40.0	0.5°	4	3
3170281	2.0	50	1.26	1.93	16.0	1.0°	4	3
3170282	2.0	55	1.26	1.93	20.0	1.0°	4	3
3170283	2.0	65	1.26	1.93	25.0	1.0°	4	3
3170284	2.0	70	1.26	1.93	30.0	1.0°	4	3
3170285	2.0	75	1.26	1.93	35.0	1.0°	4	3
3170286	2.0	80	1.26	1.93	40.0	1.0°	4	3
3170287	2.0	90	1.26	1.93	50.0	1.0°	6	3
3170288	2.0	100	1.26	1.93	60.0	1.0°	6	3
3170289	2.0	110	1.26	1.93	70.0	1.0°	6	3
3170291	2.0	50	1.26	1.93	16.0	1.5°	4	3
3170292	2.0	55	1.26	1.93	20.0	1.5°	4	3
3170293	2.0	65	1.26	1.93	25.0	1.5°	4	3
3170294	2.0	70	1.26	1.93	30.0	1.5°	4	3
3170295	2.0	75	1.26	1.93	35.0	1.5°	4	3
3170296	2.0	80	1.26	1.93	41.4	1.5°	4	4
3170301	2.0	70	1.26	1.93	31.5	2.0°	4	4
3170321	3.0	50	2.40	2.95	8.0	0.5°	6	1
3170322	3.0	50	2.40	2.95	10.0	0.5°	6	1
3170323	3.0	55	2.40	2.95	12.0	0.5°	6	1
3170324	3.0	55	2.40	2.95	16.0	0.5°	6	1
3170325	3.0	60	2.40	2.95	20.0	0.5°	6	1
3170326	3.0	65	2.40	2.95	25.0	0.5°	6	1
3170327	3.0	70	2.40	2.95	30.0	0.5°	6	1
3170328	3.0	80	2.40	2.95	35.0	0.5°	6	1
3170329	3.0	85	2.40	2.95	40.0	0.5°	6	1
3170330	3.0	90	2.40	2.95	50.0	0.5°	6	1
3170331	3.0	60	2.40	2.95	20.0	1.0°	6	1
3170332	3.0	65	2.40	2.95	25.0	1.0°	6	1
3170333	3.0	70	2.40	2.95	30.0	1.0°	6	1

Packed: 1 pc.
Available WXL® coating only.

HTE

List 3712 (Continued)

SPEED FEED P1162-1169 | CARBIDE | WXL | STUB | 30° | SHANK h6

WXL-PC-EBD, 2 Flute, Stub Length, Pencil Neck, Ball End

Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Minimum Neck Diameter	Effective Neck Length	Neck Taper	Shank Diameter	Type
	D	L	Lc	d1	L1	θn	d	
3170334	3.0	80	2.40	2.95	35.0	1.0°	6	1
3170335	3.0	85	2.40	2.95	40.0	1.0°	6	1
3170336	3.0	90	2.40	2.95	50.0	1.0°	6	1
3170337	3.0	100	2.40	2.95	60.0	1.0°	6	1
3170338	3.0	110	2.40	2.95	70.0	1.0°	6	1
3170341	3.0	60	2.40	2.95	20.0	1.5°	6	1
3170342	3.0	65	2.40	2.95	25.0	1.5°	6	1
3170343	3.0	70	2.40	2.95	30.0	1.5°	6	1
3170344	3.0	80	2.40	2.95	35.0	1.5°	6	1
3170345	3.0	85	2.40	2.95	40.0	1.5°	6	1
3170346	3.0	90	2.40	2.95	50.0	1.5°	6	1
3170347	3.0	100	2.40	2.95	62.5	1.5°	6	2
3170351	3.0	100	2.40	2.95	47.5	2.0°	6	2
3170371	4.0	65	3.20	3.93	20.0	1.0°	6	1
3170372	4.0	80	3.20	3.93	30.0	1.0°	6	1
3170373	4.0	90	3.20	3.93	40.0	1.0°	6	1
3170374	4.0	100	3.20	3.93	50.0	1.0°	8	1
3170375	4.0	110	3.20	3.93	60.0	1.0°	8	1
3170381	4.0	80	3.20	3.93	44.2	1.5°	6	2
3170391	4.0	80	3.20	3.93	34.0	2.0°	6	2
3170401	5.0	100	5.00	4.95	30.0	1.0°	8	1
3170402	5.0	100	5.00	4.95	40.0	1.0°	8	1
3170403	5.0	130	5.00	4.95	60.0	1.0°	8	1
3170411	5.0	100	5.00	4.95	26.9	1.5°	6	2
3170412	5.0	130	5.00	4.95	65.1	1.5°	8	2

Packed: 1 pc.
Available WXL® coating only.

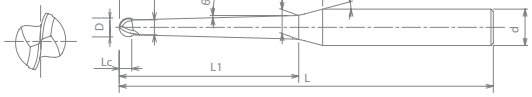
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HTE

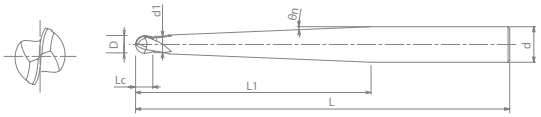
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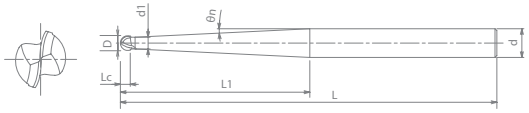
Type 2



Type 3



Type 4



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3712	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	▢	○

○ good ▢ best

List 3712 (Continued)

WXL-PC-EBD, 2 Flute, Stub Length, Pencil Neck, Ball End

SPEED FEED P1162-1169 | CARBIDE | WXL | STUB | 30° | SHANK h6

Radius Tolerance	
0.2≤D≤6	+/-0.005mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Minimum Neck Diameter	Effective Neck Length	Neck Taper	Shank Diameter	Type
	D	L	Lc	d1	L1	θn	d	
3170421	5.0	130	5.00	4.95	50.1	2.0°	8	2
3170431	6.0	100	6.00	5.95	30.0	1.0°	8	1
3170432	6.0	100	6.00	5.95	40.0	1.0°	8	1
3170433	6.0	100	6.00	5.95	50.0	1.0°	8	1
3170434	6.0	110	6.00	5.95	60.0	1.0°	10	1
3170435	6.0	120	6.00	5.95	70.0	1.0°	10	1
3170436	6.0	130	6.00	5.95	80.0	1.0°	12	1
3170441	6.0	100	6.00	5.95	49.0	1.5°	8	2
3170451	6.0	100	6.00	5.95	36.0	2.0°	8	2

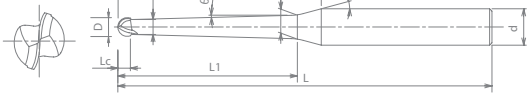
Packed: 1 pc.
Available WXL® coating only.

HTE

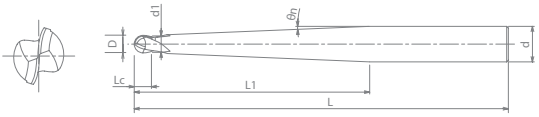
Type 1



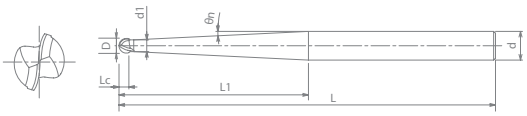
Type 2



Type 3



Type 4



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3712	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	▢	○

○ good ▢ best

List 3722

WXL-3D-DE, 2 Flute, Regular Length

SPEED FEED P1170-1171 | CARBIDE | WXL | REG | 35° | SHANK h6

Milling Diameter Tolerance	
0.1≤D≤12	+0 / -0.02mm
12<D≤20	+0 / -0.03mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
3182401	0.1	45	0.3	4
3182402	0.2	45	0.6	4
3182403	0.3	45	0.9	4
3182404	0.4	45	1.2	4
3182405	0.5	45	1.5	4
3182406	0.6	45	1.8	4
3182407	0.7	45	2.1	4
3182408	0.8	45	2.4	4
3182409	0.9	45	2.7	4
3182410	1.0	45	3.0	4
3182411	1.1	45	3.3	4
3182412	1.2	45	3.6	4
3182413	1.3	45	3.9	4
3182414	1.4	45	4.2	4
3182415	1.5	45	4.5	4
3182416	1.6	45	4.8	4
3182417	1.7	45	5.1	4
3182418	1.8	45	5.4	4
3182419	1.9	45	5.7	4
3182420	2.0	45	6.0	4
3182421	2.1	45	6.3	4
3182422	2.2	45	6.6	4
3182423	2.3	45	6.9	4
3182424	2.4	45	7.2	4
3182425	2.5	45	7.5	4
3182426	2.6	45	7.8	4
3182427	2.7	45	8.1	4
3182428	2.8	45	8.4	4
3182429	2.9	45	8.7	4
3182430	3.0	45	9.0	6
3182431	3.1	45	9.3	6
3182432	3.2	45	9.6	6
3182433	3.3	45	9.9	6
3182434	3.4	45	10.2	6
3182435	3.5	45	10.5	6
3182436	3.6	45	10.8	6
3182437	3.7	45	11.1	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
3182438	3.8	45	11.4	6
3182439	3.9	45	11.7	6
3182440	4.0	50	12.0	6
3182441	4.1	50	12.3	6
3182442	4.2	50	12.6	6
3182443	4.3	50	12.9	6
3182444	4.4	50	13.2	6
3182445	4.5	50	13.5	6
3182446	4.6	55	13.8	6
3182447	4.7	55	14.1	6
3182448	4.8	55	14.4	6
3182449	4.9	55	14.7	6
3182450	5.0	55	15.0	6
3182451	5.1	55	15.3	6
3182452	5.2	55	15.6	6
3182453	5.3	55	15.9	6
3182454	5.4	55	16.2	6
3182455	5.5	60	16.5	6
3182456	5.6	60	16.8	6
3182457	5.7	60	17.1	6
3182458	5.8	60	17.4	6
3182459	5.9	60	17.7	6
3182460	6.0	60	18.0	6
3182465	6.5	65	19.5	8
3182470	7.0	65	21.0	8
3182475	7.5	70	22.5	8
3182480	8.0	70	24.0	8
3182485	8.5	70	22.5	10
3182490	9.0	75	27.0	10
3182495	9.5	75	28.5	10
3182500	10.0	80	30.0	10
3182510	11.0	80	33.0	12
3182520	12.0	90	36.0	12
3182560	16.0	110	48.0	16
3182580	18.0	130	54.0	16
3182600	20.0	130	60.0	20

HTE

Packed: 1 pc.
Available WXL® coating only.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3722	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○

○ good ◎ best

List 3723

WXL-4D-DE, 2 Flute, Long Length

SPEED FEED P1172-1173 | CARBIDE | WXL | LONG | 40° | SHANK h6

Milling Diameter Tolerance	
0.2≤D≤12	+0 / -0.02mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
3182602	0.2	45	0.8	4
3182603	0.3	45	1.2	4
3182604	0.4	45	1.6	4
3182605	0.5	45	2.0	4
3182606	0.6	45	2.4	4
3182607	0.7	45	2.8	4
3182608	0.8	45	3.2	4
3182609	0.9	45	3.6	4
3182610	1.0	45	4.0	4
3182611	1.1	45	4.4	4
3182612	1.2	45	4.8	4
3182613	1.3	45	5.2	4
3182614	1.4	45	5.6	4
3182615	1.5	45	6.0	4
3182616	1.6	45	6.4	4
3182617	1.7	45	6.8	4
3182618	1.8	45	7.2	4
3182619	1.9	45	7.6	4
3182620	2.0	45	8.0	4
3182621	2.1	45	8.4	4
3182622	2.2	45	8.8	4
3182623	2.3	45	9.2	4
3182624	2.4	45	9.6	4
3182625	2.5	45	10.0	4
3182626	2.6	50	10.4	4
3182627	2.7	50	10.8	4
3182628	2.8	50	11.2	4
3182629	2.9	50	11.6	4
3182630	3.0	50	12.0	6
3182631	3.1	50	12.4	6
3182632	3.2	50	12.8	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
3182633	3.3	50	13.2	6
3182634	3.4	50	13.6	6
3182635	3.5	50	14.0	6
3182636	3.6	50	14.4	6
3182637	3.7	50	14.8	6
3182638	3.8	50	15.2	6
3182639	3.9	50	15.6	6
3182640	4.0	55	16.0	6
3182641	4.1	55	16.4	6
3182642	4.2	55	16.8	6
3182643	4.3	55	17.2	6
3182644	4.4	55	17.6	6
3182645	4.5	55	18.0	6
3182646	4.6	55	18.4	6
3182647	4.7	55	18.8	6
3182648	4.8	55	19.2	6
3182649	4.9	55	19.6	6
3182650	5.0	60	20.0	6
3182651	5.1	60	20.4	6
3182652	5.2	60	20.8	6
3182653	5.3	60	21.2	6
3182654	5.4	60	21.6	6
3182655	5.5	65	22.0	6
3182656	5.6	65	22.4	6
3182657	5.7	65	22.8	6
3182658	5.8	65	23.2	6
3182659	5.9	65	23.6	6
3182660	6.0	65	24.0	6
3182680	8.0	80	32.0	8
3182700	10.0	90	40.0	10
3182720	12.0	100	48.0	12

Packed: 1 pc.
Available WXL® coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3723	▢	▢	▢	▢	▢	▢	▢	▢	▢	○	○	○	○	▢	▢	▢	○

○ good ▢ best

List 3770

WXL-CR-EDS, 2 Flute, Regular Length, Corner Radius

SPEED FEED	CARBIDE	WXL		REG	30°	SHANK
P1174						h6

Milling Diameter Tolerance	
0.6≤D≤12	+0 / -0.02mm



Units: mm

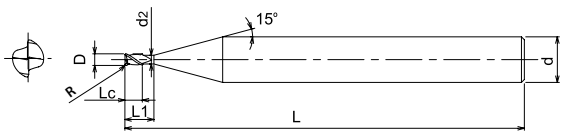
EDP Number	Mill Dia.	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Dia.	Type
	D	R	L	Lc	L1	d2	d	
37700000	0.6	0.1	50	0.9	2.0	0.55	6	1
37700001	0.8	0.1	50	1.2	2.6	0.75	6	1
37700002	1.0	0.1	50	1.5	2.7	0.95	6	1
37700003	1.2	0.1	50	1.8	3.2	1.15	6	1
37700004	1.4	0.1	50	2.1	3.7	1.35	6	1
37700005	1.5	0.1	50	2.3	4.0	1.45	6	1
37700006	1.6	0.1	50	2.4	4.2	1.55	6	1
37700007	1.8	0.1	50	2.7	4.7	1.75	6	1
37700008	2.0	0.1	50	3.0	5.2	1.95	6	1
37700009	2.5	0.1	50	3.7	5.2	2.40	6	1
37700010	3.0	0.2	60	8.0	-	-	6	2
37700011	3.0	0.5	60	8.0	-	-	6	2
37700012	4.0	0.2	70	11.0	-	-	6	2
37700013	4.0	0.5	70	11.0	-	-	6	2
37700014	4.0	1.0	70	11.0	-	-	6	2
37700015	5.0	0.2	80	13.0	-	-	6	2
37700016	5.0	0.5	80	13.0	-	-	6	2
37700017	5.0	1.0	80	13.0	-	-	6	2
37700018	6.0	0.2	90	13.0	-	-	6	2

EDP Number	Mill Dia.	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Dia.	Type
	D	R	L	Lc	L1	d2	d	
37700019	6.0	0.5	90	13.0	-	-	6	2
37700020	6.0	1.0	90	13.0	-	-	6	2
37700021	6.0	1.5	90	13.0	-	-	6	2
37700022	6.0	2.0	90	13.0	-	-	6	2
37700023	8.0	0.5	100	19.0	-	-	8	2
37700024	8.0	1.0	100	19.0	-	-	8	2
37700025	8.0	1.5	100	19.0	-	-	8	2
37700026	8.0	2.0	100	19.0	-	-	8	2
37700027	10.0	0.5	100	22.0	-	-	10	2
37700028	10.0	1.0	100	22.0	-	-	10	2
37700029	10.0	1.5	100	22.0	-	-	10	2
37700030	10.0	2.0	100	22.0	-	-	10	2
37700031	10.0	3.0	100	22.0	-	-	10	2
37700032	12.0	0.5	110	26.0	-	-	12	2
37700033	12.0	1.0	110	26.0	-	-	12	2
37700034	12.0	1.5	110	26.0	-	-	12	2
37700035	12.0	2.0	110	26.0	-	-	12	2
37700036	12.0	3.0	110	26.0	-	-	12	2

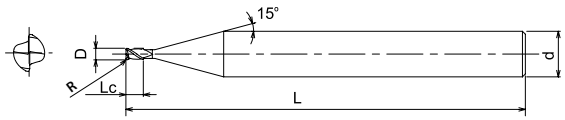
HTE

Packed: 1 pc.
Available WXL® coating only.

Type 1



Type 2



OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP432 or HP433 (p. 987-988 or 989)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3770	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢

▢ good ▢ best

List 3771

WXL-CR-PHS, 4 Flute, Regular Length, Corner Radius

SPEED FEED P1175 | CARBIDE | WXL | REG | 30° | SHANK h6

Milling Diameter Tolerance	
3≤D≤12	+0 / -0.02mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
37710000	3	0.2	60	8	6
37710001	3	0.5	60	8	6
37710002	4	0.2	70	11	6
37710003	4	0.5	70	11	6
37710004	4	1.0	70	11	6
37710005	5	0.2	80	13	6
37710006	5	0.5	80	13	6
37710007	5	1.0	80	13	6
37710008	6	0.2	90	13	6
37710009	6	0.5	90	13	6
37710010	6	1.0	90	13	6
37710011	6	1.5	90	13	6
37710012	6	2.0	90	13	6
37710013	8	0.5	100	19	8

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
37710014	8	1.0	100	19	8
37710015	8	1.5	100	19	8
37710016	8	2.0	100	19	8
37710017	10	0.5	100	22	10
37710018	10	1.0	100	22	10
37710019	10	1.5	100	22	10
37710020	10	2.0	100	22	10
37710021	10	3.0	100	22	10
37710022	12	0.5	110	26	12
37710023	12	1.0	110	26	12
37710024	12	1.5	110	26	12
37710025	12	2.0	110	26	12
37710026	12	3.0	110	26	12

HTE

Packed: 1 pc.
Available WXL® coating only.

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP434 or HP435 (p. 987-988 or 990)

Machining steel over 54 HRC? Try EXOCARB® WXS® - List 4571 (p. 889)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3771	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	◎	◎	◎	○

○ good ◎ best

List 3794

WXL-LN-EMS, 4 Flute, Stub Length, Long Neck, Rib Processing

SPEED FEED	CARBIDE	WXL		STUB	35°	SHANK
P1176-1177						h6

Milling Diameter Tolerance	
1≤D≤3	+0 / -0.015mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
3172004	1.0	45	1.5	4	0.95	4
3172006	1.0	45	1.5	6	0.95	4
3172008	1.0	45	1.5	8	0.95	4
3172010	1.0	45	1.5	10	0.95	4
3172012	1.0	45	1.5	12	0.95	4
3172016	1.0	50	1.5	16	0.95	4
3172206	1.2	45	1.8	6	1.15	4
3172208	1.2	45	1.8	8	1.15	4
3172210	1.2	45	1.8	10	1.15	4
3172212	1.2	45	1.8	12	1.15	4
3172216	1.2	50	1.8	16	1.15	4
3172406	1.4	45	2.1	6	1.35	4
3172408	1.4	45	2.1	8	1.35	4
3172410	1.4	45	2.1	10	1.35	4
3172412	1.4	45	2.1	12	1.35	4
3172414	1.4	50	2.1	14	1.35	4
3172416	1.4	50	2.1	16	1.35	4
3172422	1.4	60	2.1	22	1.35	4
3172506	1.5	45	2.3	6	1.45	4
3172508	1.5	45	2.3	8	1.45	4
3172510	1.5	45	2.3	10	1.45	4
3172512	1.5	45	2.3	12	1.45	4
3172514	1.5	50	2.3	14	1.45	4
3172516	1.5	50	2.3	16	1.45	4
3172518	1.5	55	2.3	18	1.45	4
3172520	1.5	55	2.3	20	1.45	4
3172606	1.6	45	2.4	6	1.55	4
3172608	1.6	45	2.4	8	1.55	4
3172610	1.6	45	2.4	10	1.55	4
3172612	1.6	45	2.4	12	1.55	4
3172614	1.6	50	2.4	14	1.55	4
3172616	1.6	50	2.4	16	1.55	4
3172618	1.6	55	2.4	18	1.55	4
3172620	1.6	55	2.4	20	1.55	4
3172625	1.6	60	2.4	25	1.55	4
3172806	1.8	45	2.7	6	1.75	4
3172808	1.8	45	2.7	8	1.75	4
3172810	1.8	45	2.7	10	1.75	4
3172812	1.8	45	2.7	12	1.75	4
3172814	1.8	50	2.7	14	1.75	4
3172816	1.8	50	2.7	16	1.75	4

Packed: 1 pc.
Available WXL® coating only.

continued on next page

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3794	◎	◎	◎	◎	◎	○	○	○	◎	○	○	○	○	◎	◎	◎	

○ good ◎ best

List 3794 (Continued)

SPEED FEED P1176-1177 | CARBIDE | WXL | STUB | 35° | SHANK h6

WXL-LN-EMS, 4 Flute, Stub Length, Long Neck, Rib Processing

Milling Diameter Tolerance	
1≤D≤3	+0 / -0.015mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
3172818	1.8	55	2.7	18	1.75	4
3172820	1.8	55	2.7	20	1.75	4
3172825	1.8	60	2.7	25	1.75	4
3173006	2.0	45	3.0	6	1.95	4
3173008	2.0	45	3.0	8	1.95	4
3173010	2.0	45	3.0	10	1.95	4
3173012	2.0	45	3.0	12	1.95	4
3173014	2.0	50	3.0	14	1.95	4
3173016	2.0	50	3.0	16	1.95	4
3173018	2.0	55	3.0	18	1.95	4
3173020	2.0	55	3.0	20	1.95	4
3173025	2.0	60	3.0	25	1.95	4
3173030	2.0	70	3.0	30	1.95	4
3173508	2.5	45	3.7	8	2.40	4
3173512	2.5	45	3.7	12	2.40	4
3173516	2.5	55	3.7	16	2.40	4
3173520	2.5	60	3.7	20	2.40	4
3173525	2.5	70	3.7	25	2.40	4
3174008	3.0	45	4.5	8	2.85	6
3174012	3.0	45	4.5	12	2.85	6
3174016	3.0	55	4.5	16	2.85	6
3174020	3.0	60	4.5	20	2.85	6
3174025	3.0	65	4.5	25	2.85	6
3174030	3.0	80	4.5	30	2.85	6

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP411 (p. 978)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3794	◎	◎	◎	◎	◎	○	○	○	◎	○	○	○	○	◎	◎	○	

○ good ◎ best

List 4445

WXL-CR-EHS, 4 Flute, Regular Length, High Helix, Corner Radius

SPEED FEED P1178 | CARBIDE | WXL | REG | 50° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1/2	+0 / -0.0008"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
44450001	1/8	0.01	2-1/2	3/8	1/4
44450002	3/16	0.01	2-1/2	1/2	1/4
44450003	1/4	0.01	2-1/2	5/8	1/4

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
44450004	5/16	0.02	2-3/4	3/4	5/16
44450005	3/8	0.02	3	1	3/8
44450006	1/2	0.02	4	1-1/8	1/2

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP460 (p. 971)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4445	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢

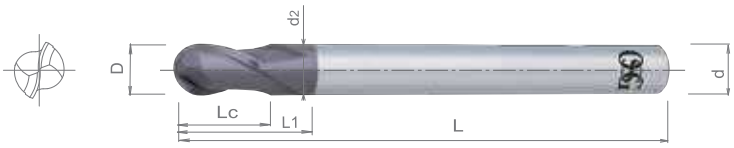
▢ good ▢ best

List 4410 WHILE SUPPLIES LAST

SPEED FEED P1179 | CARBIDE | WXS | STUB | 30° | SHANK h6

WXS-EBD, 2 Flute, Stub Length, Ball End

Radius Tolerance	
1/32≤D≤3/16	± 0.0002"
1/4≤D≤1/2	± 0.0003"

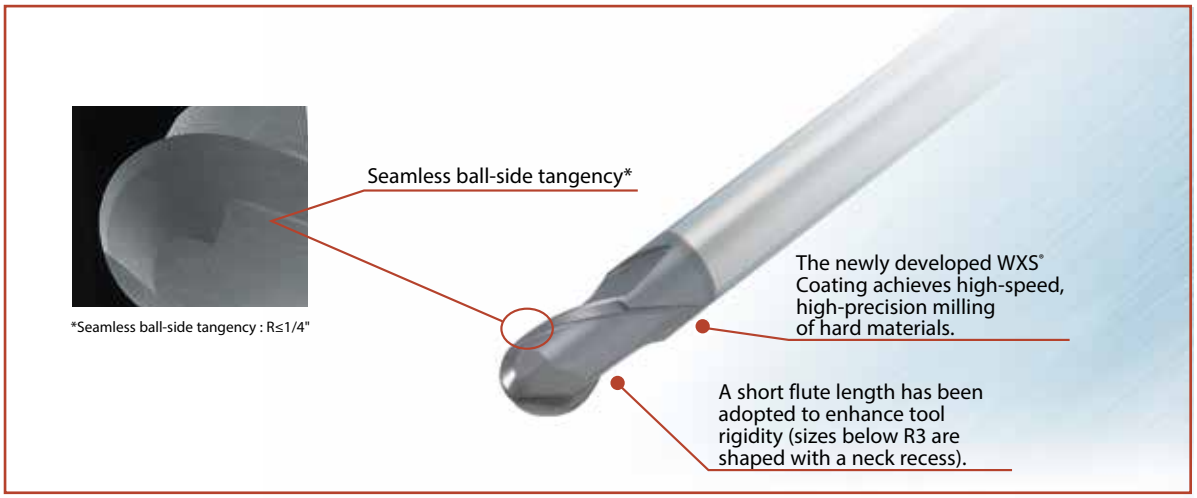


Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
44100111	1/32	1-1/2	1/32	0.094	0.029	1/4
44100211	1/16	1-1/2	1/16	0.157	0.060	1/4
44100511	3/32	1-1/2	3/32	0.189	0.092	1/4
44100711	1/8	2	1/8	0.252	0.123	1/4
44100911	3/16	2-1/2	3/16	0.283	0.185	1/4
44101111	1/4	3	1/4	0.504	0.246	1/4
44101311	5/16	3-1/2	5/16	0.630	0.308	5/16
44101411	3/8	3-1/2	3/8	0.756	0.371	3/8
44101611	1/2	4	1/2	1.000	0.496	1/2

Packed: 1 pc.
Available WXS® coating only.

HTE



OSG's Performance & Savings

Not machining steel over 54 HRC? Try EXOCARB® WXL® - List 3610 (p. 853)
Don't require ultra-high performance? Try HY-PRO® CARB - List HP421BN, HP416 or HP413 (p. 981-982, 982 or 986)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4410	▢	▢	▢	▢	▢	▢	▢	▢	▢			○	○	▢	▢	▢	▢

○ good ▢ best

List 4510 WHILE SUPPLIES LAST

WXS-EBD, 2 Flute, Stub Length, Ball End

SPEED FEED P1180 | CARBIDE | WXS | STUB | 30° | SHANK h6

Radius Tolerance	
1≤D≤2	+/- 0.005mm
2<D≤12	+/- 0.007mm

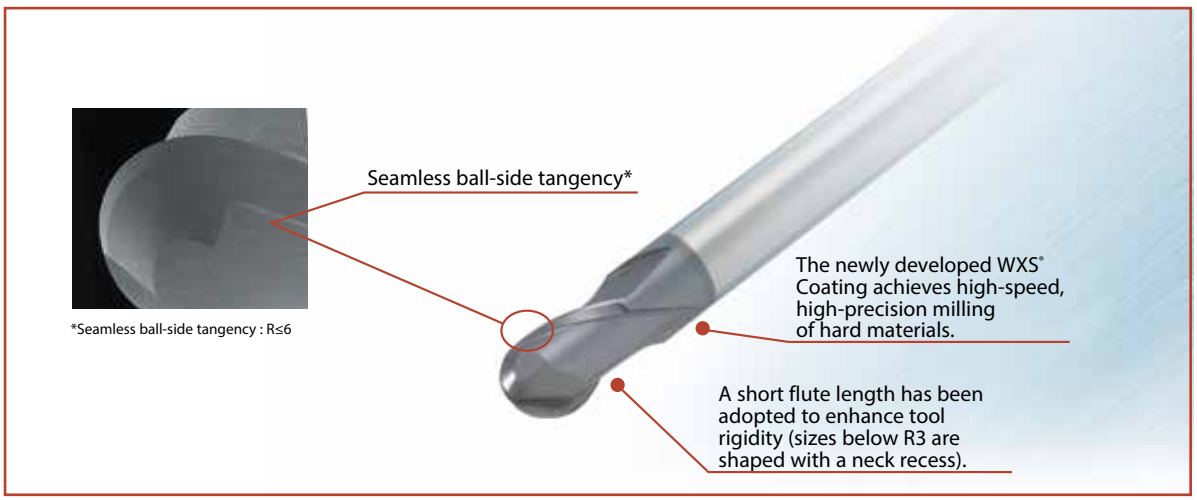


Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
3041410	1.0	50	1	2	0.95	4
3041415	1.5	50	2	3	1.45	4
3041420	2.0	50	2	4	1.95	6
3041430	3.0	60	3	6	2.85	6
3041440	4.0	70	4	8	3.85	6
3041441	4.0	60	4	8	3.85	4
3041450	5.0	80	5	10	4.85	6
3041460	6.0	90	9	-	-	6
3041480	8.0	100	12	-	-	8
3041500	10.0	100	15	-	-	10
3041520	12.0	110	18	-	-	12

Packed: 1 pc.
Available WXS® coating only.

HTE



OSG's Performance & Savings

Not machining steel over 54 HRC? Try EXOCARB® WXL® - List 3710 (p. 854)
Don't require ultra-high performance? Try HY-PRO® CARB - List HP421BN, HP416 or HP413 (p. 981-982, 982 or 986)
Want to turbo-charge performance? Try EXOPRO® PHX - List 9510 (p. 842)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4510	◎	◎	◎	◎	◎	◎	◎	◎	◎			○	○	◎	◎	◎	◎

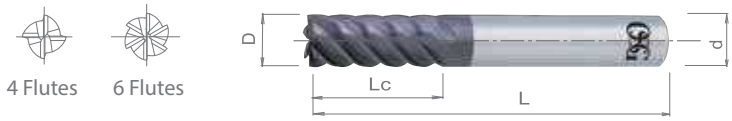
○ good ◎ best

List 4440

WXS-EMS, Multiple Flute, Regular Length

SPEED FEED P1181 | CARBIDE | WXS | REG | 45° | SHANK h6

Milling Diameter Tolerance	
1/16≤D≤1/2	+0 / -0.0008"
5/8≤D≤3/4	+0 / -0.0012"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
44400311	1/16	2-1/2	3/16	1/4	4
44400511	3/32	2-1/2	5/16	1/4	4
44400711	1/8	2-1/2	3/8	1/4	4
44400911	3/16	2-1/2	1/2	1/4	4
44401111	1/4	2-1/2	5/8	1/4	6
44401311	5/16	2-3/4	3/4	5/16	6
44401411	3/8	3	1	3/8	6
44401611	1/2	3-1/2	1-1/8	1/2	6
44401811	5/8	4	1-1/2	5/8	6
44402011	3/4	4-1/4	1-3/4	3/4	6

Packed: 1 pc.
Available WXS® coating only.

HTE

OSG's Performance & Savings

Not machining steel over 54HRC? Try EXOCARB® WXL® - List 3604 (p. 856)
Don't require ultra-high performance? Try HY-PRO® CARB - List HP450 (p. 972)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4440	◎	◎	◎	◎	◎	○	○	○	◎			○	○	◎	◎	◎	◎

○ good ◎ best

List 4540

WXS-EMS, Multiple Flute, Regular Length

NEW SIZES | SPEED FEED P1182 | CARBIDE | WXS | REG | 45° | SHANK h6

Milling Diameter Tolerance	
1≤D≤12	+0 / -0.02mm
16≤D≤25	+0 / -0.03mm





Units: mm

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Dia. d	Number of Flutes
3041010	1.0	60	2.5	6	4
3041015	1.5	60	4.0	6	4
3041020	2.0	60	6.0	6	4
3041025	2.5	60	8.0	6	4
3041030	3.0	60	8.0	6	4
3041035	3.5	60	10.0	6	4
3041040	4.0	60	11.0	6	4
3041045	4.5	60	11.0	6	4
3041050	5.0	60	13.0	6	4

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Dia. d	Number of Flutes
3041055	5.5	60	13.0	6	4
3041060	6.0	60	13.0	6	6
3041080	8.0	70	19.0	8	6
3041100	10.0	80	22.0	10	6
3041120	12.0	90	26.0	12	6
3041160	16.0	105	32.0	16	6
3041200	20.0	110	38.0	20	6
3041250	25.0	125	45.0	25	8

HTE

Packed: 1 pc.
Available WXS® coating only.

OSG's Performance & Savings

Not machining steel over 54HRC? Try EXOCARB® WXL® - List 3704 (p. 864)
Don't require ultra-high performance? Try HY-PRO® CARB - List HP450 (p. 972)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4540	▣	▣	▣	▣	▣	▢	▢	▢	▣			▢	▢	▣	▣	▣	▣

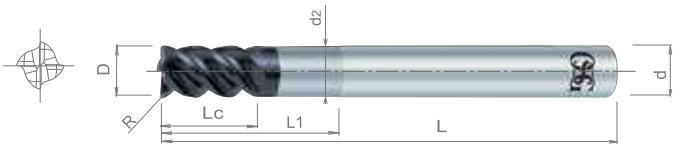
▢ good ▣ best

List 4471

WXS-PKE, 4 Flute, Stub Length, Reduced Neck, Corner Radius

SPEED FEED P1183 | CARBIDE | WXS | STUB | 45° | SHANK h6

Milling Diameter Tolerance	
1/16≤D≤1/2	+0 / -0.0008"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
447100111	1/16	0.010	2.25	1/16	0.25	0.058	1/8
447100311	3/32	0.010	2.25	3/32	0.38	0.089	1/8
447100511	1/8	0.010	2.25	1/8	0.50	0.120	1/8
447100611	1/8	0.015	2.25	1/8	0.50	0.120	1/8
447100711	1/8	0.020	2.25	1/8	0.50	0.120	1/8
447101011	3/16	0.020	2.25	3/16	0.50	0.181	3/16
447101111	3/16	0.030	2.25	3/16	0.50	0.181	3/16
447101411	1/4	0.010	2.50	1/4	0.75	0.242	1/4
447101511	1/4	0.020	2.50	1/4	0.75	0.242	1/4
447101611	1/4	0.030	2.50	1/4	0.75	0.242	1/4
447102011	3/8	0.020	3.00	3/8	1.00	0.367	3/8
447102111	3/8	0.030	3.00	3/8	1.00	0.367	3/8
447102211	3/8	0.060	3.00	3/8	1.00	0.367	3/8
447102611	1/2	0.030	3.25	1/2	1.50	0.488	1/2
447102711	1/2	0.060	3.25	1/2	1.50	0.488	1/2

Packed: 1 pc.
Available WXS® coating only.

HTE

OSG's Performance & Savings

Not machining steel over 54HRC? Try EXOCARB® WXL® - List 3670 (p. 855)
Don't require ultra-high performance? Try HY-PRO® CARB - List HP434 (p. 987-988)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4471	▢	▢	▢	▢	▢	○	○	○	▢			○	○	▢	▢	▢	▢

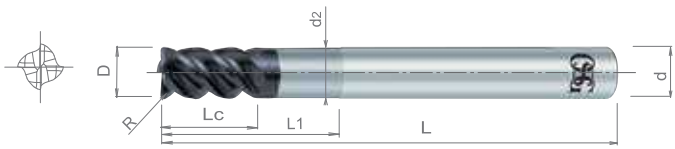
○ good ▢ best

List 4571

SPEED FEED P1184 | CARBIDE | WXS | STUB | 45° | SHANK h6

WXS-PKE, 4 Flute, Stub Length, Reduced Neck, Corner Radius

Milling Diameter Tolerance	
3≤D≤12	+0 / -0.02mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
457103011	3	0.2	60	5	9	2.85	6
457103111	3	0.2	70	5	15	2.85	6
457103211	3	0.5	60	5	9	2.85	6
457103311	3	0.5	70	5	15	2.85	6
457104011	4	0.2	70	6	12	3.80	6
457104111	4	0.2	80	6	20	3.80	6
457104211	4	0.5	70	6	12	3.80	6
457104311	4	0.5	80	6	20	3.80	6
457105011	5	0.2	80	8	15	4.80	6
457105111	5	0.2	90	8	25	4.80	6
457105211	5	0.5	80	8	15	4.80	6
457105311	5	0.5	90	8	25	4.80	6
457106011	6	0.5	90	9	18	5.80	6
457106111	6	1.0	90	9	18	5.80	6
457106211	6	1.0	100	9	30	5.80	6
457106311	6	0.5	100	9	30	5.80	6
457108011	8	0.5	100	12	24	7.70	8
457108111	8	0.5	110	12	40	7.70	8
457108211	8	1.0	100	12	24	7.70	8
457108311	8	1.0	110	12	40	7.70	8
457110011	10	0.5	100	15	30	9.70	10
457110111	10	0.5	120	15	50	9.70	10
457110211	10	1.0	100	15	30	9.70	10
457110311	10	1.0	120	15	50	9.70	10
457110411	10	2.0	100	15	30	9.70	10
457110511	10	2.0	120	15	50	9.70	10
457112011	12	1.0	110	18	36	11.70	12
457112111	12	1.0	130	18	60	11.70	12
457112211	12	2.0	110	18	36	11.70	12
457112311	12	2.0	130	18	60	11.70	12

Packed: 1 pc.
Available WXS® coating only.

HTE

OSG's Performance & Savings

Not machining steel over 54 HRC? Try EXOCARB® WXL® - List 3771 (p. 880)
Don't require ultra-high performance? Try HY-PRO® CARB - List HP434 or HP435 (p. 987-988 or 990)
Want to turbo-charge performance? Try EXOPRO® PHX - List 9575 (p. 847)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4571	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	▢

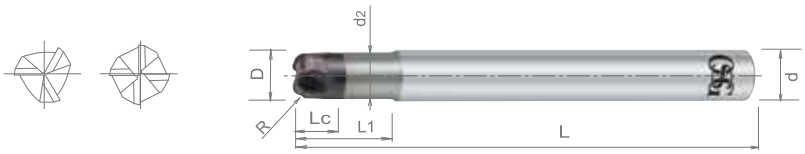
▢ good ▢ best

List 4470

SPEED FEED P1185 | CARBIDE | WXS | STUB | SHANK h6

WXS-CRE, Stub Length, High Feed, Corner Radius, Multiple Flute

Milling Diameter Tolerance	
1/8≤D≤3/16	+0 / -0.0008"
1/4≤D≤1/2	+0 / -0.0012"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter	No. of Flutes
	D	R	L	Lc	L1	d2	d	
44700111	1/8	1/32	2-1/4	0.06	3/8	0.12	1/4	3
44700211	3/16	1/16	2-1/4	0.09	9/16	0.18	1/4	3
44700311	1/4	1/16	3	0.10	1	0.23	1/4	4
44700411	5/16	3/32	3	0.13	1-1/4	0.29	5/16	4
44700511	3/8	3/32	4	0.15	1-1/2	0.34	3/8	4
44700611	1/2	1/8	5	0.20	2	0.46	1/2	4

Packed: 1 pc.
Available WXS® coating only.

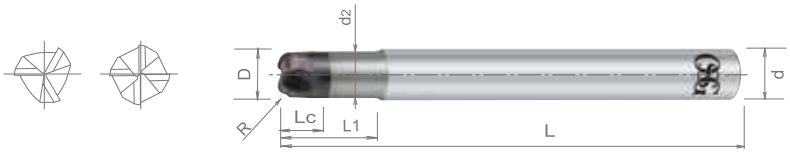
HTE

List 4570

SPEED FEED P1186 | CARBIDE | WXS | STUB | SHANK h6

WXS-CRE, Stub Length, High Feed, Corner Radius, Multiple Flute

Milling Diameter Tolerance	
2≤D≤5	+0 / -0.02mm
6≤D≤13	+0 / -0.03mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter	No. of Flutes
	D	R	L	Lc	L1	d2	d	
457002011	2	0.50	60	0.8	5.0	1.8	6	3
457003011	3	0.75	60	1.3	9.0	2.7	6	4
457004011	4	1.00	70	1.6	10.0	3.6	6	4
457005011	5	1.20	80	2.0	12.5	4.5	6	4
457006011	6	1.50	90	2.5	12.0	5.4	6	4
457007011	7	1.50	90	3.0	-	-	6	4
457008011	8	2.00	100	3.5	16.0	7.2	8	4
457009011	9	2.00	100	4.0	-	-	8	4
457010011	10	2.00	100	4.5	20.0	9.0	10	4
457011011	11	2.00	100	5.0	-	-	10	4
457012011	12	3.00	110	5.0	24.0	11.0	12	4
457013011	13	3.00	110	6.0	-	-	12	4

Packed: 1 pc.
Available WXS® coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4470	▣	▣	▣	▣	▣	▢	▢	▢	▣					▣	▣	▣	▣
4570	▣	▣	▣	▣	▣	▢	▢	▢	▣					▣	▣	▣	▣

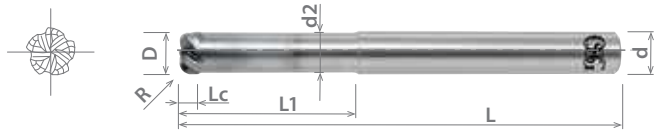
▢ good ▣ best

List 4472

WXS-CRE, 5 Flute, Stub Length, High Feed, Corner Radius

SPEED FEED P1187 | CARBIDE | WXS | STUB | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤3/16	+0 / -0.0008"
1/4≤D≤1/2	+0 / -0.0012"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
447200013	1/8	1/32	2-1/4	0.062	0.375	0.113	1/4
447200113	3/16	1/16	2-1/4	0.094	0.562	0.168	1/4
447200213	1/4	1/16	3	0.098	1.000	0.226	1/4
447200313	5/16	3/32	3	0.129	1.250	0.280	5/16
447200413	3/8	3/32	4	0.149	1.500	0.336	3/8
447200513	1/2	1/8	5	0.200	2.000	0.460	1/2

Packed: 1 pc.
Available WXS® coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4472	◎	◎	◎	◎	◎	◎	○		◎			○	○	◎	◎	◎	◎

○ good ◎ best

List 4572

SPEED FEED P1188 | CARBIDE | WXS | STUB | SHANK h6

WXS-CRE, Multiple Flute, Stub Length, High Feed, Corner Radius

Milling Diameter Tolerance	
2≤D≤12	+0 / -0.03mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter	Number of Flutes
	D	R	L	Lc	L1	d2	d	
48106421	2	0.50	50	0.8	8.0	2.0	6	4
48106433	3	0.75	55	1.2	12.0	2.7	6	5
48106445	4	1.00	55	1.6	12.0	3.6	6	5
48106467	6	1.50	90	2.5	12.0	5.4	6	5
48106489	8	2.00	100	3.5	16.0	7.2	8	5
48106509	10	2.00	100	4.0	20.0	9.0	10	5
48106533	12	3.00	110	5.0	24.0	11.0	12	5

Packed: 1 pc.
Available WXS® coating only.

HTE

Work Material

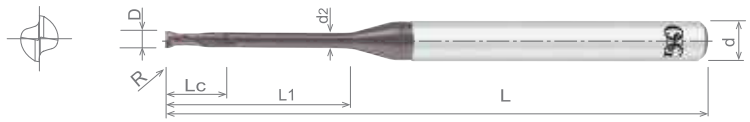
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4572	▢	▢	▢	▢	▢	▢	○		▢			○	○	▢	▢	▢	▢

○ good ▢ best

List 4592

SPEED FEED P1189 | CARBIDE | WXS | STUB | 30° | SHANK h6

WXS-CPR, 2 Flute, Stub Length, Long Neck, Corner Radius, Rib Processing



±5µm Corner Radius Tolerance

Milling Diameter Tolerance	
0.4≤D≤0.5	+0 / -0.010mm
0.5≤D≤3	+0 / -0.015mm

Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
3100403	0.4	0.05	50	0.30	2	0.37	4
3100404	0.4	0.05	50	0.30	3	0.37	4
3100405	0.4	0.05	50	0.30	4	0.37	4
3100406	0.4	0.10	50	0.30	2	0.37	4
3100407	0.4	0.10	50	0.30	3	0.37	4
3100408	0.4	0.10	50	0.30	4	0.37	4
3100501	0.5	0.05	50	0.40	1	0.46	4
3100502	0.5	0.05	50	0.40	2	0.46	4
3100503	0.5	0.05	50	0.40	3	0.46	4
3100504	0.5	0.05	50	0.40	4	0.46	4
3100505	0.5	0.05	50	0.40	5	0.46	4
3100506	0.5	0.05	50	0.40	6	0.46	4
3100508	0.5	0.10	50	0.40	2	0.46	4
3100509	0.5	0.10	50	0.40	3	0.46	4
3100510	0.5	0.10	50	0.40	4	0.46	4
3100511	0.5	0.10	50	0.40	5	0.46	4
3100512	0.5	0.10	50	0.40	6	0.46	4
3100601	0.6	0.10	50	0.48	2	0.56	4
3100602	0.6	0.10	50	0.48	4	0.56	4
3100603	0.6	0.10	50	0.48	6	0.56	4
3100803	0.8	0.20	50	0.65	4	0.76	4
3100804	0.8	0.20	50	0.65	6	0.76	4
3100805	0.8	0.20	50	0.65	8	0.76	4
3101001	1.0	0.05	50	0.80	4	0.95	4
3101002	1.0	0.05	50	0.80	6	0.95	4
3101003	1.0	0.05	50	0.80	8	0.95	4
3101004	1.0	0.05	50	0.80	10	0.95	4
3101005	1.0	0.05	50	0.80	12	0.95	4
3101006	1.0	0.10	50	0.80	4	0.95	4
3101007	1.0	0.10	50	0.80	6	0.95	4
3101008	1.0	0.10	50	0.80	8	0.95	4
3101009	1.0	0.10	50	0.80	10	0.95	4
3101010	1.0	0.10	50	0.80	12	0.95	4
3101011	1.0	0.20	50	0.80	4	0.95	4
3101012	1.0	0.20	50	0.80	6	0.95	4
3101013	1.0	0.20	50	0.80	8	0.95	4
3101014	1.0	0.20	50	0.80	10	0.95	4
3101015	1.0	0.20	50	0.80	12	0.95	4
3101016	1.0	0.20	50	0.80	16	0.95	4
3101017	1.0	0.20	50	0.80	20	0.95	4
3101018	1.0	0.30	50	0.80	4	0.95	4

Packed: 1 pc.
Available WXS® coating only.

continued on next page

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4592	◎	◎	◎	◎	◎	◎	◎	◎						◎	◎	◎	◎

○ good ◎ best

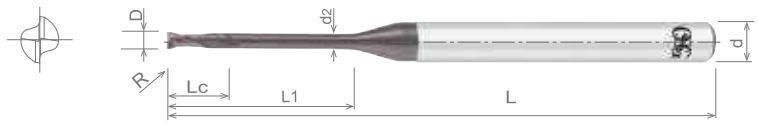
List 4592 (Continued)

SPEED FEED P1189 | CARBIDE | WXS | STUB | 30° | SHANK h6

WXS-CPR, 2 Flute, Stub Length, Long Neck, Corner Radius, Rib Processing

±5µm Corner Radius Tolerance

Milling Diameter Tolerance	
0.4≤D≤0.5	+0 / -0.010mm
0.5≤D≤3	+0 / -0.015mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
3101019	1.0	0.30	50	0.80	6	0.95	4
3101020	1.0	0.30	50	0.80	8	0.95	4
3101021	1.0	0.30	50	0.80	10	0.95	4
3101022	1.0	0.30	50	0.80	12	0.95	4
3101201	1.2	0.20	50	1.00	6	1.15	4
3101202	1.2	0.20	50	1.00	8	1.15	4
3101203	1.2	0.20	50	1.00	10	1.15	4
3101501	1.5	0.20	50	1.20	6	1.45	4
3101502	1.5	0.20	50	1.20	8	1.45	4
3101503	1.5	0.20	50	1.20	10	1.45	4
3101504	1.5	0.20	50	1.20	12	1.45	4
3101505	1.5	0.20	50	1.20	16	1.45	4
3101506	1.5	0.30	50	1.20	6	1.45	4
3101507	1.5	0.30	50	1.20	8	1.45	4
3101508	1.5	0.30	50	1.20	10	1.45	4
3101509	1.5	0.30	50	1.20	12	1.45	4
3101510	1.5	0.30	50	1.20	16	1.45	4
3102001	2.0	0.10	50	1.60	8	1.95	4
3102002	2.0	0.10	50	1.60	10	1.95	4
3102003	2.0	0.10	50	1.60	12	1.95	4
3102004	2.0	0.10	60	1.60	16	1.95	4
3102005	2.0	0.10	60	1.60	20	1.95	4
3102006	2.0	0.10	70	1.60	25	1.95	4
3102007	2.0	0.20	50	1.60	8	1.95	4
3102008	2.0	0.20	50	1.60	10	1.95	4
3102009	2.0	0.20	50	1.60	12	1.95	4
3102010	2.0	0.20	60	1.60	16	1.95	4
3102011	2.0	0.20	60	1.60	20	1.95	4
3102012	2.0	0.20	70	1.60	25	1.95	4
3102013	2.0	0.30	50	1.60	8	1.95	4
3102014	2.0	0.30	50	1.60	10	1.95	4
3102015	2.0	0.30	50	1.60	12	1.95	4
3102016	2.0	0.30	60	1.60	16	1.95	4
3102017	2.0	0.30	60	1.60	20	1.95	4
3102018	2.0	0.30	70	1.60	25	1.95	4
3102019	2.0	0.50	50	1.60	8	1.95	4
3102020	2.0	0.50	50	1.60	10	1.95	4
3102021	2.0	0.50	50	1.60	12	1.95	4
3102022	2.0	0.50	60	1.60	16	1.95	4
3102023	2.0	0.50	60	1.60	20	1.95	4
3102024	2.0	0.50	70	1.60	25	1.95	4
3102501	2.5	0.20	50	2.20	10	2.40	4
3102502	2.5	0.20	60	2.20	20	2.40	4
3102503	2.5	0.20	70	2.20	30	2.40	4
3102504	2.5	0.50	50	2.20	10	2.40	4
3102505	2.5	0.50	60	2.20	20	2.40	4
3102506	2.5	0.50	70	2.20	30	2.40	4
3103001	3.0	0.20	60	2.50	8	2.85	6
3103002	3.0	0.20	60	2.50	12	2.85	6
3103003	3.0	0.20	60	2.50	16	2.85	6
3103004	3.0	0.20	70	2.50	20	2.85	6
3103005	3.0	0.20	70	2.50	25	2.85	6

Packed: 1 pc.
Available WXS® coating only.

HTE

List 4592 (Continued)

SPEED FEED P1189 | CARBIDE | WXS | STUB | 30° | SHANK h6

WXS-CPR, 2 Flute, Stub Length, Long Neck, Corner Radius, Rib Processing

±5µm Corner Radius Tolerance

Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
3103006	3.0	0.20	70	2.50	30	2.85	6
3103007	3.0	0.20	80	2.50	35	2.85	6
3103008	3.0	0.30	60	2.50	12	2.85	6
3103009	3.0	0.30	60	2.50	16	2.85	6
3103010	3.0	0.30	70	2.50	20	2.85	6
3103011	3.0	0.30	70	2.50	25	2.85	6
3103012	3.0	0.30	70	2.50	30	2.85	6
3103013	3.0	0.30	80	2.50	35	2.85	6
3103014	3.0	0.50	60	2.50	12	2.85	6
3103015	3.0	0.50	60	2.50	16	2.85	6
3103016	3.0	0.50	70	2.50	20	2.85	6
3103017	3.0	0.50	70	2.50	25	2.85	6
3103018	3.0	0.50	70	2.50	30	2.85	6
3103019	3.0	0.50	80	2.50	35	2.85	6

Packed: 1 pc.
Available WXS® coating only.

HTE

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOPRO® PHX - List 9592 (p. 846)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4592	▢	▢	▢	▢	▢	▢	▢	▢						▢	▢	▢	▢

○ good ▢ best

List 4590 WHILE SUPPLIES LAST

WXS-LN-EBD, 2 Flute, Stub Length, Long Neck, Ball End, Rib Processing

SPEED FEED P1190-1192 | CARBIDE | WXS | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
0.1≤D<6	+0 / -0.005mm
D=6	+0 / -0.007mm



Units: mm

EDP Number	Mill Dia. D	Overall Length L	Length of Cut Lc	Neck Length L1	Neck Dia. d2	Shank Dia. d	Type
3050100	0.1	45	0.08	0.30	0.09	4	1
3050101	0.1	45	0.08	0.50	0.09	4	1
3050201	0.2	45	0.16	0.50	0.18	4	1
3049921	0.2	45	0.16	0.75	0.18	4	1
3050202	0.2	45	0.16	1.00	0.18	4	1
3049922	0.2	45	0.16	1.25	0.18	4	1
3050203	0.2	45	0.16	1.50	0.18	4	1
3049923	0.2	45	0.16	1.75	0.18	4	1
3050204	0.2	45	0.16	2.00	0.18	4	1
3050205	0.2	45	0.16	2.50	0.18	4	1
3050206	0.2	45	0.16	3.00	0.18	4	1
3050301	0.3	45	0.16	0.60	0.28	4	1
3050302	0.3	45	0.24	1.00	0.28	4	1
3049932	0.3	45	0.24	1.25	0.28	4	1
3050303	0.3	45	0.24	1.50	0.28	4	1
3049933	0.3	45	0.24	1.75	0.28	4	1
3050304	0.3	45	0.24	2.00	0.28	4	1
3049934	0.3	45	0.24	2.25	0.28	4	1
3050305	0.3	45	0.24	2.50	0.28	4	1
3050306	0.3	45	0.24	3.00	0.28	4	1
3050307	0.3	45	0.24	3.50	0.28	4	1
3050308	0.3	45	0.24	4.00	0.28	4	1
3050309	0.3	45	0.24	4.50	0.28	4	1
3050310	0.3	45	0.24	5.00	0.28	4	1
3050401	0.4	45	0.30	0.80	0.37	4	1
3050402	0.4	45	0.30	1.00	0.37	4	1
3050403	0.4	45	0.30	1.50	0.37	4	1
3050404	0.4	45	0.30	2.00	0.37	4	1
3050405	0.4	45	0.30	2.50	0.37	4	1
3050406	0.4	45	0.30	3.00	0.37	4	1
3050407	0.4	45	0.30	3.50	0.37	4	1
3050408	0.4	45	0.30	4.00	0.37	4	1
3050409	0.4	45	0.30	4.50	0.37	4	1
3050410	0.4	45	0.30	5.00	0.37	4	1
3050411	0.4	45	0.30	5.50	0.37	4	1
3050412	0.4	45	0.30	6.00	0.37	4	1
3050500	0.5	45	0.40	1.00	0.45	4	1
3050501	0.5	45	0.40	1.50	0.45	4	1
3050502	0.5	45	0.40	2.00	0.45	4	1
3049952	0.5	45	0.40	2.50	0.45	4	1
3050503	0.5	45	0.40	3.00	0.45	4	1
3049953	0.5	45	0.40	3.50	0.45	4	1
3050504	0.5	45	0.40	4.00	0.45	4	1
3049954	0.5	45	0.40	4.50	0.45	4	1
3050505	0.5	45	0.40	5.00	0.45	4	1
3049955	0.5	45	0.40	5.50	0.45	4	1
3050506	0.5	45	0.40	6.00	0.45	4	1
3050507	0.5	45	0.40	7.00	0.45	4	1
3050508	0.5	45	0.40	8.00	0.45	4	1
3050509	0.5	45	0.40	9.00	0.45	4	1

EDP Number	Mill Dia. D	Overall Length L	Length of Cut Lc	Neck Length L1	Neck Dia. d2	Shank Dia. d	Type
3050510	0.5	45	0.40	10.00	0.45	4	1
3050601	0.6	45	0.50	1.20	0.55	4	1
3050602	0.6	45	0.50	2.00	0.55	4	1
3049962	0.6	45	0.50	2.50	0.55	4	1
3050603	0.6	45	0.50	3.00	0.55	4	1
3049963	0.6	45	0.50	3.50	0.55	4	1
3050604	0.6	45	0.50	4.00	0.55	4	1
3049964	0.6	45	0.50	4.50	0.55	4	1
3050605	0.6	45	0.50	5.00	0.55	4	1
3049965	0.6	45	0.50	5.50	0.55	4	1
3050606	0.6	45	0.50	6.00	0.55	4	1
3049966	0.6	45	0.50	6.50	0.55	4	1
3050607	0.6	45	0.50	7.00	0.55	4	1
3049967	0.6	45	0.50	7.50	0.55	4	1
3050608	0.6	45	0.50	8.00	0.55	4	1
3049968	0.6	45	0.50	8.50	0.55	4	1
3050609	0.6	45	0.50	9.00	0.55	4	1
3049969	0.6	45	0.50	9.50	0.55	4	1
3050610	0.6	45	0.50	10.00	0.55	4	1
3050611	0.6	50	0.50	11.00	0.55	4	1
3050612	0.6	50	0.50	12.00	0.55	4	1
3050802	0.8	45	0.60	2.00	0.75	4	1
3050803	0.8	45	0.60	3.00	0.75	4	1
3050804	0.8	45	0.60	4.00	0.75	4	1
3050805	0.8	45	0.60	5.00	0.75	4	1
3050806	0.8	45	0.60	6.00	0.75	4	1
3050807	0.8	45	0.60	7.00	0.75	4	1
3050808	0.8	45	0.60	8.00	0.75	4	1
3050810	0.8	45	0.60	10.00	0.75	4	1
3050812	0.8	50	0.60	12.00	0.75	4	1
3051002	1.0	45	0.80	2.00	0.95	4	1
3051003	1.0	45	0.80	3.00	0.95	4	1
3051004	1.0	45	0.80	4.00	0.95	4	1
3051005	1.0	45	0.80	5.00	0.95	4	1
3051006	1.0	45	0.80	6.00	0.95	4	1
3051007	1.0	45	0.80	7.00	0.95	4	1
3051008	1.0	45	0.80	8.00	0.95	4	1
3051009	1.0	45	0.80	9.00	0.95	4	1
3051010	1.0	45	0.80	10.00	0.95	4	1
3051012	1.0	45	0.80	12.00	0.95	4	1
3051014	1.0	50	0.80	14.00	0.95	4	1
3051016	1.0	50	0.80	16.00	0.95	4	1
3051018	1.0	55	0.80	18.00	0.95	4	1
3051020	1.0	55	0.80	20.00	0.95	4	1
3051022	1.0	60	0.80	22.00	0.95	4	1
3051202	1.2	45	1.00	2.40	1.15	4	1
3051204	1.2	45	1.00	4.00	1.15	4	1
3051206	1.2	45	1.00	6.00	1.15	4	1
3051208	1.2	45	1.00	8.00	1.15	4	1
3051210	1.2	45	1.00	10.00	1.15	4	1

Packed: 1 pc.
Available WXS® coating only.

HTE

List 4590 (Continued) WHILE SUPPLIES LAST

SPEED FEED P1190-1192 | CARBIDE | WXS | STUB | 30° | SHANK h6

WXS-LN-EBD, 2 Flute, Stub Length, Long Neck, Ball End, Rib Processing

Units: mm

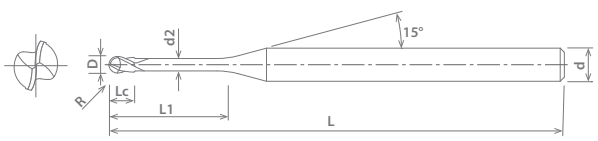
EDP Number	Mill Dia. D	Overall Length L	Length of Cut Lc	Neck Length L1	Neck Dia. d2	Shank Dia. d	Type
3051212	1.2	45	1.00	12.00	1.15	4	1
3051214	1.2	50	1.00	14.00	1.15	4	1
3051216	1.2	50	1.00	16.00	1.15	4	1
3051218	1.2	55	1.00	18.00	1.15	4	1
3051220	1.2	55	1.00	20.00	1.15	4	1
3051503	1.5	45	1.20	3.00	1.45	4	1
3051504	1.5	45	1.20	4.00	1.45	4	1
3051506	1.5	45	1.20	6.00	1.45	4	1
3051508	1.5	45	1.20	8.00	1.45	4	1
3051510	1.5	45	1.20	10.00	1.45	4	1
3051512	1.5	45	1.20	12.00	1.45	4	1
3051514	1.5	50	1.20	14.00	1.45	4	1
3051516	1.5	50	1.20	16.00	1.45	4	1
3051518	1.5	55	1.20	18.00	1.45	4	1
3051520	1.5	55	1.20	20.00	1.45	4	1
3051522	1.5	60	1.20	22.00	1.45	4	1
3051530	1.5	70	1.20	30.00	1.45	4	1
3051608	1.6	45	1.30	8.00	1.55	4	1
3051612	1.6	45	1.30	12.00	1.55	4	1
3051616	1.6	50	1.30	16.00	1.55	4	1
3051620	1.6	55	1.30	20.00	1.55	4	1
3052004	2.0	45	1.60	4.00	1.95	4	1
3052006	2.0	45	1.60	6.00	1.95	4	1
3052008	2.0	45	1.60	8.00	1.95	4	1
3052010	2.0	45	1.60	10.00	1.95	4	1
3052012	2.0	45	1.60	12.00	1.95	4	1
3052014	2.0	50	1.60	14.00	1.95	4	1
3052016	2.0	50	1.60	16.00	1.95	4	1
3052018	2.0	55	1.60	18.00	1.95	4	1
3052020	2.0	55	1.60	20.00	1.95	4	1
3052022	2.0	60	1.60	22.00	1.95	4	1
3052025	2.0	65	1.60	25.00	1.95	4	1
3052030	2.0	70	1.60	30.00	1.95	4	1
3052035	2.0	70	1.60	35.00	1.95	4	1
3052040	2.0	80	1.60	40.00	1.95	4	1
3052510	2.5	45	2.00	10.00	2.35	4	1
3052515	2.5	50	2.00	15.00	2.35	4	1
3052520	2.5	55	2.00	20.00	2.35	4	1
3052525	2.5	65	2.00	25.00	2.35	4	1
3052530	2.5	70	2.00	30.00	2.35	4	1
3052535	2.5	70	2.00	35.00	2.35	4	1
3053006	3.0	50	2.40	6.00	2.85	6	1
3053008	3.0	50	2.40	8.00	2.85	6	1
3053010	3.0	50	2.40	10.00	2.85	6	1
3053012	3.0	55	2.40	12.00	2.85	6	1
3053014	3.0	55	2.40	14.00	2.85	6	1
3053015	3.0	55	2.40	15.00	2.85	6	1
3053016	3.0	55	2.40	16.00	2.85	6	1
3053020	3.0	60	2.40	20.00	2.85	6	1
3053025	3.0	65	2.40	25.00	2.85	6	1
3053030	3.0	70	2.40	30.00	2.85	6	1
3053035	3.0	80	2.40	35.00	2.85	6	1
3053040	3.0	90	2.40	40.00	2.85	6	1
3053515	3.5	55	2.80	15.00	3.35	6	1
3053520	3.5	60	2.80	20.00	3.35	6	1
3053525	3.5	65	2.80	25.00	3.35	6	1
3053530	3.5	70	2.80	30.00	3.35	6	1
3053535	3.5	80	2.80	35.00	3.35	6	1
3053540	3.5	90	2.80	40.00	3.35	6	1
3053545	3.5	90	2.80	45.00	3.35	6	1
3054008	4.0	60	3.20	8.00	3.85	6	1
3054010	4.0	60	3.20	10.00	3.85	6	1
3054012	4.0	60	3.20	12.00	3.85	6	1
3054015	4.0	60	3.20	15.00	3.85	6	1
3054016	4.0	60	3.20	16.00	3.85	6	1
3054020	4.0	65	3.20	20.00	3.85	6	1
3054025	4.0	70	3.20	25.00	3.85	6	1
3054030	4.0	80	3.20	30.00	3.85	6	1
3054035	4.0	80	3.20	35.00	3.85	6	1
3054040	4.0	90	3.20	40.00	3.85	6	1

Packed: 1 pc.
Available WXS® coating only.

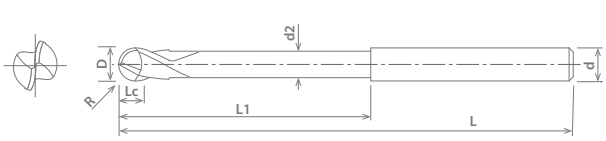
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HTE

Type 1



Type 2



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4590	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	◻	◻	◻

▢ good ◻ best

List 4590 (Continued) WHILE SUPPLIES LAST

WXS-LN-EBD, 2 Flute, Stub Length, Long Neck, Ball End, Rib Processing

SPEED FEED P1190-1192 | CARBIDE | WXS | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
0.1≤D<6	+0 / -0.005mm
D=6	+0 / -0.007mm



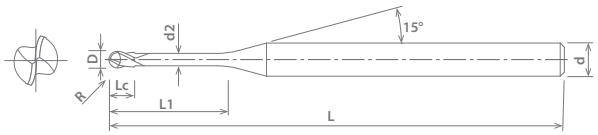
EDP Number	Mill Dia. D	Overall Length L	Length of Cut Lc	Neck Length L1	Neck Dia. d2	Shank Dia. d	Type
3054045	4.0	90	3.20	45.00	3.85	6	1
3054050	4.0	100	3.20	50.00	3.85	6	1
3055010	5.0	60	4.00	10.00	4.85	6	1
3055015	5.0	60	4.00	15.00	4.85	6	1
3055020	5.0	70	4.00	20.00	4.85	6	1
3055025	5.0	70	4.00	25.00	4.85	6	1
3055030	5.0	80	4.00	30.00	4.85	6	1
3055035	5.0	80	4.00	35.00	4.85	6	1
3055040	5.0	90	4.00	40.00	4.85	6	1
3055045	5.0	100	4.00	45.00	4.85	6	1

EDP Number	Mill Dia. D	Overall Length L	Length of Cut Lc	Neck Length L1	Neck Dia. d2	Shank Dia. d	Type
3055050	5.0	100	4.00	50.00	4.85	6	1
3056012	6.0	60	4.80	12.00	5.85	6	2
3056020	6.0	70	4.80	20.00	5.85	6	2
3056025	6.0	70	4.80	25.00	5.85	6	2
3056030	6.0	80	4.80	30.00	5.85	6	2
3056035	6.0	80	4.80	35.00	5.85	6	2
3056040	6.0	90	4.80	40.00	5.85	6	2
3056045	6.0	100	4.80	45.00	5.85	6	2
3056050	6.0	120	4.80	50.00	5.85	6	2

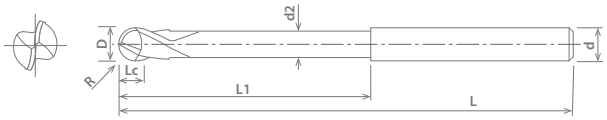
HTE

Packed: 1 pc.
Available WXS® coating only.

Type 1



Type 2



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4590	○	○	○	○	○	○	○	○	○			○	○	○	◎	◎	◎

○ good ◎ best

List 4430 WHILE SUPPLIES LAST

WXS-EBM, True 4 Flute, Regular Length, Ball End

SPEED FEED P1193 | CARBIDE | WXS | REG | 30° | SHANK h6

Radius Tolerance	
1/4≤D≤1/2	± 0.0006"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
44301111	1/4	3-1/2	1/2	1/4
44301311	5/16	4	5/8	5/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
44301411	3/8	4	3/4	3/8
44301611	1/2	4-3/8	7/8	1/2

Packed: 1 pc.
Available WXS® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP441BN (p. 980-981)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4430	◎	◎	◎	◎	◎	○	○	○	◎					◎	◎	◎	◎

○ good ◎ best

List 4530 WHILE SUPPLIES LAST

WXS-EBM, True 4 Flute, Regular Length, Ball End

SPEED FEED P1194 | CARBIDE | WXS | REG | 30° | SHANK h6

Radius Tolerance	
6≤D≤12	± 0.015mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
45300001	6	90	12	6
45300002	8	100	14	8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
45300003	10	100	18	10
45300004	12	110	22	12

Packed: 1 pc.
Available WXS® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP441BN (p. 980-981)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4530	▢	▢	▢	▢	▢	○	○	○	▢					▢	▢	▢	▢

○ good ▢ best

List 4413

WXS-EQD, Regular Length, 2 Flute, Ball End, Sphere Type

NEW | SPEED FEED P1195 | CARBIDE | WXS | REG | 30° | SHANK h6

Radius Tolerance	
1/16≤D≤3/16	±0.0004"
1/4≤D≤1/2	±0.0006"



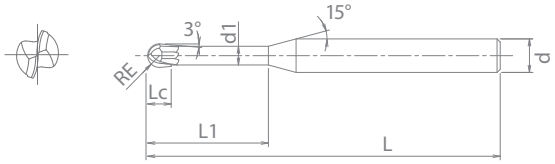
Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Min. Neck Diameter	Max Neck Diameter	Neck Incline	Shank Diameter	Type
	D	L	Lc	L1	d1	d2	θn	d	
44130113	1/16	2-1/2	0.0442	0.313	0.0555	0.0555	-	1/4	1
44130213	3/32	2-1/2	0.0663	0.469	0.0833	0.0833	-	1/4	1
44130313	1/8	2-3/4	0.0884	0.625	0.1110	0.1110	-	1/4	1
44130513	3/16	3-1/4	0.1326	0.938	0.1434	0.1856	-	1/4	1
44130613	1/4	3-1/2	0.1768	1.250	0.1912	0.2475	1.5°	1/4	2
44130713	5/16	4	0.2210	1.563	0.2391	0.3094	1.5°	5/16	2
44130813	3/8	4-1/4	0.2652	1.875	0.2868	0.3712	1.5°	3/8	2
44130913	1/2	4-1/2	0.3536	2.500	0.3825	0.4950	1.5°	1/2	2

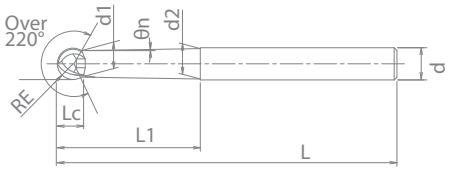
Packed: 1 pc.
Available WXS® coating only.

HTE

Type 1



Type 2



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4413	◎	◎	◎	◎	◎	○	○	○	◎					◎	◎	◎	◎

○ good ◎ best

List 4513

WXS-EQD, 2 Flute, Regular Length, Ball End, Sphere Type

NEW SIZES | SPEED FEED P1196 | CARBIDE | WXS | REG | 30° | SHANK h6

Radius Tolerance	
1≤D≤5	±0.010mm
6≤D≤12	±0.015mm



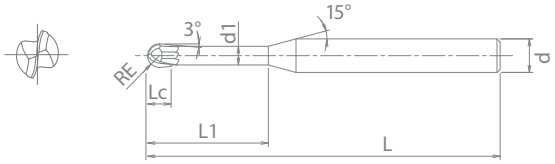
Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Min. Neck Diameter	Max Neck Diameter	Neck Incline	Shank Diameter	Type
	D	L	Lc	L1	d1	d2	θn	d	
45130001	1	60	0.7	5	0.85	0.85	-	6	1
45130002	2	60	1.5	10	1.70	1.70	-	6	1
45130003	3	70	2.3	15	2.70	2.70	-	6	1
45130004	4	70	3.0	20	3.70	3.70	-	6	1
45130009	5	80	3.5	25	4.40	4.40	-	6	1
45130005	6	90	4.0	30	4.60	5.90	1.5°	6	2
45130006	8	100	5.4	40	6.20	7.90	1.5°	8	2
45130007	10	110	6.7	50	7.70	9.90	1.5°	10	2
45130008	12	110	8.1	60	9.20	11.90	1.5°	12	2

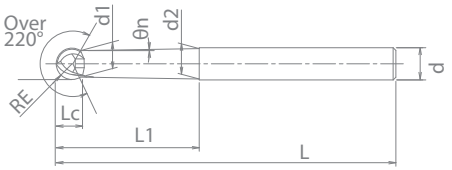
Packed: 1 pc.
Available WXS® coating only.

HTE

Type 1



Type 2



Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4513	◎	◎	◎	◎	◎	○	○	○	◎					◎	◎	◎	◎

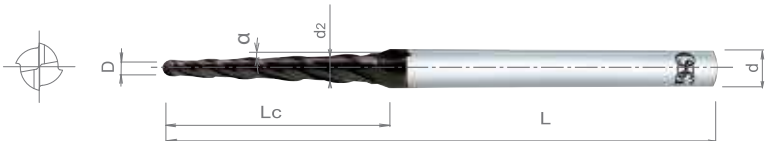
○ good ◎ best

List 4581

WXS-RB-TPB, 4 Flute, Tapered, Ball End, Rib Processing

SPEED FEED P1197 | CARBIDE | WXS | 25° | SHANK h6

Side Cutting Edge Incline Tolerance
±0°5′



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Max Diameter	Cut Incline	Shank Diameter
	D	L	Lc	d2	α	d
45810026	1.0	45	8	1.13	0.50°	4
45810035	1.0	45	8	1.39	1.50°	4
45810040	1.0	45	12	1.80	2.00°	4
45810072	1.5	45	10	1.82	1.00°	4
45810073	1.5	45	12	1.90	1.00°	4
45810078	1.5	45	12	2.09	1.50°	4
45810083	1.5	45	12	2.29	2.00°	4
45810140	2.0	55	25	2.42	0.50°	4
45810144	2.0	55	20	2.50	0.75°	4
45810145	2.0	55	25	2.63	0.75°	4
45810150	2.0	55	25	2.84	1.00°	4
45810152	2.0	45	12	2.58	1.50°	4
45810154	2.0	55	20	3.00	1.50°	4
45810156	2.0	45	10	2.63	2.00°	4
45810175	2.5	55	25	3.33	1.00°	4
45810178	2.5	50	16	3.27	1.50°	4
45810180	2.5	55	25	3.74	1.50°	4

Packed: 1 pc.
Available WXS® coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4581	◎	◎	◎	◎	◎	○	○	○	◎					◎	◎	◎	○

○ good ◎ best

List 4541

WXS-CR-EMS, Regular Length, Corner Radius

SPEED FEED P1198 | CARBIDE | WXS | REG | 45° | SHANK h6

Milling Diameter Tolerance	
3≤D≤12	+0 / -0.020mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	R	L	Lc	d	
45410000	3	0.2	60	8	6	4
45410001	3	0.5	60	8	6	4
45410002	4	0.2	70	11	6	4
45410003	4	0.5	70	11	6	4
45410004	4	1.0	70	11	6	4
45410005	5	0.2	80	13	6	4
45410006	5	0.5	80	13	6	4
45410007	5	1.0	80	13	6	4
45410008	6	0.2	90	13	6	6
45410009	6	0.5	90	13	6	6
45410010	6	1.0	90	13	6	6
45410011	6	1.5	90	13	6	6
45410012	6	2.0	90	13	6	6
45410013	8	0.5	100	19	8	6
45410014	8	1.0	100	19	8	6
45410015	8	1.5	100	19	8	6
45410016	8	2.0	100	19	8	6
45410017	10	0.5	100	22	10	6
45410018	10	1.0	100	22	10	6
45410019	10	1.5	100	22	10	6
45410020	10	2.0	100	22	10	6
45410021	10	3.0	100	22	10	6
45410022	12	0.5	110	26	12	6
45410023	12	1.0	110	26	12	6
45410024	12	1.5	110	26	12	6
45410025	12	2.0	110	26	12	6
45410026	12	3.0	110	26	12	6

Packed: 1 pc.
Available WXS® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP434 or HP435 (p. 987-988 or 990)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
4541	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	▢

▢ good ▢ best

List 9010

SPEED FEED P1199 | CARBIDE | WXS | STUB | 30° | SHANK h6

MAX-BN-EBD, 2 Flute, Stub Length, Ball End

Radius Tolerance	
1/32≤D<1/4	±0.0002"
D≥1/4	±0.0003"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
90100111	1/32	2	3/64	1/4
90100311	1/16	2	3/32	1/4
90100711	1/8	2	3/16	1/4
90100911	3/16	2	9/32	1/4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
90101111	1/4	2	3/8	1/4
90101311	5/16	2-3/16	15/32	5/16
90101411	3/8	2-3/16	9/16	3/8
90101611	1/2	2-1/2	11/16	1/2

HTE

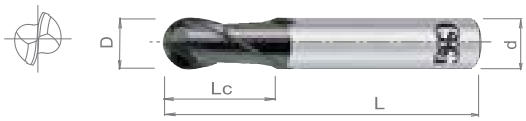
Packed: 1 pc.
Available WXS® coating only.
Designed for faster speeds and feeds with larger depth of cut.

List 9110

SPEED FEED P1199 | CARBIDE | WXS | STUB | 30° | SHANK h6

MAX-BN-EBD, 2 Flute, Stub Length, Ball End

Radius Tolerance	
1≤D<6	±0.005mm
D≥6	±0.007mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
91100111	1	50	1.5	6
91100211	2	50	3.0	6
91100311	3	50	4.5	6
91100411	4	50	6.0	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
91100611	6	50	9.0	6
91100811	8	55	12.0	8
91101011	10	55	15.0	10

HTE

Packed: 1 pc.
Available WXS® coating only.
Designed for faster speeds and feeds with larger depth of cut.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9010	◎	◎	◎	◎	◎	○	○	○	◎			○	○	◎	◎	◎	◎
9110	◎	◎	◎	◎	◎	○	○	○	◎			○	○	◎	◎	◎	◎

○ good ◎ best

List 9011

SPEED FEED P1199 | CARBIDE | WXS | STUB | 30° | SHANK h6

MAX-BN-LS-EBD, 2 Flute, Stub Length, Long Shank, Ball End

Radius Tolerance	
1/32≤D≤3/8	±0.0007"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
90110111	1/32	3	3/64	1/4
90110211	1/16	3	3/32	1/4
90110311	1/8	3	3/16	1/4
90110411	3/16	3	9/32	1/4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
90110511	1/4	3	3/8	1/4
90110611	5/16	3-3/16	15/32	5/16
90110711	3/8	3-3/16	9/16	3/8

HTE

Packed: 1 pc.
Available WXS® coating only.
Designed for faster speeds and feeds with larger depth of cut.

List 9111

SPEED FEED P1199 | CARBIDE | WXS | STUB | 30° | SHANK h6

MAX-BN-LS-EBD, 2 Flute, Stub Length, Long Shank, Ball End

Radius Tolerance	
1≤D≤10	±0.020mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
91110111	1	75	1.5	6
91110211	2	75	3.0	6
91110311	3	75	4.5	6
91110411	4	75	6.0	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
91110511	6	75	9.0	6
91110611	8	80	12.0	8
91110711	10	80	15.0	10

HTE

Packed: 1 pc.
Available WXS® coating only.
Designed for faster speeds and feeds with larger depth of cut.

OSG's Performance & Savings

Not machining steel over 54 HRC? Try EXOCARB® WXL® - List 3711 (p. 868)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9011	▢	▢	▢	▢	▢	○	○	○	▢			○	○	▢	▢	▢	○
9111	▢	▢	▢	▢	▢	○	○	○	▢			○	○	▢	▢	▢	○

○ good ▢ best

List 9140

SPEED FEED P1204-1205 | CARBIDE | WXS | REG | 45° | SHANK h6

HARD-EMS, 6 Flute, Regular Length

Milling Diameter Tolerance	
3≤D≤12	+0 / -0.020mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
91400311	3	45	8	6
91400411	4	45	11	6
91400511	5	50	13	6
91400611	6	50	13	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
91400811	8	60	19	8
91401011	10	70	22	10
91401211	12	75	26	12

HTE

Packed: 1 pc.
Available WXS® coating only.
Center cutting applies only to diameter sizes over 5mm.

List 9144

SPEED FEED P1204-1205 | CARBIDE | WXS | REG | 45° | SHANK h6

HARD-EMS, 6 Flute, Regular Length, Corner Radius

Milling Diameter Tolerance	
6≤D≤12	+0 / -0.020mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
91440611	6	0.5	50	13	6
91440811	8	0.5	60	19	8
91441011	10	0.5	70	22	10

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
91441111	10	1.0	70	22	10
91441211	12	0.5	75	26	12
91441311	12	1.0	75	26	12

HTE

Packed: 1 pc.
Available WXS® coating only.

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® Carb - List HP450 (p. 972)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9140	▢	▢	▢	▢	▢	○	○	○	▢			○	○	▢	▢	▢	▢
9144	▢	▢	▢	▢	▢	○	○	○	▢			○	○	▢	▢	▢	▢

○ good ▢ best

List 9191

CBN-SXB, 2 Flute, Ball End, CBN

SPEED FEED P1202 | CBN | BR | 30° | SHANK h6

Radius Tolerance	
0.4≤D≤3	±0.005mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	L	Lc	L1	d
8525304	0.4	45	0.3	1.2	4
8525305	0.5	45	0.3	1.5	4
8525306	0.6	45	0.4	1.8	4
8525307	0.7	45	0.5	2.1	4
8525308	0.8	45	0.5	2.4	4
8525309	0.9	45	0.6	2.7	4
8525310	1.0	45	0.6	2.5	4
8525210	1.0	50	0.6	2.5	6
8525211	1.1	50	0.7	2.8	6
8525212	1.2	50	0.7	3.0	6
8525213	1.3	50	0.8	3.3	6
8525214	1.4	50	0.8	3.5	6
8525215	1.5	50	0.9	3.8	6
8525216	1.6	50	1.0	4.0	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	L	Lc	L1	d
8525217	1.7	50	1.0	4.3	6
8525218	1.8	50	1.1	4.5	6
8525219	1.9	50	1.1	4.8	6
8525220	2.0	50	1.2	5.0	6
8525221	2.1	50	1.3	4.2	6
8525222	2.2	50	1.3	4.4	6
8525223	2.3	50	1.4	4.6	6
8525224	2.4	50	1.4	4.8	6
8525225	2.5	50	1.5	5.0	6
8525226	2.6	50	1.6	5.2	6
8525227	2.7	50	1.6	5.4	6
8525228	2.8	50	1.7	5.6	6
8525229	2.9	50	1.7	5.8	6
8525230	3.0	50	1.8	6.0	6

Packed: 1 pc.
Available Bright only.

HTE

List 9192

CBN-LN-SXB, 2 Flute, Long Neck, Ball End, CBN

SPEED FEED P1203 | CBN | BR | 30° | SHANK h6

Radius Tolerance	
0.4≤D≤3	±0.050mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	L	Lc	L1	d
8525622	0.4	45	0.3	2.0	4
8525623	0.4	45	0.3	3.0	4
8525633	0.6	45	0.4	3.0	4
8525634	0.6	45	0.4	4.5	4
8525654	1.0	45	0.6	4.0	4
8525655	1.0	45	0.6	5.0	4
8525656	1.0	45	0.6	6.0	4
8525657	1.0	45	0.6	7.5	4
8525854	1.0	50	0.6	4.0	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	L	Lc	L1	d
8525855	1.0	50	0.6	5.0	6
8525856	1.0	50	0.6	6.0	6
8525857	1.0	50	0.6	7.5	6
8525877	1.5	50	0.9	7.5	6
8525903	2.0	50	1.2	6.0	6
8525904	2.0	50	1.2	8.0	6
8525905	2.0	50	1.2	10.0	6
8525956	3.0	50	1.8	12.0	6
8525957	3.0	50	1.8	15.0	6

Packed: 1 pc.
Available Bright only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9191															▢ good	▢ best	▢ best
9192															▢ good	▢ best	▢ best

List 9181

CBN-SXR, 2 Flute, Corner Radius, CBN

SPEED FEED P1200 | CBN | BR | 30° | SHANK h6

Milling Diameter Tolerance	
D≤1	+0 / -0.010mm
D>1	+0 / -0.015mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	R	L	Lc	L1	d
8526210	0.5	0.05	45	0.3	1.5	4
8526211	0.5	0.10	45	0.3	1.5	4
8526220	1.0	0.05	45	0.6	2.5	4
8526221	1.0	0.10	45	0.6	2.5	4
8526222	1.0	0.20	45	0.6	2.5	4
8526223	1.0	0.30	45	0.6	2.5	4
8526231	1.5	0.10	50	0.9	3.8	6
8526232	1.5	0.20	50	0.9	3.8	6
8526233	1.5	0.30	50	0.9	3.8	6

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	R	L	Lc	L1	d
8526241	2.0	0.10	50	1.2	5.0	6
8526242	2.0	0.20	50	1.2	5.0	6
8526243	2.0	0.30	50	1.2	5.0	6
8526245	2.0	0.50	50	1.2	5.0	6
8526261	3.0	0.10	50	1.8	6.0	6
8526262	3.0	0.20	50	1.8	6.0	6
8526263	3.0	0.30	50	1.8	6.0	6
8526265	3.0	0.50	50	1.8	6.0	6

HTE

Packed: 1 pc.
Available Bright only.

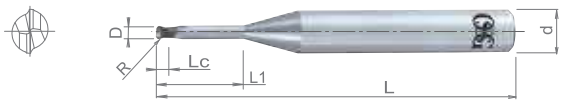
List 9182

CBN-LN-SXR, 2 Flute, Long Neck, Corner Radius, CBN

SPEED FEED P1201 | CBN | BR | 30° | SHANK h6

Milling Diameter Tolerance	
D≤1	+0 / -0.010mm
D>1	+0 / -0.015mm

Radius Tolerance	
0.5≤D≤3	±0.005mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	R	L	Lc	L1	d
8526410	0.5	0.05	45	0.3	2.5	4
8526411	0.5	0.10	45	0.3	2.5	4
8526420	1.0	0.05	45	0.6	5.0	4
8526421	1.0	0.10	45	0.6	5.0	4
8526422	1.0	0.20	45	0.6	5.0	4
8526423	1.0	0.30	45	0.6	5.0	4
8526431	1.5	0.10	50	0.9	7.5	6
8526432	1.5	0.20	50	0.9	7.5	6
8526433	1.5	0.30	50	0.9	7.5	6

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Shank Diameter
	D	R	L	Lc	L1	d
8526441	2.0	0.10	50	1.2	10.0	6
8526442	2.0	0.20	50	1.2	10.0	6
8526443	2.0	0.30	50	1.2	10.0	6
8526445	2.0	0.50	50	1.2	10.0	6
8526461	3.0	0.10	50	1.8	12.0	6
8526462	3.0	0.20	50	1.8	12.0	6
8526463	3.0	0.30	50	1.8	12.0	6
8526465	3.0	0.50	50	1.8	12.0	6

HTE

Packed: 1 pc.
Available Bright only.

Work Material

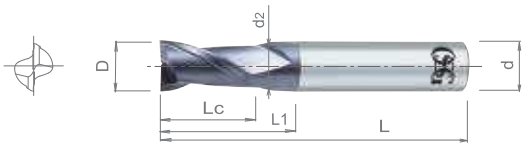
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
9181															▢ good	▢ best	▢ best
9182															▢ good	▢ best	▢ best

List 7020

2 Flute, Stub Length

SPEED FEED P1206-1207 | CARBIDE | DIA | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
1/64≤D≤1/2	+0 / -0.0020"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter	Coating Thickness	
	D	L	Lc	L1	d2	d	12µm	20µm
70200016	1/64	1-3/4	3/64	3/32	0.015	1/8	✦	
70200116	1/32	1-3/4	3/32	1/4	0.028	1/8	✦	
70200216	3/64	1-3/4	3/16	1/2	0.040	1/8	✦	
70200316	1/16	1-3/4	3/16	1/2	0.056	1/8	✦	
70200416	5/64	1-3/4	1/4	1/2	0.070	1/8	✦	
70200516	3/32	1-3/4	3/8	1/2	0.088	1/8	✦	
70200716	1/8	1-3/4	1/2	-	-	1/8	✦	
70205716	1/8	1 3/4	1/2	-	-	1/8		✦
70200816	5/32	2	9/16	-	-	5/32	✦	
70200916	3/16	2	3/4	-	-	3/16	✦	
70201116	1/4	2-1/2	3/4	-	-	1/4	✦	
70206116	1/4	2-1/2	3/4	-	-	1/4		✦
70201316	5/16	2-1/2	13/16	-	-	5/16	✦	
70201416	3/8	2-1/2	7/8	-	-	3/8	✦	
70206416	3/8	2-1/2	7/8	-	-	3/8		✦
70201616	1/2	3	1	-	-	1/2	✦	
70206616	1/2	3	1	-	-	1/2		✦

Packed: 1 pc.
Available Diamond coating only.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
7020										▢	▢					▢	

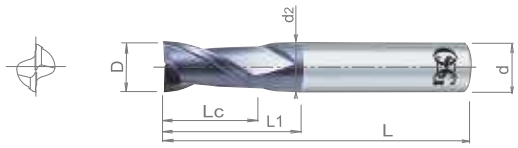
▢ good ▢ best

List 7120

D-RG-EDS, 2 Flute, Regular Length

SPEED FEED P1206-1207 | CARBIDE | DIA | REG | 30° | SHANK h6

Milling Diameter Tolerance	
1≤D≤12	+0 / -0.050mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
71200116	1	45	4	4.95	0.95	3
71200216	2	45	10	11.95	1.95	3
71200316	3	50	15	-	-	3
71200416	4	55	15	-	-	4
71200616	6	63	20	-	-	6
71200816	8	63	20	-	-	8
71201016	10	63	25	-	-	10
71201216	12	75	30	-	-	12

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

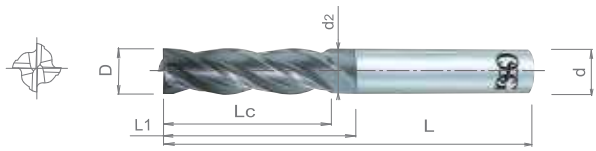
HTE

List 7040

D-GF-EMS, 4 Flute, Regular Length

SPEED FEED P1206-1207 | CARBIDE | DIA | REG | 30° | SHANK h6

Milling Diameter Tolerance	
1/16≤D≤1/2	+0 / -0.0020"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
70400316	1/16	1-3/4	3/16	0.056	1/2	1/8
70400416	5/64	1-3/4	1/4	0.070	1/2	1/8
70400516	3/32	1-3/4	3/8	0.088	1/2	1/8
70400716	1/8	1-3/4	1/2	-	-	1/8
70400916	3/16	2	3/4	-	-	3/16
70401116	1/4	2-1/2	3/4	-	-	1/4
70401316	5/16	2-1/2	13/16	-	-	5/16
70401416	3/8	2-1/2	7/8	-	-	3/8
70401616	1/2	3	1	-	-	1/2

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
7120										◎	◎					◎	
7040										◎	◎					◎	

○ good ◎ best

List 7041

SPEED FEED P1206-1207 | CARBIDE | DIA | LONG | 30° | SHANK h6

D-GF-EML, 4 Flute, Long Length

Milling Diameter Tolerance	
1/8≤D≤1/2	+0 / -0.0020"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
70410716	1/8	3	1	1/8
70410916	3/16	4	1	3/16
70411116	1/4	4	1-1/2	1/4
70411416	3/8	4	1-1/2	3/8
70411616	1/2	5	2	1/2

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

HTE

List 7042

SPEED FEED P1206-1207 | CARBIDE | DIA | STUB | 30° | SHANK h6

4 Flute, Stub Length, Long Shank

Milling Diameter Tolerance	
1/16≤D≤1/2	+0 / -0.0020"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
70420116	1/16	3	1/16	0.313	0.059	1/16
70420216	3/32	3	3/32	0.469	0.089	3/32
70420316	1/8	3	1/8	0.625	0.119	1/8
70420416	3/16	3	3/16	0.938	0.178	3/16
70420516	1/4	4	1/4	0.750	0.238	1/4
70420616	5/16	4	5/16	0.938	0.297	5/16
70420716	3/8	4	3/8	1.125	0.356	3/8
70420816	1/2	6	1/2	1.500	0.475	1/2

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low 1010 1018	Med. 1035 1045	High 1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
7041										▢	▢					▢	
7042										▢	▢					▢	

▢ good ▢ best

List 7072

4 Flute, Stub Length, Long Shank, Corner Radius

SPEED FEED P1206-1207 | CARBIDE | DIA | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1/2	+0 / -0.0020"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
70720116	1/8	0.015	3	1/8	0.625	0.119	1/8
70720216	1/8	0.031	3	1/8	0.625	0.119	1/8
70720316	3/16	0.062	3	3/16	0.938	0.178	3/16
70720416	1/4	0.015	4	1/4	0.750	0.238	1/4
70720516	1/4	0.030	4	1/4	0.750	0.238	1/4
70720616	1/4	0.062	4	1/4	0.750	0.238	1/4
70720716	3/8	0.015	4	3/8	1.125	0.356	3/8
70720816	1/2	0.015	6	1/2	1.500	0.475	1/2

Packed: 1 pc. Available Diamond coating only.
12µm Coating Thickness.

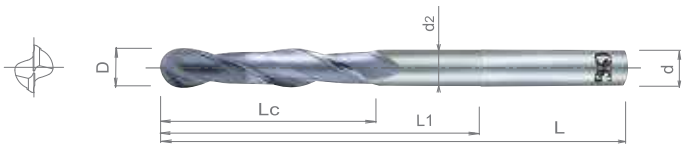
HTE

List 7010

D-RG-EBDR, 2 Flute, Regular Length, Ball End

SPEED FEED P1206-1207 | CARBIDE | DIA | REG | 30° | SHANK h6

Radius Tolerance	
1/32≤D≤1/2	+0 / -0.0020"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter	Coating Thickness	
	D	L	Lc	L1	d2	d	12µm	20µm
70100116	1/32	1-3/4	3/32	1/4	0.028	1/8	✦	
70100216	3/64	1-3/4	3/16	1/2	0.040	1/8	✦	
70100316	1/16	1-3/4	3/16	1/2	0.056	1/8	✦	
70100416	5/64	1-3/4	1/4	1/2	0.070	1/8	✦	
70100516	3/32	1-3/4	3/8	1/2	0.088	1/8	✦	
70100716	1/8	1-3/4	1/2	-	-	1/8	✦	
70105716	1/8	1-3/4	1/2	-	-	1/8		✦
70100816	5/32	2	9/16	-	-	5/32	✦	
70100916	3/16	2	3/4	-	-	3/16	✦	
70101116	1/4	2-1/2	3/4	-	-	1/4	✦	
70106116	1/4	2-1/2	3/4	-	-	1/4		✦
70101316	5/16	2-1/2	13/16	-	-	5/16	✦	
70101416	3/8	2-1/2	7/8	-	-	3/8	✦	
70106416	3/8	2-1/2	7/8	-	-	3/8		✦
70101616	1/2	3	1	-	-	1/2	✦	
70106616	1/2	3	1	-	-	1/2		✦

Packed: 1 pc.
Available Diamond coating only.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low 1010 1018	Med. 1035 1045	High 1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
7072										▢	▢					▢	
7010										▢	▢					▢	

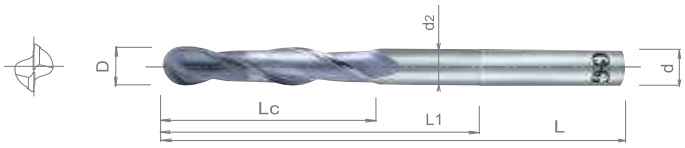
▢ good ▢ best

List 7110

SPEED FEED P1206-1207 | CARBIDE | DIA | REG | 30° | SHANK h6

D-RG-EBD, 2 Flute, Regular Length, Ball End

Radius Tolerance	
1≤D≤12	+0 / -0.020mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
71100116	1	45	4	4.95	0.95	3
71100216	2	45	10	11.95	1.95	3
71100316	3	50	15	-	-	3
71100416	4	55	15	-	-	4
71100616	6	63	20	-	-	6
71100816	8	63	20	-	-	8
71101016	10	63	25	-	-	10
71101216	12	75	30	-	-	12

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

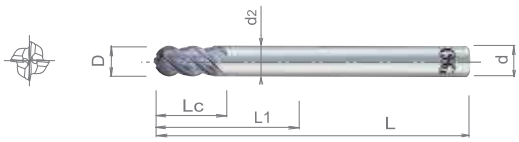
HTE

List 7030

SPEED FEED P1206-1207 | CARBIDE | DIA | REG | 30° | SHANK h6

D-GF-EBMR, 4 Flute, Regular Length, Ball End

Radius Tolerance	
1/32≤D≤1/2	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
70300116	1/32	1-3/4	3/32	1/4	0.028	1/8
70300216	3/64	1-3/4	3/16	1/2	0.040	1/8
70300316	1/16	1-3/4	3/16	1/2	0.056	1/8
70300416	5/64	1-3/4	1/4	1/2	0.070	1/8
70300516	3/32	1-3/4	3/8	1/2	0.088	1/8
70300716	1/8	1-3/4	1/2	-	-	1/8
70300916	3/16	2	3/4	-	-	3/16
70301116	1/4	2-1/2	3/4	-	-	1/4
70301316	5/16	2-1/2	13/16	-	-	5/16
70301416	3/8	2-1/2	7/8	-	-	3/8
70301616	1/2	3	1	-	-	1/2

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
7110										▢	▢					▢	
7030										▢	▢					▢	

▢ good ▢ best

List 7031

D-GF-EBML, 4 Flute, Long Length, Ball End

SPEED FEED P1206-1207 | CARBIDE | DIA | LONG | 30° | SHANK h6

Radius Tolerance	
3/16≤D≤1/2	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
70310916	3/16	4	1	3/16
70311116	1/4	4	1-1/2	1/4
70311416	3/8	4	1-1/2	3/8
70311616	1/2	5	2	1/2

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

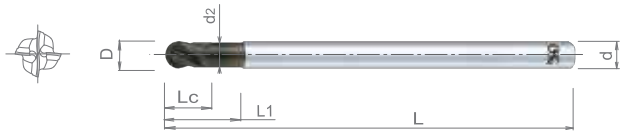
HTE

List 7032

4 Flute, Stub Length, Long Shank, Ball End

SPEED FEED P1206-1207 | CARBIDE | DIA | STUB | 30° | SHANK h6

Radius Tolerance	
1/16≤D≤1/2	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
70320116	1/16	3	1/16	0.313	0.059	1/16
70320216	3/32	3	3/32	0.469	0.089	3/32
70320316	1/8	3	1/8	0.625	0.119	1/8
70320416	3/16	3	3/16	0.938	0.178	3/16
70320516	1/4	4	1/4	0.750	0.238	1/4
70320616	5/16	4	5/16	0.938	0.297	5/16
70320716	3/8	4	3/8	1.125	0.356	3/8
70320816	1/2	6	1/2	1.500	0.475	1/2

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
7031										▢	▢					▢	
7032										▢	▢					▢	

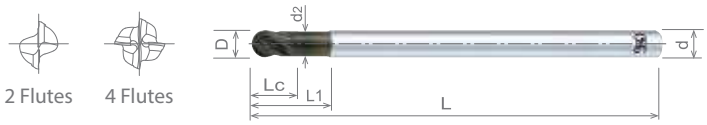
▢ good ▢ best

List 7173

4 Flute*, Stub Length, Long Shank, Ball End

SPEED FEED P1206-1207 | CARBIDE | DIA | STUB | 30° | SHANK h6

Radius Tolerance	
0.5≤D≤12	+0 / -0.015mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
71730116*	0.5	50	0.5	2.5	0.48	3
71730216	1.0	60	1.0	5.0	0.96	3
71730316	1.5	75	1.5	7.5	1.43	3
71730416	2.0	75	2.0	10.0	1.90	3
71730516	3.0	75	3.0	15.0	2.85	3
71730616	4.0	75	4.0	20.0	3.80	4
71730716	6.0	100	6.0	30.0	5.70	6
71730816	8.0	100	8.0	32.0	7.60	8
71730916	10.0	125	10.0	40.0	9.50	10
71731016	12.0	150	12.0	48.0	11.40	12

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.
*0.5mm is 2 flute.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
7173										◎	◎					◎	

○ good ◎ best

List 7132

4 Flute, Stub Length, Long Shank, Corner Radius

SPEED FEED P1206-1207 | CARBIDE | DIA | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
3≤D≤12	+0 / -0.020mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
71320116	3	0.5	75	3	15	2.85	3
71320216	4	0.5	75	4	20	3.80	4
71320316	6	0.5	100	6	30	5.70	6
71320416	6	1.0	100	6	30	5.70	6
71320516	8	0.5	100	8	30	7.60	8
71320616	8	1.0	100	8	32	7.60	8
71320716	10	0.5	125	10	40	9.50	10
71320816	10	1.0	125	10	40	9.50	10
71320916	12	0.5	150	12	48	11.40	12
71321016	12	1.0	150	12	48	11.40	12

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

HTE

List 7140

4 Flute*, Regular Length

SPEED FEED P1206-1207 | CARBIDE | DIA | REG | 30° | SHANK h6

Milling Diameter Tolerance	
0.5≤D≤12	+0 / -0.020mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
71400116	0.5	40	1.5	8	0.48	3
71400216	1.0	40	3	8	0.96	3
71400316	1.5	45	5	8	1.43	3
71400416	2.0	45	6	8	1.91	3
71400516	3.0	45	12	-	-	3
71400616	4.0	50	15	-	-	4
71400716	6.0	60	20	-	-	6
71400816	8.0	60	20	-	-	8
71400916	10.0	60	25	-	-	10
71401016	12.0	75	25	-	-	12

Packed: 1 pc. Available Diamond coating only.
12µm Coating Thickness.
*0.5mm is 2 flute.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
7132										▢	▢					▢	
7140										▢	▢					▢	

▢ good ▢ best

List 7230

SPEED FEED P1208 | CARBIDE | DIA | REG | 30° | SHANK h6

DIA-EBDSS, 2 or 4 Flute, Regular Length, Ball End, High Precision

Milling Diameter Tolerance	
1/64≤D≤3/16	+0 / -0.0005"
D=1/4	+0 / -0.0008"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
	D	L	Lc	d	
72300116	1/64	1-1/2	3/64	1/8	2
72300216	1/32	1-1/2	3/32	1/8	4
72300416	1/16	1-1/2	3/16	1/8	4
72300516	3/32	1-1/2	3/8	1/8	4
72300616	1/8	1-1/2	3/4	1/8	4
72300716	3/16	2	3/4	3/16	4
72300816	1/4	2-1/2	1	1/4	4

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

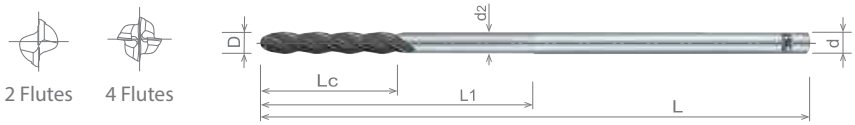
HTE

List 7231

SPEED FEED P1208 | CARBIDE | DIA | REG | 30° | SHANK h6

DIA-LN-EBM, 2 or 4 Flute, Regular Length, Long Reach, Ball End, High Precision

Milling Diameter Tolerance	
1/64≤D≤1/8	+0 / -0.0004"
3/16≤D≤1/4	+0 / -0.0007"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter	Number of Flutes
	D	L	Lc	L1	d2	d	
72310116	1/64	1-1/2	3/64	0.16	0.012	1/8	2
72310216	1/32	1-1/2	3/32	0.31	0.027	1/8	4
72310316	3/64	1-1/2	3/16	0.47	0.043	1/8	4
72310416	1/16	1-1/2	3/16	0.63	0.058	1/8	4
72310516	3/32	2	3/8	0.94	0.088	1/8	4
72310616	1/8	3	3/4	1.50	0.120	1/8	4
72310716	3/16	4	3/4	1.88	0.183	3/16	4
72310816	1/4	4	1	2.50	0.245	1/4	4

Packed: 1 pc.
Available Diamond coating only.
12µm Coating Thickness.

HTE

Work Material

List No.	P					M			K	N		S		Other			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Mg	Brass, Bronze	Graphite	Cobalt-Chrome
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)				
7230										▢	▢					▢	
7231										▢	▢					▢	

▢ good ▢ best

List 2050

4 Flute, Multiple Lengths, Square End

SPEED FEED P1209 | CARBIDE | EXO | Var.° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"

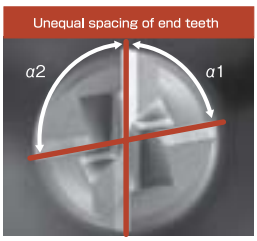


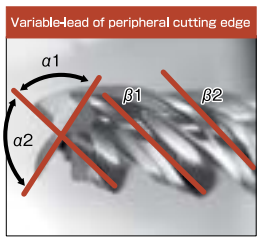
Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
		D	L	Lc	d
205000111	-	1/8	1-1/2	3/8	1/8
205001111	-	3/16	2	7/16	3/16
205002111	-	1/4	2-1/2	7/16	1/4
205002211	-	1/4	2-1/2	3/4	1/4
205003111	-	5/16	2-1/2	13/16	5/16
205004111	205094111	3/8	2-1/2	1/2	3/8
205004211	205094211	3/8	2-1/2	7/8	3/8
205005111	205095111	7/16	2-3/4	1	7/16
205006111	205096111	1/2	2-1/2	5/8	1/2
205006211	205096211	1/2	3	1	1/2
205006311	205096311	1/2	3	1-1/4	1/2
205007111	205097111	5/8	3-1/2	1-1/4	5/8
205008111	205098111	3/4	4	1-1/2	3/4
205009111	205099111	1	4	1-1/2	1

Packed: 1 pc.
Available EXO® coating only.

HTE





The variable-lead shape stabilizes cutting resistance to isolate vibration.

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® Carb VGX - List VG441 (p. 960)
Want to turbo-charge performance? Try A Brand® AE-VMS - List 8200 (p. 830)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2050	▢	▢	▢	▢	▢	▢	▢	▢	○			▢	▢	▢	○		

○ good ▢ best

List 2052

4 Flute, Multiple Lengths, Corner Radius

SPEED FEED P1209 | CARBIDE | EXO® | Var.° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	Edp Number w/ Weldon Flat	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
		D	R	L	Lc	d
205200111	-	1/8	0.010	1-1/2	3/8	1/8
205200211	-	1/8	0.015	1-1/2	3/8	1/8
205201111	-	3/16	0.015	2	7/16	3/16
205201211	-	3/16	0.030	2	7/16	3/16
205202111	-	1/4	0.015	2-1/2	3/8	1/4
205202211	-	1/4	0.030	2-1/2	3/8	1/4
205202311	-	1/4	0.015	2-1/2	3/4	1/4
205202411	-	1/4	0.030	2-1/2	3/4	1/4
205203111	-	5/16	0.015	2-1/2	5/8	5/16
205203211	-	5/16	0.030	2-1/2	5/8	5/16
205204111	205294111	3/8	0.030	2-1/2	1/2	3/8
205204211	205294211	3/8	0.030	2-1/2	7/8	3/8
205204311	205294311	3/8	0.045	2-1/2	7/8	3/8
205204411	205294411	3/8	0.060	2-1/2	7/8	3/8
205205111	205295111	7/16	0.015	2-3/4	1	7/16
205205211	205295211	7/16	0.030	2-3/4	1	7/16
205206111	205296111	1/2	0.030	2-1/2	5/8	1/2
205206211	205296211	1/2	0.030	3	1	1/2
205206311	205296311	1/2	0.060	3	1	1/2
205206411	205296411	1/2	0.015	3-1/4	1-1/4	1/2
205206511	205296511	1/2	0.030	3-1/4	1-1/4	1/2
205206611	205296611	1/2	0.045	3-1/4	1-1/4	1/2
205206711	205296711	1/2	0.060	3-1/4	1-1/4	1/2
205206811	205296811	1/2	0.090	3-1/4	1-1/4	1/2
205206911	205296911	1/2	0.125	3-1/4	1-1/4	1/2
205207111	205297111	5/8	0.030	3-1/2	1-1/4	5/8
205207211	205297211	5/8	0.060	3-1/2	1-1/4	5/8
205207311	205297311	5/8	0.090	3-1/2	1-1/4	5/8
205207411	205297411	5/8	0.125	3-1/2	1-1/4	5/8
205208111	205298111	3/4	0.030	3-1/2	1-1/2	3/4
205208211	205298211	3/4	0.060	3-1/2	1-1/2	3/4
205208311	205298311	3/4	0.090	4	1-1/2	3/4
205208411	205298411	3/4	0.125	4	1-1/2	3/4
205209111	205299111	1	0.030	4	1-1/2	1
205209211	205299211	1	0.060	4	1-1/2	1
205209311	205299311	1	0.090	4	1-1/2	1
205209411	205299411	1	0.125	4	1-1/2	1

Packed: 1 pc.
Available EXO® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® Carb VGX - List VG434 (p. 961)
Want to turbo-charge performance? Try A Brand® AE-CR-VMS - List 8210 (p. 832)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2052	▢	▢	▢	▢	▢	▢	▢	▢	○			▢	▢	▢	○		

○ good ▢ best

List 3815

SI-WC-RESF, 4 Flute, Low Helix, Corner Chamfer

SPEED FEED P1210-1211 | CARBIDE | WXL | Var.° | SHANK h6

Milling Diameter Tolerance	
D≤3/8	+0 / -0.0020"
D≥1/2	+0 / -0.0025"



Units: Inch

EDP Number	Mill Diameter	Chamfer Width	Overall Length	Length of Cut	Shank Diameter
	D	C	L	Lc	d
38150111	1/4	0.020	2-1/2	1/2	1/4
38150911	5/16	0.020	3	5/8	5/16
38151711	3/8	0.020	3	3/4	3/8
38152511	1/2	0.020	3-1/2	1	1/2
38153311	5/8	0.030	4	1-1/4	5/8
38154111	3/4	0.030	4-1/4	1-1/2	3/4
38154911	1	0.030	5	2	1

Packed: 1 pc.
Available WXL® coating only.

HTE

List 3820

SI-WC-RESF, 4 Flute, High Helix, Corner Chamfer

SPEED FEED P1210-1211 | CARBIDE | WXL | Var.° | SHANK h6

Milling Diameter Tolerance	
D≤3/8	+0 / -0.0020"
D≥1/2	+0 / -0.0025"



Units: Inch

EDP Number	Mill Diameter	Chamfer Width	Overall Length	Length of Cut	Shank Diameter
	D	C	L	Lc	d
38200211	1/4	0.020	2-1/2	1/2	1/4
38201011	5/16	0.020	3	5/8	5/16
38201811	3/8	0.020	3	3/4	3/8
38202611	1/2	0.020	3-1/2	1	1/2
38203411	5/8	0.030	4	1-1/4	5/8
38204211	3/4	0.030	4-1/4	1-1/2	3/4
38205011	1	0.030	5	2	1

Packed: 1 pc.
Available WXL® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try EXOCARB® AERO - List 2015 (p. 924)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3815	◎	◎	◎	○	○	○	○	○	◎	○			○	○			
3820	○	○	○	○	○	◎	◎	◎	○	○		○	◎	◎	○		

○ good ◎ best

List 3915

SPEED FEED P1210-1211 | CARBIDE | WXL | Var.° | SHANK h6

SI-WC-RESF, 4 Flute, Low Helix, Corner Chamfer

Milling Diameter Tolerance	
D≤12	+0 / -0.050mm
D>12	+0 / -0.060mm



Units: mm

EDP Number	Mill Diameter	Chamfer Width	Overall Length	Length of Cut	Shank Diameter
	D	C	L	Lc	d
3017406	6	0.5	60	13	6
3017408	8	0.5	80	19	8
3017410	10	0.5	80	22	10
3017412	12	0.5	80	26	12
39150811	14	0.6	85	26	14
39151211	16	0.6	100	32	16
39151611	18	0.6	100	32	18
39152011	20	0.6	105	38	20
39152411	25	0.6	120	45	25

Packed: 1 pc.
Available WXL® coating only.

HTE

List 3920

SPEED FEED P1210-1211 | CARBIDE | WXL | Var.° | SHANK h6

SI-WC-RESF, 4 Flute, High Helix, Corner Chamfer

Milling Diameter Tolerance	
D≤12	+0 / -0.050mm
D>12	+0 / -0.060mm



Units: mm

EDP Number	Mill Diameter	Chamfer Width	Overall Length	Length of Cut	Shank Diameter
	D	C	L	Lc	d
3017456	6	0.5	60	13	6
3017458	8	0.5	80	19	8
3017460	10	0.5	80	22	10
3017462	12	0.5	80	26	12
39200911	14	0.6	85	26	14
39201311	16	0.6	100	32	16
39201711	18	0.6	100	32	18
39202111	20	0.6	105	38	20
39202511	25	0.6	120	45	25

Packed: 1 pc.
Available WXL® coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3915	◎	◎	◎	○	○	○	○	○	◎	○			○	○			
3920	○	○	○	○	○	◎	◎	◎	○	○		○	◎	◎	○		

○ good ◎ best

List 3825

SPEED FEED P1210-1211 | CARBIDE | WXL | Var.° | SHANK h6

SI-WC-LN-RESF, Long Neck, 4 Flute, Low Helix, Corner Chamfer

Milling Diameter Tolerance	
D≤3/8	+0 / -0.0020"
D≥1/2	+0 / -0.0025"



Units: Inch

EDP Number	Mill Diameter	Chamfer Width	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	C	L	Lc	L1	d2	d
38250511	1/4	0.020	2-1/2	1/2	1-1/4	0.2382	1/4
38251311	5/16	0.020	3	5/8	1-3/8	0.3007	5/16
38252111	3/8	0.020	3	3/4	1-1/2	0.3632	3/8
38252911	1/2	0.020	3-1/2	1	1-3/4	0.4882	1/2
38253711	5/8	0.030	4	1-1/4	2	0.6053	5/8
38254511	3/4	0.030	4-1/4	1-1/2	2-1/4	0.7264	3/4
38255311	1	0.030	5	2	2-3/4	0.9685	1

Packed: 1 pc.
Available WXL® coating only.

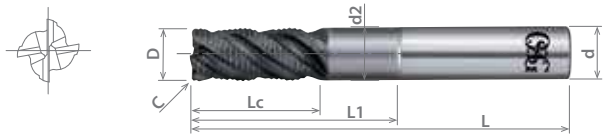
HTE

List 3830

SPEED FEED P1210-1211 | CARBIDE | WXL | Var.° | SHANK h6

SI-WC-LN-RESF, Long Neck, 4 Flute, High Helix, Corner Chamfer

Milling Diameter Tolerance	
D≤3/8	+0 / -0.0020"
D≥1/2	+0 / -0.0025"



Units: Inch

EDP Number	Mill Diameter	Chamfer Width	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	C	L	Lc	L1	d2	d
38300611	1/4	0.020	2-1/2	1/2	1-1/4	0.2382	1/4
38301411	5/16	0.020	3	5/8	1-3/8	0.3007	5/16
38302211	3/8	0.020	3	3/4	1-1/2	0.3632	3/8
38303011	1/2	0.020	3-1/2	1	1-3/4	0.4882	1/2
38303811	5/8	0.030	4	1-1/4	2	0.6053	5/8
38304611	3/4	0.030	4-1/4	1-1/2	2-1/4	0.7264	3/4
38305411	1	0.030	5	2	2-3/4	0.9685	1

Packed: 1 pc.
Available WXL® coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
3825	◎	◎	◎	○	○	○	○	○	◎	○			○	○			
3830	○	○	○	○	○	◎	◎	◎	○	○		○	◎	◎	○		

○ good ◎ best

List 2015

4 Flute, Regular Length, Corner Radius, Rougher

SPEED FEED	CARBIDE	TiAlN		REG	40°	SHANK
P1212						h6

Milling Diameter Tolerance	
1/4≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
20150111	1/4	0.030	2	3/8	1/4
20150211	1/4	0.030	2-1/2	3/4	1/4
20150311	3/8	0.030	2	1/2	3/8
20150411	3/8	0.030	2-1/2	7/8	3/8
20150511	1/2	0.030	2-1/2	5/8	1/2
20150611	1/2	0.030	3	1-1/4	1/2
20150811	1/2	0.060	3	1-1/4	1/2
20151011	1/2	0.125	3	1-1/4	1/2
20151111	5/8	0.030	3	3/4	5/8
20151211	5/8	0.030	3-1/2	1-1/4	5/8
20151411	5/8	0.060	3-1/2	1-1/4	5/8
20151511	5/8	0.125	3-1/2	1-1/4	5/8
20151911	3/4	0.060	3-1/2	7/8	3/4
20152111	3/4	0.125	4	1-1/2	3/4
20152211	3/4	0.190	4	1-1/2	3/4
20152711	1	0.060	4	1-1/2	1
20152911	1	0.125	4	1-1/2	1
20153211	1	0.190	5	2-1/4	1

Packed: 1 pc.
Available TiAlN coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® Carb - List HP400 (p. 975)
Want to turbo-charge performance? Try EXOCARB® AERO - List 3915 or 3920 (p. 922)

Work Material

	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2015	▢	▢	▢	▢	▢	▢	▢	▢	○			▢	▢	▢	○		

○ good ▢ best

List 2100

SPEED FEED P1213 | CARBIDE | EXO° | Var.° | SHANK h6

UVX-TI-5FL, 5 Flute, Multiple Lengths

Milling Diameter Tolerance	
1/2 ≤ D ≤ 1-1/4	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
21000711	1/2	2-1/2	5/8	1/2
21000811	1/2	3	1	1/2
21000911	1/2	3-1/2	1-1/4	1/2
21001011	1/2	3-1/2	1-5/8	1/2
21001111	5/8	3-1/2	1-1/4	5/8
21001211	5/8	4	1-7/8	5/8
21001311	3/4	4	1-1/2	3/4
21001411	3/4	5	2-1/4	3/4
21001511	1	4	1-1/2	1
21001611	1	6	3	1
21001711	1-1/4	4	1-1/2	1-1/4
21001811	1-1/4	6	3	1-1/4
21001911	1-1/4	7	4	1-1/4

Packed: 1 pc.
Available EXO® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® Carb VGx - List VG541 (p. 966)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2100						○	○	○					◎				

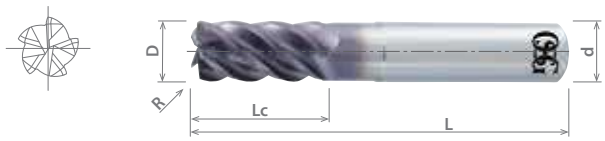
○ good ◎ best

List 2106

SPEED FEED P1213 | CARBIDE | EXO | Var.° | SHANK h6

UVX-TI-CR-5FL, 5 Flute, Multiple Lengths, Corner Radius

Milling Diameter Tolerance	
1/2 ≤ D ≤ 1-1/4	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
21062111	1/2	0.030	2-1/2	5/8	1/2
21062211	1/2	0.060	2-1/2	5/8	1/2
21062311	1/2	0.090	2-1/2	5/8	1/2
21062411	1/2	0.120	2-1/2	5/8	1/2
21062511	1/2	0.030	3	1	1/2
21062611	1/2	0.060	3	1	1/2
21062711	1/2	0.090	3	1	1/2
21062811	1/2	0.120	3	1	1/2
21062911	1/2	0.015	3-1/2	1-1/4	1/2
21063011	1/2	0.030	3-1/2	1-1/4	1/2
21063111	1/2	0.060	3-1/2	1-1/4	1/2
21063211	1/2	0.090	3-1/2	1-1/4	1/2
21063311	1/2	0.120	3-1/2	1-1/4	1/2
21063411	1/2	0.015	3-1/2	1-5/8	1/2
21063511	1/2	0.030	3-1/2	1-5/8	1/2
21063611	1/2	0.060	3-1/2	1-5/8	1/2
21063711	1/2	0.090	3-1/2	1-5/8	1/2
21063811	1/2	0.120	3-1/2	1-5/8	1/2
21063911	5/8	0.030	3-1/2	1-1/4	5/8
21064011	5/8	0.060	3-1/2	1-1/4	5/8
21064111	5/8	0.090	3-1/2	1-1/4	5/8
21064211	5/8	0.120	3-1/2	1-1/4	5/8
21064311	5/8	0.030	4	1-7/8	5/8
21064411	5/8	0.060	4	1-7/8	5/8
21064511	5/8	0.090	4	1-7/8	5/8
21064611	5/8	0.120	4	1-7/8	5/8
21064711	3/4	0.030	4	1-1/2	3/4
21064811	3/4	0.060	4	1-1/2	3/4
21064911	3/4	0.090	4	1-1/2	3/4
21065011	3/4	0.120	4	1-1/2	3/4
21065111	3/4	0.150	4	1-1/2	3/4
21065211	3/4	0.030	5	2-1/4	3/4
21065311	3/4	0.060	5	2-1/4	3/4
21065411	3/4	0.090	5	2-1/4	3/4
21065511	3/4	0.120	5	2-1/4	3/4
21065611	3/4	0.150	5	2-1/4	3/4
21065711	1	0.030	4	1-1/2	1
21065811	1	0.060	4	1-1/2	1
21065911	1	0.090	4	1-1/2	1
21066011	1	0.120	4	1-1/2	1
21066111	1	0.150	4	1-1/2	1
21066211	1	0.030	6	3	1
21066311	1	0.060	6	3	1
21066411	1	0.090	6	3	1
21066511	1	0.120	6	3	1
21066611	1	0.150	6	3	1
21066711	1 - 1/4	0.030	4	1-1/2	1 - 1/4
21066811	1 - 1/4	0.060	4	1-1/2	1 - 1/4
21066911	1 - 1/4	0.090	4	1-1/2	1 - 1/4
21067011	1 - 1/4	0.120	4	1-1/2	1 - 1/4
21067111	1 - 1/4	0.150	4	1-1/2	1 - 1/4
21067211	1 - 1/4	0.030	6	3	1 - 1/4
21067311	1 - 1/4	0.060	6	3	1 - 1/4
21067411	1 - 1/4	0.090	6	3	1 - 1/4
21067511	1 - 1/4	0.120	6	3	1 - 1/4

Packed: 1 pc.
Available EXO® coating only.

HTE

List 2106 (Continued)

SPEED FEED P1213 | CARBIDE | EXO | Var.° | SHANK h6

UVX-TI-CR-5FL, 5 Flute, Multiple Lengths, Corner Radius

Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
21067611	1 - 1/4	0.150	6	3	1 - 1/4
21067711	1 - 1/4	0.030	7	4	1 - 1/4
21067811	1 - 1/4	0.060	7	4	1 - 1/4
21067911	1 - 1/4	0.090	7	4	1 - 1/4
21068011	1 - 1/4	0.120	7	4	1 - 1/4
21068111	1 - 1/4	0.150	7	4	1 - 1/4

Packed: 1 pc.
Available EXO® coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® Carb VGx - List VG534 (p. 967-968)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2106						○	○	○					◎				

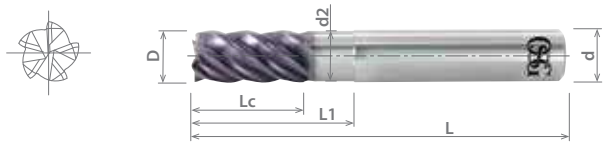
○ good ◎ best

List 2104

SPEED FEED P1214 | CARBIDE | EXO | REG | Var.° | SHANK h6

UVX-TI-LN-5FL, 5 Flute, Regular Length, Reduced Neck, Square End

Milling Diameter Tolerance	
12 ≤ D ≤ 25	+0/-0.05mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
8555320	12	90	24	36	11.5	12
8555360	16	100	32	48	15.5	16
8555400	20	120	40	60	19.5	20
8555450	25	140	50	75	24.5	25

Packed: 1 pc.
Available EXO® coating only.

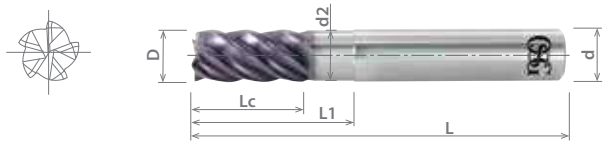
HTE

List 2102

SPEED FEED P1213 | CARBIDE | EXO | REG | Var.° | SHANK h6

UVX-TI-LN-5FL, 5 Flute, Regular Length, Reduced Neck, Square End

Milling Diameter Tolerance	
1/2 ≤ D ≤ 1-1/4	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	L	Lc	L1	d2	d
21020011	1/2	3-1/2	1	1-1/2	0.480	1/2
21020111	5/8	4	1-1/4	1-7/8	0.605	5/8
21020211	3/4	6-1/2	1-1/2	2-1/4	0.730	3/4
21020311	1	5-1/2	2	3	0.980	1
21020411	1-1/4	6	2-1/2	3-3/4	1.230	1-1/4

Packed: 1 pc.
Available EXO® coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2104						○	○	○					◎				
2102						○	○	○					◎				

○ good ◎ best

List 2108

SPEED FEED P1213 | CARBIDE | EXO® | REG | Var.° | SHANK h6

UVX-TI-LN-CR-5FL, 5 Flute, Regular Length, Reduced Neck, Corner Radius

Milling Diameter Tolerance	
1/2 ≤ D ≤ 1-1/4	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
21080011	1/2	0.03	3-1/2	1	1-1/2	0.480	1/2
21080111	1/2	0.06	3-1/2	1	1-1/2	0.480	1/2
21080211	1/2	0.09	3-1/2	1	1-1/2	0.480	1/2
21080311	1/2	0.12	3-1/2	1	1-1/2	0.480	1/2
21080411	5/8	0.03	4	1-1/4	1-7/8	0.605	5/8
21080511	5/8	0.06	4	1-1/4	1-7/8	0.605	5/8
21080611	5/8	0.09	4	1-1/4	1-7/8	0.605	5/8
21080711	5/8	0.12	4	1-1/4	1-7/8	0.605	5/8
21080811	3/4	0.03	4-3/4	1-1/2	2-1/4	0.730	3/4
21080911	3/4	0.06	4-3/4	1-1/2	2-1/4	0.730	3/4
21081011	3/4	0.09	4-3/4	1-1/2	2-1/4	0.730	3/4
21081111	3/4	0.12	4-3/4	1-1/2	2-1/4	0.730	3/4
21081211	3/4	0.15	4-3/4	1-1/2	2-1/4	0.730	3/4
21081311	1	0.03	5-1/2	2	3	0.980	1
21081411	1	0.06	5-1/2	2	3	0.980	1
21081511	1	0.09	5-1/2	2	3	0.980	1
21081611	1	0.12	5-1/2	2	3	0.980	1
21081711	1	0.15	5-1/2	2	3	0.980	1
21081811	1-1/4	0.03	6	2-1/2	3-3/4	1.230	1-1/4
21081911	1-1/4	0.06	6	2-1/2	3-3/4	1.230	1-1/4
21082011	1-1/4	0.09	6	2-1/2	3-3/4	1.230	1-1/4
21082111	1-1/4	0.12	6	2-1/2	3-3/4	1.230	1-1/4
21082211	1-1/4	0.15	6	2-1/2	3-3/4	1.230	1-1/4

Packed: 1 pc.
Available EXO® coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2108						○	○	○					◎				

○ good ◎ best

List 2110

SPEED FEED P1214 | CARBIDE | EXO® | REG | Var.° | SHANK h6

UVX-TI-LN-CR-5FL, 5 Flute, Regular Length, Reduced Neck, Corner Radius

Milling Diameter Tolerance	
12 ≤ D ≤ 25	+0/-0.05mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
8555321	12	1.0	90	24	36	11.5	12
8555322	12	1.5	90	24	36	11.5	12
8555323	12	2.0	90	24	36	11.5	12
8555324	12	2.5	90	24	36	11.5	12
8555325	12	3.0	90	24	36	11.5	12
8555326	12	4.0	90	24	36	11.5	12
8555361	16	1.0	100	32	48	15.5	16
8555362	16	1.5	100	32	48	15.5	16
8555363	16	2.0	100	32	48	15.5	16
8555364	16	2.5	100	32	48	15.5	16
8555365	16	3.0	100	32	48	15.5	16
8555366	16	4.0	100	32	48	15.5	16
8555401	20	1.0	120	40	60	19.5	20
8555402	20	1.5	120	40	60	19.5	20
8555403	20	2.0	120	40	60	19.5	20
8555404	20	2.5	120	40	60	19.5	20
8555405	20	3.0	120	40	60	19.5	20
8555406	20	4.0	120	40	60	19.5	20
8555407	20	5.0	120	40	60	19.5	20

Packed: 1 pc.
Available EXO® coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2110						▢	▢	▢					▣				

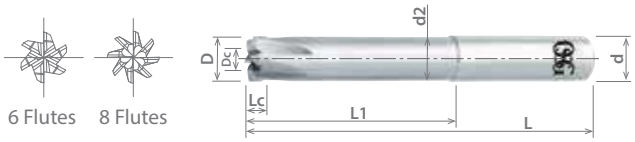
▢ good ▣ best

List 2080

SPEED FEED P1215 | CARBIDE | BR | SHANK h6

Milling Diameter Tolerance	
5/8≤D≤1	+0 / -0.002"

HFC-TI, 6 & 8 Flute



Units: Inch

EDP Number	Mill Diameter	Effective Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter	No. of Flutes
	D	Dc	L	Lc	L1	d2	d	
20806250	5/8	0.304	4.72	0.197	2.76	0.586	5/8	6
20807500	3/4	0.365	4.72	0.197	2.76	0.711	3/4	8
20801000	1	0.486	4.72	0.197	2.76	0.961	1	8

Packed: 1 pc.
Available Bright only.

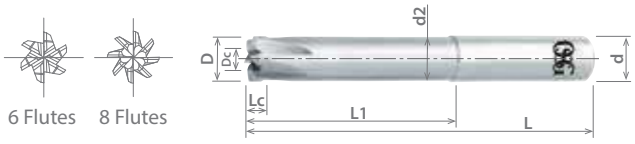
HTE

List 2081

SPEED FEED P1215 | CARBIDE | BR | SHANK h6

Milling Diameter Tolerance	
16≤D≤25	+0 / -0.05mm

HFC-TI, 6 & 8 Flute



Units: mm

EDP Number	Mill Diameter	Effective Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter	No. of Flutes
	D	Dc	L	Lc	L1	d2	d	
8555716	16	7.77	120	5	70	15	16	6
8555720	20	9.72	120	5	70	19	20	8
8555725	25	12.15	120	5	70	24	25	8

Packed: 1 pc.
Available Bright only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2080													▢				
2081													▢				

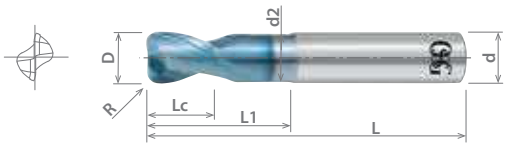
▢ good ▢ best

List 2863

AERO-EDS, 2 Flute, Stub Length, Corner Radius

SPEED FEED P1216 | CARBIDE | DLC | STUB | 25° | SHANK h6

Milling Diameter Tolerance	
1/2≤D≤1	+0 / -0.0012"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
28630000	1/2	0.030	4	3/4	2.205	0.461	1/2
28630100	1/2	0.060	4	3/4	2.205	0.461	1/2
28630200	1/2	0.090	4	3/4	2.205	0.461	1/2
28630400	1/2	0.120	4	3/4	2.205	0.461	1/2
28630600	5/8	0.030	4	1	2.205	0.559	5/8
28630700	5/8	0.060	4	1	2.205	0.559	5/8
28630800	5/8	0.090	4	1	2.205	0.559	5/8
28630900	5/8	0.120	4	1	2.205	0.559	5/8
28631000	5/8	0.190	4	1	2.205	0.559	5/8
28631200	3/4	0.030	4	1-1/8	2.205	0.669	3/4
28631300	3/4	0.060	4	1-1/8	2.205	0.669	3/4
28631400	3/4	0.090	4	1-1/8	2.205	0.669	3/4
28631500	3/4	0.120	4	1-1/8	2.205	0.669	3/4
28631600	3/4	0.190	4	1-1/8	2.205	0.669	3/4
28631800	7/8	0.030	4	1-5/16	2.205	0.787	7/8
28631900	7/8	0.060	4	1-5/16	2.205	0.787	7/8
28632000	7/8	0.090	4	1-5/16	2.205	0.787	7/8
28632100	7/8	0.120	4	1-5/16	2.205	0.787	7/8
28632200	7/8	0.190	4	1-5/16	2.205	0.787	7/8
28632400	1	0.030	4	1-1/2	2.205	0.921	1
28632500	1	0.060	4	1-1/2	2.205	0.921	1
28632600	1	0.090	4	1-1/2	2.205	0.921	1
28632700	1	0.120	4	1-1/2	2.205	0.921	1
28632800	1	0.190	4	1-1/2	2.205	0.921	1

Packed: 1 pc.
Available DLC coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try EXOCARB® AERO - List 2021 (p. 942)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2863										◎	◎						

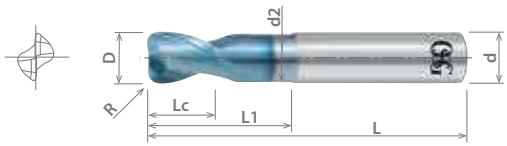
○ good ◎ best

List 2963

AERO-EDS, 2 Flute, Stub Length, Corner Radius

SPEED FEED P1216 | CARBIDE | DLC | STUB | 25° | SHANK h6

Milling Diameter Tolerance	
12≤D≤25	+0 / -0.03mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
8528822	12	1.0	90	14	40	11.0	12
8528823	12	1.6	90	14	40	11.0	12
8528826	12	3.0	90	14	40	11.0	12
8528862	16	1.0	100	18	45	14.4	16
8528863	16	1.6	100	18	45	14.4	16
8528866	16	3.0	100	18	45	14.4	16
8528902	20	1.0	110	22	56	18.0	20
8528903	20	1.6	110	22	56	18.0	20
8528906	20	3.0	110	22	56	18.0	20
8528952	25	1.0	110	27	56	23.0	25
8528953	25	1.6	110	27	56	23.0	25
8528956	25	3.0	110	27	56	23.0	25

Packed: 1 pc.
Available DLC coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2963										◎	◎						

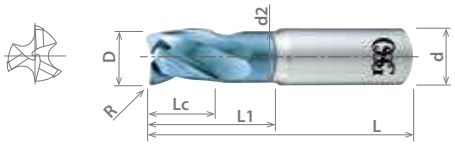
○ good ◎ best

List 2873

AERO-ETS, 3 Flute, Stub Length, Square & Corner Radius

SPEED FEED P1217 | CARBIDE | DLC | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
1/2≤D≤1	+0 / -0.0008"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
28730050	1/2	-	4	3/4	2.205	0.461	1/2
28730000	1/2	0.030	4	3/4	2.205	0.461	1/2
28730100	1/2	0.060	4	3/4	2.205	0.461	1/2
28730200	1/2	0.090	4	3/4	2.205	0.461	1/2
28730300	1/2	0.120	4	3/4	2.205	0.461	1/2
28731050	5/8	-	4	1	2.205	0.559	5/8
28731000	5/8	0.030	4	1	2.205	0.559	5/8
28731100	5/8	0.060	4	1	2.205	0.559	5/8
28731200	5/8	0.090	4	1	2.205	0.559	5/8
28731300	5/8	0.120	4	1	2.205	0.559	5/8
28731400	5/8	0.190	4	1	2.205	0.559	5/8
28732050	3/4	-	4	1-1/8	2.205	0.669	3/4
28732100	3/4	0.030	4	1-1/8	2.205	0.669	3/4
28732200	3/4	0.060	4	1-1/8	2.205	0.669	3/4
28732300	3/4	0.090	4	1-1/8	2.205	0.669	3/4
28732400	3/4	0.120	4	1-1/8	2.205	0.669	3/4
28732500	3/4	0.190	4	1-1/8	2.205	0.669	3/4
28734050	7/8	-	4	1-5/16	2.205	0.787	7/8
28734400	7/8	0.030	4	1-5/16	2.205	0.787	7/8
28734500	7/8	0.060	4	1-5/16	2.205	0.787	7/8
28734600	7/8	0.090	4	1-5/16	2.205	0.787	7/8
28734700	7/8	0.120	4	1-5/16	2.205	0.787	7/8
28734800	7/8	0.190	4	1-5/16	2.205	0.787	7/8
28735050	1	-	4	1-1/2	2.205	0.921	1
28735500	1	0.030	4	1-1/2	2.205	0.921	1
28735600	1	0.060	4	1-1/2	2.205	0.921	1
28735700	1	0.090	4	1-1/2	2.205	0.921	1
28735800	1	0.120	4	1-1/2	2.205	0.921	1
28735900	1	0.190	4	1-1/2	2.205	0.921	1

Packed: 1 pc.
Available DLC coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try EXOCARB® AERO - List 2041 (p. 946)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2873										◎	◎						

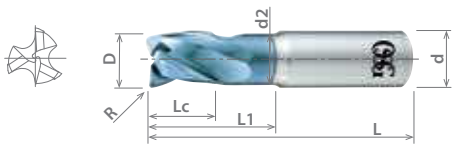
○ good ◎ best

List 2973

SPEED FEED P1217 | CARBIDE | DLC | STUB | 30° | SHANK h6

AERO-ETS, 3 Flute, Stub Length, Square & Corner Radius

Milling Diameter Tolerance	
12≤D≤25	+0 / -0.02mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
8533249	12	-	100	18	55	11.0	12
8533250	12	1.0	100	18	55	11.0	12
8533251	12	1.6	100	18	55	11.0	12
8533252	12	3.0	100	18	55	11.0	12
8533253	16	-	100	24	55	14.4	16
8533254	16	1.0	100	24	55	14.4	16
8533255	16	1.6	100	24	55	14.4	16
8533256	16	3.0	100	24	55	14.4	16
8533257	16	4.0	100	24	55	14.4	16
8533258	16	5.0	100	24	55	14.4	16
8533259	20	-	100	30	55	18.0	20
8533260	20	1.0	100	30	55	18.0	20
8533261	20	1.6	100	30	55	18.0	20
8533262	20	3.0	100	30	55	18.0	20
8533263	20	4.0	100	30	55	18.0	20
8533264	20	5.0	100	30	55	18.0	20
8533265	25	-	100	37.5	55	23.0	25
8533266	25	1.0	100	37.5	55	23.0	25
8533267	25	1.6	100	37.5	55	23.0	25
8533268	25	3.0	100	37.5	55	23.0	25
8533269	25	4.0	100	37.5	55	23.0	25
8533270	25	5.0	100	37.5	55	23.0	25

Packed: 1 pc.
Available DLC coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2973										◎	◎						

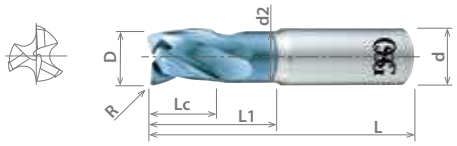
○ good ◎ best

List 2874

SPEED FEED P1217 | CARBIDE | DLC | STUB | 30° | SHANK h6

AERO-O-ETS, 3 Flute, Stub Length, Coolant-Through, Square & Corner Radius

Milling Diameter Tolerance	
5/8≤D≤1	+0 / -0.0008"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
28740050	5/8	-	4	1.016	2.205	0.559	5/8
28741550	3/4	-	4	1.142	2.205	0.669	3/4
28740000	3/4	0.030	4	1.142	2.205	0.669	3/4
28740500	3/4	0.060	4	1.142	2.205	0.669	3/4
28741000	3/4	0.090	4	1.142	2.205	0.669	3/4
28741500	3/4	0.120	4	1.142	2.205	0.669	3/4
28742000	3/4	0.190	4	1.142	2.205	0.669	3/4
28741050	7/8	-	4	1.327	2.205	0.787	7/8
28740550	1	-	4	1.523	2.205	0.921	1
28742500	1	0.030	4	1.523	2.205	0.921	1
28743000	1	0.060	4	1.523	2.205	0.921	1
28743500	1	0.090	4	1.523	2.205	0.921	1
28744000	1	0.120	4	1.523	2.205	0.921	1
28744500	1	0.190	4	1.523	2.205	0.921	1

Packed: 1 pc.
Available DLC coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try EXOCARB® AERO - List 2041 (p. 946)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2874										◎	◎						

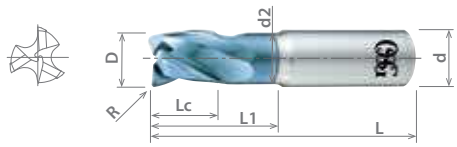
○ good ◎ best

List 2974

AERO-O-ETS, 3 Flute, Stub Length, Coolant-Through, Square & Corner Radius

SPEED FEED P1218 | CARBIDE | DLC | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
20≤D≤25	+0 / -0.02mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
8533300	20	-	100	30.0	55	18	20
8533301	20	1.0	100	30.0	55	18	20
8533302	20	1.6	100	30.0	55	18	20
8533303	20	3.0	100	30.0	55	18	20
8533304	20	4.0	100	30.0	55	18	20
8533305	20	5.0	100	30.0	55	18	20
8533306	25	-	100	37.5	55	23	25
8533307	25	1.0	100	37.5	55	23	25
8533308	25	1.6	100	37.5	55	23	25
8533309	25	3.0	100	37.5	55	23	25
8533310	25	4.0	100	37.5	55	23	25
8533311	25	5.0	100	37.5	55	23	25

Packed: 1 pc.
Available DLC coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2974										◎	◎						

○ good ◎ best

List 2843

AERO-ETL, 3 Flute, Long Length, Square & Corner Radius

SPEED FEED P1218 | CARBIDE | DLC | LONG | 35° | SHANK h6

Milling Diameter Tolerance	
1/2≤D≤1	+0 / -0.0008"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
28430000	1/2	-	4-1/2	2.024	1/2
28430400	1/2	0.030	4-1/2	2.024	1/2
28430550	1/2	0.060	4-1/2	2.024	1/2
28430600	1/2	0.090	4-1/2	2.024	1/2
28430700	1/2	0.120	4-1/2	2.024	1/2
28430800	1/2	0.150	4-1/2	2.024	1/2
28430900	1/2	0.190	4-1/2	2.024	1/2
28431000	5/8	-	4-1/2	2.024	5/8
28431550	5/8	0.030	4-1/2	2.024	5/8
28431600	5/8	0.060	4-1/2	2.024	5/8
28431700	5/8	0.090	4-1/2	2.024	5/8
28431800	5/8	0.120	4-1/2	2.024	5/8
28431900	5/8	0.150	4-1/2	2.024	5/8
28432050	5/8	0.190	4-1/2	2.024	5/8
28432000	3/4	-	4-1/2	2.024	3/4
28432600	3/4	0.030	4-1/2	2.024	3/4
28432700	3/4	0.060	4-1/2	2.024	3/4
28432800	3/4	0.090	4-1/2	2.024	3/4
28432900	3/4	0.120	4-1/2	2.024	3/4
28433050	3/4	0.150	4-1/2	2.024	3/4
28433100	3/4	0.190	4-1/2	2.024	3/4
28433500	7/8	-	4-1/2	2.024	7/8
28433800	7/8	0.030	4-1/2	2.024	7/8
28433900	7/8	0.060	4-1/2	2.024	7/8
28434050	7/8	0.090	4-1/2	2.024	7/8
28434100	7/8	0.120	4-1/2	2.024	7/8
28434200	7/8	0.150	4-1/2	2.024	7/8
28434300	7/8	0.190	4-1/2	2.024	7/8
28434500	1	-	4-1/2	2.024	1
28434900	1	0.030	4-1/2	2.024	1
28435050	1	0.030	4-1/2	2.024	1
28435100	1	0.090	4-1/2	2.024	1
28435200	1	0.120	4-1/2	2.024	1
28435300	1	0.150	4-1/2	2.024	1
28435400	1	0.190	4-1/2	2.024	1

Packed: 1 pc.
Available DLC coating only.

HTE

OSG's Performance & Savings

Don't require ultra-high performance? Try EXOCARB® AERO - List 2042 (p. 947)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2843										▢	▢						

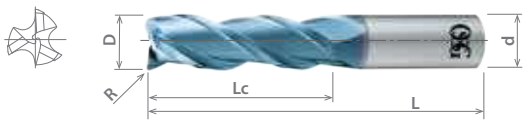
▢ good ▢ best

List 2943

AERO-ETL, 3 Flute, Long Length, Square & Corner Radius

SPEED FEED P1218 | CARBIDE | DLC | LONG | 35° | SHANK h6

Milling Diameter Tolerance	
12≤D≤20	+0 / -0.02mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
8533350	12	-	110	50	12
8533351	12	1.0	110	50	12
8533352	12	1.6	110	50	12
8533353	12	3.0	110	50	12
8533354	12	4.0	110	50	12
8533355	16	-	110	50	16
8533356	16	1.0	110	50	16
8533357	16	1.6	110	50	16
8533358	16	3.0	110	50	16
8533359	16	4.0	110	50	16
8533360	16	5.0	110	50	16
8533361	20	-	110	50	20
8533362	20	1.0	110	50	20
8533363	20	1.6	110	50	20
8533364	20	3.0	110	50	20
8533365	20	4.0	110	50	20
8533366	20	5.0	110	50	20

Packed: 1 pc.
Available DLC coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2943										◎	◎						

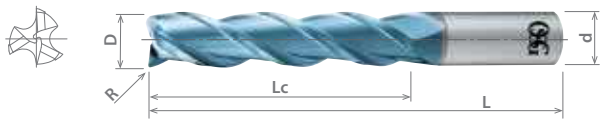
○ good ◎ best

List 2853

AERO-ETXL, 3 Flute, Extra Long Length, Square & Corner Radius

SPEED FEED P1219 | CARBIDE | DLC | EXTRA LONG | 35° | SHANK h6

Milling Diameter Tolerance	
3/4≤D≤1	+0 / -0.0008"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
28530000	3/4	-	6-1/2	4	3/4
28530100	3/4	0.030	6-1/2	4	3/4
28530200	3/4	0.060	6-1/2	4	3/4
28530300	3/4	0.090	6-1/2	4	3/4
28530400	3/4	0.120	6-1/2	4	3/4
28530500	3/4	0.150	6-1/2	4	3/4
28530600	3/4	0.190	6-1/2	4	3/4

Packed: 1 pc.
Available DLC coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2853										◎	◎						

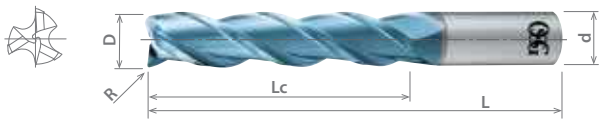
○ good ◎ best

List 2953

SPEED FEED P1219 | CARBIDE | DLC | EXTRA LONG | 35° | SHANK h6

AERO-ETXL, 3 Flute, Extra Long Length, Square & Corner Radius

Milling Diameter Tolerance	
3/4≤D≤1	+0 / -0.0008"



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
8533400	20	-	160	100	20
8533401	20	1.0	160	100	20
8533402	20	1.6	160	100	20
8533403	20	3.0	160	100	20
8533404	20	4.0	160	100	20
8533405	20	5.0	160	100	20

Packed: 1 pc.
Available DLC coating only.

HTE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2953										▣	▣						

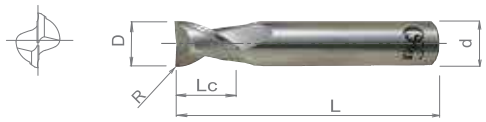
▢ good ▣ best

List 2021

2 Flute, Stub Length, Square & Corner Radius

SPEED FEED P1220 | CARBIDE | BR | STUB | 30° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
20210100	1/8	-	1-1/2	1/4	1/8
20210200	1/8	0.01	1-1/2	1/4	1/8
20210500	5/32	-	2	5/16	3/16
20210600	5/32	0.02	2	5/16	3/16
20210900	3/16	-	2	5/16	3/16
20211000	3/16	0.02	2	5/16	3/16
20211300	7/32	-	2-1/2	3/8	1/4
20211400	7/32	0.02	2-1/2	3/8	1/4
20211700	1/4	-	2-1/2	3/8	1/4
20211800	1/4	0.02	2-1/2	3/8	1/4
20211900	1/4	0.03	2-1/2	3/8	1/4
20212000	1/4	0.06	2-1/2	3/8	1/4
20212100	9/32	-	2-1/2	7/16	5/16
20212500	5/16	-	2-1/2	7/16	5/16
20212600	5/16	0.02	2-1/2	7/16	5/16
20212700	5/16	0.03	2-1/2	7/16	5/16
20212900	11/32	-	2-1/2	1/2	3/8
20213000	11/32	0.02	2-1/2	1/2	3/8
20213300	3/8	-	2-1/2	1/2	3/8
20213400	3/8	0.02	2-1/2	1/2	3/8
20213500	3/8	0.03	2-1/2	1/2	3/8

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
20213600	3/8	0.06	2-1/2	1/2	3/8
20213700	13/32	-	2-3/4	9/16	7/16
20214100	7/16	-	2-3/4	9/16	7/16
20214200	7/16	0.02	2-3/4	9/16	7/16
20214500	15/32	-	3	5/8	1/2
20214900	1/2	-	3	5/8	1/2
20215000	1/2	0.02	3	5/8	1/2
20215100	1/2	0.03	3	5/8	1/2
20215200	1/2	0.06	3	5/8	1/2
20215300	5/8	-	3-1/2	3/4	5/8
20215400	5/8	0.03	3-1/2	3/4	5/8
20215500	5/8	0.06	3-1/2	3/4	5/8
20215600	5/8	0.09	3-1/2	3/4	5/8
20215700	3/4	-	4	1	3/4
20215800	3/4	0.06	4	1	3/4
20215900	3/4	0.09	4	1	3/4
20216000	3/4	0.12	4	1	3/4
20216100	1	-	4	1-1/4	1
20216200	1	0.06	4	1-1/4	1
20216300	1	0.09	4	1-1/4	1
20216400	1	0.12	4	1-1/4	1

Packed: 1 pc.
EDPs above are stocked standard, DLC coating available upon request.
Additional corner radii available upon request.

BLZ

OSG's Performance & Savings

Don't require ultra-high performance? Try CARBIDE - List 412 or 495 (p. 998-999 or 1004)
Want to turbo-charge performance? Try EXOCARB® DIAMOND - List 7020 (p. 910)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2021										◎ best	◎ best						

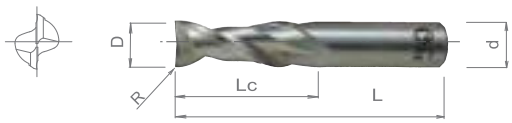
○ good ◎ best

List 2022

2 Flute, Regular Length, Square & Corner Radius

SPEED FEED	CARBIDE			REG	30°	SHANK
P1220		BR				h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
20220100	1/8	-	1-1/2	3/8	1/8
20220200	1/8	0.01	1-1/2	3/8	1/8
20220500	5/32	-	2	9/16	3/16
20220600	5/32	0.02	2	9/16	3/16
20220900	3/16	-	2	9/16	3/16
20221000	3/16	0.02	2	9/16	3/16
20221300	7/32	-	2-1/2	3/4	1/4
20221400	7/32	0.02	2-1/2	3/4	1/4
20221700	1/4	-	2-1/2	3/4	1/4
20221800	1/4	0.02	2-1/2	3/4	1/4
20221900	1/4	0.03	2-1/2	3/4	1/4
20222000	1/4	0.06	2-1/2	3/4	1/4
20222100	9/32	-	2-1/2	13/16	5/16
20222200	9/32	0.02	2-1/2	13/16	5/16
20222500	5/16	-	2-1/2	13/16	5/16
20222600	5/16	0.02	2-1/2	13/16	5/16
20222700	5/16	0.03	2-1/2	13/16	5/16
20222900	11/32	-	2-1/2	1	3/8
20223000	11/32	0.02	2-1/2	1	3/8
20223300	3/8	-	2-1/2	1	3/8
20223400	3/8	0.02	2-1/2	1	3/8
20223500	3/8	0.03	2-1/2	1	3/8
20223600	3/8	0.06	2-1/2	1	3/8

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
20223700	13/32	-	2-3/4	1	7/16
20223800	13/32	0.02	2-3/4	1	7/16
20224100	7/16	-	2-3/4	1	7/16
20224200	7/16	0.02	2-3/4	1	7/16
20224500	15/32	-	3	1-1/4	1/2
20224600	15/32	0.02	3	1-1/4	1/2
20224900	1/2	-	3	1-1/4	1/2
20225000	1/2	0.02	3	1-1/4	1/2
20225100	1/2	0.03	3	1-1/4	1/2
20225200	1/2	0.06	3	1-1/4	1/2
20225300	5/8	-	3-1/2	1-5/8	5/8
20225400	5/8	0.03	3-1/2	1-5/8	5/8
20225500	5/8	0.06	3-1/2	1-5/8	5/8
20225600	5/8	0.09	3-1/2	1-5/8	5/8
20225700	3/4	-	4	1-5/8	3/4
20225800	3/4	0.06	4	1-5/8	3/4
20225900	3/4	0.09	4	1-5/8	3/4
20226000	3/4	0.12	4	1-5/8	3/4
20226100	1	-	5	2	1
20226200	1	0.06	5	2	1
20226300	1	0.09	5	2	1
20226400	1	0.12	5	2	1

Packed: 1 pc.
EDPs above are stocked standard, DLC coating available upon request.
Additional corner radii available upon request.

OSG's Performance & Savings

Don't require ultra-high performance? Try CARBIDE - List 402 or 495 (p. 993-995 or 1004)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2022										◎	◎						

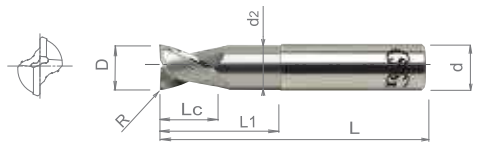
○ good ◎ best

List 2023

SPEED FEED P1220 | CARBIDE | BR | REG | 30° | SHANK h6

2 Flute, Regular Length, Reduced Neck, Square & Corner Radius

Milling Diameter Tolerance	
1/4≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
20230100	1/4	-	2-1/2	1/4	1-1/8	0.246	1/4
20230200	1/4	0.02	2-1/2	1/4	1-1/8	0.246	1/4
20230300	1/4	0.03	2-1/2	1/4	1-1/8	0.246	1/4
20230400	1/4	0.06	2-1/2	1/4	1-1/8	0.246	1/4
20230500	1/2	-	3	1/2	1-3/8	0.496	1/2
20230600	1/2	0.02	3	1/2	1-3/8	0.496	1/2
20230700	1/2	0.03	3	1/2	1-3/8	0.496	1/2
20230800	1/2	0.06	3	1/2	1-3/8	0.496	1/2
20230900	5/8	-	3-1/2	5/8	1-5/8	0.621	5/8
20231000	5/8	0.03	3-1/2	5/8	1-5/8	0.621	5/8
20231100	5/8	0.06	3-1/2	5/8	1-5/8	0.621	5/8
20231200	5/8	0.09	3-1/2	5/8	1-5/8	0.621	5/8
20231300	3/4	-	4	3/4	2	0.746	3/4
20231400	3/4	0.06	4	3/4	2	0.746	3/4
20231500	3/4	0.09	4	3/4	2	0.746	3/4
20231600	3/4	0.12	4	3/4	2	0.746	3/4
20231700	1	-	5	1	2-5/8	0.992	1
20231800	1	0.06	5	1	2-5/8	0.992	1
20231900	1	0.09	5	1	2-5/8	0.992	1
20232000	1	0.12	5	1	2-5/8	0.992	1

Packed: 1 pc.
EDPs above are stocked standard, DLC coating available upon request.

BLZ

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2023										◎	◎						

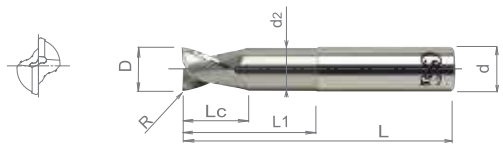
○ good ◎ best

List 2024

SPEED FEED P1220 | CARBIDE | BR | LONG | 30° | SHANK h6

2 Flute, Long Length, Reduced Neck, Square & Corner Radius

Milling Diameter Tolerance	
1/4≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
20240100	1/4	-	4	1/4	2-1/8	0.246	1/4
20240200	1/4	0.02	4	1/4	2-1/8	0.246	1/4
20240300	1/4	0.03	4	1/4	2-1/8	0.246	1/4
20240400	1/4	0.06	4	1/4	2-1/8	0.246	1/4
20240500	1/2	-	4	1/2	2-1/8	0.496	1/2
20240600	1/2	0.02	4	1/2	2-1/8	0.496	1/2
20240700	1/2	0.03	4	1/2	2-1/8	0.496	1/2
20240800	1/2	0.06	4	1/2	2-1/8	0.496	1/2
20240900	5/8	-	6	5/8	2-3/8	0.621	5/8
20241000	5/8	0.03	6	5/8	2-3/8	0.621	5/8
20241100	5/8	0.06	6	5/8	2-3/8	0.621	5/8
20241200	5/8	0.09	6	5/8	2-3/8	0.621	5/8
20241300	3/4	-	6	3/4	2-1/2	0.746	3/4
20241400	3/4	0.06	6	3/4	2-1/2	0.746	3/4
20241500	3/4	0.09	6	3/4	2-1/2	0.746	3/4
20241600	3/4	0.12	6	3/4	2-1/2	0.746	3/4
20241700	1	-	6	1	3-3/8	0.992	1
20241800	1	0.06	6	1	3-3/8	0.992	1
20241900	1	0.09	6	1	3-3/8	0.992	1
20242000	1	0.12	6	1	3-3/8	0.992	1

Packed: 1 pc.
EDPs above are stocked standard, DLC coating available upon request.

BLZ

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2024										◎	◎						

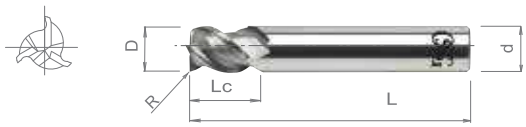
○ good ◎ best

List 2041

3 Flute, Stub Length, Square & Corner Radius

SPEED FEED P1221 | CARBIDE | BR | STUB | 45° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
20410100	1/8	-	1-1/2	1/4	1/8
20410200	1/8	0.01	1-1/2	1/4	1/8
20410900	3/16	-	2	5/16	3/16
20411000	3/16	0.02	2	5/16	3/16
20411700	1/4	-	2-1/2	3/8	1/4
20411800	1/4	0.02	2-1/2	3/8	1/4
20411900	1/4	0.03	2-1/2	3/8	1/4
20412000	1/4	0.06	2-1/2	3/8	1/4
20412500	5/16	-	2-1/2	7/16	5/16
20412600	5/16	0.02	2-1/2	7/16	5/16
20412700	5/16	0.03	2-1/2	7/16	5/16
20413300	3/8	-	2-1/2	1/2	3/8
20413400	3/8	0.02	2-1/2	1/2	3/8
20413500	3/8	0.03	2-1/2	1/2	3/8
20413600	3/8	0.06	2-1/2	1/2	3/8
20414100	7/16	-	2-3/4	9/16	7/16
20414200	7/16	0.02	2-3/4	9/16	7/16

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
20414900	1/2	-	3	5/8	1/2
20415000	1/2	0.02	3	5/8	1/2
20415100	1/2	0.03	3	5/8	1/2
20415200	1/2	0.06	3	5/8	1/2
20415300	5/8	-	3-1/2	3/4	5/8
20415400	5/8	0.03	3-1/2	3/4	5/8
20415500	5/8	0.06	3-1/2	3/4	5/8
20415600	5/8	0.09	3-1/2	3/4	5/8
20415700	3/4	-	4	1	3/4
20415800	3/4	0.06	4	1	3/4
20415900	3/4	0.09	4	1	3/4
20416000	3/4	0.12	4	1	3/4
20416100	1	-	4	1-1/4	1
20416200	1	0.06	4	1-1/4	1
20416300	1	0.09	4	1-1/4	1
20416400	1	0.12	4	1-1/4	1

Packed: 1 pc.
EDPs above are stocked standard, DLC coating available upon request.

BLZ

OSG's Performance & Savings

Don't require ultra-high performance? Try CARBIDE - List 403 (p. 993-995)
Want to turbo-charge performance? Try EXOCARB® AERO DLC - List 2873 or 2874 (p. 934 or 936)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2041										◎	◎						

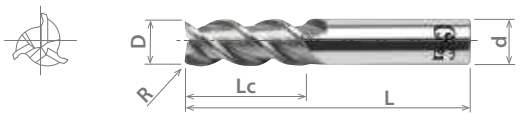
○ good ◎ best

List 2042

3 Flute, Regular Length, Square & Corner Radius

SPEED FEED	CARBIDE			REG	45°	SHANK
P1222		BR				h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
	D	R	L	Lc	d
20420100	1/8	-	1-1/2	3/8	1/8
20420200	1/8	0.01	1-1/2	3/8	1/8
20420900	3/16	-	2	9/16	3/16
20421000	3/16	0.02	2	9/16	3/16
20421700	1/4	-	2-1/2	5/8	1/4
20421800	1/4	0.02	2-1/2	5/8	1/4
20421900	1/4	0.03	2-1/2	5/8	1/4
20422000	1/4	0.06	2-1/2	5/8	1/4
20422500	5/16	-	2-1/2	13/16	5/16
20422600	5/16	0.02	2-1/2	13/16	5/16
20422700	5/16	0.03	2-1/2	13/16	5/16
20423300	3/8	-	2-1/2	1	3/8
20423400	3/8	0.02	2-1/2	1	3/8
20423500	3/8	0.03	2-1/2	1	3/8
20423600	3/8	0.06	2-1/2	1	3/8
20424100	7/16	-	2-3/4	1-1/4	7/16
20424200	7/16	0.02	2-3/4	1-1/4	7/16
20424900	1/2	-	3	1-1/4	1/2
20425000	1/2	0.02	3	1-1/4	1/2
20425100	1/2	0.03	3	1-1/4	1/2
20425200	1/2	0.06	3	1-1/4	1/2
20425300	5/8	-	3-1/2	1-5/8	5/8
20425400	5/8	0.03	3-1/2	1-5/8	5/8
20425500	5/8	0.06	3-1/2	1-5/8	5/8
20425600	5/8	0.09	3-1/2	1-5/8	5/8
20425700	3/4	-	4	1-5/8	3/4
20425800	3/4	0.06	4	1-5/8	3/4
20425900	3/4	0.09	4	1-5/8	3/4
20426000	3/4	0.12	4	1-5/8	3/4
20426100	1	-	5	2	1
20426200	1	0.06	5	2	1
20426300	1	0.09	5	2	1
20426400	1	0.12	5	2	1

BLZ

Packed: 1 pc.
EDPs above are stocked standard, DLC coating available upon request.

OSG's Performance & Savings

Don't require ultra-high performance? Try CARBIDE - List 403 (p. 993-995)
Want to turbo-charge performance? Try EXOCARB® AERO DLC - List 2843 (p. 938)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2042										◎	◎						

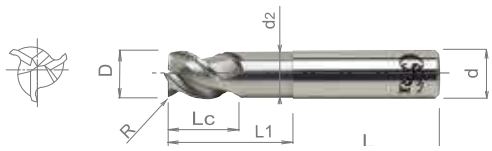
○ good ◎ best

List 2043

3 Flute, Regular Length,Reduced Neck, Square & Corner Radius

SPEED FEED	CARBIDE	BR		REG	45°	SHANK
P1222						h6

Milling Diameter Tolerance	
1/4≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
20430100	1/4	-	2-1/2	1/4	1-1/8	0.246	1/4
20430200	1/4	0.02	2-1/2	1/4	1-1/8	0.246	1/4
20430300	1/4	0.03	2-1/2	1/4	1-1/8	0.246	1/4
20430400	1/4	0.06	2-1/2	1/4	1-1/8	0.246	1/4
20430500	1/2	-	3	1/2	1-3/8	0.496	1/2
20430600	1/2	0.02	3	1/2	1-3/8	0.496	1/2
20430700	1/2	0.03	3	1/2	1-3/8	0.496	1/2
20430800	1/2	0.06	3	1/2	1-3/8	0.496	1/2
20430900	5/8	-	3-1/2	5/8	1-5/8	0.621	5/8
20431000	5/8	0.03	3-1/2	5/8	1-5/8	0.621	5/8
20431100	5/8	0.06	3-1/2	5/8	1-5/8	0.621	5/8
20431200	5/8	0.09	3-1/2	5/8	1-5/8	0.621	5/8
20431300	3/4	-	4	3/4	2	0.746	3/4
20431400	3/4	0.06	4	3/4	2	0.746	3/4
20431500	3/4	0.09	4	3/4	2	0.746	3/4
20431600	3/4	0.12	4	3/4	2	0.746	3/4
20431700	1	-	5	1	2-5/8	0.992	1
20431800	1	0.06	5	1	2-5/8	0.992	1
20431900	1	0.09	5	1	2-5/8	0.992	1
20432000	1	0.12	5	1	2-5/8	0.992	1

Packed: 1 pc.
EDPs above are stocked standard, DLC coating available upon request.

BLZ

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2043										◎	◎						

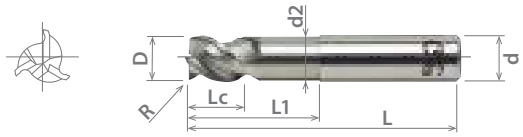
◯ good ◎ best

List 2048

3 Flute, Long Length, Reduced Neck, Square & Corner Radius

SPEED FEED	CARBIDE	BR		LONG	45°	SHANK
P1222						h6

Milling Diameter Tolerance	
1/4≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d2	d
20480100	1/4	-	4	1/4	2-1/8	0.246	1/4
20480200	1/4	0.02	4	1/4	2-1/8	0.246	1/4
20480300	1/4	0.03	4	1/4	2-1/8	0.246	1/4
20480400	1/4	0.06	4	1/4	2-1/8	0.246	1/4
20480500	1/2	-	4	1/2	2-1/8	0.496	1/2
20480600	1/2	0.02	4	1/2	2-1/8	0.496	1/2
20480700	1/2	0.03	4	1/2	2-1/8	0.496	1/2
20480800	1/2	0.06	4	1/2	2-1/8	0.496	1/2
20480900	5/8	-	6	5/8	2-3/8	0.621	5/8
20481000	5/8	0.03	6	5/8	2-3/8	0.621	5/8
20481100	5/8	0.06	6	5/8	2-3/8	0.621	5/8
20481200	5/8	0.09	6	5/8	2-3/8	0.621	5/8
20481300	3/4	-	6	3/4	2-1/2	0.746	3/4
20481400	3/4	0.06	6	3/4	2-1/2	0.746	3/4
20481500	3/4	0.09	6	3/4	2-1/2	0.746	3/4
20481600	3/4	0.12	6	3/4	2-1/2	0.746	3/4
20481700	1	-	6	1	3-3/8	0.992	1
20481800	1	0.06	6	1	3-3/8	0.992	1
20481900	1	0.09	6	1	3-3/8	0.992	1
20482000	1	0.12	6	1	3-3/8	0.992	1

Packed: 1 pc.
EDPs above are stocked standard, DLC coating available upon request.

BLZ

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2048										◎	◎						

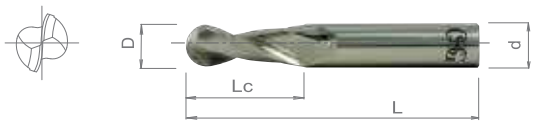
○ good ◎ best

List 2010

2 Flute, Regular Length, Ball End

SPEED FEED P1223 | CARBIDE | BR | REG | 30° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
20100100	1/8	1-1/2	3/8	1/8
20100200	3/16	2	9/16	3/16
20100300	1/4	2-1/2	3/4	1/4
20100400	5/16	2-1/2	13/16	5/16
20100500	3/8	2-1/2	1	3/8
20100600	7/16	2-3/4	1	7/16
20100700	1/2	3	1-1/4	1/2
20100800	5/8	3-1/2	1-5/8	5/8
20100900	3/4	4	1-5/8	3/4
20101000	1	5	2	1

Packed: 1 pc.
Available Bright finish only.

BLZ

OSG's Performance & Savings

Don't require ultra-high performance? Try CARBIDE - List 402BN (p. 1011-1013)
Want to turbo-charge performance? Try EXOCARB® DIAMOND - List 7010 (p. 913)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
2010										▢ best	▢ best						

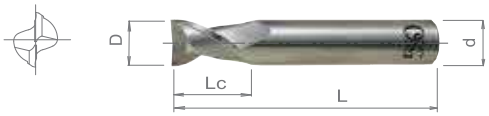
▢ good ▢ best

List 8120

CA-RG-EDS, 2 Flute, Regular Length

SPEED FEED P1224 | CARBIDE | BR | REG | 30° | SHANK h6

Milling Diameter Tolerance	
D≤12	+0 / -0.02mm
D>12	+0 / -0.03mm



Units: mm

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
8502010	1.0	40	2.5	4
8502015	1.5	40	4.0	4
8502020	2.0	40	6.0	4
8502025	2.5	40	8.0	4
8502030	3.0	45	8.0	6
8502035	3.5	45	10.0	6
8502040	4.0	45	11.0	6
8502045	4.5	45	11.0	6
8502050	5.0	50	13.0	6
8502055	5.5	50	13.0	6
8502060	6.0	50	13.0	6
8502065	6.5	60	16.0	8
8502070	7.0	60	16.0	8
8502075	7.5	60	16.0	8

EDP Number	Mill Diameter D	Overall Length L	Length of Cut Lc	Shank Diameter d
8502080	8.0	60	19.0	8
8502085	8.5	70	19.0	10
8502090	9.0	70	19.0	10
8502095	9.5	70	19.0	10
8502100	10.0	70	22.0	10
8502105	10.5	75	22.0	12
8502110	11.0	75	22.0	12
8502115	11.5	75	22.0	12
8502120	12.0	75	26.0	12
8502130	13.0	85	26.0	12
8502140	14.0	85	26.0	12
8502150	15.0	90	26.0	16
8502160	16.0	100	32.0	16

HTE

Packed: 1 pc.
Available Bright finish only.

OSG's Performance & Savings

Don't require ultra-high performance? Try CARBIDE - List 402 (p. 993-995)
Want to turbo-charge performance? Try EXOCARB® DIAMOND - List 7120 (p. 911)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
8120										◎	◎						

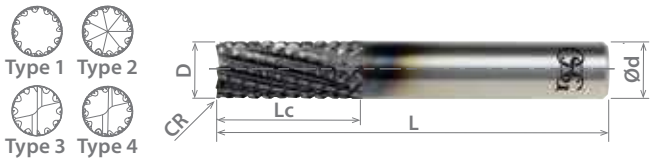
○ good ◎ best

List 2061

Multiple Flutes, Regular Length, Nicked Router

SPEED FEED P1225 | CARBIDE | DIA | 15° | SHANK h6

Tolerance
+0/-0.002"



Units: Inch

EDP Number	Mill Diameter	Length of Cut	OAL	Shank Diameter	Number of Flutes	Type	Corner Radius
	D	Lc	L	d			
20610116	1/8	1/4	1-1/2	1/8	6	2	-
20611116	1/8	3/8	1-1/2	1/8	6	3	-
20612116	1/8	1/2	1-1/2	1/8	8	3	-
20610216	3/16	3/8	2	3/16	6	2	-
20611216	3/16	9/16	2	3/16	6	3	-
20612216	3/16	3/4	2	3/16	8	3	-
20610316	1/4	1/2	2-1/2	1/4	8	2	-
20613416	1/4	3/4	2-1/2	1/4	8	2	-
20612316	1/4	3/4	2-1/2	1/4	10	2	-
20612416	1/4	3/4	2-1/2	1/4	12	2	-
20611316	1/4	3/4	2-1/2	1/4	10	3	-
20613216	1/4	1	3	1/4	8	2	-
20614316	1/4	1	3	1/4	10	2	-
20614400	1/4	1	3	1/4	12	2	-
20614416	1/4	1	3	1/4	12	2	-
20617316	1/4	1	3	1/4	12	2	0.030
20613316	1/4	1	3	1/4	10	3	-
20616316	1/4	1	3	1/4	8	4	-
20616416	1/4	1	3	1/4	12	4	-
20615316	1/4	1-1/4	4	1/4	12	1	-
20615216	1/4	1-1/4	4	1/4	8	2	-
20610416	5/16	1	2-1/2	5/16	10	3	-
20610516	3/8	3/4	2-1/2	3/8	12	2	-
20612516	3/8	1-1/8	3	3/8	12	2	-
20616816	3/8	1-1/8	3	3/8	12	2	0.030
20611516	3/8	1-1/8	3	3/8	12	3	-
20616516	3/8	1-1/4	3	3/8	12	4	-
20614516	3/8	1-1/2	4	3/8	12	2	-
20613516	3/8	1-1/2	4	3/8	12	3	-
20615516	3/8	2	4	3/8	12	1	-
20616716	1/2	7/8	2-7/8	1/2	14	1	-
20611716	1/2	1	3	1/2	14	2	-
20613716	1/2	1	3	1/2	14	2	0.030
20610716	1/2	1	3	1/2	14	3	-
20615716	1/2	1	3	1/2	14	4	-
20612716	1/2	2	4	1/2	16	2	-

Packed: 1 pc.
Red EDP numbers indicate the item is uncoated. All others Diamond coating only.

EP

Type 1 - Non End Cutting
Type 2 - Burr End
Type 3 - End Mill Cut
Type 4 - Drill Point

Work Material

List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
2061	◎	○		○	○		○	○	◎			

○ Good ◎ Best

List 2066

SPEED FEED P1225 | CARBIDE | DIA | 30° | SHANK h6

4 Flute, Regular Length, 30° Compression Router

Tolerance
+0/-0.002"



Units: Inch

EDP Number	Mill Diameter	Compression Length	Length of Cut	OAL	Shank Diameter
	D	L2	Lc	L	d
20660116	1/8	1/8	0.560	1-1/2	1/8
20660316	1/4	1/4	0.750	2-1/2	1/4
20660516	3/8	3/8	0.875	3	3/8
20660716	1/2	1/2	1.500	3	1/2

Packed: 1 pc.
Available Diamond coating only.

EP

Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/ Al/ Ti/CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
2066	◎	◎	○	○	○	○	○	○				

○ Good ◎ Best

List 2064

4 Flute, Regular Length, 45° Compression Router

SPEED FEED P1225 | CARBIDE | DIA | 45° | SHANK h6

Tolerance
+0/-0.002"



Units: Inch

EDP Number	Mill Diameter	Compression Length	Length of Cut	OAL	Shank Diameter
	D	L2	Lc	L	d
20642516	1/4	1/4	3/4	3	1/4
20643516	3/8	3/8	3/4	3	3/8
20643616	3/8	3/8	2	4	3/8
20645016	1/2	1/2	1	3	1/2
20645116	1/2	1/2	2	4	1/2

Packed: 1 pc.
Available Diamond coating only.

EP

Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
2064	◎	◎	○	○	○	○	○	○				

○ Good ◎ Best

List 2068

2 Flute, Regular Length, 60° Compression Router

SPEED FEED P1226 | CARBIDE | DIA | 60° | SHANK h6

Tolerance
+0/-0.002"



Units: Inch

EDP Number	Mill Diameter	Compression Length	Length of Cut	OAL	Shank Diameter
	D	L2	Lc	L	d
20682516	1/4	0.188	3/4	3	1/4
20683516	3/8	0.281	3/4	3	3/8
20683616	3/8	0.281	2	4	3/8
20685016	1/2	0.375	1	3	1/2
20685116	1/2	0.375	2	4	1/2

Packed: 1 pc.
Available Diamond coating only.

EP

Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
2068	◎	◎	○	◎	◎	◎	◎	◎				

○ Good ◎ Best

List 2680

Multiple Flute, Regular Length, Roughing Router

SPEED FEED P1227 | CARBIDE | DIA | 15° | SHANK h6

Tolerance
+0/-0.002"



Units: Inch

EDP Number	Mill Diameter	Length of Cut	OAL	Shank Diameter	Number of Flutes
	D	Lc	L	d	
26809316	15/64	3/4	2-1/2	1/4	4
26805316	1/4	1/2	2-1/2	1/4	4
26800316	1/4	3/4	2-1/2	1/4	4
26806316	1/4	1	3	1/4	4
26809416	5/16	15/16	3	3/8	6
26809516	23/64	1-1/8	3	3/8	6
26805516	3/8	3/4	3	3/8	6
26800516	3/8	1-1/8	3	3/8	6
26809616	7/16	1-5/16	3	1/2	8
26809716	31/64	1-1/2	3	1/2	8
26805716	1/2	1	3	1/2	8
26800716	1/2	1-1/2	3	1/2	8

Packed: 1 pc.
Available Diamond coating only.

EP

Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
2680	◎	◎		○	○		○	○	◎			

○ Good ◎ Best

List 2650

Multiple Flute, Regular Length, Non End Cutting, Finishing Router

SPEED FEED	CARBIDE	DIA	15°	SHANK
P1228				h6

Tolerance
+0/-0.002"



Units: Inch

EDP Number	Mill Diameter	Length of Cut	OAL	Shank Diameter	Number of Flutes
	D	Lc	L	d	
26500316	1/4	3/4	2-1/2	1/4	8
26501316	1/4	1	3	1/4	8
26500616	3/8	1-1/8	3	3/8	12
26501516	3/8	1-1/2	3	3/8	12
26500716	1/2	1-1/2	4	1/2	14
26501716	1/2	2	4	1/2	14

Packed: 1 pc.
Available Diamond coating only.

EP

Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
2650	◎	◎		○	○		○	○	◎			

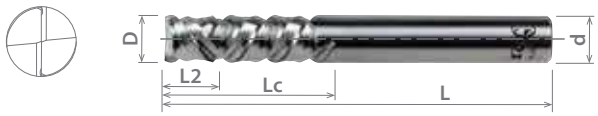
○ Good ◎ Best

List 668

2 Flute, Regular Length, 60° Compression Router

SPEED FEED P1226 | CARBIDE | BR | 60° | SHANK h6

Tolerance
+0/-0.0015"



Units: Inch

EDP Number	Mill Diameter	Compression Length	Length of Cut	OAL	Shank Diameter
	D	L2	Lc	L	d
668-2501	1/4	0.188	3/4	2 1/2	1/4
668-3751	3/8	0.281	3/4	3	3/8
668-3752	3/8	0.281	2	4	3/8
668-5001	1/2	0.375	1	3	1/2
668-5002	1/2	0.375	2	4	1/2

Packed: 1 pc.
Available Bright finish only.

HYE

Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
668			◎	◎	◎	◎	◎	◎				

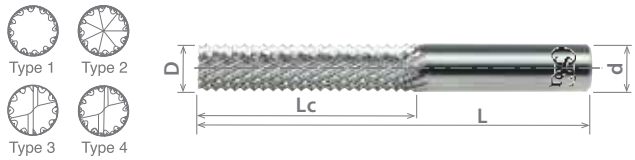
○ Good ◎ Best

List 641R

Regular Length, General Purpose Router

SPEED FEED P1229 | CARBIDE | BR | 30° | SHANK h6

Tolerance
+0/-0.003"



Units: Inch

EDP Number	Mill Diameter	Length of Cut	OAL	Shank Diameter	Type
	D	Lc	L	d	
641-1871	3/16	1	3	1/4	1
641-1872	3/16	1	3	1/4	2
641-1873	3/16	1	3	1/4	3
641-1874	3/16	1	3	1/4	4
641-2501	1/4	1	3	1/4	1
641-2502	1/4	1	3	1/4	2
641-2503	1/4	1	3	1/4	3
641-2504	1/4	1	3	1/4	4
641-3751	3/8	1	3	3/8	1
641-3752	3/8	1	3	3/8	2
641-3753	3/8	1	3	3/8	3
641-3754	3/8	1	3	3/8	4
641-5001	1/2	1	3	1/2	1
641-5002	1/2	1	3	1/2	2
641-5003	1/2	1	3	1/2	3
641-5004	1/2	1	3	1/2	4

Packed: 1 pc.
Available Bright finish only.

Type #1 - Non End Cutting
Type #2 - Burr End
Type #3 - End Mill Cut
Type #4 - Drill Point

Work Material												
List No.	Carbon Fiber (CFRP)	Glass Fiber (GFRP)	Aramid Fiber (AFRP)	Honeycomb					Carbon/ Carbon	Carbon Fiber/ Aluminum Stack	Carbon Fiber/ Titanium Stack	Carbon Fiber/Al/ Ti/ CRES Stack
				CFRP/Nomex	GFRP/Nomex	AFRP	CFRP/Al	Al/Al				
641R	◎	◎		○	○		○	○	○			

○ Good ◎ Best

List VG441

4 Flute, Multiple Lengths, Square End

SPEED FEED P1230 | CARBIDE | TiAlN | 35° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Milling Diameter	Overall Length	Length of Cut	Shank Diameter
		D	L	Lc	d
VG441-1250	-	1/8	1-1/2	3/8	1/8
VG441-1875	-	3/16	2	7/16	3/16
VG441-2500	-	1/4	2-1/2	7/16	1/4
VG441-2501	-	1/4	2-1/2	3/4	1/4
VG441-2502	-	1/4	3-1/4	1-1/4	1/4
VG441-3125	-	5/16	2-1/2	13/16	5/16
VG441-3126	-	5/16	3-1/4	1-1/4	5/16
VG441-3127	-	5/16	4	1-5/8	5/16
VG441-3750	VG441-3752	3/8	2-1/2	1/2	3/8
VG441-3751	VG441-3753	3/8	2-1/2	7/8	3/8
VG441-3754	VG441-3755	3/8	4	1-1/2	3/8
VG441-3756	VG441-3757	3/8	4	2-1/2	3/8
VG441-4375	VG441-4376	7/16	2-3/4	1	7/16
VG441-5007	VG441-5000	1/2	2-1/2	5/8	1/2
VG441-5008	VG441-5001	1/2	3	1	1/2
VG441-5009	VG441-5002	1/2	3-1/2	1-1/4	1/2
VG441-5010	VG441-5003	1/2	4	1-1/2	1/2
VG441-5011	VG441-5004	1/2	4	2	1/2
VG441-5012	VG441-5005	1/2	4	2-1/2	1/2
VG441-5013	VG441-5006	1/2	5	3	1/2
VG441-6255	VG441-6250	5/8	3	3/4	5/8
VG441-6256	VG441-6251	5/8	3-1/2	1-1/4	5/8
VG441-6257	VG441-6252	5/8	5	1-5/8	5/8
VG441-6258	VG441-6253	5/8	5	2-1/4	5/8
VG441-6259	VG441-6254	5/8	6	3	5/8
VG441-7506	VG441-7500	3/4	3-1/2	7/8	3/4
VG441-7507	VG441-7501	3/4	4	1-1/2	3/4
VG441-7508	VG441-7502	3/4	4	1-5/8	3/4
VG441-7509	VG441-7503	3/4	5	2-1/4	3/4
VG441-7510	VG441-7504	3/4	6	3	3/4
VG441-7511	VG441-7505	3/4	6-1/4	4	3/4
VG441-1005	VG441-1000	1	4	1-1/2	1
VG441-1006	VG441-1001	1	5	2	1
VG441-1007	VG441-1002	1	5	2-1/2	1
VG441-1008	VG441-1003	1	6	3	1
VG441-1009	VG441-1004	1	7	4	1

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP441 (p. 969-970)
Want to turbo-charge performance? Try A Brand® AE-VMS - List 8200 (p. 830)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
VG441	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	○	

○ good ▢ best

List VG434

4 Flute, Multiple Lengths, Corner Radius

SPEED FEED	CARBIDE	TiAlN		35°	SHANK
P1230					h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Milling Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
		D	R	L	Lc	d
VG434-1250	-	1/8	0.010	1-1/2	3/8	1/8
VG434-1251	-	1/8	0.015	1-1/2	3/8	1/8
VG434-1875	-	3/16	0.015	2	7/16	3/16
VG434-1876	-	3/16	0.030	2	7/16	3/16
VG434-2500	-	1/4	0.015	2-1/2	7/16	1/4
VG434-2501	-	1/4	0.030	2-1/2	7/16	1/4
VG434-2502	-	1/4	0.015	2-1/2	3/4	1/4
VG434-2503	-	1/4	0.030	2-1/2	3/4	1/4
VG434-2504	-	1/4	0.060	2-1/2	3/4	1/4
VG434-3125	-	5/16	0.015	2-1/2	13/16	5/16
VG434-3126	-	5/16	0.030	2-1/2	13/16	5/16
VG434-3750	VG434-3754	3/8	0.030	2-1/2	1/2	3/8
VG434-3751	VG434-3755	3/8	0.030	2-1/2	7/8	3/8
VG434-3752	VG434-3756	3/8	0.045	2-1/2	7/8	3/8
VG434-3753	VG434-3757	3/8	0.060	2-1/2	7/8	3/8
VG434-3759	VG434-3758	3/8	0.015	2-1/2	7/8	3/8
VG434-4375	VG434-4377	7/16	0.015	2-3/4	1	7/16
VG434-4376	VG434-4378	7/16	0.030	2-3/4	1	7/16
VG434-5021	VG434-5020	1/2	0.015	2-1/2	5/8	1/2
VG434-5009	VG434-5000	1/2	0.030	2-1/2	5/8	1/2
VG434-5010	VG434-5001	1/2	0.030	3	1	1/2
VG434-5011	VG434-5002	1/2	0.060	3	1	1/2
VG434-5012	VG434-5003	1/2	0.015	3-1/2	1-1/4	1/2
VG434-5013	VG434-5004	1/2	0.030	3-1/2	1-1/4	1/2
VG434-5014	VG434-5005	1/2	0.045	3-1/2	1-1/4	1/2
VG434-5015	VG434-5006	1/2	0.060	3-1/2	1-1/4	1/2
VG434-5016	VG434-5007	1/2	0.090	3-1/2	1-1/4	1/2
VG434-5017	VG434-5008	1/2	0.125	3-1/2	1-1/4	1/2
VG434-5019	VG434-5018	1/2	0.020	4	1-1/2	1/2
VG434-6254	VG434-6250	5/8	0.030	3-1/2	1-1/4	5/8
VG434-6255	VG434-6251	5/8	0.060	3-1/2	1-1/4	5/8
VG434-6256	VG434-6252	5/8	0.090	3-1/2	1-1/4	5/8
VG434-6257	VG434-6253	5/8	0.125	3-1/2	1-1/4	5/8
VG434-7504	VG434-7500	3/4	0.030	4	1-1/2	3/4
VG434-7505	VG434-7501	3/4	0.060	4	1-1/2	3/4
VG434-7506	VG434-7502	3/4	0.090	4	1-1/2	3/4
VG434-7507	VG434-7503	3/4	0.125	4	1-1/2	3/4
VG434-7510	VG434-7508	3/4	0.020	4	1-5/8	3/4
VG434-7511	VG434-7509	3/4	0.060	5	2-1/4	3/4
VG434-1004	VG434-1000	1	0.030	4	1-1/2	1
VG434-1005	VG434-1001	1	0.060	4	1-1/2	1
VG434-1006	VG434-1002	1	0.090	4	1-1/2	1
VG434-1007	VG434-1003	1	0.125	4	1-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
VG434	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	

▢ good ▢ best

List VG436

4 Flute, Multiple Lengths, Corner Chamfer

SPEED FEED P1230 | CARBIDE | TiAlN | 35° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Milling Diameter	Corner Chamfer	Overall Length	Length of Cut	Shank Diameter
		D	C	L	Lc	d
VG436-1252	-	1/8	0.010	1-1/2	1/8	1/8
VG436-1250	-	1/8	0.010	1-1/2	1/4	1/8
VG436-1251	-	1/8	0.010	1-1/2	1/2	1/8
VG436-1875	-	3/16	0.010	2	5/16	3/16
VG436-1876	-	3/16	0.010	2-1/4	5/8	3/16
VG436-2500	-	1/4	0.016	2	3/8	1/4
VG436-2501	-	1/4	0.016	2-1/2	3/4	1/4
VG436-3125	-	5/16	0.016	2	1/2	5/16
VG436-3126	-	5/16	0.016	2-1/2	3/4	5/16
-	VG436-3750	3/8	0.020	2	1/2	3/8
-	VG436-3751	3/8	0.020	2-1/2	7/8	3/8
-	VG436-4375	7/16	0.020	2-1/2	5/8	7/16
-	VG436-4376	7/16	0.020	2-3/4	7/8	7/16
-	VG436-5000	1/2	0.020	2-1/2	5/8	1/2
-	VG436-5001	1/2	0.020	3	1	1/2
-	VG436-5002	1/2	0.020	3-1/2	1-1/4	1/2
-	VG436-5003	1/2	0.020	4	1-1/2	1/2
-	VG436-6250	5/8	0.020	3	3/4	5/8
-	VG436-6251	5/8	0.020	3-1/2	1-1/4	5/8
-	VG436-6252	5/8	0.020	4-1/8	1-5/8	5/8
-	VG436-7500	3/4	0.020	3-1/2	7/8	3/4
-	VG436-7501	3/4	0.020	4	1-1/2	3/4
-	VG436-7502	3/4	0.020	4	1-5/8	3/4
-	VG436-1000	1	0.020	4	1-1/2	1
-	VG436-1001	1	0.020	5	2	1

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP434 (p. 987-988)
Want to turbo-charge performance? Try A Brand® AE-CR-VMS - List 8210 (p. 832)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
VG436	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	○	

○ good ▢ best

List VG446

4 Flute, Multiple Lengths, Reduced Neck, Corner Radius/Corner Chamfer

SPEED FEED P1231 | CARBIDE | TiAlN | 35° | SHANK h6

Milling Diameter Tolerance	
1/4≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Milling Diameter	Corner Radius	Corner Chamfer	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
		D	R	C	L	Lc	L1	d1	d
VG446-2500	-	1/4	0.015	-	4	3/8	1-1/4	0.235	1/4
VG446-2501	-	1/4	0.030	-	4	3/8	1-1/4	0.235	1/4
VG446-2502	-	1/4	-	0.016	4	3/8	1-1/4	0.235	1/4
-	VG446-3750	3/8	0.030	-	4	1/2	1-7/8	0.353	3/8
-	VG446-3751	3/8	0.060	-	4	1/2	1-7/8	0.353	3/8
-	VG446-3752	3/8	-	0.020	4	1/2	1-7/8	0.353	3/8
-	VG446-5000	1/2	0.030	-	4	5/8	2-1/4	0.470	1/2
-	VG446-5001	1/2	0.060	-	4	5/8	2-1/4	0.470	1/2
-	VG446-5002	1/2	0.120	-	4	5/8	2-1/4	0.470	1/2
-	VG446-5003	1/2	-	0.020	4	5/8	2-1/4	0.470	1/2
-	VG446-6250	5/8	0.060	-	4-1/8	3/4	2-1/4	0.588	5/8
-	VG446-6251	5/8	0.120	-	4-1/8	3/4	2-1/4	0.588	5/8
-	VG446-6252	5/8	-	0.020	4-1/8	3/4	2-1/4	0.588	5/8
-	VG446-6253	5/8	-	0.020	5	3/4	3-1/8	0.588	5/8
-	VG446-7500	3/4	-	0.020	4-1/4	1	2-1/4	0.705	3/4
-	VG446-7501	3/4	0.030	-	5-1/4	1	3-1/4	0.705	3/4
-	VG446-7502	3/4	0.060	-	5-1/4	1	3-1/4	0.705	3/4
-	VG446-7503	3/4	0.120	-	5-1/4	1	3-1/4	0.705	3/4
-	VG446-7504	3/4	-	0.020	5-1/4	1	3-1/4	0.705	3/4
-	VG446-1000	1	-	0.020	4-1/2	1-1/8	2-1/4	0.940	1
-	VG446-1001	1	0.030	-	5-1/2	1-1/8	3-1/4	0.940	1
-	VG446-1002	1	0.060	-	5-1/2	1-1/8	3-1/4	0.940	1
-	VG446-1003	1	0.120	-	5-1/2	1-1/8	3-1/4	0.940	1
-	VG446-1004	1	-	0.020	5-1/2	1-1/8	3-1/4	0.940	1
-	VG446-1005	1	-	0.020	6-1/2	1-1/8	4-1/4	0.940	1

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try A Brand® AE-LN-CR-VMS - List 8220 (p. 834)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
VG446	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	○	

○ good ▢ best

List VG464

SPEED FEED P1231 | CARBIDE | TiAlN | 35° | SHANK h6

4 Flute, Multiple Lengths, Extended Length, Square End/Corner Chamfer

Milling Diameter Tolerance	
1/4≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Milling Diameter	Corner Chamfer	Overall Length	Length of Cut	Shank Diameter
		D	C	L	Lc	d
VG464-2500	-	1/4	-	4	3/8	1/4
VG464-2501	-	1/4	0.016	4	3/8	1/4
-	VG464-3750	3/8	-	4	1/2	3/8
-	VG464-3751	3/8	0.020	4	1/2	3/8
-	VG464-5000	1/2	-	5	5/8	1/2
-	VG464-5001	1/2	0.020	5	5/8	1/2
-	VG464-5002	1/2	-	6	5/8	1/2
-	VG464-5003	1/2	0.020	6	5/8	1/2
-	VG464-6250	5/8	-	6	3/4	5/8
-	VG464-6251	5/8	0.020	6	3/4	5/8
-	VG464-6252	5/8	-	7	3/4	5/8
-	VG464-6253	5/8	0.020	7	3/4	5/8
-	VG464-7500	3/4	-	6	1	3/4
-	VG464-7501	3/4	0.020	6	1	3/4
-	VG464-7502	3/4	-	7	1	3/4
-	VG464-7503	3/4	0.020	7	1	3/4
-	VG464-1000	1	-	6	1-1/8	1
-	VG464-1001	1	0.020	6	1-1/8	1
-	VG464-1002	1	-	7	1-1/8	1
-	VG464-1003	1	0.020	7	1-1/8	1

Packed: 1 pc.
Available TiAlN coating only.

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
VG464	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	○	

○ good ▢ best

List VG441BN

SPEED FEED P1232 | CARBIDE | TiAlN | 35° | SHANK h6

4 Flute, Multiple Lengths, Ball Nose

Milling Diameter Tolerance	
1/8≤D≤1-1/4	+0 / -0.0015"



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Milling Diameter	Overall Length	Length of Cut	Shank Diameter
		D	L	Lc	d
VG441-1250-BN	-	1/8	2	1/2	1/8
VG441-1875-BN	-	3/16	2-1/4	5/8	3/16
VG441-2500-BN	-	1/4	2-1/2	3/4	1/4
-	VG441-3125-BN	5/16	2-1/2	3/4	5/16
-	VG441-3750-BN	3/8	2-1/2	7/8	3/8
-	VG441-4375-BN	7/16	2-1/2	7/8	7/16
-	VG441-5000-BN	1/2	3	1	1/2
-	VG441-5010-BN	1/2	3	1-1/4	1/2
-	VG441-6250-BN	5/8	3-1/2	1-1/4	5/8
-	VG441-7500-BN	3/4	4	1-1/2	3/4
-	VG441-1000-BN	1	4	1-1/2	1
-	VG441-1010-BN	1-1/4	5	2-1/4	1-1/4

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP441BN (p. 980-981)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
VG441BN	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	○	

○ good ◎ best

List VG541

5 Flute, Multiple Lengths, Square End

SPEED FEED P1233 | CARBIDE | TiAlN | 38° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Milling Diameter	Overall Length	Length of Cut	Shank Diameter
		D	L	Lc	d
VG541-1249	-	1/8	1-1/2	9/32	1/8
VG541-1250	-	1/8	1-1/2	3/8	1/8
VG541-1875	-	3/16	2	7/16	3/16
VG541-1874	-	3/16	2-1/4	5/8	3/16
VG541-2500	-	1/4	2	3/8	1/4
VG541-2501	-	1/4	2-1/2	3/4	1/4
VG541-3125	-	5/16	2	15/32	5/16
VG541-3124	-	5/16	2-1/2	3/4	5/16
VG541-3750	VG541-3752	3/8	2	1/2	3/8
VG541-3751	VG541-3753	3/8	2-1/2	7/8	3/8
VG541-5007	VG541-5000	1/2	2-1/2	5/8	1/2
VG541-5009	VG541-5002	1/2	3-1/2	1-1/4	1/2
VG541-6255	VG541-6250	5/8	3	3/4	5/8
VG541-6256	VG541-6251	5/8	3-1/2	1-1/4	5/8
VG541-7512	VG541-7513	3/4	4	1-1/8	3/4
VG541-7507	VG541-7501	3/4	4	1-1/2	3/4
VG541-1010	VG541-1011	1	4	1-1/4	1
VG541-1005	VG541-1000	1	4	1-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP455 (p. 979)
Want to turbo-charge performance? Try EXOCARB® AERO - List 2106 (p. 926-927)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
VG541	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	○	

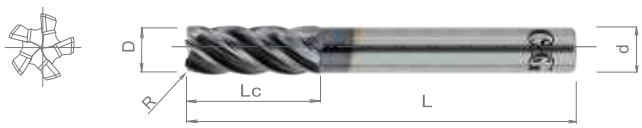
○ good ▢ best

List VG534

5 Flute, Multiple Lengths, Corner Radius

SPEED FEED	CARBIDE	TiAlN		38°	SHANK
P1233					h6

Milling Diameter Tolerance	
3/16≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Milling Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
		D	R	L	Lc	d
VG534-1875	-	3/16	0.015	2	7/16	3/16
VG534-1876	-	3/16	0.030	2	7/16	3/16
VG534-1877	-	3/16	0.015	2-1/4	5/8	3/16
VG534-1878	-	3/16	0.030	2-1/4	5/8	3/16
VG534-2505	-	1/4	0.015	2	3/8	1/4
VG534-2506	-	1/4	0.030	2	3/8	1/4
VG534-2507	-	1/4	0.060	2	3/8	1/4
VG534-2502	-	1/4	0.015	2-1/2	3/4	1/4
VG534-2503	-	1/4	0.030	2-1/2	3/4	1/4
VG534-2504	-	1/4	0.060	2-1/2	3/4	1/4
VG534-3122	-	5/16	0.015	2-1/2	3/4	5/16
VG534-3123	-	5/16	0.030	2-1/2	3/4	5/16
VG534-3124	-	5/16	0.060	2-1/2	3/4	5/16
VG534-3764	VG534-3758	3/8	0.015	2	1/2	3/8
VG534-3765	VG534-3759	3/8	0.030	2	1/2	3/8
VG534-3766	VG534-3760	3/8	0.060	2	1/2	3/8
VG534-3751	VG534-3755	3/8	0.015	2-1/2	7/8	3/8
VG534-3752	VG534-3756	3/8	0.030	2-1/2	7/8	3/8
VG534-3753	VG534-3757	3/8	0.060	2-1/2	7/8	3/8
VG534-5024	VG534-5018	1/2	0.015	2-1/2	5/8	1/2
VG534-5009	VG534-5000	1/2	0.030	2-1/2	5/8	1/2
VG534-5025	VG534-5019	1/2	0.060	2-1/2	5/8	1/2
VG534-5026	VG534-5020	1/2	0.090	2-1/2	5/8	1/2
VG534-5027	VG534-5021	1/2	0.120	2-1/2	5/8	1/2
VG534-5010	VG534-5001	1/2	0.030	3	1	1/2
VG534-5011	VG534-5002	1/2	0.060	3	1	1/2
VG534-5012	VG534-5003	1/2	0.015	3-1/2	1-1/4	1/2
VG534-5013	VG534-5004	1/2	0.030	3-1/2	1-1/4	1/2
VG534-5015	VG534-5006	1/2	0.060	3-1/2	1-1/4	1/2
VG534-5016	VG534-5007	1/2	0.090	3-1/2	1-1/4	1/2
VG534-5017	VG534-5008	1/2	0.120	3-1/2	1-1/4	1/2
VG534-6265	VG534-6258	5/8	0.030	3	3/4	5/8
VG534-6266	VG534-6259	5/8	0.060	3	3/4	5/8
VG534-6267	VG534-6260	5/8	0.090	3	3/4	5/8
VG534-6254	VG534-6250	5/8	0.030	3-1/2	1-1/4	5/8
VG534-6255	VG534-6251	5/8	0.060	3-1/2	1-1/4	5/8
VG534-6256	VG534-6252	5/8	0.090	3-1/2	1-1/4	5/8
VG534-7515	VG534-7508	3/4	0.030	4	1-1/8	3/4
VG534-7516	VG534-7509	3/4	0.060	4	1-1/8	3/4
VG534-7517	VG534-7510	3/4	0.090	4	1-1/8	3/4
VG534-7518	VG534-7511	3/4	0.120	4	1-1/8	3/4
VG534-7504	VG534-7500	3/4	0.030	4	1-1/2	3/4

Packed: 1 pc.
Available TiAlN coating only.

continued on next page

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
VG534	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	

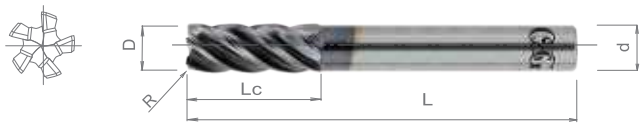
▢ good ▢ best

List VG534 (Continued)

SPEED FEED P1233 | CARBIDE | TiAlN | 38° | SHANK h6

5 Flute, Multiple Lengths, Corner Radius

Milling Diameter Tolerance	
3/16≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Milling Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
		D	R	L	Lc	d
VG534-7505	VG534-7501	3/4	0.060	4	1-1/2	3/4
VG534-7506	VG534-7502	3/4	0.090	4	1-1/2	3/4
VG534-7507	VG534-7503	3/4	0.120	4	1-1/2	3/4
VG534-1017	VG534-1010	1	0.030	4	1-1/4	1
VG534-1018	VG534-1011	1	0.060	4	1-1/4	1
VG534-1019	VG534-1012	1	0.090	4	1-1/4	1
VG534-1020	VG534-1013	1	0.120	4	1-1/4	1
VG534-1004	VG534-1000	1	0.030	4	1-1/2	1
VG534-1005	VG534-1001	1	0.060	4	1-1/2	1
VG534-1006	VG534-1002	1	0.090	4	1-1/2	1
VG534-1007	VG534-1003	1	0.120	4	1-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Don't require ultra-high performance? Try HY-PRO® CARB - List HP455 (p. 979)
Want to turbo-charge performance? Try EXOPRO® - List 2055 (p. 841)
or EXOCARB® AERO - List 2106 (p. 926-927)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
VG534	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	

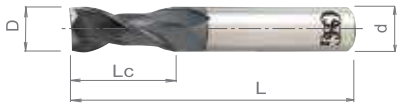
▢ good ▢ best

List HP421, HP441

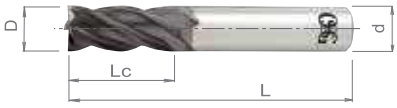
SPEED FEED P1234-1238 | CARBIDE | TiAlN | 35° | SHANK h6

Multiple Flutes

Milling Diameter Tolerance	
3/64≤D≤1	+0 / -0.0015"



HP421



HP441

Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List HP421 (2 Flute)	List HP441 (4 Flute)				
TiAlN	TiAlN	D	L	Lc	d
HP421-0469	HP441-0469	3/64	1-1/2	9/64	1/8
HP421-0625	HP441-0625	1/16	1-1/2	3/16	1/8
HP421-0781	HP441-0781	5/64	1-1/2	1/4	1/8
HP421-0938	HP441-0938	3/32	1-1/2	5/16	1/8
HP421-1094	HP441-1094	7/64	1-1/2	3/8	1/8
HP421-1250	HP441-1250	1/8	1-1/2	1/2	1/8
HP421-1406	HP441-1406	9/64	2	1/2	3/16
HP421-1562	HP441-1562	5/32	2	9/16	3/16
HP421-1719	HP441-1719	11/64	2	9/16	3/16
HP421-1875	HP441-1875	3/16	2	5/8	3/16
HP421-2031	HP441-2031	13/64	2-1/2	5/8	1/4
HP421-2188	HP441-2188	7/32	2-1/2	5/8	1/4
HP421-2500	HP441-2500	1/4	2-1/2	3/4	1/4
HP421-2812	HP441-2812	9/32	2-1/2	3/4	5/16
HP421-3125	HP441-3125	5/16	2-1/2	13/16	5/16
HP421-3438	HP441-3438	11/32	2-1/2	7/8	3/8
HP421-3750	HP441-3750	3/8	2-1/2	1	3/8
HP421-4062	HP441-4062	13/32	2-3/4	1	7/16
HP421-4375	HP441-4375	7/16	2-3/4	1	7/16
HP421-5000	HP441-5000	1/2	3	1	1/2
HP421-5625	HP441-5625	9/16	3-1/2	1-1/8	9/16
HP421-6250	HP441-6250	5/8	3-1/2	1-1/4	5/8
HP421-6875	HP441-6875	11/16	4	1-3/8	3/4
HP421-7500	HP441-7500	3/4	4	1-1/2	3/4
HP421-8750	HP441-8750	7/8	4	1-1/2	7/8
HP421-1000	HP441-1000	1	4	1-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

continued on next page

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3620, 3621, 3720 or 3721 (p. 862, 863, 869 or 870)

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	○	○	○	○	○	○	○	○	○			○	○	○	○	○	

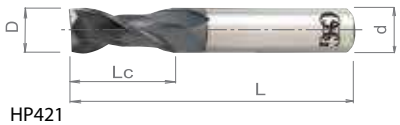
○ good ◎ best

List HP421, HP441 (Continued)

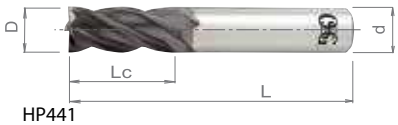
SPEED FEED P1234-1238 | CARBIDE | TiAlN | 35° | SHANK h6

Multiple Flutes

Milling Diameter Tolerance	
1≤D≤25	+0 / -0.038mm



HP421



HP441

Units: mm

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List HP421 (2 Flute)	List HP441 (4 Flute)				
TiAlN	TiAlN	D	L	Lc	d
HP421-0394	HP441-0394	1.0	39	3	3
HP421-0591	HP441-0591	1.5	39	5	3
HP421-0787	HP441-0787	2.0	39	7	3
HP421-0984	HP441-0984	2.5	39	8	3
HP421-1181	HP441-1181	3.0	39	10	3
HP421-1378	HP441-1378	3.5	51	12	4
HP421-1575	HP441-1575	4.0	51	14	4
HP421-1772	HP441-1772	4.5	51	14	5
HP421-1968	HP441-1968	5.0	51	16	5
HP421-2362	HP441-2362	6.0	64	19	6
HP421-2756	HP441-2756	7.0	64	19	8
HP421-3150	HP441-3150	8.0	64	21	8
HP421-3543	HP441-3543	9.0	70	22	10
HP421-3937	HP441-3937	10.0	70	25	10
HP421-4331	HP441-4331	11.0	70	25	11
HP421-4724	HP441-4724	12.0	76	25	12
HP421-5512	HP441-5512	14.0	89	30	14
HP421-6299	HP441-6299	16.0	89	32	16
HP421-7087	HP441-7087	18.0	102	35	18
HP421-7874	HP441-7874	20.0	102	38	20
HP421-8661	HP441-8661	22.0	102	38	22
HP421-9843	HP441-9843	25.0	102	38	25

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3620, 3621, 3720 or 3721 (p. 862, 863, 869 or 870)

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	

▢ good ▢ best

List HP460

3 Flute, High Helix

SPEED FEED P1239-1240 | CARBIDE | TiAlN | 60° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP460-1250	1/8	1-1/2	1/2	1/8
HP460-1875	3/16	2	5/8	3/16
HP460-2500	1/4	2-1/2	3/4	1/4
HP460-3125	5/16	2-1/2	13/16	5/16
HP460-3750	3/8	2-1/2	1	3/8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP460-4375	7/16	2-3/4	1	7/16
HP460-5000	1/2	3	1	1/2
HP460-6250	5/8	3-1/2	1-1/4	5/8
HP460-7500	3/4	4	1-1/2	3/4
HP460-1000	1	4	1-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

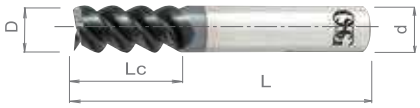
HPC

List HP460

3 Flute, High Helix

SPEED FEED P1239-1240 | CARBIDE | TiAlN | 60° | SHANK h6

Milling Diameter Tolerance	
3≤D≤25	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP460-1181	3	64	12	6
HP460-1575	4	64	14	6
HP460-1968	5	64	16	6
HP460-2362	6	64	19	6
HP460-3150	8	64	21	8
HP460-3937	10	70	25	10

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP460-4724	12	76	25	12
HP460-5512	14	89	29	14
HP460-6299	16	89	32	16
HP460-7087	18	102	38	18
HP460-7874	20	102	38	20
HP460-9843	25	102	38	25

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 4445 (p. 883)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP460	▢	▢	▢	▢		▢	▢	▢	▢				▢	▢	▢	▢	

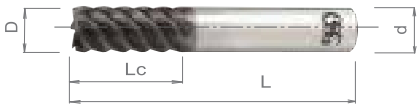
▢ good ▣ best

List HP450

Multiple Flute

SPEED FEED P1241 | CARBIDE | TiAlN | 50° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
TiAlN	D	L	Lc	d	
HP450-1250	1/8	1-1/2	1/2	1/8	4
HP450-1875	3/16	2	5/8	3/16	4
HP450-2500	1/4	2-1/2	3/4	1/4	6
HP450-3125	5/16	2-1/2	13/16	5/16	6
HP450-3750	3/8	2-1/2	1	3/8	6
HP450-4375	7/16	2-3/4	1	7/16	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
TiAlN	D	L	Lc	d	
HP450-5000	1/2	3	1	1/2	6
HP450-5625	9/16	3-1/2	1-1/8	9/16	6
HP450-6250	5/8	3-1/2	1-1/4	5/8	6
HP450-7500	3/4	4	1-1/2	3/4	6
HP450-8750	7/8	4	1-1/2	7/8	6
HP450-1000	1	4	1-1/2	1	8

Packed: 1 pc.
Available TiAlN coating only.

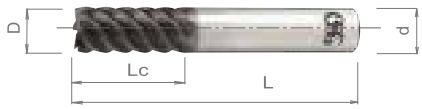
HPC

List HP450

Multiple Flute

SPEED FEED P1241 | CARBIDE | TiAlN | 50° | SHANK h6

Milling Diameter Tolerance	
3≤D≤25	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
TiAlN	D	L	Lc	d	
HP450-1181	3	51	10	6	4
HP450-1575	4	51	14	6	4
HP450-1969	5	51	16	6	4
HP450-2362	6	64	19	6	6
HP450-3150	8	64	21	8	6
HP450-3937	10	64	25	10	6
HP450-4724	12	76	25	12	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
TiAlN	D	L	Lc	d	
HP450-5512	14	89	30	14	6
HP450-6299	16	89	35	16	6
HP450-7087	18	102	35	18	6
HP450-7874	20	102	38	20	6
HP450-8661	22	102	38	22	6
HP450-9843	25	102	38	25	8

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXS® - List 4440 or 4540 (p. 886 or 887)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP450	○	○	○	○	○	○	○	○	○			○	○	○	○	○	

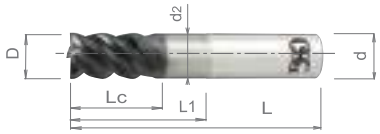
○ good ◎ best

List HP453

SPEED FEED P1243 | CARBIDE | TiAlN | 50° | SHANK h6

4 Flute, Super Tough Mills

Milling Diameter Tolerance	
4≤D≤20	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
TiAlN	D	L	Lc	L1	d2	d
HP453-1575	4	60	6	12	3.9	6
HP453-2362	6	60	9	18	5.9	6
HP453-3150	8	75	12	24	7.9	8
HP453-3937	10	80	15	30	9.9	10
HP453-4724	12	102	18	36	11.9	12
HP453-6299	16	110	24	48	15.9	16
HP453-7874	20	125	30	60	19.9	20

Packed: 1 pc.
Available TiAlN coating only.

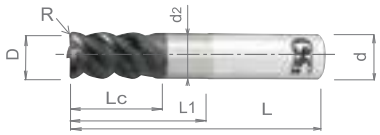
HPC

List HP456

SPEED FEED P1243 | CARBIDE | TiAlN | 50° | SHANK h6

4 Flute, Super Tough Mills, Corner Radius

Milling Diameter Tolerance	
6≤D≤12	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
TiAlN	D	R	L	Lc	L1	d2	d
HP456-2363	6	0.5	60	9	18	5.9	6
HP456-2364	6	1.0	60	9	18	5.9	6
HP456-3151	8	0.5	75	12	24	7.9	8
HP456-3152	8	1.0	75	12	24	7.9	8
HP456-3938	10	0.5	80	15	30	9.9	10
HP456-3939	10	1.0	80	15	30	9.9	10
HP456-4725	12	0.5	102	18	36	11.9	12
HP456-4726	12	1.0	102	18	36	11.9	12
HP456-4727	12	1.5	102	18	36	11.9	12

Packed: 1 pc.
Available TiAlN coating only.

HPC

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢	▢	▢	

▢ good ▣ best

List HP451

SPEED FEED P1242-1243 | CARBIDE | TiAlN | 50° | SHANK h6

4 Flute, Super Tough Mills

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP451-1250	1/8	2-1/4	3/4	1/8
HP451-1875	3/16	2-1/4	3/4	3/16
HP451-2500	1/4	3	1-1/8	1/4
HP451-3125	5/16	3	1-1/8	5/16
HP451-3750	3/8	3	1-1/8	3/8
HP451-4375	7/16	4	2	7/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP451-5000	1/2	4	2	1/2
HP451-6250	5/8	5	2-1/4	5/8
HP451-7500	3/4	5	2-1/4	3/4
HP451-1000	1	5	2-1/4	1

HPC

Packed: 1 pc.
Available TiAlN coating only.

List HP451

SPEED FEED P1242-1243 | CARBIDE | TiAlN | 50° | SHANK h6

4 Flute, Super Tough Mills

Milling Diameter Tolerance	
4≤D≤20	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP451-1575	4	60	12	6
HP451-2362	6	60	15	6
HP451-3150	8	75	20	8
HP451-3937	10	80	25	10

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP451-4724	12	102	30	12
HP451-6299	16	110	40	16
HP451-7874	20	125	45	20

HPC

Packed: 1 pc.
Available TiAlN coating only.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP451	▢	▢	▢	▢	▢	▢	▢	▢	▢					▢	▢	▢	

▢ good ▣ best

List HP400

4 Flute, Rougher

SPEED FEED P1244-1245 | CARBIDE | TiAlN | 30° | SHANK h6

Milling Diameter Tolerance	
1/4≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP400-2500	1/4	2-1/2	3/4	1/4
HP400-3125	5/16	2-1/2	3/4	5/16
HP400-3750	3/8	2-1/2	1	3/8
HP400-5000	1/2	3	1-1/4	1/2

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP400-6250	5/8	3-1/2	1-5/8	5/8
HP400-7500	3/4	4	1-5/8	3/4
HP400-1000	1	4	1-3/4	1

HPC

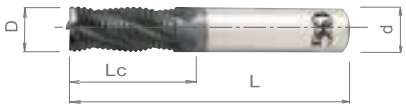
Packed: 1 pc.
Available TiAlN coating only.

List HP400

4 Flute, Rougher

SPEED FEED P1244-1245 | CARBIDE | TiAlN | 30° | SHANK h6

Milling Diameter Tolerance	
3≤D≤25	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP400-1181	3	64	10	6
HP400-1575	4	64	14	6
HP400-1968	5	64	15	6
HP400-2362	6	64	19	6
HP400-3150	8	64	21	8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP400-3937	10	70	25	10
HP400-4724	12	76	25	12
HP400-6299	16	89	32	16
HP400-7874	20	102	38	20
HP400-9843	25	102	38	25

HPC

Packed: 1 pc.
Available TiAlN coating only.

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® AERO - List 2015 (p. 924)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP400	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	

▢ good ▣ best

List HP410

2 Flute, Short Length, Necked

SPEED FEED P1246 | CARBIDE | TiAlN | 30° | SHANK h6

Milling Diameter Tolerance	
1/32≤D≤3/16	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
TiAlN	D	L	Lc	L1	d2	d
HP410-0312	1/32	2-1/2	3/64	5/16	0.029	1/4
HP410-0625	1/16	2-1/2	3/32	5/8	0.060	1/4
HP410-0938	3/32	2-1/2	9/64	15/16	0.091	1/4
HP410-1250	1/8	3	3/16	1-1/4	0.123	1/4
HP410-1875	3/16	4	9/32	1-7/8	0.183	1/4

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3791 (p. 866-867)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP410	▢	▢	▢	▢	▢				▢					▢	▢	▢	

▢ good ▢ best

List HP410

2 Flute, Short Length, Necked

SPEED FEED P1246 | CARBIDE | TiAlN | 30° | SHANK h6

Milling Diameter Tolerance	
0.5≤D≤2.5	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
TiAlN	D	L	Lc	L1	d2	d
HP410-0197	0.5	60	0.7	2.5	0.45	6
HP410-0236	0.6	60	0.9	3.0	0.55	6
HP410-0315	0.8	60	1.2	4.0	0.75	6
HP410-0394	1.0	60	1.5	5.0	0.95	6
HP410-0472	1.2	60	1.8	6.0	1.15	6
HP410-0551	1.4	60	2.1	7.0	1.35	6
HP410-0591	1.5	60	2.3	7.5	1.45	6
HP410-0630	1.6	60	2.4	8.0	1.55	6
HP410-0709	1.8	60	2.7	9.0	1.75	6
HP410-0787	2.0	60	3.0	10.0	1.95	6
HP410-0984	2.5	60	3.7	12.5	2.40	6

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3791 (p. 866-867)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP410	○	○	○	○	○				○					○	○	○	

○ good ◎ best

List HP411

SPEED FEED P1247 | CARBIDE | TiAlN | 30° | SHANK h6

4 Flute, Short Length, Long Neck

Milling Diameter Tolerance	
1/8≤D≤1/4	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
TiAlN	D	L	Lc	L1	d2	d
HP411-1250	1/8	3	3/16	5/8	0.119	1/4
HP411-1875	3/16	3	9/32	15/16	0.182	1/4
HP411-2500	1/4	4	3/8	1-1/4	0.244	1/4

Packed: 1 pc.
Available TiAlN coating only.

HPC

List HP411

SPEED FEED P1247 | CARBIDE | TiAlN | 30° | SHANK h6

4 Flute, Short Length, Long Neck

Milling Diameter Tolerance	
3≤D≤6	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
TiAlN	D	L	Lc	L1	d2	d
HP411-1181	3.0	70	4.5	15.0	2.85	6
HP411-1378	3.5	70	5.3	17.5	3.35	6
HP411-1575	4.0	70	6.0	20.0	3.85	6
HP411-1969	5.0	80	7.5	25.0	4.85	6
HP411-2362	6.0	90	9.0	30.0	5.85	6

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3794 (p. 881-882)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP411	▢	▢	▢	▢	▢				▢					▢	▢		

▢ good ▣ best

List HP455

5 Flute, Corner Protection

SPEED FEED P1248 | CARBIDE | TiAlN | 45° | SHANK h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP455-1250	1/8	1-1/2	1/2	1/8
HP455-1562	5/32	2	9/16	3/16
HP455-1875	3/16	2	5/8	3/16
HP455-2188	7/32	2-1/2	5/8	1/4
HP455-2500	1/4	2-1/2	3/4	1/4
HP455-2812	9/32	2-1/2	3/4	5/16
HP455-3125	5/16	2-1/2	13/16	5/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP455-3750	3/8	2-1/2	1	3/8
HP455-4375	7/16	2-3/4	1	7/16
HP455-5000	1/2	3	1	1/2
HP455-5625	9/16	3-1/2	1-1/8	9/16
HP455-6250	5/8	3-1/2	1-1/4	5/8
HP455-7500	3/4	4	1-1/2	3/4
HP455-1000	1	4	1-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

HPC

List HP455

5 Flute, Corner Protection

SPEED FEED P1248 | CARBIDE | TiAlN | 45° | SHANK h6

Milling Diameter Tolerance	
3≤D≤25	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP455-1181	3	39	9	3
HP455-1575	4	51	14	4
HP455-1968	5	51	16	5
HP455-2362	6	64	19	6
HP455-2756	7	64	19	8
HP455-3150	8	64	21	8
HP455-3937	10	70	22	10

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP455-4331	11	70	25	11
HP455-4724	12	76	25	12
HP455-5512	14	89	30	14
HP455-6299	16	89	32	16
HP455-7874	20	102	38	20
HP455-9843	25	102	38	25

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try HY-PRO® CARB VGX - List VG534 (p. 967-968)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP455	○	○	○	○	○	○	○	○	○			◎	◎	○	○	○	

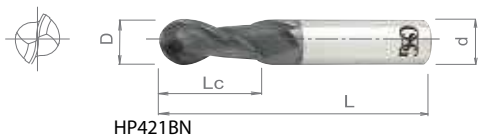
○ good ◎ best

List HP421BN, HP441BN

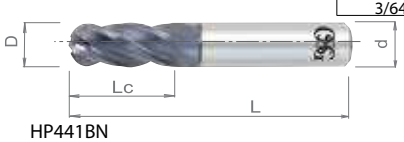
SPEED FEED P1249-1250 | CARBIDE | TiAlN | 35° | SHANK h6

2 or 4 Flute, Ball End

Milling Diameter Tolerance	
3/64≤D≤1	+0 / -0.0015"



HP421BN



HP441BN

Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List HP421BN (2 Flute)	List HP441BN (4 Flute)				
TiAlN	TiAlN	D	L	Lc	d
HP421-0469-BN	HP441-0469-BN	3/64	1-1/2	9/64	1/8
HP421-0625-BN	HP441-0625-BN	1/16	1-1/2	3/16	1/8
HP421-0781-BN	HP441-0781-BN	5/64	1-1/2	1/4	1/8
HP421-0938-BN	HP441-0938-BN	3/32	1-1/2	5/16	1/8
HP421-1094-BN	HP441-1094-BN	7/64	1-1/2	3/8	1/8
HP421-1250-BN	HP441-1250-BN	1/8	1-1/2	1/2	1/8
HP421-1406-BN	HP441-1406-BN	9/64	2	1/2	3/16
HP421-1562-BN	HP441-1562-BN	5/32	2	9/16	3/16
HP421-1719-BN	HP441-1719-BN	11/64	2	9/16	3/16
HP421-1875-BN	HP441-1875-BN	3/16	2	5/8	3/16
HP421-2031-BN	HP441-2031-BN	13/64	2-1/2	5/8	1/4
HP421-2188-BN	HP441-2188-BN	7/32	2-1/2	5/8	1/4
HP421-2500-BN	HP441-2500-BN	1/4	2-1/2	3/4	1/4
HP421-2812-BN	HP441-2812-BN	9/32	2-1/2	3/4	5/16
HP421-3125-BN	HP441-3125-BN	5/16	2-1/2	13/16	5/16
HP421-3438-BN	HP441-3438-BN	11/32	2-1/2	7/8	3/8
HP421-3750-BN	HP441-3750-BN	3/8	2-1/2	1	3/8
HP421-4062-BN	HP441-4062-BN	13/32	2-3/4	1	7/16
HP421-4375-BN	HP441-4375-BN	7/16	2-3/4	1	7/16
HP421-5000-BN	HP441-5000-BN	1/2	3	1	1/2
HP421-5625-BN	HP441-5625-BN	9/16	3-1/2	1-1/8	9/16
HP421-6250-BN	HP441-6250-BN	5/8	3-1/2	1-1/4	5/8
HP421-6875-BN	HP441-6875-BN	11/16	4	1-3/8	3/4
HP421-7500-BN	HP441-7500-BN	3/4	4	1-1/2	3/4
HP421-8750-BN	HP441-8750-BN	7/8	4	1-1/2	7/8
HP421-1000-BN	HP441-1000-BN	1	4	1-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3610 (p. 853)
or EXOCARB® WXS® - List 4430 (p. 899)

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	○	○	○	○	○	○	○	○	○			○	○	○	○	○	

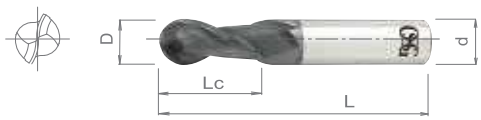
○ good ◎ best

List HP421BN, HP441BN

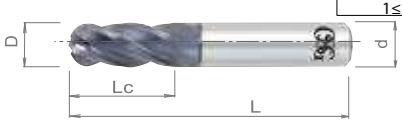
SPEED FEED P1249-1250 | CARBIDE | TiAlN | 35° | SHANK h6

2 or 4 Flute, Ball End

Milling Diameter Tolerance	
1≤D≤25	+0 / -0.038mm



HP421BN



HP441BN

Units: mm

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List HP421BN (2 Flute)	List HP441BN (4 Flute)				
TiAlN	TiAlN	D	L	Lc	d
HP421-0394-BN	HP441-0394-BN	1.0	39	3	3
HP421-0591-BN	HP441-0591-BN	1.5	39	5	3
HP421-0787-BN	HP441-0787-BN	2.0	39	7	3
HP421-0984-BN	HP441-0984-BN	2.5	39	8	3
HP421-1181-BN	HP441-1181-BN	3.0	39	10	3
HP421-1378-BN	HP441-1378-BN	3.5	51	12	4
HP421-1575-BN	HP441-1575-BN	4.0	51	14	4
HP421-1772-BN	HP441-1772-BN	4.5	51	14	5
HP421-1968-BN	HP441-1968-BN	5.0	51	16	5
HP421-2362-BN	HP441-2362-BN	6.0	64	19	6
HP421-2756-BN	HP441-2756-BN	7.0	64	19	8
HP421-3150-BN	HP441-3150-BN	8.0	64	21	8
HP421-3543-BN	HP441-3543-BN	9.0	70	22	10
HP421-3937-BN	HP441-3937-BN	10.0	70	25	10
HP421-4331-BN	HP441-4331-BN	11.0	70	25	11
HP421-4724-BN	HP441-4724-BN	12.0	76	25	12
HP421-5512-BN	HP441-5512-BN	14.0	89	30	14
HP421-6299-BN	HP441-6299-BN	16.0	89	32	16
HP421-7087-BN	HP441-7087-BN	18.0	102	35	18
HP421-7874-BN	HP441-7874-BN	20.0	102	38	20
HP421-8661-BN	HP441-8661-BN	22.0	102	38	22
HP421-9843-BN	HP441-9843-BN	25.0	102	38	25

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3710 (p. 854)
or EXOCARB® WXS® - List 4530 (p. 900)

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	○	○	○	○	○	○	○	○	○			○	○	○	○	○	

○ good ◎ best

List HP416

SPEED FEED P1251-1252 | CARBIDE | TiAlN | 30° | SHANK h6

2 Flute, Ball End

Milling Diameter Tolerance	
1/32≤D≤1/2	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP416-0312	1/32	2-1/2	1/16	1/4
HP416-0625	1/16	2-1/2	1/8	1/4
HP416-0938	3/32	2-1/2	3/16	1/4
HP416-1250	1/8	3	1/4	1/4
HP416-1875	3/16	3	3/8	1/4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP416-2500	1/4	3	1/2	1/4
HP416-3125	5/16	4	5/8	5/16
HP416-3750	3/8	4	3/4	3/8
HP416-5000	1/2	4	1	1/2

HPC

Packed: 1 pc.
Available TiAlN coating only.

List HP416

SPEED FEED P1251-1252 | CARBIDE | TiAlN | 30° | SHANK h6

2 Flute, Ball End

Milling Diameter Tolerance	
1≤D≤25	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP416-0394	1.0	50	2.5	4
HP416-0472	1.2	50	3.0	4
HP416-0551	1.4	50	3.5	4
HP416-0591	1.5	50	4.0	4
HP416-0630	1.6	50	4.0	4
HP416-0709	1.8	50	4.5	4
HP416-0787	2.0	50	5.0	6
HP416-0984	2.5	60	6.0	6
HP416-1181	3.0	60	8.0	6
HP416-1378	3.5	70	8.0	6
HP416-1575	4.0	70	8.0	6
HP416-1576	4.0	60	8.0	4
HP416-1772	4.5	80	10.0	6
HP416-1969	5.0	80	10.0	6
HP416-2165	5.5	90	12.0	6
HP416-2362	6.0	90	12.0	6
HP416-2559	6.5	90	14.0	8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
TiAlN	D	L	Lc	d
HP416-2756	7.0	90	14.0	8
HP416-2953	7.5	90	14.0	8
HP416-3150	8.0	100	14.0	8
HP416-3346	8.5	100	18.0	10
HP416-3543	9.0	100	18.0	10
HP416-3740	9.5	100	18.0	10
HP416-3937	10.0	100	18.0	10
HP416-4331	11.0	100	22.0	12
HP416-4724	12.0	110	22.0	12
HP416-5118	13.0	110	26.0	16
HP416-5512	14.0	110	26.0	16
HP416-5906	15.0	110	30.0	16
HP416-6299	16.0	140	30.0	16
HP416-7087	18.0	140	34.0	20
HP416-7874	20.0	160	38.0	20
HP416-9843	25.0	180	50.0	25

HPC

Packed: 1 pc.
Available TiAlN coating only.

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3610 or 3710 (p. 853 or 854)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP416	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢		

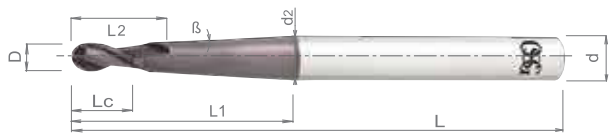
▢ good ▣ best

List HP418

SPEED FEED P1253-1254 | CARBIDE | TiAlN | 30° | SHANK h6

2 Flute, Pencil Neck, Ball End

Milling Diameter Tolerance	
3/32≤D≤3/8	+0 / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Non-Taper Neck Length	Maximum Neck Diameter	Neck Incline	Shank Diameter
TiAlN	D	L	Lc	L1	L2	d2	β	d
HP418-0938	3/32	3	0.160	1.60	0.200	0.240	3°	1/4
HP418-1250	1/8	3	0.225	1.60	0.270	0.217	2°	1/4
HP418-1875	3/16	3-1/2	0.312	1.90	0.390	0.312	2°	5/16
HP418-2500	1/4	4	0.400	2.25	0.500	0.375	2°	3/8
HP418-3750	3/8	4	0.600	2.25	0.750	0.500	2°	1/2

Packed: 1 pc.
Available TIALN coating only.

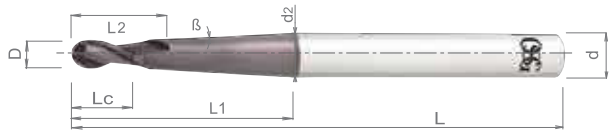
HPC

List HP418

SPEED FEED P1253-1254 | CARBIDE | TiAlN | 30° | SHANK h6

2 Flute, Pencil Neck, Ball End

Milling Diameter Tolerance	
1≤D≤12	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Non-Taper Neck Length	Maximum Neck Diameter	Neck Incline	Shank Diameter
TiAlN	D	L	Lc	L1	L2	d2	B	d
HP418-0390	1	60	2.5	20.0	4.0	3.8	5.0°	6
HP418-0391	1	80	2.5	40.0	4.0	4.8	3.0°	6
HP418-0392	1	70	2.5	20.0	4.0	1.8	1.5°	6
HP418-0780	2	60	5.0	20.0	7.0	4.3	5.0°	6
HP418-0781	2	80	5.0	40.0	7.0	5.5	3.0°	6
HP418-0782	2	70	5.0	20.0	7.0	2.7	1.5°	6
HP418-1180	3	70	8.0	30.0	10.5	5.0	3.0°	6
HP418-1181	3	90	8.0	50.0	10.5	5.1	1.5°	6
HP418-1570	4	70	8.0	28.0	10.5	6.0	3.0°	6
HP418-1571	4	90	8.0	48.0	10.5	6.0	1.5°	6
HP418-1960	5	90	10.0	40.0	12.5	8.0	3.0°	8
HP418-1961	5	110	10.0	60.0	12.5	7.5	1.5°	8
HP418-2360	6	90	12.0	33.5	14.5	8.0	3.0°	8
HP418-2361	6	110	12.0	52.0	14.5	8.0	1.5°	8
HP418-3150	8	100	14.0	35.5	16.5	10.0	3.0°	10
HP418-3151	8	120	14.0	54.5	16.5	10.0	1.5°	10
HP418-3930	10	110	18.0	39.5	20.5	12.0	3.0°	12
HP418-3931	10	130	18.0	58.5	20.5	12.0	1.5°	12
HP418-4720	12	140	22.0	60.0	25.0	16.0	3.0°	16
HP418-4721	12	160	22.0	80.0	25.0	14.9	1.5°	16

Packed: 1 pc.
Available TIALN coating only.

HPC

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP418	○	○	○	○	○	○	○	○	○			○	○	○	○		

○ good ◎ best

List HP419

2 Flute, Necked, Ball End

SPEED FEED P1255-1256 | CARBIDE | TiAlN | 30° | SHANK h6

Milling Diameter Tolerance	
1/32≤D≤3/16	+0 / -0.0015"



Units: Inch

EDP Number	Mill Dia.	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Dia.
TiAlN	D	L	Lc	L1	d2	d
HP419-0312	1/32	2-1/2	1/32	5/16	0.029	1/4
HP419-0625	1/16	2-1/2	1/16	5/8	0.060	1/4
HP419-0938	3/32	2-1/2	3/32	15/16	0.091	1/4
HP419-1250	1/8	3	1/8	1-1/4	0.123	1/4
HP419-1875	3/16	4	3/16	1-7/8	0.183	1/4

Packed: 1 pc.
Available TiAlN coating only.

HPC

List HP419

2 Flute, Necked, Ball End

SPEED FEED P1255-1256 | CARBIDE | TiAlN | 30° | SHANK h6

Milling Diameter Tolerance	
0.5≤D≤6	+0 / -0.038mm



Units: mm

EDP Number	Mill Dia.	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Dia.
TiAlN	D	L	Lc	L1	d2	d
HP419-0197	0.5	60	0.5	2.5	0.45	6
HP419-0236	0.6	60	0.6	3.0	0.55	6
HP419-0315	0.8	60	0.8	4.0	0.75	6
HP419-0394	1.0	60	1.0	5.0	0.95	6
HP419-0472	1.2	60	1.2	6.0	1.15	6
HP419-0551	1.4	60	1.4	7.0	1.35	6
HP419-0591	1.5	60	1.5	7.5	1.45	6
HP419-0630	1.6	60	1.6	8.0	1.55	6
HP419-0709	1.8	60	1.8	9.0	1.75	6
HP419-0787	2.0	60	2.0	10.0	1.95	6
HP419-0984	2.5	60	2.5	12.5	2.40	6
HP419-1181	3.0	70	3.0	15.0	2.85	6
HP419-1378	3.5	70	3.5	17.5	3.35	6
HP419-1575	4.0	70	4.0	20.0	3.85	6
HP419-1969	5.0	80	5.0	25.0	4.85	6
HP419-2362	6.0	90	6.0	30.0	5.85	6

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3690 or 3790 (p. 857 or 858-860)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP419	▢	▢	▢	▢	▢				▢					▢	▢		

▢ good ▢ best

List HP419L

2 Flute, Long Neck, Ball End

SPEED FEED P1255-1256 | CARBIDE | TiAlN | 30° | SHANK h6

Milling Diameter Tolerance	
0.6≤D≤3	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Overall Diameter	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
TiAlN	D	L	Lc	L1	d2	d
HP419L-0236	0.6	60	0.6	6	0.55	6
HP419L-0315	0.8	60	0.8	8	0.75	6
HP419L-0394	1.0	60	1.0	10	0.95	6
HP419L-0472	1.2	60	1.2	12	1.15	6
HP419L-0551	1.4	60	1.4	12	1.35	6
HP419L-0591	1.5	60	1.5	12	1.45	6
HP419L-0630	1.6	60	1.6	16	1.55	6
HP419L-0709	1.8	60	1.8	16	1.75	6
HP419L-0787	2.0	60	2.0	16	1.95	6
HP419L-1181	3.0	70	3.0	30	2.85	6

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3790 (p. 858-860)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP419L	○	○	○	○	○				○					○	○		

○ good ◎ best

List HP413

SPEED FEED PP1255-1256 | CARBIDE | TiAlN | 30° | SHANK h6

2 Flute, Ball End

Milling Diameter Tolerance	
1/32≤D≤3/16	+0 / -0.0015"



Units: Inch

EDP Number	Mill Dia.	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Dia.
TiAlN	D	L	Lc	L1	d2	d
HP413-0312	1/32	2-1/2	1/32	5/32	0.029	1/4
HP413-0625	1/16	2-1/2	1/16	5/16	0.060	1/4
HP413-0938	3/32	2-1/2	3/32	15/32	0.091	1/4

EDP Number	Mill Dia.	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Dia.
TiAlN	D	L	Lc	L1	d2	d
HP413-1250	1/8	3	1/8	5/8	0.123	1/4
HP413-1875	3/16	4	3/16	15/16	0.183	1/4

HPC

Packed: 1 pc.
Available TiAlN coating only.

List HP413

SPEED FEED P1255-1256 | CARBIDE | TiAlN | 30° | SHANK h6

2 Flute, Ball End

Milling Diameter Tolerance	
1≤D≤6	+0 / -0.038mm



Units: mm

EDP Number	Mill Dia.	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Dia.
TiAlN	D	L	Lc	L1	d2	d
HP413-0394	1.0	50	1.0	2.5	0.95	6
HP413-0472	1.2	50	1.2	3.0	1.15	6
HP413-0551	1.4	50	1.4	3.5	1.35	6
HP413-0591	1.5	50	1.5	3.8	1.45	6
HP413-0630	1.6	50	1.6	4.0	1.55	6
HP413-0709	1.8	50	1.8	4.5	1.75	6
HP413-0787	2.0	50	2.0	5.0	1.95	6

EDP Number	Mill Dia.	Overall Length	Length of Cut	Neck Length	Neck Dia.	Shank Dia.
TiAlN	D	L	Lc	L1	d2	d
HP413-0984	2.5	50	2.5	5.0	2.40	6
HP413-1181	3.0	50	3.0	6.0	2.85	6
HP413-1378	3.5	50	3.5	6.0	3.35	6
HP413-1575	4.0	50	4.0	6.0	3.85	6
HP413-1969	5.0	50	5.0	7.5	4.85	6
HP413-2362	6.0	50	6.0	9.0	5.85	6

HPC

Packed: 1 pc.
Available TiAlN coating only.

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3610 or 3710 (p. 853 or 854)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP413	○	○	○	○	○				○					○	○		

○ good ◎ best

List HP432, HP434

2 or 4 Flute, Corner Radius

SPEED FEED	CARBIDE	TiAlN		35°	SHANK
P1257-1260					h6

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0015"



HP432



HP434

Units: Inch

EDP Number		Mill Dia.	Corner Radius	Overall Length	Length of Cut	Shank Dia.
List HP432 (2 Flute)	List HP434 (4 Flute)					
TiAlN	TiAlN	D	R	L	Lc	d
HP432-1251	HP434-1251	1/8	0.015	1-1/2	1/2	1/8
HP432-1872	HP434-1872	3/16	0.020	2	5/8	3/16
HP432-2502	HP434-2502	1/4	0.020	2-1/2	3/4	1/4
HP432-2503	HP434-2503	1/4	0.030	2-1/2	3/4	1/4
HP432-3122	HP434-3122	5/16	0.020	2-1/2	13/16	5/16
HP432-3123	HP434-3123	5/16	0.030	2-1/2	13/16	5/16
HP432-3752	HP434-3752	3/8	0.020	2-1/2	1	3/8
HP432-3753	HP434-3753	3/8	0.030	2-1/2	1	3/8
HP432-5002	HP434-5002	1/2	0.020	3	1	1/2
HP432-5003	HP434-5003	1/2	0.030	3	1	1/2
HP432-5006	HP434-5006	1/2	0.060	3	1	1/2
HP432-6253	HP434-6253	5/8	0.030	3-1/2	1-1/4	5/8
HP432-6256	HP434-6256	5/8	0.060	3-1/2	1-1/4	5/8
HP432-6259	HP434-6259	5/8	0.090	3-1/2	1-1/4	5/8
HP432-7506	HP434-7506	3/4	0.060	4	1-1/2	3/4
HP432-7509	HP434-7509	3/4	0.090	4	1-1/2	3/4
HP432-7512	HP434-7512	3/4	0.125	4	1-1/2	3/4
HP432-1006	HP434-1006	1	0.060	4	1-1/2	1
HP432-1009	HP434-1009	1	0.090	4	1-1/2	1
HP432-1012	HP434-1012	1	0.125	4	1-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

continued on next page

HPC

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	

▢ good ▣ best

List HP432, HP434 (Continued)

SPEED FEED P1257-1260 | CARBIDE | TiAlN | 35° | SHANK h6

2 or 4 Flute, Corner Radius

Milling Diameter Tolerance	
3≤D≤12	+0 / -0.038mm



HP432



HP434

Units: mm

EDP Number		Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
List HP432 (2 Flute)	List HP434 (4 Flute)					
TiAlN	TiAlN	D	R	L	Lc	d
HP432-1181	HP434-1181	3	0.2	60	8	6
HP432-1182	HP434-1182	3	0.5	60	8	6
HP432-1575	HP434-1575	4	0.2	70	11	6
HP432-1576	HP434-1576	4	0.5	70	11	6
HP432-1577	HP434-1577	4	1.0	70	11	6
HP432-1960	HP434-1960	5	0.2	80	13	6
HP432-1961	HP434-1961	5	0.5	80	13	6
HP432-1962	HP434-1962	5	1.0	80	13	6
HP432-2360	HP434-2360	6	0.2	80	13	6
HP432-2361	HP434-2361	6	0.5	80	13	6
HP432-2362	HP434-2362	6	1.0	80	13	6
HP432-2363	HP434-2363	6	1.5	80	13	6
HP432-2364	HP434-2364	6	2.0	80	13	6
HP432-3150	HP434-3150	8	0.5	100	19	8
HP432-3151	HP434-3151	8	1.0	100	19	8
HP432-3152	HP434-3152	8	1.5	100	19	8
HP432-3153	HP434-3153	8	2.0	100	19	8
HP432-3930	HP434-3930	10	0.5	100	22	10
HP432-3931	HP434-3931	10	1.0	100	22	10
HP432-3932	HP434-3932	10	1.5	100	22	10
HP432-3933	HP434-3933	10	2.0	100	22	10
HP432-3934	HP434-3934	10	3.0	100	22	10
HP432-4720	HP434-4720	12	0.5	110	26	12
HP432-4721	HP434-4721	12	1.0	110	26	12
HP432-4722	HP434-4722	12	1.5	110	26	12
HP432-4723	HP434-4723	12	2.0	110	26	12
HP432-4724	HP434-4724	12	3.0	110	26	12

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3770 or 3771 (p. 879 or 880)

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	

▢ good ▣ best

List HP433

2 Flute, Corner Radius

SPEED FEED P1257-1260 | CARBIDE | TiAlN | 35° | SHANK h6

Milling Diameter Tolerance	
3≤D≤12	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
TiAlN	D	R	L	Lc	L1	d2	d
HP433-1181	3	0.2	60	4.5	14	2.8	6
HP433-1182	3	0.5	60	4.5	14	2.8	6
HP433-1575	4	0.2	70	6.0	25	3.7	6
HP433-1576	4	0.5	70	6.0	25	3.7	6
HP433-1577	4	1.0	70	6.0	25	3.7	6
HP433-1960	5	0.2	80	7.5	30	4.6	6
HP433-1961	5	0.5	80	7.5	30	4.6	6
HP433-1962	5	1.0	80	7.5	30	4.6	6
HP433-2360	6	0.2	80	9.0	35	5.5	6
HP433-2361	6	0.5	80	9.0	35	5.5	6
HP433-2362	6	1.0	80	9.0	35	5.5	6
HP433-2363	6	1.5	80	9.0	35	5.5	6
HP433-2364	6	2.0	80	9.0	35	5.5	6
HP433-3150	8	0.5	100	12.0	40	7.4	8
HP433-3151	8	1.0	100	12.0	40	7.4	8
HP433-3152	8	1.5	100	12.0	40	7.4	8
HP433-3153	8	2.0	100	12.0	40	7.4	8
HP433-3930	10	0.5	100	15.0	45	9.2	10
HP433-3931	10	1.0	100	15.0	45	9.2	10
HP433-3932	10	1.5	100	15.0	45	9.2	10
HP433-3933	10	2.0	100	15.0	45	9.2	10
HP433-3934	10	3.0	100	15.0	45	9.2	10
HP433-4720	12	0.5	110	18.0	50	11.0	12
HP433-4721	12	1.0	110	18.0	50	11.0	12
HP433-4722	12	1.5	110	18.0	50	11.0	12
HP433-4723	12	2.0	110	18.0	50	11.0	12
HP433-4724	12	3.0	110	18.0	50	11.0	12

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3770 (p. 879)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP433	○	○	○	○	○	○	○	○	○			○	○	○	○		

○ good ◎ best

List HP435

4 Flute, Corner Radius

SPEED FEED P1258-1260 | CARBIDE | TiAlN | 35° | SHANK h6

Milling Diameter Tolerance	
3≤D≤12	+0 / -0.038mm



Units: mm

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
TiAlN	D	R	L	Lc	L1	d2	d
HP435-1181	3	0.2	60	4.5	14	2.8	6
HP435-1182	3	0.5	60	4.5	14	2.8	6
HP435-1575	4	0.2	70	6.0	25	3.7	6
HP435-1576	4	0.5	70	6.0	25	3.7	6
HP435-1577	4	1.0	70	6.0	25	3.7	6
HP435-1960	5	0.2	80	7.5	30	4.6	6
HP435-1961	5	0.5	80	7.5	30	4.6	6
HP435-1962	5	1.0	80	7.5	30	4.6	6
HP435-2360	6	0.2	80	9.0	35	5.5	6
HP435-2361	6	0.5	80	9.0	35	5.5	6
HP435-2362	6	1.0	80	9.0	35	5.5	6
HP435-2363	6	1.5	80	9.0	35	5.5	6
HP435-2364	6	2.0	80	9.0	35	5.5	6
HP435-3150	8	0.5	100	12.0	40	7.4	8
HP435-3151	8	1.0	100	12.0	40	7.4	8
HP435-3152	8	1.5	100	12.0	40	7.4	8
HP435-3153	8	2.0	100	12.0	40	7.4	8
HP435-3930	10	0.5	100	15.0	45	9.2	10
HP435-3931	10	1.0	100	15.0	45	9.2	10
HP435-3932	10	1.5	100	15.0	45	9.2	10
HP435-3933	10	2.0	100	15.0	45	9.2	10
HP435-3934	10	3.0	100	15.0	45	9.2	10
HP435-4720	12	0.5	110	18.0	50	11.0	12
HP435-4721	12	1.0	110	18.0	50	11.0	12
HP435-4722	12	1.5	110	18.0	50	11.0	12
HP435-4723	12	2.0	110	18.0	50	11.0	12
HP435-4724	12	3.0	110	18.0	50	11.0	12

Packed: 1 pc.
Available TiAlN coating only.

HPC

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3771 (p. 880)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
HP435	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	

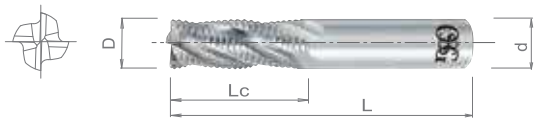
▢ good ▣ best

List 400

4 Flute, Roughy Mills

SPEED FEED P1272-1273 | CARBIDE | BR | ROUGH | 30°

Milling Diameter Tolerance	
1/4≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
400-2500	1/4	2-1/2	3/4	1/4
400-3125	5/16	2-1/2	3/4	5/16
400-3750	3/8	2-1/2	1	3/8
400-5000	1/2	3	1-1/4	1/2

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
400-6250	5/8	3-1/2	1-5/8	5/8
400-7500	3/4	4	1-5/8	3/4
400-1000	1	4	1-3/4	1

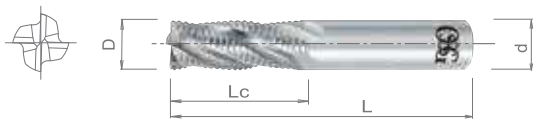
Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

List 400

4 Flute, Roughy Mills

SPEED FEED P1272-1273 | CARBIDE | BR | ROUGH | 30°

Milling Diameter Tolerance	
6≤D≤25	+0 / -0.05mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
400-2362	6	64	19	6
400-3150	8	64	19	8
400-3937	10	70	25	10
400-4724	12	76	25	12

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
400-6299	16	89	32	16
400-7874	20	102	38	20
400-9843	25	102	38	25

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
400	▢	▢		▢		▢	▢	▢	▢	▢	▢			▢	▢	▢	

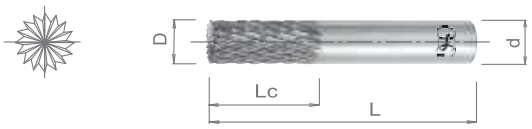
▢ good ▣ best

List 415

CARBIDE | BR | 15°

Standard Cut, Toughy Mills, (For use on lighter finishing cuts)

Milling Diameter Tolerance	
1/8≤D≤1/4	+0 / -0.003"
5/16≤D≤1/2	+0 / -0.004"
9/16≤D≤1	+0 / -0.005"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
415-1250	1/8	1-1/2	1/2	1/8
415-1562	5/32	2	9/16	3/16
415-1875	3/16	2	5/8	3/16
415-2188	7/32	2-1/2	5/8	1/4
415-2500	1/4	2-1/2	3/4	1/4
415-3125	5/16	2-1/2	13/16	5/16
415-3750	3/8	2-1/2	1	3/8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
415-4375	7/16	2-3/4	1	7/16
415-5000	1/2	3	1	1/2
415-5625	9/16	3-1/2	1-1/8	9/16
415-6250	5/8	3-1/2	1-1/4	5/8
415-7500	3/4	4	1-1/2	3/4
415-8750	7/8	4	1-1/2	7/8
415-1000	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

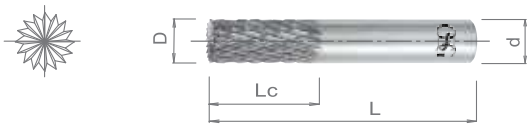
HYE

List 415C

CARBIDE | BR | 15°

Coarse Cut, Toughy Mills, (For use on heavy cuts)

Milling Diameter Tolerance	
1/8≤D≤1/4	+0 / -0.003"
5/16≤D≤1/2	+0 / -0.004"
9/16≤D≤1	+0 / -0.005"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
415-1251	1/8	1-1/2	1/2	1/8
415-1561	5/32	2	9/16	3/16
415-1871	3/16	2	5/8	3/16
415-2181	7/32	2-1/2	5/8	1/4
415-2501	1/4	2-1/2	3/4	1/4
415-3121	5/16	2-1/2	13/16	5/16
415-3751	3/8	2-1/2	1	3/8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
415-4371	7/16	2-3/4	1	7/16
415-5001	1/2	3	1	1/2
415-5621	9/16	3-1/2	1-1/8	9/16
415-6251	5/8	3-1/2	1-1/4	5/8
415-7501	3/4	4	1-1/2	3/4
415-8751	7/8	4	1-1/2	7/8
415-1001	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-			○	○										○	○	○	

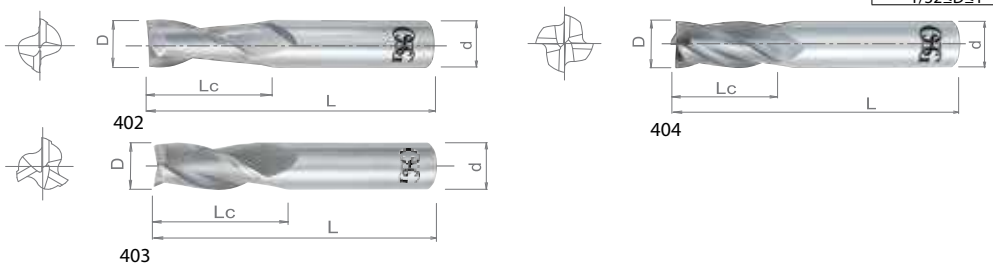
○ good ◎ best

List 402, 403, 404

2, 3, or 4 Flute

SPEED FEED P1261-1267 | CARBIDE | TiAlN | TiCN | BR | 30°

Milling Diameter Tolerance	
1/32≤D≤1	+0 / -0.002"



Units: Inch

EDP Number							Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 402 (2 Flute)			List 403 (3 Flute)		List 404 (4 Flute)					
Bright	TiCN	TiAlN	Bright	TiAlN	Bright	TiAlN	D	L	Lc	d
402-0312	-	402-031211	-	-	404-0312	404-031211	1/32	1-1/2	1/8	1/8
402-0469	-	402-046911	-	-	404-0469	404-046911	3/64	1-1/2	9/64	1/8
402-0625	-	402-062511	403-0625	403-062511	404-0625	404-062511	1/16	1-1/2	3/16	1/8
402-0781	-	402-078111	403-0781	403-078111	404-0781	404-078111	5/64	1-1/2	1/4	1/8
402-0938	-	402-093811	403-0938	403-093811	404-0938	404-093811	3/32	1-1/2	5/16	1/8
402-0939	-	-	403-0939	-	404-0939	404-093911	3/32	1-1/2	3/8	1/8
402-1094	-	402-109411	403-1094	403-109411	404-1094	404-109411	7/64	1-1/2	3/8	1/8
402-1250	-	402-125011	403-1250	403-125011	404-1250	404-125011	1/8	1-1/2	1/2	1/8
402-1406	-	402-140611	403-1406	403-140611	404-1406	404-140611	9/64	2	1/2	3/16
402-1562	-	402-156211	403-1562	403-156211	404-1562	404-156211	5/32	2	9/16	3/16
402-1719	-	402-171911	403-1719	403-171911	404-1719	404-171911	11/64	2	9/16	3/16
402-1875	-	402-187511	403-1875	403-187511	404-1875	404-187511	3/16	2	5/8	3/16
402-2031	-	402-203111	403-2031	403-203111	404-2031	404-203111	13/64	2-1/2	5/8	1/4
402-2188	-	402-218811	403-2188	403-218811	404-2188	404-218811	7/32	2-1/2	5/8	1/4
402-2344	-	402-234411	403-2344	403-234411	404-2344	404-234411	15/64	2-1/2	3/4	1/4
402-2500	-	402-250011	403-2500	403-250011	404-2500	404-250011	1/4	2-1/2	3/4	1/4
402-2656	-	402-265611	403-2656	403-265611	404-2656	404-265611	17/64	2-1/2	3/4	5/16
402-2812	-	402-281211	403-2812	403-281211	404-2812	404-281211	9/32	2-1/2	3/4	5/16
402-2969	-	402-296911	403-2969	403-296911	404-2969	404-296911	19/64	2-1/2	13/16	5/16
402-3125	-	402-312511	403-3125	403-312511	404-3125	404-312511	5/16	2-1/2	13/16	5/16
402-3281	-	402-328111	-	-	404-3281	404-328111	21/64	2-1/2	7/8	3/8
402-3438	-	402-343811	-	-	404-3438	404-343811	11/32	2-1/2	7/8	3/8
402-3594	-	402-359411	-	-	404-3594	404-359411	23/64	2-1/2	7/8	3/8
402-3750	402-375008	402-375011	403-3750	403-375011	404-3750	404-375011	3/8	2-1/2	1	3/8
402-3906	-	402-390611	-	-	404-3906	404-390611	25/64	2-3/4	1	7/16
402-4062	-	402-406211	-	-	404-4062	404-406211	13/32	2-3/4	1	7/16
402-4219	-	402-421911	-	-	404-4219	404-421911	27/64	2-3/4	1	7/16
402-4375	-	402-437511	403-4375	403-437511	404-4375	404-437511	7/16	2-3/4	1	7/16
402-4531	-	402-453111	-	-	404-4531	404-453111	29/64	3	1	1/2
402-4688	-	402-468811	-	-	404-4688	404-468811	15/32	3	1	1/2
402-4844	-	402-484411	-	-	404-4844	404-484411	31/64	3	1	1/2
402-5000	-	402-500011	403-5000	403-500011	404-5000	404-500011	1/2	3	1	1/2

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

continued on next page

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
402	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		
403	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
404	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

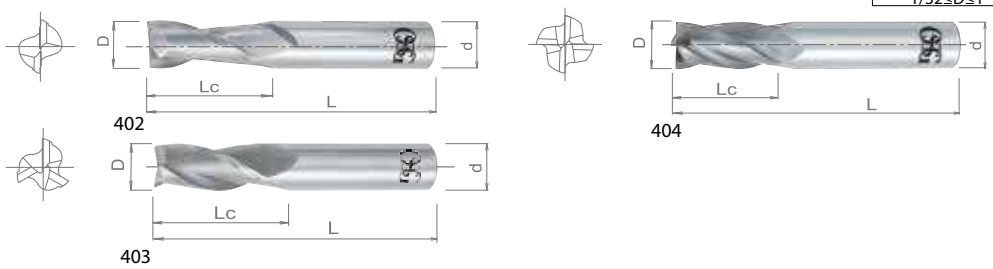
▢ good ▢ best

List 402, 403, 404 (Continued)

SPEED FEED P1261-1267 | CARBIDE | TiAlN | TiCN | BR | 30°

2, 3, or 4 Flute

Milling Diameter Tolerance	
1/32≤D≤1	+0 / -0.002"



Units: Inch

EDP Number							Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 402 (2 Flute)			List 403 (3 Flute)		List 404 (4 Flute)					
Bright	TiCN	TiAlN	Bright	TiAlN	Bright	TiAlN	D	L	Lc	d
402-5625	562508	402-562511	403-5625	403-562511	404-5625	404-562511	9/16	3-1/2	1-1/8	9/16
402-6250	-	402-625011	403-6250	403-625011	404-6250	404-625011	5/8	3-1/2	1-1/4	5/8
402-6875	-	402-687511	403-6875	403-687511	404-6875	404-687511	11/16	4	1-3/8	3/4
402-7500	-	402-750011	403-7500	403-750011	404-7500	404-750011	3/4	4	1-1/2	3/4
402-8750	-	402-875011	403-8750	403-875011	404-8750	404-875011	7/8	4	1-1/2	7/8
402-1000	-	402-100011	403-1000	403-100011	404-1000	404-100011	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
402	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		
403	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
404	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

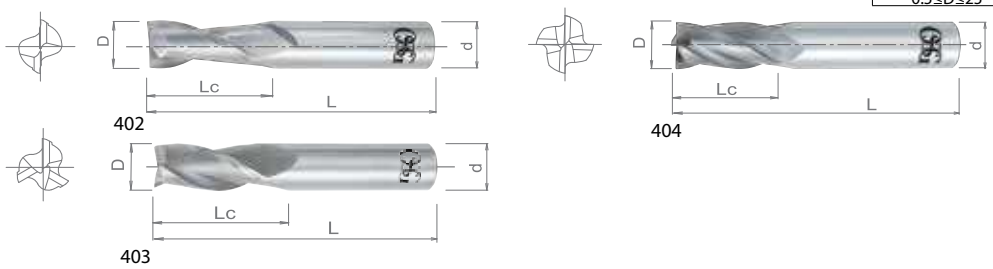
▢ good ▢ best

List 402, 403, 404

2, 3, or 4 Flute

SPEED FEED	CARBIDE	TiAlN	TiCN	BR		30°
P1261-1267						

Milling Diameter Tolerance	
0.5≤D≤25	+0 / -0.05mm



Units: mm

EDP Number						Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 402 (2 Flute)		List 403 (3 Flute)		List 404 (4 Flute)					
Bright	TiAlN	Bright	TiAlN	Bright	TiAlN	D	L	Lc	d
402-0197	402-019711	-	-	-	-	0.5	39	1.5	3
402-0394	402-039411	403-0394	403-039411	404-0394	404-039411	1.0	39	3.0	3
402-0591	402-059111	403-0591	403-059111	404-0591	404-059111	1.5	39	5.0	3
402-0787	402-078711	403-0787	403-078711	404-0787	404-078711	2.0	39	7.0	3
402-0984	402-098411	403-0984	403-098411	404-0984	404-098411	2.5	39	8.0	3
402-1181	402-118111	403-1181	403-118111	404-1181	404-118111	3.0	39	10.0	3
402-1378	402-137811	403-1378	403-137811	404-1378	404-137811	3.5	51	12.0	4
402-1575	402-157511	403-1575	403-157511	404-1575	404-157511	4.0	51	14.0	4
402-1772	402-177211	403-1772	403-177211	404-1772	404-177211	4.5	51	14.0	5
402-1968	402-196811	403-1968	403-196811	404-1968	404-196811	5.0	51	16.0	5
402-2362	402-236211	403-2362	403-236211	404-2362	404-236211	6.0	64	19.0	6
402-2756	402-275611	403-2756	403-275611	404-2756	404-275611	7.0	64	19.0	8
402-3150	402-315011	403-3150	403-315011	404-3150	404-315011	8.0	64	21.0	8
402-3543	402-354311	403-3543	403-354311	404-3543	404-354311	9.0	70	22.0	10
402-3937	402-393711	403-3937	403-393711	404-3937	404-393711	10.0	70	25.0	10
402-4331	402-433111	403-4331	403-433111	404-4331	404-433111	11.0	70	25.0	11
402-4724	402-472411	403-4724	403-472411	404-4724	404-472411	12.0	76	25.0	12
402-5512	402-551211	403-5512	403-551211	404-5512	404-551211	14.0	89	30.0	14
402-6299	402-629911	403-6299	403-629911	404-6299	404-629911	16.0	89	32.0	16
402-7087	402-708711	403-7087	403-708711	404-7087	404-708711	18.0	102	35.0	18
402-7874	402-787411	403-7874	403-787411	404-7874	404-787411	20.0	102	38.0	20
402-8661	402-866111	403-8661	403-866111	404-8661	404-866111	22.0	102	38.0	22
402-9843	402-984311	403-9843	403-984311	404-9843	404-984311	25.0	102	38.0	25

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
402	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		
403	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
404	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

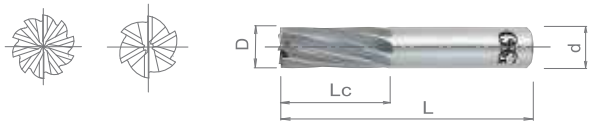
▢ good ▢ best

List 408

Multiple Flute, Slow Spiral

SPEED FEED P1265-1267 | CARBIDE | BR | 15°

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
Bright	D	L	Lc	d	
408-1250	1/8	1-1/2	1/2	1/8	5
408-1562	5/32	2	9/16	3/16	6
408-1875	3/16	2	5/8	3/16	6
408-2500	1/4	2-1/2	3/4	1/4	6
408-2812	9/32	2-1/2	3/4	5/16	6
408-3125	5/16	2-1/2	13/16	5/16	6
408-3750	3/8	2-1/2	1	3/8	8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
Bright	D	L	Lc	d	
408-4375	7/16	2-3/4	1	7/16	8
408-5000	1/2	3	1	1/2	8
408-5625	9/16	3-1/2	1-1/8	9/16	8
408-6250	5/8	3-1/2	1-1/4	5/8	10
408-6875	11/16	4	1-3/8	3/4	10
408-7500	3/4	4	1-1/2	3/4	10
408-1000	1	4	1-1/2	1	14

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

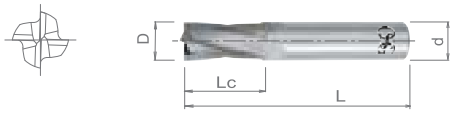
HYE

List 409

4 Flute, Slow Spiral

SPEED FEED P1265-1267 | CARBIDE | TiAlN | BR | 15°

Milling Diameter Tolerance	
1/16≤D≤1	+0 / -0.002"



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiAlN	D	L	Lc	d
409-0625	-	1/16	1-1/2	3/16	1/8
409-0781	-	5/64	1-1/2	1/4	1/8
409-0938	-	3/32	1-1/2	3/8	1/8
409-1094	-	7/64	1-1/2	7/16	1/8
409-1250	-	1/8	1-1/2	1/2	1/8
409-1562	-	5/32	2	9/16	3/16
409-1875	-	3/16	2	5/8	3/16
409-2188	-	7/32	2-1/2	5/8	1/4
409-2500	-	1/4	2-1/2	3/4	1/4
409-2812	-	9/32	2-1/2	3/4	5/16

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiAlN	D	L	Lc	d
409-3125	-	5/16	2-1/2	13/16	5/16
409-3750	409-375011	3/8	2-1/2	1	3/8
409-4375	-	7/16	2-3/4	1	7/16
409-5000	-	1/2	3	1	1/2
409-5625	-	9/16	3-1/2	1-1/8	9/16
409-6250	-	5/8	3-1/2	1-1/4	5/8
409-6875	-	11/16	4	1-3/8	3/4
409-7500	-	3/4	4	1-1/2	3/4
409-8750	-	7/8	4	1-1/2	7/8
409-1000	-	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢				▢					▢	▢	▢	

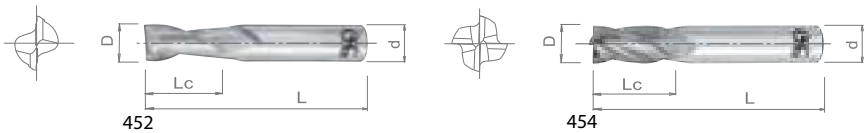
▢ good ▣ best

List 452, 454

2, or 4 Flute, Plus Tolerance

SPEED FEED P1261-1267	CARBIDE	TiAlN	BR		30°

Milling Diameter Tolerance	
1/16≤D≤1	+0.001" / -0



Units: Inch

EDP Number			Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 452 (2 Flute)		List 454 (4 Flute)				
Bright	TiAlN	Bright	D	L	Lc	d
452-0625	-	454-0625	1/16	1-1/2	3/16	1/8
452-0938	-	454-0938	3/32	1-1/2	5/16	1/8
452-1250	-	454-1250	1/8	1-1/2	1/2	1/8
452-1562	-	454-1562	5/32	2	9/16	3/16
452-1875	-	454-1875	3/16	2	5/8	3/16
452-2188	-	454-2188	7/32	2-1/2	5/8	1/4
452-2500	452-250011	454-2500	1/4	2-1/2	3/4	1/4
452-2812	-	454-2812	9/32	2-1/2	3/4	5/16
452-3125	-	454-3125	5/16	2-1/2	13/16	5/16
452-3750	-	454-3750	3/8	2-1/2	1	3/8
452-4375	-	454-4375	7/16	2-3/4	1	7/16
452-5000	-	454-5000	1/2	3	1	1/2
452-5625	-	454-5625	9/16	3-1/2	1-1/8	9/16
452-6250	-	454-6250	5/8	3-1/2	1-1/4	5/8
452-6875	-	454-6875	11/16	4	1-3/8	3/4
452-7500	-	454-7500	3/4	4	1-1/2	3/4
452-1000	-	454-1000	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

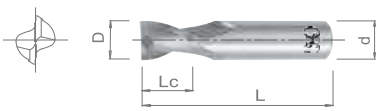
▢ good ▣ best

List 412, 414

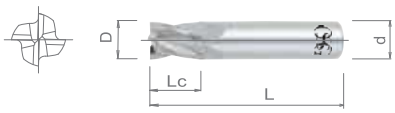
2 or 4 Flute, Stub Length

SPEED FEED P1261-1267 | CARBIDE | TiAlN | TiCN | BR | 30°

Milling Diameter Tolerance	
1/32≤D≤3/4	+0 / -0.002"



412



414

Units: Inch

EDP Number					Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 412 (2 Flute)			List 414 (4 Flute)					
Bright	TiCN	TiAlN	Bright	TiAlN	D	L	Lc	d
412-0312	412-031208	412-031211	414-0312	414-031211	1/32	1-1/2	5/64	1/8
412-0469	-	412-046911	414-0469	414-046911	3/64	1-1/2	3/32	1/8
412-0625	-	412-062511	414-0625	414-062511	1/16	1-1/2	1/8	1/8
412-0781	-	-	414-0781	414-078111	5/64	1-1/2	5/32	1/8
412-0938	412-093808	-	414-0938	414-093811	3/32	1-1/2	3/16	1/8
412-1094	-	-	414-1094	414-109411	7/64	1-1/2	7/32	1/8
412-1250	-	412-125011	414-1250	414-125011	1/8	1-1/2	1/4	1/8
412-1406	-	-	414-1406	414-140611	9/64	2	9/32	3/16
412-1562	412-156208	-	414-1562	414-156211	5/32	2	5/16	3/16
412-1875	412-187508	412-187511	414-1875	414-187511	3/16	2	3/8	3/16
412-2188	-	-	414-2188	414-218811	7/32	2	7/16	1/4
412-2500	-	412-250011	414-2500	414-250011	1/4	2	1/2	1/4
412-3125	-	412-312511	414-3125	414-312511	5/16	2	1/2	5/16
412-3750	-	412-375011	414-3750	414-375011	3/8	2	5/8	3/8
412-4375	-	-	414-4375	414-437511	7/16	2-1/2	5/8	7/16
412-5000	412-500008	412-500011	414-5000	414-500011	1/2	2-1/2	5/8	1/2
412-6250	-	-	414-6250	414-625011	5/8	3	3/4	5/8
412-7500	-	-	414-7500	414-750011	3/4	3	1	3/4

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

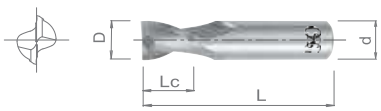
▢ good ▢ best

List 412, 414

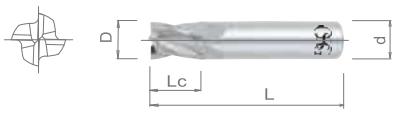
2 or 4 Flute, Stub Length

SPEED FEED P1261-1267 | CARBIDE | TiAlN | TiCN | BR | 30°

Milling Diameter Tolerance	
1≤D≤12	+0 / -0.05mm



412



414

Units: mm

EDP Number			Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 412 (2 Flute)	List 414 (4 Flute)					
Bright	Bright	TiAlN	D	L	Lc	d
412-0394	414-0394	414-039411	1.0	39	2	3
412-0591	414-0591	-	1.5	39	3	3
412-0787	414-0787	-	2.0	39	4	3
412-0984	414-0984	-	2.5	39	5	3
412-1181	414-1181	-	3.0	39	6	3
412-1378	414-1378	-	3.5	51	7	4
412-1575	414-1575	-	4.0	51	8	4
412-1772	414-1772	-	4.5	51	9	5
412-1968	414-1968	414-196811	5.0	51	10	5
412-2362	414-2362	-	6.0	51	12	6
412-2756	414-2756	-	7.0	51	12	8
412-3150	414-3150	-	8.0	51	12	8
412-3543	414-3543	-	9.0	51	14	10
412-3937	414-3937	-	10.0	51	14	10
412-4331	414-4331	-	11.0	64	16	11
412-4724	414-4724	-	12.0	64	16	12

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	○	○	○	○	○	○	○		○	○	○			○	○	○	

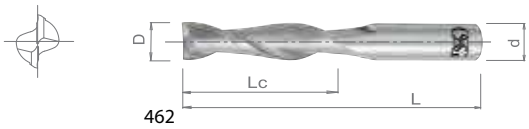
○ good ◎ best

List 462, 464

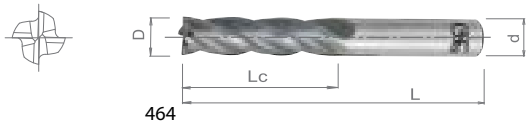
2 or 4 Flute, Long Length

SPEED FEED P1261-1267 | CARBIDE | TiAlN | TiCN | BR | 30°

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



462



464

Units: Inch

EDP Number						Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 462 (2 Flute)			List 464 (4 Flute)						
Bright	TiCN	TiAlN	Bright	TiCN	TiAlN	D	L	Lc	d
462-1250	-	462-125011	464-1250	-	464-125011	1/8	2-1/4	3/4	1/8
462-1875	-	-	464-1875	-	464-187511	3/16	2-1/4	3/4	3/16
462-2500	-	462-250011	464-2500	-	464-250011	1/4	3	1-1/8	1/4
462-3125	-	462-312511	464-3125	-	464-312511	5/16	3	1-1/8	5/16
462-3750	462-375008	462-375011	464-3750	-	464-375011	3/8	3	1-1/8	3/8
462-4375	-	-	464-4375	464-437508	464-437511	7/16	4	2	7/16
462-5000	-	-	464-5000	-	464-500011	1/2	4	2	1/2
462-5001	462-500108	-	464-5001	464-500108	-	1/2	4	1	1/2
462-6250	462-625008	-	464-6250	-	464-625011	5/8	5	2-1/4	5/8
462-7500	-	-	464-7500	-	464-750011	3/4	5	2-1/4	3/4
462-1000	-	-	464-1000	464-100008	-	1	5	2-1/4	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
462	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
464	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	▢

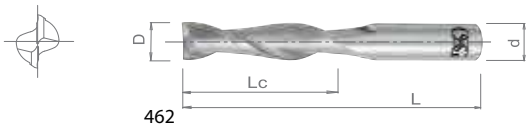
▢ good ▢ best

List 462, 464

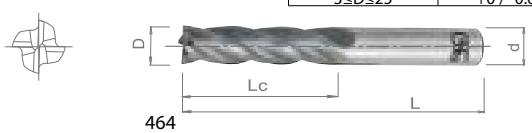
2 or 4 Flute, Long Length

SPEED FEED P1261-1267	CARBIDE	TiAlN	TiCN	BR		30°

Milling Diameter Tolerance	
3≤D≤25	+0 / -0.05mm



462



464

Units: mm

EDP Number			Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 462 (2 Flute)	List 464 (4 Flute)					
Bright	Bright	TiAlN	D	L	Lc	d
462-1181	464-1181	-	3	57	19	3
462-1575	464-1575	-	4	57	19	4
462-1968	464-1968	464-196811	5	64	25	5
462-2362	464-2362	464-236211	6	76	28	6
462-3150	464-3150	464-315011	8	76	29	8
462-3937	464-3937	464-393711	10	76	32	10
462-4724	464-4724	464-472411	12	102	51	12
462-5512	464-5512	-	14	127	57	14
462-6299	464-6299	-	16	127	57	16
462-7087	464-7087	-	18	127	57	18
462-7874	464-7874	464-787411	20	127	57	20
462-9843	464-9843	-	25	127	57	25

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

OSG's Performance & Savings

Want to turbo-charge performance? Try EXOCARB® WXL® - List 3723 (p. 878) or EXOCARB® WXL® - List 3742 (p. 865)

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
462	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
464	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	▢

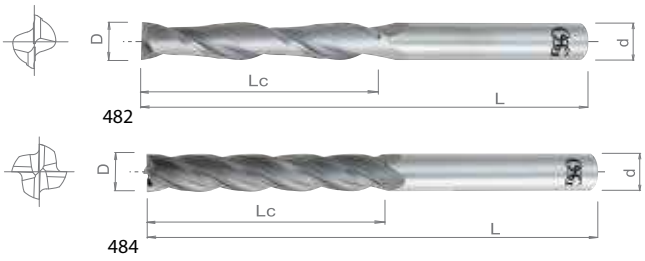
▢ good ▢ best

List 482, 484

2 or 4 Flute, Extra Long Length

SPEED FEED	CARBIDE	TiAlN	TiCN	BR		30°
P1261-1267						

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number						Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 482 (2 Flute)			List 484 (4 Flute)						
Bright	TiCN	TiAlN	Bright	TiCN	TiAlN	D	L	Lc	d
482-1250	-	482-125011	484-1250	-	484-125011	1/8	3	1	1/8
482-1875	482-187508	-	484-1875	-	484-187511	3/16	3	1-1/8	3/16
482-1876	-	-	484-1876	484-187608	-	3/16	4	1	3/16
482-2500	-	482-250011	484-2500	-	484-250011	1/4	4	1-1/2	1/4
482-2501	482-250108	-	484-2501	484-250108	-	1/4	4	1	1/4
482-2502	482-250208	-	484-2502	484-250208	-	1/4	6	1-1/2	1/4
482-3125	-	-	484-3125	-	484-312511	5/16	4	1-5/8	5/16
-	-	-	484-3126	484-312608	-	5/16	4	1	5/16
-	-	-	484-3127	484-312708	-	5/16	6	1-1/2	5/16
482-3750	-	-	484-3750	-	484-375011	3/8	4	1-3/4	3/8
-	-	-	484-3751	484-375108	-	3/8	4	1	3/8
-	-	-	484-3752	484-375208	-	3/8	6	1-1/2	3/8
-	-	-	484-3753	-	-	3/8	6	3	3/8
482-4375	-	-	484-4375	-	-	7/16	6	3	7/16
482-5000	482-500008	482-500011	484-5000	484-500108	484-500011	1/2	6	3	1/2
-	-	-	484-5001	-	-	1/2	6	1-1/2	1/2
482-6250	-	-	484-6250	-	484-625011	5/8	6	3	5/8
-	-	-	484-6251	484-625108	-	5/8	6	2	5/8
482-7500	-	-	484-7500	-	484-750011	3/4	6	3	3/4
-	-	-	484-7501	-	-	3/4	6	2	3/4
482-1000	-	-	484-1000	484-100008	484-100011	1	6	3	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material																		
	P					M			K	N		S		H			
List No.	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
482	▢	▢	▢						▢	▢	▢			▢			
484	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		

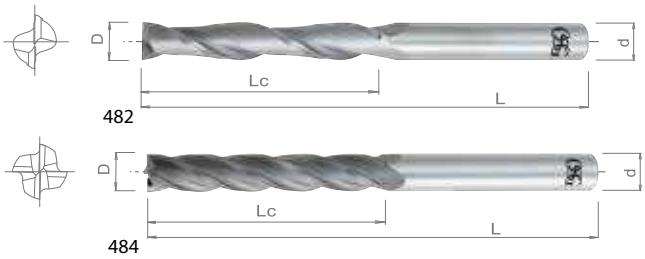
▢ good ▣ best

List 482, 484

2 or 4 Flute, Extra Long Length

SPEED FEED	CARBIDE	BR		30°
P1261-1267				

Milling Diameter Tolerance	
3≤D≤25	+0 / -0.05mm



Units: mm

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 482 (2 Flute)	List 484 (4 Flute)				
Bright	Bright	D	L	Lc	d
482-1181	484-1181	3	76	25	3
482-1575	484-1575	4	76	28	4
482-1968	484-1968	5	76	32	5
482-2362	484-2362	6	102	38	6
482-3150	484-3150	8	102	42	8
482-3937	484-3937	10	102	45	10
482-4724	484-4724	12	153	76	12
482-5512	484-5512	14	153	76	14
482-6299	484-6299	16	153	76	16
482-7087	484-7087	18	153	76	18
482-7874	484-7874	20	153	76	20
482-9843	484-9843	25	153	76	25

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
482	○	○	○						○	○	○			○			
484	○	○	○	○	○	○	○		○	○	○			○	○		

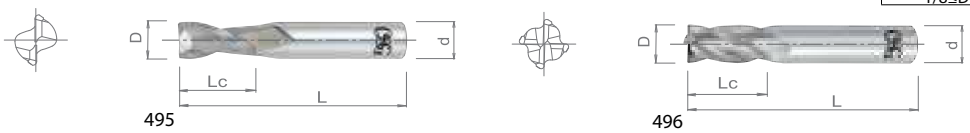
○ good ◎ best

List 495, 496

2 or 4 Flute, Corner Radius

SPEED FEED P1261-1267 | CARBIDE | TiAlN | BR | 30°

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number			Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter
List 495 (2 Flute)	List 496 (4 Flute)						
Bright	Bright	TiAlN	D	R	L	Lc	d
495-1251	496-1251	496-125111	1/8	0.015	1-1/2	1/2	1/8
495-1872	496-1872	496-187211	3/16	0.020	2	5/8	3/16
495-1873	496-1873	496-187311	3/16	0.030	2	5/8	3/16
495-2502	496-2502	496-250211	1/4	0.020	2-1/2	3/4	1/4
495-2503	496-2503	496-250311	1/4	0.030	2-1/2	3/4	1/4
495-2504	496-2504	-	1/4	0.045	2-1/2	3/4	1/4
495-3122	496-3122	496-312211	5/16	0.020	2-1/2	13/16	5/16
495-3123	496-3123	496-312311	5/16	0.030	2-1/2	13/16	5/16
495-3124	496-3124	-	5/16	0.045	2-1/2	13/16	5/16
495-3752	496-3752	-	3/8	0.020	2-1/2	1	3/8
495-3753	496-3753	496-375311	3/8	0.030	2-1/2	1	3/8
495-3754	496-3754	496-375411	3/8	0.045	2-1/2	1	3/8
495-5002	496-5002	496-500211	1/2	0.020	3	1	1/2
495-5003	496-5003	496-500311	1/2	0.030	3	1	1/2
495-5004	496-5004	-	1/2	0.045	3	1	1/2
495-5006	496-5006	496-500611	1/2	0.060	3	1	1/2
495-6252	496-6252	-	5/8	0.020	3-1/2	1-1/4	5/8
495-6253	496-6253	-	5/8	0.030	3-1/2	1-1/4	5/8
495-6254	496-6254	-	5/8	0.045	3-1/2	1-1/4	5/8
495-6256	496-6256	-	5/8	0.060	3-1/2	1-1/4	5/8
495-6259	496-6259	-	5/8	0.090	3-1/2	1-1/4	5/8
495-7500	496-7500	-	3/4	0.125	4	1-1/2	3/4
495-7502	496-7502	-	3/4	0.020	4	1-1/2	3/4
495-7503	496-7503	496-750311	3/4	0.030	4	1-1/2	3/4
495-7504	496-7504	-	3/4	0.045	4	1-1/2	3/4
495-7506	496-7506	-	3/4	0.060	4	1-1/2	3/4
495-7509	496-7509	-	3/4	0.090	4	1-1/2	3/4
495-1000	496-1000	-	1	0.125	4	1-1/2	1
495-1002	496-1002	-	1	0.020	4	1-1/2	1
495-1003	496-1003	-	1	0.030	4	1-1/2	1
495-1004	496-1004	-	1	0.045	4	1-1/2	1
495-1006	496-1006	-	1	0.060	4	1-1/2	1
495-1009	496-1009	-	1	0.090	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	○	○	○	○	○	○	○		○	○	○			○	○	○	○

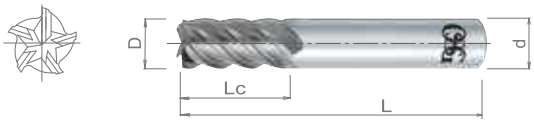
○ good ◎ best

List 455C

5 Flute, Corner Protection

SPEED FEED P1265-1267 | CARBIDE | TiAlN | TiCN | BR | 45°

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number			Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiCN	TiAlN	D	L	Lc	d
455-1250	455-125008	-	1/8	1-1/2	1/2	1/8
455-1251	455-125108	455-125111	1/8	1-1/2	1/4	1/8
455-1562	455-156208	455-156211	5/32	2	9/16	3/16
455-1875	455-187508	-	3/16	2	5/8	3/16
455-1876	455-187608	455-187611	3/16	2	5/16	3/16
455-2188	-	-	7/32	2-1/2	5/8	1/4
455-2500	455-250008	-	1/4	2-1/2	3/4	1/4
455-2501	455-250108	455-250111	1/4	2	1/2	1/4
455-2502	455-250208	455-250211	1/4	4	1-1/4	1/4
455-2812	-	-	9/32	2-1/2	3/4	5/16
455-3125	-	-	5/16	2-1/2	13/16	5/16
455-3126	455-312608	455-312611	5/16	2	1/2	5/16
455-3127	455-312708	455-312711	5/16	4	1-1/4	5/16
455-3750	-	-	3/8	2-1/2	1	3/8
455-3751	455-375108	455-375111	3/8	2	5/8	3/8
455-3752	455-375208	455-375211	3/8	2-1/2	7/8	3/8
455-3753	455-375308	455-375311	3/8	4	1-1/2	3/8
455-4375	455-437508	-	7/16	2-3/4	1	7/16
455-4376	455-437608	-	7/16	2-1/2	5/8	7/16
455-4377	-	-	7/16	4	2	7/16
455-5000	-	-	1/2	3	1	1/2
455-5001	455-500108	455-500111	1/2	2-1/2	5/8	1/2
455-5002	455-500208	455-500211	1/2	3	1-1/4	1/2
455-5003	455-500308	455-500311	1/2	4-1/2	2	1/2
455-5625	-	-	9/16	3-1/2	1-1/8	9/16
455-6250	455-625008	-	5/8	3-1/2	1-1/4	5/8
455-6251	455-625108	455-625111	5/8	3	3/4	5/8
455-7500	455-750008	-	3/4	4	1-1/2	3/4
455-7501	455-750108	455-750111	3/4	3	1	3/4
455-7502	455-750208	455-750211	3/4	5	2-1/4	3/4
455-1000	-	-	1	4	1-1/2	1

Packed: 1 pc.
Corner Protection 0.005"~0.010"
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
455C	○	○	○	○	○				○			○	○	○	○	○	

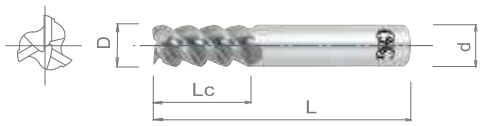
○ good ◎ best

List 460C

SPEED FEED P1261-1264 | CARBIDE | BR | 60°

3 Flute, High Helix

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
460-1250	1/8	1-1/2	1/2	1/8
460-1875	3/16	2	5/8	3/16
460-2500	1/4	2-1/2	3/4	1/4
460-3125	5/16	2-1/2	13/16	5/16
460-3750	3/8	2-1/2	1	3/8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
460-4375	7/16	2-3/4	1	7/16
460-5000	1/2	3	1	1/2
460-6250	5/8	3-1/2	1-1/4	5/8
460-7500	3/4	4	1-1/2	3/4
460-1000	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

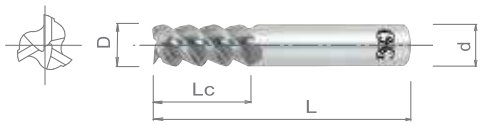
HYE

List 460C

SPEED FEED P1261-1264 | CARBIDE | BR | 60°

3 Flute, High Helix

Milling Diameter Tolerance	
6≤D≤25	+0 / -0.05mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
460-2362	6	64	19	6
460-3150	8	64	21	8
460-3937	10	70	25	10
460-4724	12	76	25	12
460-5512	14	89	29	14

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
460-6299	16	89	32	16
460-7087	18	102	38	18
460-7874	20	102	38	20
460-9843	25	102	38	25

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
460C	▢	▢	▢			▢	▢	▢	▢	▢	▢	▢		▢	▢		

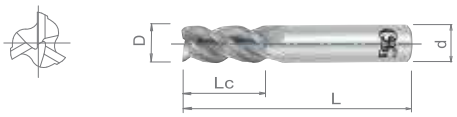
▢ good ▣ best

List 445

3 Flute, RHS/RHC

SPEED FEED P1261-1264 | CARBIDE | BR | 45°

Milling Diameter Tolerance	
1/16≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
445-0625	1/16	1-1/2	3/16	1/8
445-0938	3/32	1-1/2	5/16	1/8
445-1250	1/8	1-1/2	1/2	1/8
445-1562	5/32	2	9/16	3/16
445-1875	3/16	2	5/8	3/16
445-2188	7/32	2-1/2	5/8	1/4
445-2500	1/4	2-1/2	3/4	1/4
445-2812	9/32	2-1/2	3/4	5/16
445-3125	5/16	2-1/2	13/16	5/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
445-3750	3/8	2-1/2	1	3/8
445-4375	7/16	2-3/4	1	7/16
445-5000	1/2	3	1	1/2
445-5625	9/16	3-1/2	1-1/8	9/16
445-6250	5/8	3-1/2	1-1/4	5/8
445-6875	11/16	4	1-3/8	3/4
445-7500	3/4	4	1-1/2	3/4
445-8750	7/8	4	1-1/2	7/8
445-1000	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

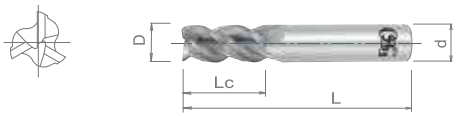
HYE

List 445

3 Flute, RHS/RHC

SPEED FEED P1261-1264 | CARBIDE | BR | 45°

Milling Diameter Tolerance	
1≤D≤20	+0 / -0.05mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
445-0394	1.0	39	3	3
445-0591	1.5	39	5	3
445-0787	2.0	39	7	3
445-0984	2.5	39	8	3
445-1181	3.0	39	10	3
445-1378	3.5	51	12	4
445-1575	4.0	51	14	4
445-1772	4.5	51	14	5
445-1968	5.0	51	16	5
445-2362	6.0	64	19	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
445-2756	7.0	64	19	8
445-3150	8.0	64	21	8
445-3543	9.0	70	22	10
445-3937	10.0	70	25	10
445-4331	11.0	70	25	11
445-4724	12.0	76	25	12
445-5512	14.0	89	30	14
445-6299	16.0	89	32	16
445-7087	18.0	102	35	18
445-7874	20.0	102	38	20

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
445	▢	▢	▢	▢		▢	▢		▢	▢	▢			▢	▢		

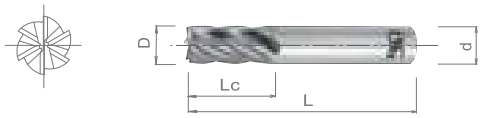
▢ good ▢ best

List 461

6 Flute, RHS/RHC

SPEED FEED P1265-1267 | CARBIDE | TiAlN | BR | 30°

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiAlN	D	L	Lc	d
461-1250	-	1/8	1-1/2	1/2	1/8
461-1562	-	5/32	2	9/16	3/16
461-1875	461-187511	3/16	2	5/8	3/16
461-2500	461-250011	1/4	2-1/2	3/4	1/4
461-2812	-	9/32	2-1/2	3/4	5/16
461-3125	-	5/16	2-1/2	13/16	5/16
461-3750	461-375011	3/8	2-1/2	1	3/8

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiAlN	D	L	Lc	d
461-4375	-	7/16	2-3/4	1	7/16
461-5000	-	1/2	3	1	1/2
461-5625	-	9/16	3-1/2	1-1/8	9/16
461-6250	-	5/8	3-1/2	1-1/4	5/8
461-6875	-	11/16	4	1-3/8	3/4
461-7500	-	3/4	4	1-1/2	3/4
461-1000	-	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

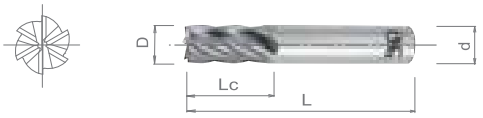
HYE

List 461

6 Flute, RHS/RHC

SPEED FEED P1265-1267 | CARBIDE | BR | 30°

Milling Diameter Tolerance	
3≤D≤25	+0 / -0.05mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
461-1181	3	39	10	3
461-1575	4	51	14	4
461-1968	5	51	16	5
461-2362	6	64	19	6
461-2756	7	64	19	7
461-3150	8	64	21	8
461-3543	9	70	22	10
461-3937	10	70	25	10

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
461-4331	11	70	25	11
461-4724	12	76	25	12
461-5512	14	89	30	14
461-6299	16	89	32	16
461-7087	18	102	35	18
461-7874	20	102	38	20
461-8661	22	102	38	22
461-9843	25	102	38	25

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
461	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	▢	▢	▢	

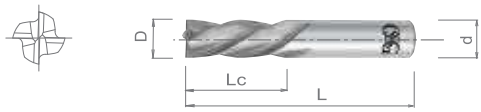
▢ good ▣ best

List 447

4 Flute, LHS/RHC

SPEED FEED P1265-1267 | CARBIDE | TiAlN | BR | LH | 30°

Milling Diameter Tolerance	
1/16≤D≤1	+0 / -0.002"



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiAlN	D	L	Lc	d
447-0625	-	1/16	1-1/2	3/16	1/8
447-1250	447-125011	1/8	1-1/2	1/2	1/8
447-1875	447-187511	3/16	2	5/8	3/16
447-2500	447-250011	1/4	2-1/2	3/4	1/4
447-3125	-	5/16	2-1/2	13/16	5/16

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiAlN	D	L	Lc	d
447-3750	-	3/8	2-1/2	1	3/8
447-5000	-	1/2	3	1	1/2
447-6250	-	5/8	3-1/2	1-1/4	5/8
447-7500	-	3/4	4	1-1/2	3/4
447-1000	-	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
447	▢	▢	▢	▢		▢	▢		▢	▢	▢			▢	▢	▢	

▢ good ▣ best

List 492, 494

2 or 4 Flute, Miniature

SPEED FEED P1274 | CARBIDE | TiAlN | BR | 30°

Milling Diameter Tolerance	
0.015≤D≤0.060	+0 / -0.002"



492



494

Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 492 (2 Flute)	List 494 (4 Flute)				
Bright	Bright	D	L	Lc	d
492-0150	-	0.015	1-1/2	0.047	1/8
492-0200	-	0.020	1-1/2	0.063	1/8
492-0250	-	0.025	1-1/2	0.078	1/8
492-0300	-	0.030	1-1/2	0.094	1/8
492-0350	494-0350	0.035	1-1/2	0.109	1/8
492-0400	494-0400	0.040	1-1/2	0.125	1/8
492-0450	494-0450	0.045	1-1/2	0.140	1/8
492-0500	494-0500	0.050	1-1/2	0.156	1/8
492-0550	494-0550	0.055	1-1/2	0.171	1/8
492-0600	494-0600	0.060	1-1/2	0.188	1/8

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		

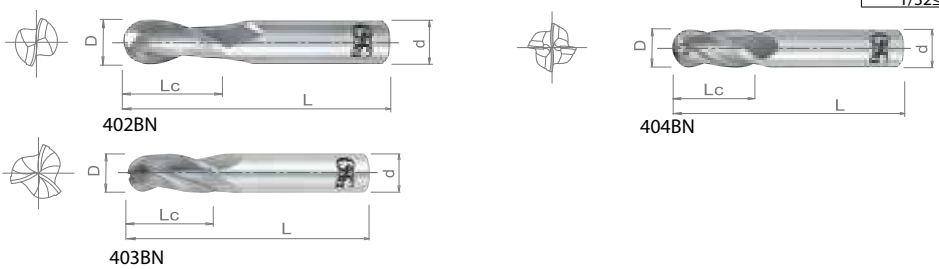
▢ good ▣ best

List 402BN, 403BN, 404BN

SPEED FEED P1269-1271 | CARBIDE | TiAlN | BR | 30°

2, 3, or 4 Flute, Ball End

Milling Diameter Tolerance	
1/32≤D≤1	+0 / -0.002"



Units: Inch

EDP Number						Mill Dia.	Overall Length	Length of Cut	Shank Dia.
List 402BN (2 Flute)		List 403BN (3 Flute)		List 404BN (4 Flute)					
Bright	TiAlN	Bright	TiAlN	Bright	TiAlN	D	L	Lc	d
402-0312-BN	402-0312-BN11	-	-	404-0312-BN	404-0312-BN11	1/32	1-1/2	1/8	1/8
402-0469-BN	402-0469-BN11	-	-	404-0469-BN	404-0469-BN11	3/64	1-1/2	9/64	1/8
402-0625-BN	402-0625-BN11	403-0625-BN	403-0625-BN11	404-0625-BN	404-0625-BN11	1/16	1-1/2	3/16	1/8
402-0781-BN	402-0781-BN11	403-0781-BN	403-0781-BN11	404-0781-BN	404-0781-BN11	5/64	1-1/2	1/4	1/8
402-0938-BN	402-0938-BN11	403-0938-BN	403-0938-BN11	404-0938-BN	404-0938-BN11	3/32	1-1/2	5/16	1/8
402-1094-BN	402-1094-BN11	403-1094-BN	403-1094-BN11	404-1094-BN	404-1094-BN11	7/64	1-1/2	3/8	1/8
402-1250-BN	402-1250-BN11	403-1250-BN	403-1250-BN11	404-1250-BN	404-1250-BN11	1/8	1-1/2	1/2	1/8
402-1406-BN	402-1406-BN11	403-1406-BN	403-1406-BN11	404-1406-BN	404-1406-BN11	9/64	2	1/2	3/16
402-1562-BN	402-1562-BN11	403-1562-BN	403-1562-BN11	404-1562-BN	404-1562-BN11	5/32	2	9/16	3/16
402-1719-BN	402-1719-BN11	403-1719-BN	403-1719-BN11	404-1719-BN	404-1719-BN11	11/64	2	9/16	3/16
402-1875-BN	402-1875-BN11	403-1875-BN	403-1875-BN11	404-1875-BN	404-1875-BN11	3/16	2	5/8	3/16
402-2031-BN	402-2031-BN11	403-2031-BN	403-2031-BN11	404-2031-BN	404-2031-BN11	13/64	2-1/2	5/8	1/4
402-2188-BN	402-2188-BN11	403-2188-BN	403-2188-BN11	404-2188-BN	404-2188-BN11	7/32	2-1/2	5/8	1/4
402-2344-BN	402-2344-BN11	403-2344-BN	403-2344-BN11	404-2344-BN	404-2344-BN11	15/64	2-1/2	3/4	1/4
402-2500-BN	402-2500-BN11	403-2500-BN	403-2500-BN11	404-2500-BN	404-2500-BN11	1/4	2-1/2	3/4	1/4
402-2656-BN	402-2656-BN11	403-2656-BN	403-2656-BN11	404-2656-BN	404-2656-BN11	17/64	2-1/2	3/4	5/16
402-2812-BN	402-2812-BN11	403-2812-BN	-	404-2812-BN	404-2812-BN11	9/32	2-1/2	3/4	5/16
402-2969-BN	402-2969-BN11	403-2969-BN	403-2969-BN11	404-2969-BN	404-2969-BN11	19/64	2-1/2	13/16	5/16
402-3125-BN	402-3125-BN11	403-3125-BN	403-3125-BN11	404-3125-BN	404-3125-BN11	5/16	2-1/2	13/16	5/16
402-3281-BN	402-3281-BN11	-	-	404-3281-BN	404-3281-BN11	21/64	2-1/2	7/8	3/8
402-3438-BN	402-3438-BN11	-	-	404-3438-BN	404-3438-BN11	11/32	2-1/2	7/8	3/8
402-3594-BN	402-3594-BN11	-	-	404-3594-BN	404-3594-BN11	23/64	2-1/2	7/8	3/8
402-3750-BN	402-3750-BN11	403-3750-BN	403-3750-BN11	404-3750-BN	404-3750-BN11	3/8	2-1/2	1	3/8
402-3906-BN	402-3906-BN11	-	-	404-3906-BN	404-3906-BN11	25/64	2-3/4	1	7/16
402-4062-BN	402-4062-BN11	-	-	404-4062-BN	404-4062-BN11	13/32	2-3/4	1	7/16
402-4219-BN	402-4219-BN11	-	-	404-4219-BN	404-4219-BN11	27/64	2-3/4	1	7/16
402-4375-BN	402-4375-BN11	403-4375-BN	403-4375-BN11	404-4375-BN	404-4375-BN11	7/16	2-3/4	1	7/16
402-4531-BN	402-4531-BN11	-	-	404-4531-BN	404-4531-BN11	29/64	3	1	1/2
402-4688-BN	402-4688-BN11	-	-	404-4688-BN	404-4688-BN11	15/32	3	1	1/2
402-4844-BN	402-4844-BN11	-	-	404-4844-BN	404-4844-BN11	31/64	3	1	1/2
402-5000-BN	402-5000-BN11	403-5000-BN	403-5000-BN11	404-5000-BN	404-5000-BN11	1/2	3	1	1/2
402-5625-BN	402-5625-BN11	403-5625-BN	403-5625-BN11	404-5625-BN	404-5625-BN11	9/16	3-1/2	1-1/8	9/16

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

continued on next page

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
402BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		
403BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	
404BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

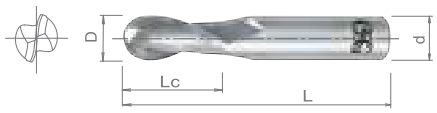
▢ good ▣ best

List 402BN, 403BN, 404BN (Cont.)

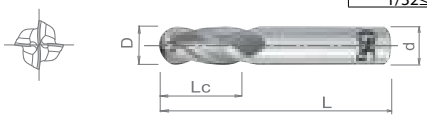
SPEED FEED P1269-1271 | CARBIDE | TiAlN | BR | 30°

2, 3, or 4 Flute, Ball End

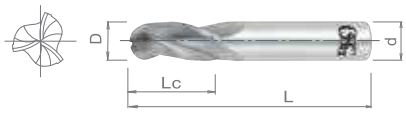
Milling Diameter Tolerance	
1/32≤D≤1	+0 / -0.002"



402BN



404BN



403BN

Units: Inch

EDP Number						Mill Dia.	Overall Length	Length of Cut	Shank Dia.
List 402BN (2 Flute)		List 403BN (3 Flute)		List 404BN (4 Flute)					
Bright	TiAlN	Bright	TiAlN	Bright	TiAlN	D	L	Lc	d
402-6250-BN	402-6250-BN11	403-6250-BN	403-6250-BN11	404-6250-BN	404-6250-BN11	5/8	3-1/2	1-1/4	5/8
402-6875-BN	402-6875-BN11	403-6875-BN	403-6875-BN11	404-6875-BN	404-6875-BN11	11/16	4	1-3/8	3/4
402-7500-BN	402-7500-BN11	403-7500-BN	403-7500-BN11	404-7500-BN	404-7500-BN11	3/4	4	1-1/2	3/4
402-8750-BN	402-8750-BN11	403-8750-BN	403-8750-BN11	404-8750-BN	404-8750-BN11	7/8	4	1-1/2	7/8
402-1000-BN	402-1000-BN11	403-1000-BN	403-1000-BN11	404-1000-BN	404-1000-BN11	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
402BN	○	○	○	○	○	○	○		○	○	○			○	○		
403BN	○	○	○	○	○	○	○		○	○	○			○	○	○	
404BN	○	○	○	○	○	○	○		○	○	○			○	○	○	

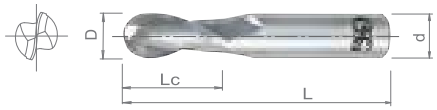
○ good ◎ best

List 402BN, 403BN, 404BN

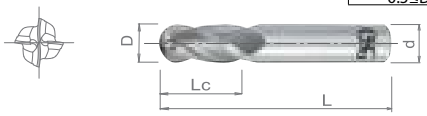
SPEED FEED P1269-1271 | CARBIDE | TiAlN | BR | 30°

2, 3, or 4 Flute, Ball End

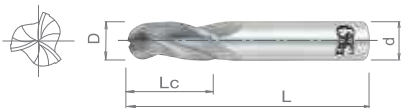
Milling Diameter Tolerance	
0.5≤D≤25	+0 / -0.05mm



402BN



404BN



403BN

Units: mm

EDP Number						Mill Dia.	Overall Length	Length of Cut	Shank Dia.
List 402BN (2 Flute)		List 403BN (3 Flute)		List 404BN (4 Flute)					
Bright	TiAlN	Bright	TiAlN	Bright	TiAlN	D	L	Lc	d
402-0197-BN	402-0197-BN11	-	-	-	-	0.5	39	1.5	3
402-0394-BN	402-0394-BN11	403-0394-BN	403-0394-BN11	404-0394-BN	404-0394-BN11	1.0	39	3	3
402-0591-BN	402-0591-BN11	403-0591-BN	403-0591-BN11	404-0591-BN	404-0591-BN11	1.5	39	5	3
402-0787-BN	402-0787-BN11	403-0787-BN	403-0787-BN11	404-0787-BN	404-0787-BN11	2.0	39	7	3
402-0984-BN	402-0984-BN11	403-0984-BN	403-0984-BN11	404-0984-BN	404-0984-BN11	2.5	39	8	3
402-1181-BN	402-1181-BN11	403-1181-BN	403-1181-BN11	404-1181-BN	404-1181-BN11	3.0	39	10	3
402-1378-BN	402-1378-BN11	403-1378-BN	403-1378-BN11	404-1378-BN	404-1378-BN11	3.5	51	12	4
402-1575-BN	402-1575-BN11	403-1575-BN	403-1575-BN11	404-1575-BN	404-1575-BN11	4.0	51	14	4
402-1772-BN	402-1772-BN11	403-1772-BN	403-1772-BN11	404-1772-BN	404-1772-BN11	4.5	51	14	5
402-1968-BN	402-1968-BN11	403-1968-BN	403-1968-BN11	404-1968-BN	404-1968-BN11	5.0	51	16	5
402-2362-BN	402-2362-BN11	403-2362-BN	403-2362-BN11	404-2362-BN	404-2362-BN11	6.0	64	19	6
402-2756-BN	402-2756-BN11	403-2756-BN	403-2756-BN11	404-2756-BN	404-2756-BN11	7.0	64	19	8
402-3150-BN	402-3150-BN11	403-3150-BN	403-3150-BN11	404-3150-BN	404-3150-BN11	8.0	64	21	8
402-3543-BN	402-3543-BN11	403-3543-BN	403-3543-BN11	404-3543-BN	404-3543-BN11	9.0	70	22	10
402-3937-BN	402-3937-BN11	403-3937-BN	403-3937-BN11	404-3937-BN	404-3937-BN11	10.0	70	25	10
402-4331-BN	402-4331-BN11	403-4331-BN	403-4331-BN11	404-4331-BN	404-4331-BN11	11.0	70	25	11
402-4724-BN	402-4724-BN11	403-4724-BN	403-4724-BN11	404-4724-BN	404-4724-BN11	12.0	76	25	12
402-5512-BN	402-5512-BN11	403-5512-BN	403-5512-BN11	404-5512-BN	404-5512-BN11	14.0	89	30	14
402-6299-BN	402-6299-BN11	403-6299-BN	403-6299-BN11	404-6299-BN	404-6299-BN11	16.0	89	32	16
402-7087-BN	402-7087-BN11	403-7087-BN	403-7087-BN11	404-7087-BN	404-7087-BN11	18.0	102	35	18
402-7874-BN	402-7874-BN11	403-7874-BN	403-7874-BN11	404-7874-BN	404-7874-BN11	20.0	102	38	20
402-8661-BN	402-8661-BN11	403-8661-BN	403-8661-BN11	404-8661-BN	404-8661-BN11	22.0	102	38	22
402-9843-BN	402-9843-BN11	403-9843-BN	403-9843-BN11	404-9843-BN	404-9843-BN11	25.0	102	38	25

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
402BN	○	○	○	○	○	○	○		○	○	○			○	○		
403BN	○	○	○	○	○	○	○		○	○	○			○	○	○	
404BN	○	○	○	○	○	○	○		○	○	○			○	○	○	

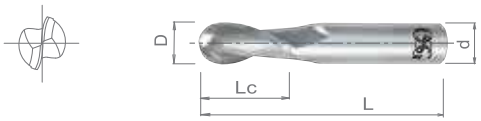
○ good ◎ best

List 452BN

SPEED FEED P1269 | CARBIDE | BR | 30°

2 Flute, Ball End, Plus Tolerance

Milling Diameter Tolerance	
1/16≤D≤1	+0.001" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
452-0625-BN	1/16	1-1/2	3/16	1/8
452-0938-BN	3/32	1-1/2	5/16	1/8
452-1250-BN	1/8	1-1/2	1/2	1/8
452-1562-BN	5/32	2	9/16	3/16
452-1875-BN	3/16	2	5/8	3/16
452-2188-BN	7/32	2-1/2	5/8	1/4
452-2500-BN	1/4	2-1/2	3/4	1/4
452-2812-BN	9/32	2-1/2	3/4	5/16
452-3125-BN	5/16	2-1/2	13/16	5/16
452-3750-BN	3/8	2-1/2	1	3/8
452-5000-BN	1/2	3	1	1/2
452-5625-BN	9/16	3-1/2	1-1/8	9/16
452-6250-BN	5/8	3-1/2	1-1/4	5/8
452-6875-BN	11/16	4	1-3/8	3/4
452-7500-BN	3/4	4	1-1/2	3/4
452-1000-BN	1	4	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
452BN	○	○	○	○	○	○	○		○	○	○			○	○	○	

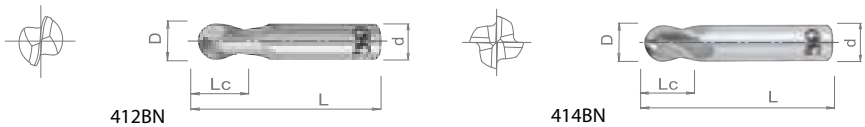
○ good ◎ best

List 412BN, 414BN

2 or 4 Flute, Stub Length, Ball End

SPEED FEED P1269-1271 | CARBIDE | TiAlN | TiCN | BR | STUB | 30°

Milling Diameter Tolerance	
1/32≤D≤3/4	+0 / -0.002"



Units: Inch

EDP Number					Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 412BN (2 Flute)		List 414BN (4 Flute)						
Bright	TiAlN	Bright	TiCN	TiAlN	D	L	Lc	d
412-0312-BN	412-0312-BN11	414-0312-BN	-	414-0312-BN11	1/32	1-1/2	5/64	1/8
412-0469-BN	-	414-0469-BN	-	414-0469-BN11	3/64	1-1/2	3/32	1/8
412-0625-BN	412-0625-BN11	414-0625-BN	-	414-0625-BN11	1/16	1-1/2	1/8	1/8
412-0781-BN	-	414-0781-BN	-	414-0781-BN11	5/64	1-1/2	5/32	1/8
412-0938-BN	-	414-0938-BN	414-0938-BN08	414-0938-BN11	3/32	1-1/2	3/16	1/8
412-1094-BN	-	414-1094-BN	-	-	7/64	1-1/2	7/32	1/8
412-1250-BN	412-1250-BN11	414-1250-BN	414-1250-BN08	414-1250-BN11	1/8	1-1/2	1/4	1/8
412-1406-BN	-	414-1406-BN	-	-	9/64	2	9/32	3/16
412-1562-BN	412-1562-BN11	414-1562-BN	414-1562-BN08	-	5/32	2	5/16	3/16
412-1875-BN	412-1875-BN11	414-1875-BN	-	414-1875-BN11	3/16	2	3/8	3/16
412-2188-BN	-	414-2188-BN	-	-	7/32	2	7/16	1/4
412-2500-BN	412-2500-BN11	414-2500-BN	-	414-2500-BN11	1/4	2	1/2	1/4
412-3125-BN	-	414-3125-BN	414-3125-BN08	414-3125-BN11	5/16	2	1/2	5/16
412-3750-BN	412-3750-BN11	414-3750-BN	414-3750-BN08	414-3750-BN11	3/8	2	5/8	3/8
412-4375-BN	-	414-4375-BN	-	-	7/16	2-1/2	5/8	7/16
412-5000-BN	412-5000-BN11	414-5000-BN	414-5000-BN08	-	1/2	2-1/2	5/8	1/2
412-6250-BN	-	414-6250-BN	-	-	5/8	3	3/4	5/8
412-7500-BN	-	414-7500-BN	-	-	3/4	3	1	3/4

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

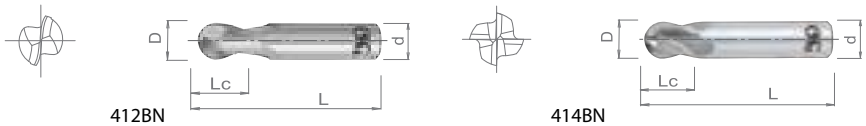
▢ good ▣ best

List 412BN, 414BN

SPEED FEED P1269-1271 | CARBIDE | TiAlN | TiCN | BR | STUB | 30°

2 or 4 Flute, Stub Length, Ball End

Milling Diameter Tolerance	
1≤D≤12	+0 / -0.05mm



Units: mm

EDP Number				Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 412BN (2 Flute)		List 414BN (4 Flute)					
Bright	TiAlN	Bright	TiAlN	D	L	Lc	d
412-0394-BN	412-0394-BN11	414-0394-BN	414-0394-BN11	1.0	39	2	3
412-0591-BN	-	414-0591-BN	-	1.5	39	3	3
412-0787-BN	-	414-0787-BN	-	2.0	39	4	3
412-0984-BN	-	414-0984-BN	-	2.5	39	5	3
412-1181-BN	-	414-1181-BN	-	3.0	39	6	3
412-1378-BN	-	414-1378-BN	-	3.5	51	7	4
412-1575-BN	412-1575-BN11	414-1575-BN	-	4.0	51	8	4
412-1772-BN	-	414-1772-BN	-	4.5	51	9	5
412-1968-BN	-	414-1968-BN	-	5.0	51	10	5
412-2362-BN	-	414-2362-BN	-	6.0	51	12	6
412-2756-BN	-	414-2756-BN	-	7.0	51	12	8
412-3150-BN	-	414-3150-BN	-	8.0	51	12	8
412-3543-BN	-	414-3543-BN	-	9.0	51	14	10
412-3937-BN	-	414-3937-BN	-	10.0	51	14	10
412-4331-BN	-	414-4331-BN	-	11.0	64	16	11
412-4724-BN	-	414-4724-BN	-	12.0	64	16	12

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

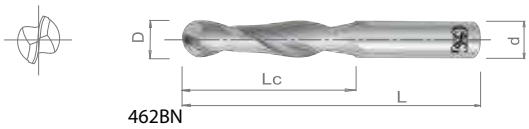
▢ good ▣ best

List 462BN, 464BN

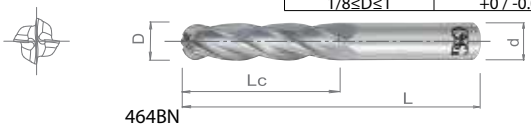
SPEED FEED P1269-1271 | CARBIDE | TiAlN | TiCN | BR | LONG | 30°

2 or 4 Flute, Long Length, Ball End

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



462BN



464BN

Units: Inch

EDP Number					Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 462BN (2 Flute)		List 464BN (4 Flute)						
Bright	TiCN	Bright	TiCN	TiAlN	D	L	Lc	d
462-1250-BN	-	464-1250-BN	-	464-1250-BN11	1/8	2-1/4	3/4	1/8
462-1875-BN	-	464-1875-BN	-	464-1875-BN11	3/16	2-1/4	3/4	3/16
462-2500-BN	462-2500-BN08	464-2500-BN	-	464-2500-BN11	1/4	3	1-1/8	1/4
462-3125-BN	-	464-3125-BN	-	-	5/16	3	1-1/8	5/16
462-3750-BN	-	464-3750-BN	-	464-3750-BN11	3/8	3	1-1/8	3/8
462-4375-BN	-	464-4375-BN	-	-	7/16	4	2	7/16
462-5000-BN	-	464-5000-BN	464-5000-BN08	464-5000-BN11	1/2	4	2	1/2
462-6250-BN	-	464-6250-BN	-	-	5/8	5	2-1/4	5/8
462-7500-BN	-	464-7500-BN	-	-	3/4	5	2-1/4	3/4
462-1000-BN	-	464-1000-BN	-	-	1	5	2-1/4	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

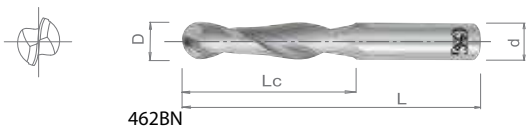
HYE

List 462BN, 464BN

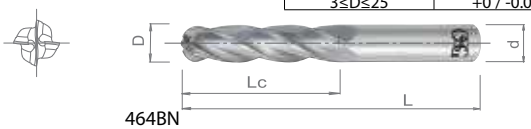
SPEED FEED P1269-1271 | CARBIDE | BR | LONG | 30°

2 or 4 Flute, Long Length, Ball End

Milling Diameter Tolerance	
3≤D≤25	+0 / -0.05mm



462BN



464BN

Units: mm

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 462BN (2 Flute)	List 464BN (4 Flute)				
Bright	Bright	D	L	Lc	d
462-1181-BN	464-1181-BN	3	57	19	3
462-1575-BN	464-1575-BN	4	57	19	4
462-1968-BN	464-1968-BN	5	64	25	5
462-2362-BN	464-2362-BN	6	76	28	6
462-3150-BN	464-3150-BN	8	76	29	8
462-3937-BN	464-3937-BN	10	76	32	10
462-4724-BN	464-4724-BN	12	102	51	12
462-5512-BN	464-5512-BN	14	127	57	14
462-6299-BN	464-6299-BN	16	127	57	16
462-7087-BN	464-7087-BN	18	127	57	18
462-7874-BN	464-7874-BN	20	127	57	20
462-9843-BN	464-9843-BN	25	127	57	25

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
462BN	○	○	○	○	○	○	○		○	○	○			○	○		
464BN	○	○	○	○	○	○	○		○	○	○			○	○	○	

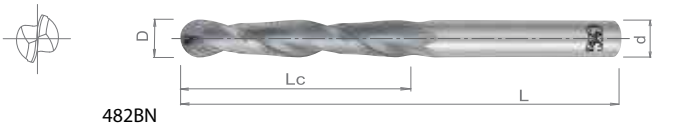
○ good ◎ best

List 482BN, 484BN

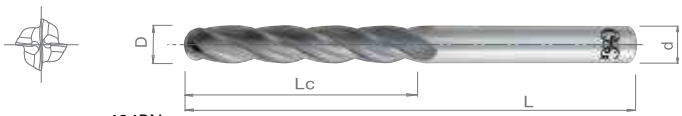
2 or 4 Flute, Extra Long Length, Ball End

SPEED FEED P1269-1271 | CARBIDE | TiAlN | BR | EXTRA LONG | 30°

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



482BN



484BN

Units: Inch

EDP Number				Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 482BN (2 Flute)		List 484BN (4 Flute)					
Bright	TiAlN	Bright	TiAlN	D	L	Lc	d
482-1250-BN	482-1250-BN11	484-1250-BN	484-1250-BN11	1/8	3	1	1/8
482-1875-BN	482-1875-BN11	484-1875-BN	484-1875-BN11	3/16	3	1-1/8	3/16
482-2500-BN	482-2500-BN11	484-2500-BN	484-2500-BN11	1/4	4	1-1/2	1/4
482-3125-BN	-	484-3125-BN	484-3125-BN11	5/16	4	1-5/8	5/16
482-3750-BN	-	484-3750-BN	484-3750-BN11	3/8	4	1-3/4	3/8
482-4375-BN	-	484-4375-BN	-	7/16	6	3	7/16
482-5000-BN	-	484-5000-BN	484-5000-BN11	1/2	6	3	1/2
482-6250-BN	-	484-6250-BN	-	5/8	6	3	5/8
482-7500-BN	-	484-7500-BN	-	3/4	6	3	3/4
482-1000-BN	-	484-1000-BN	-	1	6	3	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
482BN	○	○	○						○	○	○			○			
484BN	○	○	○	○	○	○	○		○	○	○			○	○		

○ good ◎ best

List 482BN, 484BN

2 or 4 Flute, Extra Long Length, Ball End

SPEED FEED P1269-1271 | CARBIDE | BR | EXTRA LONG | 30°

Milling Diameter Tolerance	
3≤D≤25	+0 / -0.05mm



482BN



484BN

Units: mm

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 482BN (2 Flute)	List 484BN (4 Flute)				
Bright	Bright	D	L	Lc	d
482-1181-BN	484-1181-BN	3	76	25	3
482-1575-BN	484-1575-BN	4	76	28	4
482-1968-BN	484-1968-BN	5	76	32	5
482-2362-BN	484-2362-BN	6	102	38	6
482-3150-BN	484-3150-BN	8	102	42	8
482-3937-BN	484-3937-BN	10	102	45	10
482-4724-BN	484-4724-BN	12	153	76	12
482-5512-BN	484-5512-BN	14	153	76	14
482-6299-BN	484-6299-BN	16	153	76	16
482-7087-BN	484-7087-BN	18	153	76	18
482-7874-BN	484-7874-BN	20	153	76	20
482-9843-BN	484-9843-BN	25	153	76	25

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
482BN	▢	▢	▢						▢	▢	▢			▢			
484BN	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢		

▢ good ▣ best

List 497

SPEED FEED P1268 | CARBIDE | BR | 15°

2 Flute, Long Shank, Ball End

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.002"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
497-1250	1/8	2-1/2	3/16	1/8
497-1875	3/16	4	9/32	3/16
497-2500	1/4	4	3/8	1/4
497-3125	5/16	4	15/32	5/16
497-3750	3/8	4	9/16	3/8
497-4375	7/16	5	21/32	7/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
497-5000	1/2	5	3/4	1/2
497-5625	9/16	5	27/32	9/16
497-6250	5/8	6	15/16	5/8
497-7500	3/4	6	1-1/8	3/4
497-1000	1	6	1-1/2	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

List 497

SPEED FEED P1268 | CARBIDE | BR | 15°

2 Flute, Long Shank, Ball End

Milling Diameter Tolerance	
3≤D≤20	+0 / -0.05mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
497-1181	3	63	4.5	3
497-1575	4	63	6.0	4
497-1968	5	63	7.5	5
497-2362	6	100	9.0	6
497-3150	8	100	12.0	8
497-3937	10	100	15.0	10

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
497-4331	11	127	16.5	11
497-4724	12	127	18.0	12
497-5512	14	127	21.0	14
497-6299	16	152	24.0	16
497-7087	18	152	27.0	18
497-7874	20	152	30.0	20

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
497	▢	▢	▢	▢	▢	▢	▢		▢					▢	▢		

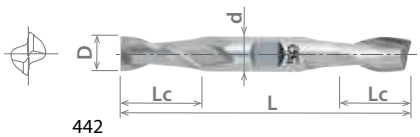
▢ good ▣ best

List 442, 444

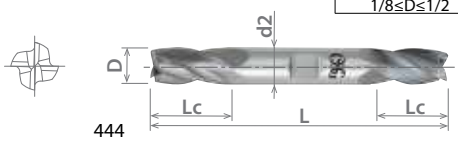
2 or 4 Flute

SPEED FEED P1261-1267 | CARBIDE | TiAlN | BR | 30°

Milling Diameter Tolerance	
1/8≤D≤1/2	+0 / -0.002"



442



444

Units: Inch

EDP Number			Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 442 (2 Flute)	List 444 (4 Flute)					
Bright	Bright	TiAlN	D	L	Lc	d
442-1250	444-1250	444-125011	1/8	3-1/16	3/8	3/8
442-1562	444-1562	-	5/32	3-1/8	7/16	3/8
442-1875	444-1875	444-187511	3/16	3-1/4	1/2	3/8
442-2188	444-2188	-	7/32	3-3/8	9/16	3/8
442-2500	444-2500	444-250011	1/4	3-3/8	5/8	3/8
442-2812	444-2812	-	9/32	3-3/8	11/16	3/8
442-3125	444-3125	-	5/16	3-1/2	3/4	3/8
442-3438	444-3438	-	11/32	3-1/2	3/4	3/8
442-3750	444-3750	444-375011	3/8	3-1/2	3/4	3/8
442-4375	444-4375	-	7/16	4	7/8	1/2
442-5000	444-5000	-	1/2	4	1	1/2

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

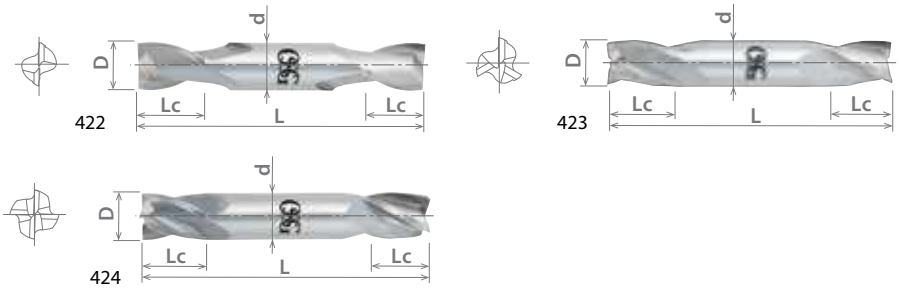
▢ good ▢ best

List 422, 423, 424

2, 3, or 4 Flute, Stub Length

SPEED FEED P1261-1267 | CARBIDE | TiAlN | BR | STUB | 30°

Milling Diameter Tolerance	
1/32≤D≤1/2	+0 / -0.002"



Units: Inch

EDP Number						Mill Dia.	Overall Length	Length of Cut	Shank Dia.
List 422 (2 Flute)		List 423 (3 Flute)		List 424 (4 Flute)					
Bright	TiAlN	Bright	TiAlN	Bright	TiAlN	D	L	Lc	d
422-0312	-	423-0312	-	424-0312	424-031211	1/32	1-1/2	5/64	1/8
422-0469	-	423-0469	-	424-0469	424-046911	3/64	1-1/2	3/32	1/8
422-0625	422-062511	423-0625	-	424-0625	424-062511	1/16	1-1/2	1/8	1/8
422-0781	-	-	-	424-0781	424-078111	5/64	1-1/2	5/32	1/8
422-0938	422-093811	423-0938	-	424-0938	424-093811	3/32	1-1/2	3/16	1/8
422-1094	-	-	-	424-1094	424-109411	7/64	1-1/2	7/32	1/8
422-1250	422-125011	423-1250	-	424-1250	424-125011	1/8	1-1/2	1/4	1/8
422-1406	-	-	-	424-1406	-	9/64	2	9/32	3/16
422-1562	-	423-1562	-	424-1562	424-156211	5/32	2	5/16	3/16
422-1875	422-187511	423-1875	-	424-1875	424-187511	3/16	2	3/8	3/16
422-2188	422-218811	423-2188	-	424-2188	-	7/32	2-1/2	1/2	1/4
422-2500	422-250011	423-2500	423-250011	424-2500	424-250011	1/4	2-1/2	1/2	1/4
422-3125	422-312511	423-3125	-	424-3125	424-312511	5/16	2-1/2	1/2	5/16
422-3750	422-375011	423-3750	423-375011	424-3750	424-375011	3/8	2-1/2	1/2	3/8
422-4375	-	423-4375	-	424-4375	-	7/16	2-3/4	9/16	7/16
422-5000	422-500011	423-5000	423-500011	424-5000	424-500011	1/2	3	5/8	1/2

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

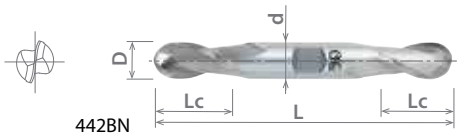
▢ good ▣ best

List 442BN, 444BN

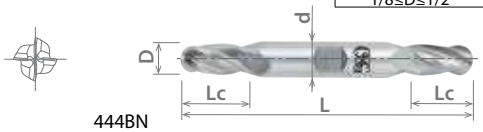
SPEED FEED P1269-1271 | CARBIDE | TiAlN | BR | 30°

2 or 4 Flute, Ball End

Milling Diameter Tolerance	
1/8≤D≤1/2	+0 / -0.002"



442BN



444BN

Units: Inch

EDP Number			Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 442BN (2 Flute)	List 444BN (4 Flute)					
Bright	Bright	TiAlN	D	L	Lc	d
442-1250-BN	444-1250-BN	444-1250-BN11	1/8	3-1/16	3/8	3/8
442-1562-BN	444-1562-BN	-	5/32	3-1/8	7/16	3/8
442-1875-BN	444-1875-BN	-	3/16	3-1/4	1/2	3/8
442-2188-BN	444-2188-BN	-	7/32	3-3/8	9/16	3/8
442-2500-BN	444-2500-BN	-	1/4	3-3/8	5/8	3/8
442-2812-BN	444-2812-BN	-	9/32	3-3/8	11/16	3/8
442-3125-BN	444-3125-BN	-	5/16	3-1/2	3/4	3/8
442-3438-BN	444-3438-BN	-	11/32	3-1/2	3/4	3/8
442-3750-BN	444-3750-BN	-	3/8	3-1/2	3/4	3/8
442-4375-BN	444-4375-BN	-	7/16	4	7/8	1/2
442-5000-BN	444-5000-BN	-	1/2	4	1	1/2

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

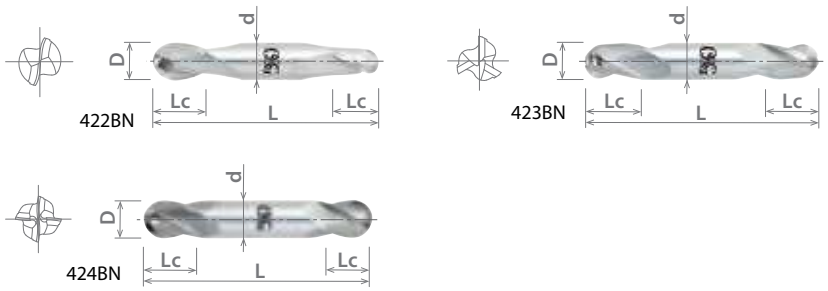
▢ good ▢ best

List 422BN, 423BN, 424BN

2, 3, or 4 Flute, Stub Length, Ball End

SPEED FEED P1269-1271 | CARBIDE | TiAlN | BR | STUB | 30°

Milling Diameter Tolerance	
1/32≤D≤1/2	+0 / -0.002"



Units: Inch

EDP Number					Mill Dia.	Overall Length	Length of Cut	Shank Dia.
List 422BN (2 Flute)		List 423BN (3 Flute)	List 424BN (4 Flute)					
Bright	TiAlN	Bright	Bright	TiAlN	D	L	Lc	d
422-0312-BN	422-0312-BN11	423-0312-BN	424-0312-BN	424-0312-BN11	1/32	1-1/2	5/64	1/8
422-0469-BN	422-0469-BN11	423-0469-BN	424-0469-BN	424-0469-BN11	3/64	1-1/2	3/32	1/8
422-0625-BN	422-0625-BN11	423-0625-BN	424-0625-BN	424-0625-BN11	1/16	1-1/2	1/8	1/8
422-0781-BN	-	-	424-0781-BN	-	5/64	1-1/2	5/32	1/8
422-0938-BN	-	423-0938-BN	424-0938-BN	424-0938-BN11	3/32	1-1/2	3/16	1/8
422-1094-BN	-	-	424-1094-BN	-	7/64	1-1/2	7/32	1/8
422-1250-BN	422-1250-BN11	423-1250-BN	424-1250-BN	424-1250-BN11	1/8	1-1/2	1/4	1/8
422-1406-BN	-	-	424-1406-BN	-	9/64	2	9/32	3/16
422-1562-BN	-	423-1562-BN	424-1562-BN	-	5/32	2	5/16	3/16
422-1875-BN	-	423-1875-BN	424-1875-BN	424-1875-BN11	3/16	2	3/8	3/16
422-2188-BN	-	423-2188-BN	424-2188-BN	-	7/32	2-1/2	1/2	1/4
422-2500-BN	-	423-2500-BN	424-2500-BN	424-2500-BN11	1/4	2-1/2	1/2	1/4
422-3125-BN	-	423-3125-BN	424-3125-BN	-	5/16	2-1/2	1/2	5/16
422-3750-BN	-	423-3750-BN	424-3750-BN	424-3750-BN11	3/8	2-1/2	1/2	3/8
422-4375-BN	-	423-4375-BN	424-4375-BN	-	7/16	2-3/4	9/16	7/16
422-5000-BN	-	423-5000-BN	424-5000-BN	424-5000-BN11	1/2	3	5/8	1/2

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

HYE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢			▢	▢	▢	

▢ good ▣ best

List 500, 502

CARBIDE | BR

2 or 3 Flute, Straight

Milling Diameter Tolerance	
3/32≤D≤1/2	+0 / -0.003"



500



502

Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
List 500 (2 Flute)	List 502 (3 Flute)				
Bright	Bright	D	L	Lc	d
500-0938	502-0938	3/32	1-1/2	3/8	1/8
500-1250	502-1250	1/8	1-1/2	1/2	1/8
500-1875	502-1875	3/16	2	5/8	3/16
500-2500	502-2500	1/4	2-1/2	3/4	1/4
500-3125	502-3125	5/16	2-1/2	13/16	5/16
500-3750	502-3750	3/8	2-1/2	7/8	3/8
500-4375	502-4375	7/16	2-1/2	1	7/16
500-5000	502-5000	1/2	3	1	1/2

Packed: 1 pc.
Available Bright finish only.

HYE

List 640

CARBIDE BR

Fiberglass Routers, Diamond Cut

Milling Diameter Tolerance	
1/16≤D≤1/2	+0 / -0.003"



Type 1 - No End Cut



Type 2 - Bur End



Type 3 - End Mill Cut



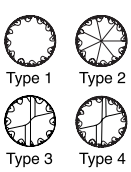
Type 4 - Drill Point

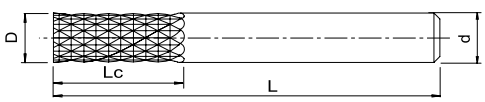
Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Tool Type
Bright	D	L	Lc	d	
640-0621	1/16	1-1/2	3/16	1/8	1
640-0622	1/16	1-1/2	3/16	1/8	2
640-0623	1/16	1-1/2	3/16	1/8	3
640-0624	1/16	1-1/2	3/16	1/8	4
640-0931	3/32	1-1/2	5/16	1/8	1
640-0932	3/32	1-1/2	5/16	1/8	2
640-0933	3/32	1-1/2	5/16	1/8	3
640-0934	3/32	1-1/2	5/16	1/8	4
640-1251	1/8	1-1/2	7/16	1/8	1
640-1252	1/8	1-1/2	7/16	1/8	2
640-1253	1/8	1-1/2	7/16	1/8	3
640-1254	1/8	1-1/2	7/16	1/8	4
640-1871	3/16	2	5/8	3/16	1
640-1872	3/16	2	5/8	3/16	2
640-1873	3/16	2	5/8	3/16	3
640-1874	3/16	2	5/8	3/16	4
640-1881	3/16	2	5/8	1/4	1
640-1882	3/16	2	5/8	1/4	2
640-1883	3/16	2	5/8	1/4	3
640-1884	3/16	2	5/8	1/4	4
640-2501	1/4	2	3/4	1/4	1
640-2502	1/4	2	3/4	1/4	2
640-2503	1/4	2	3/4	1/4	3
640-2504	1/4	2	3/4	1/4	4
640-2511	1/4	2-1/2	3/4	1/4	1
640-2512	1/4	2-1/2	3/4	1/4	2
640-2513	1/4	2-1/2	3/4	1/4	3
640-2514	1/4	2-1/2	3/4	1/4	4
640-3121	5/16	2-1/2	1	5/16	1
640-3122	5/16	2-1/2	1	5/16	2
640-3123	5/16	2-1/2	1	5/16	3
640-3124	5/16	2-1/2	1	5/16	4
640-3751	3/8	2-1/2	1	3/8	1
640-3752	3/8	2-1/2	1	3/8	2
640-3753	3/8	2-1/2	1	3/8	3
640-3754	3/8	2-1/2	1	3/8	4
640-5001	1/2	3	1	1/2	1
640-5002	1/2	3	1	1/2	2
640-5003	1/2	3	1	1/2	3
640-5004	1/2	3	1	1/2	4

Packed: 1 pc.
Available Bright finish only.

HYE





List 04V-SO

NEW | SPEED FEED P1275-1276 | CARBIDE | TiAlN | TYPE UNI | STUB | 40° | SHANK h6

4 Flute, Variable Index, Stub Length, Corner Chamfer



Units: Inch

EDP Number	Mill Diameter	Chamfer Width	Overall Length	Length of Cut	Shank Diameter
	D	C	L	Lc	d
04V0474X-SO	3/16	0.016x45°	2-1/8	3/8	1/4
04V0633X-SO	1/4	0.016x45°	2-1/8	3/8	1/4
04V0792X-SO	5/16	0.020x45°	2-1/4	1/2	5/16
04V0951X-SO	3/8	0.020x45°	2-1/2	9/16	3/8
04V1268X-SO	1/2	0.020x45°	2-7/8	5/8	1/2
04V1586X-SO	5/8	0.020x45°	3-1/4	7/8	5/8
04V1903X-SO	3/4	0.020x45°	3-1/2	1	3/4

Packed: 1 pc.
Available TiAlN coating only.

SOM

List 04V-SO

NEW | SPEED FEED P1275-1276 | CARBIDE | TiAlN | TYPE UNI | STUB | 40° | SHANK h6

4 Flute, Variable Index, Stub Length, Corner Chamfer



Units: mm

EDP Number	Mill Diameter	Chamfer Width	Overall Length	Length of Cut	Shank Diameter
	D	C	L	Lc	d
04V0500X-SO	5	0.4x45°	54	9	6
04V0600X-SO	6	0.4x45°	54	10	6
04V0800X-SO	8	0.5x45°	58	12	8
04V1000X-SO	10	0.5x45°	66	14	10
04V1200X-SO	12	0.5x45°	73	16	12
04V1600X-SO	16	0.5x45°	82	22	16
04V2000X-SO	20	0.5x45°	92	26	20

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
04V-SO	◎	◎	◎	◎	◎	◎	◎	◎	◎			◎	◎	○			

○ good ◎ best

List 03V-SO

4 Flute, Variable Index, Regular Length, Corner Radius/Corner Chamfer

NEW | SPEED FEED P1275-1276 | CARBIDE | TiAlN | TYPE UNI | REG | 40° | SHANK h6



Units: Inch

EDP Number	EDP Number w/ Weldon Flat	Mill Diameter	Corner Radius	Chamfer Width	Overall Length	Length of Cut	Shank Diameter
		D	R	C	L	Lc	d
03V0633X-SO	03V0635X-SO	1/4	-	0.016x45°	2-1/2	1/2	1/4
03V0634X-SO	03V0636X-SO	1/4	0.015	-	2-1/2	1/2	1/4
03V0951X-SO	03V0953X-SO	3/8	-	0.020x45°	2-1/2	7/8	3/8
03V0952X-SO	03V0954X-SO	3/8	0.015	-	2-1/2	7/8	3/8
03V1268X-SO	03V1270X-SO	1/2	-	0.020x45°	3	1	1/2
03V1269X-SO	03V1271X-SO	1/2	0.03	-	3	1	1/2
03V1586X-SO	03V1588X-SO	5/8	-	0.020x45°	3-1/2	1-1/4	5/8
03V1587X-SO	03V1589X-SO	5/8	0.03	-	3-1/2	1-1/4	5/8
03V1903X-SO	03V1905X-SO	3/4	-	0.020x45°	4	1-1/2	3/4
03V1904X-SO	03V1906X-SO	3/4	0.03	-	4	1-1/2	3/4
03V2502X-SO	03V2504X-SO	1	-	0.020x45°	4	1-1/2	1
03V2503X-SO	03V2505X-SO	1	0.03	-	4	1-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

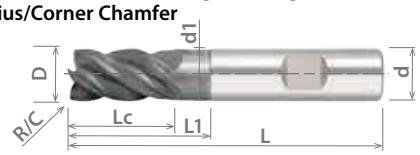
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03V-SO	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	○			

○ good ▢ best

List 03V-SO

NEW | SPEED FEED P1275-1276 | CARBIDE | TiAlN | TYPE UNI | REG | 40° | SHANK h6

4 Flute, Variable Index, Regular Length, Reduced Neck, Corner Radius/Corner Chamfer



Units: mm

EDP Number	EDP Number w/ Weldon Flat	Mill Diameter	Corner Radius	Chamfer Width	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
		D	R	C	L	Lc	L1	d1	d
-	03V0500X-SO	5	-	0.2x45°	57	13	18	4.8	6
03V0545X-SO	-	5	-	0.4x45°	57	13	-	-	6
03V0505X-SO	-	5	0.5	-	57	13	25	4.8	6
03V0510X-SO	-	5	1.0	-	57	13	25	4.8	6
-	03V0600X-SO	6	-	0.2x45°	57	13	18	5.8	6
03V0645X-SO	-	6	-	0.4x45°	57	13	-	-	6
03V0605X-SO	-	6	0.5	-	57	13	25	5.8	6
03V0610X-SO	-	6	1.0	-	57	13	25	5.8	6
-	03V0800X-SO	8	-	0.25x45°	63	19	24	7.7	8
03V0845X-SO	-	8	-	0.5x45°	63	19	-	-	8
03V0805X-SO	-	8	0.5	-	63	19	31	7.8	8
03V0810X-SO	-	8	1.0	-	63	19	31	7.8	8
-	03V1000X-SO	10	-	0.25x45°	72	22	32	9.7	10
03V1045X-SO	-	10	-	0.5x45°	72	22	-	-	10
03V1005X-SO	-	10	0.5	-	72	22	34	9.8	10
03V1010X-SO	-	10	1.0	-	72	22	34	9.8	10
-	03V1200X-SO	12	-	0.3x45°	83	26	36	11.6	12
03V1245X-SO	-	12	-	0.75x45°	83	26	-	-	12
03V1205X-SO	-	12	0.5	-	83	26	38	11.8	12
03V1210X-SO	-	12	1.0	-	83	26	38	11.8	12
-	03V1600X-SO	16	-	0.4x45°	92	32	42	15.5	16
03V1645X-SO	-	16	-	0.75x45°	92	32	-	-	16
03V1610X-SO	-	16	1.0	-	92	32	44	15.8	16
03V1620X-SO	-	16	2.0	-	92	32	44	15.8	16
-	03V2000X-SO	20	-	0.4x45°	104	38	48	19.5	20
03V2045X-SO	-	20	-	0.75x45°	104	38	-	-	20
03V2010X-SO	-	20	1.0	-	104	38	50	19.8	20
03V2020X-SO	-	20	2.0	-	104	38	50	19.8	20

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

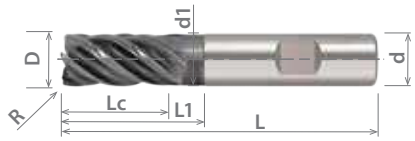
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03V-SO	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	○			

○ good ▢ best

List 05V-SO

NEW | SPEED FEED P1277-1278 | CARBIDE | TiAlN | TYPE UNI | REG | 40° | SHANK h6

5 Flute, Variable Index, Regular Length, Reduced Neck, Corner Radius



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
	D	R	L	Lc	L1	d1	d
05V0476X-SO	3/16	0.015	2-1/4	1/2	1	0.180	1/4
05V0477X-SO	3/16	0.030	2-1/4	1/2	1	0.180	1/4
05V0636X-SO	1/4	0.015	2-1/4	1/2	1	0.242	1/4
05V0634X-SO	1/4	0.030	2-1/4	1/2	1	0.242	1/4
05V0632X-SO	1/4	0.060	2-1/4	1/2	1	0.242	1/4
05V0795X-SO	5/16	0.015	2-1/2	3/4	1-1/4	0.305	5/16
05V0793X-SO	5/16	0.030	2-1/2	3/4	1-1/4	0.305	5/16
05V0791X-SO	5/16	0.060	2-1/2	3/4	1-1/4	0.305	5/16
05V0954X-SO	3/8	0.015	2-1/2	7/8	1-1/2	0.367	3/8
05V0952X-SO	3/8	0.030	2-7/8	7/8	1-1/2	0.367	3/8
05V0950X-SO	3/8	0.060	2-1/2	7/8	1-1/2	0.367	3/8
05V1271X-SO	1/2	0.015	3	1	1-1/2	0.484	1/2
05V1269X-SO	1/2	0.030	3-1/4	1	1-1/2	0.484	1/2
05V1267X-SO	1/2	0.060	3-1/4	1	1-1/2	0.484	1/2
05V1265X-SO	1/2	0.090	3-1/4	1	1-1/2	0.484	1/2
05V1263X-SO	1/2	0.120	3	1	1-1/2	0.484	1/2
05V1589X-SO	5/8	0.030	3-1/2	1-1/4	1-3/4	0.609	5/8
05V1587X-SO	5/8	0.060	3-1/2	1-1/4	1-3/4	0.609	5/8
05V1585X-SO	5/8	0.090	3-1/2	1-1/4	1-3/4	0.609	5/8
05V1906X-SO	3/4	0.030	4	1-1/2	2	0.734	3/4
05V1904X-SO	3/4	0.060	4	1-1/2	2	0.734	3/4
05V1902X-SO	3/4	0.090	4	1-1/2	2	0.734	3/4
05V1900X-SO	3/4	0.120	4	1-1/2	2	0.734	3/4

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

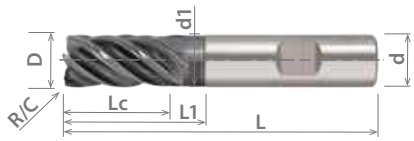
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
05V-SO	▣	▣	▣	▣	▣	▣	▣	▣	▣			▣	▣	▢			

▢ good ▣ best

List 05V-SO

NEW | SPEED FEED P1277-1278 | CARBIDE | TiAlN | TYPE UNI | REG | 40° | SHANK h6

5 Flute, Variable Index, Regular Length, Reduced Neck, Corner Radius/Corner Chamfer



Units: mm

EDP Number	EDP Number w/ Weldon Flat	Mill Diameter	Corner Radius	Chamfer Width	Overall Length	Length of Cut	Neck Length	Neck Diameter	Shank Diameter
		D	R	C	L	Lc	L1	d1	d
-	05V0500X-SO	5	-	0.2x45°	57	13	18	4.8	6
05V0545X-SO	-	5	-	0.4x45°	57	13	-	-	6
05V0505X-SO	-	5	0.5	-	57	13	25	4.8	6
05V0510X-SO	-	5	1.0	-	57	13	25	4.8	6
-	05V0600X-SO	6	-	0.2x45°	57	13	18	5.8	6
05V0645X-SO	-	6	-	0.4x45°	57	13	-	-	6
05V0605X-SO	-	6	0.5	-	57	13	25	5.8	6
05V0610X-SO	-	6	1.0	-	57	13	25	5.8	6
-	05V0800X-SO	8	-	0.25x45°	63	19	24	7.7	8
05V0845X-SO	-	8	-	0.5x45°	63	19	-	-	8
05V0805X-SO	-	8	0.5	-	63	19	31	7.8	8
05V0810X-SO	-	8	1.0	-	63	19	31	7.8	8
-	05V1000X-SO	10	-	0.25x45°	72	22	32	9.7	10
05V1045X-SO	-	10	-	0.5x45°	72	22	-	-	10
05V1005X-SO	-	10	0.5	-	72	22	34	9.8	10
05V1010X-SO	-	10	1.0	-	72	22	34	9.8	10
-	05V1200X-SO	12	-	0.3x45°	83	26	36	11.6	12
05V1245X-SO	-	12	-	0.75x45°	83	26	-	-	12
05V1205X-SO	-	12	0.5	-	83	26	38	11.8	12
05V1210X-SO	-	12	1.0	-	83	26	38	11.8	12
-	05V1600X-SO	16	-	0.4x45°	92	32	42	15.5	16
05V1645X-SO	-	16	-	0.75x45°	92	32	-	-	16
05V1610X-SO	-	16	1.0	-	92	32	44	15.8	16
05V1620X-SO	-	16	2.0	-	92	32	44	15.8	16
-	05V2000X-SO	20	-	0.4x45°	104	38	48	19.5	20
05V2045X-SO	-	20	-	0.75x45°	104	38	-	-	20
05V2010X-SO	-	20	1.0	-	104	38	50	19.8	20
05V2020X-SO	-	20	2.0	-	104	38	50	19.8	20

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
05V-SO	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢	○			

○ good ▢ best

List 03A-SO

2 Flute, Regular Length

NEW | SPEED FEED P1279 | CARBIDE | TiAlN | TYPE N | REG | 30° | SHANK h6



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03A0100X-SO	1.0	39	3	3
03A0150X-SO	1.5	39	5	3
03A0200X-SO	2.0	39	7	3
03A0250X-SO	2.5	39	7	3
03A0300X-SO	3.0	39	8	3
03A0400X-SO	4.0	57	8	6
03A0500X-SO	5.0	57	10	6
03A0600X-SO	6.0	57	10	6
03A0800X-SO	8.0	63	16	8
03A1000X-SO	10.0	72	19	10
03A1200X-SO	12.0	83	22	12
03A1400X-SO	14.0	83	22	14
03A1600X-SO	16.0	92	26	16
03A1800X-SO	18.0	96	26	18
03A2000X-SO	20.0	104	32	20

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03A-SO	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○			

○ good ◎ best

List 03K-SO

NEW | SPEED FEED P1280 | CARBIDE | TiAlN | TYPE N | REG | 30° | SHANK h6

4 Flute, Regular Length



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03K0100X-SO	1.0	39	3	3
03K0150X-SO	1.5	39	5	3
03K0200X-SO	2.0	39	7	3
03K0250X-SO	2.5	39	7	3
03K0300X-SO	3.0	39	9	3
03K0400X-SO	4.0	57	11	6
03K0500X-SO	5.0	57	13	6
03K0600X-SO	6.0	57	13	6
03K0800X-SO	8.0	63	19	8
03K1000X-SO	10.0	72	22	10
03K1200X-SO	12.0	83	26	12
03K1400X-SO	14.0	83	26	14
03K1600X-SO	16.0	92	32	16
03K1800X-SO	18.0	96	32	18
03K2000X-SO	20.0	104	38	20

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

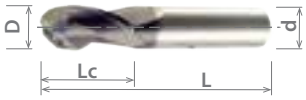
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03K-SO	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○			

○ good ◎ best

List 03M-SO

2 Flute, Regular Length, Ball Nose

NEW | SPEED FEED P1279 | CARBIDE | TiAlN | TYPE N | REG | 30° | SHANK h6



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03M0100X-SO	1.0	39	3	3
03M0150X-SO	1.5	39	5	3
03M0200X-SO	2.0	39	7	3
03M0250X-SO	2.5	39	7	3
03M0300X-SO	3.0	39	8	3
03M0400X-SO	4.0	57	8	6
03M0500X-SO	5.0	57	10	6
03M0600X-SO	6.0	57	10	6
03M0800X-SO	8.0	63	16	8
03M1000X-SO	10.0	72	19	10
03M1200X-SO	12.0	83	22	12
03M1400X-SO	14.0	83	22	14
03M1600X-SO	16.0	92	26	16
03M1800X-SO	18.0	96	26	18
03M2000X-SO	20.0	104	32	20

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

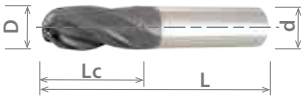
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03M-SO	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○			

○ good ◎ best

List 03P-SO

NEW | SPEED FEED P1280 | CARBIDE | TiAlN | TYPE N | REG | 30° | SHANK h6

4 Flute, Regular Length, Ball Nose



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03P0100X-SO	1.0	39	3	3
03P0150X-SO	1.5	39	5	3
03P0200X-SO	2.0	39	7	3
03P0250X-SO	2.5	39	7	3
03P0300X-SO	3.0	39	9	3
03P0400X-SO	4.0	57	11	6
03P0500X-SO	5.0	57	13	6
03P0600X-SO	6.0	57	13	6
03P0800X-SO	8.0	63	19	8
03P1000X-SO	10.0	72	22	10
03P1200X-SO	12.0	83	26	12
03P1400X-SO	14.0	83	26	14
03P1600X-SO	16.0	92	32	16
03P1800X-SO	18.0	96	32	18
03P2000X-SO	20.0	104	38	20

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03P-SO	▣	▣	▣	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢			

▢ good ▣ best

List 03E-SO

NEW | SPEED FEED P1281 | CARBIDE | TiAlN | TYPE UNI | REG | 30° | SHANK h6

4 Flute, Regular Length, Fine Pitch, Rougher



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03E0635X-SO	1/4	2-1/2	3/4	1/4
03E0794X-SO	5/16	2-1/2	3/4	5/16
03E0953X-SO	3/8	2-1/2	7/8	3/8
03E1270X-SO	1/2	3	1	1/2
03E1588X-SO	5/8	3-1/2	1-1/4	5/8
03E1905X-SO	3/4	4	1-1/2	3/4
03E2540X-SO	1	4	2-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

SOM

List 03E-SO

NEW | SPEED FEED P1281 | CARBIDE | TiAlN | TYPE UNI | REG | 30° | SHANK h6

4 Flute, Regular Length, Fine Pitch, Rougher



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03E0600X-SO	6	57	13	6
03E0800X-SO	8	63	16	8
03E1000X-SO	10	72	22	10
03E1200X-SO	12	83	26	12
03E1600X-SO	16	92	32	16
03E2000X-SO	20	104	38	20

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03E-SO	▢	▢	▢	▢	▢	▢	▢	▢	▢				▢	○			

○ good ▢ best

List 03C-SO

3 Flute, Regular Length, Coarse Pitch, Rougher

NEW | SPEED FEED P1282 | CARBIDE | BR | TYPE W | REG | 30° | SHANK h6



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03C0635-SO	1/4	2-1/2	3/4	1/4
03C0794-SO	5/16	2-1/2	3/4	5/16
03C0953-SO	3/8	2-1/2	7/8	3/8
03C1270-SO	1/2	3	1	1/2
03C1588-SO	5/8	3-1/2	1-1/4	5/8
03C1905-SO	3/4	4	1-1/2	3/4
03C2540-SO	1	4	2-1/2	1

Packed: 1 pc.
Available Bright finish only.

SOM

Work Material

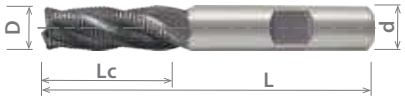
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03C-SO										▣	▣						

▢ good ▣ best

List 03F-SO

4 Flute, Regular Length, Fine Pitch, Flat Crest, Rougher

NEW | SPEED FEED P1283 | CARBIDE | TiAlN | TYPE UNI | REG | 30° | SHANK h6



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03F0635X-SO	1/4	2-1/2	3/4	1/4
03F0794X-SO	5/16	2-1/2	3/4	5/16
03F0953X-SO	3/8	2-1/2	7/8	3/8
03F1270X-SO	1/2	3	1	1/2
03F1588X-SO	5/8	3-1/2	1-1/4	5/8
03F1905X-SO	3/4	4	1-1/2	3/4
03F2540X-SO	1	4	2-1/2	1

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

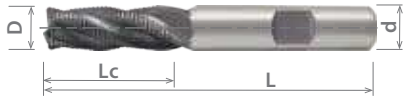
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03F-SO	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢				

▢ good ▢ best

List 03F-SO

4 Flute, Regular Length, Fine Pitch, Flat Crest, Rougher

NEW | SPEED FEED P1283 | CARBIDE | TiAlN | TYPE UNI | REG | 30° | SHANK h6



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03F0600X-SO	6	57	13	6
03F0800X-SO	8	63	16	8
03F1000X-SO	10	72	22	10
03F1200X-SO	12	83	26	12
03F1600X-SO	16	92	32	16
03F2000X-SO	20	104	38	20

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

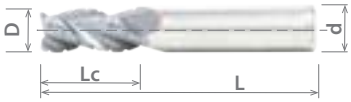
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03F-SO	▢	▢	▢	▢	▢	▢	▢	▢	▢			▢	▢				

▢ good ▢ best

List 03D-SO

3 Flute, Regular Length, Coarse Pitch, Flat Crest, Rougher

NEW | SPEED FEED P1284 | CARBIDE | TiAlN | TYPE UNI | REG | 38° | SHANK h6



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03D0635X-SO	1/4	2-1/2	3/4	1/4
03D0794X-SO	5/16	2-1/2	3/4	5/16
03D0953X-SO	3/8	2-1/2	7/8	3/8
03D1270X-SO	1/2	3	1	1/2
03D1588X-SO	5/8	3-1/2	1-1/4	5/8
03D1905X-SO	3/4	4	1-1/2	3/4
03D2540X-SO	1	4	2-1/2	1

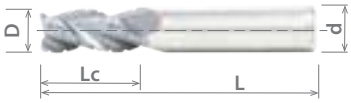
Packed: 1 pc.
Available TiAlN coating only.

SOM

List 03D-SO (SET)

INCH SET, 3 Flute, Regular Length, Coarse Pitch, Flat Crest, Rougher

NEW | SPEED FEED P1284 | CARBIDE | TiAlN | TYPE UNI | REG | 38° | SHANK h6



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
03D0001X-SO	1/4	2-1/2	3/4	1/4
	5/16	2-1/2	3/4	5/16
	3/8	2-1/2	7/8	3/8
	1/2	3	1	1/2
	5/8	3-1/2	1-1/4	5/8

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
03D-SO	▢	▢	▢	▢	▢	▢	▢	▢	▢				▢				

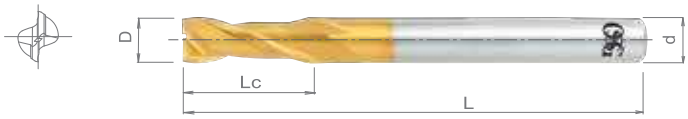
▢ good ▢ best

List 673

TIN-CPM-M-EDL, 2 Flute, Regular Length

SPEED FEED P1297-1298 | VC10 | TiN | REG | 30°

Milling Diameter Tolerance	
1/32≤D≤11/64	+0 / -0.0011"
D=3/16	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
6737005	1/32	1-7/8	3/32	3/16
6737105	3/64	1-7/8	9/64	3/16
6737205	1/16	1-7/8	3/16	3/16
6737305	5/64	1-7/8	15/64	3/16
6737405	3/32	1-7/8	9/32	3/16
6737505	7/64	1-7/8	21/64	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
6737605	1/8	1-7/8	3/8	3/16
6737705	9/64	1-7/8	13/32	3/16
6737805	5/32	1-7/8	7/16	3/16
6737905	11/64	1-7/8	1/2	3/16
6738005	3/16	1-7/8	1/2	3/16

EXM

Packed: 1 pc.
Available TiN coating only.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
673	○	○	○	◎	◎	◎	◎	◎	○	○	○		○	◎	○		

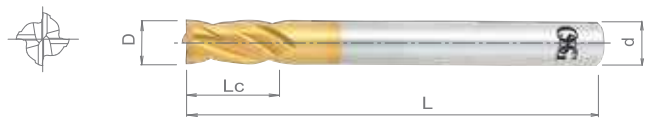
○ good ◎ best

List 676

SPEED FEED P1299-1300 | VC10 | TiN | STUB | 30°

TIN-CPM-M-EMS, 4 Flute, Stub Length, Non-Center Cutting (Smaller than 1/8)

Milling Diameter Tolerance	
1/16≤D≤5/32	+0.0011" / -0
D=3/16	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
6767205	1/16	1-3/4	3/32	3/16
6767405	3/32	1-3/4	9/64	3/16
6767605	1/8	1-3/4	3/16	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
6767805	5/32	1-3/4	15/64	3/16
6768005	3/16	1-3/4	9/32	3/16

EXM

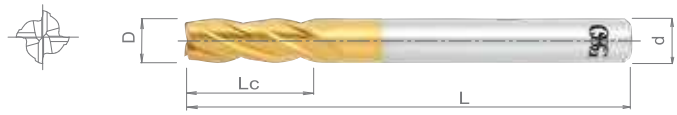
Packed: 1 pc.
Available TiN coating only.

List 677

SPEED FEED P1299-1300 | VC10 | TiN | STUB | 30°

TIN-CPM-M-EML, 4 Flute, Regular Length, Non-Center Cutting (Smaller than 1/8)

Milling Diameter Tolerance	
1/16≤D≤5/32	+0.0011" / -0
D=3/16	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
6777205	1/16	1-7/8	3/16	3/16
6777405	3/32	1-7/8	9/32	3/16
6777605	1/8	1-7/8	3/8	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
6777805	5/32	1-7/8	7/16	3/16
6778005	3/16	1-7/8	1/2	3/16

EXM

Packed: 1 pc.
Available TiN coating only.

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	○	○	○	◎	◎	◎	◎	◎	○	○	○		○	◎	○		

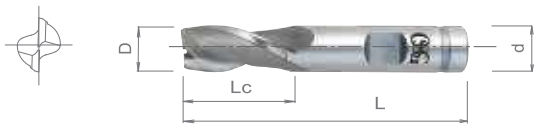
○ good ◎ best

List 620

CPM-EDS, 2 Flute, Regular Length

SPEED FEED P1297-1298 | VC10 | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤1,1/2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
6200100	1/8	2-5/16	3/8	3/8
6200200	3/16	2-5/16	7/16	3/8
6200300	1/4	2-5/16	1/2	3/8
6200400	5/16	2-5/16	9/16	3/8
6200500	3/8	2-5/16	9/16	3/8
6201100	1/2	3	1	1/2

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
6202100	5/8	3-7/16	1-5/16	5/8
6203100	3/4	3-9/16	1-5/16	3/4
6205100	1	4-1/8	1-5/8	1
6206100	1-1/4	4-1/8	1-5/8	1-1/4
6206200	1-1/2	4-1/8	1-5/8	1-1/4

EXM

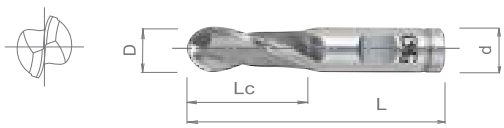
Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

List 621

CPM-EBD, 2 Flute, Regular Length, Ball End

SPEED FEED P1301 | VC10 | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤1,1/2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
6210100	1/8	2-5/16	3/8	3/8
6210200	3/16	2-3/8	1/2	3/8
6210300	1/4	2-7/16	5/8	3/8
6210400	5/16	2-1/2	3/4	3/8
6210500	3/8	2-1/2	3/4	3/8
6211100	1/2	3	1	1/2

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
6212100	5/8	3-1/2	1-3/8	5/8
6213100	3/4	3-7/8	1-5/8	3/4
6215100	1	4-3/4	2-1/4	1
6216100	1-1/4	5	2-1/2	1-1/4
6216200	1-1/2	5	2-1/2	1-1/4

EXM

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	○	○	○	◎	◎	◎	◎	◎	◎	○	○		○	◎	○		

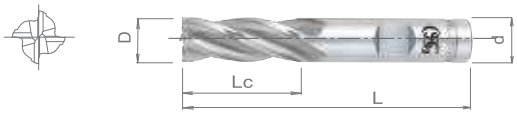
○ good ◎ best

List 641

CPM-CC-EMS, Multiple Flute, Regular Length

SPEED FEED P1299-1300 | VC10 | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
	D	L	Lc	d	
6410100	1/8	2-5/16	3/8	3/8	4
6410200	3/16	2-3/8	1/2	3/8	4
6410300	1/4	2-7/16	5/8	3/8	4
6410400	5/16	2-1/2	3/4	3/8	4
6410500	3/8	2-1/2	3/4	3/8	4
6410600	7/16	2-11/16	1	3/8	4
6411100	1/2	3-1/4	1-1/4	1/2	4
6411500	1/2	3-1/4	1-1/4	1/2	6
6412100	5/8	3-3/4	1-5/8	5/8	4
6412500	5/8	3-3/4	1-5/8	5/8	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
	D	L	Lc	d	
6413100	3/4	3-7/8	1-5/8	3/4	4
6413500	3/4	3-7/8	1-5/8	3/4	6
6414100	7/8	4-1/8	1-7/8	7/8	4
6414500	7/8	4-1/8	1-7/8	7/8	6
6415100	1	4-1/2	2	1	4
6415500	1	4-1/2	2	1	6
6416100	1-1/4	4-1/2	2	1-1/4	6
6416200	1-1/2	4-1/2	2	1-1/4	6
6416400	2	5-3/4	2	2	6

EXM

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
641	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢		

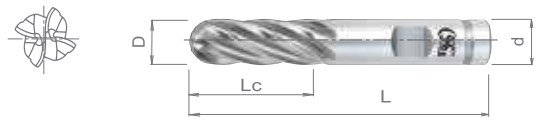
▢ good ▢ best

List 644

CPM-EBM, Multiple Flute, Regular Length, Ball End

SPEED FEED P1301 | VC10 | BR | REG | 30°

Milling Diameter Tolerance	
3/8≤D≤1,1/2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
	D	L	Lc	d	
6440500	3/8	2-1/2	3/4	3/8	4
6441100	1/2	3-1/4	1-1/4	1/2	4
6441500	1/2	3-1/4	1-1/4	1/2	6
6442100	5/8	3-3/4	1-5/8	5/8	4
6442500	5/8	3-3/4	1-5/8	5/8	6
6443100	3/4	3-7/8	1-5/8	3/4	4
6443500	3/4	3-7/8	1-5/8	3/4	6
6444100	7/8	4-1/8	1-7/8	7/8	4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
	D	L	Lc	d	
6444500	7/8	4-1/8	1-7/8	7/8	6
6445100	1	4-1/2	2	1	4
6445500	1	4-1/2	2	1	6
6446100	1-1/4	4-1/2	2	1-1/4	4
6446500	1-1/4	4-1/2	2	1-1/4	6
6446200	1-1/2	4-1/2	2	1-1/4	4
6446600	1-1/2	4-1/2	2	1-1/4	6

EXM

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
644	○	○	○	◎	◎	◎	◎	◎	◎	○	○		○	◎	○		

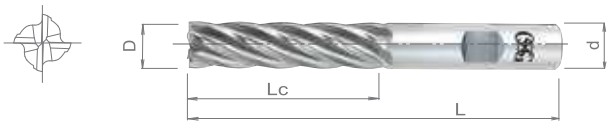
○ good ◎ best

List 646

CPM-CC-EML, Multiple Flute, Long Length

SPEED FEED P1299-1300 | VC10 | BR | LONG | 30°

Milling Diameter Tolerance	
1/4≤D≤2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
	D	L	Lc	d	
6460300	1/4	3-1/16	1-1/4	3/8	4
6460500	3/8	3-1/4	1-1/2	3/8	4
6461100	1/2	4	2	1/2	4
6461500	1/2	4	2	1/2	6
6462100	5/8	4-5/8	2-1/2	5/8	4
6462500	5/8	4-5/8	2-1/2	5/8	6
6463100	3/4	5-1/4	3	3/4	4
6463500	3/4	5-1/4	3	3/4	6

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
	D	L	Lc	d	
6464100	7/8	5-3/4	3-1/2	7/8	4
6464500	7/8	5-3/4	3-1/2	7/8	6
6465100	1	6-1/2	4	1	4
6465500	1	6-1/2	4	1	6
6466100	1-1/4	6-1/2	4	1-1/4	6
6466200	1-1/2	6-1/2	4	1-1/4	6
6466400	2	7-3/4	4	2	6

EXM

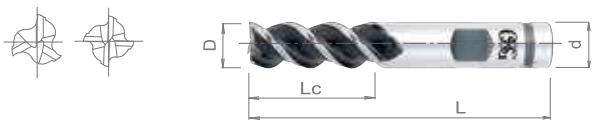
Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

List 660

CPM-EHS, Multiple Flute, Regular Length, High Helix

SPEED FEED P1294 | VC10 | BR | REG | 50°

Milling Diameter Tolerance	
1/4≤D≤1	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
	D	L	Lc	d	
6600300	1/4	2-7/16	5/8	3/8	3
6600400	5/16	2-1/2	3/4	3/8	3
6600500	3/8	2-1/2	3/4	3/8	3
6600600	7/16	2-11/16	1	3/8	3
6601100	1/2	3-1/4	1-1/4	1/2	3

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	No. of Flutes
	D	L	Lc	d	
6602100	5/8	3-3/4	1-5/8	5/8	3
6603100	3/4	3-7/8	1-5/8	3/4	3
6604100	7/8	4-1/8	1-7/8	7/8	4
6605100	1	4-1/2	2	1	4

EXM

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
646	○	○	○	◎	◎	◎	◎	◎	○	○	○		○	◎	○		
660	○	○	○	◎	◎	◎	◎	◎	○	○	○		○	○			

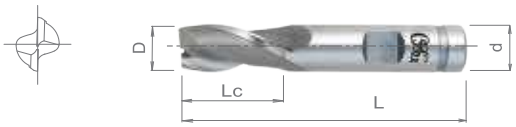
○ good ◎ best

List 573

EDS, 2 Flute, Regular Length

SPEED FEED P1295 | HSSE | TiCN | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤1	+0.0011" / -0



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiCN	D	L	Lc	d
5730100	5730108	1/8	2-5/16	3/8	3/8
5730200	-	5/32	2-5/16	7/16	3/8
5730300	5730308	3/16	2-5/16	7/16	3/8
5730400	5730408	7/32	2-5/16	1/2	3/8
5730500	5730508	1/4	2-5/16	1/2	3/8
5730600	5730608	9/32	2-5/16	9/16	3/8
5730700	5730708	5/16	2-5/16	9/16	3/8
5730800	5730808	11/32	2-5/16	9/16	3/8
5730900	5730908	3/8	2-5/16	9/16	3/8
5731000	5731008	13/32	2-1/2	13/16	3/8
5731100	5731108	7/16	2-1/2	13/16	3/8
5731200	5731208	15/32	2-1/2	13/16	3/8
5731400	5731408	1/2	3	1	1/2
5731500	5731508	17/32	3-1/8	1-1/8	1/2
5731600	5731608	9/16	3-1/8	1-1/8	1/2

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiCN	D	L	Lc	d
5731700	5731708	19/32	3-1/8	1-1/8	1/2
5732300	5732308	5/8	3-7/16	1-5/16	5/8
5731900	5731908	21/32	3-5/16	1-5/16	1/2
5732000	5732008	11/16	3-5/16	1-5/16	1/2
5732400	5732408	11/16	3-7/16	1-5/16	5/8
5732100	5732108	23/32	3-5/16	1-5/16	1/2
5733200	5733208	3/4	3-9/16	1-5/16	3/4
5732600	5732608	25/32	3-5/8	1-1/2	5/8
5732700	5732708	13/16	3-5/8	1-1/2	5/8
5732800	5732808	27/32	3-5/8	1-1/2	5/8
5733700	5733708	7/8	3-3/4	1-1/2	7/8
5733400	5733408	29/32	3-3/4	1-1/2	3/4
5733000	5733008	15/16	3-5/8	1-1/2	5/8
5733500	5733508	31/32	3-3/4	1-1/2	3/4
5733900	5733908	1	4-1/8	1-5/8	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

HY-PRO® V ADVANTAGE

HY-PRO® V End Mills are made from premium HSSE-V3 (3% Vanadium) high speed steel for increased toughness and tool life. Available with TiCN coating for increased wear resistance when machining abrasive materials. With no cobalt content, HY-PRO® V End Mills are environmentally safe when reground.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
573	◎	◎	◎	◎	◎	○	○		◎	◎	◎		○	○	○		

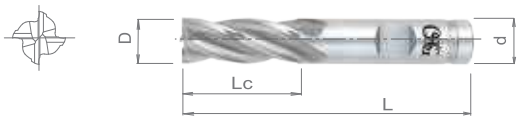
○ good ◎ best

List 574

CC-EMS, Multiple Flute, Regular Length

SPEED FEED P1295-1296 | HSSE | TiCN | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤1	+0.0011" / -0



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
Bright	TiCN	D	L	Lc	d	
5740100	5740108	1/8	2-5/16	3/8	3/8	4
5740200	5740208	5/32	2-3/8	7/16	3/8	4
5740300	5740308	3/16	2-3/8	1/2	3/8	4
5740400	5740408	7/32	2-7/16	9/16	3/8	4
5740500	5740508	1/4	2-7/16	5/8	3/8	4
5740600	5740608	9/32	2-1/2	11/16	3/8	4
5740700	5740708	5/16	2-1/2	3/4	3/8	4
5740800	5740808	11/32	2-1/2	3/4	3/8	4
5740900	5740908	3/8	2-1/2	3/4	3/8	4
5741000	5741008	13/32	2-11/16	1	3/8	4
5741100	5741108	7/16	2-11/16	1	3/8	4
5741200	5741208	15/32	3-1/4	1-1/4	1/2	4
5741400	5741408	1/2	3-1/4	1-1/4	1/2	4
5741500	5741508	17/32	3-3/8	1-3/8	1/2	4
5741600	5741608	9/16	3-3/8	1-3/8	1/2	4
5741700	5741708	19/32	3-3/8	1-3/8	1/2	4
5742300	5742308	5/8	3-3/4	1-5/8	5/8	4
5741900	5741908	21/32	3-5/8	1-5/8	1/2	4
5742000	5742008	11/16	3-5/8	1-5/8	1/2	4
5742400	5742408	11/16	3-3/4	1-5/8	5/8	4
5742100	5742108	23/32	3-5/8	1-5/8	1/2	4
5743200	5743208	3/4	3-7/8	1-5/8	3/4	4
5742600	5742608	25/32	4	1-7/8	5/8	6
5742700	5742708	13/16	4	1-7/8	5/8	6
5742800	5742808	27/32	4	1-7/8	5/8	6
5743700	5743708	7/8	4-1/8	1-7/8	7/8	6
5743400	5743408	29/32	4-1/8	1-7/8	3/4	4
5743000	5743008	15/16	4	1-7/8	5/8	4
5743500	5743508	31/32	4-1/8	1-7/8	3/4	4
5743900	5743908	1	4-1/2	2	1	4

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

HY-PRO® V ADVANTAGE

HY-PRO® V End Mills are made from premium HSSE-V3 (3% Vanadium) high speed steel for increased toughness and tool life. Available with TiCN coating for increased wear resistance when machining abrasive materials. With no cobalt content, HY-PRO® V End Mills are environmentally safe when reground.

Work Material

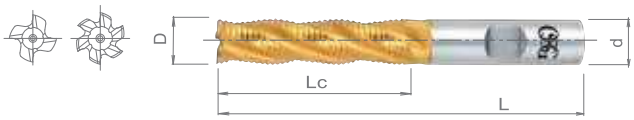
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
574	◎	◎	◎	◎	◎	○	○		◎	◎	◎		○	○	○		

○ good ◎ best

List 690

SPEED FEED P1293 | HSSE | TiN | ROUGH | REG | 30°

EXO-TIN-EX-REE, Multiple Flute, Regular Length, Non-Center Cutting



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
6909105	1/4	2-1/2	3/4	3/8	4
6909405	5/16	2-1/2	3/4	3/8	4
6909705	3/8	2-5/8	7/8	3/8	4
6909805	3/8	3-1/4	1-1/2	3/8	4
6900105	1/2	3-1/4	1-1/4	1/2	4
6900305	1/2	4	2	1/2	4
6900505	5/8	3-3/4	1-5/8	5/8	4
6900705	5/8	4-5/8	2-1/2	5/8	4
6900905	3/4	3-7/8	1-5/8	5/8	4
6901305	3/4	3-7/8	1-5/8	3/4	4
6901505	3/4	5-1/4	3	3/4	4
6901705	7/8	4-1/8	1-7/8	3/4	5
6910105	1	4-1/4	2	3/4	5
6910505	1	4-1/2	2	1	5
6910905	1	6-1/2	4	1	5
6912105	1-1/4	4-1/2	2	1-1/4	6
6912305	1-1/4	5-1/2	3	1-1/4	6
6912505	1-1/4	6-1/2	4	1-1/4	6
6913305	1-1/2	4-1/2	2	1-1/4	6
6913505	1-1/2	5-1/2	3	1-1/4	6
6920105	2	4-1/2	2	1-1/4	8
6920505	2	6-1/2	4	1-1/4	8
6920705	2	6-3/4	3	2	8
6920905	2	7-3/4	4	2	8

Packed: 1pc.
Available TiN coating only.

EXM

Work Material

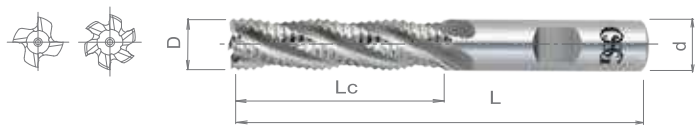
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
690	○	○	○	○	○	◎	◎	○	○	○	○		○	◎	○		

○ good ◎ best

List 450

EX-REEF, Multiple Flute, Fine Pitch, Non-Center Cutting

SPEED FEED P1285 | HSS-Co | TiCN | BR | FINE ROUGH | STUB | REG | LONG | 30°



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
Bright	TiCN	D	L	Lc	d	
4509000	-	3/16	2-3/8	1/2	3/8	4
4509100	-	1/4	2-1/2	3/4	3/8	3
4509200	-	1/4	3-1/16	1-1/4	3/8	3
4509400	-	5/16	2-1/2	3/4	3/8	3
4509500	-	5/16	3-1/8	1-3/8	3/8	3
4509700	-	3/8	2-5/8	7/8	3/8	4
4509800	-	3/8	3-1/4	1-1/2	3/8	4
4509900	-	7/16	2-11/16	1	3/8	4
4500000	-	7/16	3-1/4	1-1/4	1/2	4
4500100	-	1/2	3-1/4	1-1/4	1/2	4
4500300	-	1/2	4	2	1/2	4
4500500	4500508	5/8	3-3/4	1-5/8	5/8	4
4500700	4500708	5/8	4-5/8	2-1/2	5/8	4
4500800	4500808	5/8	5-1/8	3	5/8	4
4500900	-	3/4	3-7/8	1-5/8	5/8	4
4501000	4501008	3/4	4-1/2	2-1/4	3/4	4
4501300	-	3/4	3-7/8	1-5/8	3/4	4
4501100	-	3/4	5-1/4	3	5/8	4
4501500	-	3/4	5-1/4	3	3/4	4
4501600	-	3/4	6-1/4	4	3/4	4
4501700	-	7/8	4-1/8	1-7/8	3/4	5
4502100	-	7/8	4-1/8	1-7/8	7/8	5
4501900	-	7/8	5-3/4	3-1/2	3/4	5
4502300	-	7/8	5-3/4	3-1/2	7/8	5
4510100	-	1	4-1/4	2	3/4	5
4510500	4510508	1	4-1/2	2	1	5
4510700	-	1	5-1/2	3	1	5
4510900	4510908	1	6-1/2	4	1	5
4511500	-	1-1/8	4-1/2	2	1	5
4512100	-	1-1/4	4-1/2	2	1-1/4	6
4512300	-	1-1/4	5-1/2	3	1-1/4	6
4511900	-	1-1/4	6-1/4	4	3/4	6
4512500	-	1-1/4	6-1/2	4	1-1/4	6
4513300	4513308	1-1/2	4-1/2	2	1-1/4	6
4513500	-	1-1/2	5-1/2	3	1-1/4	6
4513100	-	1-1/2	6-1/4	4	3/4	6
4513700	-	1-1/2	6-1/2	4	1-1/4	6
4513900	-	1-1/2	7-1/2	5	1-1/4	6
4514500	-	1-3/4	6-1/2	4	1-1/4	6
4520100	-	2	4-1/2	2	1-1/4	8
4520700	-	2	6-3/4	3	2	8
4520500	-	2	6-1/2	4	1-1/4	8
4520900	-	2	7-3/4	4	2	8
4521100	-	2	9-3/4	6	2	8
4521300	-	2	11-3/4	8	2	8

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request. Specify treatment at time of order.
Note: 2" diameter shanks have combination drive.

STE

Work Material

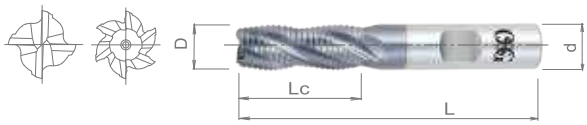
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
450	○	○	○	○	○	◎	○	○	○		○		○	○	○		

○ good ◎ best

List 455

Multiple Flute, Roughing Cut, Fine Pitch

SPEED FEED P1286 | HSS-Co | TiAlN | TiCN | FINE ROUGH | STUB | REG | LONG | 30°



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
TiCN	TiAlN	D	L	Lc	d	
4558908	-	1/4	2-1/16	1/4	3/8	4
4559008	4559011	1/4	2-1/16	1/4	3/8	4
4569108	-	1/4	2-7/16	5/8	3/8	3
4559108	4559111	1/4	2-1/2	3/4	3/8	4
4559208	4559211	1/4	3-1/16	1-1/4	3/8	4
4559308	4559311	5/16	2-1/16	5/16	3/8	3
4559408	4559411	5/16	2-1/2	3/4	3/8	4
4559508	4559511	5/16	3-1/8	1-3/8	3/8	4
4559608	4559611	3/8	2-5/32	3/8	3/8	3
4559708	4559711	3/8	2-5/8	7/8	3/8	4
4559808	4559811	3/8	3-1/4	1-1/2	3/8	4
4569808	-	7/16	2-1/2	1/2	1/2	4
4559908	-	7/16	3-1/4	1-1/4	1/2	4
4550008	4550011	1/2	2-1/2	1/2	1/2	3
4560008	-	1/2	2-1/2	1/2	1/2	4
4550108	4550111	1/2	3-1/4	1-1/4	1/2	4
4550308	4550311	1/2	4	2	1/2	4
4560308	-	1/2	5	3	1/2	4
4550408	4550411	5/8	2-3/4	5/8	5/8	3
4560408	-	5/8	2-3/4	5/8	5/8	4
4550508	4550511	5/8	3-3/4	1-5/8	5/8	4
4550608	-	5/8	4-1/8	2	5/8	4
4550708	4550711	5/8	4-5/8	2-1/2	5/8	4
4551208	4551211	3/4	2-7/8	3/4	3/4	3
4561208	-	3/4	2-7/8	3/4	3/4	4
4551308	4551311	3/4	3-7/8	1-5/8	3/4	4
4551408	-	3/4	4-1/2	2-1/2	3/4	4
4551508	4551511	3/4	5-1/4	3	3/4	4
4551608	-	3/4	6-1/4	4	3/4	4
4552108	-	3/4	4-1/2	2-1/4	3/4	4
4561008	-	1	3-1/2	1	1	5
4560108	4560111	1	4-1/2	2	3/4	5
4560508	4560511	1	4-1/2	2	1	5
4560708	4560711	1	5-1/2	3	1	5
4560908	4560911	1	6-1/2	4	1	5
4562108	4562111	1-1/4	4-1/2	2	1-1/4	6
4562308	4562311	1-1/4	5-1/2	3	1-1/4	6
4562508	4562511	1-1/4	6-1/2	4	1-1/4	6
4563308	4563311	1-1/2	4-1/2	2	1-1/4	6
4563508	4563511	1-1/2	5-1/2	3	1-1/4	6
4563708	4563711	1-1/2	6-1/2	4	1-1/4	6
4570708	-	2	6-3/4	3	2	8
4570908	-	2	7-3/4	4	2	8
4571108	4571111	2	9-3/4	6	2	8
4571308	-	2	11-3/4	8	2	8

Packed: 1pc.
Available in TiCN or TiAlN only.
Center cutting available in stub length only.

STE

Work Material

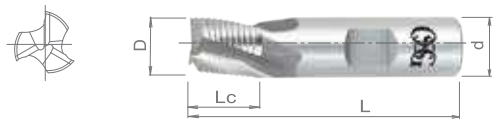
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
455	○	○	○	○	○	◎	◎	○	○		○		○	◎	○		

○ good ◎ best

List 420

SPEED FEED P1285 | HSS-Co | BR | FINE ROUGH | STUB | 25°

Stub Length, Center Cutting, Fine Pitch



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
4205000	1/4	2-1/16	1/4	3/8	3
4205100	3/8	2-5/32	3/8	3/8	3
4205200	1/2	2-1/2	1/2	1/2	3
4205300	5/8	2-3/4	5/8	5/8	3
4205400	3/4	2-7/8	3/4	3/4	3

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
4205500	7/8	3-1/8	7/8	3/4	3
4205600	1	3-1/2	1	3/4	3
4205700	1	3-3/4	1	1	3
4205800	1-1/4	3-3/4	1-1/4	1-1/4	4
4205900	1-1/2	3-3/4	1-1/4	1-1/4	6

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

List 460

SPEED FEED P1291-1292 | HSS-Co | BR | FINE ROUGH | REG | LONG | 30°

Center Cutting, Fine Pitch



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
4600100	1/2	3-1/4	1-1/4	1/2	4
4600300	1/2	4	2	1/2	4
4600500	5/8	3-3/4	1-5/8	5/8	4
4600600	7/16	2-1/2	1/2	1/2	4
4600700	5/8	4-5/8	2-1/2	5/8	4
4601200	3/4	2-7/8	3/4	3/4	4
4601300	3/4	3-7/8	1-5/8	3/4	4
4601500	3/4	5-1/4	3	3/4	4
4610400	1	3-1/2	1	1	5

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
4610500	1	4-1/2	2	1	5
4610700	1	5-1/4	3	1	5
4610900	1	6-1/2	4	1	5
4612100	1-1/4	4-1/2	2	1-1/4	6
4612300	1-1/4	5-1/2	3	1-1/4	6
4612500	1-1/4	6-1/2	4	1-1/4	6
4613300	1-1/2	4-1/2	2	1-1/4	6
4613700	1-1/2	6-1/2	4	1-1/4	6

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

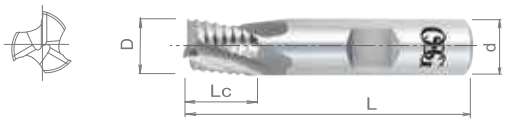
Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▣	▢	▢	▢		▢		▢	▢	▢		

▢ good ▣ best

List 410

SPEED FEED P1289 | HSS-Co | BR | ROUGH | STUB | 25°

3 Flute, Stub Length, Regular Pitch



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
4105200	1/2	2-1/2	1/2	1/2
4105300	5/8	2-3/4	5/8	5/8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
4105400	3/4	2-7/8	3/4	3/4
4105700	1	3-1/2	1	1

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

List 430E

SPEED FEED P1288 | HSS-Co | BR | ROUGH | REG | MED | LONG | 35°

3 Flute, for Aluminum



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
4309700	3/8	2-5/8	7/8	3/8
4300100	1/2	3-1/4	1-1/4	1/2
4300300	1/2	4	2	1/2
4300500	5/8	3-3/4	1-5/8	5/8
4300700	5/8	4-5/8	2-1/2	5/8
4301200	3/4	3	3/4	3/4
4301300	3/4	3-7/8	1-5/8	3/4
4301500	3/4	5-1/4	3	3/4
4301700	7/8	4-1/8	1-7/8	3/4
4302100	7/8	4-1/8	1-7/8	7/8
4310300	1	3-1/2	1	1

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
4310100	1	4-1/4	2	3/4
4310500	1	4-1/2	2	1
4310700	1	5-1/2	3	1
4310900	1	6-1/2	4	1
4312100	1-1/4	4-1/2	2	1-1/4
4312300	1-1/4	5-1/2	3	1-1/4
4312500	1-1/4	6-1/2	4	1-1/4
4313300	1-1/2	4-1/2	2	1-1/4
4313500	1-1/2	5-1/2	3	1-1/4
4313700	1-1/2	6-1/2	4	1-1/4

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

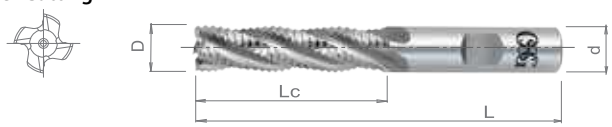
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
410	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢			
430E										◻	◻						

▢ good ◻ best

List 490

SPEED FEED P1289 | HSS-Co | BR | ROUGH | STUB | REG | MED | LONG | 30°

Multiple Flute, Regular Pitch, General Purpose, Non-Center Cutting



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
4909000	1/4	2-7/16	5/8	5/8	4
4909100	1/4	2-1/2	3/4	3/8	4
4909200	1/4	3-1/16	1-1/4	3/8	4
4909400	5/16	2-1/2	3/4	3/8	4
4909500	5/16	3-1/8	1-3/8	3/8	4
4909700	3/8	2-5/8	7/8	3/8	4
4909800	3/8	3-1/4	1-1/2	3/8	4
4909900	7/16	2-11/16	1	3/8	4
4900100	1/2	3-1/4	1-1/4	1/2	4
4900300	1/2	4	2	1/2	4
4900500	5/8	3-3/4	1-5/8	5/8	4
4900600	5/8	4-1/8	2	5/8	4
4900700	5/8	4-5/8	2-1/2	5/8	4
4900800	5/8	5-1/8	3	5/8	4
4900900	3/4	3-7/8	1-5/8	5/8	4
4901300	3/4	3-7/8	1-5/8	3/4	4
4901100	3/4	5-1/4	3	5/8	4
4901400	3/4	4-1/2	2-1/4	3/4	4
4901500	3/4	5-1/4	3	3/4	4
4901700	7/8	4-1/8	1-7/8	3/4	5
4902100	7/8	4-1/8	1-7/8	7/8	5
4901900	7/8	5-3/4	3-1/2	3/4	5
4902300	7/8	5-3/4	3-1/2	7/8	5
4910100	1	4-1/4	2	3/4	5
4910500	1	4-1/2	2	1	5

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
4910700	1	5-1/2	3	1	5
4910900	1	6-1/2	4	1	5
4911500	1-1/8	4-1/2	2	1	5
4912100	1-1/4	4-1/2	2	1-1/4	6
4912300	1-1/4	5-1/2	3	1-1/4	6
4911900	1-1/4	6-1/4	4	3/4	6
4912500	1-1/4	6-1/2	4	1-1/4	6
4913300	1-1/2	4-1/2	2	1-1/4	6
4913500	1-1/2	5-1/2	3	1-1/4	6
4913100	1-1/2	6-1/4	4	3/4	6
4913700	1-1/2	6-1/2	4	1-1/4	6
4913900	1-1/2	7-1/2	5	1-1/4	6
4914500	1-3/4	6-1/2	4	1-1/4	6
4926100	2	4-1/2	2	1-1/4	6
4920100	2	4-1/2	2	1-1/4	8
4926700	2	6-3/4	3	2	6
4920700	2	6-3/4	3	2	8
4926500	2	6-1/2	4	1-1/4	6
4920500	2	6-1/2	4	1-1/4	8
4926900	2	7-3/4	4	2	6
4920900	2	7-3/4	4	2	8
4927100	2	9-3/4	6	2	6
4921100	2	9-3/4	6	2	8
4927300	2	11-3/4	8	2	6
4921300	2	11-3/4	8	2	8

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
2" diameter shanks have combination drive.

STE

Work Material

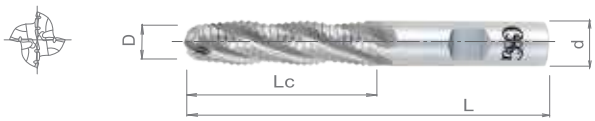
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
490	○	○	○	○	○	○	○	○	○	○	○		○	○			

○ good ◎ best

List 440

EX-REB, Multiple Flute, Regular Pitch, Ball End, General Purpose

SPEED FEED P1287 | HSS-Co | BR | ROUGH | REG | LONG | 30°



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
4400100	1/2	3-1/4	1-1/4	1/2	4
4400300	1/2	4	2	1/2	4
4400500	5/8	3-3/4	1-5/8	5/8	4
4400700	5/8	4-5/8	2-1/2	5/8	4
4401300	3/4	3-7/8	1-5/8	3/4	4
4401500	3/4	5-1/4	3	3/4	4
4410500	1	4-1/2	2	1	4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
4410900	1	6-1/2	4	1	4
4412100	1-1/4	4-1/2	2	1-1/4	6
4412500	1-1/4	6-1/2	4	1-1/4	6
4413300	1-1/2	4-1/2	2	1-1/4	6
4413700	1-1/2	6-1/2	4	1-1/4	6
4420900	2	7-3/4	4	2	8
4421100	2	9-3/4	6	2	8

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
2" diameter shanks have combination drive.

STE

Work Material

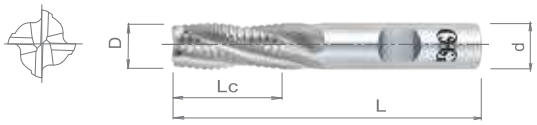
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
440	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢			

▢ good ▣ best

List 470

CC-RFE, Multiple Flute, Rough & Finish

SPEED FEED P1290 | HSS-Co | BR | ROUGH FINISH | STUB | REG | LONG | 25°



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
Bright	D	L	Lc	d	
4709100	1/4	2-1/2	3/4	3/8	4
4709400	5/16	2-1/2	3/4	3/8	4
4709500	3/8	2-5/32	3/8	3/8	4
4709600	3/8	2-1/2	3/4	3/8	4
4709700	3/8	2-5/8	7/8	3/8	4
4700200	3/8	3-1/4	1-1/2	3/8	4
4700000	1/2	2-1/2	1/2	1/2	4
4700100	1/2	3-1/4	1-1/4	1/2	4
4700300	1/2	4	2	1/2	4
4700500	5/8	3-3/4	1-5/8	5/8	4
4700600	5/8	4-1/8	2	5/8	4
4700700	5/8	4-5/8	2-1/2	5/8	4
4700900	3/4	3-7/8	1-5/8	5/8	4
4701300	3/4	3-7/8	1-5/8	3/4	4
4701400	3/4	4-1/2	2-1/4	3/4	4
4701500	3/4	5-1/4	3	3/4	4
4701700	7/8	4-1/8	1-7/8	3/4	4
4701900	7/8	5-3/4	3-1/2	3/4	5
4702100	7/8	4-1/8	1-7/8	7/8	4
4710000	1	3-1/2	1	1	5
4710100	1	4-1/4	2	3/4	4
4716100	1	4-1/4	2	3/4	6
4710500	1	4-1/2	2	1	4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
Bright	D	L	Lc	d	
4710600	1	4-1/2	2	1	5
4716500	1	4-1/2	2	1	6
4710900	1	6-1/2	4	1	4
4716900	1	6-1/2	4	1	6
4711500	1-1/8	4-1/2	2	1	5
4712100	1-1/4	4-1/2	2	1-1/4	6
4712300	1-1/4	5-1/2	3	1-1/4	6
4712500	1-1/4	6-1/2	4	1-1/4	6
4713300	1-1/2	4-1/2	2	1-1/4	6
4713500	1-1/2	5-1/2	3	1-1/4	6
4713700	1-1/2	6-1/2	4	1-1/4	6
4713900	1-1/2	7-1/2	5	1-1/4	6
4720100	2	4-1/2	2	1-1/4	8
4726700	2	6-3/4	3	2	6
4726500	2	6-1/2	4	1-1/4	6
4720500	2	6-1/2	4	1-1/4	8
4726900	2	7-3/4	4	2	6
4720900	2	7-3/4	4	2	8
4727100	2	9-3/4	6	2	6
4721100	2	9-3/4	6	2	8
4727300	2	11-3/4	8	2	6
4721300	2	11-3/4	8	2	8

STE

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
2" diameter shanks have combination drive.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
470	○	○	○	○	○	○	○	○	○	○	○			○			

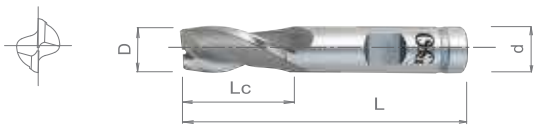
○ good ◎ best

List 520

2 Flute, Regular Length

SPEED FEED P1297-1298 | HSS-Co | TiN | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤2	+0.003" / -0



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiN	D	L	Lc	d
5200100	5200105	1/8	2-5/16	3/8	3/8
5209100	-	5/32	2-5/16	7/16	3/8
5200200	5200205	3/16	2-5/16	7/16	3/8
5209200	-	7/32	2-5/16	1/2	3/8
5200300	5200305	1/4	2-5/16	1/2	3/8
5209300	-	9/32	2-5/16	9/16	3/8
5200400	5200405	5/16	2-5/16	9/16	3/8
5209400	-	11/32	2-5/16	9/16	3/8
5200500	5200505	3/8	2-5/16	9/16	3/8
5209500	-	13/32	2-1/2	13/16	3/8
5200600	5200605	7/16	2-1/2	13/16	3/8
5209700	-	15/32	2-1/2	13/16	3/8
5200700	-	1/2	2-1/2	13/16	3/8
5201100	5201105	1/2	3	1	1/2
5201600	-	7/32	3-1/8	1-1/8	1/2
5201200	-	9/16	3-1/8	1-1/8	1/2
5201700	-	19/32	3-1/8	1-1/8	1/2
5201300	5201305	5/8	3-1/8	1-1/8	1/2
5202100	5202105	5/8	3-7/16	1-5/16	5/8
5201800	-	21/32	3-5/16	1-5/16	1/2
5201400	-	11/16	3-5/16	1-5/16	1/2
5202200	-	11/16	3-7/16	1-5/16	5/8
5201900	-	23/32	3-5/16	1-5/16	1/2
5201500	5201505	3/4	3-5/16	1-5/16	1/2
5202300	-	3/4	3-7/16	1-5/16	5/8

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiN	D	L	Lc	d
5203100	5203105	3/4	3-9/16	1-5/16	3/4
5202800	-	25/32	3-5/8	1-1/2	5/8
5202400	-	13/16	3-5/8	1-1/2	5/8
5202900	-	27/32	3-5/8	1-1/2	5/8
5202500	-	7/8	3-5/8	1-1/2	5/8
5203200	5203205	7/8	3-3/4	1-1/2	3/4
5204100	5204105	7/8	3-3/4	1-1/2	7/8
5203400	-	29/32	3-3/4	1-1/2	3/4
5202600	-	15/16	3-5/8	1-1/2	5/8
5203500	-	31/32	3-3/4	1-1/2	3/4
5202700	-	1	3-5/8	1-1/2	5/8
5203300	5203305	1	3-3/4	1-1/2	3/4
5204200	-	1	3-3/4	1-1/2	7/8
5205100	5205105	1	4-1/8	1-5/8	1
5204300	-	1-1/8	3-7/8	1-5/8	7/8
5205200	-	1-1/8	4-1/8	1-5/8	1
5204400	-	1-1/4	3-7/8	1-5/8	7/8
5205300	-	1-1/4	4-1/8	1-5/8	1
5206100	-	1-1/4	4-1/8	1-5/8	1-1/4
5205400	-	1-3/8	4-1/8	1-5/8	1
5205500	-	1-1/2	4-1/8	1-5/8	1
5206200	-	1-1/2	4-1/8	1-5/8	1-1/4
5206300	-	1-3/4	4-1/8	1-5/8	1-1/4
5206400	-	2	4-1/8	1-5/8	1-1/4
5207400	-	2	5-3/4	2	2

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
2" diameter shanks have combination drive.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
520	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢		

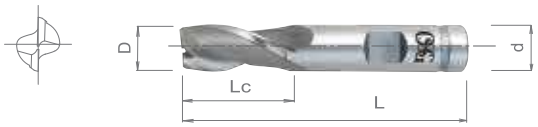
▢ good ▢ best

List 580

EDS, 2 Flute, Regular Length

SPEED FEED P1302 | HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
3≤D≤50	+0.028mm / -0



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5800100	3.0	58.7	9.52	9.52
5808100	3.5	58.7	11.11	9.52
5800200	4.0	58.7	11.11	9.52
5808200	4.5	58.7	11.11	9.52
5800300	5.0	58.7	12.70	9.52
5808300	5.5	58.7	12.70	9.52
5800400	6.0	58.7	12.70	9.52
5808400	6.5	58.7	12.70	9.52
5800500	7.0	58.7	14.28	9.52
5808500	7.5	58.7	14.28	9.52
5800600	8.0	58.7	14.28	9.52
5808600	8.5	58.7	14.28	9.52
5800700	9.0	58.7	14.28	9.52
5808700	9.5	58.7	14.28	9.52
5800800	10.0	63.5	20.63	9.52
5808800	10.5	63.5	20.63	9.52
5800900	11.0	63.5	20.63	9.52
5808900	11.5	63.5	20.63	9.52
5801100	12.0	76.2	25.40	12.70
5809100	12.5	79.3	28.57	12.70
5801200	13.0	79.3	28.57	12.70

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5809200	13.5	79.3	28.57	12.70
5801300	14.0	79.3	28.57	12.70
5809300	14.5	79.3	28.57	12.70
5801400	15.0	79.3	28.57	12.70
5802100	16.0	87.3	33.33	15.87
5802200	17.0	87.3	33.33	15.87
5802300	18.0	87.3	33.33	15.87
5803100	19.0	90.4	33.33	19.05
5803200	20.0	95.2	38.10	19.05
5803300	21.0	95.2	38.10	19.05
5804100	22.0	95.2	38.10	22.22
5804200	23.0	95.2	38.10	22.22
5805100	24.0	104.7	41.27	25.40
5805200	25.0	104.7	41.27	25.40
5805300	28.0	104.7	41.27	25.40
5806100	32.0	104.7	41.27	31.75
5806200	36.0	104.7	41.27	31.75
5806300	40.0	104.7	41.27	31.75
5806400	45.0	104.7	41.27	31.75
5806500	50.0	104.7	41.27	31.75

STE

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
580	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		

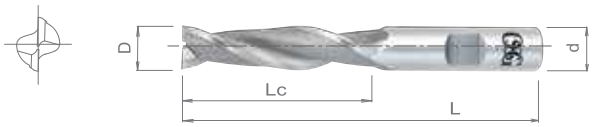
○ good ◎ best

List 525

EDL, 2 Flute, Long Length

SPEED FEED P1297-1298 | HSS-Co | BR | LONG | 30°

Milling Diameter Tolerance	
3/8≤D≤2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5250500	3/8	3-1/4	1-1/2	3/8
5251100	1/2	4	2	1/2
5252100	5/8	4-1/8	2	5/8
5253100	3/4	4-1/2	2-1/4	3/4
5254100	7/8	4-3/4	2-1/2	7/8
5255100	1	5-1/2	3	1
5255200	1-1/8	5-1/2	3	1

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5255300	1-1/4	5-1/2	3	1
5256100	1-1/4	5-1/2	3	1-1/4
5256200	1-1/2	5-1/2	3	1-1/4
5256300	1-3/4	5-1/2	3	1-1/4
5256400	2	5-1/2	3	1-1/4
5257400	2	6-3/4	3	2

STE

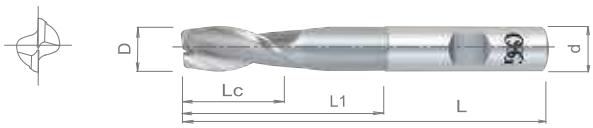
Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
Note: 2" diameter shanks have combination drive.

List 527

LS-EDS, 2 Flute, Regular Length, Reduced Neck

SPEED FEED P1297-1298 | HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤1,1/4	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
Bright	D	L	Lc	L1	d
5270100	1/8	2-3/8	3/8	13/16	3/8
5270200	3/16	2-11/16	1/2	1-1/8	3/8
5270300	1/4	3-1/16	5/8	1-1/2	3/8
5270400	5/16	3-5/16	3/4	1-3/4	3/8
5270500	3/8	3-5/16	3/4	1-3/4	3/8
5271100	1/2	4	1	2-1/4	1/2

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
Bright	D	L	Lc	L1	d
5272100	5/8	4-5/8	1-3/8	2-3/4	5/8
5273100	3/4	5-3/8	1-5/8	3-3/8	3/4
5274100	7/8	6	2	4	7/8
5275100	1	7-1/4	2-1/2	5	1
5276100	1-1/4	7-1/4	3	5	1-1/4

STE

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H				
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		

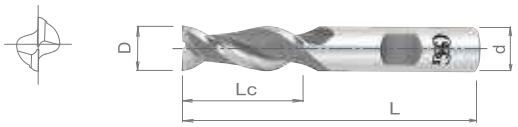
○ good ◎ best

List 530

SPEED FEED P1297-1298 | HSS-Co | BR | REG | 40°

AL-EDS, 2 Flute, Regular Length, for Aluminum, High Helix

Milling Diameter Tolerance	
1/4≤D≤2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5300300	1/4	2-7/16	5/8	3/8
5300400	5/16	2-1/2	3/4	3/8
5300500	3/8	2-1/2	3/4	3/8
5300600	7/16	2-11/16	1	3/8
5301100	1/2	3-1/4	1-1/4	1/2
5302100	5/8	3-3/4	1-5/8	5/8
5303100	3/4	3-7/8	1-5/8	3/4
5303200	7/8	4-1/8	1-7/8	3/4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5303300	1	4-1/8	1-7/8	3/4
5304100	7/8	4-1/8	1-7/8	7/8
5305100	1	4-1/2	2	1
5306100	1-1/4	4-1/2	2	1-1/4
5306200	1-1/2	4-1/2	2	1-1/4
5306300	1-3/4	4-1/2	2	1-1/4
5306400	2	4-1/2	2	1-1/4

STE

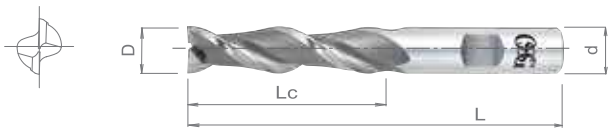
Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

List 535

SPEED FEED P1297-1298 | HSS-Co | BR | LONG | 40°

AL-EDL, 2 Flute, Long Length, for Aluminum, High Helix

Milling Diameter Tolerance	
1/4≤D≤2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5350300	1/4	3-1/16	1-1/4	3/8
5350400	5/16	3-1/8	1-3/8	3/8
5350500	3/8	3-1/4	1-1/2	3/8
5351000	7/16	3-3/4	1-3/4	1/2
5351100	1/2	4	2	1/2
5352100	5/8	4-5/8	2-1/2	5/8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5353100	3/4	5-1/4	3	3/4
5355100	1	6-1/2	4	1
5356100	1-1/4	6-1/2	4	1-1/4
5356200	1-1/2	6-1/2	4	1-1/4
5356400	2	6-1/2	4	1-1/4

STE

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢					▢	▢			▣	▣						

▢ good ▣ best

List 521

EBD, 2 Flute, Regular Length, Ball End

SPEED FEED P1301 | HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤1,1/2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5210100	1/8	2-5/16	3/8	3/8
5210200	3/16	2-3/8	1/2	3/8
5210300	1/4	2-7/16	5/8	3/8
5210400	5/16	2-1/2	3/4	3/8
5210500	3/8	2-1/2	3/4	3/8
5210600	3/8	3-1/4	1-1/2	3/8
5219600	7/16	3	1	1/2
5211100	1/2	3	1	1/2
5217100	1/2	4	2	1/2
5211200	9/16	3-1/8	1-1/8	1/2
5211300	5/8	3-1/8	1-1/8	1/2

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5212100	5/8	3-1/2	1-3/8	5/8
5211500	3/4	3-5/16	1-5/16	1/2
5213100	3/4	3-7/8	1-5/8	3/4
5214300	3/4	5-1/4	3	3/4
5213200	7/8	4-1/8	1-7/8	3/4
5214100	7/8	4-1/4	2	7/8
5213300	1	4-1/2	2-1/4	3/4
5215100	1	4-3/4	2-1/4	1
5215200	1-1/8	4-3/4	2-1/4	1
5216100	1-1/4	5	2-1/2	1-1/4
5216200	1-1/2	5	2-1/2	1-1/4

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

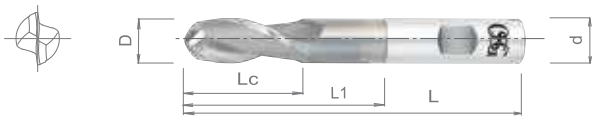
STE

List 526

LS-EBD, 2 Flute, Regular Length, Ball End, Reduced Neck

SPEED FEED P1301 | HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤1	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
Bright	D	L	Lc	L1	d
5260100	1/8	2-3/8	3/8	13/16	3/8
5260200	3/16	2-11/16	1/2	1-1/8	3/8
5260300	1/4	3-1/16	5/8	1-1/2	3/8
5260400	5/16	3-5/16	3/4	1-3/4	3/8
5260500	3/8	3-5/16	3/4	1-3/4	3/8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Neck Length	Shank Diameter
Bright	D	L	Lc	L1	d
5269600	7/16	3-11/16	1	1-7/8	1/2
5261100	1/2	4	1	2-1/4	1/2
5262100	5/8	4-5/8	1-3/8	2-3/4	5/8
5263100	3/4	5-3/8	1-5/8	3-3/8	3/4
5265100	1	7-1/4	2-1/2	5	1

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▣	▣	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢		

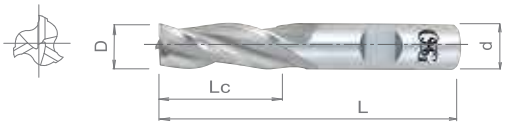
▢ good ▣ best

List 531

ETS, 3 Flute, Regular Length

SPEED FEED P1304 | HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5310100	1/8	2-5/16	3/8	3/8
5310200	3/16	2-3/8	1/2	3/8
5310300	1/4	2-7/16	5/8	3/8
5310400	5/16	2-1/2	3/4	3/8
5310500	3/8	2-1/2	3/4	3/8
5310600	7/16	2-11/16	1	3/8
5310700	1/2	2-11/16	1	3/8
5311100	1/2	3-1/4	1-1/4	1/2
5311200	9/16	3-3/8	1-3/8	1/2
5311300	5/8	3-3/8	1-3/8	1/2
5312100	5/8	3-3/4	1-5/8	5/8
5311500	3/4	3-5/8	1-5/8	1/2
5312300	3/4	3-3/4	1-5/8	5/8
5313100	3/4	3-7/8	1-5/8	3/4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5312500	7/8	4	1-7/8	5/8
5313200	7/8	4-1/8	1-7/8	3/4
5314100	7/8	4-1/8	1-7/8	7/8
5312700	1	4	1-7/8	5/8
5313300	1	4-1/8	1-7/8	3/4
5314200	1	4-1/8	1-7/8	7/8
5315100	1	4-1/2	2	1
5315200	1-1/8	4-1/2	2	1
5315300	1-1/4	4-1/2	2	1
5316100	1-1/4	4-1/2	2	1-1/4
5315500	1-1/2	4-1/2	2	1
5316200	1-1/2	4-1/2	2	1-1/4
5316300	1-3/4	4-1/2	2	1-1/4
5316400	2	4-1/2	2	1-1/4

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
531	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		

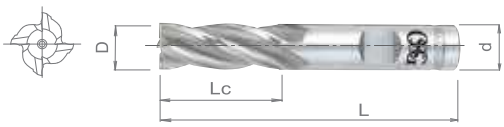
○ good ◎ best

List 581

CE-EMS, Multiple Flute, Regular Length, Non-Center Cutting

SPEED FEED P1303 | HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
3≤D≤45	+0.028mm / -0



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
Bright	D	L	Lc	d	
5810100	3.0	58.7	9.52	9.52	4
5818100	3.5	60.3	11.11	9.52	4
5810200	4.0	60.3	11.11	9.52	4
5818200	4.5	60.3	12.70	9.52	4
5810300	5.0	61.9	14.28	9.52	4
5818300	5.5	61.9	14.28	9.52	4
5810400	6.0	61.9	15.87	9.52	4
5818400	6.5	61.9	15.87	9.52	4
5810500	7.0	63.5	17.46	9.52	4
5818500	7.5	63.5	19.05	9.52	4
5810600	8.0	63.5	19.05	9.52	4
5818600	8.5	63.5	19.05	9.52	4
5810700	9.0	63.5	19.05	9.52	4
5818700	9.5	63.5	19.05	9.52	4
5810800	10.0	63.5	19.05	9.52	4
5818800	10.5	68.2	25.40	9.52	4
5810900	11.0	68.2	25.40	9.52	4
5818900	11.5	68.2	25.40	9.52	4
5811100	12.0	82.5	31.75	12.70	4
5819100	12.5	82.5	31.75	12.70	4
5811200	13.0	82.5	31.75	12.70	4
5819200	13.5	85.7	34.92	12.70	4
5811300	14.0	85.7	34.92	12.70	4
5819300	14.5	85.7	34.92	12.70	4
5811400	15.0	85.7	34.92	12.70	4
5812100	16.0	95.2	41.27	15.87	4
5812200	17.0	95.2	41.27	15.87	4
5812300	18.0	95.2	41.27	15.87	4
5813100	19.0	98.4	41.27	19.05	4
5813200	20.0	104.7	47.62	19.05	4
5813300	21.0	104.7	47.62	19.05	4
5814100	22.0	104.7	47.62	22.22	4
5814200	23.0	104.7	47.62	22.22	4
5815100	24.0	114.3	50.80	25.40	4
5815200	25.0	114.3	50.80	25.40	4
5815300	28.0	114.3	50.80	25.40	6
5816100	32.0	114.3	50.80	31.75	6
5816200	36.0	114.3	50.80	31.75	6
5816300	40.0	114.3	50.80	31.75	6
5816400	45.0	114.3	50.80	31.75	6

Packed: 1pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H				
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
581	◉	◉	◉	◉	◉	○	○	○	○	○	○		○	○	○			

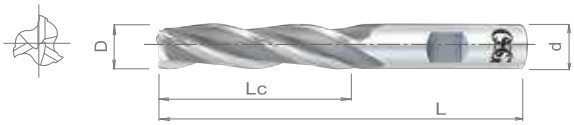
○ good ◉ best

List 536

ETL, 3 Flute, Long Length

SPEED FEED P1304 | HSS-Co | BR | LONG | 30°

Milling Diameter Tolerance	
1/4≤D≤2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
5360300	1/4	3-1/16	1-1/4	3/8
5360400	5/16	3-1/8	1-3/8	3/8
5360500	3/8	3-1/4	1-1/2	3/8
5361000	7/16	3-3/4	1-3/4	1/2
5361100	1/2	4	2	1/2
5362100	5/8	4-5/8	2-1/2	5/8
5363100	3/4	5-1/4	3	3/4

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
5364100	7/8	5-3/4	3-1/2	7/8
5365100	1	6-1/2	4	1
5366100	1-1/4	6-1/2	4	1-1/4
5366200	1-1/2	6-1/2	4	1-1/4
5366400	2	6-1/2	4	1-1/4

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
536	▢	▢	▢	▢	▢	○	○	○	○	○	○		○	○	○		

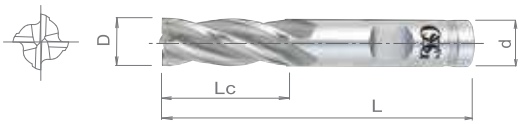
○ good ▢ best

List 541

Multiple Flute, Regular Length

SPEED FEED P1299-1300 | HSS-Co | TiAlN | TiCN | TiN | BR | | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤2	+0.0011" / -0



Units: Inch

EDP				Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
Bright	TiN	TiCN	TiALN	D	L	Lc	d	
5410100	5410105	5410108	-	1/8	2-5/16	3/8	3/8	4
5410200	5410205	5410208	-	3/16	2-3/8	1/2	3/8	4
5417000	-	-	-	1/4	2-1/16	1/4	3/8	4
5410300	5410305	5410308	-	1/4	2-7/16	5/8	3/8	4
5410400	5410405	5410408	-	5/16	2-1/2	3/4	3/8	4
5417100	-	5417108	-	3/8	2-1/8	3/8	3/8	4
5410500	5410505	5410508	-	3/8	2-1/2	3/4	3/8	4
5410900	-	-	-	7/16	3-1/4	1-1/4	1/2	4
5411000	-	5411008	-	1/2	2-1/2	1/2	1/2	4
5411100	5411105	-	-	1/2	3-1/4	1-1/4	1/2	4
5411500	-	-	-	1/2	3-1/4	1-1/4	1/2	6
5411700	-	-	-	9/16	3-3/8	1-3/8	1/2	4
5412000	-	5412008	-	5/8	2-3/4	5/8	5/8	4
5412100	5412105	5412108	5412111	5/8	3-3/4	1-5/8	5/8	4
5412500	-	5412508	-	5/8	3-3/4	1-5/8	5/8	6
5412200	-	-	-	11/16	3-3/4	1-5/8	5/8	4
5412600	-	-	-	11/16	3-3/4	1-5/8	5/8	6
5413000	-	-	-	3/4	3	3/4	3/4	4
5413100	5413105	5413108	-	3/4	3-7/8	1-5/8	3/4	4
5413500	-	-	-	3/4	3-7/8	1-5/8	3/4	6
5414100	5414105	5414108	-	7/8	4-1/8	1-7/8	7/8	4
5414500	-	-	-	7/8	4-1/8	1-7/8	7/8	6
5414900	-	-	-	1	4-1/8	1-7/8	3/4	4
5415000	-	-	-	1	4-1/8	1-7/8	3/4	6
5415100	5415105	5415108	5415111	1	4-1/2	2	1	4
5415500	-	-	5415511	1	4-1/2	2	1	6
5415200	-	-	-	1-1/8	4-1/2	2	1	4
5415600	-	-	-	1-1/8	4-1/2	2	1	6
5416100	-	5416108	-	1-1/4	4-1/2	2	1-1/4	4
5416500	-	-	-	1-1/4	4-1/2	2	1-1/4	6
5416200	-	5416208	-	1-1/2	4-1/2	2	1-1/4	4
5416600	-	-	-	1-1/2	4-1/2	2	1-1/4	6
5416400	-	-	-	2	4-1/2	2	1-1/4	6
5418400	-	-	-	2	5-3/4	2	2	6

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
541	▢	▢	▢	▢	▢	○	○	○	○	○	○		○	○	○		

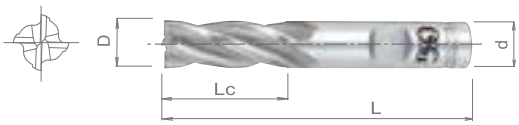
○ good ▢ best

List 548

SPEED FEED P1299-1300 | HSS-Co | TiCN | BR | MED | 30°

CC-EMN, 4 Flute, Medium Length

Milling Diameter Tolerance	
5/8≤D≤1,1/2	+0.0011" / -0



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
Bright	TiCN	D	L	Lc	d	
5483100	-	5/8	4-1/8	2	5/8	4
5484100	5484108	3/4	4-1/2	2-1/4	3/4	4
5485100	5485108	1	5-1/2	3	1	4
-	5485208	1	5-1/2	3	1	4
5486100	5486108	1-1/4	5-1/2	3	1-1/4	4
5486200	5486208	1-1/2	5-1/2	3	1-1/4	4

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request. Specify treatment at time of order.

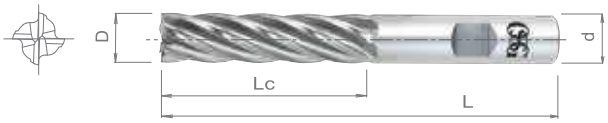
STE

List 546

SPEED FEED P1299-1300 | HSS-Co | TiCN | BR | LONG | 30°

CC-EML, Multiple Flute, Long Length

Milling Diameter Tolerance	
1/4≤D≤2	+0.0011" / -0



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
Bright	TiCN	D	L	Lc	d	
5460300	5460308	1/4	3-1/16	1-1/4	3/8	4
5460400	5460408	5/16	3-1/8	1-3/8	3/8	4
5460500	5460508	3/8	3-1/4	1-1/2	3/8	4
5461100	5461108	1/2	4	2	1/2	4
5461500	-	1/2	4	2	1/2	6
5462100	5462108	5/8	4-5/8	2-1/2	5/8	4
5462500	-	5/8	4-5/8	2-1/2	5/8	6
5463100	5463108	3/4	5-1/4	3	3/4	4
5463500	-	3/4	5-1/4	3	3/4	6
5464100	5464108	7/8	5-3/4	3-1/2	7/8	4
5464500	-	7/8	5-3/4	3-1/2	7/8	6
5465100	5465108	1	6-1/2	4	1	4
5465500	-	1	6-1/2	4	1	6
5466100	-	1-1/4	6-1/2	4	1-1/4	4
5466500	-	1-1/4	6-1/2	4	1-1/4	6
5466600	-	1-1/2	6-1/2	4	1-1/4	6
5466400	-	2	6-1/2	4	1-1/4	6
5468400	-	2	7-3/4	4	2	6
5469400	-	2	9-3/4	6	2	6

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request. Specify treatment at time of order.

STE

Work Material

	P					M			K	N		S		H			
Chart applies to all list numbers above	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢		

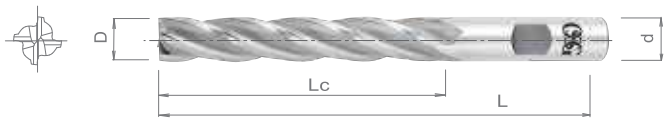
▢ good ▢ best

List 558

CC-EXML, Multiple Flute, Extra Long Length

SPEED FEED P1299-1300 | HSS-Co | TiCN | BR | EXTRA LONG | 30°

Milling Diameter Tolerance	
1/4≤D≤2	+0.0011" / -0



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
Bright	TiCN	D	L	Lc	d	
5580300	-	1/4	3-9/16	1-3/4	3/8	4
5580400	-	5/16	3-3/4	2	3/8	4
5580500	-	3/8	4-1/4	2-1/2	3/8	4
5581100	5581108	1/2	5	3	1/2	4
5581500	-	1/2	5	3	1/2	6
5582100	5582108	5/8	6-1/8	4	5/8	4
5582500	-	5/8	6-1/8	4	5/8	6
5583100	5583108	3/4	6-1/4	4	3/4	4
5583500	-	3/4	6-1/4	4	3/4	6
5584100	5584108	7/8	7-1/4	5	7/8	4
5584500	-	7/8	7-1/4	5	7/8	6
5585100	5585108	1	8-1/2	6	1	4
5585500	5585508	1	8-1/2	6	1	6
5586100	-	1-1/4	8-1/2	6	1-1/4	4
5586500	-	1-1/4	8-1/2	6	1-1/4	6
5586600	-	1-1/2	10-1/2	8	1-1/4	6
5588400	-	2	11-3/4	8	2	6

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
558	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		

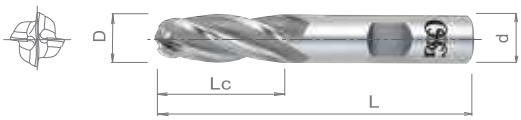
○ good ◎ best

List 544

EBM, 4 Flute, Regular Length, Ball End

SPEED FEED	HSS-Co	BR		REG	30°
P1301					

Milling Diameter Tolerance	
3/8≤D≤1,1/2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5440500	3/8	2-1/2	3/4	3/8
5449700	7/16	3-1/4	1-1/4	1/2
5441100	1/2	3-1/4	1-1/4	1/2
5442100	5/8	3-3/4	1-5/8	5/8
5442200	5/8	4-5/8	2-1/2	5/8
5443100	3/4	3-7/8	1-5/8	3/4
5444100	7/8	4-1/8	1-7/8	7/8
5445100	1	4-1/2	2	1
5446100	1-1/4	4-1/2	2	1-1/4
5446200	1-1/2	4-1/2	2	1-1/4

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
544	▢	▢	▢	▢	▢	○	○	○	○	○	○		○	○	○		

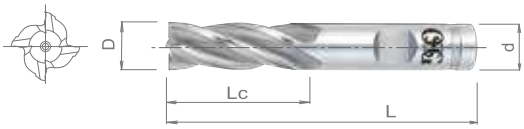
○ good ▢ best

List 540

Multiple Flute, Regular Length, Non-Center Cutting

SPEED FEED P1299-1300 | HSS-Co | TiN | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤2	+0.003" / -0



Units: Inch

EDP Number		Mill Dia.	Overall Length	Length of Cut	Shank Dia.	No. of Flutes
Bright	TiN	D	L	Lc	d	
5400100	5400105	1/8	2-5/16	3/8	3/8	4
5409100	-	5/32	2-3/8	7/16	3/8	4
5400200	5400205	3/16	2-3/8	1/2	3/8	4
5409200	-	7/32	2-7/16	9/16	3/8	4
5400300	5400305	1/4	2-7/16	5/8	3/8	4
5409300	-	9/32	2-1/2	11/16	3/8	4
5400400	5400405	5/16	2-1/2	3/4	3/8	4
5409400	-	11/32	2-1/2	3/4	3/8	4
5400500	5400505	3/8	2-1/2	3/4	3/8	4
5409500	-	13/32	2-11/16	1	3/8	4
5400600	5400605	7/16	2-11/16	1	3/8	4
5409700	-	15/32	3-1/4	1-1/4	1/2	4
5400700	-	1/2	2-11/16	1	3/8	4
5401100	5401105	1/2	3-1/4	1-1/4	1/2	4
5401600	-	17/32	3-3/8	1-3/8	1/2	4
5401200	-	9/16	3-3/8	1-3/8	1/2	4
5401700	-	19/32	3-3/8	1-3/8	1/2	4
5401300	5401305	5/8	3-3/8	1-3/8	1/2	4
5402100	-	5/8	3-3/4	1-5/8	5/8	4
5401800	-	21/32	3-5/8	1-5/8	1/2	4
5401400	-	11/16	3-5/8	1-5/8	1/2	4
5402200	-	11/16	3-3/4	1-5/8	5/8	4
5401900	-	23/32	3-5/8	1-5/8	1/2	4
5401500	5401505	3/4	3-5/8	1-5/8	1/2	4
5402300	-	3/4	3-3/4	1-5/8	5/8	4
5403100	5403105	3/4	3-7/8	1-5/8	3/4	4

EDP Number		Mill Dia.	Overall Length	Length of Cut	Shank Dia.	No. of Flutes
Bright	TiN	D	L	Lc	d	
5402800	-	25/32	4	1-7/8	5/8	4
5402400	-	13/16	4	1-7/8	5/8	6
5402900	-	27/32	4	1-7/8	5/8	6
5402500	-	7/8	4	1-7/8	5/8	6
5403200	5403205	7/8	4-1/8	1-7/8	3/4	4
5404100	-	7/8	4-1/8	1-7/8	7/8	4
5403400	-	29/32	4-1/8	1-7/8	3/4	4
5402600	-	15/16	4	1-7/8	5/8	6
5403500	-	31/32	4-1/8	1-7/8	3/4	4
5402700	-	1	4	1-7/8	5/8	6
5403300	5403305	1	4-1/8	1-7/8	3/4	4
5404200	-	1	4-1/8	1-7/8	7/8	4
5405100	5405105	1	4-1/2	2	1	4
5404300	-	1-1/8	4-1/4	2	7/8	6
5405200	-	1-1/8	4-1/2	2	1	6
5404400	-	1-1/4	4-1/4	2	7/8	6
5405300	-	1-1/4	4-1/2	2	1	6
5406100	-	1-1/4	4-1/2	2	1-1/4	6
5405400	-	1-3/8	4-1/2	2	1	6
5405500	-	1-1/2	4-1/2	2	1	6
5406200	-	1-1/2	4-1/2	2	1-1/4	6
5406300	-	1-3/4	4-1/2	2	1-1/4	6
5406400	-	2	4-1/2	2	1-1/4	8
5407400	-	2	5-3/4	2	2	4
5408400	-	2	5-3/4	2	2	6

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
Note: 2" diameter shanks have combination drive.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
540	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		

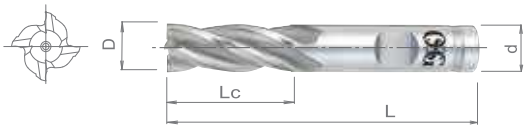
○ good ◎ best

List 547

CE-EMS, Multiple Flute, Medium Length, Non-Center Cutting

SPEED FEED P1299-1300 | HSS-Co | BR | MED | 30°

Milling Diameter Tolerance	
1≤D≤2	+0.0011" / -0



Units: Inch

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.	No. of Flutes
Bright	D	L	Lc	d	
5475100	1	5-1/2	3	1	4
5476100	1-1/4	5-1/2	3	1-1/4	6
5476200	1-1/2	5-1/2	3	1-1/4	6

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.	No. of Flutes
Bright	D	L	Lc	d	
5476300	1-3/4	5-1/2	3	1-1/4	6
5476400	2	5-1/2	3	1-1/4	8

STE

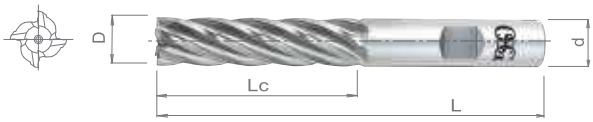
Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
Note: 2" diameter shanks have combination drive.

List 545

EML, Multiple Flute, Long Length, Non-Center Cutting

SPEED FEED P1299-1300 | HSS-Co | BR | LONG | 30°

Milling Diameter Tolerance	
1/4≤D≤2	+0.0011" / -0



Units: Inch

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.	No. of Flutes
Bright	D	L	Lc	d	
5450300	1/4	3-1/16	1-1/4	3/8	4
5450400	5/16	3-1/8	1-3/8	3/8	4
5450500	3/8	3-1/4	1-1/2	3/8	4
5451000	7/16	3-3/4	1-3/4	1/2	4
5451100	1/2	4	2	1/2	4
5452100	5/8	4-5/8	2-1/2	5/8	4
5453100	3/4	5-1/4	3	3/4	4
5454100	7/8	5-3/4	3-1/2	7/8	4
5455100	1	6-1/2	4	1	4

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.	No. of Flutes
Bright	D	L	Lc	d	
5455200	1-1/8	6-1/2	4	1	6
5455300	1-1/4	6-1/2	4	1	6
5456100	1-1/4	6-1/2	4	1-1/4	6
5455500	1-1/2	6-1/2	4	1	6
5456200	1-1/2	6-1/2	4	1-1/4	6
5456300	1-3/4	6-1/2	4	1-1/4	6
5456400	2	6-1/2	4	1-1/4	8
5457400	2	7-3/4	4	2	4
5458400	2	7-3/4	4	2	6

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
Note: 2" diameter shanks have combination drive.

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢		

▢ good ▢ best

List 557

CE-EXML, Multiple Flute, Extra Long Length, Non-Center Cutting

SPEED FEED P1299-1300 | HSS-Co | BR | EXTRA LONG | 30°

Milling Diameter Tolerance	
1/4≤D≤2	+0.0011" / -0



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
Bright	D	L	Lc	d	
5570300	1/4	3-9/16	1-3/4	3/8	4
5570400	5/16	3-3/4	2	3/8	4
5570500	3/8	4-1/4	2-1/2	3/8	4
5571100	1/2	5	3	1/2	4
5572100	5/8	6-1/8	4	5/8	4
5573100	3/4	6-1/4	4	3/4	4
5574100	7/8	7-1/4	5	7/8	4
5575100	1	8-1/2	6	1	4
5576100	1-1/4	8-1/2	6	1-1/4	6
5576200	1-1/2	10-1/2	8	1-1/4	6
5578400	2	11-3/4	8	2	6

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
557	▣	▣	▣	▣	▣	▢	▢	▢	▢	▢	▢		▢	▢	▢		

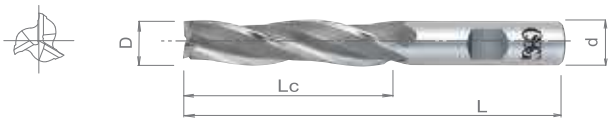
▢ good ▣ best

List 591

TPET, 3 Flute, 1° Taper per Side

SPEED FEED P1305 | HSS-Co | BR | REG | LONG | EXTRA LONG | 25°

Taper Angle Tolerance	
1/6≤D≤5/8	+0 / -10'



Units: Inch

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5910100	1/16	1-3/4	1/2	3/16
5910200	1/16	2-1/4	1	3/16
5911100	5/64	1-3/4	1/2	3/16
5911200	5/64	2-1/4	1	3/16
5912100	3/32	2	3/4	3/16
5912400	3/32	2-11/16	1-1/2	3/16
5914100	1/8	1-5/8	3/8	3/16
5914200	1/8	2	3/4	3/16
5914300	1/8	2-1/4	1	3/16
5915100	3/16	2-5/8	3/4	3/8
5915200	3/16	3-1/8	1-1/4	3/8

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5916100	1/4	2-1/2	3/4	3/8
5916300	1/4	3	1-1/4	3/8
5916400	1/4	4	2-1/4	3/8
5916500	1/4	5	3-1/4	3/8
5917100	3/8	3-1/4	1-1/4	1/2
5917200	3/8	4-1/4	2-1/4	1/2
5917300	3/8	5-1/4	3-1/4	1/2
5918100	1/2	3-1/4	1-1/4	1/2
5918200	1/2	4-1/4	2-1/4	1/2
5918300	1/2	5-3/8	3-1/4	5/8
5919100	5/8	6-1/2	4-1/4	3/4

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

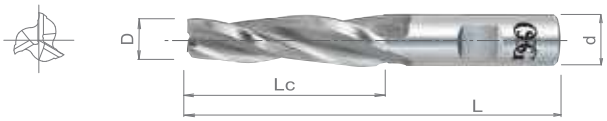
STE

List 593

TPET, 3 Flute, 2° Taper per Side

SPEED FEED P1306 | HSS-Co | BR | REG | LONG | EXTRA LONG | 25°

Taper Angle Tolerance	
1/6≤D≤5/8	+0 / -10'



Units: Inch

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5930100	1/16	1-3/4	1/2	3/16
5930200	1/16	2-1/4	1	3/16
5931100	5/64	1-3/4	1/2	3/16
5931200	5/64	2-1/4	1	3/16
5931300	5/64	2-11/16	1-1/2	3/16
5932100	3/32	2	3/4	3/16
5932300	3/32	2-1/2	1-1/4	3/16
5934200	1/8	2	3/4	3/16
5934300	1/8	2-7/8	1	3/8
5935100	3/16	2-5/8	3/4	3/8
5935200	3/16	3-1/8	1-1/4	3/8

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5936100	1/4	2-1/2	3/4	3/8
5936300	1/4	3	1-1/4	3/8
5936400	1/4	4-3/8	2-1/4	1/2
5936500	1/4	5-1/4	3-1/4	1/2
5937100	3/8	3-1/4	1-1/4	1/2
5937200	3/8	4-1/4	2-1/4	1/2
5937300	3/8	5-3/8	3-1/4	5/8
5938100	1/2	3-1/4	1-1/4	1/2
5938200	1/2	4-3/8	2-1/4	5/8
5938300	1/2	5-3/8	3-1/4	5/8
5939100	5/8	6-1/2	4-1/4	3/4

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▣	▣	▢	▢	▢	▢	▢	▢		▢	▢	▢		

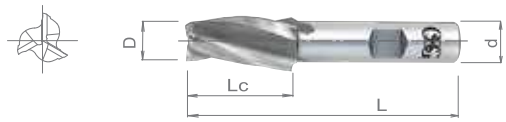
▢ good ▣ best

List 594

TPET, 3 Flute, 3° Taper per Side

SPEED FEED	HSS-Co	BR		REG	LONG	EXTRA LONG	25°
P1306							

Taper Angle Tolerance	
3/32≤D≤1/2	+0 / -10'



Units: Inch

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5942200	3/32	2-7/8	1	3/8
5942300	3/32	3-1/8	1-1/4	3/8
5942400	3/32	3-3/8	1-1/2	3/8
5942500	3/32	3-3/4	2	3/8
5942600	3/32	4-1/4	2-1/2	3/8
5943100	7/64	2-7/8	1	3/8
5943200	7/64	3-3/8	1-1/2	3/8
5943300	7/64	3-3/4	2	3/8
5944200	1/8	2-5/8	3/4	3/8
5944300	1/8	2-7/8	1	3/8
5944400	1/8	3	1-1/8	3/8
5944700	1/8	3-3/8	1-1/2	3/8
5944800	1/8	3-3/4	2	3/8
5944900	1/8	4-1/2	2-1/2	1/2
5945000	1/8	5	3	1/2
5945100	3/16	2-5/8	3/4	3/8

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5945200	3/16	3-1/8	1-1/4	3/8
5945400	3/16	4-1/2	2-1/2	1/2
5945500	3/16	5	3	1/2
5945600	3/16	5-3/8	3-1/4	5/8
5945700	3/16	6-1/8	4	5/8
5946100	1/4	2-1/2	3/4	3/8
5946200	1/4	2-3/4	1	3/8
5946300	1/4	3-1/4	1-1/4	1/2
5946400	1/4	4-1/4	2-1/4	1/2
5946500	1/4	5-1/4	3-1/4	1/2
5946600	1/4	6-1/4	4	3/4
5947100	3/8	3-1/4	1-1/4	1/2
5947200	3/8	4-3/8	2-1/4	5/8
5947300	3/8	5-3/8	3-1/4	5/8
5948100	1/2	3-1/4	1-1/4	1/2
5948200	1/2	4-3/8	2-1/4	5/8

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
594	▢	▢	▢	▣	▣	▢	▢	▢	▢	▢	▢		▢	▢	▢		

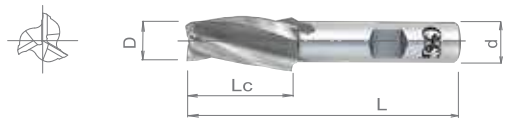
▢ good ▣ best

List 595

TPET, 3 Flute, 5° Taper per Side

SPEED FEED P1307 | HSS-Co | BR | REG | LONG | EXTRA LONG | 25°

Taper Angle Tolerance	
3/32≤D≤1/2	+0 / -10'



Units: Inch

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5952100	3/32	2-5/8	3/4	3/8
5952200	3/32	2-7/8	1	3/8
5952300	3/32	3	1-1/4	3/8
5952400	3/32	3-5/16	1-1/2	3/8
5952500	3/32	4	2	1/2
5952600	3/32	4-5/8	2-1/2	5/8
5953100	7/64	2-7/8	1	3/8
5953200	7/64	3-5/16	1-1/2	3/8
5953300	7/64	4	2	1/2
5954200	1/8	2-5/8	3/4	3/8
5954300	1/8	2-7/8	1	3/8
5954400	1/8	2-7/8	1-1/8	3/8
5954700	1/8	3-1/4	1-1/2	3/8
5954800	1/8	3-3/4	2	3/8
5954900	1/8	4-1/2	2-1/2	1/2
5955000	1/8	5-1/4	3	3/4

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5955100	3/16	2-9/16	3/4	3/8
5955200	3/16	3-3/8	1-1/4	1/2
5955400	3/16	4-5/8	2-1/2	5/8
5955500	3/16	5-1/4	3	3/4
5955600	3/16	5-1/2	3-1/4	3/4
5955700	3/16	6-1/4	4	3/4
5956100	1/4	2-1/2	3/4	3/8
5956200	1/4	3	1	1/2
5956300	1/4	3-1/4	1-1/4	1/2
5956400	1/4	4-3/8	2-1/4	5/8
5956500	1/4	5-1/2	3-1/4	3/4
5956600	1/4	6-1/4	4	3/4
5957100	3/8	3-3/8	1-1/4	5/8
5957200	3/8	4-1/2	2-1/4	3/4
5957300	3/8	5-1/2	3-1/4	3/4
5958100	1/2	3-1/4	1-1/4	1/2

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
595	▢	▢	▢	▣	▣	▢	▢	▢	▢	▢	▢		▢	▢	▢		

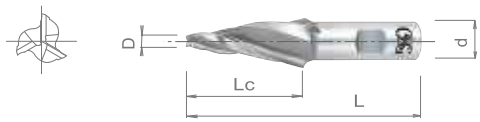
▢ good ▣ best

List 596

TPET, 3 Flute, 7° Taper per Side

SPEED FEED P1307 | HSS-Co | BR | REG | LONG | 25°

Taper Angle Tolerance	
5/64≤D≤1/2	+0 / -10'



Units: Inch

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5961200	5/64	2-3/4	1	3/8
5962200	3/32	2-3/4	1	3/8
5962300	3/32	3	1-1/4	3/8
5962400	3/32	3-1/2	1-1/2	1/2
5964200	1/8	2-9/16	3/4	3/8
5964300	1/8	2-3/4	1	3/8
5964700	1/8	3-1/2	1-1/2	1/2

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5965200	3/16	3-1/4	1-1/4	1/2
5966100	1/4	2-1/2	3/4	3/8
5966300	1/4	3-1/4	1-1/4	1/2
5966400	1/4	4-1/2	2-1/4	3/4
5967200	3/8	4-1/2	2-1/4	3/4
5968100	1/2	3-3/8	1-1/4	5/8

STE

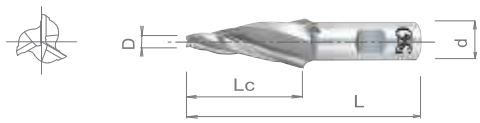
Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

List 597

TPET, 3 Flute, 10° Taper per Side

SPEED FEED P1308 | HSS-Co | BR | REG | LONG | 25°

Taper Angle Tolerance	
3/32≤D≤1/4	+0 / -10'



Units: Inch

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5972400	3/32	3-5/8	1-1/2	5/8
5974200	1/8	2-3/4	3/4	1/2
5974500	1/8	3-3/8	1-1/4	5/8

EDP Number	Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	D	L	Lc	d
5976100	1/4	2-3/4	3/4	1/2
5976300	1/4	3-3/8	1-1/4	5/8
5976400	1/4	4-1/2	2-1/4	3/4

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	○	○	○	◎	◎	○	○	○	○	○	○		○	○	○		

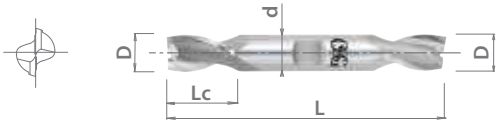
○ good ◎ best

List 522

2 Flute, Regular Length

SPEED FEED P1297-1298 | HSS-Co | TiN | BR | REG | 30°

Milling Diameter Tolerance	
1/8≤D≤1	+0 / -0.0011"



Units: Inch

EDP Number		Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	TiN	D	L	Lc	d
5220100	5220105	1/8	3-1/16	3/8	3/8
5226000	-	9/64	3-1/8	7/16	3/8
5229100	-	5/32	3-1/8	7/16	3/8
5226100	-	11/64	3-1/8	7/16	3/8
5220200	5220205	3/16	3-1/8	7/16	3/8
5226200	-	13/64	3-1/8	1/2	3/8
5229200	-	7/32	3-1/8	1/2	3/8
5226300	-	15/64	3-1/8	1/2	3/8
5220300	5220305	1/4	3-1/8	1/2	3/8
5226400	-	17/64	3-1/8	9/16	3/8
5229300	-	9/32	3-1/8	9/16	3/8
5226500	-	19/64	3-1/8	9/16	3/8
5220400	5220405	5/16	3-1/8	9/16	3/8
5226600	-	21/64	3-1/8	9/16	3/8
5229400	-	11/32	3-1/8	9/16	3/8
5226700	-	23/64	3-1/8	9/16	3/8
5220500	5220505	3/8	3-1/8	9/16	3/8
5226800	-	25/64	3-3/4	13/16	1/2
5229500	-	13/32	3-3/4	13/16	1/2
5226900	-	27/64	3-3/4	13/16	1/2
5229600	5229605	7/16	3-3/4	13/16	1/2

EDP Number		Mill Dia.	Overall Length	Length of Cut	Shank Dia.
Bright	TiN	D	L	Lc	d
5227000	-	29/64	3-3/4	13/16	1/2
5229700	-	15/32	3-3/4	13/16	1/2
5227100	-	31/64	3-3/4	13/16	1/2
5221100	5221105	1/2	3-3/4	13/16	1/2
5227200	-	17/32	4-1/2	1-1/8	5/8
5229800	-	9/16	4-1/2	1-1/8	5/8
5227300	-	19/32	4-1/2	1-1/8	5/8
5222100	5222105	5/8	4-1/2	1-1/8	5/8
5227400	-	21/32	5	1-5/16	3/4
5229900	-	11/16	5	1-5/16	3/4
5227500	-	23/32	5	1-5/16	3/4
5223100	5223105	3/4	5	1-5/16	3/4
5227600	-	25/32	5-1/2	1-9/16	7/8
5227700	-	13/16	5-1/2	1-9/16	7/8
5227800	-	27/32	5-1/2	1-9/16	7/8
5224100	5224105	7/8	5-1/2	1-9/16	7/8
5228000	-	29/32	5-7/8	1-5/8	1
5228100	-	15/16	5-7/8	1-5/8	1
5228200	-	31/32	5-7/8	1-5/8	1
5225100	5225105	1	5-7/8	1-5/8	1

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
522	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		

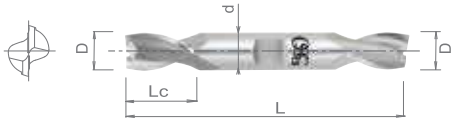
○ good ◎ best

List 582

DDE, 2 Flute, Regular Length

SPEED FEED	HSS-Co	BR		REG	30°
P1302					

Milling Diameter Tolerance	
1≤D≤25	+0 /- 0.028mm



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5827100	1.0	57.1	2.38	4.76
5827200	1.5	57.1	4.76	4.76
5827400	2.0	57.1	5.95	4.76
5827500	2.5	57.1	7.14	4.76
5820100	3.0	77.7	9.52	9.52
5828100	3.5	79.3	11.11	9.52
5820200	4.0	79.3	11.11	9.52
5828200	4.5	79.3	11.11	9.52
5820300	5.0	79.3	12.70	9.52
5828300	5.5	79.3	12.70	9.52
5820400	6.0	79.3	12.70	9.52
5828400	6.5	79.3	12.70	9.52
5820500	7.0	79.3	14.28	9.52
5828500	7.5	79.3	14.28	9.52
5820600	8.0	79.3	14.28	9.52
5828600	8.5	79.3	14.28	9.52
5820700	9.0	79.3	14.28	9.52
5828700	9.5	79.3	14.28	9.52
5820800	10.0	95.2	20.63	12.70
5828800	10.5	95.2	20.63	12.70

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5820900	11.0	95.2	20.63	12.70
5828900	11.5	95.2	20.63	12.70
5821100	12.0	95.2	20.63	12.70
5829100	12.5	95.2	20.63	12.70
5821200	13.0	114.3	28.57	15.87
5829200	13.5	114.3	28.57	15.87
5821300	14.0	114.3	28.57	15.87
5829300	14.5	114.3	28.57	15.87
5821400	15.0	114.3	28.57	15.87
5822100	16.0	127.0	33.33	19.05
5822200	17.0	127.0	33.33	19.05
5822300	18.0	127.0	33.33	19.05
5823100	19.0	127.0	33.33	19.05
5823200	20.0	139.7	39.68	22.22
5823300	21.0	139.7	39.68	22.22
5824100	22.0	139.7	39.68	22.22
5824200	23.0	149.2	41.27	25.40
5825100	24.0	149.2	41.27	25.40
5825200	25.0	149.2	41.27	25.40

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.
4.76mm diameter shanks have straight shanks.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
582	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		

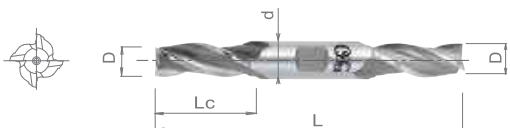
○ good ◎ best

List 532

TDE, 3 Flute, Regular Length

SPEED FEED P1304 | HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
D<Shk Dia	+0.0011" / -0
D=Shk Dia	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5320100	1/8	3-1/16	3/8	3/8
5320200	3/16	3-1/4	1/2	3/8
5320300	1/4	3-3/8	5/8	3/8
5320400	5/16	3-1/2	3/4	3/8
5320500	3/8	3-1/2	3/4	3/8
5329600	7/16	4-1/8	1	1/2

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5321100	1/2	4-1/8	1	1/2
5329800	9/16	5	1-3/8	5/8
5322100	5/8	5	1-3/8	5/8
5323100	3/4	5-5/8	1-5/8	3/4
5324100	7/8	6-1/8	1-7/8	7/8
5325100	1	6-3/8	1-7/8	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
532	▣	▣	▣	▣	▣	○	○	○	○	○	○		○	○	○		

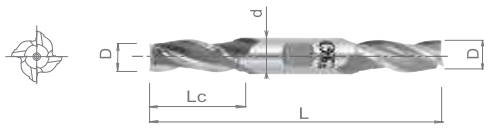
○ good ▣ best

List 542

4 Flute, Regular Length, Non-Center Cutting

SPEED FEED P1299-1300 | HSS-Co | TiN | BR | REG | 30°

Milling Diameter Tolerance	
D<Shk Dia	+0.0011" / -0
D=Shk Dia	-0.0004"/-0.0015"



Units: Inch

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiN	D	L	Lc	d
5420100	5420105	1/8	3-1/16	3/8	3/8
5426000	-	9/64	3-1/8	7/16	3/8
5429100	-	5/32	3-1/8	7/16	3/8
5426100	-	11/64	3-1/4	1/2	3/8
5420200	5420205	3/16	3-1/4	1/2	3/8
5426200	-	13/64	3-1/4	9/16	3/8
5429200	-	7/32	3-1/4	9/16	3/8
5426300	-	15/64	3-3/8	5/8	3/8
5420300	5420305	1/4	3-3/8	5/8	3/8
5426400	-	17/64	3-3/8	11/16	3/8
5429300	-	9/32	3-3/8	11/16	3/8
5426500	-	19/64	3-1/2	3/4	3/8
5420400	5420405	5/16	3-1/2	3/4	3/8
5426600	-	21/64	3-1/2	3/4	3/8
5429400	-	11/32	3-1/2	3/4	3/8
5426700	-	23/64	3-1/2	3/4	3/8
5420500	5420505	3/8	3-1/2	3/4	3/8
5426800	-	25/64	4-1/8	1	1/2
5429500	-	13/32	4-1/8	1	1/2
5426900	-	27/64	4-1/8	1	1/2

EDP Number		Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	TiN	D	L	Lc	d
5429600	5429605	7/16	4-1/8	1	1/2
5427000	-	29/64	4-1/8	1	1/2
5429700	-	15/32	4-1/8	1	1/2
5427100	-	31/64	4-1/8	1	1/2
5421100	5421105	1/2	4-1/8	1	1/2
5427200	-	17/32	5	1-3/8	5/8
5429800	-	9/16	5	1-3/8	5/8
5427300	-	19/32	5	1-3/8	5/8
5422100	5422105	5/8	5	1-3/8	5/8
5427400	-	21/32	5-5/8	1-5/8	3/4
5429900	-	11/16	5-5/8	1-5/8	3/4
5427500	-	23/32	5-5/8	1-5/8	3/4
5423100	5423105	3/4	5-5/8	1-5/8	3/4
5427600	-	25/32	6-1/8	1-7/8	7/8
5428100	-	13/16	6-1/8	1-7/8	7/8
5424100	5424105	7/8	6-1/8	1-7/8	7/8
5428000	-	29/32	6-3/8	1-7/8	1
5428200	-	15/16	6-3/8	1-7/8	1
5428300	-	31/32	6-3/8	1-7/8	1
5425100	5425105	1	6-3/8	1-7/8	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
542	◎	◎	◎	◎	◎	○	○	○	○	○	○		○	○	○		

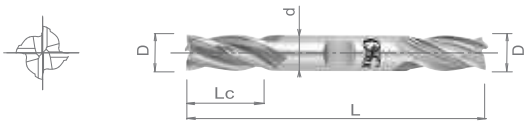
○ good ◎ best

List 543

4 Flute, Regular Length

SPEED FEED P1299-1300 | HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
D<Shk Dia	+0 / -0.0011"
D=Shk Dia	-0.0004"/-0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5430100	1/8	3-1/16	3/8	3/8
5430200	3/16	3-1/4	1/2	3/8
5430300	1/4	3-3/8	5/8	3/8
5430400	5/16	3-1/2	3/4	3/8
5430500	3/8	3-1/2	3/4	3/8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5431100	1/2	4-1/8	1	1/2
5432100	5/8	5	1-3/8	5/8
5433100	3/4	5-5/8	1-5/8	3/4
5434100	7/8	6-1/8	1-7/8	7/8
5435100	1	6-3/8	1-7/8	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

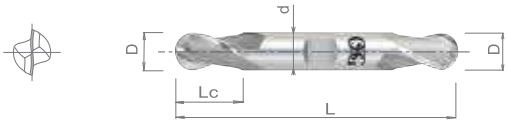
STE

List 523

DDEB, 2 Flute, Regular Length, Ball End

SPEED FEED P1301 | HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
D<Shk Dia	+0 / -0.0011"
D=Shk Dia	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5230100	1/8	3-1/16	3/8	3/8
5230200	3/16	3-1/8	7/16	3/8
5230300	1/4	3-1/8	1/2	3/8
5230400	5/16	3-1/8	9/16	3/8
5230500	3/8	3-1/8	9/16	3/8

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5239600	7/16	3-3/4	13/16	1/2
5231100	1/2	3-3/4	13/16	1/2
5232100	5/8	4-1/2	1-1/8	5/8
5233100	3/4	5	1-5/16	3/4
5235100	1	5-7/8	1-5/8	1

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

STE

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
543	▢	▢	▢	▢	▢	○	○	○	○	○	○		○	○	○		
523	▢	▢	○	○	○	○	○	○	○	○	○		○	○	○		

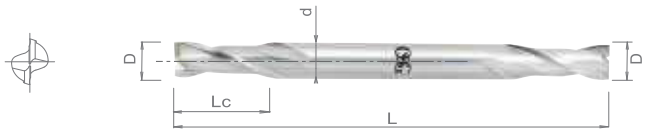
○ good ▢ best

List 562

M-DDE, 2 Flute, Stub Length, Miniature

HSS-Co | BR | STUB | 30°

Milling Diameter Tolerance	
D<Shk Dia	+0 / -0.0011"
D=Shk Dia	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5627000	1/32	2	3/64	3/16
5627100	3/64	2	1/16	3/16
5627200	1/16	2	3/32	3/16
5627300	5/64	2	1/8	3/16
5627400	3/32	2	9/64	3/16
5627500	7/64	2	5/32	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5627600	1/8	2	3/16	3/16
5627700	9/64	2	7/32	3/16
5627800	5/32	2	15/64	3/16
5627900	11/64	2	1/4	3/16
5628000	3/16	2	9/32	3/16

STE

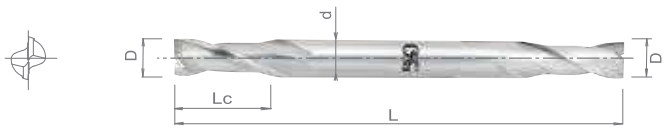
Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

List 563

M-DDE, 2 Flute, Regular Length, Miniature

HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
D<Shk Dia	+0 / -0.0011"
D=Shk Dia	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5637000	1/32	2-1/4	3/32	3/16
5637100	3/64	2-1/4	9/64	3/16
5637200	1/16	2-1/4	3/16	3/16
5637300	5/64	2-1/4	15/64	3/16
5637400	3/32	2-1/4	9/32	3/16
5637500	7/64	2-1/4	21/64	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5637600	1/8	2-1/4	3/8	3/16
5637700	9/64	2-1/4	13/32	3/16
5637800	5/32	2-1/4	7/16	3/16
5637900	11/64	2-1/4	1/2	3/16
5638000	3/16	2-1/4	1/2	3/16

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H				
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels				
	Low	Med.	High															
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		

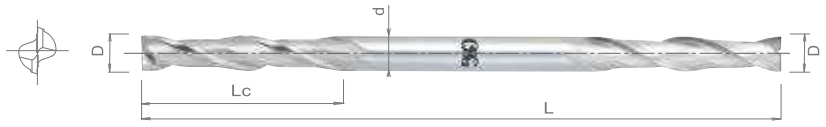
○ good ◎ best

List 564

HSS-Co | BR | LONG | 30°

M-DDEL, 2 Flute, Long Length, Miniature

Milling Diameter Tolerance	
D<Shk Dia	+0.0011"/-0
D=Shk Dia	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5647200	1/16	2-1/2	7/32	3/16
5647400	3/32	2-5/8	9/32	3/16
5647600	1/8	3-1/8	3/4	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5647800	5/32	3-1/4	7/8	3/16
5648000	3/16	3-3/8	1	3/16

STE

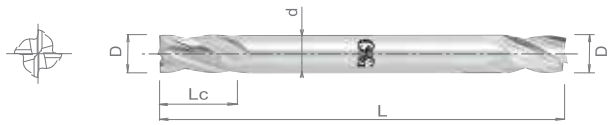
Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

List 566

HSS-Co | BR | STUB | 30°

M-FDE, 4 Flute, Stub Length, Miniature

Milling Diameter Tolerance	
D<Shk Dia	+0.0011"/-0
D=Shk Dia	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5667200	1/16	2	3/32	3/16
5667400	3/32	2	9/64	3/16
5667600	1/8	2	3/16	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5667800	5/32	2	15/64	3/16
5668000	3/16	2	9/32	3/16

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
564	◎	◎	○	○	○	○	○	○	○	○	○		○	○	○		
566	◎	◎	◎	○	○	○	○	○	○	○	○		○	○	○		

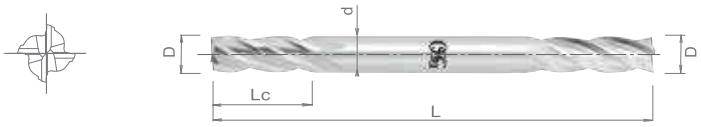
○ good ◎ best

List 567

M-FDE, 4 Flute, Regular Length, Miniature, Non-Center Cutting

HSS-Co | BR | REG | 30°

Milling Diameter Tolerance	
D<Shk Dia	+0.0011"/-0
D=Shk Dia	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5677200	1/16	2-1/4	0.177	3/16
5677400	3/32	2-1/4	0.267	3/16
5677600	1/8	2-1/4	0.362	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5677800	5/32	2-1/4	0.417	3/16
5678000	3/16	2-1/4	0.480	3/16

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

List 568

M-FDEL, 4 Flute, Long Length, Miniature, Non-Center Cutting

HSS-Co | BR | LONG | 30°

Milling Diameter Tolerance	
D<Shk Dia	+0.0011"/-0
D=Shk Dia	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5687200	1/16	2-1/2	0.220	3/16
5687400	3/32	2-5/8	0.279	3/16
5687600	1/8	3-1/8	0.732	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5687800	5/32	3-1/4	0.854	3/16
5688000	3/16	3-3/8	0.980	3/16

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
-	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢		

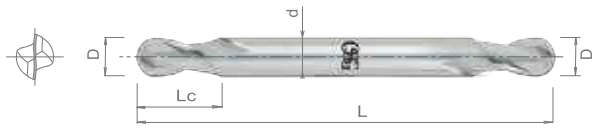
▢ good ▢ best

List 570

HSS-Co | BR | STUB | 30°

M-DDEB, 2 Flute, Stub Length, Ball End, Miniature

Milling Diameter Tolerance	
D<Shk Dia	+0 / -0.0011"
D=Shk Dia	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5707200	1/16	2	3/32	3/16
5707400	3/32	2	9/64	3/16
5707600	1/8	2	3/16	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5707800	5/32	2	15/64	3/16
5708000	3/16	2	9/32	3/16

STE

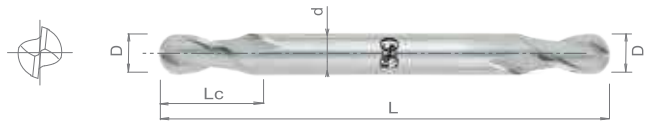
Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

List 571

HSS-Co | BR | REG | 30°

M-DDEB, 2 Flute, Regular Length, Ball End, Miniature

Milling Diameter Tolerance	
D<Shk Dia	+0 / -0.0011"
D=Shk Dia	-0.0004" / -0.0015"



Units: Inch

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5717200	1/16	2-1/4	3/16	3/16
5717400	3/32	2-1/4	9/32	3/16
5717600	1/8	2-1/4	3/8	3/16

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
Bright	D	L	Lc	d
5717800	5/32	2-1/4	7/16	3/16
5718000	3/16	2-1/4	1/2	3/16

STE

Packed: 1 pc.
EDP's listed above are stocked standard, other coatings available upon request.
Specify treatment at time of order.

Work Material

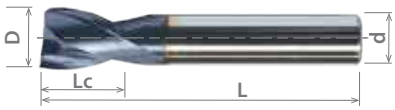
Chart applies to all list numbers above	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
–	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢		▢	▢	▢		

▢ good ▢ best

List 310-SO

NEW | SPEED FEED P1309 | HSS-Co8 | TiAlN | TYPE N | REG | 30° | SHANK h7

2 Flute, Regular Length



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
3100200A-SO	2.0	48	4	6
3100250A-SO	2.5	49	5	6
3100300A-SO	3.0	49	5	6
3100350A-SO	3.5	50	6	6
3100400A-SO	4.0	51	7	6
3100450A-SO	4.5	51	7	6
3100500A-SO	5.0	52	8	6
3100550A-SO	5.5	52	8	6
3100600A-SO	6.0	52	8	6
3100650A-SO	6.5	60	10	10
3100700A-SO	7.0	60	10	10
3100750A-SO	7.5	60	10	10
3100800A-SO	8.0	61	11	10
3100850A-SO	8.5	61	11	10
3100900A-SO	9.0	61	11	10
3100950A-SO	9.5	61	11	10
3101000A-SO	10.0	63	13	10
3101100A-SO	11.0	70	13	12
3101200A-SO	12.0	73	16	12
3101300A-SO	13.0	73	16	12
3101400A-SO	14.0	73	16	12
3101500A-SO	15.0	73	16	12
3101600A-SO	16.0	79	19	16
3101700A-SO	17.0	79	19	16
3101800A-SO	18.0	79	19	16
3101900A-SO	19.0	79	19	16
3102000A-SO	20.0	88	22	20
3102200A-SO	22.0	88	22	20
3102400A-SO	24.0	102	26	25
3102500A-SO	25.0	102	26	25

Packed: 1 pc.
Available TiAlN coating only.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
310-SO	◎	◎	◎	◎		○	○	○	○	○	○		○				

○ good ◎ best

List 314-SO

4 & 6 Flute, Regular Length

NEW | SPEED FEED P1310 | HSS-Co8 | TiAlN | TYPE N | REG | 30° | SHANK h7



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter	Number of Flutes
	D	L	Lc	d	
3140300A-SO	3	52	8	6	4
3140400A-SO	4	55	11	6	4
3140500A-SO	5	57	13	6	4
3140600A-SO	6	57	13	6	4
3140700A-SO	7	66	16	10	4
3140800A-SO	8	69	19	10	4
3140900A-SO	9	69	19	10	4
3141000A-SO	10	72	22	10	4
3141100A-SO	11	79	22	12	4
3141200A-SO	12	83	26	12	4
3141300A-SO	13	83	26	12	4
3141400A-SO	14	83	26	12	4
3141500A-SO	15	83	26	12	4
3141600A-SO	16	92	32	16	4
3141800A-SO	18	92	32	16	4
3141900A-SO	19	92	32	16	4
3142000A-SO	20	104	38	20	4
3142200A-SO	22	104	38	20	6
3142500A-SO	25	121	45	25	6

Packed: 1 pc.
Available TiAlN coating only.
Note: Center cutting in sizes 20mm and smaller.

SOM

Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
314-SO	◎	◎	◎	◎		○	○	○	○	○	○		○				

○ good ◎ best

List 312-SO

2 Flute, Ball Nose, Regular Length

NEW | SPEED FEED P1309 | HSS-Co8 | TiAlN | TYPE N | REG | 30° | SHANK h7



Units: mm

EDP Number	Mill Diameter	Overall Length	Length of Cut	Shank Diameter
	D	L	Lc	d
3120200A-SO	2	48	4	6
3120300A-SO	3	49	5	6
3120400A-SO	4	51	7	6
3120500A-SO	5	52	8	6
3120600A-SO	6	52	8	6
3120700A-SO	7	60	10	10
3120800A-SO	8	61	11	10
3120900A-SO	9	61	11	10
3121000A-SO	10	63	13	10
3121100A-SO	11	70	13	12
3121200A-SO	12	73	16	12
3121300A-SO	13	73	16	12
3121400A-SO	14	73	16	12
3121500A-SO	15	73	16	12
3121600A-SO	16	79	19	16
3121800A-SO	18	79	19	16
3122000A-SO	20	88	22	20
3122200A-SO	22	88	22	20
3122400A-SO	24	102	26	25
3122500A-SO	25	102	26	25

Packed: 1 pc.
Available TiAlN coating only.

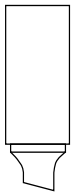
SOM

Work Material

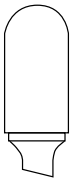
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels ≤200HB			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High														
	1010 1018	1035 1045	1065	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
312-SO	▣	▣	▣	▣		▢	▢	▢	▢	▢	▢		▢				

▢ good ▣ best

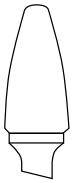
Shapes & SCTI Identification



Series SA
Cylindrical



Series SC
Cylindrical Ball End



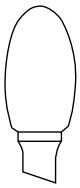
Series SF
Round Nose Tree



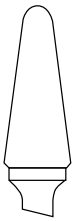
Series SG
Pointed Tree



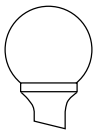
Series SM
Pointed Cone



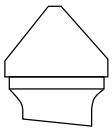
Series SE
Egg Shape



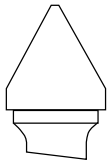
Series SL
14 Degree
Included Angle



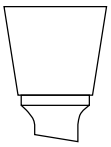
Series SD
Ball Shape



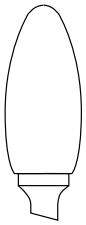
Series SK
90 Degree
Included Angle



Series SJ
60 Degree
Included Angle



Series SN
Inverted Taper



Series SH
Flame Shape

Styles of Cut

Medium Tough Cut

Engineered specifically for tough applications. Tough cut insures faster, splinter-free cutting in weld and alloy castings with increased tool life.



Medium Right Hand Spiral

General purpose - Recommended for stock removal and a smooth finish.



Aluminum Cut

Designed for use on aluminum, non-ferrous metals, soft steel, reinforced plastics, and other soft materials.



Coarse and Fine Cuts are available on request.

Recommended Cutting Speeds for Carbide Burs

Diameter	RPM	Maximum RPM
1/16″	55,000 - 85,000	90,000
3/32″	50,000 - 60,000	85,000
1/8″	35,000 - 65,000	80,000
3/16″	30,000 - 55,000	75,000
1/4″	25,000 - 50,000	70,000
5/16″	18,000 - 38,000	65,000
3/8″	17,000 - 38,000	63,000
7/16″	13,000 - 37,000	55,000
1/2″	14,000 - 36,000	50,000
5/8″	11,000 - 23,000	40,000
3/4″	8,000 - 19,000	30,000
1″	7,000 - 18,000	25,000

NOTE: Use lower speeds when cutting harder ferrous materials and higher speeds for softer non-ferrous materials.

1/4" Shank

6mm Shank

List 801 — Cylindrical

Units: Inch

Medium Tough Cut	EDP Number	End Cut Suffix	Style	Dia.	Flute Length
	801-1250	-EC	SA-11*	1/8	1/2
	801-1875	-EC	SA-14*	3/16	5/8
	801-2500	-EC	SA-1*	1/4	5/8
	801-3125	-EC	SA-2	5/16	3/4
	801-3750	-EC	SA-3	3/8	3/4
	801-4375	-EC	SA-4	7/16	1
	801-5001	-EC	SA-5F	1/2	1/2
	801-5000	-EC	SA-5	1/2	1
	801-6250	-EC	SA-6	5/8	1
	801-7500	-EC	SA-16	3/4	3/4
	801-7501	-EC	SA-7	3/4	1
	801-1000	-EC	SA-9	1	1

Units: mm

Medium Tough Cut	EDP Number	End Cut Suffix	Style	Dia.	Flute Length
	801-1250-60	-EC	SA-11*	3	12
	801-1875-60	-EC	SA-14*	5	16
	801-2362	-EC	SA-1*	6	16
	801-3125-60	-EC	SA-2	8	19
	801-3750-60	-EC	SA-3	9	19
	801-4375-60	-EC	SA-4	11	25
	801-5001-60	-EC	SA-5F	12	12
	801-5000-60	-EC	SA-5	12	25
	801-6250-60	-EC	SA-6	16	25
	801-7500-60	-EC	SA-16	19	19
	801-7501-60	-EC	SA-7	19	25
	801-1000-60	-EC	SA-9	25	25

List 802 — Cylindrical Ball End

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	802-1250	SC-11*	1/8	1/2
	802-1875	SC-14*	3/16	5/8
	802-2500	SC-1*	1/4	5/8
	802-3125	SC-2	5/16	3/4
	802-3750	SC-3	3/8	3/4
	802-4375	SC-4	7/16	1
	802-5000	SC-5	1/2	1
	802-6250	SC-6	5/8	1
	802-7500	SC-7	3/4	1

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	802-1250-60	SC-11*	3	12
	802-1875-60	SC-14*	5	16
	802-2362	SC-1*	6	16
	802-3125-60	SC-2	8	19
	802-3750-60	SC-3	9	19
	802-4375-60	SC-4	11	25
	802-5000-60	SC-5	12	25
	802-6250-60	SC-6	16	25
	802-7500-60	SC-7	19	25

List 803 — Round Nose Tree

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	803-2500	SF-1*	1/4	5/8
	803-3750	SF-3	3/8	3/4
	803-5001	SF-13	1/2	3/4
	803-5000	SF-5	1/2	1
	803-6250	SF-6	5/8	1
	803-7500	SF-7	3/4	1
	803-7501	SF-14	3/4	1-1/4
	803-7502	SF-15	3/4	1-1/2

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	803-2362	SF-1*	6	16
	803-3750-60	SF-3	9	19
	803-5001-60	SF-13	12	19
	803-5000-60	SF-5	12	25
	803-6250-60	SF-6	16	25
	803-7500-60	SF-7	19	25
	803-7501-60	SF-14	19	31
	803-7502-60	SF-15	19	38

*Indicates 1/4" brazed carbide shank 2" OAL; all others have 1/4" diameter hardened steel shank (3/8" diameter shanks available).

*Indicates 6mm brazed carbide shank 50mm OAL; all others have 6mm diameter hardened steel shank (9mm diameter shanks available).

1/4" Shank

6mm Shank

List 901 — Cylindrical

Units: Inch

Medium Right Hand Spiral	EDP Number	End Cut Suffix	Style	Dia.	Flute Length
	901-1250	-EC	SA-11*	1/8	1/2
	901-1875	-EC	SA-14*	3/16	5/8
	901-2500	-EC	SA-1*	1/4	5/8
	901-3125	-EC	SA-2	5/16	3/4
	901-3750	-EC	SA-3	3/8	3/4
	901-4375	-EC	SA-4	7/16	1
	901-5001	-	SA-5F	1/2	1/2
	901-5000	-EC	SA-5	1/2	1
	901-6250	-EC	SA-6	5/8	1
	901-7500	-EC	SA-16	3/4	3/4
	901-7501	-EC	SA-7	3/4	1
	901-1000	-EC	SA-9	1	1

Units: mm

Medium Right Hand Spiral	EDP Number	End Cut Suffix	Style	Dia.	Flute Length
	901-1250-60	-EC	SA-11*	3	12
	901-1875-60	-EC	SA-14*	5	16
	901-2362	-EC	SA-1*	6	16
	901-3125-60	-EC	SA-2	8	19
	901-3750-60	-EC	SA-3	9	19
	901-4375-60	-EC	SA-4	11	25
	901-5001-60	-EC	SA-5F	12	12
	901-5000-60	-EC	SA-5	12	25
	901-6250-60	-EC	SA-6	16	25
	901-7500-60	-EC	SA-16	19	19
	901-7501-60	-EC	SA-7	19	25
	901-1000-60	-EC	SA-9	25	25

List 902 — Cylindrical Ball End

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	902-1250	SC-11*	1/8	1/2
	902-1875	SC-14*	3/16	5/8
	902-2500	SC-1*	1/4	5/8
	902-3125	SC-2	5/16	3/4
	902-3750	SC-3	3/8	3/4
	902-4375	SC-4	7/16	1
	902-5000	SC-5	1/2	1
	902-6250	SC-6	5/8	1
	902-7500	SC-7	3/4	1

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	902-1250-60	SC-11*	3	12
	902-1875-60	SC-14*	5	16
	902-2362	SC-1*	6	16
	902-3125-60	SC-2	8	19
	902-3750-60	SC-3	9	19
	902-4375-60	SC-4	11	25
	902-5000-60	SC-5	12	25
	902-6250-60	SC-6	16	25
	902-7500-60	SC-7	19	25

List 903 — Round Nose Tree

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	903-2500	SF-1*	1/4	5/8
	903-3750	SF-3	3/8	3/4
	903-5001	SF-13	1/2	3/4
	903-5000	SF-5	1/2	1
	903-6250	SF-6	5/8	1
	903-7500	SF-7	3/4	1
	903-7501	SF-14	3/4	1-1/4
	903-7502	SF-15	3/4	1-1/2

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	903-2362	SF-1*	6	16
	903-3750-60	SF-3	9	19
	903-5001-60	SF-13	12	19
	903-5000-60	SF-5	12	25
	903-6250-60	SF-6	16	25
	903-7500-60	SF-7	19	25
	903-7501-60	SF-14	19	32
	903-7502-60	SF-15	19	38

*Indicates 1/4" brazed carbide shank 2" OAL; all others have 1/4" diameter hardened steel shank (3/8" diameter shanks available).

*Indicates 6mm brazed carbide shank 50mm OAL; all others have 6mm diameter hardened steel shank (9mm diameter shanks available).

1/4" Shank

6mm Shank

List 804 — Pointed Tree

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	804-2500	SG-1*	1/4	5/8
	804-3125	SG-2	5/16	3/4
	804-3750	SG-3	3/8	3/4
	804-5001	SG-13	1/2	3/4
	804-5000	SG-5	1/2	1
	804-6250	SG-6	5/8	1
	804-7500	SG-7	3/4	1
	804-7501	SG-15	3/4	1-1/2

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	804-2362	SG-1*	6	16
	804-3125-60	SG-2	8	19
	804-3750-60	SG-3	9	19
	804-5001-60	SG-13	12	19
	804-5000-60	SG-5	12	25
	804-6250-60	SG-6	16	25
	804-7500-60	SG-7	19	25
	804-7501-60	SG-15	19	38

List 805 — Pointed Cone

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	805-2500	SM-1*	1/4	1/2	22
	805-2501	SM-2*	1/4	3/4	14
	805-2502	SM-3*	1/4	1	10
	805-3750	SM-4	3/8	5/8	28
	805-5000	SM-5	1/2	7/8	28
	805-6250	SM-6	5/8	1	31

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	805-2362	SM-1*	6	12	22
	805-2363	SM-2*	6	19	14
	805-2364	SM-3*	6	25	10
	805-3750-60	SM-4*	9	16	28
	805-5000-60	SM-5	12	22	28
	805-6250-60	SM-6	16	25	31

List 806 — Egg Shape

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	806-2500	SE-1*	1/4	3/8
	806-3750	SE-3	3/8	5/8
	806-5000	SE-5	1/2	7/8
	806-6250	SE-6	5/8	1
	806-7500	SE-7	3/4	1

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	806-2362	SE-1*	6	9
	806-3750-60	SE-3	9	16
	806-5000-60	SE-5	12	22
	806-6250-60	SE-6	16	25
	806-7500-60	SE-7	19	25

*Indicates 1/4" brazed carbide shank 2" OAL; all others have 1/4" diameter hardened steel shank (3/8" diameter shanks available).

*Indicates 6mm brazed carbide shank 50mm OAL; all others have 6mm diameter hardened steel shank (9mm diameter shanks available).

1/4" Shank

6mm Shank

List 904 — Pointed Tree

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	904-2500	SG-1*	1/4	5/8
	904-3125	SG-2	5/16	3/4
	904-3750	SG-3	3/8	3/4
	904-5001	SG-13	1/2	3/4
	904-5000	SG-5	1/2	1
	904-6250	SG-6	5/8	1
	904-7500	SG-7	3/4	1
	904-7501	SG-15	3/4	1-1/2

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	904-2362	SG-1*	6	16
	904-3125-60	SG-2	8	19
	904-3750-60	SG-3	9	19
	904-5001-60	SG-13	12	19
	904-5000-60	SG-5	12	25
	904-6250-60	SG-6	16	25
	904-7500-60	SG-7	19	25
	904-7501-60	SG-15	19	38

List 905 — Pointed Cone

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	905-2500	SM-1*	1/4	1/2	22
	905-2501	SM-2*	1/4	3/4	14
	905-2502	SM-3*	1/4	1	10
	905-3750	SM-4	3/8	5/8	28
	905-5000	SM-5	1/2	7/8	28
	905-6250	SM-6	5/8	1	31

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	905-2362	SM-1*	6	12	22
	905-2363	SM-2*	6	19	14
	905-2364	SM-3*	6	25	10
	905-3750-60	SM-4	9	16	28
	905-5000-60	SM-5	12	22	28
	905-6250-60	SM-6	16	25	31

List 906 — Egg Shape

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	906-2500	SE-1*	1/4	3/8
	906-3750	SE-3	3/8	5/8
	906-5000	SE-5	1/2	7/8
	906-6250	SE-6	5/8	1
	906-7500	SE-7	3/4	1

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	906-2362	SE-1*	6.0	9
	906-3750-60	SE-3	9.5	16
	906-5000-60	SE-5	12.7	22
	906-6250-60	SE-6	16.0	25
	906-7500-60	SE-7	19.0	25

HYE

*Indicates 1/4" brazed carbide shank 2" OAL; all others have 1/4" diameter hardened steel shank (3/8" diameter shanks available).

*Indicates 6mm brazed carbide shank 50mm OAL; all others have 6mm diameter hardened steel shank (9mm diameter shanks available).

1/4" Shank

6mm Shank

List 807 — 14° Included Angle

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	807-2500	SL-1*	1/4	5/8	14
	807-3125	SL-2	5/16	7/8	14
	807-3750	SL-3	3/8	1-1/16	14
	807-5000	SL-4	1/2	1-1/8	14
	807-6250	SL-5	5/8	1-5/16	14
	807-7500	SL-7	3/4	1-1/2	14

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	807-2362	SL-1*	6	16	14
	807-3125-60	SL-2	8	22	14
	807-3750-60	SL-3	9	26	14
	807-5000-60	SL-4	12	28	14
	807-6250-60	SL-5	16	33	14
	807-7500-60	SL-7	19	38	14

List 808 — Ball Shape

Units: Inch

Medium Tough Cut	EDP Number	Style	Diameter
	808-1250	SD-11*	1/8
	808-1875	SD-14*	3/16
	808-2500	SD-1*	1/4
	808-3125	SD-2	5/16
	808-3750	SD-3	3/8
	808-5000	SD-5	1/2
	808-6250	SD-6	5/8
	808-7500	SD-7	3/4
	808-1000	SD-9	1

Units: mm

Medium Tough Cut	EDP Number	Style	Diameter
	808-1250-60	SD-11*	3
	808-1875-60	SD-14*	5
	808-2362	SD-1*	6
	808-3125-60	SD-2	8
	808-3750-60	SD-3	9
	808-5000-60	SD-5	12
	808-6250-60	SD-6	16
	808-7500-60	SD-7	19
	808-1000-60	SD-9	25

List 849 — 90° Cone

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Incl. Ang. Deg.
	849-2500	SK-1*	1/4	90
	849-3750	SK-3	3/8	90
	849-5000	SK-5	1/2	90
	849-6250	SK-6	5/8	90
	849-7500	SK-7	3/4	90
	849-1000	SK-9	1	90

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Incl. Ang. Deg.
	849-2362	SK-1*	6	90
	849-3750-60	SK-3	9	90
	849-5000-60	SK-5	12	90
	849-6250-60	SK-6	16	90
	849-7500-60	SK-7	19	90
	849-1000-60	SK-9	25	90

HYE

*Indicates 1/4" brazed carbide shank 2" OAL; all others have 1/4" diameter hardened steel shank (3/8" diameter shanks available).

*Indicates 6mm brazed carbide shank 50mm OAL; all others have 6mm diameter hardened steel shank (9mm diameter shanks available).

1/4" Shank

6mm Shank

List 907 — 14° Included Angle

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	907-2500	SL-1*	1/4	5/8	14
	907-3125	SL-2	5/16	7/8	14
	907-3750	SL-3	3/8	1-1/16	14
	907-5000	SL-4	1/2	1-1/8	14
	907-6250	SL-5	5/8	1-5/16	14
	907-7500	SL-7	3/4	1-1/2	14

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	907-2362	SL-1*	6	16	14
	907-3125-60	SL-2	8	22	14
	907-3750-60	SL-3	9	26	14
	907-5000-60	SL-4	12	28	14
	907-6250-60	SL-5	16	33	14
	907-7500-60	SL-7	19	38	14

List 908 — Ball Shape

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Diameter
	908-1250	SD-11*	1/8
	908-1875	SD-14*	3/16
	908-2500	SD-1*	1/4
	908-3125	SD-2	5/16
	908-3750	SD-3	3/8
	908-5000	SD-5	1/2
	908-6250	SD-6	5/8
	908-7500	SD-7	3/4
	908-1000	SD-9	1

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Diameter
	908-1250-60	SD-11*	3
	908-1875-60	SD-14*	5
	908-2362	SD-1*	6
	908-3125-60	SD-2	8
	908-3750-60	SD-3	9
	908-5000-60	SD-5	12
	908-6250-60	SD-6	16
	908-7500-60	SD-7	19
	908-1000-60	SD-9	25

List 949 — 90° Cone

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Incl. Ang. Deg.
	949-2500	SK-1*	1/4	90
	949-3750	SK-3	3/8	90
	949-5000	SK-5	1/2	90
	949-6250	SK-6	5/8	90
	949-7500	SK-7	3/4	90
	949-1000	SK-9	1	90

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Incl. Ang. Deg.
	949-2362	SK-1*	6	90
	949-3750-60	SK-3	9	90
	949-5000-60	SK-5	12	90
	949-6250-60	SK-6	16	90
	949-7500-60	SK-7	19	90
	949-1000-60	SK-9	25	90

HYE

*Indicates 1/4" brazed carbide shank 2" OAL; all others have 1/4" diameter hardened steel shank (3/8" diameter shanks available).

*Indicates 6mm brazed carbide shank 50mm OAL; all others have 6mm diameter hardened steel shank (9mm diameter shanks available).

1/4" Shank

6mm Shank

List 850 — 60° Cone

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Incl. Ang. Deg.
	850-2500	SJ-1*	1/4	60
	850-3750	SJ-3	3/8	60
	850-5000	SJ-5	1/2	60
	850-6250	SJ-6	5/8	60
	850-7500	SJ-7	3/4	60
	850-1000	SJ-9	1	60

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Incl. Ang. Deg.
	850-2362	SJ-1*	6	60
	850-3750-60	SJ-3	9	60
	850-5000-60	SJ-5	12	60
	850-6250-60	SJ-6	16	60
	850-7500-60	SJ-7	19	60
	850-1000-60	SJ-9	25	60

List 851 — Flame Shape

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	851-3125	SH-2	5/16	3/4
	851-5000	SH-5	1/2	1-1/4
	851-6250	SH-6	5/8	1-7/16
	851-7500	SH-7	3/4	1-5/8

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	851-3125-60	SH-2	8	19
	851-5000-60	SH-5	12	31
	851-6250-60	SH-6	16	36
	851-7500-60	SH-7	19	41

List 852 — Inverted Taper

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	852-2500	SN-1*	1/4	5/16	10
	852-3750	SN-2	3/8	3/8	13
	852-5000	SN-4	1/2	1/2	28
	852-6250	SN-6	5/8	3/4	18
	852-7500	SN-7	3/4	5/8	30

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	852-2362	SN-1*	6.0	8	10
	852-3750-60	SN-2	9.5	9	13
	852-5000-60	SN-4	12.0	12	28
	852-6250-60	SN-6	16.0	19	18
	852-7500-60	SN-7	19.0	16	30

HYE

*Indicates 1/4" brazed carbide shank 2" OAL; all others have 1/4" diameter hardened steel shank (3/8" diameter shanks available).

*Indicates 6mm brazed carbide shank 50mm OAL; all others have 6mm diameter hardened steel shank (9mm diameter shanks available).

1/4" Shank

6mm Shank

List 950 — 60° Cone

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Incl. Ang. Deg.
	950-2500	SJ-1*	1/4	60
	950-3750	SJ-3	3/8	60
	950-5000	SJ-5	1/2	60
	950-6250	SJ-6	5/8	60
	950-7500	SJ-7	3/4	60
	950-1000	SJ-9	1	60

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Incl. Ang. Deg.
	950-2362	SJ-1*	6	60
	950-3750-60	SJ-3	9	60
	950-5000-60	SJ-5	12	60
	950-6250-60	SJ-6	16	60
	950-7500-60	SJ-7	19	60
	950-1000-60	SJ-9	25	60

List 951 — Flame Shape

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	951-3125	SH-2	5/16	3/4
	951-5000	SH-5	1/2	1-1/4
	951-6250	SH-6	5/8	1-7/16
	951-7500	SH-7	3/4	1-5/8

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	951-3125-60	SH-2	8	19
	951-5000-60	SH-5	12	31
	951-6250-60	SH-6	16	36
	951-7500-60	SH-7	19	41

List 952 — Inverted Taper

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	952-2500	SN-1*	1/4	5/16	10
	952-3750	SN-2	3/8	3/8	13
	952-5000	SN-4	1/2	1/2	28
	952-6250	SN-6	5/8	3/4	18
	952-7500	SN-7	3/4	5/8	30

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length	Incl. Ang. Deg.
	952-2362	SN-1*	6	8	10
	952-3750-60	SN-2	9	9	13
	952-5000-60	SN-4	12	12	28
	952-6250-60	SN-6	16	19	18
	952-7500-60	SN-7	19	16	30

HYE

*Indicates 1/4" brazed carbide shank 2" OAL; all others have 1/4" diameter hardened steel shank (3/8" diameter shanks available).

*Indicates 6mm brazed carbide shank 50mm OAL; all others have 6mm diameter hardened steel shank (9mm diameter shanks available).

1/4" Steel Shank (6" OAL)

6mm Steel Shank (152mm OAL)

List 861 — Cylindrical

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	861-3750	SA-3L6	3/8	3/4
	861-5000	SA-5L6	1/2	1

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	861-3750-60	SA-3L6	9	19
	861-5000-60	SA-5L6	12	25

List 862 — Cylindrical Ball End

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	862-3750	SC-3L6	3/8	3/4
	862-5000	SC-5L6	1/2	1

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	862-3750-60	SC-3L6	9	19
	862-5000-60	SC-5L6	12	25

List 863 — Round Nose Tree

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	863-3750	SF-3L6	3/8	3/4
	863-5000	SF-5L6	1/2	1

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	863-3750-60	SF-3L6	9	19
	863-5000-60	SF-5L6	12	25

1/4" Steel Shank (6" OAL)

6mm Steel Shank (152mm OAL)

List 961 — Cylindrical

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	961-3750	SA-3L6	3/8	3/4
	961-5000	SA-5L6	1/2	1

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	961-3750-60	SA-3L6	9	19
	961-5000-60	SA-5L6	12	25

List 962 — Cylindrical Ball End

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	962-3750	SC-3L6	3/8	3/4
	962-5000	SC-5L6	1/2	1

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	962-3750-60	SC-3L6	9	19
	962-5000-60	SC-5L6	12	25

List 963 — Round Nose Tree

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	963-3750	SF-3L6	3/8	3/4
	963-5000	SF-5L6	1/2	1

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	963-3750-60	SF-3L6	9	19
	963-5000-60	SF-5L6	12	25

1/4" Steel Shank (6" OAL)

6mm Steel Shank (152mm OAL)

List 867 — 14° Included Angle

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	867-3750	SL-3L6	3/8	1-1/16
	867-5000	SL-5L6	1/2	1-1/8

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.	Flute Length
	867-3750-60	SL-3L6	9	26
	867-5000-60	SL-5L6	12	28

List 868 — Ball Shape

Units: Inch

Medium Tough Cut	EDP Number	Style	Dia.
	868-3750	SD-3L6	3/8
	868-5000	SD-5L6	1/2

Units: mm

Medium Tough Cut	EDP Number	Style	Dia.
	868-3750-60	SD-3L6	9
	868-5000-60	SD-5L6	12

1/4" Steel Shank (6" OAL)

6mm Steel Shank (152mm OAL)

List 967 — 14° Included Angle

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	967-3750	SL-3L6	3/8	1-1/16
	967-5000	SL-5L6	1/2	1-1/8

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.	Flute Length
	967-3750-60	SL-3L6	9	26
	967-5000-60	SL-5L6	12	28

List 968 — Ball Shape

Units: Inch

Medium Right Hand Spiral	EDP Number	Style	Dia.
	968-3750	SD-3L6	3/8
	968-5000	SD-5L6	1/2

Units: mm

Medium Right Hand Spiral	EDP Number	Style	Dia.
	968-3750-60	SD-3L6	9
	968-5000-60	SD-5L6	12

1/4" Shank (For Aluminum)

6mm Shank (For Aluminum)

List 881 — Cylindrical

Units: Inch

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	881-2500	SA-1A*	1/4	5/8
	881-3750	SA-3A	3/8	3/4
	881-5000	SA-5A	1/2	1
	881-6250	SA-6A	5/8	1
	881-7500	SA-7A	3/4	1

Units: mm

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	881-2362	SA-1MA*	6	16
	881-3125-60	SA-2MA	8	19
	881-3750-60	SA-3MA	9	19
	881-5000-60	SA-5MA	12	25
	881-6250-60	SA-6MA	16	25
	881-7500-60	SA-7MA	19	25

List 882 — Cylindrical Ball End

Units: Inch

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	882-2500	SC-1A*	1/4	5/8
	882-3750	SC-3A	3/8	3/4
	882-5000	SC-5A	1/2	1
	882-6250	SC-6A	5/8	1
	882-7500	SC-7A	3/4	1

Units: mm

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	882-2362	SC-1MA	6	19
	882-3750-60	SC-3MA	9	19
	882-5000-60	SC-5MA	12	25
	882-6250-60	SC-6MA	16	25
	882-7500-60	SC-7MA	19	25

List 883 — Round Nose Tree

Units: Inch

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	883-2500	SF-1A*	1/4	5/8
	883-3750	SF-3A	3/8	3/4
	883-5000	SF-5A	1/2	1
	883-6250	SF-6A	5/8	1
	883-7500	SF-14A	3/4	1-1/4

Units: mm

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	883-2362	SF-1MA	6	16
	883-3750-60	SF-3MA	9	19
	883-5000-60	SF-5MA	12	25
	883-6250-60	SF-6MA	16	25
	883-7500-60	SF-14MA	19	32

Aluminum cut burs are designed for use on:

- Aluminum
- Non-ferrous metals
- Soft Steel
- Reinforced plastics
- Other soft materials

Also provide excellent work finish with minimum loading when cutting soft, sticky materials.

HYE

*Indicates 1/4" brazed carbide shank 2" OAL; all others have 1/4" diameter hardened steel shank (3/8" diameter shanks available).

*Indicates 6mm brazed carbide shank 50mm OAL; all others have 6mm diameter hardened steel shank (9mm diameter shanks available).

1/4" Shank (For Aluminum)

6mm Shank (For Aluminum)

List 885 — Flame Shape

Units: Inch

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	885-5000	SH-5A	1/2	1-1/4
	885-6250	SH-6A	5/8	1-7/16
	885-7500	SH-7A	3/4	1-5/8

Units: mm

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	885-5000-60	SH-5MA	12	32
	885-6250-60	SH-6MA	16	37
	885-7500-60	SH-7MA	19	41

List 886 — Egg Shape

Units: Inch

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	886-3750	SE-3A	3/8	5/8
	886-5000	SE-5A	1/2	7/8
	886-6250	SE-6A	5/8	1
	886-7500	SE-7A	3/4	1

Units: mm

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	886-3750-60	SE-3MA	9	16
	886-5000-60	SE-5MA	12	22
	886-6250-60	SE-6MA	16	25
	886-7500-60	SE-7MA	19	25

List 887 — 14˚ Included Angle

Units: Inch

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	887-3750	SL-3A	3/8	1-1/16
	887-5000	SL-4A	1/2	1-1/8
	887-6250	SL-6A	5/8	1-5/16
	887-7500	SL-7A	3/4	1-1/2

Units: mm

Aluminium Cut	EDP Number	Style	Dia.	Flute Length
	887-3750-60	SL-3MA	9	27
	887-5000-60	SL-4MA	12	29
	887-6250-60	SL-5MA	16	33
	887-7500-60	SL-7MA	19	38

List 888 — Ball Shape

Units: Inch

Aluminium Cut	EDP Number	Style	Dia.
	888-2500	SD-1A*	1/4
	888-3750	SD-3A	3/8
	888-5000	SD-5A	1/2
	888-6250	SD-6A	5/8

Units: mm

Aluminium Cut	EDP Number	Style	Dia.
	888-2362	SD-1MA*	6
	888-3125-60	SD-2MA	8
	888-3750-60	SD-3MA	9
	888-5000-60	SD-5MA	12
	888-6250-60	SD-6MA	16

HYE

*Indicates 1/4" brazed carbide shank 2" OAL; all others have 1/4" diameter hardened steel shank (3/8" diameter shanks available).

*Indicates 6mm brazed carbide shank 50mm OAL; all others have 6mm diameter hardened steel shank (9mm diameter shanks available).

1/8" Shank Dia. (1-1/2" OAL)

List 800 — Inch Sizes, Tough Cut

Units: Inch



Style:	**SA-42**
Size:	3/32 x 7/16
EDP Number:	800-8001



Style:	**SA-43**
Size:	1/8 x 9/16
EDP Number:	800-8002



Style:	**SB-43**
Size:	1/8 x 9/16
EDP Number:	800-8003



Style:	**SC-42**
Size:	1/8 x 9/16
EDP Number:	800-8004



Style:	**SG-44**
Size:	1/8 x 1/2
EDP Number:	800-8005



Style:	**SF-42**
Size:	1/8 x 1/2
EDP Number:	800-8006



Style:	**SC-41**
Size:	3/32 x 7/16
EDP Number:	800-8007



Style:	**SA-41**
Size:	1/16 x 1/4
EDP Number:	800-8008



Style:	**SE-41**
Size:	1/8 x 7/32
EDP Number:	800-8010



Style:	**SM-41**
Size:	1/8 x 11/32
Inc. Taper Deg.:	12
EDP Number:	800-8011



Style:	**SM-42**
Size:	1/8 x 7/16
Inc. Taper Deg.:	14
EDP Number:	800-8012



Style:	**SM-43**
Size:	1/8 x 5/8
Inc. Taper Deg.:	7
EDP Number:	800-8013



Style:	**SN-42**
Size:	1/8 x 3/16
Inc. Taper Deg.:	10 INVERTED
EDP Number:	900-9014



Style:	**SJ-42**
Size:	1/8 x 3/32
Inc. Taper Deg.:	60
EDP Number:	800-8015



Style:	**SK-42**
Size:	1/8 x 1/16
Inc. Taper Deg.:	90
EDP Number:	800-8016



Style:	**SL-42**
Size:	1/8 x 1/2
Inc. Taper Deg.:	8
EDP Number:	800-8017



Style:	**SD-41**
Size:	3/32
EDP Number:	800-8018



Style:	**SD-42**
Size:	1/8
EDP Number:	800-8019



Style:	**SH-41**
Size:	1/8 x 1/4
EDP Number:	800-8020

HYE

3mm Shank Dia. (38mm OAL)

List 800 — Metric Sizes, Tough Cut

Units: mm



Style:	SA-42
Size:	2.38 x 11
EDP Number:	800-8001-30



Style:	SA-43
Size:	3 x 14
EDP Number:	800-8002-30



Style:	SB-43
Size:	3 x 14
EDP Number:	800-8003-30



Style:	SC-42
Size:	3 x 14
EDP Number:	800-8004-30



Style:	SG-44
Size:	3 x 12
EDP Number:	800-8005-30



Style:	SF-42
Size:	3 x 12
EDP Number:	800-8006-30



Style:	SC-41
Size:	2.38 x 14
EDP Number:	800-8007-30



Style:	SA-41
Size:	1.59 x 6
EDP Number:	800-8008-30



Style:	SB-ECO
Size:	3
EDP Number:	800-8009-30



Style:	SE-41
Size:	3 x 5.5
EDP Number:	800-8010-30



Style:	SM-41
Size:	3 x 8
Inc. Taper Deg.:	12
EDP Number:	800-8011-30



Style:	SM-42
Size:	3 x 11
Inc. Taper Deg.:	14
EDP Number:	800-8012-30



Style:	SM-43
Size:	3 x 16
Inc. Taper Deg.:	7
EDP Number:	800-8013-30



Style:	SN-42
Size:	3 x 5
Inc. Taper Deg.:	10 INVERTED
EDP Number:	800-8014-30



Style:	SJ-42
Size:	3 x 2.5
Inc. Taper Deg.:	60
EDP Number:	800-8015-30



Style:	SK-42
Size:	3 x 1.5
Inc. Taper Deg.:	90
EDP Number:	800-8016-30



Style:	SL-42
Size:	3 x 12
Inc. Taper Deg.:	8
EDP Number:	800-8017-30



Style:	SD-41
Size:	2.38
EDP Number:	800-8018-30



Style:	SD-42
Size:	3
EDP Number:	800-8019-30



Style:	SH-41
Size:	3 x 6
EDP Number:	800-8020-30

HYE

1/8" Shank Dia. (1-1/2" OAL)

List 900 — Inch Sizes, Medium Right Hand Spiral

Units: Inch

					
Style:	**SA-42**	**SA-43**	**SB-43**	**SC-42**	**SG-44**
Size:	3/32 x 7/16	1/8 x 9/16	1/8 x 9/16	1/8 x 9/16	1/8 x 1/2
EDP Number:	900-9001	900-9002	900-9003	900-9004	900-9005
					
Style:	**SF-42**	**SC-41**	**SA-41**	**SB-ECO**	**SE-41**
Size:	1/8 x 1/2	3/32 x 7/16	1/16 x 1/4	1/8	1/8 x 7/32
EDP Number:	900-9006	900-9007	900-9008	900-9009	900-9010
					
Style:	**SM-41**	**SM-42**	**SM-43**	**SN-42**	**SJ-42**
Size:	1/8 x 11/32	1/8 x 7/16	1/8 x 5/8	1/8 x 3/16	1/8 x 3/32
Inc. Taper Deg.:	12	14	7	10 INVERTED	60
EDP Number:	900-9011	900-9012	900-9013	900-9014	900-9015
					
Style:	**SK-42**	**SL-42**	**SD-41**	**SD-42**	**SH-41**
Size:	1/8 x 1/16	1/8 x 1/2	3/32	1/8	1/8 x 1/4
Inc. Taper Deg.:	90	8			
EDP Number:	900-9016	900-9017	900-9018	900-9019	900-9020

HYE

3mm Shank Dia. (38mm OAL)

List 900 — Metric Sizes, Medium Right Hand Spiral

Units: mm



Style:	**SA-42**
Size:	2.38 x 11
EDP Number:	900-9001-30



Style:	**SA-43**
Size:	3 x 14
EDP Number:	900-9002-30



Style:	**SB-43**
Size:	3 x 14
EDP Number:	900-9003-30



Style:	**SC-42**
Size:	3 x 14
EDP Number:	900-9004-30



Style:	**SG-44**
Size:	3 x 12
EDP Number:	900-9005-30



Style:	**SF-42**
Size:	3 x 12
EDP Number:	900-9006-30



Style:	**SC-41**
Size:	2.38 x 14
EDP Number:	900-9007-30



Style:	**SA-41**
Size:	1.59 x 6
EDP Number:	900-9008-30



Style:	**SB-ECO**
Size:	3
EDP Number:	900-9009-30



Style:	**SE-41**
Size:	3 x 5.5
EDP Number:	900-9010-30



Style:	**SM-41**
Size:	3 x 8
Inc. Taper Deg.:	12
EDP Number:	900-9011-30



Style:	**SM-42**
Size:	3 x 11
Inc. Taper Deg.:	14
EDP Number:	900-9012-30



Style:	**SM-43**
Size:	3 x 16
Inc. Taper Deg.:	7
EDP Number:	900-9013-30



Style:	**SN-42**
Size:	3 x 5
Inc. Taper Deg.:	10 INVERTED
EDP Number:	900-9014-30



Style:	**SJ-42**
Size:	3 x 2.5
Inc. Taper Deg.:	60
EDP Number:	900-9015-30



Style:	**SK-42**
Size:	3 x 1.5
Inc. Taper Deg.:	90
EDP Number:	900-9016-30



Style:	**SL-42**
Size:	3 x 12
Inc. Taper Deg.:	8
EDP Number:	900-9017-30



Style:	**SD-41**
Size:	2.38
EDP Number:	900-9018-30



Style:	**SD-42**
Size:	3
EDP Number:	900-9019-30



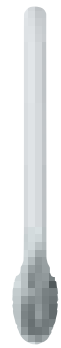
Style:	**SH-41**
Size:	3 x 6
EDP Number:	900-9020-30

HYE

1/4" Diameter Carbide Burs (1/8" Hardened Steel Shank)

List 815 — Inch Sizes, Tough Cut

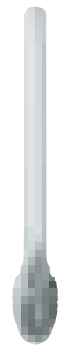
Units: Inch

	Cylindrical	Cylindrical Ball End	Round Nose Tree	Pointed Tree	Pointed Cone	End Cut	Ball Shape	Egg Shape	Inverted Taper
									
Style:	**SA-51**	**SC-51**	**SF-51**	**SG-51**	**SM-51**	**SB-51**	**SD-51**	**SE-51**	**SN-51**
Size:	1/4 x 1/2	1/4 x 1/2	1/4 x 1/2	1/4 x 1/2	1/4 x 1/2	1/4 x 3/16	1/4	1/4 x 3/8	1/4 x 1/4
Inc. Taper Deg.:					22				10 INVERTED
EDP Number:	815-0001	815-0002	815-0003	815-0004	815-0005	815-0006	815-0007	815-0008	815-0009

6mm Diameter Carbide Burs (3mm Hardened Steel Shank)

List 815 — Metric Sizes, Tough Cut

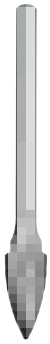
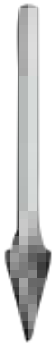
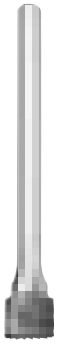
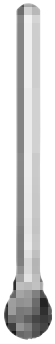
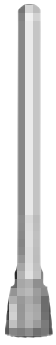
Units: mm

	Cylindrical	Cylindrical Ball End	Round Nose Tree	Pointed Tree	Pointed Cone	End Cut	Ball Shape	Egg Shape	Inverted Taper
									
Style:	**SA-51**	**SC-51**	**SF-51**	**SG-51**	**SM-51**	**SB-51**	**SD-51**	**SE-51**	**SN-51**
Size:	6.35 x 12	6.35 x 12	6.35 x 12	6.35 x 12	6.35 x 12	6.35 x 5	6.35	6.35 x 9	6.35 x 6.35
Inc. Taper Deg.:						22			10 INVERTED
EDP Number:	815-0001-30	815-0002-30	815-0003-30	815-0004-30	815-0005-30	815-0006-30	815-0007-30	815-0008-30	815-0009-30

1/4" Diameter Carbide Burs (1/8" Hardened Steel Shank)

List 915 — Inch Sizes, Medium Right Hand Spiral

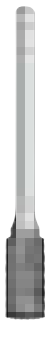
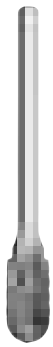
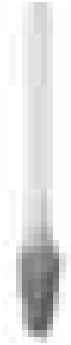
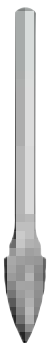
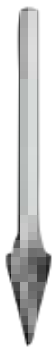
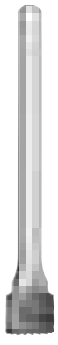
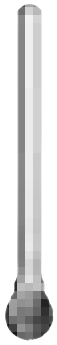
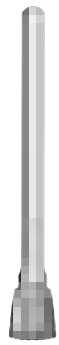
Units: Inch

	Cylindrical	Cylindrical Ball End	Round Nose Tree	Pointed Tree	Pointed Cone	End Cut	Ball Shape	Egg Shape	Inverted Taper
									
Style:	**SA-51**	**SC-51**	**SF-51**	**SG-51**	**SM-51**	**SB-51**	**SD-51**	**SE-51**	**SN-51**
Size:	1/4 x 1/2	1/4 x 1/2	1/4 x 1/2	1/4 x 1/2	1/4 x 1/2	1/4 x 3/16	1/4	1/4 x 3/8	1/4 x 1/4
Inc. Taper Deg.:						22			10 INVERTED
EDP Number:	915-0001	915-0002	915-0003	915-0004	915-0005	915-0006	915-0007	915-0008	915-0009

6mm Diameter Carbide Burs (3mm Hardened Steel Shank)

List 915 — Metric Sizes, Medium Right Hand Spiral

Units: mm

	Cylindrical	Cylindrical Ball End	Round Nose Tree	Pointed Tree	Pointed Cone	End Cut	Ball Shape	Egg Shape	Inverted Taper
									
Style:	**SA-51**	**SC-51**	**SF-51**	**SG-51**	**SM-51**	**SB-51**	**SD-51**	**SE-51**	**SN-51**
Size:	6.35 x 12	6.35 x 12	6.35 x 12	6.35 x 12	6.35 x 12	6.35 x 5	6.35	6.35 x 9	6.35 x 6.35
Inc. Taper Deg.:					22				10 INVERTED
EDP Number:	915-0001-30	915-0002-30	915-0003-30	915-0004-30	915-0005-30	915-0006-30	915-0007-30	915-0008-30	915-0009-30

1/8" Brazed Carbide Shank (1-1/2" OAL)

List 820 — Inch Sizes, Tough Cut

Units: Inch



Style:	SA-52
Size:	5/32 x 1/2
EDP Number:	820-0001



Style:	SA-53
Size:	3/16 x 1/2
EDP Number:	820-0011



Style:	SC-52
Size:	5/32 x 1/2
EDP Number:	820-0002



Style:	SC-53
Size:	3/16 x 1/2
EDP Number:	820-0012



Style:	SF-53
Size:	3/16 x 1/2
EDP Number:	820-0003



Style:	SG-53
Size:	3/16 x 1/2
EDP Number:	820-0004



Style:	SM-53
Size:	3/16 x 1/2
Inc. Taper Deg.:	16
EDP Number:	820-0005



Style:	SE-53
Size:	3/16 x 9/32
EDP Number:	820-0006



Style:	SL-53
Size:	3/16 x 1/2
Inc. Taper Deg.:	14
EDP Number:	820-0007



Style:	SD-53
Size:	3/16
EDP Number:	820-0008



Style:	SH-53
Size:	3/16 x 3/8
EDP Number:	820-0009



Style:	SN-53
Size:	3/16 x 1/4
Inc. Taper Deg.:	10 INVERTED
EDP Number:	820-0010

3mm Brazed Carbide Shank (38mm OAL)

List 820 — Metric Sizes, Tough Cut

Units: mm



Style:	SA-52
Size:	3.97 x 12
EDP Number:	820-0001-30



Style:	SA-53
Size:	4.76 x 12
EDP Number:	820-0011-30



Style:	SC-52
Size:	3.97 x 12
EDP Number:	820-0002-30



Style:	SC-53
Size:	4.76 x 12
EDP Number:	820-0012-30



Style:	SF-53
Size:	4.76 x 12
EDP Number:	820-0003-30



Style:	SG-53
Size:	4.76 x 12
EDP Number:	820-0004-30



Style:	SM-53
Size:	3.97 x 12
Inc. Taper Deg.:	16
EDP Number:	820-0005-30



Style:	SE-53
Size:	4.76 x 12
EDP Number:	820-0006-30



Style:	SL-53
Size:	3.97 x 12
Inc. Taper Deg.:	14
EDP Number:	820-0007-30



Style:	SD-53
Size:	4.76
EDP Number:	820-0008-30



Style:	SH-53
Size:	4.76 x 9
EDP Number:	820-0009-30



Style:	SN-53
Size:	4.76 x 6
Inc. Taper Deg.:	10 INVERTED
EDP Number:	820-0010-30

HYE

1/8" Brazed Carbide Shank (1-1/2" OAL)

List 920 — Inch Sizes, Medium Right Hand Spiral

Units: Inch








Style:	SA-52	SA-53	SC-52	SC-53	SF-53	SG-53
Size:	5/32 x 1/2	3/16x1/2	5/32 x 1/2	3/16 x 1/2	3/16 x 1/2	3/16 x 1/2
EDP Number:	920-0001	920-0011	920-0002	920-0012	920-0003	920-0004








Style:	SM-53	SE-53	SL-53	SD-53	SH-53	SN-53
Size:	3/16 x 1/2	3/16 x 9/32	3/16 x 1/2	3/16	3/16 x 3/8	3/16 x 1/4
Inc. Taper Deg.:	16		14			10 INVERTED
EDP Number:	920-0005	920-0006	920-0007	920-0008	920-0009	920-0010

3mm Brazed Carbide Shank (38mm OAL)

List 920 — Metric Sizes, Medium Right Hand Spiral

Units: mm








Style:	SA-52	SA-53	SC-52	SC-53	SF-53	SG-53
Size:	3.97 x 12	4.76 x 12	3.97 x 12	4.76 x 12	4.76 x 12	4.76 x 12
EDP Number:	920-0001-30	920-0011-30	920-0002-30	920-0012-30	920-0003-30	920-0004-30








Style:	SM-53	SE-53	SL-53	SD-53	SH-53	SN-53
Size:	3.97 x 12	4.76 x 12	3.97 x 12	4.76	4.76 x 9	4.76 x 6
Inc. Taper Deg.:	16		14			10 INVERTED
EDP Number:	920-0005-30	920-0006-30	920-0007-30	920-0008-30	920-0009-30	920-0010-30

HYE

MILLING
Technical



List 8200 - A Brand® AE-VMS : 4 Flute, Multiple Lengths
List 8205 - A Brand® AE-VMS : 4 Flute, Regular Length

Side Milling

Hardness		–	< 30 HRC		–		30-45 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron	Tool Steels Alloy Steels		Stainless Steels		Prehardened Steels Hardened Steels	
Cutting Speed		330-490 SFM	330-490 SFM		200-330 SFM		260-395 SFM	
Depth of Cut		aa=1.5D ar=0.2D 						
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/64	-	25,000	20.0	25,000	20.0	25,000	20.0	25,000	20.0
1/32	-	25,000	20.0	25,000	20.0	25,000	20.0	25,000	20.0
-	1	22,298	17.8	22,298	17.8	22,298	17.8	22,298	17.8
3/64	-	18,728	15.0	18,728	15.0	18,728	15.0	18,728	15.0
-	1.5	14,865	17.8	14,865	17.8	14,865	17.8	14,865	17.8
1/16	-	14,046	16.9	14,046	16.9	14,046	16.9	14,046	16.9
5/64	-	11,237	13.5	11,237	13.5	11,237	13.5	11,237	13.5
-	2	11,149	17.8	11,149	17.8	11,149	17.8	11,149	17.8
3/32	-	9,364	15.0	9,364	15.0	9,364	15.0	9,364	15.0
-	2.5	8,919	17.8	8,919	17.8	8,919	17.8	8,919	17.8
7/64	-	8,724	17.4	8,724	17.4	8,724	17.4	8,724	17.4
–	3	13,896	66.7	12,603	40.3	8,079	19.4	10,664	29.9
–	4	10,422	70.9	9,452	45.4	6,059	21.8	7,998	32.0
3/16	–	8,753	59.5	7,939	38.1	5,089	18.3	6,718	26.9
–	5	8,337	80.0	7,562	48.4	4,847	21.3	6,398	35.8
–	6	6,948	83.4	6,302	60.5	4,201	25.2	5,332	42.7
1/4	–	6,565	78.8	5,954	57.2	3,969	23.8	5,038	40.3
5/16	–	5,252	63.0	4,763	45.7	3,176	19.1	4,031	32.2
–	8	5,211	70.9	4,726	60.5	3,151	23.9	3,999	41.6
3/8	–	4,377	59.5	3,969	50.8	2,646	20.1	3,359	34.9
–	10	4,169	65.0	3,781	52.9	2,521	23.2	3,199	35.8
7/16	–	3,751	58.5	3,402	47.6	2,268	20.9	2,879	32.2
–	12	3,474	54.2	3,151	49.2	2,101	21.0	2,666	29.9
1/2	–	3,282	51.2	2,977	46.4	1,985	19.8	2,519	28.2
5/8	–	2,656	41.4	2,382	37.2	1,405	14.0	2,015	22.6
3/4	–	2,214	41.6	1,985	34.1	1,170	15.0	1,679	20.8
1	–	1,660	31.2	1,469	25.3	878	11.9	1,260	16.1

1. The above milling condition is a guidline for overhang length 3D.
2. Use a rigid and precise machine and holder.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel.
6. Reduce speed and feed as well as depth of cut when high precision is required.
7. Adjust the speed and feed accordingly when the overhang length is longer than specified.

continued on next page

Slotting

Hardness		–		<30 HRC		–		30-45 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		Tool Steels Alloy Steels		Stainless Steels		Prehardened Steels Hardened Steels	
Cutting Speed		260-395 SFM		230-360 SFM		155-260 SFM		195-330 SFM	
Depth of Cut		ap=1.0D				Dia / ap: D≤6 → 0.5D; D>6 → 1.0D 		ap=1.0D	
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min			Speed RPM	Feed in/min
1/64	-	25,000	10.0	25,000	10.0	25,000	10.0	25,000	10.0
1/32	-	25,000	10.0	25,000	10.0	24,427	19.5	25,000	10.0
-	1	25,000	20.0	25,000	20.0	19,389	15.5	22,298	17.8
3/64	-	24,427	19.5	21,578	17.3	16,285	13.0	18,728	15.0
-	1.5	19,389	23.3	17,127	20.6	12,926	15.5	14,865	17.8
1/16	-	18,321	22.0	16,183	19.4	12,214	14.7	14,046	16.9
5/64	-	14,656	17.6	12,947	15.5	9,771	15.6	11,237	13.5
-	2	14,542	23.3	12,845	20.6	9,695	15.5	11,149	17.8
3/32	-	12,214	19.5	10,789	17.3	8,142	19.5	9,364	15.0
-	2.5	11,634	32.6	10,276	24.7	7,756	18.6	8,919	17.8
7/64	-	10,469	29.3	9,248	22.2	8,201	19.7	8,026	16.1
–	3	10,664	38.4	8,564	24.0	7,594	18.2	7,433	17.8
–	4	7,998	38.4	7,150	28.6	5,696	20.5	5,574	17.8
3/16	–	6,718	32.2	6,005	24.0	4,784	17.2	4,682	15.0
–	5	6,398	41.0	5,720	32.0	4,556	21.9	4,460	21.4
–	6	5,332	42.7	4,767	34.3	3,797	15.2	3,716	23.8
1/4	–	5,038	40.3	4,504	32.4	3,588	14.4	3,511	22.5
5/16	–	4,031	32.2	3,603	25.9	2,870	14.9	2,809	18.0
–	8	3,999	35.2	3,575	28.6	2,848	14.8	2,787	22.3
3/8	–	3,359	29.6	3,003	24.0	2,392	13.4	2,341	18.7
–	10	3,199	33.3	2,860	27.5	2,278	14.6	2,230	19.6
7/16	–	2,879	29.9	2,574	24.7	2,050	13.9	2,007	17.7
–	12	2,666	32.0	2,383	25.7	1,899	12.9	2,101	21.8
1/2	–	2,519	30.2	2,252	24.3	1,794	12.2	1,985	20.6
5/8	–	2,015	24.2	1,802	19.5	1,221	12.2	1,588	16.5
3/4	–	1,679	20.2	1,476	15.9	1,018	11.0	1,349	14.0
1	–	1,260	15.1	1,088	12.2	592	6.6	992	10.3

1. The above milling condition is a guidline for overhang length 3D.
2. Use a rigid and precise machine and holder.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel.
6. Reduce speed and feed as well as depth of cut when high precision is required.
7. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to Parameter Reduction Chart below).

Parameter Reduction Chart by Length to Diameter Ratio

Hardness		–		Up to 30 HRC		30-45 HRC		–	
Work Material		Mild Steels Carbon Steels Cast Iron		Tool Steels Alloy Steels		Prehardened Steels Hardened Steels		Stainless Steels	
L/D		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
Slotting	4	80%		70%		70%		60%	
	5	70%		60%		60%		50%	
Side Milling	4	90%		90%		80%		70%	
	5	80%		80%		70%		70%	

List 8210 - A Brand® AE-CR-VMS : 4 Flute, Multiple Lengths, Corner Radius
List 8215 - A Brand® AE-CR-VMS : 4 Flute, Regular Length, Corner Radius

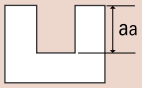
Side Milling

Hardness		–		<30 HRC		–		30-45 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		Tool Steels Alloy Steels		Stainless Steels		Prehardened Steels Hardened Steels	
Cutting Speed		330-490 SFM		330-490 SFM		200-330 SFM		260-395 SFM	
Depth of Cut		aa=1.5D ar=0.2D 							
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
–	3	13,896	55.6	12,765	35.7	8,079	16.2	10,664	25.6
–	4	10,422	62.5	9,573	38.3	6,059	19.4	7,998	25.6
3/16	–	8,753	52.5	8,041	32.2	5,089	16.3	6,718	21.5
–	5	8,337	66.7	7,659	39.8	4,847	17.5	6,398	28.2
–	6	6,948	77.8	6,382	56.2	4,201	21.8	5,332	38.4
1/4	–	6,565	73.5	6,031	53.1	3,969	20.6	5,038	36.3
5/16	–	5,252	58.8	4,824	42.5	3,176	16.5	4,031	29.0
–	8	5,211	66.7	4,787	57.4	3,151	21.4	3,999	36.8
3/8	–	4,377	56.0	4,020	48.2	2,646	18.0	3,359	30.9
–	10	4,169	61.7	3,829	52.1	2,521	20.2	3,199	32.0
7/16	–	3,751	55.5	3,446	46.9	2,268	18.1	2,879	28.8
–	12	3,474	51.4	3,191	48.5	2,101	18.5	2,666	26.7
1/2	–	3,282	48.6	3,015	45.8	1,985	17.5	2,519	25.2
5/8	–	2,626	38.9	2,412	36.7	1,588	14.0	2,015	20.2
3/4	–	2,188	32.4	2,010	30.6	1,323	11.6	1,679	16.8
1	–	1,641	24.3	1,508	22.9	992	8.7	1,260	12.6

1. The above milling condition is a guidline for overhang length 3D.
2. Use a rigid and precise machine and holder.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel.
6. Reduce speed and feed as well as depth of cut when high precision is required.
7. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to Parameter Reduction Chart on next page).

continued on next page

Slotting

Hardness		–		<30 HRC		–		30-45 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		Tool Steels Alloy Steels		Stainless Steels		Prehardened Steels Hardened Steels	
Cutting Speed		260-395 SFM		230-360 SFM		155-260 SFM		160-260 SFM	
Depth of Cut		ae=1.0D				Dia / ae: D≤6 0.5D; D>6 1.0D 		ae=1.0D	
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
–	3	10,664	29.9	9,695	23.3	7,433	14.9	8,402	16.8
–	4	7,998	32.0	7,271	23.3	5,574	15.6	6,302	15.1
3/16	–	6,718	26.9	6,107	19.5	4,682	13.1	5,293	12.7
–	5	6,398	33.3	5,817	27.9	4,460	17.8	5,041	18.1
–	6	5,332	40.5	4,847	27.1	3,716	14.9	4,201	23.5
1/4	–	5,038	38.3	4,580	25.6	3,511	14.0	3,969	22.2
5/16	–	4,031	30.6	3,664	20.5	2,809	11.2	3,176	17.8
–	8	3,999	33.6	3,635	27.6	2,787	13.4	3,151	22.7
3/8	–	3,359	28.2	3,053	23.2	2,341	11.2	2,646	19.1
–	10	3,199	32.0	2,908	25.6	2,230	12.5	2,521	20.2
7/16	–	2,879	28.8	2,617	23.0	2,007	11.2	2,268	18.1
–	12	2,666	29.9	2,424	25.2	1,858	11.9	2,101	19.3
1/2	–	2,519	28.2	2,290	23.8	1,756	11.2	1,985	18.3
5/8	–	2,015	22.6	1,832	19.1	1,405	9.0	1,588	14.6
3/4	–	1,679	18.8	1,527	15.9	1,170	7.5	1,323	12.2
1	–	1,260	14.1	1,145	11.9	878	5.6	992	9.1

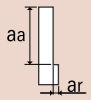
1. The above milling condition is a guidline for overhang length 3D.
2. Use a rigid and precise machine and holder.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel.
6. Reduce speed and feed as well as depth of cut when high precision is required.
7. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to Parameter Reduction Chart below).

Parameter Reduction Chart by Length to Diameter Ratio

Hardness		–		Up to 30 HRC		30-45 HRC		–	
Work Material		Mild Steels Carbon Steels Cast Iron		Tool Steels Alloy Steels		Prehardened Steels Hardened Steels		Stainless Steels	
L/D		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
Slotting	4	80%		70%		70%		60%	
	5	70%		60%		60%		50%	
Side Milling	4	90%		90%		80%		70%	
	5	80%		80%		70%		70%	

List 8206 - A Brand® AE-VMSS : 4 Flute, Stub Length

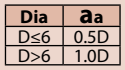
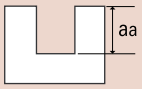
Side Milling

Hardness	–		–		–		30-45 HRC	
Work Material	Mild Steels		Alloy Steels Tool Steels		Stainless 300, 400		Hardened Steels	
Cutting Speed	330-495 SFM		330-495 SFM		195-330 SFM		260-395 SFM	
Depth of Cut	a_a=1.5D a_r=0.2D 							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1.0	25,000	21.7	25,000	23.7	22,300	17.7	25,000	20.1
1.5	25,000	35.5	21,200	29.9	14,900	18.1	17,000	21.3
2.0	19,900	56.3	17,500	33.1	11,100	18.5	14,300	24.8
2.5	15,900	62.6	14,000	35.4	8,900	18.9	11,500	27.2
3.0	13,800	65.4	12,700	42.1	8,000	18.9	10,600	29.9
4.0	10,400	72.0	9,600	45.3	6,000	20.9	8,000	31.5
5.0	8,300	78.3	7,600	48.0	4,800	22.0	6,400	35.4
6.0	6,900	81.5	6,400	60.6	4,200	25.2	5,300	41.7
8.0	5,200	69.7	4,800	60.6	3,200	24.0	4,000	40.9
10.0	4,100	64.6	3,800	53.9	2,500	22.8	3,200	35.4
12.0	3,500	55.1	3,200	50.4	2,100	20.9	2,700	29.9

1. The above milling condition is a guidline for overhang length 3D.
2. Use a rigid and precise machine and holder.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel.
6. Reduce speed and feed as well as depth of cut when high precision is required.
7. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to Parameter Reduction Chart on next page).

continued on next page

Slotting

Hardness	–		–		–		30-45 HRC	
Work Material	Mild Steels		Alloy Steels Tool Steels		Stainless 300, 400		Hardened Steels	
Cutting Speed	260-395 SFM		330-360 SFM		160-260 SFM		195-330 SFM	
Depth of Cut	ar=1D 				 			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1.0	25,000	19.5	25,000	18.1	19,100	13.4	22,300	14.2
1.5	19,100	24.0	17,000	18.9	12,700	14.2	14,900	16.5
2.0	14,300	24.8	12,700	20.1	9,600	15.0	11,100	17.3
2.5	11,500	30.7	10,200	22.4	7,600	16.9	8,900	18.1
3.0	10,600	36.6	9,600	27.2	7,400	18.5	8,500	20.1
4.0	8,000	37.8	7,200	28.3	5,600	19.3	6,400	20.1
5.0	6,400	40.2	5,700	31.5	4,500	22.0	5,100	24.0
6.0	5,300	40.6	4,800	35.4	3,700	14.6	4,200	26.4
8.0	4,000	35.8	3,600	28.3	2,800	14.6	3,200	25.2
10.0	3,200	33.1	2,900	27.6	2,200	13.8	2,500	21.7
12.0	2,700	31.9	2,400	26.4	1,900	13.0	2,100	21.7

1. The above milling condition is a guidline for overhang length 3D.
2. Use a rigid and precise machine and holder.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel.
6. Reduce speed and feed as well as depth of cut when high precision is required.
7. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to Parameter Reduction Chart below).

Parameter Reduction Chart by Length to Diameter Ratio

Hardness		–		Up to 30 HRC		30-45 HRC		–	
Work Material		Mild Steels Carbon Steels Cast Iron		Tool Steels Alloy Steels		Prehardened Steels Hardened Steels		Stainless Steels	
L/D		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
Slotting	4	80%		70%		70%		60%	
	5	70%		60%		60%		50%	
Side Milling	4	90%		90%		80%		70%	
	5	80%		80%		70%		70%	

List 8230 - A Brand® AE-LN-VMSS : 4 Flute, Stub Length, Long Neck
List 8235 - A Brand® AE-LN-VMSS : 4 Flute, Stub Length, Long Neck

Side Milling

Hardness		–		–		–		30-45 HRC	
Work Material		Mild Steels		Alloy Steels Tool Steels		Stainless 300, 400		Hardened Steel	
Cutting Speed		260-395 SFM		230-360 SFM		130-260 SFM		160-260 SFM	
Depth of Cut		aa=1.5D ar=0.2D							
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	5,520	65.4	5,120	48.4	2,940	17.7	3,710	29.1
1/4	-	5,221	62.7	4,840	46.5	2,779	16.7	3,511	28.1
5/16	-	4,177	50.1	3,872	37.2	2,223	13.3	2,809	22.5
-	8	4,160	55.9	3,840	48.4	2,240	16.9	2,800	28.7
3/8	-	3,491	47.5	3,226	41.3	1,883	14.3	2,351	24.5
-	10	3,280	51.6	3,040	43.3	1,750	16.1	2,240	24.8
7/16	-	2,949	46.0	2,739	39.4	1,579	14.5	2,015	22.6
-	12	2,800	44.1	2,560	40.2	1,470	14.6	1,890	20.9
1/2	-	2,649	41.3	2,420	37.7	1,389	13.9	1,786	20.0
5/8	-	2,107	32.9	1,936	30.2	1,099	11.0	1,405	15.7
3/4	-	1,756	27.4	1,613	25.2	916	9.2	1,170	13.1
1	-	1,317	21.1	1,210	19.4	687	6.9	878	9.8

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.
3. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
4. Please use water-soluble coolant when machining stainless steel.
5. Reduce speed and feed as well as depth of cut when high precision is required.

List 8220 - A Brand® AE-LN-CR-VMS : 4 Flute, Long Neck, Corner Radius

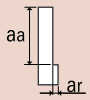
Side Milling

Hardness	–		<30 HRC		–		30-45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Alloy Steels		Stainless Steels		Prehardened Steels Hardened Steels	
Cutting Speed	260-395 SFM		230-360 SFM		130-260 SFM		130-260 SFM	
Depth of Cut	a_a=1.5D a_r=0.02D 							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	5,191	62.3	4,809	46.2	2,748	16.5	3,511	28.1
5/16	4,153	49.8	3,847	36.9	2,198	13.2	2,809	22.5
3/8	3,461	47.1	3,206	41.0	1,832	13.9	2,341	24.3
7/16	2,966	46.3	2,748	39.6	1,570	14.4	2,007	22.5
1/2	2,595	40.5	2,405	37.5	1,374	13.7	1,756	19.7
5/8	2,076	32.4	1,924	30.0	1,099	11.0	1,405	15.7
3/4	1,730	27.0	1,603	25.0	916	9.2	1,170	13.1
1	1,298	20.2	1,202	18.8	687	6.9	878	10.5

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.
3. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
4. Please use water-soluble coolant when machining stainless steel.
5. Reduce speed and feed as well as depth of cut when high precision is required.

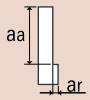
List 8201 - A Brand® AE-VML : 4 Flute, Long Length
List 8207 - A Brand® AE-VML : 4 Flute, Long Length
List 8202 - A Brand® AE-NIK-VML : 4 Flute, Long Length, Nicks
List 8208 - A Brand® AE-NIK-VML : 4 Flute, Long Length, Nicks

3D Side Milling (ar=0.05D)

Hardness		–		–		–		30-45 HRC	
Work Material		Mild Steels		Alloy Steels Tool Steels		Stainless 300, 400		Hardened Steels	
Cutting Speed		525 (450-590) SFM		490 (425-560) SFM		410 (330-460) SFM		460 (390-525) SFM	
Depth of Cut		aa=3D ar=0.05D 							
Mill Dia. Inch	Mill Dia. mm	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	8,500	97.6	8,000	85.8	6,600	65.4	7,400	79.1
1/4	-	8,031	93.2	7,557	81.6	6,229	62.3	6,992	75.5
5/16	-	6,424	74.5	6,046	65.3	4,983	49.8	5,594	60.4
-	8	6,400	73.6	6,000	64.2	5,000	49.6	5,600	59.8
3/8	-	5,374	62.3	5,038	54.4	4,204	42.0	4,702	50.8
-	10	5,100	68.1	4,800	56.7	4,000	44.1	4,500	53.1
-	12	4,200	56.3	4,000	47.2	3,300	36.2	3,700	43.7
1/2	-	3,969	54.0	3,779	45.3	3,115	33.6	3,496	42.0

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.
3. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
4. Please use water-soluble coolant when machining stainless steel.

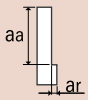
3D Side Milling (ar=0.1D)

Hardness		–		–		–		30-45 HRC	
Work Material		Mild Steels		Alloy Steels Tool Steels		Stainless 300, 400		Hardened Steels	
Cutting Speed		720 (655-790) SFM		560 (490-620) SFM		425 (360-490) SFM		440 (360-490) SFM	
Depth of Cut		aa=3D ar=0.1D 							
Mill Dia. Inch	Mill Dia. mm	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	11,700	125.2	9,000	89.4	6,900	63.0	7,200	71.3
1/4	-	11,053	119.4	8,504	85.0	6,519	60.0	6,809	68.1
5/16	-	8,843	95.5	6,803	68.0	5,215	48.0	5,447	54.5
-	8	8,800	94.1	6,800	67.3	5,200	47.6	5,400	53.5
3/8	-	7,389	79.8	5,710	57.1	4,366	40.2	4,539	45.4
-	10	7,000	88.2	5,400	59.4	4,100	42.1	4,300	47.2
-	12	5,800	73.2	4,500	49.6	3,500	35.8	3,600	39.8
1/2	-	5,481	70.2	4,252	47.6	3,305	34.4	3,405	38.1

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.
3. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
4. Please use water-soluble coolant when machining stainless steel.

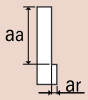
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3D Side Milling (a_r=0.15D)

Hardness		–		–		–		30-45 HRC	
Work Material		Mild Steels		Alloy Steels Tool Steels		Stainless 300, 400		Hardened Steels	
Cutting Speed		460 (395-525) SFM		330 (260-395) SFM		280 (195-330) SFM		295 (230-360) SFM	
Depth of Cut		a_a=3D a_r=0.15D 							
Mill Dia. Inch	Mill Dia. mm	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	7,400	73.2	5,600	51.2	4,500	37.4	4,800	43.7
1/4	-	6,992	69.9	5,298	48.7	4,260	35.8	4,534	41.7
5/16	-	5,594	55.9	4,238	39.0	3,408	28.6	3,627	33.4
-	8	5,600	55.5	4,200	38.2	3,400	28.3	3,600	33.1
3/8	-	4,702	47.0	3,532	32.5	2,860	24.0	3,023	27.8
-	10	4,500	53.1	3,300	33.9	2,700	25.6	2,900	29.5
-	12	3,700	43.7	2,800	28.7	2,300	21.7	2,400	24.4
1/2	-	3,496	42.0	2,649	27.5	2,176	20.9	2,267	22.7

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.
3. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
4. Please use water-soluble coolant when machining stainless steel.

3D Side Milling (a_r=0.2D)

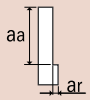
Hardness		–		–		–		30-45 HRC	
Work Material		Mild Steels		Alloy Steels Tool Steels		Stainless 300, 400		Hardened Steels	
Cutting Speed		330 (260-395) SFM		260 (195-330) SFM		210 (130-260) SFM		230 (165-295) SFM	
Depth of Cut		a_a=3D a_r=0.2D 							
Mill Dia. Inch	Mill Dia. mm	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	5,300	48.4	4,200	35.0	3,500	26.4	3,700	30.7
1/4	-	5,008	46.1	3,969	33.3	3,313	25.2	3,496	29.4
5/16	-	4,006	36.9	3,176	26.7	2,650	20.1	2,797	23.5
-	8	4,000	36.6	3,200	26.8	2,600	19.7	2,800	23.2
3/8	-	3,359	30.9	2,687	22.6	2,188	16.6	2,351	19.7
-	10	3,200	35.4	2,500	23.6	2,100	18.1	2,200	20.9
-	12	2,700	29.9	2,100	19.7	1,700	14.6	1,900	18.1
1/2	-	2,550	28.6	1,985	18.3	1,603	13.5	1,794	17.2

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.
3. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
4. Please use water-soluble coolant when machining stainless steel.

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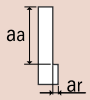
List 8201 - A Brand® AE-VML : 4 Flute, Long Length (Continued)
List 8207 - A Brand® AE-VML : 4 Flute, Long Length (Continued)
List 8202 - A Brand® AE-NIK-VML : 4 Flute, Long Length, Nicks (Continued)
List 8208 - A Brand® AE-NIK-VML : 4 Flute, Long Length, Nicks (Continued)

4D Side Milling (ar=0.05D)

Hardness		–		–		–		30-45 HRC	
Work Material		Mild Steels		Alloy Steels Tool Steels		Stainless 300, 400		Hardened Steels	
Cutting Speed		460 (395-525) SFM		425 (360-490) SFM		375 (295-425) SFM		395 (330-460) SFM	
Depth of Cut		aa=4D ar=0.05D 							
Mill Dia. Inch	Mill Dia. mm	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	7,400	79.1	6,900	68.5	6,100	55.9	6,400	63.4
1/4	-	6,992	75.5	6,519	65.2	5,771	53.1	6,046	60.5
5/16	-	5,594	60.4	5,582	55.8	4,617	42.5	4,837	48.4
-	8	5,600	59.8	5,200	51.6	4,600	42.1	4,800	47.6
3/8	-	4,702	50.8	4,366	43.7	3,868	35.6	4,031	40.3
-	10	4,500	56.7	4,100	48.4	3,700	37.8	3,800	44.9
-	12	3,700	46.5	3,500	41.3	3,100	31.9	3,200	37.8
1/2	-	3,496	43.4	3,305	39.7	2,931	30.5	3,023	36.3

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.
3. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
4. Please use water-soluble coolant when machining stainless steel.

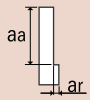
4D Side Milling (ar=0.1D)

Hardness		–		–		–		30-45 HRC	
Work Material		Mild Steels		Alloy Steels Tool Steels		Stainless 300, 400		Hardened Steels	
Cutting Speed		655 (590-720) SFM		525 (460-590) SFM		410 (360-460) SFM		425 (360-490) SFM	
Depth of Cut		aa=4D ar=0.1D 							
Mill Dia. Inch	Mill Dia. mm	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	10,600	105.1	8,500	77.6	6,600	55.1	6,900	63.0
1/4	-	10,015	100.2	8,031	73.9	6,229	52.3	6,519	60.0
5/16	-	8,012	80.1	6,424	59.1	4,983	41.9	5,215	48.0
-	8	8,000	79.5	6,400	58.3	5,000	41.7	5,200	47.6
3/8	-	6,718	67.2	5,374	49.4	4,204	35.3	4,366	40.2
-	10	6,400	75.6	5,100	52.4	4,000	37.8	4,100	42.1
-	12	5,300	62.6	4,200	42.9	3,300	31.1	3,500	35.8
1/2	-	5,008	60.1	3,969	41.3	3,115	29.9	3,305	34.4

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.
3. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
4. Please use water-soluble coolant when machining stainless steel.

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4D Side Milling (ar=0.15D)

Hardness		–		–		–		30-45 HRC	
Work Material		Mild Steels		Alloy Steels Tool Steels		Stainless 300, 400		Hardened Steels	
Cutting Speed		440 (360-490) SFM		375 (330-460) SFM		245 (160-295) SFM		280 (195-330) SFM	
Depth of Cut		aa=4D ar=0.15D 							
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
Inch	mm								
-	6	7,200	65.7	6,100	50.8	4,000	30.3	4,500	37.4
1/4	-	6,809	62.6	5,771	48.5	3,786	28.8	4,260	35.8
5/16	-	5,447	50.1	4,617	38.8	3,029	23.0	3,408	28.6
-	8	5,400	49.2	4,600	38.6	3,000	22.8	3,400	28.3
3/8	-	4,539	41.8	3,868	32.5	2,524	19.2	2,860	24.0
-	10	4,300	47.2	3,700	35.0	2,400	20.9	2,700	25.6
-	12	3,600	39.8	3,100	29.1	2,000	17.3	2,300	21.7
1/2	-	3,405	38.1	2,931	27.0	1,893	16.7	2,176	20.9

1. Use a rigid and precise machine and holder.
2. Please use a suitable fluid with high smoke retardant properties.
3. During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
4. Please use water-soluble coolant when machining stainless steel.

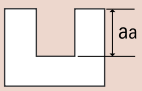
List 2055 - EXOPRO® UVX-Ni : 5 Flute - Corner Radius

Side Milling

Hardness		
Work Material	High Temp. Alloys Inconel Hastelloy	
Cutting Speed	125-150 SFM	
Depth of Cut	a_a= ≤ 0.5D a_r= ≤ 0.3D	
Mill Dia.	**Speed RPM**	**Feed in/min**
1/4	2,100	11.0
5/16	1,600	10.0
3/8	1,400	10.0
1/2	1,100	9.5
5/8	800	9.0
3/4	650	8.0
1	500	7.0

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed.
3. Use a suitable cutting fluid with high smoke retardant.

Slotting

Hardness		
Work Material	High Temp. Alloys Inconel Hastelloy	
Cutting Speed	75-100 SFM	
Depth of Cut	a_a= ≤ 0.5D	
Mill Dia.	**Speed RPM**	**Feed in/min**
1/4	1,300	7.0
5/16	1,000	6.5
3/8	900	6.0
1/2	700	5.5
5/8	500	5.0
3/4	400	4.5
1	300	4.0

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed.
3. Use a suitable cutting fluid with high smoke retardant.

List 9510 - EXOPRO® PHX : Deep Feed, Ball Nose
List 9590 - EXOPRO® PHX : 3 Flute, Long Neck, Ball Nose
List 9581 - EXOPRO® PHX : Pencil-Neck, Deep-Feed, Ball Nose

Side Milling

Hardness			<38 HRC				38-53 HRC				<53 HRC				<55 HRC				
Work Material			Hardened and Pre-hardened Steels																
Cutting Speed			60-400 SFM				60-310 SFM				105-250 SFM				62-410 SFM				
R (mm)	L/D	Recom'd Cutting Angle	Speed (RPM)	Feed (in/min)	DOC (in) Aa	DOC (in) Ar	Speed (RPM)	Feed (in/min)	DOC (in) Aa	DOC (in) Ar	Speed (RPM)	Feed (in/min)	DOC (in) Aa	DOC (in) Ar	Speed (RPM)	Feed (in/min)	DOC (in) Aa	DOC (in) Ar	Clearance (in)
0.5	6	0.3°	18,000	39.4	0.0020	0.0063	18,000	35.4	0.0020	0.0063	18,000	11.0	0.0003	0.0012	18,000	47.2	0.0012	0.0012	0.0020
	10	0.3°	16,000	31.5	0.0016	0.0063	16,000	31.5	0.0016	0.0063	16,000	4.7	0.0001	0.0118	16,000	39.4	0.0012	0.0012	0.0012
	15	0.3°	8,000	16.5	0.0012	0.0063	8,000	16.5	0.0012	0.0063	-	-	-	-	8,000	19.7	0.0012	0.0012	0.0012
	20	0.3°	6,000	11.8	0.0008	0.0047	6,000	11.8	0.0008	0.0047	-	-	-	-	6,000	15.0	0.0012	0.0012	0.0012
	25	0.3°	6,000	5.1	0.0008	0.0031	6,000	5.1	0.0008	0.0031	-	-	-	-	6,000	13.8	0.0012	0.0012	0.0012
	30	0.3°	6,000	3.5	0.0004	0.0020	6,000	3.5	0.0004	0.0020	-	-	-	-	6,000	9.8	0.0012	0.0012	0.0012
0.75	6	0.3°	18,000	59.1	0.0039	0.0118	16,000	51.2	0.0039	0.0118	16,000	25.6	0.0028	0.0059	18,000	43.3	0.0016	0.0016	0.0020
	10	0.3°	15,000	43.3	0.0024	0.0098	15,000	37.4	0.0024	0.0098	15,000	12.6	0.0004	0.0039	15,000	35.4	0.0016	0.0016	0.0012
	16	0.3°	7,500	9.1	0.0008	0.0079	7,500	7.9	0.0008	0.0079	7,500	11.8	0.0003	0.0020	7,500	17.7	0.0016	0.0016	0.0012
1.0	6	0.3°	18,000	63.0	0.0079	0.0236	15,000	55.1	0.0079	0.0157	12,000	23.6	0.0059	0.0059	15,000	708.7	0.0024	0.0020	0.0039
	10	0.3°	12,000	49.2	0.0055	0.0157	12,000	43.3	0.0055	0.0157	12,000	23.6	0.0039	0.0020	12,000	59.1	0.0024	0.0020	0.0028
	15	0.3°	7,800	32.3	0.0055	0.0157	7,800	30.7	0.0055	0.0157	7,800	17.7	0.0028	0.0020	7,800	38.6	0.0024	0.0020	0.0028
	20	0.3°	6,200	25.6	0.0051	0.0157	6,200	23.6	0.0051	0.0118	6,200	13.4	0.0020	0.0020	6,200	23.6	0.0024	0.0020	0.0020
	25	0.3°	4,700	19.7	0.0047	0.0118	4,700	19.7	0.0047	0.0118	-	-	-	-	4,700	17.7	0.0024	0.0020	0.0020
	30	0.3°	3,500	15.7	0.0039	0.0118	3,500	15.7	0.0039	0.0118	-	-	-	-	3,500	17.7	0.0024	0.0020	0.0020
	35	0.3°	3,500	15.7	0.0028	0.0118	3,500	15.7	0.0028	0.0118	-	-	-	-	3,500	17.7	0.0024	0.0020	0.0012
	40	0.3°	3,500	11.8	0.0028	0.0098	3,500	11.8	0.0028	0.0098	-	-	-	-	3,500	17.7	0.0024	0.0020	0.0012
	45	0.3°	3,500	7.9	0.0028	0.0079	3,500	7.9	0.0028	0.0079	-	-	-	-	3,500	17.7	0.0024	0.0020	0.0012
	50	0.3°	3,500	5.9	0.0024	0.0039	3,500	5.9	0.0024	0.0039	-	-	-	-	3,500	17.7	0.0024	0.0020	0.0012
	60	0.3°	3,500	5.9	0.0020	0.0039	3,500	5.9	0.0020	0.0039	-	-	-	-	3,500	17.7	0.0024	0.0020	0.0012
1.5	10	0.3°	12,000	74.8	0.0083	0.0197	8,000	47.2	0.0083	0.0197	8,000	27.6	0.0051	0.0039	11,000	80.7	0.0035	0.0031	0.0039
	15	0.3°	10,000	61.0	0.0079	0.0197	8,000	47.2	0.0079	0.0197	8,000	21.7	0.0039	0.0039	10,000	74.8	0.0035	0.0031	0.0028
	20	0.3°	7,500	45.3	0.0075	0.0197	7,200	43.3	0.0075	0.0197	7,200	18.9	0.0024	0.0028	7,500	55.1	0.0035	0.0031	0.0028
	25	0.3°	4,800	29.5	0.0075	0.0197	4,600	27.6	0.0075	0.0197	4,600	12.6	0.0016	0.0020	4,800	35.4	0.0035	0.0031	0.0020
	30	0.3°	4,000	24.8	0.0063	0.0157	3,400	19.7	0.0063	0.0157	3,400	9.4	0.0008	0.0012	3,800	28.3	0.0035	0.0031	0.0012
	40	0.3°	2,800	17.3	0.0051	0.0157	2,600	15.7	0.0051	0.0157	-	-	-	-	2,600	19.7	0.0035	0.0031	0.0012
	50	0.3°	2,200	13.8	0.0039	0.0157	2,200	11.8	0.0039	0.0157	-	-	-	-	2,200	15.7	0.0035	0.0031	0.0012
	60	0.3°	2,200	13.8	0.0028	0.0157	2,200	11.8	0.0028	0.0157	-	-	-	-	2,200	15.7	0.0035	0.0031	0.0012
2.0	10	0.5°	9,600	78.7	0.0118	0.0236	6,000	49.2	0.0118	0.0236	6,000	31.5	0.0059	0.0039	9,500	94.5	0.0047	0.0039	0.0039
	15	0.5°	9,300	74.8	0.0106	0.0236	6,000	47.2	0.0106	0.0236	6,000	31.5	0.0047	0.0039	9,000	88.6	0.0047	0.0039	0.0039
	20	0.5°	7,600	61.0	0.0098	0.0236	6,000	45.3	0.0098	0.0236	6,000	27.6	0.0039	0.0028	8,200	80.7	0.0047	0.0039	0.0039
	25	0.5°	6,100	49.2	0.0091	0.0236	5,500	43.3	0.0091	0.0236	5,500	17.7	0.0020	0.0028	5,500	53.1	0.0047	0.0039	0.0028
	30	0.5°	5,000	41.3	0.0079	0.0236	4,500	31.5	0.0079	0.0236	4,500	13.8	0.0012	0.0020	4,500	43.3	0.0047	0.0039	0.0028
	35	0.5°	3,600	29.5	0.0063	0.0197	3,600	25.6	0.0063	0.0197	3,600	11.0	0.0004	0.0012	3,600	35.4	0.0047	0.0039	0.0020
	40	0.5°	3,000	24.8	0.0047	0.0197	3,000	21.7	0.0047	0.0197	3,000	5.9	0.0003	0.0004	3,000	29.5	0.0047	0.0039	0.0020
	45	0.5°	2,700	21.7	0.0039	0.0157	2,700	19.7	0.0039	0.0157	-	-	-	-	2,700	26.8	0.0047	0.0039	0.0012
	50	0.5°	2,500	20.5	0.0039	0.0157	2,500	17.7	0.0039	0.0157	-	-	-	-	2,500	24.8	0.0047	0.0039	0.0012
	60	0.5°	2,100	16.9	0.0031	0.0157	2,100	15.7	0.0031	0.0157	-	-	-	-	2,100	20.9	0.0047	0.0039	0.0012

1. The above mentioned conditions according to projection lengths are intended as general guidelines for reference only. Adjustments should be made based on actual milling conditions.
2. For 0.5R - 2.5R, the machining conditions are based on chucking the tool up to the base of the neck.
3. Highly rigid machines and tool holders should be used.
4. Tool vibrations should be kept at a minimum level for maximum accuracy.
5. In the case of linear machining, do not use the Ar value, instead refer to the Aa value.
6. More stable high-feed machining in the corners can be attained by setting an R insertion or decelleration on the CAM or machine side.
7. When cutting load fluctuates (in the corners, etc.) or when high-precision is required, be sure to control the rotational speed.
8. When cutting at greater than the recommended cutting angle, reduce the feed.

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List 9510 - EXOPRO® PHX : Deep Feed, Ball Nose (Continued)
List 9590 - EXOPRO® PHX : 3 Flute, Long Neck, Ball Nose (Continued)
List 9581 - EXOPRO® PHX : Pencil-Neck, Deep-Feed, Ball Nose (Continued)

Side Milling

Hardness			<38 HRC				38-53 HRC				<53 HRC				<55 HRC				
Work Material			Hardened and Pre-hardened Steels																
Cutting Speed			60-400 SFM				60-310 SFM				105-250 SFM				62-410 SFM				
R (mm)	L/D	Recom'd Cutting Angle	Speed (RPM)	Feed (in/min)	DOC (in) Aa	DOC (in) Ar	Speed (RPM)	Feed (in/min)	DOC (in) Aa	DOC (in) Ar	Speed (RPM)	Feed (in/min)	DOC (in) Aa	DOC (in) Ar	Speed (RPM)	Feed (in/min)	DOC (in) Aa	DOC (in) Ar	Clearance (in)
2.5	10	0.5°	7,700	74.8	0.0138	0.0315	4,800	43.3	0.0138	0.0315	4,800	35.4	0.0079	0.0039	7,700	94.5	0.0059	0.0472	0.0039
	15	0.5°	7,700	74.8	0.0118	0.0315	4,800	39.4	0.0118	0.0315	4,800	33.5	0.0063	0.0039	6,100	74.8	0.0059	0.0472	0.0039
	20	0.5°	7,700	70.9	0.0118	0.0315	4,800	37.4	0.0118	0.0315	4,800	27.6	0.0047	0.0028	6,100	74.8	0.0059	0.0472	0.0039
	25	0.5°	5,100	51.2	0.0098	0.0315	4,800	35.4	0.0098	0.0315	4,800	25.6	0.0024	0.0020	5,100	63.0	0.0059	0.0472	0.0028
	30	0.5°	5,100	47.2	0.0079	0.0236	4,800	33.5	0.0079	0.0236	4,800	19.7	0.0012	0.0020	5,100	63.0	0.0059	0.0472	0.0028
	35	0.5°	4,400	43.3	0.0055	0.0236	4,400	29.5	0.0055	0.0236	4,400	15.7	0.0006	0.0012	4,400	53.1	0.0059	0.0472	0.0020
	40	0.5°	3,100	29.5	0.0039	0.0236	3,100	25.6	0.0039	0.0236	3,100	10.2	0.0003	0.0012	3,100	37.4	0.0059	0.0472	0.0020
3.0	24	0.5°	6,400	74.8	0.0169	0.0472	4,000	47.2	0.0118	0.0394	4,000	35.4	0.0118	0.0039	6,500	57.1	0.0071	0.0063	0.0039
	30	0.5°	5,100	59.1	0.0134	0.0472	4,000	45.3	0.0118	0.0394	4,000	35.4	0.0098	0.0039	5,100	76.8	0.0071	0.0063	0.0039
	36	0.5°	4,200	49.2	0.0150	0.0472	4,000	43.3	0.0118	0.0394	4,000	29.5	0.0079	0.0028	4,200	62.2	0.0071	0.0063	0.0028
	42	0.5°	3,700	41.3	0.0079	0.0354	3,700	39.4	0.0079	0.0394	3,700	19.7	0.0059	0.0020	3,700	55.1	0.0071	0.0063	0.0028
	48	0.5°	3,600	29.5	0.0059	0.0354	2,600	27.6	0.0059	0.0315	2,600	15.7	0.0039	0.0012	2,600	38.6	0.0071	0.0063	0.0020
	54	0.5°	2,100	24.8	0.0039	0.0315	2,100	23.6	0.0039	0.0315	2,100	9.4	0.0020	0.0012	2,100	31.5	0.0071	0.0063	0.0020
	66	0.5°	1,900	21.7	0.0031	0.0276	1,900	19.7	0.0031	0.0276	-	-	-	-	1,900	27.6	0.0071	0.0063	0.0012
	80	0.5°	1,700	17.7	0.0031	0.0236	1,700	15.7	0.0031	0.0236	-	-	-	-	1,700	25.6	0.0071	0.0063	0.0012
4.0	30	0.5°	4,800	90.6	0.0177	0.0591	3,000	49.6	0.0118	0.0591	3,000	41.3	0.0118	0.0059	4,800	94.5	0.0094	0.0083	0.0039
	40	0.5°	3,800	70.9	0.0150	0.0512	3,000	47.2	0.0118	0.0512	3,000	41.3	0.0118	0.0039	3,800	74.8	0.0094	0.0083	0.0039
	48	0.5°	3,200	59.1	0.0110	0.0472	3,000	43.3	0.0098	0.0472	3,000	35.4	0.0098	0.0039	3,200	63.0	0.0094	0.0083	0.0028
	56	0.5°	2,700	51.2	0.0079	0.0433	2,700	39.4	0.0079	0.0433	2,700	31.5	0.0079	0.0028	2,700	53.1	0.0094	0.0083	0.0028
	64	0.5°	1,900	35.4	0.0079	0.0394	1,900	27.6	0.0067	0.0394	1,900	19.7	0.0067	0.0028	1,900	37.4	0.0094	0.0083	0.0020
	80	0.5°	1,500	27.6	0.0059	0.0315	1,500	21.7	0.0055	0.0315	-	-	-	-	1,500	29.5	0.0094	0.0083	0.0012
	100	0.5°	1,200	23.6	0.0059	0.0315	1,200	15.7	0.0039	0.0315	-	-	-	-	1,200	23.6	0.0094	0.0083	0.0012
	120	0.5°	1,000	19.7	0.0039	0.0276	1,000	13.8	0.0028	0.0276	-	-	-	-	1,000	19.7	0.0094	0.0083	0.0012
5.0	35	0.5°	3,800	90.6	0.0256	0.0709	2,400	39.4	0.0157	0.0630	2,400	33.5	0.0157	0.0059	3,800	94.5	0.0118	0.0106	0.0039
	50	0.5°	3,100	74.8	0.0217	0.0709	2,400	39.4	0.0118	0.0630	2,400	33.5	0.0118	0.0059	3,100	76.8	0.0118	0.0106	0.0039
	60	0.5°	2,500	59.1	0.0181	0.0630	2,400	39.4	0.0118	0.0591	2,400	33.5	0.0118	0.0039	2,500	61.0	0.0118	0.0106	0.0039
	70	0.5°	2,200	51.2	0.0134	0.0630	2,200	35.4	0.0118	0.0591	2,200	31.5	0.0118	0.0039	2,200	53.1	0.0118	0.0106	0.0028
	80	0.5°	1,500	31.5	0.0094	0.0630	1,500	23.6	0.0079	0.0591	1,500	23.6	0.0079	0.0028	1,500	37.4	0.0118	0.0106	0.0028
	100	0.5°	1,200	23.6	0.0059	0.0591	1,200	19.7	0.0047	0.0591	1,200	19.7	0.0047	0.0028	1,200	29.5	0.0118	0.0106	0.0020
	120	0.5°	1,050	19.7	0.0039	0.0512	1,000	15.7	0.0039	0.0512	-	-	-	-	1,050	25.6	0.0118	0.0106	0.0020
	140	0.5°	850	15.7	0.0028	0.0512	800	13.8	0.0028	0.0512	-	-	-	-	850	19.7	0.0118	0.0106	0.0012
	160	0.5°	700	12.6	0.0028	0.0394	700	11.8	0.0028	0.0394	-	-	-	-	700	17.7	0.0118	0.0106	0.0012
6.0	45	0.5°	3,200	66.9	0.0315	0.0787	2,000	31.5	0.0315	0.0709	2,000	31.5	0.0236	0.0059	3,200	94.5	0.0142	0.0126	0.0059
	60	0.5°	2,500	51.2	0.0256	0.0787	2,000	31.5	0.0256	0.0709	2,000	31.5	0.0197	0.0059	2,500	74.8	0.0142	0.0126	0.0059
	70	0.5°	2,100	43.3	0.0224	0.0787	2,000	31.5	0.0224	0.0709	2,000	31.5	0.0197	0.0039	2,100	63.0	0.0142	0.0126	0.0039
	85	0.5°	1,800	37.4	0.0165	0.0709	1,500	23.6	0.0165	0.0669	1,500	23.6	0.0157	0.0039	1,800	53.1	0.0142	0.0126	0.0039
	100	0.5°	1,300	27.2	0.0118	0.0709	1,200	19.7	0.0118	0.0669	1,200	19.7	0.0118	0.0039	1,300	38.6	0.0142	0.0126	0.0039
	120	0.5°	1,000	20.9	0.0098	0.0591	1,000	16.5	0.0098	0.0591	-	-	-	-	1,000	29.5	0.0142	0.0126	0.0020
	140	0.5°	900	18.5	0.0079	0.0591	900	15.0	0.0079	0.0591	-	-	-	-	900	26.8	0.0142	0.0126	0.0020
	160	0.5°	700	14.6	0.0059	0.0512	700	11.8	0.0059	0.0512	-	-	-	-	700	20.9	0.0142	0.0126	0.0020
8.0	55	0.5°	2,400	63.0	0.0394	0.0866	1,500	23.6	0.0394	0.0709	1,500	23.6	0.0315	0.0059	2,400	94.5	0.0189	0.0157	0.0079
	80	0.5°	1,900	49.2	0.0354	0.0866	1,500	23.6	0.0354	0.0709	1,500	23.6	0.0315	0.0059	1,900	74.8	0.0189	0.0157	0.0059
	90	0.5°	1,600	41.3	0.0295	0.0866	1,500	23.6	0.0295	0.0709	1,500	23.6	0.0276	0.0039	1,600	63.0	0.0189	0.0157	0.0039
	105	0.5°	1,400	35.4	0.0217	0.0787	1,400	22.4	0.0217	0.0669	1,400	22.4	0.0197	0.0028	1,400	55.1	0.0189	0.0157	0.0028
	120	0.5°	1,000	25.6	0.0157	0.0787	1,000	16.5	0.0157	0.0669	1,000	16.5	0.0157	0.0020	1,000	39.4	0.0189	0.0157	0.0020

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Hardness			<38 HRC				38-53 HRC				<53 HRC				<55 HRC				
Work Material			Hardened and Pre-hardened Steels																
Cutting Speed			60-400 SFM				60-310 SFM				105-250 SFM				62-410 SFM				
R (mm)	L/D	Recom'd Cutting Angle	Speed (RPM)	Feed (in/min)	DOC (in)		Speed (RPM)	Feed (in/min)	DOC (in)		Speed (RPM)	Feed (in/min)	DOC (in)		Speed (RPM)	Feed (in/min)	DOC (in)		Clearance (in)
					Aa	Ar			Aa	Ar			Aa	Ar			Aa	Ar	
10.0	70	0.5°	1,900	59.1	0.0472	0.1417	1,200	19.7	0.0472	0.0709	1,200	19.7	0.0315	0.0059	1,900	94.5	0.0236	0.0197	0.0079
	90	0.5°	1,500	47.2	0.0433	0.1417	1,200	19.7	0.0433	0.0709	1,200	19.7	0.0315	0.0059	1,500	74.8	0.0236	0.0197	0.0059
	110	0.5°	1,300	39.4	0.0354	0.1378	1,200	19.7	0.0354	0.0709	1,200	19.7	0.0315	0.0039	1,300	63.0	0.0236	0.0197	0.0039
	130	0.5°	1,100	33.5	0.0276	0.1339	1,100	17.7	0.0276	0.0709	1,100	17.7	0.0276	0.0039	1,100	55.1	0.0236	0.0197	0.0028
	150	0.5°	760	23.6	0.0197	0.1299	760	12.6	0.0197	0.0709	760	12.6	0.0197	0.0028	760	37.4	0.0236	0.0197	0.0020

1. The above mentioned conditions according to projection lengths are intended as general guidelines for reference only. Adjustments should be made based on actual milling conditions.
2. For 0.5R - 2.5R, the machining conditions are based on chucking the tool up to the base of the neck.
3. Highly rigid machines and tool holders should be used.
4. Tool vibrations should be kept at a minimum level for maximum accuracy.
5. In the case of linear machining, do not use the Ar value, instead refer to the Aa value.
6. More stable high-feed machining in the corners can be attained by setting an R insertion or decelleration on the CAM or machine side.
7. When cutting load fluctuates (in the corners, etc.) or when high-precision is required, be sure to control the rotational speed.
8. When cutting at greater than the recommended cutting angle, reduce the feed.

List 9570 - EXOPRO® PHX: High Feed, Corner Radius
List 9575 - EXOPRO® PHX: Deep Feed, Corner Radius
List 9576 - EXOPRO® PHX: Long Neck, Deep Feed, Corner Radius
List 9580 - EXOPRO® PHX: Pencil Neck, Deep Feed, Corner Radius

Side Milling

Hardness				<40 HRC				40-55 HRC				55-60 HRC				
Work Material				Mild Steels and Carbon Steels				Hardened Steels and Prehardened Steels								
				High Feed Roughing				Semi-Finishing				Finishing				
Cutting Speed				60-410 SFM				60-250 SFM				60-410 SFM				
D (mm)	r (mm)	L1	Rec'd Cutting Angle	Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Stock to Remove (in)
						Aa	Ar			Aa	Ar			Aa	Ar	
1.0	R0.3	10	0.3°	16,000	35.4	0.0012	0.0055	16,000	35.4	0.0012	0.0055	16,000	35.4	0.0016	0.0055	0.0020
		15	0.3°	8,000	17.7	0.0012	0.0055	8,000	17.7	0.0012	0.0055	8,000	17.7	0.0016	0.0055	0.0020
		20	0.3°	6,000	13.8	0.0008	0.0055	6,000	13.8	0.0008	0.0055	6,000	13.8	0.0016	0.0055	0.0012
		25	0.3°	6,000	11.8	0.0004	0.0051	6,000	11.8	0.0004	0.0051	6,000	11.8	0.0016	0.0055	0.0012
		30	0.3°	6,000	9.8	0.0004	0.0047	6,000	9.8	0.0004	0.0047	6,000	9.8	0.0016	0.0055	0.0012
1.5		10	0.3°	16,000	55.1	0.0020	0.0118	16,000	47.2	0.0020	0.0118	16,000	55.1	0.0016	0.0138	0.0028
		15	0.3°	8,000	31.5	0.0020	0.0118	8,000	23.6	0.0020	0.0118	8,000	31.5	0.0016	0.0138	0.0020
		20	0.3°	5,500	21.7	0.0016	0.0118	5,500	19.7	0.0016	0.0118	5,500	21.7	0.0016	0.0138	0.0020
		25	0.3°	5,000	19.7	0.0016	0.0118	5,000	17.7	0.0016	0.0118	5,000	19.7	0.0016	0.0138	0.0012
		30	0.3°	4,500	17.7	0.0016	0.0118	4,500	15.7	0.0016	0.0118	4,500	17.7	0.0016	0.0138	0.0012
2.0	R0.5	10	0.3°	12,000	57.1	0.0059	0.0157	12,000	43.3	0.0059	0.0157	12,000	43.3	0.0024	0.0157	0.0028
		15	0.3°	7,800	35.4	0.0047	0.0157	7,800	27.6	0.0039	0.0157	7,800	27.6	0.0024	0.0157	0.0028
		20	0.3°	6,200	29.5	0.0039	0.0118	6,200	23.6	0.0028	0.0118	6,200	23.6	0.0024	0.0157	0.0020
		25	0.3°	4,700	21.7	0.0028	0.0118	4,700	19.7	0.0024	0.0118	4,700	19.7	0.0024	0.0157	0.0020
		30	0.3°	3,500	15.7	0.0028	0.0118	3,500	15.7	0.0020	0.0118	3,500	15.7	0.0024	0.0157	0.0020
		35	0.3°	3,500	15.7	0.0028	0.0079	3,500	15.7	0.0016	0.0079	3,500	15.7	0.0024	0.0157	0.0012
		40	0.3°	3,500	11.8	0.0028	0.0079	3,500	11.8	0.0016	0.0079	3,500	11.8	0.0024	0.0157	0.0012
		45	0.3°	3,500	7.9	0.0028	0.0079	3,500	7.9	0.0012	0.0079	3,500	7.9	0.0024	0.0157	0.0012
		50	0.3°	3,500	5.9	0.0024	0.0039	3,500	5.9	0.0012	0.0039	3,500	7.9	0.0024	0.0157	0.0012
		60	0.3°	3,500	5.9	0.0020	0.0039	3,500	5.9	0.0012	0.0039	3,500	7.9	0.0024	0.0157	0.0012
3.0	R0.8	10	0.3°	11,000	65.0	0.0051	0.0236	8,000	47.2	0.0051	0.0236	11,000	82.7	0.0039	0.0197	0.0039
		15	0.3°	10,000	59.1	0.0051	0.0236	8,000	47.2	0.0051	0.0236	10,000	74.8	0.0039	0.0197	0.0028
		20	0.3°	7,500	43.3	0.0005	0.0197	7,200	39.4	0.0005	0.0197	7,500	55.1	0.0039	0.0197	0.0028
		25	0.3°	4,800	27.6	0.0047	0.0157	4,600	25.6	0.0047	0.0157	4,800	35.4	0.0039	0.0197	0.0020
		30	0.3°	3,800	21.7	0.0039	0.0157	3,400	19.7	0.0039	0.0157	3,800	29.5	0.0039	0.0197	0.0012
		40	0.3°	2,600	17.7	0.0031	0.0118	2,600	15.7	0.0031	0.0118	2,600	21.7	0.0039	0.0197	0.0012
		50	0.3°	2,200	13.8	0.0024	0.0118	2,200	11.8	0.0024	0.0118	2,200	17.7	0.0039	0.0197	0.0012
		60	0.3°	2,200	13.8	0.0016	0.0118	2,200	11.8	0.0016	0.0118	2,200	15.7	0.0039	0.0197	0.0012
4.0	R1	10	0.5°	9,500	82.7	0.0079	0.0354	6,000	49.2	0.0079	0.0354	9,500	88.6	0.0047	0.0315	0.0039
		15	0.5°	9,000	78.7	0.0079	0.0315	6,000	49.2	0.0079	0.0315	9,000	84.6	0.0047	0.0315	0.0039
		20	0.5°	8,200	66.9	0.0079	0.0276	6,000	49.2	0.0055	0.0276	8,200	78.7	0.0047	0.0276	0.0039
		25	0.5°	5,500	55.1	0.0059	0.0276	5,500	45.3	0.0043	0.0276	5,500	53.1	0.0047	0.0276	0.0028
		30	0.5°	4,500	45.3	0.0059	0.0276	4,500	35.4	0.0035	0.0276	4,500	43.3	0.0047	0.0276	0.0028
		35	0.5°	3,600	43.3	0.0047	0.0236	3,600	29.5	0.0035	0.0236	3,600	35.4	0.0047	0.0276	0.0020
		40	0.5°	3,000	35.4	0.0047	0.0236	3,000	25.6	0.0035	0.0236	3,000	31.5	0.0047	0.0276	0.0020
		45	0.5°	2,700	33.5	0.0039	0.0197	2,700	23.6	0.0031	0.0197	2,700	29.5	0.0047	0.0276	0.0012
		50	0.5°	2,500	31.5	0.0039	0.0197	2,500	21.7	0.0031	0.0197	2,500	23.6	0.0047	0.0276	0.0012
		60	0.5°	2,100	27.6	0.0031	0.0197	2,100	17.7	0.0024	0.0197	2,100	19.7	0.0047	0.0276	0.0012
5.0		10	0.5°	7,700	98.4	0.0079	0.0472	4,800	141.7	0.0079	0.0472	7,700	70.9	0.0047	0.0472	0.0039
		15	0.5°	7,700	94.5	0.0079	0.0472	4,800	133.9	0.0063	0.0472	6,100	57.1	0.0047	0.0472	0.0039
		20	0.5°	7,700	94.5	0.0079	0.0472	4,800	133.9	0.0063	0.0472	6,100	57.1	0.0047	0.0472	0.0039
		25	0.5°	5,100	86.6	0.0067	0.0394	4,800	118.1	0.0051	0.0394	5,100	47.2	0.0047	0.0472	0.0028
		30	0.5°	5,100	86.6	0.0067	0.0394	4,800	118.1	0.0051	0.0394	5,100	47.2	0.0047	0.0472	0.0028
		35	0.5°	4,400	66.9	0.0059	0.0394	4,400	94.5	0.0035	0.0394	4,400	39.4	0.0047	0.0472	0.0020
		40	0.5°	3,100	43.3	0.0059	0.0394	3,100	59.1	0.0031	0.0394	3,100	29.5	0.0047	0.0472	0.0020

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Side Milling

Hardness				<40 HRC				40-55 HRC				55-60 HRC				
Work Material				Mild Steels and Carbon Steels				Hardened Steels and Prehardened Steels								
				High Feed Roughing				Semi-Finishing				Finishing				
Cutting Speed				60-410 SFM				60-250 SFM				60-410 SFM				
D (mm)	r (mm)	L1	Rec'd Cutting Angle	Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Stock to Remove (in)
						Aa	Ar			Aa	Ar			Aa	Ar	
6.0	R1.5	24	0.5°	6,500	255.9	0.0138	0.0512	4,000	66.9	0.0094	0.0512	6,500	74.8	0.0059	0.0472	0.0039
		30	0.5°	5,100	200.8	0.0094	0.0472	4,000	66.9	0.0091	0.0472	5,100	59.1	0.0059	0.0472	0.0039
		36	0.5°	4,200	165.4	0.0079	0.0394	4,000	66.9	0.0075	0.0394	4,200	49.2	0.0059	0.0472	0.0028
		42	0.5°	3,700	145.7	0.0059	0.0394	3,700	55.1	0.0055	0.0394	3,700	43.3	0.0059	0.0472	0.0028
		48	0.5°	2,600	102.4	0.0051	0.0354	2,600	35.4	0.0055	0.0354	2,600	31.5	0.0059	0.0472	0.0020
		54	0.5°	2,100	82.7	0.0039	0.0354	2,100	31.5	0.0039	0.0354	2,100	25.6	0.0059	0.0472	0.0020
		66	0.5°	1,900	74.8	0.0031	0.0354	1,900	27.6	0.0031	0.0354	1,900	21.7	0.0059	0.0472	0.0012
		80	0.5°	1,700	66.9	0.0020	0.0354	1,700	23.6	0.0020	0.0354	1,700	17.7	0.0059	0.0472	0.0012
8.0	R2	30	0.5°	4,800	78.7	0.0197	0.0669	3,000	49.2	0.0118	0.0630	4,800	70.9	0.0071	0.0630	0.0039
		40	0.5°	3,800	74.8	0.0157	0.0630	3,000	49.2	0.0118	0.0630	3,800	55.1	0.0071	0.0630	0.0039
		48	0.5°	3,200	66.9	0.0106	0.0551	3,000	49.2	0.0102	0.0551	2,300	45.3	0.0071	0.0630	0.0028
		56	0.5°	2,700	51.2	0.0079	0.0551	2,700	43.3	0.0079	0.0551	2,700	39.4	0.0071	0.0630	0.0028
		64	0.5°	1,900	34.6	0.0079	0.0512	1,900	31.5	0.0079	0.0512	1,900	27.6	0.0071	0.0630	0.0020
		80	0.5°	1,500	27.6	0.0059	0.0512	1,500	27.6	0.0059	0.0512	1,500	21.7	0.0071	0.0630	0.0012
		100	0.5°	1,200	25.6	0.0059	0.0512	1,200	25.6	0.0059	0.0512	1,200	19.7	0.0071	0.0630	0.0012
		120	0.5°	1,000	21.7	0.0039	0.0512	1,000	21.7	0.0039	0.0512	1,000	17.7	0.0071	0.0630	0.0012
10.0		35	0.5°	3,800	82.7	0.0197	0.0984	2,400	94.5	0.0118	0.0630	3,800	149.6	0.0079	0.0945	0.0039
		50	0.5°	3,100	76.8	0.0157	0.0945	2,400	94.5	0.0118	0.0630	3,100	122.0	0.0079	0.0945	0.0039
		60	0.5°	2,500	68.9	0.0106	0.0787	2,400	94.5	0.0106	0.0630	2,500	98.4	0.0079	0.0945	0.0039
		70	0.5°	2,200	53.1	0.0079	0.0787	2,200	86.6	0.0079	0.0630	2,200	86.6	0.0079	0.0945	0.0028
		80	0.5°	1,500	35.4	0.0075	0.0787	1,500	59.1	0.0075	0.0630	1,500	59.1	0.0079	0.0945	0.0028
		100	0.5°	1,200	28.3	0.0063	0.0787	1,200	47.2	0.0063	0.0630	1,200	47.2	0.0079	0.0945	0.0020
		120	0.5°	1,050	25.6	0.0051	0.0787	1,000	39.4	0.0051	0.0630	1,050	41.3	0.0079	0.0945	0.0020
		140	0.5°	850	21.7	0.0039	0.0591	800	31.5	0.0039	0.0551	850	33.5	0.0079	0.0945	0.0012
		160	0.5°	700	19.7	0.0028	0.0591	700	27.6	0.0028	0.0551	700	27.6	0.0079	0.0945	0.0012
12.0		45	0.5°	3,200	86.6	0.0236	0.1339	2,000	78.7	0.0118	0.0630	3,200	126.0	0.0094	0.1260	0.0059
		60	0.5°	2,500	82.7	0.0197	0.1260	2,000	78.7	0.0118	0.0630	2,500	98.4	0.0094	0.1260	0.0059
		70	0.5°	2,100	74.8	0.0157	0.1102	2,000	78.7	0.0110	0.0630	2,100	82.7	0.0094	0.1260	0.0039
		85	0.5°	1,800	59.1	0.0118	0.1063	1,500	59.1	0.0087	0.0630	1,800	70.9	0.0094	0.1260	0.0039
		100	0.5°	1,300	39.4	0.0079	0.1024	1,200	47.2	0.0079	0.0630	1,300	51.2	0.0094	0.1260	0.0039
		120	0.5°	1,000	27.6	0.0059	0.0984	1,000	39.4	0.0059	0.0630	1,000	39.4	0.0094	0.1260	0.0020
		140	0.5°	900	23.6	0.0059	0.0787	900	35.4	0.0039	0.0630	900	35.4	0.0094	0.1260	0.0020
		160	0.5°	700	19.7	0.0039	0.0787	700	27.6	0.0039	0.0630	700	27.6	0.0094	0.1260	0.0020

1. The above mentioned conditions according to projection lengths are intended as general guidelines for reference only. Adjustments should be made based on actual milling conditions.
2. Highly rigid machines and tool holders should be used.
3. Tool vibrations should be kept at a minimum level for maximum accuracy.
4. In the case of linear machining, do not use the Ar value, instead refer to the Aa value.
5. Under general machining conditiona, air-blow cutting method is recommended.
6. More stable high-feed machining in the corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
7. When cutting load fluctuates (in the corners, etc.) or when high-precision is required, be sure to control the rotational speed.
8. When cutting at greater than the recommended cutting angle, reduce the feed.
9. When the depth of cut is less than the specified amount as listed above, the feed rate can be increased up to 150%.
10. When the depth of cut is greater than the specified amount as listed above, the feed rate can be reduced by no more than 60% to ensure stable milling.

continued on next page

List 9570 - EXOPRO® PHX: High Feed, Corner Radius (Continued)
List 9575 - EXOPRO® PHX: Deep Feed, Corner Radius (Continued)
List 9576 - EXOPRO® PHX: Long Neck, Deep Feed, Corner Radius (Continued)
List 9580 - EXOPRO® PHX: Pencil Neck, Deep Feed, Corner Radius (Continued)

Side Milling

Hardness				<40 HRC				40-55 HRC				55-60 HRC				
Work Material				Mild Steels and Carbon Steels				Hardened Steels and Prehardened Steels								
				High Feed Roughing				Semi-Finishing				Finishing				
Cutting Speed				60-410 SFM				60-250 SFM				60-410 SFM				
D (mm)	r (mm)	L1	Rec'd Cutting Angle	Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Stock to Remove (in)
						Aa	Ar			Aa	Ar			Aa	Ar	
16.0	R3	55	0.5°	2,400	78.7	0.0197	0.1654	1,500	59.1	0.0118	0.0630	2,400	94.5	0.0118	0.1575	0.0079
		80	0.5°	1,900	74.8	0.0185	0.1575	1,500	59.1	0.0118	0.0630	1,900	74.8	0.0118	0.1575	0.0059
		90	0.5°	1,600	66.9	0.0157	0.1339	1,500	59.1	0.0118	0.0630	1,600	63.0	0.0118	0.1575	0.0039
		105	0.5°	1,400	51.2	0.0114	0.1299	1,400	55.1	0.0110	0.0630	1,400	55.1	0.0118	0.1575	0.0028
		120	0.5°	1,000	33.5	0.0079	0.1260	1,000	39.4	0.0079	0.0630	1,000	39.4	0.0118	0.1575	0.0020
20.0		70	0.5°	1,900	78.7	0.0197	0.2165	1,200	47.2	0.0118	0.0630	1,900	74.8	0.0165	0.2165	0.0079
		90	0.5°	1,500	74.8	0.0185	0.2087	1,200	47.2	0.0118	0.0630	1,500	59.1	0.0165	0.2165	0.0059
		110	0.5°	1,300	66.9	0.0165	0.1654	1,200	47.2	0.0118	0.0630	1,300	51.2	0.0165	0.2165	0.0039
		130	0.5°	1,100	51.2	0.0122	0.1496	1,100	43.3	0.0118	0.0630	1,100	43.3	0.0165	0.2165	0.0028
		150	0.5°	760	29.9	0.0098	0.1339	760	29.9	0.0091	0.0630	760	29.9	0.0165	0.2165	0.0020

1. The above mentioned conditions according to projection lengths are intended as general guidelines for reference only. Adjustments should be made based on actual milling conditions.
2. Highly rigid machines and tool holders should be used.
3. Tool vibrations should be kept at a minimum level for maximum accuracy.
4. In the case of linear machining, do not use the Ar value, instead refer to the Aa value.
5. Under general machining conditiona, air-blow cutting method is recommended.
6. More stable high-feed machining in the corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
7. When cutting load fluctuates (in the corners, etc.) or when high-precision is required, be sure to control the rotational speed.
8. When cutting at greater than the recommended cutting angle, reduce the feed.
9. When the depth of cut is less than the specified amount as listed above, the feed rate can be increased up to 150%.
10. When the depth of cut is greater than the specified amount as listed above, the feed rate can be reduced by no more than 60% to ensure stable milling.

List 9592 - EXOPRO® PHX : Pencil-Neck, Deep Feed, Corner Radius

Side Milling

Hardness			<41 HRC					42-55 HRC					49-55 HRC		
Work Material			Hardened and Pre-hardened Steels												
Cutting Speed			110-395 SFM					110-250 SFM					110-410 SFM		
D (mm)	r (mm)	L2 (mm)	Speed (RPM)	Feed (in/min)		aa / ar DOC (in)		Speed (RPM)	Feed (in/min)		aa / ar DOC (in)		Speed (RPM)	Feed (in/min)	aa / ar DOC (in)
				Slotting	Contouring	Aa	Ar		Slotting	Contouring	Aa	Ar	Contour Finishing		Aa
0.8	0.1	2	18,000	28.3	36.6	0.0008	0.0079	18,000	28.3	36.6	0.0008	0.0079	18,000	45.3	0.0006
		4	18,000	28.3	36.6	0.0008	0.0079	18,000	28.3	36.6	0.0008	0.0079	18,000	45.3	0.0006
		6	18,000	28.3	36.6	0.0008	0.0079	18,000	28.3	36.6	0.0008	0.0079	18,000	45.3	0.0006
		8	15,000	21.3	26.8	0.0006	0.0079	15,000	21.3	24.8	0.0005	0.0079	16,000	27.6	0.0005
1.0		4	18,000	32.7	43.3	0.0012	0.0091	18,000	32.7	34.6	0.0012	0.0091	18,000	56.7	0.0006
		6	18,000	32.7	43.3	0.0009	0.0091	18,000	32.7	34.6	0.0009	0.0091	18,000	56.7	0.0006
		8	15,000	29.5	39.4	0.0005	0.0091	15,000	29.5	31.5	0.0005	0.0091	15,000	47.2	0.0006
		10	12,000	11.8	19.7	0.0003	0.0079	12,000	11.8	15.7	0.0003	0.0079	12,000	37.8	0.0006
		12	10,500	8.7	14.2	0.0002	0.0071	10,500	8.7	11.3	0.0002	0.0071	10,500	33.1	0.0006
	0.2	4	18,000	32.7	43.3	0.0012	0.0091	18,000	32.7	34.6	0.0012	0.0091	18,000	56.7	0.0007
		6	18,000	32.7	43.3	0.0009	0.0091	18,000	32.7	34.6	0.0009	0.0091	18,000	56.7	0.0007
		8	15,000	29.5	39.4	0.0005	0.0091	15,000	29.5	31.5	0.0005	0.0091	15,000	47.2	0.0007
		10	12,000	11.8	19.7	0.0003	0.0079	12,000	11.8	15.7	0.0003	0.0079	12,000	37.8	0.0007
		12	10,500	8.7	14.2	0.0002	0.0071	10,500	8.7	11.4	0.0002	0.0071	10,500	33.1	0.0007
	0.3	4	18,000	32.7	49.6	0.0012	0.0091	18,000	32.7	39.4	0.0012	0.0091	18,000	56.7	0.0009
		6	18,000	32.7	44.1	0.0009	0.0091	18,000	32.7	35.0	0.0009	0.0091	18,000	56.7	0.0009
1.5	0.1	4	18,000	48.4	65.0	0.0012	0.0134	16,000	42.5	51.2	0.0012	0.0134	18,000	63.8	0.0006
		8	18,000	48.4	65.0	0.0010	0.0134	16,000	42.5	51.2	0.0010	0.0134	18,000	63.8	0.0006
		12	10,000	18.9	31.5	0.0005	0.0118	10,000	17.7	29.5	0.0005	0.0118	10,000	35.4	0.0006
	0.2	4	18,000	48.4	65.0	0.0012	0.0134	16,000	42.5	51.2	0.0012	0.0134	18,000	63.8	0.0007
		6	18,000	48.4	65.0	0.0011	0.0134	16,000	42.5	51.2	0.0011	0.0134	18,000	63.8	0.0007
		8	18,000	48.4	65.0	0.0010	0.0134	16,000	42.5	51.2	0.0010	0.0134	18,000	63.8	0.0007
2.0	0.1	8	18,000	69.3	87.0	0.0012	0.0181	12,000	39.4	51.2	0.0012	0.0181	18,000	63.8	0.0006
		10	15,000	63.8	85.0	0.0012	0.0181	12,000	39.4	47.2	0.0012	0.0181	15,000	53.1	0.0006
		12	13,000	52.0	69.3	0.0009	0.0181	12,000	37.4	45.3	0.0009	0.0181	13,000	46.1	0.0006
		16	7,600	29.5	39.4	0.0005	0.0181	7,600	23.6	30.7	0.0005	0.0181	7,000	24.8	0.0006
	0.3	8	18,000	63.8	87.0	0.0020	0.0181	12,000	39.4	51.2	0.0020	0.0181	18,000	63.8	0.0009
	0.3	12	13,000	52.0	69.3	0.0016	0.0181	12,000	37.4	45.3	0.0016	0.0181	13,000	46.1	0.0009
	0.5	6	18,000	69.3	87.0	0.0031	0.0177	12,000	33.5	51.2	0.0031	0.0177	18,000	63.8	0.0010
		8	18,000	69.3	87.0	0.0030	0.0177	12,000	33.5	51.2	0.0030	0.0177	18,000	63.8	0.0010
		10	15,000	63.8	85.0	0.0028	0.0177	12,000	31.5	47.2	0.0028	0.0177	15,000	53.1	0.0010
		12	13,000	52.0	69.3	0.0024	0.0177	12,000	27.6	45.3	0.0024	0.0177	13,000	46.1	0.0010
3.0	0.3	12	12,700	55.1	91.3	0.0018	0.0276	8,000	33.1	47.2	0.0018	0.0276	13,000	46.1	0.0009

1. Adjust the speed, feed, and plunge depth in accordance with operating conditions, including the machining shape, machine rigidity, holder rigidity, and work holding force.
2. If the speed and feed rates cannot increase due to equipment performance, operate by reducing the speed and feed rates at the same ratio.
3. High cutting speeds and feed rates can cause cutter wear or reduce machining precision. Therefore, operate by reducing the feed rate as needed.
4. Depending on the shape to be machined, if the end mill chatters during machining, it can bite into the shape. Therefore, operate by reducing the speed and feed rates at the same ratio.
5. For precise, detailed machining, use a dedicated machine that operates quietly.
6. Operate by keeping the runout at the tip of the end mill below 5 microns (.0002").
7. To perform finish machining with a high level of efficiency, keep the speed and feed rates below 2 times.
8. To finish a flat surface, operate at a speed range with a minimal amount of equipment vibration, making sure than the feed rate does not cause the equipment to wobble.
9. To finish machine a curved surface using the corner radius tool, operate by changing the machining pitch.
10. Set the inclined cut angle approximately between 0.3° and 0.5°.

For Standard LDR (Up to 6:1)

Speeds

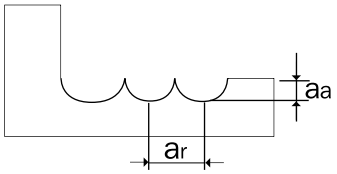
Diameter	Roughing & Semi-finishing			Finishing		
	RPM			RPM		
	30 - 40 HRC	40 - 50 HRC	50 - 60 HRC	30 - 40 HRC	40 - 50 HRC	50 - 60 HRC
1/32	38,400 – 60,000	32,000 – 50,000	24,600 – 40,000	20,000 – 50,000	20,000 – 50,000	20,000 – 50,000
1/16	26,400 – 42,000	22,000 – 35,000	16,600 – 28,000	20,000 – 50,000	20,000 – 50,000	20,000 – 50,000
3/32	21,600 – 31,200	18,000 – 26,000	13,400 – 20,800	20,000 – 50,000	20,000 – 50,000	20,000 – 50,000
1/8	19,200 – 28,800	16,000 – 24,000	11,800 – 19,200	20,000 – 38,000	20,000 – 50,000	20,000 – 30,500
3/16	15,000 – 19,776	12,500 – 16,480	9,000 – 13,184	20,000 – 26,000	20,000 – 34,000	16,000 – 20,300
1/4	12,120 – 16,800	10,100 – 14,000	7,080 – 11,200	15,000 – 18,000	18,000 – 24,400	12,000 – 15,000
5/16	11,400 – 15,900	9,200 – 13,250	6,360 – 10,600	12,000 – 14,000	14,600 – 19,000	9,700 – 12,000
3/8	10,560 – 14,520	8,800 – 12,100	6,040 – 9,680	10,000 – 12,000	12,000 – 16,200	8,100 – 10,000
7/16	9,480 – 12,480	7,900 – 10,400	5,320 – 8,320	8,700 – 10,400	10,000 – 13,900	6,900 – 8,700
1/2	8,280 – 10,920	6,900 – 9,100	4,520 – 7,280	7,800 – 9,800	9,100 – 12,200	6,100 – 7,600

Chip Load per Tooth

Diameter	30 - 40 HRC		40 - 50 HRC		50 - 60 HRC	
	Rough & Semi	Finishing	Rough & Semi	Finishing	Rough & Semi	Finishing
1/32	0.0006 – 0.0010	0.0006 – 0.0009	0.0006 – 0.0008	0.0005 – 0.0007	0.0004 – 0.0007	0.0004 – 0.0006
1/16	0.0012 – 0.0016	0.0010 – 0.0015	0.0010 – 0.0015	0.0010 – 0.0014	0.0008 – 0.0012	0.0007 – 0.0010
3/32	0.0020 – 0.0025	0.0014 – 0.0024	0.0015 – 0.0022	0.0014 – 0.0020	0.0012 – 0.0020	0.0010 – 0.0014
1/8	0.0025 – 0.0030	0.0019 – 0.0028	0.0020 – 0.0027	0.0019 – 0.0026	0.0017 – 0.0022	0.0015 – 0.0020
3/16	0.0035 – 0.0043	0.0032 – 0.0042	0.0032 – 0.0041	0.0030 – 0.0040	0.0030 – 0.0039	0.0023 – 0.0031
1/4	0.0050 – 0.0060	0.0040 – 0.0053	0.0050 – 0.0057	0.0040 – 0.0051	0.0040 – 0.0050	0.0038 – 0.0048
5/16	0.0063 – 0.0070	0.0053 – 0.0068	0.0052 – 0.0066	0.0052 – 0.0063	0.0051 – 0.0062	0.0046 – 0.0054
3/8	0.0070 – 0.0080	0.0062 – 0.0079	0.0062 – 0.0077	0.0054 – 0.0065	0.0060 – 0.0072	0.0050 – 0.0061
7/16	0.0080 – 0.0087	0.0068 – 0.0086	0.0068 – 0.0084	0.0060 – 0.0078	0.0066 – 0.0080	0.0053 – 0.0070
1/2	0.0087 – 0.0100	0.0080 – 0.0094	0.0080 – 0.0092	0.0070 – 0.0090	0.0078 – 0.0090	0.0062 – 0.0081

Axial Depths of Cut (aa)

30 - 40 HRC 10% Diameter
40 - 50 HRC 7% Diameter
50 - 60 HRC 5% Diameter



Radial Depths of Cut (ar)

Up to 35% D for roughing and semi-finishing operations. However, radial depths of cut are normally determined by the surface finish requirements, specific to each application.

continued on next page

For Long LDR (6:1 to 8:1)

Speeds

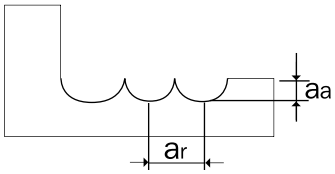
Diameter	Roughing & Semi-finishing			Finishing		
	RPM			RPM		
	30 - 40 HRC	40 - 50 HRC	50 - 60 HRC	30 - 40 HRC	40 - 50 HRC	50 - 60 HRC
1/32	28,800 – 45,000	24,000 – 37,500	18,450 – 30,000	15,000 – 37,500	15,000 – 37,500	15,000 – 37,500
1/16	19,800 – 31,500	16,500 – 26,250	12,450 – 21,000	15,000 – 37,500	15,000 – 37,500	15,000 – 37,500
3/32	16,200 – 23,400	13,500 – 19,500	10,050 – 15,600	15,000 – 37,500	15,000 – 37,500	15,000 – 37,500
1/8	14,400 – 21,600	12,000 – 18,000	8,850 – 14,400	15,000 – 37,500	15,000 – 28,500	15,000 – 22,875
3/16	11,250 – 14,832	9,375 – 12,360	6,750 – 9,888	15,000 – 25,500	15,000 – 19,500	12,000 – 15,225
1/4	9,090 – 12,600	7,575 – 10,500	5,310 – 8,400	13,500 – 18,300	11,250 – 13,500	9,000 – 11,250
5/16	8,550 – 11,925	6,900 – 9,845	4,770 – 7,950	10,950 – 14,250	9,000 – 10,500	7,275 – 9,000
3/8	7,920 – 10,890	6,600 – 9,075	4,530 – 7,260	9,000 – 12,150	7,500 – 9,000	6,075 – 7,500
7/16	7,110 – 9,360	5,925 – 7,800	3,990 – 6,240	7,500 – 10,425	6,525 – 7,800	5,175 – 6,525
1/2	6,210 – 8,190	5,175 – 6,825	3,390 – 5,460	6,825 – 9,150	5,850 – 7,350	4,575 – 5,700

Chip Load per Tooth

Diameter	30 - 40 HRC		40 - 50 HRC		50 - 60 HRC	
	Rough & Semi	Finishing	Rough & Semi	Finishing	Rough & Semi	Finishing
1/32	0.0005 – 0.0008	0.0004 – 0.0007	0.0004 – 0.0005	0.0005 – 0.0006	0.0003 – 0.0005	0.0003 – 0.0005
1/16	0.0009 – 0.0012	0.0008 – 0.0011	0.0008 – 0.0011	0.0008 – 0.0011	0.0006 – 0.0009	0.0005 – 0.0008
3/32	0.0015 – 0.0019	0.0011 – 0.0018	0.0011 – 0.0017	0.0011 – 0.0015	0.0009 – 0.0015	0.0008 – 0.0011
1/8	0.0019 – 0.0023	0.0014 – 0.0021	0.0015 – 0.0020	0.0014 – 0.0020	0.0013 – 0.0017	0.0011 – 0.0015
3/16	0.0026 – 0.0032	0.0024 – 0.0032	0.0024 – 0.0031	0.0023 – 0.0030	0.0023 – 0.0029	0.0017 – 0.0023
1/4	0.0038 – 0.0045	0.0030 – 0.0040	0.0038 – 0.0043	0.0030 – 0.0038	0.0030 – 0.0038	0.0029 – 0.0036
5/16	0.0047 – 0.0053	0.0040 – 0.0051	0.0039 – 0.0050	0.0039 – 0.0047	0.0038 – 0.0047	0.0035 – 0.0041
3/8	0.0053 – 0.0060	0.0047 – 0.0059	0.0047 – 0.0058	0.0041 – 0.0049	0.0045 – 0.0054	0.0038 – 0.0046
7/16	0.0060 – 0.0065	0.0051 – 0.0065	0.0051 – 0.0063	0.0045 – 0.0059	0.0050 – 0.0060	0.0040 – 0.0053
1/2	0.0065 – 0.0075	0.0060 – 0.0071	0.0060 – 0.0069	0.0053 – 0.0068	0.0059 – 0.0068	0.0047 – 0.0061

Axial Depths of Cut (aa)

30 - 40 HRC 10% Diameter
40 - 50 HRC 7% Diameter
50 - 60 HRC 5% Diameter



Radial Depths of Cut (ar)

Up to 35% D for roughing and semi-finishing operations. However, radial depths of cut are normally determined by the surface finish requirements, specific to each application.

continued on next page

For Extra Long LDR (Beyond 8:1) (Continued)

Speeds

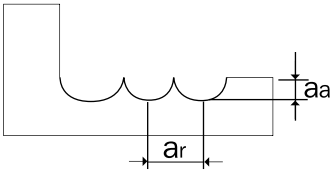
Diameter	Roughing & Semi-finishing			Finishing		
	RPM			RPM		
	30 - 40 HRC	40 - 50 HRC	50 - 60 HRC	30 - 40 HRC	40 - 50 HRC	50 - 60 HRC
1/32	19,200 – 30,000	16,000 – 25,000	12,300 – 20,000	10,000 – 25,000	10,000 – 25,000	10,000 – 25,000
1/16	13,200 – 21,000	11,000 – 17,500	8,300 – 14,000	10,000 – 25,000	10,000 – 25,000	10,000 – 25,000
3/32	10,800 – 15,600	9,000 – 13,000	6,700 – 10,400	10,000 – 25,000	10,000 – 25,000	10,000 – 25,000
1/8	9,600 – 14,400	8,000 – 12,000	5,900 – 9,600	10,000 – 25,000	10,000 – 19,000	10,000 – 15,250
3/16	7,500 – 9,888	6,250 – 8,240	4,500 – 6,592	10,000 – 17,000	10,000 – 13,000	8,000 – 10,150
1/4	6,060 – 8,400	5,050 – 7,000	3,540 – 5,600	9,000 – 12,200	7,500 – 9,000	6,000 – 7,500
5/16	5,700 – 7,950	4,600 – 6,625	3,180 – 5,300	7,300 – 9,500	6,000 – 7,000	4,850 – 6,000
3/8	5,280 – 7,260	4,400 – 6,050	3,020 – 4,840	6,000 – 8,100	5,000 – 6,000	4,050 – 5,000
7/16	4,740 – 6,240	3,950 – 5,200	2,660 – 4,160	5,000 – 6,950	4,350 – 5,200	3,450 – 4,350
1/2	4,140 – 5,460	3,450 – 4,550	2,260 – 3,640	4,550 – 6,100	3,900 – 4,900	3,050 – 3,800

Chip Load per Tooth

Diameter	30 - 40 HRC		40 - 50 HRC		50 - 60 HRC	
	Rough & Semi	Finishing	Rough & Semi	Finishing	Rough & Semi	Finishing
1/32	0.0003 – 0.0005	0.0003 – 0.0005	0.0003 – 0.0004	0.0003 – 0.0004	0.0002 – 0.0004	0.0002 – 0.0003
1/16	0.0006 – 0.0008	0.0005 – 0.0008	0.0005 – 0.0008	0.0005 – 0.0007	0.0004 – 0.0006	0.0004 – 0.0005
3/32	0.0010 – 0.0013	0.0007 – 0.0012	0.0008 – 0.0011	0.0007 – 0.0010	0.0006 – 0.0010	0.0005 – 0.0007
1/8	0.0013 – 0.0015	0.0010 – 0.0014	0.0010 – 0.0014	0.0010 – 0.0013	0.0009 – 0.0011	0.0008 – 0.0010
3/16	0.0018 – 0.0022	0.0016 – 0.0021	0.0016 – 0.0021	0.0015 – 0.0020	0.0015 – 0.0020	0.0012 – 0.0016
1/4	0.0025 – 0.0030	0.0020 – 0.0027	0.0025 – 0.0029	0.0020 – 0.0026	0.0020 – 0.0025	0.0019 – 0.0024
5/16	0.0032 – 0.0035	0.0027 – 0.0034	0.0026 – 0.0033	0.0026 – 0.0032	0.0026 – 0.0031	0.0023 – 0.0027
3/8	0.0035 – 0.0040	0.0031 – 0.0040	0.0031 – 0.0039	0.0027 – 0.0033	0.0030 – 0.0036	0.0025 – 0.0031
7/16	0.0040 – 0.0044	0.0034 – 0.0043	0.0034 – 0.0042	0.0030 – 0.0039	0.0033 – 0.0040	0.0027 – 0.0035
1/2	0.0044 – 0.0050	0.0040 – 0.0047	0.0040 – 0.0046	0.0035 – 0.0045	0.0039 – 0.0045	0.0031 – 0.0041

Axial Depths of Cut (aa)

30 - 40 HRC 10% Diameter
40 - 50 HRC 7% Diameter
50 - 60 HRC 5% Diameter

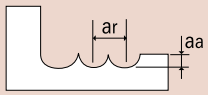


Radial Depths of Cut (ar)

Up to 35% D for roughing and semi-finishing operations. However, radial depths of cut are normally determined by the surface finish requirements, specific to each application.

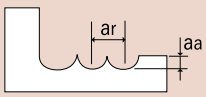
List 3610 - EXOCARB® WXL®: Ball End, Regular Length, 2 Flute

Standard Milling

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Aluminum Copper Alloy		Cast Iron, Carbon Steel, Alloy Steels, Stainless, Die Steels		Hardened Steels Pre-hardened Steels, P20, H13, S7, A2			
Cutting Speed	388 SFM		324 SFM		263 SFM		233 SFM	
Depth of Cut	Dia / ap / ar D<1/16 / 0.05D / 0.2D 1/16≤D≤1/2 / 0.10D / 0.2D				ap=0.1D ar=0.2D		ap=0.05D ar=0.10D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/32	25,000	35.0	25,000	35.0	32,149	35.0	28,482	30.0
1/16	23,715	61.7	19,803	51.5	16,075	41.8	14,241	34.2
3/32	15,810	60.1	13,202	50.2	10,716	40.7	9,494	34.2
1/8	11,857	56.9	9,901	47.5	8,037	38.6	7,120	31.3
5/32	9,486	57.7	7,921	48.2	6,430	39.1	5,696	32.3
3/16	7,905	58.5	6,601	48.8	5,358	39.7	4,747	33.2
1/4	5,929	54.5	4,951	45.5	4,019	37.0	3,560	32.0
5/16	4,743	56.9	3,961	47.5	3,215	38.6	2,848	32.5
3/8	3,952	55.3	3,300	46.2	2,679	37.5	2,373	28.5
1/2	2,964	51.6	2,475	43.1	2,009	35.0	1,780	30.6

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

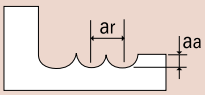
High Speed Light Milling

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Cast Iron, Carbon Steel, Alloy Steels, Stainless, Die Steels		Hardened Steels Pre-hardened Steels, P20, H13, S7, A2			
Cutting Speed	659 SFM		713 SFM		651 SFM		561 SFM	
Depth of Cut	ap=0.02D ar=0.05D		Dia / ap / ar D≤3/16 / 0.02D / 0.05D 1/4≤D≤3/8 / 0.05D / 0.10D D=1/2 / 0.40D / 0.20D 				ap=0.02D ar=0.05D	
Mill Diameter	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/32	25,000	35.0	25,000	35.0	25,000	35.0	25,000	30.0
1/16	25,000	65.0	25,000	65.0	25,000	65.0	25,000	60.0
3/32	25,000	95.0	25,000	95.0	25,000	95.0	22,859	82.3
1/8	20,139	96.7	21,789	104.6	19,895	95.5	17,144	75.4
5/32	16,111	98.0	17,431	106.0	15,916	96.8	13,715	77.7
3/16	13,426	99.4	14,526	107.5	13,263	98.1	11,429	80.0
1/4	10,070	92.6	10,895	100.2	9,947	91.5	8,572	77.1
5/16	8,056	96.7	8,716	104.6	7,958	95.5	6,858	78.2
3/8	6,713	94.0	7,263	101.7	6,632	92.8	5,715	68.6
1/2	5,035	87.6	5,447	94.8	4,974	86.5	4,286	73.7

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

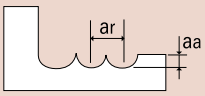
List 3710 - EXOCARB® WXL®: Ball End, Regular Length, 2 Flute

Standard Milling

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Cast Iron, Carbon Steel, Alloy Steels, Stainless, Die Steels		Hardened Steels Pre-hardened Steels, P20, H13, S7, A2			
Cutting Speed	388 SFM		324 SFM		263 SFM		233 SFM	
Depth of Cut	a_a=0.05D a_r=0.10D				a_a=0.03D a_r=0.10D		a_a=0.02D a_r=0.05D	
Mill Diameter	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.1	25,000	5.0	25,000	5.0	25,000	5.0	25,000	5.0
0.2	25,000	10.0	25,000	10.0	25,000	10.0	25,000	10.0
0.4	25,000	20.0	25,000	20.0	25,000	20.0	25,000	15.0
0.6	25,000	30.0	25,000	30.0	25,000	30.0	25,000	21.0
0.8	25,000	40.0	25,000	40.0	25,000	40.0	25,000	27.5
1.0	25,000	45.0	25,000	45.0	25,000	45.0	22,610	31.7
2.0	18,830	60.3	15,720	50.3	12,760	40.8	11,310	29.4
3.0	12,550	67.8	10,480	56.6	8,510	46.0	7,540	33.2
4.0	9,410	73.4	7,860	61.3	6,380	49.8	5,650	40.7
6.0	6,280	67.8	5,240	56.6	4,250	45.9	3,770	33.2
8.0	4,710	63.1	3,930	52.7	3,190	42.7	2,830	31.7
10.0	3,770	57.3	3,140	47.7	2,550	38.8	2,260	28.0
12.0	3,140	56.5	2,620	47.2	2,130	38.3	1,880	29.3
16.0	2,350	42.3	1,970	35.5	1,600	28.8	1,410	22.0
20.0	1,880	33.8	1,570	28.3	1,280	23.0	1,130	17.6

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

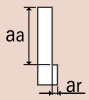
High Speed Light Milling

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Cast Iron, Carbon Steel, Alloy Steels, Stainless, Die Steels		Hardened Steels Pre-hardened Steels, P20, H13, S7, A2			
Cutting Speed	659 SFM		713 SFM		651 SFM		561 SFM	
Depth of Cut	a_a=0.02D a_r=0.05D				a_a=0.02D a_r=0.05D		a_a=0.01D a_r=0.05D	
Mill Diameter	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1.0	25,000	45.0	25,000	45.0	25,000	45.0	25,000	35.0
2.0	25,000	80.0	25,000	80.0	25,000	80.0	25,000	65.0
3.0	21,320	115.1	23,060	124.5	21,060	113.7	18,150	79.9
4.0	15,990	124.7	17,300	134.9	15,790	123.2	13,610	98.0
6.0	10,660	115.1	11,530	124.5	10,530	113.7	9,070	79.8
8.0	8,000	107.2	8,650	115.9	7,900	105.9	6,810	76.3
10.0	6,400	97.3	6,920	105.2	6,320	96.1	5,450	67.6
12.0	5,330	95.9	5,770	103.9	5,270	94.9	4,540	70.8
16.0	4,000	72.0	4,330	77.9	3,950	71.1	3,400	53.0
20.0	3,200	57.6	3,460	62.3	3,160	56.9	2,720	42.4

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

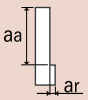
List 3670 - EXOCARB® WXL®: 4 Flute, Regular Length, Corner Radius

Side Milling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels Pre-hardened Steels		Stainless Steels Pre-hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	396 SFM		294 SFM		258 SFM		192 SFM		156 SFM		96 SFM	
Depth of Cut	a_a=1.2D a_r=0.2D 						a_a=1D a_r=0.1D		a_a=1D a_r=0.05D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	24,000	38.4	18,000	28.8	15,600	25.0	12,000	19.2	9,600	11.5	6,000	4.8
5/64	19,200	38.4	14,400	28.8	12,480	25.0	9,600	19.2	7,680	12.3	4,800	5.8
3/32	16,080	38.6	12,000	28.8	10,380	24.9	7,980	19.2	6,420	12.8	4,020	4.8
7/64	13,740	38.5	10,320	28.9	8,940	25.0	6,900	19.3	5,520	13.2	3,480	5.6
1/8	12,000	43.2	9,000	28.8	7,800	25.0	6,000	19.2	4,800	13.4	3,000	6.0
5/32	9,600	46.1	7,200	31.7	6,240	27.5	4,800	21.1	3,840	15.4	2,400	7.7
3/16	8,040	51.5	6,000	36.0	5,220	31.3	4,020	22.5	3,180	17.8	1,980	9.5
7/32	6,900	55.2	5,160	37.2	4,440	30.2	3,420	23.3	2,760	16.6	1,740	9.0
1/4	6,000	55.2	4,500	39.6	3,900	31.2	3,000	24.0	2,400	16.3	1,500	9.0
5/16	4,800	57.6	3,600	38.9	3,120	32.4	2,400	24.0	1,920	16.9	1,200	9.6
3/8	4,020	56.3	3,000	38.4	2,640	30.6	1,980	22.2	1,620	16.2	1,020	9.4
7/16	3,480	55.7	2,580	38.2	2,280	31.0	1,740	22.3	1,380	16.0	840	8.4
1/2	3,000	54.0	2,280	35.6	1,980	27.7	1,500	19.2	1,200	13.9	750	8.1
5/8	2,400	43.2	1,800	28.1	1,600	22.4	1,200	15.4	980	11.4	600	6.5
3/4	2,000	36.0	1,500	23.4	1,300	18.2	1,000	12.8	800	9.3	500	5.4
1	1,500	27.0	1,100	17.2	1,000	14.0	750	9.6	600	7.0	380	4.1

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

High Speed Light Milling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC	
Work Material	Carbon Steels 1045, 1055		Alloy Steels 4140, 4340		Hardened Steels Pre-hardened Steels D2, H13, 17-4PH		Tool Steels, Hardened Steels Pre-hardened Steels, D2, H13		Hardened Steels Heat Resistant Steels	
Cutting Speed	1,560 SFM		1,380 SFM		960 SFM		600 SFM		310 SFM	
Depth of Cut										

Dia	a_a	a_r
D<1/8	1.5D	0.01D
1/8≤D	1.5D	0.02D
5/8<D	1.5D	0.05D

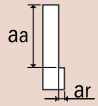
Dia	a_a	a_r
D≤5/16	1.0D	0.01D
5/16<D	1.0D	0.02D

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	24,000	220.8	21,000	184.8	14,760	118.1	9,000	72.0	4,800	32.6
9/32	20,400	212.2	18,000	172.8	13,200	121.4	7,920	69.7	4,200	33.6
5/16	18,840	226.1	16,320	176.3	12,000	124.8	7,200	72.0	3,840	33.8
3/8	15,600	218.4	13,800	176.6	9,960	115.5	6,000	67.2	3,120	31.2
7/16	13,200	211.2	12,000	177.6	8,640	117.5	5,160	66.0	2,760	32.0
1/2	11,880	213.8	10,440	162.9	7,440	104.2	4,440	56.8	2,400	27.8
5/8	9,500	171.0	8,400	131.1	5,900	82.6	3,670	47.0	1,900	22.1
3/4	7,950	143.1	7,000	109.2	4,950	69.3	3,050	39.0	1,580	18.3
1	5,960	107.3	5,270	82.3	3,700	51.8	2,300	29.5	1,180	13.7

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

List 3604 - EXOCARB® WXL®: Regular Length, 4 Flute

Side Milling

Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Aluminum Copper Alloy	Cast Iron, Carbon Steel, Alloy Steels, Stainless, Die Steels	Hardened Steels Pre-hardened Steels, P20, H13, S7, A2	
Cutting Speed	974 SFM	250 SFM	172 SFM	153 SFM
Depth of Cut	Dia: D<7/64 → aa 1.5D, ar 0.05D; 7/64≤D → aa 1.5D, ar 0.10D 			aa=1.0D ar=0.02D

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	40.0	14,000	22.4	8,200	13.1	7,400	11.8
5/64	25,000	50.0	12,000	24.0	7,000	14.0	6,350	12.7
3/32	25,000	60.0	10,800	25.9	6,600	15.8	5,950	14.3
7/64	25,000	70.0	8,900	24.9	5,750	16.1	5,150	14.4
1/8	25,000	90.0	7,000	25.2	4,800	15.4	4,200	13.4
5/32	25,000	130.0	6,050	31.5	4,250	20.4	3,700	16.3
3/16	21,500	137.6	5,500	35.2	3,900	23.4	3,425	19.2
7/32	17,500	140.0	4,100	32.8	2,950	20.1	2,650	18.0
1/4	14,000	128.8	3,800	35.0	2,600	20.8	2,300	18.4
9/32	12,500	130.0	3,400	35.4	2,400	23.0	2,100	18.5
5/16	12,000	144.0	3,050	36.6	2,200	25.5	1,950	19.5
3/8	10,100	141.4	2,750	38.5	1,975	22.9	1,750	19.6
7/16	8,700	139.2	2,250	36.0	1,600	21.8	1,425	18.2
1/2	7,400	133.2	1,900	34.2	1,350	18.9	1,200	15.8
5/8	6,000	110.4	1,500	27.6	1,100	16.3	995	13.9
3/4	5,000	94.0	1,275	24.0	950	16.3	850	13.9
1	3,750	69.4	950	17.6	690	11.8	630	10.3

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

High Speed Light Milling

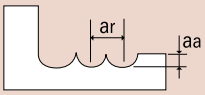
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Aluminum Copper Alloy	Cast Iron, Carbon Steel, Alloy Steels, Stainless, Die Steels	Hardened Steels Pre-hardened Steels, P20, H13, S7, A2	
Cutting Speed	1,627 SFM	1,231 SFM	803 SFM	482 SFM
Depth of Cut	Dia: D<5/16 → aa 1.5D, ar 0.01D; 5/16≤D → aa 1.5D, ar 0.02D 			Dia: D<5/16 → aa 1.0D, ar 0.01D; 5/16≤D → aa 1.0D, ar 0.02D

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
7/32	25,000	200.0	20,000	160.0	13,000	88.4	7,950	54.1
1/4	22,500	207.0	19,000	174.8	11,500	92.0	7,000	56.0
9/32	24,000	249.6	17,500	182.0	10,500	100.8	6,250	55.0
5/16	19,500	234.0	14,500	174.0	9,900	114.8	5,950	59.5
3/8	17,500	245.0	13,250	185.5	8,900	103.2	5,350	59.9
7/16	14,250	228.0	10,950	175.2	7,275	98.9	4,350	55.7
1/2	12,000	216.0	9,200	165.6	6,125	85.8	3,675	48.5
5/8	9,700	178.5	7,450	137.1	4,950	73.3	2,950	41.3
3/4	9,150	172.0	6,275	118.0	4,175	71.8	2,500	41.0
1	6,200	114.7	4,700	88.4	3,050	51.9	1,850	30.5

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

List 3690 : Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing
List 3790 : Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing

Standard Milling

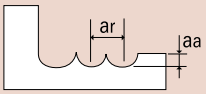
Hardness	–				<32 HRC				33-41 HRC				42-50 HRC			
Work Material	Aluminum Copper Alloy				Cast Iron, Carbon Steel, Alloy Steel, Stainless Steel, Die Steel				Prehardened & Hardened Steel							
Cutting Speed	90-460 SFM				80-340 SFM				80-280 SFM				80-280 SFM			
Depth of Cut																
Mill Dia.	L1 (mm)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
0.1	0.3	25,000	4.6	0.0002	0.0002	25,000	2.3	0.0002	0.0002	25,000	1.5	0.0002	0.0002	25,000	1.1	0.0002	0.0002
0.1	0.5	25,000	3.7	0.0002	0.0002	25,000	1.8	0.0002	0.0002	25,000	1.2	0.0002	0.0002	25,000	0.8	0.0002	0.0002
0.2	0.3	25,000	9.2	0.0008	0.0008	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0002	0.0002
0.2	0.5	25,000	9.2	0.0008	0.0008	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0002	0.0002
0.2	0.75	25,000	9.2	0.0008	0.0008	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004	25,000	3.1	0.0002	0.0002
0.2	1	25,000	4.6	0.0008	0.0008	25,000	3.1	0.0004	0.0004	25,000	3.1	0.0004	0.0004	25,000	2.5	0.0002	0.0002
0.2	1.25	25,000	4.6	0.0008	0.0008	25,000	3.1	0.0004	0.0004	25,000	3.1	0.0004	0.0004	25,000	2.5	0.0002	0.0002
0.2	1.5	25,000	4.6	0.0008	0.0008	25,000	3.1	0.0004	0.0004	25,000	3.1	0.0004	0.0004	25,000	2.5	0.0002	0.0002
0.2	1.75	25,000	4.6	0.0008	0.0008	25,000	3.1	0.0004	0.0004	25,000	3.1	0.0004	0.0004	25,000	2.5	0.0002	0.0002
0.2	2	25,000	4.6	0.0004	0.0004	25,000	3.1	0.0002	0.0002	25,000	3.1	0.0002	0.0002	25,000	2.5	0.0002	0.0002
0.2	2.5	25,000	2.3	0.0004	0.0004	25,000	1.5	0.0002	0.0002	25,000	1.5	0.0002	0.0002	25,000	1.2	0.0001	0.0002
0.2	3	25,000	2.3	0.0004	0.0004	25,000	1.5	0.0002	0.0002	25,000	1.5	0.0002	0.0002	25,000	1.2	0.0001	0.0002
0.3	0.5	25,000	18.5	0.0008	0.0012	25,000	12.3	0.0004	0.0006	25,000	9.2	0.0004	0.0006	25,000	9.2	0.0002	0.0002
0.3	0.6	25,000	18.5	0.0008	0.0012	25,000	12.3	0.0004	0.0006	25,000	9.2	0.0004	0.0006	25,000	9.2	0.0002	0.0002
0.3	0.75	25,000	18.5	0.0008	0.0012	25,000	12.3	0.0004	0.0006	25,000	9.2	0.0004	0.0006	25,000	9.2	0.0002	0.0002
0.3	1	25,000	13.8	0.0008	0.0012	25,000	9.2	0.0004	0.0006	25,000	6.2	0.0004	0.0006	25,000	6.2	0.0002	0.0002
0.3	1.25	25,000	13.8	0.0008	0.0012	25,000	9.2	0.0004	0.0006	25,000	6.2	0.0004	0.0006	25,000	6.2	0.0002	0.0002
0.3	1.5	25,000	13.8	0.0008	0.0012	25,000	9.2	0.0004	0.0006	25,000	6.2	0.0004	0.0006	25,000	6.2	0.0002	0.0002
0.3	1.75	25,000	13.8	0.0008	0.0012	25,000	9.2	0.0004	0.0006	25,000	6.2	0.0004	0.0006	25,000	6.2	0.0002	0.0002
0.3	2	25,000	13.8	0.0008	0.0012	25,000	9.2	0.0004	0.0006	25,000	6.2	0.0004	0.0006	25,000	6.2	0.0002	0.0002
0.3	2.25	25,000	13.8	0.0008	0.0008	25,000	9.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004
0.3	2.5	25,000	13.8	0.0008	0.0008	25,000	9.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004
0.3	2.75	25,000	13.8	0.0008	0.0008	25,000	9.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004
0.3	3	25,000	13.8	0.0008	0.0008	25,000	9.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0002	0.0004
0.3	3.5	25,000	8.3	0.0008	0.0008	25,000	5.5	0.0004	0.0004	25,000	3.7	0.0004	0.0004	25,000	3.7	0.0002	0.0004
0.3	4	25,000	8.3	0.0008	0.0008	25,000	5.5	0.0004	0.0004	25,000	3.7	0.0004	0.0004	25,000	3.7	0.0002	0.0002
0.3	4.5	25,000	8.3	0.0008	0.0008	25,000	5.5	0.0004	0.0004	25,000	3.7	0.0004	0.0004	25,000	3.7	0.0001	0.0002
0.3	5	25,000	4.6	0.0004	0.0008	25,000	3.1	0.0002	0.0004	25,000	2.2	0.0002	0.0004	25,000	2.2	0.0001	0.0002
0.4	0.5	25,000	23.1	0.0010	0.0020	25,000	15.4	0.0006	0.0010	25,000	12.3	0.0006	0.0008	25,000	12.3	0.0004	0.0004
0.4	0.75	25,000	23.1	0.0010	0.0020	25,000	15.4	0.0006	0.0010	25,000	12.3	0.0006	0.0008	25,000	12.3	0.0004	0.0004
0.4	1	25,000	18.5	0.0010	0.0020	25,000	12.3	0.0006	0.0010	25,000	9.2	0.0006	0.0008	25,000	9.2	0.0004	0.0004
0.4	1.5	25,000	18.5	0.0010	0.0020	25,000	12.3	0.0006	0.0010	25,000	9.2	0.0006	0.0008	25,000	9.2	0.0004	0.0004
0.4	2	25,000	16.4	0.0010	0.0020	25,000	10.9	0.0006	0.0010	25,000	7.3	0.0006	0.0008	25,000	7.3	0.0004	0.0004
0.4	2.5	25,000	16.4	0.0010	0.0020	25,000	10.9	0.0006	0.0010	25,000	7.3	0.0006	0.0008	25,000	7.3	0.0004	0.0004
0.4	3	25,000	16.4	0.0010	0.0020	25,000	10.9	0.0006	0.0010	25,000	7.3	0.0006	0.0008	25,000	7.3	0.0004	0.0004
0.4	3.5	25,000	16.4	0.0010	0.0020	25,000	10.9	0.0006	0.0010	25,000	7.3	0.0006	0.0008	25,000	7.3	0.0004	0.0004
0.4	4	25,000	16.4	0.0004	0.0012	25,000	10.9	0.0002	0.0006	25,000	7.3	0.0002	0.0005	25,000	7.3	0.0002	0.0004
0.4	4.5	24,000	11.8	0.0004	0.0012	25,000	7.3	0.0002	0.0006	25,000	3.6	0.0002	0.0005	25,000	3.6	0.0002	0.0004
0.4	5	24,000	11.8	0.0004	0.0012	25,000	7.3	0.0002	0.0006	25,000	3.6	0.0002	0.0005	25,000	3.6	0.0002	0.0004
0.4	5.5	21,000	11.8	0.0004	0.0008	25,000	7.3	0.0002	0.0004	25,000	3.6	0.0002	0.0003	25,000	3.6	0.0002	0.0002
0.4	6	21,000	5.9	0.0004	0.0006	25,000	3.6	0.0002	0.0003	25,000	2.9	0.0002	0.0002	25,000	2.9	0.0001	0.0002
0.5	1	25,000	23.1	0.0016	0.0020	25,000	15.4	0.0008	0.0010	25,000	12.3	0.0008	0.0008	25,000	12.3	0.0004	0.0004
0.5	1.5	25,000	23.1	0.0016	0.0020	25,000	15.4	0.0008	0.0010	25,000	12.3	0.0008	0.0008	25,000	12.3	0.0004	0.0004
0.5	2	25,000	18.5	0.0016	0.0020	25,000	12.3	0.0008	0.0010	25,000	9.2	0.0008	0.0008	25,000	9.2	0.0004	0.0004
0.5	2.5	25,000	16.4	0.0016	0.0020	25,000	10.9	0.0008	0.0010	25,000	7.3	0.0008	0.0008	25,000	7.3	0.0004	0.0004
0.5	3	25,000	16.4	0.0016	0.0020	25,000	10.9	0.0008	0.0010	25,000	7.3	0.0008	0.0008	25,000	7.3	0.0004	0.0004

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

continued on next page

List 3690 : Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing (Continued)
List 3790 : Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing (Continued)

Standard Milling

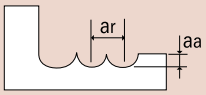
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Aluminum Copper Alloy	Cast Iron, Carbon Steel, Alloy Steel, Stainless Steel, Die Steel	Prehardened & Hardened Steel	
Cutting Speed	90-460 SFM	80-340 SFM	80-280 SFM	80-280 SFM
Depth of Cut				

Mill Dia.	L1 (mm)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
0.5	3.5	25,000	16.4	0.0016	0.0020	25,000	10.9	0.0008	0.0010	25,000	7.3	0.0008	0.0008	25,000	7.3	0.0004	0.0004
0.5	4	25,000	16.4	0.0016	0.0020	25,000	10.9	0.0008	0.0010	25,000	7.3	0.0008	0.0008	25,000	7.3	0.0004	0.0004
0.5	4.5	21,000	11.8	0.0016	0.0020	20,000	7.9	0.0008	0.0010	20,000	7.9	0.0008	0.0008	20,000	7.9	0.0004	0.0004
0.5	5	21,000	11.8	0.0016	0.0020	20,000	7.9	0.0008	0.0010	20,000	5.9	0.0008	0.0008	20,000	5.9	0.0004	0.0004
0.5	5.5	21,000	11.8	0.0008	0.0012	20,000	7.9	0.0004	0.0006	20,000	5.9	0.0004	0.0004	20,000	5.9	0.0004	0.0004
0.5	6	21,000	11.8	0.0008	0.0012	20,000	7.9	0.0004	0.0006	20,000	5.9	0.0004	0.0004	20,000	5.9	0.0004	0.0004
0.5	7	21,000	11.8	0.0008	0.0012	20,000	7.9	0.0004	0.0006	20,000	5.9	0.0004	0.0004	20,000	5.9	0.0004	0.0004
0.5	8	21,000	11.8	0.0008	0.0012	15,000	7.9	0.0004	0.0006	15,000	5.9	0.0004	0.0004	15,000	5.9	0.0002	0.0004
0.5	9	18,000	5.9	0.0008	0.0008	15,000	3.9	0.0004	0.0004	15,000	3.1	0.0002	0.0004	15,000	3.1	0.0002	0.0002
0.5	10	18,000	5.9	0.0004	0.0004	15,000	3.9	0.0002	0.0002	15,000	3.1	0.0002	0.0002	15,000	3.1	0.0001	0.0002
0.6	1	25,000	27.7	0.0018	0.0047	25,000	18.5	0.0012	0.0024	25,000	15.4	0.0012	0.0020	25,000	15.4	0.0012	0.0012
0.6	1.5	25,000	27.7	0.0018	0.0047	25,000	18.5	0.0012	0.0024	25,000	15.4	0.0012	0.0020	25,000	15.4	0.0012	0.0012
0.6	2	25,000	20.8	0.0018	0.0047	25,000	13.8	0.0012	0.0024	25,000	9.2	0.0012	0.0020	25,000	9.2	0.0012	0.0012
0.6	2.5	25,000	22.1	0.0018	0.0047	25,000	13.8	0.0012	0.0024	25,000	9.2	0.0012	0.0020	25,000	9.2	0.0012	0.0012
0.6	3	25,000	12.3	0.0018	0.0047	25,000	9.8	0.0012	0.0024	24,000	7.9	0.0012	0.0020	24,000	7.9	0.0012	0.0012
0.6	3.5	25,000	12.3	0.0018	0.0047	25,000	9.8	0.0012	0.0024	24,000	7.9	0.0012	0.0016	24,000	7.9	0.0012	0.0012
0.6	4	25,000	12.3	0.0018	0.0047	25,000	9.8	0.0012	0.0024	24,000	7.9	0.0012	0.0016	24,000	7.9	0.0012	0.0012
0.6	4.5	25,000	12.3	0.0018	0.0047	25,000	9.8	0.0012	0.0024	24,000	7.9	0.0012	0.0016	24,000	7.9	0.0012	0.0012
0.6	5	25,000	12.3	0.0018	0.0047	25,000	9.8	0.0012	0.0024	24,000	7.9	0.0012	0.0016	24,000	7.9	0.0008	0.0008
0.6	5.5	25,000	11.8	0.0018	0.0047	20,000	7.9	0.0012	0.0024	20,000	7.9	0.0012	0.0016	20,000	7.9	0.0008	0.0008
0.6	6	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0012	0.0016	20,000	5.9	0.0008	0.0008
0.6	6.5	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0012	0.0016	20,000	5.9	0.0008	0.0008
0.6	7	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0012	0.0016	20,000	5.9	0.0008	0.0008
0.6	7.5	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0012	0.0016	20,000	5.9	0.0008	0.0008
0.6	8	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0012	0.0016	20,000	5.9	0.0008	0.0008
0.6	8.5	22,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0008	0.0016	20,000	5.9	0.0004	0.0004
0.6	9	22,000	8.9	0.0012	0.0039	20,000	5.9	0.0008	0.0020	20,000	5.9	0.0008	0.0016	20,000	5.9	0.0004	0.0004
0.6	9.5	22,000	8.9	0.0012	0.0039	17,000	5.9	0.0008	0.0020	17,000	5.9	0.0008	0.0016	17,000	5.9	0.0004	0.0004
0.6	10	20,000	5.9	0.0010	0.0020	17,000	3.9	0.0006	0.0010	17,000	3.9	0.0006	0.0008	17,000	3.9	0.0002	0.0002
0.6	11	20,000	5.9	0.0010	0.0020	17,000	3.9	0.0006	0.0010	17,000	3.9	0.0004	0.0008	17,000	3.9	0.0002	0.0002
0.6	12	20,000	4.7	0.0010	0.0020	17,000	3.1	0.0006	0.0010	17,000	3.1	0.0004	0.0005	17,000	3.1	0.0002	0.0002
0.8	2	25,000	24.6	0.0024	0.0063	23,000	17.7	0.0016	0.0031	21,000	11.8	0.0016	0.0024	21,000	11.8	0.0016	0.0016
0.8	3	25,000	24.6	0.0024	0.0063	23,000	17.7	0.0016	0.0031	21,000	11.8	0.0016	0.0024	21,000	11.8	0.0016	0.0016
0.8	4	25,000	24.6	0.0024	0.0063	23,000	17.7	0.0016	0.0031	21,000	11.8	0.0016	0.0024	21,000	11.8	0.0016	0.0016
0.8	5	24,000	14.8	0.0024	0.0047	21,000	9.8	0.0016	0.0024	19,000	7.9	0.0016	0.0020	19,000	7.9	0.0008	0.0010
0.8	6	24,000	14.8	0.0024	0.0047	21,000	9.8	0.0016	0.0024	19,000	7.9	0.0016	0.0020	19,000	7.9	0.0008	0.0010
0.8	7	24,000	14.8	0.0024	0.0047	21,000	9.8	0.0016	0.0024	19,000	7.9	0.0016	0.0020	19,000	7.9	0.0008	0.0010
0.8	8	22,000	8.9	0.0024	0.0047	19,000	5.9	0.0016	0.0024	17,000	5.9	0.0016	0.0020	17,000	5.9	0.0008	0.0010
0.8	9	22,000	8.9	0.0024	0.0047	19,000	5.9	0.0016	0.0024	17,000	5.9	0.0016	0.0020	17,000	5.9	0.0008	0.0010
0.8	10	22,000	8.9	0.0024	0.0047	19,000	5.9	0.0016	0.0024	17,000	5.9	0.0016	0.0020	17,000	5.9	0.0008	0.0010
0.8	12	20,000	8.9	0.0024	0.0047	19,000	5.9	0.0016	0.0024	17,000	5.9	0.0016	0.0020	17,000	5.9	0.0008	0.0010
1	2.5	25,000	31.6	0.0030	0.0079	25,000	23.6	0.0020	0.0039	21,000	15.7	0.0020	0.0031	21,000	15.7	0.0020	0.0020
1	3	25,000	26.4	0.0030	0.0079	25,000	19.7	0.0020	0.0039	21,000	11.8	0.0020	0.0031	21,000	11.8	0.0020	0.0020
1	4	25,000	26.4	0.0030	0.0079	25,000	19.7	0.0020	0.0039	21,000	11.8	0.0020	0.0031	21,000	11.8	0.0020	0.0020
1	5	21,000	17.7	0.0030	0.0079	19,000	11.8	0.0020	0.0039	16,000	7.9	0.0020	0.0031	16,000	7.9	0.0020	0.0020
1	6	21,000	17.7	0.0030	0.0079	19,000	11.8	0.0020	0.0039	16,000	7.9	0.0020	0.0031	16,000	7.9	0.0020	0.0020

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

continued on next page

Standard Milling

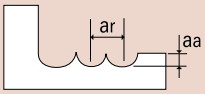
Hardness	–				<32 HRC				33-41 HRC				42-50 HRC			
Work Material	Aluminum Copper Alloy				Cast Iron, Carbon Steel, Alloy Steel, Stainless Steel, Die Steel				Prehardened & Hardened Steel							
Cutting Speed	90-460 SFM				80-340 SFM				80-280 SFM				80-280 SFM			
Depth of Cut																
Mill Dia.	L1 (mm)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
1	7	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0030	16,000	7.9	0.0020	0.0024	16,000	7.9	0.0012	0.0012
1	8	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0030	16,000	7.9	0.0020	0.0024	16,000	7.9	0.0012	0.0012
1	9	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0030	16,000	7.9	0.0020	0.0024	16,000	7.9	0.0012	0.0012
1	10	18,000	11.8	0.0024	0.0047	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0006
1	12	18,000	11.8	0.0024	0.0047	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0006
1	14	18,000	11.8	0.0024	0.0047	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0006
1	16	16,000	11.8	0.0024	0.0047	13,000	7.9	0.0012	0.0020	10,000	5.9	0.0012	0.0016	10,000	5.9	0.0004	0.0006
1	18	16,000	11.8	0.0024	0.0047	13,000	7.9	0.0012	0.0020	10,000	5.9	0.0012	0.0016	10,000	5.9	0.0004	0.0006
1	20	16,000	11.8	0.0024	0.0047	13,000	7.9	0.0012	0.0020	10,000	5.9	0.0012	0.0016	10,000	5.9	0.0004	0.0006
1	22	16,000	8.9	0.0020	0.0020	13,000	5.9	0.0008	0.0010	10,000	3.9	0.0008	0.0008	10,000	3.9	0.0002	0.0002
1.2	4	20,000	29.5	0.0035	0.0094	17,000	19.7	0.0024	0.0047	14,000	11.8	0.0024	0.0039	14,000	11.8	0.0024	0.0024
1.2	6	20,000	17.7	0.0035	0.0094	17,000	11.8	0.0024	0.0047	14,000	7.9	0.0024	0.0039	14,000	7.9	0.0024	0.0024
1.2	8	20,000	17.7	0.0035	0.0094	17,000	11.8	0.0024	0.0047	14,000	7.9	0.0024	0.0039	14,000	7.9	0.0024	0.0024
1.2	10	20,000	17.7	0.0035	0.0071	17,000	11.8	0.0024	0.0035	14,000	7.9	0.0024	0.0028	14,000	7.9	0.0012	0.0012
1.2	12	16,000	11.8	0.0035	0.0071	14,000	7.9	0.0024	0.0035	11,000	5.9	0.0024	0.0028	11,000	5.9	0.0012	0.0012
1.2	14	16,000	11.8	0.0035	0.0071	14,000	7.9	0.0024	0.0035	11,000	5.9	0.0024	0.0028	11,000	5.9	0.0004	0.0012
1.2	16	16,000	11.8	0.0035	0.0071	14,000	7.9	0.0024	0.0035	11,000	5.9	0.0024	0.0028	11,000	5.9	0.0004	0.0012
1.2	18	16,000	11.8	0.0035	0.0071	14,000	7.9	0.0024	0.0035	11,000	5.9	0.0024	0.0028	11,000	5.9	0.0004	0.0012
1.2	20	16,000	11.8	0.0035	0.0071	14,000	7.9	0.0024	0.0035	11,000	5.9	0.0024	0.0028	11,000	5.9	0.0004	0.0012
1.2	24	16,000	11.8	0.0035	0.0071	14,000	7.9	0.0024	0.0035	11,000	5.9	0.0024	0.0028	11,000	5.9	0.0004	0.0012
1.4	8	18,000	17.7	0.0039	0.0110	15,500	11.8	0.0028	0.0055	12,000	9.8	0.0028	0.0039	12,000	9.8	0.0028	0.0028
1.4	12	18,000	17.7	0.0039	0.0079	15,500	11.8	0.0028	0.0039	12,000	9.8	0.0028	0.0031	12,000	9.8	0.0028	0.0028
1.4	16	13,000	11.8	0.0035	0.0071	12,000	7.9	0.0024	0.0035	9,000	5.9	0.0016	0.0028	9,000	5.9	0.0004	0.0012
1.5	3	20,000	35.4	0.0047	0.0118	15,000	23.6	0.0031	0.0059	12,000	19.7	0.0031	0.0047	12,000	11.8	0.0031	0.0039
1.5	4	20,000	35.4	0.0047	0.0118	15,000	23.6	0.0031	0.0059	12,000	19.7	0.0031	0.0047	12,000	11.8	0.0031	0.0039
1.5	6	18,000	29.5	0.0047	0.0118	15,000	19.7	0.0031	0.0059	12,000	13.8	0.0031	0.0047	12,000	11.8	0.0031	0.0039
1.5	8	17,000	17.7	0.0047	0.0118	15,000	11.8	0.0031	0.0059	12,000	9.8	0.0031	0.0047	12,000	9.8	0.0031	0.0039
1.5	10	17,000	17.7	0.0047	0.0118	15,000	11.8	0.0031	0.0059	12,000	9.8	0.0031	0.0047	12,000	9.8	0.0031	0.0039
1.5	12	17,000	17.7	0.0047	0.0094	15,000	11.8	0.0031	0.0047	12,000	9.8	0.0031	0.0035	12,000	9.8	0.0020	0.0024
1.5	14	17,000	17.7	0.0047	0.0094	15,000	11.8	0.0031	0.0047	12,000	9.8	0.0031	0.0035	12,000	9.8	0.0020	0.0024
1.5	16	13,000	11.8	0.0035	0.0071	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0028	9,500	5.9	0.0004	0.0012
1.5	18	13,000	11.8	0.0035	0.0071	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0028	9,500	5.9	0.0004	0.0012
1.5	20	13,000	11.8	0.0035	0.0071	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0028	9,500	5.9	0.0004	0.0012
1.5	22	13,000	11.8	0.0035	0.0071	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0028	9,500	5.9	0.0004	0.0012
1.5	30	13,000	11.8	0.0035	0.0071	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0028	9,500	5.9	0.0004	0.0012
1.6	4	20,000	35.4	0.0047	0.0126	14,000	23.6	0.0031	0.0063	11,000	19.7	0.0031	0.0051	11,000	13.8	0.0031	0.0039
1.6	8	16,500	17.7	0.0047	0.0126	14,000	11.8	0.0031	0.0063	11,000	9.8	0.0031	0.0051	11,000	9.8	0.0031	0.0039
1.6	12	16,500	17.7	0.0047	0.0094	14,000	11.8	0.0031	0.0047	11,000	9.8	0.0031	0.0031	11,000	9.8	0.0020	0.0020
1.6	16	11,500	11.8	0.0047	0.0094	11,000	7.9	0.0031	0.0047	9,000	5.9	0.0031	0.0031	9,000	5.9	0.0020	0.0020
1.6	20	11,500	11.8	0.0035	0.0079	11,000	7.9	0.0024	0.0047	9,000	5.9	0.0024	0.0030	9,000	5.9	0.0006	0.0012
1.8	8	16,500	23.6	0.0051	0.0142	14,000	15.7	0.0035	0.0071	11,000	11.8	0.0035	0.0063	11,000	11.8	0.0035	0.0047
1.8	12	16,500	23.6	0.0051	0.0142	14,000	15.7	0.0035	0.0071	11,000	11.8	0.0035	0.0063	11,000	11.8	0.0035	0.0047
1.8	16	16,500	23.6	0.0051	0.0106	14,000	15.7	0.0035	0.0055	11,000	11.8	0.0035	0.0047	11,000	11.8	0.0020	0.0024
1.8	20	11,000	11.8	0.0039	0.0087	11,000	7.9	0.0024	0.0051	8,000	7.9	0.0024	0.0031	8,000	7.9	0.0008	0.0012
2	3	16,500	53.1	0.0059	0.0220	16,500	35.4	0.0039	0.0110	13,500	31.5	0.0039	0.0110	13,500	27.6	0.0039	0.0079
2	4	16,500	41.3	0.0059	0.0220	16,500	27.6	0.0039	0.0110	13,500	19.7	0.0039	0.0110	13,500	19.7	0.0039	0.0079

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

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List 3690: Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing (Continued)
List 3790: Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing (Continued)

Standard Milling

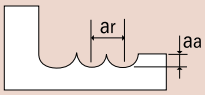
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Aluminum Copper Alloy	Cast Iron, Carbon Steel, Alloy Steel, Stainless Steel, Die Steel	Prehardened & Hardened Steel	
Cutting Speed	90-460 SFM	80-340 SFM	80-280 SFM	80-280 SFM
Depth of Cut				

Mill Dia.	L1 (mm)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
2	6	16,500	41.3	0.0059	0.0220	16,500	27.6	0.0039	0.0110	13,500	19.7	0.0039	0.0110	13,500	19.7	0.0039	0.0079
2	8	16,500	41.3	0.0059	0.0220	16,500	27.6	0.0039	0.0110	13,500	19.7	0.0039	0.0110	13,500	19.7	0.0039	0.0079
2	10	14,000	29.5	0.0059	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
2	12	14,000	29.5	0.0059	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
2	14	14,000	29.5	0.0059	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
2	16	14,000	29.5	0.0059	0.0165	13,000	19.7	0.0039	0.0083	10,000	11.8	0.0039	0.0071	10,000	11.8	0.0024	0.0039
2	18	14,000	29.5	0.0059	0.0165	13,000	19.7	0.0039	0.0083	10,000	11.8	0.0039	0.0071	10,000	11.8	0.0024	0.0039
2	20	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
2	22	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
2	25	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
2	30	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
2	35	10,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
2	40	10,000	11.8	0.0059	0.0165	10,000	7.9	0.0039	0.0083	8,000	6.3	0.0039	0.0071	8,000	6.3	0.0024	0.0039
2.5	6	16,000	41.3	0.0071	0.0276	12,000	27.6	0.0047	0.0138	10,000	23.6	0.0047	0.0118	10,000	23.6	0.0039	0.0098
2.5	10	14,000	41.3	0.0071	0.0276	12,000	27.6	0.0047	0.0138	10,000	23.6	0.0047	0.0118	10,000	23.6	0.0039	0.0098
2.5	15	14,000	23.6	0.0071	0.0276	10,000	15.7	0.0047	0.0138	8,500	11.8	0.0047	0.0118	8,500	11.8	0.0039	0.0098
2.5	20	12,000	23.6	0.0071	0.0220	10,000	15.7	0.0047	0.0110	8,500	11.8	0.0047	0.0079	8,500	11.8	0.0031	0.0059
2.5	25	12,000	17.7	0.0071	0.0220	8,000	11.8	0.0047	0.0110	6,500	9.8	0.0047	0.0079	6,500	9.8	0.0031	0.0059
2.5	30	12,000	14.8	0.0071	0.0220	8,000	9.8	0.0047	0.0110	6,500	7.9	0.0047	0.0079	6,500	7.9	0.0031	0.0059
2.5	35	12,000	14.8	0.0071	0.0220	8,000	9.8	0.0047	0.0110	6,500	7.9	0.0047	0.0079	6,500	7.9	0.0031	0.0059
3	6	15,000	47.2	0.0079	0.0331	9,500	31.5	0.0059	0.0165	7,500	23.6	0.0059	0.0165	7,500	23.6	0.0059	0.0118
3	8	12,000	35.4	0.0079	0.0331	9,500	23.6	0.0059	0.0165	7,500	15.7	0.0059	0.0142	7,500	15.7	0.0059	0.0118
3	10	12,000	35.4	0.0079	0.0331	9,500	23.6	0.0059	0.0165	7,500	15.7	0.0059	0.0142	7,500	15.7	0.0059	0.0118
3	12	10,000	35.4	0.0079	0.0331	9,500	23.6	0.0059	0.0165	7,500	15.7	0.0059	0.0142	7,500	15.7	0.0059	0.0118
3	14	10,000	35.4	0.0079	0.0331	9,500	23.6	0.0059	0.0165	7,500	15.7	0.0059	0.0142	7,500	15.7	0.0059	0.0118
3	15	10,000	23.6	0.0079	0.0331	8,500	15.7	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
3	16	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
3	20	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
3	25	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0118	6,500	9.8	0.0035	0.0059
3	30	9,000	14.8	0.0079	0.0331	7,500	9.8	0.0059	0.0165	6,000	7.9	0.0059	0.0118	6,000	7.9	0.0035	0.0059
3	35	9,000	14.8	0.0079	0.0331	7,500	9.8	0.0059	0.0165	6,000	7.9	0.0059	0.0118	6,000	7.9	0.0035	0.0059
3	40	9,000	14.8	0.0079	0.0331	7,500	9.8	0.0059	0.0165	6,000	7.9	0.0059	0.0118	6,000	7.9	0.0035	0.0059
3.5	10	10,000	41.3	0.0157	0.0386	8,500	27.6	0.0059	0.0193	6,500	19.7	0.0059	0.0165	6,500	19.7	0.0059	0.0138
3.5	15	10,000	35.4	0.0157	0.0386	8,500	23.6	0.0059	0.0193	6,500	15.7	0.0059	0.0165	6,500	15.7	0.0059	0.0138
3.5	20	8,000	29.5	0.0157	0.0386	7,500	19.7	0.0059	0.0193	5,500	11.8	0.0059	0.0165	5,500	11.8	0.0059	0.0138
3.5	25	8,000	23.6	0.0157	0.0386	7,500	15.7	0.0059	0.0193	5,500	10.8	0.0059	0.0165	5,500	10.8	0.0059	0.0138
3.5	30	8,000	17.7	0.0157	0.0386	7,500	11.8	0.0059	0.0193	5,500	9.8	0.0059	0.0138	5,500	9.8	0.0039	0.0079
3.5	35	8,000	14.8	0.0157	0.0386	6,000	9.8	0.0059	0.0193	5,000	7.9	0.0059	0.0138	5,000	7.9	0.0039	0.0079
3.5	40	6,000	14.8	0.0118	0.0386	6,000	9.8	0.0059	0.0193	5,000	7.9	0.0059	0.0138	5,000	7.9	0.0039	0.0079
3.5	45	6,000	14.8	0.0118	0.0386	6,000	9.8	0.0059	0.0193	5,000	7.9	0.0059	0.0138	5,000	7.9	0.0039	0.0079
4	8	11,000	47.2	0.0197	0.0504	7,500	31.5	0.0079	0.0252	6,000	27.6	0.0079	0.0236	6,000	27.6	0.0079	0.0157
4	10	9,000	35.4	0.0197	0.0504	7,500	23.6	0.0079	0.0252	6,000	15.7	0.0079	0.0236	6,000	15.7	0.0079	0.0157
4	12	9,000	35.4	0.0197	0.0504	7,500	23.6	0.0079	0.0252	6,000	15.7	0.0079	0.0236	6,000	15.7	0.0079	0.0157
4	14	9,000	35.4	0.0197	0.0504	7,500	23.6	0.0079	0.0252	6,000	15.7	0.0079	0.0236	6,000	15.7	0.0079	0.0157
4	15	9,000	35.4	0.0197	0.0504	7,500	23.6	0.0079	0.0252	6,000	15.7	0.0079	0.0236	6,000	15.7	0.0079	0.0157
4	16	9,000	35.4	0.0197	0.0504	7,500	23.6	0.0079	0.0252	6,000	15.7	0.0079	0.0236	6,000	15.7	0.0079	0.0157

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

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Standard Milling

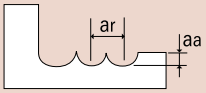
Hardness	–				<32 HRC				33-41 HRC				42-50 HRC			
Work Material	Aluminum Copper Alloy				Cast Iron, Carbon Steel, Alloy Steel, Stainless Steel, Die Steel				Prehardened & Hardened Steel							
Cutting Speed	90-460 SFM				80-340 SFM				80-280 SFM				80-280 SFM			
Depth of Cut																
Mill Dia.	L1 (mm)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
4	20	7,000	23.6	0.0197	0.0504	6,000	15.7	0.0079	0.0252	5,000	9.8	0.0079	0.0236	5,000	9.8	0.0079	0.0157
4	25	7,000	23.6	0.0197	0.0504	6,000	15.7	0.0079	0.0252	5,000	9.8	0.0079	0.0236	5,000	9.8	0.0079	0.0157
4	30	7,000	23.6	0.0157	0.0504	6,000	15.7	0.0079	0.0252	5,000	9.8	0.0079	0.0220	5,000	9.8	0.0047	0.0079
4	35	7,000	23.6	0.0157	0.0504	6,000	15.7	0.0079	0.0252	5,000	9.8	0.0079	0.0220	5,000	9.8	0.0047	0.0079
4	40	5,000	14.8	0.0138	0.0504	5,000	9.8	0.0079	0.0252	4,000	7.9	0.0079	0.0220	4,000	7.9	0.0047	0.0079
4	45	5,000	14.8	0.0138	0.0504	5,000	9.8	0.0079	0.0252	4,000	7.9	0.0079	0.0220	4,000	7.9	0.0047	0.0079
4	50	5,000	14.8	0.0138	0.0504	5,000	9.8	0.0079	0.0252	4,000	7.9	0.0079	0.0220	4,000	7.9	0.0047	0.0079
5	10	9,000	53.1	0.0236	0.0709	6,500	35.4	0.0098	0.0354	5,000	29.5	0.0098	0.0276	5,000	29.5	0.0098	0.0197
5	15	9,000	53.1	0.0236	0.0709	6,500	35.4	0.0098	0.0354	5,000	29.5	0.0098	0.0276	5,000	29.5	0.0098	0.0197
5	20	7,000	29.5	0.0236	0.0709	6,500	19.7	0.0098	0.0354	5,000	15.7	0.0098	0.0276	5,000	15.7	0.0098	0.0197
5	25	6,000	29.5	0.0236	0.0709	5,000	19.7	0.0098	0.0354	4,000	9.8	0.0098	0.0276	4,000	9.8	0.0098	0.0197
5	30	6,000	29.5	0.0236	0.0709	5,000	19.7	0.0098	0.0354	4,000	9.8	0.0098	0.0276	4,000	9.8	0.0098	0.0197
5	35	6,000	29.5	0.0236	0.0709	5,000	19.7	0.0098	0.0354	4,000	9.8	0.0098	0.0276	4,000	9.8	0.0098	0.0197
5	40	5,000	23.6	0.0157	0.0709	4,000	15.7	0.0098	0.0354	4,000	7.9	0.0098	0.0236	4,000	7.9	0.0079	0.0098
5	45	5,000	23.6	0.0157	0.0709	4,000	15.7	0.0098	0.0354	4,000	7.9	0.0098	0.0236	4,000	7.9	0.0079	0.0098
5	50	5,000	17.7	0.0157	0.0709	4,000	11.8	0.0098	0.0354	4,000	7.9	0.0098	0.0236	4,000	7.9	0.0079	0.0098
6	10	7,000	59.1	0.0295	0.0945	5,500	39.4	0.0118	0.0472	4,500	31.5	0.0118	0.0378	4,500	31.5	0.0118	0.0236
6	20	7,000	47.2	0.0295	0.0945	5,500	31.5	0.0118	0.0472	4,500	23.6	0.0118	0.0378	4,500	23.6	0.0118	0.0236
6	25	6,000	35.4	0.0295	0.0945	5,500	23.6	0.0118	0.0472	4,500	15.7	0.0118	0.0378	4,500	15.7	0.0118	0.0236
6	30	5,000	23.6	0.0295	0.0945	4,000	15.7	0.0118	0.0472	4,000	11.8	0.0118	0.0378	4,000	11.8	0.0118	0.0236
6	35	5,000	23.6	0.0295	0.0945	4,000	15.7	0.0118	0.0472	4,000	11.8	0.0118	0.0378	4,000	11.8	0.0118	0.0236
6	40	5,000	23.6	0.0236	0.0945	4,000	15.7	0.0118	0.0472	4,000	11.8	0.0118	0.0378	4,000	11.8	0.0118	0.0236
6	45	5,000	23.6	0.0236	0.0945	4,000	15.7	0.0118	0.0472	4,000	11.8	0.0118	0.0378	4,000	11.8	0.0118	0.0236
6	50	5,000	23.6	0.0236	0.0945	4,000	15.7	0.0118	0.0472	4,000	11.8	0.0118	0.0378	4,000	11.81	0.0118	0.0118

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

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List 3690: Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing (Continued)
List 3790: Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing (Continued)

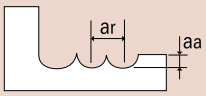
High Speed Milling

Hardness	–				<32 HRC				33-41 HRC				42-50 HRC			
Work Material	Aluminum Copper Alloy				Cast Iron, Carbon Steel, Alloy Steel, Stainless Steel, Die Steel				Prehardened & Hardened Steel							
Cutting Speed	90-460 SFM				80-340 SFM				80-280 SFM				80-280 SFM			
Depth of Cut																
Mill Dia.	L1 (mm)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
0.1	0.3	50,000	11.0	0.0002	0.0002	50,000	5.91	0.0002	0.0002	50,000	3.94	0.0002	0.0002	50,000	2.76	0.0002	0.0002
0.1	0.5	50,000	8.7	0.0002	0.0002	50,000	4.72	0.0002	0.0002	50,000	3.15	0.0002	0.0002	50,000	1.97	0.0002	0.0002
0.2	0.3	50,000	19.3	0.0008	0.0008	50,000	15.75	0.0004	0.0004	50,000	14.96	0.0004	0.0004	50,000	14.96	0.0002	0.0002
0.2	0.5	50,000	19.3	0.0008	0.0008	50,000	15.75	0.0004	0.0004	50,000	14.96	0.0004	0.0004	50,000	14.96	0.0002	0.0002
0.2	0.75	50,000	17.3	0.0008	0.0008	50,000	14.17	0.0004	0.0004	50,000	13.39	0.0004	0.0004	50,000	13.39	0.0002	0.0002
0.2	1	50,000	17.3	0.0008	0.0008	50,000	14.17	0.0004	0.0004	50,000	13.39	0.0004	0.0004	50,000	13.39	0.0002	0.0002
0.2	1.25	50,000	15.4	0.0008	0.0008	47,000	12.60	0.0004	0.0004	47,000	11.81	0.0004	0.0004	47,000	11.81	0.0002	0.0002
0.2	1.5	50,000	14.2	0.0008	0.0008	45,000	11.81	0.0004	0.0004	45,000	11.02	0.0004	0.0004	45,000	11.02	0.0002	0.0002
0.2	1.75	50,000	13.8	0.0008	0.0008	42,000	10.24	0.0004	0.0004	42,000	9.45	0.0004	0.0004	42,000	9.45	0.0002	0.0002
0.2	2	50,000	12.6	0.0004	0.0004	38,000	9.06	0.0002	0.0002	38,000	8.27	0.0002	0.0002	37,000	7.87	0.0002	0.0002
0.2	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3	0.5	50,000	29.5	0.0008	0.0012	50,000	24.41	0.0004	0.0006	50,000	23.62	0.0004	0.0006	50,000	23.62	0.0002	0.0002
0.3	0.6	50,000	28.7	0.0008	0.0012	50,000	23.62	0.0004	0.0006	50,000	22.44	0.0004	0.0006	50,000	22.44	0.0002	0.0002
0.3	0.75	50,000	28.7	0.0008	0.0012	50,000	23.62	0.0004	0.0006	50,000	22.44	0.0004	0.0006	50,000	22.44	0.0002	0.0002
0.3	1	50,000	28.7	0.0008	0.0012	50,000	23.62	0.0004	0.0006	50,000	22.44	0.0004	0.0006	50,000	22.44	0.0002	0.0002
0.3	1.25	50,000	28.7	0.0008	0.0012	50,000	23.62	0.0004	0.0006	50,000	22.44	0.0004	0.0006	50,000	22.44	0.0002	0.0002
0.3	1.5	50,000	28.7	0.0008	0.0012	50,000	23.62	0.0004	0.0006	50,000	22.44	0.0004	0.0006	50,000	22.44	0.0002	0.0002
0.3	1.75	50,000	24.0	0.0008	0.0012	47,000	20.08	0.0004	0.0006	47,000	18.90	0.0004	0.0006	47,000	18.90	0.0002	0.0002
0.3	2	50,000	22.8	0.0008	0.0012	45,000	18.90	0.0004	0.0006	45,000	17.72	0.0004	0.0006	45,000	17.72	0.0002	0.0002
0.3	2.25	50,000	19.3	0.0008	0.0008	45,000	15.75	0.0004	0.0004	45,000	14.96	0.0004	0.0004	45,000	14.96	0.0004	0.0004
0.3	2.5	50,000	14.2	0.0008	0.0008	40,000	11.81	0.0004	0.0004	40,000	11.02	0.0004	0.0004	40,000	11.02	0.0004	0.0004
0.3	2.75	50,000	12.6	0.0008	0.0008	38,000	9.84	0.0004	0.0004	38,000	9.06	0.0004	0.0004	38,000	9.06	0.0004	0.0004
0.3	3	50,000	11.4	0.0008	0.0008	38,000	9.84	0.0004	0.0004	38,000	9.06	0.0004	0.0004	37,000	9.06	0.0002	0.0004
0.3	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.3	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.4	0.5	50,000	43.3	0.0010	0.0020	50,000	36.22	0.0006	0.0010	50,000	34.25	0.0006	0.0008	50,000	34.25	0.0004	0.0004
0.4	0.75	50,000	42.9	0.0010	0.0020	50,000	35.43	0.0006	0.0010	50,000	33.46	0.0006	0.0008	50,000	33.46	0.0004	0.0004
0.4	1	50,000	42.9	0.0010	0.0020	50,000	35.43	0.0006	0.0010	50,000	33.46	0.0006	0.0008	50,000	33.46	0.0004	0.0004
0.4	1.5	50,000	38.2	0.0010	0.0020	50,000	31.50	0.0006	0.0010	50,000	29.92	0.0006	0.0008	50,000	29.92	0.0004	0.0004
0.4	2	50,000	33.5	0.0010	0.0020	50,000	27.56	0.0006	0.0010	50,000	25.98	0.0006	0.0008	50,000	25.98	0.0004	0.0004
0.4	2.5	50,000	26.4	0.0010	0.0020	45,000	21.65	0.0006	0.0010	45,000	20.47	0.0006	0.0008	45,000	20.47	0.0004	0.0004
0.4	3	48,000	21.3	0.0010	0.0020	43,000	19.69	0.0006	0.0010	43,000	18.50	0.0006	0.0008	43,000	18.50	0.0004	0.0004
0.4	3.5	45,000	18.1	0.0010	0.0020	40,000	16.54	0.0006	0.0010	40,000	15.75	0.0006	0.0008	40,000	15.75	0.0004	0.0004
0.4	4	40,000	15.7	0.0004	0.0012	36,000	14.57	0.0002	0.0006	36,000	13.78	0.0002	0.0005	35,000	13.39	0.0002	0.0004
0.4	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.4	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.4	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.4	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5	1	50,000	55.9	0.0016	0.0020	50,000	43.31	0.0008	0.0010	50,000	41.34	0.0008	0.0008	50,000	41.34	0.0004	0.0004
0.5	1.5	50,000	55.9	0.0016	0.0020	50,000	43.31	0.0008	0.0010	50,000	41.34	0.0008	0.0008	50,000	41.34	0.0004	0.0004
0.5	2	50,000	55.1	0.0016	0.0020	50,000	39.37	0.0008	0.0010	50,000	37.40	0.0008	0.0008	50,000	37.40	0.0004	0.0004
0.5	2.5	50,000	54.3	0.0016	0.0020	50,000	39.37	0.0008	0.0010	50,000	37.40	0.0008	0.0008	50,000	37.40	0.0004	0.0004
0.5	3	50,000	46.9	0.0016	0.0020	48,000	35.43	0.0008	0.0010	48,000	33.46	0.0008	0.0008	48,000	33.46	0.0004	0.0004

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

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High Speed Milling

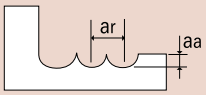
Hardness	–				<32 HRC				33-41 HRC				42-50 HRC			
Work Material	Aluminum Copper Alloy				Cast Iron, Carbon Steel, Alloy Steel, Stainless Steel, Die Steel				Prehardened & Hardened Steel							
Cutting Speed	90-460 SFM				80-340 SFM				80-280 SFM				80-280 SFM			
Depth of Cut																
Mill Dia.	L1 (mm)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
0.5	3.5	50,000	44.9	0.0016	0.0020	45,000	27.56	0.0008	0.0010	45,000	25.59	0.0008	0.0008	45,000	25.59	0.0004	0.0004
0.5	4	45,000	39.4	0.0016	0.0020	43,000	23.62	0.0008	0.0010	43,000	22.44	0.0008	0.0008	43,000	22.44	0.0004	0.0004
0.5	4.5	38,000	37.0	0.0016	0.0020	38,000	19.69	0.0008	0.0010	38,000	18.50	0.0008	0.0008	38,000	18.50	0.0004	0.0004
0.5	5	30,000	29.9	0.0016	0.0020	30,000	15.75	0.0008	0.0010	30,000	14.96	0.0008	0.0008	29,000	14.17	0.0004	0.0004
0.5	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6	1	50,000	65.4	0.0018	0.0047	50,000	55.12	0.0012	0.0024	50,000	51.18	0.0012	0.0020	50,000	51.18	0.0012	0.0012
0.6	1.5	50,000	63.0	0.0018	0.0047	50,000	51.18	0.0012	0.0024	50,000	47.24	0.0012	0.0020	50,000	47.24	0.0012	0.0012
0.6	2	50,000	63.0	0.0018	0.0047	50,000	51.18	0.0012	0.0024	50,000	47.24	0.0012	0.0020	50,000	47.24	0.0012	0.0012
0.6	2.5	50,000	61.0	0.0018	0.0047	50,000	47.24	0.0012	0.0024	50,000	43.31	0.0012	0.0020	50,000	43.31	0.0012	0.0012
0.6	3	50,000	61.0	0.0018	0.0047	50,000	47.24	0.0012	0.0024	50,000	43.31	0.0012	0.0020	50,000	43.31	0.0012	0.0012
0.6	3.5	50,000	52.8	0.0018	0.0047	45,000	39.37	0.0012	0.0024	45,000	37.40	0.0012	0.0016	45,000	37.40	0.0012	0.0012
0.6	4	50,000	47.2	0.0018	0.0047	40,000	35.43	0.0012	0.0024	40,000	33.46	0.0012	0.0016	40,000	33.46	0.0012	0.0012
0.6	4.5	45,000	40.9	0.0018	0.0047	34,000	30.71	0.0012	0.0024	34,000	29.13	0.0012	0.0016	34,000	29.13	0.0012	0.0012
0.6	5	30,000	37.8	0.0018	0.0047	30,000	26.77	0.0012	0.0024	30,000	25.20	0.0012	0.0016	30,000	25.20	0.0008	0.0008
0.6	5.5	30,000	32.3	0.0018	0.0047	28,000	25.59	0.0012	0.0024	28,000	24.02	0.0012	0.0016	28,000	24.02	0.0008	0.0008
0.6	6	30,000	28.3	0.0018	0.0047	26,000	23.62	0.0012	0.0024	26,000	22.44	0.0012	0.0016	25,000	21.26	0.0008	0.0008
0.6	6.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6	7.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6	9.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.6	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.8	2	50,000	86.6	0.0024	0.0063	50,000	78.74	0.0016	0.0031	50,000	74.80	0.0016	0.0024	50,000	74.80	0.0016	0.0016
0.8	3	50,000	68.5	0.0024	0.0063	48,000	62.99	0.0016	0.0031	48,000	59.06	0.0016	0.0024	48,000	59.06	0.0016	0.0016
0.8	4	50,000	66.1	0.0024	0.0063	40,000	47.24	0.0016	0.0031	40,000	43.31	0.0016	0.0024	40,000	43.31	0.0016	0.0016
0.8	5	43,000	63.0	0.0024	0.0047	34,000	37.40	0.0016	0.0024	34,000	35.43	0.0016	0.0020	34,000	35.43	0.0008	0.0010
0.8	6	32,000	49.6	0.0024	0.0047	30,000	31.50	0.0016	0.0024	30,000	29.92	0.0016	0.0020	30,000	29.92	0.0008	0.0010
0.8	7	30,000	39.4	0.0024	0.0047	25,000	23.62	0.0016	0.0024	25,000	22.44	0.0016	0.0020	25,000	22.44	0.0008	0.0010
0.8	8	24,000	28.3	0.0024	0.0047	23,000	17.72	0.0016	0.0024	23,000	16.54	0.0016	0.0020	23,000	16.54	0.0008	0.0010
0.8	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.8	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	2.5	50,000	128.7	0.0030	0.0079	50,000	133.86	0.0020	0.0039	50,000	125.98	0.0020	0.0031	50,000	125.98	0.0020	0.0020
1	3	50,000	120.5	0.0030	0.0079	45,000	125.98	0.0020	0.0039	45,000	118.11	0.0020	0.0031	45,000	118.11	0.0020	0.0020
1	4	50,000	118.1	0.0030	0.0079	40,000	118.11	0.0020	0.0039	40,000	112.20	0.0020	0.0031	40,000	112.20	0.0020	0.0020
1	5	47,000	113.0	0.0030	0.0079	36,000	90.55	0.0020	0.0039	36,000	82.68	0.0020	0.0031	36,000	82.68	0.0020	0.0020
1	6	43,000	102.4	0.0030	0.0079	30,000	78.74	0.0020	0.0039	30,000	74.80	0.0020	0.0031	30,000	74.80	0.0020	0.0020

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

continued on next page

List 3690: Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing (Continued)
List 3790: Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing (Continued)

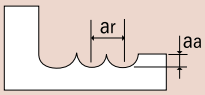
High Speed Milling

Hardness	–				<32 HRC				33-41 HRC				42-50 HRC			
Work Material	Aluminum Copper Alloy				Cast Iron, Carbon Steel, Alloy Steel, Stainless Steel, Die Steel				Prehardened & Hardened Steel							
Cutting Speed	90-460 SFM				80-340 SFM				80-280 SFM				80-280 SFM			
Depth of Cut																
Mill Dia.	L1 (mm)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
1	7	30,000	92.5	0.0030	0.0059	27,000	66.93	0.0020	0.0030	27,000	62.99	0.0020	0.0024	27,000	62.99	0.0012	0.0012
1	8	27,000	78.7	0.0030	0.0059	26,000	62.99	0.0020	0.0030	26,000	59.06	0.0020	0.0024	26,000	59.06	0.0012	0.0012
1	9	26,000	60.6	0.0030	0.0059	24,000	47.24	0.0020	0.0030	24,000	43.31	0.0020	0.0024	24,000	43.31	0.0012	0.0012
1	10	24,000	55.1	0.0024	0.0047	22,000	43.31	0.0012	0.0020	22,000	39.37	0.0012	0.0016	21,000	37.40	0.0004	0.0006
1	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	4	40,000	118.1	0.0035	0.0094	40,000	118.11	0.0024	0.0047	40,000	112.20	0.0024	0.0039	40,000	112.20	0.0024	0.0024
1.2	6	35,000	102.4	0.0035	0.0094	32,000	82.68	0.0024	0.0047	32,000	78.74	0.0024	0.0039	32,000	78.74	0.0024	0.0024
1.2	8	30,000	78.7	0.0035	0.0094	25,000	66.93	0.0024	0.0047	25,000	62.99	0.0024	0.0039	25,000	62.99	0.0024	0.0024
1.2	10	21,000	55.1	0.0035	0.0071	20,000	47.24	0.0024	0.0035	20,000	43.31	0.0024	0.0028	18,000	38.98	0.0012	0.0012
1.2	12	20,000	39.4	0.0035	0.0071	19,000	35.43	0.0024	0.0035	17,000	33.46	0.0024	0.0028	16,000	31.50	0.0012	0.0012
1.2	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4	8	30,000	82.7	0.0039	0.0110	25,000	66.93	0.0028	0.0055	25,000	62.99	0.0028	0.0039	25,000	62.99	0.0028	0.0028
1.4	12	22,000	47.6	0.0039	0.0079	19,000	39.37	0.0028	0.0039	19,000	37.40	0.0028	0.0031	19,000	37.40	0.0028	0.0028
1.4	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5	3	50,000	209.8	0.0047	0.0118	50,000	188.98	0.0031	0.0059	50,000	188.98	0.0031	0.0047	50,000	188.98	0.0031	0.0039
1.5	4	42,000	161.8	0.0047	0.0118	40,000	153.54	0.0031	0.0059	40,000	145.67	0.0031	0.0047	40,000	145.67	0.0031	0.0039
1.5	6	32,000	118.1	0.0047	0.0118	30,000	114.17	0.0031	0.0059	30,000	106.30	0.0031	0.0047	30,000	106.30	0.0031	0.0039
1.5	8	30,000	104.3	0.0047	0.0118	24,000	90.55	0.0031	0.0059	24,000	82.68	0.0031	0.0047	24,000	82.68	0.0031	0.0039
1.5	10	30,000	94.5	0.0047	0.0118	24,000	78.74	0.0031	0.0059	24,000	74.80	0.0031	0.0047	24,000	74.80	0.0031	0.0039
1.5	12	24,000	55.1	0.0047	0.0094	21,000	55.12	0.0031	0.0047	21,000	51.18	0.0031	0.0035	21,000	51.18	0.0020	0.0024
1.5	14	22,000	55.1	0.0047	0.0094	18,000	47.24	0.0031	0.0047	18,000	43.31	0.0031	0.0035	17,000	43.31	0.0020	0.0024
1.5	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6	4	40,000	177.2	0.0047	0.0126	38,000	157.48	0.0031	0.0063	38,000	149.61	0.0031	0.0051	38,000	141.73	0.0031	0.0039
1.6	8	26,000	118.1	0.0047	0.0126	24,000	118.11	0.0031	0.0063	24,000	110.24	0.0031	0.0051	23,000	102.36	0.0031	0.0039
1.6	12	24,000	94.5	0.0047	0.0094	21,000	70.87	0.0031	0.0047	21,000	66.93	0.0031	0.0031	20,000	62.99	0.0020	0.0020
1.6	16	18,000	63.0	0.0047	0.0094	16,000	31.50	0.0031	0.0047	16,000	29.92	0.0031	0.0031	15,000	27.56	0.0020	0.0020
1.6	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.8	8	25,000	126.0	0.0051	0.0142	24,000	118.11	0.0035	0.0071	24,000	110.24	0.0035	0.0063	23,000	102.36	0.0035	0.0047
1.8	12	22,000	98.4	0.0051	0.0142	18,000	70.87	0.0035	0.0071	15,800	59.06	0.0035	0.0063	14,700	53.15	0.0035	0.0047
1.8	16	16,000	47.2	0.0051	0.0106	16,000	38.58	0.0035	0.0055	14,000	33.46	0.0035	0.0047	13,000	30.71	0.0020	0.0024
1.8	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	3	50,000	228.3	0.0059	0.0220	50,000	220.47	0.0039	0.0110	50,000	220.47	0.0039	0.0110	47,000	208.66	0.0039	0.0079
2	4	50,000	228.3	0.0059	0.0220	50,000	220.47	0.0039	0.0110	50,000	220.47	0.0039	0.0110	47,000	208.66	0.0039	0.0079

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

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High Speed Milling

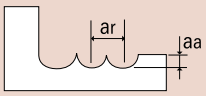
Hardness	–				<32 HRC				33-41 HRC				42-50 HRC			
Work Material	Aluminum Copper Alloy				Cast Iron, Carbon Steel, Alloy Steel, Stainless Steel, Die Steel				Prehardened & Hardened Steel							
Cutting Speed	90-460 SFM				80-340 SFM				80-280 SFM				80-280 SFM			
Depth of Cut																
Mill Dia.	L1 (mm)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
2	6	38,000	157.5	0.0059	0.0220	36,000	118.11	0.0039	0.0110	36,000	110.24	0.0039	0.0110	34,000	102.36	0.0039	0.0079
2	8	27,000	132.3	0.0059	0.0220	25,000	102.36	0.0039	0.0110	25,000	94.49	0.0039	0.0110	23,000	86.61	0.0039	0.0079
2	10	22,000	120.1	0.0059	0.0220	20,000	94.49	0.0039	0.0110	20,000	86.61	0.0039	0.0110	19,000	78.74	0.0039	0.0079
2	12	16,000	101.6	0.0059	0.0220	16,000	78.74	0.0039	0.0110	16,000	74.80	0.0039	0.0110	15,000	66.93	0.0039	0.0079
2	14	15,000	94.5	0.0059	0.0220	15,000	70.87	0.0039	0.0110	15,000	66.93	0.0039	0.0110	14,000	59.06	0.0039	0.0079
2	16	14,000	86.6	0.0059	0.0165	14,000	66.93	0.0039	0.0083	14,000	62.99	0.0039	0.0071	13,000	55.12	0.0024	0.0039
2	18	13,000	78.7	0.0059	0.0165	13,000	62.99	0.0039	0.0083	13,000	59.06	0.0039	0.0071	12,000	51.18	0.0024	0.0039
2	20	12,000	47.2	0.0059	0.0165	12,000	47.24	0.0039	0.0083	11,000	43.31	0.0039	0.0071	10,000	39.37	0.0024	0.0039
2	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.5	6	32,000	218.5	0.0071	0.0276	28,000	181.10	0.0047	0.0138	28,000	169.29	0.0047	0.0118	25,000	145.67	0.0039	0.0098
2.5	10	21,000	157.5	0.0071	0.0276	20,000	129.92	0.0047	0.0138	20,000	122.05	0.0047	0.0118	18,000	106.30	0.0039	0.0098
2.5	15	17,000	118.1	0.0071	0.0276	17,000	110.24	0.0047	0.0138	17,000	102.36	0.0047	0.0118	16,000	94.49	0.0039	0.0098
2.5	20	15,000	70.9	0.0071	0.0220	15,000	70.87	0.0047	0.0110	15,000	66.93	0.0047	0.0079	14,000	59.06	0.0031	0.0059
2.5	25	12,000	39.8	0.0071	0.0220	12,000	39.37	0.0047	0.0110	12,000	37.40	0.0047	0.0079	10,000	33.86	0.0031	0.0059
2.5	30	10,000	31.5	0.0071	0.0220	-	-	-	-	-	-	-	-	-	-	-	-
2.5	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	6	42,000	267.7	0.0079	0.0331	41,500	244.09	0.0059	0.0165	41,500	244.09	0.0059	0.0165	32,000	188.98	0.0059	0.0118
3	8	32,000	181.1	0.0079	0.0331	30,000	177.17	0.0059	0.0165	30,000	165.35	0.0059	0.0142	25,000	137.80	0.0059	0.0118
3	10	28,000	157.5	0.0079	0.0331	25,000	149.61	0.0059	0.0165	25,000	141.73	0.0059	0.0142	20,000	110.24	0.0059	0.0118
3	12	24,000	122.0	0.0079	0.0331	20,000	118.11	0.0059	0.0165	20,000	110.24	0.0059	0.0142	18,000	98.43	0.0059	0.0118
3	14	22,000	114.2	0.0079	0.0331	18,000	106.30	0.0059	0.0165	18,000	98.43	0.0059	0.0142	15,000	78.74	0.0059	0.0118
3	15	20,000	110.2	0.0079	0.0331	16,000	94.49	0.0059	0.0165	16,000	86.61	0.0059	0.0142	13,000	66.93	0.0059	0.0118
3	16	20,000	102.4	0.0079	0.0331	16,000	78.74	0.0059	0.0165	16,000	74.80	0.0059	0.0142	13,000	59.06	0.0059	0.0118
3	20	16,000	86.6	0.0079	0.0331	14,000	70.87	0.0059	0.0165	14,000	66.93	0.0059	0.0142	11,000	51.18	0.0059	0.0118
3	25	16,000	70.9	0.0079	0.0331	12,000	47.24	0.0059	0.0165	12,000	43.31	0.0059	0.0118	9,000	32.28	0.0035	0.0059
3	30	12,000	39.4	0.0079	0.0331	10,000	31.50	0.0059	0.0165	9,000	29.92	0.0059	0.0118	7,800	23.23	0.0035	0.0059
3	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.5	10	26,000	212.6	0.0157	0.0386	25,000	147.64	0.0059	0.0193	25,000	137.80	0.0059	0.0165	19,500	104.72	0.0059	0.0138
3.5	15	20,000	157.5	0.0157	0.0386	18,000	118.11	0.0059	0.0193	18,000	110.24	0.0059	0.0165	14,000	85.83	0.0059	0.0138
3.5	20	18,000	118.1	0.0157	0.0386	16,000	106.30	0.0059	0.0193	16,000	98.43	0.0059	0.0165	12,000	72.83	0.0059	0.0138
3.5	25	14,000	110.2	0.0157	0.0386	12,000	78.74	0.0059	0.0193	12,000	74.80	0.0059	0.0165	9,000	55.12	0.0059	0.0138
3.5	30	10,000	86.6	0.0157	0.0386	10,000	62.99	0.0059	0.0193	10,000	59.06	0.0059	0.0138	8,000	47.24	0.0039	0.0079
3.5	35	10,000	47.2	0.0157	0.0386	10,000	39.37	0.0059	0.0193	10,000	37.40	0.0059	0.0138	7,000	26.38	0.0039	0.0079
3.5	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.5	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	8	31,000	224.4	0.0197	0.0504	31,000	224.41	0.0079	0.0252	31,000	224.41	0.0079	0.0236	24,000	173.23	0.0079	0.0157
4	10	25,000	177.2	0.0197	0.0504	25,000	177.17	0.0079	0.0252	25,000	165.35	0.0079	0.0236	20,000	129.92	0.0079	0.0157
4	12	20,000	157.5	0.0197	0.0504	20,000	141.73	0.0079	0.0252	20,000	133.86	0.0079	0.0236	16,000	106.30	0.0079	0.0157
4	14	20,000	157.5	0.0197	0.0504	20,000	141.73	0.0079	0.0252	20,000	133.86	0.0079	0.0236	16,000	106.30	0.0079	0.0157
4	15	20,000	157.5	0.0197	0.0504	20,000	141.73	0.0079	0.0252	20,000	133.86	0.0079	0.0236	16,000	106.30	0.0079	0.0157
4	16	20,000	136.2	0.0197	0.0504	18,000	125.98	0.0079	0.0252	18,000	118.11	0.0079	0.0236	14,000	90.55	0.0079	0.0157

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

continued on next page

List 3690: Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing (Continued)
List 3790: Ball End, Regular Length, 2 Flute, Long Neck, Rib Processing (Continued)

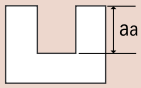
High Speed Milling

Hardness	–				<32 HRC				33-41 HRC				42-50 HRC			
Work Material	Aluminum Copper Alloy				Cast Iron, Carbon Steel, Alloy Steel, Stainless Steel, Die Steel				Prehardened & Hardened Steel							
Cutting Speed	90-460 SFM				80-340 SFM				80-280 SFM				80-280 SFM			
Depth of Cut																
Mill Dia.	L1 (mm)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
4	20	18,000	118.1	0.0197	0.0504	16,000	110.24	0.0079	0.0252	16,000	102.36	0.0079	0.0236	12,000	74.80	0.0079	0.0157
4	25	18,000	118.1	0.0197	0.0504	16,000	110.24	0.0079	0.0252	16,000	102.36	0.0079	0.0236	12,000	74.80	0.0079	0.0157
4	30	16,000	112.2	0.0157	0.0504	14,000	94.49	0.0079	0.0252	14,000	86.61	0.0079	0.0220	11,000	66.93	0.0047	0.0079
4	35	14,000	86.6	0.0157	0.0504	12,000	70.87	0.0079	0.0252	12,000	66.93	0.0079	0.0220	9,000	66.93	0.0047	0.0079
4	40	12,000	63.0	0.0138	0.0504	10,000	51.18	0.0079	0.0252	10,000	47.24	0.0079	0.0220	7,000	33.07	0.0047	0.0079
4	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	10	25,000	220.5	0.0236	0.0709	25,000	212.60	0.0098	0.0354	25,000	212.60	0.0098	0.0276	19,000	157.48	0.0098	0.0197
5	15	20,000	173.2	0.0236	0.0709	20,000	165.35	0.0098	0.0354	20,000	153.54	0.0098	0.0276	16,000	122.05	0.0098	0.0197
5	20	18,000	149.6	0.0236	0.0709	16,000	137.80	0.0098	0.0354	16,000	129.92	0.0098	0.0276	12,000	94.49	0.0098	0.0197
5	25	20,000	133.9	0.0236	0.0709	15,000	125.98	0.0098	0.0354	15,000	118.11	0.0098	0.0276	12,000	94.49	0.0098	0.0197
5	30	16,000	114.2	0.0236	0.0709	14,000	98.43	0.0098	0.0354	14,000	90.55	0.0098	0.0276	11,000	70.87	0.0098	0.0197
5	35	14,000	86.6	0.0236	0.0709	12,000	62.99	0.0098	0.0354	12,000	59.06	0.0098	0.0276	9,000	43.31	0.0098	0.0197
5	40	12,000	70.9	0.0157	0.0709	10,000	47.24	0.0098	0.0354	10,000	43.31	0.0098	0.0236	8,000	34.65	0.0079	0.0098
5	45	9,000	47.2	0.0157	0.0709	9,000	35.43	0.0098	0.0354	9,000	33.46	0.0098	0.0236	7,000	25.98	0.0079	0.0098
5	50	8,000	43.3	0.0157	0.0709	8,000	31.50	0.0098	0.0354	8,000	29.92	0.0098	0.0236	6,000	22.44	0.0079	0.0098
6	10	22,000	232.3	0.0295	0.0945	20,000	212.60	0.0118	0.0472	20,000	196.85	0.0118	0.0378	15,000	147.64	0.0118	0.0236
6	20	18,000	173.2	0.0295	0.0945	16,000	165.35	0.0118	0.0472	16,000	153.54	0.0118	0.0378	12,000	114.17	0.0118	0.0236
6	25	14,000	157.5	0.0295	0.0945	12,000	125.98	0.0118	0.0472	12,000	118.11	0.0118	0.0378	9,000	88.58	0.0118	0.0236
6	30	10,000	126.0	0.0295	0.0945	10,000	102.36	0.0118	0.0472	10,000	94.49	0.0118	0.0378	8,000	74.80	0.0118	0.0236
6	35	9,000	118.1	0.0295	0.0945	9,000	90.55	0.0118	0.0472	9,000	82.68	0.0118	0.0378	7,000	62.99	0.0118	0.0236
6	40	9,000	110.2	0.0236	0.0945	9,000	78.74	0.0118	0.0472	9,000	74.80	0.0118	0.0378	7,000	55.12	0.0118	0.0236
6	45	8,000	98.4	0.0236	0.0945	8,000	70.87	0.0118	0.0472	8,000	66.93	0.0118	0.0378	6,500	51.18	0.0118	0.0236
6	50	7,000	90.6	0.0236	0.0945	7,000	62.99	0.0118	0.0472	7,000	59.06	0.0118	0.0378	5,500	43.31	0.0118	0.0118

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

List 3619 - EXOCARB® WXL®: 2 Flute, Square End, Stub Length

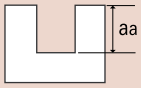
Slotting

Hardness	–	<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper	Mild Steels		Hardened Steels Pre-hardened Steels			
Cutting Speed	495 SFM	245 SFM		175 SFM		150 SFM	
Depth of Cut		Dia / aa D<1/8 / 0.3D 1/8≤D / 0.5D					
Mill Diameter	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	10.7	15,000	6.2	10,700	4.6	9,200	3.2
5/64	24,200	12.9	12,000	6.6	8,600	4.5	7,300	3.3
3/32	20,200	14.3	10,000	7.2	7,100	4.1	6,100	3.1
7/64	17,300	15.5	8,600	8.3	6,100	4.5	5,200	3.3
1/8	15,100	17.5	7,500	8.6	5,300	4.7	4,600	3.5
5/32	12,100	18.8	6,000	9.6	4,300	5.2	3,700	3.8
3/16	10,100	21.1	5,000	11.0	3,600	5.1	3,000	3.7
1/4	7,600	22.2	3,700	11.2	2,700	5.3	2,300	4.0
5/16	6,000	21.9	3,000	10.7	2,100	4.8	1,800	3.8
3/8	5,000	20.7	2,500	10.7	1,800	5.1	1,500	4.1
7/16	4,300	20.2	2,100	9.9	1,500	4.8	1,300	4.5
1/2	3,800	20.0	1,900	9.8	1,300	4.7	1,200	3.8
5/8	3,000	16.5	1,500	8.3	1,000	4.2	900	3.6
3/4	2,500	13.8	1,200	6.9	900	4.1	800	3.2

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

List 3620 - EXOCARB® WXL®: Stub Length, 2 Flute
List 3621 - EXOCARB® WXL®: Regular Length, 2 Flute

Slotting

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Mild Steels Carbon Steels		Hardened Steels Pre-hardened Steels, Stainless Steels			
Cutting Speed	495 SFM		245 SFM		175 SFM		150 SFM	
Depth of Cut	Dia / aa D<1/8 / 0.3D 1/8≤D / 0.5D							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	10.2	14,700	5.8	10,500	4.4	8,900	3.0
5/64	24,000	12.2	11,800	6.2	8,300	4.2	7,200	3.1
3/32	20,500	13.8	9,800	6.7	7,000	3.9	6,000	3.0
7/64	17,500	15.0	8,400	7.7	6,000	4.3	5,100	3.2
1/8	15,000	16.5	7,300	8.0	5,200	4.5	4,600	3.4
5/32	12,000	17.7	5,900	9.0	4,200	4.9	3,700	3.7
3/16	10,500	20.9	4,900	10.2	3,700	5.1	3,100	3.7
7/32	8,700	21.3	4,300	10.6	3,100	5.1	2,600	3.9
1/4	7,500	20.9	3,700	10.6	2,700	5.1	2,300	3.9
9/32	6,900	20.9	3,400	10.6	2,500	5.1	2,100	3.9
5/16	5,900	20.5	3,000	10.2	2,200	4.9	1,900	3.9
3/8	5,100	20.1	2,500	10.2	1,800	4.9	1,500	4.0
7/16	4,400	19.7	2,100	9.4	1,600	4.9	1,300	4.4
1/2	4,000	20.1	1,900	9.4	1,400	4.9	1,200	3.7
5/8	3,000	15.7	1,500	7.9	1,100	4.5	900	3.5
3/4	2,600	13.6	1,200	6.5	900	3.9	800	3.1

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

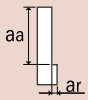
List 3704 - EXOCARB® WXL®: Regular Length, 4 Flute

Side Milling

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Mild Steels Carbon Steels		Hardened Steels Prehardended Steels Stainless Steels			
Cutting Speed	516-990 SFM		248-254 SFM		143-184 SFM		129-164 SFM	
Depth of Cut			Dia / aa / ar D<3 / 1.5D / 0.05D 3≤D / 1.5D / 0.10D				aa = 1.0D ar = 0.02D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1.0	25,000	8.7	24,000	8.3	14,000	3.1	12,500	2.8
1.5	25,000	19.2	16,000	12.2	9,250	4.5	8,400	4.1
2.0	25,000	22.8	12,000	11.6	7,000	4.3	6,350	3.9
2.5	25,000	49.2	9,600	18.9	6,200	5.5	5,550	4.9
3.0	25,000	49.2	8,150	16.9	5,300	4.9	4,750	4.3
4.0	24,000	66.9	6,050	17.7	4,250	5.3	3,700	4.5
5.0	19,000	78.7	4,900	20.5	3,550	5.5	3,150	4.9
6.0	16,000	78.7	4,100	20.5	2,950	5.7	2,650	5.1
8.0	12,000	74.8	3,050	19.9	2,200	5.7	1,950	5.1
10.0	9,500	74.8	2,450	19.9	1,750	5.7	1,550	5.1
12.0	7,900	74.8	2,050	19.9	1,450	5.7	1,300	5.1
14.0	6,800	74.8	1,750	19.5	1,250	5.7	1,100	4.9
15.0	6,300	74.8	1,600	19.3	1,150	5.3	1,050	4.7
16.0	5,900	70.9	1,500	18.9	1,100	5.1	995	4.5
18.0	5,300	70.9	1,350	18.5	990	4.5	880	4.1
20.0	4,800	68.4	1,200	17.5	890	4.1	795	3.7
25.0	3,800	55.1	970	14.2	710	3.3	635	3.0
30.0	3,200	44.7	815	11.8	590	2.8	530	2.4

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

High Speed Milling

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Mild Steels Carbon Steels		Hardened Steels Pre-hardened Steels			
Cutting Speed	1597-1625 SFM		1197-1238 SFM		805-820 SFM		480-492 SFM	
Depth of Cut			Dia / aa / ar D<3 / 1.5D / 0.01D 3≤D / 1.5D / 0.02D				aa = 1.0D ar = 0.02D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
6	25,000	109.8	20,000	90.6	13,000	59.1	7,950	31.3
8	19,500	118.1	14,500	90.6	9,900	57.1	5,950	31.3
10	15,500	114.2	12,000	90.6	7,950	57.1	4,750	31.3
12	13,000	118.1	9,900	90.6	6,600	57.1	3,950	31.1
14	11,100	110.2	8,500	86.6	5,650	53.1	3,400	29.1
15	10,500	110.2	7,950	84.6	5,250	53.1	3,150	28.7
16	9,700	106.3	7,450	82.7	4,950	53.1	2,950	28.1
18	8,600	106.3	6,600	82.7	4,400	51.2	2,650	27.8
20	7,800	102.4	5,950	78.7	3,950	51.2	2,350	26.2
25	6,200	78.7	4,750	63.0	3,150	41.3	1,900	22.0
30	5,200	66.9	3,950	53.1	2,650	35.0	1,550	17.9

List 3742 - EXOCARB® WXL®: 4 Flute, Long Length

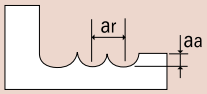
Side Milling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC	
Work Material	Mild Steel Carbon Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels Pre-hardened Steels		Hardened Steels Pre-hardened Steels		Hardened Steels	
Cutting Speed	200 SFM		160 SFM		130 SFM		110 SFM		80 SFM	
Depth of Cut	Dia: D≤20 / 20<D aa: 2.5D / 2.5D ar: 0.05D / 0.1D						Dia: D≤8 / 8<D aa: 1D / 1D ar: 0.01D / 0.5D		aa = 2.5D ar = 0.02D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	6,350	8.9	5,300	7.5	4,200	5.9	3,700	5.2	2,600	3.6
4	4,750	8.9	3,950	7.5	3,150	5.9	2,750	5.2	1,950	3.7
5	3,800	8.9	3,150	7.5	2,500	5.9	2,200	5.2	1,550	3.6
6	3,150	8.9	2,650	7.5	2,100	5.9	1,850	5.2	1,300	3.7
8	2,350	8.9	1,950	7.5	1,550	5.9	1,350	5.1	995	3.8
10	1,900	8.9	1,550	7.5	1,250	5.9	1,100	5.2	795	3.7
12	1,550	8.9	1,300	7.5	1,050	6.0	925	5.3	660	3.8
14	1,350	8.9	1,100	7.5	905	6.0	795	5.2	565	3.7
16	1,150	8.9	995	7.5	795	6.2	695	5.4	495	3.8
18	1,050	8.9	880	7.5	705	6.0	615	5.2	440	3.7
20	955	8.9	795	7.5	635	5.9	555	5.2	395	3.7
22	865	8.9	720	7.5	575	5.9	505	5.2	360	3.7
24	795	8.7	660	7.1	530	5.8	460	5.0	330	3.6
25	760	8.3	635	6.7	505	5.5	445	4.9	315	3.4

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously,
3. Use a suitable cutting fluid with high smoke retardant.

List 3711 - EXOCARB® WXL®: 2 Flute, Ball End, Stub Length, Long Shank

Side Milling

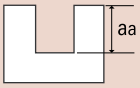
Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels	Hardened Steels Pre-hardened Steels	Stainless Steel Hardened Steels	Hardened Steels	Hardened Steels
Cutting Speed	330-490 SFM	330-390 SFM	300-330 SFM	230-260 SFM	200-230 SFM	170-200 SFM	120-150 SFM
Depth of Cut	 aa=0.1D ar=0.2D					aa=0.05D ar=0.1D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	50.0	25,000	50.0	25,000	50.0	25,000	50.0	22,000	35.2	19,000	26.6	14,000	19.6
2	23,500	79.9	19,000	64.6	15,500	52.7	12,500	42.5	11,000	35.2	9,500	26.6	7,150	20.0
3	15,500	74.4	12,500	60.0	10,500	50.4	8,450	40.6	7,400	32.6	6,350	25.4	4,750	19.0
4	11,500	69.0	9,500	57.0	7,950	47.7	6,350	38.1	5,550	31.1	4,750	24.7	3,550	18.5
5	9,500	72.2	7,600	57.8	6,350	48.3	5,050	38.4	4,450	32.0	3,800	25.8	2,850	19.4
6	7,950	70.0	6,350	55.9	5,300	46.6	4,200	37.0	3,700	31.1	3,150	25.2	2,350	18.8
8	5,950	71.4	4,750	57.0	3,950	47.4	3,150	37.8	2,750	31.9	2,350	26.3	1,750	19.6
10	4,750	67.5	3,800	54.0	3,150	44.7	2,500	35.5	2,200	30.4	1,900	25.5	1,400	18.8
12	3,950	67.2	3,150	53.6	2,650	45.1	2,100	35.7	1,850	30.7	1,550	24.8	1,150	18.4
14	3,400	57.8	2,700	45.9	2,250	38.3	1,800	30.6	1,550	25.7	1,350	21.6	1,000	16.0
16	2,950	50.2	2,350	40.0	1,950	33.2	1,550	26.4	1,350	22.4	1,150	18.4	895	14.3
18	2,650	45.1	2,100	35.7	1,750	29.8	1,400	23.8	1,200	19.9	1,050	16.8	795	12.7
20	2,350	40.0	1,900	32.3	1,550	26.4	1,250	21.3	1,100	18.3	955	15.3	715	11.4
25	1,900	32.3	1,500	25.5	1,250	21.3	1,000	17.0	890	14.8	760	12.2	570	9.1
30	1,550	26.4	1,250	21.3	1,050	17.9	845	14.4	740	12.3	635	10.2	475	7.6

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant.
3. When the length of tool extension from the machine is long, reduce the speed and feed.

List 3791 - EXOCARB® WXL®: 2 Flute, Stub Length

Slotting

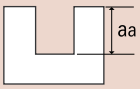
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels Pre-hardened Steels Stainless Steels	
Cutting Speed	45-376 SFM*	41-309 SFM*	41-309 SFM*	40-258 SFM*
Depth of Cut				

D (mm)	L2 (mm)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)
0.2	0.5	25,000	13.7	0.0009	25,000	13.8	0.0007	25,000	13.8	0.0006	25,000	8.5	0.0005
	1	25,000	10.6	0.0006	25,000	10.8	0.0005	25,000	10.8	0.0004	25,000	6.8	0.0004
	1.5	25,000	8.6	0.0004	25,000	8.8	0.0003	25,000	8.8	0.0003	25,000	5.9	0.0002
	2	24,000	8.7	0.0002	22,000	7.9	0.0002	22,000	7.9	0.0002	20,000	4.7	0.0001
	2.5	22,000	7.5	0.0002	20,000	7.1	0.0002	20,000	6.7	0.0002	20,000	3.9	0.0001
	3	22,000	7.1	0.0002	20,000	6.7	0.0001	20,000	6.3	0.0001	20,000	3.5	0.0001
	3.5	22,000	5.9	0.0002	20,000	5.5	0.0001	20,000	5.1	0.0001	20,000	3.1	0.0001
	4	22,000	1.6	0.0001	20,000	1.6	0.0001	20,000	1.4	0.0001	20,000	1.2	0.0001
0.3	1	25,000	12.3	0.0013	25,000	12.3	0.0011	25,000	10.8	0.0009	25,000	10.2	0.0007
	1.5	25,000	11.0	0.0011	25,000	11.1	0.0009	25,000	9.2	0.0008	25,000	8.5	0.0006
	2	25,000	10.6	0.0009	25,000	10.5	0.0008	25,000	8.8	0.0007	25,000	7.9	0.0005
	2.5	25,000	9.7	0.0007	25,000	9.8	0.0006	25,000	8.1	0.0005	25,000	7.5	0.0003
	3	25,000	11.1	0.0004	22,000	9.8	0.0004	22,000	6.3	0.0003	20,000	5.9	0.0002
	4	24,000	8.7	0.0003	20,000	7.5	0.0003	20,000	5.9	0.0002	20,000	5.1	0.0001
	5	24,000	7.5	0.0002	20,000	6.3	0.0002	20,000	5.5	0.0001	18,000	4.7	0.0001
	6	24,000	3.9	0.0001	20,000	3.5	0.0001	20,000	3.1	0.0001	16,000	2.4	0.0001
	9	19,000	1.2	0.0001	16,000	1.2	0.0001	16,000	1.2	0.0001	13,000	0.8	0.0001
0.4	1.5	25,000	13.3	0.0013	25,000	13.5	0.0011	25,000	11.7	0.0009	25,000	11.2	0.0007
	2	25,000	12.3	0.0012	25,000	12.3	0.0010	25,000	10.8	0.0009	25,000	10.2	0.0007
	3	25,000	10.6	0.0008	25,000	10.5	0.0007	25,000	8.8	0.0006	25,000	7.9	0.0004
	4	25,000	11.1	0.0006	22,000	9.8	0.0005	22,000	7.9	0.0004	20,000	5.9	0.0003
	5	24,000	9.4	0.0003	20,000	7.9	0.0002	20,000	6.3	0.0002	20,000	5.1	0.0001
	6	24,000	8.3	0.0002	20,000	7.1	0.0002	20,000	5.5	0.0002	20,000	4.7	0.0001
	7	24,000	6.3	0.0002	20,000	5.5	0.0002	20,000	4.7	0.0001	20,000	4.3	0.0001
	8	24,000	5.9	0.0001	20,000	5.1	0.0001	20,000	4.3	0.0001	20,000	3.9	0.0001
	9	24,000	5.5	0.0001	20,000	4.7	0.0001	20,000	3.9	0.0001	20,000	3.1	0.0001
	10	24,000	5.1	0.0001	20,000	4.3	0.0001	20,000	3.3	0.0001	18,000	2.8	0.0001
	12	24,000	3.9	0.0001	20,000	3.5	0.0001	20,000	3.1	0.0001	16,000	2.4	0.0001
0.5	1.5	25,000	16.9	0.0021	25,000	16.9	0.0018	25,000	12.9	0.0015	25,000	11.2	0.0012
	2	25,000	15.3	0.0021	25,000	15.4	0.0018	25,000	12.3	0.0015	25,000	10.2	0.0012
	3	25,000	14.8	0.0014	25,000	14.8	0.0012	25,000	11.8	0.0011	25,000	10.2	0.0009
	4	25,000	14.1	0.0010	25,000	14.1	0.0008	25,000	11.2	0.0007	25,000	9.8	0.0006
	5	25,000	13.2	0.0007	25,000	13.4	0.0006	25,000	11.8	0.0004	22,000	9.1	0.0003
	6	25,000	15.6	0.0003	22,000	13.8	0.0002	22,000	8.7	0.0002	20,000	7.1	0.0002
	7	24,000	15.0	0.0002	20,000	12.6	0.0002	20,000	7.9	0.0002	20,000	6.7	0.0001
	8	24,000	12.6	0.0002	20,000	10.6	0.0002	20,000	7.1	0.0001	20,000	5.9	0.0001
	9	24,000	11.8	0.0001	20,000	9.8	0.0001	18,000	6.3	0.0001	18,000	5.5	0.0001
	10	24,000	9.4	0.0001	20,000	7.9	0.0001	18,000	5.9	0.0001	18,000	5.1	0.0001
	12	24,000	7.5	0.0001	20,000	6.3	0.0001	18,000	4.7	0.0001	18,000	3.9	0.0001
	15	21,500	3.9	0.0001	18,000	3.5	0.0001	16,000	3.1	0.0001	16,000	2.8	0.0001
0.6	2	25,000	18.4	0.0026	25,000	18.5	0.0021	25,000	12.3	0.0018	25,000	10.9	0.0014
	3	25,000	16.9	0.0024	25,000	16.9	0.0020	25,000	11.1	0.0016	25,000	10.2	0.0012
	4	25,000	15.9	0.0019	25,000	15.8	0.0016	25,000	10.5	0.0013	25,000	7.9	0.0010
	5	25,000	14.1	0.0014	25,000	14.1	0.0012	25,000	8.7	0.0008	22,000	7.1	0.0008
	6	25,000	11.1	0.0009	22,000	9.8	0.0007	22,000	7.9	0.0006	20,000	5.9	0.0005
	7	25,000	11.1	0.0005	22,000	9.8	0.0004	22,000	7.9	0.0003	20,000	5.9	0.0003
	8	25,000	11.1	0.0003	22,000	9.8	0.0003	22,000	7.9	0.0002	20,000	5.9	0.0002

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.
* Maximum speed will vary by diameter.

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Slotting

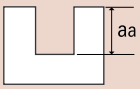
Hardness	–			<32 HRC			33-41 HRC			42-50 HRC		
Work Material	Copper Copper Alloy			Mild Steels Carbon Steels			Hardened Steels Pre-hardened Steels Stainless Steels					
Cutting Speed	45-376 SFM*			41-309 SFM*			41-309 SFM*			40-258 SFM*		
Depth of Cut												
D (mm)	L2 (mm)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)
0.6	10	24,000	9.4	0.0002	20,000	7.9	0.0002	18,000	5.9	0.0002	18,000	5.1	0.0001
	12	21,500	8.7	0.0001	18,000	7.5	0.0001	18,000	5.9	0.0001	18,000	4.7	0.0001
	15	21,500	5.9	0.0001	18,000	5.1	0.0001	16,000	4.3	0.0001	16,000	3.9	0.0001
	18	18,000	3.5	0.0001	15,000	3.1	0.0001	14,000	2.8	0.0001	14,000	2.4	0.0001
0.7	2	25,000	18.4	0.0030	25,000	18.5	0.0025	25,000	15.4	0.0021	25,000	15.1	0.0017
	4	25,000	15.9	0.0022	25,000	15.8	0.0018	25,000	10.5	0.0015	22,000	11.8	0.0012
	6	25,000	15.9	0.0014	25,000	15.8	0.0011	25,000	7.0	0.0010	22,000	7.9	0.0008
	8	25,000	11.1	0.0008	22,000	9.8	0.0007	22,000	7.9	0.0006	20,000	5.9	0.0004
	10	25,000	11.1	0.0004	22,000	9.8	0.0003	22,000	7.9	0.0003	20,000	5.9	0.0002
0.8	4	25,000	18.4	0.0025	25,000	18.5	0.0021	25,000	18.5	0.0017	25,000	15.7	0.0014
	6	25,000	17.1	0.0016	25,000	17.0	0.0013	25,000	15.1	0.0011	21,000	11.8	0.0009
	8	25,000	15.6	0.0011	22,000	13.8	0.0009	22,000	11.8	0.0008	18,000	9.8	0.0006
	10	25,000	15.6	0.0005	22,000	13.8	0.0004	22,000	11.8	0.0003	18,000	9.4	0.0002
	12	20,500	14.2	0.0003	17,000	11.8	0.0003	17,000	11.8	0.0002	15,000	7.9	0.0002
	14	20,500	12.6	0.0002	17,000	10.6	0.0001	17,000	9.8	0.0001	13,000	6.7	0.0001
	16	19,000	10.6	0.0001	16,000	9.1	0.0001	16,000	8.7	0.0001	12,000	5.9	0.0001
	20	17,000	7.9	0.0001	14,000	6.7	0.0001	14,000	6.3	0.0001	12,000	5.1	0.0001
	24	14,500	3.9	0.0001	12,000	3.5	0.0001	12,000	3.1	0.0001	10,000	2.8	0.0001
0.9	4	25,000	37.1	0.0028	25,000	36.9	0.0024	25,000	28.2	0.0024	23,000	25.6	0.0016
	6	25,000	32.8	0.0028	25,000	32.8	0.0023	25,000	27.4	0.0020	22,000	23.6	0.0016
	8	25,000	30.5	0.0018	25,000	30.3	0.0015	25,000	23.6	0.0013	19,000	15.7	0.0010
	10	24,000	28.3	0.0013	20,000	23.6	0.0011	20,000	19.7	0.0009	16,000	11.8	0.0007
	15	20,500	14.2	0.0004	17,000	11.8	0.0003	17,000	11.8	0.0002	16,000	11.8	0.0002
1.0	3	25,000	39.6	0.0043	25,000	39.4	0.0035	25,000	36.1	0.0031	22,000	31.5	0.0024
	4	25,000	38.3	0.0038	25,000	37.7	0.0031	25,000	36.1	0.0028	22,000	25.6	0.0020
	5	25,000	35.5	0.0038	25,000	36.1	0.0031	25,000	33.4	0.0028	20,000	23.6	0.0018
	6	25,000	36.3	0.0033	25,000	36.5	0.0028	25,000	34.1	0.0024	20,000	23.6	0.0016
	7	25,000	39.4	0.0024	25,000	39.4	0.0020	24,000	31.5	0.0020	20,000	19.7	0.0012
	8	25,000	34.4	0.0019	23,000	31.5	0.0016	22,000	27.6	0.0016	18,000	15.7	0.0012
	9	24,000	33.1	0.0014	20,000	27.6	0.0012	19,000	23.6	0.0012	18,000	15.7	0.0010
	10	23,000	28.3	0.0014	19,000	23.6	0.0012	18,000	19.7	0.0011	15,000	11.8	0.0008
	12	23,000	28.3	0.0009	19,000	23.6	0.0008	18,000	19.7	0.0007	15,000	11.8	0.0004
	14	18,000	18.9	0.0005	15,000	15.7	0.0004	15,000	15.7	0.0004	12,000	7.9	0.0003
	16	18,000	14.2	0.0004	15,000	11.8	0.0003	15,000	11.8	0.0003	12,000	7.9	0.0002
	18	15,500	10.6	0.0003	13,000	9.1	0.0002	13,000	8.7	0.0002	11,000	7.1	0.0002
	20	14,500	8.7	0.0002	12,000	7.5	0.0002	11,000	7.1	0.0002	10,000	5.1	0.0001
	22	13,000	7.5	0.0002	11,000	6.3	0.0001	10,000	5.9	0.0001	9,000	3.9	0.0001
	25	11,000	3.9	0.0002	9,000	3.5	0.0001	9,000	3.3	0.0001	8,500	3.1	0.0001
	30	9,600	1.6	0.0001	8,000	1.6	0.0001	8,000	1.4	0.0001	8,000	1.2	0.0001
1.2	4	25,000	44.1	0.0043	24,000	43.3	0.0035	23,000	39.4	0.0031	18,000	27.6	0.0024
	6	25,000	42.9	0.0038	23,000	39.4	0.0031	22,000	35.4	0.0028	17,000	23.6	0.0020
	8	24,000	33.1	0.0033	20,000	27.6	0.0028	19,000	27.6	0.0020	14,000	15.7	0.0016
	10	24,000	33.1	0.0024	20,000	27.6	0.0020	19,000	27.6	0.0016	14,000	15.7	0.0012
	12	20,500	28.3	0.0019	17,000	23.6	0.0016	16,000	19.7	0.0012	11,000	11.8	0.0008
	14	18,000	21.3	0.0007	15,000	17.7	0.0006	13,000	15.0	0.0005	11,000	9.8	0.0004
	16	14,500	14.2	0.0004	12,000	11.8	0.0003	11,000	9.8	0.0003	10,000	8.7	0.0002
	20	12,000	9.4	0.0002	10,000	7.9	0.0002	10,000	7.5	0.0002	9,000	7.1	0.0002

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.
* Maximum speed will vary by diameter.

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List 3791 - EXOCARB® WXL®: 2 Flute, Stub Length (Continued)

Slotting

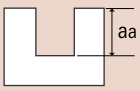
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels Pre-hardened Steels Stainless Steels	
Cutting Speed	45-376 SFM*	41-309 SFM*	41-309 SFM*	40-258 SFM*
Depth of Cut				

D (mm)	L2 (mm)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)
1.4	6	24,000	47.2	0.0061	20,000	39.4	0.0051	19,000	35.4	0.0043	15,000	23.6	0.0035
	8	21,500	37.8	0.0043	18,000	31.5	0.0035	17,000	27.6	0.0031	13,000	15.7	0.0024
	10	21,500	37.8	0.0028	18,000	31.5	0.0024	17,000	27.6	0.0020	13,000	15.7	0.0016
	12	21,500	37.8	0.0024	18,000	31.5	0.0020	17,000	27.6	0.0016	13,000	15.7	0.0012
	14	18,000	28.3	0.0019	15,000	23.6	0.0016	14,000	19.7	0.0014	11,000	11.8	0.0012
	16	18,000	28.3	0.0014	15,000	23.6	0.0012	14,000	19.7	0.0008	11,000	11.8	0.0008
	22	12,000	11.8	0.0002	10,000	9.8	0.0002	9,000	8.3	0.0002	8,000	7.1	0.0002
1.5	4	21,500	47.2	0.0066	18,000	39.4	0.0055	18,000	35.4	0.0043	14,000	23.6	0.0035
	6	21,500	47.2	0.0066	18,000	39.4	0.0055	18,000	35.4	0.0043	14,000	23.6	0.0035
	8	19,000	37.8	0.0047	16,000	31.5	0.0039	15,000	27.6	0.0031	12,000	15.7	0.0028
	10	19,000	37.8	0.0038	16,000	31.5	0.0031	15,000	27.6	0.0028	12,000	15.7	0.0020
	12	19,000	37.8	0.0028	16,000	31.5	0.0024	15,000	27.6	0.0020	12,000	15.7	0.0016
	14	19,000	37.8	0.0024	16,000	31.5	0.0020	15,000	27.6	0.0018	12,000	15.7	0.0014
	16	17,000	28.3	0.0024	14,000	23.6	0.0020	13,000	19.7	0.0016	10,000	11.8	0.0012
	18	17,000	28.3	0.0014	14,000	23.6	0.0012	13,000	19.7	0.0008	10,000	11.8	0.0008
	20	14,500	19.7	0.0009	12,000	16.5	0.0008	11,000	15.0	0.0006	10,000	11.8	0.0004
	25	12,000	13.4	0.0004	10,000	11.4	0.0003	9,000	9.1	0.0003	8,000	8.3	0.0002
	30	9,000	7.9	0.0002	7,500	6.7	0.0002	7,400	5.9	0.0002	7,000	5.1	0.0001
	38	8,150	3.9	0.0002	6,800	3.5	0.0002	6,700	3.3	0.0001	6,000	3.0	0.0001
	40	7,200	3.5	0.0002	6,000	3.0	0.0001	5,900	2.8	0.0001	5,600	2.4	0.0001
	45	6,600	2.0	0.0002	5,500	1.8	0.0001	5,400	1.6	0.0001	5,400	1.6	0.0000
1.6	6	20,500	47.2	0.0071	17,000	39.4	0.0059	17,000	35.4	0.0051	13,000	23.6	0.0039
	8	18,000	37.8	0.0066	15,000	31.5	0.0055	15,000	27.6	0.0047	11,000	15.7	0.0039
	10	18,000	37.8	0.0052	15,000	31.5	0.0043	15,000	27.6	0.0035	11,000	15.7	0.0028
	12	18,000	37.8	0.0033	15,000	31.5	0.0028	15,000	27.6	0.0024	11,000	15.7	0.0020
	14	18,000	37.8	0.0028	15,000	31.5	0.0024	15,000	27.6	0.0020	11,000	15.7	0.0016
	16	15,500	28.3	0.0024	13,000	23.6	0.0020	13,000	19.7	0.0016	9,000	11.8	0.0014
	18	15,500	28.3	0.0019	13,000	23.6	0.0016	13,000	19.7	0.0012	9,000	11.8	0.0012
	20	15,500	28.3	0.0009	13,000	23.6	0.0008	13,000	19.7	0.0008	9,000	11.8	0.0004
1.8	6	19,000	51.2	0.0104	16,000	43.3	0.0087	15,000	39.4	0.0071	12,000	27.6	0.0055
	8	19,000	51.2	0.0099	16,000	43.3	0.0083	15,000	39.4	0.0067	12,000	27.6	0.0051
	10	17,000	37.8	0.0057	14,000	31.5	0.0047	14,000	27.6	0.0039	10,000	19.7	0.0031
	12	17,000	37.8	0.0047	14,000	31.5	0.0039	14,000	27.6	0.0031	10,000	19.7	0.0028
	14	17,000	37.8	0.0038	14,000	31.5	0.0031	14,000	27.6	0.0024	10,000	19.7	0.0020
	16	17,000	37.8	0.0033	14,000	31.5	0.0028	14,000	27.6	0.0020	10,000	19.7	0.0016
	18	14,500	28.3	0.0024	12,000	23.6	0.0020	12,000	19.7	0.0018	8,000	15.7	0.0014
	20	14,500	28.3	0.0019	12,000	23.6	0.0016	12,000	19.7	0.0016	8,000	15.7	0.0012
	25	9,600	14.2	0.0004	8,000	11.8	0.0004	7,000	9.8	0.0003	6,000	7.9	0.0003
2.0	6	18,000	51.2	0.0146	15,000	43.3	0.0122	14,000	39.4	0.0102	11,000	27.6	0.0083
	8	18,000	51.2	0.0123	15,000	43.3	0.0102	14,000	39.4	0.0087	11,000	27.6	0.0071
	10	15,500	37.8	0.0113	13,000	31.5	0.0094	12,000	27.6	0.0079	9,000	19.7	0.0063
	12	15,500	37.8	0.0061	13,000	31.5	0.0051	12,000	27.6	0.0043	9,000	19.7	0.0035
	14	15,500	37.8	0.0052	13,000	31.5	0.0043	12,000	27.6	0.0035	9,000	19.7	0.0028
	16	15,500	37.8	0.0038	13,000	31.5	0.0031	12,000	27.6	0.0028	9,000	19.7	0.0024
	18	15,500	37.8	0.0033	13,000	31.5	0.0028	12,000	27.6	0.0024	9,000	19.7	0.0020
	20	13,000	28.3	0.0024	11,000	23.6	0.0020	10,000	19.7	0.0020	7,000	15.7	0.0016
	25	13,000	28.3	0.0014	11,000	23.6	0.0012	10,000	19.7	0.0008	7,000	15.7	0.0008

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.
* Maximum speed will vary by diameter.

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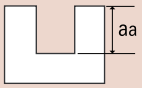
Slotting

Hardness	–			<32 HRC			33-41 HRC			42-50 HRC		
Work Material	Copper Copper Alloy			Mild Steels Carbon Steels			Hardened Steels Pre-hardened Steels Stainless Steels					
Cutting Speed	45-376 SFM*			41-309 SFM*			41-309 SFM*			40-258 SFM*		
Depth of Cut												
D (mm)	L2 (mm)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)
2.0	30	13,000	28.3	0.0009	11,000	23.6	0.0008	10,000	19.7	0.0004	7,000	15.7	0.0004
	35	11,000	18.1	0.0004	9,000	15.4	0.0004	8,000	15.0	0.0003	6,000	10.6	0.0003
	40	7,800	9.4	0.0002	6,500	7.9	0.0002	6,000	7.1	0.0002	6,000	5.5	0.0001
	50	6,950	4.7	0.0001	5,800	3.9	0.0001	5,700	3.7	0.0001	5,000	3.1	0.0001
	60	6,000	2.4	0.0000	5,000	2.0	0.0000	5,000	1.8	0.0000	5,000	1.6	0.0000
2.5	8	14,500	51.2	0.0184	12,000	43.3	0.0154	11,000	39.4	0.0130	9,000	27.6	0.0102
	10	14,500	51.2	0.0156	12,000	43.3	0.0130	11,000	39.4	0.0110	9,000	27.6	0.0087
	12	14,500	51.2	0.0109	12,000	43.3	0.0091	11,000	39.4	0.0075	9,000	27.6	0.0059
	14	12,000	37.8	0.0080	10,000	31.5	0.0067	9,000	27.6	0.0055	7,000	19.7	0.0043
	16	12,000	37.8	0.0057	10,000	31.5	0.0047	9,000	27.6	0.0039	7,000	19.7	0.0031
	18	12,000	37.8	0.0052	10,000	31.5	0.0043	9,000	27.6	0.0035	7,000	19.7	0.0028
	20	12,000	37.8	0.0043	10,000	31.5	0.0035	9,000	27.6	0.0031	7,000	19.7	0.0024
	25	9,600	28.3	0.0038	8,000	23.6	0.0031	8,000	19.7	0.0024	6,000	15.7	0.0020
	30	9,600	28.3	0.0014	8,000	23.6	0.0012	8,000	19.7	0.0012	6,000	15.7	0.0008
	40	7,800	13.0	0.0003	6,500	11.0	0.0003	6,000	10.6	0.0002	6,000	9.4	0.0002
	50	6,950	7.9	0.0001	5,800	6.7	0.0001	5,700	6.3	0.0001	5,000	5.1	0.0001
3.0	8	12,000	51.2	0.0170	10,000	43.3	0.0142	10,000	39.4	0.0118	8,000	27.6	0.0094
	10	12,000	51.2	0.0137	10,000	43.3	0.0114	10,000	39.4	0.0094	8,000	27.6	0.0075
	12	12,000	51.2	0.0128	10,000	43.3	0.0106	10,000	39.4	0.0091	8,000	27.6	0.0071
	14	12,000	51.2	0.0118	10,000	43.3	0.0098	10,000	39.4	0.0083	8,000	27.6	0.0067
	16	12,000	37.8	0.0094	10,000	31.5	0.0079	9,000	27.6	0.0067	6,000	19.7	0.0051
	18	12,000	37.8	0.0066	10,000	31.5	0.0055	9,000	27.6	0.0047	6,000	19.7	0.0039
	20	12,000	37.8	0.0061	10,000	31.5	0.0051	9,000	27.6	0.0043	6,000	19.7	0.0031
	25	12,000	37.8	0.0052	10,000	31.5	0.0043	9,000	27.6	0.0035	6,000	19.7	0.0028
	30	9,600	28.3	0.0043	8,000	23.6	0.0035	7,000	19.7	0.0031	5,000	15.7	0.0024
	35	9,600	28.3	0.0033	8,000	23.6	0.0028	7,000	19.7	0.0024	5,000	15.7	0.0020
	40	9,600	28.3	0.0019	8,000	23.6	0.0016	7,000	19.7	0.0012	5,000	15.7	0.0008
	50	6,950	12.6	0.0004	5,800	10.6	0.0004	5,700	9.4	0.0002	5,000	7.9	0.0002
4.0	12	8,550	53.1	0.0180	7,000	43.3	0.0150	7,000	39.4	0.0126	6,000	27.6	0.0102
	16	8,550	53.1	0.0170	7,000	43.3	0.0142	7,000	39.4	0.0118	6,000	27.6	0.0094
	20	8,550	38.2	0.0161	7,000	31.5	0.0134	6,000	27.6	0.0110	5,000	19.7	0.0087
	25	8,550	38.2	0.0123	7,000	31.5	0.0102	6,000	27.6	0.0087	5,000	19.7	0.0071
	30	8,550	38.2	0.0090	7,000	31.5	0.0075	6,000	27.6	0.0063	5,000	19.7	0.0051
	35	8,550	38.2	0.0080	7,000	31.5	0.0067	6,000	27.6	0.0055	5,000	19.7	0.0043
	40	7,300	28.7	0.0066	6,000	23.6	0.0055	5,000	23.6	0.0047	4,000	15.7	0.0039
	45	7,300	28.7	0.0057	6,000	23.6	0.0047	5,000	23.6	0.0039	4,000	15.7	0.0031
	50	7,300	28.7	0.0024	6,000	23.6	0.0020	5,000	23.6	0.0016	4,000	15.7	0.0012
	60	6,100	13.4	0.0009	5,000	11.0	0.0008	5,000	10.6	0.0008	4,000	9.8	0.0004
5.0	16	7,300	53.1	0.0213	6,000	43.3	0.0177	5,000	35.4	0.0150	5,000	23.6	0.0118
	20	7,300	45.3	0.0203	6,000	37.4	0.0169	5,000	30.7	0.0142	5,000	23.6	0.0114
	25	6,100	38.2	0.0198	5,000	31.5	0.0165	5,000	27.6	0.0138	5,000	23.6	0.0110
	30	6,100	38.2	0.0180	5,000	31.5	0.0150	5,000	27.6	0.0118	5,000	23.6	0.0098
	35	6,100	38.2	0.0156	5,000	31.5	0.0130	5,000	27.6	0.0110	5,000	23.6	0.0087
	40	6,100	28.7	0.0134	5,000	23.6	0.0110	4,000	22.8	0.0079	4,000	19.7	0.0071
	50	4,900	24.0	0.0071	4,000	19.7	0.0059	3,000	15.7	0.0051	3,000	15.7	0.0039
	60	4,900	16.5	0.0028	4,000	13.8	0.0024	3,000	13.0	0.0024	3,000	11.8	0.0016

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.
* Maximum speed will vary by diameter.

List 3720 - EXOCARB® WXL®: 2 Flute, Stub Length

Slotting

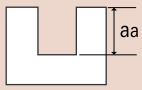
Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloys		Mild Steels Carbon Steels		Hardened Steels, Pre-hardened Steels Stainless Steels			
Cutting Speed	52-682 SFM*		41-323 SFM*		41-241 SFM*		41-208 SFM*	
Depth of Cut	Dia / aa D<1 / 0.1D 1≤D<3 / 0.3D 3≤D / 0.5D							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.1	25,000	2.4	25,000	2.0	25,000	1.8	25,000	0.9
0.2	25,000	3.3	25,000	2.7	25,000	2.2	25,000	1.1
0.3	25,000	4.1	25,000	3.4	25,000	2.5	25,000	1.7
0.4	25,000	4.5	25,000	3.7	25,000	2.7	25,000	2.1
0.5	25,000	4.9	25,000	3.8	25,000	3.5	25,000	2.7
0.6	25,000	5.5	25,000	4.4	24,500	4.3	21,000	3.0
0.7	25,000	6.1	25,000	4.9	21,500	4.3	18,500	3.0
0.8	25,000	7.1	25,000	5.5	19,500	4.3	17,000	3.1
0.9	25,000	7.9	23,500	5.9	17,000	4.3	15,000	3.1
1.0	25,000	8.5	22,000	5.9	15,500	4.3	13,500	3.1
1.1	25,000	8.3	20,000	5.9	14,000	4.3	12,500	3.1
1.2	25,000	8.3	18,500	5.9	13,500	4.3	11,500	3.1
1.3	25,000	8.6	17,500	5.9	12,500	4.3	11,000	3.1
1.4	25,000	9.2	16,000	5.9	11,500	4.3	10,000	3.1
1.5	25,000	9.8	15,500	5.9	11,000	4.3	9,900	3.1
1.6	25,000	10.1	15,000	5.9	10,500	4.3	9,400	3.1
1.7	25,000	10.8	14,000	5.9	9,900	4.3	8,800	3.1
1.8	25,000	11.4	13,500	6.3	9,400	4.3	8,500	3.1
1.9	25,000	12.1	12,500	6.3	8,800	4.3	7,900	3.3
2.0	25,000	12.5	12,000	6.3	8,700	4.3	7,900	3.5
2.1	25,000	13.9	11,500	6.7	8,300	4.3	7,400	3.5
2.2	25,000	14.4	11,000	6.7	8,200	4.3	7,200	3.5
2.3	25,000	14.7	11,000	7.1	8,000	4.3	7,000	3.5
2.4	25,000	16.3	10,500	7.1	7,900	4.3	6,900	3.5
2.5	24,500	16.9	10,500	7.9	7,600	4.3	6,600	3.5
2.6	23,500	18.5	9,800	7.9	7,400	4.9	6,300	3.5
2.7	23,000	18.5	9,500	7.9	7,100	4.9	6,100	3.5
2.8	22,000	18.5	9,100	8.3	6,900	4.9	5,800	3.7
2.9	21,500	18.5	8,800	8.3	6,700	4.9	5,700	3.7
3.0	21,000	21.3	8,900	9.1	6,800	5.1	5,700	3.9
3.1	20,000	21.7	8,700	9.4	6,700	5.1	5,600	3.9
3.2	19,500	22.0	8,400	9.4	6,500	5.7	5,400	4.1
3.3	19,000	22.0	8,100	9.8	6,300	5.7	5,200	4.1
3.4	18,000	22.0	7,900	9.8	6,100	5.7	5,100	4.1
3.5	18,000	22.0	7,800	9.8	6,000	6.1	5,000	4.1
3.6	17,500	22.8	7,600	10.6	5,900	6.1	4,900	4.3
3.7	16,500	22.8	7,400	10.6	5,700	6.1	4,700	4.3
3.8	16,000	23.2	7,300	11.0	5,700	6.1	4,600	4.3
3.9	15,500	23.2	7,100	11.0	5,500	6.3	4,500	4.3
4.0	15,500	23.6	7,000	11.0	5,500	6.3	4,500	4.5
4.1	15,500	25.2	6,900	11.4	5,400	6.3	4,400	4.5
4.2	15,000	25.2	6,800	11.4	5,300	6.3	4,400	4.5
4.3	14,000	25.2	6,700	12.2	5,200	6.3	4,300	4.5
4.4	14,000	26.4	6,600	12.6	5,100	6.7	4,200	4.9
4.5	14,000	26.4	6,600	12.6	5,100	6.7	4,200	4.9
4.6	13,500	27.6	6,500	13.0	4,900	6.7	4,100	4.9
4.7	13,500	27.6	6,500	13.8	4,900	6.7	4,100	4.9
4.8	13,500	28.0	6,400	13.8	4,800	6.7	4,100	4.9
4.9	13,500	28.0	6,300	14.2	4,700	6.7	4,000	4.9
5.0	12,500	28.3	6,200	14.6	4,600	6.7	3,900	5.1

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

*Maximum speed will vary by diameter.

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Slotting

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloys		Mild Steels Carbon Steels		Hardened Steels, Pre-hardened Steels Stainless Steels			
Cutting Speed	52-682 SFM*		41-323 SFM*		41-241 SFM*		41-208 SFM*	
Depth of Cut			Dia / aa D<1 / 0.1D 1≤D<3 / 0.3D 3≤D / 0.5D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5.1	12,500	28.3	6,100	14.6	4,500	6.7	3,900	5.1
5.2	12,000	28.3	6,000	14.6	4,400	6.7	3,800	5.1
5.3	12,000	28.3	5,900	14.6	4,400	6.7	3,800	5.1
5.4	11,500	28.3	5,800	14.6	4,300	6.7	3,600	5.1
5.5	11,500	28.3	5,700	14.6	4,200	6.7	3,500	5.1
5.6	11,500	28.3	5,600	14.6	4,100	6.7	3,500	5.1
5.7	11,000	28.3	5,500	14.6	4,000	6.7	3,400	5.1
5.8	11,000	28.0	5,400	14.6	3,900	6.7	3,300	5.1
5.9	10,500	28.0	5,300	14.6	3,800	6.7	3,300	5.1
6.0	10,000	28.0	5,200	14.6	3,800	6.7	3,200	5.1

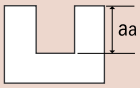
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.
*Maximum speed will vary by diameter.

List 3721 - EXOCARB® WXL®: 2 Flute, Stub Length

Slotting

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Mild Steels Carbon Steels		Hardened Steels, Pre-hardened Steels Stainless Steels			
Depth of Cut								

Dia	aa
D<1	0.1D
1≤D<3	0.3D
3≤D	0.5D

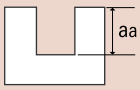


Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.1	25,000	2.0	25,000	2.2	25,000	1.8	25,000	0.9
0.2	25,000	2.8	25,000	2.8	25,000	2.3	25,000	1.1
0.3	25,000	3.3	25,000	3.4	25,000	2.5	25,000	1.7
0.4	25,000	3.7	25,000	3.7	25,000	2.8	25,000	2.1
0.5	25,000	3.9	25,000	3.8	25,000	3.5	22,000	2.4
0.6	25,000	4.5	25,000	4.4	19,500	3.5	17,000	2.4
0.7	25,000	4.9	24,000	4.7	17,000	3.5	15,000	2.4
0.8	25,000	5.7	21,500	4.7	15,500	3.5	13,500	2.6
0.9	25,000	6.4	19,000	4.7	13,500	3.5	12,000	2.6
1.0	25,000	7.3	17,500	4.7	12,500	3.5	11,000	2.6
1.1	25,000	7.8	16,000	4.7	11,500	3.5	9,900	2.6
1.2	25,000	8.3	15,000	4.7	10,500	3.5	9,300	2.6
1.3	25,000	8.5	14,000	4.7	9,900	3.5	8,700	2.6
1.4	25,000	9.3	13,000	4.7	9,200	3.5	8,100	2.6
1.5	25,000	9.8	12,500	4.7	8,900	3.5	7,900	2.6
1.6	25,000	10.2	12,000	4.7	8,500	3.5	7,500	2.6
1.7	25,000	10.9	11,000	4.7	7,900	3.5	7,000	2.6
1.8	25,000	11.2	10,500	5.1	7,500	3.5	6,800	2.7
1.9	25,000	12.1	10,000	5.1	7,100	3.5	6,300	2.7
2.0	24,000	12.2	9,700	5.1	7,000	3.5	6,300	2.8
2.1	23,000	13.0	9,300	5.5	6,600	3.5	5,900	2.8
2.2	22,500	13.0	9,000	5.5	6,500	3.5	5,700	2.8
2.3	22,000	13.0	8,800	5.9	6,400	3.5	5,600	2.8
2.4	20,500	13.8	8,600	5.9	6,300	3.5	5,500	2.8
2.5	20,000	13.8	8,200	6.3	6,100	3.5	5,300	2.8
2.6	19,000	15.0	7,900	6.3	5,900	3.9	5,000	2.8
2.7	18,000	15.0	7,600	6.3	5,700	3.9	4,900	2.8
2.8	17,500	15.0	7,300	6.7	5,500	3.9	4,700	3.0
2.9	17,000	15.0	7,100	6.7	5,300	3.9	4,500	3.0
3.0	16,000	15.7	6,900	6.7	5,300	3.9	4,400	3.0
3.1	15,500	16.1	6,700	7.1	5,100	3.9	4,300	3.0
3.2	15,000	16.5	6,500	7.1	5,000	4.3	4,200	3.1
3.3	14,500	16.5	6,300	7.5	4,800	4.3	4,000	3.1
3.4	14,000	16.5	6,100	7.5	4,600	4.3	3,900	3.1
3.5	14,000	16.5	6,000	7.5	4,600	4.7	3,800	3.1
3.6	13,500	16.9	5,900	7.9	4,500	4.7	3,700	3.3
3.7	12,500	16.9	5,700	7.9	4,400	4.7	3,600	3.3
3.8	12,500	17.3	5,600	8.3	4,400	4.7	3,600	3.3
3.9	12,000	17.3	5,500	8.3	4,200	4.9	3,500	3.3
4.0	12,000	17.7	5,400	8.3	4,200	4.9	3,500	3.5
4.1	11,500	18.9	5,300	8.7	4,100	4.9	3,400	3.5
4.2	11,500	18.9	5,300	8.7	4,100	4.9	3,300	3.5
4.3	11,000	18.9	5,200	9.1	4,000	4.9	3,300	3.5
4.4	11,000	19.7	5,100	9.4	3,900	5.1	3,200	3.7
4.5	10,500	19.7	5,100	9.4	3,900	5.1	3,200	3.7
4.6	10,500	20.5	5,000	9.8	3,800	5.1	3,200	3.7
4.7	10,500	20.5	5,000	10.2	3,800	5.1	3,100	3.7
4.8	10,500	20.9	4,900	10.2	3,700	5.1	3,100	3.7
4.9	10,000	20.9	4,900	10.6	3,600	5.1	3,100	3.7
5.0	9,500	21.3	4,800	10.6	3,500	5.1	3,000	3.9

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

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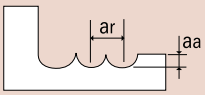
Slotting

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Mild Steels Carbon Steels		Hardened Steels, Pre-hardened Steels Stainless Steels			
Depth of Cut			Dia / aa D<1 / 0.1D 1≤D<3 / 0.3D 3≤D / 0.5D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5.1	9,500	21.3	4,700	10.6	3,500	5.1	3,000	3.9
5.2	9,300	21.3	4,600	10.6	3,400	5.1	2,900	3.9
5.3	9,200	21.3	4,600	10.6	3,400	5.1	2,900	3.9
5.4	9,000	21.3	4,500	10.6	3,300	5.1	2,800	3.9
5.5	8,800	21.3	4,400	10.6	3,200	5.1	2,700	3.9
5.6	8,700	21.3	4,300	10.6	3,100	5.1	2,600	3.9
5.7	8,500	21.3	4,200	10.6	3,100	5.1	2,600	3.9
5.8	8,400	20.9	4,200	10.6	3,000	5.1	2,600	3.9
5.9	8,200	20.9	4,100	10.6	2,900	5.1	2,500	3.9
6.0	7,900	20.9	4,000	10.6	2,900	5.1	2,500	3.9
6.5	7,500	20.9	3,700	10.6	2,700	5.1	2,300	3.9
7.0	6,900	20.9	3,400	10.6	2,500	5.1	2,100	3.9
7.5	6,400	20.9	3,200	10.6	2,300	5.1	2,000	3.9
8.0	5,900	20.5	3,000	10.2	2,200	4.9	1,900	3.9
8.5	5,600	20.5	2,800	10.2	2,000	4.9	1,700	3.9
9.0	5,300	20.1	2,600	10.2	1,900	4.9	1,500	3.9
9.5	5,100	20.1	2,500	10.2	1,800	4.9	1,400	3.7
10.0	4,700	19.7	2,400	9.8	1,700	4.9	1,500	3.7
11.0	4,400	19.7	2,200	9.8	1,600	4.9	1,100	3.7
12.0	4,000	20.1	2,000	9.8	1,400	4.9	1,200	3.7
16.0	3,000	15.7	1,500	7.9	1,100	4.5	800	3.1
18.0	2,700	14.2	1,300	7.1	900	3.9	700	2.8
20.0	2,400	11.8	1,200	5.9	800	3.5	600	2.4

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

List 3712: 2 Flute, Ball End, Stub Length, Pencil Neck

Standard Milling

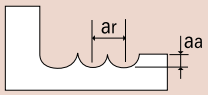
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels Pre-hardened Steels	
Cutting Speed	66-464 SFM	66-340 SFM	66-279 SFM	
Depth of Cut				

R (mm)	θn	L2 (mm)	Recom'd Cutting Angle	Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)	
						Aa	Ar			Aa	Ar			Aa	Ar			Aa	Ar
0.10	0.5°	1	0.3°	25,000	6.2	0.0008	0.0008	25,000	4.6	0.0004	0.0004	25,000	4.6	0.0004	0.0004	25,000	3.1	0.0002	0.0002
	0.5°	1.5	0.3°	25,000	6.2	0.0008	0.0008	25,000	4.6	0.0004	0.0004	25,000	4.6	0.0004	0.0004	25,000	3.1	0.0002	0.0002
	0.5°	2	0.3°	25,000	4.6	0.0008	0.0008	25,000	3.1	0.0004	0.0004	25,000	3.1	0.0004	0.0004	25,000	2.5	0.0002	0.0002
	0.5°	2.5	0.3°	25,000	4.6	0.0004	0.0004	25,000	3.1	0.0002	0.0002	25,000	3.1	0.0002	0.0002	25,000	2.5	0.0002	0.0002
	0.5°	3	0.3°	25,000	3.1	0.0004	0.0004	25,000	2.5	0.0002	0.0002	25,000	2.5	0.0002	0.0002	25,000	1.8	0.0001	0.0002
	1°	2	0.3°	25,000	4.6	0.0008	0.0008	25,000	3.1	0.0004	0.0004	25,000	3.1	0.0004	0.0004	25,000	2.5	0.0002	0.0002
	1°	2.5	0.3°	25,000	4.6	0.0008	0.0008	25,000	3.1	0.0004	0.0004	25,000	3.1	0.0004	0.0004	25,000	2.5	0.0002	0.0002
	1°	3	0.3°	25,000	4.6	0.0004	0.0004	25,000	3.1	0.0002	0.0002	25,000	3.1	0.0002	0.0002	25,000	2.5	0.0002	0.0002
0.15	0.5°	2	0.3°	25,000	18.5	0.0008	0.0012	25,000	9.2	0.0004	0.0006	25,000	6.2	0.0004	0.0006	25,000	6.2	0.0002	0.0002
	0.5°	3	0.3°	25,000	13.8	0.0008	0.0008	25,000	9.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004
	1°	3	0.3°	25,000	13.8	0.0008	0.0008	25,000	9.2	0.0004	0.0006	25,000	6.2	0.0004	0.0006	25,000	6.2	0.0002	0.0002
	1°	4	0.3°	25,000	13.8	0.0008	0.0008	25,000	9.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004	25,000	6.2	0.0004	0.0004
0.20	0.5°	2	0.3°	25,000	16.4	0.0012	0.0020	25,000	12.3	0.0006	0.0010	25,000	9.2	0.0006	0.0008	25,000	9.2	0.0004	0.0004
	0.5°	3	0.3°	25,000	16.4	0.0010	0.0020	25,000	10.9	0.0006	0.0010	25,000	7.3	0.0006	0.0008	25,000	7.3	0.0004	0.0004
	0.5°	4	0.3°	25,000	16.4	0.0008	0.0020	25,000	10.9	0.0006	0.0010	25,000	7.3	0.0006	0.0008	25,000	7.3	0.0004	0.0004
	0.5°	5	0.3°	25,000	14.6	0.0006	0.0020	25,000	10.9	0.0002	0.0006	25,000	7.3	0.0002	0.0005	25,000	7.3	0.0002	0.0004
	0.5°	6	0.3°	25,000	10.9	0.0004	0.0012	25,000	10.9	0.0002	0.0006	25,000	7.3	0.0002	0.0005	25,000	7.3	0.0002	0.0004
	1°	4	0.3°	25,000	16.4	0.0010	0.0020	25,000	10.9	0.0006	0.0010	25,000	7.3	0.0006	0.0008	25,000	7.3	0.0004	0.0004
	1°	5	0.3°	25,000	16.4	0.0008	0.0020	25,000	10.9	0.0006	0.0010	25,000	7.3	0.0006	0.0008	25,000	7.3	0.0004	0.0004
	1°	6	0.3°	25,000	14.6	0.0006	0.0020	25,000	10.9	0.0002	0.0006	25,000	7.3	0.0002	0.0005	25,000	7.3	0.0002	0.0004
0.25	0.5°	4	0.3°	25,000	18.5	0.0016	0.0020	25,000	12.3	0.0008	0.0010	25,000	9.2	0.0008	0.0008	25,000	9.2	0.0004	0.0006
	0.5°	6	0.3°	25,000	16.4	0.0016	0.0020	20,000	7.9	0.0008	0.0010	20,000	5.9	0.0008	0.0008	20,000	5.9	0.0004	0.0004
	0.5°	8	0.3°	21,000	11.8	0.0008	0.0012	20,000	7.9	0.0004	0.0006	20,000	5.9	0.0004	0.0004	20,000	5.9	0.0004	0.0004
	0.5°	10	0.3°	21,000	11.8	0.0008	0.0012	20,000	7.9	0.0004	0.0006	20,000	5.9	0.0004	0.0004	20,000	5.9	0.0002	0.0004
	1°	4	0.3°	25,000	18.5	0.0016	0.0020	25,000	12.3	0.0008	0.0010	25,000	9.2	0.0008	0.0008	25,000	9.2	0.0004	0.0004
	1°	6	0.3°	25,000	16.4	0.0016	0.0020	25,000	12.3	0.0008	0.0010	25,000	9.2	0.0008	0.0008	25,000	9.2	0.0004	0.0004
	1°	8	0.3°	25,000	16.4	0.0016	0.0020	20,000	7.9	0.0008	0.0010	20,000	5.9	0.0008	0.0008	20,000	5.9	0.0004	0.0004
	1°	10	0.3°	21,000	11.8	0.0008	0.0012	20,000	7.9	0.0008	0.0010	20,000	5.9	0.0008	0.0008	20,000	5.9	0.0004	0.0004
	1°	12	0.3°	21,000	11.8	0.0008	0.0012	20,000	7.9	0.0004	0.0006	20,000	5.9	0.0004	0.0004	20,000	5.9	0.0004	0.0004
0.30	0.5°	2	0.3°	25,000	20.8	0.0018	0.0047	25,000	13.8	0.0012	0.0024	25,000	9.2	0.0012	0.0020	25,000	9.2	0.0012	0.0012
	0.5°	4	0.3°	25,000	12.3	0.0018	0.0047	25,000	9.8	0.0012	0.0024	24,000	7.9	0.0012	0.0020	24,000	7.9	0.0012	0.0012
	0.5°	6	0.3°	25,000	12.3	0.0018	0.0047	25,000	9.8	0.0012	0.0024	24,000	7.9	0.0012	0.0016	24,000	7.9	0.0008	0.0008
	0.5°	8	0.3°	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0012	0.0016	20,000	5.9	0.0008	0.0008
	0.5°	10	0.3°	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0012	0.0016	20,000	5.9	0.0008	0.0008
	0.5°	12	0.3°	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0008	0.0016	20,000	5.9	0.0004	0.0004
	0.5°	16	0.3°	20,000	5.9	0.0010	0.0020	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0004	0.0016	20,000	5.9	0.0004	0.0004
	1°	4	0.3°	25,000	12.3	0.0018	0.0047	25,000	9.8	0.0012	0.0024	24,000	7.9	0.0012	0.0020	24,000	7.9	0.0012	0.0012
	1°	6	0.3°	25,000	12.3	0.0018	0.0047	25,000	9.8	0.0012	0.0024	24,000	7.9	0.0012	0.0016	24,000	7.9	0.0008	0.0008
	1°	8	0.3°	25,000	12.3	0.0018	0.0047	25,000	9.8	0.0012	0.0024	24,000	7.9	0.0012	0.0016	24,000	7.9	0.0008	0.0008
	1°	10	0.3°	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0012	0.0016	20,000	5.9	0.0008	0.0008
	1°	12	0.3°	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0012	0.0016	20,000	5.9	0.0008	0.0008
	1°	16	0.3°	25,000	8.9	0.0018	0.0047	20,000	5.9	0.0012	0.0024	20,000	5.9	0.0012	0.0016	20,000	5.9	0.0008	0.0008
0.40	0.5°	4	0.3°	25,000	24.6	0.0024	0.0063	23,000	17.7	0.0016	0.0031	21,000	11.8	0.0016	0.0024	21,000	11.8	0.0016	0.0031
	0.5°	6	0.3°	24,000	14.8	0.0024	0.0047	21,000	9.8	0.0016	0.0024	19,000	7.9	0.0016	0.0020	19,000	7.9	0.0012	0.0020
	0.5°	8	0.3°	24,000	14.8	0.0024	0.0047	21,000	9.8	0.0016	0.0024	19,000	7.9	0.0016	0.0020	19,000	7.9	0.0012	0.0020
	0.5°	12	0.3°	22,000	8.9	0.0024	0.0047	19,000	5.9	0.0016	0.0024	17,000	5.9	0.0016	0.0020	17,000	5.9	0.0008	0.0020

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

continued on next page

Standard Milling

Hardness		–		<32 HRC		33-41 HRC				42-50 HRC			
Work Material		Copper Copper Alloy		Mild Steels Carbon Steels		Hardened Steels Pre-hardened Steels							
Cutting Speed		66-464 SFM		66-340 SFM		66-279 SFM							
Depth of Cut													

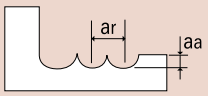
R (mm)	θn	L2 (mm)	Recom'd Cutting Angle	Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)	
						Aa	Ar			Aa	Ar			Aa	Ar			Aa	Ar
0.40	1°	8	0.3°	24,000	14.8	0.0024	0.0047	21,000	9.8	0.0016	0.0024	19,000	7.9	0.0016	0.0020	19,000	7.9	0.0012	0.0020
	1°	12	0.3°	24,000	14.8	0.0024	0.0047	21,000	9.8	0.0016	0.0024	19,000	7.9	0.0016	0.0020	19,000	7.9	0.0008	0.0020
	1°	16	0.3°	22,000	8.9	0.0024	0.0047	19,000	5.9	0.0016	0.0024	17,000	5.9	0.0016	0.0020	17,000	5.9	0.0008	0.0008
0.50	0.5°	6	0.3°	25,000	26.4	0.0030	0.0079	25,000	19.7	0.0020	0.0039	21,000	11.8	0.0020	0.0031	21,000	11.8	0.0020	0.0020
	0.5°	8	0.3°	25,000	26.4	0.0030	0.0079	25,000	19.7	0.0020	0.0039	21,000	11.8	0.0020	0.0031	21,000	11.8	0.0020	0.0020
	0.5°	10	0.3°	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0039	16,000	7.9	0.0020	0.0031	16,000	7.9	0.0020	0.0020
	0.5°	12	0.3°	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0039	16,000	7.9	0.0020	0.0031	16,000	7.9	0.0020	0.0020
	0.5°	16	0.3°	18,000	11.8	0.0024	0.0047	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0010
	0.5°	18	0.3°	18,000	11.8	0.0024	0.0047	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0010
	0.5°	20	0.3°	18,000	11.8	0.0024	0.0047	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0010
	0.5°	25	0.3°	16,000	11.8	0.0024	0.0047	13,000	7.9	0.0012	0.0020	10,000	5.9	0.0012	0.0016	10,000	5.9	0.0004	0.0006
	0.5°	30	0.3°	16,000	11.8	0.0024	0.0047	13,000	7.9	0.0012	0.0020	10,000	5.9	0.0012	0.0016	10,000	5.9	0.0004	0.0006
	0.5°	35	0.3°	13,000	11.8	0.0016	0.0047	13,000	7.9	0.0004	0.0020	10,000	5.9	0.0004	0.0016	10,000	5.9	0.0002	0.0006
	1°	10	0.3°	25,000	26.4	0.0030	0.0079	25,000	19.7	0.0020	0.0039	21,000	11.8	0.0020	0.0031	21,000	11.8	0.0020	0.0020
	1°	16	0.3°	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0039	16,000	7.9	0.0020	0.0031	16,000	7.9	0.0020	0.0020
	1°	20	0.3°	21,000	17.7	0.0030	0.0059	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0008
	1°	25	0.3°	18,000	11.8	0.0024	0.0047	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0008
	1°	30	0.3°	18,000	11.8	0.0024	0.0047	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0006
	1°	35	0.3°	18,000	11.8	0.0024	0.0047	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0006
	1°	40	0.3°	18,000	11.8	0.0024	0.0047	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0006
	1°	50	0.3°	16,000	11.8	0.0024	0.0047	13,000	7.9	0.0012	0.0020	10,000	5.9	0.0012	0.0016	10,000	5.9	0.0004	0.0006
	1°	60	0.3°	16,000	11.8	0.0024	0.0047	13,000	7.9	0.0012	0.0020	10,000	5.9	0.0012	0.0016	10,000	5.9	0.0004	0.0006
	1°	70	0.3°	12,000	11.8	0.0024	0.0047	13,000	7.9	0.0008	0.0020	10,000	5.9	0.0008	0.0016	10,000	5.9	0.0004	0.0006
	1.5°	8	0.3°	25,000	26.4	0.0030	0.0079	25,000	19.7	0.0020	0.0039	21,000	11.8	0.0020	0.0031	21,000	11.8	0.0020	0.0020
	1.5°	10	0.3°	25,000	26.4	0.0030	0.0079	25,000	19.7	0.0020	0.0039	21,000	11.8	0.0020	0.0031	21,000	11.8	0.0020	0.0020
	1.5°	12	0.3°	25,000	26.4	0.0030	0.0079	25,000	19.7	0.0020	0.0039	21,000	11.8	0.0020	0.0031	21,000	11.8	0.0020	0.0020
	1.5°	16	0.3°	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0039	16,000	7.9	0.0020	0.0031	16,000	7.9	0.0020	0.0020
	1.5°	20	0.3°	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0039	16,000	7.9	0.0020	0.0031	16,000	7.9	0.0020	0.0020
	1.5°	25	0.3°	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0039	16,000	7.9	0.0020	0.0031	16,000	7.9	0.0020	0.0020
	1.5°	30	0.3°	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0039	16,000	7.9	0.0020	0.0031	16,000	7.9	0.0020	0.0020
	1.5°	35	0.3°	21,000	17.7	0.0030	0.0059	17,000	7.9	0.0012	0.0020	14,000	5.9	0.0012	0.0016	14,000	5.9	0.0004	0.0008
	2°	45	0.3°	21,000	17.7	0.0030	0.0059	19,000	11.8	0.0020	0.0039	16,000	7.9	0.0020	0.0031	16,000	7.9	0.0020	0.0020
0.60	0.5°	12	0.3°	20,000	17.7	0.0035	0.0094	17,000	11.8	0.0024	0.0047	14,000	7.9	0.0024	0.0039	14,000	7.9	0.0024	0.0024
	0.5°	25	0.3°	16,000	11.8	0.0035	0.0071	14,000	7.9	0.0024	0.0035	11,000	5.9	0.0024	0.0028	11,000	5.9	0.0008	0.0012
	1°	12	0.3°	20,000	17.7	0.0035	0.0094	17,000	11.8	0.0024	0.0047	14,000	7.9	0.0024	0.0039	14,000	7.9	0.0024	0.0024
	1°	25	0.3°	16,000	11.8	0.0035	0.0094	14,000	7.9	0.0024	0.0035	11,000	5.9	0.0024	0.0028	11,000	5.9	0.0008	0.0012
	1.5°	12	0.3°	20,000	23.6	0.0035	0.0094	17,000	17.7	0.0024	0.0047	14,000	11.8	0.0024	0.0039	14,000	11.8	0.0024	0.0024
	1.5°	25	0.3°	20,000	17.7	0.0035	0.0094	17,000	11.8	0.0024	0.0047	14,000	7.9	0.0024	0.0039	14,000	7.9	0.0024	0.0024
0.75	0.5°	8	0.3°	18,000	29.5	0.0055	0.0118	15,000	19.7	0.0031	0.0059	12,000	13.8	0.0031	0.0059	12,000	11.8	0.0031	0.0059
	0.5°	10	0.3°	17,000	17.7	0.0055	0.0118	15,000	11.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059
	0.5°	12	0.3°	17,000	17.7	0.0047	0.0118	15,000	11.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059
	0.5°	16	0.3°	17,000	17.7	0.0047	0.0094	15,000	11.8	0.0031	0.0047	12,000	9.8	0.0031	0.0039	12,000	9.8	0.0030	0.0039
	0.5°	20	0.3°	13,000	11.8	0.0047	0.0079	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0039	9,500	5.9	0.0020	0.0039
	0.5°	25	0.3°	13,000	11.8	0.0047	0.0079	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0039	9,500	5.9	0.0020	0.0039
	0.5°	30	0.3°	13,000	11.8	0.0047	0.0079	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0039	9,500	5.9	0.0014	0.0039
	0.5°	35	0.3°	13,000	11.8	0.0035	0.0079	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0039	9,500	5.9	0.0012	0.0039

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

continued on next page

List 3712: 2 Flute, Ball End, Stub Length, Pencil Neck (Continued)

Standard Milling

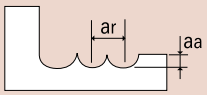
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels Pre-hardened Steels	
Cutting Speed	66-464 SFM	66-340 SFM	66-279 SFM	
Depth of Cut				

R (mm)	θn	L2 (mm)	Recom'd Cutting Angle	Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)	
						Aa	Ar			Aa	Ar			Aa	Ar			Aa	Ar
0.75	1°	10	0.3°	18,000	29.5	0.0055	0.0118	15,000	19.7	0.0031	0.0059	12,000	13.8	0.0031	0.0059	12,000	11.8	0.0031	0.0059
	1°	12	0.3°	17,000	17.7	0.0055	0.0118	15,000	11.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059
	1°	16	0.3°	17,000	17.7	0.0047	0.0118	15,000	11.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059
	1°	20	0.3°	17,000	17.7	0.0047	0.0094	15,000	11.8	0.0031	0.0047	12,000	9.8	0.0031	0.0039	12,000	9.8	0.0030	0.0039
	1°	25	0.3°	17,000	17.7	0.0047	0.0094	15,000	11.8	0.0031	0.0047	12,000	9.8	0.0031	0.0039	12,000	9.8	0.0020	0.0039
	1°	30	0.3°	13,000	11.8	0.0035	0.0079	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0039	9,500	5.9	0.0012	0.0039
	1°	35	0.3°	13,000	11.8	0.0035	0.0079	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0039	9,500	5.9	0.0008	0.0039
	1.5°	10	0.3°	18,000	29.5	0.0047	0.0118	15,000	19.7	0.0031	0.0059	12,000	13.8	0.0031	0.0059	12,000	11.8	0.0031	0.0059
	1.5°	12	0.3°	17,000	17.7	0.0047	0.0118	15,000	11.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059
	1.5°	16	0.3°	17,000	17.7	0.0047	0.0118	15,000	11.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059
	1.5°	20	0.3°	17,000	17.7	0.0047	0.0118	15,000	11.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059	12,000	9.8	0.0031	0.0059
	1.5°	25	0.3°	17,000	17.7	0.0047	0.0094	15,000	11.8	0.0031	0.0047	12,000	9.8	0.0031	0.0039	12,000	9.8	0.0030	0.0039
	1.5°	30	0.3°	17,000	17.7	0.0047	0.0094	15,000	11.8	0.0031	0.0047	12,000	9.8	0.0031	0.0039	12,000	9.8	0.0030	0.0039
	1.5°	35	0.3°	13,000	11.8	0.0030	0.0079	12,000	7.9	0.0024	0.0039	9,500	5.9	0.0024	0.0039	9,500	5.9	0.0020	0.0039
	2°	38.6	0.3°	17,000	17.7	0.0047	0.0094	15,000	11.8	0.0031	0.0047	12,000	9.8	0.0031	0.0039	12,000	9.8	0.0030	0.0039
1.00	0.5°	8	0.3°	16,500	41.3	0.0079	0.0220	16,500	27.6	0.0039	0.0110	13,500	19.7	0.0039	0.0110	13,500	19.7	0.0039	0.0079
	0.5°	10	0.3°	16,500	41.3	0.0079	0.0220	16,500	27.6	0.0039	0.0110	13,500	19.7	0.0039	0.0110	13,500	19.7	0.0039	0.0079
	0.5°	12	0.3°	16,500	41.3	0.0079	0.0220	16,500	27.6	0.0039	0.0110	13,500	19.7	0.0039	0.0110	13,500	19.7	0.0039	0.0079
	0.5°	16	0.3°	14,000	29.5	0.0059	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
	0.5°	20	0.3°	14,000	29.5	0.0059	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
	0.5°	25	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
	0.5°	30	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
	0.5°	35	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
	0.5°	40	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
	1°	16	0.3°	16,500	41.3	0.0079	0.0220	16,500	27.6	0.0039	0.0110	13,500	19.7	0.0039	0.0110	13,500	19.7	0.0039	0.0079
	1°	20	0.3°	14,000	29.5	0.0079	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
	1°	25	0.3°	14,000	29.5	0.0059	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
	1°	30	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0031	0.0039
	1°	35	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0031	0.0039
	1°	40	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
	1°	50	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
	1°	60	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
	1°	70	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
	1.5°	16	0.3°	16,500	41.3	0.0079	0.0220	16,500	27.6	0.0039	0.0110	13,500	19.7	0.0039	0.0110	13,500	19.7	0.0039	0.0079
	1.5°	20	0.3°	16,500	41.3	0.0079	0.0220	16,500	27.6	0.0039	0.0110	13,500	19.7	0.0039	0.0110	13,500	19.7	0.0039	0.0079
	1.5°	25	0.3°	14,000	29.5	0.0059	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
	1.5°	30	0.3°	14,000	29.5	0.0059	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
	1.5°	35	0.3°	14,000	29.5	0.0059	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
	1.5°	41.5	0.3°	11,000	14.8	0.0059	0.0165	10,000	9.8	0.0039	0.0083	8,000	7.9	0.0039	0.0071	8,000	7.9	0.0024	0.0039
	2°	31.5	0.3°	14,000	29.5	0.0059	0.0220	13,000	19.7	0.0039	0.0110	10,000	11.8	0.0039	0.0110	10,000	11.8	0.0039	0.0079
1.50	0.5°	8	0.3°	15,000	47.2	0.0079	0.0331	9,500	31.5	0.0059	0.0165	7,500	23.6	0.0059	0.0165	7,500	23.6	0.0059	0.0118
	0.5°	10	0.3°	15,000	47.2	0.0079	0.0331	9,500	31.5	0.0059	0.0165	7,500	23.6	0.0059	0.0165	7,500	23.6	0.0059	0.0118
	0.5°	12	0.3°	12,000	35.4	0.0079	0.0331	9,500	23.6	0.0059	0.0165	7,500	15.7	0.0059	0.0142	7,500	15.7	0.0059	0.0118
	0.5°	16	0.3°	10,000	35.4	0.0079	0.0331	9,500	23.6	0.0059	0.0165	7,500	15.7	0.0059	0.0142	7,500	15.7	0.0059	0.0118
	0.5°	20	0.3°	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
	0.5°	25	0.3°	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

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Standard Milling

Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels Pre-hardened Steels	
Cutting Speed	66-464 SFM	66-340 SFM	66-279 SFM	
Depth of Cut				

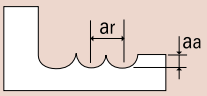
R (mm)	θn	L2 (mm)	Recom'd Cutting Angle	Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)		Speed (RPM)	Feed (in/min)	Depth of Cut (in)	
						Aa	Ar			Aa	Ar			Aa	Ar			Aa	Ar
1.50	0.5°	30	0.3°	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0118	6,500	9.8	0.0035	0.0059
	0.5°	35	0.3°	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0118	6,500	9.8	0.0035	0.0059
	0.5°	40	0.3°	9,000	14.8	0.0079	0.0331	7,500	9.8	0.0059	0.0165	6,000	7.9	0.0059	0.0118	6,000	7.9	0.0035	0.0059
	0.5°	50	0.3°	9,000	14.8	0.0079	0.0331	7,500	9.8	0.0059	0.0165	6,000	7.9	0.0059	0.0118	6,000	7.9	0.0035	0.0059
	1°	20	0.3°	10,000	35.4	0.0079	0.0331	9,500	23.6	0.0059	0.0165	7,500	15.7	0.0059	0.0142	7,500	15.7	0.0059	0.0118
	1°	25	0.3°	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
	1°	30	0.3°	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
	1°	35	0.3°	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0118	6,500	9.8	0.0035	0.0059
	1°	40	0.3°	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0118	6,500	9.8	0.0035	0.0059
	1°	50	0.3°	9,000	14.8	0.0079	0.0331	7,500	9.8	0.0059	0.0165	6,000	7.9	0.0059	0.0118	6,000	7.9	0.0035	0.0059
	1°	60	0.3°	9,000	14.8	0.0079	0.0331	7,500	9.8	0.0059	0.0165	6,000	7.9	0.0059	0.0118	6,000	7.9	0.0035	0.0059
	1°	70	0.3°	9,000	14.8	0.0079	0.0331	7,500	9.8	0.0059	0.0165	6,000	7.9	0.0059	0.0118	6,000	7.9	0.0035	0.0059
	1.5°	20	0.3°	10,000	35.4	0.0118	0.0331	9,500	23.6	0.0059	0.0165	7,500	15.7	0.0059	0.0142	7,500	15.7	0.0059	0.0118
	1.5°	25	0.3°	10,000	17.7	0.0098	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
	1.5°	30	0.3°	10,000	17.7	0.0098	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
	1.5°	35	0.3°	10,000	17.7	0.0098	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
	1.5°	40	0.3°	10,000	17.7	0.0098	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
	1.5°	50	0.3°	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0118	6,500	9.8	0.0035	0.0059
	1.5°	62.5	0.3°	10,000	17.7	0.0079	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0118	6,500	9.8	0.0035	0.0059
	1.5°	47.5	0.3°	10,000	17.7	0.0098	0.0331	8,500	11.8	0.0059	0.0165	6,500	9.8	0.0059	0.0142	6,500	9.8	0.0059	0.0118
2.00	1°	20	0.5°	9,000	35.4	0.0197	0.0504	7,500	23.6	0.0079	0.0252	6,000	15.7	0.0079	0.0236	6,000	15.7	0.0079	0.0157
	1°	30	0.5°	7,000	23.6	0.0197	0.0504	6,000	15.7	0.0079	0.0252	5,000	9.8	0.0079	0.0236	5,000	9.8	0.0079	0.0157
	1°	40	0.5°	7,000	23.6	0.0157	0.0504	6,000	15.7	0.0079	0.0252	5,000	9.8	0.0079	0.0220	5,000	9.8	0.0047	0.0118
	1°	50	0.5°	7,000	23.6	0.0157	0.0504	6,000	15.7	0.0079	0.0252	5,000	9.8	0.0079	0.0220	5,000	9.8	0.0047	0.0079
	1°	60	0.5°	5,000	14.8	0.0138	0.0504	5,000	9.8	0.0079	0.0252	4,000	7.9	0.0079	0.0220	4,000	7.9	0.0047	0.0079
	1.5°	44.2	0.5°	7,000	23.6	0.0197	0.0504	6,000	15.7	0.0079	0.0252	5,000	9.8	0.0079	0.0236	5,000	9.8	0.0079	0.0157
	2°	34	0.5°	7,000	23.6	0.0197	0.0504	6,000	15.7	0.0079	0.0252	5,000	9.8	0.0079	0.0236	5,000	9.8	0.0079	0.0197
2.50	1°	30	0.5°	7,000	29.5	0.0236	0.0709	6,500	19.7	0.0098	0.0354	5,000	15.7	0.0098	0.0276	5,000	15.7	0.0098	0.0197
	1°	40	0.5°	6,000	29.5	0.0236	0.0709	5,000	19.7	0.0098	0.0354	4,000	9.8	0.0098	0.0276	4,000	9.8	0.0098	0.0197
	1°	60	0.5°	5,000	23.6	0.0157	0.0709	4,000	15.7	0.0098	0.0354	4,000	7.9	0.0098	0.0236	4,000	7.9	0.0079	0.0098
	1.5°	26.9	0.5°	9,000	53.1	0.0236	0.0709	6,500	35.4	0.0098	0.0354	5,000	29.5	0.0098	0.0276	5,000	29.5	0.0098	0.0197
	1.5°	65.1	0.5°	6,000	29.5	0.0236	0.0709	5,000	19.7	0.0098	0.0354	4,000	9.8	0.0098	0.0276	4,000	9.8	0.0098	0.0197
	2°	50.1	0.5°	6,000	29.5	0.0236	0.0709	5,000	19.7	0.0098	0.0354	4,000	9.8	0.0098	0.0276	4,000	9.8	0.0098	0.0197
3.00	1°	30	0.5°	7,000	47.2	0.0295	0.0945	5,500	31.5	0.0118	0.0472	4,500	23.6	0.0118	0.0378	4,500	23.6	0.0118	0.0236
	1°	40	0.5°	5,000	23.6	0.0295	0.0945	4,000	15.7	0.0118	0.0472	4,000	11.8	0.0118	0.0378	4,000	11.8	0.0118	0.0236
	1°	50	0.5°	5,000	23.6	0.0236	0.0945	4,000	15.7	0.0118	0.0472	4,000	11.8	0.0118	0.0378	4,000	11.8	0.0118	0.0236
	1°	60	0.5°	5,000	23.6	0.0236	0.0945	4,000	15.7	0.0118	0.0472	4,000	11.8	0.0118	0.0378	4,000	11.8	0.0118	0.0236
	1°	70	0.5°	5,000	23.6	0.0236	0.0945	4,000	15.7	0.0118	0.0472	4,000	11.8	0.0118	0.0378	4,000	11.8	0.0118	0.0118
	1°	80	0.5°	5,000	23.6	0.0177	0.0945	4,000	15.7	0.0079	0.0472	4,000	11.8	0.0079	0.0378	4,000	11.8	0.0079	0.0118
	1.5°	49	0.5°	5,000	23.6	0.0236	0.0945	4,000	15.7	0.0118	0.0472	4,000	11.8	0.0118	0.0378	4,000	11.8	0.0118	0.0236
	2°	36	0.5°	7,000	47.2	0.0295	0.0945	5,500	31.5	0.0118	0.0472	4,500	23.6	0.0118	0.0378	4,500	23.6	0.0118	0.0236

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

continued on next page

List 3712: 2 Flute, Ball End, Stub Length, Pencil Neck (Continued)

High Speed Milling

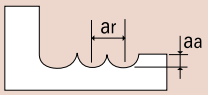
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels Pre-hardened Steels	
Cutting Speed	103-1031 SFM	78-928 SFM		76-774 SFM
Depth of Cut				

R (mm)	θn	L2 (mm)	Recom'd Cutting Angle	Speed (min⁻¹)	Feed (in/min)	Depth of Cut (in)		Speed (min⁻¹)	Feed (in/min)	Depth of Cut (in)		Speed (min⁻¹)	Feed (in/min)	Depth of Cut (in)		Speed (min⁻¹)	Feed (in/min)	Depth of Cut (in)	
						Aa	Ar			Aa	Ar			Aa	Ar			Aa	Ar
0.10	0.5°	1	0.3°	50,000	17.3	0.0003	0.0004	50,000	14.2	0.0002	0.0002	50,000	13.4	0.0002	0.0002	50,000	13.4	0.0002	0.0002
	0.5°	1.5	0.3°	50,000	17.3	0.0003	0.0004	50,000	14.2	0.0002	0.0002	50,000	13.4	0.0002	0.0002	50,000	13.4	0.0002	0.0002
	0.5°	2	0.3°	50,000	14.2	0.0003	0.0004	45,000	11.8	0.0002	0.0002	45,000	11.0	0.0002	0.0002	45,000	11.0	0.0002	0.0002
	0.5°	2.5	0.3°	50,000	12.6	0.0003	0.0004	38,000	9.1	0.0002	0.0002	38,000	8.3	0.0002	0.0002	37,000	7.9	0.0002	0.0002
	0.5°	3	0.3°	50,000	9.8	0.0003	0.0004	38,000	7.9	0.0002	0.0002	38,000	7.1	0.0002	0.0002	37,000	5.9	0.0001	0.0002
	1°	3.5	0.3°	50,000	17.3	0.0003	0.0004	50,000	14.2	0.0002	0.0002	50,000	13.4	0.0002	0.0002	50,000	13.4	0.0002	0.0002
	1°	4	0.3°	50,000	14.2	0.0003	0.0004	45,000	11.8	0.0002	0.0002	45,000	11.0	0.0002	0.0002	45,000	11.0	0.0002	0.0002
	1°	4.5	0.3°	50,000	12.6	0.0003	0.0004	38,000	9.1	0.0002	0.0002	38,000	8.3	0.0002	0.0002	37,000	7.9	0.0002	0.0002
0.15	0.5°	2	0.3°	50,000	28.7	0.0003	0.0008	50,000	23.6	0.0002	0.0004	50,000	22.4	0.0002	0.0004	50,000	22.4	0.0002	0.0002
	0.5°	3	0.3°	50,000	22.8	0.0003	0.0004	45,000	18.9	0.0002	0.0002	45,000	17.7	0.0002	0.0002	45,000	17.7	0.0002	0.0002
	1°	3	0.3°	50,000	24.0	0.0003	0.0008	47,000	20.1	0.0002	0.0004	47,000	18.9	0.0002	0.0004	47,000	18.9	0.0002	0.0002
	1°	4	0.3°	50,000	22.8	0.0003	0.0004	45,000	18.9	0.0002	0.0002	45,000	17.7	0.0002	0.0002	45,000	17.7	0.0002	0.0002
0.20	0.5°	2	0.3°	50,000	38.2	0.0006	0.0016	50,000	31.5	0.0004	0.0008	50,000	29.9	0.0004	0.0008	50,000	29.9	0.0004	0.0004
	0.5°	3	0.3°	50,000	26.4	0.0005	0.0012	45,000	21.7	0.0003	0.0006	45,000	20.5	0.0003	0.0006	45,000	20.5	0.0003	0.0004
	0.5°	4	0.3°	48,000	21.3	0.0003	0.0008	43,000	19.7	0.0002	0.0004	43,000	18.5	0.0002	0.0004	43,000	18.5	0.0002	0.0004
	0.5°	5	0.3°	45,000	18.9	0.0003	0.0008	40,000	16.5	0.0002	0.0004	40,000	15.7	0.0002	0.0004	40,000	15.7	0.0002	0.0004
	0.5°	6	0.3°	40,000	15.7	0.0003	0.0004	36,000	14.6	0.0002	0.0002	36,000	13.8	0.0002	0.0002	35,000	13.4	0.0002	0.0002
	1°	4	0.3°	50,000	26.4	0.0005	0.0012	45,000	21.7	0.0003	0.0006	45,000	20.5	0.0003	0.0006	45,000	20.5	0.0003	0.0004
	1°	5	0.3°	48,000	21.3	0.0003	0.0008	43,000	19.7	0.0002	0.0004	43,000	18.5	0.0002	0.0004	43,000	18.5	0.0002	0.0004
	1°	6	0.3°	45,000	18.9	0.0003	0.0008	40,000	16.5	0.0002	0.0004	40,000	15.7	0.0002	0.0004	40,000	15.7	0.0002	0.0004
0.25	0.5°	4	0.3°	50,000	47.2	0.0006	0.0016	48,000	35.4	0.0004	0.0008	48,000	33.5	0.0004	0.0008	48,000	33.5	0.0004	0.0006
	0.5°	6	0.3°	38,000	37.0	0.0006	0.0008	38,000	19.7	0.0004	0.0004	38,000	18.5	0.0004	0.0004	38,000	18.5	0.0004	0.0004
	0.5°	8	0.3°	30,000	29.9	0.0003	0.0008	30,000	15.7	0.0002	0.0004	30,000	15.0	0.0002	0.0004	29,000	14.2	0.0002	0.0004
	0.5°	10	0.3°	30,000	19.7	0.0002	0.0008	30,000	15.7	0.0002	0.0004	30,000	11.8	0.0002	0.0004	29,000	9.8	0.0002	0.0004
	1°	4	0.3°	50,000	47.2	0.0006	0.0016	48,000	35.4	0.0004	0.0008	48,000	33.5	0.0004	0.0008	48,000	33.5	0.0004	0.0004
	1°	6	0.3°	50,000	47.2	0.0006	0.0016	48,000	35.4	0.0004	0.0008	48,000	33.5	0.0004	0.0008	48,000	33.5	0.0004	0.0004
	1°	8	0.3°	50,000	47.2	0.0006	0.0016	48,000	35.4	0.0004	0.0008	48,000	33.5	0.0004	0.0008	48,000	33.5	0.0004	0.0004
	1°	10	0.3°	30,000	29.9	0.0003	0.0008	30,000	15.7	0.0002	0.0004	30,000	15.0	0.0002	0.0004	29,000	14.2	0.0002	0.0004
	1°	12	0.3°	30,000	29.9	0.0003	0.0008	30,000	15.7	0.0002	0.0004	30,000	15.0	0.0002	0.0004	29,000	14.2	0.0002	0.0004
0.30	0.5°	2	0.3°	50,000	61.0	0.0012	0.0024	50,000	47.2	0.0008	0.0012	50,000	43.3	0.0008	0.0012	50,000	43.3	0.0008	0.0012
	0.5°	4	0.3°	50,000	53.1	0.0012	0.0024	45,000	39.4	0.0008	0.0012	45,000	37.4	0.0008	0.0012	45,000	37.4	0.0008	0.0012
	0.5°	6	0.3°	35,000	37.8	0.0006	0.0016	30,000	26.8	0.0004	0.0008	30,000	25.2	0.0004	0.0008	30,000	25.2	0.0004	0.0008
	0.5°	8	0.3°	30,000	28.3	0.0006	0.0016	26,000	23.6	0.0004	0.0008	26,000	22.4	0.0004	0.0008	25,000	21.3	0.0004	0.0008
	0.5°	10	0.3°	30,000	19.7	0.0006	0.0016	26,000	18.9	0.0004	0.0008	26,000	17.7	0.0004	0.0008	25,000	15.0	0.0004	0.0008
	0.5°	12	0.3°	30,000	19.7	0.0004	0.0016	26,000	18.9	0.0003	0.0008	26,000	17.7	0.0003	0.0008	25,000	15.0	0.0003	0.0004
	0.5°	16	0.3°	30,000	15.7	0.0003	0.0016	26,000	15.0	0.0002	0.0008	26,000	14.2	0.0002	0.0008	25,000	11.8	0.0002	0.0004
	1°	4	0.3°	50,000	53.1	0.0012	0.0024	45,000	39.4	0.0008	0.0012	45,000	37.4	0.0008	0.0012	45,000	37.4	0.0008	0.0012
	1°	6	0.3°	35,000	37.8	0.0006	0.0016	30,000	26.8	0.0004	0.0008	30,000	25.2	0.0004	0.0008	30,000	25.2	0.0004	0.0008
	1°	8	0.3°	35,000	37.8	0.0006	0.0016	30,000	26.8	0.0004	0.0008	30,000	25.2	0.0004	0.0008	30,000	25.2	0.0004	0.0008
	1°	10	0.3°	30,000	28.3	0.0006	0.0016	26,000	23.6	0.0004	0.0008	26,000	22.4	0.0004	0.0008	25,000	21.3	0.0004	0.0008
	1°	12	0.3°	30,000	28.3	0.0006	0.0016	26,000	23.6	0.0004	0.0008	26,000	22.4	0.0004	0.0008	25,000	21.3	0.0004	0.0008
	1°	16	0.3°	30,000	19.7	0.0006	0.0016	26,000	18.9	0.0004	0.0008	26,000	17.7	0.0004	0.0008	25,000	15.0	0.0004	0.0008
0.40	0.5°	4	0.3°	50,000	68.9	0.0024	0.0063	48,000	63.0	0.0016	0.0031	48,000	59.1	0.0016	0.0024	48,000	59.1	0.0016	0.0016
	0.5°	6	0.3°	43,000	63.0	0.0018	0.0039	34,000	37.4	0.0012	0.0020	34,000	35.4	0.0012	0.0020	34,000	35.4	0.0008	0.0010
	0.5°	8	0.3°	32,000	49.2	0.0018	0.0039	30,000	31.5	0.0012	0.0020	30,000	29.9	0.0012	0.0020	30,000	29.9	0.0008	0.0010
	0.5°	12	0.3°	24,000	28.3	0.0004	0.0016	23,000	17.7	0.0002	0.0004	23,000	16.5	0.0002	0.0004	23,000	16.5	0.0002	0.0010

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

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High Speed Milling

Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels Pre-hardened Steels	
Cutting Speed	103-1031 SFM	78-928 SFM		76-774 SFM
Depth of Cut				

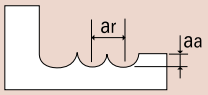
R (mm)	θn	L2 (mm)	Recom'd Cutting Angle	Speed (min^{-1})	Feed (in/min)	Depth of Cut (in)		Speed (min^{-1})	Feed (in/min)	Depth of Cut (in)		Speed (min^{-1})	Feed (in/min)	Depth of Cut (in)		Speed (min^{-1})	Feed (in/min)	Depth of Cut (in)	
						Aa	Ar			Aa	Ar			Aa	Ar			Aa	Ar
0.40	1°	8	0.3°	43,000	63.0	0.0018	0.0039	34,000	37.4	0.0012	0.0020	34,000	35.4	0.0012	0.0020	34,000	35.4	0.0008	0.0010
	1°	12	0.3°	32,000	49.2	0.0018	0.0039	30,000	31.5	0.0012	0.0020	30,000	29.9	0.0012	0.0020	30,000	29.9	0.0008	0.0010
	1°	16	0.3°	24,000	28.3	0.0004	0.0016	23,000	17.7	0.0002	0.0004	23,000	16.5	0.0002	0.0004	23,000	16.5	0.0002	0.0006
0.50	0.5°	6	0.3°	47,000	112.2	0.0030	0.0079	36,000	90.6	0.0020	0.0039	36,000	82.7	0.0020	0.0031	36,000	82.7	0.0020	0.0020
	0.5°	8	0.3°	30,000	92.5	0.0030	0.0059	27,000	66.9	0.0020	0.0039	27,000	63.0	0.0020	0.0031	27,000	63.0	0.0020	0.0020
	0.5°	10	0.3°	27,000	78.7	0.0030	0.0059	26,000	63.0	0.0020	0.0039	26,000	59.1	0.0020	0.0031	26,000	59.1	0.0020	0.0020
	0.5°	12	0.3°	24,000	55.1	0.0006	0.0016	22,000	43.3	0.0004	0.0008	22,000	39.4	0.0004	0.0020	21,000	37.4	0.0004	0.0008
	0.5°	16	0.3°	24,000	39.4	0.0006	0.0016	22,000	30.3	0.0004	0.0008	22,000	27.6	0.0004	0.0008	21,000	26.8	0.0004	0.0008
	0.5°	18	0.3°	24,000	39.4	0.0004	0.0016	22,000	30.3	0.0003	0.0008	22,000	27.6	0.0003	0.0008	21,000	26.8	0.0003	0.0008
	0.5°	20	0.3°	24,000	39.4	0.0004	0.0012	22,000	30.3	0.0003	0.0006	22,000	27.6	0.0003	0.0006	21,000	26.8	0.0003	0.0006
	0.5°	25	0.3°	20,000	31.5	0.0004	0.0012	18,000	23.6	0.0003	0.0006	18,000	18.9	0.0003	0.0006	17,000	21.7	0.0003	0.0006
	0.5°	30	0.3°	20,000	31.5	0.0003	0.0012	18,000	23.6	0.0002	0.0006	18,000	18.9	0.0002	0.0006	17,000	21.7	0.0002	0.0006
	0.5°	35	0.3°	15,000	21.7	0.0002	0.0012	14,000	17.7	0.0002	0.0004	12,000	15.7	0.0002	0.0004	11,000	13.8	0.0002	0.0004
	1°	10	0.3°	30,000	92.5	0.0030	0.0059	27,000	66.9	0.0020	0.0039	27,000	63.0	0.0020	0.0020	27,000	63.0	0.0020	0.0020
	1°	16	0.3°	24,000	55.1	0.0006	0.0016	22,000	43.3	0.0004	0.0008	22,000	39.4	0.0004	0.0008	21,000	37.4	0.0004	0.0008
	1°	20	0.3°	24,000	39.4	0.0006	0.0016	22,000	30.3	0.0004	0.0008	22,000	27.6	0.0004	0.0008	21,000	26.8	0.0004	0.0006
	1°	25	0.3°	24,000	39.4	0.0006	0.0016	22,000	30.3	0.0004	0.0008	22,000	27.6	0.0004	0.0008	21,000	26.8	0.0004	0.0006
	1°	30	0.3°	24,000	39.4	0.0004	0.0016	22,000	30.3	0.0003	0.0008	22,000	27.6	0.0003	0.0008	21,000	26.8	0.0003	0.0006
	1°	35	0.3°	24,000	39.4	0.0004	0.0012	22,000	30.3	0.0003	0.0006	22,000	27.6	0.0003	0.0006	21,000	26.8	0.0003	0.0006
	1°	40	0.3°	22,000	39.4	0.0004	0.0012	20,000	30.3	0.0003	0.0006	20,000	27.6	0.0003	0.0006	19,000	26.8	0.0003	0.0006
	1°	50	0.3°	20,000	31.5	0.0004	0.0012	18,000	23.6	0.0003	0.0006	18,000	18.9	0.0003	0.0006	17,000	21.7	0.0003	0.0004
	1°	60	0.3°	18,000	31.5	0.0003	0.0012	16,000	23.6	0.0002	0.0006	16,000	18.9	0.0002	0.0006	15,000	21.7	0.0002	0.0006
	1°	70	0.3°	15,000	23.6	0.0002	0.0012	14,000	18.9	0.0002	0.0006	13,000	15.0	0.0002	0.0006	12,000	17.7	0.0002	0.0006
	1.5°	8	0.3°	47,000	112.2	0.0030	0.0079	36,000	90.6	0.0020	0.0039	36,000	82.7	0.0020	0.0031	36,000	82.7	0.0020	0.0020
	1.5°	10	0.3°	30,000	92.5	0.0030	0.0059	27,000	66.9	0.0020	0.0039	27,000	63.0	0.0020	0.0031	27,000	63.0	0.0020	0.0020
	1.5°	12	0.3°	30,000	92.5	0.0030	0.0059	27,000	66.9	0.0020	0.0039	27,000	63.0	0.0020	0.0031	27,000	63.0	0.0020	0.0020
	1.5°	16	0.3°	24,000	55.1	0.0006	0.0016	22,000	43.3	0.0004	0.0008	22,000	39.4	0.0004	0.0008	21,000	37.4	0.0004	0.0008
	1.5°	20	0.3°	24,000	55.1	0.0006	0.0016	22,000	43.3	0.0004	0.0008	22,000	39.4	0.0004	0.0008	21,000	37.4	0.0004	0.0008
	1.5°	25	0.3°	24,000	55.1	0.0006	0.0016	22,000	43.3	0.0004	0.0008	22,000	39.4	0.0004	0.0008	21,000	37.4	0.0004	0.0008
	1.5°	30	0.3°	24,000	39.4	0.0006	0.0016	22,000	30.3	0.0004	0.0008	22,000	27.6	0.0004	0.0008	21,000	26.8	0.0004	0.0008
	1.5°	35	0.3°	24,000	39.4	0.0006	0.0016	22,000	30.3	0.0004	0.0008	22,000	27.6	0.0004	0.0008	21,000	26.8	0.0004	0.0008
	2°	45	0.3°	24,000	55.1	0.0006	0.0016	22,000	43.3	0.0004	0.0008	22,000	39.4	0.0004	0.0008	21,000	37.4	0.0004	0.0008
0.60	0.5°	12	0.3°	30,000	78.7	0.0035	0.0083	25,000	66.9	0.0024	0.0047	25,000	63.0	0.0024	0.0039	25,000	63.0	0.0024	0.0024
	0.5°	25	0.3°	24,000	39.4	0.0008	0.0016	22,000	30.3	0.0006	0.0008	22,000	27.6	0.0006	0.0008	21,000	26.8	0.0006	0.0012
	1°	12	0.3°	30,000	86.6	0.0035	0.0083	25,000	78.7	0.0024	0.0047	25,000	78.7	0.0024	0.0039	25,000	74.8	0.0024	0.0024
	1°	25	0.3°	30,000	78.7	0.0016	0.0083	25,000	66.9	0.0024	0.0035	25,000	63.0	0.0024	0.0020	25,000	63.0	0.0008	0.0012
	1.5°	12	0.3°	30,000	86.6	0.0035	0.0083	25,000	78.7	0.0024	0.0047	25,000	78.7	0.0024	0.0039	25,000	74.8	0.0024	0.0024
	1.5°	25	0.3°	30,000	78.7	0.0020	0.0083	25,000	66.9	0.0024	0.0047	25,000	63.0	0.0024	0.0039	25,000	63.0	0.0020	0.0024
0.75	0.5°	8	0.3°	32,000	118.1	0.0047	0.0118	30,000	114.2	0.0030	0.0059	30,000	106.3	0.0030	0.0047	30,000	106.3	0.0030	0.0039
	0.5°	10	0.3°	30,000	104.3	0.0047	0.0118	24,000	90.6	0.0030	0.0059	24,000	82.7	0.0030	0.0047	24,000	82.7	0.0030	0.0039
	0.5°	12	0.3°	30,000	94.5	0.0047	0.0118	24,000	78.7	0.0030	0.0059	24,000	74.8	0.0030	0.0047	24,000	74.8	0.0030	0.0039
	0.5°	16	0.3°	24,000	55.1	0.0047	0.0079	21,000	55.1	0.0030	0.0039	21,000	51.2	0.0030	0.0035	21,000	51.2	0.0020	0.0024
	0.5°	20	0.3°	22,000	55.1	0.0039	0.0079	18,000	47.2	0.0020	0.0039	18,000	43.3	0.0020	0.0028	17,000	43.3	0.0012	0.0012
	0.5°	25	0.3°	22,000	43.3	0.0039	0.0079	18,000	39.4	0.0020	0.0039	18,000	35.4	0.0020	0.0028	17,000	35.4	0.0008	0.0012
	0.5°	30	0.3°	22,000	43.3	0.0030	0.0079	18,000	39.4	0.0014	0.0039	18,000	35.4	0.0014	0.0028	17,000	35.4	0.0004	0.0012
	0.5°	35	0.3°	20,000	39.4	0.0020	0.0079	17,000	354.3	0.0012	0.0039	17,000	31.5	0.0012	0.0028	15,000	31.5	0.0004	0.0012

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

continued on next page

List 3712: 2 Flute, Ball End, Stub Length, Pencil Neck (Continued)

High Speed Milling

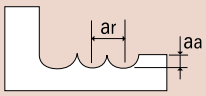
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels Pre-hardened Steels	
Cutting Speed	103-1031 SFM	78-928 SFM		76-774 SFM
Depth of Cut				

R (mm)	θn	L2 (mm)	Recom'd Cutting Angle	Speed (min⁻¹)	Feed (in/min)	Depth of Cut (in)		Speed (min⁻¹)	Feed (in/min)	Depth of Cut (in)		Speed (min⁻¹)	Feed (in/min)	Depth of Cut (in)		Speed (min⁻¹)	Feed (in/min)	Depth of Cut (in)	
						Aa	Ar			Aa	Ar			Aa	Ar			Aa	Ar
0.75	1°	10	0.3°	32,000	118.1	0.0047	0.0118	30,000	114.2	0.0030	0.0059	30,000	106.3	0.0030	0.0047	30,000	106.3	0.0030	0.0039
	1°	12	0.3°	30,000	104.3	0.0047	0.0118	24,000	90.6	0.0030	0.0059	24,000	82.7	0.0030	0.0047	24,000	82.7	0.0030	0.0039
	1°	16	0.3°	30,000	94.5	0.0047	0.0118	24,000	78.7	0.0030	0.0059	24,000	74.8	0.0030	0.0047	24,000	74.8	0.0030	0.0039
	1°	20	0.3°	24,000	55.1	0.0047	0.0079	21,000	55.1	0.0030	0.0039	21,000	51.2	0.0030	0.0035	21,000	51.2	0.0020	0.0024
	1°	25	0.3°	22,000	55.1	0.0039	0.0079	18,000	47.2	0.0020	0.0039	18,000	43.3	0.0020	0.0035	17,000	43.3	0.0020	0.0024
	1°	30	0.3°	22,000	55.1	0.0028	0.0079	18,000	47.2	0.0020	0.0039	18,000	43.3	0.0020	0.0028	17,000	43.3	0.0012	0.0012
	1°	35	0.3°	22,000	43.3	0.0028	0.0079	18,000	39.4	0.0020	0.0039	18,000	35.4	0.0020	0.0028	17,000	35.4	0.0008	0.0012
	1.5°	10	0.3°	32,000	118.1	0.0047	0.0118	30,000	114.2	0.0030	0.0059	30,000	106.3	0.0030	0.0047	30,000	106.3	0.0030	0.0039
	1.5°	12	0.3°	32,000	118.1	0.0047	0.0118	30,000	114.2	0.0030	0.0059	30,000	106.3	0.0030	0.0047	30,000	106.3	0.0030	0.0039
	1.5°	16	0.3°	30,000	94.5	0.0047	0.0118	24,000	78.7	0.0030	0.0059	24,000	74.8	0.0030	0.0047	24,000	74.8	0.0030	0.0039
	1.5°	20	0.3°	30,000	94.5	0.0047	0.0118	24,000	78.7	0.0030	0.0059	24,000	74.8	0.0030	0.0047	24,000	74.8	0.0031	0.0039
	1.5°	25	0.3°	24,000	55.1	0.0039	0.0079	21,000	55.1	0.0030	0.0039	21,000	51.2	0.0030	0.0035	21,000	51.2	0.0020	0.0024
	1.5°	30	0.3°	24,000	55.1	0.0039	0.0079	21,000	55.1	0.0030	0.0039	21,000	51.2	0.0030	0.0035	21,000	51.2	0.0020	0.0024
	1.5°	35	0.3°	22,000	55.1	0.0020	0.0079	18,000	47.2	0.0020	0.0039	18,000	43.3	0.0020	0.0028	17,000	43.3	0.0008	0.0012
	2°	38.6	0.3°	24,000	55.1	0.0039	0.0079	21,000	55.1	0.0030	0.0039	21,000	51.2	0.0030	0.0035	21,000	51.2	0.0020	0.0024
1.00	0.5°	8	0.3°	27,000	131.9	0.0059	0.0157	25,000	102.4	0.0039	0.0079	25,000	94.5	0.0039	0.0079	23,000	86.6	0.0039	0.0079
	0.5°	10	0.3°	22,000	120.1	0.0059	0.0157	20,000	94.5	0.0039	0.0079	20,000	86.6	0.0039	0.0079	19,000	78.7	0.0039	0.0079
	0.5°	12	0.3°	22,000	120.1	0.0059	0.0157	20,000	94.5	0.0039	0.0079	20,000	86.6	0.0039	0.0079	19,000	78.7	0.0039	0.0079
	0.5°	16	0.3°	15,000	94.5	0.0059	0.0118	15,000	70.9	0.0039	0.0079	15,000	66.9	0.0039	0.0079	14,000	59.1	0.0039	0.0079
	0.5°	20	0.3°	15,000	86.6	0.0059	0.0079	14,000	66.9	0.0039	0.0039	14,000	63.0	0.0039	0.0039	13,000	55.1	0.0039	0.0039
	0.5°	25	0.3°	12,000	47.2	0.0039	0.0079	12,000	47.2	0.0020	0.0039	11,000	43.3	0.0020	0.0039	10,000	39.4	0.0020	0.0039
	0.5°	30	0.3°	12,000	39.4	0.0039	0.0079	12,000	39.4	0.0020	0.0039	11,000	35.4	0.0020	0.0039	10,000	31.5	0.0020	0.0039
	0.5°	35	0.3°	12,000	39.4	0.0030	0.0079	12,000	39.4	0.0012	0.0039	11,000	35.4	0.0012	0.0039	10,000	31.5	0.0012	0.0039
	0.5°	40	0.3°	12,000	31.5	0.0020	0.0079	12,000	31.5	0.0008	0.0039	11,000	31.5	0.0008	0.0039	10,000	27.6	0.0008	0.0039
	1°	16	0.3°	22,000	120.1	0.0059	0.0157	20,000	94.5	0.0039	0.0079	20,000	86.6	0.0039	0.0079	19,000	78.7	0.0039	0.0079
	1°	20	0.3°	15,000	94.5	0.0059	0.0118	15,000	70.9	0.0039	0.0079	15,000	66.9	0.0039	0.0079	14,000	59.1	0.0039	0.0079
	1°	25	0.3°	15,000	86.6	0.0059	0.0079	14,000	66.9	0.0039	0.0039	14,000	63.0	0.0039	0.0039	13,000	55.1	0.0039	0.0039
	1°	30	0.3°	14,000	86.6	0.0059	0.0079	14,000	66.9	0.0039	0.0039	14,000	63.0	0.0039	0.0039	13,000	55.1	0.0028	0.0039
	1°	35	0.3°	12,000	47.2	0.0039	0.0079	12,000	47.2	0.0020	0.0039	11,000	43.3	0.0020	0.0039	10,000	39.4	0.0020	0.0039
	1°	40	0.3°	12,000	39.4	0.0039	0.0079	12,000	39.4	0.0020	0.0039	11,000	35.4	0.0020	0.0039	10,000	31.5	0.0020	0.0039
	1°	50	0.3°	12,000	39.4	0.0030	0.0079	12,000	39.4	0.0012	0.0039	11,000	35.4	0.0012	0.0039	10,000	31.5	0.0012	0.0039
	1°	60	0.3°	12,000	31.5	0.0020	0.0079	12,000	31.5	0.0008	0.0039	11,000	31.5	0.0008	0.0039	10,000	27.6	0.0008	0.0039
	1°	70	0.3°	12,000	31.5	0.0012	0.0039	12,000	31.5	0.0004	0.0020	11,000	31.5	0.0004	0.0020	10,000	27.6	0.0004	0.0020
	1.5°	16	0.3°	22,000	120.1	0.0079	0.0157	20,000	94.5	0.0039	0.0079	20,000	86.6	0.0039	0.0079	19,000	78.7	0.0039	0.0079
	1.5°	20	0.3°	22,000	120.1	0.0079	0.0157	20,000	94.5	0.0039	0.0079	20,000	86.6	0.0039	0.0079	19,000	78.7	0.0039	0.0079
	1.5°	25	0.3°	15,000	94.5	0.0059	0.0118	15,000	70.9	0.0039	0.0079	15,000	66.9	0.0039	0.0079	14,000	59.1	0.0039	0.0079
	1.5°	30	0.3°	15,000	86.6	0.0059	0.0079	14,000	66.9	0.0039	0.0039	14,000	63.0	0.0039	0.0039	13,000	55.1	0.0039	0.0039
	1.5°	35	0.3°	15,000	86.6	0.0059	0.0079	14,000	66.9	0.0039	0.0039	14,000	63.0	0.0039	0.0039	13,000	55.1	0.0039	0.0039
	1.5°	41.5	0.3°	12,000	47.2	0.0039	0.0079	12,000	47.2	0.0020	0.0039	11,000	43.3	0.0020	0.0039	10,000	39.4	0.0020	0.0039
	2°	31.5	0.3°	15,000	94.5	0.0059	0.0118	15,000	70.9	0.0039	0.0079	15,000	66.9	0.0039	0.0079	14,000	59.1	0.0039	0.0079
1.50	0.5°	8	0.3°	32,000	181.1	0.0079	0.0236	30,000	177.2	0.0059	0.0118	30,000	165.4	0.0059	0.0118	25,000	137.8	0.0059	0.0118
	0.5°	10	0.3°	28,000	157.5	0.0079	0.0236	25,000	149.6	0.0059	0.0118	25,000	141.7	0.0059	0.0118	20,000	110.2	0.0059	0.0118
	0.5°	12	0.3°	28,000	157.5	0.0079	0.0236	25,000	149.6	0.0059	0.0118	25,000	141.7	0.0059	0.0118	20,000	110.2	0.0059	0.0118
	0.5°	16	0.3°	22,000	114.2	0.0079	0.0236	18,000	106.3	0.0059	0.0118	18,000	98.4	0.0059	0.0118	15,000	78.7	0.0059	0.0118
	0.5°	20	0.3°	20,000	102.4	0.0059	0.0157	16,000	78.7	0.0039	0.0079	16,000	74.8	0.0039	0.0079	13,000	59.1	0.0039	0.0079
	0.5°	25	0.3°	16,000	86.6	0.0059	0.0157	14,000	70.9	0.0039	0.0079	14,000	66.9	0.0039	0.0079	11,000	51.2	0.0039	0.0079
	0.5°	30	0.3°	16,000	70.9	0.0049	0.0079	12,000	47.2	0.0020	0.0039	12,000	43.3	0.0020	0.0039	9,000	32.3	0.0020	0.0039

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

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High Speed Milling

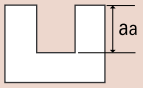
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels Pre-hardened Steels	
Cutting Speed	103-1031 SFM	78-928 SFM		76-774 SFM
Depth of Cut				

R (mm)	θn	L2 (mm)	Recom'd Cutting Angle	Speed (min^{-1})	Feed (in/min)	Depth of Cut (in)		Speed (min^{-1})	Feed (in/min)	Depth of Cut (in)		Speed (min^{-1})	Feed (in/min)	Depth of Cut (in)		Speed (min^{-1})	Feed (in/min)	Depth of Cut (in)	
						Aa	Ar			Aa	Ar			Aa	Ar			Aa	Ar
1.50	0.5°	35	0.3°	12,000	39.4	0.0030	0.0039	10,000	31.5	0.0012	0.0020	9,000	29.9	0.0012	0.0020	7,800	23.2	0.0012	0.0020
	0.5°	40	0.3°	12,000	31.5	0.0030	0.0039	10,000	23.6	0.0012	0.0020	9,000	23.6	0.0012	0.0020	7,800	18.9	0.0012	0.0020
	0.5°	50	0.3°	10,000	25.6	0.0020	0.0039	8,000	19.7	0.0008	0.0020	7,500	19.7	0.0008	0.0020	6,200	15.7	0.0008	0.0020
	1°	20	0.3°	22,000	114.2	0.0079	0.0236	18,000	106.3	0.0059	0.0118	18,000	98.4	0.0059	0.0118	15,000	78.7	0.0059	0.0118
	1°	25	0.3°	20,000	102.4	0.0079	0.0157	16,000	78.7	0.0039	0.0079	16,000	74.8	0.0039	0.0079	13,000	59.1	0.0039	0.0079
	1°	30	0.3°	16,000	86.6	0.0079	0.0157	14,000	70.9	0.0039	0.0079	14,000	66.9	0.0039	0.0079	11,000	51.2	0.0039	0.0079
	1°	35	0.3°	16,000	70.9	0.0049	0.0079	12,000	47.2	0.0020	0.0039	12,000	43.3	0.0020	0.0039	9,000	32.3	0.0020	0.0039
	1°	40	0.3°	16,000	70.9	0.0049	0.0079	12,000	47.2	0.0020	0.0039	12,000	43.3	0.0020	0.0039	9,000	32.3	0.0020	0.0039
	1°	50	0.3°	12,000	39.4	0.0030	0.0039	10,000	31.5	0.0012	0.0020	9,000	29.9	0.0012	0.0020	7,800	23.2	0.0012	0.0020
	1°	60	0.3°	12,000	31.5	0.0030	0.0039	10,000	23.6	0.0012	0.0020	9,000	23.6	0.0012	0.0020	7,800	18.9	0.0012	0.0020
	1°	70	0.3°	10,000	25.6	0.0020	0.0039	8,000	19.7	0.0008	0.0020	7,500	19.7	0.0008	0.0020	6,200	15.7	0.0008	0.0020
	1.5°	20	0.3°	22,000	114.2	0.0098	0.0236	18,000	106.3	0.0059	0.0118	18,000	98.4	0.0059	0.0118	15,000	78.7	0.0059	0.0118
	1.5°	25	0.3°	20,000	102.4	0.0079	0.0157	16,000	78.7	0.0039	0.0079	16,000	74.8	0.0039	0.0079	13,000	59.1	0.0039	0.0079
	1.5°	30	0.3°	20,000	102.4	0.0079	0.0157	16,000	78.7	0.0039	0.0079	16,000	74.8	0.0039	0.0079	13,000	59.1	0.0039	0.0079
	1.5°	35	0.3°	16,000	86.6	0.0079	0.0157	14,000	70.9	0.0039	0.0079	14,000	66.9	0.0039	0.0079	11,000	51.2	0.0039	0.0079
	1.5°	40	0.3°	16,000	86.6	0.0079	0.0157	14,000	70.9	0.0039	0.0079	14,000	66.9	0.0039	0.0079	11,000	51.2	0.0039	0.0079
	1.5°	50	0.3°	16,000	70.9	0.0049	0.0079	12,000	47.2	0.0020	0.0039	12,000	43.3	0.0020	0.0039	9,000	32.3	0.0020	0.0039
	1.5°	62.5	0.3°	12,000	39.4	0.0030	0.0039	10,000	31.5	0.0012	0.0020	9,000	29.9	0.0012	0.0020	7,800	23.2	0.0012	0.0020
	1.5°	47.5	0.3°	16,000	86.6	0.0098	0.0157	14,000	70.9	0.0039	0.0079	14,000	66.9	0.0039	0.0079	11,000	51.2	0.0039	0.0079
2.00	1°	20	0.5°	20,000	135.8	0.0157	0.0236	18,000	126.0	0.0079	0.0197	18,000	118.1	0.0079	0.0197	14,000	90.6	0.0079	0.0157
	1°	30	0.5°	18,000	118.1	0.0157	0.0197	16,000	110.2	0.0079	0.0157	16,000	102.4	0.0079	0.0157	12,000	74.8	0.0079	0.0157
	1°	40	0.5°	18,000	118.1	0.0098	0.0236	16,000	110.2	0.0039	0.0118	16,000	102.4	0.0039	0.0118	12,000	74.8	0.0039	0.0118
	1°	50	0.5°	14,000	86.6	0.0098	0.0157	12,000	70.9	0.0039	0.0079	12,000	66.9	0.0039	0.0079	9,000	66.9	0.0039	0.0079
	1°	60	0.5°	16,000	70.9	0.0049	0.0079	12,000	47.2	0.0020	0.0039	12,000	43.3	0.0020	0.0039	9,000	32.3	0.0020	0.0039
	1.5°	44.2	0.5°	18,000	118.1	0.0098	0.0236	16,000	110.2	0.0039	0.0118	16,000	102.4	0.0039	0.0118	12,000	74.8	0.0039	0.0118
	2°	34	0.5°	20,000	135.8	0.0157	0.0236	18,000	126.0	0.0079	0.0197	18,000	118.1	0.0079	0.0197	14,000	90.6	0.0079	0.0197
2.50	1°	30	0.5°	20,000	133.9	0.0157	0.0295	15,000	126.0	0.0079	0.0118	15,000	118.1	0.0079	0.0118	12,000	94.5	0.0079	0.0118
	1°	40	0.5°	16,000	114.2	0.0098	0.0295	14,000	98.4	0.0039	0.0118	14,000	90.6	0.0039	0.0118	11,000	70.9	0.0039	0.0118
	1°	60	0.5°	12,000	70.9	0.0098	0.0197	10,000	47.2	0.0039	0.0079	10,000	43.3	0.0039	0.0079	8,000	34.6	0.0039	0.0079
	1.5°	26.9	0.5°	18,000	149.6	0.0197	0.0492	16,000	137.8	0.0098	0.0197	16,000	129.9	0.0098	0.0197	12,000	94.5	0.0098	0.0197
	1.5°	65.1	0.5°	14,000	86.6	0.0098	0.0295	12,000	63.0	0.0039	0.0118	12,000	59.1	0.0039	0.0118	9,000	43.3	0.0039	0.0118
	2°	50.1	0.5°	16,000	114.2	0.0098	0.0295	14,000	98.4	0.0039	0.0118	14,000	90.6	0.0039	0.0118	11,000	70.9	0.0039	0.0118
3.00	1°	30	0.5°	14,000	157.5	0.0236	0.0492	12,000	126.0	0.0118	0.0197	12,000	118.1	0.0118	0.0197	9,000	88.6	0.0118	0.0197
	1°	40	0.5°	10,000	126.0	0.0236	0.0492	10,000	102.4	0.0118	0.0197	10,000	94.5	0.0118	0.0197	8,000	74.8	0.0118	0.0197
	1°	50	0.5°	9,000	118.1	0.0157	0.0394	9,000	90.6	0.0079	0.0157	9,000	82.7	0.0079	0.0157	7,000	63.0	0.0079	0.0157
	1°	60	0.5°	9,000	110.2	0.0157	0.0295	9,000	78.7	0.0079	0.0118	9,000	74.8	0.0079	0.0118	7,000	55.1	0.0079	0.0118
	1°	70	0.5°	7,000	90.6	0.0157	0.0295	7,000	63.0	0.0079	0.0118	7,000	59.1	0.0079	0.0118	5,500	43.3	0.0079	0.0118
	1°	80	0.5°	6,000	78.7	0.0118	0.0295	6,000	51.2	0.0059	0.0118	6,000	47.2	0.0059	0.0118	5,000	35.4	0.0059	0.0118
	1.5°	49	0.5°	10,000	126.0	0.0236	0.0492	10,000	102.4	0.0118	0.0197	10,000	94.5	0.0118	0.0197	8,000	74.8	0.0118	0.0197
	2°	36	0.5°	14,000	157.5	0.0236	0.0492	12,000	126.0	0.0118	0.0197	12,000	118.1	0.0118	0.0197	9,000	88.6	0.0118	0.0197

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

List 3722: 2 Flute, Regular Length

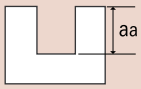
Slotting

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Mild Steels Carbon Steels		Hardened Steels, Pre-hardened Steels Stainless Steels			
Cutting Speed	52-522 SFM		33-251 SFM		33-186 SFM		33-159 SFM	
Depth of Cut			Dia / aa D<1 / 0.1D 1≤D<3 / 0.3D 3≤D / 0.5D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.1	25,000	2.0	25,000	2.2	25,000	1.8	25,000	0.9
0.2	25,000	2.8	25,000	2.8	25,000	2.3	25,000	1.1
0.3	25,000	3.3	25,000	3.4	25,000	2.5	25,000	1.7
0.4	25,000	3.7	25,000	3.7	25,000	2.8	25,000	2.1
0.5	25,000	3.9	25,000	3.8	25,000	3.5	22,000	2.4
0.6	25,000	4.5	25,000	4.4	19,500	3.5	17,000	2.4
0.7	25,000	4.9	24,000	4.7	17,000	3.5	15,000	2.4
0.8	25,000	5.7	21,500	4.7	15,500	3.5	13,500	2.6
0.9	25,000	6.4	19,000	4.7	13,500	3.5	12,000	2.6
1.0	25,000	7.3	17,500	4.7	12,500	3.5	11,000	2.6
1.1	25,000	7.8	16,000	4.7	11,500	3.5	9,900	2.6
1.2	25,000	8.3	15,000	4.7	10,500	3.5	9,300	2.6
1.3	25,000	8.5	14,000	4.7	9,900	3.5	8,700	2.6
1.4	25,000	9.3	13,000	4.7	9,200	3.5	8,100	2.6
1.5	25,000	9.8	12,500	4.7	8,900	3.5	7,900	2.6
1.6	25,000	10.2	12,000	4.7	8,500	3.5	7,500	2.6
1.7	25,000	10.9	11,000	4.7	7,900	3.5	7,000	2.6
1.8	25,000	11.2	10,500	5.1	7,500	3.5	6,800	2.7
1.9	25,000	12.1	10,000	5.1	7,100	3.5	6,300	2.7
2.0	24,000	12.2	9,700	5.1	7,000	3.5	6,300	2.8
2.1	23,000	13.0	9,300	5.5	6,600	3.5	5,900	2.8
2.2	22,500	13.0	9,000	5.5	6,500	3.5	5,700	2.8
2.3	22,000	13.0	8,800	5.9	6,400	3.5	5,600	2.8
2.4	20,500	13.8	8,600	5.9	6,300	3.5	5,500	2.8
2.5	20,000	13.8	8,200	6.3	6,100	3.5	5,300	2.8
2.6	19,000	15.0	7,900	6.3	5,900	3.9	5,000	2.8
2.7	18,000	15.0	7,600	6.3	5,700	3.9	4,900	2.8
2.8	17,500	15.0	7,300	6.7	5,500	3.9	4,700	3.0
2.9	17,000	15.0	7,100	6.7	5,300	3.9	4,500	3.0
3.0	16,000	15.7	6,900	6.7	5,300	3.9	4,400	3.0
3.1	15,500	16.1	6,700	7.1	5,100	3.9	4,300	3.0
3.2	15,000	16.5	6,500	7.1	5,000	4.3	4,200	3.1
3.3	14,500	16.5	6,300	7.5	4,800	4.3	4,000	3.1
3.4	14,000	16.5	6,100	7.5	4,600	4.3	3,900	3.1
3.5	14,000	16.5	6,000	7.5	4,600	4.7	3,800	3.1
3.6	13,500	16.9	5,900	7.9	4,500	4.7	3,700	3.3
3.7	12,500	16.9	5,700	7.9	4,400	4.7	3,600	3.3
3.8	12,500	17.3	5,600	8.3	4,400	4.7	3,600	3.3
3.9	12,000	17.3	5,500	8.3	4,200	4.9	3,500	3.3
4.0	12,000	17.7	5,400	8.3	4,200	4.9	3,500	3.5
4.1	11,500	18.9	5,300	8.7	4,100	4.9	3,400	3.5
4.2	11,500	18.9	5,300	8.7	4,100	4.9	3,300	3.5
4.3	11,000	18.9	5,200	9.1	4,000	4.9	3,300	3.5
4.4	11,000	19.7	5,100	9.4	3,900	5.1	3,200	3.7
4.5	10,500	19.7	5,100	9.4	3,900	5.1	3,200	3.7
4.6	10,500	20.5	5,000	9.8	3,800	5.1	3,200	3.7
4.7	10,500	20.5	5,000	10.2	3,800	5.1	3,100	3.7
4.8	10,500	20.9	4,900	10.2	3,700	5.1	3,100	3.7

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant.
3. When the length of tool extension from the machine is long, reduce the speed and feed.

continued on next page

Slotting

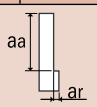
Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Mild Steels Carbon Steels		Hardened Steels, Pre-hardened Steels Stainless Steels			
Cutting Speed	52-522 SFM		33-251 SFM		33-186 SFM		33-159 SFM	
Depth of Cut			Dia / aa D<1 / 0.1D 1≤D<3 / 0.3D 3≤D / 0.5D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
4.9	10,000	20.9	4,900	10.6	3,600	5.1	3,100	3.7
5.0	9,500	21.3	4,800	10.6	3,500	5.1	3,000	3.9
5.1	9,500	21.3	4,700	10.6	3,500	5.1	3,000	3.9
5.2	9,300	21.3	4,600	10.6	3,400	5.1	2,900	3.9
5.3	9,200	21.3	4,600	10.6	3,400	5.1	2,900	3.9
5.4	9,000	21.3	4,500	10.6	3,300	5.1	2,800	3.9
5.5	8,800	21.3	4,400	10.6	3,200	5.1	2,700	3.9
5.6	8,700	21.3	4,300	10.6	3,100	5.1	2,600	3.9
5.7	8,500	21.3	4,200	10.6	3,100	5.1	2,600	3.9
5.8	8,400	20.9	4,200	10.6	3,000	5.1	2,600	3.9
5.9	8,200	20.9	4,100	10.6	2,900	5.1	2,500	3.9
6.0	7,900	20.9	4,000	10.6	2,900	5.1	2,500	3.9
6.5	7,500	20.9	3,700	10.6	2,700	5.1	2,300	3.9
7.0	6,900	20.9	3,400	10.6	2,500	5.1	2,100	3.9
7.5	6,400	20.9	3,200	10.6	2,300	5.1	2,000	3.9
8.0	5,900	20.5	3,000	10.2	2,200	4.9	1,900	3.9
8.5	5,600	20.5	2,800	10.2	2,000	4.9	1,700	3.9
9.0	5,300	20.1	2,600	10.2	1,900	4.9	1,500	3.9
9.5	5,100	20.1	2,500	10.2	1,800	4.9	1,400	3.7
10.0	4,700	19.7	2,400	9.8	1,700	4.9	1,500	3.7
11.0	4,400	19.7	2,200	9.8	1,600	4.9	1,100	3.7
12.0	4,000	20.1	2,000	9.8	1,400	4.9	1,200	3.7
16.0	3,000	15.7	1,500	7.9	1,100	4.5	800	3.1
18.0	2,700	14.2	1,300	7.1	900	3.9	700	2.8
20.0	2,400	11.8	1,200	5.9	800	3.5	600	2.4

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant.
3. When the length of tool extension from the machine is long, reduce the speed and feed.

List 3723: 2 Flute, Long Length

Side Milling

Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels, Pre-hardened Steels Stainless Steels	
Cutting Speed	66-116 SFM	46-76 SFM	39-76 SFM	57-67 SFM
Depth of Cut	Dia / aa / ar D<1 / 4D / 0.05D 1≤D / 4D / 0.01D	Dia / aa / ar D<0.3 / 4D / 0.015D 0.3≤D<1 / 4D / 0.03D 1≤D<3 / 4D / 0.05D 3≤D / 4D / 0.1D		

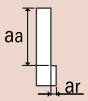


Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.2	25,000	2.8	25,000	1.3	25,000	1.5	-	-
0.3	25,000	3.4	19,730	1.4	18,600	1.3	-	-
0.4	22,070	3.8	14,800	1.6	13,950	1.3	-	-
0.5	17,660	4.2	11,840	1.6	11,160	1.4	-	-
0.6	14,720	4.3	9,860	1.6	9,300	1.5	-	-
0.7	12,610	3.7	8,460	1.6	7,970	1.8	-	-
0.8	11,040	4.3	7,400	1.6	6,970	1.8	-	-
0.9	9,810	3.9	6,580	1.6	6,200	1.8	-	-
1.0	8,830	4.3	5,920	1.8	5,580	1.6	-	-
1.1	8,030	4.7	5,380	1.8	5,070	1.6	-	-
1.2	7,360	4.4	4,930	1.8	4,650	1.6	-	-
1.3	6,790	4.3	4,550	1.8	4,290	1.6	-	-
1.4	6,310	4.3	4,230	1.8	3,990	1.6	-	-
1.5	5,890	4.3	3,950	1.8	3,720	1.6	-	-
1.6	5,520	4.1	3,700	1.8	3,490	1.6	-	-
1.7	5,190	4.0	3,480	1.7	3,280	1.5	-	-
1.8	4,910	4.0	3,290	1.8	3,100	1.6	-	-
1.9	4,650	4.0	3,120	1.7	2,940	1.5	-	-
2.0	4,410	4.0	2,960	1.7	2,790	1.6	-	-
2.1	4,200	4.1	2,820	1.7	2,660	1.5	-	-
2.2	4,010	4.5	2,690	2.0	2,540	1.5	-	-
2.3	3,840	4.4	2,570	1.9	2,430	1.5	-	-
2.4	3,680	4.3	2,470	2.1	2,320	1.5	-	-
2.5	3,530	4.7	2,370	2.1	2,230	1.4	-	-
2.6	3,400	4.8	2,280	2.1	2,150	1.4	-	-
2.7	3,270	5.2	2,190	2.1	2,070	1.6	-	-
2.8	3,150	5.2	2,110	2.1	1,990	1.6	-	-
2.9	3,040	5.1	2,040	2.3	1,920	1.6	-	-
3.0	2,940	5.1	1,970	2.2	1,860	1.7	2,010	3.1
3.1	2,850	5.6	1,910	2.3	1,800	1.8	1,940	3.2
3.2	2,760	5.8	1,850	2.4	1,740	1.7	1,880	3.3
3.3	2,680	5.8	1,790	2.4	1,690	1.9	1,820	3.4
3.4	2,600	5.8	1,740	2.7	1,640	2.0	1,770	3.3
3.5	2,520	5.7	1,690	2.6	1,590	1.9	1,720	3.4
3.6	2,450	5.7	1,640	2.5	1,550	2.0	1,670	3.5
3.7	2,390	5.9	1,600	2.6	1,510	2.1	1,630	3.6
3.8	2,320	6.2	1,560	2.5	1,470	2.0	1,580	3.5
3.9	2,260	6.3	1,520	2.8	1,430	2.1	1,540	3.4
4.0	2,210	6.2	1,480	2.7	1,390	2.2	1,500	3.8
4.1	2,150	6.4	1,440	2.7	1,360	2.2	1,470	3.7
4.2	2,100	6.8	1,410	2.8	1,330	2.1	1,430	3.6
4.3	2,050	6.7	1,380	2.9	1,300	2.2	1,400	3.5
4.4	2,010	7.1	1,350	2.8	1,270	2.2	1,370	3.7
4.5	1,960	7.4	1,320	2.9	1,240	2.1	1,340	3.8
4.6	1,920	7.2	1,290	2.9	1,210	2.1	1,310	3.8
4.7	1,880	7.0	1,260	3.0	1,190	2.0	1,280	3.7

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant.
3. When the length of tool extension from the machine is long, reduce the speed and feed.

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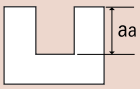
Side Milling

Hardness	–		<32 HRC		33-41 HRC		42-50 HRC	
Work Material	Copper Copper Alloy		Mild Steels Carbon Steels		Hardened Steels, Pre-hardened Steels Stainless Steels			
Cutting Speed	66-116 SFM		46-76 SFM		39-76 SFM		57-67 SFM	
Depth of Cut	Dia / aa / ar D<1 / 4D / 0.05D 1≤D / 4D / 0.01D		Dia / aa / ar D<0.3 / 4D / 0.015D 0.3≤D<1 / 4D / 0.03D 1≤D<3 / 4D / 0.05D 3≤D / 4D / 0.1D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
4.8	1,840	6.9	1,230	2.9	1,160	2.0	1,250	3.6
4.9	1,800	7.4	1,210	3.1	1,140	2.1	1,230	3.5
5.0	1,770	7.3	1,180	3.2	1,120	2.0	1,200	3.6
5.1	1,730	7.5	1,160	3.1	1,090	2.0	1,180	3.9
5.2	1,700	7.4	1,140	3.0	1,070	2.0	1,160	3.8
5.3	1,670	7.7	1,120	3.2	1,050	2.1	1,140	3.7
5.4	1,640	7.5	1,100	3.2	1,030	2.0	1,110	3.7
5.5	1,610	7.4	1,080	3.1	1,010	2.0	1,090	3.9
5.6	1,580	7.7	1,060	3.0	1,000	2.0	1,070	3.8
5.7	1,550	7.5	1,040	3.0	980	1.9	1,060	3.8
5.8	1,520	7.4	1,020	3.2	960	2.1	1,040	3.7
5.9	1,500	7.7	1,000	3.1	950	2.0	1,020	4.0
6.0	1,470	7.6	990	3.1	930	2.0	1,000	3.9
8.0	1,100	7.9	740	3.1	700	2.0	750	3.7
10.0	880	7.7	590	3.0	560	2.0	600	3.6
12.0	740	7.2	490	2.9	460	2.0	500	3.6

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant.
3. When the length of tool extension from the machine is long, reduce the speed and feed.

List 3770: 2 Flute, Corner Radius, Regular Length

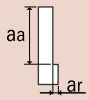
Slotting

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steel Carbon Steels		Alloy Steels Tool Steels		Hardened Steels Pre-hardened Steels		Hardened Steels Pre-hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	275 SFM		220 SFM		180 SFM		150 SFM		100 SFM		65 SFM	
Depth of Cut			Dia / ap: D<1 0.1D; 1≤D<3 0.3D; 3<D 0.5D						Dia / ap: D<1 0.2D; 1≤D 0.5D		Dia / ap: D<1 0.1D; 1≤D<3 0.2D; 3<D 0.5D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.2	25,000	2.7	25,000	2.7	25,000	2.3	25,000	1.1	25,000	1.0	25,000	1.0
0.3	25,000	3.5	25,000	3.5	25,000	2.4	25,000	1.7	32,340	1.3	21,020	1.3
0.4	25,000	3.8	25,000	3.8	25,000	2.7	25,000	2.2	24,260	1.7	15,770	1.3
0.5	25,000	3.8	25,000	4.1	25,000	3.5	25,000	2.7	19,410	1.7	12,610	1.3
0.6	25,000	3.4	25,000	5.0	25,000	4.2	24,260	3.1	16,170	1.7	10,510	1.2
0.8	25,000	5.0	25,000	6.6	21,830	4.9	18,190	3.5	12,130	1.7	7,880	1.2
1.0	25,000	6.5	21,350	7.2	17,470	4.9	14,550	3.4	9,700	1.7	6,310	1.2
1.5	17,790	6.5	14,230	6.6	11,640	4.6	9,700	3.2	6,470	2.0	4,200	1.2
2.0	13,340	6.4	10,670	6.2	8,730	4.4	7,280	3.2	4,850	2.0	3,150	1.1
3.0	8,890	9.5	7,120	6.6	5,820	4.3	4,850	3.3	3,230	2.1	2,100	1.3
4.0	6,670	10.4	5,340	8.0	4,370	5.0	3,640	3.6	2,430	2.2	1,580	1.2
5.0	5,340	12.5	4,270	9.2	3,490	5.0	2,910	3.7	1,940	2.2	1,260	1.2
6.0	4,450	12.2	3,560	9.2	2,910	5.0	2,430	3.8	1,620	2.3	1,050	1.0
8.0	3,340	11.7	2,670	9.2	2,180	4.9	1,820	3.7	1,210	2.1	790	1.0
10.0	2,670	11.1	2,130	9.0	1,750	4.9	1,460	3.6	970	2.0	630	1.0
12.0	2,220	11.1	1,780	9.0	1,460	4.9	1,210	3.6	810	1.8	530	0.8
14.0	1,910	11.0	1,520	8.6	1,250	4.3	1,040	3.7	690	1.6	450	0.7
16.0	1,670	10.3	1,330	7.8	1,090	3.9	910	3.1	610	1.4	390	0.6
18.0	1,480	9.3	1,190	7.0	970	3.4	810	2.9	540	1.2	350	0.6
20.0	1,330	8.3	1,070	6.2	870	3.0	730	2.5	490	1.2	320	0.5
22.0	1,210	7.6	970	5.6	790	2.7	660	2.3	440	1.0	290	0.4
24.0	1,110	7.0	890	5.2	730	2.6	610	2.1	400	1.0	260	0.4
25.0	1,070	6.6	850	5.0	700	2.6	580	2.1	390	0.8	250	0.4
30.0	890	5.5	710	4.1	580	2.0	490	1.7	320	0.8	210	0.4

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

List 3771: 4 Flute, Corner Radius, Regular Length

Side Milling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steel Carbon Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels Pre-hardened Steels		Hardened Steels Pre-hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	396 SFM		294 SFM		258 SFM		192 SFM		156 SFM		96 SFM	
Depth of Cut	a_a=1.2D a_r=0.2D 						a_a=1D a_r=0.1D		a_a=1D a_r=0.05D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	12,810	40.6	9,510	28.4	8,340	24.9	6,210	18.5	5,050	13.0	3,100	5.5
4	9,680	46.5	7,190	31.6	6,310	27.8	4,690	20.7	3,810	15.3	2,350	7.5
5	7,680	49.2	5,710	34.2	5,010	30.0	3,730	20.9	3,030	17.0	1,860	8.9
6	6,400	54.8	4,750	37.8	4,170	30.7	3,100	22.9	2,520	16.1	1,550	8.6
8	4,800	57.6	3,570	38.5	3,130	32.5	2,330	23.3	1,890	16.7	1,160	9.3
10	3,840	53.8	2,850	36.5	2,500	29.0	1,860	20.9	1,510	15.1	930	8.6
12	3,200	54.2	2,380	36.1	2,090	28.8	1,550	19.9	1,260	14.6	780	8.1

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

High Speed Light Milling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC	
Work Material	Carbon Steels 1045, 1055		Alloy Steels 4140, 4340		Hardened Steels Pre-hardened Steels D2, H13, 17-4PH		Tool Steels, Hardened Steels Pre-hardened Steels, D2, H13		Hardened Steels Heat Resistant Steels	
Cutting Speed	1,560 SFM		1,380 SFM		960 SFM		600 SFM		130 SFM	
Depth of Cut										

Dia	a_a	a_r
D<3	1.5D	0.01D
3≤D	1.5D	0.02D

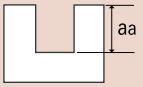
Dia	a_a	a_r
D<8	1.0D	0.01D
8≤D	1.0D	0.02D

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	25,000.0	230.0	25,000	220.0	25,000	200.0	19,410	155.2	4,200	28.6
4	25,000.0	260.0	25,000	240.0	23,470	215.9	14,670	129.1	3,180	25.4
5	25,000.0	300.0	25,000	270.0	18,630	193.7	11,640	116.4	2,520	22.2
6	25,000.0	322.6	22,320	261.5	15,520	169.9	9,700	102.3	2,100	19.6
8	18,920.0	264.9	16,740	214.2	11,640	135.1	7,280	81.5	1,580	15.8
10	15,140.0	242.2	13,390	198.2	9,310	126.7	5,820	74.5	1,260	14.6
12	12,610.0	213.8	11,160	169.3	7,760	107.0	4,850	62.1	1,050	12.2

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

List 3794: 4 Flute, Long Neck, Stub Length

Slotting

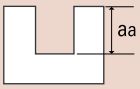
Hardness	–	<32 HRC	33-41 HRC	42-50 HRC
Work Material	Copper Copper Alloy	Mild Steels Carbon Steels	Hardened Steels Pre-hardened Steels Stainless Steels	
Cutting Speed	173-374 SFM	144-309 SFM	130-309 SFM	101-248 SFM
Depth of Cut				

D (mm)	L2 (mm)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)
1.0	4	25,000	62.8	0.0031	21,980	54.8	0.0028	21,300	46.1	0.0028	16,930	29.7	0.0020
	6	25,000	57.5	0.0031	21,980	51.3	0.0028	21,300	43.5	0.0024	16,930	30.0	0.0016
	8	25,000	51.9	0.0020	21,980	45.1	0.0016	21,300	40.0	0.0016	16,930	22.2	0.0012
	10	25,000	47.1	0.0016	21,980	42.8	0.0012	21,300	34.9	0.0011	16,930	20.0	0.0008
	12	25,000	47.1	0.0008	21,980	42.8	0.0008	21,300	34.9	0.0007	16,930	20.0	0.0004
	16	25,000	26.3	0.0004	21,980	23.1	0.0003	21,300	25.2	0.0003	16,930	16.7	0.0002
1.2	6	22,110	60.2	0.0039	18,310	50.2	0.0031	17,750	42.9	0.0028	14,110	29.4	0.0020
	8	22,110	52.6	0.0031	18,310	43.3	0.0028	17,750	38.6	0.0020	14,110	23.8	0.0016
	10	22,110	39.9	0.0024	18,310	33.9	0.0020	17,750	38.6	0.0016	14,110	23.8	0.0012
	12	22,110	46.7	0.0020	18,310	39.9	0.0016	17,750	32.8	0.0012	14,110	22.7	0.0008
	16	22,110	36.0	0.0004	18,310	30.0	0.0003	17,750	23.5	0.0003	14,110	18.3	0.0002
1.4	6	18,960	60.6	0.0055	15,700	49.4	0.0047	15,210	42.6	0.0043	12,090	28.6	0.0035
	8	18,960	50.3	0.0043	15,700	41.2	0.0035	15,210	37.0	0.0031	12,090	22.0	0.0024
	10	18,960	50.3	0.0028	15,700	41.2	0.0024	15,210	37.0	0.0020	12,090	22.0	0.0016
	12	18,960	50.3	0.0024	15,700	41.2	0.0020	15,210	37.0	0.0016	12,090	22.0	0.0012
	14	18,960	45.6	0.0020	15,700	38.7	0.0016	15,210	32.1	0.0014	12,090	19.5	0.0012
	16	18,960	45.6	0.0016	15,700	38.7	0.0012	15,210	32.1	0.0008	12,090	19.5	0.0008
	22	18,960	31.7	0.0004	15,700	26.6	0.0002	15,210	20.6	0.0002	12,090	16.1	0.0002
1.5	6	17,690	66.4	0.0055	14,650	54.5	0.0047	14,200	41.9	0.0043	11,290	28.6	0.0035
	8	17,690	53.2	0.0047	14,650	43.3	0.0039	14,200	39.1	0.0031	11,290	22.2	0.0028
	10	17,690	53.2	0.0039	14,650	43.3	0.0031	14,200	39.1	0.0028	11,290	22.2	0.0020
	12	17,690	53.2	0.0028	14,650	43.3	0.0024	14,200	39.1	0.0020	11,290	22.2	0.0016
	14	17,690	53.2	0.0024	14,650	43.3	0.0020	14,200	39.1	0.0018	11,290	22.2	0.0014
	16	17,690	45.1	0.0024	14,650	38.7	0.0020	14,200	32.2	0.0016	11,290	20.0	0.0012
	18	17,690	45.1	0.0016	14,650	38.7	0.0012	14,200	32.2	0.0008	11,290	20.0	0.0008
	20	17,690	38.4	0.0008	14,650	32.2	0.0008	14,200	29.0	0.0006	11,290	20.0	0.0004
1.6	6	16,590	65.3	0.0067	13,740	54.1	0.0055	13,310	41.6	0.0051	10,580	28.8	0.0039
	8	16,590	56.2	0.0063	13,740	46.9	0.0051	13,310	36.7	0.0047	10,580	22.7	0.0039
	10	16,590	52.6	0.0051	13,740	43.3	0.0043	13,310	36.7	0.0035	10,580	22.7	0.0028
	12	16,590	52.6	0.0031	13,740	43.3	0.0028	13,310	36.7	0.0024	10,580	22.7	0.0020
	14	16,590	52.6	0.0028	13,740	43.3	0.0024	13,310	36.7	0.0020	10,580	22.7	0.0016
	16	16,590	46.3	0.0024	13,740	39.1	0.0020	13,310	30.2	0.0016	10,580	20.8	0.0014
	18	16,590	46.3	0.0020	13,740	39.1	0.0016	13,310	30.2	0.0012	10,580	20.8	0.0012
	20	16,590	46.3	0.0008	13,740	39.1	0.0008	13,310	30.2	0.0008	10,580	20.8	0.0004
	25	16,590	34.2	0.0004	13,740	27.9	0.0004	13,310	21.2	0.0004	10,580	15.0	0.0003
1.8	6	14,740	68.7	0.0094	12,210	57.1	0.0079	11,830	46.6	0.0071	9,410	32.4	0.0055
	8	14,740	77.9	0.0091	12,210	57.1	0.0075	11,830	46.6	0.0067	9,410	32.4	0.0051
	10	14,740	49.5	0.0055	12,210	41.2	0.0047	11,830	34.9	0.0039	9,410	27.8	0.0031
	12	14,740	49.5	0.0047	12,210	41.2	0.0039	11,830	34.9	0.0031	9,410	27.8	0.0028
	14	14,740	49.5	0.0039	12,210	41.2	0.0031	11,830	34.9	0.0024	9,410	27.8	0.0020
	16	14,740	49.5	0.0031	12,210	41.2	0.0028	11,830	34.9	0.0020	9,410	27.8	0.0016
	18	14,740	44.0	0.0024	12,210	37.7	0.0020	11,830	29.1	0.0018	9,410	27.8	0.0014
	20	14,740	44.0	0.0020	12,210	37.7	0.0016	11,830	29.1	0.0016	9,410	27.8	0.0012
	25	14,740	34.5	0.0004	12,210	28.8	0.0004	11,830	24.6	0.0003	9,410	18.5	0.0003

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.
4. When length of the tool extension from the machine is long, reduce the speed and feed.

continued on next page

Slotting

Hardness	–			<32 HRC			33-41 HRC			42-50 HRC		
Work Material	Copper Copper Alloy			Mild Steels Carbon Steels			Hardened Steels Pre-hardened Steels Stainless Steels					
Cutting Speed	173-374 SFM			144-309 SFM			130-309 SFM			101-248 SFM		
Depth of Cut												
D (mm)	L2 (mm)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)	Speed (RPM)	Feed (in/min)	aa (in)
2.0	6	13,270	68.2	0.0134	10,990	54.8	0.0110	10,650	44.9	0.0102	8,470	31.8	0.0083
	8	13,270	68.2	0.0122	10,990	54.8	0.0102	10,650	44.9	0.0087	8,470	31.8	0.0071
	10	13,270	54.3	0.0114	10,990	43.3	0.0094	10,650	36.7	0.0079	8,470	27.8	0.0063
	12	13,270	50.6	0.0063	10,990	39.9	0.0051	10,650	36.7	0.0043	8,470	27.8	0.0035
	14	13,270	50.6	0.0051	10,990	39.9	0.0043	10,650	36.7	0.0035	8,470	27.8	0.0028
	16	13,270	50.6	0.0039	10,990	39.9	0.0031	10,650	36.7	0.0028	8,470	27.8	0.0024
	18	13,270	50.6	0.0031	10,990	39.9	0.0028	10,650	36.7	0.0024	8,470	27.8	0.0020
	20	13,270	46.2	0.0024	10,990	37.0	0.0020	10,650	31.4	0.0020	8,470	28.6	0.0016
	25	13,270	46.2	0.0016	10,990	37.0	0.0012	10,650	31.4	0.0008	8,470	28.6	0.0008
	30	13,270	46.2	0.0008	10,990	37.0	0.0008	10,650	31.4	0.0004	8,470	28.6	0.0004
2.5	8	10,610	67.7	0.0165	8,790	54.8	0.0138	8,520	45.7	0.0130	6,770	31.1	0.0102
	12	10,610	67.7	0.0110	8,790	54.8	0.0091	8,520	45.7	0.0075	6,770	31.1	0.0059
	16	10,610	52.2	0.0055	8,790	41.5	0.0047	8,520	39.1	0.0039	6,770	28.6	0.0031
	20	10,610	52.2	0.0043	8,790	41.5	0.0035	8,520	39.1	0.0031	6,770	28.6	0.0024
	25	10,610	50.1	0.0039	8,790	40.7	0.0031	8,520	31.4	0.0024	6,770	26.7	0.0020
3.0	8	8,850	68.2	0.0150	7,330	54.8	0.0126	7,100	41.9	0.0118	5,640	29.2	0.0094
	12	8,850	62.4	0.0126	7,330	50.5	0.0106	7,100	41.9	0.0091	5,640	29.2	0.0071
	16	8,850	43.5	0.0094	7,330	34.6	0.0079	7,100	32.6	0.0067	5,640	27.8	0.0051
	20	8,850	43.5	0.0063	7,330	34.6	0.0051	7,100	32.6	0.0043	5,640	27.8	0.0031
	25	8,850	43.5	0.0051	7,330	34.6	0.0043	7,100	32.6	0.0035	5,640	27.8	0.0028
	30	8,850	41.7	0.0043	7,330	33.9	0.0035	7,100	29.9	0.0031	5,640	26.7	0.0024

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.
4. When length of the tool extension from the machine is long, reduce the speed and feed.

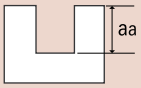
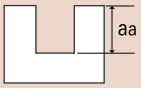
List 4445: 4 Flute, Corner Radius, High Helix, Regular Length

Side Milling

Hardness	<25 HRC		25-35 HRC		38-45 HRC		40-50 HRC		45-55 HRC		20-45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels 304 Stainless		Hardened Steels Pre-hardened Steels		Titanium Alloy Ti-6Al-4V		Heat Resistant Alloys Inconel	
Cutting Speed	220-328 SFM		130-220 SFM		115-210 SFM		98-150 SFM		65-195 SFM		65-130 SFM	
Depth of Cut	a_a=1.5D a_r=0.1D 						a_a=1.5D a_r=0.05D 					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	8,375	26.3	5,350	14.5	4,950	11.0	3,800	12.1	3,970	11.1	2,965	5.3
3/16	5,580	37.9	3,565	18.0	3,300	12.1	2,525	13.5	2,650	12.5	1,975	5.8
1/4	4,200	31.0	2,675	16.3	2,475	11.7	1,900	11.2	1,990	11.7	1,480	5.8
5/16	3,350	36.6	2,140	22.9	2,000	15.7	1,500	11.8	1,600	12.6	1,185	7.7
3/8	2,800	39.4	1,750	23.6	1,650	22.3	1,260	16.2	1,320	12.9	990	8.1
1/2	2,100	29.3	1,335	18.7	1,240	16.9	950	12.0	1,000	12.5	740	5.8

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

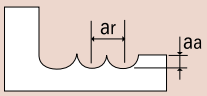
Slotting

Hardness	<25 HRC		25-35 HRC		38-45 HRC		40-50 HRC		45-55 HRC		20-45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels 304 Stainless		Hardened Steels Pre-hardened Steels		Titanium Alloy Ti-6Al-4V		Heat Resistant Alloys Inconel	
Cutting Speed	130-260 SFM		65-165 SFM		65-165 SFM		50-115 SFM		65-115 SFM		50-80 SFM	
Depth of Cut	a_a=0.5D 						a_a=0.2D 					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	5,960	11.7	3,970	7.8	3,970	6.7	2,500	4.1	2,750	4.3	2,000	2.9
3/16	3,970	12.3	2,650	8.8	2,650	7.1	1,650	4.7	1,800	4.7	1,300	3.1
1/4	2,980	10.9	1,990	7.8	1,990	6.1	1,250	4.9	1,375	5.0	1,000	2.6
5/16	2,400	13.8	1,600	9.8	1,600	6.7	1,000	5.9	1,100	6.7	800	3.1
3/8	2,000	14.5	1,320	10.3	1,320	7.0	835	6.5	900	6.8	640	3.1
1/2	1,500	11.8	1,000	6.7	1,000	7.0	625	5.9	690	5.6	500	2.8

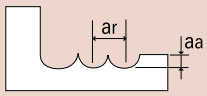
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

List 4410: Ball End, Stub Length, 2 Flute

Standard Milling

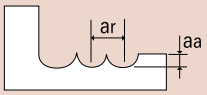
Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Cutting Speed	825 SFM		660 SFM		490 SFM		410 SFM		330 SFM	
Depth of Cut	a_a=0.05D a_r=0.1D a_a Max = less than 0.024"				a_a=0.03D a_r=0.1D a_a Max = less than 0.020"		a_a=0.02D a_r=0.05D a_a Max = less than 0.012"			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/32	25,000	25.0	25,000	25.0	25,000	25.0	25,000	25.0	25,000	25.0
1/16	25,000	40.0	25,000	40.0	25,000	40.0	25,000	40.0	20,170	32.3
3/32	25,000	80.0	25,000	80.0	19,966	63.9	16,706	53.5	13,446	43.0
1/8	25,000	100.0	20,170	80.7	14,974	59.9	12,530	50.1	10,085	40.3
3/16	16,808	90.8	13,446	72.6	9,983	53.9	8,353	45.1	6,723	36.3
1/4	12,606	108.4	10,085	86.7	7,487	64.4	6,265	53.9	5,042	43.4
5/16	10,085	100.8	8,068	80.7	5,990	59.9	5,012	50.1	4,034	40.3
3/8	8,404	92.4	6,723	74.0	4,991	54.9	4,177	45.9	3,362	37.0
1/2	6,303	88.2	5,042	70.6	3,744	52.4	3,132	43.9	2,521	35.3

High Speed Light Milling

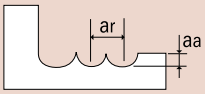
Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Cutting Speed	1275 SFM		985 SFM		820 SFM		650 SFM		490 SFM	
Depth of Cut	a_a=0.02D a_r=0.05D a_a Max=less than 0.012"				a_a=0.02D a_r=0.05D a_a Max = less than 0.008"		a_a=0.01D a_r=0.05D a_a Max = less than 0.004"			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/32	25,000	25.0	25,000	25.0	25,000	25.0	25,000	25.0	25,000	25.0
1/16	25,000	40.0	25,000	40.0	25,000	40.0	25,000	40.0	25,000	40.0
3/32	25,000	80.0	25,000	80.0	25,000	80.0	25,000	80.0	19,966	63.9
1/8	25,000	100.0	25,000	100.0	25,000	100.0	19,864	79.5	14,974	59.9
3/16	25,000	135.0	20,068	108.4	16,706	90.2	13,243	71.5	9,983	53.9
1/4	19,482	167.5	15,051	129.4	12,530	107.8	9,932	85.4	7,487	64.4
5/16	15,586	155.9	12,041	120.4	10,024	100.2	7,946	79.5	5,990	59.9
3/8	12,988	142.9	10,034	110.4	8,353	91.9	6,621	72.8	4,991	54.9
1/2	9,741	136.4	7,525	105.4	6,265	87.7	4,966	69.5	3,744	52.4

List 4510: Ball End, Stub Length, 2 Flute

Standard Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Cutting Speed	825 SFM		660 SFM		490 SFM		410 SFM		330 SFM	
Depth of Cut	a_a=0.05D a_r=0.1D a_a Max = less than 0.024"				a_a=0.02D a_r=0.1D a_a Max = less than 0.020"		a_a=0.02D a_r=0.05D a_a Max = less than 0.012"			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1.0	25,000	25.0	25,000	25.0	25,000	25.0	39,781	39.8	25,000	25.0
1.5	25,000	40.0	25,000	40.0	25,000	40.0	26,500	42.4	21,000	33.6
2.0	25,000	50.0	25,000	50.0	24,000	48.0	20,000	40.0	16,000	32.0
3.0	25,000	95.0	21,350	81.1	16,000	60.8	13,500	51.3	10,500	39.9
4.0	20,010	92.1	16,010	73.6	12,000	55.2	9,950	45.8	7,950	36.6
5.0	16,010	92.9	12,810	74.3	9,550	55.4	7,950	46.1	6,350	36.8
6.0	13,340	114.7	10,670	91.8	7,950	68.4	6,650	57.2	5,300	45.6
8.0	10,010	100.1	8,000	80.0	5,950	59.5	4,950	49.5	4,000	40.0
10.0	8,000	89.7	6,400	71.7	4,800	53.8	4,000	44.8	3,200	35.8
12.0	6,670	93.4	5,340	74.7	4,000	56.0	3,300	46.2	2,650	37.1
16.0	5,000	75.0	4,000	60.0	3,000	45.0	2,500	37.5	2,000	30.0
20.0	4,000	60.0	3,200	48.0	2,400	36.0	2,000	30.0	1,600	24.0
25.0	3,200	48.0	2,560	38.4	1,900	28.5	1,600	24.0	1,280	19.2

High Speed Light Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Cutting Speed	1275 SFM		985 SFM		820 SFM		650 SFM		490 SFM	
Depth of Cut	a_a=0.02D a_r=0.05D a_a Max = less than 0.012"				a_a=0.02D a_r=0.05D a_a Max = less than 0.008"		a_a=0.01D a_r=0.05D a_a Max = less than 0.004"			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1.0	25,000	25.0	25,000	25.0	25,000	25.0	25,000	25.0	25,000	25.0
1.5	25,000	40.0	25,000	40.0	25,000	40.0	25,000	40.0	25,000	40.0
2.0	25,000	50.0	25,000	50.0	25,000	50.0	25,000	50.0	24,000	48.0
3.0	25,000	95.0	25,000	95.0	25,000	95.0	21,000	79.8	16,000	60.8
4.0	25,000	115.0	24,000	110.4	20,000	92.0	16,000	73.6	12,000	55.2
5.0	25,000	145.0	19,000	110.2	16,000	92.8	12,600	73.0	9,550	55.4
6.0	20,500	176.3	16,000	137.6	13,500	116.1	10,500	90.3	7,950	68.4
8.0	15,500	155.0	12,000	120.0	9,950	99.5	7,950	79.5	5,950	59.5
10.0	12,500	140.0	9,550	107.0	7,950	89.0	6,350	71.1	4,800	53.8
12.0	10,500	147.0	7,950	111.3	6,650	93.1	5,300	74.2	4,000	56.0
16.0	7,750	116.3	5,950	89.3	4,950	74.3	4,000	60.0	3,000	45.0
20.0	6,200	93.0	4,800	72.0	4,000	60.0	3,200	48.0	2,400	36.0
25.0	4,950	74.3	3,800	57.0	3,200	48.0	2,550	38.3	1,900	28.5

List 4440: Regular Length, Multiple Flute

Standard Milling

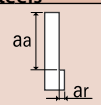
Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC		65-70 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels							
Depth of Cut	Dia / aa / ar D≤1.5 / 1.5D / 0.02D 1.5<D≤2.5 / 1.5D / 0.05D 2.5<D / 1.5D / 0.1D				aa=1.5D ar=0.05D arMax=less than 0.040"		aa=1.5D ar=0.03D arMax=less than 0.020"		aa=1D ar=0.02D arMax=less than 0.020"			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	62.5	25,000	61.0	20,170	50.4	15,120	26.0	13,808	21.0	10,085	13.0
3/32	18,912	71.0	16,991	63.0	13,446	50.4	10,080	26.0	9,205	21.0	6,723	13.0
1/8	14,185	71.0	12,744	63.0	10,085	50.4	7,560	26.0	6,904	21.0	5,042	13.0
3/16	9,456	71.0	8,496	63.0	6,723	50.4	5,041	26.0	4,602	21.0	3,362	13.0
1/4	7,092	104.0	6,372	95.0	5,042	75.6	3,780	40.0	3,452	31.0	2,521	20.0
5/16	5,673	104.0	5,100	95.0	4,034	75.6	3,024	40.0	2,761	31.0	2,017	20.0
3/8	4,728	104.0	4,248	95.0	3,362	75.6	2,520	40.0	2,301	31.0	1,681	20.0
1/2	3,546	104.0	3,186	95.0	2,521	75.6	1,890	40.0	1,726	31.0	1,261	20.0
5/8	2,839	104.0	2,550	95.0	2,017	75.6	1,512	40.0	1,382	31.0	1,008	20.0
3/4	2,375	104.0	2,125	95.0	1,681	75.6	1,260	40.0	1,152	31.0	840	20.0

High Speed Light Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC		65-70 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels							
Depth of Cut	aa=1D ar=0.05D arMax=less than 0.020"				aa=1D ar=0.03D arMax=less than 0.020"		aa=1D ar=0.02D arMax=less than 0.008"		aa=1D ar=0.01D arMax=less than 0.008"			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	61.3	25,000	61.3	25,000	61.4	25,000	50.5	25,000	43.8	20,160	32.0
3/32	25,000	91.9	25,000	91.9	25,000	91.9	21,429	65.0	20,160	53.0	13,440	32.0
1/8	25,000	122.5	25,000	122.5	25,000	122.5	16,072	65.0	15,120	53.0	10,080	32.0
3/16	20,048	147.4	19,200	141.1	16,706	122.8	10,714	65.0	10,080	53.0	6,720	32.0
1/4	15,036	221.0	14,400	211.7	12,530	184.2	8,036	96.5	7,560	79.0	5,040	47.0
5/16	12,028	221.0	11,520	211.7	10,024	184.2	6,428	96.5	6,048	79.0	4,032	47.0
3/8	10,024	221.0	9,600	211.7	8,353	184.2	5,357	96.5	5,040	79.0	3,360	47.0
1/2	7,518	221.0	7,200	211.7	6,265	184.2	4,018	96.5	3,780	79.0	2,520	47.0
5/8	6,012	221.0	5,764	211.7	5,012	184.2	3,216	96.5	3,025	79.0	2,017	47.0
3/4	5,010	221.0	4,804	211.7	4,177	184.2	2,680	96.5	2,521	79.0	1,681	47.0

List 4540: Regular Length, Multiple Flute

Standard Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC		65-70 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels							
Depth of Cut	Dia / aa / ar: D≤1.5: 1.5D / 0.02D; 1.5<D≤2.5: 1.5D / 0.05D; 2.5<D: 1.5D / 0.1D arMax=less than 0.040″ 				aa=1.5D ar=0.05D arMax=less than 0.040″		aa=1.5D ar=0.03D arMax=less than 0.020″		aa=1D ar=0.02D arMax=less than 0.020″			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	39.3	25,000	39.0	25,000	38.4	24,050	26.4	21,900	21.1	16,000	13.2
2	22,500	70.9	20,200	63.0	16,000	49.2	12,000	26.4	11,000	21.1	7,950	13.2
3	15,000	70.9	13,500	63.0	10,500	49.2	7,950	26.4	7,450	21.1	5,300	13.2
4	11,000	70.9	9,950	63.0	7,950	49.2	5,950	26.4	5,550	21.1	4,000	13.2
5	8,900	70.9	7,950	63.0	6,350	49.2	4,800	26.4	4,450	21.1	3,200	13.2
6	7,450	104.3	6,650	94.5	5,300	74.8	4,000	39.4	3,700	31.5	2,650	19.9
8	5,550	104.3	4,950	94.5	4,000	74.8	3,000	39.4	2,800	31.5	2,000	19.9
10	4,450	104.3	4,000	94.5	3,200	74.8	2,400	39.4	2,250	31.5	1,600	19.9
12	3,700	104.3	3,300	94.5	2,650	74.8	2,000	39.4	1,850	31.5	1,350	19.9
16	2,700	94.5	2,400	82.7	1,950	66.9	1,450	36.6	1,350	31.5	995	19.9
20	2,200	84.6	1,950	74.8	1,550	59.1	1,150	33.3	1,100	27.4	800	19.9
25	1,700	96.5	1,550	82.7	1,250	59.1	955	36.0	890	29.5	635	19.9

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant.
3. When the length of tool extension from the machine is long, reduce the speed and feed.

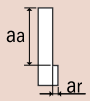
High Speed Light Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC		65-70 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels							
Depth of Cut	aa=1D ar=0.05D arMax=less than 0.020″ 				aa=1D ar=0.03D arMax=less than 0.020″		aa=1D ar=0.02D arMax=less than 0.008″		aa=1D ar=0.01D arMax=less than 0.008″			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	31.5	25,000	39.4	25,000	39.4	25,000	31.5	25,000	27.9	25,000	21.9
2	25,000	67.4	25,000	78.7	25,000	78.8	25,000	63.7	24,000	53.1	16,000	31.5
3	25,000	106.0	25,000	116.9	25,000	118.9	17,000	65.0	16,000	53.1	10,500	31.5
4	24,000	153.5	24,000	149.6	20,000	126.0	12,500	65.0	12,000	53.1	7,950	31.5
5	19,000	161.4	19,000	149.6	16,000	126.0	10,000	65.0	9,550	53.1	6,350	31.5
6	16,000	226.4	16,000	226.4	13,500	189.0	8,500	96.5	7,950	78.7	5,300	47.2
8	12,000	226.4	12,000	226.4	9,950	189.0	6,350	96.5	5,950	78.7	4,000	47.2
10	9,550	226.4	9,550	226.4	7,950	189.0	5,100	96.5	4,800	78.7	3,200	47.2
12	7,950	226.4	7,950	226.4	6,650	189.0	4,250	96.5	4,000	78.7	2,650	47.2
16	5,950	202.76	5,950	202.8	4,950	167.3	3,150	88.6	2,950	72.8	1,950	47.2
20	4,750	181.10	4,750	181.1	3,950	143.7	2,500	80.7	2,350	61.0	1,550	43.3
25	3,800	210.63	3,800	198.8	3,150	149.6	2,000	78.7	1,900	49.2	1,250	41.3

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant.
3. When the length of tool extension from the machine is long, reduce the speed and feed.

List 4471: Stub Length, 4 Flute, Corner Radius

Standard Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Depth of Cut	Dia / aa / ar D≤1/16 / 1.5D / 0.05D D>1/16 / 1.5D / 0.10D arMax=less than 0.04″ 				aa=1.5D ar=0.05D ar Max=less than 0.04″		aa=1.5D ar=0.03D ar Max=less than 0.02″		aa=1.0D ar=0.02D ar Max=less than 0.02″	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	70.0	25,000	70.0	20,170	56.5	15,158	36.4	14,180	22.7
3/32	18,743	75.0	16,828	67.3	13,446	53.8	10,105	30.3	9,453	22.7
1/8	14,058	73.1	12,621	65.6	10,085	52.4	7,579	27.3	7,090	25.5
3/16	9,372	60.0	8,414	53.9	6,723	43.0	5,053	22.2	4,727	20.8
1/4	7,029	101.2	6,311	90.9	5,042	72.6	3,789	37.9	3,545	31.2
3/8	4,686	105.0	4,207	94.2	3,362	75.3	2,526	39.4	2,363	31.2
1/2	3,514	99.8	3,155	89.6	2,521	71.6	1,895	38.7	1,772	31.2

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

High Speed Light Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Depth of Cut	aa=1.0D ar=0.05D ar Max = less than 0.02″ 				aa=1.0D ar=0.03D ar Max = less than 0.02″		aa=1.0D ar=0.02D ar Max = less than 0.008″		aa=1.0D ar=0.01D ar Max = less than 0.008″	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	70.0	25,000	70.0	25,000	70.0	25,000	50.0	25,000	50.0
3/32	25,000	100.0	25,000	100.0	25,000	100.0	21,433	68.6	20,170	56.5
1/8	25,000	130.0	25,000	130.0	25,000	130.0	16,075	70.7	15,127	54.5
3/16	20,068	128.4	20,068	128.4	16,706	106.9	10,716	72.9	10,085	52.4
1/4	15,051	216.7	15,051	216.7	12,530	180.4	8,037	93.2	7,564	78.7
3/8	10,034	224.8	10,034	224.8	8,353	187.1	5,358	96.4	5,042	78.7
1/2	7,525	213.7	7,525	213.7	6,265	177.9	4,019	93.2	3,782	75.6

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

List 4571: Stub Length, 4 Flute, Corner Radius

Standard Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Depth of Cut	Dia / aa / ar D=2 / 1.5D / 0.05D 2<D / 1.5D / 0.10D arMax=less than 0.04″ 				aa=1.5D ar=0.05D arMax=less than 0.04″		aa=1.5D ar=0.03D arMax=less than 0.02″		aa=1.0D ar=0.02D arMax=less than 0.02″	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
2	22,316	71.4	20,036	64.1	16,010	51.2	12,031	24.1	11,255	22.5
3	14,878	71.4	13,358	64.1	10,673	51.2	8,021	25.7	7,503	21.0
4	11,158	71.4	10,018	64.1	8,005	51.2	6,016	26.5	5,628	20.3
5	8,927	85.7	8,015	76.9	6,404	61.5	4,813	25.0	4,502	21.6
6	7,439	104.1	6,679	93.5	5,337	74.7	4,010	38.5	3,752	31.5
8	5,579	104.9	5,009	94.2	4,002	75.2	3,008	39.7	2,814	31.5
10	4,463	103.5	4,007	93.0	3,202	74.3	2,406	39.5	2,251	31.5
12	3,719	104.1	3,339	93.5	2,668	74.7	2,005	39.3	1,876	32.3

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

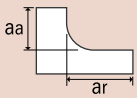
High Speed Light Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Depth of Cut	aa=1.0D ar=0.05D arMax=less than 0.02″ 				aa=1.0D ar=0.03D arMax=less than 0.02″		aa=1.0D ar=0.02D arMax=less than 0.008″		aa=1.0D ar=0.01D arMax=less than 0.008″	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
2	25,000	80.0	25,000	80.0	25,000	80.0	25,000	60.0	24,014	48.0
3	25,000	120.0	25,000	120.0	25,000	120.0	17,012	68.0	16,010	51.2
4	23,893	152.9	23,893	152.9	19,891	127.3	12,759	66.3	12,007	52.8
5	19,115	183.5	19,115	183.5	15,913	152.8	10,207	65.3	9,606	53.8
6	15,929	223.0	15,929	223.0	13,260	185.6	8,506	95.3	8,005	80.0
8	11,947	224.6	11,947	224.6	9,945	187.0	6,380	97.0	6,004	79.2
10	9,557	221.7	9,557	221.7	7,956	184.6	5,104	95.9	4,803	76.8
12	7,964	223.0	7,964	223.0	6,630	185.6	4,253	97.0	4,002	78.4

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

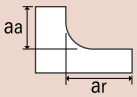
List 4470: Stub Length, Corner Radius, High Feed

Standard Milling

Hardness	<40 HRC		40 to 45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Depth of Cut	CR / a_a / a_r CR≤1/16: 0.2CR / 0.5D 1/16<CR: 0.02" / 0.5D CR=Corner Radius 				CR / a_a / a_r CR≤1/16: 0.2CR / 0.5D 1/16<CR: 0.016" / 0.5D CR=Corner Radius		CR / a_a / a_r CR≤1/16: 0.1CR / 0.5D 1/16<CR: 0.008" / 0.5D CR=Corner Radius			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	12,224	252	8,404	158	6,112	103	3,667	41	3,056	34
3/16	8,149	252	5,603	158	4,075	103	2,445	41	2,037	34
1/4	6,112	336	4,202	210	3,056	138	1,834	55	1,528	46
5/16	4,890	336	3,362	210	2,445	138	1,467	55	1,222	46
3/8	4,075	336	2,801	210	2,037	138	1,222	55	1,019	46
1/2	3,056	336	2,101	210	1,528	138	917	55	764	46

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

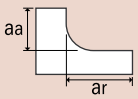
High Feed Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Depth of Cut	a_a=0.1CR a_r=0.3D CR=Corner Radius 				CR / a_a / a_r CR≤1/16: 0.1CR / 0.3D 1/16<CR: 0.008" / 0.3D CR=Corner Radius		CR / a_a / a_r CR≤1/16: 0.05CR / 0.3D 1/16<CR: 0.004" / 0.3D CR=Corner Radius			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	23,990	495	18,030	338	16,808	284	11,918	134	9,168	103
3/16	15,993	495	12,020	338	11,205	284	7,946	134	6,112	103
1/4	11,995	660	9,015	451	8,404	378	5,959	179	4,584	138
5/16	9,596	660	7,212	451	6,723	378	4,767	179	3,667	138
3/8	7,997	660	6,010	451	5,603	378	3,973	179	3,056	138
1/2	5,997	660	4,508	451	4,202	378	2,980	179	2,292	138

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

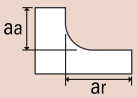
List 4570: Stub Length, Corner Radius, High Feed

Standard Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Depth of Cut	CR: CR≤2, 2<CR aa: 0.2CR, 0.02" ar: 0.5D, 0.5D CR=Corner Radius 				CR: CR≤2, 2<CR aa: 0.2CR, 0.016" ar: 0.5D, 0.5D		CR: CR≤2, 2<CR aa: 0.1CR, 0.008" ar: 0.5D, 0.5D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
2	19,406	252	13,341	158	9,703	103	5,822	41	4,851	34
3	12,937	336	8,894	210	6,469	138	3,881	55	3,234	46
4	9,703	336	6,671	210	4,851	138	2,911	55	2,426	46
5	7,762	336	5,337	210	3,881	138	2,329	55	1,941	46
6	6,469	336	4,447	210	3,234	138	1,941	55	1,617	46
7	5,544	336	3,812	210	2,772	138	1,663	55	1,386	46
8	4,851	336	3,335	210	2,426	138	1,455	55	1,213	46
9	4,312	336	2,965	210	2,156	138	1,294	55	1,078	46
10	3,881	336	2,668	210	1,941	138	1,164	55	970	46
11	3,528	336	2,426	210	1,764	138	1,058	55	882	46
12	3,234	336	2,224	210	1,617	138	970	55	809	46
13	2,985	336	2,053	210	1,493	138	896	55	746	46

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

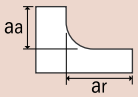
High Feed Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels					
Depth of Cut	aa=0.1CR ar=0.3D CR=Corner Radius 				CR: CR≤2, 2<CR aa: 0.1CR, 0.008" ar: 0.3D, 0.3D		CR: CR≤2, 2<CR aa: 0.05CR, 0.004" ar: 0.3D, 0.3D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
2	25,000	325	25,000	295	25,000	266	18,920	134	14,554	103
3	25,000	650	19,082	451	17,788	378	12,614	179	9,703	138
4	19,042	660	14,312	451	13,341	378	9,460	179	7,277	138
5	15,233	660	11,449	451	10,673	378	7,568	179	5,822	138
6	12,694	660	9,541	451	8,894	378	6,307	179	4,851	138
7	10,881	660	8,178	451	7,624	378	5,406	179	4,158	138
8	9,521	660	7,156	451	6,671	378	4,730	179	3,639	138
9	8,463	660	6,361	451	5,929	378	4,205	179	3,234	138
10	7,617	660	5,725	451	5,337	378	3,784	179	2,911	138
11	6,924	660	5,204	451	4,851	378	3,440	179	2,646	138
12	6,347	660	4,771	451	4,447	378	3,153	179	2,426	138
13	5,859	660	4,404	451	4,105	378	2,911	179	2,239	138

1. The indicated speeds and feeds are for high speed light milling for use with high speed/high precision machining centers.
2. Do not use flammable fluids because tools with considerable wear can cause sparks.
3. We recommend using air blow. When using cutting fluids, use a high quality fluid with high smoke retardant.

List 4472: Regular Length, Corner Radius, High Feed

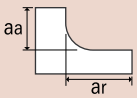
Standard Milling

Hardness	–	<40 HRC	40-45 HRC	45-55 HRC	55-60 HRC	60-65 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Tool Steels Stainless Steel Hardened Steels Prehardened Steels	Hardened Steels		
Depth of Cut	CR: CR≤1/16 → a_a 0.2CR, a_r 0.5D; 1/16<CR → a_a 0.02", a_r 0.5D CR=Corner Radius 			CR: CR≤1/16 → a_a 0.1CR, a_r 0.5D; 1/16<CR → a_a 0.008", a_r 0.5D	CR: CR≤1/16 → a_a 0.2CR, a_r 0.5D; 1/16<CR → a_a 0.016", a_r 0.5D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	10,080	255	7,950	175	7,030	150	5,040	100	3,060	40	2,690	28
3/16	6,720	265	5,300	190	4,690	165	3,360	110	2,040	42	1,790	30
1/4	5,040	275	3,970	200	3,510	175	2,520	115	1,530	45	1,340	32
5/16	4,030	275	3,180	200	2,810	175	2,020	115	1,220	45	1,080	32
3/8	3,360	275	2,650	200	2,340	175	1,680	115	1,020	45	900	32
1/2	2,520	275	1,990	200	1,760	175	1,260	115	760	45	670	32

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners; for milling without circular interpolation (such as right angle cornering), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We recommend using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When entering into the part, reduce the feed to 30-60% of the above conditions, with a ramping angle < 2°.
6. These milling conditions are for a tool overhang less than 4xD; for longer overhangs, reduce the speed, feed and cutting depth to prevent chattering.

High Feed Milling

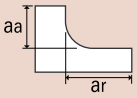
Hardness	–	<40 HRC	40-45 HRC	45-55 HRC	55-60 HRC	60-65 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Tool Steels Stainless Steel Hardened Steels Prehardened Steels	Hardened Steels		
Depth of Cut	a_a=0.1CR a_r=0.3D CR=Corner Radius 			CR: CR≤1/16 → a_a 0.1CR, a_r 0.3D; 1/16<CR → a_a 0.008", a_r 0.3D	CR: CR≤1/16 → a_a 0.05CR, a_r 0.3D; 1/16<CR → a_a 0.004", a_r 0.3D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	19,860	490	19,860	470	14,970	330	14,970	305	10,080	125	9,780	90
3/16	13,240	500	13,240	470	9,980	355	13,240	325	6,720	140	6,520	100
1/4	9,930	545	9,930	500	7,490	375	9,930	340	5,040	150	4,890	150
5/16	7,950	545	7,950	500	5,990	375	7,950	340	4,030	150	3,910	150
3/8	6,620	545	6,620	500	4,990	375	6,620	340	3,360	150	3,260	150
1/2	4,970	545	4,970	500	3,740	375	4,970	340	2,520	150	2,440	150

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners; for milling without circular interpolation (such as right angle cornering), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We recommend using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When entering into the part, reduce the feed to 30-60% of the above conditions, with a ramping angle < 2°.
6. These milling conditions are for a tool overhang less than 4xD; for longer overhangs, reduce the speed, feed and cutting depth to prevent chattering.

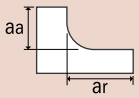
List 4572: Regular Length, Corner Radius, High Feed

Standard Milling

Hardness	–	<40 HRC	40-45 HRC	45-55 HRC	55-60 HRC	60-65 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Tool Steels Stainless Steel Hardened Steels Prehardened Steels	Hardened Steels		
Depth of Cut	CR: CR≤2, 2<CR aa: 0.2CR, 0.02" ar: 0.5D, 0.5D CR=Corner Radius 			CR: CR≤2, 2<CR aa: 0.1CR, 0.008" ar: 0.5D, 0.5D	CR: CR≤2, 2<CR aa: 0.2CR, 0.016" ar: 0.5D, 0.5D	
Mill Dia.	Speed RPM / Feed in/min	Speed RPM / Feed in/min	Speed RPM / Feed in/min	Speed RPM / Feed in/min	Speed RPM / Feed in/min	Speed RPM / Feed in/min
2	16,000 / 207	12,500 / 150	11,000 / 132	7,950 / 85	4,750 / 34	4,270 / 24
3	10,500 / 246	8,500 / 177	7,450 / 154	5,300 / 102	3,200 / 39	2,850 / 28
4	7,950 / 260	6,350 / 189	5,550 / 165	4,000 / 108	2,400 / 41	2,150 / 30
6	5,300 / 276	4,250 / 201	3,700 / 175	2,650 / 112	1,600 / 45	1,400 / 32
8	4,000 / 276	3,200 / 201	2,800 / 175	2,000 / 112	1,200 / 45	1,050 / 32
10	3,200 / 276	2,550 / 201	2,250 / 175	1,600 / 112	955 / 45	860 / 32
12	2,650 / 276	2,100 / 201	1,850 / 175	1,350 / 112	795 / 45	715 / 32

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners; for milling without circular interpolation (such as right angle cornering), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We recommend using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When entering into the part, reduce the feed to 30-60% of the above conditions, with a ramping angle < 2°.
6. These milling conditions are for a tool overhang less than 4xD; for longer overhangs, reduce the speed, feed and cutting depth to prevent chattering.

High Feed Milling

Hardness	–	<40 HRC	40-45 HRC	45-55 HRC	55-60 HRC	60-65 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Tool Steels Stainless Steel Hardened Steels Prehardened Steels	Hardened Steels		
Depth of Cut	aa=0.1CR ar=0.3D CR=Corner Radius 			CR: CR≤2, 2<CR aa: 0.1CR, 0.008" ar: 0.3D, 0.3D	CR: CR≤2, 2<CR aa: 0.05CR, 0.004" ar: 0.3D, 0.3D	
Mill Dia.	Speed RPM / Feed in/min	Speed RPM / Feed in/min	Speed RPM / Feed in/min	Speed RPM / Feed in/min	Speed RPM / Feed in/min	Speed RPM / Feed in/min
2	25,000 / 324	25,000 / 294	24,000 / 281	24,000 / 254	16,000 / 112	14,400 / 81
3	21,000 / 492	21,000 / 472	16,000 / 331	16,000 / 309	10,500 / 130	9,450 / 93
4	16,000 / 512	16,000 / 472	12,000 / 354	12,000 / 323	7,950 / 140	7,150 / 100
6	10,600 / 551	10,600 / 500	7,950 / 376	7,950 / 339	5,300 / 150	5,300 / 150
8	7,950 / 551	7,950 / 500	5,950 / 376	5,950 / 339	4,000 / 150	4,000 / 150
10	6,350 / 551	6,350 / 500	4,750 / 376	4,750 / 339	3,200 / 150	3,200 / 150
12	5,300 / 551	5,300 / 500	4,000 / 376	4,000 / 339	2,650 / 150	2,650 / 150

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners; for milling without circular interpolation (such as right angle cornering), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We recommend using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When entering into the part, reduce the feed to 30-60% of the above conditions, with a ramping angle < 2°.
6. These milling conditions are for a tool overhang less than 4xD; for longer overhangs, reduce the speed, feed and cutting depth to prevent chattering.

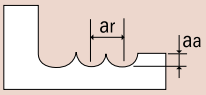
List 4592: Corner Radius, Stub Length, 2 Flute, Long Neck, Rib Processing

Standard Milling

Hardness									<45 HRC		45-55 HRC		55-65 HRC	
Work Material									Hardened Steels Pre-hardened Steels (SDK61, H13, NAK80, P21)		Hardened Steels Pre-hardened Steels (SDK61, H13, STAVAX, 420F)		Hardened Steels	
Depth of Cut									%'s of DOC's suggested on the left					
									aa=120% ar=120%		aa=100% ar=100%		aa=60% ar=80%	
		aa (in)						ar (in)						
Dia.	L1	R0.05	R0.1	R0.2	R0.3	R0.5	R1		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.4	1	0.00028	—	—	—	—	—	0.0047	25,000	14.0	25,000	14.0	19,800	11.1
	1.5	0.00028	—	—	—	—	—	0.0047	25,000	14.0	25,000	14.0	19,800	11.1
	2	0.00020	0.00031	—	—	—	—	0.0040	25,000	10.0	25,000	10.0	19,800	7.9
	3	0.00008	0.00012	—	—	—	—	0.0030	25,000	4.0	23,100	3.7	18,700	3.0
	4	0.00004	0.00008	—	—	—	—	0.0014	22,000	1.8	22,000	1.8	18,700	1.5
0.5	1	0.00028	0.00039	—	—	—	—	0.0059	25,000	14.0	25,000	14.0	18,700	10.5
	2	0.00028	0.00039	—	—	—	—	0.0059	25,000	14.0	25,000	14.0	18,700	10.5
	3	0.00012	0.00020	—	—	—	—	0.0041	25,000	6.0	24,200	5.8	17,600	4.2
	4	0.00008	0.00012	—	—	—	—	0.0004	25,000	4.0	23,100	3.7	17,050	2.7
	5	0.00004	0.00008	—	—	—	—	0.0018	24,200	1.9	22,550	1.8	16,500	1.3
	6	0.00004	0.00004	—	—	—	—	0.0012	22,000	1.8	22,000	1.8	16,500	1.3
0.6	2	—	0.00047	—	—	—	—	0.0071	25,000	23.5	25,000	23.5	17,600	16.5
	4	—	0.00020	—	—	—	—	0.0048	25,000	10.0	22,000	8.8	16,500	6.6
	6	—	0.00008	—	—	—	—	0.0021	22,000	3.5	20,900	3.3	15,400	2.5
0.8	4	—	0.00063	0.0013	—	—	—	0.0094	25,000	65.0	22,000	57.2	15,400	40.0
	6	—	0.00028	0.0006	—	—	—	0.0094	23,100	27.7	19,800	23.8	14,850	17.8
	8	—	—	0.0003	—	—	—	0.0085	19,800	11.9	18,700	11.2	14,300	8.6
1.0	4	0.00039	0.00079	0.0016	0.0020	—	—	0.0118	24,200	77.4	22,000	70.4	13,200	42.2
	6	0.00020	0.00039	0.0008	0.0010	—	—	0.0083	22,000	35.2	18,700	29.9	13,200	21.1
	8	0.00012	0.00024	0.0005	0.0006	—	—	0.0071	17,600	17.6	16,500	16.5	12,650	12.7
	10	0.00008	0.00016	0.0003	0.0004	—	—	0.0035	16,500	9.9	15,400	9.2	12,100	7.3
	12	0.00004	0.00012	0.0002	0.0003	—	—	0.0024	16,500	6.6	14,300	5.7	12,100	4.8
	16	—	—	0.0002	—	—	—	0.0012	13,200	5.3	13,200	5.3	11,550	4.6
	20	—	—	0.0001	—	—	—	0.0009	11,000	2.2	11,000	2.2	11,000	2.2
1.2	6	—	—	0.0013	0.0016	—	—	0.0142	18,700	48.6	15,400	40.0	11,000	28.6
	8	—	—	0.0007	0.0009	—	—	0.0099	15,400	21.6	13,200	18.5	11,000	15.4
	10	—	—	0.0004	0.0006	—	—	0.0085	15,400	12.3	13,200	10.6	9,900	7.9
1.5	6	—	—	0.0016	0.0024	—	—	0.0177	15,400	49.3	13,200	42.2	8,800	28.2
	8	—	—	0.0010	0.0015	—	—	0.0150	13,200	26.4	11,000	22.0	7,700	15.4
	10	—	—	0.0007	0.0011	—	—	0.0115	13,200	18.5	11,000	15.4	7,700	10.8
	12	—	—	0.0005	0.0007	—	—	0.0106	13,200	13.2	11,000	11.0	7,150	7.2
	16	—	—	0.0003	0.0004	—	—	0.0044	11,000	6.6	9,900	5.9	6,600	4.0
2.0	8	—	0.00079	0.0016	0.0024	0.0030	—	0.0236	12,100	38.7	9,900	31.7	6,600	21.1
	10	—	0.00063	0.0013	0.0019	0.0024	—	0.0201	9,900	25.7	7,700	20.0	6,600	17.2
	12	—	0.00039	0.0008	0.0012	0.0015	—	0.0165	9,900	15.8	7,700	12.3	6,600	10.6
	16	—	0.00024	0.0005	0.0007	0.0009	—	0.0142	9,900	9.9	7,700	7.7	6,050	6.1
	20	—	0.00016	0.0003	0.0005	0.0006	—	0.0071	7,700	4.6	7,150	4.3	5,500	3.3
	25	—	0.00008	0.0002	0.0003	0.0004	—	0.0047	7,700	3.1	6,600	2.6	4,950	2.0
2.5	10	—	—	0.0016	—	0.0030	—	0.0295	9,900	31.7	8,800	28.2	5,500	17.6
	20	—	—	0.0008	—	0.0015	—	0.0177	7,700	12.3	6,600	10.6	4,950	7.9
	30	—	—	0.0002	—	0.0004	—	0.0059	6,600	2.6	5,500	2.2	4,400	1.8
3.0	8	—	—	0.0016	—	—	—	0.0354	8,800	28.2	7,700	24.6	5,500	17.6
	12	—	—	0.0016	0.0024	0.0030	—	0.0354	8,800	28.2	7,700	24.6	5,500	17.6
	16	—	—	0.0011	0.0017	0.0020	—	0.0283	6,600	14.5	6,600	14.5	5,500	12.1
	20	—	—	0.0007	0.0011	0.0013	—	0.0241	6,600	9.2	6,600	9.2	5,500	7.7
	25	—	—	0.0005	0.0007	0.0009	—	0.0213	6,600	6.6	6,600	6.6	4,950	5.0
	30	—	—	0.0003	0.0005	0.0006	—	0.0106	5,500	3.3	5,500	3.3	4,400	2.6
	35	—	—	0.0002	0.0004	0.0004	—	0.0071	5,500	2.2	4,950	2.0	4,400	1.8
4.0	16	—	—	0.0016	0.0024	0.0030	0.0047	0.0472	6,600	21.1	4,950	15.8	4,400	14.1
	20	—	—	0.0013	0.0019	0.0024	0.0079	0.0402	5,500	14.3	4,400	11.4	4,400	11.4
	25	—	—	0.0008	0.0012	0.0015	0.0024	0.0321	5,500	8.8	4,400	7.0	4,400	7.0
	30	—	—	0.0006	0.0008	0.0010	0.0016	0.0293	5,500	6.6	4,400	5.3	4,400	5.3
	40	—	—	0.0003	0.0005	0.0006	0.0009	0.0142	4,400	2.6	4,400	2.6	4,400	2.6
	50	—	—	0.0002	0.0003	0.0004	0.0006	0.0085	4,400	1.8	4,400	1.8	3,850	1.5

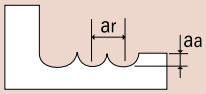
List 4590: Ball End, Stub Length, 2 Flute, Long Neck, Rib Processing

Standard Milling (up to 38HRC)

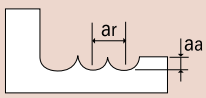
Hardness	<20 HRC				20-30 HRC				30-38 HRC			
Work Material	Mild Steels, Carbon Steels, Cast Iron				Alloy Steels, Tool Steels				Hardened Steels, Pre-hardened Steels			
Depth of Cut												
Mill Dia.	L1	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
0.1	0.3	25,000	1.4	0.0001	0.0001	25,000	1.4	0.0001	0.0001	25,000	1.4	0.0001	0.0001
	0.5	25,000	1.0	0.0001	0.0001	25,000	1.0	0.0001	0.0001	25,000	1.0	0.0001	0.0001
0.2	0.5	25,000	7.8	0.0002	0.0002	25,000	7.8	0.0002	0.0002	25,000	7.6	0.0002	0.0002
	1	25,000	7.1	0.0002	0.0002	25,000	7.1	0.0002	0.0002	25,000	6.7	0.0002	0.0002
	1.5	25,000	6.5	0.0002	0.0002	25,000	6.5	0.0002	0.0002	25,000	6.1	0.0002	0.0002
	3	25,000	4.6	0.0002	0.0002	25,000	4.6	0.0002	0.0002	25,000	4.3	0.0002	0.0002
0.3	1	25,000	11.8	0.0002	0.0004	25,000	11.8	0.0002	0.0004	25,000	11.2	0.0002	0.0002
	3	25,000	6.4	0.0002	0.0002	25,000	6.4	0.0002	0.0002	25,000	6.0	0.0002	0.0002
	5	25,000	3.4	0.0002	0.0002	25,000	3.4	0.0002	0.0002	25,000	3.2	0.0002	0.0002
0.4	1	25,000	17.4	0.0004	0.0008	25,000	17.7	0.0004	0.0008	25,000	16.7	0.0004	0.0004
	3	25,000	11.4	0.0002	0.0004	25,000	11.4	0.0002	0.0004	25,000	10.7	0.0002	0.0002
	6	25,000	6.6	0.0002	0.0002	25,000	6.6	0.0002	0.0002	25,000	6.2	0.0002	0.0002
0.5	1	25,000	21.6	0.0006	0.0012	25,000	21.6	0.0006	0.0012	25,000	20.6	0.0006	0.0006
	5	25,000	13.1	0.0002	0.0004	25,000	13.1	0.0002	0.0004	25,000	12.5	0.0002	0.0002
	10	20,000	3.9	0.0002	0.0002	20,000	3.9	0.0002	0.0002	20,000	3.7	0.0002	0.0002
0.6	1	25,000	21.6	0.0012	0.0020	25,000	26.5	0.0012	0.0020	25,000	23.6	0.0012	0.0012
	5	25,000	22.3	0.0004	0.0008	25,000	22.3	0.0004	0.0008	25,000	21.0	0.0004	0.0004
	12	18,000	4.7	0.0002	0.0002	18,000	4.7	0.0002	0.0002	18,000	4.3	0.0002	0.0002
0.8	2	25,000	39.3	0.0016	0.0031	25,000	39.3	0.0016	0.0031	25,000	37.4	0.0016	0.0016
	6	25,000	26.3	0.0012	0.0020	25,000	26.3	0.0012	0.0020	25,000	24.9	0.0012	0.0012
	12	17,000	9.8	0.0002	0.0002	17,000	9.8	0.0002	0.0002	17,000	9.1	0.0002	0.0002
1.0	2	25,000	72.8	0.0020	0.0039	25,000	72.8	0.0020	0.0039	25,000	72.8	0.0020	0.0020
	5	25,000	62.9	0.0020	0.0039	25,000	62.9	0.0020	0.0039	25,000	57.4	0.0020	0.0020
	10	22,000	43.3	0.0004	0.0008	22,000	43.3	0.0004	0.0008	22,000	39.4	0.0004	0.0004
	20	13,000	11.8	0.0002	0.0002	13,000	11.8	0.0002	0.0002	13,000	11.2	0.0002	0.0002
1.2	2	25,000	74.8	0.0024	0.0047	25,000	74.8	0.0024	0.0047	25,000	70.8	0.0024	0.0024
	5	25,000	57.4	0.0024	0.0047	25,000	57.4	0.0024	0.0047	25,000	56.6	0.0024	0.0024
	10	20,000	47.2	0.0020	0.0039	20,000	47.2	0.0020	0.0039	20,000	43.3	0.0020	0.0020
	20	14,000	12.6	0.0002	0.0002	14,000	12.6	0.0002	0.0002	14,000	11.8	0.0002	0.0002
1.5	3	25,000	94.5	0.0030	0.0059	25,000	94.5	0.0030	0.0059	25,000	94.5	0.0030	0.0030
	6	25,000	95.2	0.0030	0.0059	25,000	95.2	0.0030	0.0059	25,000	88.6	0.0030	0.0030
	10	24,000	78.7	0.0020	0.0059	24,000	78.7	0.0030	0.0059	24,000	74.8	0.0030	0.0030
	16	16,000	31.5	0.0020	0.0039	16,000	31.5	0.0020	0.0039	16,000	29.9	0.0020	0.0020
	20	13,000	14.2	0.0008	0.0020	13,000	14.2	0.0008	0.0020	13,000	13.4	0.0008	0.0008
	30	12,000	7.9	0.0002	0.0004	12,000	7.9	0.0002	0.0004	12,000	7.5	0.0002	0.0002
2.0	4	25,000	110.2	0.0039	0.0079	25,000	110.2	0.0039	0.0079	25,000	110.2	0.0039	0.0039
	8	25,000	102.4	0.0039	0.0079	25,000	102.4	0.0039	0.0079	25,000	94.5	0.0039	0.0039
	16	14,000	66.9	0.0039	0.0039	14,000	66.9	0.0039	0.0039	14,000	74.8	0.0039	0.0039
	20	12,000	47.2	0.0020	0.0039	12,000	47.2	0.0020	0.0039	12,000	43.3	0.0020	0.0020
	30	10,000	19.7	0.0008	0.0020	10,000	19.7	0.0008	0.0020	10,000	18.5	0.0008	0.0008
	40	7,000	5.9	0.0008	0.0012	7,000	5.9	0.0008	0.0012	7,000	5.5	0.0008	0.0008
3.0	6	25,000	147.0	0.0059	0.0118	25,000	147.0	0.0059	0.0118	25,000	147.0	0.0059	0.0059
	12	20,000	118.1	0.0059	0.0118	20,000	118.1	0.0059	0.0118	20,000	110.2	0.0059	0.0059
	16	16,000	78.7	0.0039	0.0079	16,000	78.7	0.0039	0.0079	16,000	74.8	0.0039	0.0039
	20	14,000	70.9	0.0039	0.0079	14,000	70.9	0.0039	0.0079	14,000	66.9	0.0039	0.0039
	30	10,000	31.5	0.0012	0.0020	10,000	31.5	0.0012	0.0020	10,000	29.9	0.0012	0.0012
	40	7,000	19.7	0.0008	0.0012	7,000	19.7	0.0008	0.0012	7,000	18.5	0.0008	0.0008
3.5	15	18,000	118.1	0.0039	0.0118	18,000	118.1	0.0039	0.0118	18,000	110.2	0.0039	0.0039
	25	12,000	78.7	0.0039	0.0039	12,000	78.7	0.0039	0.0039	12,000	74.8	0.0039	0.0039
	35	10,000	39.4	0.0020	0.0020	10,000	39.4	0.0020	0.0020	10,000	37.4	0.0020	0.0020
	45	7,000	23.6	0.0012	0.0012	7,000	23.6	0.0012	0.0012	7,000	22.4	0.0012	0.0012

continued on next page

Standard Milling (up to 38HRC)

Hardness		<20 HRC				20-30 HRC				30-38 HRC			
Work Material		Mild Steels, Carbon Steels, Cast Iron				Alloy Steels, Tool Steels				Hardened Steels, Pre-hardened Steels			
Depth of Cut													
Mill Dia.	L1	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
4.0	8	25,000	181.0	0.0079	0.0197	25,000	181.0	0.0079	0.0197	25,000	181.0	0.0079	0.0079
	16	18,000	126.0	0.0079	0.0197	18,000	126.0	0.0079	0.0197	18,000	118.1	0.0079	0.0079
	20	16,000	110.2	0.0079	0.0157	16,000	110.2	0.0079	0.0157	16,000	102.4	0.0079	0.0079
	30	14,000	94.5	0.0039	0.0079	14,000	94.5	0.0039	0.0079	14,000	86.6	0.0039	0.0039
	40	10,000	51.2	0.0020	0.0039	10,000	51.2	0.0020	0.0039	10,000	47.2	0.0020	0.0020
	50	7,000	27.6	0.0008	0.0020	7,000	27.6	0.0008	0.0020	7,000	26.0	0.0008	0.0008
5.0	10	25,000	212.6	0.0098	0.0197	25,000	212.6	0.0098	0.0197	25,000	212.6	0.0098	0.0197
	20	16,000	137.8	0.0098	0.0197	16,000	137.8	0.0098	0.0197	16,000	129.9	0.0098	0.0197
	30	14,000	98.4	0.0039	0.0118	14,000	98.4	0.0039	0.0118	14,000	90.6	0.0039	0.0118
	40	10,000	47.2	0.0039	0.0079	10,000	47.2	0.0039	0.0079	10,000	43.3	0.0039	0.0079
	50	8,000	31.5	0.0039	0.0039	8,000	31.5	0.0039	0.0039	8,000	29.9	0.0039	0.0039
6.0	12	20,000	204.7	0.0118	0.0197	20,000	204.7	0.0118	0.0197	20,000	204.7	0.0118	0.0197
	20	16,000	165.4	0.0118	0.0197	16,000	165.4	0.0118	0.0197	16,000	153.5	0.0118	0.0197
	30	10,000	102.4	0.0118	0.0197	10,000	102.4	0.0118	0.0197	10,000	94.5	0.0118	0.0197
	40	9,000	78.7	0.0079	0.0118	9,000	78.7	0.0079	0.0118	9,000	74.8	0.0079	0.0118
	50	7,000	63.0	0.0079	0.0118	7,000	63.0	0.0079	0.0118	7,000	59.1	0.0079	0.0118

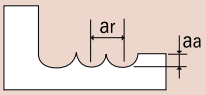
Standard Milling (38 to 60HRC)

Hardness		38-45 HRC				45-55 HRC				55-60 HRC			
Work Material		Stainless Steels, Hardened Steels Pre-hardened Steels				Hardened Steels				Hardened Steels			
Depth of Cut													
Mill Dia.	L1	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
0.1	0.3	50,000	2.8	0.0001	0.0001	50,000	2.4	0.0001	0.0001	–	–	–	–
	0.5	50,000	2.0	0.0001	0.0001	50,000	1.6	0.0001	0.0001	–	–	–	–
0.2	0.5	50,000	15.0	0.0002	0.0002	50,000	10.2	0.0002	0.0002	50,000	7.9	0.0002	0.0002
	1	50,000	13.4	0.0002	0.0002	50,000	9.1	0.0002	0.0002	43,000	7.1	0.0002	0.0002
	1.5	45,000	11.0	0.0002	0.0002	45,000	7.5	0.0002	0.0002	41,000	5.1	0.0002	0.0002
	3	32,000	5.5	0.0002	0.0002	31,000	3.5	0.0002	0.0002	31,000	2.8	0.0002	0.0002
0.3	1	50,000	22.4	0.0002	0.0002	50,000	15.4	0.0002	0.0002	50,000	12.2	0.0002	0.0004
	3	38,000	9.1	0.0002	0.0002	37,000	5.9	0.0002	0.0002	33,000	3.9	0.0002	0.0002
	5	29,000	3.7	0.0002	0.0002	28,000	2.4	0.0002	0.0002	28,000	2.0	0.0002	0.0002
0.4	1	50,000	33.5	0.0004	0.0004	50,000	20.5	0.0004	0.0004	50,000	17.3	0.0003	0.0006
	3	43,000	18.5	0.0002	0.0002	43,000	11.0	0.0002	0.0002	38,000	8.7	0.0002	0.0004
	6	30,000	7.5	0.0002	0.0002	29,000	4.7	0.0002	0.0002	26,000	3.9	0.0002	0.0002
0.5	1	50,000	41.3	0.0006	0.0006	50,000	28.7	0.0006	0.0006	50,000	22.8	0.0004	0.0008
	5	30,000	15.0	0.0002	0.0002	29,000	9.8	0.0002	0.0002	26,000	6.7	0.0002	0.0004
	10	20,000	3.7	0.0002	0.0002	20,000	3.9	0.0002	0.0002	20,000	3.5	0.0002	0.0002
0.6	1	50,000	47.2	0.0012	0.0012	50,000	33.1	0.0012	0.0012	50,000	26.4	0.0004	0.0008
	5	30,000	25.2	0.0004	0.0004	30,000	17.3	0.0004	0.0004	27,000	12.2	0.0004	0.0008
	12	18,000	4.3	0.0002	0.0002	17,000	3.1	0.0002	0.0002	17,000	2.8	0.0002	0.0002

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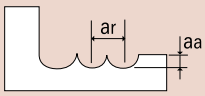
List 4590: Ball End, Stub Length, 2 Flute, Long Neck, Rib Processing (Continued)

Standard Milling (38 to 60HRC)

Hardness	38-45 HRC				45-55 HRC				55-60 HRC			
Work Material	Stainless Steels, Hardened Steels Pre-hardened Steels				Hardened Steels				Hardened Steels			
Depth of Cut												
Mill Dia.	L1	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)	Speed RPM	Feed in/min	aa (in)	ar (in)
0.8	2	50,000	74.8	0.0016	0.0016	50,000	63.0	0.0016	0.0016	50,000	47.2	0.0006	0.0012
	6	30,000	29.9	0.0012	0.0012	30,000	25.6	0.0012	0.0012	27,000	18.1	0.0006	0.0012
	12	17,000	9.1	0.0002	0.0002	16,000	6.3	0.0002	0.0002	16,000	4.3	0.0002	0.0002
1.0	2	50,000	145.7	0.0020	0.0020	50,000	145.7	0.0020	0.0020	50,000	118.1	0.0008	0.0020
	5	36,000	82.7	0.0020	0.0020	36,000	63.0	0.0020	0.0020	36,000	47.2	0.0008	0.0020
	10	22,000	39.4	0.0004	0.0004	21,000	29.9	0.0004	0.0004	18,000	20.5	0.0004	0.0008
	20	13,000	11.2	0.0002	0.0002	12,000	7.1	0.0002	0.0002	12,000	5.5	0.0002	0.0002
1.2	2	50,000	141.7	0.0024	0.0024	50,000	141.7	0.0024	0.0024	50,000	118.1	0.0008	0.0020
	5	36,000	78.7	0.0024	0.0024	32,000	63.0	0.0024	0.0024	30,000	47.2	0.0008	0.0020
	10	20,000	43.3	0.0020	0.0020	18,000	31.5	0.0020	0.0020	16,000	22.0	0.0008	0.0020
	20	13,000	11.8	0.0002	0.0002	12,000	7.1	0.0002	0.0002	10,000	4.7	0.0002	0.0002
1.5	3	50,000	189.0	0.0030	0.0030	50,000	189.0	0.0030	0.0030	50,000	153.5	0.0012	0.0024
	6	30,000	106.3	0.0030	0.0030	30,000	86.6	0.0030	0.0030	27,000	59.1	0.0012	0.0024
	10	24,000	74.8	0.0030	0.0030	24,000	59.1	0.0030	0.0030	21,000	39.4	0.0012	0.0024
	16	14,000	29.9	0.0020	0.0020	13,000	22.0	0.0020	0.0020	10,000	13.4	0.0012	0.0020
	20	12,000	13.4	0.0008	0.0008	11,000	9.4	0.0008	0.0008	9,000	5.9	0.0008	0.0020
	30	11,000	7.5	0.0002	0.0002	10,000	4.7	0.0002	0.0002	9,000	3.5	0.0002	0.0004
2.0	4	50,000	220.5	0.0039	0.0039	47,000	208.7	0.0039	0.0039	40,000	141.7	0.0020	0.0039
	8	25,000	94.5	0.0039	0.0039	24,000	90.6	0.0039	0.0039	20,000	59.1	0.0020	0.0039
	16	14,000	74.8	0.0039	0.0039	13,000	55.1	0.0039	0.0039	11,000	37.4	0.0020	0.0039
	20	11,000	43.3	0.0020	0.0020	10,000	35.0	0.0020	0.0020	9,000	25.2	0.0020	0.0039
	30	9,000	18.5	0.0008	0.0008	9,000	14.2	0.0008	0.0008	7,500	9.4	0.0008	0.0020
	40	6,000	5.5	0.0008	0.0008	6,000	3.9	0.0008	0.0008	6,000	3.5	0.0008	0.0012
3.0	6	41,500	244.1	0.0059	0.0059	32,000	189.0	0.0059	0.0059	26,500	129.9	0.0024	0.0059
	12	20,000	110.2	0.0059	0.0059	18,000	98.4	0.0059	0.0059	16,000	66.9	0.0024	0.0059
	16	16,000	74.8	0.0039	0.0039	13,000	59.1	0.0039	0.0039	11,000	43.3	0.0024	0.0059
	20	14,000	66.9	0.0039	0.0039	11,000	39.4	0.0039	0.0039	10,000	39.4	0.0024	0.0059
	30	9,000	29.9	0.0012	0.0012	7,000	23.2	0.0012	0.0012	6,000	15.7	0.0012	0.0020
	40	6,500	18.5	0.0008	0.0008	5,000	14.2	0.0008	0.0008	4,000	9.1	0.0008	0.0012
3.5	15	18,000	110.2	0.0039	0.0039	14,000	78.7	0.0039	0.0039	12,000	51.2	0.0028	0.0059
	25	12,000	74.8	0.0039	0.0039	9,000	51.2	0.0039	0.0039	8,000	36.2	0.0028	0.0059
	35	9,000	37.4	0.0020	0.0020	7,000	27.6	0.0020	0.0020	5,000	15.7	0.0020	0.0020
	45	6,500	22.4	0.0012	0.0012	5,000	16.5	0.0012	0.0012	4,000	10.2	0.0012	0.0012
4.0	8	31,000	224.4	0.0079	0.0079	24,000	173.2	0.0079	0.0079	20,000	126.0	0.0031	0.0079
	16	18,000	118.1	0.0079	0.0079	14,000	98.4	0.0079	0.0079	10,000	51.2	0.0031	0.0079
	20	16,000	102.4	0.0079	0.0079	14,000	90.6	0.0079	0.0079	8,000	39.4	0.0031	0.0079
	30	14,000	86.6	0.0039	0.0039	12,000	74.8	0.0039	0.0039	5,000	24.8	0.0031	0.0079
	40	9,000	47.2	0.0020	0.0020	8,000	39.4	0.0020	0.0020	4,000	15.7	0.0020	0.0039
	50	6,500	26.0	0.0008	0.0008	6,000	23.6	0.0008	0.0008	3,600	11.0	0.0008	0.0020
5.0	10	25,000	212.6	0.0098	0.0197	19,000	157.5	0.0098	0.0197	16,000	110.2	0.0039	0.0098
	20	16,000	129.9	0.0098	0.0197	13,000	106.3	0.0098	0.0197	8,000	51.2	0.0039	0.0098
	30	14,000	90.6	0.0039	0.0118	11,000	70.9	0.0039	0.0118	4,000	20.5	0.0039	0.0098
	40	10,000	43.3	0.0039	0.0079	9,000	39.0	0.0039	0.0079	3,000	10.2	0.0039	0.0079
	50	7,500	29.9	0.0039	0.0039	7,000	24.0	0.0039	0.0039	2,800	7.5	0.0039	0.0039
6.0	12	20,000	204.7	0.0118	0.0197	16,000	133.9	0.0118	0.0197	13,500	98.4	0.0039	0.0079
	20	16,000	153.5	0.0118	0.0197	12,000	118.1	0.0118	0.0197	8,000	63.0	0.0039	0.0079
	30	10,000	94.5	0.0118	0.0197	9,000	82.7	0.0118	0.0197	4,000	29.1	0.0039	0.0079
	40	9,000	74.8	0.0079	0.0118	9,000	70.9	0.0079	0.0118	3,000	18.9	0.0039	0.0079
	50	7,000	59.1	0.0079	0.0118	7,000	55.1	0.0079	0.0118	2,500	15.7	0.0039	0.0079

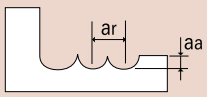
List 4430: True 4 Flute, Ball End, Regular Length

Standard Milling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Hardened Steels Pre-hardened Steels		Hardened Steels Pre-hardened Steels		Hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	690 SFM		540 SFM		500 SFM		410 SFM		390 SFM		320 SFM	
Depth of Cut	a_a=0.05D a_r=0.1D 				a_a=0.03D a_r=0.1D				a_a=0.02D a_r=0.1D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	10,500	182	8,190	140	7,699	126	6,313	93	5,871	80	4,873	67
5/16	8,400	165	6,500	127	6,110	108	5,010	77	4,659	66	4,100	55
3/8	7,000	160	5,460	123	5,132	105	4,209	74	3,914	64	3,444	51
1/2	5,200	130	4,050	100	3,807	85	3,122	60	2,903	52	2,555	52

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

High Feed Milling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Hardened Steels Pre-hardened Steels		Hardened Steels Pre-hardened Steels		Hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	1080 SFM		870 SFM		820 SFM		670 SFM		625 SFM		550 SFM	
Depth of Cut	a_a=0.05D a_r=0.05D 				a_a=0.03D a_r=0.05D				a_a=0.02D a_r=0.05D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	17,000	295	13,260	227	12,464	205	10,221	151	9,505	130	7,889	108
5/16	13,590	276	10,600	212	9,964	180	8,171	128	7,599	110	6,687	91
3/8	11,300	256	8,814	197	8,285	167	6,794	119	6,318	102	5,560	82
1/2	8,520	215	6,646	165	6,247	140	5,122	100	4,764	86	4,192	86

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

List 4530: True 4 Flute, Ball End, Regular Length

Standard Milling

Hardness	<30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Hardened Steels Pre-hardened Steels		Hardened Steels Pre-hardened Steels		Hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	740 SFM		570 SFM		540 SFM		440 SFM		410 SFM		340 SFM	
Depth of Cut	a_a=0.05D a_r=0.1D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
6	11,900	207	9,280	154	8,750	139	7,160	103	6,630	85	5,480	70
8	8,950	180	6,960	141	6,570	119	5,370	87	4,970	75	4,380	62
10	7,160	163	5,570	126	5,250	106	4,300	76	3,980	65	3,500	53
12	5,970	150	4,640	117	4,380	99	3,580	70	3,320	60	2,920	44

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

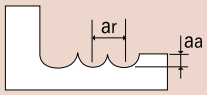
High Feed Milling

Hardness	<30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Hardened Steels Pre-hardened Steels		Hardened Steels Pre-hardened Steels		Hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	1,100 SFM		1,050 SFM		1,010 SFM		850 SFM		690 SFM		630 SFM	
Depth of Cut	a_a=0.02D a_r=0.05D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
6	18,000	314	17,000	283	16,400	261	13,800	198	11,100	143	10,100	122
8	13,500	273	12,700	257	12,300	224	10,300	167	8,360	126	7,560	107
10	10,800	245	10,200	231	9,870	199	8,280	146	6,680	109	6,050	91
12	9,020	227	8,490	214	8,220	187	6,900	135	5,570	101	5,040	76

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

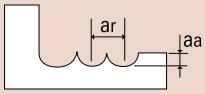
List 4413: Ball Nose, Regular Length, 2 Flute, Sphere Type

Profiling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels Pre-hardened Steels		Stainless Steels Pre-hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	720 SFM		640 SFM		580 SFM		560 SFM		520 SFM		440 SFM	
Depth of Cut	a_a=0.05D a_r=0.1D 								a_a=0.02D a_r=0.1D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	48.9	25,000	43.0	25,000	43.0	25,000	43.0	25,000	43.0	25,000	39.9
3/32	25,000	83.7	25,000	65.9	23,650	62.3	22,800	60.1	21,200	55.8	17,950	45.9
1/8	22,000	98.2	19,550	71.0	17,700	61.2	17,100	57.0	15,900	53.6	13,450	44.0
3/16	14,650	91.2	13,050	72.0	11,800	63.9	11,400	59.8	10,600	56.1	8,950	48.1
1/4	11,000	85.6	9,800	71.9	8,850	66.0	8,550	63.0	7,950	58.8	6,700	49.1
5/16	8,800	70.7	7,800	53.6	7,100	48.5	6,850	47.2	6,350	43.0	5,400	37.8
3/8	7,350	59.1	6,500	42.2	5,900	38.8	5,700	38.5	5,300	35.6	4,500	30.3
1/2	5,500	47.2	4,900	31.0	4,450	29.5	4,300	30.0	3,950	28.0	3,350	22.7

List 4513: Ball Nose, Regular Length, 2 Flute, Sphere Type

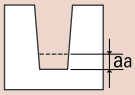
Profiling

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Tool		Hardened Steels Pre-hardened Steels		Stainless Steels Pre-hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	720 SFM		640 SFM		580 SFM		470 SFM		520 SFM		440 SFM	
Depth of Cut	a_a=0.05D a_r=0.1D								a_a=0.02D a_r=0.1D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	26.5	25,000	26.5	25,000	26.5	25,000	26.5	25,000	26.5	25,000	23.3
2	25,000	70.3	24,000	53.1	24,000	53.1	23,500	51.2	24,000	53.1	22,000	47.2
4	17,500	98.4	15,500	70.9	14,000	61.0	11,500	49.2	12,500	53.1	11,000	45.3
5	14,000	91.5	12,400	71.9	11,250	64.0	10,900	60.0	10,100	56.1	8,550	48.3
6	11,500	84.6	10,500	72.8	9,500	66.9	7,950	55.1	8,450	59.1	7,400	51.2
8	8,750	70.9	7,950	55.1	7,150	49.2	5,950	41.3	6,350	43.3	5,550	39.2
10	7,000	59.1	6,350	43.3	5,700	39.4	4,750	33.7	5,050	35.6	4,450	31.5

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant.

List 4581: 4 Flute, Ball End, Tapered

Slotting

Hardness	<20 HRC			20-30 HRC			30-38 HRC			38-45 HRC			45-55 HRC		
Work Material	Mild Steels Carbon Steels Cast Iron			Alloy Steels Tool Steels			Hardened Steels Pre-hardened Steels			Stainless Steels Hardened Steels			Hardened Steels		
Cutting Speed	400 SFM			330 SFM			300 SFM			240 SFM			160 SFM		
Depth of Cut															
Mill Dia.	Speed RPM	Feed in/min	aa	Speed RPM	Feed in/min	aa	Speed RPM	Feed in/min	aa	Speed RPM	Feed in/min	aa	Speed RPM	Feed in/min	aa
0.5	25,000	20.0	0.0004	25,000	20.0	0.0004	25,000	20.0	0.0004	25,000	20.0	0.0004	25,000	10.0	0.0002
0.6	25,000	42.5	0.0009	25,000	42.5	0.0009	25,000	42.5	0.0009	25,000	42.5	0.0009	25,000	22.5	0.0005
0.7	25,000	65.0	0.0013	25,000	65.0	0.0013	25,000	65.0	0.0013	25,000	65.0	0.0013	22,178	31.0	0.0007
0.8	25,000	87.5	0.0018	25,000	87.5	0.0018	25,000	87.5	0.0018	25,000	87.5	0.0018	19,406	36.9	0.0010
0.9	25,000	110.0	0.0022	25,000	110.0	0.0022	25,000	110.0	0.0022	25,000	110.0	0.0022	17,249	41.4	0.0012
1.0	25,000	132.5	0.0027	25,000	132.5	0.0027	25,000	132.5	0.0027	23,287	123.4	0.0027	15,524	45.0	0.0015
1.2	25,000	155.0	0.0031	25,000	155.0	0.0031	24,257	150.4	0.0031	19,406	120.3	0.0031	12,937	44.0	0.0017
1.5	25,000	177.5	0.0036	21,346	151.6	0.0036	19,406	137.8	0.0036	15,524	110.2	0.0036	10,350	40.4	0.0020
1.6	24,257	194.1	0.0040	20,012	160.1	0.0040	18,193	145.5	0.0040	14,554	116.4	0.0040	9,703	42.7	0.0022
1.8	21,562	191.9	0.0045	17,788	158.3	0.0045	16,171	143.9	0.0045	12,937	115.1	0.0045	8,625	42.3	0.0025
2.0	19,406	190.2	0.0049	16,010	156.9	0.0049	14,554	142.6	0.0049	11,643	114.1	0.0049	7,762	41.9	0.0027
2.5	15,524	166.1	0.0054	12,808	137.0	0.0054	11,643	124.6	0.0054	9,315	99.7	0.0054	6,210	36.6	0.0030
3.0	12,937	150.1	0.0058	10,673	123.8	0.0058	9,703	112.6	0.0058	7,762	90.0	0.0058	5,175	33.1	0.0032

1. To achieve flute depth, sequential use of each neck length is most effective.
2. When corner processing, reduce the feed rate by approximately half.
3. Use cutting fluid.

List 4541: 4 & 6 Flute, Corner Radius, Regular Length

Standard Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC		65-70 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels							
Depth of Cut	Dia / aa / ar D≤1.5 / 1.5D / 0.02D 1.5<D≤2.5 / 1.5D / 0.05D 2.5<D / 1.5D / 0.1D arMax=less than 0.040"				aa=1.5D ar=0.05D arMax=Less than 0.040"		aa=1.5D ar=0.03D arMax=Less than 0.020"		aa=1D ar=0.02D arMax=Less than 0.020"			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	39.3	25,000	39.0	25,000	38.4	24,050	26.4	21,900	21.1	16,000	13.2
2	22,500	70.9	20,200	63.0	16,000	49.2	12,000	26.4	11,000	21.1	7,950	13.2
3	15,000	70.9	13,500	63.0	10,500	49.2	7,950	26.4	7,450	21.1	5,300	13.2
4	11,000	70.9	9,950	63.0	7,950	49.2	5,950	26.4	5,550	21.1	4,000	13.2
5	8,900	70.9	7,950	63.0	6,350	49.2	4,800	26.4	4,450	21.1	3,200	13.2
6	7,450	104.3	6,650	94.5	5,300	74.8	4,000	39.4	3,700	31.5	2,650	19.9
8	5,550	104.3	4,950	94.5	4,000	74.8	3,000	39.4	2,800	31.5	2,000	19.9
10	4,450	104.3	4,000	94.5	3,200	74.8	2,400	39.4	2,250	31.5	1,600	19.9
12	3,700	104.3	3,300	94.5	2,650	74.8	2,000	39.4	1,850	31.5	1,350	19.9

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant.
3. When the length of tool extension from the machine is long, reduce the speed and feed.

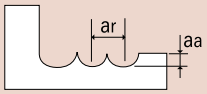
High Feed Milling

Hardness	<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC		65-70 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steels Hardened Steels Pre-hardened Steels		Hardened Steels							
Depth of Cut	aa=1D ar=0.05D arMax=Less than 0.020"				aa=1D ar=0.03D arMax=Less than 0.020"		aa=1D ar=0.02D arMax=Less than 0.008"		aa=1D ar=0.01D arMax=Less than 0.008"			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	31.5	25,000	39.4	25,000	39.4	25,000	31.5	25,000	27.9	25,000	21.9
2	25,000	67.4	25,000	78.7	25,000	78.8	25,000	63.7	24,000	53.1	16,000	31.5
3	25,000	106.0	25,000	116.9	25,000	118.9	17,000	65.0	16,000	53.1	10,500	31.5
4	24,000	153.5	24,000	149.6	20,000	126.0	12,500	65.0	12,000	53.1	7,950	31.5
5	19,000	161.4	19,000	149.6	16,000	126.0	10,000	65.0	9,550	53.1	6,350	31.5
6	16,000	226.4	16,000	226.4	13,500	189.0	8,500	96.5	7,950	78.7	5,300	47.2
8	12,000	226.4	12,000	226.4	9,950	189.0	6,350	96.5	5,950	78.7	4,000	47.2
10	9,550	226.4	9,550	226.4	7,950	189.0	5,100	96.5	4,800	78.7	3,200	47.2
12	7,950	226.4	7,950	226.4	6,650	189.0	4,250	96.5	4,000	78.7	2,650	47.2

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant.
3. When the length of tool extension from the machine is long, reduce the speed and feed.

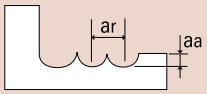
List 9010: MAX Ball, Stub Length, 2 Flute
List 9110: MAX Ball, Stub Length, 2 Flute
List 9011: MAX Ball, Long Shank, 2 Flute
List 9111: MAX Ball, Long Shank, 2 Flute

High Speed Light Milling

Hardness	<45 HRC		<50 HRC		<55 HRC		<60 HRC		<65 HRC	
Work Material	Hardened Steels		Hardened Steels		Hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	1,650 SFM		1,250 SFM		900 SFM		740 SFM		410 SFM	
Depth of Cut	Dia / a_a / a_r: D≤2: 0.6D / 0.1D; D≤4: 0.1D / 0.15D; D≤10: 0.2D / 0.2D 						Dia / a_a / a_r: D≤4: 0.05D / 0.1D; D≤10: 0.10D / 0.15D		a_a=0.02D a_r=0.1D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	100	25,000	85	25,000	76	25,000	60	25,000	19
2	25,000	175	25,000	150	25,000	130	25,000	87	20,000	63
3	25,000	175	25,000	150	25,000	130	25,000	105	15,000	57
4	25,000	159	25,000	135	22,000	130	18,000	105	10,000	53
6	25,000	157	20,000	133	15,000	118	12,000	94	6,600	47
8	20,000	138	15,000	117	11,000	104	9,000	83	5,000	41
10	15,000	125	12,000	106	8,750	94	7,200	75	4,000	38

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

High Speed Light Milling

Hardness	<45 HRC		<50 HRC		<55 HRC		<60 HRC		<65 HRC	
Work Material	Hardened Steels		Hardened Steels		Hardened Steels		Hardened Steels		Hardened Steels	
Cutting Speed	1,600 SFM		1,300 SFM		1,000 SFM		790 SFM		430 SFM	
Depth of Cut	Dia / a_a / a_r: D≤1/16: 0.6D / 0.1D; D≤1/8: 0.1D / 0.15D; D≤3/8: 0.2D / 0.2D 						Dia / a_a / a_r: D≤1/8: 0.05D / 0.1D; D≤3/8: 0.10D / 0.15D		a_a=0.02D a_r=0.1D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/32	25,000	100	25,000	85	25,000	76	25,000	60	25,000	19
1/16	25,000	150	25,000	140	25,000	120	25,000	68	20,000	57
1/8	25,000	175	25,000	150	25,000	130	25,000	105	15,000	63
3/16	25,000	159	25,000	143	17,000	125	16,000	100	9,000	50
1/4	25,000	157	20,000	133	15,000	118	12,000	94	6,600	47
5/16	20,000	138	15,000	117	11,000	104	9,000	83	5,000	41
3/8	15,000	125	12,000	106	8,750	94	7,200	75	4,000	38

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

List 9181: 2 Flute, Corner Radius, CBN, Stub Length

Standard Milling

Hardness			<50 HRC		50-60 HRC		60-68 HRC	
Work Material	Standard Depth of Cut		Hardened Steels					
Cutting Speed			258-598 SFM		258-495 SFM		196-397 SFM	
Depth of Cut (mm)			aa=1D	ar=1D	aa=0.8D	ar=0.8D	aa=0.5D	ar=0.5D
Mill Dia.	aa	ar	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.5	0.02	0.2	25,000	19.7	25,000	19.7	25,000	19.7
1.0	0.02	0.2	25,000	29.5	25,000	29.7	25,000	29.4
1.5	0.03	0.4	25,000	39.6	24,280	38.8	19,100	29.5
2.0	0.04	0.4	21,110	34.4	18,410	30.2	14,480	21.0
3.0	0.05	0.6	13,900	22.1	12,130	22.0	9,540	15.0

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. When using low speed machines, use the maximum speed and adjust feed rate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10 microns (.0004") after chucking.

List 9182: 2 Flute, Corner Radius, Long Neck, CBN, Stub Length

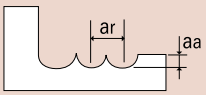
Standard Milling

Hardness			<50 HRC		50-60 HRC		60-68 HRC	
Work Material	Standard Depth of Cut		Hardened Steels					
Cutting Speed			155-361 SFM		155-309 SFM		119-240 SFM	
Depth of Cut (mm)			aa=1D	ar=1D	aa=0.5D	ar=0.5D	aa=0.4D	ar=0.4D
Mill Dia.	aa	ar	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.5	0.02	0.1	25,000	19.5	25,000	19.7	25,000	20.1
1.0	0.02	0.1	25,000	29.5	22,310	25.5	17,460	20.7
1.5	0.03	0.2	16,830	26.8	14,890	24.1	11,650	17.7
2.0	0.03	0.2	12,760	20.6	11,290	18.4	8,840	12.7
3.0	0.05	0.3	8,400	13.2	7,430	11.6	5,820	9.0

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. When using low speed machines, use the maximum speed and adjust feed rate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10 microns (.0004") after chucking.

List 9191: CBN, Ball End, Long Length, 2 Flute

Standard Milling

Hardness	30-45 HRC		45-55 HRC		55-60 HRC		60-68 HRC	
Work Material	Hardened Steels Pre-hardened Steels		Hardened Steels					
Depth of Cut	a_a=0.015D a_r=0.04D 						a_a=0.01D a_r=0.03D	
Mill Dia. (mm)	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.4	25,000	39.3	25,000	39.3	25,000	39.3	25,000	39.3
0.6	25,000	39.3	25,000	39.3	25,000	39.3	25,000	39.3
1.0	25,000	59.0	25,000	59.0	25,000	59.0	25,000	59.0
2.0	25,000	78.7	25,000	78.7	25,000	78.7	25,000	78.7
3.0	25,000	78.7	25,000	78.7	25,000	78.7	21,500	66.9

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. When using low speed machines, use the maximum speed and adjust feed rate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10 microns (.0004") after chucking.

List 9192: 2 Flute, Ball End, Super Long Neck, CBN, Stub Length

Standard Milling

Hardness	30-45 HRC		45-55 HRC		55-60 HRC		60-68 HRC	
Work Material	Hardened Steels Pre-hardened Steels		Hardened Steels					
Depth of Cut	a_a=0.015D a_r=0.04D						a_a=0.01D a_r=0.03D	
Mill Dia. (mm)	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.4	25,000	39.4	25,000	39.4	25,000	39.4	25,000	39.4
0.6	25,000	39.4	25,000	39.4	25,000	39.4	25,000	39.4
1.0	25,000	59.1	25,000	59.1	25,000	59.1	25,000	59.1
2.0	25,000	78.8	25,000	78.8	25,000	78.8	25,000	76.9
3.0	25,000	78.4	25,000	78.4	25,000	78.0	21,500	66.9

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. When using low speed machines, use the maximum speed and adjust feed rate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10 microns (.0004") after chucking.

List 9140: MAX-HARD, Regular Length, 6 Flute
List 9144: MAX-HARD, Regular Length, 6 Flute, Corner Radius

Side Milling

Hardness	–	<40 HRC	40-45 HRC	45-55 HRC	55-60 HRC	60-65 HRC	65-70 HRC
Work Material	Carbon Steels Cast Iron Mild Steels	Hardened Steels Pre-hardened Steels Alloy Steels	Tool Steels Hardened Steels	Hardened Steels Alloy Steels	Hardened Steels		
Cutting Speed	460 SFM	460 SFM	410 SFM	330 SFM	250 SFM	230 SFM	165 SFM
Depth of Cut	Dia / aa / ar D=1: 1.5D / 0.02D D=2: 1.5D / 0.05D D>2: 1.5D / 0.10D arMax=1.0mm 			aa=1.5D ar=0.05D arMax=1.0mm	aa=1.5D ar=0.03D arMax=0.5mm	aa=1.0D ar=0.02D arMax=0.5mm	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	20,000	31.5	20,000	31.5	20,000	31.5	20,000	31.5	20,000	22.0	20,000	18.9	16,000	13.4
2	20,000	63.0	20,000	63.0	20,000	63.0	16,000	49.2	12,000	26.4	11,000	21.1	7,950	13.4
3	15,000	70.9	15,000	70.9	13,500	63.0	10,500	49.2	7,950	26.4	7,450	21.1	5,300	13.4
4	11,000	70.9	11,000	70.9	9,950	63.0	7,950	49.2	5,950	26.4	5,550	21.1	4,000	13.4
5	8,900	70.9	8,900	70.9	7,950	63.0	6,350	49.2	4,750	26.4	4,450	21.1	3,200	13.4
6	7,450	104.3	7,450	104.3	6,650	94.5	5,300	74.8	4,000	39.4	3,700	31.5	2,650	19.9
8	5,550	104.3	5,550	104.3	4,950	94.5	4,000	74.8	3,000	39.4	2,800	31.5	2,000	19.9
10	4,450	104.3	4,450	104.3	4,000	94.5	3,200	74.8	2,400	39.4	2,250	31.5	1,600	19.9
12	3,700	104.3	3,700	104.3	3,300	94.5	2,650	74.8	2,000	39.4	1,850	31.5	1,350	19.9

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow or MQL (Mist).
3. When using low speed machines, use the maximum speed and adjust feedrate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10 microns (0.0004")

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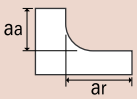
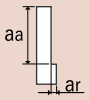
High Speed Light Milling

Hardness	–		<40 HRC		40-45 HRC		45-55 HRC		55-60 HRC		60-65 HRC		65-70 HRC	
Work Material	Carbon Steels Cast Iron Mild Steels		Hardened Steels Pre-hardened Steels Alloy Steels		Tool Steels Hardened Steels		Hardened Steels Alloy Steels		Hardened Steels					
Cutting Speed	1030 SFM		985 SFM		985 SFM		820 SFM		525 SFM		490 SFM		330 SFM	
Depth of Cut	a_a=1.0D a_r=0.05D arMax=0.8mm		a_a=1.0D a_r=0.05D arMax=0.5mm				a_a=1.0D a_r=0.03D arMax=0.5mm		a_a=1.0D a_r=0.02D arMax=0.2mm		a_a=1.0D a_r=0.01D arMax=0.2mm			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25000	31.5	25000	31.5	25000	39.4	25000	39.4	25000	31.5	25000	28.0	25000	22.0
2	25000	66.9	25000	67.3	25000	78.7	25000	78.7	25000	63.7	24000	53.1	16000	31.5
3	25000	105.7	25000	106.1	25000	116.9	25000	118.9	17000	65.0	16000	53.1	10500	31.5
4	25000	162.1	24000	153.5	24000	149.6	20000	126.0	12500	65.0	12000	53.1	7950	31.5
5	20500	173.2	19000	161.4	19000	149.6	16000	126.0	10000	65.0	9550	53.1	6350	31.5
6	17000	240.2	16000	226.4	16000	226.4	13500	189.0	8500	96.5	7950	78.7	5300	47.2
8	12500	240.2	12000	226.4	12000	226.4	9950	189.0	6350	96.5	5950	78.7	4000	47.2
10	10000	240.2	9550	226.4	9550	226.4	7950	189.0	5100	96.5	4800	78.7	3200	47.2
12	8500	240.2	7950	226.4	7950	226.4	6650	189.0	4250	96.5	4000	78.7	2650	47.2

1. Use a rigid and precise machine and holder.
2. We suggest using an air blow or MQL (Mist).
3. When using low speed machines, use the maximum speed and adjust feedrate.
4. During heavy load operations such as corner processing, reduce the speed and feed.
5. The run out of the end mill should be within 10 microns (0.0004")

List 7020: Stub Length, 2 Flute
List 7120: Regular Length, 2 Flute
List 7040: Inch, Stub Length, 4 Flute
List 7041: Long Length, 4 Flute
List 7042: Stub Length, 4 Flute, Long Shank
List 7072: Inch, Stub Length, 4 Flute, Long Shank, Corner Radius
List 7010: Long Length, 2 Flute
List 7110: Ball End, Regular Length, 2 Flute
List 7030: Ball End, Regular Length, 4 Flute
List 7031: Ball End, Long Length, 4 Flute
List 7032: Inch, Ball End, Stub Length, 4 Flute, Long Shank
List 7173: Metric, Ball End, Stub Length, 4 Flute, Long Shank
List 7132: Metric, Stub Length, 4 Flute, Long Shank, Corner Radius
List 7140: Metric, Stub Length, 4 Flute

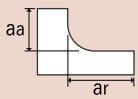
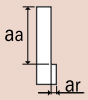
Standard

Work Material	Graphite		Green Ceramic Thermoset Plastic		Fiber Filler Plastics	
Cutting Speed	160-300 SFM		80-140 SFM		130-800 SFM	
Depth of Cut	Dia / aa / ar: D≤1/8: 0.02D / 0.05D; D>1/8: 0.10D / 0.20D 		Dia / aa / ar: D≤1/8: 0.5D / 0.05D; D>1/8: 1D / 0.1D 			
Mill Dia.	Speed RPM	Feed in/tooth	Speed RPM	Feed in/tooth	Speed RPM	Feed in/tooth
1/32	25,000	0.0005–0.0010	13,450	0.0005–0.0010	25,000	0.0004–0.0008
1/16	14,060	0.0010–0.0020	6,720	0.0010–0.0020	25,000	0.0010–0.0020
3/32	9,370	0.0010–0.0020	4,480	0.0010–0.0020	19,560	0.0010–0.0020
1/8	7,030	0.0010–0.0020	3,360	0.0010–0.0020	14,670	0.0010–0.0020
3/16	4,690	0.0010–0.0020	2,240	0.0010–0.0020	9,780	0.0010–0.0020
1/4	3,510	0.0020–0.0040	1,680	0.0020–0.0040	7,330	0.0015–0.0030
5/16	2,810	0.0020–0.0040	1,350	0.0020–0.0040	5,870	0.0020–0.0040
3/8	2,340	0.0030–0.0050	1,120	0.0030–0.0050	4,890	0.0030–0.0050
1/2	1,760	0.0030–0.0050	840	0.0030–0.0050	3,670	0.0030–0.0050

1. Please reduce speed and feed by 20% when L/D>3D.
2. Please reduce speed and feed by 30% when slotting > 0.5D.
3. Please reduce depth of cut if running at elevated speed and feed.

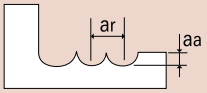
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Standard

Work Material	Aluminum Alloys		Metal Matrix Composite (MMC, AlSiC)		Copper Alloys	
Cutting Speed	160-800 SFM		100-750 SFM		328-649 SFM	
Depth of Cut	Dia / aa / ar D≤1/8: 0.02D / 0.05D D>1/8: 0.10D / 0.20D		Dia / aa / ar D≤1/8: 0.5D / 0.05D D>1/8: 1D / 0.1D			
Mill Dia.	Speed RPM	Feed in/tooth	Speed RPM	Feed in/tooth	Speed RPM	Feed in/tooth
1/32	25,000	0.0004–0.0008	25,000	0.0004–0.0008	25,000	0.0004–0.0008
1/16	25,000	0.0010–0.0020	25,000	0.0010–0.0020	25,000	0.0010–0.0020
3/32	19,560	0.0010–0.0020	17,320	0.0010–0.0020	19,890	0.0010–0.0020
1/8	14,670	0.0010–0.0020	12,990	0.0010–0.0020	14,910	0.0010–0.0020
3/16	9,780	0.0010–0.0020	8,660	0.0010–0.0020	9,940	0.0010–0.0020
1/4	7,330	0.0015–0.0030	6,500	0.0015–0.0030	7,460	0.0015–0.0030
5/16	5,870	0.0020–0.0040	5,200	0.0020–0.0040	5,960	0.0020–0.0040
3/8	4,890	0.0030–0.0050	4,330	0.0030–0.0050	4,970	0.0030–0.0050
1/2	3,670	0.0030–0.0050	3,250	0.0030–0.0050	3,730	0.0030–0.0050

List 7230: Ball End, Long Reach, 2 & 4 Flute
List 7231: Ball End, Regular Length, 2 & 4 Flute, Long Reach

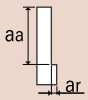
Side Milling

Work Material	Graphite		
Cutting Speed	160-300 SFM		
Depth of Cut	Dia: D≤1/8 — aa 0.02D, ar 0.05D; D>1/8 — aa 0.10D, ar 0.20D 		
Mill Dia.	**Style**	**Speed RPM**	**Feed in/tooth**
1/64	Regular	25,000	0.0002–0.0005
1/64	Long	25,000	0.0001–0.0003
1/32	Regular	25,000	0.0005–0.0010
1/32	Long	25,000	0.0003–0.0007
1/16	Regular	14,000	0.0010–0.0020
1/16	Long	13,700	0.0006–0.0012
3/32	Regular	9,500	0.0010–0.0020
3/32	Long	9,300	0.0006–0.0012
1/8	Regular	7,000	0.0010–0.0020
1/8	Long	6,850	0.0006–0.0012
3/16	Regular	4,700	0.0010–0.0020
3/16	Long	4,600	0.0006–0.0012
1/4	Regular	3,500	0.0020–0.0040
1/4	Long	3,430	0.0012–0.0024

1. Please reduce speed and feed by 20% when L/D>3D.
2. Please reduce speed and feed by 30% when slotting > 0.5D.
3. Please reduce depth of cut if running at elevated speed and feed.

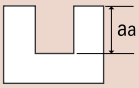
List 2050: Regular Length, 4 Flute
List 2052: Regular Length, 4 Flute, Corner Radius

Side Milling

Hardness	–		<30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		–	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Pre-hardened Steels Tool Steels		Hardened Steels Pre-hardened Steels		Stainless Steels Hardened Steels		Stainless Steels Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Depth of Cut	a_a=1.5D a_r=0.2D						a_a=1.5D a_r=0.1D		a_a=1.5D a_r=0.05D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	11,900	41.2	9,075	30.0	7,640	23.2	7,275	23.0	7,030	20.4	3,600	8.2
3/16	8,395	54.0	6,500	43.7	5,540	30.0	5,215	32.1	5,075	27.9	2,590	10.1
1/4	6,420	60.0	4,965	44.6	4,220	33.2	3,970	31.0	3,850	26.0	1,985	9.3
5/16	5,135	62.0	4,000	43.8	3,385	32.3	3,180	32.2	3,080	26.9	1,590	8.8
3/8	4,280	59.5	3,330	43.0	2,820	29.8	2,650	29.2	2,570	26.2	1,325	9.0
7/16	3,670	59.4	2,855	42.4	2,420	29.5	2,270	28.8	2,200	25.5	1,135	9.0
1/2	3,200	51.8	2,500	37.2	2,115	26.6	1,985	25.1	1,925	22.3	995	7.9
5/8	2,565	47.5	2,000	37.0	1,695	24.9	1,590	21.8	1,540	19.8	795	8.6
3/4	2,140	40.5	1,665	30.9	1,410	24.2	1,325	21.5	1,285	18.6	660	8.2
1	1,605	33.7	1,250	26.6	1,060	20.2	995	18.9	965	15.2	495	7.0

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.

Slotting

Hardness	–		<30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		–	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Pre-hardened Steels Tool Steels		Hardened Steels Pre-hardened Steels		Stainless Steels Hardened Steels		Stainless Steels Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Depth of Cut	a_a=1D						a_a=0.5D		a_a=0.2D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	9,932	26.8	8,098	25.1	7,487	20.2	7,029	17.6	6,876	17.2	2,414	5.1
3/16	6,621	31.1	5,399	31.3	4,991	22.5	4,686	22.0	4,584	21.5	1,609	6.0
1/4	4,966	28.3	4,049	23.9	3,744	21.7	3,514	21.8	3,438	21.0	1,207	5.7
5/16	3,973	24.2	3,239	22.0	2,995	21.9	2,812	20.8	2,750	20.4	966	6.3
3/8	3,311	24.5	2,699	22.9	2,496	19.7	2,343	19.2	2,292	18.6	805	5.9
7/16	2,838	22.7	2,314	24.3	2,139	18.2	2,008	17.7	1,965	17.5	690	5.8
1/2	2,483	21.1	2,025	17.8	1,872	17.6	1,757	16.7	1,719	16.5	604	5.6
5/8	1,986	22.2	1,620	17.2	1,497	14.7	1,406	14.6	1,375	14.6	483	4.4
3/4	1,655	19.9	1,350	15.4	1,248	14.4	1,171	13.7	1,146	13.4	402	4.5
1	1,242	17.8	1,012	14.7	936	12.4	879	11.2	860	9.3	302	4.2

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant.
4. When length of the tool extension from the machine is long, reduce the speed and feed.

List 3815 & 3915: 4 Flute, Low Helix, Corner Chamfer
List 3820 & 3920: 4 Flute, High Helix, Corner Chamfer
List 3825: Long Neck, 4 Flute, Low Helix, Corner Chamfer
List 3830: Long Neck, 4 Flute, High Helix, Corner Chamfer

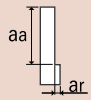
Side Milling

Hardness		–		–		<30 HRC		<45 HRC		–		–	
Work Material		Cast Iron		Mild Steels Carbon Steels		Alloy Steels Tool Steels		Hardened Steel Pre-hardened Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V	
Depth of Cut		aa≤1.5D ar≤0.3D 											
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
–	6	4,770	24.0	6,370	27.9	4,770	15.7	4,240	12.9	3,710	11.4	2,650	7.0
1/4	–	4,510	26.8	6,020	34.6	4,510	18.1	4,005	15.2	3,500	13.9	2,510	8.2
5/16	–	3,610	36.1	4,825	38.4	3,610	21.4	3,210	18.6	2,810	15.1	2,010	9.3
–	8	3,580	37.0	4,770	42.9	3,580	24.0	3,180	20.1	2,790	17.7	1,990	10.6
3/8	–	3,005	37.3	4,015	43.1	3,005	24.3	2,670	20.1	2,340	17.7	1,670	10.6
–	10	2,860	37.4	3,820	43.3	2,860	24.4	2,550	20.1	2,230	17.7	1,590	10.6
–	12	2,390	33.8	3,180	38.9	2,390	22.0	2,120	18.1	1,860	16.1	1,330	9.8
1/2	–	2,250	33.5	3,010	38.6	2,250	21.8	2,005	18.0	1,750	15.9	1,260	9.7
–	14	2,045	33.2	2,730	38.3	2,045	21.6	1,820	17.9	1,560	15.7	1,140	9.6
5/8	–	1,800	32.8	2,410	38.0	1,800	21.4	1,610	17.8	1,400	15.5	1,010	9.5
–	16	1,790	32.2	2,390	37.7	1,790	21.2	1,590	17.7	1,390	15.3	990	9.4
–	18	1,590	31.4	2,130	36.9	1,590	21.0	1,420	17.3	1,240	14.9	890	9.1
3/4	–	1,500	30.9	2,010	36.1	1,500	19.8	1,340	16.9	1,170	14.5	840	8.8
–	20	1,430	30.3	1,910	35.0	1,430	19.6	1,280	16.5	1,110	14.1	800	8.6
–	25	1,145	25.6	1,530	28.8	1,145	16.8	1,020	15.3	890	13.3	640	7.7
1	–	1,127	25.2	1,505	28.2	1,127	16.3	1,000	15.0	875	12.8	630	7.4

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properites.
4. During Dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

continued on next page

Slotting

Hardness		–		–		<30 HRC		<45 HRC		–		–	
Work Material		Cast Iron		Mild Steels Carbon Steels		Alloy Steels Tool Steels		Hardened Steel Pre-hardened Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V	
Depth of Cut		$a_a \leq 1D$ a_r Max = 0.472 											
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
–	6	3,710	16.9	5,840	22.8	4,240	12.5	3,710	10.2	3,180	8.6	2,120	5.1
1/4	–	3,500	17.4	5,520	23.4	4,005	12.8	3,500	10.6	3,010	8.9	2,005	5.2
5/16	–	2,805	17.9	4,420	24.7	3,210	13.4	2,805	10.9	2,415	9.4	1,605	5.4
–	8	2,790	18.5	4,380	25.5	3,180	13.7	2,790	11.4	2,390	9.8	1,590	5.5
3/8	–	2,340	19.4	3,680	26.5	2,670	14.3	2,340	11.8	2,010	10.2	1,335	5.7
–	10	2,230	20.0	3,500	27.5	2,550	14.9	2,230	12.2	1,910	10.6	1,270	5.9
–	12	1,860	18.5	2,920	25.1	2,120	13.7	1,860	11.4	1,590	9.4	1,060	5.5
1/2	–	1,750	18.4	2,760	25.0	2,005	13.6	1,750	11.3	1,505	9.4	1,000	5.5
–	14	1,590	18.3	2,505	24.9	1,820	13.5	1,590	11.2	1,370	9.4	910	5.5
5/8	–	1,400	18.2	2,210	24.8	1,600	13.4	1,400	11.1	1,205	9.4	805	5.5
–	16	1,390	18.1	2,190	24.8	1,590	13.3	1,390	11.0	1,190	9.4	800	5.5
–	18	1,240	17.9	1,950	24.5	1,415	13.2	1,240	10.8	1,065	9.2	710	5.4
3/4	–	1,170	17.6	1,840	24.3	1,335	13.0	1,170	10.7	1,005	9.1	670	5.2
–	20	1,110	17.3	1,750	24.0	1,270	12.9	1,110	10.6	950	9.0	640	5.1
–	25	890	16.8	1,400	23.3	1,020	12.1	890	9.8	765	8.2	510	4.7
1	–	875	16.6	1,380	22.6	1,000	11.7	875	9.6	755	7.9	500	4.6

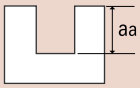
1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when cutting depth is large or when machines with low rigidity are used.
3. Please use a suitable fluid with high smoke retardant properites.
4. During Dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

List 2015: Regular Length, 4 Flute, Roughing

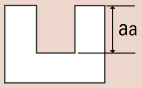
Side Milling

Hardness	35-45 HRC		45-55 HRC		<40 HRC		>40 HRC		–	
Work Material	Stainless Steel		Stainless Steel		Titanium		Titanium		Inconel, Waspaloy, Hastelloy	
Cutting Speed	450-490 SFM		310-350 SFM		210-240 SFM		150-165 SFM		80-90 SFM	
Depth of Cut	a_a=1.5D a_r=0.4D 		a_a=1.5D a_r=0.33D				a_a=1.5D a_r=0.25D		a_a=1.0D a_r=0.20D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	7,181	28.7	5,040	16.1	3,440	22.0	2,408	12.5	1,300	3.1
3/8	4,788	30.6	3,360	17.5	2,294	19.3	1,605	11.6	867	3.5
1/2	3,590	30.2	2,520	16.1	1,720	17.8	1,204	11.1	650	3.1
5/8	2,873	29.9	2,016	16.9	1,376	19.8	963	11.9	520	3.3
3/4	2,394	32.6	1,680	17.5	1,147	18.4	802	12.5	433	3.5
1	1,795	25.8	1,260	14.6	860	14.8	602	9.6	325	2.9

Slotting

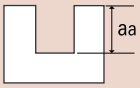
Hardness	35-45 HRC		45-55 HRC		<40 HRC		>40 HRC		–	
Work Material	Stainless Steel		Stainless Steel		Titanium		Titanium		Inconel, Waspaloy, Hastelloy	
Cutting Speed	450-490 SFM		310-350 SFM		210-240 SFM		150-165 SFM		80-90 SFM	
Depth of Cut	a_a=0.5D 						a_a=0.3D		a_a=0.25D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	7,181	23.0	5,040	12.9	3,440	17.6	2,408	10.0	1,300	2.5
3/8	4,788	24.5	3,360	14.0	2,294	15.4	1,605	9.3	867	2.8
1/2	3,590	24.2	2,520	12.9	1,720	14.3	1,204	8.9	650	2.5
5/8	2,873	23.9	2,016	13.5	1,376	15.9	963	9.5	520	2.7
3/4	2,394	26.0	1,680	14.0	1,147	14.7	802	10.0	433	2.8
1	1,795	20.7	1,260	11.7	860	11.8	602	7.7	325	2.5

List 2100: 5 Flute, Square End
List 2106: 5 Flute, Corner Radius
List 2102: 5 Flute, Regular Length, Reduced Neck, Square End
List 2108: 5 Flute, Regular Length, Reduced Neck, Corner Radius

	Side Milling		Slotting	
Cutting Speed	**200-265 SFM**		**100-165 SFM**	
Depth of Cut	$a_a \leq 1.8D$ $a_r = 0.2D$ 		$a_a \leq 1D$ 	
Mill Dia.	**Speed RPM**	**Feed in/min**	**Speed RPM**	**Feed in/min**
1/2	1,800	31.9	1,030	10.2
5/8	1,435	25.5	825	8.2
3/4	1,200	25.7	700	8.3
1	900	19.7	515	6.0

1. Use a rigid and precise machine and holder.
2. The above cutting conditions are to be used as general guidelines. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
3. Water soluble coolant is highly recommended.

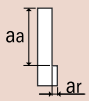
List 2104: 5 Flute, Regular Length, Reduced Neck, Square End
List 2110: 5 Flute, Regular Length, Reduced Neck, Corner Radius

	Side Milling		Slotting	
Cutting Speed	200-265 SFM		100-165 SFM	
Depth of Cut	$a_a \leq 1.8D$ $a_r = 0.2D$ 		$a_a \leq 1D$ 	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min
12	1,900	33.7	1,100	10.8
16	1,400	24.8	820	8.1
20	1,100	23.6	655	7.7
25	900	19.7	525	6.2

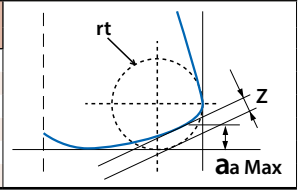
1. Use a rigid and precise machine and holder.
2. The above cutting conditions are to be used as general guidelines. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
3. Water soluble coolant is highly recommended.

List 2080: 6 & 8 Flute, Inch
List 2081: 6 & 8 Flute, Metric

Contour Milling

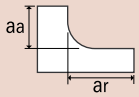
Work Material	Titanium Alloy (Ti-6Al-4V)
Cutting Speed	165 - 330 SFM
Depth of Cut	$a_a \leq 0.035D$ $a_r \leq 0.39D$ 

Mill Dia. in	Mill Dia. mm	Speed RPM	Feed in/min	Ramping Angle	R (rt)	Z
5/8	-	1,500	164	2°	0.031	0.016
-	16	1,490	175		0.033	0.018
3/4	-	1,250	132		0.037	0.021
-	20	1,190	140		0.039	0.022
-	25	850	189		0.047	0.029
1	-	935	192		0.049	0.030

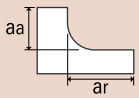


1. During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.
2. Using water soluble coolant is highly recommended.

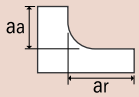
List 2863: 2 Flute, Stub Length, Corner Radius

Work Material	Aluminum Alloy	
Cutting Speed	3,280 - 9,840 SFM	
Depth of Cut	a_a 0.6D, a_r 1D 	
Mill Dia.	**Speed RPM**	**Feed in/min**
1/2	≤33000	≤360 IPM
5/8	≤33000	≤470 IPM
3/4	≤33000	≤590 IPM
1	≤33000	≤590 IPM

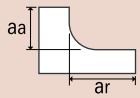
List 2963: 2 Flute, Stub Length, Corner Radius

Work Material	Aluminum Alloy	
Cutting Speed	3,280 - 9,840 SFM	
Depth of Cut	a_a 0.6D, a_r 1D 	
Mill Dia.	**Speed RPM**	**Feed in/min**
12	≤33000	≤360 IPM
16	≤33000	≤470 IPM
20	≤33000	≤590 IPM
25	≤33000	≤590 IPM

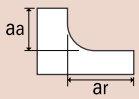
List 2873: 3 Flute, Stub Length

Work Material	Aluminum Alloy	
Depth of Cut	aa 0.4D, ar 1D 	
Mill Dia.	Speed RPM	Feed in/min
5/8	≤33000	≤790 IPM
3/4	≤33000	≤1010 IPM
1	≤33000	≤1280 IPM

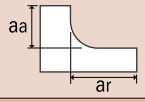
List 2973: 3 Flute, Stub Length

Work Material	Aluminum Alloy	
Depth of Cut	aa 0.4D, ar 1D 	
Mill Dia.	Speed RPM	Feed in/min
20	≤33000	≤1010 IPM
25	≤33000	≤1280 IPM

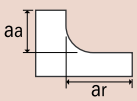
List 2874: 3 Flute, Stub Length, Coolant-Through

Work Material	Aluminum Alloy	
Depth of Cut	aa 0.4D, ar 1D 	
Mill Dia.	Speed RPM	Feed in/min
3/4	≤33000	≤1010 IPM
1	≤33000	≤1280 IPM

List 2974: 3 Flute, Stub Length, Coolant-Through

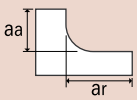
Work Material	Aluminum Alloy	
Depth of Cut	a_a: 0.4D; a_r: 1D 	
Mill Dia.	**Speed RPM**	**Feed in/min**
20	≤33000	≤1010 IPM
25	≤33000	≤1280 IPM

List 2843: 3 Flute, Long Length

Work Material	Aluminum Alloy	
Cutting Speed	3,280 SFM - 9,840 SFM	
Depth of Cut		
Mill Dia.	**Speed RPM**	**Feed in/min**
1/2	≤14000	≤157 IPM
5/8	≤14000	≤197 IPM
3/4	≤14000	≤236 IPM
1	≤14000	≤236 IPM

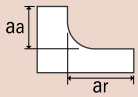
Dia	a_a	a_r
1/2	≤1.77	≤ 0.006
5/8	≤1.77	≤ 0.008
3/4	≤1.77	≤ 0.012
1	≤1.77	≤ 0.012

List 2943: 3 Flute, Long Length

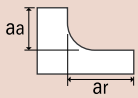
Work Material	Aluminum Alloy	
Cutting Speed	3,280 SFM - 9,840 SFM	
Depth of Cut		
Mill Dia.	**Speed RPM**	**Feed in/min**
12	≤14000	≤157 IPM
16	≤14000	≤197 IPM
20	≤14000	≤236 IPM
25	≤14000	≤236 IPM

Dia	a_a	a_r
12	≤1.77	≤ 0.006
16	≤1.77	≤ 0.008
20	≤1.77	≤ 0.012
25	≤1.77	≤ 0.012

List 2853: 3 Flute, Extra Long Length

Work Material	Aluminum Alloy	
Depth of Cut	a_a ≤ 3.74, a_r ≤ 0.008 	
Mill Dia.	Speed RPM	Feed in/min
3/4	≤14000	≤236 IPM

List 2953: 3 Flute, Extra Long Length

Work Material	Aluminum Alloy	
Depth of Cut	a_a ≤ 3.74, a_r ≤ 0.008 	
Mill Dia.	Speed RPM	Feed in/min
20	≤14000	≤236 IPM

List 2021: Stub Length - 2 Flute - Square & Corner Radius

Slotting

Work Material	Aluminum Alloys A6061, A7075		Aluminum Alloy Casting Si<13%	
Cutting Speed	1,190 SFM		1,080 SFM	
Depth of Cut	<1D Depth of Cut			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	25,000	100	25,000	100
3/16	24,400	195	22,000	175
1/4	18,300	200	16,500	180
3/8	12,200	195	11,000	175
7/16	10,400	210	9,350	190
1/2	9,100	225	8,200	200
5/8	7,300	205	6,600	185
3/4	6,100	195	5,500	175
1	4,500	180	4,050	160

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.

List 2022: Regular Length - 2 Flute - Square & Corner Radius
List 2023: Regular Length - 2 Flute - Reduced Neck
List 2024: Long Length - 2 Flute - Reduced Neck

Slotting

Work Material	Aluminum Alloys A6061, A7075		Aluminum Alloy Casting Si<13%	
Cutting Speed	990 SFM		890 SFM	
Depth of Cut	<0.6D Depth of Cut			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	25,000	100	25,000	100
3/16	20,300	160	18,300	145
1/4	15,200	170	13,700	150
3/8	10,100	160	9,100	145
7/16	8,700	175	7,800	160
1/2	7,600	190	6,800	170
5/8	6,100	170	5,500	150
3/4	5,100	160	4,600	145
1	3,800	150	3,400	135

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.

List 2041: Stub Length - 3 Flute - Square & Corner Radius

Slotting

Work Material	Aluminum Alloys A6061, A7075		
Depth of Cut	<0.5D Depth of Cut		
Mill Dia. (inch)	Speed RPM	IPT	Feed in/min
1/8	25,000	0.0014	105.0
3/16	24,400	0.0028	205.0
1/4	18,300	0.0039	211.4
3/8	12,200	0.0056	205.0
7/16	10,400	0.0070	218.4
1/2	9,100	0.0088	238.9
5/8	7,300	0.0098	214.6
3/4	6,100	0.0112	205.0
1	4,500	0.0140	189.0

List 2042: Regular Length - 3 Flute - Square & Corner Radius
List 2043: Regular Length - 3 Flute - Reduced Neck - Square & Corner Radius
List 2048: Regular Length - 3 Flute - Reduced Neck - Square & Corner Radius

Slotting

Work Material	Aluminum Alloys A6061, A7075		
Depth of Cut	<0.5D Depth of Cut		
Mill Dia.	Speed RPM	IPT	Feed in/min
1/8	25,000	0.0014	105.0
3/16	20,300	0.0028	170.5
1/4	15,200	0.0039	175.6
3/8	10,100	0.0056	169.7
7/16	8,700	0.0070	182.7
1/2	7,600	0.0088	199.5
5/8	6,100	0.0098	179.3
3/4	5,100	0.0112	171.4
1	3,800	0.0140	159.6

List 2010: Ball End, Regular Length, 2 Flute

Slotting

Work Material	Aluminum Alloy A6061, A7075		Aluminum Alloy Casting	
Cutting Speed	990 SFM		900 SFM	
Depth of Cut	<0.6D Depth of Cut			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	25,000	139.1	25,000	130.6
3/16	20,170	171.9	18,336	147.4
1/4	15,127	174.3	13,752	151.0
5/16	12,102	178.2	11,002	154.1
3/8	10,085	181.9	9,168	157.5
7/16	8,644	185.0	7,858	160.5
1/2	7,564	188.1	6,876	164.6
5/8	6,051	180.4	5,501	156.0
3/4	5,042	177.3	4,584	153.2
1	3,782	173.2	3,438	149.9

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.

Profiling

Work Material	Aluminum Alloy A6061, A7075		Aluminum Alloy Casting	
Cutting Speed	1190 SFM		1100 SFM	
Depth of Cut	Aa = 0.1D Ar = 0.2D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	25,000	139.1	25,000	130.6
3/16	24,244	206.7	22,411	180.1
1/4	18,183	209.5	16,808	184.6
5/16	14,547	214.2	13,446	188.4
3/8	12,122	218.6	11,205	192.5
7/16	10,390	222.4	9,605	196.2
1/2	9,092	226.1	8,404	201.1
5/8	7,273	216.9	6,723	190.7
3/4	6,061	213.1	5,603	187.2
1	4,546	208.2	4,202	183.2

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.

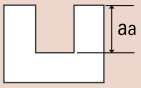
List 8120: Regular Length - 2 Flute

Side Milling

Work Material	Aluminum Alloys		Copper Alloys	
Cutting Speed	650 SFM		245 SFM	
Depth of Cut	a_a=1.5D a_r=0.1D 			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	6.8	23,500	8.7
2	25,000	12.9	11,500	8.5
3	21,000	27.6	7,950	9.8
4	15,500	28.5	5,950	11.0
5	12,500	29.9	4,750	11.6
6	10,500	32.7	3,950	12.2
8	7,950	35.0	2,950	13.8
10	6,350	39.2	2,350	14.4
12	5,300	41.3	1,950	15.4
14	4,500	41.3	1,700	15.6
16	3,950	41.3	1,450	15.4
18	3,500	41.3	1,300	15.4
20	3,150	41.3	1,150	15.2

1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.

Slotting

Work Material	Aluminum Alloys		Copper Alloys	
Cutting Speed	490 SFM		245 SFM	
Depth of Cut	a_a=1D 			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	6.8	23,500	8.7
2	23,500	12.2	11,500	8.5
3	15,500	20.3	7,950	9.8
4	11,500	21.3	5,950	11.0
5	9,500	22.6	4,750	11.6
6	7,950	24.8	3,950	12.2
8	5,950	26.2	2,950	13.8
10	4,750	29.3	2,350	14.4
12	3,950	31.1	1,950	15.4
14	3,400	31.3	1,700	15.6
16	2,950	31.3	1,450	15.4
18	2,650	31.3	1,300	15.4
20	2,350	30.9	1,150	15.2

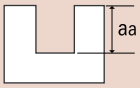
1. Use a rigid and precise machine and holder.
2. Use a water soluble cutting fluid.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.

List 2061: BNC, Nick Router
List 2066: HBC, Compression Router, 30° Helix
List 2064: HBC 45, Compression Router, 45° Helix

Side Milling

Work Material	Carbon & Glass Fiber Reinforced Plastics	
Cutting Speed	400-800 SFM	
Depth of Cut	a_a<1.5D a_r<1D 	
Drill Diameter (Inch)	Speed RPM	Feed IPR
1/8	12,200 - 24,400	0.0011 - 0.0022
3/16	8,100 - 16,300	0.0021 - 0.0042
1/4	6,100 - 12,200	0.0033 - 0.0067
5/16	5,000 - 9,800	0.0047 - 0.0093
3/8	4,100 - 8,100	0.0067 - 0.0133
1/2	3,000 - 6,100	0.0111 - 0.0222

Slotting

Work Material	Carbon & Glass Fiber Reinforced Plastics	
Cutting Speed	300-600 SFM	
Depth of Cut	a_a<1D 	
Drill Diameter (Inch)	Speed RPM	Feed IPR
1/8	9,200 - 18,300	0.0016 - 0.0020
3/16	6,100 - 12,200	0.0020 - 0.0024
1/4	4,600 - 9,200	0.004 - 0.005
5/16	3,600 - 7,300	0.006 - 0.008
3/8	3,000 - 6,100	0.009 - 0.012
1/2	2,300 - 4,600	0.012 - 0.020

1. The conditions listed above are based on approximately 1xDc thickness of part with rigid work holding.
2. Conventional cut is recommended at part side for good surface finish.
3. Milling speed can be increased by 20-50% with the use of appropriate cutting oil.
4. Please provide appropriate measures against dust (Such as vacuum dust collection).
5. Depending on the workpiece thickness and form as well as work holding, vibration may occur. When it occurs, please adjust RPM and feed rate.

Feed Reduction

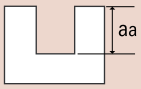
Material Thickness	Feed Reduction
≤0.25D	x80%
0.25D ~ 0.5D	x150%
0.5D ~ 1D	x120%
1D ~ 2D	x80%
2D ~ 3D	x50%

List 2068: HBC 60, Compression Router, 60° Helix
List 668: HBC 60, Compression Router, 60° Helix, Bright

Side Milling

Work Material	Carbon & Glass Fiber Reinforced Plastics		Honeycomb Structures & Aramid Fiber Reinforced Plastics	
Cutting Speed	400-800 SFM		1,000-2,600 SFM	
Depth of Cut	a_a<1.5D a_r<1D			
Drill Diameter (Inch)	Speed RPM	Feed IPR	Speed RPM	Feed IPR
1/4	6,100 - 12,200	0.0033 - 0.0067	15,300 - 39,700	0.0003 - 0.0007
3/8	4,000 - 8,100	0.0067 - 0.0133	10,100 - 26,500	0.0006 - 0.0009
1/2	3,000 - 6,100	0.0111 - 0.0222	7,600 - 19,900	0.0011 - 0.0014

Slotting

Work Material	Carbon & Glass Fiber Reinforced Plastics		Honeycomb Structures & Aramid Fiber Reinforced Plastics	
Cutting Speed	300-600 SFM		750-1,900 SFM	
Depth of Cut	a_a<1D			
Drill Diameter (Inch)	Speed RPM	Feed IPR	Speed RPM	Feed IPR
1/4	4,600 - 9,200	0.0021 - 0.0043	11,500 - 29,000	0.0002 - 0.0005
3/8	4,000 - 8,000	0.0044 - 0.0089	7,600 - 19,400	0.0007 - 0.0011
1/2	3,000 - 6,100	0.0071 - 0.0143	5,700 - 14,500	0.0013 - 0.0017

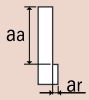
1. The conditions listed above are based on approximately 1xDc thickness of part with rigid work holding.
2. Conventional cut is recommended at part side for good surface finish.
3. Milling speed can be increased by 20-50% with the use of appropriate cutting oil.
4. Please provide appropriate measures against dust (Such as vacuum dust collection).
5. Depending on the workpiece thickness and form as well as work holding, vibration may occur. When it occurs, please adjust RPM and feed rate.
6. Kevlar laminate machinability can vary greatly by fiber and resin. If hole quality is not achieved with the feed rates provided above, reducing the feed rates may produce better quality surfaces.

Feed Reduction

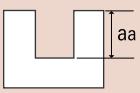
Material Thickness	Feed Reduction
≤0.25D	x80%
0.25D ~ 0.5D	x150%
0.5D ~ 1D	x120%
1D ~ 2D	x80%
2D ~ 3D	x50%

List 2680: REC, Rougher Router

Side Milling

Work Material	Carbon & Glass Fiber Reinforced Plastics	
Cutting Speed	400-800 SFM	
Depth of Cut	a_a<1.5D a_r<1D 	
Drill Diameter (Inch)	Speed RPM	Feed IPR
1/4	6,100 - 12,200	0.0067 - 0.0200
3/8	4,100 - 8,100	0.0200 - 0.0400
1/2	3,000 - 6,100	0.0333 - 0.0667

Slotting

Work Material	Carbon & Glass Fiber Reinforced Plastics	
Cutting Speed	300-600 SFM	
Depth of Cut	a_a<1D 	
Drill Diameter (Inch)	Speed RPM	Feed IPR
1/4	4,600 - 9,200	0.0064 - 0.0129
3/8	3,000 - 6,100	0.0133 - 0.0267
1/2	2,300 - 4,600	0.0214 - 0.0429

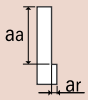
1. The conditions listed above are based on approximately 1xDc thickness of part with rigid work holding.
2. Conventional cut is recommended at part side for good surface finish.
3. Milling speed can be increased by 20-50% with the use of appropriate cutting oil.
4. Please provide appropriate measures against dust (Such as vacuum dust collection).
5. Depending on the workpiece thickness and form as well as work holding, vibration may occur. When it occurs, please adjust RPM and feed rate.

Feed Reduction

Material Thickness	Feed Reduction
≤0.25D	x80%
0.25D ~ 0.5D	x150%
0.5D ~ 1D	x120%
1D ~ 2D	x80%
2D ~ 3D	x50%

List 2650: MFR, Finishing Router

Side Milling

Work Material	Carbon & Glass Fiber Reinforced Plastics	
Cutting Speed	325-600 SFM	
Depth of Cut	a_a<1.0D a_r≤0.2D 	
Drill Diameter (Inch)	Speed RPM	Feed IPR
1/4	5,000 - 9,000	0.009 - 0.016
3/8	3,300 - 6,000	0.019 - 0.047
1/2	2,500 - 4,000	0.028 - 0.055

1. The conditions listed above are based on approximately 1xDc thickness of part with rigid work holding.
2. Conventional cut is recommended at part side for good surface finish.
3. Milling speed can be increased by 20-50% with the use of appropriate cutting oil.
4. Please provide appropriate measures against dust (Such as vacuum dust collection).
5. Depending on the workpiece thickness and form as well as work holding, vibration may occur. When it occurs, please adjust RPM and feed rate.

Feed Reduction

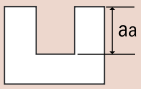
Material Thickness	Feed Reduction
≤0.25D	x80%
0.25D ~ 0.5D	x150%
0.5D ~ 1D	x120%
1D ~ 2D	x80%
2D ~ 3D	x50%

List 641R: HFR, Hand Router

Side Milling

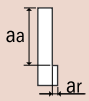
Work Material	Carbon & Glass Fiber Reinforced Plastics	
Cutting Speed	400-800 SFM	
Depth of Cut	a_a<1.5D a_r<1D 	
Drill Diameter (Inch)	Speed RPM	Feed IPR
3/16	8,100 - 16,300	0.0015 - 0.0027
1/4	6,100 - 12,200	0.0033 - 0.0067
3/8	4,100 - 8,100	0.0067 - 0.0117
1/2	3,000 - 6,100	0.0111 - 0.0222

Slotting

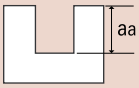
Work Material	Carbon & Glass Fiber Reinforced Plastics	
Cutting Speed	300-600 SFM	
Depth of Cut	a_a<1D 	
Drill Diameter (Inch)	Speed RPM	Feed IPR
3/16	6,100 - 12,200	0.0010 - 0.0020
1/4	4,600 - 9,200	0.0021 - 0.0043
3/8	3,100 - 6,100	0.0044 - 0.0078
1/2	2,300 - 4,600	0.0071 - 0.0143

List VG441: 4 Flute
List VG434: 4 Flute - Corner Radius
List VG436: 4 Flute - Corner Chamfer

Side Milling

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		<40 HRC		<45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	400-500 SFM		300-400 SFM		200-350 SFM		200-250 SFM		175-225 SFM		150-250 SFM		100-135 SFM	
Depth of Cut	Aa=1.5D Ar=0.5D 						Aa=1.5D Ar=0.5D		Aa=1.5D Ar=0.5D		Aa=1.5D Ar=0.5D		Aa=1.25D Ar=0.3D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	13,750	44.0	10,695	25.7	8,400	18.6	6,875	15.2	6,110	14.5	6,110	12.9	3,665	9.5
3/16	9,170	46.8	7,130	28.8	5,600	20.6	4,585	16.9	4,075	16.3	4,075	13.7	2,445	10.9
1/4	6,875	46.8	5,350	31.1	4,200	20.3	3,440	16.7	3,050	16.8	3,050	13.9	1,835	11.2
5/16	5,500	48.1	4,210	31.8	3,350	21.4	2,750	17.6	2,450	17.8	2,450	15.1	1,465	11.7
3/8	4,585	47.1	3,565	30.5	2,800	20.6	2,290	16.9	2,040	16.3	2,040	14.6	1,220	11.1
7/16	3,930	45.4	3,055	30.2	2,400	20.1	1,965	16.5	1,750	16.3	1,750	14.0	1,050	11.1
1/2	3,440	45.4	2,675	29.2	2,100	19.5	1,720	15.9	1,525	15.7	1,525	13.9	915	10.8
5/8	2,750	40.6	2,140	27.7	1,700	19.0	1,375	15.4	1,225	14.7	1,225	12.5	730	9.9
3/4	2,290	37.3	1,785	25.3	1,400	16.8	1,150	13.8	1,025	13.5	1,025	11.8	610	9.3
1	1,720	33.0	1,340	22.8	1,050	14.9	860	12.2	765	12.2	765	10.6	460	8.4

Slotting

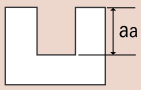
Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 40 HRC		< 45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	325-400 SFM		250-325 SFM		175-275 SFM		160-200 SFM		140-180 SFM		125-200 SFM		75-100 SFM	
Depth of Cut	Aa=1D 						Aa=0.75D		Aa=0.75D		Aa=0.75D		Aa=0.25D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	11,240	35.8	8,860	21.3	6,900	15.4	5,500	10.7	4,890	11.6	5,050	10.6	2,750	7.3
3/16	7,495	38.5	5,910	23.9	4,600	17.5	3,670	11.5	3,260	12.8	3,350	11.5	1,835	8.1
1/4	5,620	37.9	4,430	25.5	3,450	17.2	2,750	12.2	2,445	14.0	2,550	11.8	1,375	8.1
5/16	4,500	39.4	3,545	26.8	2,750	18.3	2,200	12.9	1,955	14.2	2,000	11.8	1,100	9.0
3/8	3,750	38.2	2,955	25.5	2,300	17.5	1,835	12.2	1,630	12.8	1,700	11.6	915	8.3
7/16	3,210	37.1	2,530	24.7	1,950	16.7	1,575	11.8	1,395	12.8	1,450	11.8	785	8.3
1/2	2,810	37.2	2,215	24.2	1,700	16.1	1,375	11.5	1,225	12.8	1,300	12.1	690	8.1
5/8	2,250	33.1	1,775	22.5	1,400	15.9	1,100	11.0	975	11.6	1,000	10.0	550	7.6
3/4	1,875	31.1	1,480	20.9	1,150	14.4	920	10.0	815	10.5	850	9.4	460	6.9
1	1,405	26.7	1,110	18.7	875	12.6	685	8.6	610	9.8	650	9.0	345	6.5

List VG446: 4 Flute - Reduced Neck
List VG464: 4 Flute - Extended Length

Side Milling

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 40 HRC		< 45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	400-500 SFM		300-400 SFM		200-350 SFM		200-250 SFM		175-225 SFM		150-250 SFM		100-135 SFM	
Depth of Cut	Aa=1D Ar=0.4D 						Aa=0.75D Ar=0.35D		Aa=0.75D Ar=0.15D		Aa=0.75D Ar=0.35D		Aa=0.75D Ar=0.15D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	6,875	46.8	5,350	31.1	4,200	20.3	3,440	16.7	3,050	16.8	3,050	13.9	1,835	11.2
3/8	4,585	47.1	3,565	30.5	2,800	20.6	2,290	16.9	2,040	16.3	2,040	14.6	1,220	11.1
1/2	3,440	45.4	2,675	29.2	2,100	19.5	1,720	15.9	1,525	15.7	1,525	13.9	915	10.8
5/8	2,750	40.6	2,140	27.7	1,700	19.0	1,375	15.4	1,225	14.7	1,225	12.5	730	9.9
3/4	2,290	37.3	1,785	25.3	1,400	16.8	1,150	13.8	1,025	13.5	1,025	11.8	610	9.3
1	1,720	33.0	1,340	22.8	1,050	14.9	860	12.2	765	12.2	765	10.6	460	8.4

Slotting

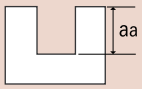
Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		<40 HRC		<45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	325-400 SFM		250-325 SFM		175-275 SFM		160-200 SFM		140-180 SFM		125-200 SFM		75-100 SFM	
Depth of Cut	Aa=0.6D 						Aa=0.4D		Aa=0.25D		Aa=0.4D		Aa=0.15D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	5,620	37.9	4,430	25.5	3,450	17.2	2,750	12.2	2,445	14.0	2,550	11.8	1,375	8.1
3/8	3,750	38.2	2,955	25.5	2,300	17.5	1,835	12.2	1,630	12.8	1,700	11.6	915	8.3
1/2	2,810	37.2	2,215	24.2	1,700	16.1	1,375	11.5	1,225	12.8	1,300	12.1	690	8.1
5/8	2,250	33.1	1,775	22.5	1,400	15.9	1,100	11.0	975	11.6	1,000	10.0	550	7.6
3/4	1,875	31.1	1,480	20.9	1,150	14.4	920	10.0	815	10.5	850	9.4	460	6.9
1	1,405	26.7	1,110	18.7	875	12.6	685	8.6	610	9.8	650	9.0	345	6.5

List VG441BN: 4 Flute - Ball Nose

Side Milling

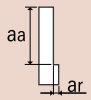
Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		<40 HRC		<45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	400-500 SFM		300-400 SFM		200-350 SFM		200-250 SFM		175-225 SFM		150-250 SFM		100-135 SFM	
Depth of Cut	Aa=1.5D Ar=0.5D 						Aa=1.25D Ar=0.4D		Aa=1.25D Ar=0.2D		Aa=1.25D Ar=0.4D		Aa=1D Ar=0.2D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	13,750	44.0	10,695	25.7	8,400	18.6	6,875	15.2	6,110	14.5	6,110	12.9	3,665	9.5
3/16	9,170	46.8	7,130	28.8	5,600	20.6	4,585	16.9	4,075	16.3	4,075	13.7	2,445	10.9
1/4	6,875	46.8	5,350	31.1	4,200	20.3	3,440	16.7	3,050	16.8	3,050	13.9	1,835	11.2
5/16	5,500	48.1	4,210	31.8	3,350	21.4	2,750	17.6	2,450	17.8	2,450	15.1	1,465	11.7
3/8	4,585	47.1	3,565	30.5	2,800	20.6	2,290	16.9	2,040	16.3	2,040	14.6	1,220	11.1
7/16	3,930	45.4	3,055	30.2	2,400	20.1	1,965	16.5	1,750	16.3	1,750	14.0	1,050	11.1
1/2	3,440	45.4	2,675	29.2	2,100	19.5	1,720	15.9	1,525	15.7	1,525	13.9	915	10.8
5/8	2,750	40.6	2,140	27.7	1,700	19.0	1,375	15.4	1,225	14.7	1,225	12.5	730	9.9
3/4	2,290	37.3	1,785	25.3	1,400	16.8	1,150	13.8	1,025	13.5	1,025	11.8	610	9.3
1	1,720	33.0	1,340	22.8	1,050	14.9	860	12.2	765	12.2	765	10.6	460	8.4
1 1/4	1,375	26.4	1,070	18.2	850	12.1	690	9.8	610	9.7	610	8.3	365	6.7

Slotting

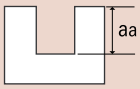
Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		<40 HRC		<45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	325-400 SFM		250-325 SFM		175-275 SFM		160-200 SFM		140-180 SFM		125-200 SFM		75-100 SFM	
Depth of Cut	Aa=1D 						Aa=0.75D		Aa=0.5D		Aa=0.5D		Aa=0.2D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	11,240	35.8	8,860	21.3	6,900	15.4	5,500	10.7	4,890	11.6	5,050	10.6	2,750	7.3
3/16	7,495	38.5	5,910	23.9	4,600	17.5	3,670	11.5	3,260	12.8	3,350	11.5	1,835	8.1
1/4	5,620	37.9	4,430	25.5	3,450	17.2	2,750	12.2	2,445	14.0	2,550	11.8	1,375	8.1
5/16	4,500	39.4	3,545	26.8	2,750	18.3	2,200	12.9	1,955	14.2	2,000	11.8	1,100	9.0
3/8	3,750	38.2	2,955	25.5	2,300	17.5	1,835	12.2	1,630	12.8	1,700	11.6	915	8.3
7/16	3,210	37.1	2,530	24.7	1,950	16.7	1,575	11.8	1,395	12.8	1,450	11.8	785	8.3
1/2	2,810	37.2	2,215	24.2	1,700	16.1	1,375	11.5	1,225	12.8	1,300	12.1	690	8.1
5/8	2,250	33.1	1,775	22.5	1,400	15.9	1,100	11.0	975	11.6	1,000	10.0	550	7.6
3/4	1,875	31.1	1,480	20.9	1,150	14.4	920	10.0	815	10.5	850	9.4	460	6.9
1	1,405	26.7	1,110	18.7	875	12.6	685	8.6	610	9.8	650	9.0	345	6.5
1 1/4	1,115	21.2	885	14.9	700	10.1	550	6.9	490	7.8	500	6.9	275	5.1

List VG541: 5 Flute
List VG534: 5 Flute - Corner Radius

Side Milling

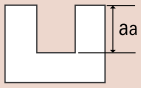
Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		<40 HRC		<45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	400-500 SFM		300-400 SFM		200-350 SFM		200-250 SFM		175-225 SFM		150-250 SFM		100-135 SFM	
Depth of Cut	Aa=1.25D Ar=0.5D 						Aa=1.25D Ar=0.4D		Aa=1.25D Ar=0.2D		Aa=1.25D Ar=0.5D		Aa=1D Ar=0.2D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	13,750	55.0	10,695	32.2	8,400	23.2	6,875	19.0	6,110	18.2	6,110	16.1	3,665	11.8
3/16	9,170	58.5	7,130	36.1	5,600	25.8	4,585	21.1	4,075	20.4	4,075	17.2	2,445	13.6
1/4	6,875	58.4	5,350	38.9	4,200	25.4	3,440	20.8	3,050	21.1	3,050	17.4	1,835	14.1
5/16	5,500	60.2	4,210	39.7	3,350	26.8	2,750	22.0	2,450	22.2	2,450	18.9	1,465	14.7
3/8	4,585	58.8	3,565	38.1	2,800	25.8	2,290	21.1	2,040	20.4	2,040	18.3	1,220	13.9
7/16	3,930	56.8	3,055	37.8	2,400	25.1	1,965	20.6	1,750	20.4	1,750	17.5	1,050	13.8
1/2	3,440	56.8	2,675	36.5	2,100	24.3	1,720	19.9	1,525	19.6	1,525	17.4	915	13.4
5/8	2,750	50.7	2,140	34.6	1,700	23.8	1,375	19.3	1,225	18.4	1,225	15.6	730	12.4
3/4	2,290	46.7	1,785	31.6	1,400	21.0	1,150	17.3	1,025	16.8	1,025	14.8	610	11.6
1	1,720	41.3	1,340	28.5	1,050	18.7	860	15.3	765	15.3	765	13.2	460	10.5

Slotting

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		<40 HRC		<45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	325-400 SFM		250-325 SFM		175-275 SFM		160-200 SFM		140-180 SFM		125-200 SFM		75-100 SFM	
Depth of Cut	Aa=1D 						Aa=0.75D		Aa=0.5D		Aa=0.5D		Aa=0.2D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	11,240	44.8	8,860	26.6	6,900	19.3	5,500	13.4	4,890	14.6	5,050	13.3	2,750	9.1
3/16	7,495	48.2	5,910	29.9	4,600	21.9	3,670	14.3	3,260	16.0	3,350	14.3	1,835	10.2
1/4	5,620	47.5	4,430	31.9	3,450	21.6	2,750	15.3	2,445	17.5	2,550	14.8	1,375	10.2
5/16	4,500	49.2	3,545	33.4	2,750	22.9	2,200	16.1	1,955	17.8	2,000	14.8	1,100	11.2
3/8	3,750	47.8	2,955	31.9	2,300	21.9	1,835	15.3	1,630	16.0	1,700	14.5	915	10.4
7/16	3,210	46.4	2,530	30.8	1,950	20.9	1,575	14.8	1,395	16.0	1,450	14.7	785	10.3
1/2	2,810	46.5	2,215	30.2	1,700	20.1	1,375	14.3	1,225	16.0	1,300	15.1	690	10.2
5/8	2,250	41.4	1,775	28.2	1,400	19.8	1,100	13.8	975	14.5	1,000	12.5	550	9.6
3/4	1,875	38.8	1,480	26.1	1,150	18.0	920	12.5	815	13.1	850	11.8	460	8.7
1	1,405	33.4	1,110	23.4	875	15.8	685	10.7	610	12.2	650	11.3	345	8.0

List HP421

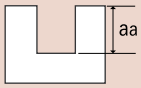
Slotting (Fractional)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	360 SFM	330 SFM	260 SFM	220 SFM	180 SFM	120 SFM	80 SFM
Depth of Cut		Dia / aa: D<1/16 — 0.1D; 1/16≤D≤1/8 — 0.3D; 1/8≤D — 0.5D				Dia / aa: D<1/16 — 0.02D; 1/16≤D — 0.05D	Dia / aa: D<1/16 — 0.01D; 1/16≤D≤1/8 — 0.02D; 1/8≤D — 0.05D

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	21,990	7.9	20,150	7.2	15,880	7.2	13,440	5.1	10,990	3.5	7,330	2.0	4,890	1.3
3/32	14,660	9.6	13,440	8.8	10,590	7.3	8,960	5.1	7,330	3.7	4,890	2.3	3,260	1.3
1/8	10,990	12.4	10,080	11.5	7,940	8.0	6,720	5.4	5,500	4.0	3,660	2.5	2,440	1.5
5/32	8,790	13.6	8,060	12.4	6,350	9.2	5,370	6.1	4230	4.2	2,930	2.6	1870	1.4
3/16	7,190	15.4	6,540	14.0	5,325	10.5	4,455	6.0	3,785	4.5	2,360	2.6	1,590	1.4
1/4	5,600	16.0	5,090	14.5	4,125	11.1	3,375	6.0	2,870	4.7	1,775	2.6	1,205	1.2
5/16	4,395	15.3	4,000	13.9	3,270	11.1	2,660	5.9	2,295	4.7	1,390	2.4	960	1.2
3/8	3,695	14.7	3,360	13.3	2,735	11.0	2,225	5.9	1,910	4.5	1,200	2.4	800	1.2
7/16	3,160	14.5	2,870	13.2	2,345	10.9	1,895	5.9	1,630	4.4	1,035	2.3	690	1.0
1/2	2,760	14.5	2,510	13.2	2,030	10.6	1,655	5.6	1,415	4.4	900	2.1	600	0.9
5/8	2,195	12.6	1,995	12.3	1,625	9.5	1,330	4.7	1,150	4.0	720	1.7	470	0.7
3/4	1,760	11.1	1,605	10.0	1,305	7.6	1,095	3.8	935	3.2	580	1.4	410	0.6
1	1,360	8.5	1,240	7.7	1,020	6.0	840	3.0	720	2.6	440	0.9	300	0.5

For side milling, increase feeds 20% to 50%.

Slotting (Metric)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	360 SFM	330 SFM	260 SFM	220 SFM	180 SFM	120 SFM	80 SFM
Depth of Cut		Dia / aa: D<1 — 0.1D; 1≤D≤3 — 0.3D; 3≤D — 0.5D				Dia / aa: D<1 — 0.02D; 1≤D — 0.05D	Dia / aa: D<1 — 0.01D; 1≤D≤3 — 0.02D; 3≤D — 0.05D

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	6.5	25,000	6.6	25,000	8.4	21,330	6.0	17,450	4.1	11,634	2.0	7,756	1.5
2	17,424	8.4	15,840	7.6	12,096	7.0	10,660	5.3	9,144	4.0	5,688	2.3	3,960	1.4
3	11,750	12.5	10,656	11.4	8,400	7.8	7,110	5.2	5,817	3.9	3,960	2.6	2,585	1.5
4	8,730	13.6	8,000	12.6	6,300	9.4	5,330	6.1	4,363	4.4	2,908	2.6	1,939	1.5
5	6,980	16.4	6,400	15.0	5,040	10.9	4,270	6.1	3,490	4.5	2,327	2.7	1,551	1.4
6	5,820	16.0	5,330	14.6	4,200	10.8	3,560	6.2	2,908	4.5	1,939	2.8	1,293	1.2
8	4,360	15.3	4,000	14.1	3,150	10.8	2,670	5.9	2,181	4.5	1,454	2.5	969	1.2
10	3,490	14.5	3,200	13.3	2,520	10.7	2,130	6.0	1,745	4.3	1,163	2.4	776	1.2
12	2,910	14.5	2,670	13.3	2,100	10.6	1,780	6.0	1,454	4.3	969	2.2	646	1.0
14	2,490	14.4	2,290	13.2	1,800	10.2	1,520	5.2	1,246	4.4	831	2.0	554	0.9
16	2,180	12.5	2,000	12.4	1,580	9.2	1,330	4.7	1,091	3.8	727	1.7	485	0.7
18	1,940	12.2	1,780	11.2	1,400	8.3	1,190	4.2	969	3.4	646	1.4	431	0.7
20	1,750	10.9	1,600	10.0	1,260	7.3	1,070	3.7	873	3.0	582	1.4	388	0.6
22	1,590	9.9	1,460	9.1	1,150	6.8	970	3.3	793	2.8	529	1.2	353	0.5
25	1,400	8.7	1,280	7.9	1,010	6.0	850	3.1	698	2.5	465	1.0	310	0.5

For side milling, increase feeds 20% to 50%.
For High Speed milling parameters, see pg 1211-1212.

List HP441

Side Milling (Fractional)

Hardness	–		<20 HRC		<30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Cast Iron		Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Cutting Speed	390 SFM		330 SFM		270 SFM		220 SFM		190 SFM		120 SFM		80 SFM	
Depth of Cut											a_a=1D a_r=0.02D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	23,820	17.6	20,155	13.9	15,670	11.2	13,435	5.8	11,605	4.9	7,330	2.8	5,400	1.6
3/32	16,305	21.5	13,720	18.1	11,550	14.5	13,435	9.0	13,435	9.6	4,885	3.4	3,260	2.2
1/8	12,060	28.4	10,205	24.0	8,245	16.0	10,075	8.3	10,075	9.6	3,665	3.3	2,445	2.3
5/32	9,630	29.9	8,060	25.0	8,060	17.9	5,170	6.3	4,475	5.3	2,930	3.6	1,955	2.4
3/16	8,075	33.7	6,740	28.3	6,720	22.0	4,455	6.5	3,935	5.7	2,360	3.5	1,565	2.0
1/4	5,955	29.0	5,090	28.9	4,235	20.0	3,375	6.9	3,030	6.1	1,775	3.3	1,205	1.9
5/16	4,820	33.6	4,000	27.8	3,330	19.8	2,660	6.9	2,360	6.1	1,390	3.2	960	1.7
3/8	4,005	33.6	3,360	27.8	2,795	19.8	2,225	6.9	1,970	6.1	1,200	3.8	800	1.7
7/16	3,440	33.6	2,870	27.8	2,405	19.8	1,895	6.9	1,690	6.1	1,035	3.4	690	1.5
1/2	3,010	32.7	2,510	27.5	2,090	19.7	1,655	6.9	1,475	6.0	900	2.7	600	1.3
5/8	2,355	31.4	1,995	26.1	1,630	19.6	1,325	6.1	1,200	5.4	720	2.3	470	0.9
3/4	1,920	29.7	1,605	24.9	1,350	15.7	1,095	5.0	975	4.5	580	1.7	405	1.0
1	1,485	23.3	1,240	19.5	1,050	14.0	840	3.9	750	3.5	440	1.4	300	0.7

Dia	a_a	a_r
D≤1/8	1.5D	0.05D
1/8<D	1.5D	0.10D



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List HP441 (Continued)

Side Milling (Metric)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	390 SFM	330 SFM	270 SFM	220 SFM	190 SFM	120 SFM	80 SFM
Depth of Cut	Dia / a_a / a_r: D≤3: 1.5D / 0.05D; 3<D: 1.5D / 0.10D 					a_a=1D a_r=0.02D	

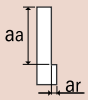
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	13.6	25,000	13.7	25,000	14.4	21,330	7.6	18,420	6.6	11,635	3.9	7,755	2.4
2	18,905	17.6	15,995	14.9	13,090	12.8	10,188	6.1	9,240	5.6	5,772	3.4	4,050	2.3
3	12,605	29.7	10,665	25.1	8,725	17.0	7,110	5.9	6,140	5.8	3,816	3.5	2,585	2.4
4	9,450	29.4	8,000	24.8	6,545	14.5	5,330	6.5	4,605	5.5	2,910	3.6	1,940	2.3
5	7,560	34.7	6,400	30.2	5,235	20.2	4,265	6.8	3,685	5.9	2,325	3.7	1,550	2.1
6	6,300	30.8	5,330	30.2	4,365	20.6	3,555	7.2	3,070	6.2	1,940	3.6	1,295	2.0
8	4,725	32.9	4,000	27.8	3,270	19.4	2,665	6.9	2,300	6.0	1,455	3.4	970	1.7
10	3,780	34.5	3,200	28.8	2,620	20.2	2,135	7.2	1,840	6.2	1,165	4.1	775	1.7
12	3,150	34.3	2,665	29.3	2,180	20.5	1,775	7.4	1,535	6.2	970	2.9	645	1.4
14	2,700	31.2	2,285	27.2	1,870	19.7	1,525	7.0	1,315	5.9	830	2.4	555	1.2
16	2,365	31.5	2,000	26.1	1,635	19.6	1,335	6.2	1,150	5.2	725	2.3	485	1.0
18	2,100	31.0	1,775	26.1	1,455	19.3	1,185	5.4	1,025	4.8	645	2.0	430	1.0
20	1,890	29.3	1,600	24.8	1,310	15.3	1,065	4.9	920	4.3	580	1.7	390	0.9
22	1,720	27.1	1,455	23.0	1,190	16.0	970	4.4	835	3.9	530	1.5	355	0.8
25	1,510	23.7	1,280	20.2	1,045	13.9	855	3.9	735	3.4	465	1.5	310	0.7

For High Speed see milling parameters, pg 1211-1212.

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List HP421, HP441 (Continued)

High Speed Light Milling (Fractional)

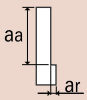
Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels	
Cutting Speed	1,310 SFM		1,150 SFM		820 SFM		490 SFM		260 SFM	
Depth of Cut	Dia / aa / ar D<5/16 / 1.5D / 0.01D 5/16≤D<5/8 / 1.5D / 0.02D 5/8≤D / 1.5D / 0.05D						Dia / aa / ar D≤5/16 / 1D / 0.01D 5/16<D / 1D / 0.02D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	14.7	25,000	18.8	25,000	18.4	25,000	16.6	15,900	11.9
3/32	25,000	27.1	25,000	31.2	25,000	32.6	20,800	24.4	11,050	14.2
1/8	25,000	49.3	25,000	49.6	25,000	49	15,200	26	8,050	14.6
5/32	25,000	64.7	25,000	64.4	20,100	52.8	12,000	26.8	6,400	16.1
3/16	25,000	104.5	23,550	81.1	16,850	54.3	10,100	28.7	5,350	17.3
1/4	20,000	96.5	17,600	84.3	12,450	58.7	7,600	31.1	4,000	16.5
5/16	15,650	96.5	13,650	82.7	9,950	57.1	6,000	31.1	3,150	16.5
3/8	13,200	97.6	11,550	82.7	8,400	57.1	5,000	31.1	2,650	16.5
7/16	11,350	97.2	10,000	82.7	7,150	57.1	4,300	31.1	2,250	16.1
1/2	9,950	94.9	8,750	81.1	6,250	55.5	3,750	30.3	1,950	15.7
5/8	8,000	88.6	7,000	76.8	4,950	53.1	2,950	28	1,550	14.6
3/4	6,650	85.4	5,800	73.6	4,150	51.2	2,450	26.8	1,300	14.2
1	4,950	65.7	4,400	58.3	3,100	40.6	1,850	21.7	950	10.6

Reduce feeds 50% for Series HP421 High Speed Light Milling.

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List HP421, HP441 (Continued)

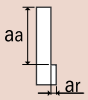
High Speed Light Milling (Metric)

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels	
Cutting Speed	1,310 SFM		1,150 SFM		820 SFM		490 SFM		260 SFM	
Depth of Cut	Dia / aa / ar D<8 / 1.5D / 0.01D 8≤D<16 / 1.5D / 0.02D 16≤D / 1.5D / 0.05D						Dia / aa / ar D≤8 / 1D / 0.01D 8<D / 1D / 0.02D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	10.9	25,000	12.4	25,000	12.4	25,000	11.2	25,000	12.8
2	25,000	19.2	25,000	24.7	25,000	27.2	23,850	23.6	12,700	14.2
3	25,000	46.8	25,000	47.2	25,000	46.4	15,900	26.0	8,450	14.2
4	25,000	65.6	25,000	65.4	19,900	53.1	11,900	27.2	6,350	16.5
5	25,000	119.8	22,250	83.9	15,900	55.1	9,550	29.5	5,050	17.7
6	21,000	96.5	18,500	84.6	13,000	59.1	7,950	31.3	4,200	16.5
8	15,500	96.5	13,500	82.7	9,900	57.1	5,950	31.3	3,150	16.7
10	12,500	98.4	11,000	82.7	7,950	57.1	4,750	31.5	2,500	16.5
12	10,500	96.5	9,250	82.7	6,600	57.1	3,950	31.1	2,100	16.1
14	9,050	92.5	7,950	78.7	5,650	53.1	3,400	29.1	1,800	15.4
16	7,950	88.6	6,950	76.8	4,950	53.1	2,950	28.1	1,550	14.8
18	7,050	88.6	6,150	74.8	4,400	51.2	2,650	27.8	1,400	14.8
20	6,350	82.7	5,550	72.8	3,950	51.2	2,350	26.2	1,250	14.0
22	5,750	76.8	5,050	66.9	3,600	47.2	2,150	25.0	1,150	12.8
24	5,300	70.9	4,600	61.0	3,300	43.3	1,950	22.6	1,050	11.6
25	5,050	66.9	4,450	59.1	3,150	41.3	1,900	22.0	1,000	11.0

Reduce feeds 50% for Series HP421 High Speed Light Milling.

List HP460

Side Milling (Fractional)

Hardness	–		<20 HRC		20-35 HRC		35-45 HRC		45-55 HRC	
Work Material	Aluminum		Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	550 SFM		180 SFM		120 SFM		78 SFM		60 SFM	
Depth of Cut	ae=1.5D ap=0.1D 						ae=1.5D ap=0.1D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	8,280	26.0	2,880	12.7	1,920	8.0	1,191	3.4	960	1.4
5/16	6,718	28.0	2,160	12.7	1,440	8.0	960	3.6	720	1.4
3/8	5,598	31.4	1,832	17.6	1,221	8.6	768	3.6	611	1.5
1/2	4,200	28.3	1,440	17.0	960	8.5	595	3.4	480	1.4
5/8	3,359	30.5	1,080	18.8	720	8.5	480	3.6	360	1.4
3/4	2,799	31.4	916	20.5	611	10.1	384	3.6	305	1.5
1	2,040	28.3	696	16.6	456	8.5	300	3.6	228	1.4

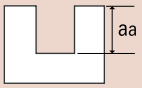
Side Milling (Metric)

Hardness	–		<20 HRC		20-35 HRC		35-45 HRC		45-55 HRC	
Work Material	Aluminum		Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	550 SFM		180 SFM		120 SFM		78 SFM		60 SFM	
Depth of Cut	ae=1.5D ap=0.1D 						ae=1.5D ap=0.1D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	17,770	12.8	5,760	6.1	3,840	4.0	2,640	1.8	1,920	0.7
4	13,330	17.5	4,320	8.5	2,880	5.7	1,920	2.4	1,440	0.9
5	10,660	20.8	3,480	10.4	2,400	7.3	1,560	3.9	1,200	1.2
6	8,890	26.0	2,880	12.8	1,920	8.0	1,272	3.5	960	1.4
8	6,670	26.0	2,160	12.8	1,440	8.0	960	3.5	720	1.4
10	5,330	28.3	1,680	16.1	1,140	8.0	768	3.5	576	1.4
12	4,440	28.3	1,440	17.0	960	8.5	636	3.5	480	1.4
16	3,330	28.3	1,080	18.9	720	8.5	480	3.5	360	1.4
20	2,670	28.3	864	19.4	576	9.4	384	3.5	288	1.4
25	2,040	28.3	696	16.5	456	8.5	300	3.5	228	1.4

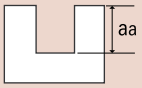
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List HP460: (continued)

Slotting (Fractional)

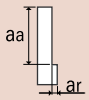
Hardness	<20 HRC		20-35 HRC		35-45 HRC		45-55 HRC	
Work Material	Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	150 SFM		102 SFM		66 SFM		52 SFM	
Depth of Cut	Dia / aa: D<1/2 → 1.0D; 1/2≤D → 0.5D				aa=0.5D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	2,290	8.9	1,632	5.6	1,008	2.2	816	1.0
5/16	1,836	9.5	1,224	5.6	816	2.4	612	1.0
3/8	1,527	11.7	1,038	6.0	648	2.4	529	1.1
1/2	1,145	11.0	816	6.1	504	2.2	408	1.0
5/8	912	12.7	612	6.1	408	2.4	312	1.0
3/4	744	13.2	492	6.6	324	2.4	265	1.1
1	600	11.3	384	6.1	252	2.4	192	1.0

Slotting (Metric)

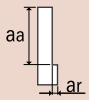
Hardness	<20 HRC		20-35 HRC		35-45 HRC		45-55 HRC	
Work Material	Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	150 SFM		102 SFM		66 SFM		52 SFM	
Depth of Cut	Dia / aa: D<12 → 1.0D; 12≤D → 0.5D				aa=0.5D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	4,920	4.7	3,296	2.6	2,133	1.1	1,680	0.5
4	3,720	6.1	2,472	3.4	1,680	1.7	1,320	0.6
5	3,000	8.0	1,978	4.3	1,320	2.0	1,008	0.7
6	2,448	9.4	1,632	5.7	1,080	2.4	816	0.9
8	1,836	9.4	1,224	5.7	816	2.4	612	0.9
10	1,428	10.9	972	5.7	648	2.4	492	0.9
12	1,224	11.8	816	6.1	540	2.4	408	0.9
16	912	12.8	612	6.1	408	2.4	312	0.9
20	744	13.2	492	6.6	324	2.4	240	0.9
25	600	11.3	384	6.1	252	2.4	192	0.9

List HP450

Side Milling (Fractional)

Hardness	<25 HRC		25-45 HRC		45-55 HRC		55-65 HRC		30-40 HRC		25-45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels Tool Steels		Hardened Steels Tool Steels		Titanium Alloy		Nickel Base High-Temp Alloy	
Cutting Speed	312-540 SFM		156-312 SFM		96-156 SFM		60-96 SFM		156-276 SFM		48-80 SFM	
Depth of Cut	ae=1.5D ar=0.1D				ae=1.5D ar=0.05D							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	13,008	80.8	7,145	21.6	3,847	8.5	2,280	4.8	6,595	44.0	1,954	2.8
5/32	10,406	85.3	5,716	22.9	3,078	11.2	1,905	5.1	5,276	49.5	1,563	3.0
3/16	8,672	77.6	4,763	23.8	2,565	12.8	1,588	4.9	4,397	52.8	1,303	4.8
1/4	6,360	122.4	3,480	39.6	1,920	14.4	1,191	6.5	3,298	55.0	977	5.6
5/16	5,203	122.3	2,858	42.9	1,539	15.4	996	7.2	2,638	57.7	782	6.0
3/8	4,336	112.5	2,382	43.7	1,282	14.7	804	7.2	2,198	52.4	651	6.5
1/2	3,252	93.1	1,786	33.5	960	13.2	595	5.3	1,649	47.1	489	4.3
5/8	2,640	75.6	1,440	27.6	769	11.5	476	4.3	1,319	46.2	391	4.5
3/4	2,160	61.2	1,140	21.6	641	8.0	397	3.4	1,099	40.6	326	4.9
1	1,626	61.1	900	22.8	481	9.0	300	3.6	824	27.5	244	2.7

Side Milling (Metric)

Hardness	<25 HRC		25-45 HRC		45-55 HRC		55-65 HRC		30-40 HRC		25-45 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels Tool Steels		Hardened Steels Tool Steels		Titanium Alloy		Nickel Base Aigh-Temp Alloy	
Cutting Speed	312-540 SFM		156-312 SFM		96-156 SFM		60-96 SFM		156-276 SFM		48-80 SFM	
Depth of Cut	ae=1.5D ar=0.1D				ae=1.5D ar=0.05D							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	13,766	85.6	7,562	22.5	4,072	9.5	2,521	5.2	6,980	45.8	2,068	2.6
4	10,325	84.7	5,671	22.3	3,054	10.9	1,800	4.7	5,235	48.3	1,551	3.2
5	8,260	74.2	4,537	22.3	2,443	11.8	1,560	4.7	4,188	49.5	1,241	4.2
6	6,883	132.9	3,781	43.6	2,036	15.0	1,320	7.6	3,490	58.9	1,034	5.2
8	5,162	121.9	2,836	43.1	1,527	15.0	996	7.1	2,618	58.0	776	5.3
10	4,130	106.7	2,160	40.2	1,222	14.0	756	6.7	2,094	50.7	620	5.5
12	3,480	99.2	1,920	36.4	1,018	14.0	630	5.8	1,745	49.1	517	4.8
16	2,640	75.6	1,440	27.4	763	11.0	473	4.2	1,309	45.1	388	4.1
20	2,160	61.4	1,140	21.7	611	8.0	378	3.6	1,047	38.0	310	4.3
25	1,652	62.4	900	22.4	489	9.2	300	3.8	838	27.5	248	3.3

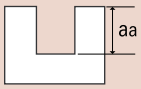
List HP451

Side Milling (Fractional)

Hardness	–	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC
Work Material	Aluminum Alloy	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys
Cutting Speed	361 SFM	279 SFM	328 SFM	262 SFM	197 SFM	131 SFM
Depth of Cut	ae=1.5D ar=0.1D					

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	11,030	54.3	8,520	34.5	10,030	74.0	8,020	64.1	6,010	19.7	4,010	11.8
1/4	5,800	51.2	4,260	32.7	5,010	63.2	4,200	59.1	3,010	14.8	2,100	10.2
5/16	4,400	47.2	3,400	27.6	4,000	63.0	3,200	55.1	2,400	24.4	1,600	16.1
3/8	3,500	43.3	2,700	26.8	3,200	55.1	2,665	54.6	1,900	23.6	1,300	16.1
1/2	2,900	39.4	2,130	24.1	2,505	51.1	2,100	47.2	1,505	18.9	1,050	13.8
5/8	2,200	35.4	1,700	21.7	2,000	43.3	1,600	37.4	1,200	15.4	800	13.0
3/4	1,750	31.5	1,350	17.7	1,670	32.8	1,335	31.5	950	12.6	650	10.2

Slotting (Fractional)

Hardness	–	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC
Work Material	Aluminum Alloy	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys
Cutting Speed	361 SFM	138 SFM	295 SFM	243 SFM	163 SFM	111 SFM
Depth of Cut	ae=1.0D				ae=0.5D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	11,030	45.0	4,260	16.7	9,020	31.1	7,450	22.0	4,920	14.0	3,390	9.5
1/4	5,800	39.4	2,105	13.7	4,505	27.1	3,900	24.8	2,620	13.4	1,695	9.8
5/16	4,400	37.4	1,700	13.0	3,600	26.0	2,970	22.8	1,960	13.4	1,355	10.3
3/8	3,500	35.4	1,350	11.8	2,880	23.6	2,475	19.7	1,660	13.1	1,130	9.7
1/2	2,900	31.5	1,055	10.4	2,250	21.1	1,950	17.7	1,310	11.4	845	8.6
5/8	2,200	27.6	850	18.9	1,800	18.9	1,480	26.8	980	8.7	680	8.0
3/4	1,750	23.6	675	16.5	1,500	15.3	1,235	13.4	830	7.7	565	6.5

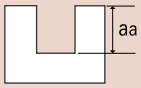
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List HP451, HP453, HP456 (Continued)

Side Milling (Metric)

Hardness	–		–		<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC	
Work Material	Aluminum Alloy		Cast Iron		Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	
Cutting Speed	433 SFM		334 SFM		393 SFM		315 SFM		236 SFM		157 SFM	
Depth of Cut					ae=1.5D ar=0.1D							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
4	10,560	52.0	8,160	33.1	9,600	70.9	7,680	61.4	5,760	18.9	3,840	11.3
6	6,960	61.4	5,400	37.8	6,360	80.3	5,040	70.9	3,840	18.9	2,520	12.3
8	5,280	56.7	4,080	33.1	4,800	75.6	3,840	66.1	2,880	29.3	1,920	19.4
10	4,200	52.0	3,240	32.1	3,840	66.1	3,000	61.4	2,280	28.3	1,560	19.4
12	3,480	47.2	2,760	31.2	3,240	66.1	2,520	56.7	1,920	24.1	1,260	16.5
16	2,640	42.5	2,040	26.0	2,400	52.0	1,920	44.9	1,440	18.4	960	15.6
20	2,100	37.8	1,620	21.3	2,160	42.5	1,500	35.4	1,140	15.1	780	12.3

Slotting (Metric)

Hardness	–		–		<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC	
Work Material	Aluminum Alloy		Cast Iron		Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	
Cutting Speed	433 SFM		160 SFM		355 SFM		297 SFM		198 SFM		118 SFM	
Depth of Cut			ae=1.0D						ae=0.5D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
4	10,490	54.7	3,840	15.1	8,640	29.8	7,200	21.3	4,800	13.7	2,880	8.0
6	6,960	47.2	2,520	17.5	5,760	34.5	4,800	29.8	3,240	16.1	1,920	10.9
8	5,280	44.9	1,920	15.6	4,320	31.2	3,600	27.4	2,400	16.1	1,440	10.9
10	4,200	42.5	1,560	14.2	3,480	28.3	2,880	22.2	1,920	14.6	1,140	9.9
12	3,480	37.8	1,272	13.7	2,880	27.4	2,400	21.3	1,560	13.7	960	9.4
16	2,640	33.1	960	22.7	2,160	22.7	1,800	32.1	1,200	10.4	720	8.5
20	2,100	28.3	780	19.8	1,680	19.8	1,440	15.1	960	8.5	576	6.6

List HP400

Side Milling (Fractional)

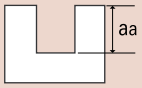
Hardness	–		<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC	
Work Material	Cast Iron		Medium Steels Mild Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels		Stainless Steels Hardened Steels	
Cutting Speed	320-460 SFM		262-393 SFM		230-328 SFM		164-262 SFM		115-213 SFM	
Depth of Cut	ae=1.5D ap=0.4D 						ae=1.5D ap=0.3D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	6,350	29.9	5,300	25.2	4,500	14.2	3,450	11.0	2,650	8.3
5/16	4,750	29.9	4,000	25.2	3,400	16.1	2,600	12.2	2,000	9.4
3/8	3,800	29.9	3,200	25.2	2,700	16.9	2,050	13.0	1,600	10.2
1/2	3,200	30.3	2,650	25.2	2,250	17.7	1,700	13.4	1,350	10.6
5/8	2,400	30.3	2,000	25.2	1,700	18.9	1,300	14.2	1,000	11.0
3/4	1,900	29.9	1,600	24.0	1,350	18.5	1,050	13.8	800	10.2
1	1,500	29.9	1,150	24.0	1,000	18.5	800	13.8	600	10.2

Side Milling (Fractional)

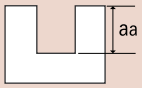
Hardness	–		<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC	
Work Material	Cast Iron		Medium Steels Mild Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels		Stainless Steels Hardened Steels	
Cutting Speed	320-460 SFM		262-393 SFM		230-328 SFM		164-262 SFM		115-213 SFM	
Depth of Cut	ae=1.5D ap=0.4D 						ae=1.5D ap=0.3D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	12,610	25.3	10,590	21.3	9,020	10.7	6,890	8.1	5,300	6.3
4	9,460	25.3	7,940	21.3	6,770	10.7	5,170	8.1	3,980	6.3
5	7,570	28.3	6,360	23.8	5,410	13.3	4,130	10.2	3,180	7.8
6	6,310	28.3	5,300	23.8	4,510	13.3	3,440	10.2	2,650	7.8
8	4,730	29.8	3,970	25.0	3,380	16.0	2,580	12.2	1,990	9.4
10	3,780	29.8	3,180	25.0	2,710	17.9	2,070	13.9	1,590	10.6
12	3,150	29.8	2,650	25.0	2,260	17.1	1,720	13.0	1,330	10.6
16	2,370	29.8	1,990	25.0	1,690	19.2	1,290	14.2	990	10.6
20	1,890	29.8	1,590	25.0	1,350	19.2	1,030	14.2	800	10.6
25	1,510	29.8	1,270	25.0	1,080	19.2	830	14.2	640	10.6

continued on next page

Slotting (Fractional)

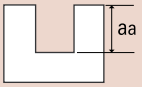
Hardness	–		<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC	
Work Material	Cast Iron		Medium Steels Mild Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels		Stainless Steels Hardened Steels	
Cutting Speed	262-393 SFM		230-328 SFM		180-279 SFM		130-230 SFM		95-195 SFM	
Depth of Cut	ae=0.75D 						ae=0.5D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	5,300	25.2	4,500	21.3	3,700	11.8	2,900	9.1	2,400	7.5
5/16	4,000	25.2	3,400	21.3	2,800	13.4	2,200	10.2	1,800	8.7
3/8	3,200	25.2	2,700	21.3	2,250	14.2	1,750	11	1,450	9.1
1/2	2,650	25.2	2,250	21.3	1,850	14.6	1,450	11.4	1,200	9.4
5/8	2,000	25.2	1,700	21.3	1,400	15.4	1,100	12.2	900	9.8
3/4	1,600	25.2	1,350	20.1	1,100	15.4	900	11.8	700	9.1
1	1,150	25.2	950	20.1	800	15.4	700	11.8	500	9.1

Slotting (Metric)

Hardness	–		<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC	
Work Material	Cast Iron		Medium Steels Mild Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels		Stainless Steels Hardened Steels	
Cutting Speed	335 SFM		230 SFM		295 SFM		217 SFM		177 SFM	
Depth of Cut	ae=0.75D 						ae=0.5D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
6	5,400	25.5	3,700	17.5	4,800	15.3	3,480	10.9	2,880	9.0
8	4,100	25.5	2,800	17.5	3,600	17.2	2,640	12.3	2,160	10.4
10	3,300	25.5	2,200	17.5	2,900	18.3	2,100	13.2	1,740	10.9
12	2,700	25.5	1,900	17.5	2,400	18.9	1,740	13.7	1,440	11.3
16	2,000	25.5	1,400	17.5	1,800	20.0	1,320	14.6	1,080	11.8
20	1,600	25.5	1,100	16.4	1,450	20.0	1,080	14.2	840	10.9
25	1,300	25.5	900	23.5	1,150	18.1	840	13.0	680	9.8

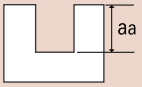
List HP410

Slotting (Fractional)

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Cutting Speed	262 SFM		213 SFM		180 SFM		164 SFM		98 SFM		49 SFM	
Depth of Cut	Dia / aa: D<1/16 — 0.05D; 1/16≤D — 0.10D 						aa=0.02D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/32	25,000	12.5	25,000	12.8	22,000	9.8	20,000	7.9	12,000	3.1	6,000	1.2
1/16	16,000	23.6	13,000	19.7	11,500	15.7	10,000	9.8	6,000	3.1	3,000	1.2
3/32	10,500	23.6	8,650	19.7	7,100	15.7	6,700	9.8	4,000	3.1	2,000	1.2
1/8	8,020	18.0	6,510	14.8	5,510	12.2	5,010	8.0	3,000	2.4	1,500	0.9
3/16	5,340	12.0	4,340	9.9	3,670	8.1	3,340	5.3	2,000	2.4	1,000	0.9

For side milling, increase feeds 20% to 50%.

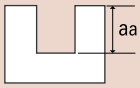
Slotting (Metric)

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Cutting Speed	262 SFM		213 SFM		180 SFM		164 SFM		98 SFM		49 SFM	
Depth of Cut	Dia / aa: D<1.5 — 0.05D; 1.5≤D — 0.10D 						aa=0.02D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.5	25,000	7.7	25,000	6.2	25,000	6.2	25,000	4.8	19,000	3.2	9,500	1.1
0.6	25,000	9.2	25,000	7.7	25,000	7.3	25,000	7.9	15,800	3.2	8,000	1.1
0.8	25,000	12.3	25,000	12.8	22,000	9.8	20,000	8.3	12,000	3.2	6,000	1.1
1	25,000	15.4	25,000	20.6	17,500	13.8	16,000	10.5	9,500	3.2	4,800	1.1
1.5	17,000	22.4	13,800	19.3	11,700	15.6	10,600	10.4	6,300	3.2	3,200	1.1
2	12,700	22.4	10,300	19.3	8,800	15.6	8,000	10.4	4,800	3.2	2,400	1.1
2.5	10,200	22.4	8,300	19.3	7,000	15.6	6,400	10.4	3,800	3.2	1,900	1.1

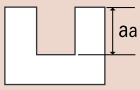
For side milling, increase feeds 20% to 50%.

List HP411

Slotting (Fractional)

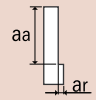
Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Cutting Speed	294 SFM		236 SFM		196 SFM		164 SFM		105 SFM		72 SFM	
Depth of Cut	a_a=0.1D						a_a=0.02D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	8,900	39.4	7,200	27.6	5,900	19.7	5,100	15.7	3,200	5.9	2,100	2.0
3/16	6,000	39.4	4,800	27.6	4,000	19.7	3,400	15.7	2,200	5.9	1,500	2.0
1/4	4,500	39.4	3,600	27.6	3,000	19.7	2,500	15.7	1,600	5.9	1,100	2.0

Slotting (Metric)

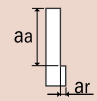
Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Cutting Speed	294 SFM		236 SFM		196 SFM		164 SFM		105 SFM		72 SFM	
Depth of Cut	a_a=0.1D						a_a=0.02D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	9,500	42.1	7,600	29.3	6,300	20.9	5,300	16.4	3,400	6.3	2,350	2.1
4	7,100	42.1	5,700	29.3	4,750	20.9	4,000	16.4	2,550	7.1	1,750	2.1
5	5,700	42.1	4,600	29.3	3,800	20.9	3,200	16.4	2,050	7.1	1,400	2.1
6	4,800	42.1	3,800	29.3	3,150	20.9	2,650	16.4	1,700	7.1	1,150	2.1

List HP455

Side Milling (Fractional)

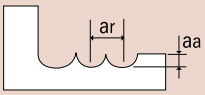
Hardness	<30 HRC		30-38 HRC		38-45 HRC	
Work Material	Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	
Cutting Speed	156 SFM		144 SFM		114 SFM	
Depth of Cut	ae=1.5D ap=0.1D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	4,806	13.1	4,404	5.2	3,444	4.0
5/32	3,780	13.1	3,523	5.2	2,754	4.0
3/16	3,186	13.9	2,936	5.2	2,292	4.0
7/32	2,742	14.2	2,516	5.2	1,956	4.0
1/4	2,385	14.2	2,202	5.2	1,716	4.0
9/32	2,142	14.2	1,957	5.2	1,554	4.0
5/16	1,884	14.2	1,761	5.2	1,380	4.0
3/8	1,590	14.2	1,468	5.2	1,158	4.0
7/16	1,368	14.2	1,258	5.2	990	4.0
1/2	1,194	14.6	1,101	5.2	864	4.0
9/16	1,056	15.7	979	5.2	762	4.0
5/8	948	16.6	881	5.2	684	4.0
3/4	795	16.7	734	4.9	558	4.0
7/8	672	15.1	629	4.4	486	3.6
1	588	13.1	550	4.0	432	3.1

Side Milling (Metric)

Hardness	<30 HRC		30-38 HRC		38-45 HRC	
Work Material	Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	
Cutting Speed	156 SFM		144 SFM		114 SFM	
Depth of Cut	ae=1.5D ap=0.1D					
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	5,049	13.1	4,661	5.2	3,690	4.0
4	3,780	13.1	3,495	5.2	2,754	4.0
5	2,934	14.2	2,796	5.2	2,214	4.0
6	2,524	14.2	2,330	5.2	1,845	4.0
7	2,142	14.2	1,997	5.2	1,554	4.0
8	1,884	14.2	1,748	5.2	1,380	4.0
10	1,464	14.2	1,398	5.2	1,107	4.0
11	1,368	14.2	1,271	5.2	990	4.0
12	1,262	14.6	1,165	5.2	922	4.0
14	1,056	15.7	999	5.2	762	4.0
16	948	16.6	874	5.2	684	4.0
20	768	16.7	699	4.9	558	4.0
25	588	13.1	559	4.0	432	3.1

List HP421BN, HP441BN

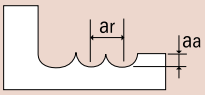
Profiling Milling (Fractional)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	575 SFM	460 SFM	375 SFM	310 SFM	260 SFM	230 SFM	165 SFM
Depth of Cut	a_a=0.1D a_r=0.2D					a_a=0.05D a_r=0.1D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	31.3	25,000	30.5	23,000	25.1	19,000	16.9	16,000	11.4	14,000	8.5	10,000	5.3
3/32	23,500	42.6	18,800	34.2	15,300	27.4	12,600	18.2	10,600	12.7	9,400	9.3	6,700	5.7
1/8	17,500	45.3	14,000	36.2	11,600	29.5	9,300	19.3	8,150	14.6	7,000	10.6	5,200	7.1
5/32	14,050	44.1	11,550	35.8	9,700	29.5	7,750	20.5	6,750	16.9	5,800	12.2	4,300	7.9
3/16	11,750	48.0	9,500	39.0	7,900	29.9	6,300	20.9	5,550	17.3	4,700	13.0	3,550	7.9
1/4	8,750	53.1	7,000	42.9	5,800	33.1	4,600	22.8	4,050	19.3	3,450	14.2	2,550	8.7
5/16	7,250	60.6	5,800	48.8	4,800	36.6	3,800	25.6	3,350	20.9	2,850	15.0	2,100	9.4
3/8	5,900	57.1	4,700	45.3	3,900	35.0	3,100	24.4	2,700	20.5	2,350	15.4	1,700	9.4
7/16	4,950	53.1	3,950	42.1	3,300	33.1	2,600	23.2	2,300	19.7	1,950	14.6	1,450	9.1
1/2	4,350	50.4	3,450	40.6	2,900	31.9	2,300	22.4	2,000	18.9	1,700	14.2	1,250	8.7
5/8	3,600	49.6	2,850	39.4	2,350	30.3	1,850	22.4	1,600	17.7	1,400	12.6	1,050	8.7
3/4	3,000	46.1	2,400	36.6	2,000	28.0	1,600	21.7	1,350	17.3	1,200	11.8	900	7.9
1	2,450	37.6	1,760	31.3	1,430	21.5	1,185	16.5	1,000	13.5	880	9.6	630	6.5

Increase feeds 40% to 50% for Series HP441BN.

Profiling Milling (Metric)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	575 SFM	460 SFM	375 SFM	310 SFM	260 SFM	230 SFM	165 SFM
Depth of Cut	a_a=0.1D a_r=0.2D					a_a=0.05D a_r=0.1D	

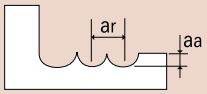
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	23.5	25,000	23.5	25,000	19.3	25,000	15.7	25,000	12.7	25,000	10.8	16,000	6.2
2	25,000	38.9	22,350	34.9	18,200	28.1	15,050	18.7	12,600	12.8	11,150	9.5	8,000	6.0
3	18,600	46.4	14,900	37.4	12,150	29.9	10,050	20.0	8,400	14.0	7,450	10.5	5,350	6.8
4	14,000	44.5	11,150	34.9	9,100	28.1	7,550	20.5	6,300	16.2	5,600	12.2	4,000	7.5
5	11,200	50.1	8,950	40.7	7,300	29.7	6,000	21.5	5,050	17.0	4,450	13.4	3,200	8.0
6	9,300	52.6	7,450	42.9	6,050	32.4	5,000	23.5	4,200	18.7	3,700	14.5	2,650	8.7
8	7,000	59.2	5,600	47.8	4,550	35.2	3,750	25.5	3,150	20.1	2,800	14.9	2,000	9.3
10	5,600	56.5	4,450	44.7	3,650	34.4	3,000	25.1	2,500	19.8	2,250	15.9	1,600	9.5
12	4,650	52.6	3,700	41.9	3,050	32.9	2,500	23.9	2,100	19.6	1,850	15.0	1,350	9.3
14	4,000	48.6	3,200	40.2	2,600	30.7	2,150	22.3	1,800	17.7	1,600	14.0	1,150	8.5
16	3,500	48.6	2,800	39.0	2,300	29.8	1,900	22.7	1,600	17.6	1,400	12.9	1,000	8.0
18	3,100	46.1	2,500	37.1	2,050	28.1	1,650	22.0	1,400	17.4	1,250	12.1	900	7.8
20	2,800	43.3	2,250	35.0	1,800	25.7	1,500	20.8	1,250	16.2	1,100	11.1	800	7.3
22	2,550	42.1	2,050	32.4	1,650	22.5	1,350	18.9	1,150	15.3	1,000	10.4	750	7.5
25	2,250	36.8	1,800	31.7	1,450	21.3	1,200	17.0	1,000	12.9	900	9.6	650	6.5

Increase feeds 40% to 50% for Series HP441BN.

continued on next page

List HP421BN, HP441BN: (continued)

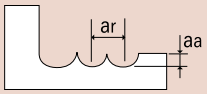
High Speed Light Milling (Fractional)

Hardness	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	985 SFM	855 SFM	740 SFM	590 SFM	590 SFM	400 SFM
Depth of Cut	a_a=0.02D a_r=0.05D			Dia: D≤5/32 → a_a 0.02D, a_r 0.05D; 5/32<D → a_a 0.13D, a_r 0.05D		

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/16	25,000	80.3	25,000	77.6	25,000	69.9	25,000	65.9	25,000	63.4	24,450	54.3
3/32	25,000	125.5	25,000	127.6	25,000	115.4	24,050	104.4	24,050	99.4	16,300	58.4
1/8	25,000	174.8	25,000	181.6	22,650	146.5	18,050	110.5	18,050	106.7	12,250	59.7
5/32	24,100	192.4	20,900	177.8	18,100	129.3	14,450	101.7	14,450	96.7	9,800	52.9
3/16	20,100	198.9	17,450	180.2	15,100	121.5	12,050	96.5	12,050	96.3	8,150	49.3
1/4	15,050	189.5	13,100	164.9	11,300	106.1	9,000	83.8	9,000	83.8	6,100	42.0
5/16	12,050	151.1	10,500	132.4	9,050	83.9	7,250	67.7	7,250	67.7	5,000	35.4
3/8	10,050	125.1	8,700	108.4	7,400	69.3	5,900	55.1	5,900	55.1	4,100	28.7
7/16	8,250	102.8	7,450	92.3	6,200	57.9	4,950	45.7	4,950	45.7	3,400	24.0
1/2	7,250	90.2	6,550	81.3	5,450	50.4	4,300	40.2	4,300	40.2	3,000	20.9
5/8	6,050	75.6	5,200	63.8	4,500	41.7	3,600	33.9	3,600	33.9	2,450	17.3
3/4	5,050	62.6	4,350	54.7	3,750	35.4	3,000	28.3	3,000	28.3	2,100	14.6
1	3,765	46.8	3,270	41.1	2,830	26.7	2,250	21.2	2,250	21.2	1,530	10.6

Increase feeds 40% to 50% for Series HP441BN.

High Speed Light Milling (Metric)

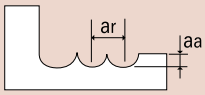
Hardness	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	985 SFM	855 SFM	740 SFM	590 SFM	590 SFM	400 SFM
Depth of Cut	a_a=0.02D a_r=0.05D			Dia: D≤4 → a_a 0.02D, a_r 0.05D; 4<D → a_a 0.13D, a_r 0.05D		

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	55	25,000	55	25,000	49	25,000	47	25,000	47	25,000	39
2	25,000	108	25,000	109	25,000	99	25,000	93	25,000	93	19,400	60
3	25,000	170	25,000	175	23,950	151	19,100	113	19,100	113	12,950	62
4	23,900	192	20,750	178	17,950	129	14,350	102	14,350	102	9,700	53
5	19,150	202	16,600	181	14,350	119	11,450	96	11,450	96	7,750	49
6	15,950	201	13,850	174	12,000	113	9,550	89	9,550	89	6,450	44
8	12,000	150	10,400	131	9,000	83	7,150	67	7,150	67	4,850	34
10	9,550	119	8,300	103	7,200	67	5,750	54	5,750	54	3,900	28
12	7,950	99	6,900	85	6,000	56	4,750	44	4,750	44	3,250	23
14	6,850	85	5,950	73	5,150	48	4,100	39	4,100	39	2,750	19
16	6,000	75	5,200	64	4,500	42	3,600	34	3,600	34	2,450	17
18	5,300	65	4,600	58	4,000	38	3,200	30	3,200	30	2,150	15
20	4,800	60	4,150	52	3,600	34	2,850	27	2,850	27	1,950	14
22	4,350	54	3,750	47	3,250	31	2,600	24	2,600	24	1,750	12
25	3,850	48	3,300	41	2,850	27	2,300	22	2,300	22	1,550	11

Increase feeds 40% to 50% for Series HP441BN.

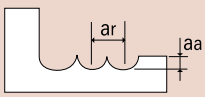
List HP416

Profiling Milling (Fractional)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	575 SFM	460 SFM	375 SFM	310 SFM	260 SFM	230 SFM	165 SFM
Depth of Cut	ar=0.1D aa=0.2D					ar=0.05D aa=0.1D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/32	25,000	11.6	25,000	12.8	25,000	11.4	25,000	9.2	25,000	7.5	25,000	6.3	20,200	4.6
1/16	25,000	31.3	25,000	30.5	23,000	25.1	19,000	16.9	15,900	11.4	14,050	8.5	10,100	5.3
3/32	23,450	42.6	18,800	34.2	15,300	27.4	12,650	18.3	10,600	12.7	9,400	9.3	6,750	5.7
1/8	17,050	44.1	14,050	36.3	11,450	29.1	9,300	19.3	8,150	14.6	7,000	10.6	5,200	7.1
3/16	11,750	48.0	9,400	38.6	7,650	29.0	6,300	20.9	5,550	17.3	4,700	13.0	3,550	7.9
1/4	8,750	53.1	7,050	43.2	5,800	33.1	4,600	22.8	4,050	19.3	3,450	14.2	2,550	8.7
5/16	7,250	60.6	5,650	47.5	4,800	36.6	3,800	25.6	3,350	20.9	2,850	15.0	2,100	9.4
3/8	5,900	57.1	4,700	45.3	3,900	35.0	3,100	24.4	2,700	20.5	2,350	15.4	1,700	9.4
1/2	4,350	50.4	3,450	40.6	2,900	31.9	2,300	22.4	2,000	18.9	1,700	14.2	1,250	8.7

Profiling Milling (Metric)

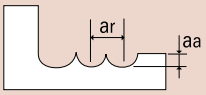
Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	575 SFM	460 SFM	375 SFM	310 SFM	260 SFM	230 SFM	165 SFM
Depth of Cut	ar=0.1D aa=0.2D					ar=0.05D aa=0.1D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	23.5	25,000	23.5	25,000	19.3	25,000	15.7	25,000	12.7	25,000	10.8	16,000	6.2
2	25,000	38.9	22,350	34.9	18,200	28.1	15,050	18.7	12,600	12.8	11,150	9.5	8,000	6.0
3	18,600	46.4	14,900	37.4	12,150	29.9	10,050	20.0	8,400	14.0	7,450	10.5	5,350	6.8
4	13,950	44.3	11,150	34.9	9,100	28.1	7,550	20.5	6,300	16.2	5,600	12.2	4,000	7.5
5	11,150	49.8	8,950	40.7	7,300	29.7	6,000	21.5	5,050	17.0	4,450	13.4	3,200	8.0
6	9,300	52.6	7,450	42.9	6,050	32.4	5,000	23.5	4,200	18.7	3,700	14.5	2,650	8.7
8	7,000	59.2	5,600	47.8	4,550	35.2	3,750	25.5	3,150	20.1	2,800	14.9	2,000	9.3
10	5,600	56.5	4,450	44.7	3,650	34.4	3,000	25.1	2,500	19.8	2,250	15.9	1,600	9.5
12	4,650	52.6	3,700	41.9	3,050	32.9	2,500	23.9	2,100	19.6	1,850	15.0	1,350	9.3
14	4,000	48.6	3,200	40.2	2,600	30.7	2,150	22.3	1,800	17.7	1,600	14.0	1,150	8.5
16	3,500	48.6	2,800	39.0	2,300	29.8	1,900	22.7	1,600	17.6	1,400	12.9	1,000	8.0
18	3,100	46.1	2,500	37.1	2,000	27.4	1,650	22.0	1,400	17.4	1,250	12.1	900	7.8
20	2,800	43.3	2,250	35.0	1,800	25.7	1,500	20.8	1,250	16.2	1,100	11.1	800	7.3
22	2,550	42.1	2,050	32.4	1,650	22.5	1,350	18.9	1,150	15.3	1,000	10.4	750	7.5
25	2,250	36.8	1,800	31.7	1,450	21.3	1,200	17.0	1,000	12.9	900	9.6	650	6.5

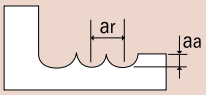
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List HP416: (continued)

High Speed Light Milling (Fractional)

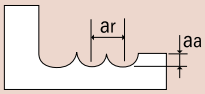
Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Cutting Speed	985 SFM		855 SFM		740 SFM		590 SFM		590 SFM		400 SFM	
Depth of Cut	a_a=0.02D a_r=0.05D 								Dia / a_a / a_r: D≤5/32: 0.02D / 0.05D; 5/32<D: 0.13D / 0.05D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/32	25,000	35.0	25,000	39.3	25,000	35.1	25,000	33.0	25,000	31.7	25,000	27.7
1/16	25,000	80.3	25,000	77.6	25,000	69.9	25,000	65.9	25,000	63.4	24,450	54.3
3/32	25,000	125.5	25,000	127.6	25,000	115.4	24,050	104.4	24,050	99.4	16,300	58.4
1/8	25,000	174.8	25,000	181.6	22,650	146.5	18,050	110.5	18,050	106.7	12,250	59.7
3/16	20,100	198.9	17,450	180.2	15,100	121.5	11,400	91.3	12,050	96.3	8,150	49.3
1/4	15,050	189.5	13,050	164.3	11,300	106.1	8,750	81.5	8,750	81.5	6,050	41.7
5/16	11,650	146.1	10,150	128.0	9,050	83.9	7,250	67.7	7,250	67.7	5,000	35.4
3/8	9,800	122.0	8,500	105.9	7,400	69.3	5,900	55.1	5,900	55.1	4,100	28.7
1/2	7,250	90.2	6,250	77.6	5,450	50.4	4,300	40.2	4,300	40.2	3,000	20.9

High Speed Light Milling (Metric)

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Cutting Speed	985 SFM		855 SFM		740 SFM		590 SFM		590 SFM		400 SFM	
Depth of Cut	a_a=0.02D a_r=0.05D 								Dia / a_a / a_r: D≤8: 0.02D / 0.05D; 8<D: 0.13D / 0.05D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	55.1	25,000	55.1	25,000	49.2	25,000	46.6	25,000	44.6	25,000	39.4
2	25,000	107.8	25,000	108.6	25,000	98.9	25,000	92.8	25,000	88.0	19,400	60.2
3	25,000	169.7	25,000	174.8	23,950	151.3	19,100	113.2	19,100	110.1	12,950	61.6
4	23,900	192.0	20,750	177.9	18,000	129.2	14,300	101.3	14,300	96.2	9,700	52.3
5	19,150	201.5	16,600	180.7	14,350	119.2	11,450	96.0	11,450	96.4	7,435	46.9
6	15,950	200.4	13,850	173.6	12,000	112.4	9,550	89.0	9,550	89.0	6,305	43.3
8	11,950	149.3	10,100	127.2	9,025	83.5	7,215	67.3	7,215	67.3	5,000	35.0
10	9,550	118.7	8,025	99.2	6,950	65.0	5,540	51.6	5,540	51.6	3,840	27.2
12	7,540	93.3	6,510	80.3	5,650	52.4	4,500	41.3	4,500	41.3	3,125	21.7
14	6,800	84.6	5,900	72.8	5,100	47.2	4,050	38.2	4,050	38.2	2,800	19.7
16	6,000	75.2	5,190	63.4	4,485	41.3	3,575	33.5	3,575	33.5	2,465	17.3
18	5,300	65.0	4,550	57.1	3,950	37.0	3,150	29.5	3,150	29.5	2,200	15.4
20	4,890	60.6	4,215	52.8	3,650	34.3	2,925	27.6	2,925	27.6	2,010	14.2
22	4,255	53.1	3,710	46.1	3,190	29.9	2,550	24.0	2,550	24.0	1,755	12.2
25	3,740	46.5	3,250	40.6	2,805	26.4	2,215	20.9	2,215	20.9	1,525	10.6

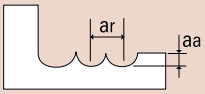
List HP418

Profiling Milling (Fractional)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	497 SFM	397 SFM	330 SFM	262 SFM	230 SFM	196 SFM	146 SFM
Depth of Cut	a_a=0.1D a_r=0.2D					a_a=0.05D a_r=0.1D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/32	20,450	37.0	16,520	30.1	13,590	24.5	10,955	15.8	9,625	11.4	8,295	8.3	6,235	5.5
1/8	14,800	37.0	11,975	30.1	10,050	24.8	8,080	16.2	7,075	12.0	6,070	8.7	4,540	5.7
3/16	9,975	40.3	8,050	32.8	6,730	24.9	5,355	17.5	4,710	14.6	4,025	11.1	3,015	6.9
1/4	7,600	43.0	6,070	35.0	5,060	27.2	4,015	18.9	3,530	15.8	3,010	11.8	2,245	7.4
3/8	5,035	48.1	4,025	38.6	3,340	29.7	2,650	20.9	2,330	17.1	2,005	13.1	1,480	8.3

Profiling Milling (Metric)

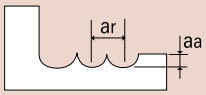
Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	497 SFM	397 SFM	330 SFM	262 SFM	230 SFM	196 SFM	146 SFM
Depth of Cut	a_a=0.1D a_r=0.2D					a_a=0.05D a_r=0.1D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	23.5	25,000	23.5	25,000	19.3	2,500	1.6	25,000	12.7	19,050	8.2	14,200	5.5
2	25,000	38.9	19,250	30.1	16,000	24.7	12,700	15.8	11,150	11.3	9,500	8.1	7,100	5.3
3	16,100	40.2	12,850	32.2	10,700	26.4	8,500	16.9	7,450	12.4	6,350	8.9	4,750	6.0
4	12,050	38.3	9,650	30.2	8,000	24.7	6,350	17.2	5,600	14.4	4,750	10.4	3,550	6.7
5	9,650	43.1	7,700	35.0	6,400	26.0	5,100	18.2	4,450	15.0	3,800	11.5	2,850	7.1
6	8,050	45.5	6,400	36.8	5,350	28.6	4,250	20.0	3,700	16.5	3,150	12.4	2,350	7.7
8	6,050	51.2	4,800	41.0	4,000	30.9	3,200	21.8	2,800	17.9	2,400	12.8	1,750	8.1
10	4,850	49.0	3,850	38.7	3,200	30.1	2,550	21.3	2,250	17.8	1,900	13.4	1,400	8.3
12	4,000	45.3	3,200	36.2	2,650	28.6	2,100	20.1	1,850	17.3	1,600	13.0	1,200	8.3

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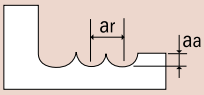
List HP418: (continued)

High Speed Light Milling (Fractional)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC
Work Material	Mild Steels Carbon Steels Cast Iron	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	980 SFM	850 SFM	740 SFM	590 SFM	590 SFM	410 SFM
Depth of Cut	a_a=0.02D a_r=0.05D				Dia: D≤5/32, 5/32<D a_a: 0.02D, 0.13D a_r: 0.05D, 0.05D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/32	25,000	125.3	25,000	126.7	25,000	115.8	24,050	104.2	24,050	99.8	16,700	60.1
1/8	25,000	170.0	25,000	175.2	22,650	143.3	18,050	107.2	18,050	104.0	12,550	60.1
3/16	17,350	166.8	17,350	176.0	15,050	119.3	12,050	95.6	12,050	95.2	8,350	50.4
1/4	13,000	163.6	12,880	161.7	11,050	103.8	9,080	84.8	9,080	84.8	6,305	43.5
3/8	8,650	107.7	8,660	108.0	7,575	70.7	6,035	56.4	6,035	56.4	4,180	29.6

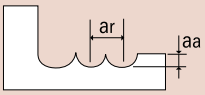
High Speed Light Milling (Metric)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC
Work Material	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	980 SFM	850 SFM	740 SFM	590 SFM	590 SFM	410 SFM
Depth of Cut	a_a=0.02D a_r=0.05D				Dia: D≤8, 8<D a_a: 0.02D, 0.13D a_r: 0.05D, 0.05D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	55.1	25,000	55.1	25,000	49.2	25,000	44.6	25,000	44.6	25,000	39.4
2	25,000	107.8	25,000	108.6	25,000	98.9	25,000	88.0	25,000	88.0	19,900	61.8
3	25,000	169.7	25,000	174.9	24,000	151.7	19,100	110.1	19,100	110.1	13,250	63.0
4	20,650	165.9	20,650	177.0	17,950	128.9	14,300	96.2	14,300	96.2	9,950	53.6
5	16,500	173.6	16,500	179.6	14,350	119.2	11,450	96.4	11,450	96.4	7,950	50.1
6	13,750	172.8	13,750	172.3	12,000	112.4	9,550	89.0	9,550	89.0	6,650	45.7
8	10,300	128.6	10,300	129.7	9,000	83.2	7,150	66.7	7,150	66.7	5,000	35.0
10	8,250	102.5	8,250	102.0	7,200	67.3	5,750	53.5	5,750	53.5	4,000	28.3
12	6,900	85.4	6,900	85.1	6,000	55.6	4,750	43.6	4,750	43.6	3,300	22.9

List HP419, HP413

Profiling Milling (Fractional)

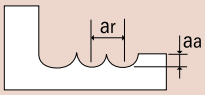
Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	574 SFM	460 SFM	377 SFM	295 SFM	262 SFM	230 SFM	164 SFM
Depth of Cut	ae=0.1D ap=0.2D					ae=0.05D ap=0.1D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/32	25,000	23.4	25,000	23.4	25,000	18.8	25,000	12.1	25,000	8.6	25,000	8.7	20,050	6.3
1/16	25,000	31.6	25,000	30.9	23,050	25.5	18,050	16.1	16,000	11.7	14,050	8.6	10,050	5.5
3/32	23,400	42.3	18,750	34.2	15,350	27.7	12,050	17.3	10,700	12.7	9,400	9.4	6,700	5.9
1/8	17,760	44.4	14,370	36.1	12,060	29.8	9,690	19.5	8,490	14.4	7,280	10.4	5,440	6.9
3/16	11,970	48.3	9,660	39.4	8,070	29.9	6,420	21.0	5,650	17.5	4,830	13.3	3,610	8.3

Reduce speeds and feeds 10% to 25% for Series HP419.

List HP419, HP419L, HP413

Profiling Milling (Metric)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	574 SFM	460 SFM	377 SFM	295 SFM	262 SFM	230 SFM	164 SFM
Depth of Cut	ae=0.1D ap=0.2D					ae=0.05D ap=0.1D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.5	25,000	19.2	25,000	19.2	25,000	15.4	25,000	9.7	25,000	7.7	25,000	4.3	25,000	4.4
0.6	25,000	20.8	25,000	20.8	25,000	16.9	25,000	10.3	25,000	8.2	25,000	4.7	25,000	4.5
0.8	25,000	23.1	25,000	23.1	25,000	18.2	25,000	10.8	25,000	8.5	25,000	8.2	19,900	6.0
1.0	25,000	23.5	25,000	23.5	25,000	19.3	25,000	15.7	25,000	12.7	25,000	10.8	15,900	6.1
2.0	25,000	38.9	22,350	34.9	18,300	28.2	14,300	17.7	12,700	12.9	11,150	9.5	7,950	5.9
3.0	18,600	46.4	14,900	37.4	12,200	30.1	9,550	19.0	8,500	14.2	7,450	10.5	5,300	6.7
4.0	13,950	44.3	11,150	34.9	9,150	28.2	7,150	19.4	6,350	16.4	5,600	12.2	4,000	7.5
5.0	11,150	49.8	9,000	40.9	7,300	29.7	5,750	20.6	5,100	17.2	4,450	13.4	3,200	8.0
6.0	9,300	52.6	7,450	42.9	6,100	32.6	4,750	22.4	4,250	19.0	3,700	14.5	2,650	8.7
8.0	7,000	59.2	5,600	47.8	4,600	35.6	3,600	24.6	3,200	20.4	2,800	14.9	2,000	9.3
10.0	5,550	56.0	4,450	44.7	3,650	34.4	2,850	23.8	2,550	20.2	2,250	15.9	1,600	9.5
12.0	4,650	52.7	3,700	41.9	3,050	32.9	2,400	22.9	2,100	19.6	1,850	15.0	1,350	9.3

Reduce feeds 10% to 20% for Series HP419L.

continued on next page

List HP419, HP413: (continued)

High Speed Light Milling (Fractional)

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Cutting Speed	951 SFM		820 SFM		722 SFM		574 SFM		574 SFM		394 SFM	
Depth of Cut	a_a=0.1D a_r=0.2D								Dia / a_a / a_r D≤5/32 / 0.02D / 0.05D 5/32<D / 0.13D / 0.05D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/32	25,000	43.3	25,000	43.3	25,000	39.4	25,000	37.4	25,000	35.3	25,000	30.8
1/16	25,000	80.8	25,000	78.1	25,000	70.3	25,000	66.3	25,000	64.0	24,060	53.6
3/32	25,000	125.3	25,000	126.7	25,000	115.8	23,370	101.2	23,370	96.9	16,040	57.6
1/8	25,000	169.9	25,000	175.1	22,050	139.5	17,530	104.1	17,530	101.1	12,030	57.6
3/16	19,360	186.1	16,700	169.4	14,700	116.4	11,680	92.7	11,680	92.2	8,020	48.4

Reduce speeds and feeds 10% to 25% for Series HP419.

List HP419, HP419L, HP413: (continued)

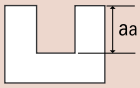
High Speed Light Milling (Metric)

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC		55-60 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Cutting Speed	951 SFM		820 SFM		722 SFM		574 SFM		574 SFM		394 SFM	
Depth of Cut	a_a=0.1D a_r=0.2D								Dia / a_a / a_r D≤8 / 0.02D / 0.05D 8<D / 0.13D / 0.05D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.5	25,000	28.5	25,000	27.6	25,000	27.6	25,000	23.6	25,000	22.6	25,000	22.6
0.6	25,000	32.5	25,000	32.5	25,000	32.5	25,000	27.6	25,000	27.1	25,000	27.1
0.8	25,000	43.3	25,000	43.3	25,000	39.4	25,000	37.4	25,000	35.4	25,000	30.8
1.0	25,000	55.1	25,000	55.1	25,000	49.2	25,000	46.6	25,000	44.6	25,000	39.4
2.0	25,000	108.1	25,000	108.6	25,000	98.9	25,000	92.8	25,000	88.5	19,100	59.3
3.0	25,000	169.9	25,000	175.1	23,330	147.6	18,550	110.1	18,550	107.0	12,730	61.0
4.0	23,050	185.3	19,870	170.4	17,500	125.7	13,910	98.7	13,910	94.0	9,550	51.8
5.0	18,440	194.4	15,900	173.5	14,000	116.6	11,130	93.4	11,130	93.8	7,640	48.2
6.0	15,360	193.4	13,250	166.3	11,670	109.6	9,280	86.6	9,280	86.6	6,370	43.9
8.0	11,530	144.2	9,940	125.3	8,750	80.9	6,960	65.2	6,960	65.2	4,780	33.8
10.0	9,220	114.6	7,950	98.6	7,000	65.5	5,570	51.9	5,570	51.9	3,820	27.0
12.0	7,680	95.3	6,630	82.0	5,830	54.0	4,640	42.8	4,640	42.8	3,180	22.4

Reduce feeds 10% to 20% for Series HP419L.

List HP432

Slotting (Fractional)

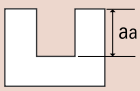
Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	360 SFM	330 SFM	260 SFM	220 SFM	180 SFM	120 SFM	80 SFM
Depth of Cut		Dia / aa: D<1/16 — 0.1D; 1/16≤D≤1/8 — 0.3D; 1/8≤D — 0.5D				Dia / aa: D<1/16 — 0.02D; 1/16≤D — 0.05D	Dia / aa: D<1/16 — 0.01D; 1/16≤D≤1/8 — 0.02D; 1/8≤D — 0.05D

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	10,990	12.4	10,075	11.5	7,940	8.0	6,720	5.4	5,495	4.0	3,665	2.5	2,445	1.5
3/16	7,330	15.7	6,720	14.4	5,295	10.4	4,480	6.0	3,665	4.4	2,445	2.7	1,630	1.4
1/4	5,500	15.7	5,040	14.4	3,970	10.7	3,360	6.0	2,750	4.5	1,830	2.7	1,220	1.2
5/16	4,395	15.3	4,030	14.0	3,175	10.8	2,685	6.0	2,200	4.5	1,465	2.5	975	1.2
3/8	3,665	14.6	3,360	13.3	2,645	10.6	2,240	5.9	1,830	4.3	1,220	2.4	815	1.2
1/2	2,750	14.4	2,520	13.3	1,985	10.4	1,680	5.7	1,375	4.3	915	2.1	610	0.9
5/8	2,200	12.6	2,015	12.4	1,590	9.3	1,345	4.8	1,100	3.8	735	1.7	490	0.7
3/4	1,830	11.5	1,680	10.5	1,325	7.7	1,120	3.9	915	3.1	610	1.5	410	0.6
1	1,375	8.6	1,260	7.8	990	5.8	840	3.0	685	2.5	460	0.9	305	0.5

For side milling, increase feeds 20% to 50%.

List HP432, HP433

Slotting (Metric)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	360 SFM	330 SFM	260 SFM	220 SFM	180 SFM	120 SFM	80 SFM
Depth of Cut		Dia / aa: D<1 — 0.1D; 1≤D<3 — 0.3D; 3≤D — 0.5D				Dia / aa: D<1 — 0.02D; 1≤D — 0.05D	Dia / aa: D<1 — 0.01D; 1≤D<3 — 0.02D; 3≤D — 0.05D

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	11,635	12.4	10,665	11.4	8,400	7.8	7,110	5.2	5,815	3.9	3,880	2.5	2,585	1.5
4	8,725	14.7	8,000	13.5	6,300	10.5	5,330	7.0	4,365	5.0	2,910	2.9	1,940	1.7
5	6,980	19.7	6,400	17.9	5,040	13.4	4,265	7.4	3,490	5.6	2,325	3.2	1,550	1.7
6	5,815	19.3	5,330	17.6	4,200	13.4	3,555	7.4	2,910	5.6	1,940	3.2	1,295	1.4
8	4,365	18.4	4,000	16.7	3,150	13.4	2,665	7.0	2,180	5.6	1,455	2.9	970	1.4
10	3,490	17.4	3,200	15.8	2,520	13.1	2,135	7.0	1,745	5.3	1,165	2.9	775	1.4
12	2,910	17.4	2,665	15.8	2,100	13.1	1,775	7.0	1,454	5.3	970	2.6	645	1.1

For side milling, increase feeds 20% to 50%.

continued on next page

List HP434

Side Milling (Fractional)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	390 SFM	330 SFM	270 SFM	220 SFM	190 SFM	120 SFM	80 SFM
Depth of Cut	Dia: D≤1/8 aa 1.5D ar 0.05D; 1/8<D aa 1.5D ar 0.10D					aa=1D ar=0.02D	

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	11,910	28.0	10,075	23.7	8,245	16.0	6,720	5.6	5,800	5.5	3,665	3.3	2,445	2.3
3/16	7,940	33.1	6,720	28.2	5,495	18.0	4,480	6.5	3,870	5.6	2,445	3.6	1,630	2.1
1/4	5,955	29.0	5,040	28.6	4,120	19.5	3,360	6.9	2,900	5.8	1,830	3.4	1,220	1.9
5/16	4,765	33.2	4,030	28.0	3,300	19.6	2,685	7.0	2,320	6.0	1,465	3.4	975	1.7
3/8	3,970	33.3	3,360	27.8	2,750	19.5	2,240	6.9	1,935	6.0	1,220	3.9	815	1.7
1/2	2,975	32.3	2,520	27.6	2,060	19.4	1,680	7.0	1,450	5.9	915	2.7	610	1.3
5/8	2,380	31.7	2,015	26.4	1,650	19.8	1,345	6.2	1,160	5.2	735	2.3	490	0.9
3/4	1,985	30.7	1,680	26.1	1,375	16.0	1,120	5.1	965	4.5	610	1.8	405	1.0
1	1,490	23.4	1,260	19.8	1,030	13.7	840	3.9	725	3.4	460	1.5	305	0.7

For Slotting, reduce feeds 20% to 50%.

List HP434, HP435

Side Milling (Metric)

Hardness	–	<20 HRC	20-30 HRC	30-38 HRC	38-45 HRC	45-55 HRC	55-60 HRC
Work Material	Cast Iron	Mild Steels Carbon Steels	Alloy Steels Tool Steels Ti Alloys (Annealed)	Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels	Hardened Steels
Cutting Speed	390 SFM	330 SFM	270 SFM	220 SFM	190 SFM	120 SFM	80 SFM
Depth of Cut	Dia: D≤3 aa 1.5D ar 0.05D; 3<D aa 1.5D ar 0.10D					aa=1D ar=0.02D	

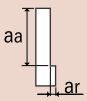
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	12,605	29.7	10,665	25.1	8,725	17.0	7,110	5.9	6,140	5.8	3,880	3.6	2,585	2.4
4	9,450	29.4	8,000	24.8	6,545	14.5	5,330	6.5	4,605	5.5	2,910	3.6	1,940	2.3
5	7,560	34.7	6,400	30.2	5,235	20.2	4,265	6.8	3,685	5.9	2,325	3.7	1,550	2.1
6	6,300	30.7	5,330	30.2	4,365	20.6	3,555	7.2	3,070	6.2	1,940	3.6	1,295	2.0
8	4,725	32.9	4,000	27.8	3,270	19.4	2,665	6.9	2,300	6.0	1,455	3.4	970	1.7
10	3,780	34.5	3,200	28.8	2,620	20.2	2,135	7.2	1,840	6.2	1,165	4.1	775	1.7
12	3,150	34.3	2,665	29.3	2,180	20.5	1,775	7.4	1,535	6.2	970	2.9	645	1.4

For Slotting, reduce feeds 20% to 50%.

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List HP432, HP434 (Continued)

High Speed Light Milling (Fractional)

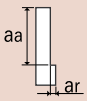
Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels	
Cutting Speed	1,310 SFM		1,150 SFM		820 SFM		490 SFM		260 SFM	
Depth of Cut	Dia / aa / ar D≤5/16 / 1.5D / 0.01D 5/16<D≤5/8 / 1.5D / 0.02D 5/8<D / 1.5D / 0.05D						Dia / aa / ar D≤5/16 / 1D / 0.01D 5/16<D / 1D / 0.02D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	25,000	49.3	25,000	49.6	25,000	49.0	14,960	25.6	7,940	14.4
3/16	25,000	104.5	23,410	80.6	16,690	53.8	9,975	28.3	5,295	17.1
1/4	20,000	96.5	17,555	84.1	12,520	59.0	7,480	30.6	3,970	16.4
5/16	16,000	98.7	14,045	85.1	10,015	57.5	5,985	31.0	3,175	16.6
3/8	13,335	98.6	11,705	83.8	8,345	56.7	4,985	31.0	2,645	16.5
1/2	10,000	95.4	8,780	81.4	6,260	55.6	3,740	30.2	1,985	16.0
5/8	8,000	88.6	7,025	77.1	5,010	53.7	2,990	28.4	1,590	15.0
3/4	6,665	85.6	5,850	74.2	4,175	51.5	2,495	27.3	1,325	14.5
1	5,000	66.4	4,390	58.2	3,130	41.0	1,870	21.9	990	11.0

Reduce feeds 50% for Series HP432 High speed Light Milling.

continued on next page

List HP432, HP434, HP433, HP435: (continued)

High Speed Light Milling (Metric)

Hardness	<20 HRC		20-30 HRC		30-38 HRC		38-45 HRC		45-55 HRC	
Work Material	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Pre-hardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Pre-hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels	
Cutting Speed	1,310 SFM		1,150 SFM		820 SFM		490 SFM		260 SFM	
Depth of Cut	Dia / aa / ar D≤8 / 1.5D / 0.01D 8<D≤16 / 1.5D / 0.02D 16<D / 1.5D / 0.05D						Dia / aa / ar D≤8 / 1D / 0.01D 8<D / 1D / 0.02D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	25,000	46.8	25,000	47.2	25,000	46.4	15,835	25.9	8,400	14.1
4	25,000	65.6	25,000	65.4	19,875	53.1	11,875	27.1	6,300	16.4
5	25,000	96.7	22,300	84.0	15,900	55.1	9,500	29.4	5,040	17.7
6	21,165	97.2	18,580	85.0	13,250	60.2	7,915	31.2	4,200	16.5
8	15,875	98.8	13,935	85.3	9,935	57.3	5,940	31.2	3,150	16.7
10	12,700	100.0	11,150	83.8	7,950	57.1	4,750	31.5	2,520	16.7
12	10,585	97.2	9,290	83.0	6,625	57.3	3,960	31.2	2,100	16.1

Reduce feeds 50% for Series HP432 High speed Light Milling.

Standard 2 Flute and 3 Flute Carbide

Side Milling (Fractional)

Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330-400 SFM		100-150 SFM		100-150 SFM		80-115 SFM		80-100 SFM		50 SFM	
Depth of Cut	a_a=1.5D a_r=0.1D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.015	25,000	3.9	25,000	3.1	25,000	1.7	24,810	1.2	2,290	0.1	12,725	0.2
0.02	25,000	7.1	23,855	5.2	23,855	2.6	18,605	1.6	17,175	0.8	9,540	0.4
0.03	25,000	11.1	15,905	4.9	15,905	2.7	12,405	1.7	11,450	0.8	6,360	0.4
3/64	25,000	14.0	10,180	5.0	10,180	3.1	7,940	2.4	7,330	1.3	4,070	0.5
1/16	22,290	18.6	7,635	5.5	7,635	3.4	5,955	2.7	5,495	1.4	3,055	0.6
5/64	17,830	19.7	6,105	8.4	6,105	3.7	4,765	2.9	4,395	1.5	2,445	1.0
1/8	11,145	15.8	3,815	9.5	3,815	5.0	2,975	3.9	2,750	1.6	1,525	1.0
5/32	8,915	17.5	3,055	10.2	3,055	5.9	2,380	4.2	2,200	1.7	1,220	1.0
3/16	7,430	18.5	2,545	10.7	2,545	7.2	1,985	4.6	1,830	1.7	1020	1.1
1/4	5,575	16.5	1,910	9.6	1,910	6.4	1,490	4.3	1,375	1.5	765	1.0
5/16	4,460	18.5	1,525	10.0	1,525	6.7	1,190	4.4	1,100	1.7	610	1.0
3/8	3,715	19.5	1,270	11.2	1,270	8.1	990	4.6	915	1.7	510	1.1
1/2	2,785	19.5	955	10.0	955	7.2	745	4.3	685	1.5	380	1.0
5/8	2,230	20.8	765	12.6	765	8.3	595	4.9	550	1.7	305	1.0
3/4	1,860	21.5	635	13.2	635	8.8	495	5.5	460	1.7	255	1.1
1	1,395	18.3	475	12.6	475	8.3	370	4.8	345	1.3	190	0.8

1. Increase speeds & feeds 5-10% for Series 412 and 422.
2. Reduce speeds & feeds 20-30% for Series 462.
3. Reduce speeds & feeds 40-50% for Series 482.
4. Increase speeds & feeds 20-30% for 402 TiN.
5. Column for Hardened Steels (40-50 HRC) is for Series 402 TiN and 403 TiN only.
6. Increase speeds & feeds 20-30% for Series 403 and 445.
7. Increase speeds & feeds 20-40% for Series 403 TiN.

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Standard 2 Flute and 3 Flute Carbide: (continued)

Side Milling (Metric)

Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330-400 SFM		100-150 SFM		100-150 SFM		80-115 SFM		80-100 SFM		50 SFM	
Depth of Cut	∂a=1.5D ∂r=0.1D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.3	25,000	3.9	25,000	3.1	25,000	1.6	25,000	1.2	25,000	0.6	16,160	0.3
0.5	25,000	7.1	24,235	5.3	24,235	2.6	18,905	1.6	17,450	0.8	9,695	0.4
0.8	25,000	11.1	15,145	4.7	15,145	2.6	11,815	1.6	10,905	0.8	6,060	0.4
1.0	25,000	14.1	12,120	6.0	12,120	3.7	9,450	2.8	8,725	1.5	4,845	0.6
1.5	23,590	19.7	8,080	5.9	8,080	3.6	6,300	2.8	5,815	1.5	3,230	0.6
2.0	17,695	19.6	6,060	8.4	6,060	3.7	4,725	2.8	4,365	1.5	2,425	0.6
3.0	11,795	16.7	4,040	10.0	4,040	5.3	3,150	4.2	2,910	1.6	1,615	1.0
4.0	8,845	17.4	3,030	10.1	3,030	5.9	2,365	4.2	2,180	1.6	1,210	1.0
5.0	7,075	17.6	2,425	10.2	2,425	6.8	1,890	4.4	1,745	1.6	970	1.0
6.0	5,900	17.5	2,020	10.1	2,020	6.7	1,575	4.6	1,455	1.6	810	1.0
8.0	4,425	18.3	1,515	9.9	1,515	6.6	1,180	4.4	1,090	1.6	605	1.0
10.0	3,540	18.6	1,210	10.7	1,210	7.7	945	4.4	875	1.6	485	1.0
12.0	2,950	20.6	1,010	10.6	1,010	7.6	790	4.6	725	1.6	405	1.0
16.0	2,210	20.6	755	12.4	755	8.3	590	4.9	545	1.6	305	1.0
20.0	1,770	20.5	605	12.6	605	8.4	475	5.3	435	1.6	240	1.0
25.0	1,415	18.6	485	12.8	485	8.5	380	4.9	350	1.3	195	0.8

1. Increase speeds & feeds 5-10% for Series 412 and 422.
2. Reduce speeds & feeds 20-30% for Series 462.
3. Reduce speeds & feeds 40-50% for Series 482.
4. Increase speeds & feeds 20-30% for 402 TiN.
5. Column for Hardened Steels (40-50 HRC) is for Series 402 TiN and 403 TiN only.
6. Increase speeds & feeds 20-30% for Series 403 and 445.
7. Increase speeds & feeds 20-40% for Series 403 TiN.

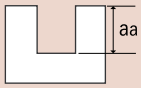
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Standard 2 Flute and 3 Flute Carbide: (continued)

Slotting (Fractional)

Hardness	–	–	<20 HRC	20-30 HRC	30-40 HRC	40-50 HRC
Work Material	Aluminum	Cast Iron	Mild Carbon Steels Mild Steels	Pre-hardened Steels Die & Alloy Steels	Pre-hardened Steels Die & Alloy Steels	Hardened Steels
Cutting Speed	330 SFM	100-150 SFM	100-130 SFM	65-100 SFM	65-82 SFM	43 SFM
Depth of Cut						

Dia	aa
D<1/32	0.25D
1/32<D<5/64	0.50D
5/64<D	1.00D



Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.015	25,000	1.8	25,000	3.1	25,000	1.2	20,990	0.7	18,700	0.4	10,940	0.2
0.020	25,000	3.2	23,855	5.2	21,945	1.8	15,745	1.0	14,025	0.7	8,205	0.3
0.030	25,000	4.9	15,905	4.9	14,630	2.6	10,495	1.3	9,350	0.7	5,470	0.3
3/64	25,000	6.3	10,180	4.0	9,365	2.2	6,720	1.1	5,985	0.5	3,500	0.2
1/16	20,155	7.5	7,635	4.4	7,025	2.9	5,040	1.1	4,490	0.7	2,625	0.3
5/64	16,120	11.9	6,105	5.1	5,620	3.5	4,030	1.9	3,590	1.1	2,100	0.5
1/8	10,075	10.6	3,815	5.1	3,510	3.2	2,520	2.4	2,245	1.0	1,315	0.5
5/32	8,060	11.9	3,055	5.4	2,810	3.5	2,015	2.6	1,795	1.1	1,050	0.5
3/16	6,720	12.6	2,545	5.7	2,340	3.7	1,680	2.6	1,495	1.1	875	0.6
1/4	5,040	11.2	1,910	6.4	1,755	3.2	1,260	2.4	1,120	1.0	655	0.5
5/16	4,030	11.9	1,525	7.9	1,405	3.4	1,010	2.6	890	1.1	525	0.5
3/8	3,360	12.6	1,270	8.4	1,170	3.7	840	2.6	750	1.1	440	0.6
1/2	2,520	11.2	955	7.5	880	3.2	630	2.4	560	1.0	330	0.5
5/8	2,015	11.9	765	7.9	700	3.4	505	2.6	450	1.4	265	0.4
3/4	1,680	12.4	635	8.3	585	3.6	420	2.8	375	1.4	220	0.4
1	1,260	11.9	475	7.9	440	3.4	315	2.6	280	1.3	165	0.3

1. Increase speeds & feeds 5-10% for Series 412 and 422.
2. Reduce speeds & feeds 20-30% for Series 462.
3. Reduce speeds & feeds 40-50% for Series 482.
4. Increase speeds & feeds 20-30% for 402 TiN.
5. Column for Hardened Steels (40-50 HRC) is for Series 402 TiN and 403 TiN only.
6. Increase speeds & feeds 20-30% for Series 403 and 445.
7. Increase speeds & feeds 20-40% for Series 403 TiN.

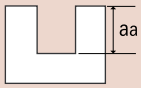
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Standard 2 Flute and 3 Flute Carbide: (continued)

Slotting (Metric)

Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330 SFM		100-150 SFM		100-130 SFM		65-100 SFM		65-82 SFM		43 SFM	
Depth of Cut												
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.3	25,000	1.8	25,000	3.1	25,000	1.1	25,000	0.8	23,750	0.6	13,895	0.2
0.5	25,000	3.2	24,235	5.3	22,300	1.8	15,995	1.0	14,250	0.7	8,335	0.3
0.8	25,000	4.9	15,150	4.7	13,935	2.5	10,000	1.2	8,905	0.7	5,210	0.3
1.0	25,000	6.2	12,120	4.8	11,150	2.6	8,000	1.3	7,125	0.6	4,170	0.3
1.5	21,330	7.9	8,080	4.7	7,435	3.1	5,330	1.1	4,750	0.7	2,780	0.4
2.0	15,995	11.8	6,060	5.0	5,575	3.5	4,000	1.9	3,565	1.1	2,085	0.5
3.0	10,665	11.2	4,040	5.4	3,715	3.4	2,665	2.6	2,375	1.1	1,390	0.5
4.0	8,000	11.8	3,030	5.4	2,785	3.5	2,000	2.6	1,780	1.1	1,040	0.5
5.0	6,400	12.0	2,425	5.5	2,230	3.5	1,600	2.5	1,425	1.1	835	0.6
6.0	5,330	11.9	2,020	6.7	1,860	3.5	1,335	2.6	1,190	1.1	695	0.5
8.0	4,000	11.8	1,515	7.8	1,395	3.4	1,000	2.6	890	1.1	520	0.5
10.0	3,200	12.0	1,210	8.0	1,115	3.5	800	2.5	715	1.1	415	0.5
12.0	2,665	11.9	1,010	8.0	930	3.5	665	2.6	595	1.0	345	0.5
16.0	2,000	11.8	755	7.8	695	3.4	500	2.6	445	1.3	260	0.4
20.0	1,600	11.8	605	7.9	555	3.5	400	2.7	355	1.3	210	0.3
25.0	1,280	12.1	485	8.0	445	3.5	320	2.7	285	1.3	165	0.3

Dia	aa
D<0.8	0.25D
0.8<D<2	0.50D
2<D	1.00D



1. Increase speeds & feeds 5-10% for Series 412 and 422.
2. Reduce speeds & feeds 20-30% for Series 462.
3. Reduce speeds & feeds 40-50% for Series 482.
4. Increase speeds & feeds 20-30% for 402 TiN.
5. Column for Hardened Steels (40-50 HRC) is for Series 402 TiN and 403 TiN only.
6. Increase speeds & feeds 20-30% for Series 403 and 445.
7. Increase speeds & feeds 20-40% for Series 403 TiN.

Standard 4 Flute and Multiple Flute Carbide

Side Milling (Fractional)

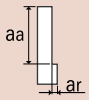
Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330-400 SFM		100-150 SFM		100-150 SFM		80-115 SFM		80-100 SFM		50 SFM	
Depth of Cut	a_a=1.5D a_r=0.1D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.030	25,000	15.5	15,905	6.9	15,905	3.7	12,405	2.5	11,450	1.1	6,360	0.6
3/64	25,000	19.7	10,180	7.0	10,180	4.3	7,940	3.3	7,330	1.8	4,070	0.7
1/16	22,290	26.1	7,635	7.7	7,635	4.8	5,955	3.7	5,495	2.0	3,055	0.8
5/64	17,830	27.6	6,105	11.9	6,105	5.2	4,765	3.9	4,395	2.2	2,445	0.8
1/8	11,145	22.1	3,815	13.3	3,815	7.0	2,975	5.6	2,750	2.2	1,525	1.3
5/32	8,915	24.6	3,055	14.2	3,055	8.3	2,380	6.0	2,200	2.3	1,220	1.4
3/16	7,430	26.0	2,545	15.0	2,545	10.0	1,985	6.3	1,830	2.4	1,020	1.5
1/4	5,575	23.2	1,910	13.4	1,910	8.9	1,490	5.9	1,375	2.1	765	1.3
5/16	4,460	25.9	1,525	14.0	1,525	9.3	1,190	6.0	1,100	2.3	610	1.4
3/8	3,715	27.3	1,270	15.7	1,270	11.1	990	6.3	915	2.4	510	1.5
1/2	2,785	27.1	955	14.0	955	9.9	745	5.9	685	2.1	380	1.3
5/8	2,230	29.0	765	17.6	765	11.7	595	7.0	550	2.3	305	1.4
3/4	1,860	30.1	635	18.5	635	12.3	495	7.8	460	2.4	255	1.5
1	1,395	25.7	475	17.6	475	11.7	375	7.0	345	1.8	190	1.1

1. Reduce speeds & feeds 20-30% for Series 464.
2. Reduce speeds & feeds 40-50% for Series 484.
3. Slotting is not recommended for Series 484.
4. Increase speeds & feeds 20-30 % for Series 404 TiN.
5. Column for Hardened Steels (40-50 HRC), is for Series 404 TiN only.

continued on next page

Standard 4 Flute and Multiple Flute Carbide: (continued)

Side Milling (Metric)

Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330-400 SFM		100-150 SFM		100-150 SFM		80-115 SFM		80-100 SFM		50 SFM	
Depth of Cut	a_a=1.5D a_r=0.1D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.8	25,000	15.5	15,150	6.5	15,150	3.6	11,815	2.3	10,905	1.1	6,060	0.6
1.0	25,000	19.7	12,120	8.4	12,120	5.2	9,450	4.0	8,725	2.1	4,845	0.8
1.5	23,590	27.6	8,080	8.2	8,080	5.1	6,300	4.0	5,815	2.1	3,230	0.8
2.0	17,695	27.4	6,060	11.8	6,060	5.2	4,725	4.0	4,365	2.1	2,425	0.8
3.0	11,795	23.4	4,040	14.1	4,040	7.4	3,150	5.9	2,910	2.3	1,615	1.4
4.0	8,845	24.4	3,030	14.1	3,030	8.2	2,365	6.0	2,180	2.3	1,210	1.4
5.0	7,075	24.7	2,425	14.3	2,425	9.5	1,890	6.0	1,745	2.3	970	1.4
6.0	5,900	24.5	2,020	14.2	2,020	9.4	1,575	6.2	1,455	2.3	810	1.4
8.0	4,425	25.7	1,515	13.9	1,515	9.3	1,180	6.0	1,090	2.3	605	1.4
10.0	3,540	26.0	1,210	15.0	1,210	10.5	945	6.0	875	2.3	485	1.4
12.0	2,950	28.8	1,010	14.8	1,010	10.4	790	6.2	725	2.2	405	1.4
16.0	2,210	28.8	755	17.3	755	11.6	590	6.9	545	2.3	305	1.4
20.0	1,770	28.6	605	17.6	605	11.7	475	7.4	435	2.3	240	1.4
25.0	1,415	26.0	485	17.9	485	11.9	380	7.0	350	1.8	195	1.1

1. Reduce speeds & feeds 20-30% for Series 464.
2. Reduce speeds & feeds 40-50% for Series 484.
3. Slotting is not recommended for Series 484.
4. Increase speeds & feeds 20-30 % for Series 404 TiN.
5. Column for Hardened Steels (40-50 HRC), is for Series 404 TiN only.

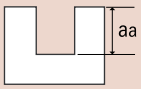
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Standard 4 Flute and Multiple Flute Carbide: (continued)

Slotting (Fractional)

Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330 SFM		100-150 SFM		100-130 SFM		65-100 SFM		65-82 SFM		43 SFM	
Depth of Cut												

Dia	aa
D<1/32	0.2D
1/32<D<5/64	0.3D
5/64<D	0.5D

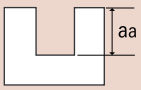


Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.030	25,000	6.9	15,905	6.9	14,630	3.7	10,495	1.8	9,350	0.9	5,470	0.4
3/64	25,000	8.7	10,180	5.7	9,365	3.1	6,720	1.5	5,985	0.7	3,500	0.3
1/16	20,155	10.5	7,635	6.3	7,025	4.0	5,040	1.6	4,490	1.0	2,625	0.5
5/64	16,120	16.6	6,105	7.1	5,620	4.9	4,030	2.7	3,590	1.5	2,100	0.8
1/8	10,075	14.8	3,815	7.1	3,510	4.5	2,520	3.4	2,245	1.5	1,315	0.7
5/32	8,060	16.6	3,055	7.7	2,810	4.9	2,015	3.6	1,795	1.5	1,050	0.8
3/16	6,720	17.6	2,545	8.1	2,340	5.1	1,680	3.6	1,495	1.6	875	0.8
1/4	5,040	15.7	1,910	8.9	1,755	4.6	1,260	3.4	1,120	1.5	655	0.7
5/16	4,030	16.6	1,525	11.0	1,405	4.8	1,010	3.6	900	1.5	525	0.8
3/8	3,360	17.6	1,270	11.8	1,170	5.1	840	3.6	750	1.6	440	0.8
1/2	2,520	15.7	955	10.5	880	4.6	630	3.3	560	1.4	330	0.7
5/8	2,015	16.6	765	11.1	700	4.8	505	3.7	450	1.8	265	0.6
3/4	1,680	17.3	635	11.6	585	5.1	420	3.9	375	1.9	220	0.6
1	1,260	16.6	475	11.0	440	4.8	315	3.7	280	1.8	165	0.3

Slotting (Metric)

Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330 SFM		100-150 SFM		100-130 SFM		65-100 SFM		65-82 SFM		43 SFM	
Depth of Cut												

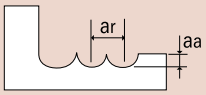
Dia	aa
D<0.8	0.2D
0.8<D<2	0.3D
2<D	0.5D



Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
0.8	25,000	6.9	15,150	6.5	13,935	3.4	10,000	1.7	8,905	0.9	5,210	0.3
1.0	25,000	8.7	12,120	6.8	11,150	3.7	8,000	1.8	7,125	0.8	4,170	0.3
1.5	21,330	11.1	8,080	6.7	7,435	4.3	5,330	1.6	4,750	1.0	2,780	0.5
2.0	15,995	16.5	6,060	7.1	5,575	4.9	4,000	2.7	3,565	1.5	2,085	0.8
3.0	10,665	15.7	4,040	7.5	3,715	4.8	2,665	3.6	2,375	1.5	1,390	0.8
4.0	8,000	16.5	3,030	7.6	2,785	4.9	2,000	3.6	1,780	1.5	1,040	0.8
5.0	6,400	16.8	2,425	7.7	2,230	4.9	1,600	3.5	1,425	1.5	835	0.8
6.0	5,330	16.6	2,020	9.4	1,860	4.8	1,335	3.6	1,190	1.5	695	0.8
8.0	4,000	16.5	1,515	10.9	1,395	4.8	1,000	3.6	890	1.5	520	0.8
10.0	3,200	16.8	1,210	11.2	1,115	4.9	800	3.5	715	1.5	415	0.7
12.0	2,665	16.6	1,010	11.1	930	4.8	665	3.5	595	1.4	345	0.7
16.0	2,000	16.5	755	10.9	695	4.8	500	3.7	445	1.8	260	0.6
20.0	1,600	16.5	605	11.1	555	4.9	400	3.8	355	1.7	210	0.5
25.0	1,280	16.9	485	11.3	445	4.9	320	3.8	285	1.8	165	0.4

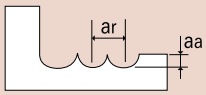
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Profiling (Fractional)

Hardness	–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steel Die & Alloy Steels		Pre-hardened Steels Stainless Steel Die & Alloy Steels		Hardened Steels	
Cutting Speed	390 SFM		390 SFM		330 SFM		260 SFM		200 SFM	
Depth of Cut	ar=0.3D		Dia / aa: D≤5/8 — 0.05D; 5/8<D — 0.03D							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	11,910	33.7	11,910	28.8	10,075	22.8	7,940	14.9	6,105	11.4
3/16	7,940	29.8	7,940	24.0	6,720	20.2	5,295	14.9	4,080	11.9
1/4	5,955	28.2	5,955	22.7	5,040	18.9	3,970	14.8	3,055	11.3
5/16	4,765	26.8	4,765	22.3	4,030	18.2	3,175	15.1	2,445	11.5
3/8	3,970	22.3	3,970	19.0	3,360	16.0	2,645	12.4	2,035	9.3
7/16	3,400	18.8	3,400	16.1	2,880	13.5	2,270	10.9	1,745	8.3
1/2	2,975	17.0	2,975	13.6	2,520	12.2	1,985	9.5	1,525	7.2
9/16	2,645	14.9	2,645	12.4	2,240	11.2	1,765	8.4	1,355	6.8
5/8	2,380	13.9	2,380	10.9	2,015	9.1	1,590	8.0	1,220	6.1
3/4	1,985	11.5	1,985	9.4	1,680	8.4	1,325	6.1	1,020	5.4
1	1,490	8.9	1,490	7.0	1,260	5.8	990	5.0	765	4.0

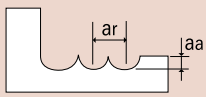
Standard Ball Nose Carbide 2 Flute and 3 Flute

Profiling (Fractional)

Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330 SFM		115 SFM		115 SFM		80 SFM		65 SFM		82 SFM	
Depth of Cut	ar=0.3D aa=0.7D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/64	25,000	5.9	9,365	3.0	9,365	2.6	6,515	1.5	5,295	0.7	6,675	1.5
5/64	16,120	7.6	5,620	3.5	5,620	3.1	3,910	1.8	3,175	0.9	4,005	1.8
1/8	10,075	7.6	3,510	3.7	3,510	3.3	2,445	1.9	1,985	1.1	2,505	2.1
5/32	8,060	7.6	2,810	3.9	2,810	3.5	1,954	2.0	1,590	1.2	2,005	2.2
3/16	6,720	7.9	2,340	4.1	2,340	3.7	1,630	2.0	1,325	1.2	1,670	2.3
1/4	5,040	7.1	1,760	3.6	1,760	3.2	1,220	1.8	990	1.2	1,250	2.1
5/16	4,030	8.8	1,405	3.9	1,405	3.5	975	2.0	795	1.2	1,000	2.2
13/32	3,100	8.4	1,080	3.8	1,080	3.4	750	1.9	610	1.1	770	2.1
15/32	2,685	9.0	935	3.9	935	3.5	650	2.0	530	1.2	670	2.2
5/8	2,015	8.8	700	3.9	700	3.5	490	2.0	395	1.2	500	2.2
25/32	1,610	8.8	560	3.9	560	3.5	390	2.0	320	1.2	400	2.2
1	1,260	9.1	440	3.8	440	3.4	305	1.9	250	1.2	315	2.2

1. Increase speeds & feeds 5-10% for Series 412BN, 414BN, 442BN and 444BN.
2. Reduce speeds & feeds 20-30% for Series 462BN and 464BN.
3. Reduce speeds & feeds 40-50% for Series 482BN and 484BN.
4. Increase speeds & feeds 20-30% for Series 402BN TiN and 404BN TiN.
5. Column for Hardened Steels (40-50 HRC) is for 402BN TiN and 404BN TiN only.

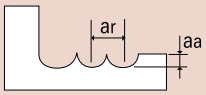
Profiling (Metric)

Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330 SFM		115 SFM		115 SFM		80 SFM		65 SFM		82 SFM	
Depth of Cut	ar=0.3D aa=0.7D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	5.8	11,130	3.6	11,130	3.2	7,950	1.8	6,360	0.9	7,950	1.8
2	15,905	7.4	5,565	3.5	5,565	3.1	3,975	1.8	3,180	0.9	3,975	1.8
3	10,600	7.9	3,710	3.9	3,710	3.6	2,650	2.0	2,120	1.2	2,650	2.2
4	7,950	7.4	2,785	3.9	2,785	3.5	1,990	2.0	1,590	1.2	1,990	2.2
5	6,360	7.4	2,225	4.0	2,225	3.6	1,590	2.0	1,270	1.2	1,590	2.2
6	5,300	7.5	1,855	3.8	1,855	3.5	1,325	2.0	1,060	1.3	1,325	2.2
8	3,975	8.6	1,390	3.9	1,390	3.5	995	2.0	795	1.2	995	2.2
10	3,180	8.6	1,115	4.0	1,115	3.6	795	2.0	635	1.2	795	2.2
12	2,650	8.8	930	3.9	930	3.5	665	2.0	530	1.2	665	2.2
16	1,990	8.6	695	3.9	695	3.5	495	1.9	400	1.2	495	2.1
20	1,590	8.6	555	3.9	555	3.5	400	2.0	320	1.2	400	2.2
25	1,270	9.2	445	3.9	445	3.5	320	2.0	255	1.2	320	2.2

1. Increase speeds & feeds 5-10% for Series 412BN, 414BN, 442BN and 444BN.
2. Reduce speeds & feeds 20-30% for Series 462BN and 464BN.
3. Reduce speeds & feeds 40-50% for Series 482BN and 484BN.
4. Increase speeds & feeds 20-30% for Series 402BN TiN and 404BN TiN.
5. Column for Hardened Steels (40-50 HRC) is for 402BN TiN and 404BN TiN only.

Standard Ball Nose Carbide 4 Flute and Multiple Flute

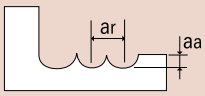
Profiling (Fractional)

Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330 SFM		100-115 SFM		100-130 SFM		65-100 SFM		65-82 SFM		43 SFM	
Depth of Cut	a_a=0.3D a_r=0.7D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/64	25,000	8.2	8,755	4.0	9,365	3.7	6,720	2.1	5,985	1.2	3,500	1.1
5/64	16,120	10.6	5,250	4.7	5,620	4.4	4,030	2.5	3,590	1.5	2,100	1.3
1/8	10,075	10.6	3,280	4.9	3,510	4.7	2,520	2.7	2,245	1.8	1,315	1.5
5/32	8,060	10.6	2,625	5.2	2,810	5.0	2,015	2.8	1,795	1.9	1,050	1.6
3/16	6,720	11.0	2,190	5.5	2,340	5.3	1,680	2.9	1,495	2.0	875	1.6
1/4	5,040	10.0	1,640	4.7	1,755	4.6	1,260	2.7	1,120	1.9	655	1.5
5/16	4,030	12.2	1,315	5.2	1,405	5.0	1,010	2.8	900	1.9	525	1.6
13/32	3,100	11.7	1,010	5.1	1,080	4.9	775	2.7	690	1.8	405	1.5
15/32	2,685	12.5	875	5.2	935	5.0	670	2.8	600	1.9	350	1.6
5/8	2,015	12.2	655	5.1	700	5.0	505	2.8	450	1.9	265	1.6
25/32	1,610	12.2	525	5.2	560	5.0	405	2.8	360	1.9	210	1.6
1	1,260	12.7	410	5.0	440	4.9	315	2.8	280	1.9	165	1.5

1. Increase speeds & feeds 5-10% for Series 412BN, 414BN, 442BN and 444BN.
2. Reduce speeds & feeds 20-30% for Series 462BN and 464BN.
3. Reduce speeds & feeds 40-50% for Series 482BN and 484BN.
4. Increase speeds & feeds 20-30% for Series 402BN TiN and 404BN TiN.
5. Column for Hardened Steels (40-50 HRC) is for 402BN TiN and 404BN TiN only.

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Profiling (Metric)

Hardness	–		–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Cast Iron		Mild Carbon Steels Mild Steels		Pre-hardened Steels Die & Alloy Steels		Pre-hardened Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	330 SFM		100-115 SFM		100-130 SFM		65-100 SFM		65-82 SFM		43 SFM	
Depth of Cut	ar=0.3D aa=0.7D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	25,000	7.0	10,420	4.7	11,150	4.5	8,000	2.5	7,125	1.5	4,170	1.3
2	15,995	8.9	5,210	4.6	5,575	4.4	4,000	2.5	3,565	1.5	2,085	1.3
3	10,665	9.5	3,475	5.2	3,715	5.0	2,665	2.8	2,375	1.9	1,390	1.6
4	8,000	8.9	2,605	5.1	2,785	4.9	2,000	2.8	1,780	1.8	1,040	1.6
5	6,400	8.9	2,085	5.2	2,230	5.0	1,600	2.8	1,425	1.8	835	1.6
6	5,330	8.9	1,735	5.0	1,860	4.9	1,335	2.8	1,190	2.0	695	1.6
8	4,000	12.1	1,305	5.1	1,395	4.9	1,000	2.8	890	1.8	520	1.6
10	3,200	12.1	1,040	5.2	1,115	5.0	800	2.8	715	1.8	415	1.6
12	2,665	12.4	870	5.2	930	5.0	665	2.8	595	1.9	345	1.6
16	2,000	12.1	650	5.1	695	4.9	500	2.8	445	1.8	260	1.6
20	1,600	12.1	520	5.1	555	4.9	400	2.8	355	1.8	210	1.6
25	1,280	12.9	415	5.1	445	4.9	320	2.8	285	1.9	165	1.6

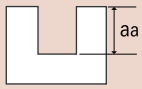
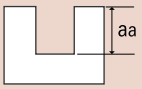
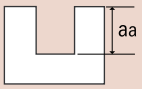
1. Increase speeds & feeds 5-10% for Series 412BN, 414BN, 442BN and 444BN.
2. Reduce speeds & feeds 20-30% for Series 462BN and 464BN.
3. Reduce speeds & feeds 40-50% for Series 482BN and 484BN.
4. Increase speeds & feeds 20-30% for Series 402BN TiN and 404BN TiN.
5. Column for Hardened Steels (40-50 HRC) is for 402BN TiN and 404BN TiN only.

List 400: 4 flute

Side Milling

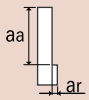
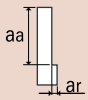
Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	130 SFM		100 SFM		66 SFM		50 SFM	
Depth of Cut	a_a=1.5D a_r= 0.1D 				a_a=1.5D a_r= 0.1D 			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
6	2,100	15.7	1,615	12.7	1,065	8.3	810	6.4
8	1,575	15.5	1,210	11.9	800	7.9	605	6.0
10	1,260	15.1	970	11.7	640	7.7	485	6.0
12	1,050	15.0	810	11.6	535	7.7	405	6.0
16	790	15.6	605	11.9	400	7.9	305	6.0
20	630	12.8	485	9.9	320	6.6	240	4.9
25	505	11.7	390	9.3	255	6.0	195	4.4

Slotting

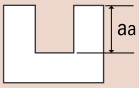
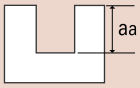
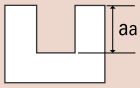
Hardness	<20 HRC		20-30 HRC		35-45 HRC		45-55 HRC	
Work Material	Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	110 SFM		85 SFM		56 SFM		43 SFM	
Depth of Cut	Dia / a_a: D≤12 — 1.0D; D>12 — 0.5D 				a_a=0.5D 		a_a=0.5D 	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
6	1,775	5.3	1,375	4.1	905	2.7	695	2.1
8	1,335	5.3	1,030	4.1	680	2.7	520	2.0
10	1,065	5.2	825	4.1	545	2.7	415	2.0
12	890	5.3	685	4.0	450	2.7	345	2.0
16	665	5.2	515	4.1	340	2.7	260	2.0
20	535	4.3	410	3.4	270	2.3	210	1.7
25	425	3.6	330	2.9	215	1.9	165	1.4

continued on next page

Side Milling

Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	130 SFM		100 SFM		66 SFM		50 SFM	
Depth of Cut	$a_{a=1.5D}$ $a_{r=0.1D}$ 				$a_{a=1.5D}$ $a_{r=0.1D}$ 			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	2,100	16	1,600	13	1,000	8	800	6
5/16	1,600	16	1,200	12	800	8	600	6
3/8	1,300	15	950	11	650	8	480	6
1/2	1,060	15	800	11	500	7	400	6
5/8	800	16	600	12	400	8	300	6
3/4	640	13	480	10	330	7	240	5
1	510	12	380	9	250	5	190	4

Slotting

Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	110 SFM		85 SFM		56 SFM		43 SFM	
Depth of Cut	Dia / a_a: D≤1/2 → 1.0D; D>1/2 → 0.5D 				$a_{a=0.5D}$ 		$a_{a=0.5D}$ 	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	1,700	5	1,300	4	850	3	700	2
5/16	1,350	5	1,000	4	700	3	520	2
3/8	1,120	5	850	4	570	3	480	2
1/2	840	5	650	4	450	3	330	2
5/8	650	5	520	4	340	3	260	2
3/4	560	4	430	4	290	2	220	2
1	420	3	350	3	220	2	170	2

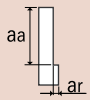
List 492, 494: Miniature

Side Milling

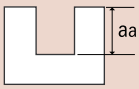
Hardness	–		<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC	
Work Material	Aluminum Aluminum Alloys Plastics Wood		Mild Steels Cast Iron Brass Bronze		Mild Steel Forging Hard Brass and Bronze Copper		Medium Tensile Steels Unalloyed Titanium Tool Steels Heat Resistant Ferritic Low Alloys		High Tensile Steel Medium Strength Stainless Steels and Titanium Alloys	
Cutting Speed	200-400 SFM		100-120 SFM		70-90 SFM		50-60 SFM		30-40 SFM	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/64	25,000	1.8	24,427 - 25,000	1.5	17,099 - 21,985	1.0	12,214 - 14,656	0.5	7,334 - 9,779	0.4
1/32	24,427 - 25,000	3.0	12,214 - 14,656	2.0	8,556 - 11,001	2.0	6,112 - 7,334	0.6	3,667 - 4,889	0.5
3/64	16,285 - 25000	3.1	8,150 - 9,780	2.5	5,704 - 7,334	3.0	4,075 - 4,889	0.8	2,445 - 3,260	0.6
1/16	12,214 - 24,427	5.1	6,112 - 7,333	3.1	4,280 - 5,502	4.0	3,057 - 3,668	1.3	1,834 - 2,445	0.8
5/64	9,771 - 19,542	5.1	4,889 - 5,867	3.1	3,423 - 4,400	4.0	2,445 - 2,934	1.3	1,467 - 1,956	0.8
3/32	8,142 - 16,285	5.1	4,075 - 4,890	3.1	2,853 - 3,667	4.0	2,038 - 2,446	1.3	1,222 - 1,426	0.8
7/64	6,979 - 13,959	5.3	3,492 - 4,191	3.1	2,445 - 3,143	4.0	1,746 - 2,095	1.3	1,048 - 1,397	0.8
1/8	6,107 - 12,214	5.5	3,056 - 3,667	3.5	2,139 - 2,750	4.0	1,528 - 1,834	1.3	917 - 1,222	0.8
9/64	5,433 - 10,865	5.6	2,716 - 4,191	3.5	1,901 - 2,445	4.2	1,358 - 1,630	1.3	815 - 1,087	0.9
5/32	4,889 - 9,779	5.6	2,448 - 2,934	3.6	1,711 - 2,200	4.4	1,222 - 1,467	1.4	733 - 978	1.0
11/64	4,445 - 8,890	5.8	2,222 - 2,667	3.8	1,556 - 2,000	4.6	1,111 - 1,333	1.5	667 - 889	1.1
3/16	4,074 - 8,148	5.9	2,037 - 2,445	4.0	1,426 - 1,834	4.8	1,019 - 1,222	1.6	611 - 815	1.3

List 04V-SO
List 03V-SO

Side Milling

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	295-655 SFM		165-330 SFM		195-375 SFM		145-280 SFM		260-460 SFM		165-195 SFM		80-165 SFM	
Depth of Cut	Aa=1.5D Ar=0.5D 												Aa=1.5D Ar=0.3D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/16	9,677	50.3	5,042	16.7	5,806	27.4	4,329	14.3	7,334	31.2	3,667	12.1	2,496	6.7
1/4	7,258	45.7	3,782	14.9	4,355	24.7	3,247	12.8	5,501	28.6	2,750	10.8	1,872	5.9
5/16	5,806	50.3	3,025	16.2	3,484	26.9	2,598	13.9	4,401	31.2	2,200	11.8	1,497	6.6
3/8	4,839	49.5	2,521	16.3	2,903	27.0	2,165	14.0	3,667	31.2	1,834	11.8	1,248	6.5
1/2	3,629	42.3	1,891	14.0	2,177	23.0	1,624	12.0	2,750	26.9	1,375	10.2	936	5.6
5/8	2,903	42.1	1,513	13.8	1,742	22.8	1,299	11.9	2,200	26.3	1,100	10.0	749	5.5
3/4	2,419	39.6	1,261	12.9	1,452	21.5	1,082	11.1	1,834	24.8	917	9.4	624	5.2
1	1,815	32.3	945	10.6	1,089	17.5	812	9.1	1,375	20.1	688	7.7	468	4.3

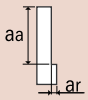
Slotting

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	295-655 SFM		165-330 SFM		195-375 SFM		145-280 SFM		260-460 SFM		165-195 SFM		80-165 SFM	
Depth of Cut	Aa=1.5D 		Aa=0.75D-1D		Aa=1.25D		Aa=1D		Aa=0.75D		Aa=1D		Aa=0.3D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/16	9,677	45.3	5,042	15.0	5,806	24.7	4,329	12.9	7,334	28.1	3,667	10.9	2,496	6.0
1/4	7,258	41.1	3,782	13.4	4,355	22.2	3,247	11.5	5,501	25.7	2,750	9.7	1,872	5.3
5/16	5,806	45.3	3,025	14.6	3,484	24.2	2,598	12.5	4,401	28.1	2,200	10.6	1,497	5.9
3/8	4,839	44.6	2,521	14.7	2,903	24.3	2,165	12.6	3,667	28.1	1,834	10.7	1,248	5.8
1/2	3,629	38.1	1,891	12.6	2,177	20.7	1,624	10.8	2,750	24.2	1,375	9.2	936	5.0
5/8	2,903	37.9	1,513	12.4	1,742	20.5	1,299	10.7	2,200	23.7	1,100	9.0	749	5.0
3/4	2,419	35.7	1,261	11.6	1,452	19.3	1,082	10.0	1,834	22.3	917	8.4	624	4.7
1	1,815	29.1	945	9.5	1,089	15.7	812	8.2	1,375	18.1	688	6.9	468	3.8

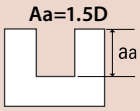
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List 04V-SO (Continued)
List 03V-SO (Continued)

Side Milling

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		<35 HRC		<35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	295-655 SFM		165-330 SFM		195-375 SFM		145-280 SFM		260-460 SFM		165-195 SFM		80-165 SFM	
Depth of Cut	Aa=1.5D Ar=0.5D 												Aa=1.5D Ar=0.3D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5	9,218	47.9	4,803	15.9	5,531	26.1	4,124	13.6	6,986	29.7	3,493	11.6	2,377	6.4
6	7,681	48.4	4,002	15.8	4,609	26.1	3,436	13.5	5,822	30.3	2,911	11.5	1,981	6.2
8	5,761	49.9	3,002	16.1	3,457	26.7	2,577	13.8	4,366	30.9	2,183	11.7	1,486	6.6
10	4,609	47.2	2,401	15.5	2,765	25.7	2,062	13.3	3,493	29.7	1,747	11.3	1,189	6.2
12	3,841	44.8	2,001	14.8	2,304	24.3	1,718	12.7	2,911	28.4	1,455	10.8	990	5.9
16	2,881	41.7	1,501	13.7	1,728	22.6	1,289	11.8	2,183	26.1	1,092	10.0	743	5.5
20	2,304	37.7	1,201	12.3	1,383	20.5	1,031	10.6	1,747	23.7	873	8.9	594	5.0

Slotting

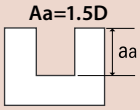
Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		<35 HRC		<35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	295-655 SFM		165-330 SFM		195-375 SFM		145-280 SFM		260-460 SFM		165-195 SFM		80-165 SFM	
Depth of Cut	Aa=1.5D 		Aa=0.75D-1D		Aa=1.25D		Aa=1D		Aa=0.75D		Aa=1D		Aa=0.3D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5	9,218	43.1	4,803	14.3	5,531	23.5	4,124	12.3	6,986	26.7	3,493	10.4	2,377	5.7
6	7,681	43.5	4,002	14.2	4,609	23.5	3,436	12.2	5,822	27.2	2,911	10.3	1,981	5.6
8	5,761	44.9	3,002	14.5	3,457	24.0	2,577	12.4	4,366	27.8	2,183	10.5	1,486	5.9
10	4,609	42.5	2,401	14.0	2,765	23.1	2,062	12.0	3,493	26.7	1,747	10.1	1,189	5.6
12	3,841	40.3	2,001	13.3	2,304	21.9	1,718	11.4	2,911	25.6	1,455	9.7	990	5.3
16	2,881	37.6	1,501	12.3	1,728	20.3	1,289	10.6	2,183	23.5	1,092	9.0	743	4.9
20	2,304	34.0	1,201	11.1	1,383	18.4	1,031	9.5	1,747	21.3	873	8.0	594	4.5

05V-SO

Side Milling

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	295-655 SFM		165-330 SFM		195-375 SFM		145-280 SFM		260-460 SFM		165-195 SFM		80-165 SFM	
Depth of Cut	Aa=1.5D Ar=0.5D 												Aa=1.5D Ar=0.3D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/16	9,677	62.9	5,042	20.8	5,806	34.3	4,329	17.9	7,334	39.0	3,667	15.2	2,496	8.4
1/4	7,258	57.1	3,782	18.6	4,355	30.9	3,247	16.0	5,501	35.7	2,750	13.5	1,872	7.4
5/16	5,806	62.9	3,025	20.2	3,484	33.6	2,598	17.4	4,401	39.0	2,200	14.7	1,497	8.3
3/8	4,839	61.9	2,521	20.3	2,903	33.7	2,165	17.5	3,667	39.0	1,834	14.8	1,248	8.1
1/2	3,629	52.9	1,891	17.5	2,177	28.7	1,624	15.0	2,750	33.6	1,375	12.7	936	7.0
5/8	2,903	52.6	1,513	17.3	1,742	28.5	1,299	14.8	2,200	32.9	1,100	12.6	749	6.9
3/4	2,419	49.5	1,261	16.1	1,452	26.9	1,082	13.8	1,834	31.0	917	11.7	624	6.5
1	1,815	40.4	945	13.2	1,089	21.9	812	11.3	1,375	25.2	688	9.6	468	5.3

Slotting

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	295-655 SFM		165-330 SFM		195-375 SFM		145-280 SFM		260-460 SFM		165-195 SFM		80-165 SFM	
Depth of Cut	Aa=1.5D 		Aa=0.75D-1D		Aa=1.25D		Aa=1D		Aa=0.75D		Aa=1D		Aa=0.3D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/16	9,677	56.6	5,042	18.8	5,806	30.9	4,329	16.1	7,334	35.1	3,667	13.6	2,496	7.5
1/4	7,258	51.4	3,782	16.8	4,355	27.8	3,247	14.4	5,501	32.2	2,750	12.2	1,872	6.6
5/16	5,806	56.6	3,025	18.2	3,484	30.2	2,598	15.6	4,401	35.1	2,200	13.3	1,497	7.4
3/8	4,839	55.7	2,521	18.3	2,903	30.3	2,165	15.7	3,667	35.1	1,834	13.3	1,248	7.3
1/2	3,629	47.6	1,891	15.7	2,177	25.8	1,624	13.5	2,750	30.2	1,375	11.5	936	6.3
5/8	2,903	47.3	1,513	15.5	1,742	25.6	1,299	13.3	2,200	29.6	1,100	11.3	749	6.2
3/4	2,419	44.6	1,261	14.5	1,452	24.2	1,082	12.5	1,834	27.9	917	10.6	624	5.9
1	1,815	36.3	945	11.9	1,089	19.7	812	10.2	1,375	22.7	688	8.6	468	4.8

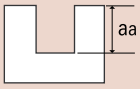
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05V-SO (Continued)

Side Milling

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	295-655 SFM		165-330 SFM		195-375 SFM		145-280 SFM		260-460 SFM		165-195 SFM		80-165 SFM	
Depth of Cut	Aa=1.5D Ar=0.5D 												Aa=1.5D Ar=0.3D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5	9,218	59.9	4,803	19.9	5,531	32.7	4,124	17.0	6,986	37.1	3,493	14.4	2,377	8.0
6	7,681	60.5	4,002	19.7	4,609	32.7	3,436	16.9	5,822	37.8	2,911	14.3	1,981	7.8
8	5,761	62.4	3,002	20.1	3,457	33.3	2,577	17.2	4,366	38.7	2,183	14.6	1,486	8.2
10	4,609	59.0	2,401	19.4	2,765	32.1	2,062	16.6	3,493	37.1	1,747	14.1	1,189	7.7
12	3,841	55.9	2,001	18.5	2,304	30.4	1,718	15.9	2,911	35.5	1,455	13.5	990	7.4
16	2,881	52.2	1,501	17.1	1,728	28.2	1,289	14.7	2,183	32.7	1,092	12.5	743	6.9
20	2,304	47.2	1,201	15.4	1,383	25.6	1,031	13.2	1,747	29.6	873	11.2	594	6.2

Slotting

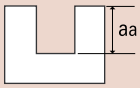
Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	295-655 SFM		165-330 SFM		195-375 SFM		145-280 SFM		260-460 SFM		165-195 SFM		80-165 SFM	
Depth of Cut	Aa=1.5D 		Aa=0.75D-1D		Aa=1.25D		Aa=1D		Aa=0.75D		Aa=1D		Aa=0.3D	
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5	9,218	53.9	4,803	17.9	5,531	29.4	4,124	15.3	6,986	33.4	3,493	13.0	2,377	7.2
6	7,681	54.4	4,002	17.7	4,609	29.4	3,436	15.2	5,822	34.0	2,911	12.9	1,981	7.0
8	5,761	56.1	3,002	18.1	3,457	30.0	2,577	15.5	4,366	34.8	2,183	13.2	1,486	7.4
10	4,609	53.1	2,401	17.4	2,765	28.9	2,062	15.0	3,493	33.4	1,747	12.7	1,189	6.9
12	3,841	50.4	2,001	16.7	2,304	27.4	1,718	14.3	2,911	32.0	1,455	12.1	990	6.7
16	2,881	47.0	1,501	15.4	1,728	25.4	1,289	13.2	2,183	29.4	1,092	11.2	743	6.2
20	2,304	42.5	1,201	13.8	1,383	23.0	1,031	11.9	1,747	26.6	873	10.1	594	5.6

List 03A-SO
List 03M-SO

Side Milling

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	260-655 SFM		115-195 SFM		130-230 SFM		95-170 SFM		95-165 SFM		80-130 SFM		50-65 SFM	
Depth of Cut	Aa=0.5D Ar=1D 													
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	44,390	104.9	15,039	4.7	17,465	82.5	12,856	4.0	12,614	39.7	10,188	32.1	5,579	6.6
2	22,195	87.4	7,520	3.6	8,733	55.0	6,428	3.0	6,307	24.8	5,094	20.1	2,790	4.4
4	11,098	43.7	3,760	2.1	4,366	3.4	3,214	1.8	3,153	12.4	2,547	10.0	1,395	2.2
6	7,398	35.0	2,507	2.0	2,911	3.4	2,143	1.7	2,102	8.3	1,698	6.7	930	2.2
8	5,549	35.0	1,880	2.2	2,183	3.4	1,607	1.9	1,577	6.2	1,273	5.0	697	1.6
10	4,439	28.0	1,504	2.4	1,747	4.1	1,286	2.0	1,261	6.0	1,019	4.8	558	1.8
12	3,699	29.1	1,253	3.0	1,455	4.6	1,071	2.5	1,051	5.0	849	4.0	465	1.8
16	2,774	21.8	940	3.0	1,092	4.3	804	2.5	788	4.3	637	3.5	349	1.4
18	2,466	19.4	836	3.0	970	4.6	714	2.5	701	4.4	566	3.6	310	1.5
20	2,220	17.5	752	3.0	873	4.8	643	2.5	631	4.0	509	3.2	279	1.3

Slotting

Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	260-655 SFM		115-195 SFM		130-230 SFM		95-170 SFM		95-165 SFM		80-130 SFM		50-65 SFM	
Depth of Cut	Aa=1.25D 													
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	44,390	94.4	15,039	4.3	17,465	74.3	12,856	3.6	12,614	35.8	10,188	28.9	5,579	5.9
2	22,195	78.6	7,520	3.2	8,733	49.5	6,428	2.7	6,307	22.3	5,094	18.0	2,790	4.0
4	11,098	39.3	3,760	1.9	4,366	3.1	3,214	1.6	3,153	11.2	2,547	9.0	1,395	2.0
6	7,398	31.5	2,507	1.8	2,911	3.1	2,143	1.5	2,102	7.4	1,698	6.0	930	2.0
8	5,549	31.5	1,880	2.0	2,183	3.1	1,607	1.7	1,577	5.6	1,273	4.5	697	1.5
10	4,439	25.2	1,504	2.1	1,747	3.7	1,286	1.8	1,261	5.4	1,019	4.3	558	1.6
12	3,699	26.2	1,253	2.7	1,455	4.1	1,071	2.3	1,051	4.5	849	3.6	465	1.6
16	2,774	19.7	940	2.7	1,092	3.9	804	2.3	788	3.9	637	3.2	349	1.2
18	2,466	17.5	836	2.7	970	4.1	714	2.3	701	4.0	566	3.2	310	1.3
20	2,220	15.7	752	2.7	873	4.3	643	2.3	631	3.6	509	2.9	279	1.2

List 03K-SO
List 03P-SO

Side Milling

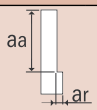
Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	260-655 SFM		115-195 SFM		130-230 SFM		95-170 SFM		95-165 SFM		80-130 SFM		50-65 SFM	
Depth of Cut	Aa=0.5D Ar=1D													
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	44,390	209.7	15,039	9.5	17,465	165.0	12,856	8.1	12,614	79.5	10,188	64.2	5,579	13.2
2	22,195	174.8	7,520	7.1	8,733	110.0	6,428	6.1	6,307	49.7	5,094	40.1	2,790	8.8
4	11,098	87.4	3,760	4.1	4,366	6.9	3,214	3.5	3,153	24.8	2,547	20.1	1,395	4.4
6	7,398	69.9	2,507	3.9	2,911	6.9	2,143	3.4	2,102	16.6	1,698	13.4	930	4.4
8	5,549	69.9	1,880	4.4	2,183	6.9	1,607	3.8	1,577	12.4	1,273	10.0	697	3.3
10	4,439	55.9	1,504	4.7	1,747	8.3	1,286	4.0	1,261	11.9	1,019	9.6	558	3.5
12	3,699	58.3	1,253	5.9	1,455	9.2	1,071	5.1	1,051	9.9	849	8.0	465	3.7
16	2,774	43.7	940	5.9	1,092	8.6	804	5.1	788	8.7	637	7.0	349	2.7
18	2,466	38.8	836	5.9	970	9.2	714	5.1	701	8.8	566	7.1	310	2.9
20	2,220	35.0	752	5.9	873	9.6	643	5.1	631	7.9	509	6.4	279	2.6

Slotting

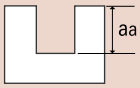
Hardness	<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed	260-655 SFM		115-195 SFM		130-230 SFM		95-170 SFM		95-165 SFM		80-130 SFM		50-65 SFM	
Depth of Cut	Aa=0.5D													
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1	44,390	188.7	15,039	8.5	17,465	148.5	12,856	7.3	12,614	71.5	10,188	57.8	5,579	11.9
2	22,195	157.3	7,520	6.4	8,733	99.0	6,428	5.5	6,307	44.7	5,094	36.1	2,790	7.9
4	11,098	78.6	3,760	3.7	4,366	6.2	3,214	3.2	3,153	22.3	2,547	18.0	1,395	4.0
6	7,398	62.9	2,507	3.6	2,911	6.2	2,143	3.0	2,102	14.9	1,698	12.0	930	4.0
8	5,549	62.9	1,880	4.0	2,183	6.2	1,607	3.4	1,577	11.2	1,273	9.0	697	3.0
10	4,439	50.3	1,504	4.3	1,747	7.4	1,286	3.6	1,261	10.7	1,019	8.7	558	3.2
12	3,699	52.4	1,253	5.3	1,455	8.3	1,071	4.6	1,051	8.9	849	7.2	465	3.3
16	2,774	39.3	940	5.3	1,092	7.7	804	4.6	788	7.8	637	6.3	349	2.5
18	2,466	35.0	836	5.3	970	8.3	714	4.6	701	7.9	566	6.4	310	2.6
20	2,220	31.5	752	5.3	873	8.7	643	4.6	631	7.2	509	5.8	279	2.4

List 03E-SO

Side Milling

Hardness		<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys	
Cutting Speed		390-655 SFM		195-330 SFM		260-330 SFM		195-250 SFM		260-460 SFM		145-215 SFM	
Depth of Cut		Aa=1D Ar=0.5D 											
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	8,450	43.9	4,245	16.0	4,771	22.5	3,598	13.6	5,822	24.8	2,911	11.0
1/4	-	7,991	41.5	4,019	15.1	4,508	21.2	3,407	12.9	5,501	23.4	2,750	10.4
5/16	-	6,393	45.3	3,215	16.7	3,606	23.3	2,726	14.1	4,401	25.6	2,200	11.4
-	8	6,337	44.9	3,184	16.5	3,578	23.1	2,699	14.0	4,366	25.4	2,183	11.3
3/8	-	5,328	45.3	2,679	16.4	3,005	27.8	2,272	13.9	3,667	25.4	1,834	11.2
-	10	5,070	43.1	2,547	15.6	2,862	22.1	2,159	13.3	3,493	24.2	1,747	10.7
-	12	4,225	43.9	2,122	16.4	2,385	22.9	1,799	13.9	2,911	24.8	1,455	11.2
1/2	-	3,996	41.5	2,009	15.5	2,254	21.6	1,704	13.2	2,750	23.4	1,375	10.6
-	16	3,169	40.4	1,592	15.0	1,789	21.1	1,349	12.7	2,183	22.7	1,092	10.3
5/8	-	3,197	40.7	1,607	15.1	1,803	21.3	1,363	12.8	2,200	22.9	1,100	10.4
3/4	-	2,664	38.6	1,340	14.7	1,503	20.6	1,136	12.5	1,834	21.9	917	10.1
-	20	2,535	36.7	1,273	14.0	1,431	19.6	1,079	11.9	1,747	20.9	873	9.6
1	-	1,998	28.9	1,005	11.1	1,127	15.4	852	9.4	1,375	16.4	688	7.6

Slotting

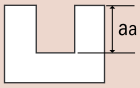
Hardness		<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys	
Cutting Speed		390-655 SFM		195-330 SFM		260-330 SFM		195-250 SFM		260-460 SFM		145-215 SFM	
Depth of Cut		Aa=0.75D 											
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	8,450	39.5	4,245	14.4	4,771	20.3	3,598	12.2	5,822	22.3	2,911	9.9
1/4	-	7,991	37.3	4,019	13.6	4,508	19.1	3,407	11.5	5,501	21.1	2,750	9.3
5/16	-	6,393	40.7	3,215	15.1	3,606	20.9	2,726	12.7	4,401	23.1	2,200	10.3
-	8	6,337	40.4	3,184	14.9	3,578	20.8	2,699	12.6	4,366	22.9	2,183	10.2
3/8	-	5,328	40.8	2,679	14.8	3,005	20.9	2,272	12.5	3,667	22.9	1,834	10.2
-	10	5,070	38.8	2,547	14.1	2,862	19.9	2,159	11.9	3,493	21.8	1,747	9.7
-	12	4,225	39.5	2,122	14.7	2,385	20.6	1,799	12.5	2,911	22.3	1,455	10.1
1/2	-	3,996	37.3	2,009	13.9	2,254	19.5	1,704	11.8	2,750	21.1	1,375	9.5
-	16	3,169	36.4	1,592	13.5	1,789	19.0	1,349	11.5	2,183	20.4	1,092	9.3
5/8	-	3,197	36.7	1,607	13.6	1,803	19.1	1,363	11.6	2,200	20.6	1,100	9.4
3/4	-	2,664	34.8	1,340	13.3	1,503	18.5	1,136	11.3	1,834	19.7	917	9.1
-	20	2,535	33.1	1,273	12.6	1,431	17.6	1,079	10.7	1,747	18.8	873	8.7
1	-	1,998	26.1	1,005	9.9	1,127	13.9	852	8.4	1,375	14.8	688	6.8

List 03C-SO

Side Milling

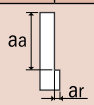
Work Material	Aluminum Alloys		Aluminum Alloy Casting	
Cutting Speed	1640 - 6560 SFM		1640 - 4920 SFM	
Depth of Cut	Aa=1D Ar=0.5D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	62,650	488.4	50,100	349.1
5/16	50,100	520.7	40,100	379.1
3/8	41,700	541.8	33,400	390.5
1/2	31,300	487.9	25,000	351.4
5/8	25,000	519.7	20,000	373.2
3/4	20,900	543.0	16,700	390.5
1	15,600	405.3	12,500	292.3

Slotting

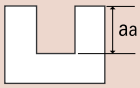
Work Material	Aluminum Alloys		Aluminum Alloy Casting	
Cutting Speed	1640 - 6560 SFM		1640 - 4920 SFM	
Depth of Cut	Aa=1D			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	62,650	341.8	50,100	244.4
5/16	50,100	364.5	40,100	261.9
3/8	41,700	379.2	33,400	273.4
1/2	31,300	341.6	25,000	245.9
5/8	25,000	363.8	20,000	261.2
3/4	20,900	380.1	16,700	273.4
1	15,600	283.7	12,500	204.6

List 03F-SO

Side Milling

Hardness		<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed		390-655 SFM		195-330 SFM		260-330 SFM		195-250 SFM		330-460 SFM		145-215 SFM		65-130 SFM	
Depth of Cut		Aa=1D Ar=0.5D 													
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	8,450	53.2	4,245	19.4	4,771	27.0	3,598	16.4	6,388	33.2	2,911	11.9	1,577	4.7
1/4	-	7,991	50.3	4,019	18.4	4,508	25.5	3,407	15.5	6,035	31.3	2,750	11.2	1,482	4.4
5/16	-	6,393	55.4	3,215	20.3	3,606	28.4	2,726	17.2	4,828	34.3	2,200	12.8	1,185	4.8
-	8	6,337	54.9	3,184	20.1	3,578	28.2	2,699	17.0	4,791	34.0	2,183	12.7	1,183	4.8
3/8	-	5,328	55.4	2,679	20.3	3,005	28.9	2,272	17.1	4,023	34.2	1,834	13.1	988	5.1
-	10	5,070	52.7	2,547	19.3	2,862	27.5	2,159	16.3	3,833	32.6	1,747	12.4	946	4.8
-	12	4,225	51.2	2,122	18.7	2,385	26.3	1,799	15.9	3,194	31.2	1,455	11.9	788	4.6
1/2	-	3,996	48.4	2,009	17.7	2,254	24.8	1,704	15.1	3,017	29.5	1,375	11.2	741	4.3
-	16	3,169	46.9	1,592	17.5	1,789	24.5	1,349	14.9	2,395	29.0	1,092	11.0	591	4.3
5/8	-	3,197	47.3	1,607	17.7	1,803	24.7	1,363	15.1	2,414	29.2	1,100	11.1	592	4.3
3/4	-	2,664	45.3	1,340	17.1	1,503	23.9	1,136	14.5	2,011	27.9	917	10.7	494	4.2
-	20	2,535	43.1	1,273	16.2	1,431	22.8	1,079	13.8	1,916	26.6	873	10.2	473	4.0
1	-	1,998	33.9	1,005	12.8	1,127	17.9	852	10.9	1,508	20.9	688	8.1	370	3.1

Slotting

Hardness		<25 HRC		25-30 HRC		30-35 HRC		35-45 HRC		45-50 HRC		< 35 HRC		< 35 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed		390-655 SFM		195-330 SFM		260-330 SFM		195-250 SFM		330-460 SFM		145-215 SFM		65-130 SFM	
Depth of Cut		Aa=0.75D 													
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	8,450	47.9	4,245	17.4	4,771	24.3	3,598	14.8	6,388	29.9	2,911	10.7	1,577	4.2
1/4	-	7,991	45.3	4,019	16.5	4,508	22.9	3,407	14.1	6,035	28.2	2,750	10.1	1,482	3.9
5/16	-	6,393	49.8	3,215	18.2	3,606	25.6	2,726	15.4	4,828	30.8	2,200	11.5	1,185	4.4
-	8	6,337	49.4	3,184	18.0	3,578	25.4	2,699	15.3	4,791	30.6	2,183	11.4	1,183	4.4
3/8	-	5,328	49.8	2,679	18.2	3,005	25.9	2,272	15.5	4,023	30.7	1,834	11.6	988	4.5
-	10	5,070	47.4	2,547	17.3	2,862	24.7	2,159	14.7	3,833	29.3	1,747	11.1	946	4.3
-	12	4,225	46.1	2,122	16.8	2,385	23.7	1,799	14.3	3,194	28.1	1,455	10.7	788	4.1
1/2	-	3,996	43.6	2,009	15.9	2,254	22.4	1,704	13.5	3,017	26.5	1,375	10.1	741	3.8
-	16	3,169	42.2	1,592	15.8	1,789	22.1	1,349	13.4	2,395	26.1	1,092	9.9	591	3.9
5/8	-	3,197	42.6	1,607	15.9	1,803	22.3	1,363	13.5	2,414	26.3	1,100	9.9	592	3.9
3/4	-	2,664	40.8	1,340	15.4	1,503	21.5	1,136	13.1	2,011	25.1	917	9.7	494	3.7
-	20	2,535	38.8	1,273	14.6	1,431	20.5	1,079	12.4	1,916	23.9	873	9.2	473	3.6
1	-	1,998	30.6	1,005	11.5	1,127	16.1	852	9.8	1,508	18.8	688	7.2	370	2.8

List 03D-SO

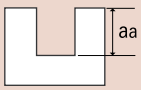
Side Milling

Hardness		<25 HRC		25-35 HRC		30-35 HRC		35-45 SFM		45 to 50 HRC		<35 HRC		<35 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed		390-655 SFM		195-330 SFM		260-330 SFM		195-250 SFM		330-460 SFM		145-215 SFM		65-130 SFM	
Depth of Cut		Aa=1D Ar=0.5D													
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	8,450	53.2	4,245	19.4	4,771	27.0	3,598	16.4	6,388	33.2	2,911	11.9	1,577	4.7
1/4	-	7,991	50.3	4,019	18.4	4,508	25.5	3,407	15.5	6,035	31.3	2,750	11.2	1,482	4.4
5/16	-	6,393	55.4	3,215	20.3	3,606	28.4	2,726	17.2	4,828	34.3	2,200	12.8	1,185	4.8
-	8	6,337	54.9	3,184	20.1	3,578	28.2	2,699	17.0	4,791	34.0	2,183	12.7	1,183	4.8
3/8	-	5,328	55.4	2,679	20.3	3,005	28.9	2,272	17.1	4,023	34.2	1,834	13.1	988	5.1
-	10	5,070	52.7	2,547	19.3	2,862	27.5	2,159	16.3	3,833	32.6	1,747	12.4	946	4.8
-	12	4,225	51.2	2,122	18.7	2,385	26.3	1,799	15.9	3,194	31.2	1,455	11.9	788	4.6
1/2	-	3,996	48.4	2,009	17.7	2,254	24.8	1,704	15.1	3,017	29.5	1,375	11.2	741	4.3
-	16	3,169	46.9	1,592	17.5	1,789	24.5	1,349	14.9	2,395	29.0	1,092	11.0	591	4.3
5/8	-	3,197	47.3	1,607	17.7	1,803	24.7	1,363	15.1	2,414	29.2	1,100	11.1	592	4.3
3/4	-	2,664	45.3	1,340	17.1	1,503	23.9	1,136	14.5	2,011	27.9	917	10.7	494	4.2
-	20	2,535	43.1	1,273	16.2	1,431	22.8	1,079	13.8	1,916	26.6	873	10.2	473	4.0
1	-	1,998	33.9	1,005	12.8	1,127	17.9	852	10.9	1,508	20.9	688	8.1	370	3.1



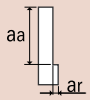
Side Milling

Hardness		<25 HRC		25-35 HRC		30-35 HRC		35-45 SFM		45 to 50 HRC		<35 HRC		<35 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		400 Stainless Steels Alloy Steels Tool Steels		300 Stainless Steels Hardened Steels Pre-hardened Steels		PH Stainless Steels Hardened Steels		Hardened Steels		Titanium Alloys		High Temp. Alloys Inconel Hastelloy	
Cutting Speed		390-655 SFM		195-330 SFM		260-330 SFM		195-250 SFM		330-460 SFM		145-215 SFM		65-130 SFM	
Depth of Cut		Aa=0.75D													
Mill Dia.		Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
-	6	8,450	53.2	4,245	19.4	4,771	27.0	3,598	16.4	6,388	33.2	2,911	11.9	1,577	4.7
1/4	-	7,991	50.3	4,019	18.4	4,508	25.5	3,407	15.5	6,035	31.3	2,750	11.2	1,482	4.4
5/16	-	6,393	55.4	3,215	20.3	3,606	28.4	2,726	17.2	4,828	34.3	2,200	12.8	1,185	4.8
-	8	6,337	54.9	3,184	20.1	3,578	28.2	2,699	17.0	4,791	34.0	2,183	12.7	1,183	4.8
3/8	-	5,328	55.4	2,679	20.3	3,005	28.9	2,272	17.1	4,023	34.2	1,834	13.1	988	5.1
-	10	5,070	52.7	2,547	19.3	2,862	27.5	2,159	16.3	3,833	32.6	1,747	12.4	946	4.8
-	12	4,225	51.2	2,122	18.7	2,385	26.3	1,799	15.9	3,194	31.2	1,455	11.9	788	4.6
1/2	-	3,996	48.4	2,009	17.7	2,254	24.8	1,704	15.1	3,017	29.5	1,375	11.2	741	4.3
-	16	3,169	46.9	1,592	17.5	1,789	24.5	1,349	14.9	2,395	29.0	1,092	11.0	591	4.3
5/8	-	3,197	47.3	1,607	17.7	1,803	24.7	1,363	15.1	2,414	29.2	1,100	11.1	592	4.3
3/4	-	2,664	45.3	1,340	17.1	1,503	23.9	1,136	14.5	2,011	27.9	917	10.7	494	4.2
-	20	2,535	43.1	1,273	16.2	1,431	22.8	1,079	13.8	1,916	26.6	873	10.2	473	4.0
1	-	1,998	33.9	1,005	12.8	1,127	17.9	852	10.9	1,508	20.9	688	8.1	370	3.1

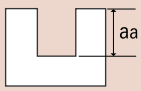


List 420: Stub Length - Multiple Flute - Fine Pitch
List 450: Multiple Flute - Fine Pitch - Center Hole

Side Milling

Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Medium Tensile Steels Mild Steels		High Tensile Steels Unalloyed Titanium Heat Resistant Ferritic Low Alloys		High Tensile Steels Tool Steels Medium Strength Stainless Steels and Titanium Alloys		Heat Resistant High Alloys High Strength and Titanium Alloys Stainless Steels	
Cutting Speed	90-110 SFM		60-75 SFM		45-60 SFM		30-45 SFM	
Depth of Cut	a_a=1.5D a_r= 0.5D							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	1,500	4.0	1,000	2.6	800	1.9	530	1.1
5/16	1,180	4.5	800	3.3	630	2.3	425	1.3
3/8	1,000	4.8	670	3.3	530	2.5	355	1.4
1/2	750	5.8	500	3.9	400	2.9	265	1.6
5/8	600	6.6	400	4.4	315	3.3	224	2.0
3/4	500	7.5	325	4.8	265	3.5	180	2.0
7/8	425	7.9	280	5.3	224	3.5	150	1.9
1	375	7.4	250	4.9	200	3.5	132	1.9
1-1/8	335	7.0	224	4.6	180	3.5	118	1.8
1-1/4	300	6.4	200	4.3	160	3.1	106	1.8
1-1/2	250	5.9	160	3.6	132	2.8	90	1.6
1-3/4	312	5.0	140	3.3	112	2.4	75	1.4
2	190	4.5	125	2.9	100	2.3	67	1.4

Slotting

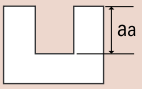
Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Medium Tensile Steels Mild Steels		High Tensile Steels Unalloyed Titanium Heat Resistant Ferritic Low Alloys		High Tensile Steels Tool Steels Medium Strength Stainless Steels and Titanium Alloys		Heat Resistant High Alloys High Strength and Titanium Alloys Stainless Steels	
Cutting Speed	90-110 SFM		60-75 SFM		45-60 SFM		30-45 SFM	
Depth of Cut	a_a=0.8D							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	1,500	4.1	1,000	2.5	800	1.5	530	0.9
3/8	1,000	4.6	670	3.0	530	1.9	355	1.0
1/2	750	5.0	500	3.0	400	2.0	265	1.3
5/8	600	5.1	400	3.8	315	2.3	224	1.4
3/4	500	6.1	325	4.0	265	2.9	180	1.5
7/8	425	6.1	280	4.0	224	2.9	150	1.6
1	375	5.8	250	3.9	200	2.8	132	1.6
1-1/4	300	5.4	200	3.6	160	2.5	106	1.5
1-1/2	200	5.0	160	3.3	132	2.4	90	1.4

List 455: Multiple Flute - Fine Pitch - Center Hole

Side Milling

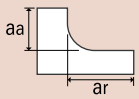
Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		<45 HRC	
Work Material	Cast Iron Mild Steel Forgings Brass		Medium Carbon Steels Mild Steel Forgings		High Tensile Steels 4140, 4340 304 Stainless Steels TI-Alloy		D2 H13 17-4PH		Heat Resistant Alloys Inconel 718 Heat Treated Materials	
Cutting Speed	150 SFM		120 SFM		90 SFM		65 SFM		50 SFM	
Depth of Cut	Dia: 1/4≤D≤2 — aa: 1.5D — ar: 0.5D 									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	2,300	4.6	1,800	3.4	1,400	2.6	1,000	1.7	750	1.5
5/16	1,800	5.7	1,500	4.7	1,100	3.4	800	2.5	600	1.6
3/8	1,500	6.6	1,200	5.4	900	4.0	650	2.8	500	1.7
1/2	1,150	6.3	950	5.1	700	3.6	500	2.6	400	1.5
5/8	900	7.9	750	5.9	550	4.3	400	3.1	300	1.7
3/4	750	8.7	600	6.6	450	5.0	350	3.9	250	1.9
7/8	650	8.4	525	6.5	400	4.9	300	3.5	210	1.8
1	575	8.4	450	5.6	350	4.3	250	3.1	190	1.7
1-1/8	500	8.3	400	6.0	300	4.4	220	3.2	160	1.7
1-1/4	450	8.3	375	7.1	250	4.6	200	3.5	150	1.9
1-1/2	375	7.1	300	5.5	200	3.7	160	2.5	120	1.5
2	285	7.2	230	5.6	170	4.2	125	2.6	95	1.6

Slotting

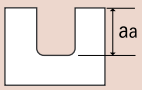
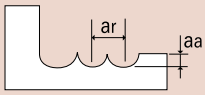
Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		<45 HRC	
Work Material	Cast Iron Mild Steel Forgings Brass		Medium Carbon Steels Mild Steel Forgings		High Tensile Steels 4140, 4340 304 Stainless Steels TI-Alloy		D2 H13 17-4PH		Heat Resistant Alloys Inconel 718 Heat Treated Materials	
Cutting Speed	150 SFM		120 SFM		90 SFM		65 SFM		50 SFM	
Depth of Cut	Dia: 1/4≤D≤2 — aa: 0.8D 									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	2,300	6.1	1,800	4.6	1,400	3.3	1,000	2.4	750	1.6
5/16	1,800	8.4	1,500	5.9	1,100	3.9	800	2.8	600	1.7
3/8	1,500	10.5	1,200	5.9	900	4.4	650	3.2	500	1.8
1/2	1,150	9.6	950	5.5	700	4.1	500	2.9	400	1.7
5/8	900	12.5	750	7.5	550	4.8	400	3.1	300	2.4
3/4	750	13.9	600	7.2	450	4.4	350	3.6	250	2.7
7/8	650	12.8	525	6.9	400	4.7	300	3.5	210	2.5
1	575	12.0	450	6.6	350	4.4	250	3.3	190	2.1
1-1/4	450	12.5	375	8.7	250	4.6	200	3.6	150	2.4
1-1/2	400	10.7	300	7.8	225	4.2	160	3.1	120	1.9
2	300	8.2	250	7.0	180	3.2	100	1.6	90	1.4

List 440: Ball End - Multiple Flute - General Purpose - Regular Pitch

Side Milling

Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		–	
Work Material	Mild Steels Carbon Steels Cast Iron		Medium Carbon Steels Hard Brass and Bronze Cast Iron		High Carbon Steel Titanium Alloys Medium Strength Stainless Effects		Heat Resistant High Alloys Austenitic Alloys Tool Steels		Aluminum Aluminum Alloys	
Cutting Speed	100-130 SFM		60-75 SFM		40-55 SFM		26-40 SFM		190-330 SFM	
Depth of Cut	Dia / aa / ar 1/2≤D≤1 / 1.5D / 0.5D 1-1/4≤D≤2 / 1.0D / 0.5D 									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/2	875	3.9	500	2.7	365	1.7	250	1.1	2,000	12.6
5/8	700	4.4	420	3.1	300	1.9	200	1.3	1,600	14.1
3/4	590	4.1	350	3.1	250	2.0	170	1.2	1,350	13.9
1	500	5.0	250	2.9	180	1.8	125	1.3	1,000	14.2
1-1/4	350	5.0	200	3.3	150	2.3	100	1.4	800	15.9
1-1/2	300	5.0	175	3.3	120	1.9	80	1.3	650	14.3
2	250	4.3	130	2.7	90	1.6	65	1.2	500	11.7

Slotting

Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		–	
Work Material	Mild Steels Carbon Steels Cast Iron		Medium Carbon Steels Hard Brass and Bronze Cast Iron		High Carbon Steel Titanium Alloys Medium Strength Stainless Effects		Heat Resistant High Alloys Austenitic Alloys Tool Steels		Aluminum Aluminum Alloys	
Cutting Speed	80-150 SFM		50-65 SFM		30-50 SFM		16-32 SFM		80-390 SFM	
Depth of Cut	# of Flutes / aa 4FL / 1/4D 6FL / 1/6D 8FL / 1/8D  ar = 0.3D 									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/2	1,000	10.5	450	3.3	315	2.1	200	1.1	2,500	21.0
5/8	800	8.5	355	3.0	250	2.0	160	0.9	2,000	16.7
3/4	710	8.5	315	2.8	225	2.0	140	0.9	1,800	16.9
1	500	7.0	224	2.2	160	1.6	100	0.9	1,250	14.1
1-1/4	400	5.3	180	1.7	125	1.1	80	0.7	1,000	10.5
1-1/2	315	4.0	140	1.1	100	0.8	63	0.5	800	8.0
2	250	3.9	112	1.1	80	0.8	50	0.5	630	7.8

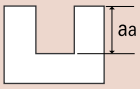
In case of deeper operation, slow down feed by 20-50%.

List 430E: For Aluminum - 3 Flute

Side Milling

Work Material	Aluminum Aluminum Alloys	
Cutting Speed	195-330 SFM	
Depth of Cut	Dia: 3/8≤D≤2 — aa: 1.5D — ar: 0.15D 	
Mill Dia.	**Speed RPM**	**Feed in/min**
3/8	2,700	11.4
1/2	2,000	12.0
5/8	1,600	10.7
3/4	1,350	10.1
7/8	1,200	10.2
1	1000	9.0
1-1/4	800	7.6
1-1/2	670	6.7
2	500	5.0

Slotting

Work Material	Aluminum Aluminum Alloys	
Cutting Speed	195-330 SFM	
Depth of Cut	Dia: 3/8≤D≤2 — aa: 1/3D 	
Mill Dia.	**Speed RPM**	**Feed in/min**
3/8	2,700	22.9
1/2	2,000	24.0
5/8	1,600	21.5
3/4	1,350	20.3
7/8	1,200	20.4
1	1,000	18.0
1-1/4	800	15.2
1-1/2	670	13.4
2	500	15.0

List 410: Stub Length - 3 Flute - Regular Pitch
List 490: Multiple Flute - Regular Pitch - General Purpose - Center Hole

Side Milling

Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Medium Tensile Steels (up to 115x103 Lb/in2) Mild Steel Forgings Cast Iron Brass and Bronze Copper		High Tensile Steels (115x103~145x103 Lb/in2) Unalloyed Titanium Heat Resistant Ferritic Low Alloys		High Tensile Steels (145x103~200x103 Lb/in2) Tool Steels Medium Strength Stainless Steels Titanium Alloys		Heat Resistant High Alloys High Strength Stainless Steels Titanium Alloys		Aluminum Alloyed Aluminum Plastics Woods	
Cutting Speed	80-100 SFM		60-75 SFM		40-55 SFM		26-40 SFM		195-330 SFM	
Depth of Cut	Dia | aa | ar 1/2≤D≤1-1/8 | 1.5D | 0.5D 1-1/4≤D≤2 | 1D | 0.5D									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	1,320	2.6	1,000	1.6	750	1.0	500	0.6	4,000	11.1
5/16	1,060	3.0	800	1.9	600	1.1	400	0.8	3,150	12.4
3/8	950	3.1	710	2.0	530	1.0	355	0.8	2,800	13.0
1/2	670	3.8	500	2.4	375	1.5	250	0.9	2,000	15.8
5/8	600	4.8	400	2.6	300	1.6	200	1.0	1,600	17.6
3/4	475	4.5	355	2.8	265	1.8	180	1.0	1,400	18.5
7/8	375	4.5	280	2.8	212	1.8	140	1.0	1,120	18.8
1	335	4.1	250	2.6	190	1.6	125	1.0	1,000	17.8
1-1/8	300	4.0	224	2.5	170	1.6	112	0.9	900	16.9
1-1/4	265	4.6	200	3.0	150	1.9	100	1.0	800	19.9
1-1/2	212	4.1	160	2.6	118	1.6	80	1.0	630	17.6
1-3/4	190	4.0	140	2.5	106	1.5	71	1.0	560	16.5
2	170	3.5	125	2.3	95	1.4	63	0.9	500	14.8

List 470: Regular Length - Multiple Flute - Center Hole

Side Milling

Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Medium Tensile Steels (up to 115 x 103 Lb/in2) Mild Steel Forgings Cast Iron Brass and Bronze Copper		High Tensile Steels (115 x 103~145 x 103 Lb/in2) Unalloyed Titanium Heat Resistant Ferritic Low Alloys		High Tensile Steels (145 x 103 ~200 x 103 Lb/in2) Tool Steels Medium Strength Stainless Steels and Titanium Alloys		Heat Resistant High Alloys High Strength Stainless Steels and Titanium Alloys		Aluminum Alloyed Aluminum Plastics Woods	
Cutting Speed	80-100 SFM		60-75 SFM		40-55 SFM		26-40 SFM		195-330 SFM	
Depth of Cut										

Dia	aa	ar
1/2≤D≤1-1/8	1.5D	0.3D
1-1/4≤D≤2	1D	0.3D



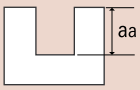
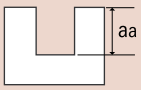
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	1,320	2.1	1,000	1.3	750	0.9	500	0.5	4,000	8.9
5/16	1,060	2.4	800	1.5	600	1.0	400	0.5	3,150	9.9
3/8	950	2.3	710	1.5	530	1.0	355	0.6	2,800	10.5
1/2	670	3.0	500	1.9	375	1.1	250	0.8	2,000	12.4
5/8	600	3.4	400	2.1	300	1.4	200	0.8	1,600	14.0
3/4	475	3.5	355	2.3	265	1.4	180	0.9	1,400	14.8
7/8	375	3.5	280	2.3	212	1.4	140	0.9	1,120	14.8
1	335	3.4	250	2.1	190	1.4	125	0.8	1,000	14.0
1-1/8	300	3.1	224	2.0	170	1.3	112	0.8	900	13.3
1-1/4	265	3.8	200	2.4	150	1.5	100	1.0	800	15.8
1-1/2	212	3.4	160	2.1	118	1.4	80	0.9	630	14.0
1-3/4	190	3.1	140	2.0	106	1.3	71	0.8	560	13.3
2	170	2.9	125	1.8	95	1.1	63	0.8	500	11.8

List 460: Multiple Flute - Fine Pitch

Side Milling

Hardness	–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	400-460 SFM		130-160 SFM		100 SFM		65 SFM		50 SFM	
Depth of Cut	a_a=1.5D a_r= 0.1D 									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
6	6,900	21.7	2,400	10.6	1,600	6.7	1,060	3.0	800	1.2
8	5,200	21.7	1,800	10.6	1,200	6.7	800	3.0	600	1.2
10	4,200	23.6	1,400	13.4	950	6.7	640	3.0	480	1.2
12	3,500	23.6	1,200	14.2	800	7.1	530	3.0	400	1.2
16	2,600	23.6	900	15.7	600	7.1	400	3.0	300	1.2
20	2,100	23.6	720	16.1	480	7.9	320	3.0	240	1.2
25	1,700	23.6	580	13.8	380	7.1	250	3.0	190	1.2

Slotting

Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	125 SFM		85 SFM		55 SFM		40 SFM	
Depth of Cut	Dia / a_a D≤12 / 1.0D 12<D / 0.5D 				a_a=0.5D 			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
6	2,040	7.9	1,360	4.7	900	2.0	680	0.8
8	1,530	8.3	1,020	4.7	680	2.0	510	0.8
10	1,190	9.1	810	4.7	540	2.0	410	0.8
12	1,020	9.8	680	5.1	450	2.0	340	0.8
16	760	10.6	510	5.1	340	2.0	260	0.8
20	620	11.0	410	5.5	270	2.0	200	0.8
25	500	9.4	320	5.1	210	2.0	160	0.8

For 460 TiN Series, multiply cutting condition by 1.2 to 1.5

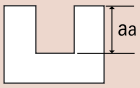
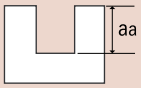
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List 460: Multiple Flute - Fine Pitch (Continued)

Side Milling

Hardness	–		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Aluminum		Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	390-460 SFM		130-164 SFM		100 SFM		66 SFM		50 SFM	
Depth of Cut	a_a=1.5D a_r= 0.1D 									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	6,900	21.7	2,400	10.6	1,600	6.7	1,060	3.0	800	1.2
5/16	5,200	21.7	1,800	10.6	1,200	6.7	800	3.0	600	1.2
3/8	4,200	23.6	1,400	13.4	950	6.7	640	3.0	480	1.2
1/2	3,500	23.6	1,200	14.2	800	7.1	530	3.0	400	1.2
5/8	2,600	23.6	900	15.7	600	7.1	400	3.0	300	1.2
3/4	2,100	23.6	720	16.1	480	7.9	320	3.0	240	1.2
1	1,700	23.6	580	13.8	380	7.1	250	3.0	190	1.2

Slotting

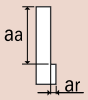
Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	Medium Carbon Steels Mild Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Pre-hardened Steels Stainless Steels Die & Alloy Steels		Hardened Steels	
Cutting Speed	110-140 SFM		85 SFM		56 SFM		43 SFM	
Depth of Cut	Dia / a_a D≤1/2 / 1.0D 1/2<D / 0.5D 				a_a=0.5D 			
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	2,040	7.9	1,360	4.7	900	2.0	680	0.8
5/16	1,530	7.9	1,020	4.7	680	2.0	510	0.8
3/8	1,190	9.1	810	4.7	540	2.0	410	0.8
1/2	1,020	9.8	680	5.1	450	2.0	340	0.8
5/8	760	10.6	510	5.1	340	2.0	260	0.8
3/4	620	11.0	410	5.5	270	2.0	200	0.8
1	500	9.4	320	5.1	210	2.0	160	0.8

List 690: Regular Length - Multiple Flute - Center Hole

Side Milling

Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-45 HRC		<50 HRC	
Work Material	Mild Steels (up to 70x103 lb/in.2)		Medium Tensile Steels (70x103 to 115x103 lb/in.2) Mild Steel Forgings Cast Iron		High Tensile Steels (115x103 to 142x103 lb/in.2) Heat Resistant Ferritic Low Alloys		High Tensile Steels (142x103 to 200x103 lb/in.2) Tool Steels Medium Strength Stainless Steel		High Strength Stainless Steels	
Cutting Speed	130-148 SFM		115-131 SFM		79-83 SFM		55-66 SFM		45-47 SFM	
Depth of Cut										

Dia	aa	ar
1/2≤D<1-1/8	1.5D	0.5D
1-1/4≤D≤2	1D	0.5D



Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	2,230	6.0	1,770	4.5	1,250	3.0	940	2.3	700	1.5
5/16	1,700	7.9	1,600	6.3	1,000	3.5	800	2.8	560	1.5
3/8	1,470	10.3	1,180	7.0	835	4.0	660	3.3	470	1.9
1/2	1,100	9.3	900	6.4	630	4.1	425	3.1	355	1.9
5/8	850	12.5	715	8.4	500	6.3	400	4.0	280	2.4
3/4	725	14.8	590	8.4	420	6.0	325	4.3	235	2.4
7/8	630	14.0	500	8.4	350	6.0	280	4.5	200	2.4
1	560	14.0	450	7.9	310	6.0	250	4.5	175	2.3
1-1/8	490	12.1	400	7.0	270	6.0	220	4.3	160	2.4
1-1/4	450	11.8	355	7.0	250	5.5	200	4.0	140	2.3
1-1/2	370	10.1	300	6.6	210	4.5	165	3.3	115	1.9
1-3/4	315	8.8	250	6.0	180	4.0	140	2.8	100	1.5
2	275	7.8	220	5.0	155	3.5	120	2.3	90	1.4

List 660: Super High-Helix - Regular Length - Multiple Flute

Semi-Roughing Cut

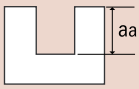
Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	1045 1055 Cast Steel Cast Iron		15-5 PH 4140, 4340, 304, 316, 410, 420, 430 A1		6AL-4V 17-4 PH H13 (HRC38) P20, D2 Beryllium Copper		H13 (HRC45) Inconel 718 Hastelloy Waspaloy	
Cutting Speed	80-100 SFM		50-65 SFM		35-45 SFM		20-30 SFM	
Depth of Cut	a_a=1.5D a_r= 0.3D 							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	1,400	3.0	900	1.9	600	1.2	400	0.7
5/16	1,100	2.8	700	1.8	500	1.3	300	0.7
3/8	900	3.2	600	2.1	400	1.4	250	0.7
7/16	780	3.3	500	2.1	355	1.5	224	0.8
1/2	710	3.8	450	2.4	315	1.7	200	0.8
5/8	560	3.8	350	2.3	250	1.7	160	0.9
3/4	450	3.8	300	2.6	200	1.7	140	0.8
7/8	400	4.0	250	2.5	180	1.8	110	0.8
1	315	3.5	200	2.2	160	1.8	100	0.8

Finish Cut

Hardness	<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC	
Work Material	1045 1055 Cast Steel Cast Iron		15-5 PH 4140, 4340, 304, 316, 410, 420, 430 A1		6AL-4V 17-4 PH H13 (HRC38) P20, D2 Beryllium Copper		H13 (HRC45) Inconel 718 Hastelloy Waspaloy	
Cutting Speed	80-100 SFM		50-65 SFM		35-45 SFM		20-30 SFM	
Depth of Cut	a_a=1.5D a_r= 0.1D 							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/4	1,400	5.9	900	3.1	600	2.0	400	1.1
5/16	1,100	6.6	700	3.3	500	2.4	315	1.2
3/8	900	6.3	600	3.5	400	2.3	250	1.2
7/16	780	7.0	500	3.7	355	2.7	224	1.4
1/2	710	6.7	450	3.6	315	2.5	200	1.4
5/8	560	6.3	350	3.5	250	2.5	160	1.5
3/4	450	5.1	300	3.2	200	2.1	140	1.5
7/8	400	6.0	250	3.7	180	2.7	110	1.6
1	350	5.3	200	3.0	160	2.4	100	1.4

List 573: Regular Length, 2 Flute
List 574: Regular Length, Multiple Flute

Slotting

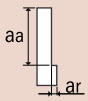
Hardness	–		<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC	
Work Material	Aluminum Alloyed Aluminum Plastics Woods		Mild Steels Brass Bronze		Medium Tensile Steels Mild Steel Forgings Cast Iron Hard Brass and Bronze Copper		High Tensile Steels Unalloyed Titanium Heat Resistant Ferritic Low Alloys		High Tensile Steels Tool Steels Medium Strength Stainless Steels and Titanium Alloys	
Cutting Speed	250-350 SFM		80-100 SFM		50-65 SFM		35-45 SFM		20-30 SFM	
Depth of Cut	2 Flute: a_a=0.5D 4 Flute: a_a= 0.25D									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	9,170	9.2	2,750	3.1	1,760	4.2	1,220	1.0	765	0.6
5/32	7,335	10.4	2,200	3.5	1,400	4.8	980	1.1	610	0.6
3/16	6,110	11.6	1,830	4.0	1,170	5.5	815	1.3	510	0.7
1/4	4,585	12.1	1,375	4.4	880	5.9	610	1.4	380	0.8
5/16	3,670	14.0	1,100	4.9	700	6.7	490	1.5	300	0.8
3/8	3,055	12.9	915	4.8	585	6.5	410	1.5	255	0.8
7/16	2,620	13.9	785	5.3	500	7.1	350	1.7	220	0.9
1/2	2,290	13.8	690	5.2	440	6.7	305	1.6	190	0.9
9/16	2,040	12.8	610	4.9	390	6.6	270	1.6	170	1.0
5/8	1,835	12.3	550	4.6	350	6.2	245	1.6	150	1.0
11/16	1,670	12.5	500	4.8	320	5.7	220	1.6	140	1.0
3/4	1,530	11.5	460	4.4	295	5.2	200	1.5	130	0.9
13/16	1,410	11.2	425	4.2	270	4.8	190	1.5	120	1.0
7/8	1,310	11.1	395	4.1	250	4.4	175	1.4	110	0.9
15/16	1,220	11.0	365	4.1	235	4.2	165	1.3	100	0.8
1	1,150	10.3	345	3.9	220	4.0	155	1.2	95	0.7

1) Based on regular 4FL end mills cutting depth (1.5D) x cutting width (0.1D).
2) For 2FL end mill, decrease feed 50%.
3) For finish, increase RPM 1.3 to 1.5 times.

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List 574: Regular Length, Multiple Flute (Continued)

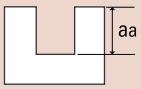
Side Milling

Hardness	–		<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC	
Work Material	Aluminum Alloyed Aluminum Plastics Woods		Mild Steels Brass Bronze		Medium Tensile Steels Mild Steel Forgings Cast Iron Hard Brass and Bronze Copper		High Tensile Steels Unalloyed Titanium Heat Resistant Ferritic Low Alloys		High Tensile Steels Tool Steels Medium Strength Stainless Steels and Titanium Alloys	
Cutting Speed	325-590 SFM		130-165 SFM		105-125 SFM		65-80 SFM		30-50 SFM	
Depth of Cut	a_a=1.5D a_r= 0.1D									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	13,980	28.0	4,500	10.1	3,550	7.1	2,240	3.6	1,250	1.6
5/32	11,185	31.8	3,550	11.4	2,800	8.0	1,800	4.0	1,000	1.9
3/16	9,320	35.4	2,800	12.4	2,240	9.0	1,400	4.5	800	2.1
1/4	6,990	36.9	2,240	14.4	1,800	10.1	1,120	5.0	630	2.4
5/16	5,590	42.5	1,800	16.1	1,400	11.3	900	5.8	500	2.6
3/8	4,660	39.5	1,600	17.0	1,250	11.8	800	6.1	450	2.9
7/16	3,995	42.4	1,250	16.8	1,000	12.0	630	6.3	355	3.0
1/2	3,495	41.9	1,120	16.8	900	11.4	560	5.9	315	3.0
9/16	3,100	39.2	1,000	16.0	800	11.4	500	6.0	280	3.1
5/8	2,795	37.5	900	15.3	710	10.6	450	6.0	250	3.1
11/16	2,540	38.1	800	15.3	630	9.5	400	5.6	224	3.1
3/4	2,330	35.0	800	15.3	630	9.5	400	5.6	224	3.1
13/16	2,150	34.4	710	14.3	560	8.4	355	5.6	200	3.3
7/8	2,000	34.0	630	13.4	500	7.5	315	5.0	180	2.9
15/16	1,865	33.6	560	12.5	450	6.8	280	4.5	160	2.5
1	1,750	31.5	560	12.5	450	6.8	280	4.5	160	2.5

1) Based on regular 4FL end mills cutting depth (1.5D) x cutting width (0.1D).
2) For 2FL end mill, decrease feed 50%.
3) For finish, increase RPM 1.3 to 1.5 times.

Standard 2 Flute HSS-Co

Slotting

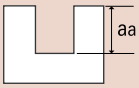
Hardness	<145 Brinell			<20 HRC			20-30 HRC		
Work Material	Mild Steels Brass Bronze			Medium Tensile Steels Mild Steel Forgings Cast Iron Hard Brass and Bronze Copper			High Tensile Steels Unalloyed Titanium Heat Resistant Ferritic Low Alloys		
Cutting Speed	80-150 SFM			80-110 SFM			50-65 SFM		
Depth of Cut	$a_{a=0.5D}$ 								
Mill Dia.	Speed RPM	IPT	Feed in/min	Speed RPM	IPT	Feed in/min	Speed RPM	IPT	Feed in/min
1/64	25,000	0.00002	1.0	23,225	0.00002	0.9	14,000	0.00001	0.3
1/32	14,060	0.00007	2.0	11,610	0.00006	1.4	7,100	0.00005	0.7
3/64	9,370	0.00014	2.6	7,740	0.00012	1.9	4,500	0.00010	0.9
1/16	7,030	0.00020	2.8	5,800	0.00018	2.1	3,550	0.00014	1.0
5/64	5,625	0.00028	3.1	4,645	0.00025	2.3	2,800	0.00020	1.1
3/32	4,685	0.00040	3.7	3,870	0.00035	2.7	2,240	0.00028	1.3
7/64	4,015	0.00047	3.8	3,320	0.00042	2.8	2,000	0.00033	1.3
1/8	3,515	0.00056	3.9	2,900	0.00050	2.9	1,800	0.00040	1.4
9/64	3,125	0.00067	4.2	2,580	0.00060	3.1	1,600	0.00047	1.5
5/32	2,810	0.00080	4.5	2,320	0.00071	3.3	1,400	0.00056	1.6
11/64	2,555	0.00095	4.9	2,110	0.00085	3.6	1,250	0.00067	1.7
3/16	2,340	0.00110	5.2	1,935	0.00100	3.9	1,120	0.00080	1.8
1/4	1,760	0.00160	5.6	1,450	0.00140	4.1	900	0.00112	2.0
5/16	1,400	0.00224	6.3	1,160	0.00200	4.6	710	0.00160	2.3
3/8	1,170	0.00265	6.2	970	0.00236	4.6	630	0.00190	2.4
7/16	1,000	0.00335	6.7	830	0.00300	5.0	500	0.00250	2.5
1/2	880	0.00375	6.6	725	0.00315	4.6	450	0.00265	2.4
9/16	780	0.00400	6.2	645	0.00355	4.6	400	0.00300	2.4
5/8	700	0.00425	6.0	580	0.00375	4.4	355	0.00335	2.4
11/16	640	0.00475	6.1	530	0.00400	4.2	315	0.00355	2.2
3/4	585	0.00475	5.6	485	0.00400	3.9	315	0.00355	2.2
13/16	540	0.00500	5.4	445	0.00400	3.6	280	0.00400	2.2
7/8	500	0.00530	5.3	415	0.00400	3.3	250	0.00400	2.0
15/16	470	0.00560	5.2	390	0.00400	3.1	224	0.00400	1.8
1	440	0.00560	4.9	360	0.00400	2.9	224	0.00400	1.8
1-1/8	390	0.00560	4.4	320	0.00400	2.6	200	0.00400	1.6
1-1/4	350	0.00600	4.2	290	0.00400	2.3	180	0.00400	1.4
1-3/8	320	0.00600	3.8	265	0.00400	2.1	160	0.00400	1.3
1-1/2	295	0.00630	3.7	240	0.00400	1.9	140	0.00400	1.1
1-5/8	270	0.00630	3.4	225	0.00400	1.8	140	0.00400	1.1
1-3/4	250	0.00630	3.2	210	0.00400	1.7	125	0.00400	1.0
1-7/8	235	0.00630	3.0	195	0.00400	1.5	112	0.00400	0.9
2	220	0.00630	2.8	180	0.00400	1.5	112	0.00400	0.9

1) Speeds and Feeds for Lists 520, 522, 540, 541, 542, 543, 548, 620 and 641
2) Reduce Speeds and Feeds 5-10% for Lists 525, 527, 547
3) Reduce Speeds and Feeds 10-20% for Lists 545 and 557
4) Increase Speeds and Feeds 5-15% for Lists 530 and 535 (Aluminum only)
5) Increase Speeds and Feeds 10-20% for List 529
6) Speeds can be increased up to 20% for 520TiN, 522TiN, 540TiN, and 542TiN
7) Speeds can be increased up to 15% for Lists 541TiN/TiCN and 548 TiCN

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Standard 2 Flute HSS-Co: (Continued)

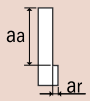
Slotting

Hardness	30-40 HRC			40-50 HRC			–		
Work Material	High Tensile Steels Tool Steels Medium Strength Stainless Steels and Titanium Alloys			Heat Resistant High Strength Stainless Steels and Titanium Alloys			Aluminum Alloy Aluminum Plastics Woods		
Cutting Speed	80-150 SFM			16-32 SFM			150-165 SFM		
Depth of Cut	$a_{a=0.5D}$ 								
Mill Dia.	Speed RPM	IPT	Feed in/min	Speed RPM	IPT	Feed in/min	Speed RPM	IPT	Feed in/min
1/64	25,000	0.00002	0.8	6,300	0.00001	0.1	25,000	0.00003	1.5
1/32	14,060	0.00004	1.2	3,150	0.00003	0.2	19,250	0.00008	2.9
3/64	9,370	0.00009	1.6	2,000	0.00006	0.2	12,835	0.00014	3.6
1/16	7,030	0.00012	1.7	1,600	0.00008	0.3	9,625	0.00020	3.9
5/64	5,625	0.00017	1.9	1,250	0.00011	0.3	7,700	0.00028	4.3
3/32	4,685	0.00024	2.2	1,000	0.00016	0.3	6,420	0.00038	4.8
7/64	4,015	0.00028	2.2	900	0.00020	0.4	5,500	0.00043	4.7
1/8	3,515	0.00034	2.4	800	0.00024	0.4	4,815	0.00050	4.8
9/64	3,125	0.00040	2.5	710	0.00028	0.4	4,280	0.00060	5.1
5/32	2,810	0.00048	2.7	630	0.00034	0.4	3,850	0.00071	5.5
11/64	2,555	0.00056	2.9	560	0.00040	0.4	3,500	0.00080	5.6
3/16	2,345	0.00067	3.1	500	0.00048	0.5	3,210	0.00095	6.1
1/4	1,760	0.00095	3.3	400	0.00071	0.6	2,400	0.00132	6.4
5/16	1,400	0.00132	3.7	315	0.00100	0.6	1,925	0.00190	7.3
3/8	1,170	0.00160	3.7	280	0.00118	0.7	1,600	0.00212	6.8
7/16	1,000	0.00212	4.3	224	0.00140	0.6	1,375	0.00265	7.3
1/2	880	0.00236	4.1	200	0.00180	0.7	1,200	0.00300	7.2
9/16	780	0.00280	4.4	180	0.00200	0.7	1,070	0.00315	6.7
5/8	700	0.00315	4.4	160	0.00224	0.7	965	0.00335	6.4
11/16	640	0.00355	4.5	140	0.00250	0.7	875	0.00375	6.6
3/4	585	0.00355	4.2	140	0.00250	0.7	800	0.00375	6.0
13/16	540	0.00400	4.3	125	0.00280	0.7	740	0.00400	5.9
7/8	500	0.00400	4.0	112	0.00315	0.7	690	0.00425	5.8
15/16	470	0.00400	3.7	100	0.00355	0.7	640	0.00450	5.8
1	440	0.00400	3.5	100	0.00355	0.7	600	0.00450	5.4
1-1/8	390	0.00400	3.1	90	0.00400	0.7	535	0.00475	5.1
1-1/4	350	0.00400	2.8	80	0.00400	0.6	480	0.00475	4.6
1-3/8	320	0.00400	2.6	71	0.00400	0.6	440	0.00500	4.4
1-1/2	295	0.00400	2.3	63	0.00400	0.5	400	0.00500	4.0
1-5/8	270	0.00400	2.2	63	0.00400	0.5	370	0.00500	3.7
1-3/4	250	0.00400	2.0	56	0.00400	0.4	345	0.00500	3.4
1-7/8	235	0.00400	1.9	50	0.00400	0.4	320	0.00500	3.2
2	220	0.00400	1.8	50	0.00400	0.4	300	0.00500	3.0

1) Based on regular 2FL cutting depth (1/2D) 4FL depth (1/4D) .
2) In case of deeper operation, slow down feed by 20-50%.

Standard 4 Flute and 6 Flute HSS-Co

Side Milling

Hardness	<145 Brinell			<20 HRC			20-30 HRC		
Work Material	Mild Steels Brass Bronze			Medium Tensile Steels Mild Steel Forgings Cast Iron Hard Brass and Bronze Copper			High Tensile Steels Unalloyed Titanium Heat Resistant Ferritic Low Alloys		
Cutting Speed	80-150 SFM			80-110 SFM			16-32 SFM		
Depth of Cut	$a_{a=1.5D}$ $a_{r=0.1D}$ 								
Mill Dia.	Speed RPM	IPT	Feed in/min	Speed RPM	IPT	Feed in/min	Speed RPM	IPT	Feed in/min
1/16	7,030	0.00020	5.6	5,800	0.00018	4.2	1,465	0.00014	0.8
5/64	5,625	0.00028	6.3	4,645	0.00025	4.6	1,175	0.00020	0.9
3/32	4,685	0.00040	7.5	3,870	0.00036	5.5	980	0.00028	1.1
7/64	4,015	0.00048	7.6	3,320	0.00043	5.6	840	0.00034	1.1
1/8	3,515	0.00056	7.9	2,900	0.00050	5.8	735	0.00040	1.2
9/64	3,125	0.00067	8.4	2,580	0.00060	6.2	650	0.00048	1.2
5/32	2,810	0.00080	9.0	2,320	0.00071	6.6	585	0.00056	1.3
11/64	2,555	0.00095	9.7	2,110	0.00085	7.2	530	0.00067	1.4
3/16	2,340	0.00110	10.3	1,935	0.00100	7.7	490	0.00080	1.6
1/4	1,760	0.00160	11.2	1,450	0.00140	8.1	365	0.00112	1.6
5/16	1,400	0.00224	12.6	1,160	0.00200	9.3	295	0.00160	1.9
3/8	1,170	0.00265	12.4	970	0.00236	9.1	245	0.00190	1.9
7/16	1,000	0.00335	13.5	830	0.00300	10.0	210	0.00250	2.1
1/2	880	0.00375	13.2	725	0.00315	9.1	185	0.00265	1.9
9/16	780	0.00400	12.5	645	0.00355	9.2	160	0.00300	2.0
5/8	700	0.00425	11.9	580	0.00375	8.7	145	0.00335	2.0
11/16	640	0.00475	12.1	530	0.00375	7.9	135	0.00355	1.9
3/4	585	0.00475	11.1	485	0.00375	7.3	120	0.00355	1.7
13/16	540	0.00500	10.8	445	0.00375	6.7	110	0.00400	1.8
7/8	500	0.00530	10.6	415	0.00375	6.2	105	0.00400	1.7
15/16	470	0.00560	10.5	390	0.00375	5.8	100	0.00400	1.6
1	440	0.00560	9.8	365	0.00375	5.4	90	0.00400	1.5
1-1/8	390	0.00560	8.7	320	0.00375	4.8	80	0.00400	1.3
1-1/4	350	0.00600	8.4	290	0.00375	4.4	75	0.00400	1.2
1-3/8	320	0.00600	7.7	265	0.00375	4.0	65	0.00400	1.1
1-1/2	295	0.00630	7.4	240	0.00375	3.6	60	0.00400	1.0
1-3/4	250	0.00630	9.5	210	0.00375	4.7	50	0.00400	1.3
2	220	0.00630	8.3	180	0.00375	4.1	45	0.00400	1.1

1) Speeds and Feeds for Lists 540, 541, 542, 543, 547, 548, 575, and 641
2) Reduce Speeds and Feeds 15-20% for Lists 557
3) Reduce Speeds and Feeds 10-15% for Lists 545, 546, 558 and 646
4) Increase Speeds and Feeds 5-15% for Lists 549

continued on next page

Standard 4 Flute and 6 Flute HSS-Co: (Continued)

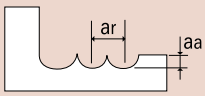
Side Milling

Hardness	30-40 HRC			40-50 HRC			–		
Work Material	High Tensile Steels Tool Steels Medium Strength Stainless Steels and Titanium Alloys			Heat Resistant High Strength Stainless Steels and Titanium Alloys			Aluminum Alloyed Aluminum Plastics Woods		
Cutting Speed	30-50 SFM			16-32 SFM			150-390 SFM		
Depth of Cut	a_a=1.5D a_r= 0.1D 								
Mill Dia.	Speed RPM	IPT	Feed in/min	Speed RPM	IPT	Feed in/min	Speed RPM	IPT	Feed in/min
1/16	2,500	0.00012	1.2	1,600	0.00008	0.5	16,500	0.00020	13.2
5/64	2,000	0.00017	1.4	1,250	0.00011	0.6	13,200	0.00028	14.8
3/32	1,600	0.00024	1.5	1,000	0.00016	0.6	11,000	0.00038	16.5
7/64	1,400	0.00028	1.6	900	0.00020	0.7	9,430	0.00043	16.0
1/8	1,250	0.00034	1.7	800	0.00024	0.8	8,250	0.00050	16.5
9/64	1,120	0.00040	1.8	710	0.00028	0.8	7,335	0.00060	17.6
5/32	1,000	0.00048	1.9	630	0.00034	0.8	6,600	0.00071	18.7
11/64	900	0.00056	2.0	560	0.00040	0.9	6,000	0.00080	19.2
3/16	800	0.00067	2.1	500	0.00048	1.0	5,500	0.00095	20.9
1/4	630	0.00095	2.4	400	0.00071	1.1	4,125	0.00132	21.8
5/16	500	0.00132	2.6	315	0.00100	1.3	3,300	0.00190	25.1
3/8	450	0.00160	2.9	280	0.00118	1.3	2,750	0.00212	23.3
7/16	355	0.00212	3.0	224	0.00140	1.3	2,360	0.00265	25.0
1/2	315	0.00236	3.0	200	0.00180	1.4	2,060	0.00300	24.8
9/16	280	0.00280	3.1	180	0.00200	1.4	1,835	0.00315	23.1
5/8	250	0.00315	3.2	160	0.00224	1.4	1,650	0.00335	22.1
11/16	224	0.00355	3.2	140	0.00250	1.4	1,500	0.00375	22.5
3/4	224	0.00355	3.2	140	0.00250	1.4	1,375	0.00375	20.6
13/16	200	0.00400	3.2	125	0.00280	1.4	1,270	0.00400	20.3
7/8	180	0.00400	2.9	112	0.00315	1.4	1,180	0.00425	20.0
15/16	160	0.00400	2.6	100	0.00355	1.4	1,100	0.00450	19.8
1	160	0.00400	2.6	100	0.00355	1.4	1,030	0.00450	18.6
1-1/8	140	0.00400	2.2	90	0.00400	1.4	915	0.00475	17.4
1-1/4	125	0.00400	2.0	80	0.00400	1.3	825	0.00475	15.7
1-3/8	112	0.00400	1.8	71	0.00400	1.1	750	0.00500	15.0
1-1/2	100	0.00400	1.6	63	0.00400	1.0	690	0.00500	13.8
1-3/4	90	0.00400	2.2	56	0.00400	1.3	590	0.00500	17.7
2	80	0.00400	1.9	50	0.00400	1.2	515	0.00500	15.5

1) Based on regular 4FL end mills. cutting depth (1.5D) x cutting width (0.1D)
2) For finish cut, increase RPM 30-50%.

List 521: Single End, Regular Length, 2 Flute
List 523: Double End, Regular Length, 2 Flute
List 526: Single End, Regular Length, 2 Flute, Extension Type
List 544: Single End, Regular Length, 4 Flute
List 621: Ball End, Regular Length, 2 Flute
List 644: Ball End, Regular Length, Multiple Flute

Profiling

Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Hard Brass Bronze Cast Iron		Medium Carbon Steels Medium Strength Titanium Alloys Medium Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		Heat Resistant High Alloys Austenitic Alloys Nickel Base Alloys		Heat Resistant High Alloys High Strength Stainless Steels Titanium Alloys		Aluminum Aluminum Alloys	
Cutting Speed	80-150 SFM		80-110 SFM		50-65 SFM		30-50 SFM		16-32 SFM		80-390 SFM	
Depth of Cut	a_a 2FL = 1/2D 4FL = 1/4D				$a_{r=0.1D}$							
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	3,515	4.0	2,900	2.9	1,800	1.5	1,250	0.9	800	0.4	7,180	7.2
3/16	2,340	5.2	1,935	3.9	1,120	1.8	800	1.1	500	0.5	4,790	9.1
1/4	1,760	5.6	1,450	4.2	900	2.0	630	1.3	400	0.6	3,590	9.6
5/16	1,400	6.2	1,160	4.7	710	2.3	500	1.4	315	0.6	2,875	11.0
3/8	1,170	6.2	970	4.6	630	2.4	450	1.5	280	0.6	2,390	10.1
7/16	1,000	6.7	830	5.0	500	2.5	355	1.5	224	0.6	2,050	10.9
1/2	880	6.6	725	4.6	450	2.4	315	1.5	200	0.8	1,795	10.8
9/16	780	6.3	645	4.6	400	2.4	280	1.6	180	0.8	1,595	10.0
5/8	700	6.0	580	4.4	355	2.4	250	1.6	160	0.8	1,435	9.6
3/4	585	5.6	485	3.9	315	2.3	225	1.6	140	0.8	1,195	9.0
7/8	500	5.3	415	3.3	250	2.0	180	1.5	110	0.8	1,025	8.7
1	440	4.9	360	2.9	224	1.8	160	1.3	100	0.8	900	8.1
1-1/8	390	4.3	320	2.5	200	1.6	140	1.1	90	0.8	800	7.6
1-1/4	350	4.2	290	2.3	180	1.5	125	1.0	80	0.6	720	6.8
1-1/2	295	3.7	240	2.0	140	1.1	100	0.8	63	0.5	600	6.0

Reduce Speeds and Feeds by 10% for List 526
In case of deeper operation, slow down feed by 20-50%

List 580: Single End, Regular Length, 2 Flute
List 582: Double End, Regular Length, 2 Flute

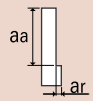
Side Milling

Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Hard Brass Bronze Cast Iron		Med. Carbon Steels Med. Strength Titanium Alloys Med. Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		Heat Resistant High Alloys Austenitic Alloys Nickel Base Alloys		Heat Resistant High Alloys High Strength Stainless Steels Titanium Alloys		Aluminum Aluminum Alloys	
Cutting Speed	125-145 SFM		95-110 SFM		50-65 SFM		30-50 SFM		16-32 SFM		160-390 SFM	
Depth of Cut	a_a=1.5D a_r= 0.1D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	4,365	4.1	3,315	3.0	1,860	1.3	1,400	0.8	800	0.4	8,895	7.8
4	3,275	5.1	2,485	3.5	1,395	1.6	1,000	1.0	630	0.4	6,670	9.5
5	2,620	5.8	1,990	3.9	1,115	1.8	800	1.0	500	0.5	5,335	10.5
6	2,185	5.8	1,660	3.8	930	1.8	710	1.1	400	0.6	4,450	9.8
8	1,640	7.3	1,245	4.8	700	2.2	500	1.1	315	0.6	3,335	12.7
10	1,310	8.3	995	5.4	560	2.5	400	1.3	280	0.6	2,670	13.3
12	1,090	8.2	830	5.1	465	2.5	315	1.5	200	0.8	2,220	13.2
14	935	7.4	710	4.9	400	2.4	280	1.6	180	0.8	1,900	11.8
16	820	6.9	620	4.6	350	2.4	250	1.6	160	0.8	1,670	11.3
18	730	6.7	550	4.4	310	2.2	225	1.6	140	0.8	1,480	11.2
20	655	6.5	500	3.9	280	2.2	200	1.6	140	0.8	1,335	10.3
22	595	6.3	450	3.5	255	2.0	180	1.4	112	0.8	1,210	10.2
24	545	6.0	415	3.3	235	1.9	160	1.3	100	0.8	1,110	9.8
25	525	5.8	400	3.2	225	1.8	160	1.3	100	0.6	1,070	9.4
26	500	5.5	385	3.1	215	1.7	160	1.3	90	0.6	1,025	9.0
28	465	5.1	355	2.8	200	1.6	140	1.1	80	0.6	950	8.8
30	435	4.8	330	2.6	185	1.5	140	1.1	70	0.6	890	8.3
32	410	4.8	310	2.5	175	1.4	125	1.0	63	0.5	835	7.8
35	375	4.3	285	2.3	160	1.3	110	0.9	63	0.5	760	7.5
36	365	4.2	275	2.2	155	1.3	110	0.8	63	0.5	740	7.2
40	330	4.1	250	2.0	140	1.1	100	0.8	56	0.4	670	6.6
45	290	3.6	220	1.8	125	1.0	90	0.7	50	0.4	595	5.9
50	260	3.2	200	1.6	110	0.9	80	0.7	50	0.4	535	5.3

In case of deeper operation, slow down feed by 20-50%

List 581: Regular Length - Multiple Flute - Center Hole

Side Milling

Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Hard Brass Bronze Cast Iron		Med. Carbon Steels Med. Strength Titanium Alloys Med. Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		Heat Resistant High Alloys Austenitic Alloys Nickel Base Alloys		Heat Resistant High Alloys High Strength Stainless Steels Titanium Alloys		Aluminum Aluminum Alloys	
Cutting Speed	130-165 SFM		105-125 SFM		65-85 SFM		30-50 SFM		16-32 SFM		450-590 SFM	
Depth of Cut	$a_{a=1.5D}$ $a_{r=0.1D}$ 											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3	4,770	8.8	4,000	7.5	2,425	3.4	1,295	1.5	800	0.8	16,820	29.4
4	3,580	11.3	2,800	8.8	1,820	4.0	970	1.8	630	0.9	12,615	35.7
5	2,860	12.6	2,240	9.8	1,455	4.5	775	2.1	500	1.0	10,090	39.8
6	2,385	12.6	2,000	10.4	1,210	4.5	650	2.0	400	1.1	8,410	36.8
8	1,790	15.7	1,400	12.4	910	5.6	485	2.6	315	1.3	6,300	46.6
10	1,430	17.8	1,120	14.0	730	6.5	390	2.8	280	1.4	5,045	49.6
12	1,190	17.9	900	13.2	600	6.4	325	3.0	200	1.5	4,200	48.9
14	1,020	16.1	800	12.4	520	6.2	280	3.1	180	1.5	3,600	44.8
16	895	14.8	710	11.8	455	6.0	240	3.0	160	1.4	3,150	41.7
18	795	14.7	630	11.0	400	5.6	215	3.0	140	1.4	2,800	41.7
20	715	14.1	560	9.8	365	5.7	195	3.0	140	1.4	2,520	39.8
22	650	13.6	500	8.8	330	5.1	175	2.7	112	1.4	2,295	38.4
24	600	13.1	450	7.9	300	4.6	160	2.5	100	1.4	2,100	36.8
25	575	12.6	450	7.9	290	4.5	155	2.4	100	1.4	2,020	35.3
26	550	12.1	450	7.9	280	4.3	150	2.3	90	1.5	1,940	34.0
28	510	11.4	400	7.1	260	4.1	140	2.2	80	1.3	180	33.2
30	480	10.6	400	7.1	240	3.8	130	2.0	71	1.1	1,680	31.0
32	450	9.6	355	6.3	230	3.6	120	1.9	71	1.1	1,575	29.7
35	410	9.4	315	5.5	210	3.2	110	1.8	63	1.0	1,440	28.6
36	400	9.2	315	5.5	200	3.1	105	1.7	63	1.0	1,400	27.8
40	360	8.9	280	4.9	180	2.9	100	1.6	56	1.4	1,260	24.8
45	320	9.3	250	5.5	160	3.1	85	1.7	56	1.4	1,120	27.8
50	285	8.4	224	4.9	145	2.9	80	1.6	50	1.3	1,010	24.7

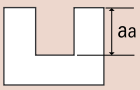
List 531: Single End - Regular Length - 3 Flute
List 532: Double End - Regular Length - 3 Flute
List 536: Single End - Long Length - 3 Flute

Side Milling

Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		–	
Work Material	Mild Steels Hard Brass Bronze Cast Iron		Med. Carbon Steels Hard Brass and Bronze Mild Steel Forgings		High Carbon Steel Unalloyed Titanium Ferritic Low Alloys		High Alloys Titanium Alloys High Strength Stainless Steels		Aluminum Aluminum Alloys	
Cutting Speed	155 SFM		115 SFM		70 SFM		40 SFM		395 SFM	
Depth of Cut	a_a=1.5D a_r= 0.2D 									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	4,700	5.7	3,516	4.1	2,140	2.0	1,223	0.9	12,076	13.4
3/16	3,200	9.1	2,344	6.0	1,427	3.1	815	1.4	8,051	20.1
1/4	2,350	8.3	1,758	5.4	1,070	2.7	611	1.2	6,038	16.9
5/16	1,896	11.0	1,406	7.0	856	3.6	489	1.8	4,831	25.2
3/8	1,580	12.9	1,172	8.3	713	3.9	408	2.0	4,025	25.2
1/2	1,185	11.6	879	6.9	535	3.7	306	1.9	3,019	21.4
5/8	948	10.4	703	6.9	428	3.7	245	2.1	2,415	21.4
3/4	790	10.4	586	6.0	357	3.6	204	2.1	2,013	19.8
1	592	8.4	439	4.6	268	2.9	153	1.6	1,510	17.9
1-1/4	474	6.6	352	3.7	214	2.2	122	1.3	1,208	15.1
1-1/2	395	6.1	293	3.1	178	1.9	102	1.1	1,006	13.2

When using List Number 536, reduce speeds and feeds by 10%.

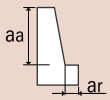
Slotting

Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		–	
Work Material	Mild Steels Brass Bronze Cast Iron		Med. Carbon Steels Hard Brass and Bronze Mild Steel Forgings		High Carbon Steel Unalloyed Titanium Ferritic Low Alloys		High Alloys Titanium Alloys High Strength Stainless Steels		Aluminum Aluminum Alloys	
Cutting Speed	115-150 SFM		90-110 SFM		50-65 SFM		15-35 SFM		325-375 SFM	
Depth of Cut	a_a=1/3D 									
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
1/8	4,050	4.9	3,055	3.6	1,760	1.7	765	0.5	10,700	11.8
3/16	2,700	7.7	2,040	5.3	1,170	2.5	500	0.9	7,130	17.8
1/4	2,025	7.1	1,530	4.7	880	2.2	385	0.8	5,350	15.0
5/16	1,620	9.4	1,220	6.1	700	3.0	300	1.1	4,280	22.4
3/8	1,350	11.0	1,020	7.2	585	3.2	255	1.3	3,565	22.3
1/2	1,010	9.9	765	6.0	440	3.0	190	1.2	2,675	18.9
5/8	810	8.9	610	6.0	350	3.1	150	1.3	2,140	18.9
3/4	675	8.9	510	5.3	295	2.9	130	1.3	1,780	17.5
1	500	7.2	385	4.0	220	2.4	95	1.0	1,340	15.8
1-1/4	400	5.7	300	3.2	175	1.8	75	0.8	1,070	13.4
1-1/2	340	5.2	255	2.7	145	1.6	65	0.7	890	11.7

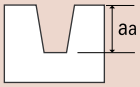
When using List Number 536, reduce speeds and feeds by 10%.

List 591: 1° Taper on Side - 3 Flute

Side Milling

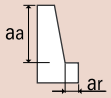
Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Brass Bronze Cast Iron		Med. Carbon Steels Hard Brass and Bronze Mild Steel Forgings		High Carbon Steel Unalloyed Titanium Ferritic Low Alloys		High Carbon Steel Unalloyed Titanium Ferritic Low Alloys		Heat Resistant High Alloys Austenitic Alloys Nickel Base Alloys		Aluminum Aluminum Alloys	
Cutting Speed	80-120 SFM		60-80 SFM		45-60 SFM		25-45 SFM		16-32 SFM		150-400 SFM	
Depth of Cut	$a_{a=1.5D}$ $a_{r=0.1D}$ 											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5/64	4,890	6.9	3,425	4.8	2,570	3.6	1,710	2.4	1,175	1.6	13,445	19.0
3/32	4,075	5.7	2,850	4.0	2,140	3.0	1,425	1.9	980	1.2	11,200	15.8
1/8	3,055	7.2	2,140	5.1	1,600	3.8	1,070	2.6	735	1.6	8,400	19.9
3/16	2,040	6.7	1,425	4.7	1,070	3.4	715	2.3	490	1.5	5,600	18.5
1/4	1,530	5.5	1,070	3.8	800	2.7	535	2.0	365	1.2	4,200	14.9
3/8	1,020	9.6	715	6.4	535	4.9	355	3.4	245	2.2	2,800	26.4
1/2	765	8.2	535	5.9	400	4.3	270	3.0	185	1.9	2,100	23.6
5/8	610	7.3	430	5.1	320	3.9	215	2.6	145	1.6	1,680	20.8

Slotting

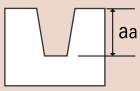
Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Brass Bronze Cast Iron		Med. Carbon Steels Hard Brass and Bronze Mild Steel Forgings		High Carbon Steel Unalloyed Titanium Ferritic Low Alloys		High Carbon Steel Unalloyed Titanium Ferritic Low Alloys		Heat Resistant High Alloys Austenitic Alloys Nickel Base Alloys		Aluminum Aluminum Alloys	
Cutting Speed	80-120 SFM		60-80 SFM		45-60 SFM		10 - 20 SFM		8-15 SFM		150-350 SFM	
Depth of Cut	$a_{a=1/3D}$ 											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5/64	4,890	3.5	3,420	2.2	2,570	1.4	776	0.5	504	0.3	12,225	6.9
3/32	4,075	3.6	2,850	2.5	2,140	1.5	640	0.4	416	0.2	10,185	5.7
1/8	3,055	3.8	2,140	2.6	1,600	1.8	480	0.6	312	0.3	7,640	7.2
3/16	2,040	3.4	1,425	2.4	1,070	1.6	320	0.5	208	0.3	5,095	6.7
1/4	1,530	3.5	1,070	2.5	800	1.8	240	0.4	156	0.2	3,820	7.5
3/8	1,020	4.8	715	3.2	535	2.2	160	0.7	104	0.4	2,545	9.6
1/2	765	4.3	535	3.0	400	2.2	120	0.6	78	0.4	1,910	8.6
5/8	610	3.7	430	2.6	320	1.9	96	0.6	62	0.3	1,530	7.6

List 593: 2° Taper on Side - 3 Flute
List 594: 3° Taper on Side - 3 Flute

Side Milling

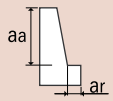
Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Hard Brass Bronze Cast Iron		Med. Carbon Steels Med. Strength Titanium Alloys Med. Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		Aluminum Aluminum Alloys	
Cutting Speed	130-150 SFM		105-120 SFM		65-80 SFM		20-50 SFM		15-20 SFM		400-590 SFM	
Depth of Cut	a_a=1.5D a_r= 0.1D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5/64	6,845	9.7	5,500	7.8	3,545	5.0	1,710	2.4	855	1.1	24,200	33.3
3/32	5,700	8.1	4,585	6.4	2,955	4.1	1,425	2.1	715	0.9	20,170	28.5
1/8	4,280	10.1	3,440	8.0	2,215	5.2	1,070	2.4	535	1.1	15,130	35.6
3/16	2,850	9.4	2,295	7.5	1,480	4.8	715	2.3	355	1.1	10,085	33.3
1/4	2,140	7.5	1,720	6.0	1,110	3.9	525	1.8	270	0.8	7,560	26.7
3/8	1,425	13.5	1,145	10.7	740	6.9	355	3.3	180	1.5	5,040	47.6
1/2	1,070	12.0	860	9.6	550	6.2	270	3.0	135	1.4	3,780	42.3
5/8	855	10.6	690	8.5	440	5.5	215	2.6	105	1.2	3,025	37.5

Slotting

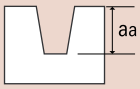
Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Hard Brass Bronze Cast Iron		Med. Carbon Steels Med. Strength Titanium Alloys Med. Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		Aluminum Aluminum Alloys	
Cutting Speed	80-120 SFM		60-80 SFM		45-60 SFM		25-45 SFM		8-20 SFM		150-350 SFM	
Depth of Cut	a_a=1/3D											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5/64	4,890	3.2	3,420	2.4	2,670	1.5	1,710	1.2	685	0.3	12,225	7.0
3/32	4,075	3.1	2,850	2.4	2,140	1.5	1,425	0.9	570	0.3	10,190	7.2
1/8	3,055	3.2	2,140	2.5	1,600	1.9	1,070	1.2	430	0.3	7,640	7.3
3/16	2,040	3.1	1,425	2.7	1,070	1.8	715	1.2	285	0.3	5,095	7.5
1/4	1,530	3.6	1,070	3.2	800	2.2	535	0.9	215	0.3	3,820	7.9
3/8	1,020	4.4	715	3.3	535	2.6	355	1.5	140	0.5	2,545	9.7
1/2	765	4.1	535	2.8	400	2.2	270	1.5	105	0.5	1,910	8.7
5/8	610	3.4	430	2.6	320	2.0	215	1.2	85	0.3	1,530	7.9

List 595: 5˚ Taper on Side - 3 Flute
List 596: 7˚ Taper on Side - 3 Flute

Side Milling

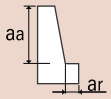
Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Hard Brass Bronze Cast Iron		Med. Carbon Steels Med. Strength Titanium Alloys Med. Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		Heat Resistant High Alloys Austenitic Alloys Nickel Base Alloys		Heat Resistant High Alloys Austenitic Alloys Nickel Base Alloys		Aluminum Aluminum Alloys	
Cutting Speed	130-165 SFM		105-125 SFM		65-80 SFM		20-50 SFM		15-20 SFM		400-590 SFM	
Depth of Cut	a_a=1.5D a_r= 0.1D 											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5/64	7,210	10.9	5,625	8.0	3,545	5.0	1,710	2.4	855	1.1	24,200	36.4
3/32	6,010	8.4	4,685	6.5	2,955	4.2	1,425	2.1	715	0.9	20,170	28.4
1/8	4,510	10.6	3,515	8.3	2,215	5.2	1,070	2.5	535	1.1	15,130	35.5
3/16	3,000	9.9	2,345	7.5	1,470	4.8	715	2.3	355	1.1	10,085	33.1
1/4	2,250	8.5	1,760	5.8	1,110	3.9	535	2.0	270	0.9	7,565	28.5
3/8	1,500	14.1	1,170	10.8	740	6.9	355	3.2	180	1.5	5,040	47.5
1/2	1,125	13.2	880	9.4	555	6.2	270	2.9	135	1.3	3,780	44.3

Slotting

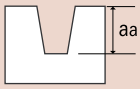
Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Hard Brass Bronze Cast Iron		Med. Carbon Steels Med. Strength Titanium Alloys Med. Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		Heat Resistant High Alloys Austenitic Alloys Nickel Base Alloys		Heat Resistant High Alloys Austenitic Alloys Nickel Base Alloys		Aluminum Aluminum Alloys	
Cutting Speed	80-120 SFM		60-80 SFM		45-60 SFM		8 - 15 SFM		5 - 10 SFM		150-350 SFM	
Depth of Cut	a_a=1/3D 											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
5/64	4,890	3.3	3,420	2.4	2,570	1.6	565	0.4	365	0.2	12,225	7.4
3/32	4,075	3.2	2,855	2.3	2,140	1.5	470	0.3	300	0.2	10,190	7.6
1/8	3,055	3.1	2,140	2.5	1,600	2.0	350	0.4	230	0.2	7,640	8.2
3/16	2,040	3.9	1,425	3.2	1,070	2.4	235	0.4	150	0.2	5,095	9.9
1/4	1,530	5.1	1,070	4.6	800	3.0	175	0.3	115	0.1	3,820	10.0
3/8	1,020	4.7	715	3.6	535	2.5	120	0.6	75	0.3	2,545	10.7
1/2	765	4.1	535	2.8	400	2.4	90	0.5	60	0.2	1,910	9.5

List 597: 10˚ Taper on Side - 3 Flute

Side Milling

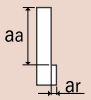
Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Hard Brass Bronze Cast Iron		Med. Carbon Steels Med. Strength Titanium Alloys Med. Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		Heat Resistant High Alloys Austentitic Alloys Nickel Base Alloys		Heat Resistant High Alloys Austentitic Alloys Nickel Base Alloys		Aluminum Aluminum Alloys	
Cutting Speed	80-120 SFM		60-80 SFM		45-60 SFM		25-45 SFM		15-20 SFM		150-350 SFM	
Depth of Cut	$a_{a=1.5D}$ $a_{r=0.1D}$ 											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/32	4,075	5.7	2,850	4.0	2,140	3.1	1,425	2.1	715	0.9	10,185	14.4
1/8	3,055	7.2	2,140	5.0	1,600	3.7	1,070	2.5	535	1.1	7,640	18.1
1/4	1,530	5.8	1,070	3.6	800	2.8	535	2.0	270	0.9	3,820	13.5

Slotting

Hardness	<145 Brinell		<20 HRC		20-30 HRC		30-40 HRC		40-50 HRC		–	
Work Material	Mild Steels Hard Brass Bronze Cast Iron		Med. Carbon Steels Med. Strength Titanium Alloys Med. Strength Stainless Steels		High Carbon Steel Titanium Alloys High Strength Stainless Steels		Heat Resistant High Alloys Austentitic Alloys Nickel Base Alloys		Heat Resistant High Alloys Austentitic Alloys Nickel Base Alloys		Aluminum Aluminum Alloys	
Cutting Speed	80-120 SFM		60-80 SFM		45-60 SFM		25-45 SFM		5 - 12 SFM		150-350 SFM	
Depth of Cut	$a_{a=1/3D}$ 											
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
3/32	4,075	2.5	2,850	2.0	2,140	1.5	1,425	1.0	345	0.2	10,185	7.2
1/8	3,055	3.2	2,140	2.5	1,600	1.8	1,070	1.3	260	0.2	7,640	8.0
1/4	1,530	4.7	1,070	4.1	800	3.0	535	1.0	130	0.2	3,820	10.0

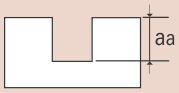
List 310-SO
List 312-SO

Side Milling

Hardness	-	<25 HRC	25-30 HRC	30-35 HRC	35-45 HRC	45-50 HRC	< 35 HRC
Work Material	Aluminum	Mild Steels Carbon Steels Cast Iron	400 Stainless Steels Alloy Steels Tool Steels	300 Stainless Steels Hardened Steels Pre-hardened Steels	PH Stainless Steels Hardened Steels	Hardened Steels	Titanium Alloys
Cutting Speed	325-820 SFM	50-130 SFM	15-30 SFM	15-30 SFM	10-23 SFM	50-80 SFM	20-40 SFM
Depth of Cut	Aa=1D Ar=0.5D						

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
2	27,774	28.4	4,366	3.4	1,092	0.9	1,092	0.9	800	0.6	3,153	2.5	1,455	1.1
4	13,887	20.8	2,183	2.6	546	0.6	546	0.6	400	0.5	1,577	1.9	728	0.8
6	9,258	20.4	1,455	2.5	364	0.6	364	0.6	267	0.5	1,051	1.8	485	0.8
8	6,944	21.3	1,092	2.6	273	0.6	273	0.6	200	0.5	788	1.9	364	0.8
10	5,555	20.1	873	2.5	218	0.6	218	0.6	160	0.5	631	1.8	291	0.7
12	4,629	20.8	728	2.5	182	0.6	182	0.6	133	0.5	526	1.8	243	0.8
14	3,968	20.6	624	2.5	156	0.6	156	0.6	114	0.5	450	1.8	208	0.8
16	3,472	20.5	546	2.5	136	0.6	136	0.6	100	0.5	394	1.8	182	0.7
18	3,086	20.7	485	2.5	121	0.6	121	0.6	89	0.5	350	1.8	162	0.7
20	2,777	20.1	437	2.5	109	0.6	109	0.6	80	0.5	315	1.8	146	0.8
22	2,525	20.7	397	2.5	99	0.6	99	0.6	73	0.5	287	1.8	132	0.8
24	2,315	20.0	364	2.4	91	0.6	91	0.6	67	0.4	263	1.8	121	0.7
25	2,222	20.5	349	2.5	87	0.6	87	0.6	64	0.5	252	1.8	116	0.7

Slotting

Hardness	-	<25 HRC	25-30 HRC	30-35 HRC	35-45 HRC	45-50 HRC	< 35 HRC
Work Material	Aluminum	Mild Steels Carbon Steels Cast Iron	400 Stainless Steels Alloy Steels Tool Steels	300 Stainless Steels Hardened Steels Pre-hardened Steels	PH Stainless Steels Hardened Steels	Hardened Steels	Titanium Alloys
Cutting Speed	325-820 SFM	390-655 SFM	195-330 SFM	260-330 SFM	195-250 SFM	260-460 SFM	145-215 SFM
Depth of Cut	Aa=0.5D						

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
2	27,774	25.6	4,366	3.1	1,092	0.8	1,092	0.8	800	0.6	3,153	2.2	1,455	1.0
4	13,887	18.7	2,183	2.3	546	0.6	546	0.6	400	0.4	1,577	1.7	728	0.7
6	9,258	18.4	1,455	2.3	364	0.6	364	0.6	267	0.4	1,051	1.6	485	0.7
8	6,944	19.2	1,092	2.3	273	0.6	273	0.6	200	0.4	788	1.7	364	0.7
10	5,555	18.1	873	2.2	218	0.6	218	0.6	160	0.4	631	1.6	291	0.7
12	4,629	18.7	728	2.3	182	0.6	182	0.6	133	0.4	526	1.6	243	0.7
14	3,968	18.6	624	2.3	156	0.6	156	0.6	114	0.4	450	1.6	208	0.7
16	3,472	18.5	546	2.2	136	0.6	136	0.6	100	0.4	394	1.6	182	0.7
18	3,086	18.6	485	2.2	121	0.6	121	0.6	89	0.4	350	1.6	162	0.7
20	2,777	18.1	437	2.3	109	0.6	109	0.6	80	0.4	315	1.6	146	0.7
22	2,525	18.6	397	2.3	99	0.6	99	0.6	73	0.4	287	1.6	132	0.7
24	2,315	18.0	364	2.2	91	0.5	91	0.5	67	0.4	263	1.6	121	0.6
25	2,222	18.4	349	2.2	87	0.6	87	0.6	64	0.4	252	1.6	116	0.7

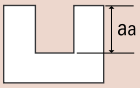
List 314-SO

Side Milling

Hardness	-	<25 HRC	25-30 HRC	30-35 HRC	35-45 HRC	45-50 HRC	< 35 HRC
Work Material	Aluminum	Mild Steels Carbon Steels Cast Iron	400 Stainless Steels Alloy Steels Tool Steels	300 Stainless Steels Hardened Steels Pre-hardened Steels	PH Stainless Steels Hardened Steels	Hardened Steels	Titanium Alloys
Cutting Speed	325-820 SFM	50-130 SFM	15-30 SFM	15-30 SFM	10-23 SFM	50-80 SFM	20-40 SFM
Depth of Cut	Aa=1D Ar=0.5D 				Aa=1D Ar=0.1D		

Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
2	27,774	56.9	4,366	6.9	1,092	1.7	1,092	1.7	800	1.3	3,153	5.0	1,455	2.3
4	13,887	41.6	2,183	5.2	546	1.3	546	1.3	400	0.9	1,577	3.7	728	1.5
6	9,258	40.8	1,455	5.0	364	1.3	364	1.3	267	0.9	1,051	3.6	485	1.5
8	6,944	42.6	1,092	5.2	273	1.3	273	1.3	200	0.9	788	3.7	364	1.5
10	5,555	40.2	873	5.0	218	1.2	218	1.2	160	0.9	631	3.6	291	1.5
12	4,629	41.6	728	5.0	182	1.3	182	1.3	133	0.9	526	3.6	243	1.5
14	3,968	41.2	624	5.0	156	1.3	156	1.3	114	0.9	450	3.6	208	1.5
16	3,472	41.0	546	5.0	136	1.2	136	1.2	100	0.9	394	3.6	182	1.5
18	3,086	41.3	485	5.0	121	1.2	121	1.2	89	0.9	350	3.6	162	1.5
20	2,777	40.2	437	5.0	109	1.3	109	1.3	80	0.9	315	3.6	146	1.5
22	2,525	62.0	397	7.5	99	1.9	99	1.9	73	1.4	287	5.4	132	2.3
24	2,315	60.1	364	7.3	91	1.8	91	1.8	67	1.3	263	5.3	121	2.2
25	2,222	61.4	349	7.4	87	1.9	87	1.9	64	1.4	252	5.4	116	2.2

Slotting

Hardness	-	<25 HRC	25-30 HRC	30-35 HRC	35-45 HRC	45-50 HRC	< 35 HRC
Work Material	Aluminum	Mild Steels Carbon Steels Cast Iron	400 Stainless Steels Alloy Steels Tool Steels	300 Stainless Steels Hardened Steels Pre-hardened Steels	PH Stainless Steels Hardened Steels	Hardened Steels	Titanium Alloys
Cutting Speed	325-820 SFM	390-655 SFM	195-330 SFM	260-330 SFM	195-250 SFM	260-460 SFM	145-215 SFM
Depth of Cut	Aa=0.5D 						

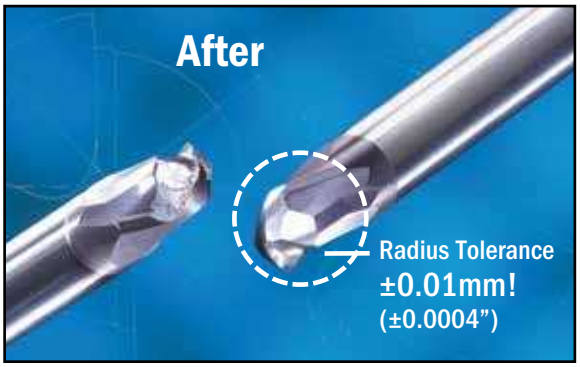
Mill Dia.	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min	Speed RPM	Feed in/min
2	27,774	51.2	4,366	6.2	1,092	1.5	1,092	1.5	800	1.1	3,153	4.5	1,455	2.0
4	13,887	37.4	2,183	4.6	546	1.2	546	1.2	400	0.9	1,577	3.4	728	1.4
6	9,258	36.7	1,455	4.5	364	1.1	364	1.1	267	0.8	1,051	3.3	485	1.3
8	6,944	38.4	1,092	4.6	273	1.2	273	1.2	200	0.9	788	3.4	364	1.4
10	5,555	36.2	873	4.5	218	1.1	218	1.1	160	0.8	631	3.2	291	1.3
12	4,629	37.4	728	4.5	182	1.1	182	1.1	133	0.8	526	3.3	243	1.3
14	3,968	37.1	624	4.5	156	1.1	156	1.1	114	0.8	450	3.3	208	1.3
16	3,472	36.9	546	4.5	136	1.1	136	1.1	100	0.8	394	3.2	182	1.3
18	3,086	37.2	485	4.5	121	1.1	121	1.1	89	0.8	350	3.2	162	1.3
20	2,777	36.2	437	4.5	109	1.1	109	1.1	80	0.8	315	3.3	146	1.3
22	2,525	55.8	397	6.8	99	1.7	99	1.7	73	1.2	287	4.9	132	2.0
24	2,315	54.1	364	6.6	91	1.6	91	1.6	67	1.2	263	4.7	121	1.9
25	2,222	55.3	349	6.7	87	1.7	87	1.7	64	1.2	252	4.8	116	2.0

End Mill
Reconditioning

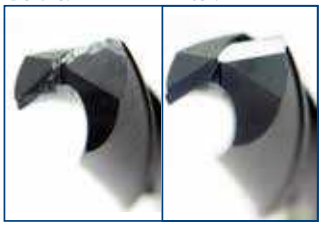


OSG Tool Reconditioning

OSG's Bensenville facility is the special cutting tool and regrinding authority based in the Chicago area. Through accurate and expedient regrinds of high-end cutting tools, OSG helps customers extend tool life and save money by restoring their used cutting tools to their original condition. In addition to regrinding, the Bensenville facility also manufactures custom drills, reamers, and other special cutting tools, performs product modifications and provides premium coating services.



Before: After:



As part of the OSG Corporation (headquartered in Japan), the regrind facility is the only OSG authorized regrinding source in America. The regrinding program uses the same OSG manufacturing drawings, adheres to OSG's strict quality control standards and uses the same equipment for OSG manufacturing and inspection procedures. As one of the world's leading cutting tool manufacturers, OSG offers a global network of support to our customers.

Tool Reconditioning Lowers Costs

The primary benefit of tool reconditioning is clear: the reduction in overall tooling costs. As part of normal production, tool wear, chipping and breakage occurs often affecting tool performance and increasing manufacturing costs. By reconditioning high performance drills, end mills and taps, OSG helps manufacturers realize substantial cost savings through extended tool life without jeopardizing production quality or performance. Because OSG's reconditioned tools are manufactured to the same high level of quality and held to the same exacting standards that new tools are, customers of OSG's tool reconditioning services can expect the same high performance and quality they are accustomed with OSG's new tools even after regrinding multiple times.

Engineering & Sales Support

OSG reconditions OSG tools using the same prints as the original tools made in our plants around the world. By using original part drawings, tools are accurately reconditioned to the original specifications, so customers are assured that reconditioned tools realize the same high level of performance. Manufacturers can also work directly with OSG design engineers to customize tools for enhanced performance or to meet specific requirements.



OSG's national sales team provides tooling expertise in the field for onsite evaluations and recommendations for manufacturers to implement a customized reconditioning program. The goal is to help manufacturers reduce tool costs and inventory, optimize performance and enhance overall profits.

Contact your OSG representative or distributor to review your tool reconditioning program.



CNC Training

OSG CNC technicians are extensively trained on proper setup methodologies and reconditioning processes by an on-staff CNC trainer. Through their development, the CNC technician training program moves operators through three levels where they are diligently monitored and certified/reevaluated annually to maintain consistency and quality in our tools. Technicians are also trained and certified/reevaluated annually by Quality Assurance to perform inspections to print on first piece and in process tools.

Inspector Training

In order to guarantee that our tools are reconditioned to the highest standards, inspectors also undergo annual training and certifications which involve standardized procedures. These are the same methods that are used in the OSG manufacturing facilities in Japan and around the world. Inspectors are trained to inspect and measure tools completely to the original tool prints.

Throughout the reconditioning process, the tools are also continuously inspected until 100% visual inspection ensures that no chipped or defective tools are received by the customer. The high tech inspection equipment used at the reconditioning facility is the same equipment used at all OSG locations. This includes in-house developed tool analyzers and state-of-the-art equipment with up to 300x magnification capabilities. The key to inspecting high performance, accurate reconditioned tools is assuring that they are held to the same inspection standards through the use of the same inspection methods as new OSG tools.

The Bensenville plant is subject to OSG's stringent JQA regrinding standards and is certified regularly by OSG Japan.

Equipment and Facility

In 2015, OSG opened a reconditioning facility which is equipped with state-of-the-art production and inspection equipment. The facility uses high precision 5-Axis CNC grinders throughout the reconditioning process for improved repeatability and precision.

OSG's weekly equipment Preventive Maintenance (PM) program ensures consistency and accuracy throughout the reconditioning process. Through this PM program, OSG's tool reconditioning performance will be consistent year after year.





INDEXABLE

OSG PHOENIX®

OSG's high performance indexable tooling for rough and finish milling and drilling in a variety of applications.

EXOCARB® DISC CUTTER S

OSG's patented face mill for high feed, roughing applications on low horsepower machine spindles.

EXOCARB® DISC CUTTER PRO

OSG's patented face mill for high feed, finishing applications on low horsepower machine spindles.





OSG PHOENIX®

	List	Product	Brand/Name	Inch/ Metric	Size Range	Features	Page
HOLEMAKING	52400		OSG PHOENIX® PXD	Inch	0.551-1.023"	Exchangeable Head Drill, 3D & 5D	1328
	78310			Metric	14.00-25.99mm	Exchangeable Head Drill, 3D & 5D	1329
	78PXD			-	-	PXD Exchangeable Heads	1330-1334
	7808H			-	-	PXD Accessories	1335
	52502		OSG PHOENIX® PD	Inch	0.484-2.500"	Indexable Drill, 2D	1337-1338
	78031			Metric	12.00-63.00mm	Indexable Drill, 2D	1339-1340
	52503			Inch	0.484-2.500"	Indexable Drill, 3D	1341-1342
	78032			Metric	12.00-63.00mm	Indexable Drill, 3D	1343-1344
	52504			Inch	0.484-2.500"	Indexable Drill, 4D	1345-1346
	78033			Metric	12.00-63.00mm	Indexable Drill, 4D	1347-1348
	52505			Inch	0.484-2.500"	Indexable Drill, 5D	1349-1350
	78027			Metric	12.00-63.00mm	Indexable Drill, 5D	1351-1352
	78P5D			-	-	PD Inserts	1353
	7808H	NEW SIZES		-	-	PD Accessories	1354
	78001		OSG PHOENIX® PHP	Metric	14.00-40.00mm	High Performance Drill, 3D	1361
	78PHP			-	-	PHP Inserts	1362
	7808H			-	-	PHP Accessories	1362
	52510		OSG PHOENIX® PZAG	Inch	0.531-1.813"	Counterbore Cutter, SA	1364
	78321			Metric	14-48mm	Counterbore Cutter, SS	1365
	52511			Inch	2.000-3.125"	Counterbore Cutter, Bore	1366
	78421			Metric	54-82mm	Counterbore Cutter, Bore	1367
	78PZAG			-	-	PZAG Inserts	1368
	7808H	NEW		-	-	PZAG Accessories	1368

OSG PHOENIX® (Continued)

	List	Product	Brand/Name	Inch/ Metric	Size Range	Features	Page
MILLING	52700		OSG PHOENIX® PAS	Inch	2.000-6.000"	45° Face Mill, 2-Sided Square Insert, Bore	1370
	78020			Metric	50-125mm	45° Face Mill, 2-Sided Square Insert, Bore	1370
	78PAS			-	-	PAS Inserts	1371
	7808H			-	-	PAS Accessories	1371
	52800		OSG PHOENIX® PAO	Inch	2.000-8.000"	45° Face Mill, 2-Sided Octagon Insert, Bore	1373
	78120			Metric	50-200mm	45° Face Mill, 2-Sided Octagon Insert, Bore	1374
	78PAO			-	-	PAO Inserts	1375
	7808H			-	-	PAO Accessories	1376
	78013		OSG PHOENIX® PSE	Inch	0.625-1.500"	90° Shoulder Cutter, SA/FA	1378
	78011			Metric	16-36mm	90° Shoulder Cutter, SS	1379-1380
	78012			Inch	2.000-6.000"	90° Shoulder Cutter, Bore	1381
	78010			Metric	40-125mm	90° Shoulder Cutter, Bore	1382
	52601			Inch	0.625-1.500"	90° Shoulder Cutter, ASF	1383
	78016			Metric	16-40mm	90° Shoulder Cutter, SF	1384
	78PSE			-	-	PSE/PSEL Inserts	1385
	7808H			-	-	PSE Accessories	1386
	53000		OSG PHOENIX® PSEL	Inch	1.000-1.500"	90° Roughing Cutter, SA/FA	1389
	78029			Metric	25-50mm	90° Roughing Cutter, SS	1390
	53001			Inch	2.000-3.000"	90° Roughing Cutter, Bore	1391
	78028			Metric	50-80mm	90° Roughing Cutter, Bore	1391
	78PSE			-	-	PSE/PSEL Inserts	1392
	7808H			-	-	PSEL Accessories	1393
	52900		OSG PHOENIX® PSF	Inch	1.000-1.500"	90° Shoulder Cutter, Square Insert, SA/FA	1396
	78030			Metric	25-40mm	90° Shoulder Cutter, Square Insert, SS	1396
	52901			Inch	2.000-3.000"	90° Shoulder Cutter, Square Insert, Bore	1397
	78130			Metric	50-80mm	90° Shoulder Cutter, Square Insert, Bore	1397
	78PSF			-	-	PSF/PSFL Inserts	1398
	7808H			-	-	PSF Accessories	1398

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OSG PHOENIX® (Continued)

	List	Product	Brand/Name	Inch/ Metric	Size Range	Features	Page
MILLING	53200		OSG PHOENIX® PSFL	Inch	1.250-1.500"	90° Roughing Cutter, Square Insert, SA/FA	1400
	78037			Metric	32-40mm	90° Roughing Cutter, Square Insert, SS	1400
	53201			Inch	2.000-4.000"	90° Roughing Cutter, Square Insert, Bore	1401
	78137			Metric	50-80mm	90° Roughing Cutter, Square Insert, Bore	1401
	78PSF			-	-	PSF/PSFL Inserts	1402
	7808H			-	-	PSFL Accessories	1402
	53100		OSG PHOENIX® PSTW	Inch	2.000-6.000"	90° Shoulder Cutter, 2-Sided Triangle Insert, Bore	1404
	78131			Metric	50-125mm	90° Shoulder Cutter, 2-Sided Triangle Insert, Bore	1405
	78PSTW			-	-	PSTW Inserts	1406
	7808H			-	-	PSTW Accessories	1406
	78005		OSG PHOENIX® PRC	Inch	1.000-1.500"	Radius Cutter, SA	1408
	78003			Metric	20-63mm	Radius Cutter, SS	1409
	78004			Inch	2.000-6.000"	Radius Cutter, Bore	1410
	78002			Metric	50-100mm	Radius Cutter, Bore	1411
	52602			Inch	1.000-1.500"	Radius Cutter, ASF	1412
	78017			Metric	20-40mm	Radius Cutter, SF	1412
	78PRC			-	-	PRC Inserts	1413
	7808H			-	-	PRC Accessories	1413
	78009		OSG PHOENIX® PHC	Inch	0.625-1.500"	High Feed Radius Cutter, SA/FA	1416-1417
	78007			Metric	16-63mm	High Feed Radius Cutter, SS	1418-1419
	78008			Inch	2.000-6.000"	High Feed Radius Cutter, Bore	1420
	78006			Metric	40-100mm	High Feed Radius Cutter, Bore	1421
	52603			Inch	0.625-1.500"	High Feed Radius Cutter, ASF	1422
	78015			Metric	16-40mm	High Feed Radius Cutter, SF	1423
	78PHC			-	-	PHC Inserts	1424
	7808H			-	-	PHC Accessories	1424

OSG PHOENIX® (Continued)

	List	Product	Brand/Name	Inch/ Metric	Size Range	Features	Page
MILLING	6420		OSG PHOENIX® PDR	Metric	40-50mm	Deep Feed Radius Cutter,SS	1427
	6450			Metric	63-125mm	Deep Feed Radius Cutter, Bore	1427
	78PDR			-	-	PDR Inserts	1428
	7808H			-	-	PDR Accessories	1428
	78036		OSG PHOENIX® PFAL	Metric	50-160mm	Finishing Cutter for Aluminum, Bore	1430
	78PFAL			-	-	PFAL Inserts	1431
	7808H			-	-	PFAL Accessories	1431
	52100	 NEW INSERT	OSG PHOENIX® PFB	Inch	0.250-1.250"	Finishing Ball End Mill, SA	1433-1434
	78014			Metric	6-32mm	Finishing Ball End Mill, SS	1435
	52604			Inch	0.375-1.000"	Finishing Ball End Mill, ASF	1436
	78114			Metric	10-32mm	Finishing Ball End Mill, SF	1436
	78PFB			-	-	PFB Inserts	1437-1438
	7808H			-	-	PFB Accessories	1439
	52200		OSG PHOENIX® PFR	Inch	0.250-1.250"	Finishing Radius End Mill, SA	1442
	78320			Metric	6-32mm	Finishing Radius End Mill, SS	1443
	52605			Inch	0.375-1.000"	Finishing Radius End Mill, ASF	1444
	78220			Metric	10-32mm	Finishing Radius End Mill, SF	1444
	78PFR			-	-	PFR Inserts	1445-1449
	7808H			-	-	PFR Accessories	1450

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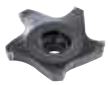
OSG PHOENIX® (Continued)

	List	Product	Brand/Name	Inch/ Metric	Size Range	Features	Page
MILLING	52601		OSG PHOENIX® SF	Inch	0.625-1.500"	Screw Fit Cutter, PSE ASF	1453
	78016			Metric	16-40mm	Screw Fit Cutter, PSE SF	1454
	52602			Inch	1.000-1.500"	Screw Fit Cutter, PRC ASF	1455
	78017			Metric	20-40mm	Screw Fit Cutter, PRC SF	1455
	52603			Inch	0.625-1.500"	Screw Fit Cutter, PHC ASF	1456
	78015			Metric	16-40mm	Screw Fit Cutter, PHC SF	1457
	52604			Inch	0.375-1.000"	Screw Fit Cutter, PFB ASF	1458
	78114			Metric	10-30mm	Screw Fit Cutter, PFB SF	1459
	52605			Inch	0.375-1.000"	Screw Fit Cutter, PFR ASF	1460
	78220			Metric	10-32mm	Screw Fit Cutter, PFR SF	1460
	52600			Inch	-	Screw Fit Cutter, SF Arbor SA	1461
	78019			Metric	-	Screw Fit Cutter, SF Arbor SS	1462
	78025			-	-	Screw Fit Cutter, SF Arbor BT	1463
	78125			-	-	Screw Fit Cutter, SF Arbor HSK	1464

OSG PHOENIX® (Continued)

	List	Product	Brand/Name	Inch/ Metric	Size Range	Features	Page
MILLING	78PXSE		OSG PHOENIX® PXM	Inch/ Metric	0.375-1.000" 10-25mm	PXSE, 4 Flute, Square & Corner Radius	1465
	78PXSE-O			Inch/ Metric	0.500-1.000" 12-25mm	PXSE, 4 Flute, Square & Corner Radius, Coolant-Through	1466
	78PXVC			Inch/ Metric	0.375-1.250" 10-32mm	PXVC, 4 Flute, Square & Corner Radius	1467-1468
	78PXSM			Inch/ Metric	0.375-1.000" 10-25mm	PXSM, Multiple Flute, Square & Corner Radius	1469-1470
	78PXNL			Inch/ Metric	0.375-1.000" 10-25mm	PXNL, 4 Flute, Roughing, Low Helix	1471
	78PXNL-O			Inch/ Metric	0.500-1.000" 12-25mm	PXNL, 4 Flute, Roughing, Low Helix, Coolant-Through	1471
	78PXNH			Inch/ Metric	0.375-1.000" 10-25mm	PXNH, 4 Flute, Roughing, High Helix	1472
	78PXNH-O			Inch/ Metric	0.500-1.000" 12-25mm	PXNH, 4 Flute, Roughing, High Helix, Coolant-Through	1472
	78PXRE			Inch/ Metric	0.375-1.000" 10-25mm	PXRE, Multiple Flute, Straight Flute, Corner Radius	1473
	78PXDR			Inch/ Metric	0.375-1.000" 10-25mm	PXDR, 3 Flute, Helical Flute, Corner Radius	1473-1474
	78PXBE			Inch/ Metric	0.375-1.000" 10-25mm	PXBE, 3 Flute, Ball End	1475-1476
	78PXBE-O			Inch/ Metric	0.500-0.750" 12-20mm	PXBE, 3 Flute, Ball End, Coolant-Through	1476-1477
	78PXBM			Inch/ Metric	0.375-1.000" 10-25mm	PXBM, Multiple Flute, Ball End	1477
	52300			Inch	-	PXM SA/TPA	1478-1479
	52319			Inch	-	PXM SA/TPA, Coolant-Through	1480-1481
	78018			Metric	-	PXM SS/TP	1482-1483
	78035			Metric	-	PXM SS/TP, Coolant-Through	1484-1485
	78340			Metric	-	PXMC	1486
	–			Inch/ Metric	-	Base Holders for general purpose & coolant-Through operations - BT, CT and HSK.	1487
	7808H	NEW SIZES		-	-	PXM Accessories	1488

EXOCARB® DISC CUTTER®

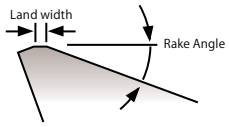
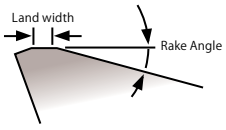
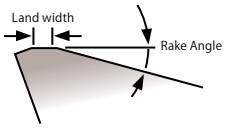
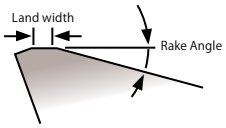
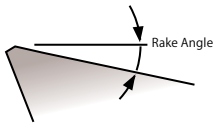
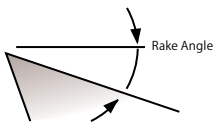
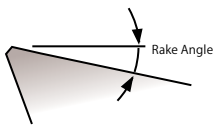
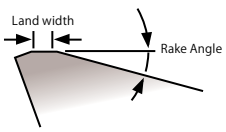
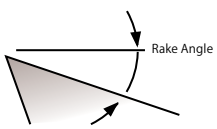
	List	Product	Brand/Name	Inch/ Metric	Size Range	Features	Page
MILLING	6440		EXOCARB® DISC CUTTER® S	Metric	80-125mm	Face Milling Cutter for Small Machines, Roughing	1500
	6442						1501
	6441		EXOCARB® DISC CUTTER® PRO	Metric	80-125mm	Face Milling Cutter for Small Machines, Finishing	1502
	6541						1503

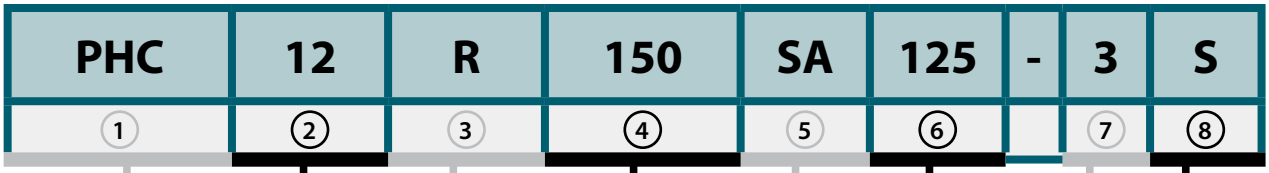
EXOCARB® Arbor

	List	Product	Brand/Name	Inch/ Metric	Size Range	Features	Page
ARBORS	6640		EXOCARB® Arbor	Metric	-	Face Mill Arbor for Small Machines, BT30, CAT40 & HSK40A	1504

Material Class	Grade	Coating Method	Hardness (HRA)	Surface Treament		Features
				Main Component	Coating Thickness	
P	XC3020	CVD	90.5	TiCN + Al_2O_3	10 µm	**For Machining Steel and Cast Iron** Composed of a tough, high-strength carbide material with a chipping-resistant and wear-resistance coating.
	XP3025	PVD	90.5	TiAlN	5 µm	**For Machining Steel and Cast Iron** Composed of a tough, high-strength carbide material with a chipping-resistant and wear-resistance coating.
	XC3025	CVD	90.8	TiCN + TiN + Al_2O_3	4 µm	**For Machining Steel, Stainless Steel and Cast Iron** Composed of a tough, high-strength carbide material with a chipping-resistant and wear-resistant coating.
	XC3030	CVD	89.5	TiCN + Al_2O_3	10 µm	**For Machining Steel and Cast Iron** Composed of a tough, high-strength carbide material with a chipping-resistant and wear-resistant coating.
	XP3035	PVD	89.5	TiAlN	5 µm	**For Machining Steel, Stainless Steel and Cast Iron** A grade for general purpose milling. Composed of a tough, high-strength carbide material with a chipping-resistant and wear-resistant coating.
	XP3930	PVD	90.8	TiAlN	3 µm	**For Machining Steel, Stainless Steel and Cast Iron** Excellent balance; can accommodate a wide range of workpiece materials.
	XP8030	PVD	91.9	TiAlN	3 µm	**For Machining Steel & Stainless Steel** Excellent balance of wear-resistance and chipping-resistance; can accommodate a wide range of workpiece materials.
	XC8035	CVD	89.6	TiCN + Al_2O_3	7 µm	**For Machining Steel and Cast Iron** Composed of a tough, high-strength carbide material with a chipping-resistant and wear-resistant coating.
	XP3225	PVD	91.5	Cr	3 µm	**For Machining Steel, Stainless Steel and Cast Iron** Composed of a tough carbide material with an excellent general purpose coating.
	XP3310	PVD	92.5	SiC Silicon-based heat-resistant coating	3 µm	**For Machining Steel and Cast Iron** Composed of a tough, high-strength carbide material with a chipping-resistant and wear-resistant coating.
	XP3320	PVD	91.5	SiC Silicon-based heat-resistant coating	3 µm	**For Machining Steel, Stainless Steel and Cast Iron** Composed of a tough carbide material with a heat-resistant and wear-resistant coating.
	XP3425	PVD	91.8	Cr Composite multilayer	7 µm	**For Drilling Steel** Composed of a tough, high strength carbide material with a wear-resistant thick film coating.
	XC9015	CVD	91.9	TiCN + Al_2O_3	7 µm	**For Drilling Steel** Composed of a tough carbide material with an anti-chipping and wear-resistant coating.
	XP9020	PVD	91.9	TiAlN	3 µm	**For Drilling Steel, Stainless Steel, Cast Iron and Non-Ferrous Materials** Composed of a tough carbide material with an anti-chipping and wear-resistant coating.
	XP9040	PVD	91.9	TiAlN	3 µm	**For Drilling Steel and Stainless Steel** Composed of a high-strength carbide material with an anti-chipping and wear-resistant coating.

Material Class	Grade	Coating Method	Hardness (HRA)	Surface Treament		Features
				Main Component	Coating Thickness	
M	XP2025	PVD	91.0	TiAlN	5 µm	**For Machining Stainless Steel and Steel** Composed of a tough, high-strength carbide material with an anti-chipping and wear resistant coating.
	XP2040	PVD	89.6	TiAlN	5 µm	**For Machining Stainless Steel and Steel** Ideal for general-purpose milling. Composed of a tough, high-strength carbide with an anti-chipping and wear-resistant coating.
	XP2225	PVD	91.5	Cr	3 µm	**For Machining Stainless Steel** Composed of a heat-resistant carbide material with a heat-resistant and wear-resistant coating.
K	XC1015	CVD	91.5	TiCN + Al_2O_3	10 µm	**For Machining Cast Iron** Composed of a tough, high-strength carbide material with an anti-chipping and wear-resistant coating.
	XP1020	PVD	91.5	TiAlN	5 µm	**For Machining Cast Iron** Composed of a tough, high-strength carbide material with an anti-chipping and wear-resistant coating.
	XP1010	PVD	91.4	TiAlN	6 µm	**For Drilling Cast Iron** Composed of a tough, high-strength carbide material with highly rigid cutting edge and wear resistant coating.
	XP1425	PVD	91.8	Cr Composite multilayer	7 µm	**For Drilling Cast Iron** Composed of a tough, high strength carbide material with a wear-resistant thick film coating.
	XC9025	CVD	90.8	TiCN + Al_2O_3	6 µm	**For Drilling Cast Iron** Composed of a tough, high-strength carbide with an anti-chipping and wear-resistant coating.
N	CK010	–	92.0	–	–	**For Machining Non-Ferrous Materials** Composed of a non-coated carbide material with an anti-chipping and wear-resistant properties.
	XC4505	CVD	93.0	DIA	12 µm	**For Machining Non-Ferrous Materials** Micro crystal diamond provides a coating layer with excellent strength.
	CK110	-	92.2	-	-	**For Drilling Aluminum Alloy and Non-Ferrous Materials** Composed of a non-coated carbide material with a sharp cutting edge and polished surface.
	CF225	-	91.8	-	-	**For Drilling Non-Ferrous Materials** Composed of a non-coated carbide material with an anti-chipping and wear-resistant properties.
S	XC5035	CVD	89.3	TiN + Ti(CN) + Al_2O_3 + Ti(BN)	6 µm	**For Machining Heat-Resistant Alloy and Stainless Steel** Composed of a tough carbide material with an oxidation-resistant and high-lubricity coating.
	XC5040	CVD	89.3	TiN + TiB_2	4 µm	**For Machining Heat-Resistant Alloy and Stainless Steel** Can be used for wet machining. Composed of a tough carbide material with an oxidation-resistant and high-lubricity coating.
H	XP6015	PVD	92.2	TiAlN	4 µm	**For Machining High Hardness Steel** Composed of a tough, high-strength carbide material with a wear-resistant coating.
	XP6305	PVD	93.0	SiC Silicon-based heat-resistant coating	3 µm	**For Machining High Hardness Steel** Composed of a tough, high-strength carbide material with excellent thermal conductivity.

Machining Method	Chip Breaker	Cutting Edge Cross-Section (Approximate)	Application
Milling	GL		For milling stainless steel: a breaker with a large rake angle and a small flat land to reduce cutting force.
	GM		For milling various materials from steel to cast iron: a breaker with a superior balance of rake angle and flat land.
	GR		For milling various materials from steel to cast iron: a highly rigid breaker with large rake angle and flat and to provide a sharp cutting edge and enable efficient milling.
	HR		For milling high hardened steel: a breaker with sharpness and excellent rigidity.
	SM		For milling difficult materials: a breaker with a sharp cutting edge to reduce cutting force and provide smooth chip evacuation.
	NM		For milling non-ferrous materials: a breaker with a sharp cutting edge and a large rake angle to suppress welding, improve the milling surface and prevent burrs.
Holemaking	DM		For drilling various materials from steel to cast iron: a general purpose breaker with an ideal rake angle.
	DR		For drilling cast iron: a highly rigid breaker with an optimal land width and rake angle.
	DN		For drilling non-ferrous materials: a breaker with a sharp cutting edge and polish treatment for excellent chip evacuation.



Abbreviation

Example:
PHC =
Phoenix High Feed Cutter

Cutting Direction

R = Right Hand

L = Left Hand

Mounting Diameter

Example:
125 = 1.25"
32 = 32 mm

Number of Flutes

Example:
3 = 3-Flute

Cutter Diameter

Example:
150 = 1.50"
080 = 80 mm

Insert Size

Example:
12 = 12 mm

Mounting Type

A	Bore Type (Inch)
M	Bore Type (Metric)
SA	Straight Shank (Inch)
FA	Weldon Shank (Inch)
SS	Straight Shank (Metric)
MT	Morse Taper Shank
ASF	Screw Fit Type (Inch)
SF	Screw Fit Type (Metric)
FS	Flat Shank

Shank Type

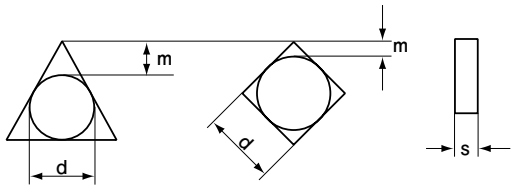
S	Short
L	Long
LL	Extra Long

Z	D	K	T
1	2	3	4

Shape of Insert

C	Diamond Apex 80°	
D	Diamond Apex 55°	
O	Octagon	
R	Round	
S	Square	
T	Triangle	
V	Diamond Apex 35°	
W	Axonometric Hexagon	
Z	Other Shapes	–

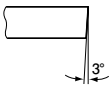
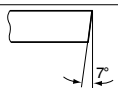
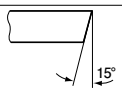
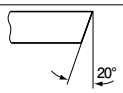
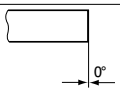
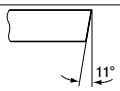
Tolerance



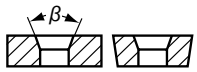
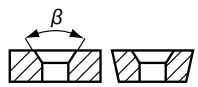
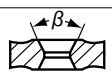
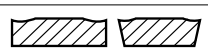
Symbol	Inscribed Circle Tolerance (mm)	Corner Height Tolerance (mm)	Thickness Tolerance (mm)
A	±0.025	±0.005	±0.025
C	±0.025	±0.013	±0.025
E	±0.025	±0.025	±0.025
H	±0.013	±0.013	±0.025
K*	±0.05~±0.15	±0.013	±0.025
M*	±0.05~±0.15	±0.08~±0.18	±0.13
N*	±0.05~±0.15	±0.08~±0.18	±0.025

*Sintered insert shown on the side

Clearance Angle

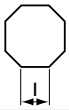
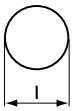
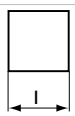
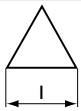
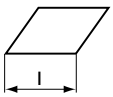
A	3°	
C	7°	
D	15°	
E	20°	
N	0°	
P	11°	
X	Special Dimension	

Special Cutting and Fastening Feature

Symbol	Shape of Hole	With or Without Breaker	Insert Cross Section
W	(40°~60°) Partial cylindrical hole	No Breaker	
T		One Side	
B	(70°~90°) Partial cylindrical hole	No Breaker	
U	(40°~60°) Partial cylindrical hole	Both Sides	
N	–	No Breaker	
R	–	One Side	

15	05	08	S	R	-	GM
(5)	(6)	(7)	(8)	(9)	-	(10)

Length of the Cutting Edge

O	
R	
S	
T	
Z	

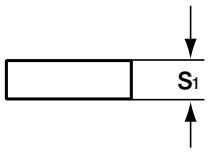
Corner Radius Symbol

Symbol	Corner Radius (mm)
02	R0.2
04	R0.4
08	R0.8
12	R1.2
16	R1.6
24	R2.4

Cutting Direction

Symbol	Cutting Direction
R	Right Hand
L	Left Hand
N	Neutral

Thickness of Insert



Symbol	Thickness (mm)
02	2.38
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35

Type of Cutting Edge

Symbol	Appearance
F	 Sharp Edge
E	 Round Honing
T	 Chamfer Honing
S	 Combination Honing

Type of Chip Breaker

Symbol	Name
GL	GL Breaker
GM	GM Breaker
GR	GR Breaker
HR	HR Breaker
NM	NM Breaker
SM	SM Breaker
DM	DM Breaker
DR	DR Breaker
DN	DN Breaker

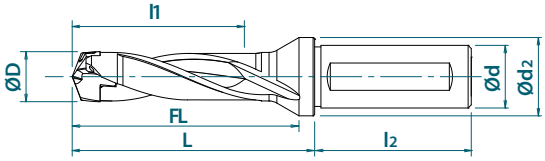
List 52400

PXD 3D (Inch)

SPEED FEED P1336

Recommended Materials: p1336
Accessories & Inserts: p1330-1335





EDP No.	Body Type	Designation	Drill Dia. (inch)		Drilling Depth (inch)	Flute Length (inch)	Gage Length (inch)	Shank Length (inch)	Shank Dia. (inch)	Flange Dia. (inch)	Appl. Head
			D Min	D Max	l1	FL	L	l2	d	d2	
52400000	Cylindrical Shank	PXDZ0551-3D-113.5-0625	0.551	0.570	1.693	2.496	2.752	1.890	0.625	0.787	1
52400001		PXDZ0571-3D-115.5-0625	0.571	0.590	1.752	2.579	2.835	1.890	0.625	0.787	2
52400002		PXDZ0591-3D-119.5-0750	0.591	0.629	1.831	2.642	2.898	1.969	0.750	0.984	3
52400003		PXDZ0630-3D-123.5-0750	0.630	0.668	1.949	2.823	3.079	1.969	0.750	0.984	4
52400004		PXDZ0669-3D-128.5-0750	0.669	0.708	2.067	3.024	3.280	1.969	0.750	0.984	5
52400005		PXDZ0709-3D-138.5-1000	0.709	0.747	2.185	3.205	3.461	2.205	1.000	1.260	6
52400006		PXDZ0748-3D-142.5-1000	0.748	0.786	2.303	3.362	3.618	2.205	1.000	1.260	7
52400007		PXDZ0787-3D-146.5-1000	0.787	0.826	2.421	3.547	3.803	2.205	1.000	1.260	8
52400008		PXDZ0827-3D-154.5-1250	0.827	0.865	2.539	3.728	3.984	2.362	1.250	1.654	9
52400009		PXDZ0866-3D-158.5-1250	0.866	0.905	2.657	3.890	4.146	2.362	1.250	1.654	10
52400010		PXDZ0906-3D-162.5-1250	0.906	0.944	2.775	4.071	4.327	2.362	1.250	1.654	11
52400011		PXDZ0945-3D-167.5-1250	0.945	0.983	2.894	4.268	4.524	2.362	1.250	1.654	12
52400012		PXDZ0984-3D-170.5-1250	0.984	1.023	3.012	4.409	4.665	2.362	1.250	1.654	13

Packed: 1 pc.
Note: Driver included with body.

PXT

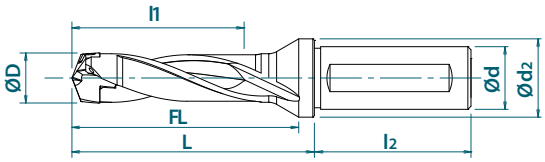
List 52400

PXD 5D (Inch)

SPEED FEED P1336

Recommended Materials: p1336
Accessories & Inserts: p1330-1335





EDP No.	Body Type	Designation	Drill Dia. (inch)		Drilling Depth (inch)	Flute Length (inch)	Gage Length (inch)	Shank Length (inch)	Shank Dia. (inch)	Flange Dia. (inch)	Appl. Head
			D Min	D Max	l1	FL	L	l2	d	d2	
52400100	Cylindrical Shank	PXDZ0551-5D-141.5-0625	0.551	0.570	2.805	3.657	3.854	1.890	0.625	0.787	1
52400101		PXDZ0571-5D-144.5-0625	0.571	0.590	2.903	3.780	3.976	1.890	0.625	0.787	2
52400102		PXDZ0591-5D-149.5-0750	0.591	0.629	3.051	3.823	4.079	1.969	0.750	0.984	3
52400103		PXDZ0630-5D-155.5-0750	0.630	0.668	3.248	4.083	4.339	1.969	0.750	0.984	4
52400104		PXDZ0669-5D-162.5-0750	0.669	0.708	3.445	4.362	4.618	1.969	0.750	0.984	5
52400105		PXDZ0709-5D-174.5-1000	0.709	0.747	3.642	4.622	4.878	2.205	1.000	1.260	6
52400106		PXDZ0748-5D-180.5-1000	0.748	0.786	3.838	4.858	5.114	2.205	1.000	1.260	7
52400107		PXDZ0787-5D-186.5-1000	0.787	0.826	4.035	5.122	5.378	2.205	1.000	1.260	8
52400108		PXDZ0827-5D-196.5-1250	0.827	0.865	4.232	5.382	5.638	2.362	1.250	1.654	9
52400109		PXDZ0866-5D-202.5-1250	0.866	0.905	4.429	5.622	5.878	2.362	1.250	1.654	10
52400110		PXDZ0906-5D-208.5-1250	0.906	0.944	4.626	5.882	6.138	2.362	1.250	1.654	11
52400111		PXDZ0945-5D-215.5-1250	0.945	0.983	4.823	6.157	6.413	2.362	1.250	1.654	12
52400112		PXDZ0984-5D-220.5-1250	0.984	1.023	5.020	6.378	6.634	2.362	1.250	1.654	13

Packed: 1 pc.
Note: Driver included with body.

PXT

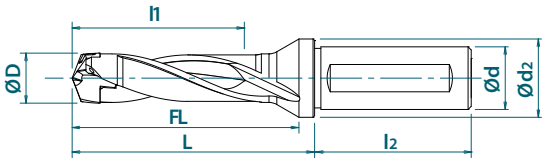
List 78310

PXD 3D (Metric)

SPEED FEED P1336

Recommended Materials: p1336
Accessories & Inserts: p1330-1335





EDP No.	Body Type	Designation	Drill Dia. (mm)		Drilling Depth (mm)	Flute Length (mm)	Gage Length (mm)	Shank Length (mm)	Shank Dia. (mm)	Flange Dia. (mm)	Appl. Head
			D Min	D Max	l1	FL	L	l2	d	d2	
48173001	Cylindrical Shank	PXDZ140-3D-113.5-16	14.00	14.49	43.0	63.4	69.9	48	16	20	1
48173002		PXDZ145-3D-115.5-16	14.50	14.99	44.5	65.5	72.0	48	16	20	2
48173003		PXDZ150-3D-119.5-20	15.00	15.99	46.5	67.1	73.6	50	20	25	3
48173004		PXDZ160-3D-123.5-20	16.00	16.99	49.5	71.7	78.2	50	20	25	4
48173005		PXDZ170-3D-128.5-20	17.00	17.99	52.5	76.8	83.3	50	20	25	5
48173006		PXDZ180-3D-138.5-25	18.00	18.99	55.5	81.4	87.9	56	25	32	6
48173007		PXDZ190-3D-142.5-25	19.00	19.99	58.5	85.4	91.9	56	25	32	7
48173008		PXDZ200-3D-146.5-25	20.00	20.99	61.5	90.1	96.6	56	25	32	8
48173009		PXDZ210-3D-154.5-32	21.00	21.99	64.5	94.7	101.2	60	32	42	9
48173010		PXDZ220-3D-158.5-32	22.00	22.99	67.5	98.8	105.3	60	32	42	10
48173011		PXDZ230-3D-162.5-32	23.00	23.99	70.5	103.4	109.9	60	32	42	11
48173012		PXDZ240-3D-167.5-32	24.00	24.99	73.5	108.4	114.9	60	32	42	12
48173013		PXDZ250-3D-170.5-32	25.00	25.99	76.5	112.0	118.5	60	32	42	13

Packed: 1 pc.
Note: Driver included with body.

PXT

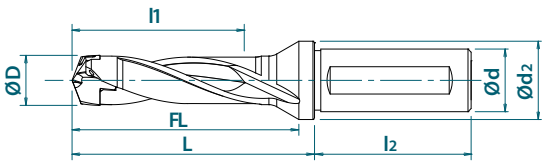
List 78310

PXD 5D (Metric)

SPEED FEED P1336

Recommended Materials: p1336
Accessories & Inserts: p1330-1335





EDP No.	Body Type	Designation	Drill Dia. (mm)		Drilling Depth (mm)	Flute Length (mm)	Gage Length (mm)	Shank Length (mm)	Shank Dia. (mm)	Flange Dia. (mm)	Appl. Head
			D Min	D Max	l1	FL	L	l2	d	d2	
48173014	Cylindrical Shank	PXDZ140-5D-141.5-16	14.00	14.49	71.2	92.9	97.9	48	16	20	1
48173015		PXDZ145-5D-144.5-16	14.50	14.99	73.7	96.0	101.0	48	16	20	2
48173016		PXDZ150-5D-149.5-20	15.00	15.99	77.5	97.1	103.6	50	20	25	3
48173017		PXDZ160-5D-155.5-20	16.00	16.99	82.5	103.7	110.2	50	20	25	4
48173018		PXDZ170-5D-162.5-20	17.00	17.99	87.5	110.8	117.3	50	20	25	5
48173019		PXDZ180-5D-174.5-25	18.00	18.99	92.5	117.4	123.9	56	25	32	6
48173020		PXDZ190-5D-180.5-25	19.00	19.99	97.5	123.4	129.9	56	25	32	7
48173021		PXDZ200-5D-186.5-25	20.00	20.99	102.5	130.1	136.6	56	25	32	8
48173022		PXDZ210-5D-196.5-32	21.00	21.99	107.5	136.7	143.2	60	32	42	9
48173023		PXDZ220-5D-202.5-32	22.00	22.99	112.5	142.8	149.3	60	32	42	10
48173024		PXDZ230-5D-208.5-32	23.00	23.99	117.5	149.4	155.9	60	32	42	11
48173025		PXDZ240-5D-215.5-32	24.00	24.99	122.5	156.4	162.9	60	32	42	12
48173026		PXDZ250-5D-220.5-32	25.00	25.99	127.5	162.0	168.5	60	32	42	13

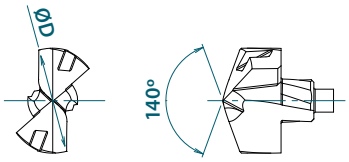
Packed: 1 pc.
Note: Driver included with body.

PXT

List 78PXD

PXD Exchangeable Heads (Inch & Metric)





EDP No.	Type	Designation	Head Diameter (D)			Size	Grade
			Fractional	mm	inch		
7831140	PC	PXDH1400-PC	-	14.00	0.5512	1	XP3425
52401000		PXDH5625-PC	9/16	14.29	0.5625		XP3425
7831145		PXDH1450-PC	-	14.50	0.5709	2	XP3425
52401014		PXDH5781-PC	37/64	14.68	0.5781		XP3425
7831351		PXDH1495-PC	-	14.95	0.5886		XP3425
7831150		PXDH1500-PC	-	15.00	0.5906	3	XP3425
52401001		PXDH5938-PC	19/32	15.08	0.5938		XP3425
7831352		PXDH1525-PC	-	15.25	0.6004		XP3425
52401015		PXDH6094-PC	39/64	15.48	0.6094		XP3425
7831155		PXDH1550-PC	-	15.50	0.6102		XP3425
52401002		PXDH6250-PC	5/8	15.88	0.6250		XP3425
7831160		PXDH1600-PC	-	16.00	0.6299	4	XP3425
52401016		PXDH6406-PC	41/64	16.27	0.6406		XP3425
7831165		PXDH1650-PC	-	16.50	0.6496		XP3425
52401003		PXDH6563-PC	21/32	16.67	0.6563		XP3425
7831167		PXDH1670-PC	-	16.70	0.6575		XP3425
7831170		PXDH1700-PC	-	17.00	0.6693	5	XP3425
52401017		PXDH6719-PC	43/64	17.07	0.6719		XP3425
7831353		PXDH1725-PC	-	17.25	0.6791		XP3425
52401004		PXDH6875-PC	11/16	17.46	0.6875		XP3425
7831175		PXDH1750-PC	-	17.50	0.6890		XP3425
52401018		PXDH7031-PC	45/64	17.86	0.7031		XP3425
7831180		PXDH1800-PC	-	18.00	0.7087	6	XP3425
52401005		PXDH7188-PC	23/32	18.26	0.7188		XP3425
7831185		PXDH1850-PC	-	18.50	0.7283		XP3425
52401019		PXDH7344-PC	47/64	18.65	0.7344		XP3425
7831187		PXDH1870-PC	-	18.70	0.7362		XP3425
7831190		PXDH1900-PC	-	19.00	0.7480	7	XP3425
52401006		PXDH7500-PC	3/4	19.05	0.7500		XP3425
7831354		PXDH1925-PC	-	19.25	0.7579		XP3425
52401020		PXDH7656-PC	49/64	19.45	0.7656		XP3425
7831195		PXDH1950-PC	-	19.50	0.7677		XP3425
52401007		PXDH7813-PC	25/32	19.85	0.7813		XP3425
7831200		PXDH2000-PC	-	20.00	0.7874	8	XP3425
52401021		PXDH7969-PC	51/64	20.24	0.7969		XP3425
7831205		PXDH2050-PC	-	20.50	0.8071		XP3425
52401008		PXDH8125-PC	13/16	20.64	0.8125		XP3425
7831207		PXDH2070-PC	-	20.70	0.8150		XP3425
7831210		PXDH2100-PC	-	21.00	0.8268	9	XP3425
52401022		PXDH8281-PC	53/64	21.03	0.8281		XP3425
7831355		PXDH2125-PC	-	21.25	0.8366		XP3425
52401009		PXDH8438-PC	27/32	21.43	0.8438		XP3425
7831215		PXDH2150-PC	-	21.50	0.8465		XP3425
52401023		PXDH8594-PC	55/64	21.83	0.8594		XP3425
7831220		PXDH2200-PC	-	22.00	0.8661	10	XP3425
52401010		PXDH8750-PC	7/8	22.23	0.8750		XP3425
7831224		PXDH2240-PC	-	22.40	0.8819		XP3425
7831225		PXDH2250-PC	-	22.50	0.8858		XP3425
52401024		PXDH8906-PC	57/64	22.62	0.8906		XP3425

Packed: 1 pc.

PXI

List 78PXD (Continued)

PXD Exchangeable Heads (Inch & Metric)

EDP No.	Type	Designation	Head Diameter (D)			Size	Grade
			Fractional	mm	inch		
7831230	PC	PXDH2300-PC	-	23.00	0.9055	11	XP3425
52401011		PXDH9063-PC	29/32	23.02	0.9063		XP3425
7831356		PXDH2325-PC	-	23.25	0.9154		XP3425
52401025		PXDH9219-PC	59/64	23.42	0.9219		XP3425
7831235		PXDH2350-PC	-	23.50	0.9252		XP3425
52401012		PXDH9375-PC	15/16	23.81	0.9375		XP3425
7831240		PXDH2400-PC	-	24.00	0.9449	12	XP3425
52401026		PXDH9531-PC	61/64	24.21	0.9531		XP3425
7831245		PXDH2450-PC	-	24.50	0.9646		XP3425
52401013		PXDH9688-PC	31/32	24.61	0.9688		XP3425
7831250		PXDH2500-PC	-	25.00	0.9843	13	XP3425
52401027		PXDH9844-PC	63/64	25.00	0.9844		XP3425
7831254		PXDH2540-PC	1	25.40	1.0000		XP3425

Packed: 1 pc.

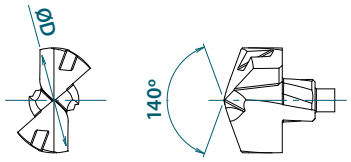
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List 78PXD (Continued)

PXD Exchangeable Heads (Inch & Metric)





EDP No.	Type	Designation	Head Diameter (D)			Size	Grade
			Fractional	mm	inch		
7831440	KC	PXDH1400-KC	-	14.00	0.5512	1	XP1425
52402000		PXDH5625-KC	9/16	14.29	0.5625		XP1425
7831445		PXDH1450-KC	-	14.50	0.5709	2	XP1425
52402014		PXDH5781-KC	37/64	14.68	0.5781		XP1425
7831450		PXDH1500-KC	-	15.00	0.5906	3	XP1425
52402001		PXDH5938-KC	19/32	15.08	0.5938		XP1425
52402015		PXDH6094-KC	39/64	15.48	0.6094		XP1425
7831455		PXDH1550-KC	-	15.50	0.6102		XP1425
52402002		PXDH6250-KC	5/8	15.88	0.6250		XP1425
7831460		PXDH1600-KC	-	16.00	0.6299	4	XP1425
52402016		PXDH6406-KC	41/64	16.27	0.6406		XP1425
7831465		PXDH1650-KC	-	16.50	0.6496		XP1425
52402003		PXDH6563-KC	21/32	16.67	0.6563		XP1425
7831467		PXDH1670-KC	-	16.70	0.6575		XP1425
7831470		PXDH1700-KC	-	17.00	0.6693	5	XP1425
52402017		PXDH6719-KC	43/64	17.07	0.6719		XP1425
52402004		PXDH6875-KC	11/16	17.46	0.6875		XP1425
7831475		PXDH1750-KC	-	17.50	0.6890		XP1425
52402018		PXDH7031-KC	45/64	17.86	0.7031		XP1425
7831480		PXDH1800-KC	-	18.00	0.7087	6	XP1425
52402005		PXDH7188-KC	23/32	18.26	0.7188		XP1425
7831485		PXDH1850-KC	-	18.50	0.7283		XP1425
52402019		PXDH7344-KC	47/64	18.65	0.7344		XP1425
7831487		PXDH1870-KC	-	18.70	0.7362		XP1425
7831490		PXDH1900-KC	-	19.00	0.7480	7	XP1425
52402006		PXDH7500-KC	3/4	19.05	0.7500		XP1425
52402020		PXDH7656-KC	49/64	19.45	0.7656		XP1425
7831495		PXDH1950-KC	-	19.50	0.7677		XP1425
52402007		PXDH7813-KC	25/32	19.85	0.7813		XP1425
7831500		PXDH2000-KC	-	20.00	0.7874	8	XP1425
52402021		PXDH7969-KC	51/64	20.24	0.7969		XP1425
7831505		PXDH2050-KC	-	20.50	0.8071		XP1425
52402008		PXDH8125-KC	13/16	20.64	0.8125		XP1425
7831507		PXDH2070-KC	-	20.70	0.8150		XP1425
7831510		PXDH2100-KC	-	21.00	0.8268	9	XP1425
52402022		PXDH8281-KC	53/64	21.03	0.8281		XP1425
52402009		PXDH8438-KC	27/32	21.43	0.8438		XP1425
7831515		PXDH2150-KC	-	21.50	0.8465		XP1425
52402023		PXDH8594-KC	55/64	21.83	0.8594		XP1425
7831520		PXDH2200-KC	-	22.00	0.8661	10	XP1425
52402010		PXDH8750-KC	7/8	22.23	0.8750		XP1425
7831524		PXDH2240-KC	-	22.40	0.8819		XP1425
7831525		PXDH2250-KC	-	22.50	0.8858		XP1425
52402024		PXDH8906-KC	57/64	22.62	0.8906		XP1425
7831530		PXDH2300-KC	-	23.00	0.9055	11	XP1425
52402011		PXDH9063-KC	29/32	23.02	0.9063		XP1425
52402025		PXDH9219-KC	59/64	23.42	0.9219		XP1425
7831535		PXDH2350-KC	-	23.50	0.9252		XP1425
52402012		PXDH9375-KC	15/16	23.81	0.9375		XP1425

Packed: 1 pc.

PXI

List 78PXD (Continued)

PXD Exchangeable Heads (Inch & Metric)

EDP No.	Type	Designation	Head Diameter (D)			Size	Grade
			Fractional	mm	inch		
7831540	KC	PXDH2400-KC	-	24.00	0.9449	12	XP1425
52402026		PXDH9531-KC	61/64	24.21	0.9531		XP1425
7831545		PXDH2450-KC	-	24.50	0.9646		XP1425
52402013		PXDH9688-KC	31/32	24.61	0.9688		XP1425
7831550		PXDH2500-KC	-	25.00	0.9843	13	XP1425
52402027		PXDH9844-KC	63/64	25.00	0.9844		XP1425
7831554		PXDH2540-KC	1	25.40	1.0000		XP1425

Packed: 1 pc.

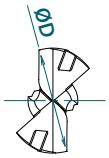
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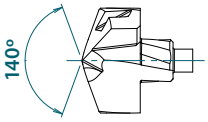
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List 78PXD (Continued)

PXD Exchangeable Heads (Inch & Metric)







EDP No.	Type	Designation	Head Diameter (D)			Size	Grade
			Fractional	mm	inch		
7831740	NC	PXDH1400-NC	-	14.00	0.5512	1	CF225
52403000		PXDH5625-NC	9/16	14.29	0.5625		CF225
7831745		PXDH1450-NC	-	14.50	0.5709	2	CF225
52403014		PXDH5781-NC	37/64	14.68	0.5781		CF225
7831750		PXDH1500-NC	-	15.00	0.5906	3	CF225
52403001		PXDH5938-NC	19/32	15.08	0.5938		CF225
52403015		PXDH6094-NC	39/64	15.48	0.6094		CF225
7831755		PXDH1550-NC	-	15.50	0.6102		CF225
52403002		PXDH6250-NC	5/8	15.88	0.6250		CF225
7831760		PXDH1600-NC	-	16.00	0.6299	4	CF225
52403016		PXDH6406-NC	41/64	16.27	0.6409		CF225
7831765		PXDH1650-NC	-	16.50	0.6496		CF225
52403003		PXDH6563-NC	21/32	16.67	0.6563		CF225
7831767		PXDH1670-NC	-	16.70	0.6575		CF225
7831770		PXDH1700-NC	-	17.00	0.6693	5	CF225
52403017		PXDH6719-NC	43/64	17.07	0.6719		CF225
52403004		PXDH6875-NC	11/16	17.46	0.6875		CF225
7831775		PXDH1750-NC	-	17.50	0.6890		CF225
52403018		PXDH7031-NC	45/64	17.86	0.7031		CF225
7831780		PXDH1800-NC	-	18.00	0.7087	6	CF225
52403005		PXDH7188-NC	23/32	18.26	0.7188		CF225
7831785		PXDH1850-NC	-	18.50	0.7283		CF225
52403019		PXDH7344-NC	47/64	18.65	0.7344		CF225
7831787		PXDH1870-NC	-	18.70	0.7362		CF225
7831790		PXDH1900-NC	-	19.00	0.7480	7	CF225
52403006		PXDH7500-NC	3/4	19.05	0.7500		CF225
52403020		PXDH7656-NC	49/64	19.45	0.7656		CF225
7831795		PXDH1950-NC	-	19.50	0.7677		CF225
52403007		PXDH7813-NC	25/32	19.85	0.7813		CF225
7831800		PXDH2000-NC	-	20.00	0.7874	8	CF225
52403021		PXDH7969-NC	51/64	20.24	0.7969		CF225
7831805		PXDH2050-NC	-	20.50	0.8071		CF225
52403008		PXDH8125-NC	13/16	20.64	0.8125		CF225
7831807		PXDH2070-NC	-	20.70	0.8150		CF225
7831810		PXDH2100-NC	-	21.00	0.8268	9	CF225
52403022		PXDH8281-NC	53/64	21.03	0.8281		CF225
52403009		PXDH8438-NC	27/32	21.43	0.8438		CF225
7831815		PXDH2150-NC	-	21.50	0.8465		CF225
52403023		PXDH8594-NC	55/64	21.83	0.8594		CF225
7831820		PXDH2200-NC	-	22.00	0.8661	10	CF225
52403010		PXDH8750-NC	7/8	22.23	0.8750		CF225
7831824		PXDH2240-NC	-	22.40	0.8819		CF225
7831825		PXDH2250-NC	-	22.50	0.8858		CF225
52403024		PXDH8906-NC	57/64	22.62	0.8906		CF225
7831830		PXDH2300-NC	-	23.00	0.9055	11	CF225
52403011		PXDH9063-NC	29/32	23.02	0.9063		CF225
52403025		PXDH9219-NC	59/64	23.42	0.9219		CF225
7831835		PXDH2350-NC	-	23.50	0.9252		CF225
52403012		PXDH9375-NC	15/16	23.81	0.9375		CF225
7831840		PXDH2400-NC	-	24.00	0.9449	12	CF225
52403026		PXDH9531-NC	61/64	24.21	0.9531		CF225
7831845		PXDH2450-NC	-	24.50	0.9646		CF225
52403013		PXDH9688-NC	31/32	24.61	0.9688		CF225
7831850		PXDH2500-NC	-	25.00	0.9843	13	CF225
52403027		PXDH9844-NC	63/64	25.00	0.9844		CF225
7831854		PXDH2540-NC	1	25.40	1.0000		CF225

Packed: 1 pc.

PXI

List 7808H

PXD Accessories

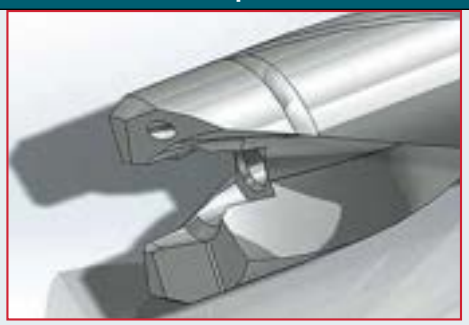
Appearance	EDP No.	Designation	Sheet Thickness (mm)	Applicable Head		
				Size	(inch)	(mm)
 Driver	7808282	PXDP1400-1890	1.5	1-6	Ø0.551-0.744	Ø14.0-18.9
	7808283	PXDP1900-2299	1.8	7-10	Ø0.748-0.901	Ø19.0-22.9
	7808284	PXDP2300-2699	2	11-13	Ø0.905-1.059	Ø23.0-26.9

Packed: 1 pc.

PXT

Mounting Procedure

Step 1



Clean attachment area with an air nozzle.
Any leftover cutting chips may prevent the head from being mounted properly and may cause damage to the tool.

Step 2



Manually attach the head.

Step 3



Insert the flat metal portion of the designated driver into the groove of the head. Insert the driver firmly into the groove. If the insertion of the designated driver is too shallow, it could damage the flutes.

Step 4



Turn the driver clockwise and mount the head onto the body. Mount it firmly and make sure that there is no gap in the area between the head and the body.

Cutting Conditions

Work Material	Mild Steel Low Carbon Steel		Carbon Steel		Alloy Steel		Cast Iron		Ductile Cast Iron		Aluminum Alloy Casting	
Speed	265 - 395 SFM		265 - 395 SFM		195 - 395 SFM		265 - 395 SFM		195 - 325 SFM		265 - 590 SFM	
Drill Dia. (mm)	Speed (RPM)	Feed (in/rev)	Speed (RPM)	Feed (in/rev)	Speed (RPM)	Feed (in/rev)	Speed (RPM)	Feed (in/rev)	Speed (RPM)	Feed (in/rev)	Speed (RPM)	Feed (in/rev)
14	2300	0.008 - 0.014	2300	0.008 - 0.014	2000	0.008 - 0.014	2300	0.008 - 0.014	1800	0.008 - 0.014	3000	0.011 - 0.016
15	2100	0.009 - 0.015	2100	0.009 - 0.015	1900	0.009 - 0.015	2100	0.009 - 0.015	1700	0.009 - 0.015	2800	0.012 - 0.018
16	2000	0.009 - 0.016	2000	0.009 - 0.016	1800	0.009 - 0.016	2000	0.009 - 0.016	1600	0.009 - 0.016	2600	0.012 - 0.019
17	1900	0.010 - 0.017	1900	0.010 - 0.017	1700	0.010 - 0.017	1900	0.010 - 0.017	1500	0.010 - 0.017	2400	0.013 - 0.020
18	1800	0.010 - 0.018	1800	0.010 - 0.018	1600	0.010 - 0.018	1800	0.010 - 0.018	1400	0.010 - 0.018	2300	0.014 - 0.021
19	1700	0.011 - 0.019	1700	0.011 - 0.019	1500	0.011 - 0.019	1700	0.011 - 0.019	1300	0.011 - 0.019	2200	0.015 - 0.022
20	1600	0.012 - 0.020	1600	0.012 - 0.020	1400	0.012 - 0.020	1600	0.012 - 0.020	1300	0.012 - 0.020	2100	0.016 - 0.024
21	1500	0.012 - 0.021	1500	0.012 - 0.021	1400	0.012 - 0.021	1500	0.012 - 0.021	1200	0.012 - 0.021	2000	0.016 - 0.025
22	1400	0.013 - 0.022	1400	0.013 - 0.022	1300	0.013 - 0.022	1400	0.013 - 0.022	1200	0.013 - 0.022	1900	0.017 - 0.026
23	1400	0.014 - 0.023	1400	0.014 - 0.023	1200	0.014 - 0.023	1400	0.014 - 0.023	1100	0.014 - 0.023	1800	0.018 - 0.027
24	1300	0.014 - 0.024	1300	0.014 - 0.024	1200	0.014 - 0.024	1300	0.014 - 0.024	1100	0.014 - 0.024	1700	0.019 - 0.028
25	1300	0.015 - 0.025	1300	0.015 - 0.025	1100	0.015 - 0.025	1300	0.015 - 0.025	1000	0.015 - 0.025	1700	0.020 - 0.029

Recommended Materials by Application

Insert Grade	Type	Coolant	Carbon Steel	Alloy Steel	Hardened Steel (Up to 35 HRC)	Cast Iron Ductile Cast Iron	Aluminum Alloy Casting	Copper Alloy
XP3425	PC	Yes	◻	▢	▢	▢		
XP1425	KC	Yes	▢	▢	▢	◻		
CF225	NC	Yes					◻	▢

▢ good ◻ best

List 52502

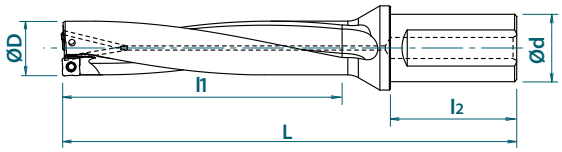
P2D (Inch)

NEW SIZES

SPEED FEED P1355

Recommended Materials: p1357
Accessories & Inserts: p1353-1354





EDP No.	Body Type	Designation	Drill Dia. (inch)	Drilling Depth (inch)	Overall Length (inch)	Shank Dia. (inch)	Shank Length (Inch)	Applicable Insert
			D	l1	L	d	l2	
52502063	Flat Shank	P2D0484FS075A03	0.4844	0.969	3.844	0.750	1.969	XCMT03…
52502064		P2D0500FS075A03	0.5000	1.000	3.875	0.750	1.969	
52502065		P2D0516FS075A03	0.5156	1.031	3.906	0.750	1.969	
52502066		P2D0531FS075A03	0.5313	1.063	3.938	0.750	1.969	
52502067		P2D0547FS075A03	0.5469	1.094	3.969	0.750	1.969	
52502068		P2D0563FS075A03	0.5625	1.125	4.000	0.750	1.969	
52502069		P2D0578FS075A03	0.5781	1.156	4.031	0.750	1.969	
52502026		P2D0594FS075A04	0.5938	1.188	4.063	0.750	1.969	XCMT04…
52502027		P2D0609FS075A04	0.6094	1.219	4.094	0.750	1.969	
52502008		P2D0625FS075A04	0.6250	1.250	4.125	0.750	1.969	
52502028		P2D0641FS075A04	0.6406	1.281	4.156	0.750	1.969	
52502009		P2D0656FS075A04	0.6563	1.313	4.187	0.750	1.969	
52502029		P2D0672FS075A05	0.6719	1.344	4.219	0.750	1.969	XCMT05…
52502010		P2D0688FS075A05	0.6875	1.375	4.250	0.750	1.969	
52502030		P2D0703FS075A05	0.7031	1.406	4.281	0.750	1.969	
52502031		P2D0719FS100A05	0.7188	1.438	4.549	1.000	2.205	
52502032		P2D0734FS100A05	0.7344	1.469	4.580	1.000	2.205	
52502011		P2D0750FS100A06	0.7500	1.500	4.611	1.000	2.205	XCMT06…
52502033		P2D0766FS100A06	0.7656	1.531	4.642	1.000	2.205	
52502034		P2D0781FS100A06	0.7813	1.563	4.674	1.000	2.205	
52502035		P2D0797FS100A06	0.7969	1.594	4.705	1.000	2.205	
52502012		P2D0812FS100A06	0.8125	1.625	4.736	1.000	2.205	
52502036		P2D0828FS100A07	0.8281	1.656	4.767	1.000	2.205	XCMT07…
52502037		P2D0844FS100A07	0.8439	1.688	4.799	1.000	2.205	
52502038		P2D0859FS100A07	0.8594	1.719	4.830	1.000	2.205	
52502000		P2D0875FS100A07	0.8750	1.750	4.861	1.000	2.205	
52502039		P2D0891FS100A07	0.8906	1.781	4.892	1.000	2.205	
52502040		P2D0906FS100A07	0.9063	1.813	4.924	1.000	2.205	
52502041		P2D0922FS100A07	0.9219	1.844	4.955	1.000	2.205	
52502001		P2D0937FS125A07	0.9375	1.875	5.143	1.250	2.362	
52502042		P2D0953FS125A07	0.9531	1.906	5.174	1.250	2.362	
52502043		P2D0969FS125A07	0.9688	1.938	5.206	1.250	2.362	
52502044		P2D0984FS125A08	0.9844	1.969	5.237	1.250	2.362	XCMT08…
52502002		P2D1000FS125A08	1.0000	2.000	5.268	1.250	2.362	
52502045		P2D1031FS125A08	1.0313	2.063	5.331	1.250	2.362	
52502003		P2D1062FS125A08	1.0625	2.125	5.393	1.250	2.362	
52502046		P2D1094FS125A08	1.0938	2.188	5.456	1.250	2.362	
52502004		P2D1125FS125A08	1.1250	2.250	5.518	1.250	2.362	
52502047		P2D1156FS125A09	1.1563	2.313	5.581	1.250	2.362	XCMT09…
52502005		P2D1187FS125A09	1.1875	2.375	5.643	1.250	2.362	
52502048		P2D1219FS125A09	1.2188	2.438	5.706	1.250	2.362	
52502006		P2D1250FS125A09	1.2500	2.500	5.768	1.250	2.362	
52502049		P2D1281FS150A09	1.2813	2.563	6.225	1.500	2.756	
52502007		P2D1312FS150A09	1.3125	2.625	6.287	1.500	2.756	

Packed: 1 pc.

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PXT

List 52502 (Continued)

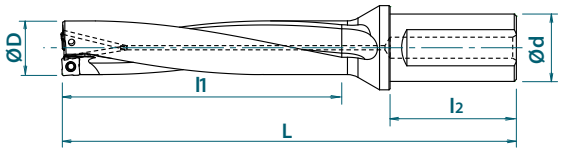
NEW SIZES

SPEED FEED P1355

Recommended Materials: p1357
Accessories & Inserts: p1353-1354

P2D (Inch)





EDP No.	Body Type	Designation	Drill Dia. (inch)	Drilling Depth (inch)	Overall Length (inch)	Shank Dia. (inch)	Shank Length (Inch)	Applicable Insert
			D	l1	L	d	l2	
52502050	Flat Shank	P2D1344FS150A10	1.3438	2.688	6.350	1.500	2.756	XCMT10…
52502013		P2D1375FS150A10	1.3750	2.750	6.412	1.500	2.756	
52502051		P2D1406FS150A10	1.4063	2.813	6.475	1.500	2.756	
52502014		P2D1437FS150A10	1.4375	2.875	6.537	1.500	2.756	
52502052		P2D1469FS150A10	1.4688	2.938	6.600	1.500	2.756	
52502015		P2D1500FS150A10	1.5000	3.000	6.662	1.500	2.756	
52502053		P2D1531FS150A10	1.5313	3.063	6.725	1.500	2.756	
52502016		P2D1563FS150A12	1.5625	3.125	6.787	1.500	2.756	XCMT12…
52502054		P2D1594FS150A12	1.5938	3.188	6.850	1.500	2.756	
52502017		P2D1625FS150A12	1.6250	3.250	6.912	1.500	2.756	
52502055		P2D1656FS150A12	1.6563	3.313	6.975	1.500	2.756	
52502018		P2D1688FS150A12	1.6875	3.375	7.037	1.500	2.756	
52502056		P2D1719FS150A12	1.7188	3.438	7.100	1.500	2.756	
52502019		P2D1750FS150A12	1.7500	3.500	7.162	1.500	2.756	
52502057		P2D1781FS150A13	1.7813	3.563	7.225	1.500	2.756	XCMT13…
52502058		P2D1813FS150A13	1.8125	3.625	7.287	1.500	2.756	
52502059		P2D1844FS150A13	1.8438	3.688	7.350	1.500	2.756	
52502020		P2D1875FS150A13	1.8750	3.750	7.412	1.500	2.756	
52502060		P2D1906FS150A13	1.9063	3.813	7.475	1.500	2.756	
52502061		P2D1938FS150A13	1.9375	3.875	7.537	1.500	2.756	
52502062		P2D1969FS150A14	1.9688	3.938	7.600	1.500	2.756	XCMT14…
52502021		P2D2000FS150A14	2.0000	4.000	7.664	1.500	2.756	
52502022		P2D2125FS150A14	2.1250	4.250	7.912	1.500	2.756	
52502023		P2D2250FS150A16	2.2500	4.500	8.162	1.500	2.756	XCMT16…
52502024		P2D2375FS150A16	2.3750	4.750	8.412	1.500	2.756	
52502025		P2D2500FS150A16	2.5000	5.000	8.662	1.500	2.756	

Packed: 1 pc.

PXT

List 78031

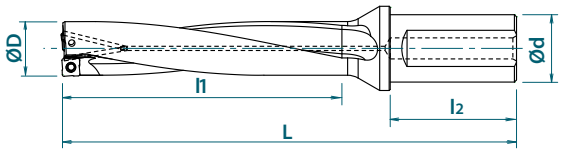
P2D (Metric)

NEW SIZES

SPEED FEED P1355

Recommended Materials: p1357
Accessories & Inserts: p1353-1354





EDP No.	Body Type	Designation	Drill Dia. (mm)	Drilling Depth (mm)	Overall Length (mm)	Shank Dia. (mm)	Shank Length (mm)	Applicable Insert
			D	l1	L	d	l2	
7803180	Flat Shank	P2D1200FS20M03	12.0	24	89	20	50	XCMT03…
7803181		P2D1250FS20M03	12.5	25	90	20	50	
7803182		P2D1300FS20M03	13.0	26	91	20	50	
7803183		P2D1350FS20M03	13.5	27	92	20	50	
7803184		P2D1400FS20M03	14.0	28	93	20	50	
7803185		P2D1450FS20M03	14.5	29	94	20	50	
7803117		P2D1500FS20M04	15.0	30	95	20	50	XCMT04…
7803118		P2D1550FS20M04	15.5	31	96	20	50	
7803119		P2D1600FS20M04	16.0	32	97	20	50	
7803120		P2D1650FS20M04	16.5	33	98	20	50	
7803121		P2D1700FS20M05	17.0	34	102	20	50	XCMT05…
7803122		P2D1750FS20M05	17.5	35	103	20	50	
7803190		P2D1750FS25M05	17.5	35	109	25	56	
7803123		P2D1800FS25M05	18.0	36	110	25	56	
7803124		P2D1850FS25M05	18.5	37	111	25	56	
7803125		P2D1900FS25M06	19.0	38	112	25	56	XCMT06…
7803126		P2D1950FS25M06	19.5	39	113	25	56	
7803127		P2D2000FS25M06	20.0	40	114	25	56	
7803128		P2D2050FS25M06	20.5	41	115	25	56	
7803129		P2D2100FS25M07	21.0	42	121	25	56	XCMT07…
7803130		P2D2150FS25M07	21.5	43	122	25	56	
7803131		P2D2200FS25M07	22.0	44	123	25	56	
7803132		P2D2250FS25M07	22.5	45	124	25	56	
7803133		P2D2300FS25M07	23.0	46	125	25	56	
7803191		P2D2350FS25M07	23.5	47	126	25	56	
7803134		P2D2350FS32M07	23.5	47	130	32	60	
7803192		P2D2400FS25M07	24.0	48	127	25	56	
7803135		P2D2400FS32M07	24.0	48	131	32	60	
7803193		P2D2450FS25M07	24.5	49	128	25	56	
7803136		P2D2450FS32M07	24.5	49	132	32	60	
7803194		P2D2500FS25M08	25.0	50	129	25	56	XCMT08…
7803137		P2D2500FS32M08	25.0	50	133	32	60	
7803195		P2D2550FS25M08	25.5	51	130	25	56	
7803138		P2D2550FS32M08	25.5	51	134	32	60	
7803139		P2D2600FS32M08	26.0	52	135	32	60	
7803140		P2D2650FS32M08	26.5	53	136	32	60	
7803141		P2D2700FS32M08	27.0	54	137	32	60	
7803142		P2D2800FS32M08	28.0	56	139	32	60	
7803143		P2D2850FS32M08	28.5	57	140	32	60	
7803144		P2D2900FS32M09	29.0	58	141	32	60	XCMT09…
7803145		P2D3000FS32M09	30.0	60	143	32	60	
7803146		P2D3100FS32M09	31.0	62	145	32	60	
7803196		P2D3100FS40M09	31.0	62	155	40	70	
7803147		P2D3200FS32M09	32.0	64	147	32	60	
7803197		P2D3200FS40M09	32.0	64	157	40	70	
7803148		P2D3300FS40M09	33.0	66	159	40	70	
7803149		P2D3350FS40M09	33.5	67	160	40	70	

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List 78031 (Continued)

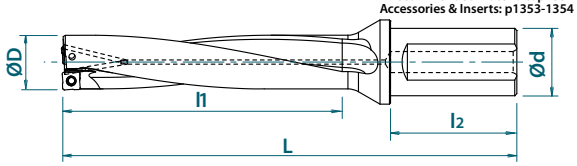
NEW SIZES

SPEED FEED P1355

Recommended Materials: p1357
Accessories & Inserts: p1353-1354

P2D (Metric)





EDP No.	Body Type	Designation	Drill Dia. (mm) D	Drilling Depth (mm) l1	Overall Length (mm) L	Shank Dia. (mm) d	Shank Length (mm) l2	Applicable Insert
7803150	Flat Shank	P2D3400FS40M10	34.0	68	161	40	70	XCMT10…
7803151		P2D3500FS40M10	35.0	70	163	40	70	
7803152		P2D3600FS40M10	36.0	72	165	40	70	
7803153		P2D3700FS40M10	37.0	74	167	40	70	
7803154		P2D3800FS40M10	38.0	76	169	40	70	
7803155		P2D3900FS40M12	39.0	78	178	40	70	XCMT12…
7803156		P2D4000FS40M12	40.0	80	180	40	70	
7803157		P2D4100FS40M12	41.0	82	182	40	70	
7803158		P2D4200FS40M12	42.0	84	184	40	70	
7803159		P2D4300FS40M12	43.0	86	186	40	70	
7803160		P2D4400FS40M12	44.0	88	188	40	70	
7803161		P2D4500FS40M13	45.0	90	190	40	70	XCMT13…
7803162		P2D4600FS40M13	46.0	92	192	40	70	
7803163		P2D4700FS40M13	47.0	94	194	40	70	
7803164		P2D4800FS40M13	48.0	96	196	40	70	
7803165		P2D4900FS40M13	49.0	98	198	40	70	
7803166		P2D5000FS40M14	50.0	100	200	40	70	XCMT14…
7803167		P2D5100FS40M14	51.0	102	202	40	70	
7803168		P2D5200FS40M14	52.0	104	204	40	70	
7803169		P2D5300FS40M14	53.0	106	206	40	70	
7803170		P2D5400FS40M14	54.0	108	208	40	70	
7803171		P2D5500FS40M14	55.0	110	210	40	70	
7803172		P2D5600FS40M14	56.0	112	212	40	70	
7803173		P2D5700FS40M16	57.0	114	214	40	70	XCMT16…
7803174		P2D5800FS40M16	58.0	116	216	40	70	
7803175		P2D5900FS40M16	59.0	118	218	40	70	
7803176		P2D6000FS40M16	60.0	120	220	40	70	
7803177		P2D6100FS40M16	61.0	122	222	40	70	
7803178		P2D6200FS40M16	62.0	124	224	40	70	
7803179		P2D6300FS40M16	63.0	126	226	40	70	

Packed: 1 pc.

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List 52503

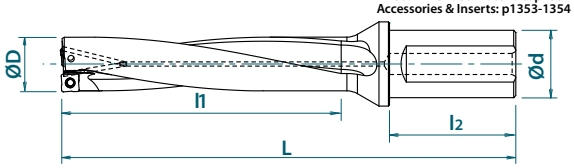
P3D (Inch)

NEW SIZES

SPEED FEED P1355

Recommended Materials: p1357
Accessories & Inserts: p1353-1354





EDP No.	Body Type	Designation	Drill Dia. (inch) D	Drilling Depth (inch) l1	Overall Length (inch) L	Shank Dia. (inch) d	Shank Length (Inch) l2	Applicable Insert
52503063	Flat Shank	P3D0484FS075A03	0.4844	1.453	4.328	0.750	1.969	XCMT03…
52503064		P3D0500FS075A03	0.5000	1.500	4.375	0.750	1.969	
52503065		P3D0516FS075A03	0.5156	1.547	4.422	0.750	1.969	
52503066		P3D0531FS075A03	0.5313	1.594	4.469	0.750	1.969	
52503067		P3D0547FS075A03	0.5469	1.641	4.516	0.750	1.969	
52503068		P3D0563FS075A03	0.5625	1.688	4.563	0.750	1.969	
52503069		P3D0578FS075A03	0.5781	1.734	4.609	0.750	1.969	
52503026		P3D0594FS075A04	0.5938	1.781	4.656	0.750	1.969	XCMT04…
52503027		P3D0609FS075A04	0.6094	1.828	4.703	0.750	1.969	
52503008		P3D0625FS075A04	0.6250	1.875	4.750	0.750	1.969	
52503028		P3D0641FS075A04	0.6406	1.922	4.797	0.750	1.969	
52503009		P3D0656FS075A04	0.6563	1.969	4.843	0.750	1.969	
52503029		P3D0672FS075A05	0.6719	2.016	4.891	0.750	1.969	XCMT05…
52503010		P3D0688FS075A05	0.6875	2.063	4.937	0.750	1.969	
52503030		P3D0703FS075A05	0.7031	2.109	4.984	0.750	1.969	
52503031		P3D0719FS100A05	0.7188	2.156	5.267	1.000	2.205	
52503032		P3D0734FS100A05	0.7344	2.203	5.314	1.000	2.205	
52503011		P3D0750FS100A06	0.7500	2.250	5.361	1.000	2.205	XCMT06…
52503033		P3D0766FS100A06	0.7656	2.297	5.408	1.000	2.205	
52503034		P3D0781FS100A06	0.7813	2.344	5.455	1.000	2.205	
52503035		P3D0797FS100A06	0.7969	2.391	5.502	1.000	2.205	
52503012		P3D0812FS100A06	0.8125	2.438	5.548	1.000	2.205	
52503036		P3D0828FS100A07	0.8281	2.484	5.595	1.000	2.205	XCMT07…
52503037		P3D0844FS100A07	0.8438	2.531	5.642	1.000	2.205	
52503038		P3D0859FS100A07	0.8594	2.578	5.689	1.000	2.205	
52503000		P3D0875FS100A07	0.8750	2.625	5.736	1.000	2.205	
52503039		P3D0891FS100A07	0.8906	2.672	5.783	1.000	2.205	
52503040		P3D0906FS100A07	0.9063	2.719	5.830	1.000	2.205	
52503041		P3D0922FS100A07	0.9219	2.766	5.877	1.000	2.205	
52503001		P3D0937FS125A07	0.9375	2.813	6.080	1.250	2.362	
52503042		P3D0953FS125A07	0.9531	2.859	6.127	1.250	2.362	
52503043		P3D0969FS125A07	0.9688	2.906	6.174	1.250	2.362	
52503044		P3D0984FS125A08	0.9844	2.953	6.221	1.250	2.362	XCMT08…
52503002		P3D1000FS125A08	1.0000	3.000	6.268	1.250	2.362	
52503045		P3D1031FS125A08	1.0313	3.094	6.362	1.250	2.362	
52503003		P3D1062FS125A08	1.0625	3.188	6.455	1.250	2.362	
52503046		P3D1094FS125A08	1.0938	3.281	6.549	1.250	2.362	
52503004		P3D1125FS125A08	1.1250	3.375	6.643	1.250	2.362	
52503047		P3D1156FS125A09	1.1563	3.469	6.737	1.250	2.362	XCMT09…
52503005		P3D1187FS125A09	1.1875	3.563	6.830	1.250	2.362	
52503048		P3D1219FS125A09	1.2188	3.656	6.924	1.250	2.362	
52503006		P3D1250FS125A09	1.2500	3.750	7.018	1.250	2.362	
52503049		P3D1281FS150A09	1.2813	3.844	7.506	1.500	2.756	
52503007		P3D1312FS150A09	1.3125	3.938	7.599	1.500	2.756	

Packed: 1 pc.

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PXT

List 52503 (Continued)

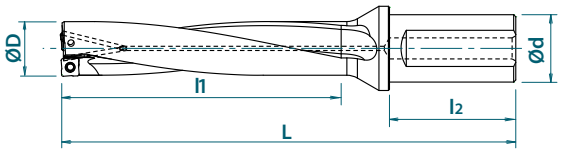
NEW SIZES

SPEED FEED P1355

Recommended Materials: p1357
Accessories & Inserts: p1353-1354

P3D (Inch)





EDP No.	Body Type	Designation	Drill Dia. (inch)	Drilling Depth (inch)	Overall Length (inch)	Shank Dia. (inch)	Shank Length (Inch)	Applicable Insert
			D	l1	L	d	l2	
52503050	Flat Shank	P3D1344FS150A10	1.3438	4.031	7.693	1.500	2.756	XCMT10…
52503013		P3D1375FS150A10	1.3750	4.125	7.787	1.500	2.756	
52503051		P3D1406FS150A10	1.4063	4.219	7.881	1.500	2.756	
52503014		P3D1437FS150A10	1.4375	4.313	7.974	1.500	2.756	
52503052		P3D1469FS150A10	1.4688	4.406	8.068	1.500	2.756	
52503015		P3D1500FS150A10	1.5000	4.500	8.162	1.500	2.756	
52503053		P3D1531FS150A10	1.5313	4.594	8.256	1.500	2.756	
52503016		P3D1563FS150A12	1.5625	4.688	8.349	1.500	2.756	XCMT12…
52503054		P3D1594FS150A12	1.5938	4.781	8.443	1.500	2.756	
52503017		P3D1625FS150A12	1.6250	4.875	8.537	1.500	2.756	
52503055		P3D1656FS150A12	1.6563	4.969	8.631	1.500	2.756	
52503018		P3D1688FS150A12	1.6875	5.063	8.724	1.500	2.756	
52503056		P3D1719FS150A12	1.7188	5.156	8.818	1.500	2.756	
52503019		P3D1750FS150A12	1.7500	5.250	8.912	1.500	2.756	
52503057		P3D1781FS150A13	1.7813	5.344	9.006	1.500	2.756	XCMT13…
52503058		P3D1813FS150A13	1.8125	5.438	9.100	1.500	2.756	
52503059		P3D1844FS150A13	1.8438	5.531	9.193	1.500	2.756	
52503020		P3D1875FS150A13	1.8750	5.625	9.287	1.500	2.756	
52503060		P3D1906FS150A13	1.9063	5.719	9.381	1.500	2.756	
52503061		P3D1938FS150A13	1.9375	5.813	9.475	1.500	2.756	
52503062		P3D1969FS150A14	1.9688	5.906	9.568	1.500	2.756	XCMT14…
52503021		P3D2000FS150A14	2.0000	6.000	9.662	1.500	2.756	
52503022		P3D2125FS150A14	2.1250	6.375	10.037	1.500	2.756	
52503023		P3D2250FS150A16	2.2500	6.750	10.412	1.500	2.756	XCMT16…
52503024		P3D2375FS150A16	2.3750	7.125	10.787	1.500	2.756	
52503025		P3D2500FS150A16	2.5000	7.500	11.162	1.500	2.756	

Packed: 1 pc.

PXT

List 78032

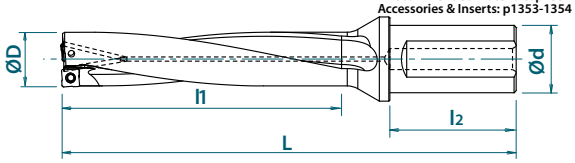
NEW SIZES

SPEED FEED P1355

P3D (Metric)

Recommended Materials: p1357
Accessories & Inserts: p1353-1354





EDP No.	Body Type	Designation	Drill Dia. (mm) D	Drilling Depth (mm) l1	Overall Length (mm) L	Shank Dia. (mm) d	Shank Length (mm) l2	Applicable Insert
7803210	Flat Shank	P3D1200FS20M03	12.0	36	101	20	50	XCMT03…
7803211		P3D1250FS20M03	12.5	37.5	102.5	20	50	
7803212		P3D1270FS20M03	12.7	38.1	103.1	20	50	
7803213		P3D1300FS20M03	13.0	39	104	20	50	
7803214		P3D1350FS20M03	13.5	40.5	105.5	20	50	
7803215		P3D1400FS20M03	14.0	42	107	20	50	
7803216		P3D1450FS20M03	14.5	43.5	108.5	20	50	
7803217		P3D1500FS20M04	15.0	45	110	20	50	XCMT04…
7803218		P3D1550FS20M04	15.5	47	112	20	50	
7803219		P3D1600FS20M04	16.0	48	113	20	50	
7803220		P3D1650FS20M04	16.5	50	115	20	50	
7803221		P3D1700FS20M05	17.0	51	119	20	50	XCMT05…
7803222		P3D1750FS20M05	17.5	53	121	20	50	
7803290		P3D1750FS25M05	17.5	53	127	25	56	
7803223		P3D1800FS25M05	18.0	54	128	25	56	
7803224		P3D1850FS25M05	18.5	56	130	25	56	
7803225		P3D1900FS25M06	19.0	57	131	25	56	XCMT06…
7803226		P3D1950FS25M06	19.5	59	133	25	56	
7803227		P3D2000FS25M06	20.0	60	134	25	56	
7803228		P3D2050FS25M06	20.5	62	136	25	56	
7803229		P3D2100FS25M07	21.0	63	142	25	56	XCMT07…
7803230		P3D2150FS25M07	21.5	65	144	25	56	
7803231		P3D2200FS25M07	22.0	66	145	25	56	
7803232		P3D2250FS25M07	22.5	68	147	25	56	
7803233		P3D2300FS25M07	23.0	69	148	25	56	
7803291		P3D2350FS25M07	23.5	71	150	25	56	
7803234		P3D2350FS32M07	23.5	71	154	32	60	
7803292		P3D2400FS25M07	24.0	72	151	25	56	
7803235		P3D2400FS32M07	24.0	72	155	32	60	
7803293		P3D2450FS25M07	24.5	74	153	25	56	
7803236		P3D2450FS32M07	24.5	74	157	32	60	
7803294		P3D2500FS25M08	25.0	75	154	25	56	XCMT08…
7803237		P3D2500FS32M08	25.0	75	158	32	60	
7803295		P3D2550FS25M08	25.5	77	156	25	56	
7803238		P3D2550FS32M08	25.5	77	160	32	60	
7803239		P3D2600FS32M08	26.0	78	161	32	60	
7803240		P3D2650FS32M08	26.5	80	163	32	60	
7803241		P3D2700FS32M08	27.0	81	164	32	60	
7803300		P3D2750FS32M08	27.5	83	166	32	60	
7803242		P3D2800FS32M08	28.0	84	167	32	60	
7803243		P3D2850FS32M08	28.5	86	169	32	60	

Packed: 1 pc.

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PXT

List 78032 (Continued)

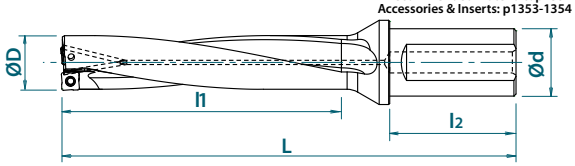
NEW SIZES

SPEED FEED P1355

Recommended Materials: p1357
Accessories & Inserts: p1353-1354

P3D (Metric)





EDP No.	Body Type	Designation	Drill Dia. (mm) D	Drilling Depth (mm) l1	Overall Length (mm) L	Shank Dia. (mm) d	Shank Length (mm) l2	Applicable Insert
7803244	Flat Shank	P3D2900FS32M09	29.0	87	170	32	60	XCMT09…
7803301		P3D2950FS32M09	29.5	89	172	32	60	
7803245		P3D3000FS32M09	30.0	90	173	32	60	
7803302		P3D3050FS32M09	30.5	92	175	32	60	
7803246		P3D3100FS32M09	31.0	93	176	32	60	
7803296		P3D3100FS40M09	31.0	93	186	40	70	
7803303		P3D3150FS32M09	31.5	95	178	32	60	
7803247		P3D3200FS32M09	32.0	96	179	32	60	
7803297		P3D3200FS40M09	32.0	96	189	40	70	
7803304		P3D3250FS40M09	32.5	98	191	40	70	
7803248		P3D3300FS40M09	33.0	99	192	40	70	
7803249		P3D3350FS40M09	33.5	101	194	40	70	
7803250		P3D3400FS40M10	34.0	102	195	40	70	XCMT10…
7803305		P3D3450FS40M10	34.5	104	197	40	70	
7803251		P3D3500FS40M10	35.0	105	198	40	70	
7803306		P3D3550FS40M10	35.5	107	200	40	70	
7803252		P3D3600FS40M10	36.0	108	201	40	70	
7803253		P3D3700FS40M10	37.0	111	204	40	70	
7803307		P3D3750FS40M10	37.5	113	206	40	70	
7803254		P3D3800FS40M10	38.0	114	207	40	70	
7803255		P3D3900FS40M12	39.0	117	217	40	70	XCMT12…
7803256		P3D4000FS40M12	40.0	120	220	40	70	
7803308		P3D4050FS40M12	40.5	122	222	40	70	
7803257		P3D4100FS40M12	41.0	123	223	40	70	
7803258		P3D4200FS40M12	42.0	126	226	40	70	
7803259		P3D4300FS40M12	43.0	129	229	40	70	
7803260		P3D4400FS40M12	44.0	132	232	40	70	
7803261		P3D4500FS40M13	45.0	135	235	40	70	XCMT13…
7803262		P3D4600FS40M13	46.0	138	238	40	70	
7803263		P3D4700FS40M13	47.0	141	241	40	70	
7803264		P3D4800FS40M13	48.0	144	244	40	70	
7803265		P3D4900FS40M13	49.0	147	247	40	70	
7803266		P3D5000FS40M14	50.0	150	250	40	70	XCMT14…
7803309		P3D5050FS40M14	50.5	152	252	40	70	
7803267		P3D5100FS40M14	51.0	153	253	40	70	
7803268		P3D5200FS40M14	52.0	156	256	40	70	
7803269		P3D5300FS40M14	53.0	159	259	40	70	
7803270		P3D5400FS40M14	54.0	162	262	40	70	
7803271		P3D5500FS40M14	55.0	165	265	40	70	
7803272		P3D5600FS40M14	56.0	168	268	40	70	
7803273		P3D5700FS40M16	57.0	171	271	40	70	XCMT16…
7803274		P3D5800FS40M16	58.0	174	274	40	70	
7803275		P3D5900FS40M16	59.0	177	277	40	70	
7803276		P3D6000FS40M16	60.0	180	280	40	70	
7803277		P3D6100FS40M16	61.0	183	283	40	70	
7803278		P3D6200FS40M16	62.0	186	286	40	70	
7803279		P3D6300FS40M16	63.0	189	289	40	70	

Packed: 1 pc.

PXT

List 52504

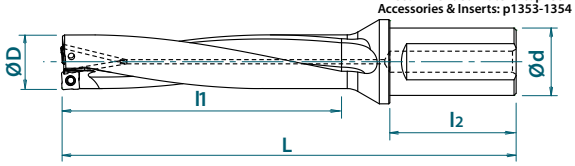
P4D (Inch)

NEW SIZES

SPEED FEED P1356

Recommended Materials: p1357
Accessories & Inserts: p1353-1354





EDP No.	Body Type	Designation	Drill Dia. (inch) D	Drilling Depth (inch) l1	Overall Length (inch) L	Shank Dia. (inch) d	Shank Length (Inch) l2	Applicable Insert
52504063	Flat Shank	P4D0484FS075A03	0.4844	1.938	4.813	0.750	1.969	XCMT03…
52504064		P4D0500FS075A03	0.5000	2.000	4.875	0.750	1.969	
52504065		P4D0516FS075A03	0.5156	2.063	4.938	0.750	1.969	
52504066		P4D0531FS075A03	0.5313	2.125	5.000	0.750	1.969	
52504067		P4D0547FS075A03	0.5469	2.188	5.063	0.750	1.969	
52504068		P4D0563FS075A03	0.5625	2.250	5.125	0.750	1.969	
52504069		P4D0578FS075A03	0.5781	2.313	5.188	0.750	1.969	
52504026		P4D0594FS075A04	0.5938	2.375	5.250	0.750	1.969	XCMT04…
52504027		P4D0609FS075A04	0.6094	2.438	5.313	0.750	1.969	
52504008		P4D0625FS075A04	0.6250	2.500	5.375	0.750	1.969	
52504028		P4D0641FS075A04	0.6406	2.563	5.438	0.750	1.969	
52504009		P4D0656FS075A04	0.6563	2.625	5.500	0.750	1.969	
52504029		P4D0672FS075A05	0.6719	2.688	5.563	0.750	1.969	XCMT05…
52504010		P4D0688FS075A05	0.6875	2.750	5.625	0.750	1.969	
52504030		P4D0703FS075A05	0.7031	2.813	5.688	0.750	1.969	
52504031		P4D0719FS100A05	0.7188	2.875	5.986	1.000	2.205	
52504032		P4D0734FS100A05	0.7344	2.938	6.049	1.000	2.205	
52504011		P4D0750FS100A06	0.7500	3.000	6.111	1.000	2.205	XCMT06…
52504033		P4D0766FS100A06	0.7656	3.063	6.174	1.000	2.205	
52504034		P4D0781FS100A06	0.7813	3.125	6.236	1.000	2.205	
52504035		P4D0797FS100A06	0.7969	3.188	6.299	1.000	2.205	
52504012		P4D0812FS100A06	0.8125	3.250	6.361	1.000	2.205	
52504036		P4D0828FS100A07	0.8281	3.313	6.424	1.000	2.205	XCMT07…
52504037		P4D0844FS100A07	0.8438	3.375	6.486	1.000	2.205	
52504038		P4D0859FS100A07	0.8594	3.438	6.549	1.000	2.205	
52504000		P4D0875FS100A07	0.8750	3.500	6.611	1.000	2.205	
52504039		P4D0891FS100A07	0.8906	3.563	6.674	1.000	2.205	
52504040		P4D0906FS100A07	0.9063	3.625	6.736	1.000	2.205	
52504041		P4D0922FS100A07	0.9219	3.688	6.799	1.000	2.205	
52504001		P4D0937FS125A07	0.9375	3.750	7.018	1.250	2.362	
52504042		P4D0953FS125A07	0.9531	3.813	7.081	1.250	2.362	
52504043		P4D0969FS125A07	0.9688	3.875	7.143	1.250	2.362	
52504044		P4D0984FS125A08	0.9844	3.938	7.206	1.250	2.362	XCMT08…
52504002		P4D1000FS125A08	1.0000	4.000	7.268	1.250	2.362	
52504045		P4D1031FS125A08	1.0313	4.125	7.393	1.250	2.362	
52504003		P4D1062FS125A08	1.0625	4.250	7.518	1.250	2.362	
52504046		P4D1094FS125A08	1.0938	4.375	7.643	1.250	2.362	
52504004		P4D1125FS125A08	1.1250	4.500	7.768	1.250	2.362	
52504047		P4D1156FS125A09	1.1563	4.625	7.893	1.250	2.362	XCMT09…
52504005		P4D1187FS125A09	1.1875	4.750	8.018	1.250	2.362	
52504048		P4D1219FS125A09	1.2188	4.875	8.143	1.250	2.362	
52504006		P4D1250FS125A09	1.2500	5.000	8.268	1.250	2.362	
52504049		P4D1281FS150A09	1.2813	5.125	8.787	1.500	2.756	
52504007		P4D1312FS150A09	1.3125	5.250	8.912	1.500	2.756	

Packed: 1 pc.

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PXT

List 52504 (Continued)

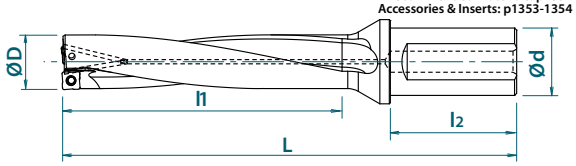
NEW SIZES

SPEED FEED P1356

Recommended Materials: p1357
Accessories & Inserts: p1353-1354

P4D (Inch)





EDP No.	Body Type	Designation	Drill Dia. (inch)	Drilling Depth (inch)	Overall Length (inch)	Shank Dia. (inch)	Shank Length (Inch)	Applicable Insert
			D	l1	L	d	l2	
52504050	Flat Shank	P4D1344FS150A10	1.3438	5.375	9.037	1.500	2.756	XCMT10…
52504013		P4D1375FS150A10	1.3750	5.500	9.162	1.500	2.756	
52504051		P4D1406FS150A10	1.4063	5.625	9.287	1.500	2.756	
52504014		P4D1437FS150A10	1.4375	5.750	9.412	1.500	2.756	
52504052		P4D1469FS150A10	1.4688	5.875	9.537	1.500	2.756	
52504015		P4D1500FS150A10	1.5000	6.000	9.662	1.500	2.756	
52504053		P4D1531FS150A10	1.5313	6.125	9.787	1.500	2.756	
52504016		P4D1563FS150A12	1.5625	6.250	9.912	1.500	2.756	XCMT12…
52504054		P4D1594FS150A12	1.5938	6.375	10.037	1.500	2.756	
52504017		P4D1625FS150A12	1.6250	6.500	10.162	1.500	2.756	
52504055		P4D1656FS150A12	1.6563	6.625	10.287	1.500	2.756	
52504018		P4D1688FS150A12	1.6875	6.750	10.412	1.500	2.756	
52504056		P4D1719FS150A12	1.7188	6.875	10.537	1.500	2.756	
52504019		P4D1750FS150A12	1.7500	7.000	10.662	1.500	2.756	
52504057		P4D1781FS150A13	1.7813	7.125	10.787	1.500	2.756	XCMT13…
52504058		P4D1813FS150A13	1.8125	7.250	10.912	1.500	2.756	
52504059		P4D1844FS150A13	1.8438	7.375	11.037	1.500	2.756	
52504020		P4D1875FS150A13	1.8750	7.500	11.162	1.500	2.756	
52504060		P4D1906FS150A13	1.9063	7.625	11.287	1.500	2.756	
52504061		P4D1938FS150A13	1.9375	7.750	11.412	1.500	2.756	
52504062		P4D1969FS150A14	1.9688	7.875	11.537	1.500	2.756	XCMT14…
52504021		P4D2000FS150A14	2.0000	8.000	11.662	1.500	2.756	
52504022		P4D2125FS150A14	2.1250	8.500	12.162	1.500	2.756	
52504023		P4D2250FS150A16	2.2500	9.000	12.662	1.500	2.756	XCMT16…
52504024		P4D2375FS150A16	2.3750	9.500	13.162	1.500	2.756	
52504025		P4D2500FS150A16	2.5000	10.000	13.662	1.500	2.756	

Packed: 1 pc.

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List 78033

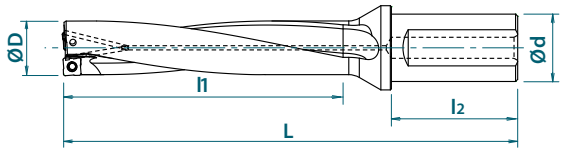
P4D (Metric)

NEW SIZES

SPEED FEED P1356

Recommended Materials: p1357
Accessories & Inserts: p1353-1354





EDP No.	Body Type	Designation	Drill Dia. (mm) D	Drilling Depth (mm) l1	Overall Length (mm) L	Shank Dia. (mm) d	Shank Length (mm) l2	Applicable Insert
7803311	Flat Shank	P4D1200FS20M03	12.0	48	113	20	50	XCMT03…
7803312		P4D1250FS20M03	12.5	50	115	20	50	
7803313		P4D1300FS20M03	13.0	52	117	20	50	
7803314		P4D1350FS20M03	13.5	54	119	20	50	
7803315		P4D1400FS20M03	14.0	56	121	20	50	
7803316		P4D1450FS20M03	14.5	58	123	20	50	
7803317		P4D1500FS20M04	15.0	60	135	20	50	XCMT04…
7803318		P4D1550FS20M04	15.5	62	127	20	50	
7803319		P4D1600FS20M04	16.0	64	129	20	50	
7803320		P4D1650FS20M04	16.5	66	131	20	50	
7803321		P4D1700FS20M05	17.0	68	136	20	50	XCMT05…
7803322		P4D1750FS20M05	17.5	70	138	20	50	
7803390		P4D1750FS25M05	17.5	70	144	25	56	
7803323		P4D1800FS25M05	18.0	72	146	25	56	
7803324		P4D1850FS25M05	18.5	74	148	25	56	
7803325		P4D1900FS25M06	19.0	76	150	25	56	XCMT06…
7803326		P4D1950FS25M06	19.5	78	152	25	56	
7803327		P4D2000FS25M06	20.0	80	154	25	56	
7803328		P4D2050FS25M06	20.5	82	156	25	56	
7803329		P4D2100FS25M07	21.0	84	163	25	56	XCMT07…
7803330		P4D2150FS25M07	21.5	86	165	25	56	
7803331		P4D2200FS25M07	22.0	88	167	25	56	
7803332		P4D2250FS25M07	22.5	90	169	25	56	
7803333		P4D2300FS25M07	23.0	92	171	25	56	
7803391		P4D2350FS25M07	23.5	94	173	25	56	
7803334		P4D2350FS32M07	23.5	94	177	32	60	
7803392		P4D2400FS25M07	24.0	96	175	25	56	
7803335		P4D2400FS32M07	24.0	96	179	32	60	
7803393		P4D2450FS25M07	24.5	98	177	25	56	
7803336		P4D2450FS32M07	24.5	98	181	32	60	
7803394		P4D2500FS25M08	25.0	100	179	25	56	XCMT08…
7803337		P4D2500FS32M08	25.0	100	183	32	60	
7803395		P4D2550FS25M08	25.5	102	181	25	56	
7803338		P4D2550FS32M08	25.5	102	185	32	60	
7803339		P4D2600FS32M08	26.0	104	187	32	60	
7803340		P4D2650FS32M08	26.5	106	189	32	60	
7803341		P4D2700FS32M08	27.0	108	191	32	60	
7803342		P4D2800FS32M08	28.0	112	195	32	60	
7803343		P4D2850FS32M08	28.5	114	197	32	60	
7803344		P4D2900FS32M09	29.0	116	199	32	60	XCMT09…
7803345		P4D3000FS32M09	30.0	120	203	32	60	
7803346		P4D3100FS32M09	31.0	124	207	32	60	
7803396		P4D3100FS40M09	31.0	124	217	40	70	
7803347		P4D3200FS32M09	32.0	128	211	32	60	
7803397		P4D3200FS40M09	32.0	128	221	40	70	
7803348		P4D3300FS40M09	33.0	132	225	40	70	
7803349		P4D3350FS40M09	33.5	134	227	40	70	

Packed: 1 pc.

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PXT

List 78033 (Continued)

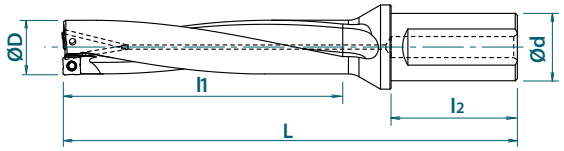
NEW SIZES

SPEED FEED P1356

Recommended Materials: p1357
Accessories & Inserts: p1353-1354

P4D (Metric)





EDP No.	Body Type	Designation	Drill Dia. (mm) D	Drilling Depth (mm) l1	Overall Length (mm) L	Shank Dia. (mm) d	Shank Length (mm) l2	Applicable Insert
7803350	Flat Shank	P4D3400FS40M10	34.0	136	229	40	70	XCMT10…
7803351		P4D3500FS40M10	35.0	140	233	40	70	
7803352		P4D3600FS40M10	36.0	144	237	40	70	
7803353		P4D3700FS40M10	37.0	148	241	40	70	
7803354		P4D3800FS40M10	38.0	152	245	40	70	
7803355		P4D3900FS40M12	39.0	156	256	40	70	XCMT12…
7803356		P4D4000FS40M12	40.0	160	260	40	70	
7803357		P4D4100FS40M12	41.0	164	264	40	70	
7803358		P4D4200FS40M12	42.0	168	268	40	70	
7803359		P4D4300FS40M12	43.0	172	272	40	70	
7803360		P4D4400FS40M12	44.0	176	276	40	70	
7803361		P4D4500FS40M13	45.0	180	280	40	70	XCMT13…
7803362		P4D4600FS40M13	46.0	184	284	40	70	
7803363		P4D4700FS40M13	47.0	188	288	40	70	
7803364		P4D4800FS40M13	48.0	192	292	40	70	
7803365		P4D4900FS40M13	49.0	196	296	40	70	
7803366		P4D5000FS40M14	50.0	200	300	40	70	XCMT14…
7803367		P4D5100FS40M14	51.0	204	304	40	70	
7803368		P4D5200FS40M14	52.0	208	308	40	70	
7803369		P4D5300FS40M14	53.0	212	312	40	70	
7803370		P4D5400FS40M14	54.0	216	316	40	70	
7803371		P4D5500FS40M14	55.0	220	320	40	70	
7803372		P4D5600FS40M14	56.0	224	324	40	70	
7803373		P4D5700FS40M16	57.0	228	328	40	70	XCMT16…
7803374		P4D5800FS40M16	58.0	232	332	40	70	
7803375		P4D5900FS40M16	59.0	236	336	40	70	
7803376		P4D6000FS40M16	60.0	240	340	40	70	
7803377		P4D6100FS40M16	61.0	244	344	40	70	
7803378		P4D6200FS40M16	62.0	248	348	40	70	
7803379		P4D6300FS40M16	63.0	252	352	40	70	

Packed: 1 pc.

PXT

List 52505

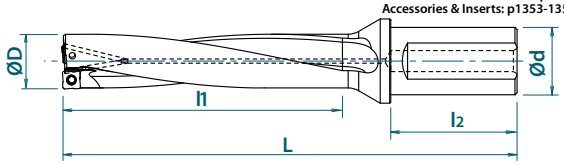
NEW SIZES

SPEED FEED P1357

Recommended Materials: p1357
Accessories & Inserts: p1353-1354

P5D (Inch)





EDP No.	Body Type	Designation	Drill Dia. (inch)	Drilling Depth (inch)	Overall Length (inch)	Shank Dia. (inch)	Shank Length (Inch)	Applicable Insert
			D	l1	L	d	l2	
52505063	Flat Shank	P5D0484FS075A03	0.4844	2.422	5.297	0.750	1.969	XCMT03…
52505064		P5D0500FS075A03	0.5000	2.500	5.375	0.750	1.969	
52505065		P5D0516FS075A03	0.5156	2.578	5.453	0.750	1.969	
52505066		P5D0531FS075A03	0.5313	2.656	5.531	0.750	1.969	
52505067		P5D0547FS075A03	0.5469	2.734	5.609	0.750	1.969	
52505068		P5D0563FS075A03	0.5625	2.813	5.688	0.750	1.969	
52505069		P5D0578FS075A03	0.5781	2.891	5.766	0.750	1.969	
52505026		P5D0594FS075A04	0.5938	2.969	5.844	0.750	1.969	XCMT04…
52505027		P5D0609FS075A04	0.6094	3.047	5.922	0.750	1.969	
52505008		P5D0625FS075A04	0.6250	3.125	6.000	0.750	1.969	
52505028		P5D0641FS075A04	0.6406	3.203	6.078	0.750	1.969	
52505009		P5D0656FS075A04	0.6563	3.281	6.156	0.750	1.969	
52505029		P5D0672FS075A05	0.6719	3.359	6.234	0.750	1.969	XCMT05…
52505010		P5D0688FS075A05	0.6875	3.438	6.312	0.750	1.969	
52505030		P5D0703FS075A05	0.7031	3.516	6.391	0.750	1.969	
52505031		P5D0719FS100A05	0.7188	3.594	6.705	1.000	2.205	
52505032		P5D0734FS100A05	0.7344	3.672	6.783	1.000	2.205	
52505011		P5D0750FS100A06	0.7500	3.750	6.861	1.000	2.205	XCMT06…
52505033		P5D0766FS100A06	0.7656	3.828	6.939	1.000	2.205	
52505034		P5D0781FS100A06	0.7813	3.906	7.017	1.000	2.205	
52505035		P5D0797FS100A06	0.7969	3.984	7.095	1.000	2.205	
52505012		P5D0812FS100A06	0.8125	4.063	7.173	1.000	2.205	
52505036		P5D0828FS100A07	0.8281	4.141	7.252	1.000	2.205	XCMT07…
52505037		P5D0844FS100A07	0.8438	4.219	7.330	1.000	2.205	
52505038		P5D0859FS100A07	0.8594	4.297	7.408	1.000	2.205	
52505000		P5D0875FS100A07	0.8750	4.375	7.485	1.000	2.205	
52505039		P5D0891FS100A07	0.8906	4.453	7.564	1.000	2.205	
52505040		P5D0906FS100A07	0.9063	4.531	7.642	1.000	2.205	
52505041		P5D0922FS100A07	0.9219	4.609	7.720	1.000	2.205	
52505001		P5D0937FS125A07	0.9375	4.688	7.955	1.250	2.362	
52505042		P5D0953FS125A07	0.9531	4.766	8.034	1.250	2.362	
52505043		P5D0969FS125A07	0.9688	4.844	8.112	1.250	2.362	
52505044		P5D0984FS125A08	0.9844	4.922	8.190	1.250	2.362	XCMT08…
52505002		P5D1000FS125A08	1.0000	5.000	8.268	1.250	2.362	
52505045		P5D1031FS125A08	1.0313	5.156	8.424	1.250	2.362	
52505003		P5D1062FS125A08	1.0625	5.313	8.580	1.250	2.362	
52505046		P5D1094FS125A08	1.0938	5.469	8.737	1.250	2.362	
52505004		P5D1125FS125A08	1.1250	5.625	8.893	1.250	2.362	
52505047		P5D1156FS125A09	1.1563	5.781	9.049	1.250	2.362	XCMT09…
52505005		P5D1187FS125A09	1.1875	5.938	9.205	1.250	2.362	
52505048		P5D1219FS125A09	1.2188	6.094	9.362	1.250	2.362	
52505006		P5D1250FS125A09	1.2500	6.250	9.518	1.250	2.362	
52505049		P5D1281FS150A09	1.2813	6.406	10.068	1.500	2.756	
52505007		P5D1312FS150A09	1.3125	6.563	10.224	1.500	2.756	

Packed: 1 pc.

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PXT

List 52505 (Continued)

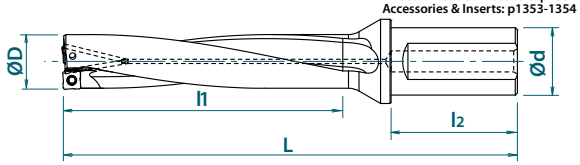
NEW SIZES

SPEED FEED P1357

Recommended Materials: p1357
Accessories & Inserts: p1353-1354

P5D (Inch)





EDP No.	Body Type	Designation	Drill Dia. (inch)	Drilling Depth (inch)	Overall Length (inch)	Shank Dia. (inch)	Shank Length (Inch)	Applicable Insert
			D	l1	L	d	l2	
52505050	Flat Shank	P5D1344FS150A10	1.3438	6.719	10.381	1.500	2.756	XCMT10…
52505013		P5D1375FS150A10	1.3750	6.875	10.537	1.500	2.756	
52505051		P5D1406FS150A10	1.4063	7.031	10.693	1.500	2.756	
52505014		P5D1437FS150A10	1.4375	7.188	10.849	1.500	2.756	
52505052		P5D1469FS150A10	1.4688	7.344	11.006	1.500	2.756	
52505015		P5D1500FS150A10	1.5000	7.500	11.162	1.500	2.756	
52505053		P5D1531FS150A10	1.5313	7.656	11.318	1.500	2.756	
52505016		P5D1563FS150A12	1.5625	7.813	11.474	1.500	2.756	XCMT12…
52505054		P5D1594FS150A12	1.5938	7.969	11.631	1.500	2.756	
52505017		P5D1625FS150A12	1.6250	8.125	11.787	1.500	2.756	
52505055		P5D1656FS150A12	1.6563	8.281	11.943	1.500	2.756	
52505018		P5D1688FS150A12	1.6875	8.438	12.099	1.500	2.756	
52505056		P5D1719FS150A12	1.7188	8.594	12.256	1.500	2.756	
52505019		P5D1750FS150A12	1.7500	8.750	12.412	1.500	2.756	
52505057		P5D1781FS150A13	1.7813	8.906	12.568	1.500	2.756	XCMT13…
52505058		P5D1813FS150A13	1.8125	9.063	12.725	1.500	2.756	
52505059		P5D1844FS150A13	1.8438	9.219	12.881	1.500	2.756	
52505020		P5D1875FS150A13	1.8750	9.375	13.037	1.500	2.756	
52505060		P5D1906FS150A13	1.9063	9.531	13.193	1.500	2.756	
52505061		P5D1938FS150A13	1.9375	9.688	13.350	1.500	2.756	
52505062		P5D1969FS150A14	1.9688	9.844	13.506	1.500	2.756	XCMT14…
52505021		P5D2000FS150A14	2.0000	10.000	13.662	1.500	2.756	
52505022		P5D2125FS150A14	2.1250	10.625	14.287	1.500	2.756	
52505023		P5D2250FS150A16	2.2500	11.250	14.912	1.500	2.756	XCMT16…
52505024		P5D2375FS150A16	2.3750	11.875	15.537	1.500	2.756	
52505025		P5D2500FS150A16	2.5000	12.500	16.162	1.500	2.756	

Packed: 1 pc.

PXT

List 78027

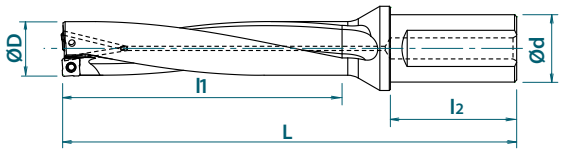
P5D (Metric)

NEW SIZES

SPEED FEED P1357

Recommended Materials: p1357
Accessories & Inserts: p1353-1354





EDP No.	Body Type	Designation	Drill Dia. (mm) D	Drilling Depth (mm) l1	Overall Length (mm) L	Shank Dia. (mm) d	Shank Length (mm) l2	Applicable Insert
7802780	Flat Shank	P5D1200FS20M03	12.0	60	125	20	50	XCMT03…
7802781		P5D1250FS20M03	12.5	62.5	127.5	20	50	
7802782		P5D1300FS20M03	13.0	65	130	20	50	
7802783		P5D1350FS20M03	13.5	67.5	132.5	20	50	
7802784		P5D1400FS20M03	14.0	70	135	20	50	
7802785		P5D1450FS20M03	14.5	72.5	137.5	20	50	
7802717		P5D1500FS20M04	15.0	75	140	20	50	XCMT04…
7802718		P5D1550FS20M04	15.5	78	143	20	50	
7802719		P5D1600FS20M04	16.0	80	145	20	50	
7802720		P5D1650FS20M04	16.5	83	148	20	50	
7802721		P5D1700FS20M05	17.0	85	153	20	50	XCMT05…
7802722		P5D1750FS20M05	17.5	88	156	20	50	
7802790		P5D1750FS25M05	17.5	88	162	25	56	
7802723		P5D1800FS25M05	18.0	90	164	25	56	
7802724		P5D1850FS25M05	18.5	93	167	25	56	
7802725		P5D1900FS25M06	19.0	95	169	25	56	XCMT06…
7802726		P5D1950FS25M06	19.5	98	172	25	56	
7802727		P5D2000FS25M06	20.0	100	174	25	56	
7802728		P5D2050FS25M06	20.5	103	177	25	56	
7802729		P5D2100FS25M07	21.0	105	184	25	56	XCMT07…
7802730		P5D2150FS25M07	21.5	108	187	25	56	
7802731		P5D2200FS25M07	22.0	110	189	25	56	
7802732		P5D2250FS25M07	22.5	113	192	25	56	
7802733		P5D2300FS25M07	23.0	115	194	25	56	
7802791		P5D2350FS25M07	23.5	118	197	25	56	
7802734		P5D2350FS32M07	23.5	118	201	32	60	
7802792		P5D2400FS25M07	24.0	120	199	25	56	
7802735		P5D2400FS32M07	24.0	120	203	32	60	
7802793		P5D2450FS25M07	24.5	123	202	25	56	
7802736		P5D2450FS32M07	24.5	123	206	32	60	
7802794		P5D2500FS25M08	25.0	125	204	25	56	XCMT08…
7802737		P5D2500FS32M08	25.0	125	208	32	60	
7802795		P5D2550FS25M08	25.5	128	207	25	56	
7802738		P5D2550FS32M08	25.5	128	211	32	60	
7802739		P5D2600FS32M08	26.0	130	213	32	60	
7802740		P5D2650FS32M08	26.5	133	216	32	60	
7802741		P5D2700FS32M08	27.0	135	218	32	60	
7802742		P5D2800FS32M08	28.0	140	223	32	60	
7802743		P5D2850FS32M08	28.5	143	226	32	60	
7802744		P5D2900FS32M09	29.0	145	228	32	60	XCMT09…
7802745		P5D3000FS32M09	30.0	150	233	32	60	
7802746		P5D3100FS32M09	31.0	155	238	32	60	
7802796		P5D3100FS40M09	31.0	155	248	40	70	
7802747		P5D3200FS32M09	32.0	160	243	32	60	
7802797		P5D3200FS40M09	32.0	160	253	40	70	
7802748		P5D3300FS40M09	33.0	165	258	40	70	
7802749		P5D3350FS40M09	33.5	168	261	40	70	

Packed: 1 pc.

continued on next page

PXT

List 78027 (Continued)

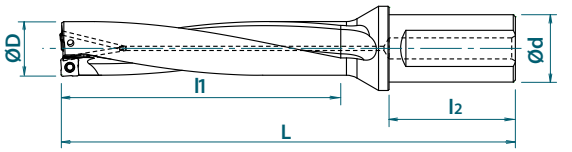
NEW SIZES

SPEED FEED P1357

Recommended Materials: p1357
Accessories & Inserts: p1353-1354

P5D (Metric)





EDP No.	Body Type	Designation	Drill Dia. (mm) D	Drilling Depth (mm) l1	Overall Length (mm) L	Shank Dia. (mm) d	Shank Length (mm) l2	Applicable Insert
7802750	Flat Shank	P5D3400FS40M10	34.0	170	263	40	70	XCMT10…
7802751		P5D3500FS40M10	35.0	175	268	40	70	
7802752		P5D3600FS40M10	36.0	180	273	40	70	
7802753		P5D3700FS40M10	37.0	185	278	40	70	
7802754		P5D3800FS40M10	38.0	190	283	40	70	
7802755		P5D3900FS40M12	39.0	195	295	40	70	XCMT12…
7802756		P5D4000FS40M12	40.0	200	300	40	70	
7802757		P5D4100FS40M12	41.0	205	305	40	70	
7802758		P5D4200FS40M12	42.0	210	310	40	70	
7802759		P5D4300FS40M12	43.0	215	315	40	70	
7802760		P5D4400FS40M12	44.0	220	320	40	70	
7802761		P5D4500FS40M13	45.0	225	325	40	70	XCMT13…
7802762		P5D4600FS40M13	46.0	230	330	40	70	
7802763		P5D4700FS40M13	47.0	235	335	40	70	
7802764		P5D4800FS40M13	48.0	240	340	40	70	
7802765		P5D4900FS40M13	49.0	245	345	40	70	
7802766		P5D5000FS40M14	50.0	250	350	40	70	XCMT14…
7802767		P5D5100FS40M14	51.0	255	355	40	70	
7802768		P5D5200FS40M14	52.0	260	360	40	70	
7802769		P5D5300FS40M14	53.0	265	365	40	70	
7802770		P5D5400FS40M14	54.0	270	370	40	70	
7802771		P5D5500FS40M14	55.0	275	375	40	70	
7802772		P5D5600FS40M14	56.0	280	380	40	70	
7802773		P5D5700FS40M16	57.0	285	385	40	70	XCMT16…
7802774		P5D5800FS40M16	58.0	290	390	40	70	
7802775		P5D5900FS40M16	59.0	295	395	40	70	
7802776		P5D6000FS40M16	60.0	300	400	40	70	
7802777		P5D6100FS40M16	61.0	305	405	40	70	
7802778		P5D6200FS40M16	62.0	310	410	40	70	
7802779		P5D6300FS40M16	63.0	315	415	40	70	

Packed: 1 pc.

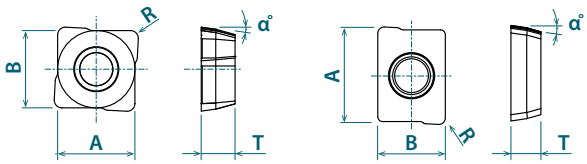
PXT

List 78P5D

NEW SIZES

PD Inserts





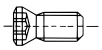
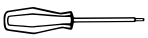
Designation	No. of Cutting Edges	Insert Size				EDP Number			
		A x B (mm)	T (mm)	α	R (mm)	XP9020	XC9015	XP1010	CK110
XCMT031904ER-DM	2	6.1 x 4.5	1.9	8°	0.4	7823098	7829098	-	-
XCMT031904ER-DR						-	-	7823163	-
XCMT031904ER-DN						-	-	-	7823263
XCMT042204ER-DM	4	5 x 5	2.2			7823064	7829064	-	-
XCMT042204ER-DR						-	-	7823164	-
XCMT042204ER-DN						-	-	-	7823264
XCMT052404ER-DM		5.83 x 5.83	2.4			7823065	7829065	-	-
XCMT052404ER-DR						-	-	7823165	-
XCMT052404ER-DN						-	-	-	7823265
XCMT062706ER-DM		6.46 x 6.46	2.7		0.6	7823066	7829066	-	-
XCMT062706ER-DR						-	-	7823166	-
XCMT062706ER-DN						-	-	-	7823266
XCMT073106ER-DM		7.42 x 7.42	3.1			7823067	7829067	-	-
XCMT073106ER-DR						-	-	7823167	-
XCMT073106ER-DN						-	-	-	7823267
XCMT083508ER-DM		8.71 x 8.71	3.5		0.8	7823068	7829068	-	-
XCMT083508ER-DR						-	-	7823168	-
XCMT083508ER-DN						-	-	-	7823268
XCMT094008ER-DM		10.04 x 10.04	4.0			7823069	7829069	-	-
XCMT094008ER-DR						-	-	7823169	-
XCMT094008ER-DN						-	-	-	7823269
XCMT104608ER-DM		10.89 x 10.89	4.6			7823097	7829097	-	-
XCMT104608ER-DR						-	-	7823197	-
XCMT104608ER-DN						-	-	-	7823297
XCMT125010ER-DM		12.57 x 12.57	5.0		1.0	7823071	7829071	-	-
XCMT125010ER-DR						-	-	7823171	-
XCMT125010ER-DN						-	-	-	7823271
XCMT135212ER-DM		14.05 x 14.05	5.2		1.2	7823072	7829072	-	-
XCMT135212ER-DR						-	-	7823172	-
XCMT135212ER-DN						-	-	-	7823272
XCMT145612ER-DM		15.58 x 15.58	5.6			7823073	7829073	-	-
XCMT145612ER-DR						-	-	7823173	-
XCMT145612ER-DN						-	-	-	7823273
XCMT165912ER-DM		17.28 x 17.28	5.8			7823075	7829075	-	-
XCMT165912ER-DR						-	-	7823175	-
XCMT165912ER-DN						-	-	-	7823275

Packed: 10 pcs.
Note: Grade XC9015 recommended for peripheral cutting edge only.

PXI

List 7808H

PD Accessories

Appearance	EDP Number	Designation	Applicable Insert	Recommended Tightening Torque
 Clamping Screw	7808096	FS18536P (M1.8 x 3.6, Torx 6IP)	XCMT03…	0.7 Nm
	7808139	FS20543P (M2 x 4.3, Torx 6IP)	XCMT04…	0.7 Nm
			XCMT05…	
	7808138	FS22550P (M2.2 x 5, Torx 7IP)	XCMT06…	1.0 Nm
	7808136	FS25560P (M2.5 x 6, Torx 8IP)	XCMT07…	1.6 Nm
	7808135	FS30570P (M3 x 7, Torx 9IP)	XCMT08…	2.2 Nm
			XCMT09…	
	7808137	FS35586P (M3.5 x 8.6, Torx 15IP)	XCMT10…	3.2 Nm
			XCMT12…	
	7808114	FS45510P (M4.5 x 10.5, Torx 20IP)	XCMT13…	5.0 Nm
			XCMT14…	
			XCMT16…	
 Wrench	7808223	6IP-D (Torx 6IP)	XCMT03…	
			XCMT05…	
	7808224	7IP-D (Torx 7IP)	XCMT06…	
	7808225	8IP-D (Torx 8IP)	XCMT07…	
	7808226	9IP-D (Torx 9IP)	XCMT08…	
			XCMT09…	
	7808228	15IP-D (Torx 15IP)	XCMT10…	
			XCMT12…	
	7808229	20IP-D (Torx 20IP)	XCMT13…	
			XCMT14…	
			XCMT16…	

Packed: Clamping Screws = 10 pcs.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions (2D & 3D)

Work Material		Tensile Strength – Hardness	Drilling Speed Vc (SFM)	Feed Rate, f (in/rev)							
				Drilling Depth 2D, 3D							
				Ø0.472-0.571 (12-14.5mm)	Ø0.591-0.650 (15-16.5mm)	Ø0.669-0.728 (17-18.5mm)	Ø0.748-0.807 (19-20.5mm)	Ø0.827-0.965 (21-24.5mm)	Ø0.984-1.122 (25-28.5mm)	Ø1.142-1.319 (29-33.5mm)	Ø1.339-2.500 (34-63mm)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	650 (500 - 800)	.0024 (.0015 - .003)	.0024 (.0015 - .004)	.0024 (.0015 - .004)	.0027 (.0015 - .004)	.003 (.0015 - .0047)	.003 (.0015 - .0047)	.004 (.002 - .006)	.004 (.002 - .007)
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	500 (330 - 720)	.003 (.0015 - .0047)	.003 (.0015 - .0055)	.0035 (.0015 - .0063)	.004 (.0015 - .007)	.0055 (.0015 - .008)	.007 (.0024 - .010)	.008 (.003 - .012)	.008 (.003 - .014)
	Die Steels (H13, D2)	~280 HB	330 (260 - 500)	.0024 (.0015 - .004)	.0024 (.0015 - .004)	.0027 (.0015 - .004)	.003 (.0015 - .0047)	.0047 (.0015 - .006)	.0055 (.0024 - .008)	.007 (.003 - .010)	.007 (.003 - .010)
M	Stainless Steels (304, 420)	~250 HB	430 (260 - 600)	.0027 (.0015 - .004)	.0027 (.0015 - .004)	.003 (.0015 - .004)	.0035 (.0015 - .0047)	.004 (.0015 - .006)	.005 (.0024 - .008)	.006 (.003 - .010)	.006 (.003 - .010)
K	Cast Iron (No. 35 B)	~350 N/mm²	650 (500 - 920)	.003 (.0015 - .0055)	.003 (.0015 - .0055)	.004 (.0015 - .0063)	.0047 (.0015 - .008)	.0063 (.003 - .010)	.008 (.0024 - .012)	.008 (.003 - .012)	.008 (.003 - .014)
	Ductile Cast Iron (60-40-18)	~800 N/mm²	530 (330 - 720)	.003 (.0015 - .004)	.003 (.0015 - .0047)	.0035 (.0015 - .0055)	.004 (.0015 - .007)	.0055 (.0015 - .008)	.007 (.0024 - .010)	.007 (.003 - .010)	.007 (.003 - .010)
N	Aluminum Alloys (6061, 7075)	~13% Si	650 (330 - 2600)	.003 (.0015 - .0047)	.003 (.0015 - .0047)	.004 (.0015 - .0063)	.0047 (.0015 - .008)	.0063 (.0015 - .010)	.008 (.0024 - .012)	.008 (.003 - .012)	.008 (.003 - .012)
S	Heat Resistant Alloys (Inconel 718)	-	100 (50 - 160)	.0015 (.0008 - .0024)	.0015 (.0008 - .0024)	.002 (.0012 - .0024)	.002 (.0012 - .0024)	.0024 (.0015 - .003)	.003 (.0024 - .004)	.004 (.0024 - .0047)	.004 (.0024 - .0047)
	Titanium Alloy (Ti-6Al-4V)	-	200 (100 - 330)	.002 (.0015 - .003)	.002 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.003 (.0015 - .006)	.004 (.0024 - .008)	.0055 (.003 - .008)	.0055 (.003 - .008)
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HrC	330 (200 - 400)	.0024 (.0015 - .004)	.0024 (.0015 - .004)	.0024 (.0015 - .0047)	.0027 (.0015 - .0047)	.003 (.0015 - .0047)	.004 (.0024 - .006)	.004 (.0024 - .006)	.004 (.0024 - .006)
	Die Cast Steels (A2, S7)	43 - 48 HrC	260 (165 - 330)	.002 (.0015 - .003)	.002 (.0015 - .003)	.002 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.003 (.0015 - .004)	.003 (.0015 - .004)	.003 (.0015 - .004)
	Hardened Steels (D2)	50 - 55 HrC	200 (130 - 260)	.002 (.0015 - .003)	.002 (.0015 - .003)	.002 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.003 (.0015 - .004)	.003 (.0015 - .004)	.003 (.0015 - .004)

Cutting Conditions (4D)

Work Material		Tensile Strength – Hardness	Drilling Speed Vc (SFM)	Feed Rate, f (in/rev) Drilling Depth 4D							
				Ø0.472-0.571 (12-14.5mm)	Ø0.591-0.650 (15-16.5mm)	Ø0.669-0.728 (17-18.5mm)	Ø0.748-0.807 (19-20.5mm)	Ø0.827-0.965 (21-24.5mm)	Ø0.984-1.122 (25-28.5mm)	Ø1.142-1.319 (29-33.5mm)	Ø1.339-2.500 (34-63mm)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	650 (500 - 800)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.0027 (.0015 - .004)	.003 (.0015 - .0047)	.003 (.0015 - .0047)	.004 (.002 - .006)	.004 (.002 - .007)
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	500 (330 - 720)	.0027 (.0015 - .004)	.003 (.0015 - .0055)	.003 (.0015 - .0063)	.0035 (.0015 - .007)	.0047 (.0015 - .006)	0.007 (.0024 - .010)	.008 (.003 - .010)	.008 (.003 - .012)
	Die Steels (H13, D2)	~280 HB	330 (260 - 500)	.0024 (.0015 - .003)	.0024 (.0015 - .004)	.0027 (.0015 - .004)	.003 (.0015 - .0047)	.004 (.0015 - .0051)	.0055 (.0024 - .008)	.007 (.003 - .010)	.007 (.003 - .010)
M	Stainless Steels (304, 420)	~250 HB	430 (260 - 600)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.0027 (.0015 - .004)	.003 (.0015 - .004)	.003 (.0015 - .004)	.0051 (.0024 - .008)	.0063 (.003 - .008)	.0063 (.003 - .008)
K	Cast Iron (No. 35 B)	~350 N/mm²	650 (500 - 920)	.003 (.0015 - .0047)	.003 (.0015 - .0055)	.0035 (.0015 - .0063)	.004 (.0015 - .008)	.0047 (.0015 - .006)	.008 (.0024 - .012)	.008 (.003 - .012)	.008 (.003 - .012)
	Ductile Cast Iron (60-40-18)	~800 N/mm²	530 (330 - 720)	.003 (.0015 - .003)	.003 (.0015 - .004)	.003 (.0015 - .0047)	.0035 (.0015 - .006)	.0047 (.0015 - .006)	.006 (.0024 - .010)	.007 (.003 - .010)	.007 (.003 - .010)
N	Aluminum Alloys (6061, 7075)	~13% Si	650 (330 - 2600)	.0027 (.0015 - .0047)	.0027 (.0015 - .0047)	.0035 (.0015 - .0047)	.0047 (.0015 - .008)	.0055 (.0015 - .008)	.008 (.0024 - .012)	.008 (.003 - .012)	.008 (.003 - .012)
S	Heat Resistant Alloys (Inconel 718)	-	100 (50 - 160)	.0015 (.0008 - .0024)	.0015 (.0008 - .0024)	.0015 (.0008 - .0024)	.0015 (.0008 - .0024)	.002 (.0015 - .003)	.0027 (.0024 - .004)	.003 (.0024 - .0047)	.003 (.0024 - .0047)
	Titanium Alloy (Ti-6Al-4V)	-	200 (100 - 330)	.002 (.0015 - .003)	.002 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.003 (.0015 - .004)	.004 (.0024 - .008)	.0055 (.003 - .008)	.0055 (.003 - .008)
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HrC	330 (200 - 400)	.0024 (.0015 - .004)	.0024 (.0015 - .004)	.0024 (.0015 - .004)	.0024 (.0015 - .004)	.003 (.0015 - .0047)	.003 (.0024 - .0047)	.004 (.0024 - .0051)	.004 (.0024 - .0051)
	Die Cast Steels (A2, S7)	43 - 48 HrC	260 (165 - 330)	.002 (.0015 - .003)	.002 (.0015 - .003)	.002 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.003 (.0015 - .004)	.003 (.0015 - .004)	.003 (.0015 - .004)
	Hardened Steels (D2)	50 - 55 HrC	200 (130 - 260)	.002 (.0015 - .003)	.002 (.0015 - .003)	.002 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.003 (.0015 - .004)	.003 (.0015 - .004)	.003 (.0015 - .004)

Cutting Conditions (5D)

Work Material		Tensile Strength – Hardness	Drilling Speed Vc (SFM)	Feed Rate, f (in/rev)							
				Drilling Depth 5D							
				Ø0.472-0.571 (12-14.5mm)	Ø0.591-0.650 (15-16.5mm)	Ø0.669-0.728 (17-18.5mm)	Ø0.748-0.807 (19-20.5mm)	Ø0.827-0.965 (21-24.5mm)	Ø0.984-1.122 (25-28.5mm)	Ø1.142-1.319 (29-33.5mm)	Ø1.339-2.500 (34-63mm)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	650 (500 - 800)	.002 (.0015 - .003)	.002 (.0015 - .003)	.0024 (.0015 - .003)	.0027 (.0015 - .004)	.003 (.0015 - .0047)	.003 (.0015 - .0047)	.004 (.002 - .006)	.004 (.002 - .007)
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	500 (330 - 720)	.0024 (.0015 - .0035)	.0024 (.0015 - .0035)	.003 (.0015 - .0047)	.003 (.0015 - .0055)	.0047 (.0015 - .006)	.006 (.0024 - .008)	.007 (.003 - .008)	.007 (.003 - .010)
	Die Steels (H13, D2)	~280 HB	330 (260 - 500)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.0027 (.0015 - .004)	.004 (.0015 - .0051)	.0047 (.0024 - .006)	.006 (.003 - .007)	.0063 (.003 - .0087)
M	Stainless Steels (304, 420)	~250 HB	430 (260 - 600)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.0027 (.0015 - .0035)	.003 (.0015 - .004)	.004 (.0024 - .006)	.0047 (.0024 - .007)	.0047 (.0024 - .008)
K	Cast Iron (No. 35 B)	~350 N/mm²	650 (500 - 920)	.0024 (.0015 - .004)	.0024 (.0015 - .004)	.003 (.0015 - .0047)	.003 (.0015 - .0051)	.0047 (.0015 - .006)	.006 (.0024 - .008)	.007 (.003 - .008)	.007 (.003 - .010)
	Ductile Cast Iron (60-40-18)	~800 N/mm²	530 (330 - 720)	.0024 (.0015 - .0035)	.0024 (.0015 - .0035)	.003 (.0015 - .0047)	.003 (.0015 - .0047)	.004 (.0015 - .0051)	.0047 (.0024 - .006)	.006 (.003 - .007)	.007 (.003 - .010)
N	Aluminum Alloys (6061, 7075)	~13% Si	650 (330 - 2600)	.0024 (.0015 - .004)	.0024 (.0015 - .004)	.0035 (.0015 - .0047)	.004 (.0015 - .006)	.0047 (.0015 - .006)	.006 (.0024 - .010)	.008 (.003 - .012)	.008 (.003 - .012)
S	Heat Resistant Alloys (Inconel 718)	-	100 (50 - 160)	.0015 (.0008 - .0024)	.0015 (.0008 - .0024)	.0015 (.0008 - .0024)	.0015 (.0008 - .0024)	.0015 (.0008 - .0024)	.0027 (.0024 - .003)	.0027 (.0024 - .003)	.0027 (.0024 - .003)
	Titanium Alloy (Ti-6Al-4V)	-	200 (100 - 330)	.002 (.0015 - .003)	.002 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .004)	.004 (.0024 - .006)	.004 (.003 - .006)	.004 (.003 - .006)
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HrC	330 (200 - 400)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.0024 (.0015 - .003)	.003 (.0015 - .004)	.003 (.0024 - .0047)	.004 (.0024 - .0047)	.004 (.0024 - .0047)
	Die Cast Steels (A2, S7)	43 - 48 HrC	260 (165 - 330)	.002 (.0015 - .0027)	.002 (.0015 - .0027)	.002 (.0015 - .0027)	.0024 (.0015 - .0027)	.0024 (.0015 - .003)	.0027 (.0015 - .004)	.003 (.0015 - .004)	.003 (.0015 - .004)
	Hardened Steels (D2)	50 - 55 HrC	200 (130 - 260)	.002 (.0015 - .0027)	.002 (.0015 - .0027)	.002 (.0015 - .0027)	.0024 (.0015 - .0027)	.0024 (.0015 - .003)	.0027 (.0015 - .004)	.003 (.0015 - .004)	.003 (.0015 - .004)

Recommended Materials by Application

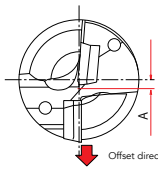
Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
XP9020	DM	Yes	◉	◉	○	○	○	○
XC9015	DM	Yes	◉		◉			
XP1010	DR	Yes	○		◉			
CK110	DN	Yes				◉		

DM: Steel & Stainless Steel DR: Cast Iron DN: Non-Ferrous

○ good ◉ best

Maximum Offset for Drilling on Lathe

Drill Diameter (Inch)	Maximum Offset (Inch)	Max Diameter (Inch)
0.4844	0.0157	0.5158
0.5000	0.0118	0.5236
0.5156	0.0078	0.5312
0.5313	0.0078	0.5469
0.5469	0.0078	0.5625
0.5625	0.0039	0.5703
0.5781	0.0039	0.5859
0.5938	0.0157	0.6252
0.6094	0.0118	0.6330
0.6250	0.0078	0.6406
0.6406	0.0078	0.6562
0.6563	0.0078	0.6719
0.6719	0.0196	0.7111
0.6875	0.0157	0.7189
0.7031	0.0157	0.7345
0.7188	0.0157	0.7502
0.7344	0.0118	0.7580
0.7500	0.0196	0.7892
0.7656	0.0157	0.7970
0.7813	0.0157	0.8127
0.7969	0.0118	0.8205
0.8125	0.0118	0.8361
0.8281	0.0269	0.8819
0.8438	0.0230	0.8898
0.8594	0.0210	0.9014
0.8750	0.0200	0.9150
0.8906	0.0190	0.9286
0.9063	0.0173	0.9409
0.9219	0.0133	0.9485
0.9375	0.0124	0.9623
0.9531	0.0078	0.9687
0.9688	0.0039	0.9766
0.9844	0.0287	1.0418
1.0000	0.0248	1.0496
1.0313	0.0220	1.0753
1.0625	0.0173	1.0971
1.0938	0.0141	1.1220
1.1250	0.0039	1.1328
1.1563	0.0295	1.2153
1.1875	0.0277	1.2429
1.2188	0.0218	1.2624
1.2500	0.0188	1.2876
1.2813	0.0169	1.3151
1.3125	0.0078	1.3281
1.3438	0.0393	1.4224
1.3750	0.0315	1.4380
1.4063	0.0236	1.4535
1.4375	0.0275	1.4925
1.4688	0.0196	1.5080
1.5000	0.0118	1.5236
1.5313	0.0039	1.5391
1.5625	0.0315	1.6255
1.5938	0.0275	1.6488
1.6250	0.0275	1.6800
1.6563	0.0236	1.7035
1.6875	0.0157	1.7189
1.7188	0.0118	1.7424
1.7500	0.0078	1.7656
1.7813	0.0314	1.8441
1.8125	0.0275	1.8675
1.8438	0.0196	1.8830
1.8750	0.0196	1.9142
1.9063	0.0157	1.9377
1.9375	0.0078	1.9531
1.9688	0.0433	2.0554
2.0000	0.0354	2.0708
2.1250	0.0157	2.1564
2.2500	0.0433	2.3366
2.3750	0.0275	2.4300
2.5000	0	2.5000



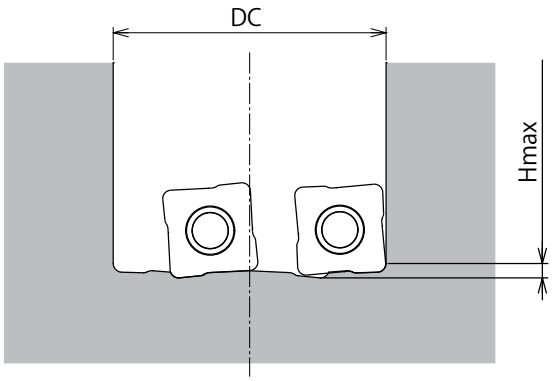
Maximum Offset Amount, A, for Drilling on a lathe.

Drill Diameter (mm)	Maximum Offset (mm)	Max Diameter (mm)
12.0	0.4	12.8
12.5	0.4	13.3
12.7	0.3	13.3
13.0	0.3	13.6
13.5	0.2	13.9
14.0	0.2	14.4
14.5	0.1	14.7
15.0	0.4	15.8
15.5	0.3	16.1
16.0	0.3	16.6
16.5	0.3	17.1
17.0	0.6	18.2
17.5	0.5	18.5
18.0	0.5	19.0
18.5	0.4	19.3
19.0	0.6	20.2
19.5	0.5	20.5
20.0	0.4	20.8
20.5	0.4	21.3
21.0	0.6	22.2
21.5	0.6	22.7
22.0	0.5	23.0
22.5	0.5	23.5
23.0	0.4	23.8
23.5	0.3	24.1
24.0	0.3	24.6
24.5	0.2	24.9
25.0	0.7	26.4
25.5	0.6	26.7
26.0	0.5	27.0
26.5	0.5	27.5
27.0	0.4	27.8
27.5	0.4	28.3
28.0	0.3	28.6
28.5	0.2	28.9
29.0	0.8	30.6
29.5	0.8	31.1
30.0	0.7	31.4
30.5	0.7	31.9
31.0	0.6	32.2
31.5	0.5	32.5
32.0	0.5	33.0
32.5	0.4	33.3
33.0	0.4	33.8
33.5	0.2	33.9
34.0	1.1	36.2
34.5	0.9	36.3
35.0	0.8	36.6
35.5	0.7	36.9
36.0	0.8	37.6
37.0	0.6	38.2
37.5	0.4	38.3
38.0	0.3	38.6
39.0	1.0	41.0
40.0	0.9	41.8
40.5	0.8	42.1
41.0	0.8	42.6
42.0	0.6	43.2
43.0	0.5	44.0
44.0	0.3	44.6
45.0	0.9	46.8
46.0	0.8	47.6
47.0	0.7	48.4
48.0	0.5	49.0
49.0	0.3	49.6
50.0	1.1	52.2
50.5	1.0	52.5
51.0	1.0	53.0
52.0	0.8	53.6
53.0	0.7	54.4
54.0	0.6	55.2
55.0	0.4	55.8
56.0	0.1	56.2
57.0	1.1	59.2
58.0	1.0	60.0
59.0	0.9	60.8
60.0	0.8	61.6
61.0	0.6	62.2
62.0	0.4	62.8
63.0	0.2	63.4

Reference Value of PD Hmax

Drill Diameter (Inch)	Hmax (Inch)
0.472 - 0.571	0.024
0.591 - 0.650	0.031
0.669 - 0.728	0.035
0.748 - 0.807	0.043
0.827 - 0.965	0.047
0.984 - 1.122	0.059
1.142 - 1.319	0.063
1.339 - 2.500	0.067
1.535 - 1.732	0.079
1.772 - 1.929	0.091
1.968 - 2.205	0.098
2.244 - 2.500	0.102

Drill Diameter (mm)	Hmax (mm)
12 - 14.5	0.6
15 - 16.5	0.8
17 - 18.5	0.9
19 - 20.5	1.1
21 - 24.5	1.2
22 - 28.5	1.5
29 - 33.5	1.6
34 - 38	1.7
39 - 44	2
45 - 49	2.3
50 - 56	2.5
57 - 63	2.6



PD Hole Diameter Tolerance

Diameter (Inch)	P2D (Inch)	P3D (Inch)	P4D (Inch)	P5D (Inch)
0.4724 - 0.8071	+0.0098 / -0	+0.0098 / -0	+0.0118 / -0	+0.0118 / -0
0.8268 - 1.9291	+0.0118 / -0	+0.0118 / -0	+0.0157 / -0	+0.0157 / -0
1.9685 - 2.5000	+0.0138 / -0	+0.0138 / -0	+0.0197 / -0	+0.0197 / -0

The above values are general values and may differ based on actual machining conditons.

Diameter (mm)	P2D (mm)	P3D (mm)	P4D (mm)	P5D (mm)
12 - 20.5	+0.25 / -0	+0.25 / -0	+0.30 / -0	+0.30 / -0
21 - 49	+0.30 / -0	+0.30 / -0	+0.40 / -0	+0.40 / -0
50 - 63	+0.35 / -0	+0.35 / -0	+0.50 / -0	+0.50 / -0

The above values are general values and may differ based on actual machining conditons.

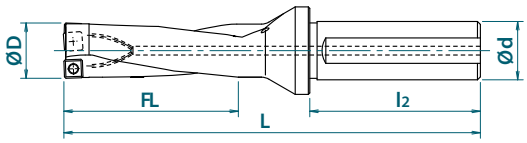
List 78001

PHP (Metric)

SPEED FEED P1363

Recommended Materials: p1363
Accessories & Inserts: p1362





EDP No.	Body Type	Designation	Drill Dia. (mm)	Flute Length (mm)	Overall Length (mm)	Shank Dia. (mm)	Shank Length (mm)	Applicable Insert
			D	FL	L	d	l2	
7800100	Flat Shank	PHP140FS20M04-3D	14.0	42	116	20	50	SCMT04…
7800101		PHP145FS20M04-3D	14.5	45	119	20	50	
7800102		PHP150FS20M04-3D	15.0	45	119	20	50	
7800103		PHP155FS20M04-3D	15.5	48	122	20	50	
7800104		PHP160FS20M04-3D	16.0	48	122	20	50	
7800105		PHP165FS20M05-3D	16.5	51	125	20	50	SCMT05…
7800106		PHP170FS20M05-3D	17.0	51	125	20	50	
7800107		PHP175FS25M05-3D	17.5	54	134	25	56	
7800108		PHP180FS25M05-3D	18.0	54	134	25	56	
7800109		PHP185FS25M06-3D	18.5	57	137	25	56	SCMT06…
7800110		PHP190FS25M06-3D	19.0	57	137	25	56	
7800111		PHP195FS25M06-3D	19.5	60	140	25	56	
7800112		PHP200FS25M06-3D	20.0	60	140	25	56	
7800113		PHP205FS25M06-3D	20.5	63	143	25	56	
7800114		PHP210FS25M06-3D	21.0	63	143	25	56	
7800115		PHP215FS25M07-3D	21.5	66	146	25	56	SCMT07…
7800116		PHP220FS25M07-3D	22.0	66	146	25	56	
7800117		PHP225FS25M07-3D	22.5	69	149	25	56	
7800118		PHP230FS25M07-3D	23.0	69	149	25	56	
7800119		PHP235FS32M07-3D	23.5	72	156	32	60	
7800120		PHP240FS32M07-3D	24.0	72	156	32	60	
7800121		PHP245FS32M08-3D	24.5	75	159	32	60	SCMT08…
7800122		PHP250FS32M08-3D	25.0	75	159	32	60	
7800123		PHP255FS32M08-3D	25.5	78	162	32	60	
7800124		PHP260FS32M08-3D	26.0	78	162	32	60	
7800125		PHP265FS32M08-3D	26.5	81	165	32	60	
7800126		PHP270FS32M08-3D	27.0	81	165	32	60	
7800127		PHP280FS32M08-3D	28.0	84	168	32	60	
7800128		PHP290FS32M10-3D	29.0	87	171	32	60	SCMT10…
7800130		PHP300FS32M10-3D	30.0	90	179	32	60	
7800131		PHP310FS32M10-3D	31.0	93	182	32	60	
7800132		PHP320FS32M10-3D	32.0	96	185	32	60	
7800133		PHP330FS40M10-3D	33.0	99	196	40	68	
7800134		PHP340FS40M12-3D	34.0	102	199	40	68	SCMT12…
7800135		PHP350FS40M12-3D	35.0	105	202	40	68	
7800136		PHP360FS40M12-3D	36.0	108	205	40	68	
7800137		PHP370FS40M12-3D	37.0	111	218	40	68	
7800138		PHP380FS40M12-3D	38.0	114	221	40	68	
7800139		PHP390FS40M12-3D	39.0	117	224	40	68	
7800140		PHP400FS40M12-3D	40.0	120	227	40	68	

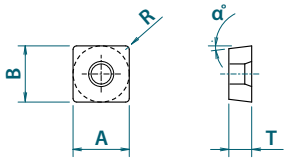
Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

PXT

List 78PHP

PHP Inserts





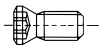
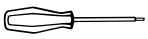
Designation	No. of Cutting Edges	Insert Size				EDP Number	
		A x B (mm)	T (mm)	α	R (mm)	XP9040	XC9025
SCMT042204-DM	4	4.8 x 4.8	2.2	7°	0.4	7818001	7817001
SCMT052404-DM		5.4 x 5.4	2.4			7818002	7817002
SCMT062806-DM		6.2 x 6.2	2.8		0.6	7818003	7817003
SCMT073206-DM		7.2 x 7.2	3.2			7818004	7817004
SCMT083608-DM		8.6 x 8.6	3.6		0.8	7818005	7817005
SCMT104208-DM		10.0 x 10.0	4.2			7818006	7817006
SCMT125008-DM		12.3 x 12.3	5.0			7818007	7817007

Packed: 10 pcs.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

PXI

List 7808H

PHP Accessories

Appearance	EDP No.	Designation	Applicable Insert	Recommended Tightening Torque
 Clamping Screw	7808100	FS18538 (M1.8 x 3.8, Torx 6)	SCMT04…	0.7 Nm
	7808102	FS20540 (M2 x 4, Torx 6)	SCMT05…	0.7 Nm
	7808104	FS22550 (M2.2 x 5, Torx 7)	SCMT06…	1.0 Nm
	7808108	FS25560 (M2.5 x 6, Torx 8)	SCMT07…	1.6 Nm
	7808110	FS30573 (M3 x 7.3, Torx 8)	SCMT08…	1.6 Nm
	7808111	FS35572 (M3.5 x 7.2, Torx 15)	SCMT10…	3.2 Nm
	7808113	FS45510 (M4.5 x 10.5, Torx 20)	SCMT12…	5.0 Nm
 Wrench	7808203	T6-D (Torx 6)	SCMT04…	
			SCMT05…	
	7808204	T7-D (Torx 7)	SCMT06…	
	7808205	T8-D (Torx 8)	SCMT07…	
			SCMT08…	
	7808208	T15-D (Torx 15)	SCMT10…	
	7808209	T20-D (Torx 20)	SCMT12…	

Packed: Clamping Screws = 10 pcs.; Wrench = 1 pc.
Note: Wrench sold separately.
This item is stocked overseas. Please contact OSG for availability and delivery.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Drilling Speed Vc (SFM)	Feed Rate f (in/rev)			
				Ø14-20.5mm	Ø21-28mm	Ø29-34mm	Ø35-40mm
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	655 (495 - 820)	0.004 (0.002 - 0.005)	0.005 (0.004 - 0.007)	0.007 (0.005 - 0.008)	0.010 (0.008 - 0.011)
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	525 (330 - 720)	0.004 (0.002 - 0.005)	0.005 (0.004 - 0.007)	0.007 (0.005 - 0.008)	0.010 (0.008 - 0.011)
	Die Steels (H13, D2)	~280 HB	460 (265 - 590)	0.003 (0.002 - 0.005)	0.005 (0.002 - 0.006)	0.006 (0.004 - 0.007)	0.006 (0.004 - 0.008)
M	Stainless Steels (304, 420)	~250 HB	495 (330 - 590)	0.003 (0.002 - 0.005)	0.004 (0.002 - 0.005)	0.006 (0.004 - 0.007)	0.007 (0.006 - 0.008)
K	Cast Iron (No. 35 B)	~350 N/mm²	495 (330 - 590)	0.004 (0.002 - 0.005)	0.005 (0.004 - 0.007)	0.007 (0.005 - 0.008)	0.010 (0.008 - 0.011)
	Ductile Cast Iron (60-40-18)	~800 N/mm²	425 (265 - 495)	0.004 (0.002 - 0.005)	0.005 (0.003 - 0.006)	0.006 (0.004 - 0.008)	0.008 (0.006 - 0.010)
N	Aluminum Alloys (6061, 7075)	~13% Si	720 (330 - 2625)	0.004 (0.002 - 0.008)	0.005 (0.004 - 0.010)	0.007 (0.005 - 0.012)	0.010 (0.008 - 0.014)
S	Heat Resistant Alloys (Inconel 718)	-	100 (50 - 165)	0.002 (0.001 - 0.003)	0.002 (0.001 - 0.004)	0.003 (0.002 - 0.005)	0.004 (0.002 - 0.006)
	Titanium Alloy (Ti-6Al-4V)	-	195 (100 - 330)	0.002 (0.002 - 0.003)	0.003 (0.002 - 0.005)	0.004 (0.003 - 0.006)	0.005 (0.004 - 0.006)

Recommended Materials by Application

Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
XP9040	DM	Yes	◎	◎		◎	○	
XC9025	DM	Yes	○	○	◎	○		

DM: Center Cutting Drill

○ good ◎ best

List 52510

PZAG SA (Inch)

NEW

SPEED FEED P1369

Recommended Materials: p1369
Accessories & Inserts: p1368

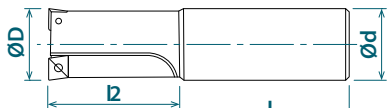


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	No. of Teeth	Shank Dia. (inch) d	Overall Length (inch) L	Neck Length (inch) l2	Min. Pre-Drilled Hole Dia.	Ar Max for Plunging	Applicable Insert
52510000	Cylindrical Shank	Normal	PZAG04R053SA075-2	1	0.5313	2	0.750	3.813	1.063	0.216	0.157	ZPNT04
52510001			PZAG04R063SA075-2	1	0.6250	2	0.750	4.000	1.250	0.310	0.157	
52510002			PZAG06R072SA075-2	1	0.7188	2	0.750	4.188	1.438	0.246	0.236	ZPNT06
52510003			PZAG06R075SA075-2	1	0.7500	2	0.750	4.250	1.500	0.278	0.236	
52510004			PZAG06R081SA100-2	1	0.8125	2	1.000	4.625	1.625	0.340	0.236	
52510005			PZAG06R091SA100-2	1	0.9063	2	1.000	4.813	1.813	0.434	0.236	
52510006			PZAG09R100SA100-2	1	1.0000	2	1.000	5.000	2.000	0.291	0.354	ZPNT09
52510007			PZAG09R119SA125-2	1	1.1875	2	1.250	5.525	2.375	0.479	0.354	
52510008			PZAG09R125SA125-2	1	1.2500	2	1.250	5.650	2.500	0.541	0.354	
52510009			PZAG09R138SA125-2	2	1.3750	2	1.250	5.900	2.750	0.666	0.354	
52510010			PZAG09R150SA125-2	2	1.5000	2	1.250	6.150	3.000	0.791	0.354	
52510011			PZAG09R163SA125-2	2	1.6250	2	1.250	6.400	3.250	0.916	0.354	
52510012			PZAG09R181SA125-2	2	1.8125	2	1.250	6.775	3.625	1.104	0.354	

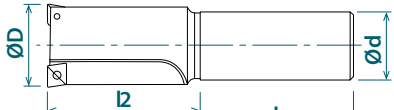
Packed: 1 pc.

PXT

Type 1



Type 2



List 78321

PZAG SS (Metric)

NEW

SPEED FEED P1369

Recommended Materials: p1369
Accessories & Inserts: p1368

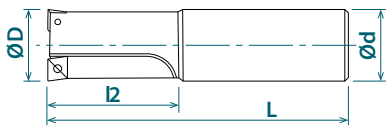


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	Shank Dia. (mm) d	Overall Length (mm) L	Neck Length (mm) l2	Min. Pre-Drilled Hole Dia.	Ar Max for Plunging	Applicable Insert
7832100	Cylindrical Shank	Normal	PZAG04R014SS20-2	1	14	2	20	100	30	6	4	ZPNT04
7832101			PZAG06R0175SS20-2	1	17.5	2	20	105	35	5.5	6	ZPNT06
7832102			PZAG06R020SS20-2	1	20	2	20	110	40	8	6	
7832103			PZAG06R023SS25-2	1	23	2	25	125	50	11	6	
7832104			PZAG09R026SS25-2	2	26	2	25	130	55	8	9	ZPNT09
7832105			PZAG09R029SS32-2	1	29	2	32	140	60	11	9	
7832106			PZAG09R032SS32-2	1	32	2	32	145	65	14	9	
7832107			PZAG09R035SS32-2	2	35	2	32	150	70	17	9	
7832108			PZAG09R039SS32-2	2	39	2	32	160	80	21	9	
7832109			PZAG09R043SS32-2	2	43	2	32	170	90	25	9	
7832110			PZAG09R048SS32-2	2	48	2	32	180	100	30	9	

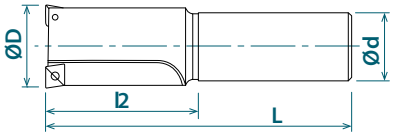
Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

PXT

Type 1



Type 2



List 52511

NEW

SPEED FEED P1369

Recommended Materials: p1369
Accessories & Inserts: p1368

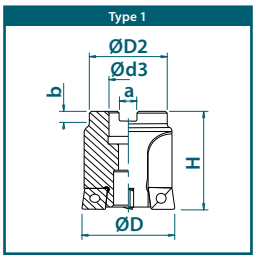
PZAG Bore (Inch)



EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	No. of Teeth	Tool Height (inch) H	Flange Dia. (inch) D2	Bore Dia. (inch) d3	Keyway Width (inch) a	Keyway Depth (inch) b	Min. Pre-Drilled Hole Dia.	Ar Max for Plunging	Applicable Insert
52511000	Bore	Normal	PZAG13R200A075-4	1	2.000	4	2.480	1.772	0.750	0.315	0.197	1.016	0.492	ZPNT13
52511001			PZAG13R238A075-4	1	2.375	4	2.480	1.772	0.750	0.315	0.197	1.391	0.492	
52511002			PZAG13R250A075-4	1	2.500	4	2.480	1.772	0.750	0.315	0.197	1.516	0.492	
52511003			PZAG13R275A100-4	1	2.750	4	2.480	2.362	1.000	0.375	0.236	1.766	0.492	
52511004			PZAG17R300A100-4	1	3.000	4	2.480	2.362	1.000	0.375	0.236	1.740	0.630	ZPNT17
52511005			PZAG17R313A100-4	1	3.125	4	2.480	2.362	1.000	0.375	0.236	1.866	0.630	

Packed: 1 pc.

PXT



List 78421

NEW

SPEED FEED P1369

Recommended Materials: p1369
Accessories & Inserts: p1368

PZAG Bore (Metric)

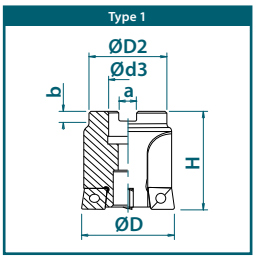


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	Tool Height (mm) H	Flange Dia. (mm) D2	Bore Dia. (mm) d3	Keyway Width (mm) a	Keyway Depth (mm) b	Min. Pre-Drilled Hole Dia.	Ar Max for Plunging	Applicable Insert
7832111	Bore	Normal	PZAG13R054M22-4	1	54	4	63	45	22	10.4	6.3	29	12.5	ZPNT13
7832112			PZAG13R058M22-4	1	58	4	63	45	22	10.4	6.3	33	12.5	
7832113			PZAG13R062M22-4	1	62	4	63	45	22	10.4	6.3	37	12.5	
7832114			PZAG13R067M22-4	1	67	4	63	45	22	10.4	6.3	42	12.5	
7832115			PZAG13R072M22-4	1	72	4	63	45	22	10.4	6.3	47	12.5	
7832116			PZAG17R076M22-4	1	76	4	63	45	22	10.4	6.3	44	16	ZPNT17
7832117			PZAG17R082M22-4	1	82	4	63	45	22	10.4	6.3	50	16	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

PXT

Type 1

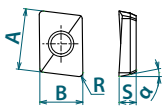


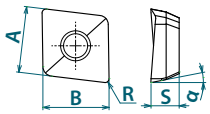
List 78PZAG

NEW

PZAG Inserts







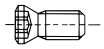
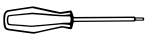
Designation	No. of Cutting Edges	Insert Size					EDP Number	
		A x B (mm)	S (mm)	α	R (mm)	Type	XP8030	XC8035
ZPNT040204ER	2	6.35 x 4.45	1.76	11°	0.4	1	7814101	7815101
ZPNT060204EN		6.95 x 6.95	2.93		0.4	2	7814103	7815103
ZPNT090404EN		9.94 x 9.94	4.65		0.4	2	7814106	7815106
ZPNT130504EN		13.92 x 13.92	5.46		0.4	2	7814109	7815109
ZPNT170608EN		17.85 x 17.85	6.31		0.8	2	7814111	7815111

Packed: 10 pcs.

PXI

List 7808H

PZAG Accessories

Appearance	EDP No.	Designation	Applicable Insert	Recommended Tightening Torque
 Clamping Screw	7808096	FS18536P (M1.8 x 3.6, Torx 6IP)	ZPNT04…	0.7 Nm
	7808138	FS22550P (M2.2 x 5, Torx 7IP)	ZPNT06…	1.0 Nm
	7808135	FS30570P (M3 x 7, Torx 9IP)	ZPNT09…	2.2 Nm
	7808137	FS35586P (Torx 15IP) Screw	ZPNT10…	3.2 Nm
	7808114	FS45510P (M4.5 x 10, Torx 20IP)	ZPNT13… ZPNT17…	5.0 Nm
 Wrench	7808223	6IP-D (Torx 6IP) Wrench	ZPNT04…	
	7808224	7IP-D (Torx 7IP) Wrench	ZPNT06…	
	7808226	9IP-D (Torx 9IP) Wrench	ZPNT09…	
	7808229	20IP-D (Torx 20IP) Wrench	ZPNT13… ZPNT17…	

Packed: Clamping Screws = 10 pcs.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Drilling Speed Vc (SFM)	Feed Rate f (in/rev)				
				Ø0.531-0.625 (14-17.5mm)	Ø0.719-0.906 (20-23mm)	Ø1.000-1.813 (26-48mm)	Ø2.000-2.750 (54-72mm)	Ø3.000-0.313 (76-82mm)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	525 (330 - 655)	0.0055 (0.003-0.008)	0.007 (0.004-0.010)	0.008 (0.005-0.012)	0.016 (0.008-0.024)	0.016 (0.008-0.024)
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	495 (330 - 655)	0.0055 (0.003-0.008)	0.007 (0.004-0.010)	0.008 (0.005-0.012)	0.016 (0.008-0.024)	0.016 (0.008-0.024)
	Die Steels (H13, D2)	~280 HB	395 (265 - 590)	0.005 (0.003-0.006)	0.0055 (0.004-0.008)	0.007 (0.005-0.010)	0.016 (0.008-0.020)	0.016 (0.008-0.020)
M	Stainless Steels (304, 420)	~250 HB	425 (265 - 590)	0.004 (0.003-0.006)	0.005 (0.004-0.008)	0.006 (0.005-0.010)	0.014 (0.008-0.020)	0.014 (0.008-0.020)
K	Cast Iron (No. 35 B)	~350 N/mm²	655 (495 - 915)	0.006 (0.003-0.010)	0.008 (0.004-0.012)	0.012 (0.006-0.016)	0.024 (0.012-0.032)	0.024 (0.012-0.032)
	Ductile Cast Iron (60-40-18)	~800 N/mm²	525 (330 - 720)	0.0055 (0.003-0.008)	0.007 (0.004-0.010)	0.008 (0.006-0.012)	0.016 (0.012-0.032)	0.016 (0.012-0.032)
N	Aluminum Alloys (6061, 7075)	~13% Si	650 (330 - 2625)	0.006 (0.003-0.010)	0.008 (0.004-0.012)	0.012 (0.006-0.016)	0.024 (0.012-0.031)	0.024 (0.012-0.031)
S	Heat Resistant Alloys (Inconel 718)	-	165 (100 - 200)	0.003 (0.002-0.0055)	0.003 (0.0024-0.0055)	0.005 (0.003-0.008)	0.010 (0.006-0.016)	0.010 (0.006-0.016)
	Titanium Alloy (Ti-6Al-4V)	-	200 (100 - 330)	0.003 (0.002-0.0055)	0.004 (0.0024-0.006)	0.0055 (0.003-0.008)	0.012 (0.006-0.020)	0.012 (0.006-0.020)
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HrC	330 (200 - 400)	0.003 (0.002-0.0055)	0.004 (0.0024-0.006)	0.0055 (0.003-0.008)	0.012 (0.006-0.020)	0.012 (0.006-0.020)
	Die Cast Steels (A2, S7)	43 - 48 HrC	260 (165 - 330)	0.003 (0.002-0.0055)	0.003 (0.0024-0.0055)	0.005 (0.003-0.008)	0.010 (0.006-0.016)	0.010 (0.006-0.016)
	Hardened Steels (D2)	50 - 55 HrC	200 (130 - 260)	0.003 (0.002-0.0055)	0.003 (0.002-0.0055)	0.005 (0.003-0.008)	0.010 (0.006-0.016)	0.010 (0.006-0.016)

Recommended Materials by Application

Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
XP8030	-	Yes	◎	◎	○	○	○	○
XC8035	-	No	○		◎			
		Yes	○	○				

○ good ◎ best

List 52700

SPEED FEED P1372

Recommended Materials: p1372
Accessories & Inserts: p1371

PAS Bore (Inch)



EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch)	Effective Dia. (inch)	No. of Teeth	Tool Height (inch)	Flange Dia. (inch)	Bore Dia. (inch)	Keyway Width (inch)	Keyway Depth (inch)	Applicable Insert
					D	D1		H	D2	d3	a	b	
52700000	Bore	Normal	PAS15R200A075-4	1	2.590	2.000	4	1.772	1.772	0.750	0.315	0.197	SNKU15…
52700001			PAS15R250A075-5	1	3.090	2.500	5	1.772	1.968	0.750	0.315	0.197	
52700002			PAS15R300A100-6	1	3.590	3.000	6	1.968	2.362	1.000	0.375	0.236	
52700003			PAS15R400A125-7	2	4.590	4.000	7	1.968	2.756	1.250	0.500	0.315	
52700004			PAS15R500A150-8	2	5.590	5.000	8	2.480	3.543	1.500	0.625	0.394	
52700005			PAS15R600A150-9	2	6.590	6.000	9	2.480	3.740	1.500	0.625	0.394	

Packed: 1 pc.

PXT

List 78020

SPEED FEED P1372

Recommended Materials: p1372
Accessories & Inserts: p1371

PAS Bore (Metric)

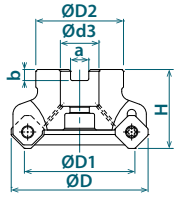


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm)	Effective Dia. (mm)	No. of Teeth	Tool Height (mm)	Flange Dia. (mm)	Bore Dia. (mm)	Keyway Width (mm)	Keyway Depth (mm)	Applicable Insert
					D	D1		H	D2	d3	a	b	
7802000	Bore	Normal	PAS15R050M22-4	1	65	50	4	45	45	22	10.4	6.3	SNKU15…
7802001			PAS15R063M22-5	1	78	63	5	45	50	22	10.4	6.3	
7802002			PAS15R080M25.4-6	1	95	80	6	50	60	25.4	9.5	6	
7802003			PAS15R100M31.7-7	2	115	100	7	50	70	31.75	12.7	8	
7802004			PAS15R125M38.1-8	2	140	125	8	63	90	38.1	15.9	10	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

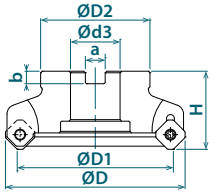
PXT

Type 1



With coolant hole.

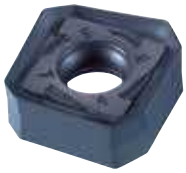
Type 2

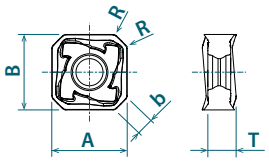


Without coolant hole.

List 78PAS

PAS Inserts





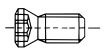
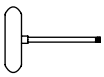
Designation	No. of Cutting Edges	Insert Size					EDP Number				
		AxB (mm)	T (mm)	R (mm)	b (mm)	Aa Max (mm)	XC3025	XP3035	XP2040	XC1015	XC5040
SNKU1505AZER-GM	8	15.88 x 15.88	7.18	1.0	3.65	6.5	7819061	7814061	7813061	-	-
SNKU1505AZER-GR							-	-	-	7812060	-
SNKU1505AZER-SM							-	-	-	-	52700006

Packed: 10 pcs.

PXI

List 7808H

PAS Accessories

Appearance	EDP No.	Designation	Applicable Cutter		Recommended Tightening Torque
			(mm)	(inch)	
 Clamping Screw	7808131	FS45513P (M4.5 x 13, Torx 20IP)	PAS BORE Ø50-125	PAS BORE Ø2-6"	5.0 Nm
 Wrench	7808000	20IP-T (Torx 20IP)	PAS BORE Ø50-125	PAS BORE Ø2-6"	

Packed: Clamping Screws = 10 pcs.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Insert Size SNKU15… Face Milling		
			Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)	Depth of Cut Aa (in)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	590 (330 - 820)	0.007 (0.006 - 0.014)	0.120
P	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	590 (330 - 820)	0.007 (0.006 - 0.014)	0.120
P	Die Steels (H13, D2)	~280 HB	495 (260 - 655)	0.006 (0.004 - 0.012)	0.120
M	Stainless Steels (304, 420)	~250 HB	395 (260 - 590)	0.005 (0.003 - 0.010)	0.120
K	Cast Iron (No. 35 B)	~300 N/mm²	590 (330 - 1150)	0.008 (0.006 - 0.014)	0.160
K	Ductile Cast Iron (60-40-18)	~600 N/mm²	590 (330 - 885)	0.008 (0.004 - 0.012)	0.120
S	**Heat Resistant Alloys (Inconel 718)**	–	115 (85 - 200)	0.004 (0.002 - 0.006)	0.040
S	**Titanium Alloy (Ti-6Al-4V)**	–	130 (100 - 400)	0.005 (0.003 - 0.008)	0.060
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HRC	330 (195 - 495)	0.005 (0.003 - 0.008)	0.060
H	Die Cast Steels (A2, S7)	43 - 48 HRC	260 (130 - 395)	0.004 (0.002 - 0.006)	0.020
H	Hardened Steels (D2)	50 - 55 HRC	195 (130 - 295)	0.003 (0.002 - 0.006)	0.020

Recommended Materials by Application

Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
XC3025	GM	–	◎		○			
XP3035	GM	–	◎	○	○			
XP2040	GM	–	○	○				○
		Yes	○	◎			○	
XC1015	GR	–			◎			
XC5040	SM	Yes		○			◎	

GM: Medium Cutting GR: Rough Cutting SM: Heat Resistant Alloy

○ good ◎ best

List 52800

PAO Bore (Inch)

SPEED FEED P1377

Recommended Materials: p1377
Accessories & Inserts: p1375-1376



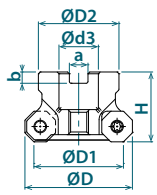


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch)	Effective Dia. (inch)	No. of Teeth	Tool Height (inch)	Flange Dia. (inch)	Bore Dia. (inch)	Keyway Width (inch)	Keyway Depth (inch)	Applicable Insert
					D	D1		H	D2	d3	a	b	
52800000	Bore	Normal	PAO06R200A075-5	1	2.401	2.000	5	1.575	1.772	0.750	0.315	0.197	OZKU06... / XAHT06…
52800001			PAO06R250A075-7	2	2.901	2.500	7	1.575	1.968	0.750	0.315	0.197	
52800002			PAO06R300A100-8	2	3.401	3.000	8	1.968	2.362	1.000	0.375	0.236	
52800003			PAO06R400A125-10	3	4.401	4.000	10	1.968	2.756	1.250	0.500	0.315	
52800004			PAO06R500A150-12	3	5.401	5.000	12	2.480	3.543	1.500	0.625	0.394	
52800005			PAO06R600A150-13	3	6.401	6.000	13	2.480	3.740	1.500	0.625	0.394	
52800006		Close	PAO06R400A125W-14	4	4.401	4.000	14	1.968	2.756	1.250	0.500	0.315	
52800007			PAO06R500A150W-17	4	5.401	5.000	17	2.480	3.543	1.500	0.625	0.394	
52800008			PAO06R600A150W-20	4	6.401	6.000	20	2.480	3.740	1.500	0.625	0.394	
52800009			PAO06R800A250W-25	5	8.401	8.000	25	2.480	5.118	2.500	1.000	0.551	

Packed: 1pc.

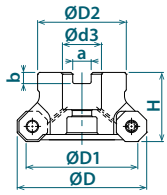
PXT

Type 1



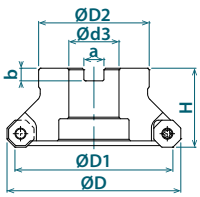
With coolant hole.

Type 2



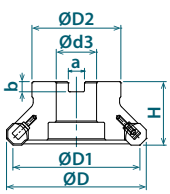
With coolant hole.

Type 3



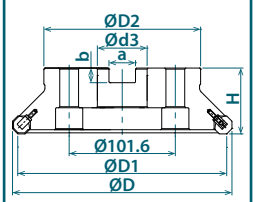
Without coolant hole.

Type 4



Without coolant hole.

Type 5



Without coolant hole.

List 78120

PAO Bore (Metric)

SPEED FEED P1377

Recommended Materials: p1377
Accessories & Inserts: p1375-1376



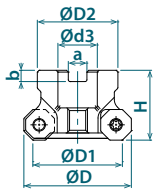


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm)	Effective Dia. (mm)	No. of Teeth	Tool Height (mm)	Flange Dia. (mm)	Bore Dia. (mm)	Keyway Width (mm)	Keyway Depth (mm)	Applicable Insert
					D	D1		H	D2	d3	a	b	
7802020	Bore	Normal	PAO06R050M22-5	1	60.2	50	5	40	45	22	10.4	6.3	OZKU06... / XAHT06…
7802021			PAO06R063M22-7	2	73.2	63	7	40	50	22	10.4	6.3	
7802022			PAO06R080M25.4-8	2	90.2	80	8	50	60	25.4	9.5	6	
7802023			PAO06R100M31.7-10	3	110.2	100	10	50	70	31.75	12.7	8	
7802024			PAO06R125M38.1-12	3	135.2	125	12	63	90	38.1	15.9	10	
7802089			PAO06R100M31.7W-14	4	110.2	100	14	50	70	31.75	12.7	8	
7802091		Close	PAO06R125M38.1W-17	4	135.2	125	17	63	90	38.1	15.9	10	
7802093			PAO06R160M50.8W-20	4	170.2	160	20	63	100	50.8	19.0	11	
7802095			PAO06R200M47.6W-25	5	210.2	200	25	63	150	47.625	25.4	14	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

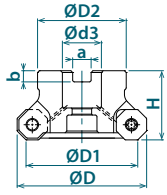
PXT

Type 1



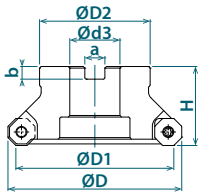
With coolant hole.

Type 2



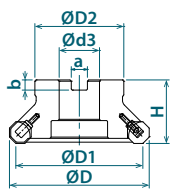
With coolant hole.

Type 3



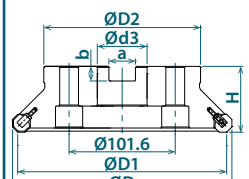
Without coolant hole.

Type 4



Without coolant hole.

Type 5

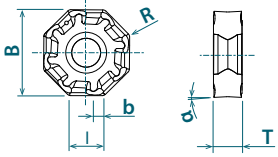


Without coolant hole.

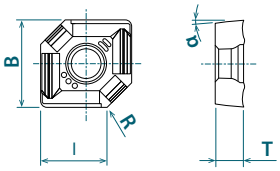
List 78PAO

PAO Inserts





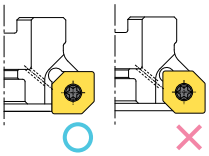




Designation	No. of Cutting Edges	Insert Size							EDP Number								
		B (mm)	T (mm)	l (mm)	α	R (mm)	b (mm)	Aa Max (mm)	XC3020	XP3025	XC3030	XP3035	XP2025	XP2040	XC1015	XP1020	XC5040
OZKU060508SR-GL	16	17.1	5.66	6	3°	0.8	2	3.5	7827063	7828063	7825063	7814063	7826063	7813063	-	-	-
OZKU060508SR-GM									7827062	7828062	7825062	7814062	7826062	7813062	7812062	7821062	-
OZKU060508SR-GR									-	-	-	-	-	-	7812086	7821086	-
OZKU060508ER-SM									-	-	-	-	-	-	-	-	7816085
XAHT060525SR-GM	2		5.56	10		2.5	-		-	-	-	7814064	-	-	7812064	-	-

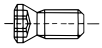
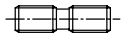
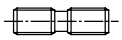
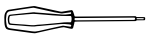
Packed: 10 pcs.
Correct orientation of wiper insert:

PXI



List 7808H

PAO Accessories

Appearance	EDP No.	Designation	Applicable Cutter		Recommended Tightening Torque
			(mm)	(inch)	
 Clamping Screw	7808130	FS50614 (M5 x 14, Torx 20)	PAO BORE Ø50-125	PAO BORE Ø2-6"	5.0 Nm
 Power Screw	7808151	PS1031 (M10x31)	PAO BORE Ø50	PAO BORE Ø2"	20.0 Nm
 Wedge	7808141	W12F-06N (M6)	PAO BORE(W) Ø100-200	PAO BORE(W) Ø4-8"	
 Wedge Clamping Screw	7808140	WS0621T (M6x21)	PAO BORE(W) Ø100-200	PAO BORE(W) Ø4-8"	4.0 Nm
 Wrench	7808208	T15-D (Torx 15)	PAO BORE(W) Ø100-200	PAO BORE(W) Ø4-8"	
	7808209	T20-D (Torx 20)	PAO BORE Ø50-125	PAO BORE Ø2-6"	

Packed: Clamping Screws = 10 pcs.; Power Screw = 1 pc.; Wedge = 10 pcs.;
Wedge Clamping Screw = 10 pcs.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Insert Size OZKU06… / XAHT06… Face Milling		
			Milling Speed Vc (SFM)	Feed Per Tooth fz (in/t)	Depth of Cut Aa (in)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	590 (330 - 820)	0.010 (0.008 - 0.020)	0.080
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	590 (330 - 820)	0.010 (0.008 - 0.020)	0.080
	Die Steels (H13, D2)	~280 HB	495 (260 - 655)	0.010 (0.006 - 0.016)	0.080
M	Stainless Steels (304, 420)	~250 HB	395 (260 - 590)	0.008 (0.006 - 0.016)	0.080
K	Cast Iron (No. 35 B)	~300 N/mm²	655 (330 - 1150)	0.012 (0.008 - 0.020)	0.080
	Ductile Cast Iron (60-40-18)	~600 N/mm²	590 (330 - 885)	0.011 (0.006 - 0.016)	0.080
S	Heat Resistant Alloys (718 Inconel)	-	115 (85 - 200)	0.005 (0.002 - 0.008)	0.040
	Titanium Alloy (Ti-6Al-4V)	-	130 (100 - 400)	0.006 (0.004 - 0.010)	0.060
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HRC	330 (195 - 495)	0.006 (0.004 - 0.010)	0.060
	Die Cast Steels (A2, S7)	43 - 48 HRC	260 (130 - 395)	0.005 (0.002 - 0.008)	0.020
	Hardened Steels (D2)	50 - 55 HRC	195 (130 - 295)	0.004 (0.002 - 0.008)	0.020

Recommended Materials by Application

Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
XC3020	GL / GM	-	◎		○			
XP3025	GL / GM	Yes	◎		○			
XC3030	GL / GM	-	◎		○			
XP3035	GL / GM	-	◎	○	○			
XP2025	GL / GM	Yes	○	◎			○	
XP2040	GL / GM	-	○	○				○
		Yes	○	◎			○	
XC1015	GM / GR	-			◎*			
XP1020	GM / GR	-			◎**			
XC5040	SM	Yes		○			◎	

GM: Medium Cutting GR: Rough Cutting SM: Heat Resistant Alloy
*: XC1015 best recommended for grey cast iron
**: XP1020 best recommended for ductile cast iron

○ good ◎ best

List 78013

PSE SA/FA (Inch)





SPEED FEED P1387

Recommended Materials: p1387
Accessories & Inserts: p1385-1386
Maximum Ramping Angle: p1388

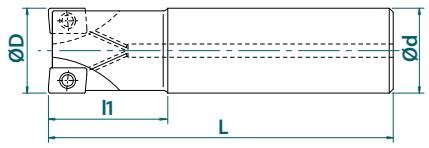
EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	No. of Teeth	Shank Dia. (inch) d	Overall Length (inch) L	Neck Length (inch) L1	Applicable Insert
7801300	Cylindrical Shank Short	Normal	PSE11R063SA063-2S	1	0.625	2	0.625	3.543	0.984	ZD_T11...
7801301			PSE11R075SA075-3S	1	0.750	3	0.750	3.937	1.181	
7801302			PSE11R100SA100-3S	1	1.000	3	1.000	4.724	1.378	
7801303			PSE11R125SA125-3S	1	1.250	3	1.250	5.118	1.772	
7801304		Close	PSE11R100SA100-4S	1	1.000	4	1.000	4.724	1.378	
7801305			PSE11R125SA125-5S	1	1.250	5	1.250	5.118	1.772	
7801306		Normal	PSE15R100SA100-2S	1	1.000	2	1.000	4.724	1.378	ZDKT15...
7801307			PSE15R125SA125-2S	1	1.250	2	1.250	5.118	1.772	
7801308			PSE15R150SA125-3S	2	1.500	3	1.250	5.512	1.969	
7801309		Close	PSE15R125SA125-3S	1	1.250	3	1.250	5.118	1.772	
7801310			PSE15R150SA125-4S	2	1.500	4	1.250	5.512	1.969	
7801336	Cylindrical Shank Long	Normal	PSE11R063SA063-2L	1	0.625	2	0.625	5.906	1.969	ZD_T11...
7801337			PSE11R075SA075-3L	1	0.750	3	0.750	6.299	2.362	
7801338			PSE11R100SA100-3L	1	1.000	3	1.000	6.693	2.756	
7801339			PSE11R125SA125-3L	1	1.250	3	1.250	7.480	3.543	
7801340		Close	PSE11R100SA100-4L	1	1.000	4	1.000	6.693	2.756	
7801341			PSE11R125SA125-5L	1	1.250	5	1.250	7.480	3.543	
7801342		Normal	PSE15R100SA100-2L	1	1.000	2	1.000	6.693	2.756	ZDKT15...
7801343			PSE15R125SA125-2L	1	1.250	2	1.250	7.480	3.543	
7801344			PSE15R150SA125-3L	2	1.500	3	1.250	7.480	1.969	
7801345		Close	PSE15R125SA125-3L	1	1.250	3	1.250	7.480	3.543	
7801346			PSE15R150SA125-4L	2	1.500	4	1.250	7.480	1.969	
7801320	Weldon Shank Short	Normal	PSE11R063FA063-2S	1	0.625	2	0.625	3.205	1.299	ZD_T11...
7801321			PSE11R075FA075-3S	1	0.750	3	0.750	3.583	1.551	
7801323			PSE11R100FA100-3S	1	1.000	3	1.000	3.831	1.551	
7801324		Close	PSE11R100FA100-4S	1	1.000	4	1.000	3.831	1.551	
7801325			PSE11R125FA125-5S	1	1.250	5	1.250	4.378	2.098	
7801330		Normal	PSE15R100FA100-2S	1	1.000	2	1.000	3.830	1.550	ZDKT15...
7801332			PSE15R125FA125-2S	1	1.250	2	1.250	4.380	2.100	
7801333		Close	PSE15R125FA125-3S	1	1.250	3	1.250	4.380	2.100	
7801334		Normal	PSE15R150FA125-3S	2	1.500	3	1.250	4.380	2.100	
7801335		Close	PSE15R150FA125-4S	2	1.500	4	1.250	4.380	2.100	
7801347	Weldon Shank Long	Normal	PSE11R063FA063-2L	1	0.625	2	0.625	3.874	1.969	ZD_T11...
7801348			PSE11R075FA075-3L	1	0.750	3	0.750	4.394	2.362	
7801349			PSE11R100FA100-3L	1	1.000	3	1.000	5.035	2.756	
7801350		Close	PSE11R100FA100-4L	1	1.000	4	1.000	5.035	2.756	
7801351			PSE11R125FA125-5L	1	1.250	5	1.250	5.823	3.543	
7801352		Normal	PSE15R100FA100-2L	1	1.000	2	1.000	5.035	2.756	ZDKT15...
7801353			PSE15R125FA125-2L	1	1.250	2	1.250	5.823	3.543	
7801354		Close	PSE15R125FA125-3L	1	1.250	3	1.250	5.823	3.543	
7801355		Normal	PSE15R150FA125-3L	2	1.500	3	1.250	5.823	2.100	
7801356		Close	PSE15R150FA125-4L	2	1.500	4	1.250	5.823	2.100	

Packed: 1 pc.

Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).

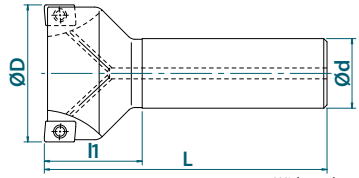
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 78011

PSE SS (Metric)



SPEED FEED P1387

Recommended Materials: p1387
Accessories & Inserts: p1385-1386
Maximum Ramping Angle: p1388

EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	Shank Dia. (mm) d	Overall Length (mm) L	Neck Length (mm) L1	Applicable Insert
7801101	Cylindrical Shank Short	Normal	PSE11R020SS20-2S	1	20	2	20	100	30	ZD_T11...
7801102			PSE11R025SS25-3S	1	25	3	25	120	35	
7801103			PSE11R032SS32-3S	1	32	3	32	130	45	
7801100		Close	PSE11R016SS16-2S	1	16	2	16	90	25	
7801116			PSE11R018SS16-2S	2	18	2	16	90	25	
7801115			PSE11R020SS20-3S	1	20	3	20	100	30	
7801117			PSE11R022SS20-3S	2	22	3	20	110	30	
7801104			PSE11R025SS25-4S	1	25	4	25	120	35	
7801118			PSE11R028SS25-4S	2	28	4	25	120	35	
7801119			PSE11R030SS32-4S	1	30	4	32	130	45	
7801105			PSE11R032SS32-5S	1	32	5	32	125	40	
7801120			PSE11R035SS32-5S	2	35	5	32	130	35	
7801121	Cylindrical Shank Long	Close	PSE11R016SS16-2L	1	16	2	16	150	50	
7801139			PSE11R017SS16-2L	2	17	2	16	150	25	
7801122			PSE11R018SS16-2L	2	18	2	16	150	25	
7801123			PSE11R020SS20-3L	1	20	3	20	160	60	
7801140			PSE11R021SS20-3L	2	21	3	20	160	30	
7801124			PSE11R022SS20-3L	2	22	3	20	160	30	
7801125		Normal	PSE11R025SS25-3L	1	25	3	25	170	70	
7801141			PSE11R026SS25-3L	2	26	3	25	170	35	
7801126			PSE11R028SS25-3L	2	28	3	25	170	35	
7801127			PSE11R030SS32-3L	1	30	3	32	190	90	
7801128			PSE11R032SS32-3L	1	32	3	32	190	90	
7801142			PSE11R033SS32-3L	2	33	3	32	190	35	
7801129			PSE11R035SS32-3L	2	35	3	32	190	35	
7801107	Cylindrical Shank Short	Normal	PSE15R032SS32-2S	1	32	2	32	130	45	ZDKT15...
7801108			PSE15R040SS32-3S	2	40	3	32	140	50	
7801109			PSE15R050SS32-3S	2	50	3	32	130	45	
7801110			PSE15R063SS32-4S	2	63	4	32	130	45	
7801106		Close	PSE15R025SS25-2S	1	25	2	25	120	35	
7801130			PSE15R028SS25-2S	2	28	2	25	120	35	
7801131			PSE15R030SS32-3S	1	30	3	32	130	45	
7801111			PSE15R032SS32-3S	1	32	3	32	130	45	
7801132			PSE15R035SS32-3S	2	35	3	32	130	35	
7801112			PSE15R040SS32-4S	2	40	4	32	140	50	
7801113			PSE15R050SS32-5S	2	50	5	32	130	45	
7801114			PSE15R063SS32-6S	2	63	6	32	130	45	

Packed: 1 pc.

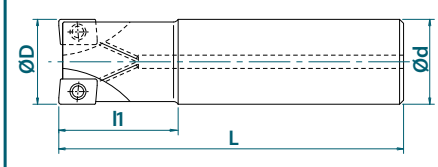
Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).

This item is stocked overseas. Please contact OSG for availability and delivery.

continued on next page

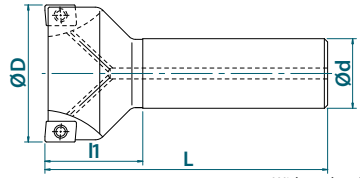
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 78011 (Continued)

PSE SS (Metric)





SPEED FEED P1387

Recommended Materials: p1387
Accessories & Inserts: p1385-1386
Maximum Ramping Angle: p1388

EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	Shank Dia. (mm) d	Overall Length (mm) L	Neck Length (mm) L1	Applicable Insert
7801133	Cylindrical Shank Long	Close	PSE15R025SS25-2L	1	25	2	25	170	70	ZDKT15...
7801143			PSE15R026SS25-2L	2	26	2	25	170	35	
7801134			PSE15R028SS25-2L	2	28	2	25	170	35	
7801135			PSE15R030SS32-3L	1	30	3	32	190	90	
7801136			PSE15R032SS32-3L	1	32	3	32	190	90	
7801144			PSE15R033SS32-3L	2	33	3	32	190	45	
7801137			PSE15R035SS32-3L	2	35	3	32	190	45	
7801138		Normal	PSE15R040SS32-3L	2	40	3	32	190	45	

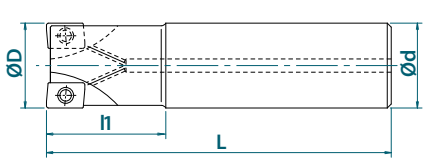
Packed: 1 pc.

Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected. The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).

This item is stocked overseas. Please contact OSG for availability and delivery.

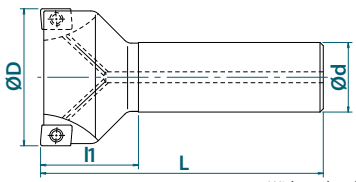
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 78012

PSE Bore (Inch)



SPEED FEED P1387

Recommended Materials: p1387
Accessories & Inserts: p1385-1386
Maximum Ramping Angle: p1388

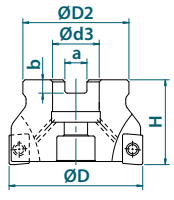


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch)	No. of Teeth	Tool Height (inch)	Flange Dia. (inch)	Bore Hole Dia. (inch)	Keyway Width (inch)	Keyway Depth (inch)	Applicable Insert
					D		H	D2	d3	a	b	
7801200	Bore	Normal	PSE11R200A075-5	2	2.000	5	1.575	1.772	0.750	0.315	0.197	ZD_T11...
7801201			PSE11R250A075-6	2	2.500	6	1.575	1.968	0.750	0.315	0.197	
7801202			PSE11R300A100-7	2	3.000	7	1.968	2.362	1.000	0.375	0.236	
7801203		Close	PSE11R200A075-7	2	2.000	7	1.575	1.772	0.750	0.315	0.197	
7801204			PSE11R250A075-8	2	2.500	8	1.575	1.968	0.750	0.315	0.197	
7801205			PSE11R300A100-10	2	3.000	10	1.968	2.362	1.000	0.375	0.236	
7801206		Normal	PSE15R200A075-3	2	2.000	3	1.575	1.772	0.750	0.315	0.197	ZDKT15...
7801207			PSE15R250A075-4	2	2.500	4	1.575	1.968	0.750	0.315	0.197	
7801208			PSE15R300A100-5	2	3.000	5	1.968	2.362	1.000	0.375	0.236	
7801209			PSE15R400A150-7	3	4.000	7	1.968	2.756	1.500	0.625	0.394	
7801210			PSE15R500A150-8	3	5.000	8	2.480	3.543	1.500	0.625	0.394	
7801216			PSE15R600A150-10	3	6.000	10	2.480	3.740	1.500	0.625	0.394	
7801211		Close	PSE15R200A075-5	2	2.000	5	1.575	1.772	0.750	0.315	0.197	
7801212			PSE15R250A075-6	2	2.500	6	1.575	1.968	0.750	0.315	0.197	
7801213			PSE15R300A100-8	2	3.000	8	1.968	2.362	1.000	0.375	0.236	
7801214			PSE15R400A150-10	3	4.000	10	1.968	2.756	1.500	0.625	0.394	
7801215			PSE15R500A150-11	3	5.000	11	2.480	3.543	1.500	0.625	0.394	
7801217			PSE15R600A150-12	3	6.000	12	2.480	3.740	1.500	0.625	0.394	

Packed: 1 pc.
Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).

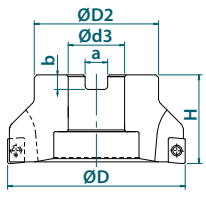
PXT

Type 2



With coolant hole.

Type 3



Without coolant hole.

List 78010

PSE Bore (Metric)



SPEED FEED P1387

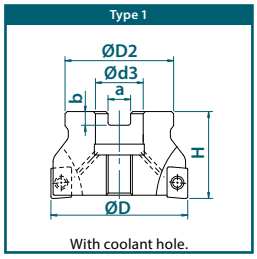
Recommended Materials: p1387
Accessories & Inserts: p1385-1386
Maximum Ramping Angle: p1388

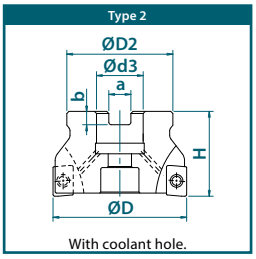


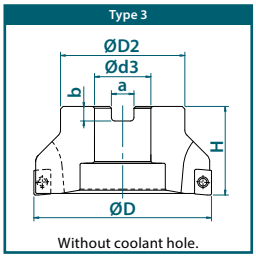
EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	Tool Height (mm) H	Flange Dia. (mm) D2	Bore Hole Dia. (mm) d3	Keyway Width (mm) a	Keyway Depth (mm) b	Applicable Insert
7801000	Bore	Normal	PSE11R040M16-4	1	40	4	40	38	16	8.4	5.6	ZD_T11...
7801001			PSE11R050M22-5	1	50	5	40	45	22	10.4	6.3	
7801002			PSE11R063M22-6	2	63	6	40	50	22	10.4	6.3	
7801003			PSE11R080M27-7	2	80	7	50	60	27	12.4	7	
7801020			PSE11R080M25.4-7	2	80	7	50	60	25.4	9.5	6	
7801004		Close	PSE11R040M16-6	1	40	6	40	38	16	8.4	5.6	
7801005			PSE11R050M22-7	1	50	7	40	45	22	10.4	6.3	
7801006			PSE11R063M22-8	2	63	8	40	50	22	10.4	6.3	
7801007			PSE11R080M27-10	2	80	10	50	60	27	12.4	7	
7801021			PSE11R080M25.4-10	2	80	10	50	60	25.4	9.5	6	
7801008		Normal	PSE15R040M16-3	1	40	3	40	38	16	8.4	5.6	ZDKT15...
7801009			PSE15R050M22-3	1	50	3	40	45	22	10.4	6.3	
7801010			PSE15R063M22-4	2	63	4	40	50	22	10.4	6.3	
7801011			PSE15R080M27-5	2	80	5	50	60	27	12.4	7	
7801022			PSE15R080M25.4-5	2	80	5	50	60	25.4	9.5	6	
7801012			PSE15R100M32-7	2	100	7	50	70	32	14.4	8	
7801023			PSE15R100M31.7-7	3	100	7	50	70	31.75	12.7	8	
7801024			PSE15R125M38.1-8	3	125	8	63	90	38.1	15.9	10	
7801014		Close	PSE15R040M16-4	1	40	4	40	38	16	8.4	5.6	
7801015			PSE15R050M22-5	1	50	5	40	45	22	10.4	6.3	
7801016			PSE15R063M22-6	2	63	6	40	50	22	10.4	6.3	
7801017			PSE15R080M27-8	2	80	8	50	60	27	12.4	7	
7801025			PSE15R080M25.4-8	2	80	8	50	60	25.4	9.5	6	
7801018			PSE15R100M32-10	2	100	10	50	70	32	14.4	8	
7801026			PSE15R100M31.7-10	3	100	10	50	70	31.75	12.7	8	
7801027			PSE15R125M38.1-11	3	125	11	63	90	38.1	15.9	10	

Packed: 1 pc.
Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).
This item is stocked overseas. Please contact OSG for availability and delivery.

PXT







List 52601

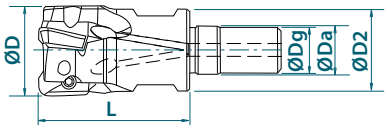
PSE ASF (Inch)



SPEED FEED P1387

Recommended Materials: p1387
Accessories & Inserts: p1385-1386
Maximum Ramping Angle: p1388
SF Arbors: p1461





EDP No.	Body Type	Designation	Tool Dia. (inch) D	No. of Teeth	Pilot Dia. (inch) Da	Thread Dia. (mm) Dg	Overall Length (inch) L	Flange Dia. (inch) D2	Wrench Size	Applicable Insert
52601000	Screw Fit Head	PSE11R063ASF8-2	0.625	2	0.335	M8	1.063	0.571	10	ZD_T11…
52601001		PSE11R075ASF10-3	0.750	3	0.413	M10	1.299	0.709	14	
52601002		PSE11R100ASF12-3	1.000	3	0.492	M12	1.378	0.905	17	
52601003		PSE11R125ASF16-3	1.250	3	0.669	M16	1.575	1.102	22	
52601004		PSE15R100ASF12-2	1.000	2	0.492	M12	1.378	0.905	17	ZDKT15…
52601005		PSE15R125ASF16-3	1.250	3	0.669	M16	1.575	1.102	22	
52601006		PSE15R150ASF16-4	1.500	4	0.669	M16	1.575	1.102	22	

Packed: 1 pc.
Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).

PXT

List 78016

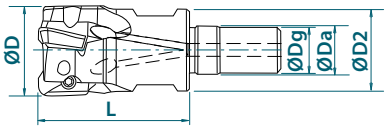
PSE SF (Metric)



SPEED FEED P1387

Recommended Materials: p1387
Accessories & Inserts: p1385-1386
Maximum Ramping Angle: p1388
SF Arbors: p1462-1464





EDP No.	Body Type	Designation	Tool Dia. (mm) D	No. of Teeth	Pilot Dia. (mm) Da	Thread Dia. (mm) Dg	Overall Length (mm) L	Flange Dia. (mm) D2	Wrench Size	Applicable Insert
7801600	Screw Fit Head	PSE11R016SF8-2	16	2	8.5	M8	27	14.5	10	ZD_T11…
7801612		PSE11R017SF8-2	17	2	8.5	M8	27	14.5	10	
7801613		PSE11R018SF8-2	18	2	8.5	M8	27	14.5	10	
7801601		PSE11R020SF10-3	20	3	10.5	M10	33	18	14	
7801614		PSE11R021SF10-3	21	3	10.5	M10	33	18	14	
7801615		PSE11R022SF10-3	22	3	10.5	M10	33	18	14	
7801602		PSE11R025SF12-4	25	4	12.5	M12	35	23	17	
7801616		PSE11R026SF12-3	26	3	12.5	M12	35	23	17	
7801603		PSE11R028SF12-4	28	4	12.5	M12	35	23	17	
7801604		PSE11R032SF16-5	32	5	17	M16	40	28	22	
7801617		PSE11R033SF16-3	33	3	17	M16	40	28	22	
7801605		PSE11R035SF16-5	35	5	17	M16	40	28	22	
7801606		PSE11R040SF16-6	40	6	17	M16	40	28	22	
7801607		PSE15R025SF12-2	25	2	12.5	M12	35	23	17	ZDKT15…
7801618		PSE15R026SF12-2	26	2	12.5	M12	35	23	17	
7801608		PSE15R028SF12-2	28	2	12.5	M12	35	23	17	
7801609		PSE15R032SF16-3	32	3	17	M16	40	28	22	
7801619		PSE15R033SF16-3	33	3	17	M16	40	28	22	
7801610		PSE15R035SF16-3	35	3	17	M16	40	28	22	
7801611		PSE15R040SF16-4	40	4	17	M16	40	28	22	

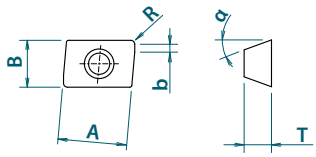
Packed: 1 pc.
Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).
This item is stocked overseas. Please contact OSG for availability and delivery.

PXT

List 78PSE

PSE/PSEL Inserts





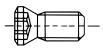
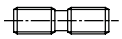
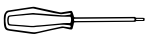
Designation	No. of Cutting Edges	Insert Size						EDP Number										
		AxB (mm)	T (mm)	α	R (mm)	b (mm)	Aa Max (mm)	CK010	XC3020	XP3025	XC3030	XP3035	XP2025	XP2040	XC1015	XC5035	XC5040	XP6015
ZDKT11T302FR-NM	2	11x6.8	3.8	15°	0.2	2.0	10	7811048	-	-	-	-	-	-	-	-	-	-
ZDKT11T304FR-NM					0.4	1.8		7811049	-	-	-	-	-	-	-	-	-	-
ZDKT11T308FR-NM					0.8	1.4		7811023	-	-	-	-	-	-	-	-	-	-
ZDHT11T302FR-NM			3.5		0.2	2.0		7811010	-	-	-	-	-	-	-	-	-	-
ZDHT11T304FR-NM					0.4	1.8		7811024	-	-	-	-	-	-	-	-	-	-
ZDHT11T308FR-NM					0.8	1.4		7811014	-	-	-	-	-	-	-	-	-	-
ZDHT11T312FR-NM					1.2	1.4		7811015	-	-	-	-	-	-	-	-	-	-
ZDHT11T316FR-NM					1.6	1.4		7811017	-	-	-	-	-	-	-	-	-	-
ZDHT11T320FR-NM					2.0	1.4		7811018	-	-	-	-	-	-	-	-	-	-
ZDHT11T325FR-NM					2.5	1.4		7811019	-	-	-	-	-	-	-	-	-	-
ZDHT11T332FR-NM					3.2	0.8		7811020	-	-	-	-	-	-	-	-	-	-
ZDHT11T340FR-NM					4.0	-		7811021	-	-	-	-	-	-	-	-	-	-
ZDHT11T350FR-NM					5.0	-		7811022	-	-	-	-	-	-	-	-	-	-
ZDKT11T304SR-GL			3.8		0.4	1.8		-	-	-	7825024	7814024	-	-	-	-	-	-
ZDKT11T308SR-GL					0.8	1.4		-	7827026	7828026	7825026	7814026	7826026	7813026	-	-	-	-
ZDKT11T312SR-GL					1.2	1.0		-	-	-	-	-	-	7813034	-	-	-	-
ZDKT11T320SR-GL					2.0	2.1		-	-	-	7825035	7814035	-	7813035	-	-	-	-
ZDKT11T332SR-GL					3.2	1.5		-	-	-	-	-	-	7813036	-	-	-	-
ZDKT11T304SR-GM					0.4	1.8		-	7827025	7828025	7825025	7814025	7826025	7813025	7812025	-	-	-
ZDKT11T308SR-GM					0.8	1.4		-	7827032	7828032	7825032	7814032	7826032	7813032	-	-	-	-
ZDKT11T312SR-GM					1.2	1.0		-	-	-	-	7814053	-	7813053	-	-	-	-
ZDKT11T320SR-GM					2.0	2.1		-	-	-	-	7814038	-	7813038	-	-	-	-
ZDKT11T325SR-GM					2.5	1.6		-	-	-	7825039	7814039	-	-	-	-	-	-
ZDKT11T330SR-GM					3.0	1.5		-	-	-	-	7814054	-	7813054	-	-	-	-
ZDKT11T340SR-GM					4.0	-		-	-	-	-	7814055	-	7813055	-	-	-	-
ZDKT11T308SR-GR					0.8	1.4		-	7827033	7828033	7825033	7814033	-	7813033	7812033	-	-	-
ZDKT11T308SR-HR					0.8	1.4		-	-	-	-	-	-	-	-	-	-	7824035
ZDKT11T304ER-SM					0.4	1.8		-	-	-	-	-	-	-	-	-	7816034	-
ZDKT11T308ER-SM					0.8	1.4		-	-	-	-	-	-	-	-	7815031	7816031	-
ZDKT11T312ER-SM					1.2	1.1		-	-	-	-	-	-	-	-	-	7816040	-
ZDKT11T316ER-SM					1.6	0.8		-	-	-	-	-	-	-	-	7815027	7816027	-
ZDKT11T320ER-SM					2.0	0.3		-	-	-	-	-	-	-	-	-	7816041	-
ZDKT11T325ER-SM					2.5	-		-	-	-	-	-	-	-	-	-	7816042	-
ZDKT11T332ER-SM					3.2	-		-	-	-	-	-	-	-	-	-	7816043	-
ZDKT11T340ER-SM					4.0	-		-	-	-	-	-	-	-	-	-	7816044	-
ZDKT150508FR-NM		15x9.3	5.56		0.8	1.6	14	7811046			-	-	-	-	-	-	-	-
ZDKT150508SR-GL					0.8	1.6		-	7827057	7828057	7825057	7814057	7826057	7813057	-	-	-	-
ZDKT150508SR-GM					0.8	1.6		-	7827028	7828028	7825029	7814029	7826029	7813028	7812029	-	-	-
ZDKT150512SR-GM					1.2	1.2		-	-	-	-	7814077	-	7813077	-	-	-	-
ZDKT150516SR-GM					1.6	0.8		-	-	-	-	7814078	-	7813078	-	-	-	-
ZDKT150520SR-GM					2.0	2.1		-	-	-	-	7814079	-	7813079	-	-	-	-
ZDKT150530SR-GM					3.0	1.9		-	-	-	-	7814080	-	7813080	-	-	-	-
ZDKT150540SR-GM					4.0	1.1		-	-	-	-	7814081	-	7813081	-	-	-	-
ZDKT150550SR-GM					5.0	0.7		-	-	-	-	7814082	-	7813082	-	-	-	-
ZDKT150508SR-GR					0.8	1.6		-	7827058	7828058	7825058	7814058	-	7813058	7812058	-	-	-
ZDKT150508SR-HR					0.8	1.6		-	-	-	-	-	-	-	-	-	-	7824036
ZDKT150508ER-SM					0.8	1.6		-	-	-	-	-	-	-	-	7815056	7816056	-

Packed: 10 pcs.

PXI

List 7808H

PSE Accessories

Appearance	EDP No.	Designation	Applicable Insert	Applicable Cutter (mm)	Applicable Cutter (inch)	Recommended Tightening Torque
 Clamping Screw	7808107	FS25656P (M2.5 x 5.6, Torx 8IP)	ZD_T11...	PSE SS/SF Ø16-35	PSE11 SA/FA/ASF Ø.625-1.25″	1.6 Nm
	7808109	FS25673P (M2.5 x 7.3, Torx 8IP)		PSE BORE Ø40-80	PSE11 BORE Ø2-3″	1.6 Nm
	7808115	FS35686P (M3.5 x 8.6, Torx 15IP)	ZDKT15...	PSE SS/SF Ø25-63 PSE BORE Ø40-125	PSE SA/FA/ASF Ø1-1.5″ PSE15 BORE Ø2-6″	3.2 Nm
 Power Screw	7808150	PS0830 (M8×30)	ZD_T11... ZDKT15...	PSE BORE Ø40	n/a	15.0 Nm
	7808151	PS1031 (M10×31)	ZD_T11... ZDKT15...	PSE BORE Ø50	n/a	20.0 Nm
 Wrench	7808225	8IP-D (Torx 8IP)	ZD_T11...	PSE SS/SF Ø16-35 PSE BORE Ø40-80	PSE11 SA/FA/ASF Ø.625-1.25″ PSE11 BORE Ø2-3″	
	7808228	15IP-D (Torx 15IP)	ZDKT15...	PSE SS/SF Ø25-63 PSE BORE Ø40-125	PSE15 SA/FA/ASF Ø1-1.5″ PSE15 BORE Ø2-6″	

Packed: Clamping Screws = 10 pcs.; Power Screw = 1 pc.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

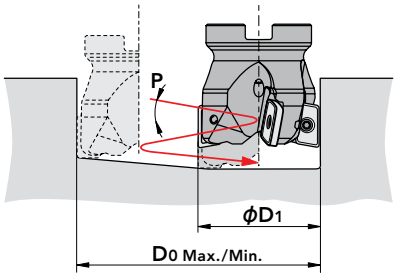
Work Material		Tensile Strength – Hardness	Insert Size							
			ZD_T11...				ZDKT15...			
			Side Milling Aa: 0.394" • Ar: 0.2D		Face Milling Aa: 0.118" • Ar: 1.0D		Side Milling Aa: 0.551" • Ar: 0.2D		Face Milling Aa: 0.197" • Ar: 1.0D	
			Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)	Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)	Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)	Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	590 (330 - 820)	0.010 (0.008 - 0.020)	590 (330 - 820)	0.005 (0.002 - 0.008)	590 (330 - 820)	0.012 (0.008 - 0.024)	590 (330 - 820)	0.006 (0.002 - 0.010)
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	590 (330 - 820)	0.008 (0.006 - 0.016)	590 (330 - 820)	0.004 (0.002 - 0.008)	590 (330 - 820)	0.010 (0.006 - 0.020)	590 (330 - 820)	0.005 (0.002 - 0.008)
	Die Steels (H13, D2)	~280 HB	495 (260 - 655)	0.008 (0.006 - 0.016)	495 (260 - 655)	0.004 (0.002 - 0.007)	495 (260 - 655)	0.010 (0.006 - 0.020)	495 (260 - 655)	0.005 (0.002 - 0.008)
M	Stainless Steels(Dry) (304SS, 420SS)	~250 HB	495 (260 - 655)	0.007 (0.006 - 0.016)	495 (260 - 655)	0.004 (0.004 - 0.007)	495 (260 - 655)	0.008 (0.006 - 0.018)	495 (260 - 655)	0.005 (0.004 - 0.008)
	Stainless Steels(Wet) (304SS, 420SS)	~250 HB	260 (195 - 395)	0.007 (0.006 - 0.016)	260 (195 - 395)	0.004 (0.004 - 0.007)	260 (195 - 395)	0.008 (0.006 - 0.018)	260 (195 - 395)	0.005 (0.004 - 0.008)
K	Cast Iron (FC250)	~350 N/mm²	590 (330 - 985)	0.010 (0.006 - 0.020)	590 (330 - 985)	0.005 (0.002 - 0.008)	590 (330 - 985)	0.012 (0.008 - 0.024)	590 (330 - 985)	0.006 (0.002 - 0.010)
	Ductile Cast Iron (60-40-18)	~800 N/mm²	590 (330 - 820)	0.006 (0.004 - 0.016)	590 (330 - 820)	0.005 (0.002 - 0.008)	590 (330 - 820)	0.008 (0.006 - 0.020)	590 (330 - 820)	0.006 (0.002 - 0.010)
N	Aluminum Alloys (6061, 7075)	~13% Si	985 (655 - 4920)	0.012 (0.008 - 0.020)	985 (655 - 4920)	0.006 (0.004 - 0.010)	985 (655 - 4920)	0.014 (0.008 - 0.024)	985 (655 - 4920)	0.007 (0.004 - 0.012)
S	Heat Resistant Alloys (Inconel 718)	-	115 (85 - 195)	0.006 (0.004 - 0.012)	115 (85 - 195)	0.004 (0.002 - 0.006)	115 (85 - 195)	0.008 (0.004 - 0.012)	115 (85 - 195)	0.004 (0.002 - 0.006)
	Titanium Alloy (Ti-6Al-4V)	-	130 (100 - 395)	0.007 (0.004 - 0.014)	130 (100 - 395)	0.004 (0.004 - 0.010)	130 (100 - 395)	0.009 (0.004 - 0.014)	130 (100 - 395)	0.004 (0.004 - 0.010)
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HRC	330 (130 - 495)	0.007 (0.004 - 0.012)	330 (130 - 495)	0.004 (0.003 - 0.008)	330 (130 - 495)	0.008 (0.004 - 0.014)	330 (130 - 495)	0.005 (0.003 - 0.010)
	Die Cast Steels (A2, S7)	43 - 48 HRC	260 (130 - 395)	0.005 (0.003 - 0.008)	260 (130 - 395)	0.003 (0.002 - 0.006)	260 (130 - 395)	0.006 (0.003 - 0.010)	260 (130 - 395)	0.004 (0.002 - 0.008)
	Hardened Steels (D2)	50 - 55 HRC	195 (130 - 295)	0.004 (0.002 - 0.008)	195 (130 - 295)	0.002 (0.002 - 0.004)	195 (130 - 295)	0.005 (0.002 - 0.008)	195 (130 - 295)	0.003 (0.002 - 0.005)

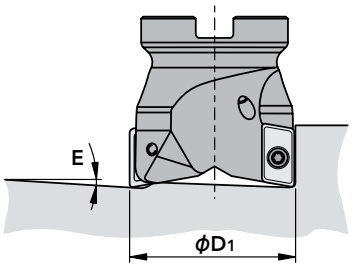
Recommended Materials by Application

Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	Yes				◎		
XC3020	GL / GM / GR	-	◎		○			
XP3025	GL / GM / GR	Yes	◎		○			
XC3030	GL / GM / GR	-	◎		○			
XP3035	GL / GM / GR	-	◎	○	○			
XP2025	GL / GM	Yes	○	◎			○	
XP2040	GL / GM / GR	-	○	○				○
		Yes	○	◎			○	
XC1015	GM / GR	-			◎			
XC5035	SM	-		◎				
		Yes		○			○	
XC5040	SM	Yes		○			◎	
XP6015	HR	-	○		○			◎

GL:Light Cutting GM:Medium Cutting GR: Rough Cutting NM:Aluminum SM:Heat Resistant Alloy HR: Hardened Steel ○ good ◎ best

Maximum Ramping Angle (E) & Helical Angle (P)





Insert Size	ZD_T11...				ZDKT15...			
Diameter (inch)	Ramping Angle	Helical Milling(inch)		Helical Angle	Ramping Angle	Helical Milling (inch)		Helical Angle
D1	E	D_0 Min.	D_0 Max.	P	E	D_0 Min.	D_0 Max.	P
0.625	10.8°	0.935	1.187	9.5°	-	-	-	-
0.750	9.8°	1.185	1.437	7.0°	-	-	-	-
1.000	7.4°	1.685	1.927	4.4°	9.5°	1.488	1.921	7.4°
1.250	4.8°	2.158	2.437	3.2°	6.8°	1.988	2.421	5.0°
1.500	2.9°	2.685	2.937	2.2°	5.1°	2.488	2.921	3.2°
2.000	2.1°	3.685	3.937	1.6°	2.4°	3.488	3.921	2.4°
2.500	1.8°	4.685	4.937	1.4°	2.3°	4.488	4.921	1.4°
3.000	1.4°	5.685	5.937	1.0°	2.0°	5.488	5.921	1.3°
4.000	-	-	-	-	1.4°	7.488	7.921	1.0°
5.000	-	-	-	-	0.8°	9.488	9.921	0.8°
6.000	-	-	-	-	0.7°	11.488	11.921	0.6°

List 53000

PSEL SA/FA (Inch)

SPEED FEED P1394
Recommended Materials: p1395
Accessories & Inserts: p1392-1393

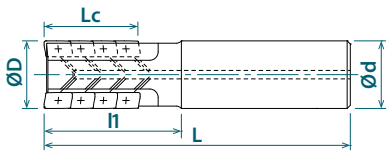


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	No. of Teeth	No. of Inserts per Tooth	Total No. of Inserts	Length of Cut (inch) Lc	Shank Dia. (inch) d	Overall Length (inch) L	Neck Length (inch) L1	Applicable Insert
53000000	Cylindrical Shank Short	Normal	PSEL11R100SA100-2-27	1	1.000	2	3	6	1.063	1.000	4.921	1.968	ZD_T11…
53000001			PSEL11R125SA125-2-37	1	1.250	2	4	8	1.457	1.250	5.512	2.362	
53000002			PSEL11R125SA125-3-45	1	1.250	3	5	15	1.791	1.250	5.512	2.362	
53000003			PSEL11R150SA125-3-37	2	1.500	3	4	12	1.457	1.250	5.512	2.362	
53000004			PSEL11R150SA125-4-45	2	1.500	4	5	20	1.791	1.250	5.512	2.362	
53000005			PSEL15R150SA125-2-38	2	1.500	2	3	6	1.496	1.250	5.512	2.362	ZDKT15…
53000006	Weldon Shank Short	Normal	PSEL11R100FA100-2-27	1	1.000	2	3	6	1.063	1.000	4.248	1.968	ZD_T11…
53000007			PSEL11R125FA125-2-37	1	1.250	2	4	8	1.457	1.250	4.642	2.362	
53000008			PSEL11R125FA125-3-45	1	1.250	3	5	15	1.791	1.250	4.642	2.362	
53000009			PSEL11R150FA125-3-37	2	1.500	3	4	12	1.457	1.250	4.642	2.362	
53000010			PSEL11R150FA125-4-45	2	1.500	4	5	20	1.791	1.250	4.642	2.362	
53000011			PSEL15R150FA125-2-38	2	1.500	2	3	6	1.496	1.250	4.642	2.362	ZDKT15…

Packed: 1 pc.
Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).

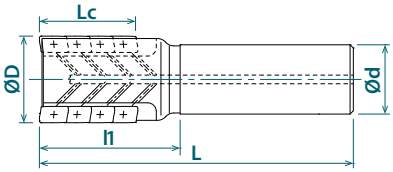
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 78029

PSEL SS (Metric)

SPEED FEED P1394
Recommended Materials: p1395
Accessories & Inserts: p1392-1393

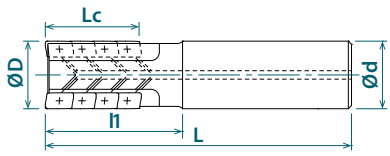


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	No. of Inserts per Tooth	Total No. of Inserts	Length of Cut (mm) Lc	Shank Dia. (mm) d	Overall Length (mm) L	Neck Length (mm) L1	Applicable Insert
7802900	Cylindrical Shank	Normal	PSEL11R025SS25-2-27	1	25	2	3	6	27.0	25	125	50	ZD_T11…
7802901			PSEL11R032SS32-2-37	1	32	2	4	8	37.0	32	140	60	
7802902			PSEL11R032SS32-3-45	1	32	3	5	15	45.5	32	140	60	
7802903			PSEL11R040SS42-3-37	1	40	3	4	12	37.0	42	140	60	
7802904			PSEL11R040SS42-4-45	1	40	4	5	20	45.5	42	140	60	
7802905			PSEL15R040SS42-2-38	1	40	2	3	6	38.0	42	140	60	ZDKT15…
7802906			PSEL15R050SS42-3-50	2	50	3	4	12	50.5	42	144	64	

Packed: 1 pc.
Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).
This item is stocked overseas. Please contact OSG for availability and delivery.

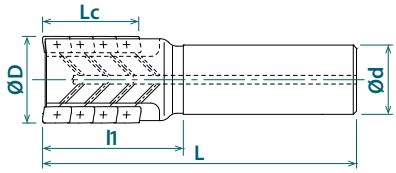
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 53001

PSEL Bore (Inch)



Recommended Materials: p1395
Accessories & Inserts: p1392-1393



EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch)	No. of Teeth	No. of Inserts per Tooth	Total No. of Inserts	Length of Cut (inch)	Tool Height (inch)	Flange Dia. (inch)	Bore Hole Dia. (inch)	Keyway Width (inch)	Keyway Depth (inch)	Applicable Insert
					D				Lc	H	D2	d3	a	b	
53001000	Bore	Normal	PSEL15R200A075-3-50	1	2.000	3	4	12	1.988	2.913	1.772	0.750	0.315	0.197	ZDKT15…
53001001			PSEL15R250A100-4-50	1	2.500	4	4	16	1.988	2.913	2.362	1.000	0.375	0.236	
53001002			PSEL15R300A100-4-63	1	3.000	4	5	20	2.480	3.464	2.362	1.000	0.375	0.236	

Packed: 1 pc.
Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).

PXT

List 78028

PSEL Bore (Metric)



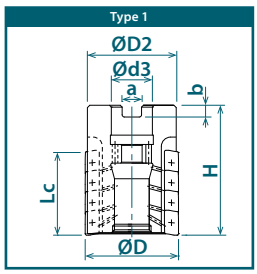
Recommended Materials: p1395
Accessories & Inserts: p1392-1393



EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm)	No. of Teeth	No. of Inserts per Tooth	Total No. of Inserts	Length of Cut (mm)	Tool Height (mm)	Flange Dia. (mm)	Bore Hole Dia. (mm)	Keyway Width (mm)	Keyway Depth (mm)	Applicable Insert
					D				Lc	H	D2	d3	a	b	
7802850	Bore	Normal	PSEL15R050M22-3-50	1	50	3	4	12	50.5	74	45	22	10.4	6.3	ZDKT15…
7802851			PSEL15R063M27-3-50	1	63	3	4	12	50.5	74	60	27	12.4	7	
7802852			PSEL15R080M32-4-63	1	80	4	5	20	63	88	76	32	14.4	8	

Packed: 1 pc.
Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).
This item is stocked overseas. Please contact OSG for availability and delivery.

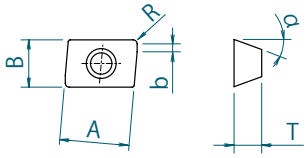
PXT



List 78PSE

PSE/PSEL Inserts





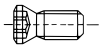
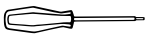
Designation	No. of Cutting Edges	Insert Size						EDP Number									
		AxB (mm)	T (mm)	α	R (mm)	b (mm)	Aa Max (mm)	CK010	XC3020	XP3025	XC3030	XP3035	XP2025	XP2040	XC1015	XC5035	XC5040	XP6015
ZDKT11T302FR-NM	2	11x6.8	3.8	15°	0.2	2.0	10	7811048	-	-	-	-	-	-	-	-	-	-
ZDKT11T304FR-NM					0.4	1.8		7811049	-	-	-	-	-	-	-	-	-	-
ZDKT11T308FR-NM					0.8	1.4		7811023	-	-	-	-	-	-	-	-	-	-
ZDHT11T302FR-NM			3.5		0.2	2.0		7811010	-	-	-	-	-	-	-	-	-	-
ZDHT11T304FR-NM					0.4	1.8		7811024	-	-	-	-	-	-	-	-	-	-
ZDHT11T308FR-NM					0.8	1.4		7811014	-	-	-	-	-	-	-	-	-	-
ZDHT11T312FR-NM					1.2	1.4		7811015	-	-	-	-	-	-	-	-	-	-
ZDHT11T316FR-NM					1.6	1.4		7811017	-	-	-	-	-	-	-	-	-	-
ZDHT11T320FR-NM					2.0	1.4		7811018	-	-	-	-	-	-	-	-	-	-
ZDHT11T325FR-NM					2.5	1.4		7811019	-	-	-	-	-	-	-	-	-	-
ZDHT11T332FR-NM					3.2	0.8		7811020	-	-	-	-	-	-	-	-	-	-
ZDHT11T340FR-NM					4.0	-		7811021	-	-	-	-	-	-	-	-	-	-
ZDHT11T350FR-NM					5.0	-		7811022	-	-	-	-	-	-	-	-	-	-
ZDKT11T304SR-GL			3.8		0.4	1.8		-	-	-	7825024	7814024	-	-	-	-	-	-
ZDKT11T308SR-GL					0.8	1.4		-	7827026	7828026	7825026	7814026	7826026	7813026	-	-	-	-
ZDKT11T312SR-GL					1.2	1.0		-	-	-	-	-	-	7813034	-	-	-	-
ZDKT11T320SR-GL					2.0	2.1		-	-	-	7825035	7814035	-	7813035	-	-	-	-
ZDKT11T332SR-GL					3.2	1.5		-	-	-	-	-	-	7813036	-	-	-	-
ZDKT11T304SR-GM					0.4	1.8		-	7827025	7828025	7825025	7814025	7826025	7813025	7812025	-	-	-
ZDKT11T308SR-GM					0.8	1.4		-	7827032	7828032	7825032	7814032	7826032	7813032	-	-	-	-
ZDKT11T312SR-GM					1.2	1.0		-	-	-	-	7814053	-	7813053	-	-	-	-
ZDKT11T320SR-GM					2.0	2.1		-	-	-	-	7814038	-	7813038	-	-	-	-
ZDKT11T325SR-GM					2.5	1.6		-	-	-	7825039	7814039	-	-	-	-	-	-
ZDKT11T330SR-GM					3.0	1.5		-	-	-	-	7814054	-	7813054	-	-	-	-
ZDKT11T340SR-GM					4.0	-		-	-	-	-	7814055	-	7813055	-	-	-	-
ZDKT11T308SR-GR					0.8	1.4		-	7827033	7828033	7825033	7814033	-	7813033	7812033	-	-	-
ZDKT11T308SR-HR					0.8	1.4		-	-	-	-	-	-	-	-	-	-	7824035
ZDKT11T304ER-SM					0.4	1.8		-	-	-	-	-	-	-	-	-	7816034	-
ZDKT11T308ER-SM					0.8	1.4		-	-	-	-	-	-	-	-	7815031	7816031	-
ZDKT11T312ER-SM					1.2	1.1		-	-	-	-	-	-	-	-	-	7816040	-
ZDKT11T316ER-SM					1.6	0.8		-	-	-	-	-	-	-	-	7815027	7816027	-
ZDKT11T320ER-SM					2.0	0.3		-	-	-	-	-	-	-	-	-	7816041	-
ZDKT11T325ER-SM					2.5	-		-	-	-	-	-	-	-	-	-	7816042	-
ZDKT11T332ER-SM					3.2	-		-	-	-	-	-	-	-	-	-	7816043	-
ZDKT11T340ER-SM					4.0	-		-	-	-	-	-	-	-	-	-	7816044	-
ZDKT150508FR-NM		15×9.3	5.56		0.8	1.6	14	7811046			-	-	-	-	-	-	-	-
ZDKT150508SR-GL					0.8	1.6		-	7827057	7828057	7825057	7814057	7826057	7813057	-	-	-	-
ZDKT150508SR-GM					0.8	1.6		-	7827028	7828028	7825029	7814029	7826029	7813028	7812029	-	-	-
ZDKT150512SR-GM					1.2	1.2		-	-	-	-	7814077	-	7813077	-	-	-	-
ZDKT150516SR-GM					1.6	0.8		-	-	-	-	7814078	-	7813078	-	-	-	-
ZDKT150520SR-GM					2.0	2.1		-	-	-	-	7814079	-	7813079	-	-	-	-
ZDKT150530SR-GM					3.0	1.9		-	-	-	-	7814080	-	7813080	-	-	-	-
ZDKT150540SR-GM					4.0	1.1		-	-	-	-	7814081	-	7813081	-	-	-	-
ZDKT150550SR-GM					5.0	0.7		-	-	-	-	7814082	-	7813082	-	-	-	-
ZDKT150508SR-GR					0.8	1.6		-	7827058	7828058	7825058	7814058	-	7813058	7812058	-	-	-
ZDKT150508SR-HR					0.8	1.6		-	-	-	-	-	-	-	-	-	-	7824036
ZDKT150508ER-SM					0.8	1.6		-	-	-	-	-	-	-	-	7815056	7816056	-

Packed: 10 pcs.
Note: For the 2nd and subsequent steps, use an insert with R0.8 or smaller.

PXI

List 7808H

PSEL Accessories

Appearance	EDP No.	Designation	Applicable Insert	Applicable Cutter		Recommended Tightening Torque
				(mm)	(inch)	
 Clamping Screw	7808107	FS25656P (M2.5 x 5.6, Torx 8IP)	ZD_T11…	PSEL SS Ø25	PSEL11 SA/FA Ø1"	1.6 Nm
	7808109	FS25673P (M2.5 x 7.3, Torx 8IP)		PSEL SS Ø32-40	PSEL11 SA/FA Ø1.25-1.5"	1.6 Nm
	7808115	FS35686P (M3.5 x 8.6, Torx 15IP)	ZDKT15…	PSEL SS Ø40-50 PSEL BORE Ø50-80	PSEL15 SA/FA Ø1.5″ PSEL BORE Ø2-3″	3.2 Nm
 Coolant Cap Bolt	7808132	OCB-M20-08		PSEL BORE Ø50	PSEL BORE Ø2"	
	7808133	OCB-M24-10		PSEL BORE Ø63	PSEL BORE Ø2.5"	
	7808134	OCB-M30-14		PSEL BORE Ø80	PSEL BORE Ø3"	
 Wrench	7808225	8IP-D (Torx 8IP)	ZD_T11…	PSEL SS Ø25-40	PSEL11 SA/FA Ø1-1.5"	
	7808228	15IP-D (Torx 15IP)	ZDKT15…	PSEL SS Ø40-50 PSEL BORE Ø50-80	PSEL15 SA/FA Ø1.5″ PSEL BORE Ø2-3″	

Packed: Clamping Screws = 10 pcs.; Coolant Cap Bolt = 1 pc.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Insert Size			
			ZD T11…		ZDKT15…	
			Side Milling Aa: 1.1-1.5D • Ar: 0.1D Max		Side Milling Aa: 1.1-1.5D • Ar: 0.1D Max	
			Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)	Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	525 (330 - 655)	0.010 (0.008 - 0.016)	525 (330 - 655)	0.012 (0.008 - 0.016)
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	495 (330 - 655)	0.008 (0.006 - 0.012)	495 (330 - 655)	0.010 (0.006 - 0.012)
	Die Steels (H13, D2)	~280 HB	425 (260 - 590)	0.008 (0.006 - 0.012)	425 (260 - 590)	0.010 (0.006 - 0.012)
M	Stainless Steels(Dry) (304SS, 420SS)	~250 HB	495 (330 - 655)	0.005 (0.004 - 0.012)	495 (330 - 655)	0.006 (0.004 - 0.012)
	Stainless Steels(Wet) (304SS, 420SS)	~250 HB	260 (195 - 395)	0.005 (0.004 - 0.012)	260 (195 - 395)	0.006 (0.004 - 0.012)
K	Cast Iron (FC250)	~350 N/mm²	525 (330 - 985)	0.008 (0.008 - 0.014)	525 (330 - 985)	0.010 (0.008 - 0.014)
	Ductile Cast Iron (60-40-18)	~800 N/mm²	525 (330 - 820)	0.006 (0.008 - 0.012)	525 (330 - 820)	0.008 (0.008 - 0.012)
N	Aluminum Alloys (6061, 7075)	~13% Si	985 (655 - 3280)	0.010 (0.004 - 0.016)	985 (655 - 3280)	0.012 (0.004 - 0.016)
S	Heat Resistant Alloys (Inconel 718)	-	115 (85 - 195)	0.006 (0.004 - 0.012)	115 (85 - 195)	0.007 (0.004 - 0.012)
	Titanium Alloy (Ti-6Al-4V)	-	130 (100 - 395)	0.006 (0.004 - 0.012)	130 (100 - 395)	0.007 (0.004 - 0.012)
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HRC	330 (130 - 495)	0.006 (0.004 - 0.012)	330 (130 - 495)	0.007 (0.004 - 0.012)
	Die Cast Steels (A2, S7)	43 - 48 HRC	195 (130 - 395)	0.005 (0.002 - 0.008)	195 (130 - 395)	0.006 (0.002 - 0.008)

Recommended Materials by Application

Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	Yes				◎		
XC3020	GL / GM / GR	-	◎		○			
XP3025	GL / GM / GR	Yes	◎		○			
XC3030	GL / GM / GR	-	◎		○			
XP3035	GL / GM / GR	-	◎	○	○			
XP2025	GL / GM	Yes	○	◎			○	
XP2040	GL / GM / GR	-	○	○				○
		Yes	○	◎			○	
XC1015	GM / GR	-			◎			
XC5035	SM	-		◎				
		Yes		○			○	
XC5040	SM	Yes		○			◎	
XP6015	HR	-	○		○			◎

GL:Light Cutting GM:Medium Cutting
GR: Rough Cutting NM:Aluminum
SM: Heat Resistant Alloy HR: Hardened Steel

○ good ◎ best

Cutting Conditions Adjustment Ratio

Depth of Cut	Width of Cut	Milling Speed Ratio	Feed Rate Ratio
Aa	Ar Max		
< 0.2D	1D	0.8	0.5
0.25-0.3D	0.7D	0.8	0.6
0.4-0.5D	0.5D	0.9	0.7
0.6-0.7D	0.3D	0.9	0.8
0.8-1.0D	0.2D	1.0	0.9
1.1-1.5D	0.1D	1.0	1.0

Ex: For Ø1.250" PSEL with ZDKT11 inserts, Aa = 1.150", side milling in 1050 carbon steel:
Vc = 492 SFM x 1.0 = 492 SFM
fz = 0.008 in/t x 0.9 = 0.007 in/t
Ar = 0.2 x 1.250" = 0.250" Max

List 52900

PSF SA/FA (Inch)



SPEED FEED P1399

Recommended Materials: p1399
Accessories & Inserts: p1398



EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	No. of Teeth	Shank Dia. (inch) d	Overall Length (inch) L	Neck Length (inch) L1	Applicable Insert
52900000	Cylindrical Shank Short	Normal	PSF09R100SA100-3S	1	1.000	3	1.000	4.724	1.378	SD_T09…
52900001			PSF09R125SA125-4S	1	1.250	4	1.250	5.118	1.772	
52900002			PSF09R150SA125-5S	2	1.500	5	1.250	5.512	1.969	
52900004	Weldon Shank Short	Normal	PSF09R100FA100-3S	1	1.000	3	1.000	3.831	1.551	
52900005			PSF09R125FA125-4S	1	1.250	4	1.250	4.378	2.098	
52900006			PSF09R150FA125-5S	2	1.500	5	1.250	4.378	2.098	

Packed: 1 pc.

PXT

List 78030

PSF SS (Metric)



SPEED FEED P1399

Recommended Materials: p1399
Accessories & Inserts: p1398

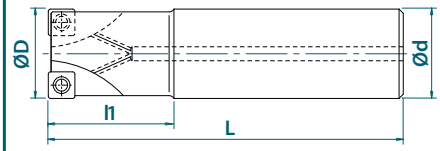


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	Shank Dia. (mm) d	Overall Length (mm) L	Neck Length (mm) L1	Applicable Insert
7803001	Cylindrical Shank Short	Normal	PSF09R025SS25-3S	1	25	3	25	120	35	SD_T09…
7803002			PSF09R032SS32-4S	1	32	4	32	130	45	
7803003			PSF09R040SS32-5S	2	40	5	32	140	50	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

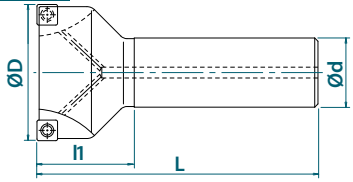
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 52901

PSF Bore (Inch)



SPEED FEED P1399

Recommended Materials: p1399
Accessories & Inserts: p1398



EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch)	No. of Teeth	Tool Height (inch)	Flange Dia. (inch)	Bore Hole Dia. (inch)	Keyway Width (inch)	Keyway Depth (inch)	Applicable Insert
					D		H	D2	d3	a	b	
52901000	Bore	Normal	PSF09R200A075-6	1	2.000	6	1.575	1.772	0.750	0.315	0.197	SD_T09…
52901001			PSF09R250A075-7	1	2.500	7	1.575	1.968	0.750	0.315	0.197	
52901002			PSF09R300A100-9	1	3.000	9	1.968	2.362	1.000	0.375	0.236	

Packed: 1 pc.

PXT

List 78130

PSF Bore (Metric)



SPEED FEED P1399

Recommended Materials: p1399
Accessories & Inserts: p1398

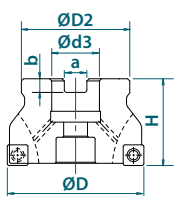


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm)	No. of Teeth	Tool Height (mm)	Flange Dia. (mm)	Bore Hole Dia. (mm)	Keyway Width (mm)	Keyway Depth (mm)	Applicable Insert
					D		H	D2	d3	a	b	
7803011	Bore	Normal	PSF09R050M22-6	1	50	6	40	45	22	10.4	6.3	SD_T09…
7803012			PSF09R063M22-7	1	63	7	40	50	22	10.4	6.3	
7803013			PSF09R080M25.4-9	1	80	9	50	60	25.4	9.5	6	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

PXT

Type 1

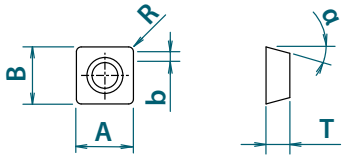


With coolant hole.

List 78PSF

PSF/PSFL Inserts





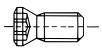
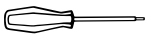
Designation	No. of Cutting Edges	Insert Size					EDP Number					
		AxB (mm)	T (mm)	α	R (mm)	b (mm)	CK010	XC3030	XP3035	XP2040	XC1015	XC5040
SDHT09T308FR-NM	4	9.07 x 9.07	3.97	15°	0.8	2.5	7811076	-	-	-	-	-
SDKT09T308SR-GL							-	7825073	7814073	7813073	-	7816073
SDKT09T308SR-GM							-	7825074	7814074	7813074	-	-
SDKT09T308SR-GR							-	-	-	-	7812075	-
SDHT120508FR-NM		12.38 x 12.38	5			1.2	7811625	-	-	-	-	-
SDKT120508SR-GL							-	-	-	7813623	-	7816620
SDKT120508SR-GM							-	7825622	7814621	-	-	-
SDKT120508SR-GR							-	-	-	-	7812624	-

Packed: 10 pcs.

PXI

List 7808H

PSF Accessories

Appearance	EDP No.	Designation	Applicable Cutter		Recommended Tightening Torque
			(mm)	(inch)	
 Clamping Screw	7808110	FS30573 (M3 x 7.3, Torx 8)	PSF SS Ø25-40 PSF BORE Ø50-80	PSF SA/FA Ø1-1.5" PSF BORE Ø2-3"	1.6 Nm
 Wrench	7808205	T8-D (Torx 8)	PSF SS Ø25-40 PSF BORE Ø50-80	PSF SA/FA Ø1-1.5" PSF BORE Ø2-3"	

Packed: Clamping Screws = 10 pcs.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Insert Size SD_T09… Face Milling • Side Milling		
			Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)	Depth of Cut Aa (in)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	590 (330 - 820)	0.005 (0.002 - 0.008)	0.120
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	590 (330 - 820)	0.005 (0.002 - 0.008)	0.120
	Die Steels (H13, D2)	~280 HB	495 (260 - 655)	0.004 (0.002 - 0.007)	0.120
M	Stainless Steels(Dry) (304SS, 420SS)	~250 HB	495 (260 - 655)	0.004 (0.002 - 0.007)	0.080
	Stainless Steels(Wet) (304SS, 420SS)	~250 HB	260 (195 - 395)	0.004 (0.002 - 0.007)	0.080
K	Cast Iron (FC250)	~350 N/mm²	590 (330 - 1150)	0.005 (0.002 - 0.008)	0.120
	Ductile Cast Iron (60-40-18)	~800 N/mm²	590 (330 - 885)	0.005 (0.002 - 0.008)	0.120
N	Aluminum Alloys (6061, 7075)	~13% Si	985 (655 - 4920)	0.006 (0.004 - 0.010)	0.120
S	Heat Resistant Alloys (Inconel 718)	-	115 (85 - 195)	0.004 (0.002 - 0.006)	0.060
	Titanium Alloy (Ti-6Al-4V)	-	130 (100 - 395)	0.004 (0.002 - 0.007)	0.060
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HRC	295 (130 - 495)	0.004 (0.003 - 0.008)	0.060
	Die Cast Steels (A2, S7)	43 - 48 HRC	230 (130 - 395)	0.003 (0.002 - 0.006)	0.020
	Hardened Steels (D2)	50 - 55 HRC	165 (130 - 295)	0.002 (0.002 - 0.004)	0.020

Recommended Materials by Application

Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	Yes				◎		
XC3030	GL/GM	–	◎		○			
XP3035	GL/GM	–	◎	○	○			
XP2040	GL/GM	–	○	○				○
		Yes	○	◎			○	
XC1015	GR	–			◎			
XC5040	GL	Yes		○			◎	

GL:Light Cutting GM:Medium Cutting GR: Rough Cutting NM:Aluminum

○ good ◎ best

List 53200

PSFL SA/FA (Inch)

SPEED FEED P1403

Recommended Materials: p1403
Accessories & Inserts: p1402



EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	No. of Teeth	No. of Inserts Per Tooth	Total No. of Inserts	Length of Cut (inch) Lc	Shank Dia. (inch) d	Overall Length (inch) L	Neck Length (inch) L1	Applicable Insert
53200000	Cylindrical Shank	Normal	PSFL09R125SA125-2-36	1	1.250	2	5	10	1.417	1.250	5.512	2.362	SD_T09…
53200001			PSFL09R150SA125-3-43	2	1.500	3	6	18	1.693	1.250	5.512	2.362	
53200002	Weldon Shank	Normal	PSFL09R125FA125-2-36	1	1.250	2	5	10	1.417	1.250	4.642	2.362	
53200003			PSFL09R150FA125-3-43	2	1.500	3	6	18	1.693	1.250	4.642	2.362	

Packed: 1 pc.

PXT

List 78037

PSFL SS (Metric)

SPEED FEED P1403

Recommended Materials: p1403
Accessories & Inserts: p1402

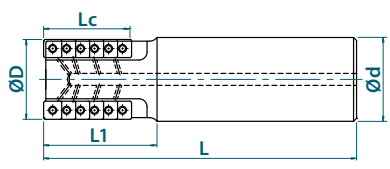


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	No. of Inserts Per Tooth	Total No. of Inserts	Length of Cut (mm) Lc	Shank Dia. (mm) d	Overall Length (mm) L	Neck Length (mm) L1	Applicable Insert
7803700	Cylindrical Shank	Normal	PSFL09R032SS32-2-36	1	32	2	5	10	36	32	140	60	SD_T09…
7803701			PSFL09R040SS42-3-43	1	40	3	6	18	43	42	140	60	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

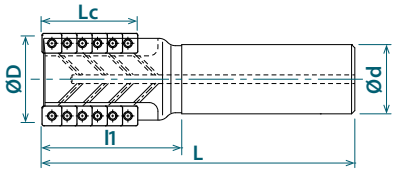
PXT

Type 1



with Coolant Hole

Type 2



with Coolant Hole

List 53201

PSFL Bore (Inch)

SPEED FEED P1403

Recommended Materials: p1403
Accessories & Inserts: p1402



EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	No. of Teeth	No. of Inserts Per Tooth	Total No. of Inserts	Length of Cut (inch) Lc	Tool Height (inch) H	Flange Dia. (Inch) D2	Bore Dia. (Inch) d3	Keyway Width (Inch) a	Keyway Depth (Inch) b	Applicable Insert
53201000	Bore	Normal	PSFL09R200A075-4-57	1	2.000	4	8	32	2.244	3.000	1.941	0.750	0.315	0.197	SD_T09…
53201001			PSFL09R200A075-4-78	1	2.000	4	11	44	3.071	4.000	1.941	0.750	0.315	0.197	
53201002			PSFL12R250A100-4-70	1	2.500	4	7	28	2.756	3.500	2.402	1.000	0.375	0.236	SD_T12…
53201003			PSFL12R250A100-4-110	1	2.500	4	11	44	4.331	5.000	2.402	1.000	0.375	0.236	
53201004			PSFL12R300A125-5-80	1	3.000	5	8	40	3.150	4.000	2.890	1.250	0.500	0.315	
53201005			PSFL12R300A125-5-120	1	3.000	5	12	60	4.724	5.500	2.890	1.250	0.500	0.315	
53201006			PSFL12R400A125-6-130	1	4.000	6	13	78	5.118	6.000	3.882	1.250	0.500	0.315	

Packed: 1 pc.

PXT

List 78137

PSFL Bore (Metric)

SPEED FEED P1403

Recommended Materials: p1403
Accessories & Inserts: p1402

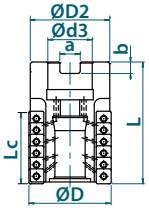


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	No. of Inserts Per Tooth	Total No. of Inserts	Length of Cut (mm) Lc	Tool Height (mm) H	Flange Dia. (mm) D2	Bore Dia. (mm) d3	Keyway Width (mm) a	Keyway Depth (mm) b	Applicable Insert
7803702	Bore	Normal	PSFL09R050M22-4-50	1	50	4	7	28	50	75	48.5	22	10.4	6.3	SD_T09…
7803703			PSFL09R050M22-4-78	1	50	4	11	44	78	100	48.5	22	10.4	6.3	
7803706			PSFL12R063M27-4-60	1	63	4	6	24	60	85	60.5	27	12.4	7	SD_T12…
7803707			PSFL12R063M27-4-100	1	63	4	10	40	100	125	60.5	27	12.4	7	
7803708			PSFL12R080M32-5-70	1	80	5	7	35	70	95	77.3	32	14.4	8	
7803709			PSFL12R080M32-5-110	1	80	5	11	55	110	143	77.3	32	14.4	8	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

PXT

Type 1

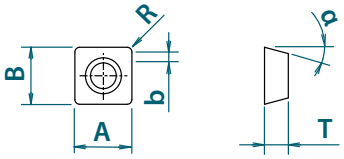


with Coolant Hole

List 78PSF

PSF/PSFL Inserts





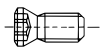
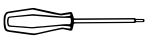
Designation	No. of Cutting Edges	Insert Size					EDP Number					
		AxB (mm)	T (mm)	α	R (mm)	b (mm)	CK010	XC3030	XP3035	XP2040	XC1015	XC5040
SDHT09T308FR-NM	4	9.07 x 9.07	3.97	15°	0.8	2.5	7811076	-	-	-	-	-
SDKT09T308SR-GL							-	7825073	7814073	7813073	-	7816073
SDKT09T308SR-GM							-	7825074	7814074	7813074	-	-
SDKT09T308SR-GR							-	-	-	-	7812075	-
SDHT120508FR-NM		12.38 x 12.38	5			1.2	7811625	-	-	-	-	-
SDKT120508SR-GL							-	-	-	7813623	-	7816620
SDKT120508SR-GM							-	7825622	7814621	-	-	-
SDKT120508SR-GR							-	-	-	-	7812624	-

Packed: 10 pcs.

PXI

List 7808H

PSFL Accessories

Appearance	EDP No.	Designation	Applicable Insert	Applicable Cutter		Recommended Tightening Torque
				(mm)	(inch)	
 Clamping Screw	7808110	FS30573 (M3 x 7.3, Torx 8)	SD_T09…	PSFL SS Ø32-40 PSFL BORE Ø50	PSFL SA/FA Ø1.25-1.5" PSFL BORE Ø2"	1.6 Nm
	7808129	FS40511 (M4 x 11, Torx 15)	SD_T12…	PSFL BORE Ø63-80	PSFL BORE Ø2.5-4"	5.0 Nm
 Coolant Cap Bolt	7808132	OCB-M20-08		PSFL BORE Ø50	PSFL BORE Ø2"	
	7808133	OCB-M24-10		PSFL BORE Ø63	PSFL BORE Ø2.5"	
	7808134	OCB-M30-14		PSFL BORE Ø80	PSFL BORE Ø3-4"	
 Wrench	7808205	T8-D (Torx 8)	SD_T09…	PSFL SS Ø32-40 PSFL BORE Ø50	PSFL SA/FA Ø1.25-1.5″ PSFL BORE Ø2″	
	7808208	T15-D (Torx 15)	SD_T12…	PSFL BORE Ø63-80	PSFL BORE Ø2.5-4"	

Packed: Clamping Screws = 10 pcs.; Coolant Cap Bolt = 1 pc.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Insert Size SD_T09… Face Milling • Side Milling		Insert Size SD_T12… Face Milling • Side Milling	
			Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)	Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	525 (330 - 655)	0.010 (0.008 - 0.016)	525 (330 - 655)	0.012 (0.008 - 0.016)
P	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	495 (330 - 655)	0.008 (0.006 - 0.012)	495 (330 - 655)	0.010 (0.006 - 0.012)
P	Die Steels (H13, D2)	~280 HB	425 (265 - 590)	0.008 (0.006 - 0.012)	425 (265 - 590)	0.010 (0.006 - 0.012)
M	Stainless Steels(Dry) (304SS, 420SS)	~250 HB	495 (330 - 655)	0.005 (0.004 - 0.012)	495 (330 - 655)	0.006 (0.004 - 0.012)
M	Stainless Steels(Wet) (304SS, 420SS)	~250 HB	265 (200 - 395)	0.005 (0.004 - 0.012)	265 (200 - 395)	0.006 (0.004 - 0.012)
K	Cast Iron (FC250)	~350 N/mm²	525 (330 - 985)	0.008 (0.006 - 0.014)	525 (330 - 985)	0.010 (0.008 - 0.016)
K	Ductile Cast Iron (60-40-18)	~800 N/mm²	525 (330 - 820)	0.008 (0.006 - 0.012)	525 (330 - 820)	0.008 (0.006 - 0.014)
N	Aluminum Alloys (6061, 7075)	~13% Si	985 (655 - 3280)	0.010 (0.004 - 0.016)	985 (655 - 3280)	0.012 (0.004 - 0.016)
S	Heat Resistant Alloys (Inconel 718)	-	115 (85 - 195)	0.006 (0.003 - 0.012)	115 (85 - 195)	0.007 (0.004 - 0.012)
S	Titanium Alloy (Ti-6Al-4V)	-	130 (100 - 395)	0.006 (0.003 - 0.012)	130 (100 - 395)	0.007 (0.004 - 0.012)
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HRC	330 (130 - 490)	0.006 (0.003 - 0.012)	330 (130 - 490)	0.007 (0.004 - 0.012)
H	Die Cast Steels (A2, S7)	43 - 48 HRC	200 (130 - 395)	0.005 (0.002 - 0.008)	200 (130 - 395)	0.006 (0.002 - 0.012)
H	Hardened Steels (D2)	50 - 55 HRC	165 (130 - 295)	0.004 (0.002 - 0.006)	165 (130 - 295)	0.004 (0.002 - 0.006)

Recommended Materials by Application

Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	Yes				◎		
XC3030	GL/GM	–	◎		○			
XP3035	GL/GM	–	◎	○	○			
XP2040	GL/GM	–	○	○				○
		Yes	○	◎			○	
XC1015	GR	–			◎			
XC5040	GL	Yes		○			◎	

GL:Light Cutting GM:Medium Cutting GR: Rough Cutting NM:Aluminum

○ good ◎ best

Cutting Conditions Adjustment Ratio

Depth of Cut Aa	Width of Cut Ar Max	Milling Speed Ratio	Feed Rate Ratio
< 0.2D	1D	0.8	0.5
0.25-0.3D	0.7D	0.8	0.6
0.4-0.5D	0.5D	0.9	0.7
0.6-0.7D	0.3D	0.9	0.8
0.8-1.0D	0.2D	1.0	0.9
1.1-1.5D	0.1D	1.0	1.0

Ex: For Ø1.250" PSFL with SDMT09 inserts, Aa = 1.150", side milling in 1050 carbon steel:
Vc = 495 SFM x 1.0 = 495 SFM
fz = 0.008 in/t x 0.9 = 0.007 in/t
Ar = 0.2 x 1.250" = 0.250" Max

List 53100

PSTW Bore (Inch)





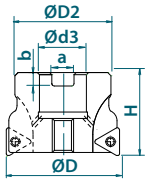
Recommended Materials: p1407
Accessories & Inserts: p1406

EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	No. of Teeth	Tool Height (Inch) H	Flange Dia. (Inch) D2	Bore Dia. (Inch) d3	Keyway Width (Inch) a	Keyway Depth (Inch) b	Applicable Insert
53100000	Bore	Normal	PSTW12R200A075-3	1	2.000	3	1.575	1.772	0.750	0.315	0.197	TNKU12…
53100001			PSTW12R250A075-3	2	2.500	3	1.575	1.968	0.750	0.315	0.197	
53100002			PSTW12R300A100-5	2	3.000	5	1.968	2.362	1.000	0.375	0.236	
53100003			PSTW12R400A125-5	3	4.000	5	1.968	2.756	1.250	0.500	0.315	
53100004			PSTW12R500A150-7	3	5.000	7	2.480	3.543	1.500	0.625	0.394	
53100010			PSTW12R600A150-8	3	6.000	8	2.480	3.740	1.500	0.625	0.394	
53100005		Close	PSTW12R200A075-4	1	2.000	4	1.575	1.772	0.750	0.315	0.197	
53100006			PSTW12R250A075-5	2	2.500	5	1.575	1.968	0.750	0.315	0.197	
53100007			PSTW12R300A100-6	2	3.000	6	1.968	2.362	1.000	0.375	0.236	
53100008			PSTW12R400A125-7	3	4.000	7	1.968	2.756	1.250	0.500	0.315	
53100009			PSTW12R500A150-9	3	5.000	9	2.480	3.543	1.500	0.625	0.394	
53100011			PSTW12R600A150-10	3	6.000	10	2.480	3.740	1.500	0.625	0.394	

Packed: 1 pc.

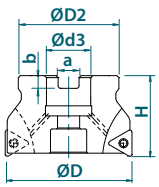
PXT

Type 1



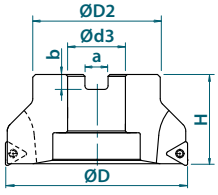
Power Screw Type
With coolant hole.

Type 2



With coolant hole.

Type 3



Without coolant hole.

List 78131

PSTW Bore (Metric)



SPEED FEED P1407

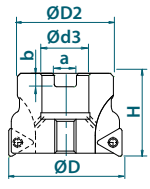
Recommended Materials: p1407
Accessories & Inserts: p1406

EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	Tool Height (mm) H	Flange Dia. (mm) D2	Bore Dia. (mm) d3	Keyway Width (mm) a	Keyway Depth (mm) b	Applicable Insert
7803100	Bore	Normal	PSTW12R050M22-3	1	50	3	40	45	22	10.4	6.3	TNKU12…
7803102			PSTW12R063M22-3	2	63	3	40	50	22	10.4	6.3	
7803110			PSTW12R080M27-5	2	80	5	50	60	27	12.4	7	
7803104			PSTW12R080M25.4-5	2	80	5	50	60	25.4	9.5	6	
7803112			PSTW12R100M32-5	2	100	5	50	70	32	14.4	8	
7803106			PSTW12R100M31.7-5	3	100	5	50	70	32	12.7	8	
7803114			PSTW12R125M40-7	2	125	7	63	90	40	16.4	9	
7803108			PSTW12R125M38.1-7	3	125	7	63	90	38.1	15.9	10	
7803101		Close	PSTW12R050M22-4	1	50	4	40	45	22	10.4	6.3	
7803103			PSTW12R063M22-5	2	63	5	40	50	22	10.4	6.3	
7803111			PSTW12R080M27-6	2	80	6	50	60	27	12.4	7	
7803105			PSTW12R080M25.4-6	2	80	6	50	60	25.4	9.5	6	
7803113			PSTW12R100M32-7	2	100	7	50	70	32	14.4	8	
7803107			PSTW12R100M31.7-7	3	100	7	50	70	31.8	12.7	8	
7803115			PSTW12R125M40-9	2	125	9	63	90	40	16.4	9	
7803109			PSTW12R125M38.1-9	3	125	9	63	90	38.1	15.9	10	

Packed: 1 pc.

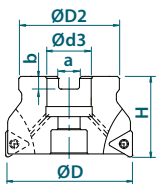
PXT

Type 1



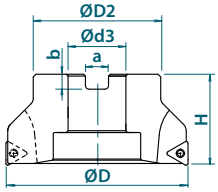
Power Screw Type
With coolant hole.

Type 2



With coolant hole.

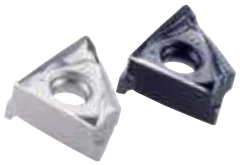
Type 3

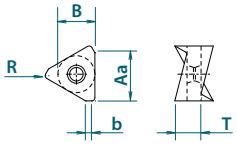


Without coolant hole.

List 78PSTW

PSTW Inserts





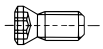
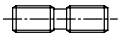
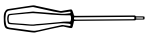
Designation	No. of Cutting Edges	Insert Size					EDP Number								
		B (mm)	T (mm)	R (mm)	b (mm)	Aa Max (mm)	CK010	XC3020	XP3025	XC3030	XP3035	XP2040	XC1015	XP1020	XC5040
TNKU120608ER-NM	6	10.8	6.55	0.8	1.25	12	7811087	-	-	-	-	-	-	-	-
TNKU120608ER-GL				0.8	1.5		-	-	-	7825089	7814089	7813089	-	-	-
TNKU120608ER-GM				0.8	1.5		-	7827088	7828088	7825088	7814088	7813088	7812088	7821088	-
TNKU120612ER-GM				1.2	1.0		-	-	-	-	7814094	7813094	-	-	-
TNKU120616ER-GM				1.6	0.75		-	-	-	-	7814095	7813095	-	-	-
TNKU120620ER-GM				2.0	0.6		-	-	-	-	7814096	7813096	-	-	-
TNKU120608ER-GR				0.8	1.5		-	-	-	-	-	-	7812090	7821090	-
TNKU120608ER-SM				0.8	1.5		-	-	-	-	-	-	-	-	7816091

Packed: 10 pcs.

PXI

List 7808H

PSTW Accessories

Appearance	EDP No.	Designation	Applicable Cutter		Recommended Tightening Torque
			(mm)	(inch)	
 Clamping Screw	7808129	FS40511 (M4 x 11, Torx 15)	PSTW BORE Ø50-125	PSTW BORE Ø2-5"	3.2 Nm
 Power Screw	7808151	PS1031 (M10x31)	PSTW BORE Ø50	PSTW BORE Ø2"	20.0 Nm
 Wrench	7808208	T15-D (Torx 15)	PSTW BORE Ø50-125	PSTW BORE Ø2-5"	

Packed: Clamping Screws = 10 pcs.; Power Screw = 1 pc.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Insert Size TNKU12… Face Milling		
			Milling Speed Vc (SFM)	Feed Per Tooth fz(in/t)	Depth of Cut Aa (in)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	590 (330 - 820)	0.006 (.002 - .010)	0.120
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	590 (330 - 820)	0.006 (.002 - .010)	0.120
	Die Steels (H13, D2)	~280 HB	495 (260 - 655)	0.005 (.002 - .008)	0.120
M	Stainless Steels(Dry) (304SS, 420SS)	~250 HB	495 (260 - 655)	0.004 (.002 - .007)	0.080
	Stainless Steels(Wet) (304SS, 420SS)	~250 HB	260 (195 - 395)	0.004 (.002 - .007)	0.080
K	Cast Iron (FC250)	~350 N/mm²	650 (330 - 1150)	0.008 (.004 - .012)	0.120
	Ductile Cast Iron (60-40-18)	~800 N/mm²	590 (330 - 885)	0.006 (.002 - .010)	0.120
N	Aluminum Alloys (6061, 7075)	~13% Si	985 (655 - 4920)	0.006 (.004 - .012)	0.120
S	Heat Resistant Alloys (Inconel 718)	-	115 (85 - 195)	0.003 (.002 - .006)	0.040
	Titanium Alloy (Ti-6Al-4V)	-	130 (100 - 395)	0.003 (.002 - .006)	0.060
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HrC	330 (165 - 495)	0.004 (.003 - .008)	0.060
	Die Cast Steels (A2, S7)	43 - 48 HrC	265 (130 - 395)	0.003 (.002 - .006)	0.040
	Hardened Steels (D2)	50 - 55 HrC	195 (130 - 295)	0.002 (.002 - .004)	0.020

Recommended Materials by Application

Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	Yes				◎		
XC3020	GM	-	◎		○			
XP3025	GM	Yes	◎		○			
XC3030	GL / GM	-	◎		○			
XP3035	GL / GM	-	◎	○	○			
XP2040	GL/GM	-	○	○				○
		Yes	○	◎			○	
XC1015	GM/GR	-			◎*			
XP1020	GM/GR	-			◎**			
XC5040	SM	Yes		○			◎	

GL: Light Cutting GM: Medium Cutting GR: Rough Cutting SM: Heat Resistant Alloy
*: XC1015 best recommended for grey cast iron
**: XP1020 best recommended for ductile cast iron

○ good ◎ best

List 78005

PRC SA (Inch)



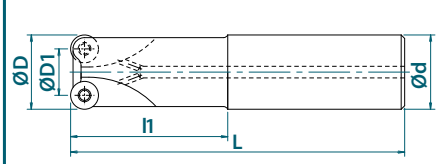
SPEED FEED P1414
Recommended Materials: p1414
Accessories & Inserts: p1413
Maximum Ramping Angle: p1415

EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	Effective Dia. (inch) D1	No. of Teeth	Shank Dia. (inch) d	Overall Length (inch) L	Neck Length (inch) L1	Applicable Insert
7800500	Cylindrical Shank Short	Normal	PRC10R100SA100-3S	1	1.000	0.606	3	1.000	5.512	2.362	RPH_10...
7800501			PRC10R125SA125-4S	1	1.250	0.856	4	1.250	5.905	2.756	
7800502			PRC12R125SA125-2S	1	1.250	0.778	2	1.250	5.905	2.756	RPH_12...
7800503			PRC12R150SA125-3S	2	1.500	1.028	3	1.250	5.905	1.968	
7800504			PRC16R150SA125-2S	2	1.500	0.870	2	1.250	5.905	1.968	RPH_16...
7800505	Cylindrical Shank Long		PRC10R100SA100-3L	1	1.000	0.606	3	1.000	7.874	4.724	RPH_10...
7800506			PRC10R125SA125-4L	1	1.250	0.856	4	1.250	7.874	4.724	
7800507			PRC12R125SA125-2L	1	1.250	0.778	2	1.250	7.874	4.724	RPH_12...
7800508			PRC12R150SA125-3L	2	1.500	1.028	3	1.250	9.842	1.968	
7800509			PRC16R150SA125-2L	2	1.500	0.087	2	1.250	9.842	1.968	RPH_16...

Packed: 1 pc.

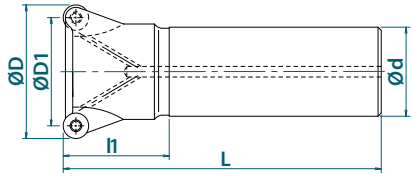
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 78003

PRC SS (Metric)





SPEED FEED P1414

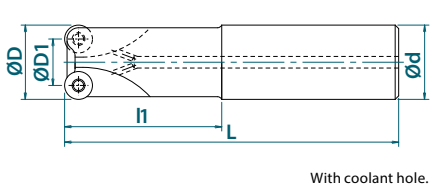
Recommended Materials: p1414
Accessories & Inserts: p1413
Maximum Ramping Angle: p1415

EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	Effective Dia. (mm) D1	No. of Teeth	Shank Dia. (mm) d	Overall Length (mm) L	Neck Length (mm) L1	Applicable Insert
7800300	Cylindrical Shank Short	Normal	PRC10R020SS20-2S	1	20	10	2	20	130	50	RPH_10…
7800301			PRC10R025SS25-3S	1	25	15	3	25	140	60	
7800302			PRC10R032SS32-4S	1	32	22	4	32	150	70	
7800303	Cylindrical Shank Long		PRC10R020SS20-2L	1	20	10	2	20	180	80	
7800304			PRC10R025SS25-3L	1	25	15	3	25	200	120	
7800305			PRC10R032SS32-4L	1	32	22	4	32	200	120	
7800322	Cylindrical Shank Short		PRC12R024SS25-2S	1	24	12	2	25	140	60	RPH_12…
7800318			PRC12R030SS32-2S	1	30	18	2	32	150	70	
7800306			PRC12R032S032-2S	1	32	20	2	32	150	70	
7800320			PRC12R032SS32-3S	1	32	20	3	32	150	70	
7800307			PRC12R040SS32-3S	2	40	28	3	32	150	50	
7800308			PRC12R050SS42-4S	2	50	38	4	42	150	50	
7800323	Cylindrical Shank Long		PRC12R024SS25-2L	1	24	12	2	25	180	100	
7800319			PRC12R030SS32-2L	1	30	18	2	32	200	120	
7800309			PRC12R032SS32-2L	1	32	20	2	32	200	120	
7800321			PRC12R032SS32-3L	1	32	20	3	32	200	120	
7800310			PRC12R040SS32-3L	2	40	28	3	32	250	50	
7800311			PRC12R050SS42-4L	2	50	38	4	42	250	50	
7800324	Cylindrical Shank Short		PRC16R033SS32-2S	1	32	16	2	32	150	70	RPH_16…
7800312			PRC16R040SS32-2S	2	40	24	2	32	150	50	
7800313			PRC16R050SS42-3S	2	50	34	3	42	150	50	
7800314			PRC16R063SS042-4S	2	63	47	4	42	150	50	
7800325	Cylindrical Shank Long		PRC16R033SS32-2L	1	32	16	2	32	200	120	
7800315			PRC16R040SS32-2L	2	40	24	2	32	250	50	
7800316			PRC16R050SS42-3L	2	50	34	3	42	250	50	
7800317			PRC16R063SS42-4L	2	63	47	4	42	250	50	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

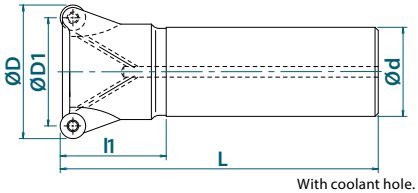
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 78004

SPEED FEED P1414

Recommended Materials: p1414
Accessories & Inserts: p1413
Maximum Ramping Angle: p1415

PRC Bore (Inch)

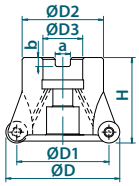


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	Effective Dia. (inch) D1	No. of Teeth	Tool Height (inch) H	Flange Dia. (inch) D2	Bore Dia. (inch) d3	Keyway Width (inch) a	Keyway Depth (inch) b	Applicable Insert
7800412	Bore	Normal	PRC10R200A075-5	2	2.000	1.606	5	1.575	1.772	0.750	0.315	0.197	RPH_10…
7800413			PRC10R250A075-6	2	2.500	2.106	6	1.575	1.968	0.750	0.315	0.197	
7800400			PRC12R200A075-4	2	2.000	1.528	4	1.575	1.772	0.750	0.315	0.197	
7800401			PRC12R250A075-4	2	2.500	2.028	4	1.575	1.968	0.750	0.315	0.197	
7800402			PRC12R300A100-5	2	3.000	2.528	5	1.968	2.362	1.000	0.375	0.236	
7800403			PRC12R400A150-6	3	4.000	3.528	6	1.968	2.756	1.500	0.625	0.394	
7800404		Close	PRC12R200A075-5	2	2.000	1.528	5	1.575	1.772	0.750	0.315	0.197	RPH_12...
7800405			PRC12R250A075-6	2	2.500	2.028	6	1.575	1.968	0.750	0.315	0.197	
7800406			PRC12R300A100-8	2	3.000	2.528	8	1.968	2.362	1.000	0.375	0.236	
7800407			PRC12R400A150-10	3	4.000	3.528	10	1.968	2.756	1.500	0.625	0.394	
7800414			PRC12R500A150-12	3	5.000	4.528	12	2.480	3.543	1.500	0.625	0.394	
7800408		Normal	PRC16R200A075-3	2	2.000	1.370	3	1.575	1.772	0.750	0.315	0.197	
7800409			PRC16R250A075-5	2	2.500	1.870	5	1.575	1.968	0.750	0.315	0.197	
7800410			PRC16R300A100-6	2	3.000	2.370	6	1.968	2.362	1.000	0.375	0.236	RPH_16...
7800411			PRC16R400A150-7	3	4.000	3.370	7	1.968	2.756	1.500	0.625	0.394	
7800415			PRC16R500A150-8	3	5.000	4.370	8	2.480	3.543	1.500	0.625	0.394	
7800416			PRC16R600A150-10	3	6.000	5.370	10	2.480	3.740	1.500	0.625	0.394	

Packed: 1 pc.

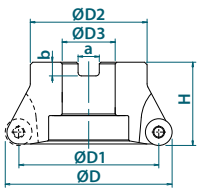
PXT

Type 2



With coolant hole.

Type 3



Without coolant hole.

List 78002

PRC Bore (Metric)



SPEED FEED P1414

Recommended Materials: p1414
Accessories & Inserts: p1413
Maximum Ramping Angle: p1415

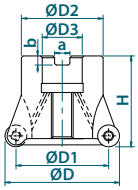


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	Effective Dia. (mm) D1	No. of Teeth	Tool Height (mm) H	Flange Dia. (mm) D2	Bore Dia. (mm) d3	Keyway Width (mm) a	Keyway Depth (mm) b	Applicable Insert
7800200	Bore	Normal	PRC12R050M22-4	2	50	38	4	40	45	22	10.4	6.3	RPH_12...
7800201			PRC12R063M22-4	2	63	51	4	40	50	22	10.4	6.3	
7800202			PRC12R080M27-5	2	80	68	5	50	60	27	12.4	7	
7800209			PRC12R080M25.4-5	2	80	68	5	50	60	25.4	9.5	6	
7800203			PRC12R100M32-6	2	100	88	6	50	70	32	14.4	8	
7800210			PRC12R100M31.7-6	3	100	88	6	50	70	31.75	12.7	8	
7800204		Close	PRC12R050M22-5	2	50	38	5	40	45	22	10.4	6.3	
7800206			PRC12R063M22-6	2	63	51	6	40	50	22	10.4	6.3	
7800207			PRC12R080M27-8	2	80	38	8	50	60	27	12.4	7	
7800211			PRC12R080M25.4-8	2	80	38	8	50	60	25.4	9.5	6	
7800208			PRC12R100M32-10	2	100	88	10	50	70	32	14.4	8	
7800212			PRC12R100M31.7-10	3	100	88	10	50	70	31.75	12.7	8	
7800213		Normal	PRC16R050M22-3	1	50	34	3	40	45	22	10.4	6.3	RPH_16...
7800214			PRC16R063M22-5	2	63	47	5	40	50	22	10.4	6.3	
7800216			PRC16R080M27-6	2	80	64	6	50	60	27	12.4	7	
7800218			PRC16R080M25.4-6	2	80	64	6	50	60	25.4	9.5	6	
7800217			PRC16R100M32-7	2	100	84	7	50	70	32	14.4	8	
7800219			PRC16R0100M31.7-7	3	100	84	7	50	70	31.75	12.7	8	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

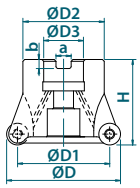
PXT

Type 1



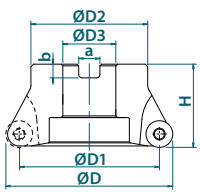
With coolant hole.

Type 2



With coolant hole.

Type 3



Without coolant hole.

List 52602

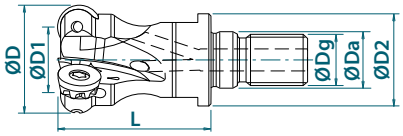
PRC ASF (Inch)



SPEED FEED P1414

Recommended Materials: p1414
Accessories & Inserts: p1413
Maximum Ramping Angle: p1415
SF Arbors: p1461





EDP No.	Body Type	Designation	Tool Dia. (inch)	Effective Dia. (inch)	No. of Teeth	Pilot Dia. (inch)	Thread Dia. (mm)	Overall Length (inch)	Flange Dia. (inch)	Wrench Size	Applicable Insert
			D	D1		Da	Dg	L	D2		
52602000	Screw Fit Head	PRC10R100ASF12-3	1.000	0.606	3	0.492	M12	1.378	0.905	17	RPH_10…
52602001		PRC10R125ASF16-4	1.250	0.856	4	0.669	M16	1.575	1.102	22	
52602002		PRC12R125ASF16-2	1.250	0.778	2	0.669	M16	1.575	1.102	22	RPH_12…
52602003		PRC12R150ASF16-3	1.500	1.028	3	0.669	M16	1.575	1.102	22	
52602004		PRC16R150ASF16-2	1.500	0.870	2	0.669	M16	1.575	1.102	22	RPH_16…

Packed: 1 pc.

PXT

List 78017

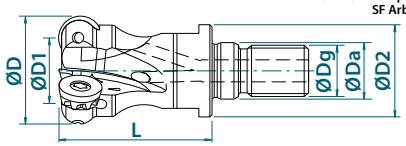
PRC SF (Metric)



SPEED FEED P1414

Recommended Materials: p1414
Accessories & Inserts: p1413
Maximum Ramping Angle: p1415
SF Arbors: p1462-1464





EDP No.	Body Type	Designation	Tool Dia. (mm)	Effective Dia. (mm)	No. of Teeth	Pilot Dia. (mm)	Thread Dia. (mm)	Overall Length (mm)	Flange Dia. (mm)	Wrench Size	Applicable Insert
			D	D1		Da	Dg	L	D2		
7801700	Screw Fit Head	PRC10R020SF10-2	20	10	2	10.5	M10	33	18	14	
7801701		PRC10R025SF12-3	25	15	3	12.5	M12	35	23	17	
7801702		PRC10R030SF16-3	30	20	3	17	M16	40	28	22	RPH_10…
7801703		PRC10R032SF16-4	32	22	4	17	M16	40	28	22	
7801704		PRC10R040SF16-4	40	30	4	17	M16	40	28	22	
7801705		PRC12R030SF16-2	30	18	2	17	M16	40	28	22	
7801706		PRC12R032SF16-3	32	20	3	17	M16	40	28	22	RPH_12…
7801707		PRC12R040SF16-3	40	28	3	17	M16	40	28	22	

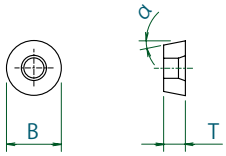
Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

PXT

List 78PRC

PRC Inserts





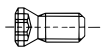
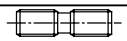
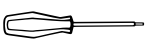
Designation	No. of Cutting Edges	Insert Size			EDP Number								
		B (mm)	T (mm)	α	CK010	XC3030	XP3035	XP2025	XP2040	XC1015	XC5035	XC5040	XP6015
RPHT10T3MOFN-NM	8	10	3.97	11°	7811009	-	-	-	-	-	-	-	-
RPHW10T3MOSN	8				-	7825017	7814030	-	-	-	-	-	-
RPHW10T3MOEN	8				-	-	-	-	-	7812017	-	-	-
RPHT10T3MOEN-GL	8				-	7825008	7814008	7826008	7813008	-	-	-	-
RPHT10T3MOEN-GM	8				-	7825009	7814009	-	-	-	-	-	-
RPHT10T3MOEN-SM	4				-	-	-	-	-	-	7815010	-	-
RPHT10T3M8EN-SM	8				-	-	-	-	-	-	7815050	7816050	-
RPMT10T3M8EN-HR	8				-	-	-	-	-	-	-	-	7824083
RPHT1204MOFN-NM	8	12	4.76		7811013	-	-	-	-	-	-	-	-
RPHW1204MOSN	8				-	7825018	7814018	-	-	7812018	-	-	-
RPHT1204MOEN-GL	8				-	-	-	7826011	7813011	-	-	-	-
RPHT1204MOEN-GM	8				-	7825011	7814011	-	-	-	-	-	-
RPHT1204MOEN-SM	4				-	-	-	-	-	-	7815012	-	-
RPHT1204M8EN-SM	8				-	-	-	-	-	-	7815051	7816051	-
RPMT1204M8EN-HR	8				-	-	-	-	-	-	-	-	7824084
RPHT1605MOFN-NM	8	16	5.56		7811016	-	-	-	-	-	-	-	-
RPHW1605MOSN	8				-	7825019	7814019	-	-	7812019	-	-	-
RPHT1605MOEN-GL	8				-	-	-	7826014	7813014	-	-	-	-
RPHT1605MOEN-SM	4				-	-	-	-	-	-	7815015	-	-
RPHT1605M8EN-SM	8				-	-	-	-	-	-	7815052	7816052	-

Packed: 10 pcs.

PXI

List 7808H

PRC Accessories

Appearance	EDP No.	Designation	Applicable Insert	Applicable Cutter		Recommended Tightening Torque
				(mm)	(inch)	
 Clamping Screw	7808116	FS30573A (M3 x 7.3, Torx 10)	RPH_10...	PRC SS/SF Ø20-32	PRC10 SA/ASF Ø1-1.25″ PRC10 BORE Ø2-2.5″	2.0 Nm
	7808112	FS35586 (M3.5 x 8.6, Torx 15)	RPH_12...	PRC SS/SF Ø32-50 PRC BORE Ø32-63	PRC12 SA/ASF Ø1.25-1.5″ PRC12 BORE Ø2-4″	3.2 Nm
	7808113	FS45510 (M4.5 x 10.5, Torx 20)	RPH_16...	PRC SS/SF Ø40-63 PRC BORE Ø50-100	PRC16 SA/ASF Ø1.5″ PRC16 BORE Ø2-6″	5.0 Nm
 Power Screw	7808151	PS1031 (M10×31)	RPH_16...	PRC BORE Ø50	n/a	20.0 Nm
 Wrench	7808207	T10-D (Torx 10)	RPH_10...	PRC SS/SF Ø20-32	PRC10 SA/ASF Ø1-1.25″ PRC10 BORE Ø2-2.5″	
	7808208	T15-D (Torx 15)	RPH_12...	PRC SS/SF Ø32-50 PRC BORE Ø32-63	PRC12 SA/ASF Ø1.25-1.5″ PRC12 BORE Ø2-4″	
	7808209	T20-D (Torx 20)	RPH_16...	PRC SS/SF Ø40-63 PRC BORE Ø50-100	PRC16 SA/ASF Ø1.5″ PRC16 BORE Ø2-6″	

Packed: Clamping Screws = 10 pcs.; Power Screw = 1 pc.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Milling Speed Vc (SFM)	Insert Size					
				RPH_10…		RPH_12…		RPH_16…	
				Face Milling		Face Milling		Face Milling	
				Feed Per Tooth fz (in/t)	Depth of Cut Aa (in)	Feed Per Tooth fz (in/t)	Depth of Cut Aa (in)	Feed Per Tooth fz (in/t)	Depth of Cut Aa (in)
P	Mild Steels, Carbon Steels (1010, 1018)	~180HB	655 (330-985)	0.010 (0.004 - 0.014)	0.078	0.012 (0.004 - 0.016)	0.093	0.014 (0.004 - 0.020)	0.125
	Carbon Steels, Alloy Steels (1050, 4140)	~280HB	590 (330-820)	0.008 (0.004 - 0.012)	0.078	0.010 (0.004 - 0.014)	0.093	0.012 (0.004 - 0.018)	0.125
	Die Steels (H13, D2)	~280HB	495 (260-655)	0.008 (0.004 - 0.012)	0.078	0.010 (0.004 - 0.014)	0.093	0.012 (0.004 - 0.018)	0.125
M	Stainless Steels (Dry) (304SS, 420SS)	~250HB	525 (265 - 655)	0.010 (0.004 - 0.014)	0.078	0.012 (0.004 - 0.016)	0.093	0.014 (0.004 - 0.020)	0.125
	Stainless Steels (Wet) (304SS, 420SS)	~250HB	395 (200 - 590))	0.010 (0.004 - 0.014)	0.078	0.012 (0.004 - 0.016)	0.093	0.014 (0.004 - 0.020)	0.125
K	Cast Iron (FC250)	~350N/mm²	720 (330-1150)	0.010 (0.002 - 0.016)	0.078	0.012 (0.004 - 0.020)	0.093	0.014 (0.004 - 0.023)	0.125
	Ductile Cast Iron (60-40-18)	~800N/mm²	495 (330-720)	0.008 (0.004 - 0.012)	0.078	0.010 (0.004 - 0.014)	0.093	0.012 (0.004 - 0.018)	0.125
N	Aluminum Alloys (6061, 7075)	~13%Si	1970 (985-4920)	0.016 (0.008 - 0.031)	0.078	0.023 (0.008 - 0.039)	0.093	0.031 (0.012 - 0.059)	0.125
S	Heat Resistant Alloys (Inconel 718)	-	130 (85-195)	0.006 (0.002 - 0.010)	0.078	0.010 (0.002 - 0.012)	0.093	0.010 (0.002 - 0.016)	0.125
	Titanium Alloy (Ti-6Al-4V)	-	260 (165-395)	0.008 (0.004 - 0.012)	0.078	0.010 (0.004 - 0.014)	0.093	0.012 (0.004 - 0.018)	0.125
H	Pre-hardened Steel (P20, Stavax)	40-43 HRC	395 (130-495)	0.006 (0.002 - 0.010)	0.059	0.010 (0.002 - 0.012)	0.059	0.010 (0.002 - 0.016)	0.059
	Die Cast Steels (A2, S7)	43-48HRC	260 (130-395)	0.006 (0.002 - 0.010)	0.039	0.010 (0.002 - 0.012)	0.039	0.010 (0.002 - 0.016)	0.039
	Hardened Steels (D2)	50-55HRC	195 (100-295)	0.006 (0.002 - 0.010)	0.020	0.010 (0.002 - 0.012)	0.020	0.010 (0.002 - 0.016)	0.020

Recommended Materials by Application

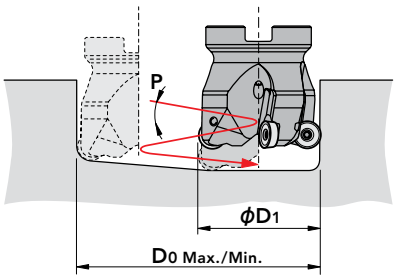
Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
CK010	NM	Yes				◎		
XC3030	- / GL / GM	-	◎		○			
XP3035	- / GL / GM	-	◎	○	○			
XP2025	GL	Yes	○	◎			○	
XP2040	GL	-	○	○				○
		Yes	○	◎			○	
XC1015	-	-			◎			
XC5035	SM	-		◎				
		Yes		○			○	
XC5040	SM	Yes		○			◎	
XP6015	HR	-	○		○			◎

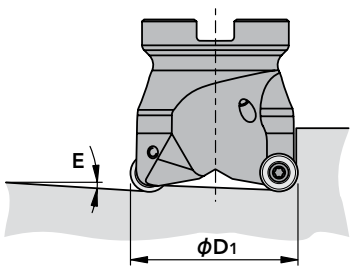
GL:Light Cutting NM:Aluminum SM: Heat Resistant Alloy HR: Hardened Steel

○ good ◎ best

Maximum Ramping Angle (E) & Helical Angle (P)

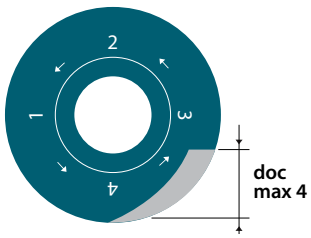
Insert Size	RPH_10...				RPH_12...				RPH_16...			
Diameter (inch)	Ramping Angle	Helical Milling (inch)		Helical Angle	Ramping Angle	Helical Milling (inch)		Helical Angle	Ramping Angle	Helical Milling (inch)		Helical Angle
D1	E	D0 Min	D0 Max	P	E	D0 Min	D0 Max	P	E	D0 Min	D0 Max	P
1.000	2.0°	1.488	1.606	1.8°	-	-	-	-	-	-	-	-
1.250	3.0°	1.988	2.106	1.5°	4.0°	1.752	2.028	1.7°	-	-	-	-
1.500	3.3°	2.488	2.606	1.1°	2.8°	2.252	2.528	1.4°	3.0°	2.016	2.370	2.0°
2.000	2.3°	3.488	3.606	0.9°	2.5°	3.252	3.528	1.1°	4.0°	3.016	3.370	1.5°
2.500	2.2°	4.488	4.606	0.7°	1.8°	4.252	4.528	0.9°	2.8°	4.016	4.370	1.1°
3.000	-	-	-	-	1.3°	5.252	5.528	0.7°	2.0°	5.016	5.370	0.9°
4.000	-	-	-	-	0.9°	7.252	7.528	0.5°	1.5°	7.016	7.370	0.7°
5.000	-	-	-	-	1.0°	9.252	9.528	0.4°	1.1°	9.016	9.370	0.45°
6.000	-	-	-	-	-	-	-	-	1.0°	11.016	11.370	0.4°

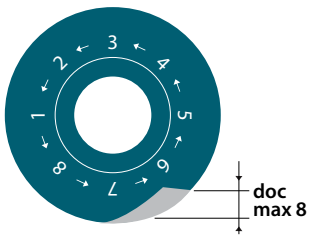




Maximum Depth of Cut (Aa)

Insert Size	Maximum Depth of Cut (Aa)	
	4 Indexes Per Insert	8 Indexes Per Insert
	(in)	(in)
RPH_10...	0.177	0.055
RPH_12...	0.217	0.067
RPH_16...	0.295	0.091





List 78009

PHC SA/FA (Inch)



SPEED FEED P1425

Recommended Materials: p1425
Accessories & Inserts: p1424
Maximum Ramping Angle: p1426

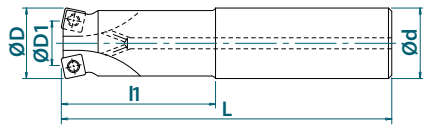


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	Effective Dia. (inch) D1	No. of Teeth	Shank Dia. (inch) d	Overall Length (inch) L	Neck Length (inch) L1	Applicable Insert
7800905	Cylindrical Shank Short	Normal	PHC07R063SA063-2S	1	0.625	0.286	2	0.625	3.937	1.181	SPMT07…
7800906			PHC07R075SA075-3S	1	0.750	0.411	3	0.750	5.118	1.968	
7800907			PHC07R100SA100-4S	1	1.000	0.661	4	1.000	5.512	2.362	
7800908			PHC07R125SA125-5S	1	1.250	0.911	5	1.250	5.905	2.756	
7800900		Normal	PHC09R100SA100-2S	1	1.000	0.535	2	1.000	5.512	2.362	SDMT09...
7800901		Close	PHC09R100SA100-3S	1	1.000	0.535	3	1.000	5.512	2.362	
7800902		Normal	PHC09R125SA125-3S	1	1.250	0.785	3	1.250	5.906	2.756	
7800903			PHC12R125SA125-2S	1	1.250	0.596	2	1.250	5.906	2.756	SXMT12...
7800904			PHC12R150SA125-3S	2	1.500	0.846	3	1.250	5.906	1.969	
7800909	Cylindrical Shank Long	Normal	PHC07R063SA063-2L	1	0.625	0.286	2	0.625	5.905	1.968	SPMT07…
7800913			PHC07R075SA075-3L	1	0.750	0.411	3	0.750	6.299	3.150	
7800914			PHC07R100SA100-4L	1	1.000	0.661	4	1.000	7.874	3.937	
7800915			PHC07R125SA125-5L	1	1.250	0.911	5	1.250	7.874	4.724	
7800922		Normal	PHC09R100SA100-2L	1	1.000	0.535	2	1.000	7.874	4.724	SDMT09...
7800923		Close	PHC09R100SA100-3L	1	1.000	0.535	3	1.000	7.874	4.724	
7800924		Normal	PHC09R125SA125-3L	1	1.250	0.785	3	1.250	7.874	4.724	
7800925			PHC12R125SA125-2L	1	1.250	0.596	2	1.250	7.874	4.724	SXMT12...
7800926			PHC12R150SA125-3L	2	1.500	0.846	3	1.250	9.843	2.756	
7800927	Cylindrical Shank Extra-Long	Normal	PHC09R100SA100-2LL	1	1.000	0.535	2	1.000	11.811	7.087	SDMT09...
7800928		Close	PHC09R100SA100-3LL	1	1.000	0.535	3	1.000	11.811	7.087	
7800929		Normal	PHC09R125SA125-3LL	1	1.250	0.785	3	1.250	11.811	7.087	
7800930			PHC12R125SA125-2LL	1	1.250	0.596	2	1.250	11.811	7.087	SXMT12...
7800931			PHC12R150SA125-3LL	2	1.500	0.846	3	1.250	11.811	2.756	
7800916	Weldon Shank Short	Normal	PHC07R063FA063-2S	1	0.625	0.286	2	0.625	3.937	1.181	SPMT07…
7800917			PHC07R075FA075-3S	1	0.750	0.411	3	0.750	5.118	1.968	
7800918			PHC07R100FA100-4S	1	1.000	0.661	4	1.000	5.512	2.362	
7800919			PHC07R125FA125-5S	1	1.250	0.911	5	1.250	5.905	2.756	
7800910		Normal	PHC09R100FA100-2S	1	1.000	0.535	2	1.000	3.831	1.551	SDMT09...
7800911		Close	PHC09R100FA100-3S	1	1.000	0.535	3	1.000	3.831	1.551	
7800912		Normal	PHC09R125FA125-3S	1	1.250	0.785	3	1.250	4.378	2.098	
7800920			PHC12R125FA125-2S	1	1.250	0.596	2	1.250	4.378	2.098	SXMT12...
7800921			PHC12R150FA125-3S	2	1.500	0.846	3	1.250	4.378	2.098	

Packed: 1 pc.

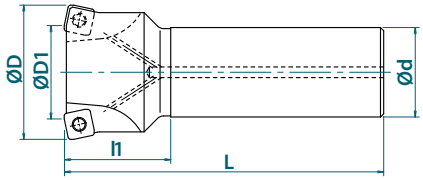
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 78009 (Continued)

PHC SA/FA (Inch)



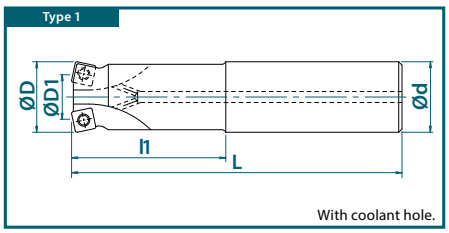
SPEED FEED P1425

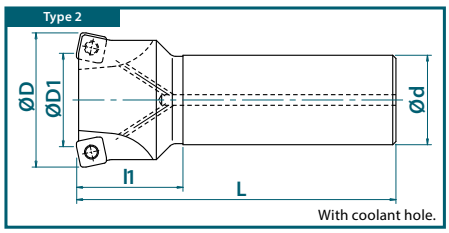
Recommended Materials: p1425
Accessories & Inserts: p1424
Maximum Ramping Angle: p1426

EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch) D	Effective Dia. (inch) D1	No. of Teeth	Shank Dia. (inch) d	Overall Length (inch) L	Neck Length (inch) L1	Applicable Insert
7800942	Weldon Shank Long	Normal	PHC07R063FA063-2L	1	0.625	0.286	2	0.625	5.905	1.968	SPMT07…
7800943			PHC07R075FA075-3L	1	0.750	0.411	3	0.750	6.299	3.150	
7800944			PHC07R100FA100-4L	1	1.000	0.661	4	1.000	7.874	3.937	
7800945			PHC07R125FA125-5L	1	1.250	0.911	5	1.250	7.874	4.724	
7800932		Normal	PHC09R100FA100-2L	1	1.000	0.535	2	1.000	7.004	4.724	SDMT09...
7800933		Close	PHC09R100FA100-3L	1	1.000	0.535	3	1.000	7.004	4.724	
7800934		Normal	PHC09R125FA125-3L	1	1.250	0.785	3	1.250	7.004	4.724	
7800935			PHC12R125FA125-2L	1	1.250	0.596	2	1.250	7.004	4.724	SXMT12...
7800936			PHC12R150FA125-3L	2	1.500	0.846	3	1.250	7.004	4.724	
7800937	Weldon Shank Extra-Long	Normal	PHC09R100FA100-2LL	1	1.000	0.535	2	1.000	9.366	7.087	SDMT09...
7800938		Close	PHC09R100FA100-3LL	1	1.000	0.535	3	1.000	9.366	7.087	
7800939		Normal	PHC09R125FA125-3LL	1	1.250	0.785	3	1.250	9.366	7.087	
7800940			PHC12R125FA125-2LL	1	1.250	0.596	2	1.250	9.366	7.087	SXMT12...
7800941			PHC12R150FA125-3LL	2	1.500	0.846	3	1.250	9.366	7.087	

Packed: 1 pc.

PXT





List 78007

PHC SS (Metric)



SPEED FEED P1425

Recommended Materials: p1425
Accessories & Inserts: p1424
Maximum Ramping Angle: p1426



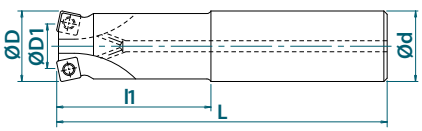
EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	Effective Dia. (mm) D1	No. of Teeth	Shank Dia. (mm) d	Overall Length (mm) L	Neck Length (mm) L1	Applicable Insert
7800750	Cylindrical Shank Short	Normal	PHC07R016SS16-2S	1	16	7.4	2	16	100	30	SPMT07…
7800751			PHC07R020SS20-3S	1	20	11.4	3	20	130	50	
7800752			PHC07R025SS25-4S	1	25	16.4	4	25	140	60	
7800753			PHC07R030SS32-4S	1	30	21.4	4	32	150	70	
7800754			PHC07R032SS32-5S	1	32	23.4	5	32	150	70	
7800755	Cylindrical Shank Long	Normal	PHC07R016SS16-2L	1	16	7.4	2	16	150	50	
7800756			PHC07R017SS16-2L	2	17	8.4	2	16	150	25	
7800757			PHC07R018SS16-2L	2	18	9.4	2	16	150	25	
7800758			PHC07R020SS20-3L	1	20	11.4	3	20	160	80	
7800759			PHC07R021SS20-3L	2	21	12.4	3	20	160	30	
7800760			PHC07R022SS20-3L	2	22	13.4	3	20	160	30	
7800761			PHC07R025SS25-4L	1	25	16.4	4	25	200	100	
7800762			PHC07R026SS25-4L	2	26	17.4	4	25	200	40	
7800763			PHC07R028SS25-4L	2	28	19.4	4	25	200	40	
7800764			PHC07R030SS32-4L	1	30	21.4	4	32	200	120	
7800765			PHC07R032SS32-5L	1	32	23.4	5	32	200	120	
7800766			PHC07R033SS32-5L	2	33	24.4	5	32	200	50	
7800767			PHC07R035SS32-5L	2	35	26.0	5	32	200	50	
7800700	Cylindrical Shank Short	Normal	PHC09R025SS25-2S	1	25	13.2	2	25	140	60	SDMT09…
7800701		Close	PHC09R025SS25-3S	1	25	13.2	3	25	140	60	
7800716		Normal	PHC09R028SS25-3S	2	28	16.2	3	25	140	40	
7800717			PHC09R030SS32-3S	1	30	18.2	3	32	150	70	
7800702			PHC09R032SS32-3S	1	32	20.2	3	32	150	70	
7800718			PHC09R035SS32-3S	2	35	23.2	3	32	150	50	
7800703			PHC09R040SS32-4S	2	40	28.2	4	32	150	50	
7800719			PHC09R040SS42-4S	1	40	28.2	4	42	150	50	
7800704	Cylindrical Shank Long	Normal	PHC09R025SS25-2L	1	25	13.2	2	25	200	120	
7800705		Close	PHC09R025SS25-3L	1	25	13.2	3	25	200	120	
7800740			PHC09R026SS25-3L	2	26	14.2	3	25	200	40	
7800720		Normal	PHC09R028SS25-3L	2	28	16.2	3	25	200	40	
7800721			PHC09R030SS32-3L	1	30	18.2	3	32	200	120	
7800706			PHC09R032SS32-3L	1	32	20.2	3	32	200	120	
7800741			PHC09R033SS32-3L	2	33	21.2	3	32	200	50	
7800722			PHC09R035SS32-3L	2	35	23.2	3	32	200	50	
7800707		Close	PHC09R040SS32-4L	2	40	28.2	4	32	250	50	
7800723		Normal	PHC09R040SS42-3L	1	40	28.2	3	42	250	70	

Packed: 1 pc.

This item is stocked overseas. Please contact OSG for availability and delivery.

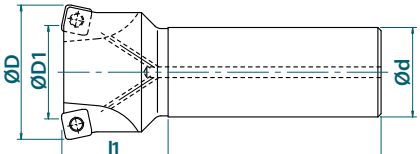
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 78007 (Continued)

PHC SS (Metric)



SPEED FEED P1425

Recommended Materials: p1425
Accessories & Inserts: p1424
Maximum Ramping Angle: p1426

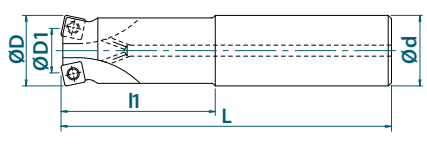
EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	Effective Dia. (mm) D1	No. of Teeth	Shank Dia. (mm) d	Overall Length (mm) L	Neck Length (mm) L1	Applicable Insert
7800724	Cylindrical Shank Extra-Long	Normal	PHC09R025SS25-2LL	1	25	13.2	2	25	300	180	SDMT09…
7800742			PHC09R026SS25-2LL	2	26	14.2	2	25	300	40	
7800725			PHC09R028SS25-2LL	2	28	16.2	2	25	300	40	
7800726			PHC09R030SS32-2LL	1	30	18.2	2	32	300	180	
7800727			PHC09R032SS32-2LL	1	32	20.2	2	32	300	180	
7800743			PHC09R033SS32-2LL	2	33	21.2	2	32	300	50	
7800728			PHC09R035SS32-2LL	2	35	23.2	2	32	300	50	
7800729			PHC09R040SS42-2LL	1	40	28.2	2	42	300	70	
7800730	Cylindrical Shank Short	Normal	PHC12R030SS32-2S	1	30	13.4	2	32	150	70	SXMT12…
7800708			PHC12R032SS32-2S	1	32	15.4	2	32	150	70	
7800731			PHC12R035SS32-3S	2	35	18.4	3	32	150	50	
7800709			PHC12R040SS32-3S	2	40	23.4	3	32	150	50	
7800732			PHC12R040SS42-3S	1	40	23.4	3	42	150	50	
7800710			PHC12R050SS42-4S	2	50	33.4	4	42	150	50	
7800711			PHC12R063SS42-5S	2	63	46.4	5	42	150	50	
7800733	Cylindrical Shank Long	Normal	PHC12R030SS32-2L	1	30	13.4	2	32	200	120	
7800712			PHC12R032SS32-2L	1	32	15.4	2	32	200	120	
7800744			PHC12R033SS32-2L	2	33	16.4	2	32	200	50	
7800734			PHC12R035SS32-3L	2	35	18.4	3	32	200	50	
7800713			PHC12R040SS32-3L	2	40	23.4	3	32	250	50	
7800735			PHC12R040SS42-3L	1	40	23.4	3	42	250	70	
7800714			PHC12R050SS42-4L	2	50	33.4	4	42	250	50	
7800715			PHC12R063SS42-5L	2	63	46.4	5	42	250	50	
7800736	Cylindrical Shank Extra-Long	Normal	PHC12R030SS32-2LL	1	30	13.4	2	32	300	180	
7800737			PHC12R032SS32-2LL	1	32	15.4	2	32	300	180	
7800745			PHC12R033SS32-2LL	2	33	16.4	2	32	300	50	
7800738			PHC12R035SS32-2LL	2	35	18.4	2	32	300	50	
7800739			PHC12R040SS42-2LL	1	40	23.4	2	42	300	70	

Packed: 1 pc.

This item is stocked overseas. Please contact OSG for availability and delivery.

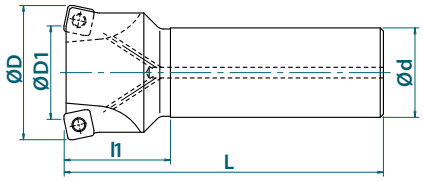
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 78008

PHC Bore (Inch)



SPEED FEED P1425

Recommended Materials: p1425
Accessories & Inserts: p1424
Maximum Ramping Angle: p1426

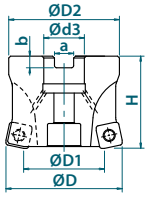


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (inch)	Effective Dia. (inch)	No. of Teeth	Tool Height (inch)	Flange Dia. (inch)	Bore Dia. (inch)	Keyway Width (inch)	Keyway Depth (inch)	Applicable Insert
					D	D1		H	D2	d3	a	b	
7800800	Bore	Close	PHC09R200A075-5	2	2.000	1.535	5	1.968	1.850	0.750	0.315	0.197	
7800801			PHC09R250A075-6	2	2.500	2.035	6	1.968	2.362	0.750	0.315	0.197	SDMT09…
7800806		Normal	PHC09R300A100-8	2	3.000	2.535	8	2.480	2.835	1.000	0.375	0.236	
7800807		Normal	PHC12R250A075-4	2	2.500	1.846	4	1.968	2.362	0.750	0.315	0.197	
7800808			PHC12R300A100-5	2	3.000	2.346	5	2.480	2.835	1.000	0.375	0.236	
7800809			PHC12R400A150-6	3	4.000	3.346	6	2.480	3.779	1.500	0.625	0.394	
7800802		Close	PHC12R200A075-4	2	2.000	1.346	4	1.968	1.850	0.750	0.315	0.197	
7800803			PHC12R250A075-5	2	2.500	1.846	5	1.968	2.362	0.750	0.315	0.197	SXMT12…
7800804			PHC12R300A100-7	2	3.000	2.346	7	2.480	2.835	1.000	0.375	0.236	
7800805			PHC12R400A150-8	3	4.000	3.346	8	2.480	3.779	1.500	0.625	0.394	
7800810			PHC12R500A150-10	3	5.000	4.346	10	2.480	3.779	1.500	0.625	0.394	
7800811			PHC12R600A150-12	3	6.000	5.346	12	2.480	3.779	1.500	0.625	0.394	

Packed: 1 pc.

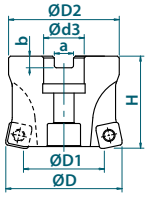
PXT

Type 2



With coolant hole.

Type 3



Without coolant hole.

List 78006

PHC Bore (Metric)



SPEED FEED P1425

Recommended Materials: p1425
Accessories & Inserts: p1424
Maximum Ramping Angle: p1426

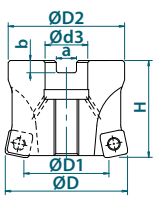


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm)	Effective Dia. (mm)	No. of Teeth	Tool Height (mm)	Flange Dia. (mm)	Bore Dia. (mm)	Keyway Width (mm)	Keyway Depth (mm)	Applicable Insert
					D	D1		H	D2	d3	a	b	
7800600	Bore	Close	PHC09R040M16-4	1	40	28.2	4	40	38	16	8.4	5.6	SDMT09…
7800601			PHC09R050M22-5	2	50	38.2	5	50	47	22	10.4	6.3	
7800605			PHC09R050M22.2-5	2	50	38.2	5	50	47	22.225	8.4	5	
7800603			PHC09R063M22-6	2	63	51.2	6	50	60	22	10.4	6.3	
7800606			PHC09R063M22.2-6	2	63	51.2	6	50	60	22.225	8.4	5	
7800607			PHC12R040M16-3	1	40	23.4	3	40	38	16	8.4	5.6	SXMT12…
7800608			PHC12R050M22-4	2	50	33.4	4	50	47	22	10.4	6.3	
7800614			PHC12R050M22.2-4	2	50	33.4	4	50	47	22.225	8.4	5	
7800610			PHC12R063M22-5	2	63	46.4	5	50	60	22	10.4	6.3	
7800615			PHC12R063M22.2-5	2	63	46.4	5	50	60	22.225	8.4	5	
7800612			PHC12R080M27-7	2	80	63.4	7	50	76	27	12.4	7	
7800618			PHC12R080M31.7-5	2	80	63.4	5	63	76	31.75	12.7	8	
7800616			PHC12R080M31.7-7	2	80	63.4	7	63	76	31.75	12.7	8	
7800613			PHC12R100M32-8	2	100	83.4	8	63	96	32	14.4	8	
7800617			PHC12R100M31.7-8	2	100	83.4	8	63	96	37.75	12.7	8	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

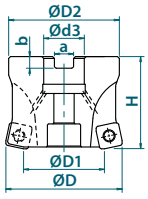
PXT

Type 1



With coolant hole.

Type 2



With coolant hole.

List 52603

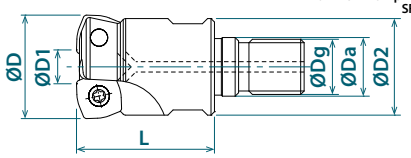
PHC ASF (Inch)



SPEED FEED P1425

Recommended Materials: p1425
Accessories & Inserts: p1424
Maximum Ramping Angle: p1426
SF Arbors: p1461





EDP No.	Body Type	Designation	Tool Dia. (inch)	Effective Dia. (inch)	No. of Teeth	Pilot Dia. (inch)	Thread Dia. (mm)	Overall Length (inch)	Flange Dia. (inch)	Wrench Size	Applicable Insert
			D	D1		Da	Dg	L	D2		
52603004	Screw Fit Head	PHC07R063ASF8-2	0.625	0.286	2	0.334	M8	1.063	0.571	10	SPMT07…
52603005		PHC07R075ASF10-3	0.750	0.411	3	0.413	M10	1.300	0.709	14	
52603006		PHC07R100ASF12-4	1.000	0.661	4	0.492	M12	1.378	0.905	17	
52603007		PHC07R125ASF16-5	1.250	0.911	5	0.669	M16	1.575	1.102	22	
52603000		PHC09R100ASF12-2	1.000	0.535	2	0.492	M12	1.378	0.905	17	SDMT09…
52603001		PHC09R125ASF16-3	1.250	0.785	3	0.669	M16	1.575	1.102	22	
52603002		PHC12R125ASF16-2	1.250	0.596	2	0.669	M16	1.575	1.102	22	SXMT12…
52603003		PHC12R150ASF16-3	1.500	0.846	3	0.669	M16	1.575	1.102	22	

Packed: 1 pc.

PXT

List 78015

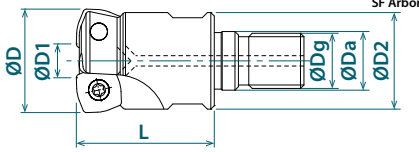
PHC SF (Metric)



SPEED FEED P1425

Recommended Materials: p1425
Accessories & Inserts: p1424
Maximum Ramping Angle: p1426
SF Arbors: p1462-1464





EDP No.	Body Type	Designation	Tool Dia. (mm)	Effective Dia. (mm)	No. of Teeth	Pilot Dia. (mm)	Thread Dia. (mm)	Overall Length (mm)	Flange Dia. (mm)	Wrench Size	Applicable Insert
			D	D1		Da	Dg	L	D2		
7801520	Screw Fit Head	PHC07R016SF8-2	16	7.4	2	8.5	M8	27	14.5	10	SPMT07…
7801521		PHC07R017SF8-2	17	8.4	2	8.5	M8	27	14.5	10	
7801522		PHC07R018SF8-2	18	9.4	2	8.5	M8	27	14.5	10	
7801523		PHC07R020SF10-3	20	11.4	3	10.5	M10	33	18	14	
7801524		PHC07R021SF10-3	21	12.4	3	10.5	M10	33	18	14	
7801525		PHC07R022SF10-3	22	13.4	3	10.5	M10	33	18	14	
7801526		PHC07R025SF12-4	25	16.4	4	12.5	M12	35	23	17	
7801527		PHC07R026SF12-4	26	17.4	4	12.5	M12	35	23	17	
7801528		PHC07R028SF12-4	28	19.4	4	12.5	M12	35	23	17	
7801529		PHC07R030SF16-4	30	21.4	4	17	M16	40	28	22	
7801530		PHC07R032SF16-5	32	23.4	5	17	M16	40	28	22	
7801531		PHC07R033SF16-5	33	24.4	5	17	M16	40	28	22	
7801532		PHC07R035SF16-5	35	26.4	5	17	M16	40	28	22	
7801500		PHC09R025SF12-3	25	13.2	3	12.5	M12	35	23	17	SDMT09…
7801510		PHC09R026SF12-3	26	14.2	3	12.5	M12	35	23	17	
7801501		PHC09R028SF12-3	28	16.2	3	12.5	M12	35	23	17	
7801502		PHC09R030SF16-3	30	18.2	3	17	M16	40	28	22	
7801503		PHC09R032SF16-3	32	20.2	3	17	M16	40	28	22	
7801511		PHC09R033SF16-3	33	21.2	3	17	M16	40	28	22	
7801504		PHC09R035SF16-3	35	23.2	3	17	M16	40	28	22	
7801505		PHC09R040SF16-4	40	28.2	4	17	M16	40	28	22	
7801506		PHC12R030SF16-2	30	13.4	2	17	M16	40	28	22	SXMT12…
7801507		PHC12R032SF16-2	32	15.4	2	17	M16	40	28	22	
7801512		PCH12R033SF16-2	33	16.4	2	17	M16	40	28	22	
7801508		PHC12R035SF16-3	35	18.4	3	17	M16	40	28	22	
7801509		PHC12R040SF16-3	40	23.4	3	17	M16	40	28	22	

Packed: 1 pc.

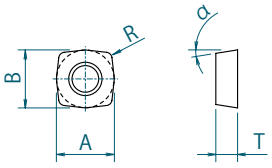
This item is stocked overseas. Please contact OSG for availability and delivery.

PXT

List 78PHC

PHC Inserts





Designation	No. of Cutting Edges	Insert Size					EDP Number								
		A x B (mm)	T (mm)	α	R (mm)	Aa Max (mm)	XC3020	XP3025	XC3030	XP3035	XP2025	XP2040	XC1015	XC5035	XC5040
SPMT070305SR-GM	4	7.0 x 7.0	2.75	11°	0.5	0.8	7827092	7828092	7825092	7814092	7826092	7813092	7812092	-	-
SPMT070305ER-SM							-	-	-	-	-	-	-	-	7816093
SDMT09T308SR-GM		9.52 x 9.52	3.97	15°	0.8	1.0	7827020	7828020	7825020	7814020	7826020	7813020	7812020	-	-
SDMT09T308ER-SM							-	-	-	-	-	-	-	7815021	7816021
SXMT120410SR-GM		12.7 x 12.7	4.76	9°	1.0	2.0	7827022	7828022	7825022	7814022	7826022	7813022	7812022	-	-
SXMT120410ER-SM							-	-	-	-	-	-	-	7815023	7816023

Packed: 10 pcs.

PXI

List 7808H

PHC Accessories

Appearance	EDP No.	Designation	Applicable Insert	Applicable Cutter		Recommended Tightening Torque
				(mm)	(inch)	
Clamping Screw	7808105	FS25550 (M2.5 x 5, Torx 8)	SPMT07…	PHC SS/SF Ø16-35	PHC07 SA/FA/ASF Ø0.625-1.25"	1.6 Nm
	7808111	FS35572 (M3.5 x 7.2, Torx 15)	SDMT09…	PHC SS/SF Ø25-35	PHC09 SA/FA/ASF Ø1-1.25"	3.2 Nm
	7808112	FS35586 (M3.5 x 8.6, Torx 15)		PHC SS/SF Ø40 PHC BORE Ø40-63	PHC09 SA/FA/ASF Ø1.5" PHC09 BORE Ø2-3"	3.2 Nm
	7808113	FS45510 (M4.5 x 10.5, Torx 20)	SXMT12…	PHC SS/SF Ø32-63 PHC BORE Ø40-100	PHC12 SA/FA/ASF Ø1.25-1.5" PHC12 BORE Ø2-6"	5.0 Nm
Power Screw	7808150	PS0830 (M8x30)	SDMT09… SXMT12…	PHC BORE Ø40	n/a	20.0 Nm
Wrench	7808205	T8-D (Torx 8)	SPMT07…	PHC SS/SF Ø16-35	PHC07 SA/FA/ASF Ø0.625-1.25"	
	7808208	T15-D (Torx 15)	SDMT09…	PHC SS/SF Ø25-40 PHC BORE Ø40-63	PHC09 SA/FA/ASF Ø1-1.5" PHC09 BORE Ø2-3"	
	7808209	T20-D (Torx 20)	SXMT12…	PHC SS/SF Ø32-63 PHC BORE Ø40-100	PHC12 SA/FA/ASF Ø1.25-1.5" PHC12 BORE Ø2-6"	

Packed: Clamping Screws = 10 pcs.; Power Screw = 1 pc.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Milling Speed Vc (SFM)	Insert Size											
				SPMT07...				SDMT09...				SXMT12...			
				Face Milling				Face Milling				Face Milling			
				Feed Per Tooth fz (in/t)	Depth of Cut Aa (in)			Feed Per Tooth fz (in/t)	Depth of Cut Aa (in)			Feed Per Tooth fz (in/t)	Depth of Cut Aa (in)		
					L/D=2	L/D=3	L/D=4		L/D=2	L/D=3	L/D=4		L/D=2	L/D=3	L/D=4
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	590 (195 - 820)	0.028 (0.012 - 0.060)	0.032	0.024	0.016	0.032 (0.012 - 0.071)	0.040	0.032	0.020	0.050 (0.020 - 0.126)	0.047	0.047	0.040
P	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	590 (195 - 820)	0.028 (0.012 - 0.051)	0.032	0.024	0.016	0.032 (0.012 - 0.060)	0.040	0.032	0.020	0.050 (0.020 - 0.118)	0.047	0.047	0.040
P	Die Steels (H13, D2)	~280 HB	590 (195 - 820)	0.028 (0.012 - 0.051)	0.024	0.020	0.012	0.032 (0.012 - 0.060)	0.032	0.024	0.016	0.050 (0.020 - 0.118)	0.047	0.047	0.040
M	Stainless Steels (Dry) (304, 420)	~250 HB	525 (265 - 655)	0.016 (0.012 - 0.047)	0.024	0.020	0.012	0.020 (0.012 - 0.060)	0.032	0.024	0.016	0.040 (0.020 - 0.098)	0.047	0.040	0.040
M	Stainless Steels (Wet) (304, 420)	~250 HB	395 (200 - 590)	0.016 (0.012 - 0.047)	0.024	0.020	0.012	0.020 (0.012 - 0.060)	0.032	0.024	0.016	0.040 (0.020 - 0.098)	0.047	0.040	0.040
K	Cast Iron (FC250)	~350 N/mm^2	655 (330 - 985)	0.032 (0.016 - 0.060)	0.032	0.024	0.016	0.040 (0.020 - 0.071)	0.040	0.032	0.020	0.060 (0.020 - 0.138)	0.060	0.060	0.040
K	Ductile Cast Iron (60-40-18)	~800 N/mm^2	590 (330 - 820)	0.028 (0.012 - 0.051)	0.032	0.024	0.016	0.035 (0.020 - 0.060)	0.040	0.032	0.020	0.053 (0.020 - 0.118)	0.047	0.047	0.035
S	Heat Resistant Alloys (Inconel 718)	-	100 (85 - 195)	0.012 (0.008 - 0.028)	0.016	0.016	0.012	0.016 (0.008 - 0.032)	0.020	0.020	0.016	0.020 (0.008 - 0.040)	0.040	0.040	0.032
S	Titanium Alloy (Ti-6Al-4V)	-	260 (165 - 395)	0.016 (0.012 - 0.032)	0.016	0.016	0.012	0.020 (0.012 - 0.040)	0.020	0.020	0.012	0.028 (0.012 - 0.047)	0.032	0.032	0.016
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HRC	395 (130 - 495)	0.016 (0.008 - 0.032)	0.016	0.016	0.012	0.020 (0.008 - 0.040)	0.020	0.020	0.012	0.032 (0.012 - 0.060)	0.040	0.040	0.020
H	Die Cast Steels (A2, S7)	43 - 48 HRC	295 (130 - 395)	0.012 (0.008 - 0.024)	0.016	0.016	0.012	0.016 (0.008 - 0.032)	0.020	0.020	0.016	0.028 (0.012 - 0.047)	0.028	0.028	0.024
H	Hardened Steels (D2)	50 - 55 HRC	195 (130 - 295)	0.008 (0.008 - 0.020)	0.012	0.012	0.008	0.012 (0.008 - 0.028)	0.012	0.012	0.008	0.020 (0.012 - 0.032)	0.020	0.020	0.016

Recommended Materials by Application

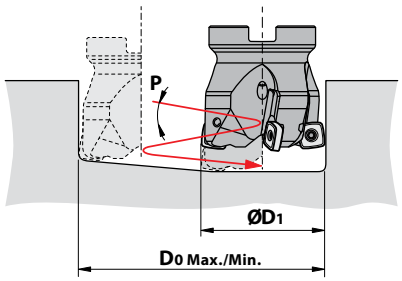
Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
XC3020	GM	-	◎		○			
XP3025	GM	Yes	◎		○			
XC3030	GM	-	◎		○			
XP3035	GM	-	◎	○	○			
XP2025	GM	Yes	○	◎			○	
XP2040	GM	-	○	○				○
		Yes	○	◎			○	
XC1015	GM	-			◎			
XC5035	SM	-		◎				
		Yes		○			○	
XC5040	SM	Yes		○			◎	

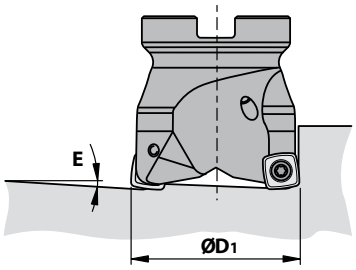
GM: Medium Cutting SM: Heat Resistant Alloy

○ good ◎ best

Maximum Ramping Angle (E) & Helical Angle (P)

Insert Size	SPMT07…				SDMT09...				SXMT12…			
Diameter (inch)	Ramping Angle	Helical Milling (inch)		Helical Angle	Ramping Angle	Helical Milling (inch)		Helical Angle	Ramping Angle	Helical Milling (inch)		Helical Angle
D1	E	D0 Min	D0 Max	P	E	D0 Min	D0 Max	P	E	D0 Min	D0 Max	P
0.625	5.9°	0.857	1.211	4.5°	-	-	-	-	-	-	-	-
0.750	3.2°	1.107	1.461	2.3°	-	-	-	-	-	-	-	-
1.000	2.0°	1.607	1.961	1.2°	3.5°	1.409	1.921	3.0°	-	-	-	-
1.250	1.3°	2.107	2.461	0.9°	1.9°	1.909	2.421	1.7°	7.2°	1.713	2.421	6.1°
1.500	-	-	-	-	1.2°	2.409	2.921	1.0°	2.9°	2.213	2.921	2.5°
2.000	-	-	-	-	0.8°	3.409	3.921	0.7°	1.4°	3.213	3.921	1.2°
2.500	-	-	-	-	0.7°	4.409	4.921	0.7°	1.1°	4.213	4.921	0.9°
3.000	-	-	-	-	0.45°	5.409	5.921	0.4°	1.0°	5.213	5.921	0.8°
4.000	-	-	-	-	-	-	-	-	0.7°	7.213	7.921	0.6°
5.000	-	-	-	-	-	-	-	-	0.5°	9.213	9.921	0.35°
6.000	-	-	-	-	-	-	-	-	0.4°	11.213	11.921	0.3°

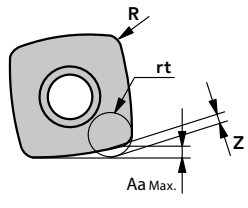




Flute shape definitions for the purpose of creating a program

Insert Size	R (mm)	Aa Max (mm)	rt (mm)	z (mm)
SPMT07...	0.5	0.8	1.2	0.35
SDMT09...	0.8	1	2	0.7
SXMT12...	1	2	3	1.15

For machining purposes, create machining programs for the respective simulated R radius cutters.



List 6420

PDR SS (Metric)





SPEED FEED P1429

Recommended Materials: p1429
Accessories & Inserts: p1428
Maximum Ramping Angle: p1429

EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm)	Effective Dia. (mm)	No. of Teeth	Shank Dia. (mm)	Overall Length (mm)	Neck Length (mm)	Neck Dia. (mm)	Applicable Insert
					D	D1		d	L	L1	d1	
7800000	Cylindrical Shank Short	Normal	PDR20R040SS42-2S	1	40	20	2	42	150	50	38.9	ADMT20…
7800004			PDR20R050SS42-3S	1	50	30	3	42	150	50	48.5	
7800009	Cylindrical Shank Long		PDR20R040SS42-2L	1	40	20	2	42	250	150	38.9	
7800013			PDR20R050SS42-3L	1	50	30	3	42	250	150	48.5	

Packed: 1 pc.

PXT

List 6450

PDR Bore (Metric)





SPEED FEED P1429

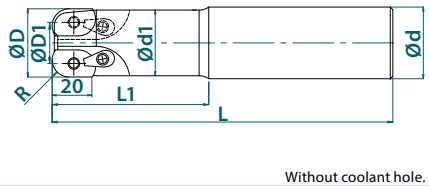
Recommended Materials: p1429
Accessories & Inserts: p1428
Maximum Ramping Angle: p1429

EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm)	Effective Dia. (mm)	No. of Teeth	Tool Height (mm)	Flange Dia. (mm)	Bore Dia. (mm)	Keyway Width (mm)	Keyway Depth (mm)	Applicable Insert
					D	D1		H	D2	d3	a	b	
6450001	Bore	Normal	PDR20R063M25.4-3	2	63	43	3	70	60	25.4	8	5	ADMT20…
6450002			PDR20R063M25.4-4	2	63	43	4	70	60	25.4	8	5	
7800052			PDR20R080M31.7-4	2	80	60	4	63	76	31.75	12.7	8	
7800053			PDR20R080M31.7-5	2	80	60	5	63	76	31.75	12.7	8	
7800054			PDR20R100M31.7-5	2	100	80	5	63	90	31.75	12.7	8	
7800055			PDR20R100M31.7-6	2	100	80	6	63	90	31.75	12.7	8	
7800056			PDR20R125M31.7-6	2	125	105	6	63	100	31.75	12.7	8	
7800057			PDR20R063M22-3	2	63	43	3	63	60	22	10.4	6.3	
7800058			PDR20R063M22-4	2	63	43	4	63	60	22	10.4	6.3	
7800059			PDR20R080M27-4	2	80	60	4	63	76	27	12.4	7	
7800060			PDR20R080M27-5	2	80	60	5	63	76	27	12.4	7	
7800061			PDR20R100M32-5	2	100	80	5	63	96	32	14.4	8	
7800062			PDR20R100M32-6	2	100	80	6	63	96	32	14.4	8	
7800063			PDR20R125M40-6	2	125	105	6	63	100	40	16.4	9	

Packed: 1 pc.

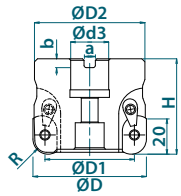
PXT

Type 1



Without coolant hole.

Type 2

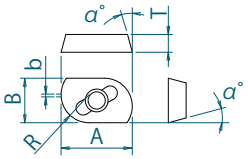


Without coolant hole.

List 78PDR

PDR Inserts





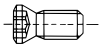
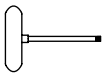
Designation	No. of Cutting Edges	Insert Size					EDP Number
		A x B (mm)	T (mm)	α	R (mm)	b (mm)	XP3930
ADMT2006100PDR-GM	2	24.18 x 16	6.35	15°	10	1	7810000

Packed: 10 pcs.

PXI

List 7808H

PDR Accessories

Appearance	EDP No.	Designation	Recommended Tightening Torque
 Clamping Screw	7808001	CSPB-5 (Torx 20IP)	5.0 Nm
 Wrench	7808000	20IP-T (Torx 20IP)	
Metal Weight Set Washer	7808002	CSY-20	

Packed: Clamping Screws = 10 pcs.; Wrench = 1 pc.; Weight Set = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions

Work Material		Tensile Strength – Hardness	Milling Speed Vc (SFM)	Insert Size							
				PDR SS			PDR BORE				
				Face Milling			Face Milling				
				Feed Per Tooth fz (in/t)	Depth of Cut aa (in)		Feed Per Tooth fz (in/t)	Depth of Cut aa (in)			
					OAL=120	OAL=170		OAL=100	OAL=200	OAL=300	OAL=400
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	590 (295 - 720)	0.027 (0.012 - 0.040)	0.118	0.079	0.024 (0.012 - 0.040)	0.118	0.118	0.079	0.079
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	590 (295 - 720)	0.027 (0.012 - 0.040)	0.118	0.079	0.024 (0.012 - 0.040)	0.118	0.118	0.079	0.079
	Die Steels (H13, D2)	~280 HB	495 (295 - 590)	0.024 (0.012 - 0.040)	0.118	0.079	0.020 (0.012 - 0.040)	0.118	0.079	0.079	0.079
K	Cast Iron (FC250)	~350 N/mm²	590 (330 - 820)	0.031 (0.012 - 0.059)	0.118	0.118	0.027 (0.012 - 0.059)	0.118	0.118	0.079	0.079
	Ductile Cast Iron (60-40-18)	~800 N/mm²	495 (330 - 820)	0.027 (0.012 - 0.047)	0.118	0.118	0.024 (0.012 - 0.047)	0.118	0.118	0.079	0.079

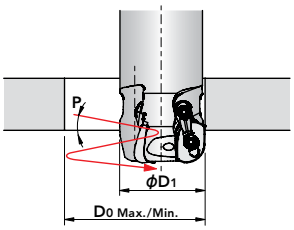
Recommended Materials by Application

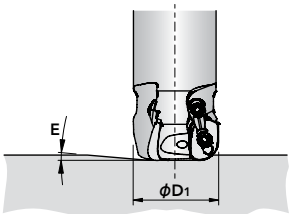
Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
XP3930	GM	-	▣		▣			

GM: Medium Cutting

Maximum Ramping Angle (E)

Insert Size	ADMT20...			
Diameter (mm)	Ramping Angle	Helical Milling (mm)		Plunging (mm)
D1	E	D0 Min	D0 Max	Z
40	5°	50	78	3
50	3°	70	98	3
63	2°	96	124	3
80	1°	130	158	3
100	0.5°	170	198	3
125	0.5°	220	248	3





List 78036

PFAL Bore (Metric)

SPEED FEED P1432

Recommended Materials: p1432
Accessories & Inserts: p1431

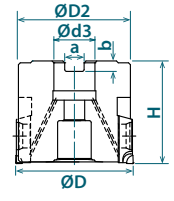


EDP No.	Body Type	Teeth Type	Designation	Type	Tool Dia. (mm) D	No. of Teeth	Tool Height (mm) H	Flange Dia. (mm) D2	Bore Dia. (mm) d3	Keyway Width (mm) a	Keyway Depth (mm) b	Applicable Insert
7803600	Bore	Normal	PFAL04R050M16-5	1	50	5	55	40	16	8.4	5.6	FR1204 / FR1206
7803601			PFAL04R063M22-6	1	63	6	55	45	22	10.4	6.3	
7803602		Close	PFAL04R063M22-8	1	63	8	55	45	22	10.4	6.3	
7803603		Normal	PFAL04R080M25.4-8	2	80	8	50	70	25.4	9.5	6	
7803604			PFAL04R080M27-8	2	80	8	50	70	27	12.4	7	
7803605		Close	PFAL04R080M25.4-10	2	80	10	50	70	25.4	9.5	6	
7803606			PFAL04R080M27-10	2	80	10	50	70	27	12.4	7	
7803607		Normal	PFAL04R100M25.4-8	2	100	8	50	80	25.4	9.5	6	
7803608			PFAL04R100M27-8	2	100	8	50	80	27	12.4	7	
7803609			PFAL04R100M31.7-8	2	100	8	50	72	31.75	12.7	8	
7803610			PFAL04R100M32-8	2	100	8	50	80	32	14.4	8.2	
7803611		Close	PFAL04R100M25.4-12	2	100	12	50	80	25.4	9.5	6	
7803612			PFAL04R100M27-12	2	100	12	50	80	27	12.4	7	
7803613			PFAL04R100M31.7-12	2	100	12	50	80	31.75	12.7	8	
7803614			PFAL04R100M32-12	2	100	12	50	80	32	14.4	8.2	
7803615		Normal	PFAL04R125M25.4-10	2	125	10	50	80	25.4	9.5	6	
7803616			PFAL04R125M27-10	2	125	10	50	80	27	12.4	7	
7803617			PFAL04R125M38.1-10	2	125	10	63	80	38.1	15.9	10	
7803618			PFAL04R125M40-10	2	125	10	63	85	40	16.4	9.2	
7803619		Close	PFAL04R125M25.4-16	2	125	16	50	80	25.4	9.5	6	
7803620			PFAL04R125M27-16	2	125	16	50	80	27	12.4	7	
7803621			PFAL04R125M38.1-16	2	125	16	63	80	38.1	15.9	10	
7803622			PFAL04R125M40-16	2	125	16	63	85	40	16.4	9.2	
7803623		Normal	PFAL04R160M25.4-12	2	160	12	50	80	25.4	9.5	6	
7803624			PFAL04R160M27-12	2	160	12	50	80	27	12.4	7	
7803625			PFAL04R160M40-12	2	160	12	63	85	40	16.4	9.2	
7803626			PFAL04R160M50.8-12	2	160	12	63	100	50.8	19.1	11	
7803629		Close	PFAL04R160M25.4-20	2	160	20	50	80	40	16.4	9.2	
7803630			PFAL04R160M27-20	2	160	20	50	80	50.8	19.1	11	
7803627			PFAL04R160M40-20	2	160	20	63	85	25.4	9.5	6	
7803628			PFAL04R160M50.8-20	2	160	20	63	100	27	12.4	7	

Packed: 1 pc.
Note: All accessories included with body.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

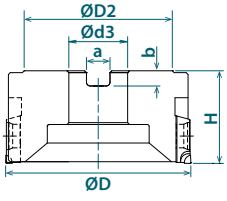
PXT

Type 1



With coolant hole.

Type 2



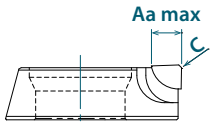
Without coolant hole.

For the use of internal coolant, please use a clamping bolt with coolant holes sold in the market.

List 78PFAL

PFAL Inserts





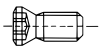
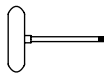
Designation	No. of Cutting Edges	Insert Size		EDP Number
		c (mm)	Aa max (mm)	DP010
FR1204	1	0.4 x 45°	4	7820500
FR1206	1	0.4 x 45°	6	7820502
FR1204-W	1	0.4 x 45°	-	7820501

Packed: 1 pc.
Note: One wiper blade is required per cutter body and should be mounted in the designated position.
Note: The FR1204-W wiper blade can be used with both FR1204 & FR1206 normal blades.

PXI

List 7808H

PFAL Accessories

Appearance	EDP No.	Designation	Applicable Cutter		Recommended Tightening Torque
			(mm)	(inch)	
 Blade Clamping Screw	7808125	FS60620 (M6 x 17, Torx 25)	PFAL Ø50-160	-	10.0 Nm
 Wedge	7808143	W12-06	PFAL Ø50-160	-	
 Wedge Clamping Screw	7808142	WS0617	PFAL Ø50-160	-	
 Wrench for Blade	7808211	T25-T (Torx 25)	PFAL Ø50-160	-	
 Wrench for Wedge	7808231	3MM-L	PFAL Ø50-160	-	

Packed: Clamping Screws = 10 pcs.; Wedge = 10pcs.; Wedge Clamping Screw = 10 pcs.; Wrench for Blade = 1 pc.; Wrench for Wedge = 1 pc.

PXT

Cutting Conditions (Semi-Finishing)

Work Material		Tensile Strength – Hardness	Insert Size FR12… Face Milling Milling Speed Vc (SFM) CAT30	Milling Speed Vc (SFM) CAT40, CAT50 HSK-63	Feed Per Tooth fz (in/t)	Depth of Cut Aa (in)
N	Aluminum Alloys (7075, 5052, 2017, ADC12)	~12% Si	3300 (2600-6500)	6500 (3300-16400)	0.003 (0.002-0.004)	0.060 (0.040-0.080)
	Aluminum Alloys (AC9A, AC9B)	~13% Si	2000 (1300-2600)	2000 (1300-2600)	0.0025 (0.002-0.003)	0.060 (0.040-0.080)

Cutting Conditions (Finishing)

Work Material		Tensile Strength – Hardness	Insert Size FR12… Face Milling Milling Speed Vc (SFM) CAT30	Milling Speed Vc (SFM) CAT40, CAT50 HSK-63	Feed Per Tooth fz (in/t)	Depth of Cut Aa (in)
N	Aluminum Alloys (7075, 5052, 2017, ADC12)	~12% Si	3300 (2600-6500)	6500 (3300-16400)	0.003 (0.002-0.004)	0.020 (0.012-0.040)
	Aluminum Alloys (AC9A, AC9B)	~13% Si	2000 (1300-2600)	2000 (1300-2600)	0.0025 (0.002-0.003)	0.020 (0.012-0.040)

Recommended Materials by Application

Insert Grade	Chip Breaker	Coolant	P	M	K	N	S	H
DP010	–	Yes				◻		

▢ good ◻ best

List 52100

PFB SA (Inch)

SPEED FEED P1441

Recommended Materials: p1441
Accessories & Inserts: p1437-1439
Effective Cutting Diameter & Recommended Width of Cut: p1440



Steel Shank



Carbide Shank

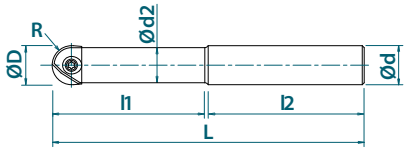
EDP No.	Body Type	Designation	Type	Tool Dia. (inch)	Tool Radius (inch)	Overall Length (inch)	Neck Length (inch)	Taper	L/D Ratio	No. of Teeth	Shank Dia. (inch)	Shank Length (inch)	Neck Dia. (inch)
				D	R	L	l1	α°			d	l2	d2
52100000	Cylindrical Shank Steel	PFB-R0250SA0250-S325	1	0.250	0.1250	3.250	0.625	0	2.5	2	0.250	2.625	0.226
52100026		PFB-R0250SA0250-S375	1	0.250	0.1250	3.750	1.125	0	4.5	2	0.250	2.625	0.226
52100027		PFB-R0250TPA0375-S375	2	0.250	0.1250	3.750	1.125	2	4.5	2	0.375	2.581	0.226
52100028		PFB-R0250TPA0375-S425	2	0.250	0.1250	4.250	1.500	1	6	2	0.375	2.697	0.226
52100029		PFB-R0375SA0375-S400	1	0.375	0.1875	4.000	0.937	0	2.5	2	0.375	3.063	0.336
52100001		PFB-R0375SA0375-S550	1	0.375	0.1875	5.500	1.687	0	4.5	2	0.375	3.813	0.336
52100030		PFB-R0375TPA0500-S500	2	0.375	0.1875	5.000	1.687	2	4.5	2	0.500	3.276	0.336
52100031		PFB-R0375TPA0500-S550	2	0.375	0.1875	5.500	2.250	1	6	2	0.500	3.200	0.336
52100032		PFB-R0500SA0500-S450	1	0.500	0.2500	4.500	1.250	0	2.5	2	0.500	3.250	0.461
52100002		PFB-R0500SA0500-S550	1	0.500	0.2500	5.500	2.250	0	4.5	2	0.500	3.250	0.461
52100033		PFB-R0500TPA0625-S550	2	0.500	0.2500	5.500	2.250	2	4.5	2	0.625	3.229	0.461
52100034		PFB-R0500TPA0625-S650	2	0.500	0.2500	6.500	3.000	1	6	2	0.625	3.461	0.461
52100035		PFB-R0625SA0625-S500	1	0.625	0.3125	5.000	1.562	0	2.5	2	0.625	3.438	0.546
52100003		PFB-R0625SA0625-S550	1	0.625	0.3125	5.500	2.500	0	4	2	0.625	3.000	0.546
52100036		PFB-R0625TPA0750-S600	2	0.625	0.3125	6.000	2.812	2	4.5	2	0.750	3.181	0.546
52100037		PFB-R0625TPA0750-S700	2	0.625	0.3125	7.000	3.750	1	6	2	0.750	3.222	0.546
52100038		PFB-R0750SA0750-S550	1	0.750	0.3750	5.500	1.875	0	2.5	2	0.750	3.625	0.671
52100004		PFB-R0750SA0750-S600	1	0.750	0.3750	6.000	3.000	0	4	2	0.750	3.000	0.671
52100039		PFB-R0750TPA1000-S650	2	0.750	0.3750	6.500	3.375	2	4.5	2	1.000	3.072	0.671
52100040		PFB-R0750TPA1000-S800	2	0.750	0.3750	8.000	4.500	1	6	2	1.000	3.420	0.671
52100005		PFB-R1000SA1000-S650	1	1.000	0.5000	6.500	3.000	0	3	2	1.000	3.500	0.882
52100041		PFB-R1000SA1000-S750	1	1.000	0.5000	7.500	4.000	0	4	2	1.000	3.500	0.882
52100042		PFB-R1000TPA1250-S800	2	1.000	0.5000	8.000	4.500	2	4.5	2	1.250	3.477	0.882
52100043		PFB-R1000TPA1250-S950	2	1.000	0.5000	9.500	6.000	1	6	2	1.250	3.442	0.882
52100016		PFB-R1250SA1250-S700	1	1.250	0.6250	7.000	3.750	0	3	2	1.250	3.250	1.132
52100044		PFB-R1250SA1250-S850	1	1.250	0.6250	8.500	5.000	0	4	2	1.250	3.500	1.132
52100045		PFB-R1250TPA1500-S900	2	1.250	0.6250	9.000	5.625	2	4.5	2	1.500	3.344	1.132
52100046		PFB-R1250TPA1500-S1100	2	1.250	0.6250	11.000	7.500	1	6	2	1.500	3.425	1.132
52100020	Cylindrical Shank Short Carbide	PFB-R0250SA0250-S325CS	1	0.250	0.1250	3.250	0.625	0	2.5	2	0.250	2.625	0.226
52100021		PFB-R0375SA0375-S400CS	1	0.375	0.1875	4.000	0.937	0	2.5	2	0.375	3.063	0.336
52100022		PFB-R0500SA0500-S450CS	1	0.500	0.2500	4.500	1.250	0	2.5	2	0.500	3.250	0.461
52100023		PFB-R0625SA0625-S550CS	1	0.625	0.3125	5.500	1.562	0	2.5	2	0.625	3.938	0.546
52100024		PFB-R0750SA0750-S600CS	1	0.750	0.3750	6.000	1.875	0	2.5	2	0.750	4.125	0.671
52100025		PFB-R1000SA1000-S650CS	1	1.000	0.5000	6.500	2.500	0	2.5	2	1.000	4.000	0.882
52100017		PFB-R1250SA1250-S700CS	1	1.250	0.6250	7.000	3.125	0	2.5	2	1.250	3.875	1.132

Packed: 1 pc.

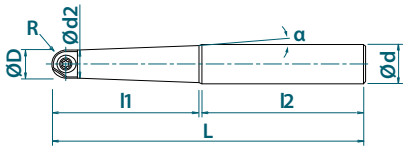
continued on next page

PXT

Type 1



Type 2



List 52100 (Continued)

SPEED FEED P1441

PFB SA (Inch)

Recommended Materials: p1441
Accessories & Inserts: p1437-1439
Effective Cutting Diameter & Recommended Width of Cut: p1440



Steel Shank



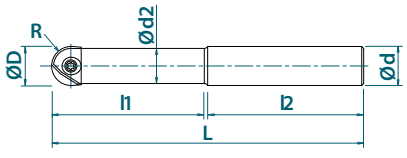
Carbide Shank

EDP No.	Body Type	Designation	Type	Tool Dia. (inch)	Tool Radius (inch)	Overall Length (inch)	Neck Length (inch)	Taper	L/D Ratio	No. of Teeth	Shank Dia. (inch)	Shank Length (inch)	Neck Dia. (inch)
				D	R	L	l1	α°			d	l2	d2
52100047	Cylindrical Shank Long Carbide	PFB-R0250SA0250-L400CS	1	0.250	0.1250	4.000	1.250	0	5	2	0.250	2.750	0.226
52100048		PFB-R0250TPA0375-L425CS	2	0.250	0.1250	4.250	1.500	1	6	2	0.375	2.697	0.226
52100006		PFB-R0375SA0375-L550CS	1	0.375	0.1875	5.500	1.875	0	5	2	0.375	3.625	0.336
52100049		PFB-R0375TPA0500-L550CS	2	0.375	0.1875	5.500	2.250	1	6	2	0.500	3.200	0.336
52100007		PFB-R0500SA0500-L550CS	1	0.500	0.2500	5.500	2.500	0	5	2	0.500	3.000	0.461
52100050		PFB-R0500TPA0625-L650CS	2	0.500	0.2500	6.500	3.000	1	6	2	0.625	3.461	0.461
52100008		PFB-R0625SA0625-L650CS	1	0.625	0.3125	6.500	3.125	0	5	2	0.625	3.375	0.546
52100051		PFB-R0625TPA0750-L700CS	2	0.625	0.3125	7.000	3.750	1	6	2	0.750	3.222	0.546
52100009		PFB-R0750SA0750-L700CS	1	0.750	0.3750	7.000	3.750	0	5	2	0.750	3.250	0.671
52100052		PFB-R0750TPA1000-L800CS	2	0.750	0.3750	8.000	4.500	1	6	2	1.000	3.420	0.671
52100010		PFB-R1000SA1000-L800CS	1	1.000	0.5000	8.000	4.500	0	4.5	2	1.000	3.500	0.882
52100053		PFB-R1000TPA1250-L950CS	2	1.000	0.5000	9.500	6.000	1	6	2	1.250	3.442	0.882
52100018		PFB-R1250SA1250-L900CS	1	1.250	0.6250	9.000	5.625	0	4.5	2	1.250	3.375	1.132
52100054		PFB-R1250TPA1500-L1100CS	2	1.250	0.6250	11.000	7.500	1	6	2	1.500	3.425	1.132
52100055	Cylindrical Shank Extra-Long Carbide	PFB-R0250SA0250-LL450CS	1	0.250	0.1250	4.500	1.750	0	7	2	0.250	2.750	0.226
52100056		PFB-R0250TPA0375-LL475CS	2	0.250	0.1250	4.750	2.000	0.5	8	2	0.375	2.690	0.226
52100011		PFB-R0375SA0375-LL650CS	1	0.375	0.1875	6.500	2.625	0	7	2	0.375	3.875	0.336
52100057		PFB-R0375TPA0500-LL650CS	2	0.375	0.1875	6.500	3.000	0.5	8	2	0.500	3.440	0.336
52100012		PFB-R0500SA0500-LL700CS	1	0.500	0.2500	7.000	3.500	0	7	2	0.500	3.500	0.461
52100058		PFB-R0500TPA0625-LL750CS	2	0.500	0.2500	7.500	4.000	0.5	8	2	0.625	3.448	0.461
52100013		PFB-R0625SA0625-LL750CS	1	0.625	0.3125	7.500	3.750	0	6	2	0.625	3.750	0.546
52100059		PFB-R0625TPA0750-LL825CS	2	0.625	0.3125	8.250	5.000	0.5	8	2	0.750	3.206	0.546
52100014		PFB-R0750SA0750-LL900CS	1	0.750	0.3750	9.000	4.500	0	6	2	0.750	4.500	0.671
52100060		PFB-R0750TPA1000-LL950CS	2	0.750	0.3750	9.500	6.000	0.5	8	2	1.000	3.401	0.671
52100015		PFB-R1000SA1000-LL1050CS	1	1.000	0.5000	10.500	5.500	0	5.5	2	1.000	5.000	0.882
52100061		PFB-R1000TPA1250-LL1150CS	2	1.000	0.5000	11.500	8.000	0.5	8	2	1.250	3.416	0.882
52100019		PFB-R1250SA1250-LL1200CS	1	1.250	0.6250	12.000	6.875	0	5.5	2	1.250	5.125	1.132
52100062		PFB-R1250TPA1500-LL1350CS	2	1.250	0.6250	13.500	10.000	0.5	8	2	1.500	3.392	1.132

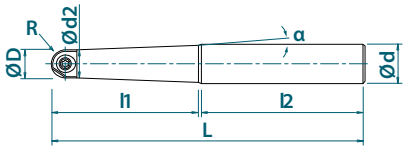
Packed: 1 pc.

PXT

Type 1



Type 2



List 78014

SPEED FEED P1441

PFB SS (Metric)

Recommended Materials: p1441
Accessories & Inserts: p1437-1439
Effective Cutting Diameter & Recommended Width of Cut: p1440



Steel Shank

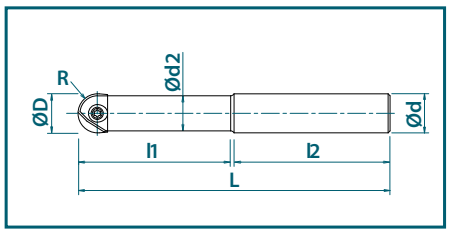


Carbide Shank

EDP No.	Body Type	Designation	Tool Dia. (mm)	Tool Radius (mm)	Overall Length (mm)	Neck Length (mm)	L/D Ratio	No. of Teeth	Shank Dia. (mm)	Shank Length (mm)	Neck Dia. (mm)
			D	R	L	l1			d	l2	d2
7801400	Cylindrical Shank Steel	PFB-R080SS08-S120	8	4	120	36	4.5	2	8	84	7
7801401		PFB-R100SS10-S130	10	5	130	45	4.5	2	10	85	9
7801402		PFB-R120SS12-S130	12	6	130	54	4.5	2	12	76	11
7801403		PFB-R160SS16-S140	16	8	140	65	4	2	16	76	14
7801404		PFB-R200SS20-S160	20	10	160	80	4	2	20	80	18
7801405		PFB-R250SS25-S160	25	12.5	160	75	3	2	25	85	22
7801406		PFB-R300SS32-S170	30	15	170	90	3	2	32	80	27
7801407		PFB-R320SS32-S180	32	16	180	96	3	2	32	84	29
7801429	Cylindrical Shank Short Carbide	PFB-R060SS06-S80CS	6	3	80	15	2.5	2	6	65	5.4
7801430		PFB-R080SS08-S100CS	8	4	100	20	2.5	2	8	80	7
7801431		PFB-R100SS10-S100CS	10	5	100	25	2.5	2	10	75	9
7801432		PFB-R120SS12-S110CS	12	6	110	30	2.5	2	12	80	11
7801433		PFB-R160SS16-S140CS	16	8	140	40	2.5	2	16	100	14
7801434		PFB-R200SS20-S160CS	20	10	160	50	2.5	2	20	110	18
7801435		PFB-R250SS25-S160CS	25	12.5	160	62.5	2.5	2	25	97.5	22
7801436		PFB-R300SS32-S170CS	30	15	170	75	2.5	2	32	95	27
7801437		PFB-R320SS32-S180CS	32	16	180	80	2.5	2	32	100	29
7801439	Cylindrical Shank Long Carbide	PFB-R060SS06-L100CS	6	3	100	30	5.0	2	6	70	5.4
7801440		PFB-R080SS08-L120CS	8	4	120	40	5.0	2	8	80	7
7801441		PFB-R100SS10-L130CS	10	5	130	50	5.0	2	10	80	9
7801442		PFB-R120SS12-L140CS	12	6	140	60	5.0	2	12	80	11
7801443		PFB-R160SS16-L160CS	16	8	160	72	4.5	2	16	88	14
7801444		PFB-R200SS20-L180CS	20	10	180	90	4.5	2	20	90	18
7801445		PFB-R250SS25-L200CS	25	12.5	200	100	4	2	25	100	22
7801446		PFB-R300SS32-L220CS	30	15	220	120	4	2	32	100	27
7801447		PFB-R320SS32-L230CS	32	16	230	128	4	2	32	102	29
7801419	Cylindrical Shank Extra-Long Carbide	PFB-R060SS06-LL120CS	6	3	120	42	7	2	6	78	5.4
7801420		PFB-R080SS08-LL140CS	8	4	140	56	7	2	8	84	7
7801421		PFB-R100SS10-LL150CS	10	5	150	70	7	2	10	80	9
7801422		PFB-R120SS12-LL160CS	12	6	160	84	7	2	12	76	11
7801423		PFB-R160SS16-LL200CS	16	8	200	96	6	2	16	104	14
7801424		PFB-R200SS20-LL240CS	20	10	240	120	6	2	20	120	18
7801425		PFB-R250SS25-LL260CS	25	12.5	260	137.5	5.5	2	25	122.5	22
7801426		PFB-R300SS32-LL290CS	30	15	290	165	5.5	2	32	125	27
7801427		PFB-R320SS32-LL300CS	32	16	300	176	5.5	2	32	124	29

Packed: 1 pc.

PXT



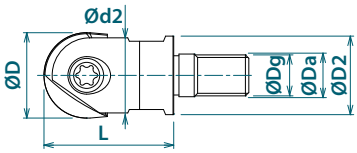
List 52604

SPEED FEED P1441

PFB ASF (Inch)

Recommended Materials: p1441
Accessories & Inserts: p1437-1439
Effective Cutting Diameter & Recommended Width of Cut: p1440
SF Arbors: p1461





EDP No.	Body Type	Designation	Tool Dia. (inch)	No. of Teeth	Pilot Dia. (inch)	Thread Dia. (mm)	Overall Length (inch)	Head Dia. (inch)	Flange Dia. (inch)	Wrench Size	Applicable Insert
			D		Da	Dg	L	d2	D2		
52604000	Screw Fit Head	PFB-R0375ASF6	0.375	2	0.256	M6	1.024	0.354	0.354	7	PFB…
52604001		PFB-R0500ASF6	0.500	2	0.256	M6	1.024	0.433	0.433	7	
52604002		PFB-R0625ASF8	0.625	2	0.335	M8	1.260	0.551	0.571	10	
52604003		PFB-R0750ASF10	0.750	2	0.413	M10	1.496	0.709	0.709	14	
52604004		PFB-R1000ASF12	1.000	2	0.492	M12	1.496	0.866	0.906	17	

Packed: 1 pc.

PXT

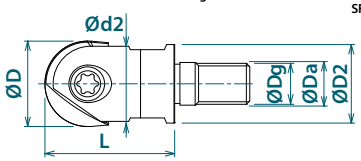
List 78114

SPEED FEED P1441

PFB SF (Metric)

Recommended Materials: p1441
Accessories & Inserts: p1437-1439
Effective Cutting Diameter & Recommended Width of Cut: p1440
SF Arbors: p1462-1464





EDP No.	Body Type	Designation	Tool Dia. (mm)	No. of Teeth	Pilot Dia. (mm)	Thread Dia. (mm)	Overall Length (mm)	Head Dia. (mm)	Flange Dia. (mm)	Wrench Size	Applicable Insert
			D		Da	Dg	L	d2	D2		
7801490	Screw Fit Head	PFB-R100SF6	10	2	6.5	M6	26	9	9	7	PFB...
7801491		PFB-R120SF6	12	2	6.5	M6	26	11	11	7	
7801492		PFB-R160SF8	16	2	8.5	M8	32	14	14.5	10	
7801493		PFB-R200SF10	20	2	10.5	M10	38	18	18	14	
7801494		PFB-R250SF12	25	2	12.5	M12	38	22	23	17	
7801495		PFB-R300SF16	30	2	17	M16	43	27	28	22	

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

PXT

List 78PFB

NEW SIZES

PFB Inserts (Inch)



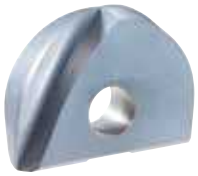
Spiral



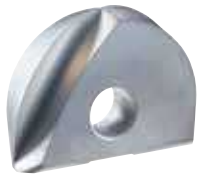
Spiral (Full Radius)



Straight (Full Radius)



Spiral (Strengthened Edge)



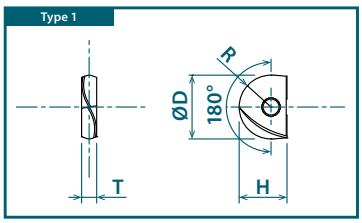
Spiral (Diamond Coated)

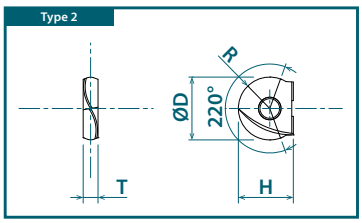
Designation	Type	Specification	No. of Cutting Edges	Range	Insert Size				EDP Number				
					D (inch)	R (inch)	T (mm)	H (mm)	XP3225	XP3310	XP3320	XP2225	XC4505
PFB0250A-SP	1	Spiral	2	180°	0.250	0.1250	2	5.175	52101020	-	52101010	-	-
PFB0375A-SP					0.375	0.1875	2.6	8.5	52101021	-	52101011	-	-
PFB0500A-SP					0.500	0.2500	3	10	52101022	-	52101012	-	-
PFB0625A-SP					0.625	0.3125	4	12	52101023	-	52101013	-	-
PFB0750A-SP					0.750	0.3750	5	15	52101024	-	52101014	-	-
PFB1000A-SP					1.000	0.5000	6	18.5	52101025	-	52101015	-	-
PFB1250A-SP					1.250	0.6250	7	23.5	52101026	-	52101016	-	-
PFB0250A-Q	2	Spiral (Full Radius)	2	220°	0.250	0.1250	2	5.175	52101040	-	-	-	-
PFB0375A-Q					0.375	0.1875	2.6	8.5	52101041	-	-	-	-
PFB0500A-Q					0.500	0.2500	3	10	52101042	-	-	-	-
PFB0625A-Q	3				0.625	0.3125	4	12	52101043	-	-	-	-
PFB0750A-Q					0.750	0.3750	5	15	52101044	-	-	-	-
PFB1000A-Q					1.000	0.5000	6	18.5	52101045	-	-	-	-
PFB1250A-Q					1.250	0.6250	7	23.5	52101046	-	-	-	-
PFB0375A-Q-ST		Straight (Full Radius)	2	200°	0.375	0.1875	2.6	8.5	-	-	-	52101051	-
PFB0500A-Q-ST					0.500	0.2500	3	10	-	-	-	52101052	-
PFB0625A-Q-ST				220°	0.625	0.3125	4	12	-	-	-	52101053	-
PFB0750A-Q-ST					0.750	0.3750	5	15	-	-	-	52101054	-
PFB1000A-Q-ST					1.000	0.5000	6	18.5	-	-	-	52101055	-
PFB1250A-Q-ST					1.250	0.6250	7	23.5	-	-	-	52101056	-
PFB0250A-SH	2	Spiral (Strengthened Edge)	2	220°	0.250	0.1250	2	5.175	-	52101030	-	-	-
PFB0375A-SH	1			180°	0.375	0.1875	2.6	8.5	-	52101031	-	-	-
PFB0500A-SH					0.500	0.2500	3	10	-	52101032	-	-	-
PFB0625A-SH					0.625	0.3125	4	12	-	52101033	-	-	-
PFB0750A-SH					0.750	0.3750	5	15	-	52101034	-	-	-
PFB1000A-SH					1.000	0.5000	6	18.5	-	52101035	-	-	-
PFB1250A-SH					1.250	0.6250	7	23.5	-	52101036	-	-	-
PFB0250A-D	2	Spiral (Diamond Coated)	2	220°	0.250	0.1250	2	5.175	-	-	-	-	52101000
PFB0375A-D	1			180°	0.375	0.1875	2.6	8.5	-	-	-	-	52101001
PFB0500A-D					0.500	0.2500	3	10	-	-	-	-	52101002
PFB0625A-D					0.625	0.3125	4	12	-	-	-	-	52101003
PFB0750A-D					0.750	0.3750	5	15	-	-	-	-	52101004
PFB1000A-D					1.000	0.5000	6	18.5	-	-	-	-	52101005
PFB1250A-D					1.250	0.6250	7	23.5	-	-	-	-	52101006

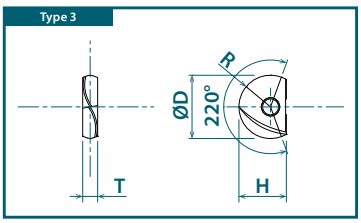
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continued on next page

PXI







List 78PFB (Continued)

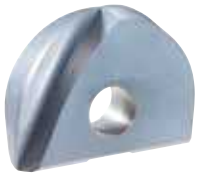
NEW SIZES

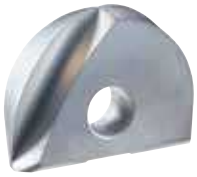
PFB Inserts (Metric)


Spiral


Spiral (Full Radius)


Straight (Full Radius)


Spiral (Strengthened Edge)

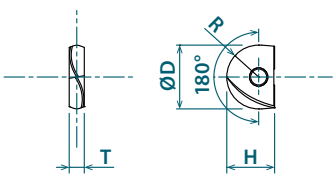

Spiral (Diamond Coated)

Designation	Type	Specification	No. of Cutting Edges	Range	Insert Size				EDP Number				
					D (mm)	R (mm)	T (mm)	H (mm)	XP3225	XP3310	XP3320	XP2225	XC4505
PFB080-SP	1	Spiral	2	180°	8	4	2.4	7	7820030	-	7820010	-	-
PFB100-SP					10	5	2.6	8.5	7820031	-	7820011	-	-
PFB120-SP					12	6	3	10	7820032	-	7820012	-	-
PFB160-SP					16	8	4	12	7820033	-	7820013	-	-
PFB200-SP					20	10	5	15	7820034	-	7820014	-	-
PFB250-SP					25	12.5	6	18.5	7820035	-	7820015	-	-
PFB300-SP					30	15	7	22.5	7820036	-	7820016	-	-
PFB060-Q	2	Spiral (Full Radius)	2	220°	6	3	2	5	7820048	-	-	-	-
PFB070-Q					7	3.5	2	5.5	7820049	-	-	-	-
PFB080-Q					8	4	2.4	7	7820050	-	-	-	-
PFB100-Q					10	5	2.6	8.5	7820051	-	-	-	-
PFB120-Q					12	6	3	10	7820052	-	-	-	-
PFB160-Q	3				16	8	4	12	7820053	-	-	-	-
PFB200-Q					20	10	5	15	7820054	-	-	-	-
PFB250-Q					25	12.5	6	18.5	7820055	-	-	-	-
PFB300-Q					30	15	7	22.5	7820056	-	-	-	-
PFB080-Q-ST	2	Straight (Full Radius)	2	200°	8	4	2.4	7	-	-	-	7820060	-
PFB100-Q-ST					10	5	2.6	8.5	-	-	-	7820061	-
PFB120-Q-ST					12	6	3	10	-	-	-	7820062	-
PFB160-Q-ST	3			220°	16	8	4	12	-	-	-	7820063	-
PFB200-Q-ST					20	10	5	15	-	-	-	7820064	-
PFB250-Q-ST					25	12.5	6	18.5	-	-	-	7820065	-
PFB300-Q-ST					30	15	7	22.5	-	-	-	7820066	-
PFB060-SH	2	Spiral (Strengthened Edge)	2	220°	6	3	2	5	-	7820039	-	-	-
PFB080-SH	1			180°	8	4	2.4	7	-	7820040	-	-	-
PFB100-SH					10	5	2.6	8.5	-	7820041	-	-	-
PFB120-SH					12	6	3	10	-	7820042	-	-	-
PFB160-SH					16	8	4	12	-	7820043	-	-	-
PFB200-SH					20	10	5	15	-	7820044	-	-	-
PFB250-SH					25	12.5	6	18.5	-	7820045	-	-	-
PFB300-SH					30	15	7	22.5	-	7820046	-	-	-
PFB320-SH					32	16	7	23.5	-	7820047	-	-	-
PFB060-D	2	Spiral (Diamond Coated)	2	220°	6	3	2	5	-	-	-	-	7820018
PFB070-D					7	3.5	2	5.5	-	-	-	-	7820019
PFB080-D	1			180°	8	4	2.4	7	-	-	-	-	7820020
PFB100-D					10	5	2.6	8.5	-	-	-	-	7820021
PFB120-D					12	6	3	10	-	-	-	-	7820022
PFB160-D					16	8	4	12	-	-	-	-	7820023
PFB200-D					20	10	5	15	-	-	-	-	7820024
PFB250-D					25	12.5	6	18.5	-	-	-	-	7820025
PFB300-D					30	15	7	22.5	-	-	-	-	7820026

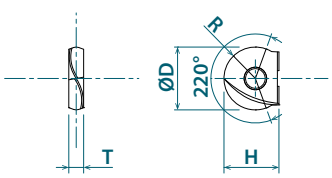
Packed: 1 pc.

PXI

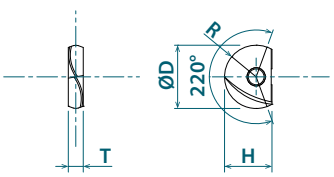
Type 1



Type 2

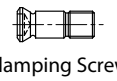
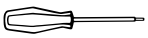


Type 3



List 7808H

PFB Accessories

Appearance	EDP No.	Designation	Applicable Insert		Recommended Tightening Torque
			(inch)	(mm)	
 Clamping Screw	7808124	FS20652RB (Torx 6)	0.250	6-7	0.8 Nm
	7808123	FS25669RB (Torx 7)	-	8	1.0 Nm
	7808117	FS30686RB (Torx 8)	0.375	10	1.2 Nm
	7808118	FS35610RB (Torx 10)	0.500	12	2.0 Nm
	7808119	FS40613RB (Torx 15)	0.625	16	3.0 Nm
	7808120	FS50615RB (Torx 20)	0.750	20	5.0 Nm
	7808121	FS60620RB (Torx 20)	1.000	25	5.0 Nm
	7808122	FS80624RB (Torx 30)	1.250	30-32	6.0 Nm
 Wrench	7808203	T6-D (Torx 6)	0.250	6-7	
	7808204	T7-D (Torx 7)	-	8	
	7808205	T8-D (Torx 8)	0.375	10	
	7808207	T10-D (Torx 10)	0.500	12	
	7808208	T15-D (Torx 15)	0.625	16	
	7808209	T20-D (Torx 20)	0.750-1.000	20-25	
	7808212	T30-T (Torx 30)	1.250	30-32	

Packed: Clamping Screw = 1 pc.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

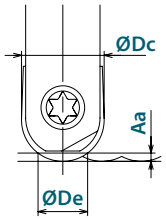
Effective Cutting Diameter

Depth of Cut Aa		Effective Cutting Diameter (ØDe)																			
		ØDc		ØDc		ØDc		ØDc		ØDc		ØDc		ØDc		ØDc		ØDc		ØDc	
(inch)	(mm)	0.250"	6mm	0.275"	7mm	0.315"	8 mm	0.375"	10 mm	0.500"	12 mm	0.625"	16 mm	0.750"	20 mm	1.000"	25 mm	1.181"	30 mm	1.250"	32mm
0.004	0.1	0.063	1.5	0.063	1.6	0.071	1.8	0.077	2.0	0.089	2.2	0.100	2.5	0.109	2.8	0.126	3.2	0.137	3.5	0.142	3.6
0.008	0.2	0.088	2.2	0.091	2.3	0.099	2.5	0.108	2.8	0.125	3.1	0.141	3.6	0.154	4.0	0.178	4.5	0.194	4.9	0.197	5.0
0.012	0.3	0.107	2.6	0.110	2.8	0.121	3.0	0.132	3.4	0.153	3.7	0.172	4.3	0.188	4.9	0.218	5.4	0.237	6.0	0.244	6.2
0.016	0.4	0.122	3.0	0.130	3.3	0.138	3.5	0.152	3.9	0.176	4.3	0.197	5.0	0.217	5.6	0.251	6.3	0.273	6.9	0.280	7.1
0.020	0.5	0.136	3.3	0.142	3.6	0.154	3.9	0.169	4.4	0.196	4.8	0.220	5.6	0.242	6.2	0.280	7.0	0.305	7.7	0.311	7.9
0.031	0.8	0.165	4.1	0.177	4.5	0.188	4.8	0.207	5.4	0.241	6.0	0.271	7.0	0.299	7.8	0.347	8.8	0.378	9.7	0.394	10.0
0.039	1.0	-	-	-	-	-	-	0.229	6.0	0.268	6.6	0.302	7.7	0.333	8.7	0.387	9.8	0.422	10.8	0.437	11.1
0.059	1.5	-	-	-	-	-	-	0.273	7.1	0.323	7.9	0.365	9.3	0.404	10.5	0.471	11.9	0.515	13.1	0.531	13.5
0.079	2.0	-	-	-	-	-	-	-	-	0.365	8.9	0.415	10.6	0.460	12.0	0.539	13.6	0.590	15.0	0.610	15.5
0.098	2.5	-	-	-	-	-	-	-	-	-	-	0.455	11.6	0.506	13.2	0.595	15.0	0.652	16.6	0.677	17.2
0.118	3.0	-	-	-	-	-	-	-	-	-	-	-	-	0.546	14.3	0.645	16.2	0.708	18.0	0.736	18.7
0.138	3.5	-	-	-	-	-	-	-	-	-	-	-	-	0.581	15.2	0.690	17.3	0.759	19.3	0.787	20.0
0.157	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.728	18.3	0.802	20.4	0.835	21.2
0.117	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.706	21.4	0.874	22.2
0.197	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.881	22.3	0.913	23.2

Note: Effective cutting diameter is based on cutting depth (Aa)

How to determine effective cutting diameter:

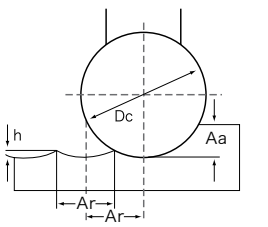
Ex: Dc = 0.500"
Aa = 0.020"
De = 2√0.020(0.500-0.020)
De = 0.196"



$$De=2\sqrt{a_a(D_c-a_a)}$$

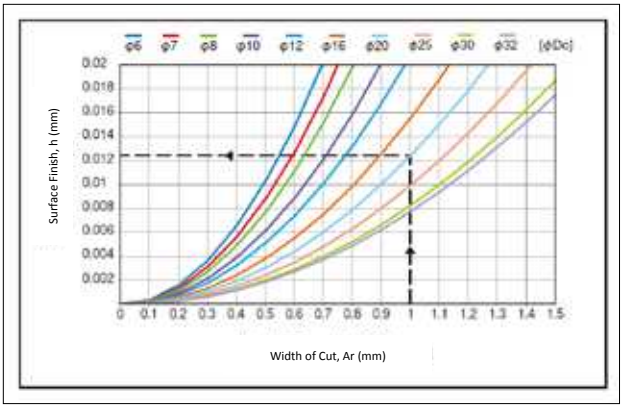
Recommended Width of Cut & Surface Roughness

Tool Dia ØDc		Width of Cut Ar		Surface Finish h	
(inch)	(mm)	(inch)	(mm)	(inch)	(mm)
0.250	6	0.0157	0.4	0.00027	0.007
0.275	7	0.0177	0.45	0.00027	0.007
0.315	8	0.0197	0.5	0.00031	0.008
0.375	10	0.0236	0.6	0.00037	0.009
0.500	12	0.0275	0.7	0.00038	0.010
0.625	16	0.0315	0.8	0.00040	0.010
0.750	20	0.0394	1.0	0.00052	0.012
1.000	25	0.0472	1.2	0.00055	0.014
1.181	30	0.0512	1.3	0.00055	0.014
1.250	32	0.0551	1.4	0.00059	0.015



$$h=0.5\ (Dc-\sqrt{Dc^2-Ar^2})$$

Dc=20mm
Ar=1mm
->h=0.0125mm



Cutting Conditions

Work Material		Tensile Strength – Hardness	Milling Speed Vc (SFM)	Depth of Cut Aa (in)	Feed Per Tooth fz (in/t)			
					Ø0.236-0.312 (6-8mm)	Ø0.375-0.500 (10-12mm)	Ø0.625-0.750 (16-20mm)	Ø1.000-1.250 (25-32mm)
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	985 (655-1310)	0.02Dc	0.0040	0.0047	0.0055	0.0071
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	985 (655-1310)	0.02Dc	0.0028	0.0040	0.0047	0.0055
	Die Steels (H13, D2)	~280 HB	820 (495-1150)	0.02Dc	0.0028	0.0040	0.0047	0.0055
M	Stainless Steels (304SS, 420SS)	~250 HB	820 (495-1150)	0.02Dc	0.0028	0.0047	0.0055	0.0067
K	Cast Iron (FC250)	~350 N/mm²	1310 (985-1640)	0.02Dc	0.0047	0.0055	0.0071	0.0086
	Ductile Cast Iron (60-40-18)	~600 N/mm²	985 (655-1310)	0.02Dc	0.0040	0.0047	0.0055	0.0071
N	Aluminum Alloys (6061, 7075)	~13% Si	1640 (1310-1970)	0.03Dc	0.0047	0.0055	0.0071	0.0086
	Copper Alloys (C1100)	-	985 (655-1310)	0.03Dc	0.0043	0.0051	0.0067	0.0079
	Graphite	-	1640 (1310-1970)	0.03Dc	0.0055	0.0067	0.0083	0.0098
	CFRP	-	1310 (985-1640)	0.03Dc	0.0043	0.0051	0.0067	0.0079
S	Heat Resistant Alloys (Inconel 718)	-	165 (65-260)	0.015Dc	0.0016	0.0020	0.0024	0.0024
	Titanium Alloy (Ti-6Al-4V)	-	295 (130-395)	0.02Dc	0.0024	0.0031	0.0043	0.0051
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HRC	655 (330-985)	0.015Dc	0.0024	0.0028	0.0031	0.0040
	Die Cast Steels (A2, S7)	43 - 48 HRC	590 (295-655)	0.015Dc	0.0020	0.0024	0.0028	0.0028
	Hardened Steels (D2)	50 - 55 HRC	490 (330-820)	0.01Dc	0.0020	0.0024	0.0028	0.0028

Recommended Materials by Application

Insert Grade	P	M	K	N	S	H
XP3225	◎	○		◎*	○	
XP3310			◎			◎
XP3320	○	○	○		○	○
XP2225	○	◎			◎	○
XC4505				◎**		

*: Best recommended for aluminum & copper alloy applications.
**: Best recommended for graphite & CFRP applications.

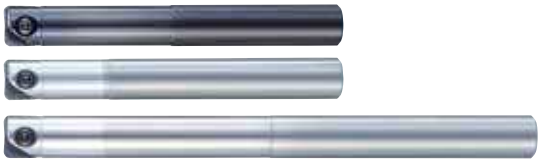
○ good ◎ best

List 52200

SPEED FEED P1451-1452

Recommended Materials: p1451-1452
Accessories & Inserts: p1445-1450

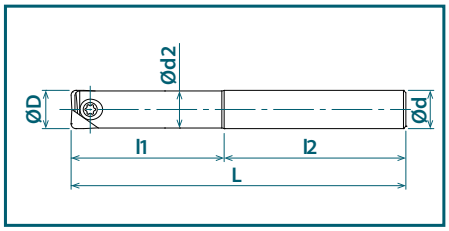
PFR SA (Inch)



EDP No.	Body Type	Designation	Tool Dia. (inch)	Overall Length (inch)	Neck Length (inch)	L/D Ratio	No. of Teeth	Shank Dia. (inch)	Shank Length (inch)	Neck Dia. (inch)
			D	L	l1			d	l2	d2
52200024	Cylindrical Shank Steel	PFR-R0250SA0250-S325	0.250	3.250	0.625	2.5	2	0.250	2.625	0.225
52200025		PFR-R0250SA0250-S375	0.250	3.750	1.125	4.5	2	0.250	2.625	0.225
52200026		PFR-R0375SA0375-S400	0.375	4.000	0.937	2.5	2	0.375	3.063	0.335
52200000		PFR-R0375SA0375-S550	0.375	5.500	1.687	4.5	2	0.375	3.813	0.355
52200027		PFR-R0500SA0500-S450	0.500	4.500	1.250	2.5	2	0.500	3.250	0.480
52200001		PFR-R0500SA0500-S550	0.500	5.500	2.250	4.5	2	0.500	3.250	0.480
52200028		PFR-R0625SA0625-S500	0.625	5.000	1.562	2.5	2	0.625	3.438	0.605
52200002		PFR-R0625SA0625-S550	0.625	5.500	2.500	4	2	0.625	3.000	0.605
52200029		PFR-R0750SA0750-S550	0.750	5.500	1.875	2.5	2	0.750	3.625	0.730
52200003		PFR-R0750SA0750-S600	0.750	6.000	3.000	4	2	0.750	3.000	0.730
52200004		PFR-R1000SA1000-S650	1.000	6.500	3.000	3	2	1.000	3.500	0.980
52200030		PFR-R1000SA1000-S750	1.000	7.500	4.000	4	2	1.000	3.500	0.980
52200015		PFR-R1250SA1250-S700	1.250	7.000	3.750	3	2	1.250	3.250	1.230
52200031		PFR-R1250SA1250-S850	1.250	8.500	5.000	4	2	1.250	3.500	1.230
52200032	Cylindrical Shank Short Carbide	PFR-R0250SA0250-S325CS	0.250	3.250	0.625	2.5	2	0.250	2.625	0.225
52200005		PFR-R0375SA0375-S400CS	0.375	4.000	0.937	2.5	2	0.375	3.063	0.355
52200006		PFR-R0500SA0500-S450CS	0.500	4.500	1.250	2.5	2	0.500	3.250	0.480
52200007		PFR-R0625SA0625-S550CS	0.625	5.500	1.562	2.5	2	0.625	3.938	0.605
52200008		PFR-R0750SA0750-S600CS	0.750	6.000	1.875	2.5	2	0.750	4.125	0.730
52200009		PFR-R1000SA1000-S650CS	1.000	6.500	2.500	2.5	2	1.000	4.000	0.980
52200016		PFR-R1250SA1250-S700CS	1.250	7.000	3.125	2.5	2	1.250	3.875	1.230
52200033	Cylindrical Shank Long Carbide	PFR-R0250SA0250-L400CS	0.250	4.000	1.250	5	2	0.250	2.750	0.225
52200018		PFR-R0375SA0375-L550CS	0.375	5.500	1.875	5	2	0.375	3.625	0.355
52200019		PFR-R0500SA0500-L550CS	0.500	5.500	2.500	5	2	0.500	3.000	0.480
52200020		PFR-R0625SA0625-L650CS	0.625	6.500	3.125	5	2	0.625	3.375	0.605
52200021		PFR-R0750SA0750-L700CS	0.750	7.000	3.750	5	2	0.750	3.250	0.730
52200022		PFR-R1000SA1000-L800CS	1.000	8.000	4.500	4.5	2	1.000	3.500	0.980
52200023		PFR-R1250SA1250-L900CS	1.250	9.000	5.625	4.5	2	1.250	3.375	1.230
52200034	Cylindrical Shank Extra-Long Carbide	PFR-R0250SA0250-LL450CS	0.250	4.500	1.750	7	2	0.250	2.750	0.225
52200010		PFR-R0375SA0375-LL650CS	0.375	6.500	2.625	7	2	0.375	3.875	0.355
52200011		PFR-R0500SA0500-LL700CS	0.500	7.000	3.500	7	2	0.500	3.500	0.480
52200012		PFR-R0625SA0625-LL750CS	0.625	7.500	3.750	6	2	0.625	3.750	0.605
52200013		PFR-R0750SA0750-LL900CS	0.750	9.000	4.500	6	2	0.750	4.500	0.730
52200014		PFR-R1000SA1000-LL1050CS	1.000	10.500	5.500	5.5	2	1.000	5.000	0.980
52200017		PFR-R1250SA1250-LL1200CS	1.250	12.000	6.875	5.5	2	1.250	5.125	1.230

Packed: 1 pc.

PXT

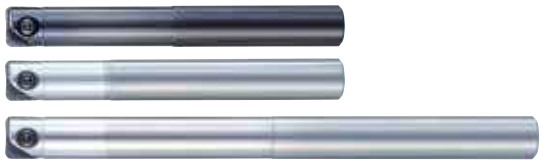


List 78320

SPEED FEED P1451-1452

Recommended Materials: p1451-1452
Accessories & Inserts: p1445-1450

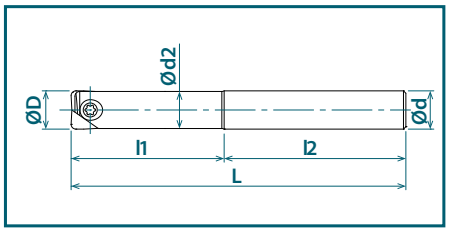
PFR SS (Metric)



EDP No.	Body Type	Designation	Tool Dia. (mm) D	Overall Length (mm) L	Neck Length (mm) l1	L/D Ratio	No. of Teeth	Shank Dia. (mm) d	Shank Length (mm) l2	Neck Dia. (mm) d2
7832000	Cylindrical Shank Steel	PFR-R080SS08-S120	8	120	36	4.5	2	8	84	7.5
7832001		PFR-R100SS10-S130	10	130	45	4.5	2	10	85	9.5
7832002		PFR-R120SS12-S130	12	130	54	4.5	2	12	76	11.5
7832003		PFR-R160SS16-S140	16	140	64	4	2	16	76	15.5
7832004		PFR-R200SS20-S160	20	160	80	4	2	20	80	19.5
7832005		PFR-R250SS25-S160	25	160	75	3	2	25	85	24.5
7832006		PFR-R300SS32-S170	30	170	90	3	2	32	80	29.5
7832007		PFR-R320SS32-S180	32	180	96	3	2	32	84	31.5
7832029	Cylindrical Shank Short Carbide	PFR-R060SS06-S80CS	6	80	15	2.5	2	6	65	5.5
7832030		PFR-R080SS08-S100CS	8	100	20	2.5	2	8	80	7.5
7832031		PFR-R100SS10-S100CS	10	100	25	2.5	2	10	75	9.5
7832032		PFR-R120SS12-S110CS	12	110	30	2.5	2	12	80	11.5
7832033		PFR-R160SS16-S140CS	16	140	40	2.5	2	16	100	15.5
7832034		PFR-R200SS20-S160CS	20	160	50	2.5	2	20	110	19.5
7832035		PFR-R250SS25-S160CS	25	160	62.5	2.5	2	25	97.5	24.5
7832036		PFR-R300SS32-S170CS	30	170	75	2.5	2	32	95	29.5
7832037		PFR-R320SS32-S180CS	32	180	80	2.5	2	32	100	31.5
7832039	Cylindrical Shank Long Carbide	PFR-R060SS06-L100CS	6	100	30	5	2	6	70	5.5
7832040		PFR-R080SS08-L120CS	8	120	40	5	2	8	80	7.5
7832041		PFR-R100SS10-L130CS	10	130	50	5	2	10	80	9.5
7832042		PFR-R120SS12-L140CS	12	140	60	5	2	12	80	11.5
7832043		PFR-R160SS16-L160CS	16	160	72	4.5	2	16	88	15.5
7832044		PFR-R200SS20-L180CS	20	180	90	4.5	2	20	90	19.5
7832045		PFR-R250SS25-L200CS	25	200	100	4	2	25	100	24.5
7832046		PFR-R300SS32-L220CS	30	220	120	4	2	32	100	29.5
7832047		PFR-R320SS32-L230CS	32	230	128	4	2	32	102	31.5
7832019	Cylindrical Shank Extra-Long Carbide	PFR-R060SS06-LL120CS	6	120	42	7	2	6	78	5.5
7832020		PFR-R080SS08-LL140CS	8	140	56	7	2	8	84	7.5
7832021		PFR-R100SS10-LL150CS	10	150	70	7	2	10	80	9.5
7832022		PFR-R120SS12-LL160CS	12	160	84	7	2	12	76	11.5
7832023		PFR-R160SS16-LL200CS	16	200	96	6	2	16	104	15.5
7832024		PFR-R200SS20-LL240CS	20	240	120	6	2	20	120	19.5
7832025		PFR-R250SS25-LL260CS	25	260	137.5	5.5	2	25	122.5	24.5
7832026		PFR-R300SS32-LL290CS	30	290	165	5.5	2	32	125	29.5
7832027		PFR-R320SS32-LL300CS	32	300	176	5.5	2	32	124	31.5

Packed: 1 pc.

PXT



List 52605

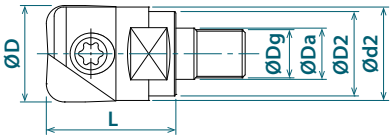
PFR ASF (Inch)



SPEED FEED P1451-1452

Recommended Materials: p1451-1452
Accessories & Inserts: p1445-1450
SF Arbors: p1461





EDP No.	Body Type	Designation	Tool Dia. (inch)	No. of Teeth	Pilot Dia. (inch)	Thread Dia. (mm)	Overall Length (inch)	Head Dia. (inch)	Flange Dia. (inch)	Wrench Size	Applicable Insert
			D		Da	Dg	L	d2	D2		
52605000	Screw Fit Head	PFR-R0375ASF6	0.375	2	0.256	M6	1.024	0.374	0.354	7	PFR...
52605001		PFR-R0500ASF6	0.500	2	0.256	M6	1.024	0.453	0.433	7	
52605002		PFR-R0625ASF8	0.625	2	0.335	M8	1.260	0.610	0.571	10	
52605003		PFR-R0750ASF10	0.750	2	0.413	M10	1.496	0.768	0.709	14	
52605004		PFR-R1000ASF12	1.000	2	0.492	M12	1.496	0.965	0.906	17	

Packed: 1 pc.

PXT

List 78220

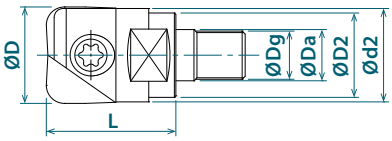
PFR SF (Metric)



SPEED FEED P1451-1452

Recommended Materials: p1451-1452
Accessories & Inserts: p1445-1450
SF Arbors: p1462-1464





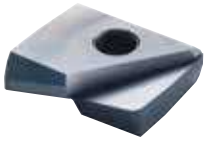
EDP No.	Body Type	Designation	Tool Dia. (mm)	No. of Teeth	Pilot Dia. (mm)	Thread Dia. (mm)	Overall Length (mm)	Head Dia. (mm)	Flange Dia. (mm)	Wrench Size	Applicable Insert
			D		Da	Dg	L	d2	D2		
7832090	Screw Fit Head	PFR-R100SF6	10	2	6.5	M6	26	9.5	9	7	PFR...
7832091		PFR-R120SF6	12	2	6.5	M6	26	11.5	11	7	
7832092		PFR-R160SF8	16	2	8.5	M8	32	15.5	14.5	10	
7832093		PFR-R200SF10	20	2	10.5	M10	38	19.5	18	14	
7832094		PFR-R250SF12	25	2	12.5	M12	38	24.5	23	17	
7832095		PFR-R300SF16	30	2	17	M16	43	29.5	28	22	
7832096		PFR-R320SF16	32	2	17	M16	43	31.5	28	22	

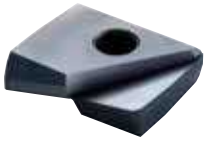
Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

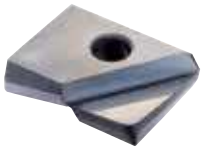
PXT

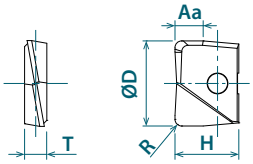
List 78PFR

PFR Inserts (Inch)


Multi-Purpose


Strengthened Edge


Diamond Coated



Designation	Specification	No. of Cutting Edges	Insert Size					EDP Number		
			D (inch)	R (inch)	Aa (inch)	T (mm)	H (mm)	XP3225	XP3310	XC4505
PFR0250R015A-ST	Multi-Purpose	2	0.250	0.015	0.078	2	5	52201029	-	-
PFR0250R030A-ST				0.030				52201030	-	-
PFR0250R060A-ST				0.060				52201031	-	-
PFR0375R015A-ST			0.375	0.015	0.130	2.6	8.5	52201000	-	-
PFR0375R030A-ST				0.030				52201001	-	-
PFR0375R060A-ST				0.060				52201002	-	-
PFR0375R090A-ST				0.090				52201003	-	-
PFR0500R015A-ST			0.500	0.015	0.157	3	10	52201004	-	-
PFR0500R030A-ST				0.030				52201005	-	-
PFR0500R060A-ST				0.060				52201006	-	-
PFR0500R090A-ST				0.090				52201007	-	-
PFR0500R120A-ST				0.120				52201008	-	-
PFR0625R015A-ST			0.625	0.015	0.208	4	12	52201009	-	-
PFR0625R030A-ST				0.030				52201010	-	-
PFR0625R060A-ST				0.060				52201011	-	-
PFR0625R090A-ST				0.090				52201012	-	-
PFR0625R120A-ST				0.120				52201013	-	-
PFR0750R015A-ST			0.750	0.015	0.264	5	15	52201014	-	-
PFR0750R030A-ST				0.030				52201015	-	-
PFR0750R060A-ST				0.060				52201016	-	-
PFR0750R090A-ST				0.090				52201017	-	-
PFR0750R120A-ST				0.120				52201018	-	-
PFR1000R015A-ST			1.000	0.015	0.327	6	18.5	52201019	-	-
PFR1000R030A-ST				0.030				52201020	-	-
PFR1000R060A-ST				0.060				52201021	-	-
PFR1000R090A-ST				0.090				52201022	-	-
PFR1000R120A-ST				0.120				52201023	-	-
PFR1250R015A-ST			1.250	0.015	0.405	7	23.5	52201024	-	-
PFR1250R030A-ST				0.030				52201025	-	-
PFR1250R060A-ST				0.060				52201026	-	-
PFR1250R090A-ST				0.090				52201027	-	-
PFR1250R120A-ST				0.120				52201028	-	-
PFR0250R015A-SH	Strengthened Edge	2	0.250	0.015	0.078	2	5	-	52201079	-
PFR0250R030A-SH				0.030				-	52201080	-
PFR0250R060A-SH				0.060				-	52201081	-
PFR0375R015A-SH			0.375	0.015	0.130	2.6	8.5	-	52201050	-
PFR0375R030A-SH				0.030				-	52201051	-
PFR0375R060A-SH				0.060				-	52201052	-
PFR0375R090A-SH				0.090				-	52201053	-
PFR0500R015A-SH			0.500	0.015	0.157	3	10	-	52201054	-
PFR0500R030A-SH				0.030				-	52201055	-
PFR0500R060A-SH				0.060				-	52201056	-
PFR0500R090A-SH				0.090				-	52201057	-
PFR0500R120A-SH				0.120				-	52201058	-

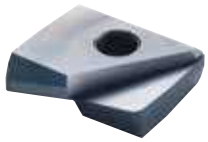
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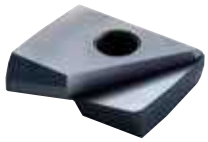
PXI

List 78PFR (Continued)

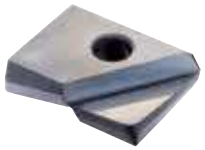
PFR Inserts (Inch)



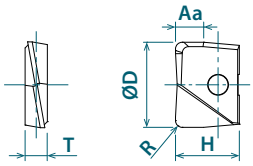
Multi-Purpose



Strengthened Edge



Diamond Coated



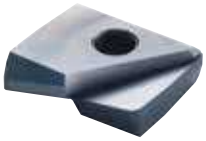
Designation	Specification	No. of Cutting Edges	Insert Size					EDP Number		
			D (inch)	R (inch)	Aa (inch)	T (mm)	H (mm)	XP3225	XP3310	XC4505
PFR0625R015A-SH	Strengthened Edge	2	0.625	0.015	0.208	4	12	-	52201059	-
PFR0625R030A-SH				0.030				-	52201060	-
PFR0625R060A-SH				0.060				-	52201061	-
PFR0625R090A-SH				0.090				-	52201062	-
PFR0625R120A-SH				0.120				-	52201063	-
PFR0750R015A-SH			0.750	0.015	0.264	5	15	-	52201064	-
PFR0750R030A-SH				0.030				-	52201065	-
PFR0750R060A-SH				0.060				-	52201066	-
PFR0750R090A-SH				0.090				-	52201067	-
PFR0750R120A-SH				0.120				-	52201068	-
PFR1000R015A-SH			1.000	0.015	0.327	6	18.5	-	52201069	-
PFR1000R030A-SH				0.030				-	52201070	-
PFR1000R060A-SH				0.060				-	52201071	-
PFR1000R090A-SH				0.090				-	52201072	-
PFR1000R120A-SH				0.120				-	52201073	-
PFR1250R015A-SH			1.250	0.015	0.405	7	23.5	-	52201074	-
PFR1250R030A-SH				0.030				-	52201075	-
PFR1250R060A-SH				0.060				-	52201076	-
PFR1250R090A-SH				0.090				-	52201077	-
PFR1250R120A-SH				0.120				-	52201078	-
PFR0250R015A-D	Diamond Coated	2	0.250	0.015	0.078	2	5	-	-	52201114
PFR0250R030A-D				0.030				-	-	52201115
PFR0250R060A-D				0.060				-	-	52201116
PFR0375R015A-D			0.375	0.015	0.130	2.6	8.5	-	-	52201100
PFR0375R030A-D				0.030				-	-	52201101
PFR0375R060A-D				0.060				-	-	52201102
PFR0500R015A-D			0.500	0.015	0.157	3	10	-	-	52201103
PFR0500R030A-D				0.030				-	-	52201104
PFR0500R060A-D				0.060				-	-	52201105
PFR0625R015A-D			0.625	0.015	0.208	4	12	-	-	52201106
PFR0625R030A-D				0.030				-	-	52201107
PFR0625R060A-D				0.060				-	-	52201108
PFR0750R015A-D			0.750	0.015	0.264	5	15	-	-	52201109
PFR0750R030A-D				0.030				-	-	52201110
PFR0750R060A-D				0.060				-	-	52201111
PFR1000R060A-D			1.000	0.060	0.327	6	18.5	-	-	52201112
PFR1250R060A-D			1.250	0.060	0.405	7	23.5	-	-	52201113

Packed: 1 pc.

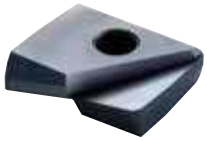
PXI

List 78PFR (Continued)

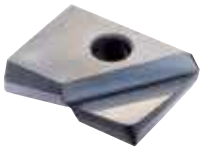
PFR Inserts (Metric)



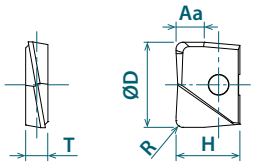
Multi-Purpose



Strengthened Edge



Diamond Coated



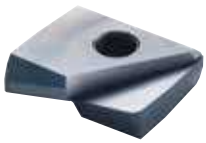
Designation	Specification	No. of Cutting Edges	Insert Size					EDP Number		
			D (mm)	R (mm)	Aa (mm)	T (mm)	H (mm)	XP3225	XP3310	XC4505
PFR060R03-ST	Multi-Purpose	2	6	0.3	2	2	5	7820350	-	-
PFR060R05-ST				0.5				7820351	-	-
PFR060R10-ST				1				7820352	-	-
PFR070R03-ST			7	0.3			5.5	7820353	-	-
PFR070R05-ST				0.5				7820354	-	-
PFR070R10-ST				1				7820355	-	-
PFR080R03-ST			8	0.3	2.7	2.4	7	7820200	-	-
PFR080R05-ST				0.5				7820201	-	-
PFR080R10-ST				1				7820202	-	-
PFR080R20-ST				2				7820203	-	-
PFR100R03-ST			10	0.3	3.3	2.6	8.5	7820204	-	-
PFR100R05-ST				0.5				7820205	-	-
PFR100R10-ST				1				7820206	-	-
PFR100R20-ST				2				7820207	-	-
PFR110R03-ST			11	0.3				7820356	-	-
PFR110R05-ST				0.5				7820357	-	-
PFR110R10-ST				1				7820358	-	-
PFR110R20-ST				2				7820359	-	-
PFR120R03-ST			12	0.3	4	3	10	7820208	-	-
PFR120R05-ST				0.5				7820209	-	-
PFR120R10-ST				1				7820210	-	-
PFR120R20-ST				2				7820211	-	-
PFR120R30-ST				3				7820212	-	-
PFR130R03-ST			13	0.3				7820360	-	-
PFR130R05-ST				0.5				7820361	-	-
PFR130R10-ST				1				7820362	-	-
PFR130R20-ST				2				7820363	-	-
PFR160R03-ST			16	0.3	5.3	4	12	7820213	-	-
PFR160R05-ST				0.5				7820214	-	-
PFR160R10-ST				1				7820215	-	-
PFR160R20-ST				2				7820216	-	-
PFR160R30-ST				3				7820217	-	-
PFR170R03-ST			17	0.3				7820364	-	-
PFR170R05-ST				0.5				7820365	-	-
PFR170R10-ST				1				7820366	-	-
PFR170R20-ST				2				7820367	-	-
PFR200R03-ST			20	0.3	6.7	5	15	7820218	-	-
PFR200R05-ST				0.5				7820219	-	-
PFR200R10-ST				1				7820220	-	-
PFR200R20-ST				2				7820221	-	-
PFR200R30-ST				3				7820222	-	-
PFR210R03-ST			21	0.3				7820368	-	-
PFR210R05-ST				0.5				7820369	-	-
PFR210R10-ST				1				7820370	-	-
PFR210R20-ST				2				7820371	-	-

Packed: 1 pc.

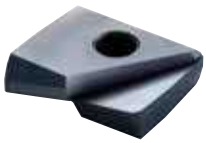
continued on next page PXI

List 78PFR (Continued)

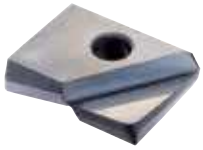
PFR Inserts (Metric)



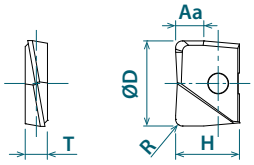
Multi-Purpose



Strengthened Edge



Diamond Coated



Designation	Specification	No. of Cutting Edges	Insert Size					EDP Number		
			D (mm)	R (mm)	Aa (mm)	T (mm)	H (mm)	XP3225	XP3310	XC4505
PFR250R03-ST	Multi-Purpose	2	25	0.3	8.3	6	18.5	7820223	-	-
PFR250R05-ST				0.5				7820224	-	-
PFR250R10-ST				1				7820225	-	-
PFR250R20-ST				2				7820226	-	-
PFR250R30-ST				3				7820227	-	-
PFR260R03-ST			26	0.3	8.3	6	18.5	7820372	-	-
PFR260R05-ST				0.5				7820373	-	-
PFR260R10-ST				1				7820374	-	-
PFR260R20-ST				2				7820375	-	-
PFR300R03-ST			30	0.3	10	7	22.5	7820228	-	-
PFR300R05-ST				0.5				7820229	-	-
PFR300R10-ST				1				7820230	-	-
PFR300R20-ST				2				7820231	-	-
PFR300R30-ST				3				7820232	-	-
PFR320R03-ST			32	0.3	10.3	7	23.5	7820233	-	-
PFR320R05-ST				0.5				7820234	-	-
PFR320R10-ST				1				7820235	-	-
PFR320R20-ST				2				7820236	-	-
PFR320R30-ST				3				7820237	-	-
PFR060R03-SH	Strengthened Edge	2	6	0.3	2	2	5	-	7820400	-
PFR060R05-SH				0.5				-	7820401	-
PFR060R10-SH				1				-	7820402	-
PFR070R03-SH			7	0.3			5.5	-	7820403	-
PFR070R05-SH				0.5				-	7820404	-
PFR070R10-SH				1				-	7820405	-
PFR080R03-SH			8	0.3	2.7	2.4	7	-	7820250	-
PFR080R05-SH				0.5				-	7820251	-
PFR080R10-SH				1				-	7820252	-
PFR080R20-SH				2				-	7820253	-
PFR100R03-SH			10	0.3	3.3	2.6	8.5	-	7820254	-
PFR100R05-SH				0.5				-	7820255	-
PFR100R10-SH				1				-	7820256	-
PFR100R20-SH				2				-	7820257	-
PFR110R03-SH			11	0.3				-	7820406	-
PFR110R05-SH				0.5				-	7820407	-
PFR110R10-SH				1				-	7820408	-
PFR110R20-SH				2				-	7820409	-
PFR120R03-SH			12	0.3	4	3	10	-	7820258	-
PFR120R05-SH				0.5				-	7820259	-
PFR120R10-SH				1				-	7820260	-
PFR120R20-SH				2				-	7820261	-
PFR120R30-SH				3				-	7820262	-
PFR130R03-SH			13	0.3				-	7820410	-
PFR130R05-SH				0.5				-	7820411	-
PFR130R10-SH				1				-	7820412	-
PFR130R20-SH				2				-	7820413	-

Packed: 1 pc.

PXI

List 78PFR (Continued)

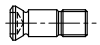
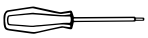
PFR Inserts (Metric)

Designation	Specification	No. of Cutting Edges	Insert Size					EDP Number		
			D (mm)	R (mm)	Aa (mm)	T (mm)	H (mm)	XP3225	XP3310	XC4505
PFR160R03-SH	Strengthened Edge	2	16	0.3	5.3	4	12	-	7820263	-
PFR160R05-SH				0.5				-	7820264	-
PFR160R10-SH				1				-	7820265	-
PFR160R20-SH				2				-	7820266	-
PFR160R30-SH				3				-	7820267	-
PFR170R03-SH			17	0.3				-	7820414	-
PFR170R05-SH				0.5				-	7820415	-
PFR170R10-SH				1				-	7820416	-
PFR170R20-SH				2				-	7820417	-
PFR200R03-SH			20	0.3	6.7	5	15	-	7820268	-
PFR200R05-SH				0.5				-	7820269	-
PFR200R10-SH				1				-	7820270	-
PFR200R20-SH				2				-	7820271	-
PFR200R30-SH				3				-	7820272	-
PFR210R03-SH			21	0.3				-	7820418	-
PFR210R05-SH				0.5				-	7820419	-
PFR210R10-SH				1				-	7820420	-
PFR210R20-SH				2				-	7820421	-
PFR250R03-SH			25	0.3	8.3	6	18.5	-	7820273	-
PFR250R05-SH				0.5				-	7820274	-
PFR250R10-SH				1				-	7820275	-
PFR250R20-SH				2				-	7820276	-
PFR250R30-SH				3				-	7820277	-
PFR260R03-SH			26	0.3				-	7820422	-
PFR260R05-SH				0.5				-	7820423	-
PFR260R10-SH				1				-	7820424	-
PFR260R20-SH				2				-	7820425	-
PFR300R03-SH			30	0.3	10	7	22.5	-	7820278	-
PFR300R05-SH				0.5				-	7820279	-
PFR300R10-SH				1				-	7820280	-
PFR300R20-SH				2				-	7820281	-
PFR300R30-SH				3				-	7820282	-
PFR320R03-SH			32	0.3	10.3	7	23.5	-	7820283	-
PFR320R05-SH				0.5				-	7820284	-
PFR320R10-SH				1				-	7820285	-
PFR320R20-SH				2				-	7820286	-
PFR320R30-SH				3				-	7820287	-
PFR060R03-D	Diamond Coated	2	6	0.3	2	2	5	-	-	7820450
PFR060R05-D				0.5				-	-	7820451
PFR060R10-D				1				-	-	7820452
PFR080R03-D			8	0.3	2.7	2.4	7	-	-	7820300
PFR080R05-D				0.5				-	-	7820301
PFR080R10-D				1				-	-	7820302
PFR100R03-D			10	0.3	3.3	2.6	8.5	-	-	7820303
PFR100R05-D				0.5				-	-	7820304
PFR100R10-D				1				-	-	7820305
PFR120R03-D			12	0.3	4	3	10	-	-	7820306
PFR120R05-D				0.5				-	-	7820307
PFR120R10-D				1				-	-	7820308
PFR160R03-D			16	0.3	5.3	4	12	-	-	7820309
PFR160R05-D				0.5				-	-	7820310
PFR160R10-D				1				-	-	7820311
PFR200R03-D			20	0.3	6.7	5	15	-	-	7820312
PFR200R05-D				0.5				-	-	7820313
PFR200R10-D				1				-	-	7820314

Packed: 1 pc.

List 7808H

PFR Accessories

Appearance	EDP No.	Designation	Applicable Insert		Recommended Tightening Torque
			(inch)	(mm)	
 Clamping Screw	7808124	FS20652RB (Torx 6)	0.250	6-7	0.8 Nm
	7808123	FS25669RB (Torx 7)	-	8	1.0 Nm
	7808117	FS30686RB (Torx 8)	0.375	10	1.2 Nm
	7808118	FS35610RB (Torx 10)	0.500	12	2.0 Nm
	7808119	FS40613RB (Torx 15)	0.625	16	3.0 Nm
	7808120	FS50615RB (Torx 20)	0.750	20	5.0 Nm
	7808121	FS60620RB (Torx 20)	1.000	25	5.0 Nm
	7808122	FS80624RB (Torx 30)	1.250	30-32	6.0 Nm
 Wrench	7808203	T6-D (Torx 6)	0.250	6-7	
	7808204	T7-D (Torx 7)	-	8	
	7808205	T8-D (Torx 8)	0.375	10	
	7808207	T10-D (Torx 10)	0.500	12	
	7808208	T15-D (Torx 15)	0.625	16	
	7808209	T20-D (Torx 20)	0.750-1.000	20-25	
	7808212	T30-T (Torx 30)	1.250	30-32	

Packed: Clamping Screw = 1 pc.; Wrench = 1 pc.
Note: Wrench sold separately.

PXT

Cutting Conditions (Standard Milling)

Work Material		Tensile Strength – Hardness	Milling Speed Vc (SFM)			Depth of Cut Aa (in)	Feed Per Tooth fz (in/t)			
			L/D = 2.5	L/D = 5	L/D = 8		Ø0.236-0.275 [6-7mm]	Ø0.312-0.375 [8-10mm]	Ø0.500-0.625 [12-16mm]	Ø0.750-1.250 [20-32mm]
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	655 (490-820)	80%	60%	0.05Dc	0.0047	0.0079	0.0087	0.0098
P	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	590 (495-820)			0.05Dc	0.0059	0.0071	0.0087	0.0098
P	Die Steels (H13, D2)	~280 HB	495 (395-655)			0.05Dc	0.0040	0.0059	0.0071	0.0079
M	Stainless Steels (304SS, 420SS)	~250 HB	495 (330-655)			0.03Dc	0.0031	0.0047	0.0059	0.0071
K	Cast Iron (FC250)	~350 N/mm²	655 (495-820)			0.05Dc	0.0059	0.0079	0.0098	0.0118
K	Ductile Cast Iron (60-40-18)	~600 N/mm²	495 (330-655)			0.05Dc	0.0047	0.0059	0.0079	0.0098
N	Aluminum Alloys (6061, 7075)	~13% Si	985 (655-1310)			0.05Dc	0.0079	0.0098	0.0118	0.0138
N	Graphite	-	825 (500-1150)			0.10Dc	0.0098	0.0157	0.0197	0.0197
N	CFRP	-	650 (500-825)			0.50Dc	0.0020	0.0040	0.0059	0.0079
S	Heat Resistant Alloys (Inconel 718)	-	100 (65-130)			0.02Dc	0.0016	0.0020	0.0031	0.0047
S	Titanium Alloy (Ti-6Al-4V)	-	165 (130-195)			0.02Dc	0.0020	0.0031	0.0040	0.0059
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HRC	395 (330-495)			0.03Dc	0.0031	0.0040	0.0047	0.0071
H	Die Cast Steels (A2, S7)	43 - 48 HRC	260 (165-330)			0.025Dc	0.0020	0.0031	0.0040	0.0059
H	Hardened Steels (D2)	50 - 55 HRC	195 (130-260)			0.02Dc	0.0016	0.0020	0.0031	0.0040

Recommended Materials by Application

Insert Grade	P	M	K	N	S	H
XP3225	◎	◎	○	◎*	◎	○
XP3310	○	○	◎			◎
XP4505				◎**		

○ good ◎ best

XP3225: recommended when L/D ≥ 5.
XP3310: recommended for interrupted cutting.
*: Best recommended for aluminum applications.
**: Best recommended for graphite & CFRP applications.

Cutting Conditions (High Speed Light Milling)

Work Material		Tensile Strength – Hardness	Milling Speed Vc (SFM)			Depth of Cut Aa (in)	Feed Per Tooth fz (in/t)			
			Steel Shank	Carbide Shank Short	Carbide Shank Long		Ø0.236-0.312 [6-8mm]	Ø0.375-0.500 [10-12mm]	Ø0.625-0.750 [16-20mm]	Ø1.000-1.250 [25-32mm]
P	Mild Steels, Carbon Steels (1010, 1018)	~180 HB	1475	1575	1180	0.02Dc	0.0040	0.0047	0.0055	0.0071
	Carbon Steels, Alloy Steels (1050, 4140)	~280 HB	1475	1575	1180	0.02Dc	0.0027	0.0040	0.0047	0.0055
	Die Steels (H13, D2)	~280 HB	1230	1310	985	0.02Dc	0.0027	0.0040	0.0047	0.0055
M	Stainless Steels (304SS, 420SS)	~250 HB	1230	1310	985	0.02Dc	0.0027	0.0047	0.0055	0.0067
K	Cast Iron (FC250)	~350 N/mm²	1970	2100	1575	0.02Dc	0.0047	0.0055	0.0071	0.0087
	Ductile Cast Iron (60-40-18)	~600 N/mm²	1475	1575	1180	0.02Dc	0.0040	0.0047	0.0055	0.0071
N	Aluminum Alloys (6061, 7075)	~13% Si	2460	2625	1970	0.03Dc	0.0047	0.0055	0.0071	0.0087
S	Heat Resistant Alloys (Inconel 718)	-	230	260	195	0.015Dc	0.0016	0.0020	0.0024	0.0051
	Titanium Alloy (Ti-6Al-4V)	-	395	470	360	0.02Dc	0.0024	0.0031	0.0043	0.0040
H	Pre-hardened Steel (P20, Stavax)	40 - 43 HRC	985	1050	790	0.015Dc	0.0024	0.0027	0.0031	0.0040
	Die Cast Steels (A2, S7)	43 - 48 HRC	885	940	720	0.015Dc	0.0020	0.0024	0.0027	0.0027
	Hardened Steels (D2)	50 - 55 HRC	720	790	590	0.01Dc	0.0020	0.0024	0.0027	0.0027

Recommended Materials by Application

Insert Grade	P	M	K	N	S	H
XP3225	◎	◎	○	◎*	◎	○
XP3310	○	○	◎			◎
XP4505				◎**		

XP3225: recommended when L/D ≥ 5.
XP3310: recommended for interrupted cutting.
*: Best recommended for aluminum applications.
**: Best recommended for graphite & CFRP applications.

○ good ◎ best

List 52601

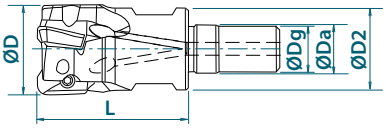
PSE ASF (Inch)



SPEED FEED P1387

Recommended Materials: p1387
Accessories & Inserts: p1385-1386
Maximum Ramping Angle: p1388
SF Arbors: p1461





EDP No.	Body Type	Designation	Tool Dia. (inch) D	No. of Teeth	Pilot Dia. (inch) Da	Thread Dia. (mm) Dg	Overall Length (inch) L	Flange Dia. (inch) D2	Wrench Size	Applicable Insert
52601000	Screw Fit Head	PSE11R063ASF8-2	0.625	2	0.335	M8	1.063	0.571	10	ZD_T11…
52601001		PSE11R075ASF10-3	0.750	3	0.413	M10	1.299	0.709	14	
52601002		PSE11R100ASF12-3	1.000	3	0.492	M12	1.378	0.905	17	
52601003		PSE11R125ASF16-3	1.250	3	0.669	M16	1.575	1.102	22	
52601004		PSE15R100ASF12-2	1.000	2	0.492	M12	1.378	0.905	17	ZDKT15…
52601005		PSE15R125ASF16-3	1.250	3	0.669	M16	1.575	1.102	22	
52601006		PSE15R150ASF16-4	1.500	4	0.669	M16	1.575	1.102	22	

Packed: 1 pc.
Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).

PXT

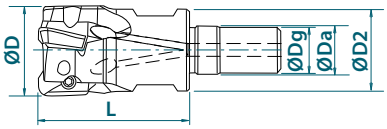
List 78016

PSE SF (Metric)

SPEED FEED P1387

Recommended Materials: p1387
Accessories & Inserts: p1385-1386
Maximum Ramping Angle: p1388
SF Arbors: p1462-1464





EDP No.	Body Type	Designation	Tool Dia. (mm) D	No. of Teeth	Pilot Dia. (mm) Da	Thread Dia. (mm) Dg	Overall Length (mm) L	Flange Dia. (mm) D2	Wrench Size	Applicable Insert
7801600	Screw Fit Head	PSE11R016SF8-2	16	2	8.5	M8	27	14.5	10	ZD_T11…
7801612		PSE11R017SF8-2	17	2	8.5	M8	27	14.5	10	
7801613		PSE11R018SF8-2	18	2	8.5	M8	27	14.5	10	
7801601		PSE11R020SF10-3	20	3	10.5	M10	33	18	14	
7801614		PSE11R021SF10-3	21	3	10.5	M10	33	18	14	
7801615		PSE11R022SF10-3	22	3	10.5	M10	33	18	14	
7801602		PSE11R025SF12-4	25	4	12.5	M12	35	23	17	
7801616		PSE11R026SF12-3	26	3	12.5	M12	35	23	17	
7801603		PSE11R028SF12-4	28	4	12.5	M12	35	23	17	
7801604		PSE11R032SF16-5	32	5	17.0	M16	40	28	22	
7801617		PSE11R033SF16-3	33	3	17.0	M16	40	28	22	
7801605		PSE11R035SF16-5	35	5	17.0	M16	40	28	22	
7801606		PSE11R040SF16-6	40	6	17.0	M16	40	28	22	
7801607		PSE15R025SF12-2	25	2	12.5	M12	35	23	17	ZDKT15…
7801618		PSE15R026SF12-2	26	2	12.5	M12	35	23	17	
7801608		PSE15R028SF12-2	28	2	12.5	M12	35	23	17	
7801609		PSE15R032SF16-3	32	3	17	M16	40	28	22	
7801619		PSE15R033SF16-3	33	3	17	M16	40	28	22	
7801610		PSE15R035SF16-3	35	3	17	M16	40	28	22	
7801611		PSE15R040SF16-4	40	4	17	M16	40	28	22	

Packed: 1 pc.

Note: When using an insert with a corner radius of R2 or greater, the corner of the cutter body must be corrected.
The body corner radius should equal insert radius minus one (example: if insert radius is R3, body radius should be R2).

This item is stocked overseas. Please contact OSG for availability and delivery.

PXT

List 52602

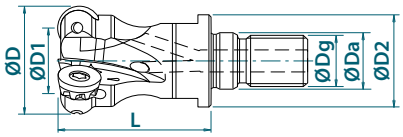


SPEED FEED P1414

Recommended Materials: p1414
Accessories & Inserts: p1413
Maximum Ramping Angle: p1415
SF Arbors: p1461

PRC ASF (Inch)





EDP No.	Body Type	Designation	Tool Dia. (inch)	Effective Dia. (inch)	No. of Teeth	Pilot Dia. (inch)	Thread Dia. (mm)	Overall Length (inch)	Flange Dia. (inch)	Wrench Size	Applicable Insert
			D	D1		Da	Dg	L	D2		
52602000	Screw Fit Head	PRC10R100ASF12-3	1.000	0.606	3	0.492	M12	1.378	0.905	17	RPH_10…
52602001		PRC10R125ASF16-4	1.250	0.856	4	0.669	M16	1.575	1.102	22	
52602002		PRC12R125ASF16-2	1.250	0.778	2	0.669	M16	1.575	1.102	22	RPH_12…
52602003		PRC12R150ASF16-3	1.500	1.028	3	0.669	M16	1.575	1.102	22	
52602004		PRC16R150ASF16-2	1.500	0.870	2	0.669	M16	1.575	1.102	22	RPH_16…

Packed: 1 pc.

PXT

List 78017

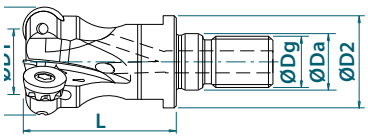


SPEED FEED P1414

Recommended Materials: p1414
Accessories & Inserts: p1413
Maximum Ramping Angle: p1415
SF Arbors: p1462-1464

PRC SF (Metric)





EDP No.	Body Type	Designation	Tool Dia. (mm)	Effective Dia. (mm)	No. of Teeth	Pilot Dia. (mm)	Thread Dia. (mm)	Overall Length (mm)	Flange Dia. (mm)	Wrench Size	Applicable Insert
			D	D1		Da	Dg	L	D2		
7801700	Screw Fit Head	PRC10R020SF10-2	20	10	2	10.5	M10	33	18	14	RPH_10…
7801701		PRC10R025SF12-3	25	15	3	12.5	M12	35	23	17	
7801702		PRC10R030SF16-3	30	20	3	17	M16	40	28	22	
7801703		PRC10R032SF16-4	32	22	4	17	M16	40	28	22	
7801704		PRC10R040SF16-4	40	30	4	17	M16	40	28	22	
7801705		PRC12R030SF16-2	30	18	2	17	M16	40	28	22	RPH_12…
7801706		PRC12R032SF16-3	32	20	3	17	M16	40	28	22	
7801707		PRC12R040SF16-3	40	28	3	17	M16	40	28	22	

Packed: 1 pc.

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PXT

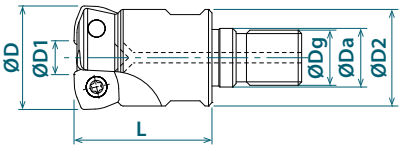
List 52603

SPEED FEED P1425

Recommended Materials: p1425
Accessories & Inserts: p1424
Maximum Ramping Angle: p1426
SF Arbors: p1461

PHC ASF (Inch)





EDP No.	Body Type	Designation	Tool Dia. (inch)	Effective Dia. (inch)	No. of Teeth	Pilot Dia. (inch)	Thread Dia. (mm)	Overall Length (inch)	Flange Dia. (inch)	Wrench Size	Applicable Insert
			D	D1		Da	Dg	L	D2		
52603004	Screw Fit Head	PHC07R063ASF8-2	0.625	0.286	2	0.334	M8	1.063	0.571	10	SPMT07…
52603005		PHC07R075ASF10-3	0.750	0.411	3	0.413	M10	1.300	0.709	14	
52603006		PHC07R100ASF12-4	1.000	0.661	4	0.492	M12	1.378	0.905	17	
52603007		PHC07R125ASF16-5	1.250	0.911	5	0.669	M16	1.575	1.102	22	
52603000		PHC09R100ASF12-2	1.000	0.535	2	0.492	M12	1.378	0.905	17	SDMT09…
52603001		PHC09R125ASF16-3	1.250	0.785	3	0.669	M16	1.575	1.102	22	
52603002		PHC12R125ASF16-2	1.250	0.596	2	0.669	M16	1.575	1.102	22	SXMT12…
52603003		PHC12R150ASF16-3	1.500	0.846	3	0.669	M16	1.575	1.102	22	

Packed: 1 pc.

PXT

List 78015

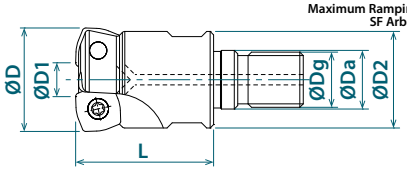
PHC SF (Metric)



SPEED FEED P1425

Recommended Materials: p1425
Accessories & Inserts: p1424
Maximum Ramping Angle: p1426
SF Arbors: p1462-1464





EDP No.	Body Type	Designation	Tool Dia. (mm)	Effective Dia. (mm)	No. of Teeth	Pilot Dia. (mm)	Thread Dia. (mm)	Overall Length (mm)	Flange Dia. (mm)	Wrench Size	Applicable Insert
			D	D1		Da	Dg	L	D2		
7801520	Screw Fit Head	PHC07R016SF8-2	16	7.4	2	8.5	M8	27	14.5	10	SPMT07…
7801521		PHC07R017SF8-2	17	8.4	2	8.5	M8	27	14.5	10	
7801522		PHC07R018SF8-2	18	9.4	2	8.5	M8	27	14.5	10	
7801523		PHC07R020SF10-3	20	11.4	3	10.5	M10	33	18	14	
7801524		PHC07R021SF10-3	21	12.4	3	10.5	M10	33	18	14	
7801525		PHC07R022SF10-3	22	13.4	3	10.5	M10	33	18	14	
7801526		PHC07R025SF12-4	25	16.4	4	12.5	M12	35	23	17	
7801527		PHC07R026SF12-4	26	17.4	4	12.5	M12	35	23	17	
7801528		PHC07R028SF12-4	28	19.4	4	12.5	M12	35	23	17	
7801529		PHC07R030SF16-4	30	21.4	4	17	M16	40	28	22	
7801530		PHC07R032SF16-5	32	23.4	5	17	M16	40	28	22	
7801531		PHC07R033SF16-5	33	24.4	5	17	M16	40	28	22	
7801532		PHC07R035SF16-5	35	26.4	5	17	M16	40	28	22	
7801500		PHC09R025SF12-3	25	13.2	3	12.5	M12	35	23	17	SDMT09…
7801510		PHC09R026SF12-3	26	14.2	3	12.5	M12	35	23	17	
7801501		PHC09R028SF12-3	28	16.2	3	12.5	M12	35	23	17	
7801502		PHC09R030SF16-3	30	18.2	3	17	M16	40	28	22	
7801503		PHC09R032SF16-3	32	20.2	3	17	M16	40	28	22	
7801511		PHC09R033SF16-3	33	21.2	3	17	M16	40	28	22	
7801504		PHC09R035SF16-3	35	23.2	3	17	M16	40	28	22	
7801505		PHC09R040SF16-4	40	28.2	4	17	M16	40	28	22	
7801506		PHC12R030SF16-2	30	13.4	2	17	M16	40	28	22	SDXMT12…
7801507		PHC12R032SF16-2	32	15.4	2	17	M16	40	28	22	
7801512		PCH12R033SF16-2	33	16.4	2	17	M16	40	28	22	
7801508		PHC12R035SF16-3	35	18.4	3	17	M16	40	28	22	
7801509		PHC12R040SF16-3	40	23.4	3	17	M16	40	28	22	

Packed: 1 pc.

This item is stocked overseas. Please contact OSG for availability and delivery.

PXT

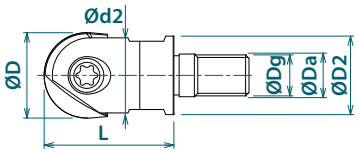
List 52604

SPEED FEED P1441

PFB ASF (Inch)

Recommended Materials: p1441
Accessories & Inserts: p1437-1439
Effective Cutting Diameter & Recommended Width of Cut: p1440
SF Arbors: p1461





EDP No.	Body Type	Designation	Tool Dia. (inch)	No. of Teeth	Pilot Dia. (inch)	Thread Dia. (mm)	Overall Length (inch)	Head Dia. (inch)	Flange Dia. (inch)	Wrench Size	Applicable Insert
			D		Da	Dg	L	d2	D2		
52604000	Screw Fit Head	PFB-R0375ASF6	0.375	2	0.256	M6	1.024	0.354	0.354	7	PFB…
52604001		PFB-R0500ASF6	0.500	2	0.256	M6	1.024	0.433	0.433	7	
52604002		PFB-R0625ASF8	0.625	2	0.335	M8	1.260	0.551	0.571	10	
52604003		PFB-R0750ASF10	0.750	2	0.413	M10	1.496	0.709	0.709	14	
52604004		PFB-R1000ASF12	1.000	2	0.492	M12	1.496	0.866	0.906	17	

Packed: 1 pc.

PXT

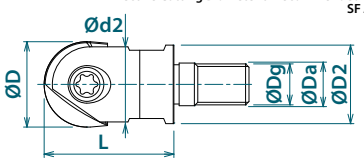
List 78114

SPEED FEED P1441

PFB SF (Metric)

Recommended Materials: p1441
Accessories & Inserts: p1437-1439
Effective Cutting Diameter & Recommended Width of Cut: p1440
SF Arbors: p1462-1464





EDP No.	Body Type	Designation	Tool Dia. (mm) D	No. of Teeth	Pilot Dia. (mm) Da	Thread Dia. (mm) Dg	Overall Length (mm) L	Head Dia. (mm) d2	Flange Dia. (mm) D2	Wrench Size	Applicable Insert
7801490	Screw Fit Head	PFB-R100SF6	10	2	6.5	M6	26	9	9	7	PFB...
7801491		PFB-R120SF6	12	2	6.5	M6	26	11	11	7	
7801492		PFB-R160SF8	16	2	8.5	M8	32	14	14.5	10	
7801493		PFB-R200SF10	20	2	10.5	M10	38	18	18	14	
7801494		PFB-R250SF12	25	2	12.5	M12	38	22	23	17	
7801495		PFB-R300SF16	30	2	17	M16	43	27	28	22	

Packed: 1 pc.

This item is stocked overseas. Please contact OSG for availability and delivery.

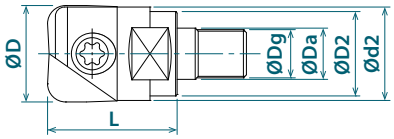
PXT

List 52605

PFR ASF (Inch)

SPEED FEED P1451-1452
Recommended Materials: p1451-1452
Accessories & Inserts: p1445-1450
SF Arbors: p1461





EDP No.	Body Type	Designation	Tool Dia. (inch)	No. of Teeth	Pilot Dia. (inch)	Thread Dia. (mm)	Overall Length (inch)	Head Dia. (inch)	Flange Dia. (inch)	Wrench Size	Applicable Insert
			D		Da	Dg	L	d2	D2		
52605000	Screw Fit Head	PFR-R0375ASF6	0.375	2	0.256	M6	1.024	0.374	0.354	7	PFR...
52605001		PFR-R0500ASF6	0.500	2	0.256	M6	1.024	0.453	0.433	7	
52605002		PFR-R0625ASF8	0.625	2	0.335	M8	1.260	0.610	0.571	10	
52605003		PFR-R0750ASF10	0.750	2	0.413	M10	1.496	0.768	0.709	14	
52605004		PFR-R1000ASF12	1.000	2	0.492	M12	1.496	0.965	0.906	17	

Packed: 1 pc.

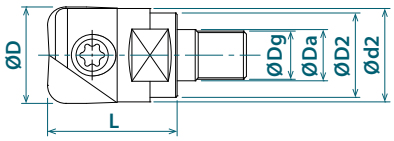
PXT

List 78220

PFR SF (Metric)

SPEED FEED P1451-1452
Recommended Materials: p1451-1452
Accessories & Inserts: p1445-1450
SF Arbors: p1462-1464





EDP No.	Body Type	Designation	Tool Dia. (mm)	No. of Teeth	Pilot Dia. (mm)	Thread Dia. (mm)	Overall Length (mm)	Head Dia. (mm)	Flange Dia. (mm)	Wrench Size	Applicable Insert
			D		Da	Dg	L	d2	D2		
7832090	Screw Fit Head	PFR-R100SF6	10	2	6.5	M6	26	9.5	9	7	PFR...
7832091		PFR-R120SF6	12	2	6.5	M6	26	11.5	11	7	
7832092		PFR-R160SF8	16	2	8.5	M8	32	15.5	14.5	10	
7832093		PFR-R200SF10	20	2	10.5	M10	38	19.5	18	14	
7832094		PFR-R250SF12	25	2	12.5	M12	38	24.5	23	17	
7832095		PFR-R300SF16	30	2	17	M16	43	29.5	28	22	
7832096		PFR-R320SF16	32	2	17	M16	43	31.5	28	22	

Packed: 1 pc.

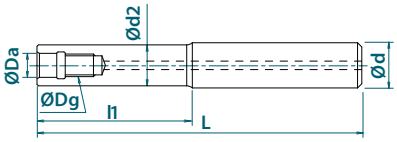
This item is stocked overseas. Please contact OSG for availability and delivery.

PXT

List 52600

SF Arbor SA (Inch)





EDP No.	Body Type	Designation	Shank Dia. (inch)	Neck Dia. (inch)	Thread Dia. (mm)	Pilot Dia. (inch)	Overall Length (inch)	Neck Length (inch)
			d	d2	Dg	Da	L	l1
52600000	Cylindrical Shank Steel	SF-M06SA0375-0250	0.375	0.354	M6	0.256	4.000	0.250
52600001		SF-M06SA0500-0500	0.500	0.433	M6	0.256	4.000	0.500
52600002		SF-M08SA0625-0500	0.625	0.571	M8	0.335	4.000	0.500
52600003		SF-M10SA0750-1000	0.750	0.709	M10	0.413	5.000	1.000
52600004		SF-M12SA1000-1250	1.000	0.905	M12	0.492	5.500	1.250
52600005		SF-M16SA1250-1500	1.250	1.102	M16	0.669	6.000	1.500
52600010	Cylindrical Shank Carbide	SF-M06SA0375-1500CS	0.375	0.354	M6	0.256	5.000	1.500
52600011		SF-M06SA0500-2500CS	0.500	0.433	M6	0.256	5.500	2.500
52600012		SF-M08SA0625-2000CS	0.625	0.571	M8	0.335	5.000	2.000
52600013		SF-M08SA0625-3000CS	0.625	0.571	M8	0.335	6.000	3.000
52600014		SF-M10SA0750-3000CS	0.750	0.709	M10	0.413	6.000	3.000
52600015		SF-M10SA0750-4000CS	0.750	0.709	M10	0.413	7.000	4.000
52600016		SF-M12SA1000-4000CS	1.000	0.905	M12	0.492	7.000	4.000
52600017		SF-M12SA1000-5500CS	1.000	0.905	M12	0.492	9.000	5.500
52600018		SF-M16SA1250-5500CS	1.250	1.102	M16	0.669	9.000	5.500
52600019		SF-M16SA1250-8500CS	1.250	1.102	M16	0.669	12.000	8.500

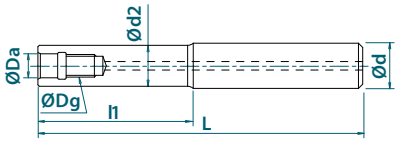
Packed: 1 pc.

PXT

List 78019

SF Arbor SS (Metric)





EDP No.	Body Type	Designation	Shank Dia. (mm)	Neck Dia. (mm)	Thread Dia. (mm)	Pilot Dia. (mm)	Overall Length (mm)	Neck Length (mm)
			d	d2	Dg	Da	L	l1
7801904	Cylindrical Shank Steel	SF-M06SS10-4	10	9	M6	6.5	104	4
7801905		SF-M06SS12-10	12	11	M6	6.5	104	10
7801900		SF-M08SS16-15	16	14.5	M8	8.5	95	15
7801901		SF-M10SS20-20	20	18	M10	10.5	120	20
7801902		SF-M12SS25-35	25	23	M12	12.5	135	35
7801903		SF-M16SS32-35	32	28	M16	17	155	35
7801918	Cylindrical Shank Carbide	SF-M06SS10-24CS	10	9	M6	6.5	124	24
7801919		SF-M06SS12-34CS	12	11	M6	6.5	134	34
7801910		SF-M08SS16-55CS	16	14.5	M8	8.5	115	55
7801911		SF-M08SS16-85CS	16	14.5	M8	8.5	145	85
7801912		SF-M10SS20-70CS	20	18	M10	10.5	140	70
7801913		SF-M10SS20-110CS	20	18	M10	10.5	180	110
7801914		SF-M12SS25-90CS	25	23	M12	12.5	170	90
7801915		SF-M12SS25-140CS	25	23	M12	12.5	220	140
7801916		SF-M16SS32-120CS	32	28	M16	17	220	120
7801917		SF-M16SSS32-190CS	32	28	M16	17	290	190

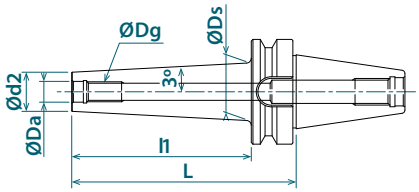
Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

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List 78025

SF Arbor BT





EDP No.	Body Type	Designation	Neck Dia. (mm)	Thread Dia. (mm)	Bore Dia. (mm)	Overall Length (mm)	Neck Length (mm)	Taper Dia. (mm)
			d2	Dg	Da	L	l1	Ds
7802500	BT30 Taper	BT30-SFA8-45	14.5	M8	8.5	45	23	16.0
7802501		BT30-SFA8-85	14.5	M8	8.5	85	63	21.1
7802502		BT30-SFA10-45	18.5	M10	10.5	45	23	20.0
7802503		BT30-SFA10-85	18.5	M10	10.5	85	63	25.1
7802504		BT30-SFA12-45	23.5	M12	12.5	45	23	25.0
7802505		BT30-SFA12-85	23.5	M12	12.5	85	63	30.1
7802506		BT30-SFA16-45	29	M16	17	45	23	32.0
7802507		BT30-SFA16-85	29	M16	17	85	63	32.0
7802508	BT40 Taper	BT40-SFA8-45	14.5	M8	8.5	45	18	16.0
7802509		BT40-SFA8-85	14.5	M8	8.5	85	58	20.5
7802510		BT40-SFA10-45	18.5	M10	10.5	45	18	20.0
7802511		BT40-SFA10-85	18.5	M10	10.5	85	58	24.5
7802512		BT40-SFA12-45	23.5	M12	12.5	45	18	25.0
7802513		BT40-SFA12-85	23.5	M12	12.5	85	58	29.5
7802514		BT40-SFA12-135	23.5	M12	12.5	135	108	34.8
7802515		BT40-SFA16-45	29	M16	17	45	18	32.0
7802516		BT40-SFA16-85	29	M16	17	85	58	35.0
7802517		BT40-SFA16-135	29	M16	17	135	108	40.3
7802518	BT50 Taper	BT50-SFA8-85	14.5	M8	8.5	85	47	19.4
7802519		BT50-SFA8-135	14.5	M8	8.5	135	97	23.6
7802520		BT50-SFA10-85	18.5	M10	10.5	85	47	20.0
7802521		BT50-SFA10-135	18.5	M10	10.5	135	97	28.6
7802522		BT50-SFA12-85	23.5	M12	12.5	85	47	25.0
7802523		BT50-SFA12-135	23.5	M12	12.5	135	97	33.6
7802524		BT50-SFA12-185	23.5	M12	12.5	185	147	38.9
7802525		BT50-SFA12-250	23.5	M12	12.5	250	212	45.7
7802526		BT50-SFA12-300	23.5	M12	12.5	300	262	50.9
7802527		BT50-SFA16-800	29	M16	17	85	47	32.0
7802528		BT50-SFA16-135	29	M16	17	135	97	39.1
7802529		BT50-SFA16-185	29	M16	17	185	147	44.4
7802530		BT50-SFA16-250	29	M16	17	250	212	51.2
7802531		BT50-SFA16-300	29	M16	17	300	262	56.4

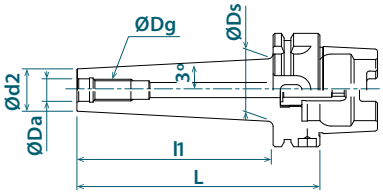
Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

PXT

List 78125

SF Arbor HSK





EDP No.	Body Type	Designation	Neck Dia. (mm)	Thread Dia. (mm)	Bore Dia. (mm)	Overall Length (mm)	Neck Length (mm)	Taper Dia. (mm)
			d2	Dg	Da	L	l1	Ds
7802550	HSK-A63	A63-SFA8-45	14.5	M8	8.5	45	19	16.0
7802551		A63-SFA8-85	14.5	M8	8.5	85	59	20.6
7802552		A63-SFA10-60	18.5	M10	10.5	60	34	20.0
7802553		A63-SFA10-85	18.5	M10	10.5	85	59	24.6
7802554		A63-SFA12-60	23.5	M12	12.5	60	34	25.0
7802555		A63-SFA12-85	23.5	M12	12.5	85	59	39.6
7802556		A63-SFA12-135	23.5	M12	12.5	135	109	34.9
7802557		A63-SFA16-60	29	M16	17	60	34	32.0
7802558		A63-SFA16-85	29	M16	17	85	59	32.0
7802559		A63-SFA16-135	29	M16	17	135	109	40.4
7802560	HSK-A100	A100-SFA8-85	14.5	M8	8.5	85	50	19.7
7802561		A100-SFA8-135	14.5	M8	8.5	135	100	23.9
7802562		A100-SFA10-85	18.5	M10	10.5	85	50	23.7
7802563		A100-SFA10-135	18.5	M10	10.5	135	100	28.9
7802564		A100-SFA12-85	23.5	M12	12.5	85	50	28.7
7802565		A100-SFA12-135	23.5	M12	12.5	135	100	33.9
7802566		A100-SFA12-185	23.5	M12	12.5	185	150	39.2
7802567		A100-SFA12-250	23.5	M12	12.5	250	221	46.6
7802568		A100-SFA12-300	23.5	M12	12.5	300	271	51.9
7802569		A100-SFA16-85	29	M16	17	85	50	34.2
7802570		A100-SFA16-135	29	M16	17	135	106	40.1
7802571		A100-SFA16-185	29	M16	17	185	156	45.3
7802572		A100-SFA16-250	29	M16	17	250	221	52.1
7802573		A100-SFA16-300	29	M16	17	300	271	57.4

Packed: 1 pc.
Note: **This item is stocked overseas. Please contact OSG for availability and delivery.**

PXT

List 78PXSE

NEW SIZES

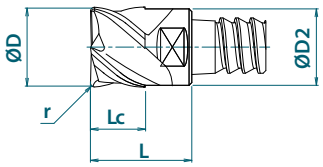
SPEED FEED P1489

PXSE Exchangeable Heads (Inch & Metric) - 4 Flute, Square & Corner Radius

Accessories: p1488
PXM Arbors: p1478-1487







EDP No.	Type	Designation	Head Dia. D		Corner Radius r		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52301020	PXSE	PXSE0375AC10-04R000	-	0.375	-	0.000	-	0.263	-	0.488	-	0.366	38°	XP3225
52301021		PXSE0375AC10-04R015	-	0.375	-	0.015	-	0.263	-	0.488	-	0.366	38°	XP3225
52301022		PXSE0375AC10-04R030	-	0.375	-	0.030	-	0.263	-	0.488	-	0.366	38°	XP3225
52301023		PXSE0375AC10-04R060	-	0.375	-	0.060	-	0.263	-	0.488	-	0.366	38°	XP3225
52301024		PXSE0375AC10-04R090	-	0.375	-	0.090	-	0.263	-	0.488	-	0.366	38°	XP3225
52301000		PXSE0500AC12-04R000	-	0.500	-	0.000	-	0.350	-	0.598	-	0.488	38°	XP3225
52301001		PXSE0500AC12-04R015	-	0.500	-	0.015	-	0.350	-	0.598	-	0.488	38°	XP3225
52301002		PXSE0500AC12-04R030	-	0.500	-	0.030	-	0.350	-	0.598	-	0.488	38°	XP3225
52301003		PXSE0500AC12-04R060	-	0.500	-	0.060	-	0.350	-	0.598	-	0.488	38°	XP3225
52301004		PXSE0500AC12-04R090	-	0.500	-	0.090	-	0.350	-	0.598	-	0.488	38°	XP3225
52301005		PXSE0625AC16-04R000	-	0.625	-	0.000	-	0.438	-	0.732	-	0.613	38°	XP3225
52301006		PXSE0625AC16-04R030	-	0.625	-	0.030	-	0.438	-	0.732	-	0.613	38°	XP3225
52301007		PXSE0625AC16-04R060	-	0.625	-	0.060	-	0.438	-	0.732	-	0.613	38°	XP3225
52301008		PXSE0625AC16-04R090	-	0.625	-	0.090	-	0.438	-	0.732	-	0.613	38°	XP3225
52301009		PXSE0625AC16-04R120	-	0.625	-	0.120	-	0.438	-	0.732	-	0.613	38°	XP3225
52301010		PXSE0750AC20-04R000	-	0.750	-	0.000	-	0.525	-	0.807	-	0.736	38°	XP3225
52301011		PXSE0750AC20-04R030	-	0.750	-	0.030	-	0.525	-	0.807	-	0.736	38°	XP3225
52301012		PXSE0750AC20-04R060	-	0.750	-	0.060	-	0.525	-	0.807	-	0.736	38°	XP3225
52301013		PXSE0750AC20-04R090	-	0.750	-	0.090	-	0.525	-	0.807	-	0.736	38°	XP3225
52301014		PXSE0750AC20-04R120	-	0.750	-	0.120	-	0.525	-	0.807	-	0.736	38°	XP3225
52301015		PXSE1000AC25-04R000	-	1.000	-	0.000	-	0.700	-	1.098	-	0.960	38°	XP3225
52301016		PXSE1000AC25-04R030	-	1.000	-	0.030	-	0.700	-	1.098	-	0.960	38°	XP3225
52301017		PXSE1000AC25-04R060	-	1.000	-	0.060	-	0.700	-	1.098	-	0.960	38°	XP3225
52301018		PXSE1000AC25-04R090	-	1.000	-	0.090	-	0.700	-	1.098	-	0.960	38°	XP3225
52301019		PXSE1000AC25-04R120	-	1.000	-	0.120	-	0.700	-	1.098	-	0.960	38°	XP3225
7829994		PXSE100C10-04R000	10	-	0	-	7	-	13	-	9.7	-	38°	XP3225
7829995		PXSE100C10-04R005	10	-	0.5	-	7	-	13	-	9.7	-	38°	XP3225
7829996		PXSE100C10-04R010	10	-	1	-	7	-	13	-	9.7	-	38°	XP3225
7829997		PXSE100C10-04R020	10	-	2	-	7	-	13	-	9.7	-	38°	XP3225
7829998		PXSE100C10-04R030	10	-	3	-	7	-	13	-	9.7	-	38°	XP3225
7830004		PXSE120C12-04R000	12	-	0	-	8.4	-	14.4	-	11.7	-	38°	XP3225
7830005		PXSE120C12-04R005	12	-	0.5	-	8.4	-	14.4	-	11.7	-	38°	XP3225
7830006		PXSE120C12-04R010	12	-	1	-	8.4	-	14.4	-	11.7	-	38°	XP3225
7830007		PXSE120C12-04R020	12	-	2	-	8.4	-	14.4	-	11.7	-	38°	XP3225
7830008		PXSE120C12-04R030	12	-	3	-	8.4	-	14.4	-	11.7	-	38°	XP3225
7830009		PXSE160C16-04R000	16	-	0	-	11.2	-	18.7	-	15.7	-	38°	XP3225
7830010		PXSE160C16-04R005	16	-	0.5	-	11.2	-	18.7	-	15.7	-	38°	XP3225
7830011		PXSE160C16-04R010	16	-	1	-	11.2	-	18.7	-	15.7	-	38°	XP3225
7830012		PXSE160C16-04R015	16	-	1.5	-	11.2	-	18.7	-	15.7	-	38°	XP3225
7830013		PXSE160C16-04R020	16	-	2	-	11.2	-	18.7	-	15.7	-	38°	XP3225
7830014		PXSE160C16-04R030	16	-	3	-	11.2	-	18.7	-	15.7	-	38°	XP3225
7830015		PXSE200C20-04R000	20	-	0	-	14	-	21.5	-	19.6	-	38°	XP3225
7830016		PXSE200C20-04R005	20	-	0.5	-	14	-	21.5	-	19.6	-	38°	XP3225
7830017		PXSE200C20-04R010	20	-	1	-	14	-	21.5	-	19.6	-	38°	XP3225
7830018		PXSE200C20-04R020	20	-	2	-	14	-	21.5	-	19.6	-	38°	XP3225
7830019		PXSE200C20-04R030	20	-	3	-	14	-	21.5	-	19.6	-	38°	XP3225
7830020		PXSE250C25-04R000	25	-	0	-	17.5	-	27.5	-	24	-	38°	XP3225
7830021		PXSE250C25-04R010	25	-	1	-	17.5	-	27.5	-	24	-	38°	XP3225
7830022		PXSE250C25-04R020	25	-	2	-	17.5	-	27.5	-	24	-	38°	XP3225
7830023		PXSE250C25-04R030	25	-	3	-	17.5	-	27.5	-	24	-	38°	XP3225

Packed: 1 pc.

PXI

List 78PXSE-O

NEW

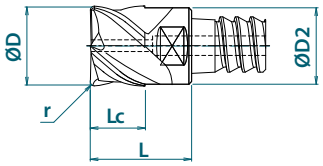
SPEED FEED P1489

Accessories: p1488
PXM Arbors: p1478-1487

PXSE Exchangeable Heads (Inch & Metric) - 4 Flute, Square & Corner Radius, Coolant-Through







EDP No.	Type	Designation	Head Dia. D		Corner Radius r		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52314000	PXSE	PXSE0500AC12-04R000-O	-	0.500	-	0.000	-	0.350	-	0.598	-	0.488	38°	XP3225
52314001		PXSE0500AC12-04R030-O	-	0.500	-	0.030	-	0.350	-	0.598	-	0.488	38°	XP3225
52314002		PXSE0500AC12-04R120-O	-	0.500	-	0.120	-	0.350	-	0.598	-	0.488	38°	XP3225
52314005		PXSE0625AC16-04R000-O	-	0.625	-	0.000	-	0.438	-	0.732	-	0.613	38°	XP3225
52314006		PXSE0625AC16-04R030-O	-	0.625	-	0.030	-	0.438	-	0.732	-	0.613	38°	XP3225
52314007		PXSE0625AC16-04R120-O	-	0.625	-	0.120	-	0.438	-	0.732	-	0.613	38°	XP3225
52314010		PXSE0750AC20-04R000-O	-	0.750	-	0.000	-	0.525	-	0.807	-	0.736	38°	XP3225
52314011		PXSE0750AC20-04R030-O	-	0.750	-	0.030	-	0.525	-	0.807	-	0.736	38°	XP3225
52314012		PXSE0750AC20-04R120-O	-	0.750	-	0.120	-	0.525	-	0.807	-	0.736	38°	XP3225
52314015		PXSE1000AC25-04R000-O	-	1.000	-	0.000	-	0.700	-	1.098	-	0.960	38°	XP3225
52314016		PXSE1000AC25-04R030-O	-	1.000	-	0.030	-	0.700	-	1.098	-	0.960	38°	XP3225
52314017		PXSE1000AC25-04R120-O	-	1.000	-	0.120	-	0.700	-	1.098	-	0.960	38°	XP3225
7830054		PXSE120C12-04R000-O	12	-	0	-	8.4	-	14.4	-	11.7	-	38°	XP3225
7830056		PXSE120C12-04R010-O	12	-	1	-	8.4	-	14.4	-	11.7	-	38°	XP3225
7830058		PXSE120C12-04R030-O	12	-	3	-	8.4	-	14.4	-	11.7	-	38°	XP3225
7830059		PXSE160C16-04R000-O	16	-	0	-	11.2	-	18.7	-	15.7	-	38°	XP3225
7830061		PXSE160C16-04R010-O	16	-	1	-	11.2	-	18.7	-	15.7	-	38°	XP3225
7830064		PXSE160C16-04R030-O	16	-	3	-	11.2	-	18.7	-	15.7	-	38°	XP3225
7830065		PXSE200C20-04R000-O	20	-	0	-	14	-	21.5	-	19.6	-	38°	XP3225
7830067		PXSE200C20-04R010-O	20	-	1	-	14	-	21.5	-	19.6	-	38°	XP3225
7830069		PXSE200C20-04R030-O	20	-	3	-	14	-	21.5	-	19.6	-	38°	XP3225
7830070		PXSE250C25-04R000-O	25	-	0	-	17.5	-	27.5	-	24	-	38°	XP3225
7830071		PXSE250C25-04R010-O	25	-	1	-	17.5	-	27.5	-	24	-	38°	XP3225
7830074		PXSE250C25-04R030-O	25	-	3	-	17.5	-	27.5	-	24	-	38°	XP3225

Packed: 1 pc.

PXI

List 78PXVC

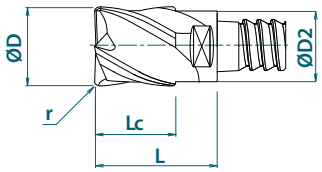
NEW SIZES

SPEED FEED P1490

Accessories: p1488
PXM Arbors: p1478-1487

PXVC Exchangeable Heads (inch & metric) - 4, 5 or 8 Flutes, Square & Corner Radius





EDP No.	Type	Designation	Head Dia. D		Corner Radius r		No. of Flutes	Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52308020		PXVC0375AC10-04R000	-	0.375	-	0.000	4	-	0.375	-	0.598	-	0.366	45° / 48°	XP3225
52308021		PXVC0375AC10-04R015	-	0.375	-	0.015	4	-	0.375	-	0.598	-	0.366	45° / 48°	XP3225
52308022		PXVC0375AC10-04R030	-	0.375	-	0.030	4	-	0.375	-	0.598	-	0.366	45° / 48°	XP3225
52308023		PXVC0375AC10-04R060	-	0.375	-	0.060	4	-	0.375	-	0.598	-	0.366	45° / 48°	XP3225
52308024		PXVC0375AC10-04R090	-	0.375	-	0.090	4	-	0.375	-	0.598	-	0.366	45° / 48°	XP3225
52308000		PXVC0500AC12-04R000	-	0.500	-	0.000	4	-	0.500	-	0.748	-	0.488	45° / 48°	XP3225
52308001		PXVC0500AC12-04R015	-	0.500	-	0.015	4	-	0.500	-	0.748	-	0.488	45° / 48°	XP3225
52308002		PXVC0500AC12-04R030	-	0.500	-	0.030	4	-	0.500	-	0.748	-	0.488	45° / 48°	XP3225
52308003		PXVC0500AC12-04R060	-	0.500	-	0.060	4	-	0.500	-	0.748	-	0.488	45° / 48°	XP3225
52308004		PXVC0500AC12-04R090	-	0.500	-	0.090	4	-	0.500	-	0.748	-	0.488	45° / 48°	XP3225
52308005		PXVC0625AC16-04R000	-	0.625	-	0.000	4	-	0.625	-	0.921	-	0.614	45° / 48°	XP3225
52308006		PXVC0625AC16-04R030	-	0.625	-	0.030	4	-	0.625	-	0.921	-	0.614	45° / 48°	XP3225
52308007		PXVC0625AC16-04R060	-	0.625	-	0.060	4	-	0.625	-	0.921	-	0.614	45° / 48°	XP3225
52308008		PXVC0625AC16-04R090	-	0.625	-	0.090	4	-	0.625	-	0.921	-	0.614	45° / 48°	XP3225
52308009		PXVC0625AC16-04R120	-	0.625	-	0.120	4	-	0.625	-	0.921	-	0.614	45° / 48°	XP3225
52308010		PXVC0750AC20-04R000	-	0.750	-	0.000	4	-	0.750	-	1.035	-	0.736	45° / 48°	XP3225
52308011		PXVC0750AC20-04R030	-	0.750	-	0.030	4	-	0.750	-	1.035	-	0.736	45° / 48°	XP3225
52308012		PXVC0750AC20-04R060	-	0.750	-	0.060	4	-	0.750	-	1.035	-	0.736	45° / 48°	XP3225
52308013		PXVC0750AC20-04R090	-	0.750	-	0.090	4	-	0.750	-	1.035	-	0.736	45° / 48°	XP3225
52308014		PXVC0750AC20-04R120	-	0.750	-	0.120	4	-	0.750	-	1.035	-	0.736	45° / 48°	XP3225
52308015		PXVC1000AC25-04R000	-	1.000	-	0.000	4	-	1.000	-	1.398	-	0.961	45° / 48°	XP3225
52308016		PXVC1000AC25-04R030	-	1.000	-	0.030	4	-	1.000	-	1.398	-	0.961	45° / 48°	XP3225
52308017		PXVC1000AC25-04R060	-	1.000	-	0.060	4	-	1.000	-	1.398	-	0.961	45° / 48°	XP3225
52308018	PXVC	PXVC1000AC25-04R090	-	1.000	-	0.090	4	-	1.000	-	1.398	-	0.961	45° / 48°	XP3225
52308019		PXVC1000AC25-04R120	-	1.000	-	0.120	4	-	1.000	-	1.398	-	0.961	45° / 48°	XP3225
52308025		PXVC1250AC32-05R030	-	1.250	-	0.030	5	-	1.250	-	1.748	-	1.094	45°	XP3225
52308026		PXVC1250AC32-08R030	-	1.250	-	0.030	8	-	1.250	-	1.748	-	1.094	38°	XP3225
7834994		PXVC100C10-04R000	10	-	0	-	4	10	-	16	-	9.8	-	45° / 48°	XP3225
7834995		PXVC100C10-04R005	10	-	0.5	-	4	10	-	16	-	9.8	-	45° / 48°	XP3225
7834996		PXVC100C10-04R010	10	-	1	-	4	10	-	16	-	9.8	-	45° / 48°	XP3225
7834997		PXVC100C10-04R020	10	-	2	-	4	10	-	16	-	9.8	-	45° / 48°	XP3225
7834998		PXVC100C10-04R030	10	-	3	-	4	10	-	16	-	9.8	-	45° / 48°	XP3225
7834999		PXVC120C10-04R000	12	-	0	-	4	12	-	18	-	9.8	-	45° / 48°	XP3225
7835000		PXVC120C10-04R005	12	-	0.5	-	4	12	-	18	-	9.8	-	45° / 48°	XP3225
7835001		PXVC120C10-04R010	12	-	1	-	4	12	-	18	-	9.8	-	45° / 48°	XP3225
7835002		PXVC120C10-04R020	12	-	2	-	4	12	-	18	-	9.8	-	45° / 48°	XP3225
7835003		PXVC120C10-04R030	12	-	3	-	4	12	-	18	-	9.8	-	45° / 48°	XP3225
7835004		PXVC120C12-04R000	12	-	0	-	4	12	-	18	-	11.7	-	45° / 48°	XP3225
7835005		PXVC120C12-04R005	12	-	0.5	-	4	12	-	18	-	11.7	-	45° / 48°	XP3225
7835006		PXVC120C12-04R010	12	-	1	-	4	12	-	18	-	11.7	-	45° / 48°	XP3225
7835007		PXVC120C12-04R020	12	-	2	-	4	12	-	18	-	11.7	-	45° / 48°	XP3225
7835008		PXVC120C12-04R030	12	-	3	-	4	12	-	18	-	11.7	-	45° / 48°	XP3225
7835009		PXVC140C12-04R000	14	-	0	-	4	14	-	20	-	11.7	-	45° / 48°	XP3225
7835010		PXVC140C12-04R005	14	-	0.5	-	4	14	-	20	-	11.7	-	45° / 48°	XP3225
7835011		PXVC140C12-04R010	14	-	1	-	4	14	-	20	-	11.7	-	45° / 48°	XP3225
7835012		PXVC140C12-04R020	14	-	2	-	4	14	-	20	-	11.7	-	45° / 48°	XP3225
7835013		PXVC140C12-04R030	14	-	3	-	4	14	-	20	-	11.7	-	45° / 48°	XP3225

Packed: 1 pc.

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PXI

List 78PXVC (Continued)

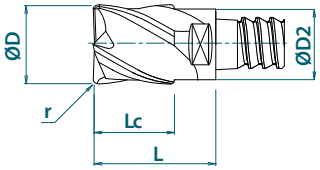
PXVC Exchangeable Heads (inch & metric) - 4, 5 or 8 Flutes, Square & Corner Radius

NEW SIZES

SPEED FEED P1490

Accessories: p1488
PXM Arbors: p1478-1487





EDP No.	Type	Designation	Head Dia. D		Corner Radius r		No. of Flutes	Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
7835014		PXVC160C16-04R000	16	-	0	-	4	16	-	23.5	-	15.7	-	45° / 48°	XP3225
7835015		PXVC160C16-04R005	16	-	0.5	-	4	16	-	23.5	-	15.7	-	45° / 48°	XP3225
7835016		PXVC160C16-04R010	16	-	1	-	4	16	-	23.5	-	15.7	-	45° / 48°	XP3225
7835017		PXVC160C16-04R015	16	-	1.5	-	4	16	-	23.5	-	15.7	-	45° / 48°	XP3225
7835018		PXVC160C16-04R020	16	-	2	-	4	16	-	23.5	-	15.7	-	45° / 48°	XP3225
7835019		PXVC160C16-04R030	16	-	3	-	4	16	-	23.5	-	15.7	-	45° / 48°	XP3225
7835020		PXVC180C16-04R000	18	-	0	-	4	18	-	25.5	-	15.7	-	45° / 48°	XP3225
7835021		PXVC180C16-04R005	18	-	0.5	-	4	18	-	25.5	-	15.7	-	45° / 48°	XP3225
7835022		PXVC180C16-04R010	18	-	1	-	4	18	-	25.5	-	15.7	-	45° / 48°	XP3225
7835023		PXVC180C16-04R020	18	-	2	-	4	18	-	25.5	-	15.7	-	45° / 48°	XP3225
7835024		PXVC180C16-04R030	18	-	3	-	4	18	-	25.5	-	15.7	-	45° / 48°	XP3225
7835025		PXVC200C20-04R000	20	-	0	-	4	20	-	27.5	-	19.6	-	45° / 48°	XP3225
7835026		PXVC200C20-04R005	20	-	0.5	-	4	20	-	27.5	-	19.6	-	45° / 48°	XP3225
7835027	PXVC	PXVC200C20-04R010	20	-	1	-	4	20	-	27.5	-	19.6	-	45° / 48°	XP3225
7835028		PXVC200C20-04R020	20	-	2	-	4	20	-	27.5	-	19.6	-	45° / 48°	XP3225
7835029		PXVC200C20-04R030	20	-	3	-	4	20	-	27.5	-	19.6	-	45° / 48°	XP3225
7835030		PXVC220C20-04R000	22	-	0	-	4	22	-	29.5	-	19.6	-	45° / 48°	XP3225
7835038		PXVC220C20-04R005	22	-	0.5	-	4	22	-	29.5	-	19.6	-	45° / 48°	XP3225
7835031		PXVC220C20-04R010	22	-	1	-	4	22	-	29.5	-	19.6	-	45° / 48°	XP3225
7835032		PXVC220C20-04R020	22	-	2	-	4	22	-	29.5	-	19.6	-	45° / 48°	XP3225
7835033		PXVC220C20-04R030	22	-	3	-	4	22	-	29.5	-	19.6	-	45° / 48°	XP3225
7835034		PXVC250C25-04R000	25	-	0	-	4	25	-	35	-	24	-	45° / 48°	XP3225
7835035		PXVC250C25-04R010	25	-	1	-	4	25	-	35	-	24	-	45° / 48°	XP3225
7835036		PXVC250C25-04R020	25	-	2	-	4	25	-	35	-	24	-	45° / 48°	XP3225
7835037		PXVC250C25-04R030	25	-	3	-	4	25	-	35	-	24	-	45° / 48°	XP3225
7835039		PXVC320C32-05R010	32	-	1	-	5	32	-	44.7	-	28	-	45°	XP3225
7835040		PXVC320C32-08R010	32	-	1	-	8	32	-	44.7	-	28	-	38°	XP3225

Packed: 1 pc.

PXI

List 78PXSM

NEW SIZES

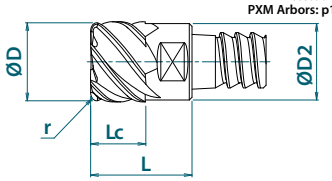
SPEED FEED P1491

Accessories: p1488
PXM Arbors: p1478-1487

PXSM Exchangeable Heads (Inch & Metric) - Multiple Flute, Square & Corner Radius







EDP No.	Type	Designation	Head Dia. D (mm)	Head Dia. D (inch)	Corner Radius r (mm)	Corner Radius r (inch)	No. of Flutes	Length of Cut Lc (mm)	Length of Cut Lc (inch)	Overall Length L (mm)	Overall Length L (inch)	Flange Dia. D2 (mm)	Flange Dia. D2 (inch)	Helix Angle	Grade
52302025	PXSM	PXSM0375AC10-06R000	-	0.375	-	0.000	6	-	0.263	-	0.488	-	0.366	38°	XP3225
52302026		PXSM0375AC10-06R015	-	0.375	-	0.015	6	-	0.263	-	0.488	-	0.366	38°	XP3225
52302027		PXSM0375AC10-06R030	-	0.375	-	0.030	6	-	0.263	-	0.488	-	0.366	38°	XP3225
52302028		PXSM0375AC10-06R060	-	0.375	-	0.060	6	-	0.263	-	0.488	-	0.366	38°	XP3225
52302000		PXSM0500AC12-06R000	-	0.500	-	0.000	6	-	0.350	-	0.598	-	0.488	38°	XP3225
52302001		PXSM0500AC12-06R015	-	0.500	-	0.015	6	-	0.350	-	0.598	-	0.488	38°	XP3225
52302002		PXSM0500AC12-06R030	-	0.500	-	0.030	6	-	0.350	-	0.598	-	0.488	38°	XP3225
52302003		PXSM0500AC12-06R060	-	0.500	-	0.060	6	-	0.350	-	0.598	-	0.488	38°	XP3225
52302004		PXSM0500AC12-06R090	-	0.500	-	0.090	6	-	0.350	-	0.598	-	0.488	38°	XP3225
52302005		PXSM0625AC16-06R000	-	0.625	-	0.000	6	-	0.438	-	0.732	-	0.613	38°	XP3225
52302006		PXSM0625AC16-06R030	-	0.625	-	0.030	6	-	0.438	-	0.732	-	0.613	38°	XP3225
52302007		PXSM0625AC16-06R060	-	0.625	-	0.060	6	-	0.438	-	0.732	-	0.613	38°	XP3225
52302008		PXSM0625AC16-06R090	-	0.625	-	0.090	6	-	0.438	-	0.732	-	0.613	38°	XP3225
52302009		PXSM0625AC16-06R120	-	0.625	-	0.120	6	-	0.438	-	0.732	-	0.613	38°	XP3225
52302010		PXSM0625AC16-08R000	-	0.625	-	0.000	8	-	0.438	-	0.732	-	0.613	42°	XP3225
52302011		PXSM0625AC16-08R030	-	0.625	-	0.030	8	-	0.438	-	0.732	-	0.613	42°	XP3225
52302012		PXSM0625AC16-08R060	-	0.625	-	0.060	8	-	0.438	-	0.732	-	0.613	42°	XP3225
52302013		PXSM0625AC16-08R090	-	0.625	-	0.090	8	-	0.438	-	0.732	-	0.613	42°	XP3225
52302014		PXSM0625AC16-08R120	-	0.625	-	0.120	8	-	0.438	-	0.732	-	0.613	42°	XP3225
52302015		PXSM0750AC20-10R000	-	0.750	-	0.000	10	-	0.525	-	0.807	-	0.736	42°	XP3225
52302016		PXSM0750AC20-10R030	-	0.750	-	0.030	10	-	0.525	-	0.807	-	0.736	42°	XP3225
52302017		PXSM0750AC20-10R060	-	0.750	-	0.060	10	-	0.525	-	0.807	-	0.736	42°	XP3225
52302018		PXSM0750AC20-10R090	-	0.750	-	0.090	10	-	0.525	-	0.807	-	0.736	42°	XP3225
52302019		PXSM0750AC20-10R120	-	0.750	-	0.120	10	-	0.525	-	0.807	-	0.736	42°	XP3225
52302020		PXSM1000AC25-10R000	-	1.000	-	0.000	10	-	0.700	-	1.098	-	0.960	42°	XP3225
52302021		PXSM1000AC25-10R030	-	1.000	-	0.030	10	-	0.700	-	1.098	-	0.960	42°	XP3225
52302022		PXSM1000AC25-10R060	-	1.000	-	0.060	10	-	0.700	-	1.098	-	0.960	42°	XP3225
52302023		PXSM1000AC25-10R090	-	1.000	-	0.090	10	-	0.700	-	1.098	-	0.960	42°	XP3225
52302024		PXSM1000AC25-10R120	-	1.000	-	0.120	10	-	0.700	-	1.098	-	0.960	42°	XP3225
7830094		PXSM100C10-06R000	10	-	0	-	6	7	-	13	-	9.7	-	38°	XP3225
7830095		PXSM100C10-06R005	10	-	0.5	-	6	7	-	13	-	9.7	-	38°	XP3225
7830096		PXSM100C10-06R010	10	-	1	-	6	7	-	13	-	9.7	-	38°	XP3225
7830097		PXSM100C10-06R020	10	-	2	-	6	7	-	13	-	9.7	-	38°	XP3225
7830104		PXSM120C12-06R000	12	-	0	-	6	8.4	-	14.4	-	11.7	-	38°	XP3225
7830105		PXSM120C12-06R005	12	-	0.5	-	6	8.4	-	14.4	-	11.7	-	38°	XP3225
7830106		PXSM120C12-06R010	12	-	1	-	6	8.4	-	14.4	-	11.7	-	38°	XP3225
7830107		PXSM120C12-06R020	12	-	2	-	6	8.4	-	14.4	-	11.7	-	38°	XP3225
7830108		PXSM120C12-06R030	12	-	3	-	6	8.4	-	14.4	-	11.7	-	38°	XP3225
7830109		PXSM160C16-06R000	16	-	0	-	6	11.2	-	18.7	-	15.7	-	38°	XP3225
7830110		PXSM160C16-06R005	16	-	0.5	-	6	11.2	-	18.7	-	15.7	-	38°	XP3225
7830111		PXSM160C16-06R010	16	-	1	-	6	11.2	-	18.7	-	15.7	-	38°	XP3225
7830112		PXSM160C16-06R015	16	-	1.5	-	6	11.2	-	18.7	-	15.7	-	38°	XP3225
7830113		PXSM160C16-06R020	16	-	2	-	6	11.2	-	18.7	-	15.7	-	38°	XP3225
7830114		PXSM160C16-06R030	16	-	3	-	6	11.2	-	18.7	-	15.7	-	38°	XP3225
7830115		PXSM160C16-08R000	16	-	0	-	8	11.2	-	18.7	-	15.7	-	42°	XP3225
7830116		PXSM160C16-08R005	16	-	0.5	-	8	11.2	-	18.7	-	15.7	-	42°	XP3225
7830117		PXSM160C16-08R010	16	-	1	-	8	11.2	-	18.7	-	15.7	-	42°	XP3225
7830118		PXSM160C16-08R015	16	-	1.5	-	8	11.2	-	18.7	-	15.7	-	42°	XP3225
7830119		PXSM160C16-08R020	16	-	2	-	8	11.2	-	18.7	-	15.7	-	42°	XP3225
7830120		PXSM160C16-08R030	16	-	3	-	8	11.2	-	18.7	-	15.7	-	42°	XP3225

Packed: 1 pc.

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PXI

List 78PXSM (Continued)

PXSM Exchangeable Heads (Inch & Metric) - Multiple Flute, Square & Corner Radius

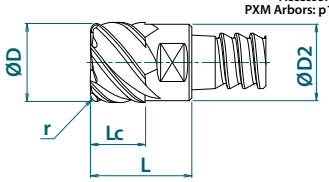
NEW SIZES

SPEED FEED P1491

Accessories: p1488
PXM Arbors: p1478-1487







EDP No.	Type	Designation	Head Dia. D		Corner Radius r		No. of Flutes	Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
7830121	PXSM	PXSM200C20-10R000	20	-	0	-	10	14	-	21.5	-	19.6	-	42°	XP3225
7830122		PXSM200C20-10R005	20	-	0.5	-	10	14	-	21.5	-	19.6	-	42°	XP3225
7830123		PXSM200C20-10R010	20	-	1	-	10	14	-	21.5	-	19.6	-	42°	XP3225
7830124		PXSM200C20-10R020	20	-	2	-	10	14	-	21.5	-	19.6	-	42°	XP3225
7830125		PXSM200C20-10R030	20	-	3	-	10	14	-	21.5	-	19.6	-	42°	XP3225
7830126		PXSM250C25-10R000	25	-	0	-	10	17.5	-	27.5	-	24	-	42°	XP3225
7830127		PXSM250C25-10R010	25	-	1	-	10	17.5	-	27.5	-	24	-	42°	XP3225
7830128		PXSM250C25-10R020	25	-	2	-	10	17.5	-	27.5	-	24	-	42°	XP3225
7830129		PXSM250C25-10R030	25	-	3	-	10	17.5	-	27.5	-	24	-	42°	XP3225

Packed: 1 pc.

PXI

List 78PXNL

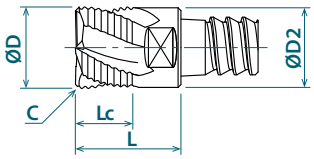
NEW SIZES

SPEED FEED P1492

PXNL Exchangeable Heads (inch & metric) - 4 Flute, Roughing, Low Helix

Accessories: p1488
PXM Arbors: p1478-1487





EDP No.	Type	Designation	Head Dia. D		Corner Chamfer C		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52303004	PXNL	PXNL0375AC10-04C020	-	0.375	-	0.020	-	0.263	-	0.488	-	0.366	19° / 21°	XP3225
52303000		PXNL0500AC12-04C020	-	0.500	-	0.020	-	0.350	-	0.598	-	0.488	19° / 21°	XP3225
52303001		PXNL0625AC16-04C025	-	0.625	-	0.025	-	0.438	-	0.732	-	0.613	19° / 21°	XP3225
52303002		PXNL0750AC20-04C025	-	0.750	-	0.025	-	0.525	-	0.807	-	0.736	19° / 21°	XP3225
52303003		PXNL1000AC25-04C025	-	1.000	-	0.025	-	0.700	-	1.098	-	0.960	19° / 21°	XP3225
7830400		PXNL100C10-04C005	10	-	0.5	-	7	-	13	-	9.7	-	19° / 21°	XP3225
7830401		PXNL120C12-04C005	12	-	0.5	-	8.4	-	14.4	-	11.7	-	19° / 21°	XP3225
7830402		PXNL160C16-04C006	16	-	0.6	-	11.2	-	18.7	-	15.7	-	19° / 21°	XP3225
7830403		PXNL200C20-04C006	20	-	0.6	-	14	-	21.5	-	19.6	-	19° / 21°	XP3225
7830404		PXNL250C25-04C006	25	-	0.6	-	17.5	-	27.5	-	24	-	19° / 21°	XP3225

Packed: 1 pc.

PXI

List 78PXNL-O

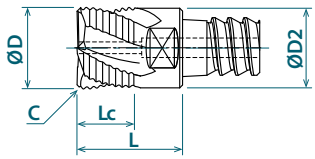
NEW

SPEED FEED P1492

PXNL Exchangeable Heads (inch & metric) - 4 Flute, Roughing, Low Helix, Coolant-Through

Accessories: p1488
PXM Arbors: p1478-1487





EDP No.	Type	Designation	Head Dia. D		Corner Chamfer C		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52315000	PXNL	PXNL0500AC12-04C020-O	-	0.500	-	0.020	-	0.350	-	0.598	-	0.488	19° / 21°	XP3225
52315001		PXNL0625AC16-04C025-O	-	0.625	-	0.025	-	0.438	-	0.732	-	0.613	19° / 21°	XP3225
52315002		PXNL0750AC20-04C025-O	-	0.750	-	0.025	-	0.525	-	0.807	-	0.736	19° / 21°	XP3225
52315003		PXNL1000AC25-04C025-O	-	1.000	-	0.025	-	0.700	-	1.098	-	0.960	19° / 21°	XP3225
7830411		PXNL120C12-04C005-O	12	-	0.5	-	8.4	-	14.4	-	11.7	-	19° / 21°	XP3225
7830412		PXNL160C16-04C006-O	16	-	0.6	-	11.2	-	18.7	-	15.7	-	19° / 21°	XP3225
7830413		PXNL200C20-04C006-O	20	-	0.6	-	14	-	21.5	-	19.6	-	19° / 21°	XP3225
7830414		PXNL250C25-04C006-O	25	-	0.6	-	17.5	-	27.5	-	24	-	19° / 21°	XP3225

Packed: 1 pc.

PXI

List 78PXNH

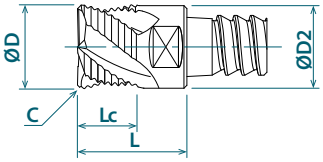
PXNH Exchangeable Heads (inch & metric) - 4 Flute, Roughing, High Helix

NEW SIZES

SPEED FEED P1492

Accessories: p1488
PXM Arbors: p1478-1487





EDP No.	Type	Designation	Head Dia. D		Corner Chamfer C		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52304004	PXNH	PXNH0375AC10-04C020	-	0.375	-	0.020	-	0.263	-	0.488	-	0.366	40° / 42°	XP3225
52304000		PXNH0500AC12-04C020	-	0.500	-	0.020	-	0.350	-	0.598	-	0.488	40° / 42°	XP3225
52304001		PXNH0625AC16-04C025	-	0.625	-	0.025	-	0.438	-	0.732	-	0.613	40° / 42°	XP3225
52304002		PXNH0750AC20-04C025	-	0.750	-	0.025	-	0.525	-	0.807	-	0.736	40° / 42°	XP3225
52304003		PXNH1000AC25-04C025	-	1.000	-	0.025	-	0.700	-	1.098	-	0.960	40° / 42°	XP3225
7830450		PXNH100C10-04C005	10	-	0.5	-	7	-	13	-	9.7	-	40° / 42°	XP3225
7830451		PXNH120C12-04C005	12	-	0.5	-	8.4	-	14.4	-	11.7	-	40° / 42°	XP3225
7830452		PXNH160C16-04C006	16	-	0.6	-	11.2	-	18.7	-	15.7	-	40° / 42°	XP3225
7830453		PXNH200C20-04C006	20	-	0.6	-	14	-	21.5	-	19.6	-	40° / 42°	XP3225
7830454		PXNH250C25-04C006	25	-	0.6	-	17.5	-	27.5	-	24	-	40° / 42°	XP3225

Packed: 1 pc.

PXI

List 78PXNH-O

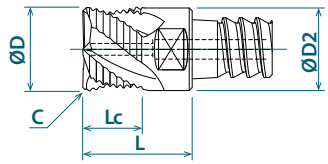
PXNH Exchangeable Heads (inch & metric) - 4 Flute, Roughing, High Helix, Coolant-Through

NEW

SPEED FEED P1492

Accessories: p1488
PXM Arbors: p1478-1487





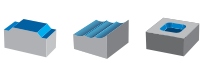
EDP No.	Type	Designation	Head Dia. D		Corner Chamfer C		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52316000	PXNH	PXNH0500AC12-04C020-O	-	0.500	-	0.020	-	0.350	-	0.598	-	0.488	40° / 42°	XP3225
52316001		PXNH0625AC16-04C025-O	-	0.625	-	0.025	-	0.438	-	0.732	-	0.613	40° / 42°	XP3225
52316002		PXNH0750AC20-04C025-O	-	0.750	-	0.025	-	0.525	-	0.807	-	0.736	40° / 42°	XP3225
52316003		PXNH1000AC25-04C025-O	-	1.000	-	0.025	-	0.700	-	1.098	-	0.960	40° / 42°	XP3225
7830461		PXNH120C12-04C005-O	12	-	0.5	-	8.4	-	14.4	-	11.7	-	40° / 42°	XP3225
7830462		PXNH160C16-04C006-O	16	-	0.6	-	11.2	-	18.7	-	15.7	-	40° / 42°	XP3225
7830463		PXNH200C20-04C006-O	20	-	0.6	-	14	-	21.5	-	19.6	-	40° / 42°	XP3225
7830464		PXNH250C25-04C006-O	25	-	0.6	-	17.5	-	27.5	-	24	-	40° / 42°	XP3225

Packed: 1 pc.

PXI

List 78PXRE

NEW SIZES

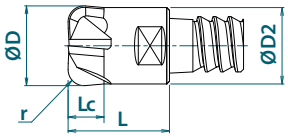


SPEED FEED P1493

PXRE Exchangeable Heads (inch & metric) - Multiple Flute, Straight Flute, Corner Radius

Accessories: p1488
PXM Arbors: p1478-1487





EDP No.	Type	Designation	Head Dia. D		Corner Radius r		No. of Flutes	Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52305004	PXRE	PXRE0375AC10-04R090	-	0.375	-	0.090	4	-	0.169	-	0.488	-	0.366	-	XP6305
52305000		PXRE0500AC12-04R090	-	0.500	-	0.090	4	-	0.197	-	0.598	-	0.488	-	XP6305
52305001		PXRE0625AC16-06R120	-	0.625	-	0.120	6	-	0.276	-	0.732	-	0.613	-	XP6305
52305002		PXRE0750AC20-06R120	-	0.750	-	0.120	6	-	0.394	-	0.807	-	0.736	-	XP6305
52305003		PXRE1000AC25-06R120	-	1.000	-	0.120	6	-	0.500	-	1.098	-	0.960	-	XP6305
7830200		PXRE100C10-04R020	10	-	2	-	4	4.5	-	13	-	9.7	-	-	XP6305
7830201		PXRE120C12-04R020	12	-	2	-	4	5	-	14.4	-	11.7	-	-	XP6305
7830202		PXRE160C16-06R030	16	-	3	-	6	7	-	18.7	-	15.7	-	-	XP6305
7830203		PXRE200C20-06R030	20	-	3	-	6	10	-	21.5	-	19.6	-	-	XP6305

Packed: 1 pc.

PXI

List 78PXDR

NEW SIZES

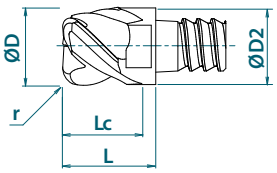


SPEED FEED P1493

PXDR-P Exchangeable Heads (inch & metric) - 3 Flute, Helical Flute, Corner Radius

Accessories: p1488
PXM Arbors: p1478-1487





EDP No.	Type	Designation	Head Dia. D		Corner Radius r		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52309008	PXDR-P	PXDR0375AC10-03R060-P	-	0.375	-	0.060	-	0.264	-	0.488	-	0.366	45°	XP3225
52309009		PXDR0375AC10-03R090-P	-	0.375	-	0.090	-	0.264	-	0.488	-	0.366	45°	XP3225
52309000		PXDR0500AC12-03R060-P	-	0.500	-	0.060	-	0.350	-	0.598	-	0.488	45°	XP3225
52309001		PXDR0500AC12-03R090-P	-	0.500	-	0.090	-	0.350	-	0.598	-	0.488	45°	XP3225
52309002		PXDR0625AC16-03R090-P	-	0.625	-	0.090	-	0.438	-	0.732	-	0.614	45°	XP3225
52309003		PXDR0625AC16-03R120-P	-	0.625	-	0.120	-	0.438	-	0.732	-	0.614	45°	XP3225
52309004		PXDR0750AC20-03R090-P	-	0.750	-	0.090	-	0.525	-	0.807	-	0.736	45°	XP3225
52309005		PXDR0750AC20-03R120-P	-	0.750	-	0.120	-	0.525	-	0.807	-	0.736	45°	XP3225
52309006		PXDR1000AC25-03R090-P	-	1.000	-	0.090	-	0.700	-	1.098	-	0.960	45°	XP3225
52309007		PXDR1000AC25-03R120-P	-	1.000	-	0.120	-	0.700	-	1.098	-	0.960	45°	XP3225
7830349		PXDR100C10-03R015-P	10	-	1.5	-	7	-	13	-	9.7	-	45°	XP3225
7830350		PXDR100C10-03R020-P	10	-	2	-	7	-	13	-	9.7	-	45°	XP3225
7830351		PXDR120C12-03R015-P	12	-	1.5	-	8.4	-	14.4	-	11.7	-	45°	XP3225
7830352		PXDR120C12-03R020-P	12	-	2	-	8.4	-	14.4	-	11.7	-	45°	XP3225
7830353		PXDR160C16-03R020-P	16	-	2	-	11.2	-	18.7	-	15.7	-	45°	XP3225
7830354		PXDR160C16-03R030-P	16	-	3	-	11.2	-	18.7	-	15.7	-	45°	XP3225
7830355		PXDR200C20-03R020-P	20	-	2	-	14	-	21.5	-	19.6	-	45°	XP3225
7830356		PXDR200C20-03R030-P	20	-	3	-	14	-	21.5	-	19.6	-	45°	XP3225

Packed: 1 pc.

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PXI

List 78PXDR (Continued)

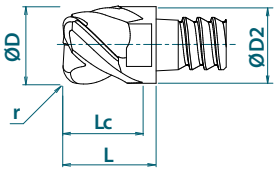
NEW SIZES

SPEED FEED P1494

Accessories: p1488
PXM Arbors: p1478-1487

PXDR-N Exchangeable Heads (inch & metric) - 3 Flute, Helical Flute, Corner Radius





EDP No.	Type	Designation	Head Dia. D		Corner Radius r		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52310008	PXDR-N	PXDR0375AC10-03R060-N	-	0.375	-	0.060	-	0.264	-	0.488	-	0.366	45°	XP6305
52310009		PXDR0375AC10-03R090-N	-	0.375	-	0.090	-	0.264	-	0.488	-	0.366	45°	XP6305
52310000		PXDR0500AC12-03R060-N	-	0.500	-	0.060	-	0.350	-	0.598	-	0.488	45°	XP6305
52310001		PXDR0500AC12-03R090-N	-	0.500	-	0.090	-	0.350	-	0.598	-	0.488	45°	XP6305
52310002		PXDR0625AC16-03R090-N	-	0.625	-	0.090	-	0.438	-	0.732	-	0.614	45°	XP6305
52310003		PXDR0625AC16-03R120-N	-	0.625	-	0.120	-	0.438	-	0.732	-	0.614	45°	XP6305
52310004		PXDR0750AC20-03R090-N	-	0.750	-	0.090	-	0.525	-	0.807	-	0.736	45°	XP6305
52310005		PXDR0750AC20-03R120-N	-	0.750	-	0.120	-	0.525	-	0.807	-	0.736	45°	XP6305
52310006		PXDR1000AC25-03R090-N	-	1.000	-	0.090	-	0.700	-	1.098	-	0.960	45°	XP6305
52310007		PXDR1000AC25-03R120-N	-	1.000	-	0.120	-	0.700	-	1.098	-	0.960	45°	XP6305
7830369		PXDR100C10-03R015-N	10	-	1.5	-	7	-	13	-	9.7	-	45°	XP6305
7830370		PXDR100C10-03R020-N	10	-	2	-	7	-	13	-	9.7	-	45°	XP6305
7830371		PXDR120C12-03R015-N	12	-	1.5	-	8.4	-	14.4	-	11.7	-	45°	XP6305
7830372		PXDR120C12-03R020-N	12	-	2	-	8.4	-	14.4	-	11.7	-	45°	XP6305
7830373		PXDR160C16-03R020-N	16	-	2	-	11.2	-	18.7	-	15.7	-	45°	XP6305
7830374		PXDR160C16-03R030-N	16	-	3	-	11.2	-	18.7	-	15.7	-	45°	XP6305
7830375		PXDR200C20-03R020-N	20	-	2	-	14	-	21.5	-	19.6	-	45°	XP6305
7830376		PXDR200C20-03R030-N	20	-	3	-	14	-	21.5	-	19.6	-	45°	XP6305

Packed: 1 pc.

PXI

List 78PXBE

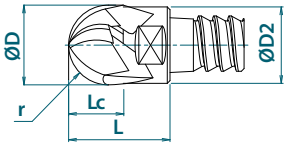
NEW SIZES

SPEED FEED P1494

Accessories: p1488
PXM Arbors: p1478-1487

PXBE-P Exchangeable Heads (inch & metric) - 3 Flute, Ball End





EDP No.	Type	Designation	Head Dia. D		Head Radius r		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52311004	PXBE-P	PXBE0375AC10-03R187-P	-	0.375	-	0.1875	-	0.264	-	0.488	-	0.366	45°	XP3320
52311000		PXBE0500AC12-03R250-P	-	0.500	-	0.250	-	0.350	-	0.598	-	0.488	45°	XP3320
52311001		PXBE0625AC16-03R313-P	-	0.625	-	0.3125	-	0.438	-	0.732	-	0.614	45°	XP3320
52311002		PXBE0750AC20-03R375-P	-	0.750	-	0.375	-	0.525	-	0.807	-	0.736	45°	XP3320
52311003		PXBE1000AC25-03R500-P	-	1.000	-	0.500	-	0.700	-	1.098	-	0.960	45°	XP3320
7830270		PXBE100C10-03R050-P	10	-	5	-	7	-	13	-	9.7	-	45°	XP3320
7830271		PXBE120C12-03R060-P	12	-	6	-	8.4	-	14.4	-	11.7	-	45°	XP3320
7830272		PXBE160C16-03R080-P	16	-	8	-	11.2	-	18.7	-	15.7	-	45°	XP3320
7830273		PXBE200C20-03R100-P	20	-	10	-	14	-	21.5	-	19.6	-	45°	XP3320

Packed: 1 pc.

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List 78PXBE (Continued)

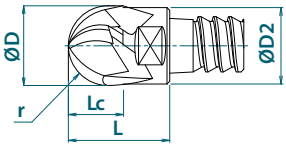
PXBE-N Exchangeable Heads (inch & metric) - 3 Flute, Ball End

NEW SIZES

SPEED FEED P1495

Accessories: p1488
PXM Arbors: p1478-1487





EDP No.	Type	Designation	Head Dia. D		Head Radius R		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52306004	PXBE-N	PXBE0375AC10-03R187-N	-	0.375	-	0.1875	-	0.264	-	0.488	-	0.366	45°	XP3320
52306000		PXBE0500AC12-03R250-N	-	0.500	-	0.500	-	0.350	-	0.598	-	0.488	45°	XP3320
52306001		PXBE0625AC16-03R313-N	-	0.625	-	0.3125	-	0.438	-	0.732	-	0.613	45°	XP3320
52306002		PXBE0750AC20-03R375-N	-	0.750	-	0.375	-	0.525	-	0.807	-	0.736	45°	XP3320
52306003		PXBE1000AC25-03R500-N	-	1.000	-	0.500	-	0.700	-	1.098	-	0.960	45°	XP3320
7830250		PXBE100C10-03R050-N	10	-	5	-	7	-	13	-	9.7	-	45°	XP3320
7830251		PXBE120C12-03R060-N	12	-	6	-	8.4	-	14.4	-	11.7	-	45°	XP3320
7830252		PXBE160C16-03R080-N	16	-	8	-	11.2	-	18.7	-	15.7	-	45°	XP3320
7830253		PXBE200C20-03R100-N	20	-	10	-	14	-	21.5	-	19.6	-	45°	XP3320

Packed: 1 pc.

PXI

List 78PXBE-O

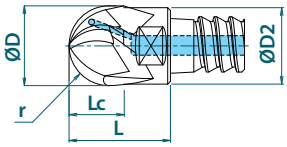
PXBE-P Exchangeable Heads (inch & metric) - 3 Flute, Ball End, Coolant-Through

NEW

SPEED FEED P1494

Accessories: p1488
PXM Arbors: p1478-1487





EDP No.	Type	Designation	Head Dia. D		Head Radius R		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52317000	PXBE-P	PXBE0500AC12-03R250-P-O	-	0.500	-	0.250	-	0.350	-	0.598	-	0.488	45°	XP3320
52317001		PXBE0625AC16-03R313-P-O	-	0.625	-	0.3125	-	0.438	-	0.732	-	0.614	45°	XP3320
52317002		PXBE0750AC20-03R375-P-O	-	0.750	-	0.375	-	0.525	-	0.807	-	0.736	45°	XP3320
7830281		PXBE120C12-03R060-P-O	12	-	6	-	8.4	-	14.4	-	11.7	-	45°	XP3320
7830282		PXBE160C16-03R080-P-O	16	-	8	-	11.2	-	18.7	-	15.7	-	45°	XP3320
7830283		PXBE200C20-03R100-P-O	20	-	10	-	14	-	21.5	-	19.6	-	45°	XP3320

Packed: 1 pc.

PXI

List 78PXBE-O (Continued)

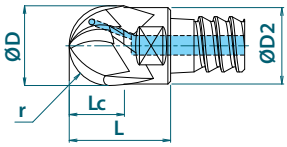
PXBE-N Exchangeable Heads (inch & metric) - 3 Flute, Ball End, Coolant-Through

NEW

SPEED FEED P1495

Accessories: p1488
PXM Arbors: p1478-1487





EDP No.	Type	Designation	Head Dia. D		Head Radius R		Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52318000	PXBE-N	PXBE0500AC12-03R250-N-O	-	0.500	-	0.500	-	0.350	-	0.598	-	0.488	45°	XP3320
52318001		PXBE0625AC16-03R313-N-O	-	0.625	-	0.3125	-	0.438	-	0.732	-	0.613	45°	XP3320
52318002		PXBE0750AC20-03R375-N-O	-	0.750	-	0.375	-	0.525	-	0.807	-	0.736	45°	XP3320
7830261		PXBE120C12-03R060-N-O	12	-	6	-	8.4	-	14.4	-	11.7	-	45°	XP3320
7830262		PXBE160C16-03R080-N-O	16	-	8	-	11.2	-	18.7	-	15.7	-	45°	XP3320
7830263		PXBE200C20-03R100-N-O	20	-	10	-	14	-	21.5	-	19.6	-	45°	XP3320

Packed: 1 pc.

PXI

List 78PXBM

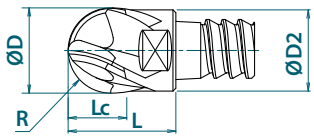
PXBM Exchangeable Heads (inch & metric) - Multiple Flute, Ball End

NEW SIZES

SPEED FEED P1495

Accessories: p1488
PXM Arbors: p1478-1487





EDP No.	Type	Designation	Head Dia. D		Head Radius R		No. of Flutes	Length of Cut Lc		Overall Length L		Flange Dia. D2		Helix Angle	Grade
			(mm)	(inch)	(mm)	(inch)		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		
52307004	PXBM	PXBM0375AC10-04R187	-	0.375	-	0.1875	4	-	0.264	-	0.488	-	0.366	45°	XP3320
52307000		PXBM0500AC12-04R250	-	0.500	-	0.250	4	-	0.350	-	0.598	-	0.488	45°	XP3320
52307001		PXBM0625AC16-06R313	-	0.625	-	0.3125	6	-	0.438	-	0.732	-	0.613	45°	XP3320
52307002		PXBM0750AC20-06R375	-	0.750	-	0.375	6	-	0.525	-	0.807	-	0.736	45°	XP3320
52307003		PXBM1000AC25-06R500	-	1.000	-	0.500	6	-	0.700	-	1.098	-	0.960	45°	XP3320
7830300		PXBM100C10-04R050	10	-	5	-	4	7	-	13	-	9.7	-	45°	XP3320
7830301		PXBM120C12-04R060	12	-	6	-	4	8.4	-	14.4	-	11.7	-	45°	XP3320
7830302		PXBM160C16-06R080	16	-	8	-	6	11.2	-	18.7	-	15.7	-	45°	XP3320
7830303		PXBM200C20-06R100	20	-	10	-	6	14	-	21.5	-	19.6	-	45°	XP3320

Packed: 1 pc.

PXI

List 52300

NEW SIZES

PXM SA/TPA (inch)



Straight Shank

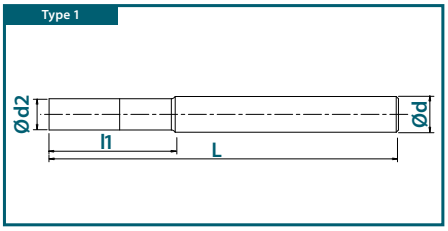


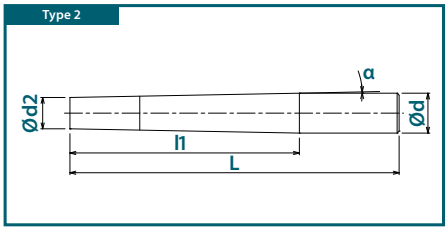
Tapered Shank

EDP No.	Body Type	Designation	Type	Neck Dia. (inch)	Shank Dia. (inch)	Taper	Overall Length (inch)	Neck Length (inch)	Applicable Head (Inch)
				d2	d	α°	L	l1	
52300024	Cylindrical Shank Steel	PXMZ-C10SA0375-S300	1	0.366	0.375	-	3.000	1.000	0.375
52300000		PXMZ-C12SA0500-S400	1	0.488	0.500	-	4.000	0.750	0.500
52300001		PXMZ-C12TPA0750-S600	2	0.488	0.750	5°	6.000	2.000	
52300002		PXMZ-C16SA0625-S400	1	0.613	0.625	-	4.000	1.000	0.625
52300003		PXMZ-C16TPA1000-S650	2	0.613	1.000	5°	6.500	2.000	
52300004		PXMZ-C20SA0750-S500	1	0.736	0.750	-	5.000	1.250	0.750
52300005		PXMZ-C20TPA1250-S700	2	0.736	1.250	5°	7.000	2.750	
52300006		PXMZ-C25SA1000-S550	1	0.960	1.000	-	5.500	1.500	1.000
52300025		PXMZ-C32SA1250-S600	1	1.094	1.250	-	6.000	2.500	1.250
52300026	Cylindrical Shank Carbide	PXMZ-C10SA0375-S300CS	1	0.366	0.375	-	3.000	1.000	0.375
52300027		PXMZ-C10SA0375-L400CS	1	0.366	0.375	-	4.000	1.750	
52300028		PXMZ-C10TPA0500-LL500CS	2	0.366	0.375	1.4°	5.000	2.750	
52300007		PXMZ-C12SA0500-S300CS	1	0.488	0.500	-	3.000	1.000	0.500
52300008		PXMZ-C12SA0500-L400CS	1	0.488	0.500	-	4.000	1.750	
52300009		PXMZ-C12SA0500-L450CS	1	0.488	0.500	-	4.500	2.500	
52300010		PXMZ-C12TPA0625-LL550CS	2	0.488	0.625	1.5°	5.500	3.250	
52300011		PXMZ-C16SA0625-S350CS	1	0.613	0.625	-	3.500	1.500	0.625
52300012		PXMZ-C16SA0625-L550CS	1	0.613	0.625	-	5.500	2.500	
52300013		PXMZ-C16SA0625-L600CS	1	0.613	0.625	-	6.000	3.250	
52300014		PXMZ-C16TPA0750-LL650CS	2	0.613	0.750	1.5°	6.500	4.500	
52300015		PXMZ-C20SA0750-S350CS	1	0.736	0.750	-	3.500	1.500	0.750
52300016		PXMZ-C20SA0750-L600CS	1	0.736	0.750	-	6.000	3.000	
52300017		PXMZ-C20SA0750-L700CS	1	0.736	0.750	-	7.000	4.250	
52300018		PXMZ-C20TPA1000-LL800CS	2	0.736	1.000	1.5°	8.000	5.500	
52300019		PXMZ-C25SA1000-L800CS	1	0.960	1.000	-	8.000	3.750	1.000
52300029		PXMZ-C32SA1250-L1000CS	1	1.094	1.250	-	10.000	6.500	1.250

Packed: 1 pc.
Note: Wrench included with body.

PXT

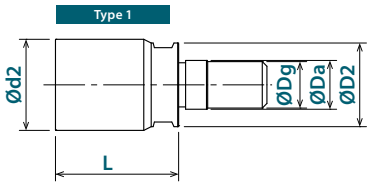




List 52300 (Continued)

PXM SF Joint (Inch)

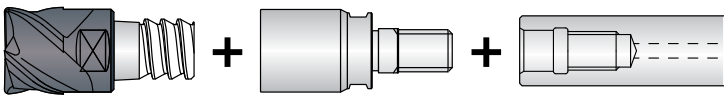




EDP No.	Body Type	Designation	Type	Neck Dia. (Inch)	Pilot Dia. (Inch)	Thread Dia. (mm)	Flange Dia. (Inch)	Overall Length (Inch)	Spanner Wrench	Applicable Head (inch)
				d2	Da	Dg	D2	L		
52300020	PXMJ (Joint)	PXMJ-AC12SF06	1	0.488	0.256	M6	0.433	0.709	PXMP8-10	0.500
52300021		PXMJ-AC16SF08		0.613	0.335	M8	0.571	0.858	PXMP13-16	0.625
52300022		PXMJ-AC20SF10		0.736	0.413	M10	0.707	1.043	PXMP13-16	0.750
52300023		PXMJ-AC25SF12		0.960	0.492	M12	0.905	1.338	PXMP21	1.000

Packed: 1 pc.
Note: Wrench included with body.
Note: PXM heads can be mounted to PHOENIX® SF Arbors by attaching the PXM SF Joint.

PXT



List 52319

NEW

PXM SA/TPA (inch) - Coolant-Through



Straight Shank

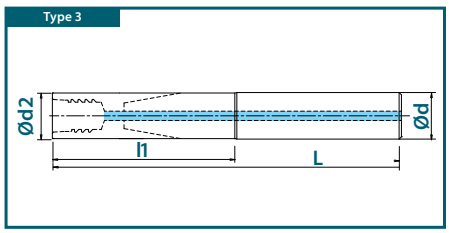


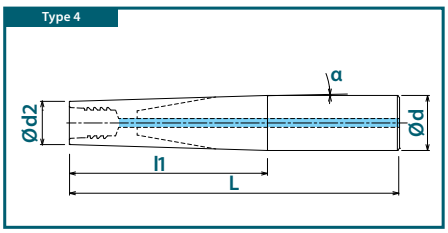
Tapered Shank

EDP No.	Body Type	Designation	Type	Neck Dia. (inch)	Shank Dia. (inch)	Taper	Overall Length (inch)	Neck Length (inch)	Applicable Head (Inch)
				d2	d	α°	L	l1	
52319000	Cylindrical Shank Steel	PXMZ-C12SA0500-S400-O	3	0.488	0.500	-	4.000	0.750	0.500
52319001		PXMZ-C16SA0625-S400-O	3	0.613	0.625	-	4.000	1.000	0.625
52319002		PXMZ-C20SA0750-S500-O	3	0.736	0.750	-	5.000	1.250	0.750
52319003		PXMZ-C25SA1000-S550-O	3	0.960	1.000	-	5.500	1.500	1.000
52319004	Cylindrical Shank Carbide	PXMZ-C12SA0500-S300CS-O	3	0.488	0.500	-	3.000	1.000	0.500
52319005		PXMZ-C12SA0500-L400CS-O	3	0.488	0.500	-	4.000	1.750	0.500
52319006		PXMZ-C12SA0500-L450CS-O	3	0.488	0.500	-	4.500	2.500	0.500
52319007		PXMZ-C12TPA0625-LL550CS-O	4	0.488	0.625	1.2°	5.500	3.250	0.500
52319008		PXMZ-C12TPA0625-LL600CS-O	4	0.488	0.625	1°	6.000	3.750	0.500
52319009		PXMZ-C16SA0625-S350CS-O	3	0.613	0.625	-	3.500	1.500	0.625
52319010		PXMZ-C16SA0625-L550CS-O	3	0.613	0.625	-	5.500	2.500	0.625
52319011		PXMZ-C16SA0625-L600CS-O	3	0.613	0.625	-	6.000	3.250	0.625
52319012		PXMZ-C16TPA0750-LL650CS-O	4	0.613	0.750	1°	6.500	4.500	0.625
52319013		PXMZ-C16TPA0750-LL700CS-O	4	0.613	0.750	1°	7.000	5.000	0.625
52319014		PXMZ-C20SA0750-S350CS-O	3	0.736	0.750	-	3.500	1.500	0.750
52319015		PXMZ-C20SA0750-L600CS-O	3	0.736	0.750	-	6.000	3.000	0.750
52319016		PXMZ-C20SA0750-L700CS-O	3	0.736	0.750	-	7.000	4.250	0.750
52319017		PXMZ-C20TPA1000-LL800CS-O	4	0.736	1.000	1.5°	8.000	5.500	0.750
52319018		PXMZ-C20TPA1000-LL850CS-O	4	0.736	1.000	1.2°	8.500	6.000	0.750
52319019		PXMZ-C25SA1000-L800CS-O	3	0.960	1.000	-	8.000	3.750	1.000

Packed: 1 pc.
Note: Wrench included with body.

PXT



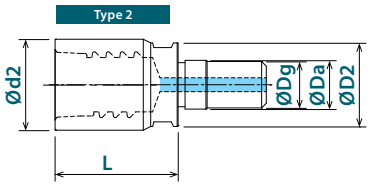


List 52319 (Continued)

NEW

PXM SF Joint (Inch) - Coolant-Through

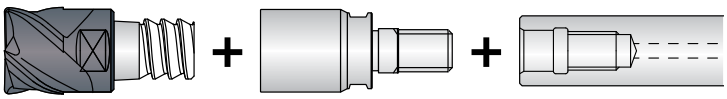




EDP No.	Body Type	Designation	Type	Neck Dia. (Inch)	Pilot Dia. (Inch)	Thread Dia. (mm)	Flange Dia. (Inch)	Overall Length (Inch)	Spanner Wrench	Applicable Head (inch)
				d2	Da	Dg	D2	L		
52319020	PXMJ Joint	PXMJ-AC12SF06-O	2	0.488	0.256	M6	0.433	0.709	PXMP8-10	0.500
52319021		PXMJ-AC16SF08-O		0.613	0.335	M8	0.571	0.858	PXMP13-16	0.625
52319022		PXMJ-AC20SF10-O		0.736	0.413	M10	0.707	1.043	PXMP13-16	0.750
52319023		PXMJ-AC25SF12-O		0.960	0.492	M12	0.905	1.338	PXMP21	1.000

Packed: 1 pc.
Note: Wrench included with body.
Note: PXM heads can be mounted to PHOENIX® SF Arbors by attaching the PXM SF Joint.

PXT



PXM Head + PXM SF Joint + SF Arbor SS

List 78018

NEW SIZES

PXM SS/TP (Metric)



Straight Shank

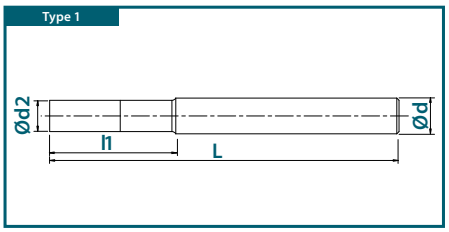


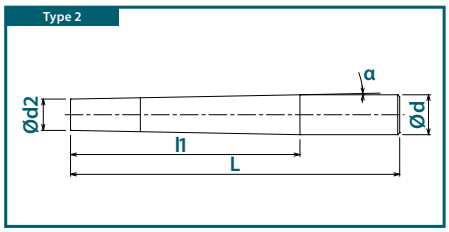
Tapered Shank

EDP No.	Body Type	Designation	Type	Neck Dia. (mm)	Shank Dia. (mm)	Taper	Overall Length (mm)	Neck Length (mm)	Applicable Head (mm)
				d2	d	α°	L	l1	
48174021	Cylindrical Shank Steel	PXMZ-C10SS10-S075	1	9.8	10	-	75	12	10
48174001		PXMZ-C12SS12-S100	1	11.7	12	-	100	19	12
48174002		PXMZ-C12TP20-S145	2	11.7	20	5°	145	47.4	
48174003		PXMZ-C16SS16-S100	1	15.7	16	-	100	23.4	16
48174004		PXMZ-C16TP25-S155	2	15.7	25	5°	155	53.1	
48174005		PXMZ-C20SS20-S120	1	19.6	20	-	120	28.8	20
48174006		PXMZ-C20TP32-S170	2	19.6	32	5°	170	70.8	
48174007		PXMZ-C25SS25-S140	1	24	25	-	140	36	25
48174022		PXMZ-C32SS32-S160	1	28	32	-	160	33	32
48174025	Cylindrical Shank Carbide	PXMZ-C10SS10-S075CS	1	9.8	10	-	75	17.3	10
48174023		PXMZ-C10SS10-L100CS	1	9.8	10	-	100	37.3	
48174026		PXMZ-C10TP12-LL130CS	2	9.8	10	0.9°	130	67	
48174008		PXMZ-C12SS12-S075CS	1	11.7	12	-	75	25	12
48174009		PXMZ-C12SS12-L100CS	1	11.7	12	-	100	46.3	
48174010		PXMZ-C12SS12-L115CS	1	11.7	12	-	115	65	
48174011		PXMZ-C12TP16-LL135CS	2	11.7	16	1.5°	135	85	
48174012		PXMZ-C16SS16-S090CS	1	15.7	16	-	90	40	16
48174013		PXMZ-C16SS16-L130CS	1	15.7	16	-	130	62	
48174014		PXMZ-C16SS16-L135CS	1	15.7	16	-	135	85	
48174015		PXMZ-C16TP20-LL165CS	2	15.7	20	1.5°	165	115	
48174016		PXMZ-C20SS20-S090CS	1	19.6	20	-	90	40	20
48174017		PXMZ-C20SS20-L150CS	1	19.6	20	-	150	79.3	
48174018		PXMZ-C20SS20-L180CS	1	19.6	20	-	180	110	
48174019		PXMZ-C20TP25-LL200CS	2	19.6	25	1.5°	200	140	
48174020		PXMZ-C25SS25-L200CS	1	24	25	-	200	98	25
48174024		PXMZ-C32SS32-L250CS	1	28	32	-	250	115.2	32

Packed: 1 pc.
Note: Wrench included with body.

PXT

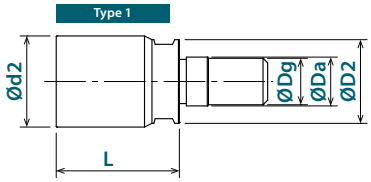




List 78018 (Continued)

PXM SF Joint (Metric)

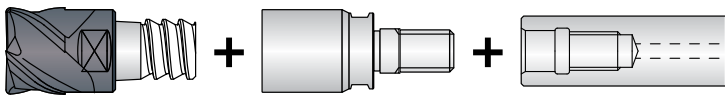




EDP No.	Body Type	Designation	Type	Neck Dia. (mm)	Pilot Dia. (mm)	Thread Dia. (mm)	Flange Dia. (mm)	Overall Length (mm)	Spanner Wrench	Applicable Head (mm)
				d2	Da	Dg	D2	L		
7801893	PXMJ (Joint)	PXMJ-C12SF06	1	11.7	6.5	M6	11.0	18	PXMP8-10	12
7801894		PXMJ-C16SF08		15.7	8.5	M8	14.5	21.8	PXMP13-16	16
7801895		PXMJ-C20SF10		19.6	10.5	M10	18	26.5	PXMP13-16	20
7801896		PXMJ-C25SF12		24	12.5	M12	23	34	PXMP21	25

Packed: 1 pc.
Note: Wrench included with body.
Note: PXM heads can be mounted to PHOENIX® SF Arbors by attaching the PXM SF Joint.

PXT



PXM Head + **PXM SF Joint** + **SF Arbor SS**

List 78035

NEW

PXM SS/TP (metric) - Coolant-Through



Straight Shank



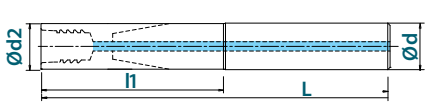
Tapered Shank

EDP No.	Body Type	Designation	Type	Neck Dia. (mm)	Shank Dia. (mm)	Taper	Overall Length (mm)	Neck Length (mm)	Applicable Head (mm)
				d2	d	α°	L	l1	
48309001	Cylindrical Shank Steel	PXMZ-C12SS12-S100-O	3	11.7	12	-	100	18	12
48309002		PXMZ-C16SS16-S100-O	3	15.7	16	-	100	23	16
48309003		PXMZ-C20SS20-S120-O	3	19.6	20	-	120	28	20
48309004		PXMZ-C25SS25-S140-O	3	24	25	-	140	34.5	25
48309005	Cylindrical Shank Carbide	PXMZ-C12SS12-S075CS-O	3	11.7	12	-	75	25	12
48309006		PXMZ-C12SS12-L100CS-O	3	11.7	12	-	100	46.3	12
48309007		PXMZ-C12SS12-L115CS-O	3	11.7	12	-	115	65	12
48309008		PXMZ-C12TP16-LL135CS-O	4	11.7	16	1.3°	135	85	12
48309009		PXMZ-C12TP16-LL150CS-O	4	11.7	16	1°	150	85.6	12
48309010		PXMZ-C16SS16-S090CS-O	3	15.7	16	-	90	40	16
48309011		PXMZ-C16SS16-L130CS-O	3	15.7	16	-	130	62	16
48309012		PXMZ-C16SS16-L135CS-O	3	15.7	16	-	135	85	16
48309013		PXMZ-C16TP20-LL165CS-O	4	15.7	20	1°	165	115	16
48309014		PXMZ-C16TP20-LL180CS-O	4	15.7	20	1°	180	116.6	16
48309015		PXMZ-C20SS20-S090CS-O	3	19.6	20	-	90	40	20
48309016		PXMZ-C20SS20-L150CS-O	3	19.6	20	-	150	79.3	20
48309017		PXMZ-C20SS20-L180CS-O	3	19.6	20	-	180	110	20
48309018		PXMZ-C20TP25-LL200CS-O	4	19.6	25	1°	200	140	20
48309019		PXMZ-C20TP25-LL210CS-O	4	19.6	25	1°	210	145	20
48309020		PXMZ-C25SS25-L200CS-O	3	24	25	-	200	98	25

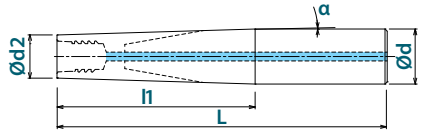
Packed: 1 pc.
Note: Wrench included with body.

PXT

Type 3



Type 4

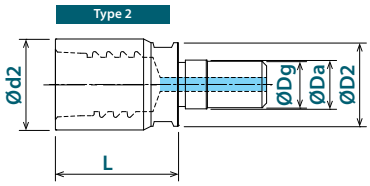


List 78035 (Continued)

NEW

PXM SF Joint (metric) - Coolant-Through

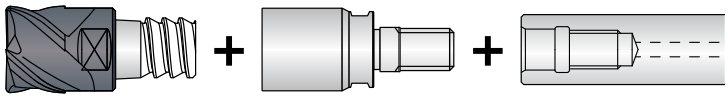




EDP No.	Body Type	Designation	Type	Neck Dia. (mm)	Pilot Dia. (mm)	Thread Dia. (mm)	Flange Dia. (mm)	Overall Length (mm)	Spanner Wrench	Applicable Head (mm)
				d2	Da	Dg	D2	L		
7803551	PXMJ Joint	PXMJ-C12SF06-O	2	11.7	6.5	M6	11	18	PXMP8-10	12
7803552		PXMJ-C16SF08-O		15.7	8.5	M8	14.5	21.8	PXMP13-16	16
7803553		PXMJ-C20SF10-O		19.6	10.5	M10	18	26.5	PXMP13-16	20
7803554		PXMJ-C25SF12-O		24	12.5	M12	23	34	PXMP21	25

Packed: 1 pc.
Note: Wrench included with body.
Note: PXM heads can be mounted to PHOENIX® SF Arbors by attaching the PXM SF Joint.

PXT



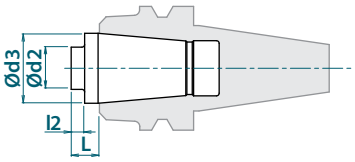
PXM Head + PXM SF Joint + SF Arbor SS

List 78340

PXMC (Metric)







EDP No.	Body Type	Designation	Neck Dia. (mm)	Body Dia. (mm)	Projection Length (mm)	Neck Length (mm)	Applicable Head (mm)
			d2	d3	L	l2	
7834001	Extra-Short	PXMC-C1205	11.7	26	10.5	5	12
7834002		PXMC-C1605	15.7	26	10.5	5	16
7834003		PXMC-C2005	19.6	26	10.5	5	20
7834004		PXMC-C2505	24	26	10.5	5	25
7834011	Short	PXMC-C1230	11.7	26	35.5	30	12
7834012		PXMC-C1630	15.7	26	35.5	30	16
7834013		PXMC-C2030	19.6	26	35.5	30	20
7834014		PXMC-C2530	24	26	35.5	30	25

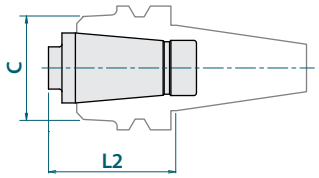
Packed: 1 pc.
Note: The PXMC collet is compatible with the HYPRO Shrink Collet System.
Note: Wrench sold seperately.

PXT

HY-PRO® Shrink

2 Piece Base Holders



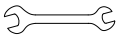


EDP No.	Body Type	Designation	Nose Diameter (mm)	Gage Length (mm)	
			C	L2	
				Extra-Short	Short
9910002	CAT40	CT40-SLK12-45	40.9	45.5	70.5
8910000	BT30	BT30-SLK12-35 - 45 Deg.	38	45.5	70.5
8910001		BT30-SLK12-35 - 60 Deg.	38	45.5	70.5
8910002	BT40	BT40-SLK12-45	38	55.5	80.5
8910003		BT40-SLK12-75	38	85.5	110.5
9910005	HSK-E50	HSK-E50-SLK12-75	38	85.5	110.5
8910005	HSK-A63	HSK-A63-SLK12-75	38	85.5	110.5
8910006		HSK-A63-SLK12-135	38	145.5	170.5

Packed: 1 pc.
Note: For more information, see p1523.

List 7808H

PXM Accessories

Appearance	EDP No.	Designation	Applicable Head		Recommended Tightening
			(inch)	(mm)	
 Spanner Wrench	7801890	PXMP8-10	0.375	10-12	10.0 Nm
			0.500	12-14	12.0 Nm
	7801891	PXMP13-16	0.625	16-18	30.0 Nm
			0.750	20-22	50.0 Nm
	7801892	PXMP21	1.000	25	60.0 Nm
	7801897	PXMP24	1.250	32	60.0 Nm

Packed: Wrench = 1 pc.

PXT

Cutting Conditions (PXSE & PXSE-O)

Side milling

Hardness			Up to 30 HRC		30-45 HRC		45-55 HRC			
Work Material		Mild Steels Carbon Steels Cast Iron	Alloy Steels Tool Steels		Stainless Steels Hardened Steels		Hardened Steels Titanium Alloys		Heat Resistant Alloys Inconel	
Depth of Cut		Aa=0.5Dc • Ar=0.15Dc			Aa=0.5Dc • Ar=0.1Dc		Aa=0.5Dc • Ar=0.05Dc			
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	4000	38.00	3350	31.83	2175	20.70	2175	17.38	840	5.38
-	10	3810	36.22	3190	30.31	2070	19.70	2070	16.54	800	5.12
-	12	3180	29.92	2650	25.20	1700	15.75	1700	13.78	650	3.94
1/2	-	3010	28.29	2450	23.28	1590	14.95	1590	12.72	620	3.78
5/8	-	2410	22.65	1955	18.57	1270	11.94	1270	10.16	495	3.07
-	16	2390	22.44	1950	18.50	1250	11.81	1250	9.84	500	3.15
3/4	-	2000	18.80	1630	15.49	1060	10.39	1060	8.48	410	2.62
-	20	1910	18.11	1550	14.57	1000	9.84	1000	7.87	400	2.56
-	25	1530	14.57	1240	11.81	800	7.87	800	6.30	320	1.97
1	-	1500	14.10	1225	11.64	790	7.74	790	6.25	310	1.89

1. Cutting conditions shown above are for side milling with L/D ≤ 3.5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 3.5xD.

Slotting

Hardness			Up to 30 HRC		30-45 HRC		45-55 HRC			
Work Material		Mild Steels Carbon Steels Cast Iron	Alloy Steels Tool Steels		Stainless Steels Hardened Steels		Hardened Steels Titanium Alloys		Heat Resistant Alloys Inconel	
Depth of Cut		Aa≤0.35Dc			Aa≤0.3Dc		Aa≤0.2Dc		Aa≤0.1Dc	
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	3185	25.23	3185	25.23	1680	13.23	1680	10.75	840	5.38
-	10	3030	24.00	3030	24.00	1600	12.60	1600	10.24	800	5.12
-	12	2500	19.69	1550	11.81	1300	9.84	1300	9.84	650	3.94
1/2	-	2350	18.49	1450	11.02	1240	9.42	1240	9.42	620	3.78
5/8	-	1875	14.76	1160	9.98	1010	7.88	1010	7.88	495	3.07
-	16	1850	13.78	1150	9.84	1000	7.87	1000	7.87	500	3.15
3/4	-	1565	12.32	990	8.22	790	6.64	790	6.64	410	2.62
-	20	1500	11.81	950	7.87	750	6.30	750	6.30	400	2.56
-	25	1200	9.45	760	6.30	600	5.12	600	5.12	320	1.97
1	-	1170	9.21	745	6.18	590	5.02	590	5.02	310	1.89

1. Cutting conditions shown above are for slotting with L/D ≤ 3.5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 3.5xD.

Cutting Conditions (PXVC)

Side milling

Hardness				Up to 30 HRC		30-45 HRC		45-55 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Stainless Steels Hardened Steels		Hardened Steels Titanium Alloys	
Depth of Cut		Aa=0.5Dc • Ar=0.2Dc				Aa=0.5Dc • Ar=0.1Dc		Aa=0.5Dc • Ar=0.05Dc	
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	5020	47.50	4010	38.00	3350	31.80	2680	25.65
-	10	4780	45.28	3820	36.22	3190	30.31	2550	24.41
-	12	3980	37.80	3190	30.31	2660	25.20	2130	20.47
1/2	-	3780	35.83	3020	28.63	2520	23.90	2010	19.30
-	14	3420	32.68	2730	25.98	2280	21.65	1820	17.32
5/8	-	3025	28.67	2410	22.85	2015	19.10	1610	15.46
-	16	2990	28.35	2390	22.83	1990	18.90	1600	15.35
-	18	2660	25.20	2130	20.47	1770	16.93	1420	13.78
3/4	-	2520	23.90	2010	19.05	1680	15.93	1340	12.86
-	20	2390	22.83	1910	18.11	1600	15.35	1280	12.20
-	22	2180	20.87	1740	16.54	1450	13.78	1160	11.00
-	25	1910	18.11	1530	14.57	1280	12.20	1020	9.84
1	-	1890	17.92	1510	14.31	1260	11.95	1000	9.60
1 1/4 (5F)	-	1515	15.10	1210	9.53	1010	9.94	805	6.34
1 1/4 (8F)	-	1515	19.09	1210	15.48	1010	12.73	805	10.30
-	32 (5F)	1500	14.96	1200	9.45	1000	9.84	800	6.30
-	32 (8F)	1500	18.90	1200	15.35	1000	12.60	800	10.24

1. Cutting conditions shown above are for side milling with L/D ≤ 5xD
2. For side milling with 5xD < L/D ≤ 6xD, reduce Speed and Feed by 10%
3. For side milling with 6xD < L/D ≤ 7xD, reduce Speed & Feed by 20%
4. For side milling with PXMC Extra-Short Collet, increase Speed by 30-40% and Feed by 40-80%
5. For side milling with PXMC Short Collet, increase Speed by 10-20% and Feed by 20-30%

Slotting

Hardness				Up to 30 HRC		30-45 HRC		45-55 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Stainless Steels Hardened Steels		Hardened Steels Titanium Alloys	
Depth of Cut		Aa≤0.5Dc		Aa≤0.4Dc		Aa≤0.3Dc			
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	5020	39.70	4010	31.82	3340	26.47	2510	19.85
-	10	4780	37.80	3820	30.31	3180	25.20	2390	18.90
-	12	3980	31.50	3180	25.20	2650	20.87	1990	15.75
1/2	-	3760	29.61	3010	23.70	2505	19.72	1870	14.72
-	14	3410	26.77	2730	21.65	2270	17.72	1710	13.38
5/8	-	3010	23.70	2410	18.98	2005	15.79	1500	11.81
-	16	2980	23.62	2390	18.90	1990	15.75	1490	11.81
-	18	2650	20.87	2120	16.53	1770	13.78	1330	10.63
3/4	-	2505	19.72	2010	15.83	1670	13.15	1250	9.84
-	20	2390	18.90	1910	14.96	1590	12.60	1190	9.45
-	22	2170	16.93	1740	13.78	1450	11.42	1090	8.66
-	25	1910	14.96	1530	12.20	1270	9.84	950	7.48
1	-	1880	14.80	1505	11.85	1250	9.70	935	7.36

1. Cutting conditions shown above are for slotting with L/D ≤ 5xD.
2. For slotting with 5xD < L/D ≤ 6xD, reduce Speed and Feed by 20%.
3. For slotting with 6xD < L/D ≤ 7xD, reduce Speed & Feed by 35%.
4. For slotting with PXMC Extra-Short Collet, increase Speed by 10-20% and Feed by 10-50%.
5. For slotting with PXMC Short Collet, increase Feed by 15-30%.
6. Slotting with Ø1 1/4" or Ø32mm PXVC is not recommended due to the large number of flutes.

Cutting Conditions (PXSM)

Side milling

Hardness				Up to 30 HRC		30-45 HRC		45-55 HRC			
Work Material		Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Stainless Steels Hardened Steels		Hardened Steels Titanium Alloys		Heat Resistant Alloys Inconel	
Depth of Cut		Aa≤0.5Dc • Ar≤0.05Dc				Aa≤0.5Dc • Ar≤0.02Dc		Aa≤0.3Dc • Ar≤0.02Dc			
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	6020	91.36	5020	59.55	4010	47.53	3350	39.70	2000	17.32
-	10	5730	81.50	4780	56.70	3820	45.28	3190	37.80	1910	16.54
-	12	4750	68.90	3950	45.28	3150	37.40	2650	31.50	1550	13.78
1/2	-	4485	65.03	3725	42.84	2980	35.16	2500	29.75	1450	12.91
5/8 (6F)	-	3590	52.06	2970	34.16	2385	28.38	1955	23.66	1160	10.32
5/8 (8F)	-	3590	69.65	2970	45.44	2385	37.92	1955	31.67	1160	13.92
-	16 (6F)	3550	51.57	2950	33.86	2350	27.95	1950	23.62	1150	10.24
-	16 (8F)	3550	68.90	2950	45.28	2350	37.40	1950	31.50	1150	13.78
3/4	-	2990	71.76	2475	47.52	1985	39.10	1630	33.09	995	14.43
-	20	2850	68.90	2350	45.28	1900	37.40	1550	31.50	950	13.78
-	25	2280	55.12	1880	36.22	1520	29.92	1240	25.20	760	11.02
1	-	2240	54.21	1855	35.80	1490	29.35	1220	24.77	745	10.80

1. Cutting conditions shown above are for side milling with L/D ≤ 3.5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 3.5xD.

Cutting Conditions (PXNL, PXNL-O, PXNH & PXNH-O)

Side milling

Work Material		Cast Iron		Carbon Steels		Alloy Steels		Hardened Steels Pre-hardened Steels		Stainless Steels	
Depth of Cut		Aa=0.5Dc • Ar=0.3Dc				Aa=0.5Dc • Ar=0.2Dc					
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	3000	29.74	4010	34.71	3340	21.50	3000	14.45	2680	11.56
-	10	2860	28.35	3820	33.07	3180	20.47	2860	13.78	2550	11.00
-	12	2390	23.62	3180	27.56	2650	17.32	2390	11.42	2120	9.06
1/2	-	2255	22.32	3000	26.10	2500	16.25	2255	10.82	2000	8.60
5/8	-	1800	24.48	2400	28.56	2000	17.80	1800	11.88	1600	9.44
-	16	1790	24.41	2390	28.35	1990	17.72	1790	11.81	1590	9.45
3/4	-	1500	27.30	2000	31.40	1670	19.87	1500	12.75	1335	10.28
-	20	1430	25.98	1910	29.92	1590	18.90	1430	12.20	1270	9.84
-	25	890	17.72	1270	22.05	1020	13.38	890	8.66	760	6.69
1	-	875	17.41	1250	21.75	1000	13.10	875	8.49	745	6.56

1. Cutting conditions shown above are for side milling with L/D ≤ 3.5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 3.5xD.
3. For side milling with PXMC Extra-Short Collet, increase Speed by 20-80% and Feed by 20-100%.
4. For side milling with PXMC Short Collet, increase Speed by 30-50% and Feed by 10-80%.

Slotting

Work Material		Cast Iron		Carbon Steels		Alloy Steels		Hardened Steels Pre-hardened Steels		Stainless Steels	
Depth of Cut		Aa=0.5Dc									
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	2345	14.90	3340	18.61	2680	11.17	2345	7.05	2000	5.36
-	10	2230	14.17	3180	17.72	2550	10.63	2230	6.70	1910	5.12
-	12	1860	11.81	2650	14.57	2120	8.66	1860	5.51	1590	4.33
1/2	-	1750	11.03	2505	13.78	2000	8.20	1750	5.08	1500	4.05
5/8	-	1400	12.74	2005	15.84	1600	9.44	1400	5.88	1200	4.80
-	16	1390	12.60	1990	15.75	1590	9.45	1390	5.91	1190	4.72
3/4	-	1165	14.91	1670	18.54	1335	11.21	1165	6.99	1000	5.40
-	20	1110	14.17	1590	17.72	1270	10.63	1110	6.69	950	5.12
-	25	760	11.02	1150	14.57	890	8.27	760	5.12	640	3.94
1	-	745	10.80	1130	14.35	875	8.14	745	4.99	630	3.84

1. Cutting conditions shown above are for slotting with L/D ≤ 3.5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 3.5xD.
4. For sloting with PXMC Extra-Short Collet, increase Speed by 20-80% and Feed by 50-250%.
5. For slotting with PXMC Short Collet, increase Speed by 20-50% and Feed by 30-200%.

Cutting Conditions (PXRE)

Contouring

Hardness		–		Up to 30 HRC		30-45 HRC		45-55 HRC		55-60 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Hardened Steels Pre-hardened Steels		Hardened Steels		Hardened Steels	
Depth of Cut		Aa=0.1r • Ar=0.3Dc									
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	6695	529.65	5045	322.77	4100	248.33	3465	169.49	2940	111.61
-	10	6370	503.94	4800	307.10	3900	236.22	3300	161.42	2800	106.30
-	12	5800	417.32	4000	255.91	3200	192.91	2700	129.92	2300	86.61
1/2	-	5475	393.65	3780	241.92	3020	182.11	2535	121.93	2170	81.59
5/8	-	4035	472.50	3025	305.53	2415	233.77	2030	155.90	1735	108.44
-	16	4000	468.50	3000	303.15	2400	232.28	2000	153.54	1700	106.30
3/4	-	3360	394.80	2520	268.63	2010	204.02	1690	137.23	1445	89.45
-	20	3200	375.98	2400	255.91	1900	192.91	1600	129.92	1400	86.61
-	25	2560	294.40	1920	192.00	1535	145.80	1280	102.40	1100	68.75
1	-	2520	289.80	1890	189.00	1510	143.45	1260	100.80	1090	67.50

1. Cutting conditions shown above are for contouring with L/D ≤ 3.5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 3.5xD.

Cutting Conditions (PXDR-P)

Contouring

Hardness		–		Up to 30 HRC		30-45 HRC		45-55 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron		Alloy Steels Tool Steels		Stainless Steels Hardened Steels		Hardened Steels	
Depth of Cut		Aa=0.05r • Ar=0.25Dc						Aa=0.03r • Ar=0.25Dc	
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	5010	148.00	5010	118.26	5010	88.90	5010	59.13
-	10	4770	140.95	4770	112.60	4770	84.65	4770	56.30
-	12	3980	117.32	3980	94.10	3980	70.47	3980	46.85
1/2	-	3780	111.60	3780	89.30	3780	66.97	3780	44.65
5/8	-	3025	89.32	3025	74.45	3025	53.59	3025	35.73
-	16	2980	88.19	2980	70.47	2980	52.75	2980	35.43
3/4	-	2520	74.40	2520	59.53	2520	44.65	2520	29.76
-	20	2390	70.47	2390	56.30	2390	42.12	2390	28.35
-	25	1920	56.64	1920	45.12	1920	33.98	1920	22.46
1	-	1890	55.75	1890	44.41	1890	33.45	1890	22.11

1. Cutting conditions shown above are for contouring with L/D ≤ 5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 5xD.

Cutting Conditions (PXDR-N)

Contouring

Hardness		Up to 30 HRC		30-45 HRC		45-55 HRC		55-60 HRC	
Work Material		Alloy Steels Tool Steels		Stainless Steels Hardened Steels		Hardened Steels		Hardened Steels	
Depth of Cut		Aa=0.03r • Ar=0.25Dc						Aa=0.02r • Ar=0.2Dc	
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	5010	148.00	4010	94.64	3340	47.56	3340	39.28
-	10	4770	140.95	3820	90.16	3180	45.28	3180	37.40
-	12	3980	117.32	3180	75.20	2650	37.40	2650	31.50
1/2	-	3780	111.60	3020	71.34	2520	34.72	2520	29.76
5/8	-	3025	89.32	2415	57.05	2015	28.56	2015	23.80
-	16	2980	88.19	2390	56.30	1990	28.35	1990	23.62
3/4	-	2520	74.40	2010	47.48	1680	23.15	1680	19.84
-	20	2390	70.47	1910	45.27	1590	22.44	1590	18.90
-	25	1920	56.64	1535	36.07	1275	17.85	1275	15.05
1	-	1890	55.75	1500	35.25	1250	17.50	1250	14.75

1. Cutting conditions shown above are for contouring with L/D ≤ 5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 5xD.

Cutting Conditions (PXBE-P & PXBE-P-O)

Contouring

Hardness			Up to 30 HRC		30-45 HRC		45-55 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron	Alloy Steels Tool Steels		Stainless Steels Hardened Steels		Hardened Steels Titanium Alloys	
Depth of Cut		≤Ø0.500: Aa=0.07Dc • Ar=0.15Dc ≥Ø0.625: Aa=0.10Dc • Ar=0.15Dc					≤Ø0.500: Aa=0.05Dc • Ar=0.1Dc ≥Ø0.625: Aa=0.03Dc • Ar=0.1Dc	
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	5010	88.90	4010	71.10	3340	59.13	3340	39.28
-	10	4770	84.65	3820	67.72	3180	56.30	3180	37.40
-	12	3980	70.47	3180	56.30	2650	46.85	2650	31.50
1/2	-	3780	66.97	3020	53.50	2520	44.65	2520	29.76
5/8	-	3025	53.60	2415	42.78	2015	35.70	2015	23.80
-	16	2980	52.75	2390	42.12	1990	35.43	1990	23.62
3/4	-	2520	44.65	2010	35.61	1680	29.76	1680	19.84
-	20	2390	42.12	1910	33.86	1590	28.35	1590	18.90
-	25	1920	33.98	1535	27.17	1275	22.57	1275	15.05
1	-	1890	33.45	1500	26.55	1250	22.12	1250	14.75

1. Cutting conditions shown above are for contouring with L/D ≤ 5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 5xD.

Cutting Conditions (PXBE-N & PXBE-N-O)

Contouring

Hardness			Up to 30 HRC		30-45 HRC		45-55 HRC		55-60 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron	Alloy Steels Tool Steels		Hardened Steels Pre-hardened Steels		Hardened Steels		Hardened Steels	
Depth of Cut		≤Ø0.500: Aa=0.07Dc • Ar=0.15Dc ≥Ø0.625: Aa=0.05Dc • Ar=0.15Dc					≤Ø0.500: Aa=0.05Dc • Ar=0.1Dc ≥Ø0.625: Aa=0.03Dc • Ar=0.1Dc		Aa=0.03Dc • Ar=0.05Dc	
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	8360	148.00	8360	148.00	6695	94.76	5010	59.13	3340	19.85
-	10	7960	140.95	7960	140.95	6370	90.16	4770	56.30	3180	18.90
-	12	6600	116.14	6600	116.14	5300	74.80	3950	45.27	2600	15.75
1/2	-	6235	109.74	6235	109.74	4970	70.08	3715	42.72	2230	13.38
5/8	-	4990	89.32	4990	89.32	3975	57.24	2970	35.64	1925	11.94
-	16	4950	88.58	4950	88.58	3950	57.09	2950	35.43	1900	11.81
3/4	-	4155	72.30	4155	72.30	3310	47.66	2475	31.19	1680	10.25
-	20	3950	68.90	3950	68.90	3150	45.27	2350	29.53	1600	9.84
-	25	3160	55.30	3160	55.30	2520	36.29	1880	23.50	1280	7.68
1	-	3110	54.42	3110	54.42	2485	35.78	1850	23.12	1260	7.56

1. Cutting conditions shown above are for contouring with L/D ≤ 3.5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 3.5xD.

Cutting Conditions (PXBM)

Contouring

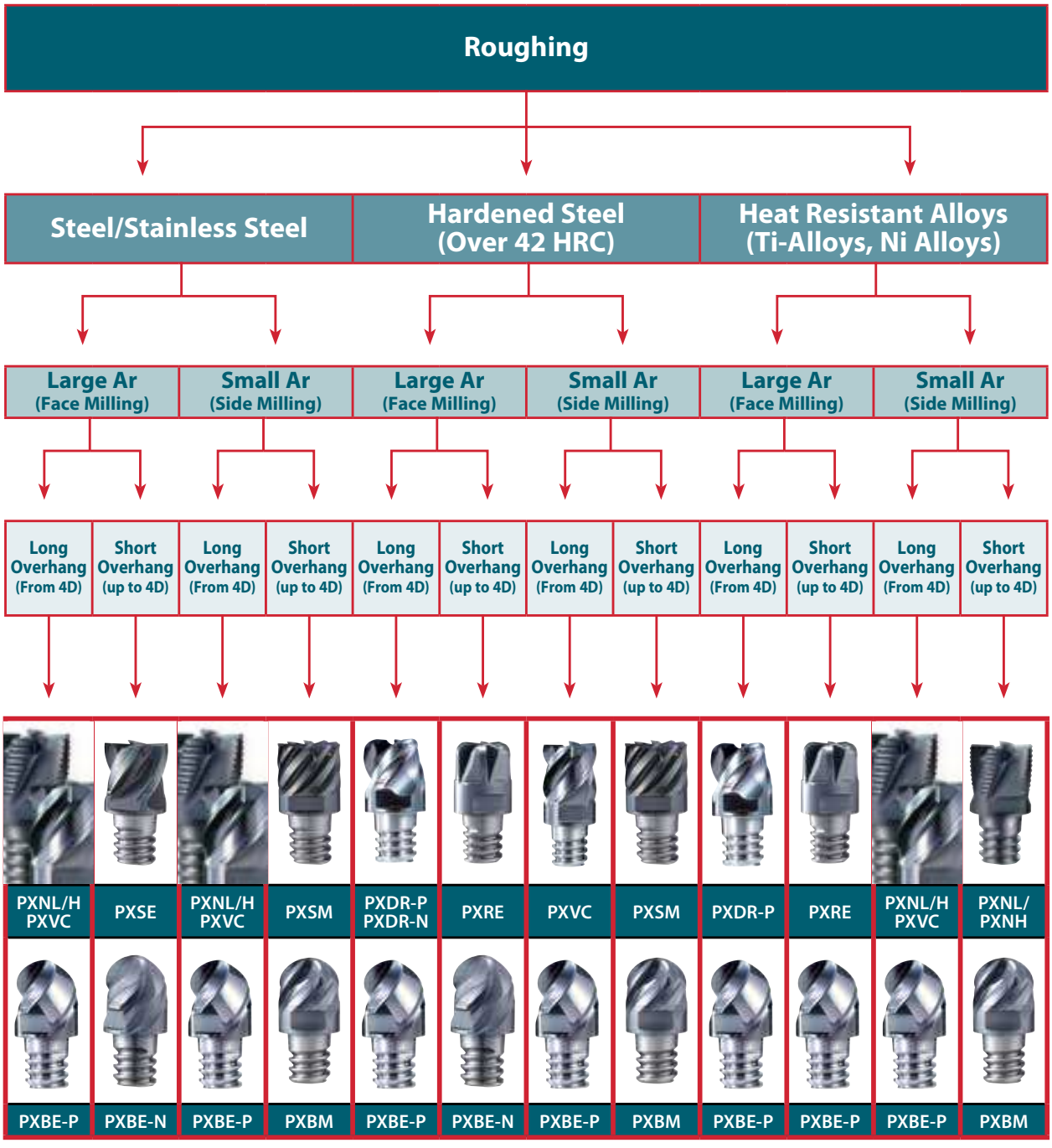
Hardness			Up to 30 HRC		30-45 HRC		45-55 HRC		55-60 HRC	
Work Material		Mild Steels Carbon Steels Cast Iron	Alloy Steels Tool Steels		Hardened Steels Pre-hardened Steels		Hardened Steels		Hardened Steels	
Depth of Cut		Aa=0.02Dc • Ar=0.05Dc								
Mill Dia. (in)	Mill Dia. (mm)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)	Speed (RPM)	Feed (in/min)
3/8	-	8360	197.24	8360	197.24	6695	126.40	5010	78.98	3340	26.47
-	10	7960	187.80	7960	187.80	6360	120.08	4770	75.20	3180	25.20
-	12	6600	153.54	6600	153.54	5300	98.42	3950	59.05	2600	21.65
1/2	-	6235	145.28	6235	145.28	4970	92.44	3715	55.35	2230	18.51
5/8	-	4990	178.64	4990	178.64	3975	114.88	2970	71.28	1925	23.87
-	16	4950	177.16	4950	177.16	3950	114.17	2950	70.87	1900	23.62
3/4	-	4155	145.01	4155	145.01	3310	95.00	2475	62.12	1680	20.66
-	20	3950	137.79	3950	137.79	3150	90.55	2350	59.05	1600	19.68
-	25	3160	110.60	3160	110.60	2520	71.82	1880	47.00	1280	15.75
1	-	3110	108.85	3110	108.85	2485	70.82	1850	46.25	1260	15.50

1. Cutting conditions shown above are for contouring with L/D ≤ 3.5xD.
2. Adjust/reduce the cutting conditions when the overhang length is longer than 3.5xD.

PXM Head Selector

» Roughing Operations

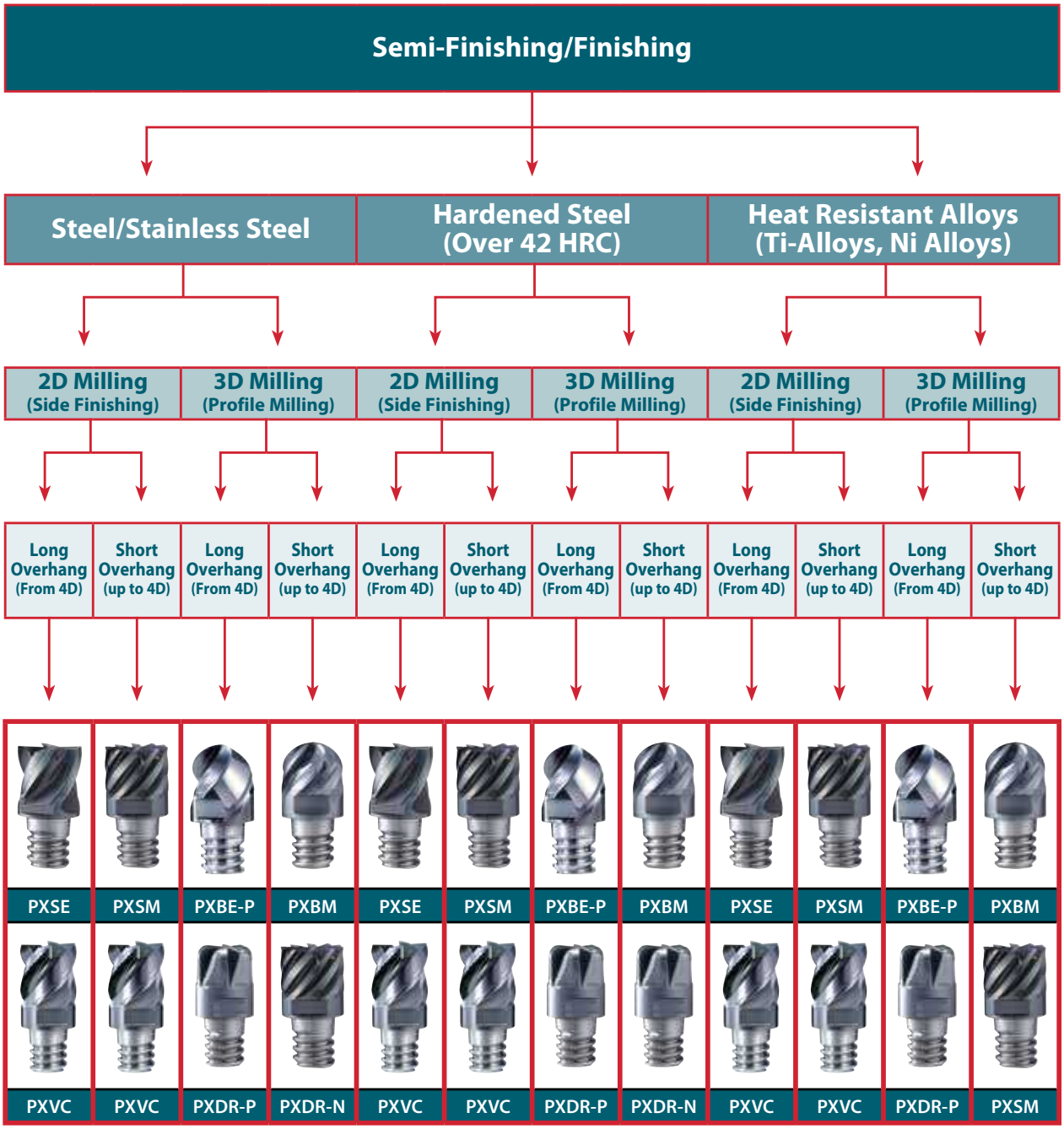
A guide for selecting head type based on application.



PXM Head Selector

» Semi-Finishing/Finishing Operations

A guide for selecting head type based on application.

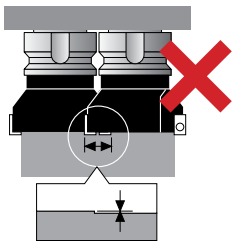




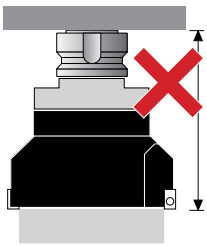
Revolutionary Face Milling Cutter for Small Machines

Roughing	DISC CUTTER® S
Finishing	DISC CUTTER® Pro

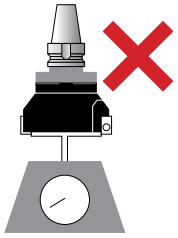
Why do we need the DISC CUTTER®?



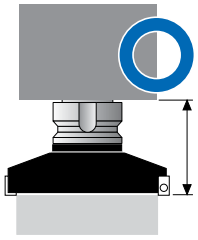
Multiple passes on large, wide work pieces are required for small diameter cutter bodies which result in blend lines on the finished part.



Larger cutter bodies remove material in fewer passes, but are typically heavier, requiring more weight and protrusion from the arbor.



On smaller machines, the total tool weight allowance including the arbor is 3kg (6.6lbs). A conventional 125mm cutter is too heavy for these machines.



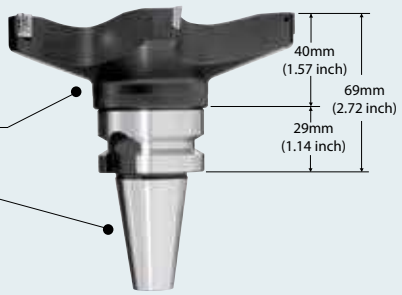
OSG's Solution

EXOCARB® DISC CUTTER® solves these issues by designing a lighter, large diameter cutter without sacrificing rigidity.

Thin, Light and Steel Body

DISC CUTTER® S, ϕ125mm = 1.0kg (2.2lbs)
DISC CUTTER® PRO, ϕ125mm = 1.3kg (2.86lbs)

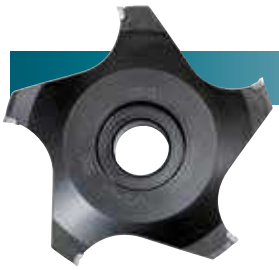
Arbor = 0.6kg (1.32lbs)



Less than 1/2 of the weight compared to competitors.

Short reach results in high rigidity.

High rigidity allows High - Speed & Feed milling.



DISC CUTTER® S

- Roughing
- Carbide Insert
- No Height Adjustment





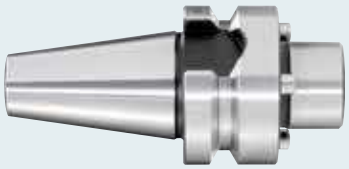
DISC CUTTER® PRO

- Finishing
- PCD Brazed Insert
- Height Adjustment



Arbors





3 pin technology securely supports the cutter body while minimizing gage length.





Optional Internal Coolant Supply Clamping Bolt

The internal coolant supply improves surface finish and tool life by cooling the cutting edge & evacuating the chips.

Performance

DISC CUTTER®S	
Tool	DC-S 125 x SL x 5J (125mm)
Insert	Carbide
Work Material	A7075
Speed	8,000 RPM
Feed	158 IPM (0.004 inch/t)
Depth of Cut	3mm (0.120 in)
Width of Cut	100mm (4.000 in)
Machine	Vertical Machining Center BT30 5.5kw

MRR : 1,200cm³/Min

DISC CUTTER®PRO	
Tool	DC-P 125 x SL x 5J (125mm)
Insert	PCD
Work Material	A7075
Speed	5,000 RPM
Feed	100 IPM (0.004 inch/t)
Depth of Cut	0.5mm (0.02 in)
Width of Cut	100mm (4.000 in)
Machine	Vertical Machining Center BT30 5.5kw

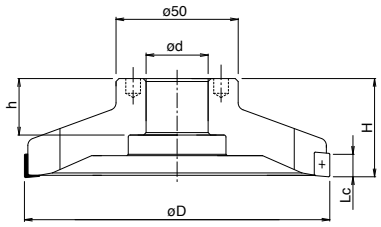
Surface Roughness : Ra 0.171um

List 6440

DISC CUTTER® S for Roughing

SPEED FEED P1505





EDP No.	Designation	Cutter Diameter D		No. of Teeth	Height H		Length of Cut Lc		Bore Diameter d		Weight		Max. RPM
		(mm)	(inch)		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(kg)	(lb)	
8070255	80xSLx4J	80	3.150	4	40	1.575	9	0.354	25.4	1.000	0.44	0.97	15,000
8070256	100xSLx4J	100	3.937	4	40	1.575	9	0.354	25.4	1.000	0.60	1.32	13,400
8070257	125xSLx5J	125	4.921	5	40	1.575	9	0.354	25.4	1.000	1.00	2.20	12,000

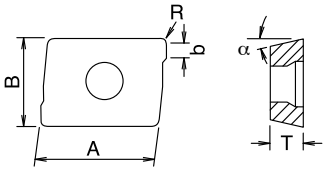
Accessories are included.
Packed: 1 pc.

HTE

List 6442

DISC CUTTER® S Inserts



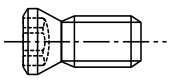
EDP No.	Description	No. of Cutting Edges	Insert Size					Grade
			AxB (mm)	T (mm)	α	R (mm)	b (mm)	
8033300	APHT0903PPR-73	2	9.52 x 6.75	3.18	11°	0.4	1.5	K10T
8059301	APKT0903PPR-52	2	9.52 x 6.75	3.18	11°	0.4	1.2	K15CA
8091278	APMT0903PPR-F56	2	9.52 x 6.75	3.18	11°	0.4	1.2	WQM25

Packed: 10 pcs.

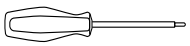
HTE

Accessories

DISC CUTTER® S Accessories

	EDP No.	Description
 Clamping Screw	8009023	FS923

Packed: 10 pcs.

	EDP No.	Description
 Screwdriver	7808205	FS230

Packed: 1 pc.

HTE

Recommended Materials by Application

Insert Grade	Chip Breaker	P	M	K	N	S
K10T	25°				▣	
K15CA	16°			▣		
WQM25	16°	▣	▣			▣

▢ good ▣ best

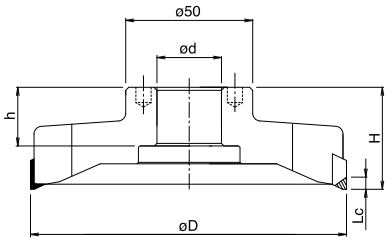
List 6441

DISC CUTTER® PRO for Finishing

DISC CUTTER PRO

SPEED FEED P1506





EDP No.	Designation	Cutter Diameter D		No. of Teeth	Height H		Length of Cut Lc		Bore Diameter d		Weight		Max. RPM
		(mm)	(inch)		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(kg)	(lb)	
8070265	80xSLx3J	80	3.150	3	40	1.575	4	0.157	25.4	1.000	0.48	1.06	15,500
8070266	100xSLx4J	100	3.937	4	40	1.575	4	0.157	25.4	1.000	0.70	1.54	13,800
8070267	125xSLx5J	125	4.921	5	40	1.575	4	0.157	25.4	1.000	1.30	2.87	12,400

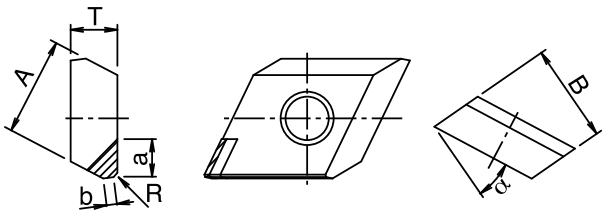
Accessories are included.
Packed: 1 pc.

HTE

List 6541

DISC CUTTER® PRO Inserts





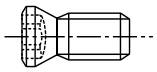
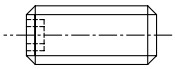
EDP No.	Description	No. of Cutting Edges	Insert Size						Grade
			AxB (mm)	T (mm)	α	R (mm)	b (mm)	a (mm)	
8080801	XOHW1104PDR	1	9.52x9.52	4.76	30°	0.4x45°	4	1.1	PCD

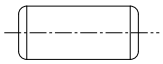
Packed: 1 pc.

HTE

Accessories

DISC CUTTER® PRO Accessories

	EDP No.	Description
 Clamping Screw	8008626	FS326
 Adjusting Bolt	8008747	FS747
 Set Screw	8009063	FS963

	EDP No.	Description
 Pad	8008748	FS748
 Wrench	7808208	T150 (Torx 15)

Packed: Clamping Screws = 10 pcs.; Adjusting Bolts = 10 pcs.; Set Screws = 10 pcs.; Pads = 10 pcs.; Screwdriver = 1 pc.

HTE

Recommended Materials by Application

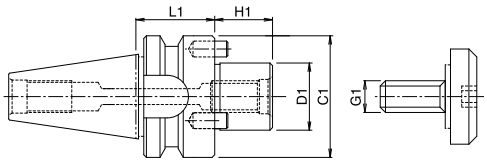
Insert Grade	Chip Breaker	P	M	K	N	S
PCD	–				▢	

▢ good ▢ best

List 6640

DISC CUTTER® Arbor



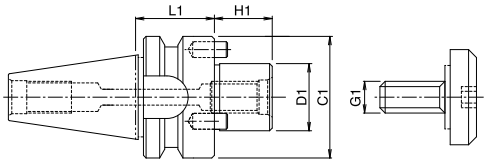


BT30

EDP No.	Description	D1		L1		C1		H1		G1	Weight	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		(kg)	(lb)
99640	BT30-FMOA25.4-29	25.4	1.000	29	1.142	46	1.811	19	0.748	M12	0.60	1.32

Packed: 1 pc.



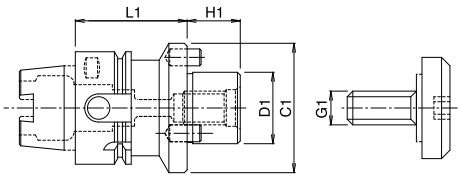


CAT 40

EDP No.	Description	D1		L1		C1		H1		G1	Weight	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		(kg)	(lb)
664001	CAT40-FM0A25.4-49	25.4	1.000	35	1.378	44.45	1.750	19	0.748	M12	1.10	2.43

Packed: 1 pc.





HSK40A

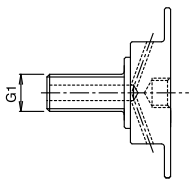
EDP No.	Description	D1		L1		C1		H1		G1	Weight	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)		(kg)	(lb)
99634	HSK40A-FMOA25.4-49	25.4	1.000	49	1.929	46	1.811	19	0.748	M12	0.60	1.32

Packed: 1 pc.

Accessories

Clamping Bolt for Coolant-Through Spindles (Optional)





EDP No.	Description	G1
99632	Coolant-Through Clamping Bolt (MBAH-M12)	M12

Packed: 1 pc.

Cutting Conditions (Roughing)

DISC CUTTER® S

DISC CUTTER® S — Roughing

Work Material	Cutting Speed (RPM)	Feed Rate (Inch/Tooth)
Carbon Steel 1018, 1050	325 - 1,050	0.0021 - 0.0060
Stainless Steel 300, 400	300 - 865	0.0018 - 0.0042
Cast Iron	450 - 5,100	0.0027 - 0.0098
Ductile Cast Iron	375 - 4,100	0.0027 - 0.0098
Aluminum A5052, A7075	3,280 - 10,000	0.0027 - 0.0098
Aluminum Alloy Casting ~ 13% Si	3,280 - 10,000	0.0027 - 0.0098
Aluminum Alloy Casting 13% Si ~	300 - 2,500	0.0027 - 0.0098
Copper	800 - 6,800	0.0027 - 0.0098

DISC CUTTER S



Cutting Conditions (Finishing)

DISC CUTTER® PRO

DISC CUTTER® PRO — Finishing

Work Material	Cutting Speed (RPM)	Feed Rate (Inch/Tooth)
Aluminum A5052, A7075	3,280 - 13,120	0.0027 - 0.0059
Aluminum Alloy Casting ~ 13% Si	3,280 - 13,120	0.0027 - 0.0059
Aluminum Alloy Casting 13% Si ~	300 - 2,500	0.0027 - 0.0059
Copper	800 - 6,800	0.0027 - 0.0059



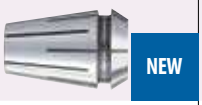
OSG PHOENIX®





HOLDERS



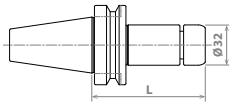
List	Product		Page	Inch/Metric	Tool Features
SynchroMaster					
9950	SynchroMaster Tap Holders	 NEW	1511	Inch/Metric	BT30, BT40, HSK40A, HSK63A, ST20D*, ST25D*, and CAT40 Micro Float Tap Holders for rigid tapping (*Straight Shank)
9953	SynchroMaster Collet	 NEW	1511	Inch/Metric	ER16 Sealed Collets for coolant-through without sealing disc
9955	SynchroMaster Accessories	 NEW	1512	–	
***HY-PRO*® SHRINK**					
–	HR-B Handy Unit		1513-1515	-	General Purpose Shrink Device - By Hot Air & Accessories
–	HSK Mono Series Holders		1521-1522	Metric	HSK-E25, HSK-E32, and HSK-E40 Holders for standard coolant-through the tool operations.
–	Base Holders: 2pc Series		1523	Inch/Metric	Base Holders for general purpose & coolant-through the tool operations - BT, CT, and HSK.
–	Nozzle Holders		1524	Inch/Metric	Nozzle Type Holders for coolant-through the holder operations - BT, CT, and HSK.
–	Regular Extensions		1525	Inch/Metric	Regular Type Shrink Extensions for general purpose & coolant-through the tool operations.
–	Flush Type Extensions		1526	Inch/Metric	Flush Type Shrink Extensions for coolant-through the collet operations.
–	Slim Type Extensions		1527-1528	Inch/Metric	Slim Type Shrink Extensions for long reach & coolant-through the tool operations.
–	Straight Regular Extensions		1529	Inch/Metric	Straight Regular Type Shrink Extensions for standard milling / end mill chucks.
–	Straight Slim Extensions		1530-1531	Inch/Metric	Straight Slim Type Shrink Extensions for standard milling / end mill chucks.
–	Carbide Straight Extensions		1532	Metric	Straight Type Shrink Extenstions for increased rigidity and reach.
–	Carbide Straight Slim Extensions		1532	Metric	Taper Type Shrink Extenstions for increased rigidity and reach.

List 9950

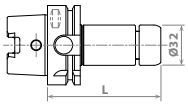
NEW

SynchroMaster Tap Holders

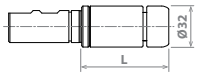




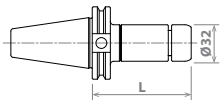
BT Shank Holder



HSK Shank Holder



ST Shank Holder



CAT40 Shank Holder

EDP Number	Designation	L (mm)	ANSI Tap Size	JIS Tap Size
79910	BT30-SMH16-90	90	M4~M8 No.8~5/16	M3~M12 No.5~7/16
79911	BT40-SMH16-90	90		
79912*	HSK40A-SMH16-85	85		
79913	HSK63A-SMH16-90	90		
79924	ST20D-SMH16-68	68		
79925	ST25D-SMH16-68	68		
79926	CAT40-SMH16-90	90		

Packed: 1 pc.
1. The collet and spanner are sold separately.
2. Please use a machine with synchronous feed capability.
* The HSK40A is without manual clamping hole.

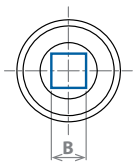
HDR

List 9953

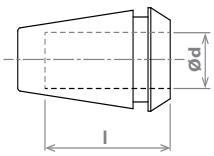
NEW

SynchroMaster Collet, Internal and External Coolant





Square Hole Design
Prevents Tap Slippage



EDP Number	Designation	d	B	l	ANSI	Old JIS	End Mill Shank	Standard Tightening Torque
79960	ER16GH-0.255	0.255"	0.191"	18mm	1/4, M6	-	-	30~35Nm
79961	ER16GH-0.318	0.318"	0.238"	22mm	5/16, M7, M8	-	-	45~50Nm
79917	ER16GH-6-4.5	6mm	4.5mm	18mm	-	M6	M4, M5, M6	30~35Nm
79918	ER16GH-6.2-5	6.2mm	5mm	18mm	-	M8	-	
79919	ER16GH-7-5.5	7mm	5.5mm	18mm	-	M10	-	45~50Nm
79920	ER16GH-8-6	8mm	6mm	22mm	-	-	M8, M10	
79921	ER16GH-8.5-6.5	8.5mm	6.5mm	22mm	-	M12	-	

Packed: 1 pc.
1. For center-through coolant system, please insert tool all the way to the back of the collet.
   Coolant leakage may occur if the tool insertion length is too short.
2. Select the appropriate collet after confirming the dimensions of the tap to be used.
3. Confirm the tightening torque with a torque spanner wrench or similar tool.

HDR

List 9955

NEW

SynchroMaster Accessories

Appearance	EDP Number	Designation
 Spanner Wrench	79923	FKT-32L

Packed: 1 pc.

HDR

Appearance	EDP Number	Designation
 Nut	79922	ERP-16T

Packed: 1 pc.

HDR

HR-B Handy Unit



Features

- Small Foot Print
- Light Weight
- 120 V AC Current
- Easy-adjust slide

Benefits

- Fits on a table top
- Portable
- Works with any standard wall outlet
- Fast and simple height adjustments
- Cost effective!

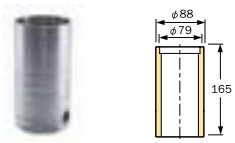
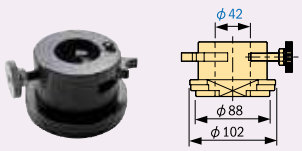
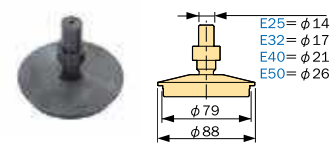
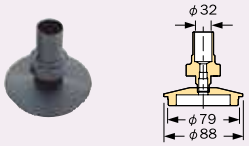
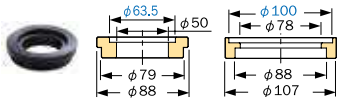
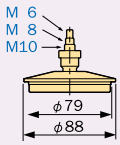
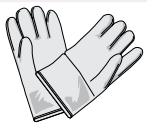
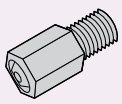
Machine Specifications

EDP Number	68802B
Name	HRB-02S-120NA SHRINK UNIT
Voltage required	120V
Power rating	1200W
Dimensions	362mm x 105mm x 570mm
Shrink fit capabilities	All OSG HY-PRO® Shrink holders
Heating cycle time	120 seconds
Included Accessories	Heat resistant gloves, timer, tool tweezer
Weight	16.5 lbs.

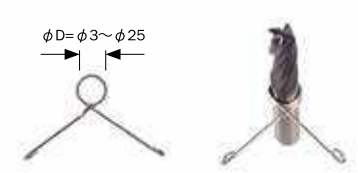
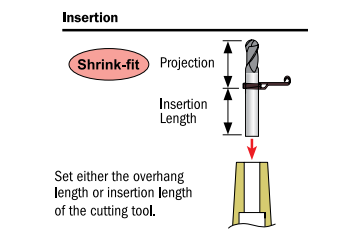
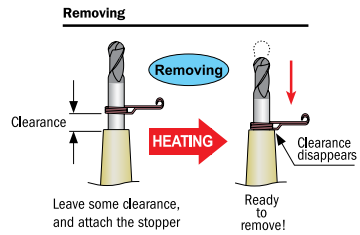
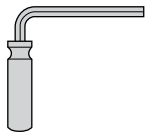
Safe Use of Shrink Devices

1. DO NOT allow contact between hot air from the system and the body as there is a possibility of burns.
2. DO NOT use this system near flammable gases and substances.
3. DO NOT apply water to the system.
4. Recommended cool-down time is five minutes.

HR-B Handy Unit Accessories

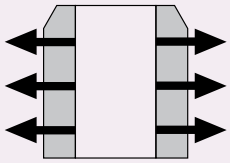
	Item Name	EDP No.	Size	Specification
	Base	9910232	BAA-01	To hold the appropriate adapter for positioning a shrink fit holder or extension during assembly and disassembly.
	Adjustable Base Adapter	9910222	BAS-02	To position 10-40mm straight type shrink extensions during assembly and disassembly. Can be used in conjunction with the BAA-01 base.
	Adapter	9910224 9910225 9910226 9910227	ADH-HSK25 ADH-HSK32 ADH-HSK40 ADH-HSK50	Used with HSK25 series tool holders. It fits into the top of the BAA-01 Base and accepts the tool holder. Used with HSK32 series tool holders. It fits into the top of the BAA-01 Base and accepts the tool holder. Used with HSK40 series tool holders. It fits into the top of the BAA-01 Base and accepts the tool holder. Used with HSK50 series tool holders. It fits into the top of the BAA-01 Base and accepts the tool holder.
	Adapter	9910228	ADH-BT30	Used with BT30 series tool holders. It fits into the top of the BAA-01 Base and accepts the tool holder.
	Adapter	9910229 9910230	ADH-40 ADH-50	Used with BT40 and CT40 series tool holders. It fits into the top of the BA-01 Base and accepts the tool holder. Used with BT50 and CT50 series tool holders. It fits into the top of the BA-01 Base and accepts the tool holder.
	Base Adapter	9910220	ADH-SLK	Used with regular, flush and slim type shrink extensions. It fits into the top of the BAA-01 Base.
	Heat Resistant Gloves	8910171	HBT-01	
	F Type Nozzle	9910205	NOZ-M4-12	Optional nozzles for BT and HSK Flush Type Holders

HR-B Handy Unit Accessories

	Item Name	EDP No.	Size	Specification
  	**Coil spring** (type depth stops)	8910172	HSA-3	3mm shanks, 10 pcs.
		8910174	HSA-4	4mm shanks, 10 pcs.
		9910213	HSA-5	5mm shanks, 10 pcs.
		8910176	HSA-6	6mm shanks, 10 pcs.
		9910215	HSA-7	7mm shanks, 10 pcs.
		8910178	HSA-8	8mm shanks, 10 pcs.
		9910217	HSA-9	9mm shanks, 10 pcs.
		8910180	HSA-10	10mm shanks, 10 pcs.
		9910219	HSA-11	11mm shanks, 10 pcs.
		8910182	HSA-12	12mm shanks, 10 pcs.
		8910183	HST-F	Set 3-12mm, 10 pcs.
		9910170	HSA-1/8	1/8" shanks, 10 pcs.
		9910173	HSA-3/16	3/16" shanks, 10 pcs.
		9910176	HSA-1/4	1/4" shanks, 10 pcs.
		9910177	HSA-5/16	5/16" shanks, 10 pcs.
		9910179	HSA-3/8	3/8" shanks, 10 pcs.
		9910182	HSA-1/2	1/2" shanks, 10 pcs.
	**Shrink Extension Stand**	9910201 9910202 9910203 9910204	SDKT-RE (Red) SDKT-BL (Blue) SDKT-GR (Green) SDKT-GD (Gold)	Vertical stand holds up to 25 extensions.
	**Wrench**	8910020	W-135	Used for the assembly and disassembly of the HY-PRO® Shrink two piece tooling system extensions and base holders.

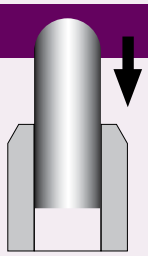
Tool Insertion

Heating



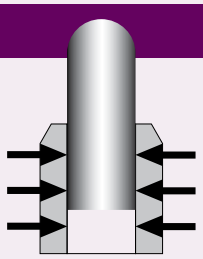
Heat the holder with hot air.

Attachment



Insert tool into the hole, which has been expanded by the heat.

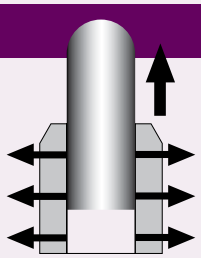
Fixing



The holder fixes the tool in place by cooling and clamping tightly.

Tool Removal

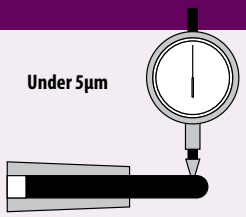
Detachment



The clamped tool can be removed by reheating.

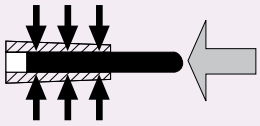
Features

Less Runout



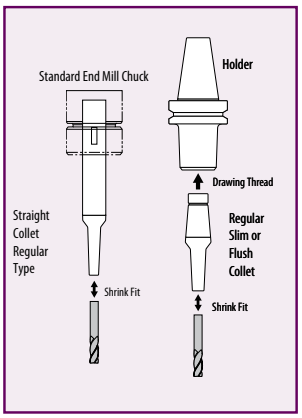
The HY-PRO® shrink reduces runout and provides consistent precision. The holder, which is light weight and has good balance, is also suitable for high-speed operations.

Holding Ability

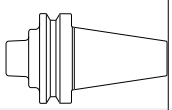
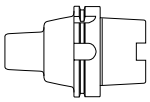
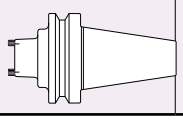
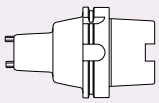


Compared to other tool holders such as the collet type, this holder has stronger holding ability and can securely hold tools during high load operations.

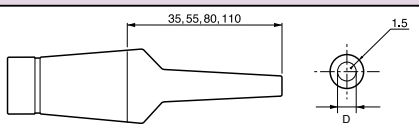
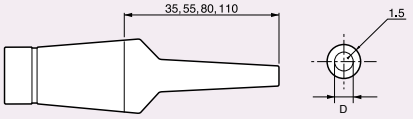
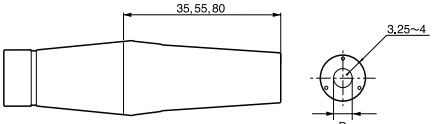
Holders		Shrink Extensions		Cutting Tools
Basic	BT30 BT40 BT50 CT-40 CT-50 HSK-A63 HSK-A100 HSK-F63M	Slim Regular Flush	Ø 3-12 Ø 1/4-1/2 in.	Carbide End Mills Carbide Drills Other Carbide Tools
Nozzle	BT40 BT50 CT-40 CT-50 HSK-A63 HSK-A100			



Holders

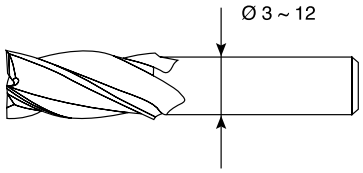
Type	Specifications	BT, CT Holders	HSK Holders
Basic Holders	Holder for Shrink Extension (without nozzle)	BT-30, -40, -50 CT-40, -50 	A63, A100 F63M 
Nozzel Holders	Holder for Shrink Extention (Coolant Supply Nozzle is Optional)	BT-40, -50 CT-40, -50 	A63, A100 

Extensions

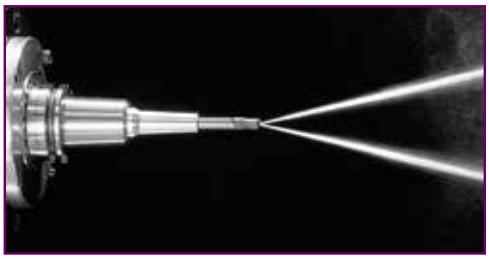
Type	Application	Dimension/Size
Regular Type	For General Operations and Coolant-Through Tool	 inch/metric
Slim Type	Use this type when a slim holder is needed to avoid interference between the tool and the work piece	 inch/metric
Flush Type	Use this type when you want coolant supplied from the end face of the extension	 inch/metric

For Small Shank Diameter use h6 Shanks

The HY-PRO® Shrink System can be used for tools with a minimum shank diameter of 3mm. If the shank diameter is between 6mm and 12mm, the system requires at least an h7 shank tolerance. For Ø3-Ø5, use h6 shank tolerance. A wide variety of tools are applicable.



Various Coolant Supply Devices





Through the Tool

Suitable when using a tool with internal coolant to supply the point of the cutting edge. This is especially effective for drilling because the coolant is guaranteed to reach the cutting area.

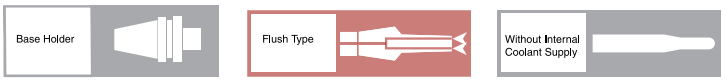




Through the Holder

Supplies coolant from the front face of the holder. This is used for tools without internal coolant supply and regular or slim type extensions.





Through the Collet

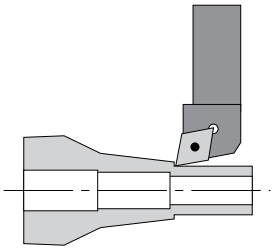
Supplies coolant from the front face of the shrink extensions. Although the diameter of the collet end face increases, coolant supply becomes even more effective.

Do-It-Yourself Extensions

Notes

If necessary, the shape of the shrink extension can be easily modified. This design provides the best holder shape for operations that have major interference with work materials.





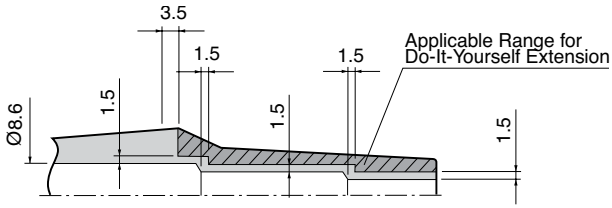
1. The shape of the flush collet cannot be adjusted.
2. Other adjustments should be based on the ranges described below. (Wall thickness should be at least 1.5mm)
3. DO NOT change the overall length.
4. For details, please refer to the instruction manual attached to the product package.

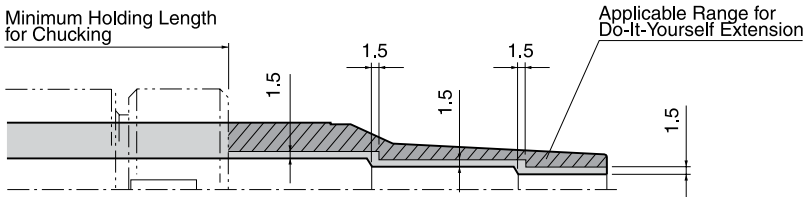
Recommended Cutting Conditions for Extension Modification

Notes

1. The cutting depth should be kept small.
2. Use water soluble coolant.
3. Use positive-rake inserts for stainless steel.

Cutting Speed (m/min)	Cutting Speed (m/min)	Feed (mm/rev)	Cutting Depth (min)
Roughing	30 - 50	0.1	0.2
Finishing	30 - 50	0.05	0.1





HY-PRO® Shrink - Proper Care Information

Please follow these guidelines to ensure your HY-PRO® Shrink extensions stay looking and performing like new for years to come:

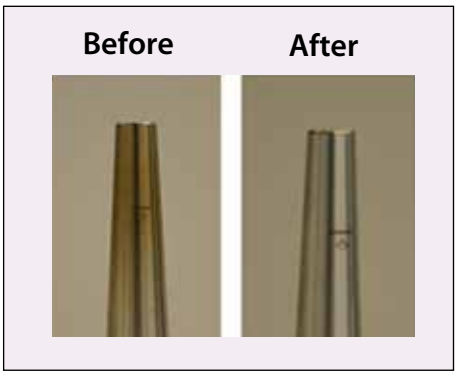
- When not in use, remove tool and clean/dry the inside & outside of holder as thoroughly as possible. Apply rust-proofing oil (WD-40® for example) to help inhibit oxidation. Excessive internal rusting will lead to hairline fractures in the steel.
- Be sure to use cutters with shank diameters that adhere to ISO tolerance requirements. Remember, HY-PRO® Shrink holders are made to accommodate the following:

ø3~5mm	→	h6 tolerance ONLY!
ø6~25mm	→	h7 tolerance ONLY!

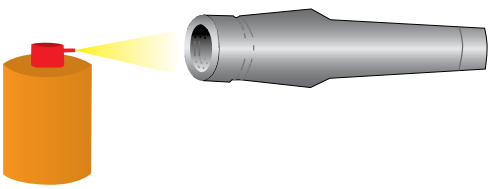
- Failure to use tools that adhere to these standards may result in complications with respect to inserting and removing tools.
- Be sure to observe minimum chucking lengths on extensions. Failure to do so can result in poor accuracy, deformation, or cracking of tool or extension.

Care Tips:

- Simple household bleach will remove oxidation from the outside of extensions. Use it to clean metal powder and debris from the insides as well to help prevent scratching & abrasions.



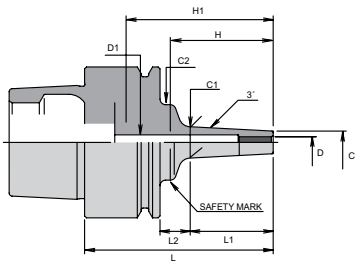
- Be sure to keep threads on the end of the extensions well oiled to allow for easy installation and removal from the holders.



HSK-E25 Mono Series

For Standard & Coolant-Through the Tool Operations





Units: mm

Type	EDP No.	Description	D	L	C	D1	L1	L2	C1	C2	H	H1
Regular	9911101	E25-SLRA3-35	3.000	35	7.500	4.0	17	8	9.3	18	9	29
	9911102	E25-SLRA4-35	4.000	35	10.000	4.3	17	8	11.8	18	12	29
	9911103	E25-SLRA6-35	6.000	35	12.000	6.6	17	8	13.8	18	18	26
Slim	9911104	E25-SLSA3-35	3.000	35	6.000	4.0	17	8	7.8	18	9	29
	9911105	E25-SLSA3-50	3.000	50	6.000	4.0	32	8	9.4	18	9	44
	9911106	E25-SLSA3.175-35	3.175	35	6.175	4.0	17	8	8.0	18	9	29
	9911107	E25-SLSA3.175-50	3.175	50	6.175	4.0	32	8	9.6	18	9	44
	9911108	E25-SLSA4-35	4.000	35	7.000	4.3	17	8	8.8	18	12	29
	9911109	E25-SLSA4-50	4.000	50	7.000	4.3	32	8	10.4	18	12	44
	9911110	E25-SLSA5-35	5.000	35	8.000	5.6	17	8	9.8	18	15	26
	9911111	E25-SLSA6-35	6.000	35	9.000	6.6	17	8	10.8	18	18	26
	9911112	E25-SLSA6-50	6.000	50	9.000	6.6	32	8	12.4	18	18	39

HTE

HSK-E32 Mono Series

For Standard & Coolant-Through the Tool Operations

Units: mm

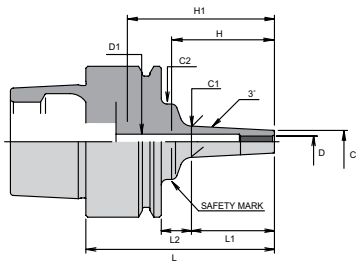
Type	EDP No.	Description	D	L	C	D1	L1	L2	C1	C2	H	H1
Regular	9911001	E32-SLRA3-50	3.000	50	7.500	4.0	22	8	9.9	20	9	42
	9911017	E32-SLRA3-70	3.000	70	7.500	4.0	42	8	11.9	20	9	62
	9911002	E32-SLRA4-50	4.000	50	10.000	5.0	22	8	12.4	20	12	35
	9911018	E32-SLRA4-70	4.000	70	10.000	5.0	42	8	14.4	20	12	54
	9911003	E32-SLRA6-50	6.000	50	12.000	6.6	22	8	14.4	26	18	39
	9911019	E32-SLRA6-70	6.000	70	12.000	7.0	42	8	16.4	26	18	54
	9911004	E32-SLRA8-50	8.000	50	14.000	8.6	22	8	16.4	26	24	39
	9911005	E32-SLRA10-55	10.000	55	16.000	10.6	22	13	18.4	26	30	44
	9911006	E32-SLRA12-55	12.000	55	20.000	12.6	22	13	22.4	26	30	44
Slim	9911008	E32-SLSA3-50	3.000	50	6.000	4.0	22	8	8.4	20	9	42
	9911009	E32-SLSA3-70	3.000	70	6.000	4.0	42	8	10.5	20	9	62
	9911010	E32-SLSA3.175-50	3.175	50	6.175	4.0	22	8	8.5	20	9	42
	9911011	E32-SLSA3.175-70	3.175	70	6.175	4.0	42	8	10.6	20	9	62
	9911012	E32-SLSA4-50	4.000	50	7.000	5.0	22	8	9.4	20	12	34
	9911013	E32-SLSA4-70	4.000	70	7.000	5.0	42	8	11.5	20	12	54
	9911014	E32-SLSA5-50	5.000	50	8.000	6.0	22	8	10.4	20	15	34
	9911015	E32-SLSA5-70	5.000	70	8.000	6.0	42	8	12.5	20	15	54
	9911016	E32-SLSA6-70	6.000	70	9.000	7.0	42	8	13.5	20	18	54

HTE

HSK-E40 Mono Series

For Standard & Coolant-Through the Tool Operations





Units: mm

Type	EDP No.	Description	D	L	C	D1	L1	L2	C1	C2	H	H1
Regular	9911040	E40-SLRA3-50	3.000	50	7.500	4.0	22	8	9.8	20	9	42
	9911041	E40-SLRA3-70	3.000	70	7.500	4.0	42	8	11.9	20	9	62
	9911042	E40-SLRA4-50	4.000	50	10.000	5.0	22	8	12.3	20	12	42
	9911043	E40-SLRA4-70	4.000	70	10.000	5.0	42	8	14.4	20	12	62
	9911020	E40-SLRA6-50	6.000	50	12.000	6.6	22	8	14.4	26	18	39
	9911044	E40-SLRA6-70	6.000	70	12.000	6.6	42	8	16.4	26	18	54
	9911021	E40-SLRA8-50	8.000	50	14.000	8.6	22	8	16.4	26	24	39
	9911045	E40-SLRA8-85	8.000	85	14.000	9.0	42	23	18.4	25	24	69
	9911022	E40-SLRA10-55	10.000	55	16.000	10.6	22	13	18.4	26	30	44
	9911046	E40-SLRA10-85	10.000	85	16.000	11.0	42	23	20.4	25	30	64
	9911023	E40-SLRA12-55	12.000	55	20.000	12.6	22	13	22.4	30	30	44
	9911047	E40-SLRA12-85	12.000	85	20.000	13.0	42	23	24.4	32	30	74
Slim	9911026	E40-SLSA3-50	3.000	50	6.000	4.0	22	8	8.4	20	9	42
	9911027	E40-SLSA3-70	3.000	70	6.000	4.0	42	8	10.5	20	9	62
	9911028	E40-SLSA3.175-50	3.175	50	6.175	4.0	22	8	8.5	20	9	42
	9911029	E40-SLSA3.176-70	3.175	70	6.175	4.0	42	8	10.6	20	9	62
	9911030	E40-SLSA4-50	4.000	50	7.000	5.0	22	8	9.4	20	12	42
	9911031	E40-SLSA4-70	4.000	70	7.000	5.0	42	8	11.5	20	12	62
	9911032	E40-SLSA5-50	5.000	50	8.000	6.0	22	8	10.4	20	15	34
	9911033	E40-SLSA5-70	5.000	70	8.000	6.0	42	8	12.5	20	15	54
	9911034	E40-SLSA6-50	6.000	50	9.000	6.6	22	8	11.4	20	18	39
	9911035	E40-SLSA6-70	6.000	70	9.000	7.0	42	8	13.5	20	18	54
	9911036	E40-SLSA8-60	8.000	60	11.000	8.6	22	18	13.4	26	24	49
	9911037	E40-SLSA8-80	8.000	80	11.000	8.6	42	18	15.5	26	24	64
	9911038	E40-SLSA10-60	10.000	60	13.000	10.6	22	18	15.4	26	30	49
	9911039	E40-SLSA10-80	10.000	80	13.000	10.6	42	18	17.5	26	30	64

HTE

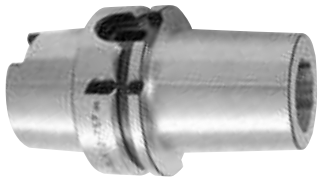
Applicable Machine Tools:

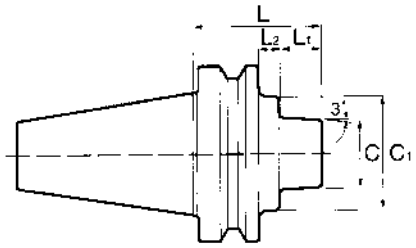
HSK-E25	*HSK-E32*	*HSK-E40*
• SODICK HIGHTECH MC430L • ROKU-ROKU MEGA III/NANO-21 • MITSUBISHI µ Machining V1 • KERN HSPC2525	• MAKINO V22/V33 • SODICK HIGHTECH MC430L/ MC650L/ HS150L • MORI SEIKI NVD1500DCG • MITSUI SEIKI VL30 • OKK VD300 • ROEDERS GMBH RHP600	• ROKU-ROKU Cega-542 • MIKRON HSM400/ UCP600 • HERMLE C Series • DIGMA HSC800/5

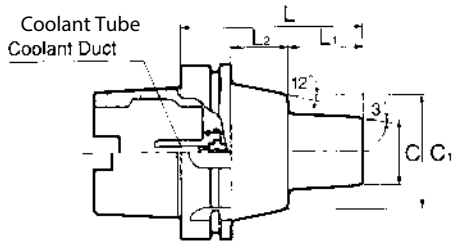
Base Holders: BT, CT and HSK 2PC Series

For Standard & Coolant-Through the Tool Operations









CAT Holders

Units: Inch

EDP No.	Description	L	L1	C	C1
9910002	CT40-SLK12-45	1.77	1.02	1.61	1.75
9910004	CT50-SLK12-75	2.95	1.57	1.50	2.75

HTE

BT Holders

Units: mm

EDP No.	Description	L	L1	L2	C	C1
8910000	BT30-SLK12-35 - 45 Deg.	35	13	-	38	-
8910001	BT30-SLK12-35 - 60 Deg.	35	13	-	38	-
8910002	BT40-SLK12-45	45	18	-	38	-
8910003	BT40-SLK12-75	75	48	-	38	-
8910004	BT50-SLK12-75	75	25	12	38	65

HTE

HSK Holders

Units: mm

EDP No.	Description	L	L1	L2	C	C1
9910005	HSK-E50-SLK12-75	75	49	-	38	-
8910005	HSK-A63-SLK12-75	75	49	-	38	-
8910006	HSK-A63-SLK12-135	135	109	-	38	-
9910006	HSK-F63M-SLK12-75	75	49	-	38	-
8910007	HSK-A100-SLK12-105	105	43	33	38	65

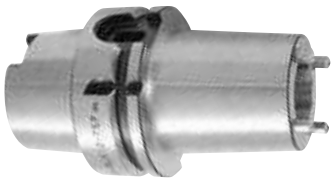
For extended gage lengths, please contact OSG's technical department for application advice.

HTE

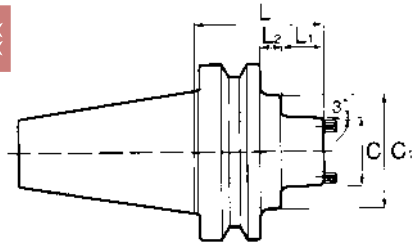
Nozzle Type Holders: BT, CT and HSK 2PC Series

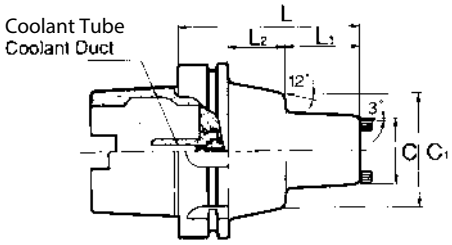
For Coolant-Through the Holder Operations











CAT Holders

Units: Inch

EDP No.	Description	L	L1	C	C1
9910008	CT40-SLK12-45F	1.77	1.02	1.61	1.75
9910011	CT50-SLK12-75F	2.95	1.57	1.61	2.75

HTE

BT Holders

Units: mm

EDP No.	Description	L	L1	L2	C	C1
8910008	BT40-SLK12-45F	45	18	-	41	-
8910009	BT40-SLK12-75F	75	48	-	41	-
8910010	BT40-SLK12-135F	135	108	-	41	-
8910011	BT50-SLK12-75F	75	25	12	41	65
8910012	BT50-SLK12-105F	105	55	12	41	65
8910013	BT50-SLK12-135F	135	85	12	41	65

HTE

HSK Holders

Units: mm

EDP No.	Description	L	L1	L2	C	C1
8910014	HSK-A63-SLK12-75F	75	49	-	41	-
8910015	HSK-A63-SLK12-135F	135	109	-	41	-
8910016	HSK-A100-SLK12-105F	105	43	33	41	65
8910017	HSK-A100-SLK12-135F	135	73	33	41	65

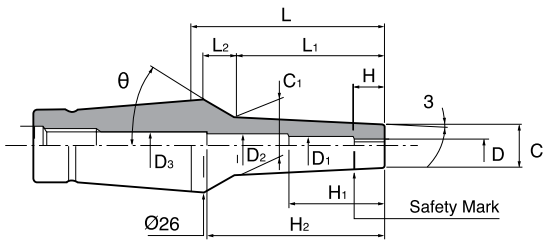
For lubricating through the oil holes of tools, replace the nozzle with a coolant stop screw.
The pressure limit of the coolant stop screw is 3 MPa.

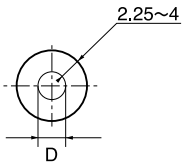
HTE

Regular Type Shrink Extensions

For Standard & Coolant-Through the Tool Operations







Units: Inch

EDP No.	Description	D	D1	D2	D3	L	L1	L2	H	H1	H2	C	C1	θ°	Insertion Limit
9910031	CR12-1/8-55	1/8	-	-	-	2.17	1.65	0.37	0.39	-	-	0.36	0.53	33.5	3.35
9910034	CR12-3/16-55	3/16	-	-	-	2.17	1.65	0.37	0.39	-	-	0.42	0.60	29.6	3.35
9910037	CR12-1/4-55	1/4	-	-	-	2.17	1.65	0.37	0.71	-	-	0.49	0.66	25.9	3.35
9910040	CR12-5/16-55	5/16	-	-	-	2.17	1.65	0.37	0.98	-	-	0.55	0.72	22.1	3.35
9910043	CR12-3/8-55	3/8	-	-	-	2.17	1.65	0.37	1.18	-	-	0.61	0.78	18.0	2.36
9910048	CR12-7/16-55	7/16	-	-	-	2.17	1.65	0.37	1.18	-	-	0.67	0.85	12.9	2.36
9910046	CR12-1/2-55	1/2	-	-	-	2.17	1.99	0.17	1.18	-	-	0.81	-	-	2.36

The tool should be inserted deeper than the safety mark.
Do not exceed the insertion limit.

HTE

Units: mm

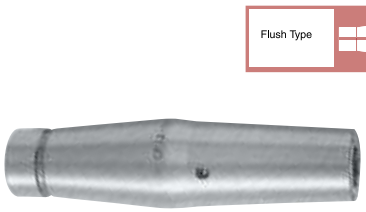
EDP No.	Description	D	D1	D2	D3	L	L1	L2	H	H1	H2	C	C1	θ°	Insertion Limit
8910030	CR12-3-35	3	-	-	4.0	35	22	9.5	9.7	-	-	7.5	9.8	49.3	65
8910031	CR12-3-55	3	-	-	4.0	55	42	9.5	9.7	-	-	7.5	11.9	44.2	85
8910032	CR12-3-80	3	4	6	8.6	80	67	9.5	9.7	39.4	74.2	7.5	14.6	36.9	110
8910033	CR12-4-35	4	-	-	5.0	35	22	9.5	11.7	-	-	10	12.3	43.1	65
8910034	CR12-4-55	4	-	-	5.0	55	42	9.5	11.7	-	-	10	14.4	37.2	85
8910035	CR12-4-80	4	5	7	8.6	80	67	9.5	11.7	39.7	74.5	10	17.1	29.1	110
8910036	CR12-6-35	6	-	-	7.0	35	22	9.5	17.7	-	-	12	14.3	37.5	65
8910037	CR12-6-55	6	7	-	8.6	55	42	9.5	17.7	49.5	-	12	16.4	31.1	85
8910038	CR12-6-80	6	7	-	8.6	80	67	9.5	17.7	49.5	-	12	19.1	22.6	110
8910039	CR12-8-35	8	-	-	8.6	35	22	9.5	24.8	-	-	14	16.3	31.4	65
8910040	CR12-8-55	8	-	-	8.6	55	42	9.5	24.8	-	-	14	18.4	24.6	85
8910041	CR12-8-80	8	-	-	8.6	80	67	9.5	24.8	-	-	14	21.1	16.0	110
8910042	CR12-10-35	10	-	-	11.0	35	22	9.5	30.0	-	-	16	18.3	25.0	60
8910043	CR12-10-55	10	-	-	11.0	55	42	9.5	30.0	-	-	16	20.4	18.0	60
8910044	CR12-10-80	10	-	-	11.0	80	67	9.5	30.0	-	-	16	23.1	9.4	60
8910045	CR12-12-35	12	-	-	13.0	35	22	9.5	30.0	-	-	20	22.3	11.7	60
8910046	CR12-12-55	12	-	-	13.0	55	42	9.5	30.0	-	-	20	24.4	5.0	60
8910047	CR12-12-80	12	-	-	13.0	80	-	-	30.0	-	-	20	25.5	-	60

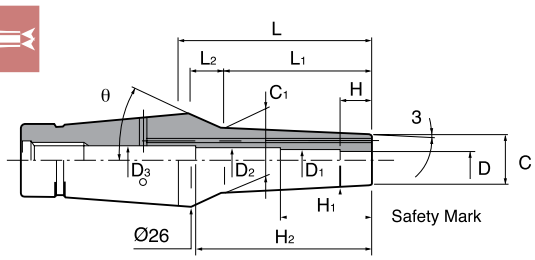
The tool should be inserted deeper than the safety mark.
Do not exceed the insertion limit.

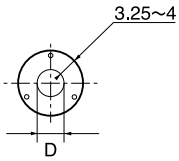
HTE

Flush Type Shrink Extensions

For Coolant-Through the Collet Operations







Units: Inch

EDP No.	Description	D	D1	D2	D3	L	L1	L2	H	H1	H2	C	C1	θ°	Insertion Limit
9910051	CF12-1/8-55	1/8	-	-	-	2.17	1.65	0.37	0.39	-	-	0.38	0.55	32.4	3.35
9910054	CF12-3/16-55	3/16	-	-	-	2.17	1.65	0.37	0.59	-	-	0.50	0.68	24.7	3.35
9910057	CF12-1/4-55	1/4	-	-	-	2.17	1.65	0.37	0.71	-	-	0.56	0.74	20.7	3.35
9910060	CF12-5/16-55	5/16	-	-	-	2.17	1.65	0.37	0.98	-	-	0.63	0.80	16.6	3.35
9910063	CF12-3/8-55	3/8	-	-	-	2.17	1.65	0.37	1.18	-	-	0.69	0.86	12.2	2.36
9910068	CF12-7/16-55	7/16	-	-	-	2.17	1.65	0.37	1.18	-	-	0.75	0.93	6.9	2.36
9910066	CF12-1/2-55	1/2	-	-	-	2.17	1.99	0.17	1.18	-	-	0.81	-	-	2.36

The tool should be inserted deeper than the safety mark.
The collet cannot be customized.
Do not exceed the insertion limit.

HTE

Units: mm

EDP No.	Description	D	D1	D2	D3	L	L1	L2	H	H1	H2	C	C1	θ°	Insertion Limit
8910050	CF12-3-35	3	-	-	4.0	35	22	9.5	9.7	-	-	9.5	11.8	44.4	65
8910051	CF12-3-55	3	-	-	4.0	55	42	9.5	9.7	-	-	9.5	13.9	38.7	85
8910052	CF12-3-80	3	4	6	8.6	80	67	9.5	9.7	39.4	74.2	9.5	16.5	30.7	110
8910053	CF12-4-35	4	-	-	5.0	35	22	9.5	11.7	-	-	12.0	14.3	37.5	65
8910054	CF12-4-55	4	-	-	5.0	55	42	9.5	11.7	-	-	12.0	16.4	31.1	85
8910055	CF12-4-80	4	5	7	8.6	80	67	9.5	11.7	39.7	74.5	12.0	19.0	22.6	110
8910056	CF12-6-35	6	-	-	7.0	35	22	9.5	17.7	-	-	14.0	16.3	31.4	65
8910057	CF12-6-55	6	7	-	8.6	55	42	9.5	17.7	49.5	-	14.0	18.4	24.6	85
8910058	CF12-6-80	6	7	-	8.6	80	67	9.5	17.7	49.5	-	14.0	21.0	16.0	110
8910059	CF12-8-35	8	-	-	8.6	35	22	9.5	24.8	-	-	16.0	18.3	25.0	65
8910060	CF12-8-55	8	-	-	8.6	55	42	9.5	24.8	-	-	16.0	20.4	18.0	85
8910061	CF12-8-80	8	-	-	8.6	80	67	9.5	24.8	-	-	16.0	23.0	9.4	110
8910062	CF12-10-35	10	-	-	11.0	35	22	9.5	30.0	-	-	18.0	20.3	18.3	60
8910063	CF12-10-55	10	-	-	11.0	55	42	9.5	30.0	-	-	18.0	22.4	11.4	60
8910064	CF12-10-80	10	-	-	11.0	80	-	-	30.0	-	-	18.0	-	-	60
8910065	CF12-12-35	12	-	-	13.0	35	22	9.5	30.0	-	-	20.0	22.3	11.7	60
8910066	CF12-12-55	12	-	-	13.0	55	42	9.5	30.0	-	-	20.0	22.4	5.0	60
8910067	CF12-12-80	12	-	-	13.0	80	-	-	30.0	-	-	20.0	-	-	60

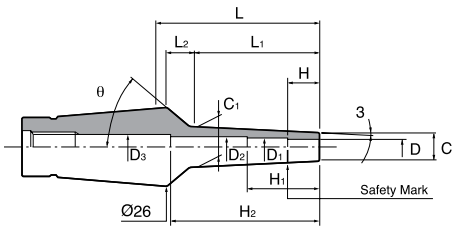
The tool should be inserted deeper than the safety mark.
The collet cannot be customized.
Do not exceed the insertion limit.

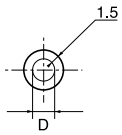
HTE

Slim Type Shrink Extensions

For Long Reach & Coolant-Through the Tool Operations







Units: Inch

EDP No.	Description	D	D1	D2	D3	L	L1	L2	H	H1	H2	C	C1	θ °	Insertion Limit
9910076	CS12-1/8-80	1/8	-	-	-	3.15	2.64	0.37	0.39	-	-	0.24	0.52	34.0	4.33
9910077	CS12-1/8-110	1/8	-	-	-	4.33	3.82	0.37	0.39	-	-	0.24	0.64	27.2	5.51
9910084	CS12-3/16-80	3/16	-	-	-	3.15	2.64	0.37	0.59	-	-	0.42	0.58	30.7	4.33
9910085	CS12-3/16-110	3/16	-	-	-	4.33	3.82	0.37	0.59	-	-	0.42	0.71	22.7	5.51
9910088	CS12-1/4-80	1/4	-	-	-	3.15	2.64	0.37	0.71	-	-	0.37	0.64	27.2	4.33
9910089	CS12-1/4-110	1/4	-	-	-	4.33	3.82	0.37	0.71	-	-	0.37	0.77	18.7	5.51
9910096	CS12-5/16-80	5/16	-	-	-	3.15	2.64	0.37	0.98	-	-	0.43	0.71	22.7	4.33
9910097	CS12-5/16-110	5/16	-	-	-	4.33	3.82	0.37	0.98	-	-	0.43	0.83	14.4	5.51
9910104	CS12-3/8-80	3/8	-	-	-	3.15	2.64	0.37	1.18	-	-	0.49	0.77	18.7	2.36
9910105	CS12-3/8-110	3/8	-	-	-	4.33	3.82	0.37	1.18	-	-	0.49	0.89	10.0	2.36
9910108	CS12-7/16-80	7/16	-	-	-	3.15	2.64	0.37	1.18	-	-	0.67	0.95	5.40	2.36
9910109	CS12-7/16-110	7/16	-	-	-	4.33	-	-	1.18	-	-	0.67	-	-	2.36
9910112	CS12-1/2-80	1/2	-	-	-	3.15	2.64	0.37	1.18	-	-	0.62	0.89	10.0	2.36
9910113	CS12-1/2-110	1/2	-	-	-	4.33	-	-	1.18	-	-	0.62	-	-	2.36

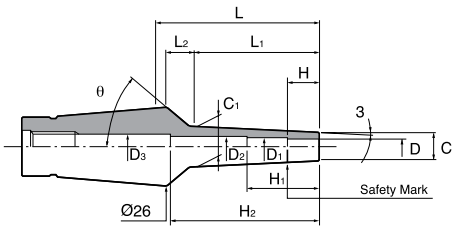
This slim collet successfully avoids interference with the work material.

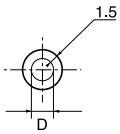
HTE

Slim Type Shrink Extensions

For Long Reach & Coolant-Through the Tool Operations







Units: mm

EDP No.	Description	D	D1	D2	D3	L	L1	L2	H	H1	H2	C	C1	θ °	Insertion Limit
8910070	CS12-3-35	3.000	-	-	4.0	35	22	9.5	9.7	-	-	6	8.3	52.7	65
8910071	CS12-3-55	3.000	-	-	4.0	55	42	9.5	9.7	-	-	6	10.4	47.9	85
8910072	CS12-3-80	3.000	4	6	8.6	80	67	9.5	9.7	39.4	74.2	6	13.0	41.2	110
8910073	CS12-3-110	3.000	4	6	8.6	110	97	9.5	9.7	39.4	104.2	6	16.2	31.8	140
8910074	CS12-3.175-35	3.175	-	-	4.0	35	22	9.5	9.7	-	-	6	8.3	52.6	65
8910075	CS12-3.175-55	3.175	-	-	4.0	55	42	9.5	9.7	-	-	6	10.4	47.9	85
8910076	CS12-3.175-80	3.175	4	6	8.6	80	67	9.5	9.7	39.4	74.2	6	13.0	41.2	110
8910077	CS12-3.175-110	3.175	4	6	8.6	110	97	9.5	9.7	39.4	104.2	6	16.2	31.8	140
8910078	CS12-4-35	4.000	-	-	5.0	35	22	9.5	11.7	-	-	7	9.3	50.4	65
8910079	CS12-4-55	4.000	-	-	5.0	55	42	9.5	11.7	-	-	7	11.4	45.5	85
8910080	CS12-4-80	4.000	5	7	8.6	80	67	9.5	11.7	39.7	74.5	7	14.0	38.3	110
8910081	CS12-4-110	4.000	5	7	8.6	110	97	9.5	11.7	39.7	104.5	7	17.2	28.7	140
8910082	CS12-5-35	5.000	-	-	6.0	35	22	9.5	14.7	-	-	8	10.3	48.1	65
8910083	CS12-5-55	5.000	6	-	8.6	55	42	9.5	14.7	49.2	-	8	12.4	42.8	85
8910084	CS12-5-80	5.000	6	-	8.6	80	67	9.5	14.7	49.2	-	8	15.0	35.4	110
8910085	CS12-5-110	5.000	6	-	8.6	110	97	9.5	14.7	69.2	-	8	18.2	25.4	140
8910086	CS12-6-35	6.000	-	-	7.0	35	22	9.5	17.7	-	-	9	11.3	45.7	65
8910087	CS12-6-55	6.000	7	-	8.6	55	42	9.5	17.7	49.5	-	9	13.4	40.1	85
8910088	CS12-6-80	6.000	7	-	8.6	80	67	9.5	17.7	49.5	-	9	16.0	32.3	110
8910089	CS12-6-110	6.000	7	-	8.6	110	97	9.5	17.7	69.5	-	9	19.2	22.1	140
8910090	CS12-7-35	7.000	-	-	8.6	35	22	9.5	19.5	-	-	10	12.3	43.1	65
8910091	CS12-7-55	7.000	-	-	8.6	55	42	9.5	19.5	-	-	10	14.4	37.2	85
8910092	CS12-7-80	7.000	-	-	8.6	80	67	9.5	19.5	-	-	10	17.0	29.1	110
8910093	CS12-7-110	7.000	-	-	8.6	110	97	9.5	19.5	-	-	10	20.2	18.8	140
8910094	CS12-8-35	8.000	-	-	8.8	35	22	9.5	24.8	-	-	11	13.3	40.4	65
8910095	CS12-8-55	8.000	-	-	8.8	55	42	9.5	24.8	-	-	11	15.4	34.2	85
8910096	CS12-8-80	8.000	-	-	8.8	80	67	9.5	24.8	-	-	11	18.0	25.9	110
8910097	CS12-8-110	8.000	-	-	8.8	110	97	9.5	24.8	-	-	11	21.2	15.5	140
8910098	CS12-9-35	9.000	-	-	10.0	35	22	9.5	30.0	-	-	12	14.3	37.5	60
8910099	CS12-9-55	9.000	-	-	10.0	55	42	9.5	30.0	-	-	12	16.4	31.1	60
8910100	CS12-9-80	9.000	-	-	10.0	80	67	9.5	30.0	-	-	12	19.0	22.6	60
8910101	CS12-9-110	9.000	-	-	10.0	110	97	9.5	30.0	-	-	12	22.2	12.2	60
8910102	CS12-10-35	10.000	-	-	11.0	35	22	9.5	30.0	-	-	13	15.3	34.5	60
8910103	CS12-10-55	10.000	-	-	11.0	55	42	9.5	30.0	-	-	13	17.4	27.9	60
8910104	CS12-10-80	10.000	-	-	11.0	80	67	9.5	30.0	-	-	13	20.0	19.3	60
8910105	CS12-10-110	10.000	-	-	11.0	110	97	9.5	30.0	-	-	13	23.2	8.9	60
8910106	CS12-11-35	11.000	-	-	12.0	35	22	9.5	30.0	-	-	14	16.3	31.4	60
8910107	CS12-11-55	11.000	-	-	12.0	55	42	9.5	30.0	-	-	14	18.4	24.6	60
8910108	CS12-11-80	11.000	-	-	12.0	80	67	9.5	30.0	-	-	14	21.0	16.0	60
8910109	CS12-11-110	11.000	-	-	12.0	110	97	9.5	30.0	-	-	14	24.2	5.7	60
8910110	CS12-12-35	12.000	-	-	13.0	35	22	9.5	30.0	-	-	15	17.3	28.2	60
8910111	CS12-12-55	12.000	-	-	13.0	55	42	9.5	30.0	-	-	15	19.4	21.3	60
8910112	CS12-12-80	12.000	-	-	13.0	80	67	9.5	30.0	-	-	15	22.0	12.7	60
8910113	CS12-12-110	12.000	-	-	13.0	110	-	-	30.0	-	-	15	-	-	60

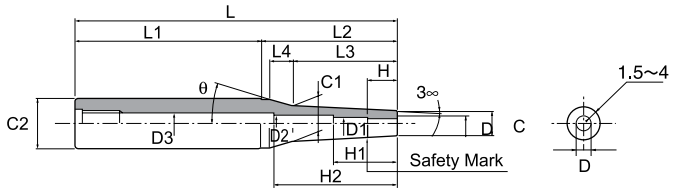
This slim collet successfully avoids interference with the work material.
The tool should be inserted deeper than the safety mark.
Do not exceed the insertion limit.

HTE

Straight Regular Type Shrink Extensions

For Standard Milling/End Mill Chucks





Units: Inch

EDP No.	Description	L	L1	L2	L3	L4	D	C	C1	C2	H	Insertion Limit
9910136	ST19.05-SLR1/4-110	4.33	2.95	1.38	0.87	0.374	0.2500	0.49	0.58	0.75	0.71	3.66
9910142	ST19.05-SLR5/16-110	4.33	2.95	1.38	0.87	0.374	0.3125	0.55	0.64	0.75	0.98	3.66
9910147	ST19.05-SLR3/8-110	4.33	2.95	1.38	-	-	0.3750	0.61	-	0.75	1.18	2.36
9910139	ST25.4-SLR 1/4-203	8.00	5.90	2.17	1.65	0.510	0.2500	0.49	1.00	1.00	0.71	7.36
9910144	ST25.4-SLR 5/16-203	8.00	5.90	2.17	1.65	0.510	0.3125	0.55	1.00	1.00	0.98	7.36
9910149	ST25.4-SLR 3/8-127	5.00	3.50	1.38	0.87	0.510	0.3750	0.61	1.00	1.00	1.18	2.36
9910151	ST25.4-SLR 3/8-190	7.50	5.30	2.17	1.65	0.510	0.3750	0.61	1.00	1.00	1.18	2.36
9910156	ST25.4-SLR 1/2-114	4.50	3.00	1.38	0.87	0.510	0.5000	0.81	1.00	1.00	1.18	2.36
9910158	ST25.4-SLR 1/2-178	7.00	4.70	2.17	1.43	0.740	0.5000	0.81	1.00	1.00	1.18	2.36

Shrink holder with straight shank for ordinary milling chucks.
Provides high performance of shrink fit without holder.
The tool should be inserted deeper than the safety mark.
Do not exceed the insertion limit.

HTE

Units: mm

EDP No.	Description	D	D1	D2	L	L1	L2	L3	H	H1	H2	C	C1	C2	Insertion Limit
8910401	ST16-SLRA 3-140-M 67	3	4.0	6.0	140	60	80	67	9	52.5	82.5	6	13.0	16	112
8910413	ST16-SLRA 4-140-M 60	4	5.0	8.6	140	80	60	60	12	62.5	85.0	10	-	16	112
8910424	ST20-SLRB 6-120-M 42	6	7.0	8.6	120	70	50	42	18	52.5	60.0	14	18.4	20	92
8910435	ST20-SLRB 8-100-M 30	8	8.6	-	100	70	30	30	24	40.0	-	18	-	20	72
8910406	ST25-SLRA 3-245-M 97	3	4.0	5.0	245	120	125	97	9	47.5	99.5	6	16.2	25	217
8910415	ST25-SLRA 4-245-M 97	4	5.0	6.0	245	120	125	97	12	50.5	110.5	7	17.2	25	287
8910428	ST25-SLRB 6-240-M 42	6	7.0	8.6	240	170	70	42	18	45.5	50.0	14	18.4	25	212
8910440	ST25-SLRB 8-210-M 90	8	8.6	-	210	120	90	90	24	70.0	-	18	-	25	182
8910449	ST25-SLRB10-120-M 35	10	10.6	-	120	85	35	35	30	50.0	-	22	-	25	60
8910450	ST25-SLRB10-210-M 90	10	10.6	-	210	120	90	90	30	70.0	-	22	-	25	60
8910457	ST25-SLSB12-120-M 42	12	12.6	-	120	42	50	42	30	50.0	-	19	23.4	25	60
8910458	ST25-SLSB12-150-M 80	12	12.6	-	150	80	80	80	30	60.0	-	19	-	25	60

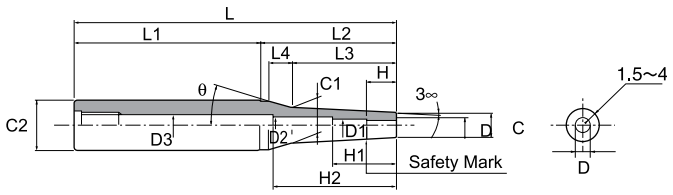
Shrink holder with straight shank for ordinary milling chucks.
Provides high performance of shrink fit without holder.
The tool should be inserted deeper than the safety mark.
Do not exceed the insertion limit.

HTE

Straight Slim Type Shrink Extensions

For Standard Milling/End Mill Chucks





Units: Inch

EDP No.	Description	L	L1	L2	L3	L4	D	C	C1	C2	H	Insertion Limit
9910120	ST9.525-SLS1/8-80	3.15	1.75	1.40	–	–	0.1250	0.240	-	0.375	0.39	2.72
9910123	ST9.525-SLS3/16-80	3.15	1.75	1.40	–	–	0.1875	0.306	-	0.375	0.59	2.71
9910137	ST12.7-SLS1/4-80	3.15	1.75	1.40	–	–	0.2500	0.368	-	0.500	0.71	2.72
9910121	ST15.875-SLS1/8-110	4.33	2.19	2.14	1.63	0.374	0.1250	0.240	0.41	0.625	0.39	3.66
9910124	ST15.875-SLS3/16-110	4.33	2.19	2.14	1.63	0.374	0.1875	0.306	0.48	0.625	0.59	3.66
9910122	ST19.05-SLS1/8-205	8.07	3.61	4.46	3.95	0.374	0.1250	0.240	0.66	0.750	0.39	7.40
9910125	ST19.05-SLS3/16-205	8.07	3.61	4.46	–	–	0.1875	0.306	-	0.750	0.59	7.40
9910138	ST19.05-SLS1/4-110	4.33	2.95	1.38	0.87	0.374	0.2500	0.368	0.46	0.750	0.71	3.66
9910143	ST19.05-SLS5/16-110	4.33	2.95	1.38	0.87	0.374	0.3125	0.430	0.52	0.750	0.98	3.66
9910148	ST19.05-SLS3/8-110	4.33	2.95	1.38	0.87	0.374	0.3750	0.490	0.58	0.750	1.18	2.36
9910140	ST25.4-SLS 1/4-228	9.00	4.70	4.33	3.82	0.510	0.2500	0.370	1.00	1.000	0.71	8.34
9910145	ST25.4-SLS 5/16-228	9.00	4.70	4.33	3.82	0.510	0.3125	0.430	1.00	1.000	0.98	8.34
9910150	ST25.4-SLS3/8-155	6.10	3.60	2.50	1.99	0.374	0.3750	0.490	0.70	1.000	1.18	2.36
9910152	ST25.4-SLS 3/8-228	9.00	4.70	4.33	3.82	0.510	0.3750	0.490	1.00	1.000	1.18	2.36
9910157	ST25.4-SLS1/2-155	6.10	4.10	2.00	1.49	0.374	0.5000	0.620	0.77	1.000	1.18	2.36
9910159	ST25.4-SLS 1/2-228	9.00	4.70	4.33	3.82	0.510	0.5000	0.620	1.00	1.000	1.18	2.36

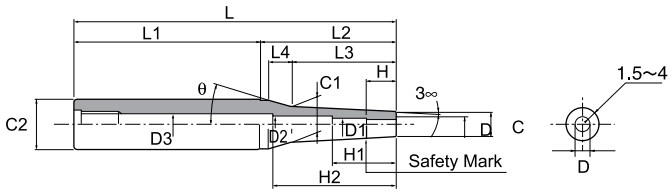
This slim collet successfully avoids interference with the work material.
The tool should be inserted deeper than the safety mark.
Do not exceed the insertion limit.

HTE

Straight Slim Type Shrink Extensions

For Standard Milling/End Mill Chucks





Units: mm

EDP No.	Description	D	D1	D2	L	L1	L2	L3	H	H1	H2	C	C1	C2	Insertion Limit
8910120	ST10-SLS3-80	3.000	4.0	-	80	45	35	35	9	40.0	-	6	-	10	64
8910121	ST10-SLS3.175-80	3.175	4.0	-	80	45	35	35	9.7	40.0	-	6	-	10	64
8910122	ST10-SLS4-80	4.000	5.0	-	80	45	35	35	12	40.0	-	7	-	10	64
8910123	ST10-SLS5-80	5.000	6.0	-	80	45	35	35	15	61.5	-	8	-	10	70
8910124	ST12-SLS6-80	6.000	7.0	-	80	45	35	35	15	40.0	-	9	-	12	52
8910125	ST16-SLS3-115	3.000	4.0	-	115	60	55	42	9	51.5	-	6	10.4	16	87
8910126	ST16-SLS4-115	4.000	5.0	-	115	60	55	42	12	60.0	-	7	11.4	16	87
8910127	ST16-SLS6-115	6.000	7.0	-	115	60	55	42	18	60.0	-	9	13.4	16	87
8910129	ST20-SLS3-200	3.000	4.0	6.0	200	90	110	97	9	52.5	102.5	6	16.2	20	172
8910131	ST20-SLS4-200	4.000	5.0	7.0	200	90	110	97	12	37.5	102.5	7	17.2	20	172
8910132	ST20-SLS5-200	5.000	6.0	8.6	200	90	110	110	15	69.2	161.5	8	-	20	182
8910434	ST20-SLSB 8-145-M 70	8.000	8.6	-	145	75	70	70	24	85.0	-	-	19.5	20	117
8910138	ST25-SLS5-290	5.000	6.0	8.6	290	180	97	97	15	69.2	241.5	8	18.2	25	272
8910140	ST25-SLS6-230	6.000	7.0	8.6	230	120	110	97	18	92.5	160.0	9	19.2	25	202
8910426	ST25-SLSA 6-305-M 185	6.000	7.0	8.0	305	120	185	185	18	75.5	160.5	9	-	25	277
8910142	ST25-SLS7-230	7.000	8.0	8.6	230	120	110	97	20	69.8	181.5	10	20.2	25	212
8910143	ST25-SLS7-320	7.000	8.0	8.6	320	210	110	97	20	69.8	271.5	10	20.2	25	302
8910145	ST25-SLS8-230	8.000	8.6	-	230	120	110	97	24	160.0	-	11	21.2	25	202
8910436	ST25-SLSA 8-280-M 160	8.000	8.6	-	280	120	160	160	24	140.0	-	11	-	25	252
8910147	ST25-SLS9-230	9.000	9.6	-	230	120	110	97	30	181.5	-	12	22.2	25	60
8910148	ST25-SLS9-320	9.000	9.6	-	320	210	110	97	30	271.5	-	12	22.2	25	60
8910443	ST20-SLSA10-145-M 70	10.000	10.6	-	145	75	70	70	30	85.0	-	13	-	20	60
8910445	ST25-SLSA 10-255-M 135	10.000	10.6	-	255	120	135	135	30	115.0	-	13	-	25	60
8910451	ST32-SLSA10-340-M210	10.000	10.6	12.0	340	130	210	210	30	59.5	167.5	13	-	32	312
8910154	ST25-SLS11-230	11.000	11.6	-	230	120	110	110	30	181.5	-	14	-	25	60
8910155	ST25-SLS11-320	11.000	11.6	-	320	210	110	110	30	271.5	-	14	-	25	60
8910456	ST20-SLSA12-120-M 50	12.000	12.6	-	120	70	50	50	30	60.0	-	15	-	20	60
8910159	ST25-SLS12-230	12.000	12.6	-	230	120	110	110	30	160.0	-	15	-	25	60
8910460	ST32-SLSA12-315-M185	12.000	13.0	-	315	130	185	185	30	165.0	-	15	-	32	287

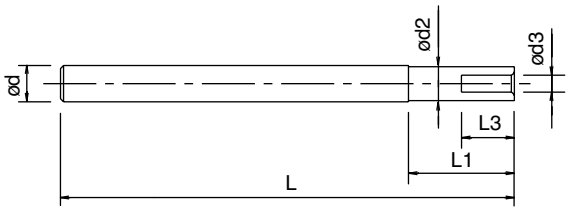
Shrink holder with straight shank for ordinary milling and end mill chucks.
Provides high performance of shrink fit without holder.

HTE

Carbide Straight Type Shrink Extensions

For Increased Rigidity and Reach





Units: mm

EDP No.	Description	L	d3	d2	d	L1	L3
8910244	ST10-6-200CS	200	6	9.9	10	40	22
8910245	ST12-6-200CS	200	6	11.9	12	42	22
8910240	ST16-10-250CS	250	10	15.9	16	60	33
8910241	ST20-12-250CS	250	12	19.9	20	70	38

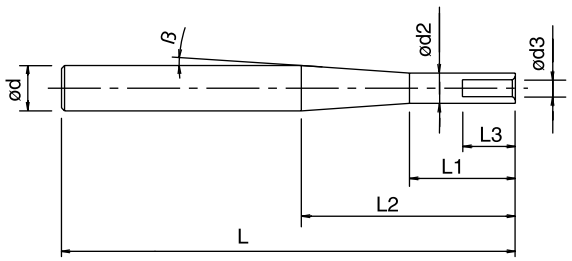
Packed: 1 pc.

HTE

Carbide Straight Slim Type Shrink Extensions

For Increased Rigidity and Reach





Units: mm

EDP No.	Description	L	d3	d2	d	L1	L2	ß	L3
8910246	PC16-6-9.9-250CS	250	6	9.9	16	40	124	2°	22
8910247	PC16-6-11.9-250CS	250	6	11.9	16	42	80	3°	22
8910242	PC20-10-300CS	300	10	15.9	20	60	98	3°	33
8910243	PC25-12-300CS	300	12	19.9	25	70	118	3°	38

Packed: 1 pc.

HTE

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