



ROCK RIVER TOOL INC.

STANDARD AND SPECIAL CARBIDE TIPPED CUTTING TOOLS



MADE IN USA



**PRICED CATALOG
2021**

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E-Mail: sales@rockrivertool.com www.rockrivertool.com

COMPARISON CHART OF CARBIDE TIPPED

2



CUTTING TOOLS

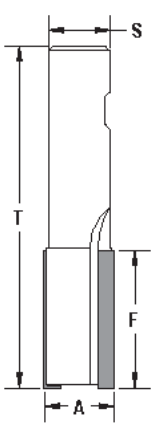
STOCK STANDARDS

DESCRIPTION - USE	FRAC. PAGE	METRIC PAGE	TOOL TYPE	CLEVELAND	GAY-LEE	PUTNAM	FULLERTON	MORSE	NIAGARA	WHITNEY
COUNTERBORES -										
Replaceable Pilots	73	—	2500	Yes	—	—	—	776	—	—
Three Flutes - Reduced Shank	74	—	2522	—	—	—	—	—	—	—
Four Flutes - Straight Shank	75	—	2512	—	—	—	—	—	—	—
Three/Four Flutes - Straight Shank	75	—	2514	779	—	—	—	5779	—	—
Four Flutes - Taper Shank	76	—	2518	—	—	—	—	—	—	—
Three/Four Flutes - Taper Shank	76	—	2516	—	—	—	—	5780	—	—
Steel Cutting - Straight Shank	77	—	2510	—	—	—	—	—	—	—
Steel Cutting - Taper Shank	77	—	2511	—	—	—	—	—	—	—
Capscrew - Straight Shank - N/F & Cast Iron	78	78	2513	—	—	—	—	—	—	—
Capscrew - Straight Shank - Steel	78	78	2515	—	—	—	—	—	—	—
PORT CONTOUR CUTTERS -										
SAE Ports - MS16142 - J514F - J1926 - SS - N/F & CI	79	—	2780	—	—	—	—	—	—	—
SAE Ports - MS16142 - J514F - J1926 - SS - Steel	79	—	2781	—	—	—	—	—	—	—
MS 33649 Integral Reamer Pilot - SS - N/F & CI	79	—	2792	—	—	—	—	—	—	—
MS 33649 Integral Reamer Pilot - SS - Steel	79	—	2793	—	—	—	—	—	—	—
END MILLS -										
Shell End Mill - Non-Ferrous	80	—	2530	—	—	—	—	5858	4920	—
Shell End Mill - Cast Iron	80	—	2531	—	—	—	—	5859	4900	—
Shell End Mill - Steel	80	—	2532	—	—	—	—	5860	4910	—
15° Right Spiral - Steel	80	—	2350	—	—	HES	60GSS	5960	4820	—
25° Right Spiral	81	—	2325	—	—	HNS	60FS	5958	4860	—
15° Right Spiral	81	—	2375	—	—	HLS	—	5962	4840	—
Two Straight Flutes - Steel	82	—	2300	—	—	—	60TFS	5927	—	—
6° Right Spiral Flutes - Steel	82	—	2308	—	—	—	60RSS	—	—	—
6° Left Spiral Flutes - Steel	82	—	2310	—	—	LSEM	60LSS	5964	—	—
Two Straight Flutes	83	—	2302	—	—	TFEM	60TF	5923	4700	—
Four Straight Flutes	83	—	2304	—	—	EM	60EM	5925	4750	—
6° Right Spiral Flutes	83	—	2306	—	—	RSEM	60RS	5921	—	—
Corner Rounding - Non-Ferrous & Cast Iron	84	—	2740	—	—	—	—	—	—	—
Corner Rounding - Steel	84	—	2741	—	—	—	—	—	—	—
Center Cutting - Cast Iron	84	—	2314	—	—	SKM	60SK	5935	4800	—
Center Cutting - Steel	84	—	2312	—	—	—	60SKS	5936	4780	—
Center Cutting - Non-Ferrous	84	—	2318	—	—	—	60CS	5966	—	—
COUNTERSINKS -										
Single Flute - 60°	85	—	2561	791	—	—	—	—	—	—
Single Flute - 82°	85	—	2581	791	—	—	—	—	—	—
Single Flute - 90°	85	—	2591	—	—	—	—	—	—	—
Single Flute - 100°	85	—	2584	—	—	—	—	—	—	—
Three Flutes - 60°	85	—	2563	793	—	—	—	—	—	—
Three Flutes - 82°	85	—	2583	793	—	—	—	—	—	—
Three Flutes - 90°	85	—	2590	—	—	—	—	—	—	—
Three Flutes - 100°	85	—	2585	—	—	—	—	—	—	—
CUTTERS - SHANK TYPE										
Double Angle - 60° & 90° - Non-Ferrous & Cast Iron	85	—	2746/2748	—	—	—	—	—	—	Yes
Double Angle - 60° & 90° - Steel	85	—	2747/2749	—	—	—	—	—	—	—
Keyseat - Straight Tooth - Non-Ferrous & Cast Iron	86	—	2700	—	—	—	—	—	CB444	120
Keyseat - Staggered Tooth - Non-Ferrous & Cast Iron	87	—	2701	—	—	—	—	—	—	121
Keyseat - Straight Tooth - Steel	88	—	2702	—	—	—	—	—	—	—
Keyseat - Staggered Tooth - Steel	89	—	2703	—	—	—	—	—	—	—
Keyseat - Straight Tooth - Aluminum	90	—	2704	—	—	—	—	—	—	—
T-Slot - Non-Ferrous & Cast Iron	91	—	2720	—	—	—	—	—	—	Yes
T-Slot - Steel	91	—	2721	—	—	—	—	—	—	—
Dovetail - 45° Included & 60° Included Angle - N/F & CI	91	—	2734/2736	—	—	—	—	—	—	Yes
Dovetail - 45° Included & 60° Included Angle - Steel	91	—	2735/2737	—	—	—	—	—	—	—
Chamfer Milling - 45° & 60° - Non-Ferrous & Cast Iron	92	—	2730/2732	—	—	—	—	—	—	Yes
Chamfer Milling - 45° & 60° - Steel	92	—	2731/2733	—	—	—	—	—	—	—
Radius - Non-Ferrous & Cast Iron	92	—	2718	—	—	—	—	—	—	Yes
Radius - Steel	92	—	2719	—	—	—	—	—	—	—
CUTTERS - ARBOR TYPE										
Single Angle - 45° & 60° Right - N/F & CI	93	—	2714/2724	—	—	—	—	—	—	—
Single Angle - 45° & 60° Left - N/F & CI	93	—	2716/2726	—	—	—	—	—	—	—
Double Angle - 45°, 60° & 90° Include Angle - N/F & CI	93	—	2750/2752/2754	—	—	—	—	—	—	—
Side Milling - Staggered Tooth	93	—	2547	—	—	—	—	—	—	—
Side Milling - Non-Ferrous	94	—	2540	—	—	—	—	5861	1630	—
Side Milling - Cast Iron	94	—	2541	—	—	—	—	5862	1590	—
Side Milling - Steel	94	—	2542	—	—	—	—	5863	1550	—
Side Milling - High Temp Alloy	94	—	2543	—	—	—	—	5849	—	—
Slitting Saws - Coarse Tooth - Non-Ferrous	95	—	2550	—	CNF	—	—	5846	4690	—
Slitting Saws - Coarse Tooth - Cast Iron	95	—	2552	—	CCI	—	—	5847	4240	—
Slitting Saws - Coarse Tooth - Steel	95	—	2554	—	CST	—	—	5848	4220	—
Slitting Saws - Coarse Tooth - High Temp Alloy	95	—	2558	—	GSS	—	—	5850	4260	—
Slitting Saws - Standard Tooth - Non-Ferrous	96	—	2551	1361	GPP	—	—	—	—	—
Slitting Saws - Standard Tooth - Cast Iron	96	—	2553	1361	GPP	—	—	—	—	—
Slitting Saws - Standard Tooth - Steel	96	—	2556	1360	STL	—	—	—	—	—
Slitting Saws - Standard Tooth - High Temp Alloy	96	—	2559	—	GSS	—	—	—	—	—
Slitting Saws - Any Width, Radius, or Chamfer - Steel	97-100	—	2556	—	—	—	—	—	—	—
Slitting Saws - Any Width, Radius, or Chamfer - Multi Purpose	101-104	—	2559	—	GSS	—	—	—	—	—
BRAZED SINGLE POINTS										
Single Points	105-106	—	26 Types	—	—	—	—	26 Types	—	—
Cut-Off Tools	107	—	2 Types	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
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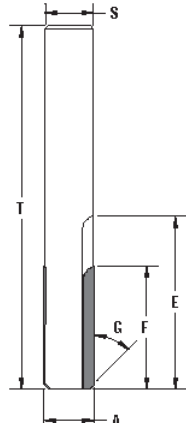


SPECIAL TOOLS QUOTE FORM

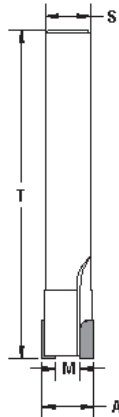
Fax to: (800) 867-9312 or Email to: sales@rockrivertool.com



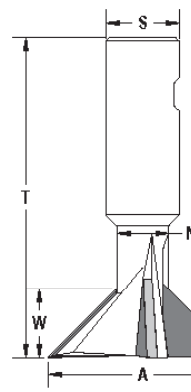
☐ END MILL



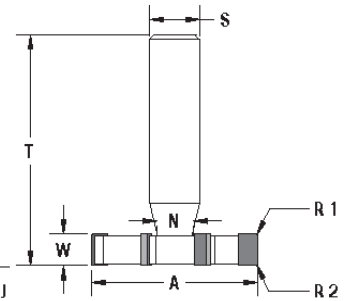
☐ REAMER



☐ COUNTERBORE



☐ DOVETAIL



☐ KEYSEAT

☐ Carbide Tipped ☐ Solid Carbide

BODY OF TOOL

T= _____ Overall Length

S= _____ Shank Diameter

A= _____ Major Diameter

FLUTES

E= _____ Flute Length

F= _____ Carbide Length

G= _____ ° Chamfer Angle

☐ Straight Flutes
Number of Flutes _____

☐ Right Hand Cutting
☐ Right Hand Spiral _____ °

☐ Left Hand Cutting
☐ Left Hand Spiral _____ °

IF PILOTED Head Diam. _____

Head Length _____

M= Min. Cutting Diam. _____

IF STEP REAMER Minor Diam. _____

Step Length _____

Step Angle _____ °

IF KEYSEAT

W= _____ Width

☐ Straight Tooth

R1= _____ Radius/Chamfer

N= _____ Neck Diameter

☐ Staggered Tooth

R2= _____ Radius/Chamfer

IF DOVETAIL

N= _____ Neck Diam.

J= _____ ° Angle

R= _____ Radius

W= _____ Width

☐ Carbide Tipped ☐ Solid Carbide

MILLING CUTTERS & SAWS

D= _____ Cutter Diameter

W= _____ Cutter Width

A= _____ Arbor Hole Diam.

N= _____ # of Teeth

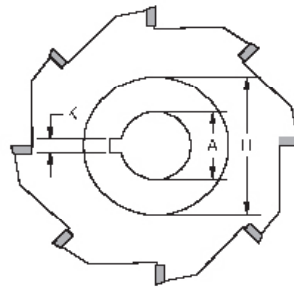
H= _____ Hub Diameter

K= _____ Keyway Size

R1= _____ Radius/Chamfer

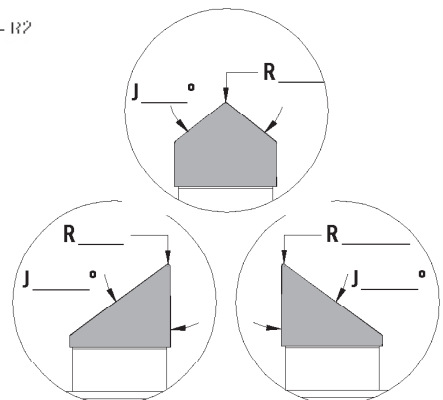
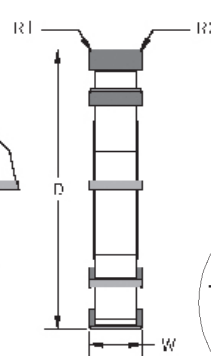
R2= _____ Radius/Chamfer

☐ Straight Tooth
☐ Straight Stagger
☐ Herringbone Stagger



☐ MILLING CUTTER

☐ SLITTING SAW



☐ ANGLE CUTTER
(Fill in "J" & "R")

Rock River Tool will manufacture your special tools quickly and competitively.

Name _____ Phone _____

Company _____ Fax _____

Full Address _____ Tipped or Solid? _____

Material Being Cut _____ HOW MANY ? _____



DECIMAL EQUIVALENTS

FRACTIONAL, WIRE, LETTER & METRIC SIZES

FRACTIONAL INCH	WIRE	METRIC mm	DECIMAL INCH
	43	2.3	.0890
		2.35	.0906
	42		.0925
			.0935
$\frac{3}{32}$		2.4	.0938
	41		.0945
		2.45	.0960
			.0965
	40	2.5	.0980
			.0984
	39		.0995
	38		.1015
		2.6	.1024
	37		.1040
		2.7	.1063
	36		.1065
$\frac{7}{64}$		2.75	.1083
			.1094
	35		.1100
		2.8	.1102
	34		.1110
	33		.1130
		2.9	.1142
	32		.1160
	31	3.0	.1181
			.1200
$\frac{1}{8}$		3.1	.1220
			.1250
		3.2	.1260
		3.25	.1280
	30		.1285
		3.3	.1299
	29	3.4	.1339
			.1360
		3.5	.1378
	28		.1405
$\frac{9}{64}$		3.6	.1406
			.1417
	27		.1440
		3.7	.1457
	26	3.75	.1470
			.1476
	25		.1495
		3.8	.1496
	24	3.9	.1520
			.1535
	23		.1540
$\frac{5}{32}$			.1562
	22	4.0	.1570
			.1575
	21		.1590
	20		.1610
		4.1	.1614
		4.2	.1654
	19		.1660
		4.25	.1673
		4.3	.1693
$\frac{11}{64}$	18		.1695
			.1719
	17		.1730
		4.4	.1732
	16		.1770
		4.5	.1772
	15		.1800

FRACTIONAL INCH	WIRE/ LETTER	METRIC mm	DECIMAL INCH
		4.6	.1811
	14		.1820
	13	4.7	.1850
		4.75	.1870
$\frac{3}{16}$			.1875
	12	4.8	.1890
	11		.1910
		4.9	.1929
	10		.1935
	9	5.0	.1960
			.1969
	8		.1990
		5.1	.2008
$\frac{13}{64}$	7		.2010
			.2031
	6		.2040
		5.2	.2047
	5		.2055
		5.25	.2067
		5.3	.2087
	4	5.4	.2090
			.2126
	3		.2130
		5.5	.2165
$\frac{7}{32}$		5.6	.2188
			.2205
	2		.2210
		5.7	.2244
		5.75	.2264
	1		.2280
		5.8	.2283
		5.9	.2323
$\frac{15}{64}$	A		.2340
			.2344
		6.0	.2362
	B		.2380
		6.1	.2402
	C		.2420
		6.2	.2441
	D		.2460
		6.25	.2461
		6.3	.2480
$\frac{1}{4}$	E		.2500
		6.4	.2520
		6.5	.2559
	F		.2570
		6.6	.2598
	G		.2610
		6.7	.2638
$\frac{17}{64}$			.2656
		6.75	.2657
	H		.2660
		6.8	.2677
		6.9	.2717
	I		.2720
		7.0	.2756
	J		.2770
		7.1	.2795
$\frac{9}{32}$	K		.2810
			.2812
		7.2	.2835
		7.25	.2854
		7.3	.2874
	L		.2900

FRACTIONAL INCH	LETTER	METRIC mm	DECIMAL INCH
		7.4	.2913
	M		.2950
$\frac{19}{64}$		7.5	.2953
			.2969
		7.6	.2992
	N		.3020
		7.7	.3031
		7.75	.3051
		7.8	.3071
$\frac{5}{16}$		7.9	.3110
			.3125
		8.0	.3150
	O		.3160
		8.1	.3189
	P		.3228
			.3230
$\frac{21}{64}$		8.25	.3248
		8.3	.3268
			.3281
		8.4	.3307
	Q		.3320
		8.5	.3346
		8.6	.3386
	R		.3390
$\frac{11}{32}$		8.7	.3425
			.3438
		8.75	.3445
		8.8	.3465
	S		.3480
		8.9	.3504
	T		.3543
		9.0	.3580
$\frac{23}{64}$		9.1	.3583
			.3594
		9.2	.3622
		9.25	.3642
		9.3	.3661
	U		.3680
		9.4	.3701
		9.5	.3740
$\frac{3}{8}$			.3750
			.3770
	V		.3780
		9.6	.3780
		9.7	.3819
		9.75	.3839
		9.8	.3858
	W		.3860
		9.9	.3898
$\frac{25}{64}$			.3906
			.3937
	X		.3970
	Y		.4040
$\frac{13}{32}$			.4062
	Z		.4130
		10.5	.4134
$\frac{27}{64}$			.4219
		11.0	.4331
$\frac{7}{16}$			.4375
		11.5	.4528
$\frac{29}{32}$			.4531
$\frac{15}{32}$			.4688
		12.0	.4724
$\frac{31}{64}$			.4844
		12.5	.4921

FRACTIONAL INCH	METRIC mm	DECIMAL INCH
$\frac{1}{2}$		.5000
	13.0	.5118
$\frac{33}{64}$		.5156
$\frac{17}{32}$		.5312
	13.5	.5315
$\frac{35}{64}$		.5469
	14.0	.5512
$\frac{9}{16}$		.5625
	14.5	.5709
$\frac{37}{64}$		.5781
	15.0	.5906
$\frac{19}{32}$		.5938
$\frac{39}{64}$		.6094
	15.5	.6102
$\frac{5}{8}$		.6250
	16.0	.6299
$\frac{41}{64}$		.6406
	16.5	.6496
$\frac{21}{32}$		.6562
	17.0	.6693
$\frac{43}{64}$		.6719
$\frac{11}{16}$		.6875
	17.5	.6890
$\frac{45}{64}$		.7031
$\frac{23}{32}$	18.0	.7807
		.7188
$\frac{47}{64}$	18.5	.7283
		.7344
$\frac{3}{4}$	19.0	.7480
$\frac{49}{64}$		.7500
		.7656
	19.5	.7677
$\frac{25}{32}$	20.0	.7812
		.7874
$\frac{51}{64}$	20.5	.7969
		.8071
$\frac{13}{16}$	21.0	.8125
		.8268
$\frac{53}{64}$		.8281
$\frac{27}{32}$		.8438
$\frac{55}{64}$	21.5	.8465
		.8594
$\frac{7}{8}$	22.0	.8661
		.8750
	22.5	.8858
$\frac{57}{64}$		.8906
	23.0	.9055
$\frac{29}{32}$		.9062
$\frac{59}{64}$		.9219
	23.5	.9252
$\frac{15}{16}$		.9375
	24.0	.9449
$\frac{61}{64}$	24.5	.9531
		.9646
$\frac{31}{32}$	25.0	.9688
		.9843
$\frac{63}{64}$		.9844
1	25.5	1.0000
$\frac{1}{8}$		1.0039
		1.0156
	26.0	1.0236
$\frac{11}{32}$		1.0312
	26.5	1.0433
$\frac{13}{64}$		1.0469



CARBIDE TIPPED PROBLEM SOLVING GUIDE

**AVOID
PROBLEMS
BY CAREFUL
ORIGINAL
SET-UP**

**MACHINE CONDITION
TOOL CONDITION**

**FEEDS & SPEEDS
COOLANT**

- Tool holder in good condition & secure part holding fixture.
- Use cutting tool recommended for material being machined. Avoid excessive tool overhang.
- Start with feeds & speeds recommended for material being machined.
- Where used, coolant flow must be adequate to avoid intermittent quenching and to flush chips promptly, avoiding the recutting of hardened chips.

DRILLING PROBLEMS	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
1. CHIPPED CUTTING EDGE	Excessive feed Excessive lip relief Vibration Thermal cracking carbide	Reduce feed. Reduce lip relief to provide smaller chisel angle. Frequently a worn drill bushing replace. Maintain adequate coolant flow at all times.
2. SHORT TOOL LIFE	Drill dwelling Only one lip cutting Unequal lip heights	Maintain adequate feed at all times. Regrind with equal lip heights and chisel in center. Regrind with equal lip heights and chisel in center.
3. DRILL WALKS OR DRIFTS	Worn drill bushing	Replace drill bushing.
4. OVERSIZED HOLES	Unequal lip heights Excessive lip relief Worn drill bushing	Regrind with equal lip heights and chisel in center. Reduce lip relief to provide smaller chisel angle. Replace drill bushing.
5. ROUGH FINISH	Dull cutting edge Inadequate coolant Improper speed & feed	Regrind with fine grit diamond wheel. Review type of coolant and maintain adequate flow. Review speed & feed (chart on page 9)
REAMING PROBLEMS	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
1. POOR FINISH	Unequal chamfers Incorrect margins Excessive spindle runout Chatter	Regrind reamer with equal chamfer height. Regrind reamer with narrower margins for reaming higher tensile materials. Use bushing — .0002"/.0003" over reamer diameter. Increase speed and reduce feed rate. Use power feed unless material is hard. Use spiral fluted reamer. Grind secondary lead angle immediately behind 45° chamfer.
	Insufficient cutting action	Specify reamer with positive radial rake to reduce cutting pressure — may produce slightly larger diameter holes.
2. OVERSIZED HOLES TAPERED HOLES BELL MOUTH HOLES	Misalignment	Check fixturing & setup for possible causes; use floating holder if necessary. Consider using precision bushings or piloted reamers.
3. EXCESSIVE TOOL WEAR	Incorrect feed and/or speed Improper stock removal Excessive reaming pressure	Verify feeds & speeds (see page 9). Change pre-ream hole size to leave 2 to 3% of tool diameter. Decrease feed rate (see "Feeds & Speeds" Chart on page 9). See solution for "improper stock removal" in #3.
4. CROOKED HOLES	Misalignment Drill walking or incorrect sharpening	See solution for "misalignment" in #2. Correct drilling operation - reamer will follow drilled hole.
5. TOOL BREAKAGE	Excessive reaming pressure Misalignment	Increase 90° included chamfer angle to 120° - 180°. See solution for "excessive reaming pressure" in #3. See solution for "misalignment" in #2.
MILLING PROBLEMS	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
1. ROUGH FINISH	Dull cutting edge Wrong feeds & speeds	Resharpener to original tool geometry. Increase speed - also try reduced feed.
2. EXCESSIVE CUTTING EDGE WEAR	Wrong feeds & speeds	Increase feed (should always be over .001" per tooth) - especially when machining ductile or free machining materials - Also try reduced speed.
3. CHIPPED CUTTING EDGE	Rough cutting edge Insufficient coolant Poor chip removal Recutting work hardened chips Vibration	Lightly hone cutting edge with fine grit diamond hone. Increase coolant flow - review type of coolant. Use tool with larger flute space - larger diameter or fewer flutes. Increase coolant flow.
4. CHATTER MARKS	Incorrect carbide grade Insufficient machine horsepower Vibration	Increase rigidity of set-up, especially worn tool holders. Change to tougher carbide grade. Use tool with fewer flutes as correct speeds & feeds must be maintained. Consider climb milling. Check setup rigidity. Use larger diameter cutter.
5. GLAZED FINISH	Feed to light Dull cutting edge Insufficient clearance	Resharpener tool with more clearance. Increase feed. Resharpener tool to original geometry. Resharpener tool with more clearance.
6. POOR TOOL LIFE	Excessive cratering	Increase speed or decrease feed. Change to harder grade of carbide. Decrease speed and increase feed. Increase coolant flow.
	Milling abrasive material	Climb milling better than conventional milling. Conventional milling better than climb milling. Reduce speed - rigidity very important.
	Milling surface scale Milling hard material Insufficient chip room Delayed resharpening Thermal cracked carbide	Use larger diameter tool. Prompt resharpening to original geometry will increase total tool life. Increase coolant flow at all times. Climb milling is cooler than conventional milling.



WHY USE CARBIDE TIPPED TOOLS?

MORE COST EFFECTIVE THAN HIGH SPEED STEEL TOOLS

1. Carbide tipped tools retain their cutting edge hardness at high machining temperatures generated by high cutting speeds and feeds that reduce machining cycle time.
2. Carbide tipped tools improve surface finish and hold size far longer for better quality.
3. Carbide tipped tools last far longer because the carbide chip forming surface resists wear as the chip flows over the tools. This greatly reduces need for costly changes with increased scrap and rework.
4. Carbide tipped tools should always be used when machining highly abrasive materials.

USUALLY MORE COST EFFECTIVE THAN SOLID CARBIDE

1. Carbide tipped tools are far more durable than solid carbide tools. Under abnormal conditions the carbide may start to crack due to hard spots in the material being machined, incorrect feed rates or inadequate holding of workpiece. These cracks that shatter solid carbide tools are stopped in carbide tipped tools by the tough hardened alloy steel body - usually permitting the tool to complete the production run.
2. The carbide grade in carbide tipped tools can be selected wholly based on its cutting and wear characteristics rather than compromising for the carbide's structural strength, as is required for solid carbide tools. Some high cost specialty carbides necessary for aggressive machining of many tough alloys are not even available in solid carbide round form.
3. Although carbide tipped tools use higher quality more costly carbide, the overall cost is usually substantially less than solid carbide tools because only the thick cutting edge is carbide. The body and shank are made from less costly tough hardened alloy steel.

GENERAL INFORMATION

DISTRIBUTORS - Rock River Tool sells through industrial distributors who are your local supply, service and communication link with us.

SHIPPING - All shipments are normally sent UPS to the distributor. However, every day distributors request "next day delivery" or "drop shipments" to customers that must have the tools immediately.

ORDERING - The Rock River EDP number listed for each size of every tool type is the only description required when ordering. However, as a cross-check for possible copying errors, most orders also note a brief tool description.

MODIFICATIONS - Over 30% of the standard tools ordered include one or more simple modifications. Each catalog page lists the most commonly requested modifications for that type of tool. Rock River's modifications are competitively priced with prompt delivery.

COMMUNICATIONS - We prefer that all communications be directed through your local industrial distributor. However, in emergencies Rock River can be reached at:
Sales/Engineering: 1-800-345-8924
Fax: 1-800-867-9312
E-mail: sales@rockrivertool.com

QUALITY ASSURANCE - Rock River has a very comprehensive measurement instrument dimensional control system. We apply statistical techniques wherever appropriate to assure manufacturing process control and effective final inspections.

TOLERANCES - All Rock River's standard tools are manufactured to one or more of the following specifications, unless otherwise shown on selected sizes:
ASME/ANSI Standards
NAS 907 - National Aerospace Standards
USCTI - United States Cutting Institute
ISO - International Standard Organization

CARBIDE GRADES - All Rock River's standard tools are manufactured with correct proven grade of carbide for the intended applications. We only utilize carbide that is made by major reputable manufacturers.

TOOL PERFORMANCE - Although the tool's price is always important, the real measure of tool value is the tool's performance in the user's plant - machining piece parts to correct dimensions with proper surface finishes utilizing high feeds and speeds with a long tool life between grinds.

CHANGES - All specifications and dimensions are subject to revision without notice.



CARBIDE TIPPED TOOL SELECTION BASICS

DRILL SELECTION BASICS –

- Carbide tipped drills are especially effective when production drilling abrasive cast irons and non-ferrous alloys.
- Carbide tipped coolant drills perform exceptionally well in most steels and all other materials.
- The drill is an end cutting tool and as the point angle increases, the cutting edge becomes shorter, reducing corner wear as the cutting shear angle is reduced. Rock River provides two different point angles in most drill types. Select the larger angle for abrasive or tough materials.
- Deep holes, in excess of 3 drill diameters—use coolant feeding drills.
- For drilling hardened steels, above Rc35—use straight flute die drills or coolant type.
- Use shortest tool available for accurate location and longer production runs as rigidity is increased and runout minimized.
- Core Drills are very effective for enlarging preformed holes, removing up to 30% of the tool diameter in all materials, including steel.

REAMER SELECTION BASICS –

- Carbide tipped reamers are especially appropriate for close tolerance reaming. Because carbide is extremely resistant to wear, the reamer will produce accurate hole size and smooth finish far longer.
- The reamer is used to finish machine a previously formed hole to an exact diameter with a smooth finish. It should not be used to significantly enlarge a hole (max. 5% - depending on material and hardness).
- The reamer is an end cutting tool, cutting only on the chamfer's edge at the outside diameter of the preformed hole. The standard 45° chamfer angle provides effective cutting action for most materials.
- Standard geometry reamers tend to follow the axis of the existing hole. Mis-aligned or crooked holes can be straightened by increasing the chamfer angle - sometimes a 180° flat end is very effective. This is a simple modification.
- FLUTE AXIAL RELATIONSHIP:
 - Straight Flutes - usual general purpose.
 - Right Spiral Flutes - tend to bridge interruptions such as keyways, slots or intersecting holes. Good chip clearing ability for ductile materials and blind holes.
 - Left Spiral Flutes - also tends to bridge interruptions. Good for hard cast iron, heat treated steels and other hard materials. Do not use in blind holes.
- LENGTH OF CARBIDE - usually partial but full length carbide should be selected for deep holes and abrasive materials.
- COOLANT FEEDING:
 - Advantages - up to twice conventional feed rates will hold size much longer. Improved hole surface finish. Excellent chip disposal. Lubricates and cools the cutting edge.
 - Center Feed for blind holes. Flute Feed for through holes.
- EXPANSION REAMERS - Economical for abrasive materials.

COUNTERBORE SELECTION BASICS –

- The counterbore is used to enlarge the end of a preformed hole when a flat bottom is required.
- The counterbore is an end cutting tool which utilizes a pilot to align the enlarged hole being machined with the preformed hole.
- The three flute counterbore tends to reduce chatter & improve finish.
- Many different shank options are available.

END MILL SELECTION BASICS –

- END MILLS have cutting teeth on both end and side, permitting end cutting and peripheral cutting. Center cutting types permit plunge and traverse milling.
- CUTTING EDGE: Select **sharp edged** for faster speeds. Select **radial edged** for longer tool life.
- SHANK DIAMETER: Select **largest diameter** available to maximize rigidity and minimize axial deflection and chatter.
- NUMBER OF FLUTES: Select **fewer flutes** for milling softer materials at higher speeds and feeds where more chip space is required or when machine horsepower is limited.
- Select **more flutes** for milling tougher materials at reduced speeds and feeds or for increased table feeds using the same cutting speeds.
- CUTTING DIAMETER: Select **largest practical diameter** to maximize rigidity, minimize chatter and improve tool life. If machine spindle speed is limited, the largest practical diameter permits higher cutting speeds.
- FLUTE AXIAL RELATIONSHIP: Select **straight flutes** for usual general purpose.
 - Select **right spiral flutes** for improved cutting action and easier chip removal.
 - Select **left spiral flutes** for use in absorbing impact shock when entering steel workpiece—maintains constant hold down pressure, and minimizes chatter.
 - Select **high spiral** (15° or more) to **dramatically** improve cutting action, finish, chip removal and tool life. High spirals distribute impact load more evenly throughout the tool's entire revolution.
- COATINGS are especially effective.

SLITTING SAW AND SIDE MILLING CUTTER SELECTION BASICS –

- SLITTING SAWS can be used in deep slotting applications since they have side clearance and side concavity on their carbide tips.
- ARBOR DIAMETER: Select **largest diameter** available to maximize rigidity and minimize deflection. (A 1 1/4" arbor is more than twice as rigid as a 1" arbor.)
- CUTTING DIAMETER: Select **smallest diameter** which permits two teeth to be in contact with the workpiece throughout the tool's entire revolution.
 - If horsepower permits higher cutting speeds, but spindle speed is limited, select a **larger cutting diameter**.
- NUMBER OF TEETH: Select **coarse teeth** for general purpose. Select **standard teeth** for better finishes.
- TYPES OF MILLING: In **conventional milling**, the direction of the cutter rotation is opposite to the direction of the workpiece feed. The initial portion of the chip generated is very thin and gradually increases through the cutting cycle. The maximum cutting force is upward at the end of the cutting cycle.
 - In **climb milling**, the direction of the cutter rotation and the direction of the workpiece feed are the same. The initial portion of the chip generated is thick and gradually thins through the cutting cycle, producing a better finish. The maximum cutting force is the initial downward thrust at the beginning of the cutting cycle.



MODIFICATIONS AND COATINGS

OPTIONAL MODIFICATIONS

Solve Problems Economically –

- 30% of standard tools ordered include one or more simple modifications.
- Standard tool optional modifications eliminate need for costly special tools.
- Optional modifications are available with very short lead times.

- Improve standard cutting geometries for difficult machining materials- abrasive or extra tough.
- Incorporates cutting form to eliminate need for additional machining.
- Improve tool holding or driving.

DRILL OPTIONAL MODIFICATIONS

- Intermediate cutting diameters to eliminate reaming operation.
- Special point types and point angles:
 - 135° split point for drilling abrasive and tough materials.
 - 90° point for drilling soft materials.
 - Double point angles to reduce breakout bur and corner wear.
- Coating to increase cutting speeds and feeds and reduce wear.

- Flat or tang on shank for positive drive.
- Short shanks to reduce run out due to set-up.
- Extra long shanks to solve reach problems.
- Reduced shank diameter or undersized Morse taper to accommodate tool holding limitations.

REAMER OPTIONAL MODIFICATIONS

- Intermediate cutting diameters-priced on each reamer type data page.
- Closer tolerances-instead of plus .0003".
 - For plus .0002" - add \$1.00 per tool.
 - For plus .0001" - add \$3.00 per tool.
- Sharpen finish 30 micro inch or better.
- End chamfer other than 45°.
 - Less than 45° tend to straighten hole.
 - 31° to match 118° drill point at bottom of drilled hole.
 - 22 1/2° to match 135° drill point at bottom of drilled hole.
 - Greater than 45° tend to thin out chips that resist breaking.
 - Greater than 45° will produce better finishes and will follow drilled hole.
 - End Cutting - 180° chamfer (flat end - no chamfer).
- Corner radius - for better finish.
 - for stronger corner in abrasive and tough materials.

- Special O.D. relief depending on material being reamed.
- Reduce circular margins for some steels.
- Increase circular margins for some non-ferrous.
- Grind steel head below carbide-usually .008"-0.020" to improve finish-normally much better to use full length carbide design.
- "Rose" Grind - Twice the normal back taper and full circle on the margin (not relieved). To improve finish but this reduces tool life.
- Cutting diameter partially reduced for non-cutting pilot.
- Cutting diameter partially reduced for cutting step.
- Coating to increase cutting speeds and reduce wear.
- Shortened shank reduces runout due to set-up.
- Reduced shank diameter or undersize morse taper shank to accommodate tool holder limitations.
- Flat or tang on shank for positive drive.

COUNTERBORE OPTIONAL MODIFICATIONS

- Intermediate cutting diameter - priced on each counterbore type data page.
- Closer tolerance than .001" on cutting diameter.
- End chamfer other than 180° when used as a piloted countersink or hole bottom form operation.
- Corner radius for improved finish.

- Cutting diameter ground down for small cutting step.
- Drive flat or tang on shank for positive drive.
- Shortened shank reduces runout due to set-up.
- Reduce shank diameter or undersize morse taper shank to accommodate tool holder limitations.

END MILL OPTIONAL MODIFICATIONS

- Intermediate decimal cutting diameter.
- Closer tolerance.
- Radius corners to improve finish.

- Coating to increase cutting speeds and reduce wear.
- Undersize shank to accommodate tool holding limitations.

KEYSEAT CUTTER OPTIONAL MODIFICATIONS

- Intermediate width or diameters.
- Radius corners to improve finish.

- Reduce neck diameter.
- Drive flats on shanks for positive drive.

SLITTING SAW & SIDE MILLING CUTTER OPTIONAL MODIFICATIONS

- Closer tolerance for cutting face width and cutting diameter.
- Alternate chamfer every other tooth.

- Full radius.
- Chamfer both sides.
- Radius both sides.

- Coating to increase cutting speeds and reduce wear.
- Matched sets.

RECOMMENDED COATINGS

Cost Justified

- Tool life dramatically extended.
- Part finish significantly improved.
- Reduced tool wear stabilizes tolerances.
- Faster cutting speeds and feeds.
- Utilize the physical deposition (PVD) process so the hardened alloy steel body is not softened and retains its toughness.

TiN-Titanium Nitride

- Good coating for many materials and applications.
- Hardness: 2300 Vickers.
- Max Service Temperature: 550° C (1050° F).
- Friction Coefficient: .65.

TiCN-Titanium Carbonitride

- Excellent where low temperatures are generated.
- Hardness: 2800 Vickers.
- Max Service Temperature: 400° C (750° F).
- Friction Coefficient: .40.

AlTiN-Aluminum Titanium Nitride

- Excellent in materials generating high heat.
- Hardness: 3600 Vickers.
- Max Service Temperature 750° C (1380° F).
- Friction Coefficient: .60.

ZrN-Zirconium Nitride

- Good in many applications in non-ferrous materials.
- Hardness: 2500 Vickers.
- Max Service Temperature 600° C (1100° F).
- Friction Coefficient: .50.



CARBIDE TIPPED REAMERS

TECHNICAL INFORMATION

REAMER BASICS

- The reamer is used to finish machine a previously formed hole to an exact diameter with a smooth finish. It should **not** be used to significantly enlarge a hole (max. 5% – depending on material and hardness).
- Carbide tipped reamers are especially appropriate for close tolerance reaming. Because carbide is very highly resistant to wear, the reamer will produce accurate hole size and a smooth finish far longer than high speed steel or cobalt.
- The reamer is an end cutting tool, cutting only on the chamfer's edge at the outside diameter of the preformed hole.

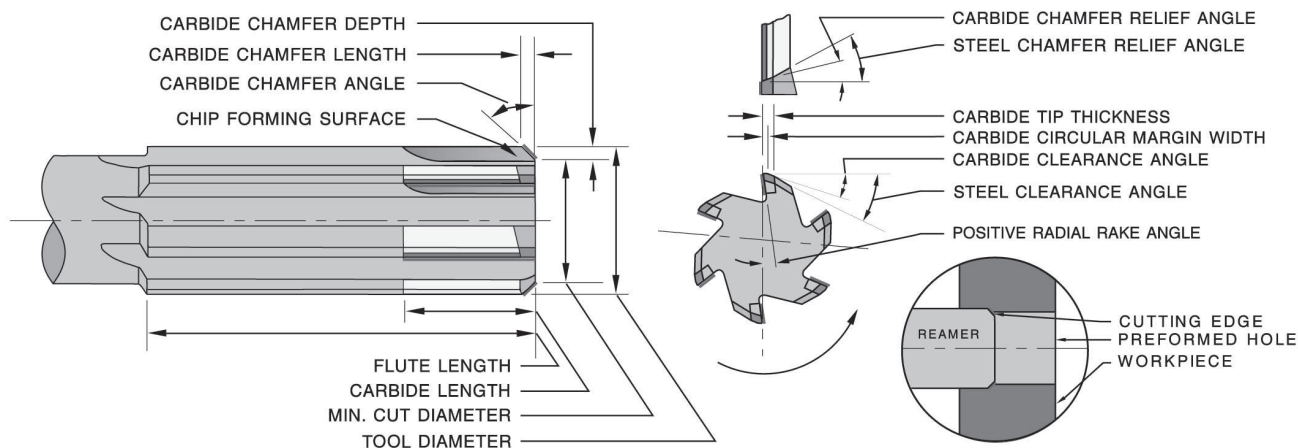
The standard 45° chamfer angle provides effective cutting action for most materials.

Reamer Types:

- Multi-Purpose** – Superior performance over high speed steel and cobalt; good in a wide variety of materials
- Coolant Fed** – Exceptional performance and tool life using material specific reamer technology and coolant fed capabilities; maximizes feeds & speeds

REAMER EXPEDITE FEES: Order must be received by 2:00 PM CST.
Does not apply to types 2431 and 2458EL.
18 pieces max per diameter.
Does NOT require air shipment of the product.

Reamer Diameter	Service	Fee
Up to 1.0000"	24 Hour	\$75.00
Up to 1.0000"	48 Hour	50.00
Over 1.0000"	48 Hour	75.00
Over 1.0000"	72 Hour	50.00



REAMER SPECIFICATIONS

- Geometry and carbide grade appropriate for material being machined
- Carbide tips brazed to tough hardened alloy steel body, except expansion reamers which are not hardened
- Polished flutes for easy chip flow
- ASME/ANSI B94.2; NAS 897; USCTI
- Precision ground cutting edges
- "Taper Shank No." refers to American Standard taper series (formerly Morse taper series) per ASME/ANSI B5.10
- Material specific reamer shanks are ground to next smallest shank diameter listed in NAS 897 if tool diameter is within .005" of shank diameter
- Expansion reamers can be expanded for regrinding as follows:

Tool Diameter	Guaranteed Minimum Expansion
5/16" - 15/32"	.006"
1/2" - 31/32"	.010"
1" - 1 1/2"	.013"
1 1/4" - 2 1/2"	.015"

REAMER TOLERANCES

- Tool diameter tolerance:

Multi-purpose & Coolant fed

Thru 1 1/2" tool diameter: plus .0003", minus .0000"

Over 1 1/2" tool diameter: plus .0004", minus .0000"

NAS897

Thru 1/2" tool diameter: plus .0002", minus .0000"

Over 1/2" tool diameter thru 3/4": plus .0003", minus .0000"

Over 3/4" tool diameter: plus .0004", minus .0000"

- Closer tool diameter tolerance pricing per tool:

Standard Tolerance	Modified to Closer Tolerance		
	.0003"	.0002"	.0001"
.0004"	\$1	\$3	\$5
.0003"	–	\$1	\$3
.0002"	–	–	\$3

- Shank diameter tolerance:

General purpose

minus .0005", minus .0015"

NAS & Coolant fed

Thru 2 3/32" tool diameter: plus .0000", minus .0010"

Over 2 3/32" tool diameter: plus .0000", minus .0015"



CUTTING SPEEDS & FEEDS

Type of Material		Brinell Hardness 3000 kg	Cutting Speed - SFM Starting Range*		Feed Per Revolution Hole Diameter - Inches					
					1/8	1/4	1/2	3/4	1	1 1/2
Aluminum Alloys		30-150 500 kg	Drill 250-350 Ream 150-250	.003 .004	.005 .006	.008 .011	.011 .013	.014 .016	.019 .020	
Aluminum Bronze Cast		40-175 500 kg	Drill 125-190 Ream 50-90	.002 .004	.005 .006	.008 .012	.010 .016	.012 .018	.016 .022	
Copper Alloys/Bronze Tough		40-200 500 kg	Drill 125-190 Ream 50-90	.002 .005	.005 .006	.008 .010	.010 .012	.012 .014	.016 .017	
Copper Alloys/Brass Free Machining		10-100 Rb	Drill 225-400 Ream 100-250	.002 .005	.005 .008	.008 .015	.010 .018	.012 .020	.016 .025	
Magnesium		50-90 500 kg	Drill 300-400 Ream 130-390	.003 .005	.005 .010	.007 .015	.009 .017	.013 .020	.016 .025	
Plastics			Drill 175-450 Ream 90-250	.002 .004	.004 .005	.005 .008	.008 .012	.009 .014	.012 .016	
Zinc Alloys		80-100	Drill 300-400 Ream 140-210	.003 .005	.005 .007	.009 .010	.011 .012	.014 .015	.018 .020	
Cast Iron -	Gray Soft	120-220	Drill 175-300 Ream 65-135	.002 .005	.005 .008	.009 .011	.014 .016	.017 .020	.019 .025	
	Gray Hard	220-320	Drill 130-225 Ream 45-70	.002 .004	.004 .006	.007 .009	.010 .012	.013 .014	.018 .020	
	Ductile Soft	140-270	Drill 150-225 Ream 50-90	.002 .004	.004 .005	.008 .010	.012 .014	.014 .017	.018 .023	
	Ductile Hard	270-400	Drill - Ream 35-60	- .004	- .006	- .008	- .010	- .012	- .016	
	Malleable Soft	110-240	Drill 125-190 Ream 60-120	.002 .004	.005 .006	.009 .011	.011 .013	.012 .014	.016 .018	
	Malleable Hard	250-320	Drill 100-150 Ream 45-70	.002 .004	.004 .006	.007 .010	.010 .013	.012 .015	.016 .025	
	Nodular	120-275	Drill 200-275 Ream 40-60	.002 .004	.004 .006	.005 .010	.010 .013	.012 .015	.015 .020	
Steel -	Low Carbon	85-275	Drill - Ream 45-105	- -	- .010	- .015	- .020	- .025	- .030	
	Medium Carbon	100-500	Drill - Ream 20-105	- -	- .008	- .012	- .014	- .016	- .020	
	High Carbon	175-500	Drill - Ream 10-100	- -	- .006	- .008	- .010	- .012	- .016	
	Tool Steel	100-500	Drill - Ream 15-85	- -	- .006	- .008	- .010	- .012	- .016	
Stainless -	Free Mach. 300 Series	135-275	Drill 100-150 Ream 65-100	.002 .004	.004 .006	.006 .008	.008 .009	.010 .010	.014 .011	
	300	135-375	Drill - Ream 40-75	- .003	- .004	- .006	- .007	- .008	- .010	
	400	135-325	Drill - Ream 40-90	- .003	- .005	- .007	- .008	- .010	- .012	
	PH	150-440	Drill - Ream 35-70	- .003	- .004	- .005	- .007	- .008	- .010	
High Temp. -	Nickel Base	140-300	Drill - Ream 15-85	- .003	- .005	- .006	- .007	- .008	- .012	
	Iron Base	140-300	Drill - Ream 15-85	- .003	- .005	- .006	- .007	- .008	- .012	
	Cobalt Base	180-425	Drill - Ream 5-30	- .003	- .004	- .006	- .007	- .008	- .010	
Titanium		110-380	Drill - Ream 35-45	- .004	- .006	- .010	- .011	- .012	- .014	

*For high side of hardness range start at low side of cutting speed. Note: Reduce cutting speed and feed when drilling more than 3 diameters deep.



HARD STEEL DIE DRILLS

CARBIDE TIPPED



TYPE 2670 & 2671 NEGATIVE EDGE



TYPE 2672 & 2673 POSITIVE EDGE

USE:

For drilling hardened steel in the range of 35 to 65 Rockwell C.

Flood the cutting point with coolant.

Clear chips frequently.

Light feed with steady pressure.

Will cut without annealing the workpiece.

TYPE 2670 – 118° NEGATIVE EDGE

Die drill - negative angle cutting edge.

118° included point.

Drill body diameter smaller than tip to prevent gauling.

TYPE 2671 – 140° NEGATIVE EDGE

Die drill - negative angle cutting edge.

Same as type 2670 above, except with 140° included point - designed for drilling abrasive and tough materials.

TYPE 2672 – 118° POSITIVE EDGE

Die drill - positive angle cutting edge.

118° included point.

Same as type 2670, except with thinned web, permitting higher feed rates with less spindle power.

TYPE 2673 – 140° POSITIVE EDGE

Die drill - positive angle cutting edge.

140° included point angle.

Same as type 2672, except with 140° included point - designed for drilling abrasive and tough materials.

OPTIONS:

Intermediate decimal and metric diameters.

Special point types and angles.

Undersize shank or flat on shank.

TOOL DIAMETER		LENGTH		118° POINT			140° POINT		
FRAC.	DEC.	FLUTE	OVER-ALL	TYPE 2670 EDP NO.	TYPE 2672 EDP NO.	BOTH TYPES PRICE	TYPE 2671 EDP NO.	TYPE 2673 EDP NO.	BOTH TYPES PRICE
1/16"	.0625	-	1 1/2	267004	-	\$24.80	267104	-	\$24.80
5/64"	.0781	-	1 1/2	267005	-	24.80	267105	-	24.80
3/32"	.0938	-	2	267006	-	27.25	267106	-	27.25
7/64"	.1094	-	2	267007	-	27.25	267107	-	27.25
1/8"	.1250	-	2	267008	-	28.05	267108	-	28.05
9/64"	.1406	-	2	267009	-	28.05	267109	-	28.05
5/32"	.1562	-	2	267010	-	29.55	267110	-	29.55
11/64"	.1719	-	2 3/8	267011	-	29.55	267111	-	29.55
3/16"	.1875	1 1/2	3 1/2	267012	267212	26.80	267112	267312	26.80
13/64"	.2031	1 1/2	3 1/2	267013	267213	26.80	267113	267313	26.80
7/32"	.2188	1 3/4	3 3/4	267014	267214	27.65	267114	267314	27.65
15/64"	.2344	1 3/4	3 3/4	267015	267215	28.55	267115	267315	28.55
1/4"	.2500	2	4	267016	267216	28.55	267116	267316	28.55
17/64"	.2656	2	4	267017	267217	30.20	267117	267317	30.20
9/32"	.2812	2 1/4	4 1/4	267018	267218	30.20	267118	267318	30.20
19/64"	.2969	2 1/4	4 1/4	267019	267219	31.60	267119	267319	31.60
5/16"	.3125	2 1/2	4 1/2	267020	267220	31.60	267120	267320	31.60
21/64"	.3281	2 1/2	4 1/2	267021	267221	33.65	267121	267321	33.65
11/32"	.3438	2 3/4	4 3/4	267022	267222	33.65	267122	267322	33.65
23/64"	.3594	2 3/4	4 3/4	267023	267223	36.20	267123	267323	36.20
3/8"	.3750	3	5	267024	267224	36.20	267124	267324	36.20
25/64"	.3906	3	5	267025	267225	40.80	267125	267325	40.80
13/32"	.4062	3	5 1/4	267026	267226	42.35	267126	267326	42.35
27/64"	.4219	3	5 1/4	267027	267227	45.75	267127	267327	45.75
7/16"	.4375	3	5 1/2	267028	267228	49.20	267128	267328	49.20
29/64"	.4531	3	5 1/2	267029	267229	51.55	267129	267329	51.55
15/32"	.4688	3 1/4	5 3/4	267030	267230	54.00	267130	267330	54.00
31/64"	.4844	3 1/4	5 3/4	267031	267231	65.50	267131	267331	65.50
1/2"	.5000	3 1/2	6	267032	267232	63.35	267132	267332	63.35
17/32"	.5312	3 1/2	6	267034	267234	72.60	267134	267334	72.60
9/16"	.5625	3 1/2	6	267036	267236	75.10	267136	267336	75.10
19/32"	.5938	4	7	267038	267238	79.50	267138	267338	79.50
5/8"	.6250	4	7	267040	267240	81.90	267140	267340	81.90
21/32"	.6562	4 1/2	7 1/2	267042	267242	87.70	267142	267342	87.70
11/16"	.6875	4 1/2	7 1/2	267044	267244	90.00	267144	267344	90.00
23/32"	.7188	4 3/4	8	267046	267246	94.35	267146	267346	94.35
3/4"	.7500	4 3/4	8	267048	267248	96.95	267148	267348	96.95
25/32"	.7812	4 3/4	8	267050	267250	187.15	267150	267350	187.15
13/16"	.8125	4 3/4	8	267052	267252	173.75	267152	267352	173.75
7/8"	.8750	4 3/4	8	267056	267256	177.35	267156	267356	177.35
15/16"	.9375	4 3/4	8	267060	267260	197.55	267160	267360	197.55
1	1.0000	4 3/4	8	267064	267264	209.55	267164	267364	209.55

*Solid carbide full length

METRIC DIAMETERS

TOOL DIAMETER		LENGTH				118° POINT		
mm	INCH	FLUTE		OVERALL		TYPE 2670 NEG. EDP NO.	TYPE 2672 POS. EDP NO.	BOTH TYPES PRICE
		mm	INCH	mm	INCH			
5.0	.1969	38	1 1/2	89	3 1/2	2670050	2672050	\$27.40
5.5	.2165	45	1 3/4	95	3 3/4	2670055	2672055	30.45
6.0	.2362	51	2	102	4	2670060	2672060	30.65
6.5	.2559	51	2	102	4	2670065	2672065	32.45
7.0	.2756	57	2 1/4	108	4 1/4	2670070	2672070	32.45
7.5	.2953	57	2 1/4	108	4 1/4	2670075	2672075	33.90
8.0	.3150	64	2 1/2	114	4 1/2	2670080	2672080	36.60
8.5	.3346	70	2 3/4	121	4 3/4	2670085	2672085	36.60
9.0	.3543	70	2 3/4	121	4 3/4	2670090	2672090	39.00
9.5	.3740	76	3	127	5	2670095	2672095	37.00
10.0	.3937	76	3	133	5 1/4	2670100	2672100	45.50
10.5	.4134	76	3	133	5 1/4	2670105	2672105	52.75
11.0	.4331	76	3	140	5 1/2	2670110	2672110	74.25
11.5	.4528	76	3	140	5 1/2	2670115	2672115	55.55
12.0	.4724	83	3 1/4	146	5 3/4	2670120	2672120	67.90
12.5	.4921	89	3 1/2	152	6	2670125	2672125	67.90
13.0	.5118	89	3 1/2	152	6	2670130	2672130	77.90
13.5	.5315	89	3 1/2	152	6	2670135	2672135	77.90
14.0	.5512	89	3 1/2	152	6	2670140	2672140	80.70



HARD STEEL DIE DRILLS

SOLID CARBIDE - 120° POINT AND 140° POINT



TYPE 2674 – SPADE TYPE - 120° POINT

Cam relieved 120° point.

Precision ground to insure concentricity of tip and shank body.

TYPE 2675 – SPADE TYPE - 140° POINT

Same as type 2674 above, except with 140° point designed for drilling abrasive and tough materials.

USE:

Used for shallow holes, approximately 2 diameters deep. The short heavy construction allows more rigid hold drilling for tough applications, where longer length drills are not needed.

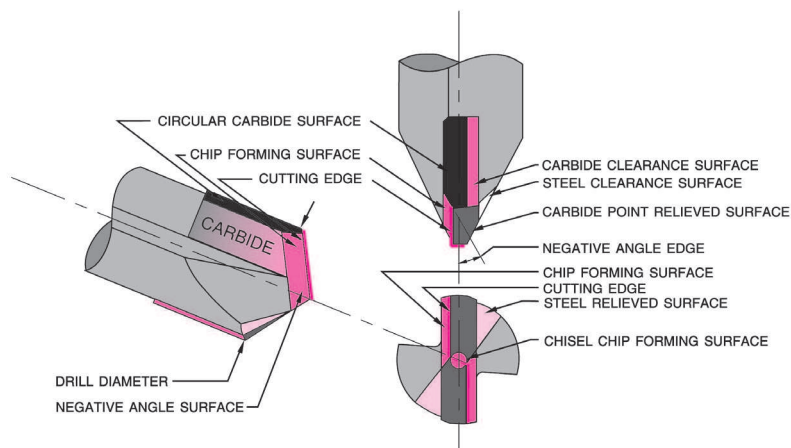
TOOL DIAMETER		OVER-ALL LENGTH	120° POINT	140° POINT	BOTH TYPES PRICE
FRAC.	DECIMAL		TYPE 2674 EDP NO.	TYPE 2675 EDP NO.	
$\frac{3}{32}$ "	.0938	2	267406	267506	\$17.35
$\frac{7}{64}$ "	.1094	2	267407	267507	17.70
$\frac{1}{8}$ "	.1250	2	267408	267508	17.70
$\frac{9}{64}$ "	.1406	2	267409	267509	19.15
$\frac{5}{32}$ "	.1562	2	267410	267510	22.05
$\frac{11}{64}$ "	.1719	3	267411	267511	23.55
$\frac{3}{16}$ "	.1875	3	267412	267512	27.85
$\frac{13}{64}$ "	.2031	3	267413	267513	31.35

*Solid carbide full length

SELECTING THE BEST DIE DRILL FOR YOUR NEEDS –

TYPE 2670 & 2671

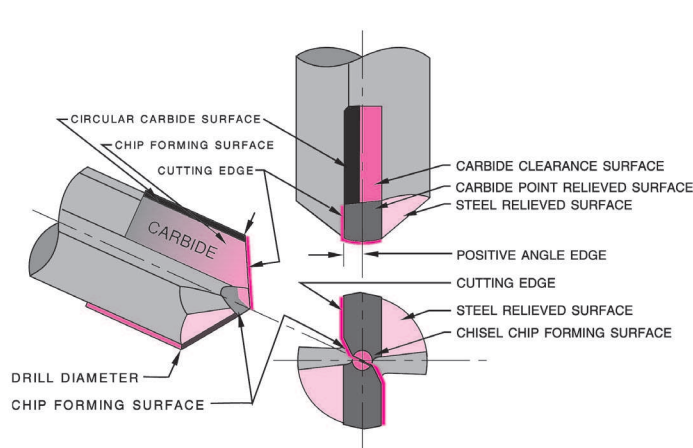
Negative angle cutting edge die drill or strongest edge, but higher spindle power required.



NEGATIVE ANGLE CUTTING EDGE DIE DRILL

TYPE 2672 & 2673

Positive angle cutting edge die drill or thinned web permits feed rates with less spindle power.

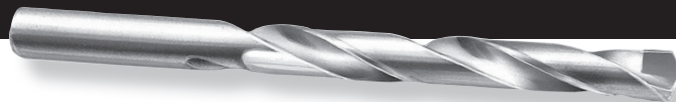


POSITIVE ANGLE CUTTING EDGE DIE DRILL



TWIST DRILLS - CARBIDE TIPPED

JOBBER LENGTH



TYPE 2600 - JOBBERS LENGTH - 118° POINT

For drilling cast iron, non-ferrous metals and non-metals.

TYPE 2601 - JOBBERS LENGTH - 135° SPLIT POINT

For drilling abrasive and tough materials.

Carbide tips brazed to hardened tool steel bodies.

Smooth flutes for effective chip flow. Precision ground to ensure concentricity of tip & body.

DRILL TOLERANCES:

Drill Diameter	Diameter		Included Angle		Lip Height T.I.V.
	Plus	Minus	Plus	Minus	
Thru 1/8"	.0000"	.0005"	5°	5°	.0020"
Over 1/8" thru 1/4"	.0000"	.0007"	5°	5°	.0030"
Over 1/4" thru 1/2"	.0000"	.0010"	5°	5°	.0040"
Over 1/2" thru 1"	.0000"	.0012"	3°	3°	.0050"
Thru 1/2" Dia. Overall Length Tolerance +1/4", -1/8"					

TOOL DIAMETER			LENGTH		118° POINT		135° POINT	
FRAC.	DEC.	WIRE LETTER	FLUTE	OVER-ALL	TYPE 2600 EDP NO.	PRICE	TYPE 2601 EDP NO.	PRICE
	.0980	40*	1	2	260240	\$16.45	-	-
	.0995	39*	1 1/4	2 1/4	260239	16.45	-	-
	.1015	38*	1 1/4	2 1/4	260238	16.45	-	-
	.1040	37*	1 1/4	2 1/4	260237	16.45	-	-
7/64*	.1065	36*	1 1/4	2 1/4	260236	16.45	-	-
	.1094		1 1/4	2 1/4	260007	16.45	-	-
	.1100	35*	1 1/4	2 1/4	260235	16.45	-	-
	.1110	34*	1 1/4	2 1/4	260234	16.45	-	-
1/8	.1130	33*	1 1/4	2 1/4	260233	16.45	-	-
	.1160	32	1 5/8	2 3/4	260232	13.30	260332	\$15.55
	.1200	31	1 5/8	2 3/4	260231	12.00	260331	14.00
	.1250		1 5/8	2 3/4	260008	12.30	260108	14.35
9/64	.1285	30	1 5/8	2 3/4	260230	12.55	260330	14.55
	.1360	29	1 3/4	2 7/8	260229	13.00	260329	15.00
	.1405	28	1 3/4	2 7/8	260228	13.10	260328	15.30
	.1406		1 3/4	2 7/8	260009	13.30	260109	15.50
	.1440	27	1 7/8	3	260227	13.45	260327	15.60
	.1470	26	1 7/8	3	260226	12.45	260326	14.55
	.1495	25	1 7/8	3	260225	12.45	260325	14.55
	.1520	24	2	3 1/8	260224	13.45	260324	15.60
5/32	.1540	23	2	3 1/8	260223	13.10	260323	15.30
	.1562		2	3 1/8	260010	13.05	260110	15.30
	.1570	22	2	3 1/8	260222	14.45	260322	16.90
	.1590	21	2 1/8	3 1/4	260221	13.90	260321	16.15
11/64	.1610	20	2 1/8	3 1/4	260220	14.25	260320	16.45
	.1660	19	2 1/8	3 1/4	260219	14.25	260319	16.45
	.1695	18	2 1/8	3 1/4	260218	14.25	260318	16.45
	.1719		2 1/8	3 1/4	260011	14.25	260111	16.45
	.1730	17	2 3/16	3 3/8	260217	14.25	260317	16.45
	.1770	16	2 3/16	3 3/8	260216	13.90	260316	16.15
	.1800	15	2 3/16	3 3/8	260215	14.45	260315	16.90
	.1820	14	2 3/16	3 3/8	260214	13.90	260314	16.15
3/16	.1850	13	2 5/16	3 1/2	260213	15.30	260313	16.15
	.1875		2 5/16	3 1/2	260012	13.90	260112	16.15
	.1890	12	2 5/16	3 1/2	260212	16.00	260312	16.90
	.1910	11	2 5/16	3 1/2	260211	14.75	260311	17.05
	.1935	10	2 7/16	3 5/8	260210	14.45	260310	16.90
	.1960	9	2 7/16	3 5/8	260209	14.75	260309	17.05
	.1990	8	2 7/16	3 5/8	260208	14.75	260308	17.05
	.2010	7	2 7/16	3 5/8	260207	14.75	260307	17.05
13/64	.2031		2 7/16	3 5/8	260013	15.25	260113	17.55
	.2040	6	2 1/2	3 3/4	260206	15.05	260306	17.50
	.2055	5	2 1/2	3 3/4	260205	15.25	260305	17.05
	.2090	4	2 1/2	3 3/4	260204	15.05	260304	17.50
7/32	.2130	3	2 1/2	3 3/4	260203	15.25	260303	17.05
	.2188		2 1/2	3 3/4	260014	15.25	260114	17.55
	.2210	2	2 5/8	3 7/8	260202	15.90	260302	18.35
	.2280	1	2 5/8	3 7/8	260201	15.55	260301	18.10
15/64	.2340	A	2 5/8	3 7/8	260401	17.25	260501	20.00
	.2344		2 5/8	3 7/8	260015	16.35	260115	19.05
	.2380	B	2 3/4	4	260402	17.25	260502	20.00
	.2420	C	2 3/4	4	260403	17.25	260503	20.00
1/4	.2460	D	2 3/4	4	260404	16.85	260504	19.60
	.2500	E	2 3/4	4	260016	16.35	260116	19.05
	.2570	F	2 7/8	4 1/8	260406	19.35	260506	22.45

TOOL DIAMETER			LENGTH		118° POINT		135° POINT		
FRAC.	DEC.	WIRE LETTER	FLUTE	OVER-ALL	TYPE 2600 EDP NO.	PRICE	TYPE 2601 EDP NO.	PRICE	
17/64	.2610	G	2 7/8	4 1/8	260407	\$19.85	260507	\$22.95	
	.2656		2 7/8	4 1/8	260017	18.20	260117	20.85	
	.2660	H	2 7/8	4 1/8	260408	20.25	260508	23.50	
	.2720	I	2 7/8	4 1/8	260409	19.85	260509	22.95	
9/32	.2770	J	2 7/8	4 1/8	260410	20.25	260510	23.50	
	.2810	K	2 15/16	4 1/4	260411	20.25	260511	23.50	
	.2812		2 15/16	4 1/4	260018	19.30	260118	22.35	
	.2900	L	2 15/16	4 1/4	260412	20.25	260512	23.50	
19/64	.2950	M	3 1/16	4 3/8	260413	22.30	260513	25.95	
	.2969		3 1/16	4 3/8	260019	21.35	260119	24.75	
	.3020	N	3 1/16	4 3/8	260414	21.80	260514	25.40	
	5/16	.3125		3 3/16	4 1/2	260020	20.90	260120	24.25
21/64	.3160	O	3 3/16	4 1/2	260415	21.50	260515	24.85	
	.3230	P	3 5/16	4 5/8	260416	22.90	260516	26.50	
	.3281		3 5/16	4 5/8	260021	22.15	260121	25.75	
	.3320	Q	3 7/16	4 3/4	260417	23.35	260517	27.20	
11/32	.3390	R	3 7/16	4 3/4	260418	22.90	260518	26.50	
	.3438		3 7/16	4 3/4	260022	22.15	260122	25.75	
	.3480	S	3 1/2	4 7/8	260419	24.60	260519	28.60	
	.3580	T	3 1/2	4 7/8	260420	25.10	260520	29.25	
23/64	.3594		3 1/2	4 7/8	260023	23.60	260123	27.45	
	.3680	U	3 5/8	5	260421	24.15	260521	28.05	
	3/8	.3750		3 5/8	5	260024	23.60	260124	27.45
		.3770	V	3 5/8	5	260422	24.60	260522	28.60
25/64	.3860	W	3 3/4	5 1/8	260423	27.05	260523	31.30	
	.3906		3 3/4	5 1/8	260025	25.65	260125	29.85	
	.3970	X	3 3/4	5 1/8	260424	25.90	260524	30.00	
	.4040	Y	3 7/8	5 1/4	260425	27.05	260525	31.30	
13/32	.4062		3 7/8	5 1/4	260026	25.65	260126	29.85	
	.4130	Z	3 7/8	5 1/4	260426	29.90	260526	34.60	
	27/64	.4219		3 15/16	5 3/8	260027	27.90	260127	32.40
		7/16	.4375		4 1/16	5 1/2	260028	27.90	260128
29/64	.4531		4 3/16	5 5/8	260029	32.10	260129	37.15	
	15/32	.4688		4 5/16	5 3/4	260030	31.35	260130	36.35
	31/64	.4844		4 3/8	5 7/8	260031	35.10	260131	40.70
		1/2	.5000		4 1/2	6	260032	38.55	260132
33/64	.5156		4 13/16	6 5/8	260033	50.25	260133	58.35	
	17/32	.5312		4 13/16	6 5/8	260034	50.25	260134	58.35
	35/64	.5469		4 13/16	6 5/8	260035	50.70	260135	58.85
		9/16	.5625		4 13/16	6 5/8	260036	50.70	260136
37/64	.5781		4 13/16	6 5/8	260037	56.00	260137	65.05	
	19/32	.5938		5 3/16	7 1/8	260038	54.45	260138	63.25
	39/64	.6094		5 3/16	7 1/8	260039	64.35	260139	74.70
		5/8	.6250		5 3/16	7 1/8	260040	61.70	260140
41/64	.6406		5 3/16	7 1/8	260041	71.15	260141	82.65	
	21/32	.6562		5 3/16	7 1/8	260042	62.75	260142	72.80
	43/64	.6719		5 5/8	7 3/8	260043	81.65	260143	94.80
		11/16	.6875		5 5/8	7 3/8	260044	63.95	260144
45/64	.7031		5 5/8	7 3/8	260045	74.70	260145	83.10	
	23/32	.7188		5 5/8	7 3/8	260046	75.50	260146	83.90
	47/64	.7344		5 5/8	7 3/8	260047	75.90	260147	84.35
		3/4	.7500		5 13/16	8	260048	77.05	260148
TANGING QUANTITY			1	2	3	4	5-7	8-14	15 OR MORE
PRICE PER TOOL			\$14.00	\$8.00	\$6.00	\$5.00	\$4.00	\$3.00	\$2.00

*Solid Carbide



TWIST DRILLS - CARBIDE TIPPED

METRIC DIAMETERS - JOBBERS LENGTH



TOOL DIAMETER		LENGTH				118° POINT		135° POINT	
		FLUTE		OVERALL		TYPE 2600 EDP NO.	PRICE	TYPE 2601 EDP NO.	PRICE
mm	INCH	mm	INCH	mm	INCH				
3.0	.1181	41	1 5/8	70	2 3/4	2600030	\$16.50	2601030	\$16.90
3.1	.1220	41	1 5/8	70	2 3/4	2600031	17.30	2601031	17.50
3.2	.1260	41	1 5/8	70	2 3/4	2600032	17.30	2601032	17.50
3.3	.1299	44	1 3/4	73	2 7/8	2600033	17.30	2601033	17.50
3.4	.1339	44	1 3/4	73	2 7/8	2600034	17.30	2601034	17.50
3.5	.1378	44	1 3/4	73	2 7/8	2600035	16.00	2601035	16.50
3.6	.1417	48	1 7/8	76	3	2600036	16.50	2601036	16.90
3.7	.1457	48	1 7/8	76	3	2600037	16.50	2601037	16.90
3.8	.1496	48	1 7/8	76	3	2600038	16.50	2601038	16.90
3.9	.1535	51	2	79	3 1/8	2600039	16.50	2601039	16.90
4.0	.1575	54	2 1/8	83	3 1/4	2600040	15.55	2601040	16.00
4.1	.1614	54	2 1/8	83	3 1/4	2600041	15.00	2601041	17.05
4.2	.1654	54	2 1/8	83	3 1/4	2600042	16.00	2601042	17.05
4.3	.1693	54	2 1/8	83	3 1/4	2600043	16.00	2601043	17.05
4.4	.1732	56	2 1/8	86	3 3/8	2600044	16.00	2601044	17.05
4.5	.1772	56	2 1/8	86	3 3/8	2600045	16.50	2601045	17.05
4.6	.1811	56	2 1/8	86	3 3/8	2600046	18.05	2601046	18.25
4.7	.1850	59	2 3/8	89	3 1/2	260213	15.30	260313	16.15
4.8	.1890	59	2 3/8	89	3 1/2	260212	16.00	260312	16.90
4.9	.1929	62	2 7/16	92	3 5/8	2600049	18.05	2601049	18.25
5.0	.1969	62	2 7/16	92	3 5/8	2600050	17.30	2601050	17.80
5.1	.2008	62	2 7/16	92	3 5/8	2600051	18.80	2601051	19.05
5.2	.2047	64	2 1/2	95	3 3/4	2600052	18.80	2601052	19.05
5.3	.2087	64	2 1/2	95	3 3/4	2600053	18.80	2601053	19.05
5.4	.2126	64	2 1/2	95	3 3/4	2600054	18.80	2601054	19.05
5.5	.2165	64	2 1/2	95	3 3/4	2600055	18.35	2601055	18.50
5.6	.2205	67	2 5/8	98	3 7/8	2600056	19.30	2601056	19.65
5.7	.2244	67	2 5/8	98	3 7/8	2600057	19.30	2601057	19.65
5.8	.2283	67	2 5/8	98	3 7/8	2600058	19.30	2601058	19.65
5.9	.2323	67	2 5/8	98	3 7/8	2600059	19.30	2601059	19.65
6.0	.2362	70	2 3/4	102	4	2600060	19.05	2601060	20.15
6.1	.2402	70	2 3/4	102	4	2600061	20.15	2601061	20.70
6.2	.2441	70	2 3/4	102	4	2600062	20.15	2601062	20.70
6.3	.2480	70	2 3/4	102	4	2600063	20.15	2601063	20.70
6.4	.2520	73	2 7/8	105	4 1/8	2600064	20.15	2601064	20.70
6.5	.2559	73	2 7/8	105	4 1/8	2600065	19.70	2601065	20.15
6.6	.2598	73	2 7/8	105	4 1/8	2600066	21.05	2601066	23.60
6.7	.2638	73	2 7/8	105	4 1/8	2600067	21.05	2601067	23.60
6.8	.2677	73	2 7/8	105	4 1/8	2600068	21.05	2601068	23.60
6.9	.2717	73	2 7/8	105	4 1/8	2600069	21.05	2601069	23.60
7.0	.2756	73	2 7/8	105	4 1/8	2600070	20.65	2601070	23.60
7.1	.2795	75	2 15/16	108	4 1/4	2600071	21.60	2601071	23.60
7.2	.2835	75	2 15/16	108	4 1/4	2600072	21.60	2601072	23.60
7.3	.2874	75	2 15/16	108	4 1/4	2600073	21.60	2601073	23.60
7.4	.2913	78	3 1/16	111	4 3/8	2600074	21.60	2601074	25.55
7.5	.2953	78	3 1/16	111	4 3/8	2600075	21.60	2601075	25.55
7.6	.2992	78	3 1/16	111	4 3/8	2600076	22.65	2601076	25.55
7.7	.3031	81	3 3/16	114	4 1/2	2600077	22.65	2601077	25.55
7.8	.3071	81	3 3/16	114	4 1/2	2600078	22.65	2601078	25.55
7.9	.3110	81	3 3/16	114	4 1/2	2600079	22.65	2601079	25.55
8.0	.3150	81	3 3/16	114	4 1/2	2600080	22.10	2601080	25.55
8.1	.3189	84	3 3/16	117	4 5/8	2600081	24.15	2601081	27.20
8.2	.3228	84	3 3/16	117	4 5/8	2600082	24.15	2601082	27.20
8.3	.3268	84	3 3/16	117	4 5/8	2600083	24.15	2601083	27.20
8.4	.3307	87	3 7/16	121	4 3/4	2600084	24.15	2601084	27.20
8.5	.3346	87	3 7/16	121	4 3/4	2600085	23.10	2601085	27.20
8.6	.3386	87	3 7/16	121	4 3/4	2600086	24.15	2601086	27.20
8.7	.3425	87	3 7/16	121	4 3/4	2600087	24.15	2601087	27.20
8.8	.3465	89	3 1/2	124	4 7/8	2600088	24.15	2601088	27.20

OPTIONS:

Intermediate metric diameters.

Special point types and angles.

Automotive tang for use in split sleeve drill drivers.

TOOL DIAMETER		LENGTH				118° POINT		135° POINT	
		FLUTE		OVERALL		TYPE 2600 EDP NO.	PRICE	TYPE 2601 EDP NO.	PRICE
mm	INCH	mm	INCH	mm	INCH				
8.9	.3504	89	3 ½	124	4 ⅞	2600089	\$24.15	2601089	\$28.95
9.0	.3543	89	3 ½	124	4 ⅞	2600090	23.60	2601090	28.95
9.1	.3583	89	3 ½	124	4 ⅞	2600091	26.15	2601091	28.95
9.2	.3622	92	3 ⅝	127	5	2600092	26.15	2601092	28.95
9.3	.3661	92	3 ⅝	127	5	2600093	26.15	2601093	28.95
9.4	.3701	92	3 ⅝	127	5	2600094	26.15	2601094	28.95
9.5	.3740	92	3 ⅝	127	5	2600095	25.65	2601095	28.95
9.6	.3780	95	3 ¾	130	5 ⅙	2600096	26.55	2601096	31.55
9.7	.3819	95	3 ¾	130	5 ⅙	2600097	26.55	2601097	31.55
9.8	.3858	95	3 ¾	130	5 ⅙	2600098	26.55	2601098	31.55
9.9	.3898	95	3 ¾	130	5 ⅙	2600099	26.55	2601099	31.55
10.0	.3937	95	3 ¾	130	5 ⅙	2600100	26.55	2601100	31.55
10.1	.3976	98	3 ⅞	133	5 ¼	2600101	31.65	2601101	32.50
10.2	.4016	98	3 ⅞	133	5 ¼	2600102	31.65	2601102	32.50
10.3	.4055	98	3 ⅞	133	5 ¼	2600103	31.65	2601103	32.50
10.4	.4094	98	3 ⅞	133	5 ¼	2600104	31.65	2601104	34.15
10.5	.4134	98	3 ⅞	133	5 ¼	2600105	30.60	2601105	34.15
10.6	.4173	100	3 ⅞	137	5 ⅜	2600106	34.65	2601106	35.30
10.7	.4213	100	3 ⅞	137	5 ⅜	2600107	34.65	2601107	35.30
10.8	.4252	103	4 ⅙	140	5 ½	2600108	34.65	2601108	35.30
10.9	.4291	103	4 ⅙	140	5 ½	2600109	34.65	2601109	35.30
11.0	.4331	103	4 ⅙	140	5 ½	2600110	33.20	2601110	34.15
11.1	.4370	103	4 ⅙	140	5 ½	2600111	38.70	2601111	39.30
11.2	.4409	106	4 ⅓	143	5 ⅝	2600112	38.70	2601112	39.65
11.3	.4449	106	4 ⅓	143	5 ⅝	2600113	38.70	2601113	39.65
11.4	.4488	106	4 ⅓	143	5 ⅝	2600114	38.70	2601114	38.45
11.5	.4528	106	4 ⅓	143	5 ⅝	2600115	37.20	2601115	38.45
11.6	.4567	110	4 ⅝	146	5 ¾	2600116	42.15	2601116	42.80
11.7	.4606	110	4 ⅝	146	5 ¾	2600117	42.15	2601117	42.80
11.8	.4646	110	4 ⅝	146	5 ¾	2600118	42.15	2601118	42.80
11.9	.4685	110	4 ⅝	146	5 ¾	2600119	42.15	2601119	42.80
12.0	.4724	111	4 ⅞	149	5 ⅞	2600120	40.30	2601120	43.05
12.1	.4764	111	4 ⅞	149	5 ⅞	2600121	43.85	2601121	44.50
12.2	.4803	111	4 ⅞	149	5 ⅞	2600122	43.85	2601122	44.50
12.3	.4843	111	4 ⅞	149	5 ⅞	2600123	43.85	2601123	44.50
12.4	.4882	114	4 ½	152	6	2600124	43.85	2601124	44.50
12.5	.4921	114	4 ½	152	6	2600125	41.80	2601125	43.05
12.6	.4961	114	4 ½	152	6	2600126	45.40	2601126	45.95
12.7	.5000	114	4 ½	152	6	260032	38.55	260132	40.70
12.8	.5039	114	4 ½	152	6	2600128	49.80	2601128	63.40
12.9	.5079	114	4 ½	152	6	2600129	49.80	2601129	63.40
13.0	.5118	114	4 ½	152	6	2600130	49.80	2601130	63.40
13.5	.5315	122	4 ⅞	168	6 ⅝	2600135	64.50	2601135	69.55
14.0	.5512	122	4 ⅞	168	6 ⅝	2600140	68.35	2601140	73.70
14.5	.5709	122	4 ⅞	168	6 ⅝	2600145	73.30	2601145	79.20
15.0	.5906	132	5 ⅓	181	7 ⅞	2600150	73.30	2601150	79.20
15.5	.6102	132	5 ⅓	181	7 ⅞	2600155	74.25	2601155	80.20
16.0	.6299	132	5 ⅓	181	7 ⅞	2600160	75.60	2601160	81.65
16.5	.6496	132	5 ⅓	181	7 ⅞	2600165	75.60	2601165	81.65
17.0	.6693	143	5 ⅝	194	7 ⅞	2600170	78.50	2601170	84.85
17.5	.6890	143	5 ⅝	194	7 ⅞	2600175	78.50	2601175	84.85
18.0	.7087	143	5 ⅝	194	7 ⅞	2600180	79.45	2601180	85.65
18.5	.7283	143	5 ⅝	194	7 ⅞	2600185	79.85	2601185	86.20
19.0	.7480	148	5 ⅞	203	8	2600190	80.90	2601190	87.45



TWIST DRILLS - CARBIDE TIPPED

JOBBER LENGTH - TANGED



TYPE 2690 - JOBBERS LENGTH TANGED - 118° POINT

Tanged jobbers length - 118° standard point.

TYPE 2691 - JOBBERS LENGTH TANGED - 135° SPLIT POINT

Same as Type 2690 above, except with 135° split point.

Designed for drilling tough abrasive or high tensile materials.

OPTIONS:

Modified tool diameter.

Modified metric tool diameter.

Modified point and/or angle.

Reduced shank diameter.

Drill tolerances (see page 14).

USE:

For use in ASA split sleeve drill drivers.

TOOL DIAMETER			LENGTH		118° POINT		135° POINT	
FRAC.	WIRE LETTER	DEC. EQUIV.	FLUTE	OVER-ALL	TYPE 2690 EDP NO.	PRICE	TYPE 2691 EDP NO.	PRICE
1/8		.1250	1 5/8	2 3/4	269008	\$14.75	269108	\$17.35
	30	.1285	1 5/8	2 3/4	269230	15.15	269330	17.60
	29	.1360	1 3/4	2 7/8	269229	15.65	269329	18.10
	28	.1405	1 3/4	2 7/8	269228	15.80	269328	18.45
9/64		.1406	1 3/4	2 7/8	269009	16.05	269109	18.80
	27	.1440	1 7/8	3	269227	16.25	269327	18.95
	26	.1470	1 7/8	3	269226	15.10	269326	17.60
	25	.1495	1 7/8	3	269225	15.10	269325	17.60
5/32	24	.1520	2	3 1/8	269224	16.25	269324	18.95
	23	.1540	2	3 1/8	269223	15.80	269323	18.45
		.1562	2	3 1/8	269010	15.75	269110	18.45
	22	.1570	2	3 1/8	269222	17.55	269322	20.35
	21	.1590	2 1/8	3 1/4	269221	16.75	269321	19.45
	20	.1610	2 1/8	3 1/4	269220	17.15	269320	20.00
	19	.1660	2 1/8	3 1/4	269219	17.15	269319	20.00
	18	.1695	2 1/8	3 1/4	269218	17.15	269318	20.00
11/64		.1719	2 1/8	3 1/4	269011	17.15	269111	20.00
	17	.1730	2 3/16	3 3/8	269217	17.15	269317	20.00
	16	.1770	2 3/16	3 3/8	269216	16.75	269316	19.45
	15	.1800	2 3/16	3 3/8	269215	17.55	269315	20.35
3/16	14	.1820	2 3/16	3 3/8	269214	16.75	269314	19.45
	13	.1850	2 5/16	3 1/2	269213	18.45	269313	19.45
		.1875	2 5/16	3 1/2	269012	16.75	269112	19.45
	12	.1890	2 5/16	3 1/2	269212	19.20	269312	20.35
	11	.1910	2 5/16	3 1/2	269211	17.80	269311	20.55
	10	.1935	2 7/16	3 5/8	269210	17.55	269310	20.35
	9	.1960	2 7/16	3 5/8	269209	17.80	269309	20.55
	8	.1990	2 7/16	3 5/8	269208	17.80	269308	20.55
13/64	7	.2010	2 7/16	3 5/8	269207	17.80	269307	20.55
		.2031	2 7/16	3 5/8	269013	18.35	269113	21.20
	6	.2040	2 1/2	3 3/4	269206	18.15	269306	21.15
	5	.2055	2 1/2	3 3/4	269205	18.40	269305	20.55
7/32	4	.2090	2 1/2	3 3/4	269204	18.15	269304	21.15
	3	.2130	2 1/2	3 3/4	269203	18.40	269303	20.55
		.2188	2 1/2	3 3/4	269014	18.35	269114	21.35
	2	.2210	2 5/8	3 7/8	269202	19.10	269302	22.15
15/64	1	.2280	2 5/8	3 7/8	269201	18.90	269301	21.85
	A	.2340	2 5/8	3 7/8	269401	20.85	269501	24.10
		.2344	2 5/8	3 7/8	269015	19.75	269115	23.00
	B	.2380	2 3/4	4	269402	20.85	269502	24.10
1/4	C	.2420	2 3/4	4	269403	20.85	269503	24.10
	D	.2460	2 3/4	4	269404	20.30	269504	23.60
	E	.2500	2 3/4	4	269016	19.75	269116	23.00
	F	.2570	2 7/8	4 1/8	269406	23.35	269506	27.25
17/64	G	.2610	2 7/8	4 1/8	269407	24.00	269507	27.70
		.2656	2 7/8	4 1/8	269017	22.00	269117	25.10
	H	.2660	2 7/8	4 1/8	269408	24.45	269508	28.40
	I	.2720	2 7/8	4 1/8	269409	24.00	269509	27.70

TOOL DIAMETER			LENGTH		118° POINT		135° POINT	
FRAC.	WIRE LETTER	DEC. EQUIV.	FLUTE	OVER-ALL	TYPE 2690 EDP NO.	PRICE	TYPE 2691 EDP NO.	PRICE
9/32	J	.2770	2 7/8	4 1/8	269410	\$24.45	269510	\$28.40
	K	.2810	2 15/16	4 1/4	269411	24.45	269511	28.40
		.2812	2 15/16	4 1/4	269018	23.25	269118	26.95
	L	.2900	2 15/16	4 1/4	269412	24.45	269512	28.40
19/64	M	.2950	3 1/16	4 3/8	269413	26.90	269513	31.35
		.2969	3 1/16	4 3/8	269019	25.85	269119	29.85
	N	.3020	3 1/16	4 3/8	269414	26.35	269514	30.65
		.3125	3 3/16	4 1/2	269020	25.20	269120	29.30
21/64	O	.3160	3 3/16	4 1/2	269415	25.90	269515	29.90
	P	.3230	3 5/16	4 5/8	269416	27.65	269516	32.10
		.3281	3 5/16	4 5/8	269021	26.75	269121	31.15
	Q	.3320	3 7/16	4 3/4	269417	28.30	269517	32.80
11/32	R	.3390	3 7/16	4 3/4	269418	27.65	269518	32.10
		.3438	3 7/16	4 3/4	269022	26.75	269122	31.15
	S	.3480	3 1/2	4 7/8	269419	29.75	269519	34.60
	T	.3580	3 1/2	4 7/8	269420	30.35	269520	35.25
23/64	U	.3594	3 1/2	4 7/8	269023	28.50	269123	33.15
		.3680	3 5/8	5	269421	29.25	269521	33.80
		.3750	3 5/8	5	269024	28.50	269124	33.15
		.3770	3 5/8	5	269422	29.75	269522	34.60
3/8	V							
	W	.3860	3 3/4	5 1/8	269423	32.65	269523	37.80
		.3906	3 3/4	5 1/8	269025	30.95	269125	36.05
	X	.3970	3 3/4	5 1/8	269424	31.25	269524	36.25
25/64	Y	.4040	3 7/8	5 1/4	269425	32.65	269525	37.80
13/32	Z	.4062	3 7/8	5 1/4	269026	30.95	269126	36.05
		.4130	3 7/8	5 1/4	269426	36.15	269526	41.85
		.4219	3 15/16	5 3/8	269027	33.70	269127	39.15
		.4375	4 1/16	5 1/2	269028	33.70	269128	39.15
27/64								
7/16								
29/64		.4531	4 3/16	5 5/8	269029	38.65	269129	44.80
		.4688	4 5/16	5 3/4	269030	37.95	269130	43.85
		.4844	4 3/8	5 7/8	269031	42.35	269131	49.20
	1/2	.5000	4 1/2	6	269032	46.60	269132	49.20
33/64		.5156	4 13/16	6 3/8	269033	60.65	269133	70.45
		.5312	4 13/16	6 3/8	269034	60.65	269134	70.45
		.5469	4 13/16	6 3/8	269035	61.25	269135	71.15
	9/16	.5625	4 13/16	6 3/8	269036	61.25	269136	71.15
37/64		.5781	4 13/16	6 3/8	269037	67.60	269137	78.55
		.5938	5 3/16	7 1/8	269038	65.85	269138	76.35
	19/32	.6094	5 3/16	7 1/8	269039	77.70	269139	90.25
	5/8	.6250	5 3/16	7 1/8	269040	74.50	269140	86.40
41/64		.6406	5 3/16	7 1/8	269041	85.95	269141	99.80
		.6562	5 3/16	7 1/8	269042	75.70	269142	87.90
	43/64	.6719	5 5/8	7 7/8	269043	98.65	269143	114.50
	11/16	.6875	5 5/8	7 7/8	269044	77.20	269144	89.55
45/64		.7031	5 5/8	7 7/8	269045	90.30	269145	100.40
	23/32	.7188	5 5/8	7 7/8	269046	91.20	269146	101.25
		.7344	5 5/8	7 7/8	269047	91.65	269147	101.95
	3/4	.7500	5 13/16	8	269048	93.20	269148	103.40



TWIST DRILLS - CARBIDE TIPPED

METRIC DIAMETER - JOBBERS LENGTH - TANGED



OPTIONS:

Modified tool diameter.
Modified metric tool diameter.
Modified point and/or angle.
Reduced shank diameter.

Drill tolerances (see page 14).

TOOL DIAMETER		LENGTH				118° PT.		135° PT.	
		FLUTE		OVERALL		TYPE 2690 EDP NO.	PRICE	TYPE 2691 EDP NO.	PRICE
mm	INCH	mm	INCH	mm	INCH				
3.2	.1260	41	1 5⁄8	70	2 3⁄4	2690032	\$20.95	2691032	\$21.15
3.3	.1299	44	1 3⁄4	73	2 7⁄8	2690033	20.95	2691033	21.15
3.4	.1339	44	1 3⁄4	73	2 7⁄8	2690034	20.95	2691034	21.15
3.5	.1378	44	1 3⁄4	73	2 7⁄8	2690035	19.20	2691035	20.00
3.6	.1417	48	1 7⁄8	76	3	2690036	20.05	2691036	20.35
3.7	.1457	48	1 7⁄8	76	3	2690037	20.05	2691037	20.35
3.8	.1496	48	1 7⁄8	76	3	2690038	20.05	2691038	20.35
3.9	.1535	51	2	79	3 1⁄8	2690039	20.05	2691039	20.35
4.0	.1575	54	2 1⁄8	83	3 1⁄4	2690040	18.90	2691040	19.35
4.1	.1614	54	2 1⁄8	83	3 1⁄4	2690041	18.10	2691041	20.55
4.2	.1654	54	2 1⁄8	83	3 1⁄4	2690042	19.20	2691042	20.55
4.3	.1693	54	2 1⁄8	83	3 1⁄4	2690043	19.20	2691043	20.55
4.4	.1732	56	2 3⁄16	86	3 3⁄8	2690044	19.20	2691044	20.55
4.5	.1772	56	2 3⁄16	86	3 3⁄8	2690045	20.05	2691045	20.55
4.6	.1811	56	2 3⁄16	86	3 3⁄8	2690046	21.80	2691046	22.05
4.7	.1850	59	2 3⁄16	89	3 1⁄2	269213	18.45	269313	19.45
4.8	.1890	59	2 3⁄16	89	3 1⁄2	269212	19.20	269312	20.35
4.9	.1929	62	2 7⁄16	92	3 5⁄8	2690049	21.80	2691049	22.05
5.0	.1969	62	2 7⁄16	92	3 5⁄8	2690050	20.90	2691050	21.50
5.1	.2008	62	2 7⁄16	92	3 5⁄8	2690051	22.65	2691051	23.00
5.2	.2047	64	2 1⁄2	95	3 3⁄4	2690052	22.65	2691052	23.00
5.3	.2087	64	2 1⁄2	95	3 3⁄4	2690053	22.65	2691053	23.00
5.4	.2126	64	2 1⁄2	95	3 3⁄4	2690054	22.65	2691054	23.00
5.5	.2165	64	2 1⁄2	95	3 3⁄4	2690055	22.10	2691055	22.45
5.6	.2205	67	2 5⁄8	98	3 7⁄8	2690056	23.25	2691056	23.80
5.7	.2244	67	2 5⁄8	98	3 7⁄8	2690057	23.25	2691057	23.80
5.8	.2283	67	2 5⁄8	98	3 7⁄8	2690058	23.25	2691058	23.80
5.9	.2323	67	2 5⁄8	98	3 7⁄8	2690059	23.25	2691059	23.80
6.0	.2362	70	2 3⁄4	102	4	2690060	23.00	2691060	24.30
6.1	.2402	70	2 3⁄4	102	4	2690061	24.30	2691061	25.00
6.2	.2441	70	2 3⁄4	102	4	2690062	24.30	2691062	25.00
6.3	.2480	70	2 3⁄4	102	4	2690063	24.30	2691063	25.00
6.4	.2520	73	2 7⁄8	105	4 1⁄8	2690064	24.30	2691064	25.00
6.5	.2559	73	2 7⁄8	105	4 1⁄8	2690065	23.90	2691065	24.30
6.6	.2598	73	2 7⁄8	105	4 1⁄8	2690066	25.45	2691066	28.55
6.7	.2638	73	2 7⁄8	105	4 1⁄8	2690067	25.45	2691067	28.55
6.8	.2677	73	2 7⁄8	105	4 1⁄8	2690068	25.45	2691068	28.55
6.9	.2717	73	2 7⁄8	105	4 1⁄8	2690069	25.45	2691069	28.55
7.0	.2756	73	2 7⁄8	105	4 1⁄8	2690070	24.90	2691070	28.55
7.1	.2795	75	2 15⁄16	108	4 1⁄4	2690071	26.10	2691071	28.55
7.2	.2835	75	2 15⁄16	108	4 1⁄4	2690072	26.10	2691072	28.55
7.3	.2874	75	2 15⁄16	108	4 1⁄4	2690073	26.10	2691073	28.55
7.4	.2913	78	3 1⁄16	111	4 3⁄8	2690074	26.10	2691074	30.85
7.5	.2953	78	3 1⁄16	111	4 3⁄8	2690075	26.10	2691075	30.85
7.6	.2992	78	3 1⁄16	111	4 3⁄8	2690076	27.40	2691076	30.85
7.7	.3031	81	3 3⁄16	114	4 1⁄2	2690077	27.40	2691077	30.85
7.8	.3071	81	3 3⁄16	114	4 1⁄2	2690078	27.40	2691078	30.85
7.9	.3110	81	3 3⁄16	114	4 1⁄2	2690079	27.40	2691079	30.85
8.0	.3150	81	3 3⁄16	114	4 1⁄2	2690080	26.75	2691080	30.85
8.1	.3189	84	3 3⁄16	117	4 5⁄8	2690081	29.15	2691081	32.80
8.2	.3228	84	3 3⁄16	117	4 5⁄8	2690082	29.15	2691082	32.80
8.3	.3268	84	3 3⁄16	117	4 5⁄8	2690083	29.15	2691083	32.80

TOOL		LENGTH				118° PT.		135° PT.	
DIAMETER		FLUTE		OVERALL		TYPE 2690 EDP NO.	PRICE	TYPE 2691 EDP NO.	PRICE
mm	INCH	mm	INCH	mm	INCH				
8.4	.3307	87	3 7⁄16	121	4 3⁄4	2690084	\$29.15	2691084	32.80
8.5	.3346	87	3 7⁄16	121	4 3⁄4	2690085	27.85	2691085	32.80
8.6	.3386	87	3 7⁄16	121	4 3⁄4	2690086	29.15	2691086	32.80
8.7	.3425	87	3 7⁄16	121	4 3⁄4	2690087	29.15	2691087	32.80
8.8	.3465	89	3 1⁄2	124	4 7⁄8	2690088	29.15	2691088	32.80
8.9	.3504	89	3 1⁄2	124	4 7⁄8	2690089	29.15	2691089	34.90
9.0	.3543	89	3 1⁄2	124	4 7⁄8	2690090	28.50	2691090	34.90
9.1	.3583	89	3 1⁄2	124	4 7⁄8	2690091	31.60	2691091	34.90
9.2	.3622	92	3 5⁄8	127	5	2690092	31.60	2691092	34.90
9.3	.3661	92	3 5⁄8	127	5	2690093	31.60	2691093	34.90
9.4	.3701	92	3 5⁄8	127	5	2690094	31.60	2691094	34.90
9.5	.3740	92	3 5⁄8	127	5	2690095	30.95	2691095	34.90
9.6	.3780	95	3 3⁄4	130	5 1⁄8	2690096	32.15	2691096	38.10
9.7	.3819	95	3 3⁄4	130	5 1⁄8	2690097	32.15	2691097	38.10
9.8	.3858	95	3 3⁄4	130	5 1⁄8	2690098	32.15	2691098	38.10
9.9	.3898	95	3 3⁄4	130	5 1⁄8	2690099	32.15	2691099	38.10
10.0	.3937	95	3 3⁄4	130	5 1⁄8	2690100	32.15	2691100	38.10
10.1	.3976	98	3 7⁄8	133	5 1⁄4	2690101	38.20	2691101	39.20
10.2	.4016	98	3 7⁄8	133	5 1⁄4	2690102	38.20	2691102	39.20
10.3	.4055	98	3 7⁄8	133	5 1⁄4	2690103	38.20	2691103	39.20
10.4	.4094	98	3 7⁄8	133	5 1⁄4	2690104	38.25	2691104	41.15
10.5	.4134	98	3 7⁄8	133	5 1⁄4	2690105	37.05	2691105	41.15
10.6	.4173	100	3 15⁄16	137	5 3⁄8	2690106	42.00	2691106	42.60
10.7	.4213	100	3 15⁄16	137	5 3⁄8	2690107	42.00	2691107	42.60
10.8	.4252	103	4 1⁄16	140	5 1⁄2	2690108	42.00	2691108	42.60
10.9	.4291	103	4 1⁄16	140	5 1⁄2	2690109	42.00	2691109	42.60
11.0	.4331	103	4 1⁄16	140	5 1⁄2	2690110	40.05	2691110	41.15
11.1	.4370	103	4 1⁄16	140	5 1⁄2	2690111	46.70	2691111	47.40
11.2	.4409	106	4 3⁄16	143	5 5⁄8	2690112	46.75	2691112	47.85
11.3	.4449	106	4 3⁄16	143	5 5⁄8	2690113	46.75	2691113	47.85
11.4	.4488	106	4 3⁄16	143	5 5⁄8	2690114	46.70	2691114	46.45
11.5	.4528	106	4 3⁄16	143	5 5⁄8	2690115	44.85	2691115	46.45
11.6	.4567	110	4 5⁄16	146	5 3⁄4	2690116	50.75	2691116	51.70
11.7	.4606	110	4 5⁄16	146	5 3⁄4	2690117	50.75	2691117	51.70
11.8	.4646	110	4 5⁄16	146	5 3⁄4	2690118	50.75	2691118	51.70
11.9	.4685	110	4 5⁄16	146	5 3⁄4	2690119	50.75	2691119	51.70
12.0	.4724	111	4 3⁄8	149	5 7⁄8	2690120	48.65	2691120	51.95
12.5	.4921	114	4 1⁄2	152	6	2690125	50.50	2691125	51.95
13.0	.5118	114	4 1⁄2	152	6	2690130	60.15	2691130	76.65
13.5	.5315	122	4 13⁄16	168	6 5⁄8	2690135	77.80	2691135	83.95
14.0	.5512	122	4 13⁄16	168	6 5⁄8	2690140	82.55	2691140	89.00
14.5	.5709	122	4 13⁄16	168	6 5⁄8	2690145	88.50	2691145	95.70
15.0	.5906	132	5 3⁄16	181	7 1⁄8	2690150	88.50	2691150	95.70
15.5	.6102	132	5 3⁄16	181	7 1⁄8	2690155	89.70	2691155	96.90
16.0	.6299	132	5 3⁄16	181	7 1⁄8	2690160	91.30	2691160	98.55
16.5	.6496	132	5 3⁄16	181	7 1⁄8	2690165	91.30	2691165	98.55
17.0	.6693	143	5 5⁄8	194	7 7⁄8	2690170	94.75	2691170	102.50
17.5	.6890	143	5 5⁄8	194	7 7⁄8	2690175	94.75	2691175	102.50
18.0	.7087	143	5 5⁄8	194	7 7⁄8	2690180	95.80	2691180	103.40
18.5	.7283	143	5 5⁄8	194	7 7⁄8	2690185	96.40	2691185	104.05
19.0	.7480	148	5 13⁄16	203	8	2690190	97.65	2691190	105.55



TWIST DRILLS - CARBIDE TIPPED

CNC STUB LENGTH



TYPE 2640 - STUB LENGTH - 118° POINT

Stub length - 118° standard point.

TYPE 2641 - STUB LENGTH - 135° SPLIT POINT

Stub length - 135° split point.

Same as type 2640 above, except with 135° split point designed for drilling abrasive and tough materials.

USE:

Excellent starting drill.

Exact location shallow drilling.

Often used in CNC machining centers.

Shorter length results in a very rigid and sturdy drill.

DRILL TOLERANCES:

Drill Diameter	Diameter		Included Angle		Lip Height T.I.V.
	Plus	Minus	Plus	Minus	
Thru 1/8"	.0000"	.0005"	5°	5°	.0020"
Over 1/8" thru 1/4"	.0000"	.0007"	5°	5°	.0030"
Over 1/4" thru 1/2"	.0000"	.0010"	5°	5°	.0040"
Over 1/2" thru 1"	.0000"	.0012"	3°	3°	.0050"
Over 1"	.0000"	.0015"	3°	3°	.0060"

TOOL DIAMETER			LENGTH		118° POINT		135° POINT	
FRACTION	WIRE LETTER	DECIMAL EQUIV.	FLUTE	OVER-ALL	TYPE 2640 EDP NO.	PRICE	TYPE 2641 EDP NO.	PRICE
1/8	32	.1160	7/8	1 7/8	264232	\$18.50	264332	\$20.55
	31	.1200	7/8	1 7/8	264231	18.50	264331	20.55
	30	.1250	7/8	1 7/8	264008	13.90	264108	15.00
	30	.1285	15/16	1 15/16	264230	19.60	264330	21.60
9/64	29	.1360	15/16	1 15/16	264229	19.60	264329	21.60
	28	.1405	15/16	1 15/16	264228	19.60	264328	21.60
		.1406	15/16	1 15/16	264009	16.80	264109	19.75
	27	.1440	1	2 1/16	264227	19.60	264327	21.60
	26	.1470	1	2 1/16	264226	19.60	264326	21.60
	25	.1495	1	2 1/16	264225	19.60	264325	21.60
	24	.1520	1	2 1/16	264224	19.60	264324	21.60
	23	.1540	1	2 1/16	264223	19.60	264323	21.60
5/32		.1562	1	2 1/16	264010	14.70	264110	16.00
	22	.1570	1 1/16	2 1/8	264222	19.60	264322	21.60
	21	.1590	1 1/16	2 1/8	264221	19.60	264321	21.60
	20	.1610	1 1/16	2 1/8	264220	22.75	264320	25.35
11/64	19	.1660	1 1/16	2 1/8	264219	22.75	264319	25.35
	18	.1695	1 1/16	2 1/8	264218	22.75	264318	25.35
		.1719	1 1/16	2 1/8	264011	20.00	264111	21.50
	17	.1730	1 1/8	2 3/16	264217	23.20	264317	25.75
	16	.1770	1 1/8	2 3/16	264216	23.20	264316	25.75
	15	.1800	1 1/8	2 3/16	264215	23.20	264315	25.75
	14	.1820	1 1/8	2 3/16	264214	23.20	264314	25.75
	13	.1850	1 1/8	2 3/16	264213	23.20	264313	25.75
3/16		.1875	1 1/8	2 3/16	264012	15.45	264112	16.95
	12	.1890	1 3/16	2 1/4	264212	23.05	264312	25.55
	11	.1910	1 3/16	2 1/4	264211	23.05	264311	25.55
	10	.1935	1 3/16	2 1/4	264210	23.05	264310	25.55
13/64	9	.1960	1 3/16	2 1/4	264209	23.05	264309	25.55
	8	.1990	1 3/16	2 1/4	264208	23.05	264308	25.55
	7	.2010	1 3/16	2 1/4	264207	20.25	264307	24.30
		.2031	1 3/16	2 1/4	264013	20.00	264113	21.50
	6	.2040	1 1/4	2 3/8	264206	23.20	264306	25.75
	5	.2055	1 1/4	2 3/8	264205	23.20	264305	25.75
	4	.2090	1 1/4	2 3/8	264204	23.20	264304	25.75
	3	.2130	1 1/4	2 3/8	264203	20.25	264303	24.30
7/32		.2188	1 1/4	2 3/8	264014	16.60	264114	18.40
	2	.2210	1 5/16	2 7/16	264202	23.05	264302	25.55
	1	.2280	1 5/16	2 7/16	264201	20.25	264301	25.55
	A	.2340	1 5/16	2 7/16	264401	23.05	264501	25.55
15/64		.2344	1 5/16	2 7/16	264015	18.40	264115	22.00
	B	.2380	1 3/8	2 1/2	264402	23.05	264502	25.55
	C	.2420	1 3/8	2 1/2	264403	23.05	264503	25.55
	D	.2460	1 3/8	2 1/2	264404	20.25	264504	24.30
1/4	E	.2500	1 3/8	2 1/2	264016	16.90	264116	19.50
	F	.2570	1 7/16	2 3/8	264406	23.55	264506	28.30
	G	.2610	1 7/16	2 3/8	264407	23.55	264507	28.30
		.2656	1 7/16	2 3/8	264017	20.55	264117	24.40
17/64		.2660	1 1/2	2 11/16	264408	22.80	264508	29.60
	I	.2720	1 1/2	2 11/16	264409	23.55	264509	28.30

TOOL DIAMETER			LENGTH		118° POINT		135° POINT	
FRACTION	WIRE LETTER	DECIMAL EQUIV.	FLUTE	OVER-ALL	TYPE 2640 EDP NO.	PRICE	TYPE 2641 EDP NO.	PRICE
9/32	J	.2770	1 1/2	2 11/16	264410	\$26.60	264510	\$29.60
	K	.2810	1 1/2	2 11/16	264411	26.60	264511	29.60
		.2812	1 1/2	2 11/16	264018	19.45	264118	22.65
5/16	L	.2900	1 1/16	2 3/4	264412	27.50	264512	30.45
	M	.2950	1 9/16	2 3/4	264413	27.50	264513	30.45
		.2969	1 9/16	2 3/4	264019	23.55	264119	27.90
3/8	N	.3020	1 5/8	2 13/16	264414	31.50	264514	35.05
		.3125	1 5/8	2 13/16	264020	20.70	264120	24.10
7/16	O	.3160	1 11/16	2 15/16	264415	29.00	264515	35.00
	P	.3230	1 11/16	2 15/16	264416	32.95	264516	36.60
		.3281	1 11/16	2 15/16	264021	25.55	264121	29.70
1/2	Q	.3320	1 11/16	3	264417	29.00	264517	35.00
	R	.3390	1 11/16	3	264418	29.00	264518	35.00
		.3438	1 11/16	3	264022	24.15	264122	27.90
5/8	S	.3480	1 3/4	3 1/16	264419	33.30	264519	37.05
	T	.3580	1 3/4	3 1/16	264420	33.30	264520	37.05
3/4	U	.3594	1 3/4	3 1/16	264023	26.35	264123	30.65
		.3680	1 13/16	3 1/8	264421	29.80	264521	35.85
		.3750	1 13/16	3 1/8	264024	24.75	264124	28.65
7/8	V	.3770	1 7/8	3 1/4	264422	38.40	264522	42.60
	W	.3860	1 7/8	3 1/4	264423	33.90	264523	40.75
		.3906	1 7/8	3 1/4	264025	29.30	264125	34.05
1 1/8	X	.3970	1 15/16	3 5/16	264424	33.90	264524	42.60
	Y	.4040	1 15/16	3 5/16	264425	38.40	264525	42.60
1 1/4	Z	.4062	1 15/16	3 5/16	264026	29.30	264126	34.05
		.4130	2	3 3/8	264426	43.65	264526	48.55
		.4219	2	3 3/8	264027	32.50	264127	37.05
1 1/2		.4375	2 1/16	3 7/16	264028	31.35	264128	34.80
		.4531	2 1/8	3 9/16	264029	41.80	264129	53.70
		.4688	2 1/8	3 9/16	264030	44.60	264130	51.85
1 3/4		.4844	2 3/16	3 11/16	264031	40.00	264131	51.40
		.5000	2 1/4	3 3/4	264032	42.70	264132	49.65
2		.5156	2 3/8	3 7/8	264033	63.70	264133	70.90
		.5312	2 3/8	3 7/8	264034	53.20	264134	60.05
		.5469	2 1/2	4	264035	63.70	264135	70.90
2 1/4		.5625	2 1/2	4	264036	53.20	264136	60.05
		.5781	2 5/8	4 1/8	264037	74.40	264137	82.75
		.5938	2 5/8	4 1/8	264038	61.00	264138	68.80
2 1/2		.6094	2 3/4	4 1/4	264039	74.40	264139	82.75
		.6250	2 3/4	4 1/4	264040	61.00	264140	68.80
2 3/4		.6406	2 7/8	4 1/2	264041	88.80	264141	98.80
		.6562	2 7/8	4 1/2	264042	73.35	264142	82.80
		.6719	2 7/8	4 5/8	264043	91.05	264143	101.25
3		.6875	2 7/8	4 5/8	264044	75.35	264144	84.95
		.7031	3	4 3/4	264045	102.90	264145	114.35
		.7188	3	4 3/4	264046	85.30	264146	99.10
3 1/4		.7344	3 1/8	5	264047	103.05	264147	114.65
		.7500	3 1/8	5	264048	85.60	264148	96.40
3 1/2		.7656	3 1/4	5 1/8	264049	110.25	264149	122.70
		.7812	3 1/4	5 1/8	264050	105.75	264150	122.75

continued next page

CNC STUB LENGTH DRILLS - METRIC DIAMETERS

Fractional continued from page 18

TOOL DIAMETER			LENGTH		118° POINT		135° POINT	
FRAC.	WIRE LETTER	DECIMAL EQUIV.	FLUTE	OVER-ALL	TYPE 2640 EDP NO.	PRICE	TYPE 2641 EDP NO.	PRICE
5/64		.7969	3 3/8	5 1/4	264051	\$123.40	264151	\$137.25
13/64		.8125	3 3/8	5 1/4	264052	105.85	264152	119.35
53/64		.8281	3 1/2	5 3/8	264053	120.90	264153	134.40
27/32		.8438	3 1/2	5 3/8	264054	115.85	264154	134.55
59/64		.8594	3 1/2	5 1/2	264055	135.40	264155	150.60
7/8		.8750	3 1/2	5 1/2	264056	116.10	264156	130.85
57/64		.8906	3 3/8	5 5/8	264057	129.85	264157	144.40
29/32		.9062	3 3/8	5 5/8	264058	124.50	264158	144.45
59/64		.9219	3 3/4	5 3/4	264059	145.30	264159	161.70
15/16		.9375	3 3/4	5 3/4	264060	124.65	264160	140.55
61/64		.9531	3 7/8	5 7/8	264061	145.30	264161	161.70
31/32		.9688	3 7/8	5 7/8	264062	131.50	264162	152.70
63/64		.9844	4	6	264063	153.60	264163	170.90
1		1.0000	4	6	264064	131.70	264164	148.60
*1 1/32		1.0312	4	6 1/4	264066	192.45	264166	214.00
*1 1/16		1.0625	4	6 1/4	264068	164.95	264168	186.10
*1 3/32		1.0938	4	6 3/8	264070	213.55	264170	237.60
*1 1/8		1.1250	4	6 3/8	264072	183.15	264172	206.45
*1 5/32		1.1562	4 1/4	6 5/8	264074	260.65	264174	290.05
*1 3/16		1.1875	4 1/4	6 5/8	264076	223.55	264176	250.55
*1 7/32		1.2188	4 3/8	6 3/4	264078	260.65	264178	290.05
*1 1/4		1.2500	4 3/8	6 3/4	264080	223.55	264180	250.55

*1" Shank diameter x 2 1/4" long.

METRIC DIAMETERS

TOOL DIAMETER		LENGTH				118° POINT		135° POINT	
		FLUTE		OVERALL		TYPE 2640 EDP NO.	PRICE	TYPE 2641 EDP NO.	PRICE
mm	INCH	mm	INCH	mm	INCH				
3.0	.1181	22	7/8	48	1 7/8	2640030	\$20.15	2641030	\$22.20
3.1	.1220	22	7/8	48	1 7/8	2640031	20.15	2641031	22.20
3.2	.1260	24	15/16	49	1 15/16	2640032	20.15	2641032	22.20
3.3	.1299	24	15/16	49	1 15/16	2640033	20.15	2641033	22.20
3.4	.1339	24	15/16	49	1 15/16	2640034	20.15	2641034	22.20
3.5	.1378	24	15/16	49	1 15/16	2640035	17.25	2641035	19.75
3.6	.1417	25	1	52	2 1/16	2640036	20.15	2641036	22.20
3.7	.1457	25	1	52	2 1/16	2640037	20.15	2641037	22.20
3.8	.1496	25	1	52	2 1/16	2640038	20.15	2641038	22.20
3.9	.1535	25	1	52	2 1/16	2640039	20.15	2641039	22.20
4.0	.1575	27	1 1/16	54	2 1/8	2640040	17.25	2641040	19.80
4.1	.1614	27	1 1/16	54	2 1/8	2640041	24.05	2641041	26.45
4.2	.1654	27	1 1/16	54	2 1/8	2640042	24.05	2641042	26.45
4.3	.1693	27	1 1/16	54	2 1/8	2640043	24.05	2641043	26.45
4.4	.1732	29	1 1/8	56	2 3/16	2640044	24.05	2641044	26.45
4.5	.1772	29	1 1/8	56	2 3/16	2640045	20.55	2641045	23.60
4.6	.1811	29	1 1/8	56	2 3/16	2640046	24.05	2641046	26.45
4.7	.1850	29	1 1/8	56	2 3/16	264213	23.20	264313	25.75
4.8	.1890	30	1 3/16	57	2 1/4	264212	23.05	264312	25.55
4.9	.1929	30	1 3/16	57	2 1/4	2640049	24.05	2641049	26.45
5.0	.1969	30	1 3/16	57	2 1/4	2640050	20.55	2641050	23.60
5.1	.2008	30	1 3/16	57	2 1/4	2640051	24.05	2641051	26.45
5.2	.2047	32	1 1/4	60	2 3/8	2640052	24.05	2641052	26.45
5.3	.2087	32	1 1/4	60	2 3/8	2640053	24.05	2641053	26.45
5.4	.2126	32	1 1/4	60	2 3/8	2640054	24.05	2641054	26.45
5.5	.2165	32	1 1/4	60	2 3/8	2640055	20.55	2641055	23.60
5.6	.2205	33	1 1/4	62	2 7/16	2640056	24.05	2641056	26.45
5.7	.2244	33	1 1/4	62	2 7/16	2640057	24.05	2641057	26.45
5.8	.2283	33	1 1/4	62	2 7/16	2640058	24.05	2641058	26.45
5.9	.2323	33	1 1/4	62	2 7/16	2640059	24.05	2641059	26.45
6.0	.2362	35	1 3/8	64	2 1/2	2640060	19.20	2641060	22.00
6.1	.2402	35	1 3/8	64	2 1/2	2640061	24.80	2641061	27.50
6.2	.2441	35	1 3/8	64	2 1/2	2640062	24.80	2641062	27.50
6.3	.2480	35	1 3/8	64	2 1/2	2640063	24.80	2641063	27.50
6.4	.2520	37	1 7/16	67	2 5/8	2640064	24.80	2641064	27.50
6.5	.2559	37	1 7/16	67	2 5/8	2640065	21.30	2641065	24.40

TOOL		LENGTH				118° POINT		135° POINT	
DIAMETER		FLUTE		OVERALL		TYPE 2640	PRICE	TYPE 2641	PRICE
mm	INCH	mm	INCH	mm	INCH	EDP NO.		EDP NO.	
6.6	.2598	37	1 7/16	67	2 5/8	2640066	\$24.80	2641066	\$27.50
6.7	.2638	37	1 7/16	67	2 5/8	2640067	24.80	2641067	27.50
6.8	.2677	38	1 1/2	68	2 11/16	2640068	24.80	2641068	27.50
6.9	.2717	38	1 1/2	68	2 11/16	2640069	24.80	2641069	27.50
7.0	.2756	38	1 1/2	68	2 11/16	2640070	21.30	2641070	24.40
7.1	.2795	38	1 1/2	68	2 11/16	2640071	24.80	2641071	27.50
7.2	.2835	40	1 9/16	70	2 3/4	2640072	28.50	2641072	31.45
7.3	.2874	40	1 9/16	70	2 3/4	2640073	28.50	2641073	31.45
7.4	.2913	40	1 9/16	70	2 3/4	2640074	28.50	2641074	31.45
7.5	.2953	40	1 9/16	70	2 3/4	2640075	24.45	2641075	27.90
7.6	.2992	41	1 5/8	71	2 13/16	2640076	28.50	2641076	31.45
7.7	.3031	41	1 5/8	71	2 13/16	2640077	28.50	2641077	31.45
7.8	.3071	41	1 5/8	71	2 13/16	2640078	28.50	2641078	31.45
7.9	.3110	41	1 5/8	71	2 13/16	2640079	28.50	2641079	31.45
8.0	.3150	43	1 11/16	75	2 15/16	2640080	24.45	2641080	27.90
8.1	.3189	43	1 11/16	75	2 15/16	2640081	30.65	2641081	33.60
8.2	.3228	43	1 11/16	75	2 15/16	2640082	30.65	2641082	33.60
8.3	.3268	43	1 11/16	75	2 15/16	2640083	30.65	2641083	33.60
8.4	.3307	43	1 11/16	76	3	2640084	30.65	2641084	33.60
8.5	.3346	43	1 11/16	76	3	2640085	26.30	2641085	29.70
8.6	.3386	43	1 11/16	76	3	2640086	30.65	2641086	33.60
8.7	.3425	43	1 11/16	76	3	2640087	31.15	2641087	34.35
8.8	.3465	44	1 3/4	78	3 1/16	2640088	31.15	2641088	34.35
8.9	.3504	44	1 3/4	78	3 1/16	2640089	31.15	2641089	34.35
9.0	.3543	44	1 3/4	78	3 1/16	2640090	26.75	2641090	30.65
9.1	.3583	44	1 3/4	78	3 1/16	2640091	31.15	2641091	34.35
9.2	.3622	46	1 13/16	79	3 1/8	2640092	31.15	2641092	34.35
9.3	.3661	46	1 13/16	79	3 1/8	2640093	31.15	2641093	34.35
9.4	.3701	46	1 13/16	79	3 1/8	2640094	31.15	2641094	34.35
9.5	.3740	46	1 13/16	79	3 1/8	2640095	26.75	2641095	30.65
9.6	.3780	48	1 7/8	83	3 1/4	2640096	34.65	2641096	38.25
9.7	.3819	48	1 7/8	83	3 1/4	2640097	34.65	2641097	38.25
9.8	.3858	48	1 7/8	83	3 1/4	2640098	34.65	2641098	38.25
9.9	.3898	48	1 7/8	83	3 1/4	2640099	34.65	2641099	38.25
10.0	.3937	49	1 15/16	84	3 5/16	2640100	29.75	2641100	34.05
10.5	.4134	51	2	86	3 3/8	2640105	33.25	2641105	37.05
11.0	.4331	52	2 1/16	87	3 7/16	2640110	33.25	2641110	37.05
11.5	.4528	54	2 1/8	90	3 9/16	2640115	46.80	2641115	51.85
12.0	.4724	56	2 3/16	94	3 11/16	2640120	44.75	2641120	49.65
12.5	.4921	57	2 1/4	95	3 3/4	2640125	44.75	2641125	49.65
13.0	.5118	60	2 3/8	98	3 7/8	2640130	55.30	2641130	60.05
13.5	.5315	60	2 3/8	98	3 7/8	2640135	54.25	2641135	60.05
14.0	.5512	64	2 1/2	102	4	2640140	54.25	2641140	60.05
14.5	.5709	67	2 5/8	105	4 1/8	2640145	76.40	2641145	84.20
15.0	.5906	67	2 5/8	105	4 1/8	2640150	76.40	2641150	84.20
15.5	.6102	70	2 3/4	108	4 1/4	2640155	86.15	2641155	95.00
16.0	.6299	73	2 7/8	114	4 1/2	2640160	97.10	2641160	107.05
16.5	.6496	73	2 7/8	114	4 1/2	2640165	97.10	2641165	107.05
17.0	.6693	73	2 7/8	117	4 5/8	2640170	97.10	2641170	107.05
17.5	.6890	76	3	121	4 3/4	2640175	107.10	2641175	118.00
18.0	.7087	76	3	121	4 3/4	2640180	107.10	2641180	118.00
18.5	.7283	79	3 1/8	127	5	2640185	117.00	2641185	128.95
19.0	.7480	79	3 1/8	127	5	2640190	117.00	2641190	128.95
19.5	.7677	83	3 1/4	130	5 1/8	2640195	129.40	2641195	142.65
20.0	.7874	86	3 3/8	133	5 1/4	2640200	144.70	2641200	159.35
20.5	.8071	86	3 3/8	133	5 1/4	2640205	144.70	2641205	159.35
21.0	.8268	89	3 1/2	137	5 3/8	2640210	158.85	2641210	174.95
21.5	.8465	89	3 1/2	140	5 1/2	2640215	158.85	2641215	174.95
22.0	.8661	89	3 1/2	140	5 1/2	2640220	158.85	2641220	174.95
22.5	.8858	92	3 5/8	143	5 5/8	2640225	163.45	2641225	180.05
23.0	.9055	92	3 5/8	143	5 5/8	2640230	163.45	2641230	180.05
23.5	.9252	95	3 3/4	146	5 3/4	2640235	167.50	2641235	184.45
24.0	.9449	98	3 7/8	149	5 7/8	2640240	170.60	2641240	188.05
24.5	.9646	98	3 7/8	149	5 7/8	2640245	170.60	2641245	188.05
25.0	.9843	102	4	152	6	2640250	180.20	2641250	198.35



TWIST DRILLS - CARBIDE TIPPED

TAPER LENGTH



TYPE 2630 - TAPER LENGTH - 118° POINT

Straight shank, tapered, for use in ASA split sleeve drill drivers. Longer flute and overall lengths.

TYPE 2631 - TAPER LENGTH - 135° POINT

Same as type 2630 above, except with 135° split point designed for drilling abrasive and tough materials.

TOOL DIAMETER			LENGTH		118° POINT		135° POINT	
FRAC.	WIRE LETTER	DEC. EQUIV.	FLUTE	OVER-ALL	TYPE 2630 EDP NO.	PRICE	TYPE 2631 EDP NO.	PRICE
1/8		.1250	2 3/4	5 1/8	263008	\$16.50	263108	\$20.55
	30	.1285	3	5 3/8	263230	23.05	263330	24.90
	29	.1360	3	5 3/8	263229	23.05	263329	24.90
	28	.1405	3	5 3/8	263228	23.05	263328	24.90
9/64		.1406	3	5 3/8	263009	19.05	263109	21.70
	27	.1440	3	5 3/8	263227	23.05	263327	24.90
	26	.1470	3	5 3/8	263226	23.05	263326	24.90
	25	.1495	3	5 3/8	263225	23.05	263325	24.90
5/32		.1520	3	5 3/8	263224	23.05	263324	24.90
	23	.1540	3	5 3/8	263223	23.05	263323	24.90
		.1562	3	5 3/8	263010	17.50	263110	21.70
	22	.1570	3 3/8	5 3/4	263222	23.90	263322	25.85
		.1590	3 3/8	5 3/4	263221	23.90	263321	25.85
	21	.1610	3 3/8	5 3/4	263220	23.90	263320	25.85
	19	.1660	3 3/8	5 3/4	263219	23.90	263319	25.85
	18	.1695	3 3/8	5 3/4	263218	23.90	263318	25.85
11/64		.1719	3 3/8	5 3/4	263011	17.80	263111	22.50
	17	.1730	3 3/8	5 3/4	263217	23.90	263317	25.85
	16	.1770	3 3/8	5 3/4	263216	23.90	263316	25.85
	15	.1800	3 3/8	5 3/4	263215	23.90	263315	25.85
3/16		.1820	3 3/8	5 3/4	263214	23.90	263314	25.85
	14	.1850	3 3/8	5 3/4	263213	23.90	263313	25.85
	13	.1875	3 3/8	5 3/4	263012	17.80	263112	22.50
	12	.1890	3 3/8	6	263212	25.20	263312	27.25
		.1910	3 3/8	6	263211	25.20	263311	27.25
	11	.1935	3 3/8	6	263210	25.20	263310	27.25
	10	.1960	3 3/8	6	263209	25.20	263309	27.25
	9	.1990	3 3/8	6	263208	25.20	263308	27.25
13/64		.2010	3 3/8	6	263207	25.20	263307	27.25
	7	.2031	3 3/8	6	263013	18.85	263113	23.70
	6	.2040	3 3/8	6	263206	25.20	263306	27.25
	5	.2055	3 3/8	6	263205	25.20	263305	27.25
7/32		.2090	3 3/8	6	263204	25.20	263304	27.25
	4	.2130	3 3/8	6	263203	25.20	263303	27.25
	3	.2188	3 3/8	6	263014	18.85	263114	23.70
	2	.2210	3 3/4	6 1/8	263202	28.55	263302	30.90
15/64		.2280	3 3/4	6 1/8	263201	28.55	263301	30.90
	A	.2340	3 3/4	6 1/8	263401	28.55	263501	30.90
		.2344	3 3/4	6 1/8	263015	21.35	263115	26.80
	B	.2380	3 3/4	6 1/8	263402	28.55	263502	30.90
1/4		.2420	3 3/4	6 1/8	263403	28.55	263503	30.90
	C	.2460	3 3/4	6 1/8	263404	28.55	263504	30.90
	D	.2500	3 3/4	6 1/8	263016	21.35	263116	26.80
	F	.2570	3 7/8	6 1/4	263406	31.90	263506	34.55
17/64		.2610	3 7/8	6 1/4	263407	31.90	263507	34.55
	G	.2656	3 7/8	6 1/4	263017	23.90	263117	30.00
		.2660	3 7/8	6 1/4	263408	31.90	263508	34.55
	I	.2720	3 7/8	6 1/4	263409	31.90	263509	34.55
9/32		.2770	3 7/8	6 1/4	263410	31.90	263510	34.55
	J	.2810	3 7/8	6 1/4	263411	31.90	263511	34.55
	K	.2812	3 7/8	6 1/4	263018	23.90	263118	30.00
	L	.2900	4	6 3/8	263412	34.60	263512	37.30
19/64		.2950	4	6 3/8	263413	34.60	263513	37.30
	M	.2969	4	6 3/8	263019	25.75	263119	32.45
		.3020	4	6 3/8	263414	34.60	263514	37.30
	N	.3125	4	6 3/8	263020	25.75	263120	32.45
21/64		.3160	4 1/8	6 1/2	263415	39.25	263515	42.40
	O	.3230	4 1/8	6 1/2	263416	39.25	263516	42.40
	P	.3281	4 1/8	6 1/2	263021	28.40	263121	36.95

TOOL DIAMETER			LENGTH		118° POINT		135° POINT	
FRAC.	WIRE LETTER	DEC. EQUIV.	FLUTE	OVER-ALL	TYPE 2630 EDP NO.	PRICE	TYPE 2631 EDP NO.	PRICE
11/32	Q	.3320	4 1/8	6 1/2	263417	\$39.25	263517	\$42.40
	R	.3390	4 1/8	6 1/2	263418	39.25	263518	42.40
		.3438	4 1/8	6 1/2	263022	28.40	263122	37.30
	S	.3480	4 1/4	6 3/4	263419	42.95	263519	46.45
23/64	T	.3580	4 1/4	6 3/4	263420	42.95	263520	46.45
		.3594	4 1/4	6 3/4	263023	32.00	263123	40.40
	U	.3680	4 1/4	6 3/4	263421	42.95	263521	46.45
		.3750	4 1/4	6 3/4	263024	32.00	263124	40.40
25/64	V	.3770	4 3/8	7	263422	46.00	263522	49.75
	W	.3860	4 3/8	7	263423	46.00	263523	49.75
		.3906	4 3/8	7	263025	34.35	263125	43.30
	X	.3970	4 3/8	7	263424	46.00	263524	49.75
13/32	Y	.4040	4 3/8	7	263425	46.00	263525	49.75
		.4062	4 3/8	7	263026	34.35	263126	43.30
	Z	.4130	4 5/8	7 1/4	263426	53.05	263526	57.25
		.4219	4 5/8	7 1/4	263027	39.65	263127	49.75
7/16		.4375	4 5/8	7 1/4	263028	39.65	263128	49.75
	29/64	.4531	4 3/4	7 1/2	263029	44.00	263129	56.00
	15/32	.4688	4 3/4	7 1/2	263030	44.00	263130	56.00
	31/64	.4844	4 3/4	7 3/4	263031	46.15	263131	57.85
1/2		.5000	4 3/4	7 3/4	263032	50.70	263132	57.85
	33/64	.5156	4 3/4	8	263033	66.10	263133	82.95
	17/32	.5312	4 3/4	8	263034	66.10	263134	82.95
	35/64	.5469	4 7/8	8 1/4	263035	66.65	263135	83.65
9/16		.5625	4 7/8	8 1/4	263036	66.65	263136	83.65
	37/64	.5781	4 7/8	8 3/4	263037	73.60	263137	92.50
	19/32	.5938	4 7/8	8 3/4	263038	71.55	263138	89.85
	39/64	.6094	4 7/8	8 3/4	263039	84.60	263139	106.15
5/8		.6250	4 7/8	8 3/4	263040	81.15	263140	101.70
	41/64	.6406	5 1/8	9	263041	93.55	263141	117.50
	21/32	.6562	5 1/8	9	263042	82.50	263142	103.45
	43/64	.6719	5 3/8	9 1/4	263043	107.35	263143	134.75
11/16		.6875	5 3/8	9 1/4	263044	84.05	263144	105.45
	45/64	.7031	5 3/8	9 1/2	263045	98.15	263145	118.10
	23/32	.7188	5 3/8	9 1/2	263046	99.25	263146	119.25
	47/64	.7344	5 7/8	9 3/4	263047	99.80	263147	119.90
3/4		.7500	5 7/8	9 3/4	263048	101.30	263148	121.75
	49/64	.7656	6	9 7/8	263049	103.40	263149	124.30
	25/32	.7812	6	9 7/8	263050	105.50	263150	126.85
	51/64	.7969	6 1/8	10	263051	107.60	263151	129.40
13/16		.8125	6 1/8	10	263052	109.70	263152	131.95
	53/64	.8281	6 1/8	10	263053	111.80	263153	134.50
	27/32	.8438	6 1/8	10	263054	113.90	263154	137.05
	55/64	.8594	6 1/8	10	263055	116.00	263155	139.60
7/8		.8750	6 1/8	10	263056	118.10	263156	142.15
	57/64	.8906	6 1/8	10	263057	120.20	263157	144.70
	29/32	.9062	6 1/8	10	263058	122.30	263158	147.25
	59/64	.9219	6 1/8	10 3/4	263059	124.40	263159	149.80
15/16		.9375	6 1/8	10 3/4	263060	126.50	263160	152.35
	61/64	.9531	6 3/8	11	263061	128.60	263161	154.90
	31/32	.9688	6 3/8	11	263062	130.70	263162	157.45
	63/64	.9844	6 3/8	11	263063	132.80	263163	160.00
1		1.0000	6 3/8	11	263064	134.90	263164	162.55



TWIST DRILLS - CARBIDE TIPPED

METRIC DIAMETERS - TAPER LENGTH

USE:

The longer length of these drills increases their effective reach through drill bushings.

DRILL TOLERANCES:

Drill Diameter	Diameter		Included Angle		Lip Height T.I.V.
	Plus	Minus	Plus	Minus	
Thru 1/8"	.0000"	.0005"	5°	5°	.0020"
Over 1/8" thru 1/4"	.0000"	.0007"	5°	5°	.0030"
Over 1/4" thru 1/2"	.0000"	.0010"	5°	5°	.0040"
Over 1/2" thru 1"	.0000"	.0012"	3°	3°	.0050"

Thru 1/2" Dia. Overall Length Tolerance +1/4", -1/8"

TOOL DIAMETER		LENGTH				118° POINT		135° POINT	
		FLUTE		OVERALL		TYPE 2630 EDP NO.	PRICE	TYPE 2631 EDP NO.	PRICE
mm	INCH	mm	INCH	mm	INCH				
3.2	.1260	76	3	137	5 3/8	2630032	\$21.30	2631032	\$22.95
3.3	.1299	76	3	137	5 3/8	2630033	21.30	2631033	22.95
3.4	.1339	76	3	137	5 3/8	2630034	21.30	2631034	22.95
3.5	.1378	76	3	137	5 3/8	2630035	20.65	2631035	22.45
3.6	.1417	76	3	137	5 3/8	2630036	20.65	2631036	22.45
3.7	.1457	76	3	137	5 3/8	2630037	20.65	2631037	22.45
3.8	.1496	76	3	137	5 3/8	2630038	20.65	2631038	22.45
3.9	.1535	76	3	137	5 3/8	2630039	20.65	2631039	22.45
4.0	.1575	86	3 3/8	146	5 3/4	2630040	20.20	2631040	21.85
4.1	.1614	86	3 3/8	146	5 3/4	2630041	21.30	2631041	22.95
4.2	.1654	86	3 3/8	146	5 3/4	2630042	21.30	2631042	22.95
4.3	.1693	86	3 3/8	146	5 3/4	2630043	21.30	2631043	22.95
4.4	.1732	86	3 3/8	146	5 3/4	2630044	22.45	2631044	24.15
4.5	.1772	86	3 3/8	146	5 3/4	2630045	22.45	2631045	24.15
4.6	.1811	86	3 3/8	146	5 3/4	2630046	22.45	2631046	24.15
4.7	.1850	86	3 3/8	146	5 3/4	263213	23.90	263313	25.85
4.8	.1890	92	3 3/8	152	6	263212	25.20	263312	27.25
4.9	.1929	92	3 3/8	152	6	2630049	22.45	2631049	24.15
5.0	.1969	92	3 3/8	152	6	2630050	22.35	2631050	24.15
5.1	.2008	92	3 3/8	152	6	2630051	23.25	2631051	25.15
5.2	.2047	92	3 3/8	152	6	2630052	20.00	2631052	25.15
5.3	.2087	92	3 3/8	152	6	2630053	23.25	2631053	25.15
5.4	.2126	92	3 3/8	152	6	2630054	23.25	2631054	25.15
5.5	.2165	92	3 3/8	152	6	2630055	23.85	2631055	25.15
5.6	.2205	95	3 3/4	156	6 1/8	2630056	23.25	2631056	25.15
5.7	.2244	95	3 3/4	156	6 1/8	2630057	23.25	2631057	25.15
5.8	.2283	95	3 3/4	156	6 1/8	2630058	23.25	2631058	25.15
5.9	.2323	95	3 3/4	156	6 1/8	2630059	24.25	2631059	26.30
6.0	.2362	95	3 3/4	156	6 1/8	2630060	24.75	2631060	27.30
6.1	.2402	95	3 3/4	156	6 1/8	2630061	25.85	2631061	27.85
6.2	.2441	95	3 3/4	156	6 1/8	2630062	25.85	2631062	27.85
6.3	.2480	95	3 3/4	156	6 1/8	2630063	25.85	2631063	27.85
6.4	.2520	98	3 7/8	159	6 1/4	2630064	28.40	2631064	30.65
6.5	.2559	98	3 7/8	159	6 1/4	2630065	25.65	2631065	30.65
6.6	.2598	98	3 7/8	159	6 1/4	2630066	29.25	2631066	31.50
6.7	.2638	98	3 7/8	159	6 1/4	2630067	29.25	2631067	31.50
6.8	.2677	98	3 7/8	159	6 1/4	2630068	29.25	2631068	31.50
6.9	.2717	98	3 7/8	159	6 1/4	2630069	29.25	2631069	31.50
7.0	.2756	98	3 7/8	159	6 1/4	2630070	26.75	2631070	30.65
7.1	.2795	98	3 7/8	159	6 1/4	2630071	29.25	2631071	31.50
7.2	.2835	102	4	162	6 3/8	2630072	29.25	2631072	31.50
7.3	.2874	102	4	162	6 3/8	2630073	29.25	2631073	31.50
7.4	.2913	102	4	162	6 3/8	2630074	29.25	2631074	31.50
7.5	.2953	102	4	162	6 3/8	2630075	28.35	2631075	33.15
7.6	.2992	102	4	162	6 3/8	2630076	30.65	2631076	33.15
7.7	.3031	102	4	162	6 3/8	2630077	30.65	2631077	33.15
7.8	.3071	102	4	162	6 3/8	2630078	30.65	2631078	33.15
7.9	.3110	102	4	162	6 3/8	2630079	30.65	2631079	33.15
8.0	.3150	105	4 1/8	165	6 1/2	2630080	28.75	2631080	33.15
8.1	.3189	105	4 1/8	165	6 1/2	2630081	30.65	2631081	33.15
8.2	.3228	105	4 1/8	165	6 1/2	2630082	32.65	2631082	35.20
8.3	.3268	105	4 1/8	165	6 1/2	2630083	32.65	2631083	35.20
8.4	.3307	105	4 1/8	165	6 1/2	2630084	32.65	2631084	35.20
8.5	.3346	105	4 1/8	165	6 1/2	2630085	30.15	2631085	37.55
8.6	.3386	105	4 1/8	165	6 1/2	2630086	34.80	2631086	37.55
8.7	.3425	105	4 1/8	165	6 1/2	2630087	34.80	2631087	37.55

TOOL DIAMETER		LENGTH				118° POINT		135° POINT	
		FLUTE		OVERALL		TYPE 2630 EDP NO.	PRICE	TYPE 2631 EDP NO.	PRICE
mm	INCH	mm	INCH	mm	INCH				
8.8	.3465	108	4 1/4	171	6 3/4	2630088	\$34.80	2631088	\$37.55
8.9	.3504	108	4 1/4	171	6 3/4	2630089	34.80	2631089	37.55
9.0	.3543	108	4 1/4	171	6 3/4	2630090	32.55	2631090	41.20
9.1	.3583	108	4 1/4	171	6 3/4	2630091	38.10	2631091	41.20
9.2	.3622	108	4 1/4	171	6 3/4	2630092	38.10	2631092	41.20
9.3	.3661	108	4 1/4	171	6 3/4	2630093	38.10	2631093	41.20
9.4	.3701	108	4 1/4	171	6 3/4	2630094	38.10	2631094	41.20
9.5	.3740	108	4 1/4	171	6 3/4	2630095	33.35	2631095	41.20
9.6	.3780	111	4 3/8	178	7	2630096	40.00	2631096	43.20
9.7	.3819	111	4 3/8	178	7	2630097	40.00	2631097	43.20
9.8	.3858	111	4 3/8	178	7	2630098	40.00	2631098	43.20
9.9	.3898	111	4 3/8	178	7	2630099	40.00	2631099	43.20
10.0	.3937	111	4 3/8	178	7	2630100	35.05	2631100	44.25
10.1	.3976	111	4 3/8	178	7	2630101	40.95	2631101	44.25
10.2	.4016	111	4 3/8	178	7	2630102	42.70	2631102	46.10
10.3	.4055	111	4 3/8	178	7	2630103	42.70	2631103	46.10
10.4	.4094	117	4 5/8	184	7 1/4	2630104	44.60	2631104	48.05
10.5	.4134	117	4 5/8	184	7 1/4	2630105	39.90	2631105	48.05
10.6	.4173	117	4 5/8	184	7 1/4	2630106	46.70	2631106	50.50
10.7	.4213	117	4 5/8	184	7 1/4	2630107	46.70	2631107	50.50
10.8	.4252	117	4 5/8	184	7 1/4	2630108	46.70	2631108	50.50
10.9	.4291	117	4 5/8	184	7 1/4	2630109	46.70	2631109	50.50
11.0	.4331	117	4 5/8	184	7 1/4	2630110	43.15	2631110	50.70
11.5	.4528	121	4 3/4	190	7 1/2	2630115	48.45	2631115	56.10
12.0	.4724	121	4 3/4	197	7 3/4	2630120	53.00	2631120	59.00
12.5	.4921	121	4 3/4	197	7 3/4	2630125	55.00	2631125	59.00
13.0	.5118	121	4 3/4	203	8	2630130	66.10	2631130	82.95
13.5	.5315	121	4 3/4	203	8	2630135	66.65	2631135	83.65
14.0	.5512	124	4 7/8	210	8 1/4	2630140	66.65	2631140	83.65
14.5	.5709	124	4 7/8	222	8 3/4	2630145	73.60	2631145	92.50
15.0	.5906	124	4 7/8	222	8 3/4	2630150	73.60	2631150	92.50
15.5	.6102	124	4 7/8	222	8 3/4	2630155	84.60	2631155	106.15
16.0	.6299	130	5 1/8	229	9	2630160	93.55	2631160	117.50
16.5	.6496	130	5 1/8	229	9	2630165	93.55	2631165	117.50
17.0	.6693	137	5 3/8	235	9 1/4	2630170	107.35	2631170	134.75
17.5	.6890	143	5 5/8	241	9 1/2	2630175	98.15	2631175	118.10
18.0	.7087	143	5 5/8	241	9 1/2	2630180	99.25	2631180	119.25
18.5	.7283	149	5 7/8	248	9 3/4	2630185	99.80	2631185	119.90
19.0	.7480	149	5 7/8	248	9 3/4	2630190	101.30	2631190	121.75
19.5	.7677	152	6	251	9 7/8	2630195	105.50	2631195	126.85
20.0	.7874	156	6 1/8	254	10	2630200	107.60	2631200	129.40
20.5	.8071	156	6 1/8	254	10	2630205	109.70	2631205	131.95
21.0	.8268	156	6 1/8	254	10	2630210	111.80	2631210	134.50
21.5	.8465	156	6 1/8	254	10	2630215	116.00	2631215	139.60
22.0	.8661	156	6 1/8	254	10	2630220	118.10	2631220	142.15
22.5	.8858	156	6 1/8	254	10	2630225	120.20	2631225	144.70
23.0	.9055	156	6 1/8	254	10	2630230	122.30	2631230	147.25
23.5	.9252	156	6 1/8	273	10 3/4	2630235	126.50	2631235	152.35
24.0	.9449	162	6 3/8	279	11	2630240	128.60	2631240	154.90
24.5	.9646	162	6 3/8	279	11	2630245	130.70	2631245	157.45
25.0	.9843	162	6 3/8	279	11	2630250	132.80	2631250	160.00



TWIST DRILLS - CARBIDE TIPPED

TAPER SHANK

DISCONTINUED - WHILE SUPPLIES LAST



TYPE 2660 - TAPER SHANK - 118° POINT

Regular taper shank size.
Heavy duty construction.

TYPE 2661 - TAPER SHANK - 135° POINT

Same as type 2660 above, except with 135° split point
designed for drilling abrasive and tough materials.

DRILL TOLERANCES:

Drill Diameter	Diameter		Included Angle		Lip Height T.I.V.
	Plus	Minus	Plus	Minus	
Thru 1/8"	.0000"	.0005"	5°	5°	.0020"
Over 1/8" thru 1/4"	.0000"	.0007"	5°	5°	.0030"
Over 1/4" thru 1/2"	.0000"	.0010"	5°	5°	.0040"
Over 1/2" thru 1"	.0000"	.0012"	3°	3°	.0050"
Over 1" thru 1 1/2"	.0000"	.0015"	3°	3°	.0060"

TOOL DIAMETER		LENGTH		MORSE TAPER	118° POINT		135° POINT	
FRAC.	DEC.	FLUTE	OVER-ALL		TYPE 2660 EDP NO.	PRICE	TYPE 2661 EDP NO.	PRICE
1/4	.2500	2 7/8	6 1/8	1	266016	\$41.60	266116	\$47.15
17/64	.2656	3	6 1/4	1	266017	N/A	266117	N/A
9/32	.2812	3	6 1/4	1	266018	N/A	266118	N/A
19/64	.2969	3 1/8	6 3/8	1	266019	N/A	266119	N/A
5/16	.3125	3 1/8	6 3/8	1	266020	42.55	266120	48.20
21/64	.3281	3 1/4	6 1/2	1	266021	54.15	266121	61.20
11/32	.3438	3 1/4	6 1/2	1	266022	54.15	266122	61.20
23/64	.3594	3 1/2	6 3/4	1	266023	54.15	266123	61.20
3/8	.3750	3 1/2	6 3/4	1	266024	54.15	266124	61.20
25/64	.3906	3 5/8	7	1	266025	62.65	266125	71.00
13/32	.4062	3 5/8	7	1	266026	62.65	266126	71.00
27/64	.4219	3 7/8	7 1/4	1	266027	62.65	266127	71.00
7/16	.4375	3 7/8	7 1/4	1	266028	54.80	266128	62.15
29/64	.4531	4 1/8	7 1/2	1	266029	66.60	266129	75.50
15/32	.4688	4 1/8	7 1/2	1	266030	66.60	266130	75.50
31/64	.4844	4 3/8	8 1/4	2	266031	66.60	266131	75.50
1/2	.5000	4 3/8	8 1/4	2	266032	52.40	266132	69.80
33/64	.5156	4 5/8	8 1/2	2	266033	67.65	266133	81.20
17/32	.5312	4 5/8	8 1/2	2	266034	55.30	266134	71.80
35/64	.5469	4 7/8	8 3/4	2	266035	68.65	266135	82.35
9/16	.5625	4 7/8	8 3/4	2	266036	55.75	266136	72.80
37/64	.5781	4 7/8	8 3/4	2	266037	71.80	266137	86.25
19/32	.5938	4 7/8	8 3/4	2	266038	61.50	266138	80.55
39/64	.6094	4 7/8	8 3/4	2	266039	83.20	266139	99.90
5/8	.6250	4 7/8	8 3/4	2	266040	67.75	266140	88.20
41/64	.6406	5 1/8	9	2	266041	84.55	266141	101.45
21/32	.6562	5 1/8	9	2	266042	66.05	266142	89.70
43/64	.6719	5 3/8	9 1/4	2	266043	85.55	266143	102.75
11/16	.6875	5 3/8	9 1/4	2	266044	68.15	266144	90.75
45/64	.7031	5 5/8	9 1/2	2	266045	87.90	266145	105.45
23/32	.7188	5 5/8	9 1/2	2	266046	75.75	266146	101.15
47/64	.7344	5 7/8	9 3/4	2	266047	89.65	266147	107.60
3/4	.7500	5 7/8	9 3/4	2	266048	77.55	266148	97.85
49/64	.7656	6	9 7/8	2	266049	95.35	266149	114.50
25/32	.7812	6	9 7/8	2	266050	92.35	266150	114.45
51/64	.7969	6 1/8	10 3/4	3	266051	96.35	266151	115.60
13/16	.8125	6 1/8	10 3/4	3	266052	93.35	266152	115.65

TOOL DIAMETER		LENGTH		MORSE TAPER	118° POINT		135° POINT	
FRAC.	DEC.	FLUTE	OVER-ALL		TYPE 2660 EDP NO.	PRICE	TYPE 2661 EDP NO.	PRICE
53/64	.8281	6 1/8	10 3/4	3	266053	\$104.50	266153	\$125.45
27/32	.8438	6 1/8	10 3/4	3	266054	95.30	266154	115.65
55/64	.8594	6 1/8	10 3/4	3	266055	N/A	266155	N/A
7/8	.8750	6 1/8	10 3/4	3	266056	101.35	266156	122.20
57/64	.8906	6 1/8	10 3/4	3	266057	109.15	266157	130.85
29/32	.9062	6 1/8	10 3/4	3	266058	109.90	266158	127.35
59/64	.9219	6 1/8	10 3/4	3	266059	111.15	266159	133.25
15/16	.9375	6 1/8	10 3/4	3	266060	111.50	266160	123.25
61/64	.9531	6 3/8	11	3	266061	N/A	266161	N/A
31/32	.9688	6 3/8	11	3	266062	116.35	266162	134.80
63/64	.9844	6 3/8	11	3	266063	121.75	266163	146.10
1	1.0000	6 3/8	11	3	266064	109.75	266164	132.60
1 1/64	1.0156	6 1/2	11 1/8	3	266065	N/A	266165	N/A
1 1/32	1.0312	6 1/2	11 1/8	3	266066	148.00	266166	167.85
1 3/64	1.0469	6 5/8	11 1/4	3	266067	N/A	266167	N/A
1 1/16	1.0625	6 5/8	11 1/4	3	266068	142.20	266168	180.20
1 5/64	1.0781	6 7/8	12 1/2	4	266069	N/A	266169	N/A
1 3/32	1.0938	6 7/8	12 1/2	4	266070	N/A	266170	N/A
1 7/64	1.1094	7 1/8	12 3/4	4	266071	N/A	266171	N/A
1 1/8	1.1250	7 1/8	12 3/4	4	266072	157.45	266172	199.85
1 9/64	1.1406	7 1/4	12 7/8	4	266073	N/A	266173	N/A
1 5/32	1.1562	7 1/4	12 7/8	4	266074	N/A	266174	N/A
1 11/64	1.1719	7 3/8	13	4	266075	N/A	266175	N/A
1 3/16	1.1875	7 3/8	13	4	266076	180.40	266176	228.70
1 13/64	1.2031	7 1/2	13 1/8	4	266077	N/A	266177	N/A
1 7/32	1.2188	7 1/2	13 1/8	4	266078	N/A	266178	N/A
1 15/64	1.2344	7 5/8	13 1/2	4	266079	N/A	266179	N/A
1 1/4	1.2500	7 7/8	13 1/2	4	266080	193.05	266180	245.00
1 9/32	1.2812	8 1/2	14 1/8	4	266082	N/A	266182	N/A
1 5/16	1.3125	8 3/4	14 1/4	4	266084	273.10	266184	309.30
1 11/32	1.3438	8 3/4	14 3/8	4	266086	N/A	266186	N/A
1 3/8	1.3750	8 7/8	14 1/2	4	266088	306.05	266188	346.70
1 13/32	1.4062	9	14 5/8	4	266090	N/A	266190	N/A
1 7/16	1.4375	9 1/8	14 3/4	4	266092	N/A	266192	N/A
1 15/32	1.4688	9 1/4	14 7/8	4	266094	N/A	266194	N/A
1 1/2	1.5000	9 3/8	15	4	266096	335.70	266196	380.45



AIRCRAFT EXTENSION DRILLS

CARBIDE TIPPED - 135° POINT

TYPE 2610 - AIRCRAFT EXTENSION DRILLS - 6"

6" overall length aircraft extension drill.

135° split point per NAS 907 specifications.

TYPE 2611 - AIRCRAFT EXTENSION DRILLS - 12"

Same as type 2610, except 12" long.

USE:

For drilling holes where reach is normally not accessible with jobbers or taper length drills.

Feeds should be light to medium range.

Not recommended for deep hole applications.

OPTIONS:

Flat on shank.

Intermediate diameters.

Undersize diameter shank.

TOOL DIAMETER			FLUTE LENGTH	6" OVERALL LENGTH		12" OVERALL LENGTH	
FRAC.	WIRE LETTER	DEC. EQUIV.		TYPE 2610 EDP NO.	PRICE	TYPE 2611 EDP NO.	PRICE
1/8	32	.1160	1 3/8	261232	\$23.25	261332	\$27.50
	31	.1200	1 3/8	261231	20.85	261331	24.50
	30	.1250	1 3/8	261008	16.15	261108	19.05
	30	.1285	1 3/8	261230	22.00	261330	25.85
3/16	29	.1360	1 3/4	261229	22.70	261329	26.70
	28	.1405	1 3/4	261228	23.05	261328	27.20
	28	.1406	1 3/4	261009	17.55	261109	20.65
	27	.1440	1 3/4	261227	23.60	261327	27.70
1/4	26	.1470	1 7/8	261226	23.05	261326	27.20
	25	.1495	1 7/8	261225	23.05	261325	27.20
	24	.1520	2	261224	23.60	261324	27.70
	23	.1540	2	261223	23.05	261323	27.20
5/16	22	.1562	2	261010	17.15	261110	20.25
	22	.1570	2	261222	25.20	261322	29.70
	21	.1590	2 1/8	261221	24.45	261321	28.80
	20	.1610	2 1/8	261220	25.05	261320	29.45
3/8	19	.1660	2 1/8	261219	25.05	261319	29.45
	18	.1695	2 1/8	261218	25.05	261318	29.45
	18	.1719	2 1/8	261011	18.80	261111	22.05
	17	.1730	2 3/16	261217	25.05	261317	29.45
7/16	16	.1770	2 3/16	261216	24.45	261316	28.80
	15	.1800	2 3/16	261215	25.20	261315	29.70
	14	.1820	2 3/16	261214	24.45	261314	28.80
	13	.1850	2 3/16	261213	24.45	261313	28.80
1/2	12	.1875	2 5/16	261012	18.30	261112	21.60
	12	.1890	2 5/16	261212	25.50	261312	29.95
	11	.1910	2 5/16	261211	25.75	261311	30.40
	10	.1935	2 5/16	261210	25.50	261310	29.95
5/8	9	.1960	2 7/16	261209	25.75	261309	30.40
	8	.1990	2 7/16	261208	25.75	261308	30.40
	7	.2010	2 7/16	261207	25.75	261307	30.40
	7	.2031	2 7/16	261013	20.10	261113	23.60
3/4	6	.2040	2 1/2	261206	26.50	261306	31.20
	5	.2055	2 1/2	261205	25.75	261305	30.40
	4	.2090	2 1/2	261204	24.25	261304	28.55
	3	.2130	2 1/2	261203	25.75	261303	30.40
7/8	2	.2188	2 1/2	261014	20.10	261114	23.60
	2	.2210	2 5/8	261202	25.40	261302	29.80
	1	.2280	2 5/8	261201	25.05	261301	29.45
	A	.2340	2 5/8	261401	30.15	261501	35.35
1 1/4		.2344	2 5/8	261015	21.60	261115	25.45

TOOL DIAMETER			FLUTE LENGTH	6" OVERALL LENGTH		12" OVERALL LENGTH	
FRAC.	WIRE LETTER	DEC. EQUIV.		TYPE 2610 EDP NO.	PRICE	TYPE 2611 EDP NO.	PRICE
1/4	B	.2380	2 3/4	261402	\$30.15	261502	\$35.35
	C	.2420	2 3/4	261403	30.15	261503	35.35
	D	.2460	2 3/4	261404	29.60	261504	34.80
	E	.2500	2 3/4	261016	21.60	261116	25.45
5/16	F	.2570	2 7/8	261406	30.90	261506	36.35
	G	.2610	2 7/8	261407	31.60	261507	37.20
	17/64	.2656	2 7/8	261017	23.05	261117	27.20
	H	.2660	2 7/8	261408	32.30	261508	38.00
3/8	I	.2720	2 7/8	261409	31.60	261509	37.20
	J	.2770	2 7/8	261410	32.30	261510	38.00
	K	.2810	2 15/16	261411	32.30	261511	38.00
	9/32	.2812	2 15/16	261018	23.05	261118	27.20
7/16	L	.2900	2 15/16	261412	32.30	261512	38.00
	M	.2950	3 1/16	261413	35.55	261513	41.85
	19/64	.2969	3 1/16	261019	25.05	261119	29.45
	N	.3020	3 1/16	261414	34.80	261514	40.95
1/2	O	.3125	3 3/16	261020	25.05	261120	29.45
	P	.3160	3 3/16	261415	33.10	261515	38.90
	21/64	.3230	3 3/16	261416	35.20	261516	41.35
		.3281	3 3/16	261021	26.60	261121	31.35
5/8	Q	.3320	3 7/16	261417	36.15	261517	42.50
	R	.3390	3 7/16	261418	35.20	261518	41.35
	11/32	.3438	3 7/16	261022	26.60	261122	31.35
	S	.3480	3 1/2	261419	38.05	261519	44.70
3/4	T	.3580	3 1/2	261420	39.00	261520	45.85
	23/64	.3594	3 1/2	261023	28.40	261123	33.30
	U	.3680	3 5/8	261421	37.50	261521	44.15
	3/8	.3750	3 5/8	261024	28.40	261124	33.30
7/8	V	.3770	3 5/8	261422	38.05	261522	44.70
	W	.3860	3 3/4	261423	40.80	261523	48.00
	25/64	.3906	3 3/4	261025	29.15	261125	34.35
	X	.3970	3 3/4	261424	38.65	261524	45.50
1 1/8	Y	.4040	3 7/8	261425	40.10	261525	47.15
	13/32	.4062	3 7/8	261026	28.75	261126	33.80
	Z	.4130	3 7/8	261426	45.25	261526	53.20
	27/64	.4219	3 15/16	261027	31.60	261127	37.20
1 1/4	43/64	.4375	4 1/16	261028	31.60	261128	37.20
	29/64	.4531	4 3/16	261029	36.30	261129	42.75
	15/32	.4688	4 5/16	261030	35.55	261130	41.85
	31/64	.4844	4 3/8	261031	39.90	261131	46.95
1 1/2		.5000	4 1/2	261032	39.90	261132	46.95



COBALT DRILLS FOR STEEL



TYPE 2699 - JOBBERS LENGTH - 135° SPLIT POINT

For drilling low and medium carbon steels, steel alloys, and stainless steel.

USE:

CNC machined for accuracy, improved chip evacuation and premium performance.

Split point tip for improved accuracy and control - penetrates surface on contact and

prevents drill bit "walking." Hardened for high temperature applications. Engineered and manufactured for less end load pressure. Industrial grade NAS Cobalt.

NOTE:

Diameters .0400" to .3020" sold in packages of 12

Diameters .3125" and larger sold in packages of 6

TOOL DIAMETER			LENGTH		135° POINT	
FRAC.	DEC.	WIRE LETTER	FLT.	OAL	TYPE 2699 EDP NO.	PRICE EACH
	.0400	60	1 1/16	1 5/8	26990400	\$2.40
	.0410	59	1 1/16	1 5/8	26990410	2.40
	.0420	58	1 1/16	1 5/8	26990420	2.40
	.0430	57	3/4	1 3/4	26990430	2.40
	.0465	56	3/4	1 3/4	26990465	2.40
	.0520	55	7/8	1 7/8	26990520	2.05
	.0550	54	7/8	1 7/8	26990550	2.05
	.0595	53	7/8	1 7/8	26990595	2.05
1/16	.0625		7/8	1 7/8	269904	1.90
	.0635	52	7/8	1 7/8	26990635	1.90
	.0670	51	1	2	26990670	1.90
	.0700	50	1	2	26990700	1.90
5/64	.0730	49	1	2	26990730	1.90
	.0760	48	1	2	26990760	1.90
	.0781		1	2	269905	1.90
	.0785	47	1	2	26990785	1.90
	.0810	46	1 1/8	2 1/8	26990810	1.90
	.0820	45	1 1/8	2 1/8	26990820	1.90
	.0860	44	1 1/8	2 1/8	26990860	1.90
	.0890	43	1 1/4	2 1/4	26990890	1.90
3/32	.0935	42	1 1/4	2 1/4	26990935	1.90
	.0938		1 1/4	2 1/4	269906	1.90
	.0960	41	1 3/8	2 3/8	26990960	1.90
	.0980	40	1 3/8	2 3/8	26990980	1.95
	.0995	39	1 3/8	2 3/8	26990995	1.95
	.1015	38	1 7/16	2 1/2	26991015	1.95
	.1040	37	1 7/16	2 1/2	26991040	2.05
	.1065	36	1 7/16	2 1/2	26991065	2.05
7/64	.1094		1 1/2	2 5/8	269907	2.00
	.1100	35	1 1/2	2 5/8	26991100	2.05
	.1110	34	1 1/2	2 5/8	26991110	2.05
	.1130	33	1 1/2	2 5/8	26991130	2.05
1/8	.1160	32	1 5/8	2 3/4	26991160	2.20
	.1200	31	1 5/8	2 3/4	26991200	2.20
	.1250		1 5/8	2 3/4	269908	2.45
	.1285	30	1 5/8	2 3/4	26991285	2.25
	.1360	29	1 3/4	2 7/8	26991360	2.40
	.1405	28	1 3/4	2 7/8	26991405	2.45

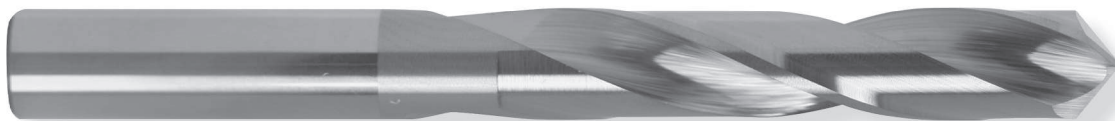
TOOL DIAMETER			LENGTH		135° POINT	
FRAC.	DEC.	WIRE LETTER	FLT.	OAL	TYPE 2699 EDP NO.	PRICE EACH
5/64	.1406		1 3/4	2 7/8	269909	\$2.45
	.1440	27	1 7/8	3	26991440	2.60
	.1470	26	1 7/8	3	26991470	2.60
	.1495	25	1 7/8	3	26991495	2.60
3/32	.1520	24	2	3 1/8	26991520	2.95
	.1540	23	2	3 1/8	26991540	2.95
	.1562		2	3 1/8	269910	2.75
	.1570	22	2	3 1/8	26991570	2.95
	.1590	21	2 1/8	3 1/4	26991590	2.95
	.1610	20	2 1/8	3 1/4	26991610	2.95
	.1660	19	2 1/8	3 1/4	26991660	2.95
	.1695	18	2 1/8	3 1/4	26991695	3.00
1/16	.1719		2 1/8	3 1/4	269911	2.85
	.1730	17	2 3/8	3 3/8	26991730	3.30
	.1770	16	2 3/8	3 3/8	26991770	3.35
	.1800	15	2 3/8	3 3/8	26991800	3.60
3/16	.1820	14	2 3/8	3 3/8	26991820	3.60
	.1850	13	2 5/8	3 1/2	26991850	3.60
	.1875		2 5/8	3 1/2	269912	3.25
	.1890	12	2 5/8	3 1/2	26991890	3.80
	.1910	11	2 5/8	3 1/2	26991910	3.80
	.1935	10	2 7/8	3 3/8	26991935	3.80
	.1960	9	2 7/8	3 3/8	26991960	3.80
	.1990	8	2 7/8	3 3/8	26991990	3.80
13/64	.2010	7	2 7/8	3 3/8	26992010	3.80
	.2031		2 7/8	3 3/8	269913	3.90
	.2040	6	2 1/2	3 3/4	26992040	4.90
	.2055	5	2 1/2	3 3/4	26992055	4.90
7/32	.2090	4	2 1/2	3 3/4	26992090	4.90
	.2130	3	2 1/2	3 3/4	26992130	4.90
	.2188		2 1/2	3 3/4	269914	4.25
	.2210	2	2 5/8	3 7/8	26992210	5.20
15/64	.2280	1	2 5/8	3 7/8	26992280	5.20
	.2340	A	2 5/8	3 7/8	26992340	6.00
	.2344		2 5/8	3 7/8	269915	4.50
	.2380	B	2 3/4	4	26992380	6.90
	.2420	C	2 3/4	4	26992420	6.90
	.2460	D	2 3/4	4	26992460	6.95

TOOL DIAMETER			LENGTH		135° POINT	
FRAC.	DEC.	WIRE LETTER	FLT.	OAL	TYPE 2699 EDP NO.	PRICE EACH
1/4	.2500	E	2 3/4	4	269916	\$4.80
	.2570	F	2 7/8	4 1/8	26992570	7.25
	.2610	G	2 7/8	4 1/8	26992610	7.50
	.2656		2 7/8	4 1/8	269917	5.50
17/64	.2660	H	2 7/8	4 1/8	26992660	7.75
	.2720	I	2 7/8	4 1/8	26992720	7.80
	.2770	J	2 7/8	4 1/8	26992770	8.00
	.2810	K	2 15/16	4 1/4	26992810	8.15
9/32	.2812		2 15/16	4 1/4	269918	5.75
	.2900	L	2 15/16	4 1/2	26992900	8.80
	.2950	M	3 1/16	4 3/8	26992950	9.35
	.2969		3 1/16	4 3/8	269919	7.00
19/64	.3020	N	3 1/16	4 3/8	26993020	9.35
	.3125		3 3/16	4 1/2	269920	7.45
	.3160	O	3 1/16	4 1/2	26993160	10.30
	.3230	P	3 3/16	4 5/8	26993230	11.00
21/64	.3281		3 5/16	4 5/8	269921	8.25
	.3320	Q	3 7/16	4 3/4	26993320	11.35
	.3390	R	3 7/16	4 3/4	26993390	11.35
	.3438		3 7/16	4 3/4	269922	9.05
11/32	.3480	S	3 1/2	4 7/8	26993480	13.90
	.3594		3 1/2	4 7/8	269923	9.95
	.3580	T	3 1/2	4 7/8	26993580	13.90
	.3680	U	3 3/8	5	26993680	13.90
3/8	.3750		3 5/8	5	269924	10.30
	.3770	V	3 5/8	5	26993770	15.30
	.3860	W	3 3/4	5 1/8	26993860	15.30
	.3960		3 3/4	5 1/8	269925	11.85
25/64	.3970	X	3 3/4	5 1/8	26993970	15.30
	.4040	Y	3 7/8	5 1/4	26994040	16.25
	.4062		3 7/8	5 1/4	269926	12.30
	.4130	Z	3 7/8	5 1/4	26994130	17.70
27/64	.4210		3 15/16	5 3/8	269927	13.60
	.4375		4 1/16	5 1/2	269928	13.90
	.4531		4 3/16	5 5/8	269929	16.70
	.4688		4 5/16	5 3/4	269930	17.00
31/64	.4844		4 3/8	5 7/8	269931	17.55
	.5000		4 1/2	6	269932	17.70



TWIST DRILLS - SOLID CARBIDE

JOBBER'S LENGTH



TYPE 2860 - JOBBERS LENGTH - 118° SPLIT POINT

For drilling most types of material including steel and steel alloys.

TOOL DIAM.		LENGTH		118° POINT	
FRAC/mm WIRE/LTR	DEC.	FLUTE	OVER- ALL	TYPE 2860 EDP NO.	PRICE
1/32	.0312	5/16	1 1/4	2860002	\$12.85
67	.0320	5/16	1 1/4	28600320	12.85
66	.0330	5/16	1 1/4	28600330	12.85
65	.0350	5/8	1 3/8	28600350	12.85
1.0mm	.0360	5/8	1 3/8	28600360	12.85
	.0370	5/8	1 3/8	28600370	12.85
	.0380	5/8	1 3/8	28600380	12.85
	.0390	5/8	1 3/8	28600390	12.85
60	.0400	3/4	1 1/2	28600400	12.85
59	.0410	3/4	1 1/2	28600410	12.85
58	.0420	3/4	1 1/2	28600420	12.85
57	.0430	3/4	1 1/2	28600430	12.85
56	.0465	3/4	1 1/2	28600465	12.85
3/64	.0469	3/4	1 1/2	286003	12.85
55	.0520	3/4	1 1/2	28600520	12.85
1.5mm	.0550	3/4	1 1/2	28600550	12.85
	.0591	19	38	2860015	15.35
	.0595	3/4	1 1/2	28600595	12.85
1/16	.0625	3/4	1 1/2	286004	12.15
52	.0635	3/4	1 1/2	28600635	12.85
51	.0670	3/4	1 1/2	28600670	12.85
50	.0700	7/8	1 3/4	28600700	13.20
49	.0730	7/8	1 3/4	28600730	13.50
48	.0760	7/8	1 3/4	28600760	13.65
5/64	.0781	7/8	1 3/4	286005	13.45
47	.0785	7/8	1 3/4	28600785	13.65
2.0mm	.0787	22	44	2860020	16.30
46	.0810	7/8	1 3/4	28600810	13.65
45	.0820	7/8	1 3/4	28600820	14.00
44	.0860	1	2	28600860	14.45
43	.0890	1	2	28600890	14.45
42	.0935	1	2	28600935	14.55
3/32	.0938	1	2	286006	13.95
41	.0960	1	2	28600960	14.60
40	.0980	1	2	28600980	14.70
2.5mm	.0984	25	50	2860025	16.80
	.0995	1 1/4	2 1/4	28600995	14.90
	.1015	1 1/4	2 1/4	28601015	14.90
	.1040	1 1/4	2 1/4	28601040	14.90
36	.1065	1 1/4	2 1/4	28601065	14.90
7/64	.1094	1 1/4	2 1/4	286007	15.25
35	.1100	1 1/4	2 1/4	28601100	15.25
34	.1110	1 1/4	2 1/4	28601110	15.60
33	.1130	1 1/4	2 1/4	28601130	15.60
32	.1160	1 1/4	2 1/4	28601160	16.00
3.0mm	.1181	32	57	2860030	18.70
	.1200	1 1/4	2 1/4	28601200	16.25
1/8	.1250	1 1/4	2 1/4	286008	15.80

TOOL DIAM.		LENGTH		118° POINT	
FRAC/mm WIRE/LTR	DEC.	FLUTE	OVER- ALL	TYPE 2860 EDP NO.	PRICE
30	.1285	1 1/4	2 1/4	28601285	\$16.90
29	.1360	1 3/8	2 1/2	28601360	17.05
3.5mm	.1378	35	63	2860035	19.65
28	.1405	1 3/8	2 1/2	28601405	17.50
7/64	.1406	1 3/8	2 1/2	286009	18.80
27	.1440	1 3/8	2 1/2	28601440	18.20
26	.1470	1 3/8	2 1/2	28601470	18.50
25	.1495	1 3/8	2 1/2	28601495	18.70
24	.1520	1 3/8	2 1/2	28601520	19.15
23	.1540	1 3/8	2 1/2	28601540	19.95
5/32	.1562	1 3/8	2 1/2	286010	19.65
22	.1570	1 3/8	2 1/2	28601570	21.15
4.0mm	.1575	35	63	2860040	23.50
21	.1590	1 3/8	2 1/2	28601590	21.40
20	.1610	1 3/8	2 1/2	28601610	21.60
19	.1660	1 5/8	2 3/4	28601660	22.45
18	.1695	1 5/8	2 3/4	28601695	22.65
1 7/64	.1719	1 5/8	2 3/4	286011	23.05
17	.1730	1 5/8	2 3/4	28601730	23.05
16	.1770	1 5/8	2 3/4	28601770	23.50
4.5mm	.1772	41	70	2860045	25.95
15	.1800	1 5/8	2 3/4	28601800	23.65
14	.1820	1 5/8	2 3/4	28601820	23.55
13	.1850	1 5/8	2 3/4	28601850	24.05
3/16	.1875	1 5/8	2 3/4	286012	23.10
12	.1890	1 5/8	2 3/4	28601890	24.40
11	.1910	1 5/8	2 3/4	28601910	24.85
10	.1935	1 5/8	2 3/4	28601935	25.20
9	.1960	1 3/4	3	28601960	25.75
5.0mm	.1969	44	75	2860050	28.95
8	.1990	1 3/4	3	28601990	26.45
7	.2010	1 3/4	3	28602010	26.75
1 3/64	.2031	1 3/4	3	286013	28.20
6	.2040	1 3/4	3	28602040	27.80
5	.2055	1 3/4	3	28602055	28.20
4	.2090	1 3/4	3	28602090	28.90
3	.2130	1 3/4	3	28602130	29.70
5.5mm	.2165	44	75	2860055	32.65
7/32	.2188	1 3/4	3	286014	29.15
2	.2210	1 3/4	3	28602210	30.85
1	.2280	1 3/4	3	28602280	32.45
A	.2340	2	3 1/4	28602340	36.00
1 5/64	.2344	2	3 1/4	286015	32.35
6.0mm	.2362	50	82	2860060	36.25
B	.2380	2	3 1/4	28602380	36.95
C	.2420	2	3 1/4	28602420	37.05
D	.2460	2	3 1/4	28602460	38.05
E	.2500	2	3 1/4	286016	33.00
6.5mm	.2559	50	82	2860065	43.00

TOOL DIAM.		LENGTH		118° POINT	
FRAC/mm WIRE/LTR	DEC.	FLUTE	OVER- ALL	TYPE 2860 EDP NO.	PRICE
F	.2570	2	3 1/4	28602570	\$40.40
G	.2610	2 1/8	3 1/2	28602610	41.05
1 7/64	.2656	2 1/8	3 1/2	286017	36.05
H	.2660	2 1/8	3 1/2	28602660	42.15
I	.2720	2 1/8	3 1/2	28602720	43.05
7.0mm	.2756	54	89	2860070	48.05
J	.2770	2 1/8	3 1/2	28602770	44.05
K	.2810	2 1/8	3 1/2	28602810	44.45
7/32	.2812	2 1/8	3 1/2	286018	38.95
L	.2900	2 1/8	3 1/2	28602900	46.60
M	.2950	2 3/8	3 3/4	28602950	48.20
7.5mm	.2953	60	95	2860075	52.50
1 9/64	.2969	2 3/8	3 3/4	286019	44.30
N	.3020	2 3/8	3 3/4	28603020	51.10
5/16	.3125	2 3/8	3 3/4	286020	47.05
8.0mm	.3150	60	95	2860080	53.35
O	.3160	2 3/8	3 3/4	28603160	54.10
P	.3230	2 3/8	3 3/4	28603230	55.85
2 1/64	.3281	2 1/2	4	286021	51.30
Q	.3320	2 1/2	4	28603320	59.25
8.5mm	.3346	63	100	2860085	63.30
R	.3390	2 1/2	4	28603390	61.15
1 1/32	.3438	2 1/2	4	286022	56.85
S	.3480	2 1/2	4	28603480	67.10
9.0mm	.3543	70	100	2860090	72.10
T	.3580	2 3/4	4 1/4	28603580	69.55
2 3/64	.3594	2 3/4	4 1/4	286023	62.05
U	.3680	2 3/4	4 1/4	28603680	70.90
9.5mm	.3740	70	108	2860095	74.55
3/8	.3750	2 3/4	4 1/4	286024	67.35
V	.3770	2 3/4	4 1/4	28603770	78.25
W	.3860	2 7/8	4 1/2	28603860	83.00
2 5/64	.3906	2 7/8	4 1/2	286025	76.15
10.0mm	.3937	73	114	2860100	88.70
X	.3970	2 7/8	4 1/2	28603970	89.80
Y	.4040	2 7/8	4 1/2	28604040	89.10
1 1/32	.4062	2 7/8	4 1/2	286026	84.45
Z	.4130	2 7/8	4 1/2	28604130	98.40
10.5mm	.4134	73	114	2860105	101.50
2 7/64	.4219	2 7/8	4 1/2	286027	92.40
11.0mm	.4331	73	114	2860110	113.30
7/16	.4375	2 7/8	4 1/2	286028	100.05
11.5mm	.4528	76	120	2860115	123.70
2 9/64	.4531	3	4 3/4	286029	108.45
1 5/32	.4688	3	4 3/4	286030	116.70
12.0mm	.4724	76	120	2860120	131.55
3 1/64	.4844	3	4 3/4	286031	120.15
12.5mm	.4921	76	120	2860125	146.10
1/2	.5000	3	4 3/4	286032	123.15

Larger sizes available. Call for pricing.



COOLANT FEEDING DRILLS

SHORT LENGTH - CARBIDE TIPPED 125° SELF CENTERING POINT



TYPE 2652 - SHORT LENGTH

Coolant Drill - 125° four facet point, self centering. Shank diameter same size as cutting tip. Carbide tip high temperature brazed to hardened tool steel bodies with polished straight flutes. Shank coolant hole not tapped. Tip diameter tolerance $+.000''$, $-.001''$. Two coolant passages.

USE:

Excellent coolant feeding drills for use when very high performance is required. Excellent hole straightness. Exceptional hole finish as coolant flushes chips out and away from cutting edges. High penetration feed rates for shorter drill operation times. Proven carbide tip point geometry assures long production runs within tolerances.

OPTIONS:

Modified tool diameter.
Modified metric tool diameter.
Modified point and/or angle.
Flat(s) on shank.
Tanged shank.

TOOL DIAMETER		LENGTH		125° 4 FACET PT.	PRICE	TOOL DIAMETER RANGE*
FRAC.	DECIMAL	FLUTE	OVERALL	TYPE 2652 EDP NO.		
1/4	.2500	2 1/2	4 29/32	265216	\$146.10	0.2490 - 0.2530
17/64	.2656	2 3/4	5 5/32	265217	146.10	-
9/32	.2812	2 3/4	5 5/32	265218	146.10	0.2640 - 0.2840
19/64	.2969	3 3/16	5 19/32	265219	146.10	-
5/16	.3125	3 3/16	5 19/32	265220	146.10	0.2950 - 0.3160
21/64	.3281	3 7/16	5 27/32	265221	146.10	-
11/32	.3438	3 7/16	5 27/32	265222	146.10	0.3260 - 0.3460
23/64	.3594	3 5/8	6 1/32	265223	147.65	-
3/8	.3750	3 5/8	6 1/32	265224	147.65	0.3540 - 0.3770
25/64	.3906	3 7/8	6 9/32	265225	151.35	-
13/32	.4062	3 7/8	6 9/32	265226	151.35	0.3850 - 0.4080
27/64	.4219	4 1/16	6 15/32	265227	156.45	-
7/16	.4375	4 1/16	6 15/32	265228	156.45	0.4100 - 0.4390
29/64	.4531	4 5/16	6 23/32	265229	166.60	-
15/32	.4688	4 5/16	6 23/32	265230	166.60	0.4391 - 0.4724
31/64	.4844	4 1/2	6 29/32	265231	171.45	-
1/2	.5000	4 1/2	6 29/32	265232	171.45	0.4725 - 0.5030
33/64	.5156	4 13/16	7 7/32	265233	178.65	-
17/32	.5312	4 13/16	7 7/32	265234	181.65	0.5031 - 0.5330
35/64	.5469	4 13/16	7 7/32	265235	188.45	-
9/16	.5625	4 13/16	7 7/32	265236	191.75	0.5331 - 0.5650
37/64	.5781	5 3/16	7 19/32	265237	225.90	-
19/32	.5938	5 3/16	7 19/32	265238	229.65	0.5651 - 0.5950
39/64	.6094	5 3/16	7 19/32	265239	225.90	-
5/8	.6250	5 3/16	7 19/32	265240	229.65	0.5951 - 0.6270
41/64	.6406	5 3/16	7 19/32	265241	242.15	-
21/32	.6562	5 3/16	7 19/32	265242	242.15	0.6271 - 0.6570
43/64	.6719	5 5/8	8 1/32	265243	262.00	-
11/16	.6875	5 5/8	8 1/32	265244	262.35	0.6571 - 0.6900
45/64	.7031	5 5/8	8 1/32	265245	269.80	-
23/32	.7188	5 5/8	8 1/32	265246	269.80	0.6901 - 0.7220
47/64	.7344	6 1/16	8 15/32	265247	272.50	-
3/4	.7500	6 1/16	8 15/32	265248	272.50	0.7221 - 0.7530
49/64	.7656	6 1/16	8 9/16	265249	285.25	-
25/32	.7812	6 1/16	8 9/16	265250	290.15	0.7531 - 0.7840
13/16	.8125	6 1/16	8 9/16	265252	295.00	0.7841 - 0.8160
27/32	.8438	6 1/2	9	265254	312.80	0.8161 - 0.8470
7/8	.8750	6 1/2	9	265256	320.35	0.8471 - 0.8780
29/32	.9062	6 15/16	9 7/16	265258	342.80	0.8781 - 0.9090
15/16	.9375	6 15/16	9 7/16	265260	368.25	0.9091 - 0.9390
31/32	.9688	6 15/16	9 7/16	265262	383.35	0.9391 - 0.9700
1	1.0000	7 3/8	9 7/8	265264	393.40	0.9701 - 1.0030

*Contact us for modified tool diameter prices.



COOLANT FEEDING DRILLS

LONG LENGTH - CARBIDE TIPPED 125° SELF CENTERING POINT



TYPE 2650 - LONG LENGTH

Coolant Drill - 125° four facet point, self centering.

Shank diameter same size as cutting tip.

Same as type 2652 except longer overall and flute lengths.

Where possible, use shorter length, type 2652, for greater rigidity.

Carbide tip high temperature brazed to hardened tool steel bodies with polished straight flutes.

Shank coolant hole not tapped.

Tip diameter tolerance +.000", -.001".

Two coolant passages.

TOOL DIAMETER		LENGTH		125° 4 FACET PT. TYPE 2650 EDP NO.	PRICE	TOOL DIAMETER RANGE*
FRAC	DEC.	FLUTE	OVERALL			
1/4	.2500	4 3/8	6 1/8	265016	\$160.00	0.2490-0.2530
17/64	.2656	4 3/4	6 1/4	265017	160.00	-
9/32	.2812	4 3/4	6 1/4	265018	160.00	0.2640-0.2840
19/64	.2969	4 7/8	6 3/8	265019	160.00	-
5/16	.3125	4 7/8	6 3/8	265020	160.00	0.2950-0.3160
21/64	.3281	5	6 1/2	265021	154.00	-
11/32	.3438	5	6 1/2	265022	154.00	0.3260-0.3460
23/64	.3594	5 1/4	6 3/4	265023	150.05	-
3/8	.3750	5 1/4	6 3/4	265024	155.85	0.3540-0.3770
25/64	.3906	5 1/2	7	265025	154.00	-
13/32	.4062	5 1/2	7	265026	154.00	0.3850-0.4080
27/64	.4219	5 3/4	7 1/4	265027	159.00	-
7/16	.4375	5 3/4	7 1/4	265028	159.00	0.4100-0.4390
29/64	.4531	5 3/4	7 1/2	265029	169.00	-
15/32	.4688	5 3/4	7 1/2	265030	169.00	0.4391-0.4724
31/64	.4844	5 3/4	7 3/4	265031	174.05	-
1/2	.5000	5 3/4	7 3/4	265032	174.05	0.4725-0.5030
33/64	.5156	6	8	265033	186.75	-
17/32	.5312	6	8	265034	186.75	0.5031-0.5330
35/64	.5469	6 1/4	8 1/4	265035	193.45	-
9/16	.5625	6 1/4	8 1/4	265036	196.70	0.5331-0.5650
37/64	.5781	6 3/4	8 3/4	265037	232.90	-
19/32	.5938	6 3/4	8 3/4	265038	236.85	0.5651-0.5950
39/64	.6094	6 3/4	8 3/4	265039	232.90	-
5/8	.6250	6 3/4	8 3/4	265040	236.85	0.5951-0.6270
41/64	.6406	7	9	265041	245.45	-
21/32	.6562	7	9	265042	249.70	0.6271-0.6570
43/64	.6719	7 1/4	9 1/4	265043	262.75	-
11/16	.6875	7 1/4	9 1/4	265044	267.40	0.6571-0.6900
45/64	.7031	7 1/2	9 1/2	265045	272.80	-
23/32	.7188	7 1/2	9 1/2	265046	277.40	0.6901-0.7220
47/64	.7344	7 3/4	9 3/4	265047	275.10	-
3/4	.7500	7 3/4	9 3/4	265048	279.90	0.7221-0.7530
49/64	.7656	7 7/8	9 7/8	265049	297.60	-
25/32	.7812	7 7/8	9 7/8	265050	297.60	0.7531-0.7840
13/16	.8125	8	10	265052	302.60	0.7841-0.8160
27/32	.8438	8	10	265054	320.35	0.8161-0.8470
7/8	.8750	8	10	265056	327.90	0.8471-0.8780
29/32	.9062	8	10	265058	363.25	0.8781-0.9090
15/16	.9375	8 3/4	10 3/4	265060	378.30	0.9091-0.9390
31/32	.9688	9	11	265062	381.95	0.9391-0.9700
1	1.0000	9	11	265064	381.95	0.9701-1.0030

*Contact us for modified tool diameter prices.

OPTIONS:

Modified tool diameter.

Modified metric tool diameter.

Modified point and/or angle.

Flat(s) on shank.

Tanged shank.

TOOL DIAMETER		LENGTH		125° 4 FACET PT. TYPE 2650 EDP NO.	PRICE	TOOL DIAMETER RANGE**
mm	INCH	FLUTE	OVER-ALL			
*6.5	.2559	4 3/8	6 1/8	2650065	\$166.75	-
7.0	.2756	4 3/4	6 1/4	2650070	166.75	6.706-7.214
7.5	.2953	4 7/8	6 3/8	2650075	166.75	7.493-8.026
8.0	.3150	4 7/8	6 3/8	2650080	166.75	-
8.5	.3346	5	6 1/2	2650085	161.05	8.280-8.788
9.0	.3543	5 1/4	6 3/4	2650090	161.05	8.992-9.576
9.5	.3740	5 1/4	6 3/4	2650095	161.05	-
10.0	.3937	5 1/2	7	2650100	161.05	9.779-10.363
10.5	.4134	5 3/4	7 1/4	2650105	166.75	10.414-11.151
11.0	.4331	5 3/4	7 1/4	2650110	166.75	-
11.5	.4528	5 3/4	7 1/2	2650115	180.20	11.153-12.000
12.0	.4724	5 3/4	7 1/2	2650120	180.20	-
12.5	.4921	5 3/4	7 3/4	2650125	184.05	12.002-12.776
13.0	.5118	6	8	2650130	195.50	12.779-13.538
13.5	.5315	6	8	2650135	195.50	-
14.0	.5512	6 1/4	8 1/4	2650140	205.10	13.541-14.351
14.5	.5709	6 3/4	8 3/4	2650145	249.10	14.354-15.113
15.0	.5906	6 3/4	8 3/4	2650150	249.10	-
15.5	.6102	6 3/4	8 3/4	2650155	249.10	15.116-15.926
16.0	.6299	7	9	2650160	254.90	15.928-16.688
16.5	.6496	7	9	2650165	254.90	-
17.0	.6693	7 1/4	9 1/4	2650170	272.10	16.690-17.526
17.5	.6890	7 1/4	9 1/4	2650175	272.10	-
18.0	.7087	7 1/2	9 1/2	2650180	285.60	17.529-18.339
18.5	.7283	7 3/4	9 3/4	2650185	287.45	18.341-19.126
19.0	.7480	7 3/4	9 3/4	2650190	287.45	-
19.5	.7677	7 7/8	9 7/8	2650195	304.80	19.129-19.914
20.0	.7874	8	10	2650200	308.65	19.916-20.726
20.5	.8071	8	10	2650205	308.65	-
21.0	.8268	8	10	2650210	325.85	20.729-21.514
21.5	.8465	8	10	2650215	325.85	-
22.0	.8661	8	10	2650220	333.50	21.516-22.301
22.5	.8858	8	10	2650225	368.00	22.304-23.089
23.0	.9055	8	10	2650230	368.00	-
23.5	.9252	8 3/4	10 3/4	2650235	381.40	23.091-23.851
24.0	.9449	9	11	2650240	396.75	23.853-24.638
24.5	.9646	9	11	2650245	396.75	-
25.0	.9843	9	11	2650250	396.75	24.641-25.476

*6.5mm tool diameter has 6.35mm shank diameter.

**Contact us for modified tool diameter prices.



COOLANT FEEDING DRILLS

SHORT LENGTH AND EXTRA LONG LENGTH - CARBIDE TIPPED

TYPE 2652 - SHORT LENGTH - METRIC

125° four facet point.
Flat relieved, self centering point.
Polished straight flutes.
Two coolant outlets.
Drill body diameter smaller than tool diameter to prevent gauling.
Shank diameter same size as tool diameter.
Shank and tool diameter tolerances: plus .000", minus .001".
Carbide high temperature brazed to hardened tool steel body.
Extra long carbide tip for additional regrinds.
Straight flutes for superior hole straightness, improved finish and maximum chip capacity.



OPTIONS:

Modified tool diameter.
Modified metric tool diameter.
Modified point and/or angle.
Flat(s) on shank.
Tanged shank.

USE:

For drilling most materials, including some stainless steels.
For intermediate depth holes, 5-8 tool diameters deep.

TOOL DIAMETER		LENGTH				TYPE 2652 METRIC EDP NO.	METRIC PRICE	TOOL DIAMETER RANGE*
		FLUTE		OVERALL				
mm	INCH	mm	INCH	mm	INCH			
**6.5	.2559	64	2 1/2	125	4 29/32	2652065	\$188.75	-
7.0	.2756	70	2 3/4	131	5 1/2	2652070	188.75	6.706 - 7.214
7.5	.2953	81	3 3/16	142	5 19/32	2652075	188.75	7.493 - 8.026
8.0	.3150	81	3 3/16	142	5 19/32	2652080	188.75	-
8.5	.3346	87	3 7/16	148	5 27/32	2652085	182.25	8.280 - 8.788
9.0	.3543	92	3 5/8	153	6 1/32	2652090	182.25	8.992 - 9.576
9.5	.3740	92	3 5/8	153	6 1/32	2652095	182.25	-
10.0	.3937	98	3 7/8	159	6 7/32	2652100	182.25	9.779 - 10.363
10.5	.4134	103	4 1/16	164	6 15/32	2652105	188.75	10.414 - 11.151
11.0	.4331	103	4 1/16	164	6 15/32	2652110	188.75	-
11.5	.4528	109	4 3/16	171	6 23/32	2652115	204.00	11.153 - 12.000
12.0	.4724	109	4 3/16	171	6 23/32	2652120	204.00	-
12.5	.4921	114	4 1/2	175	6 29/32	2652125	208.35	12.002 - 12.776
13.0	.5118	122	4 13/16	183	7 1/32	2652130	221.30	12.779 - 13.538
13.5	.5315	122	4 13/16	183	7 1/32	2652135	221.30	-
14.0	.5512	122	4 13/16	183	7 1/32	2652140	232.15	13.541 - 14.351
14.5	.5709	131	5 3/16	193	7 19/32	2652145	282.05	14.354 - 15.113
15.0	.5906	131	5 3/16	193	7 19/32	2652150	282.05	-
15.5	.6102	131	5 3/16	193	7 19/32	2652155	282.05	15.116 - 15.926
16.0	.6299	131	5 3/16	193	7 19/32	2652160	288.50	15.928 - 16.688

TYPE 2658 - EXTRA LONG LENGTH

125° four facet point.
Flat relieved, self centering point.
Polished straight flutes.
Two coolant outlets.
Drill body diameter smaller than tool diameter to prevent gauling.
Shank diameter same size as tool diameter.
Shank and tool diameter tolerances: plus .000", minus .001".
Carbide high temperature brazed to hardened tool steel body.
Extra long carbide tip for additional regrinds.
Straight flutes for superior hole straightness, improved finish and maximum chip capacity.



OPTIONS:

Modified tool diameter.
Modified metric tool diameter.
Modified point and/or angle.
Flat(s) on shank.
Tanged shank.

USE:

For drilling most materials, including some stainless steels.
For very deep holes, 12-24 tool diameters deep.

TOOL DIAMETER		LENGTH				TYPE 2652 METRIC EDP NO.	METRIC PRICE	TOOL DIAMETER RANGE*
		FLUTE		OVERALL				
mm	INCH	mm	INCH	mm	INCH			
16.5	.6496	131	5 3/16	193	7 19/32	2652165	\$288.50	-
17.0	.6693	143	5 5/8	204	8 1/32	2652170	308.05	16.690 - 17.526
17.5	.6890	143	5 5/8	204	8 1/32	2652175	308.05	-
18.0	.7087	143	5 5/8	204	8 1/32	2652180	323.35	17.529 - 18.339
18.5	.7283	154	6 1/16	215	8 15/32	2652185	325.40	18.341 - 19.126
19.0	.7480	154	6 1/16	215	8 15/32	2652190	325.40	-
19.5	.7677	154	6 1/16	217	8 9/16	2652195	345.05	19.129 - 19.914
20.0	.7874	154	6 1/16	217	8 9/16	2652200	349.40	19.916 - 20.726
20.5	.8071	154	6 1/16	217	8 9/16	2652205	349.40	-
21.0	.8268	165	6 1/2	229	9	2652210	368.85	20.729 - 21.514
21.5	.8465	165	6 1/2	229	9	2652215	368.85	-
22.0	.8661	165	6 1/2	229	9	2652220	377.55	21.516 - 22.301
22.5	.8858	176	6 15/16	240	9 7/16	2652225	416.60	22.304 - 23.089
23.0	.9055	176	6 15/16	240	9 7/16	2652230	416.60	-
23.5	.9252	176	6 15/16	240	9 7/16	2652235	431.80	23.091 - 23.851
24.0	.9449	176	6 15/16	240	9 7/16	2652240	449.10	23.853 - 24.638
24.5	.9646	176	6 15/16	240	9 7/16	2652245	445.35	-
25.0	.9843	187	7 3/8	251	9 7/8	2652250	449.10	24.641 - 25.476

*Contact us for modified tool diameter prices.

**6.5mm tool diameter has 6.35mm shank diameter.

TOOL DIAMETER		LENGTH		TYPE 2658 EDP NO.	PRICE	TOOL DIAMETER RANGE*
		FLUTE	OVER-ALL			
FRAC.	DECIMAL					
5/16	.3125	8	10	265820	\$230.90	0.3100-0.3160
11/32	.3438	8	10	265822	230.90	0.3281-0.3460
3/8	.3750	9	11	265824	244.05	0.3594-0.3770
13/32	.4062	9	11	265826	277.80	0.3906-0.4080
7/16	.4375	9	11	265828	277.80	0.4200-0.4390
15/32	.4688	9 3/4	12	265830	293.35	0.4531-0.4710
1/2	.5000	9 3/4	12	265832	293.35	0.4800-0.5030
17/32	.5312	9 3/4	12	265834	314.85	0.5118-0.5330

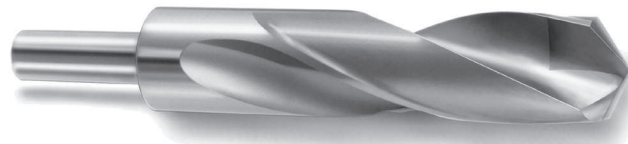
TOOL DIAMETER		LENGTH		TYPE 2658 EDP NO.	PRICE	TOOL DIAMETER RANGE*
		FLUTE	OVER-ALL			
FRAC.	DECIMAL					
9/16	.5625	10 3/4	13	265836	\$339.10	0.5430-0.5650
5/8	.6250	10 3/4	13	265840	358.05	0.6070-0.6270
11/16	.6875	11 3/4	14	265844	372.85	0.6693-0.6900
3/4	.7500	11 3/4	14	265848	394.65	0.7320-0.7530
13/16	.8125	12 3/4	15	265852	419.10	0.7953-0.8160
7/8	.8750	12 3/4	15	265856	451.60	0.8570-0.8780
15/16	.9375	13 3/4	16	265860	482.50	0.9180-0.9390
1	1.0000	13 3/4	16	265864	522.55	0.9820-1.0030

*Contact us for modified tool diameter prices.



SILVER & DEMING DRILLS

CARBIDE TIPPED - 118° STANDARD AND 135° SPLIT POINT



TYPE 2616 - 118° POINT

Shank: 1/2" diameter, 2 1/4" long.
118° point - 6" overall length.
Heavy duty quality construction.

TYPE 2618 - 135° SPLIT POINT

Same as Type 2616 above, except 135° split point.
Designed for drilling tough abrasive or high tensile materials.

OPTIONS:

Modified tool diameter.
Metric tool diameter.
Modified point and/or angle.
Flat(s) on shank.

USE:

Allows larger tool diameter drilling using a 1/2" drill chuck.

TOOL DIAMETER		LENGTH		118° POINT		135° POINT	
		FLUTE	OVER-ALL	TYPE 2616 EDP NO.	PRICE	TYPE 2618 EDP NO.	PRICE
1/2	.5000	3 1/8	6	261632	\$48.55	261832	\$55.85
17/32	.5312	3 1/8	6	261634	71.00	261834	81.70
9/16	.5625	3 1/8	6	261636	73.60	261836	84.65
19/32	.5938	3 1/8	6	261638	76.55	261838	88.00
5/8	.6250	3 1/8	6	261640	85.05	261840	97.75
21/32	.6562	3 1/8	6	261642	92.25	261842	106.00
11/16	.6875	3 1/8	6	261644	95.80	261844	110.25
23/32	.7188	3 1/8	6	261646	99.40	261846	114.30
3/4	.7500	3 1/8	6	261648	104.15	261848	119.85
25/32	.7812	3 1/8	6	261650	114.85	261850	132.05
13/16	.8125	3 1/8	6	261652	115.15	261852	132.40
27/32	.8438	3 1/8	6	261654	115.15	261854	132.40
7/8	.8750	3 1/8	6	261656	119.75	261856	137.70

TOOL DIAMETER		LENGTH		118° POINT		135° POINT	
		FLUTE	OVER-ALL	TYPE 2616 EDP NO.	PRICE	TYPE 2618 EDP NO.	PRICE
29/32	.9062	3 1/8	6	261658	\$122.65	261858	\$141.05
15/16	.9375	3 1/8	6	261660	123.90	261860	142.40
31/32	.9688	3 1/8	6	261662	128.10	261862	147.20
1	1.0000	3 1/8	6	261664	130.80	261864	150.45
1 1/32	1.0312	3 1/8	6	261666	126.25	261866	145.20
1 1/16	1.0625	3 1/8	6	261668	136.95	261868	157.40
1 1/32	1.0938	3 1/8	6	261670	140.20	261870	161.20
1 1/8	1.1250	3 1/8	6	261672	142.95	261872	164.30
1 5/32	1.1562	3 1/8	6	261674	173.45	261874	199.50
1 3/16	1.1875	3 1/8	6	261676	176.60	261876	203.10
1 7/32	1.2188	3 1/8	6	261678	185.45	261878	213.30
1 1/4	1.2500	3 1/8	6	261680	169.30	261880	194.70

CNC SPOTTING/CENTERING DRILLS

CARBIDE TIPPED

ALL TYPES:

Tool diameter not cleared.
Accurately ground point.
Polished flutes.

USE:

For accurate centering and chamfering.
Drill wandering minimized.
Cuts only to depth of point.

Not for drilling holes.
Ideal for CNC machining.



TYPE 2677 - 90° POINT REGULAR LENGTH
TYPE 2678 - 120° POINT REGULAR LENGTH
TYPE 2679 - 140° POINT REGULAR LENGTH

TYPE 2647 - 90° POINT SHORT LENGTH
TYPE 2648 - 120° POINT SHORT LENGTH
TYPE 2649 - 140° POINT SHORT LENGTH

TOOL DIAMETER		LENGTH		TYPE 2677	TYPE 2678	TYPE 2679	ALL TYPES PRICE
		FLUTE	OVER-ALL	90° PT. EDP NO.	120° PT. EDP NO.	140° PT. EDP NO.	
1/4	.2500	1	4	267716	267816	267916	\$75.20
3/8	.3750	1 1/8	5	267724	267824	267924	87.80
1/2	.5000	1 1/2	6	267732	267832	267932	118.05
5/8	.6250	1 3/8	7	267740	267840	267940	170.95
3/4	.7500	1 7/8	8	267748	267848	267948	198.35
1	1.0000	2 1/4	8	267764	267864	267964	262.95

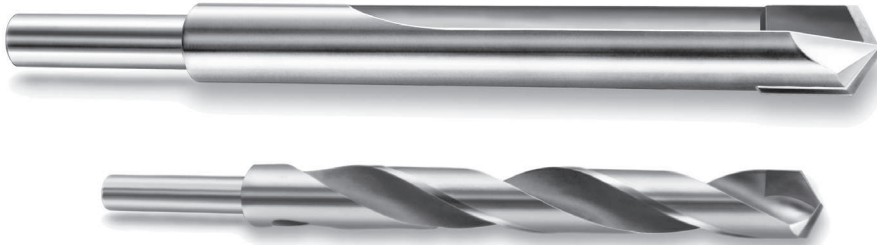
TOOL DIAMETER		LENGTH		TYPE 2647	TYPE 2648	TYPE 2649	ALL TYPES PRICE
		FLUTE	OVER-ALL	90° PT. EDP NO.	120° PT. EDP NO.	140° PT. EDP NO.	
1/4	.2500	1	2 1/2	264716	264816	264916	\$71.45
3/8	.3750	1 1/8	3 1/8	264724	264824	264924	83.40
1/2	.5000	1 1/2	3 3/4	264732	264832	264932	112.20
5/8	.6250	1 3/8	4 1/4	264740	264840	264940	162.45
3/4	.7500	1 7/8	5	264748	264848	264948	188.45
1	1.0000	2 1/4	6	264764	264864	264964	249.75



REDUCED SHANK DIAMETER DRILLS

CARBIDE TIPPED - STUB LENGTH, JOBBERS LENGTH, AND HARD
STEEL DIE DRILLS - 1/4", 3/8", 1/2", OR 3/4" SHANK DIAMETER

TYPES 2640, 2641, 2600, 2601, 2670, 2672



OPTIONS:

Modified tool diameter.
Metric tool diameter.
Modified point and/or angle.
Flat(s) on shank.

USE:

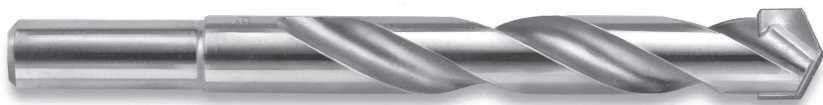
Can be used in drill chucks with
diameter limitations.

SHANK DIAM.	TOOL DIAMETER		STUB LENGTH DRILLS						JOBBERS LENGTH DRILLS						HARD STEEL DIE DRILLS			
			OVER- ALL LENGTH	TYPE 2640 118° PT.		TYPE 2641 135° PT.		OVER- ALL LENGTH	TYPE 2600 118° PT.		TYPE 2601 135° PT.		OVER- ALL LENGTH	TYPE 2670 NEG. 118° PT.		TYPE 2672 POS. 118° PT.		BOTH TYPES PRICE
	FRAC.	DEC.		EDP NO.	PRICE	EDP NO.	PRICE		EDP NO.	PRICE	EDP NO.	PRICE		EDP NO.		EDP NO.		
1/4	9/32	.2812	2 1/16	2640618	\$29.25	2641618	\$33.95	4 1/4	2600618	\$28.95	2601618	\$33.55	-	-	-	-	-	-
	5/16	.3125	2 13/16	2640620	31.10	2641620	36.15	4 1/2	2600620	31.30	2601620	36.40	4 1/2	2670620		2672620		\$47.40
	11/32	.3438	3	2640622	36.20	2641622	41.90	4 3/4	2600622	33.25	2601622	38.70	4 3/4	2670622		2672622		50.50
	3/8	.3750	3 1/8	2640624	37.10	2641624	43.05	5	2600624	35.35	2601624	41.15	5	2670624		2672624		54.25
	13/32	.4062	3 3/16	2640626	43.95	2641626	51.20	5 1/4	2600626	38.45	2601626	44.75	5 1/4	2670626		2672626		63.60
	7/16	.4375	3 7/16	2640628	47.00	2641628	52.15	5 1/2	2600628	41.85	2601628	48.60	5 1/2	2670628		2672628		73.70
	15/32	.4688	3 3/8	2640630	66.90	2641630	77.80	5 3/4	2600630	47.10	2601630	54.50	5 3/4	2670630		2672630		80.95
	1/2	.5000	3 3/4	2640632	64.00	2641632	74.45	6	2600632	57.90	2601632	61.00	6	2670632		2672632		95.00
3/8	13/32	.4062	3 3/16	2640726	43.95	2641726	51.20	5 1/4	2600726	38.45	2601726	44.75	-	-	-	-	-	-
	7/16	.4375	3 7/16	2640728	47.00	2641728	52.15	5 1/2	2600728	41.85	2601728	48.60	5 1/2	2670728		2672728		73.70
	15/32	.4688	3 3/8	2640730	66.90	2641730	77.80	5 3/4	2600730	47.10	2601730	54.50	5 3/4	2670730		2672730		80.95
	1/2	.5000	3 3/4	2640732	64.00	2641732	74.45	6	2600732	57.90	2601732	61.00	6	2670732		2672732		95.00
	17/32	.5312	3 7/8	2640734	79.80	2641734	89.90	6 5/8	2600734	75.40	2601734	87.60	6	2670734		2672734		108.95
	9/16	.5625	4	2640736	79.80	2641736	89.90	6 3/4	2600736	76.10	2601736	88.35	6	2670736		2672736		112.70
	19/32	.5938	4 1/8	2640738	91.55	2641738	103.20	7 1/8	2600738	81.75	2601738	94.80	7	2670738		2672738		119.25
	5/8	.6250	4 1/4	2640740	91.55	2641740	103.20	7 1/8	2600740	92.60	2601740	107.35	7	2670740		2672740		122.90
	21/32	.6562	4 1/2	2640742	110.10	2641742	124.15	7 1/8	2600742	94.10	2601742	109.20	7 1/2	2670742		2672742		131.50
	11/16	.6875	4 5/8	2640744	112.90	2641744	127.45	7 3/8	2600744	95.95	2601744	111.30	7 1/2	2670744		2672744		135.05
	23/32	.7188	4 3/4	2640746	128.10	2641746	148.70	7 3/8	2600746	113.25	2601746	125.95	8	2670746		2672746		141.50
	3/4	.7500	5	2640748	128.40	2641748	144.60	8	2600748	115.60	2601748	128.50	8	2670748		2672748		145.30
	17/32	.5312	3 7/8	2640834	79.80	2641834	89.90	6 5/8	2600834	75.40	2601834	87.60	-	-	-	-	-	-
	9/16	.5625	4	2640836	79.80	2641836	89.90	6 3/4	2600836	76.10	2601836	88.35	6	2670836		2672836		112.70
	19/32	.5938	4 1/8	2640838	91.55	2641838	103.20	7 1/8	2600838	81.75	2601838	94.80	7	2670838		2672838		119.25
	5/8	.6250	4 1/4	2640840	91.55	2641840	103.20	7 1/8	2600840	92.60	2601840	107.35	7	2670840		2672840		122.90
	21/32	.6562	4 1/2	2640842	110.10	2641842	124.15	7 1/8	2600842	94.10	2601842	109.20	7 1/2	2670842		2672842		131.50
	11/16	.6875	4 5/8	2640844	112.90	2641844	127.45	7 3/8	2600844	95.95	2601844	111.30	7 1/2	2670844		2672844		135.05
	23/32	.7188	4 3/4	2640846	128.10	2641846	148.70	7 3/8	2600846	113.25	2601846	125.95	8	2670846		2672846		141.50
	3/4	.7500	5	2640848	128.40	2641848	144.60	8	2600848	115.60	2601848	128.50	8	2670848		2672848		145.30
1/2	13/16	.8125	5 1/4	2640852	158.65	2641852	179.10	-	-	-	-	-	8	2670852		2672852		260.55
	7/8	.8750	5 1/2	2640856	174.15	2641856	196.30	-	-	-	-	-	8	2670856		2672856		266.00
	15/16	.9375	5 3/4	2640860	186.95	2641860	210.85	-	-	-	-	-	8	2670860		2672860		296.40
	1	1.0000	6	2640864	197.50	2641864	222.85	-	-	-	-	-	8	2670864		2672864		314.45
	13/16	.8125	5 1/4	2640952	158.65	2641952	179.10	-	-	-	-	-	8	2670952		2672952		260.55
	7/8	.8750	5 1/2	2640956	174.15	2641956	196.30	-	-	-	-	-	8	2670956		2672956		266.00
	15/16	.9375	5 3/4	2640960	186.95	2641960	210.85	-	-	-	-	-	8	2670960		2672960		296.40
	1	1.0000	6	2640964	197.50	2641964	222.85	-	-	-	-	-	8	2670964		2672964		314.45
	1 1/16	1.0625	6 1/4	2640968	247.50	2641968	279.05	-	-	-	-	-	-	-	-	-	-	-
	1 1/8	1.1250	6 3/8	2640972	274.80	2641972	309.80	-	-	-	-	-	-	-	-	-	-	-
	1 3/16	1.1875	6 3/8	2640976	335.30	2641976	375.90	-	-	-	-	-	-	-	-	-	-	-
	1 1/4	1.2500	6 3/4	2640980	335.30	2641980	375.90	-	-	-	-	-	-	-	-	-	-	-
3/4	13/16	.8125	5 1/4	2640952	158.65	2641952	179.10	-	-	-	-	-	8	2670952		2672952		260.55
	7/8	.8750	5 1/2	2640956	174.15	2641956	196.30	-	-	-	-	-	8	2670956		2672956		266.00
	15/16	.9375	5 3/4	2640960	186.95	2641960	210.85	-	-	-	-	-	8	2670960		2672960		296.40
	1	1.0000	6	2640964	197.50	2641964	222.85	-	-	-	-	-	8	2670964		2672964		314.45
	1 1/16	1.0625	6 1/4	2640968	247.50	2641968	279.05	-	-	-	-	-	-	-	-	-	-	-



MASONRY DRILLS - CARBIDE TIPPED

FOUR TYPES FOR MOST APPLICATIONS



TYPE 2681 REGULAR HELIX (WIDE SPIRAL)

Fast feeding with large open flutes.

TYPE 2682 HIGH HELIX (FAST SPIRAL)

TYPE 2683 HIGH HELIX (FAST SPIRAL) - 13" LENGTH

TYPE 2684 HIGH HELIX (FAST SPIRAL) - 18" LENGTH



ALL TYPES

Carbide tips brazed to tough steel bodies.

Carbide tips are larger than the nominal drill size to provide clearance for installation of anchor screws, expansion shields and toggle bolts.

Designed for use in portable electric drills.

USE:

For drilling masonry including concrete, plaster, wall board, stone, brick, marble, slate, carbon, asphalt and cement.

Drills perform best at moderate pressure and slow speeds.

Keep drill cutting rather than rubbing.

On deep holes, withdraw frequently to prevent clogging.

Use punch or star type hand drill to shatter obstructions such as glazed rock.

TOOL DIAMETER	SHANK DIAMETER	OVERALL LENGTH	TYPE 2681 REGULAR EDP NO.	TYPE 2682 HIGH HELIX EDP NO.	BOTH TYPES PRICE
1/8	1/8	3	268108	268208	\$5.10
3/16	3/16	3	268112	268212	5.10
1/4	1/4	4	268116	268216	5.10
1/4	1/4	6	268117	268217	5.80
5/16	1/4	4	268120	268220	5.80
5/16	1/4	6	268121	268221	6.30
3/8	1/4	4	268124	268224	6.30
3/8	1/4	6	268125	268225	6.30
7/16	1/4	4	268128	268228	6.95
7/16	1/4	6	268129	268229	7.15
1/2	1/4	4	268132	268232	7.70
1/2	1/4	6	268133	268233	7.70
1/2	3/8	6	268134	268234	7.70
9/16	3/8	6	268136	268236	10.40
5/8	1/2	6	268140	268240	11.05
11/16	1/2	6	268144	268244	12.55
3/4	1/2	6	268148	268248	13.70
7/8	1/2	6	268156	268256	17.10
1	1/2	6	268164	268264	21.15

TOOL DIAMETER	SHANK DIAMETER	13" OVERALL LENGTH		18" OVERALL LENGTH	
		TYPE 2683 EDP NO.	PRICE	TYPE 2684 EDP NO.	PRICE
1/4	1/4	268316	\$13.25	268416	\$17.85
5/16	1/4	268320	15.15	268420	20.70
3/8	1/4	268324	16.65	268424	21.85
7/16	1/4	268328	18.25	268428	23.90
1/2	3/8	268332	20.90	268432	24.55
9/16	3/8	268336	23.90	268436	26.75
5/8	1/2	268340	26.75	268440	30.00
11/16	1/2	268344	29.95	268444	32.35
3/4	1/2	268348	30.75	268448	34.60
7/8	1/2	268356	37.95	268456	43.25
1	1/2	268364	42.00	268464	47.35

GLASS & TILE DRILLS - CARBIDE TIPPED



TYPE 2680 - CARBIDE SPEAR POINT STRAIGHT SHANK

Carbide tip high temperature brazed.

Heat treated tool steel body.

Long carbide tip permits many regrinds.

USE:

Drills glass, tile, porcelain, ceramic and other hard fragile materials without chipping or cracking the material when properly used.

Speed should be about 25 surface feet per minute (300 to 600 RPM) using a steady, moderate hand feed.

Constant flow of coolant important.

Back material being drilled with wood or rubber to support material during drill break-through.

Avoid vibration and excessive stress.

Keep drill sharp to eliminate excessive pressure.

TOOL DIAMETER		SHANK DIAMETER	OVERALL LENGTH	EDP NO.	PRICE
FRAC.	DECIMAL				
1/8	.1250	7/64	2 1/2	268008	\$22.20
3/16	.1875	5/32	2 1/2	268012	22.20
1/4	.2500	7/32	2 1/2	268016	25.50
5/16	.3125	1/4	3	268020	32.80
3/8	.3750	5/16	3 1/2	268024	36.50
7/16	.4375	3/8	3 1/2	268028	41.40
1/2	.5000	7/16	3 1/2	268032	45.20
9/16	.5625	1/2	4	268036	63.50
5/8	.6250	9/16	4	268040	76.50



CORE DRILLS – CARBIDE TIPPED

STRAIGHT & TAPER SHANK – FOUR SPIRAL FLUTES



TYPE 2620 – STRAIGHT SHANK – FRACTIONAL SIZES
TYPE 2622 – TAPER SHANK – FRACTIONAL SIZES

BOTH TYPES HAVE

Cutting diameter tolerance plus .000" minus .001".
 Carbide tips brazed to one piece hardened tool steel bodies.
 Larger right spiral flute capacity permits higher feeds and speeds.
 118° included chamfer angle.

OPTIONS:

Intermediate decimal sizes - see priced table below.
 Special point angles.

USE:

Core drills are designed for economically enlarging cored, punched or drilled holes, removing up to 30% of the hole diameter.
 The balanced cutting action of the core drill removes considerably more material than a reamer, often eliminating the need for a final reaming or boring operation.
 For cast iron, non-ferrous metals, some steels, composites, plastics and non-metals.

TOOL DIAMETER		MIN. CUT DIAM.	LENGTH			STRAIGHT SHANK		TAPER SHANK		BOTH TYPES PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL		CARBIDE TIP	FLUTE	OVER-ALL	SHANK DIAM.	EDP NO.	TAPER	EDP NO.			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14**
3/8"	.3750	.262	5/8"	3 1/2"	6 3/4"	3/8"	262012	1	262212	\$96.40	0.3471 - 0.3780	\$131.60	\$113.90	\$108.05	\$105.25	\$102.15	\$99.90
13/32"	.4062	.284	5/8"	3 3/8"	7"	13/32"	262013	1	262213	96.40	0.3781 - 0.4090	131.60	113.90	108.05	105.25	102.15	99.90
7/16"	.4375	.306	3/4"	3 7/8"	7 1/4"	7/16"	262014	1	262214	96.40	0.4091 - 0.4410	131.60	113.90	108.05	105.25	102.15	99.90
15/32"	.4688	.328	3/4"	4 1/8"	7 1/2"	15/32"	262015	1	262215	96.40	0.4411 - 0.4720	131.60	113.90	108.05	105.25	102.15	99.90
1/2"	.5000	.350	3/4"	4 3/8"	8 1/4"	1/2"	262016	2	262216	96.40	0.4721 - 0.5030	131.60	113.90	108.05	105.25	102.15	99.90
17/32"	.5312	.372	3/4"	4 3/8"	8 1/4"	17/32"	262017	2	262217	96.75	0.5031 - 0.5340	132.10	114.45	108.45	105.70	102.65	100.20
9/16"	.5625	.394	3/4"	4 3/8"	8 1/4"	9/16"	262018	2	262218	96.75	0.5341 - 0.5660	132.10	114.45	108.45	105.70	102.65	100.20
19/32"	.5938	.416	3/4"	4 3/8"	8 1/4"	19/32"	262019	2	262219	101.65	0.5661 - 0.5970	136.85	119.20	113.35	110.50	107.50	105.15
5/8"	.6250	.438	3/4"	4 3/8"	8 1/4"	5/8"	262020	2	262220	101.65	0.5971 - 0.6280	136.85	119.20	113.35	110.50	107.50	105.15
21/32"	.6562	.459	3/4"	4 3/8"	8 1/4"	21/32"	262021	2	262221	102.80	0.6281 - 0.6590	138.10	120.40	114.55	111.65	108.75	106.35
11/16"	.6875	.481	7/8"	4 3/8"	8 1/4"	11/16"	262022	2	262222	103.75	0.6591 - 0.6910	139.00	121.35	115.40	112.60	109.60	107.15
23/32"	.7188	.503	7/8"	4 3/8"	8 1/4"	23/32"	262023	2	262223	103.75	0.6911 - 0.7220	139.00	121.35	115.40	112.60	109.60	107.15
3/4"	.7500	.525	7/8"	4 3/8"	8 1/4"	3/4"	262024	2	262224	103.75	0.7221 - 0.7530	139.00	121.35	115.40	112.60	109.60	107.15
25/32"	.7812	.547	7/8"	4 3/8"	8 1/4"	25/32"	262025	2	262225	106.00	0.7531 - 0.7840	141.25	123.60	117.70	114.90	111.90	109.50
13/16"	.8125	.569	7/8"	4 7/8"	9 1/2"	13/16"	262026	3	262226	108.95	0.7841 - 0.8160	144.25	126.60	120.65	117.90	114.75	112.50
27/32"	.8438	.591	7/8"	4 7/8"	9 1/2"	27/32"	262027	3	262227	114.75	0.8161 - 0.8470	150.05	132.40	126.50	123.65	120.65	118.25
7/8"	.8750	.612	7/8"	4 7/8"	9 1/2"	7/8"	262028	3	262228	114.75	0.8471 - 0.8780	150.05	132.40	126.50	123.65	120.65	118.25
29/32"	.9062	.634	7/8"	4 7/8"	9 1/2"	29/32"	262029	3	262229	115.50	0.8781 - 0.9090	150.75	133.15	127.15	124.40	121.40	119.00
15/16"	.9375	.656	7/8"	4 7/8"	9 1/2"	15/16"	262030	3	262230	115.50	0.9091 - 0.9410	150.75	133.15	127.15	124.40	121.40	119.00
31/32"	.9688	.678	7/8"	4 7/8"	9 1/2"	31/32"	262031	3	262231	119.85	0.9411 - 0.9720	155.00	137.30	131.50	128.70	125.60	123.30
1"	1.0000	.700	7/8"	4 7/8"	9 1/2"	1"	262032	3	262232	122.05	0.9721 - 1.0030	157.30	139.65	133.65	130.90	127.85	125.50
1 1/32"	1.0312	.722	7/8"	4 7/8"	9 1/2"	1 1/32"	262033	3	262233	123.05	1.0031 - 1.0340	158.25	140.55	134.75	131.85	128.90	126.50
1 1/16"	1.0625	.744	7/8"	4 7/8"	9 1/2"	1 1/16"	262034	3	262234	124.75	1.0341 - 1.0660	160.05	142.35	136.45	133.60	130.55	128.20
1 3/32"	1.0938	.766	1"	4 7/8"	10 1/2"	1 3/32"	262035	4	262235	145.30	1.0661 - 1.0970	180.50	162.90	157.00	154.20	151.15	148.75
1 1/8"	1.1250	.787	1"	4 7/8"	10 1/2"	1 1/8"	262036	4	262236	145.30	1.0971 - 1.1280	180.50	162.90	157.00	154.20	151.15	148.75
1 5/32"	1.1562	.809	1"	4 7/8"	10 1/2"	1 5/32"	262037	4	262237	158.65	1.1281 - 1.1590	193.85	176.25	170.35	167.55	164.50	162.10
1 3/16"	1.1875	.831	1"	4 7/8"	10 1/2"	1 3/16"	262038	4	262238	163.25	1.1591 - 1.1905	198.45	180.90	174.90	172.10	169.15	166.75
1 7/32"	1.2188	.853	1"	4 7/8"	10 1/2"	1 7/32"	262039	4	262239	163.85	1.1906 - 1.2220	199.10	181.40	175.55	172.70	169.65	167.30
1 1/4"	1.2500	.875	1"	4 7/8"	10 1/2"	1 1/4"	262040	4	262240	164.50	1.2221 - 1.2530	199.75	182.10	176.20	173.35	170.35	167.95
1 9/32"	1.2812	.897	1"	4 7/8"	10 1/2"	1 9/32"	262041	4	262241	176.25	1.2531 - 1.2840	211.50	193.80	187.95	185.05	182.10	179.65
1 5/16"	1.3125	.919	1"	4 7/8"	10 1/2"	1 5/16"	262042	4	262242	181.15	1.2841 - 1.3150	216.45	198.75	192.80	190.05	187.00	184.55
1 11/32"	1.3438	.940	1"	4 7/8"	10 1/2"	1 11/32"	262043	4	262243	184.95	1.3151 - 1.3470	220.20	202.55	196.60	193.80	190.85	188.35
1 3/8"	1.3750	.962	1"	4 7/8"	10 1/2"	1 3/8"	262044	4	262244	189.45	1.3471 - 1.3780	224.65	207.05	201.10	198.30	195.30	192.85
1 13/32"	1.4062	.984	1"	4 7/8"	10 1/2"	1 13/32"	262045	4	262245	193.75	1.3781 - 1.4090	229.00	211.40	205.40	202.60	199.60	197.20
1 7/16"	1.4375	1.006	1"	4 7/8"	10 1/2"	1 7/16"	262046	4	262246	199.40	1.4091 - 1.4410	234.70	217.10	211.10	208.30	205.30	202.90
1 15/32"	1.4688	1.025	1"	4 7/8"	10 1/2"	1 15/32"	262047	4	262247	205.35	1.4411 - 1.4720	240.55	222.90	217.10	214.25	211.15	208.85
1 1/2"	1.5000	1.050	1"	4 7/8"	10 1/2"	1 1/2"	262048	4	262248	209.80	1.4721 - 1.5030	245.00	227.30	221.45	218.65	215.55	213.30

*3 flutes

**Quantities of 15 or more: price of fractional size in same size range.



CORE DRILLS – CARBIDE TIPPED – METRIC DIAMETER

STRAIGHT & TAPER SHANK – FOUR SPIRAL FLUTES

TYPE 2620 – STRAIGHT SHANK TYPE 2622 – TAPER SHANK

BOTH TYPES HAVE

Cutting diameter tolerance plus .000" minus .001".
Carbide tips brazed to one piece hardened tool steel bodies.
Larger right spiral flute capacity permits higher feeds and speeds.
118° included chamfer angle.

OPTIONS:

Intermediate metric sizes - see priced table below.
Special point angles.



USE:

Core drills are designed for economically enlarging cored, punched or drilled holes, removing up to 30% of the hole diameter. The balanced cutting action of the core drill removes considerably more material than a reamer, often eliminating the need for a final reaming or boring operation. For cast iron, non-ferrous metals, some steels, composites, plastics and non-metals.

NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		DIMENSIONS				TYPE 2620		TYPE 2622		BOTH TYPES METRIC PRICE	FINISHED TO MODIFIED TOOL DIAMETER							
		MIN. CUT DIAM.	LENGTH			SHANK DIAM.	METRIC EDP NO.	MORSE TAPER	METRIC EDP NO.		MODIFIED DECIMAL RANGE (mm)	PRICE EACH BASED ON QUANTITY ORDERED						
			CARBIDE TIP	FLUTE	OVER- ALL							1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
9.0*	.3543	.262	5/8	3 1/2	6 3/4	3/8	2620090	1	2622090	\$108.05	8.815-9.601	\$134.55	\$117.00	\$111.00	\$108.15	\$105.25	\$102.75	\$99.35
10.0*	.3937	.284	5/8	3 5/8	7	13/32	2620100	1	2622100	108.05	9.602-10.389	134.55	117.00	111.00	108.15	105.25	102.75	99.35
11.0*	.4331	.306	3/4	3 7/8	7 1/4	7/16	2620110	1	2622110	108.05	10.390-11.201	134.55	117.00	111.00	108.15	105.25	102.75	99.3
-	-	.328	3/4	4 1/8	7 1/2	15/32	2620119	1	2622119	-	11.202-11.989	134.55	117.00	111.00	108.15	105.25	102.75	99.35
12.0	.4724	.350	3/4	4 3/8	8 1/4	1/2	2620120	2	2622120	108.05	11.990-12.776	134.55	117.00	111.00	108.15	105.25	102.75	99.35
13.0	.5118	.372	3/4	4 3/8	8 1/4	17/32	2620130	2	2622130	108.45	12.777-13.564	134.95	117.45	111.50	108.70	105.70	103.25	99.90
14.0	.5512	.394	3/4	4 3/8	8 1/4	9/16	2620140	2	2622140	108.45	13.565-14.376	134.95	117.45	111.50	108.70	105.70	103.25	99.90
15.0	.5906	.416	3/4	4 3/8	8 1/4	19/32	2620150	2	2622150	113.35	14.377-15.164	139.85	122.25	116.35	113.45	110.50	108.05	104.65
-	-	.438	3/4	4 3/8	8 1/4	5/8	2620159	2	2622159	-	15.165-15.951	139.85	122.25	116.35	113.45	110.50	108.05	104.65
16.0	.6299	.459	3/4	4 3/8	8 1/4	21/32	2620160	2	2622160	114.55	15.952-16.739	141.10	123.45	117.55	114.65	111.65	109.20	105.90
17.0	.6693	.481	7/8	4 3/8	8 1/4	11/16	2620170	2	2622170	115.40	16.740-17.551	141.95	124.30	118.35	115.50	112.60	110.10	106.70
18.0	.7087	.503	7/8	4 3/8	8 1/4	23/32	2620180	2	2622180	115.40	17.552-18.339	141.95	124.30	118.35	115.50	112.60	110.10	106.70
19.0	.7480	.525	7/8	4 3/8	8 1/4	3/4	2620190	2	2622190	115.40	18.340-19.126	141.95	124.30	118.35	115.50	112.60	110.10	106.70
-	-	.547	7/8	4 3/8	8 1/4	25/32	2620199	2	2622199	-	19.127-19.914	144.25	126.70	120.80	117.90	114.90	112.50	109.05
20.0	.7874	.569	7/8	4 7/8	9 1/2	13/16	2620200	3	2622200	120.65	19.915-20.726	147.15	129.65	123.65	120.85	117.90	115.40	112.00
21.0	.8268	.591	7/8	4 7/8	9 1/2	27/32	2620210	3	2622210	126.50	20.727-21.514	153.05	135.45	129.55	126.70	123.65	121.30	117.90
22.0	.8661	.612	7/8	4 7/8	9 1/2	7/8	2620220	3	2622220	126.50	21.515-22.301	153.05	135.45	129.55	126.70	123.65	121.30	117.90
23.0	.9055	.634	7/8	4 7/8	9 1/2	29/32	2620230	3	2622230	127.15	22.302-23.089	153.75	136.15	130.30	127.30	124.40	122.00	118.60
-	-	.656	7/8	4 7/8	9 1/2	15/16	2620239	3	2622239	-	23.090-23.901	153.75	136.15	130.30	127.30	124.40	122.00	118.60
24.0	.9449	.678	7/8	4 7/8	9 1/2	31/32	2620240	3	2622240	131.50	23.902-24.689	158.00	140.40	134.50	131.60	128.70	126.15	122.80
25.0	.9843	.700	7/8	4 7/8	9 1/2	1	2620250	3	2622250	133.65	24.690-25.476	160.25	142.65	136.75	133.85	130.90	128.45	125.05
26.0	1.0236	.722	7/8	4 7/8	9 1/2	1 1/32	2620260	3	2622260	134.75	25.477-26.264	161.25	143.65	137.75	134.85	131.85	129.50	126.05
27.0	1.0630	.744	7/8	4 7/8	9 1/2	1 1/16	2620270	3	2622270	136.45	26.265-27.076	163.05	145.35	139.45	136.60	133.60	131.20	127.80
-	-	.766	1	4 7/8	10 1/2	1 3/32	2620279	4	2622279	-	27.077-27.864	183.50	165.90	160.05	157.10	154.20	151.70	148.40
28.0	1.1024	.787	1	4 7/8	10 1/2	1 1/8	2620280	4	2622280	157.00	27.865-28.651	183.50	165.90	160.05	157.10	154.20	151.70	148.40
29.0	1.1417	.809	1	4 7/8	10 1/2	1 5/32	2620290	4	2622290	170.35	28.652-29.439	196.85	179.30	173.35	170.50	167.55	165.00	161.60
30.0	1.1811	.831	1	4 7/8	10 1/2	1 3/16	2620300	4	2622300	174.90	29.440-30.239	201.45	183.85	178.05	175.00	172.10	169.65	166.30
31.0	1.2205	.853	1	4 7/8	10 1/2	1 7/32	2620310	4	2622310	175.55	30.240-31.039	202.05	184.45	178.60	175.65	172.70	170.20	166.85
-	-	.875	1	4 7/8	10 1/2	1 1/4	2620319	4	2622319	-	31.040-31.826	202.65	185.05	179.25	176.35	173.35	170.90	167.55
32.0	1.2598	.897	1	4 7/8	10 1/2	1 9/32	2620320	4	2622320	187.95	31.827-32.614	214.50	196.85	190.95	188.10	185.05	182.65	179.30
33.0	1.2992	.919	1	4 7/8	10 1/2	1 5/16	2620330	4	2622330	192.80	32.615-33.401	219.30	201.70	195.80	192.90	190.05	187.60	184.20
34.0	1.3386	.940	1	4 7/8	10 1/2	1 11/32	2620340	4	2622340	196.60	33.402-34.214	223.25	205.65	199.70	196.80	193.80	191.40	188.05
35.0	1.3780	.962	1	4 7/8	10 1/2	1 3/8	2620350	4	2622350	201.10	34.215-35.001	227.70	210.05	204.15	201.25	198.30	195.80	192.50
-	-	.984	1	4 7/8	10 1/2	1 13/32	2620359	4	2622359	-	35.002-35.789	231.95	214.45	208.40	205.65	202.60	200.20	196.80
36.0	1.4173	1.006	1	4 7/8	10 1/2	1 7/16	2620360	4	2622360	211.10	35.790-36.601	237.65	220.05	214.20	211.20	208.30	205.85	202.50
37.0	1.4567	1.025	1	4 7/8	10 1/2	1 15/32	2620370	4	2622370	217.10	36.602-37.389	243.55	226.00	220.05	217.20	214.25	211.75	208.35
38.0	1.4961	1.050	1	4 7/8	10 1/2	1 1/2	2620380	4	2622380	221.45	37.390-38.176	247.95	230.35	224.50	221.55	218.65	216.15	212.75

*3 flutes



CENTERS – CARBIDE TIPPED

MORSE – BROWN & SHARPE – JARNO TAPERS



FULL CENTERS

TYPE 2595 MORSE TAPER – FULL CENTER

TYPE 2596 BROWN & SHARPE TAPER – FULL CENTER

TYPE 2597 JARNO TAPER – FULL CENTER

Carbide tips brazed to alloy steel bodies.

Center precision ground to 60° included angle.

Center concentric to precision ground taper.

HALF CENTERS

TYPE 2592 MORSE TAPER – HALF CENTER

TYPE 2593 BROWN & SHARPE TAPER – HALF CENTER

TYPE 2594 JARNO TAPER – HALF CENTER

Half centers provide clearance for the grinding wheel or turning tool when machining a small diameter near the end of a part.



USE:

Carbide tip centers hold point angle and overall concentricity so parts can be held securely and accurately for precision turning and grinding.

When operating at high rates of speed carbide tipped centers will not wear as rapidly, avoiding burning or scoring of the part's center holes.

MORSE TAPER NO.	OVERALL LENGTH	TYPE 2595 - FULL CENTER - MORSE TAPER				TYPE 2592 - HALF CENTER - MORSE TAPER					
		CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	EDP NO.	PRICE	CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	UNDERCUT LENGTH	HEIGHT ABOVE CENTER	EDP NO.	PRICE
1	3 5/16	7/16	1/4	259501	\$38.35	7/16	1/4	1	9/64	259201	\$70.65
2	4 3/16	9/16	5/16	259502	45.65	9/16	5/16	1 3/8	11/64	259202	87.50
3	5 1/4	7/8	1/2	259503	83.70	1 1/16	3/8	1 11/16	13/64	259203	132.20
4	6 3/4	7/8	1/2	259504	127.25	7/8	1/2	2 1/4	17/64	259204	193.30
5	8 1/2	1 1/16	5/8	259505	208.20	1 1/16	5/8	2 3/4	21/64	259205	323.10

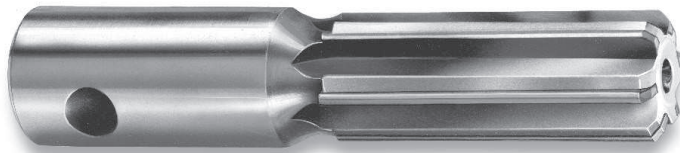
BROWN & SHARPE TAPER NO.	OVERALL LENGTH	TYPE 2596 - FULL CENTER - B & S TAPER				TYPE 2593 - HALF CENTER - B & S TAPER					
		CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	EDP NO.	PRICE	CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	UNDERCUT LENGTH	HEIGHT ABOVE CENTER	EDP NO.	PRICE
7	4 1/2	9/16	5/16	259607	\$58.55	9/16	5/16	1 1/8	11/64	259307	\$99.20
8	5 11/32	1 1/16	3/8	259608	82.15	9/16	5/16	1 5/16	11/64	259308	130.25
9	6	7/8	1/2	259609	104.20	1 1/16	3/8	1 1/2	13/64	259309	155.10
10	8 17/32	7/8	1/2	259610	148.90	7/8	1/2	2 1/4	17/64	259310	217.25
11	10 1/8	1 1/16	5/8	259611	197.80	1 1/16	5/8	2 1/2	3/8	259311	298.40

JARNO TAPER NO.	OVERALL LENGTH	TYPE 2597 - FULL CENTER - JARNO TAPER				TYPE 2594 - HALF CENTER - JARNO TAPER					
		CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	EDP NO.	PRICE	CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	UNDERCUT LENGTH	HEIGHT ABOVE CENTER	EDP NO.	PRICE
4	3	7/16	1/4	259704	\$41.90	7/16	1/4	25/32	9/64	259404	\$77.10
5	3 5/8	7/16	1/4	259705	46.35	7/16	1/4	15/16	9/64	259405	85.35
6	4 1/2	9/16	5/16	259706	57.20	9/16	5/16	1 1/8	11/64	259406	95.10
7	5 1/4	1 1/16	3/8	259707	74.10	1 1/16	3/8	1 3/16	13/64	259407	124.65
8	6	7/8	1/2	259708	95.85	7/8	1/2	1 3/8	17/64	259408	154.00
9	6 3/4	7/8	1/2	259709	104.00	7/8	1/2	1 5/8	17/64	259409	173.50
10	7 1/2	7/8	1/2	259710	132.20	7/8	1/2	2	17/64	259410	205.40
11	8 1/4	7/8	1/2	259711	148.75	7/8	1/2	2	17/64	259411	227.35
12	9	1 1/16	5/8	259712	164.55	1 1/16	5/8	2 1/4	21/64	259412	256.10



CNC STUB REAMERS

CARBIDE TIPPED - STRAIGHT FLUTES AND LEFT SPIRAL FLUTES



TYPE 2430 - STRAIGHT FLUTES

TYPE 2440 - LEFT SPIRAL FLUTES

BOTH TYPES:

Polished flutes for high volume chip flow.

Flute long carbide on .2841" tool diameter and larger.

Straight shanks fit into standard holders.

Pin cross holes permit use in pin drive floating holders.

Carbide tips brazed to one piece hardened alloy steel bodies.

Cutting diameter tolerance plus .0003" minus .0000".

OPTIONS:

Decimal & metric sizes (priced as indicated in extended table below).

Cutting diameter reduced for small steps or pilot.

Radius end or end chamfer other than 45°.

End cutting.

Semi-finished Type 2430 & Type 2440 in stock (pg. 65).

Closer tolerance.

For +.0002" add \$1.00 per tool.

For +.0001" add \$3.00 per tool.

TOOL DIAMETER		SHANK DIAM.	NO. OF FLUTES	LENGTH			PIN HOLE DIAM.	STRAIGHT TYPE 2430	LEFT SPIRAL TYPE 2440	BOTH TYPES PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	CARBIDE	OVER-ALL		EDP NO.	EDP NO.			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	1/4	4	1	1/2	2 1/4	3/32	243006	244006	\$47.50	0.1770 - 0.2040	\$82.30	\$64.85	\$59.00	\$56.25	\$53.25	\$50.85
7/32	.2188	1/4	4	1	1/2	2 1/4	3/32	243007	244007	47.50	0.2041 - 0.2210	82.30	64.85	59.00	56.25	53.25	50.85
15/64	.2344	1/4	4	1	1/2	2 1/4	3/32	24302344	24402344	47.50	0.2211 - 0.2380	82.30	64.85	59.00	56.25	53.25	50.85
1/4	.2500	1/4	4	1	1/2	2 1/4	3/32	243008	244008	47.50	0.2381 - 0.2530	82.30	64.85	59.00	56.25	53.25	50.85
9/32	.2812	3/8	4	1	1/2	2 1/4	1/8	243009	244009	47.50	0.2531 - 0.2840	82.30	64.85	59.00	56.25	53.25	50.85
5/16	.3125	3/8	4	1	1	2 1/4	1/8	243010	244010	55.20	0.2841 - 0.3150	90.00	72.50	66.75	63.95	60.90	58.60
11/32	.3438	3/8	4	1 1/4	1 1/4	2 1/2	1/8	243011	244011	55.60	0.3151 - 0.3470	90.50	73.10	67.20	64.50	61.40	59.10
3/8	.3750	3/8	4	1 1/4	1 1/4	2 1/2	1/8	243012	244012	60.35	0.3471 - 0.3780	95.25	77.80	71.95	69.10	66.10	63.75
13/32	.4062	1/2	4	1 1/4	1 1/4	2 1/2	3/16	243013	244013	61.25	0.3781 - 0.4090	96.15	78.55	72.80	70.00	67.00	64.70
7/16	.4375	1/2	4	1 1/4	1 1/4	2 1/2	3/16	243014	244014	72.45	0.4091 - 0.4410	107.40	89.90	84.00	81.30	78.30	76.00
15/32	.4688	1/2	4	1 1/4	1 1/4	2 1/2	3/16	243015	244015	72.45	0.4411 - 0.4720	107.40	89.90	84.00	81.30	78.30	76.00
1/2	.5000	1/2	4	1 1/4	1 1/4	2 1/2	3/16	243016	244016	79.35	0.4721 - 0.5030	115.20	97.25	91.25	88.40	85.25	82.90
17/32	.5312	5/8	6	1 1/2	1 1/2	3	1/4	243017	244017	79.35	0.5031 - 0.5340	115.20	97.25	91.25	88.40	85.25	82.90
9/16	.5625	5/8	6	1 1/2	1 1/2	3	1/4	243018	244018	83.65	0.5341 - 0.5660	119.35	101.45	95.40	92.60	89.50	87.05
19/32	.5938	5/8	6	1 1/2	1 1/2	3	1/4	243019	244019	83.65	0.5661 - 0.5970	119.35	101.45	95.40	92.60	89.50	87.05
5/8	.6250	5/8	6	1 1/2	1 1/2	3	1/4	243020	244020	85.85	0.5971 - 0.6280	121.70	103.75	97.70	94.80	91.75	89.35
21/32	.6562	5/8	6	1 1/2	1 1/2	3	1/4	243021	244021	85.85	0.6281 - 0.6590	121.70	103.75	97.70	94.80	91.75	89.35
11/16	.6875	5/8	6	1 1/2	1 1/2	3	1/4	243022	244022	89.85	0.6591 - 0.6910	125.60	107.70	101.75	98.80	95.75	93.35
23/32	.7188	3/4	6	1 1/2	1 1/2	3	5/16	243023	244023	89.85	0.6911 - 0.7220	125.60	107.70	101.75	98.80	95.75	93.35
3/4	.7500	3/4	6	1 1/2	1 1/2	3	5/16	243024	244024	92.20	0.7221 - 0.7530	127.85	110.00	103.95	101.10	98.05	95.65
25/32	.7812	3/4	6	1 1/2	1 1/2	3	5/16	243025	244025	92.20	0.7531 - 0.7840	127.85	110.00	103.95	101.10	98.05	95.65
13/16	.8125	3/4	6	1 1/2	1 1/2	3	5/16	243026	244026	100.05	0.7841 - 0.8160	135.85	118.00	111.90	109.10	106.00	103.65
27/32	.8438	3/4	6	1 1/2	1 1/2	3	5/16	243027	244027	100.05	0.8161 - 0.8470	135.85	118.00	111.90	109.10	106.00	103.65
7/8	.8750	3/4	6	1 1/2	1 1/2	3	5/16	243028	244028	109.35	0.8471 - 0.8780	146.55	127.80	121.60	118.65	115.50	112.95
29/32	.9062	3/4	6	1 1/2	1 1/2	3	5/16	243029	244029	109.35	0.8781 - 0.9090	146.55	127.80	121.60	118.65	115.50	112.95
15/16	.9375	3/4	6	1 1/2	1 1/2	3	5/16	243030	244030	120.40	0.9091 - 0.9410	157.55	139.00	132.75	129.75	126.60	124.10
31/32	.9688	3/4	8	1 1/2	1 1/2	3	5/16	243031	244031	120.40	0.9411 - 0.9720	157.55	139.00	132.75	129.75	126.60	124.10
1	1.0000	3/4	8	1 1/2	1 1/2	3	5/16	243032	244032	126.30	0.9721 - 1.0030	163.50	144.95	138.65	135.70	132.45	130.00
1 1/16	1.0625	3/4	8	1 1/2	1 1/2	3	5/16	243034	244034	126.30	1.0031 - 1.0660	163.50	144.95	138.65	135.70	132.45	130.00
1 1/8	1.1250	3/4	8	1 1/2	1 1/2	3	5/16	243036	244036	147.90	1.0661 - 1.1280	185.05	166.35	160.15	157.25	154.00	151.50
1 3/16	1.1875	3/4	8	1 1/2	1 1/2	3	5/16	243038	244038	154.15	1.1281 - 1.1905	191.40	172.75	166.45	163.50	160.35	157.80
1 1/4	1.2500	3/4	8	1 1/2	1 1/2	3	5/16	243040	244040	180.60	1.1906 - 1.2530	217.80	199.20	193.00	189.95	186.85	184.30
1 5/16	1.3125	3/4	8	1 1/2	1 1/2	3	5/16	243042	244042	180.60	1.2531 - 1.3155	217.80	199.20	193.00	189.95	186.85	184.30
1 3/8	1.3750	3/4	8	1 1/2	1 1/2	3	5/16	243044	244044	183.20	1.3156 - 1.3780	220.35	201.75	195.60	192.55	189.50	186.95
1 7/16	1.4375	3/4	8	1 1/2	1 1/2	3	5/16	243046	244046	213.55	1.3781 - 1.4405	250.80	232.10	225.95	222.90	219.75	217.30
1 1/2	1.5000	3/4	8	1 1/2	1 1/2	3	5/16	243048	244048	256.50	1.4406 - 1.5030	293.65	275.10	268.85	265.90	262.60	260.10

*Quantities of 15 or more: price of fractional size in same size range.



COOLANT FEEDING REAMERS

CARBIDE TIPPED - CENTER FEED FOR BLIND HOLES - STRAIGHT FLUTES

TYPE 2424 - COOLANT FEEDING REAMER

Full length center feeding coolant hole.

Flute long carbide on .2841" tool diameter and larger.

Tool diameter tolerance +.0003", -.0000".

USE:

Center coolant feeding hole for reaming blind holes as chips are flushed *back* towards shank.

OPTIONS:

Decimal sizes priced below.

Cut diam. reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Short shank or undersize shank diam.

Flat on shank or tapered shank.



TOOL DIAMETER		NO. OF FLUTES	LENGTH		MAX. SHANK DIAM.	TYPE 2424 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DEC.		FLUTE	OVER-ALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	4	1 1/4	5	.1805	242406	\$119.65	0.1770 - 0.2040	\$157.10	\$138.30	\$132.00	\$129.05	\$125.85	\$123.35
13/64	.2031	4	1 1/4	5	.1805	24242031	119.65	-	-	-	-	-	-	-
7/32	.2188	4	1 1/4	5	.2075	242407	119.65	0.2041 - 0.2210	157.10	138.30	132.00	129.05	125.85	123.35
15/64	.2344	4	1 1/2	6	.2265	24242344	119.65	0.2211 - 0.2380	157.10	138.30	132.00	129.05	125.85	123.35
1/4	.2500	4	1 1/2	6	.2405	242408	119.65	0.2381 - 0.2530	157.10	138.30	132.00	129.05	125.85	123.35
17/64	.2656	4	1 1/2	6	.2485	24242656	127.00	-	-	-	-	-	-	-
9/32	.2812	4	1 1/2	6	.2485	242409	127.00	0.2531 - 0.2840	164.40	145.65	139.35	136.35	133.15	130.70
19/64	.2969	4	1 1/2	6	.2792	24242969	134.15	-	-	-	-	-	-	-
5/16	.3125	4	1 1/2	6	.2792	242410	134.15	0.2841 - 0.3150	171.55	152.75	146.50	143.40	140.30	137.75
21/64	.3281	4	1 1/2	6	.2792	24243281	135.15	-	-	-	-	-	-	-
11/32	.3438	4	1 1/2	6	.2792	242411	135.15	0.3151 - 0.3470	172.55	153.80	147.60	144.50	141.35	138.90
23/64	.3594	4	1 3/4	7	.3105	24243594	136.55	-	-	-	-	-	-	-
3/8	.3750	4	1 3/4	7	.3105	242412	136.55	0.3471 - 0.3780	173.95	155.20	148.95	145.90	142.70	140.25
25/64	.3906	4	1 3/4	7	.3105	24243906	137.00	-	-	-	-	-	-	-
13/32	.4062	4	1 3/4	7	.3105	242413	137.00	0.3781 - 0.4090	174.35	155.70	149.40	146.40	143.20	140.60
27/64	.4219	6	1 3/4	7	.3730	24244219	138.35	-	-	-	-	-	-	-
7/16	.4375	6	1 3/4	7	.3730	242414	138.35	0.4091 - 0.4410	175.75	157.10	150.70	147.80	144.50	142.05
29/64	.4531	6	1 3/4	7	.3730	24244531	139.55	-	-	-	-	-	-	-
15/32	.4688	6	1 3/4	7	.3730	242415	139.55	0.4411 - 0.4720	177.00	158.25	151.95	149.00	145.75	143.25
31/64	.4844	6	2	8	.4355	24244844	141.15	-	-	-	-	-	-	-
1/2	.5000	6	2	8	.4355	242416	141.15	0.4721 - 0.5030	178.60	159.90	153.65	150.60	147.45	144.85
33/64	.5156	6	2	8	.4355	24245156	144.35	-	-	-	-	-	-	-
17/32	.5312	6	2	8	.4355	242417	144.35	0.5031 - 0.5340	181.65	162.95	156.70	153.75	150.55	147.95
9/16	.5625	6	2	8	.4355	242418	146.40	0.5341 - 0.5660	183.80	165.00	158.75	155.85	152.60	150.05
19/32	.5938	6	2	8	.4355	242419	149.45	0.5661 - 0.5970	186.85	168.10	161.85	158.90	155.70	153.15
5/8	.6250	6	2 1/4	9	.5615	242420	152.30	0.5971 - 0.6280	189.70	170.90	164.70	161.60	158.50	155.95
21/32	.6562	6	2 1/4	9	.5615	242421	168.60	0.6281 - 0.6590	205.95	187.20	180.90	178.05	174.75	172.25
11/16	.6875	6	2 1/4	9	.5615	242422	172.00	0.6591 - 0.6910	209.35	190.75	184.35	181.45	178.20	175.65
23/32	.7188	6	2 1/4	9	.5615	242423	179.40	0.6911 - 0.7220	216.75	198.15	191.85	188.85	185.65	183.05
3/4	.7500	6	2 1/2	9 1/2	.6245	242424	179.40	0.7221 - 0.7530	216.75	198.15	191.85	188.85	185.65	183.05
25/32	.7812	6	2 1/2	9 1/2	.6245	242425	184.75	0.7531 - 0.7840	222.10	203.35	197.15	194.20	190.90	188.35
13/16	.8125	6	2 1/2	9 1/2	.6245	242426	184.75	0.7841 - 0.8160	222.10	203.35	197.15	194.20	190.90	188.35
27/32	.8438	6	2 1/2	9 1/2	.6245	242427	191.05	0.8161 - 0.8470	228.40	209.75	203.40	200.45	197.25	194.65
7/8	.8750	6	2 5/8	10	.7495	242428	198.30	0.8471 - 0.8780	237.10	217.60	211.10	208.00	204.70	202.05
29/32	.9062	6	2 5/8	10	.7495	242429	220.15	0.8781 - 0.9090	258.95	239.50	232.95	229.95	226.55	224.00
15/16	.9375	8	2 5/8	10	.7495	242430	220.15	0.9091 - 0.9410	258.95	239.50	232.95	229.95	226.55	224.00
31/32	.9688	8	2 5/8	10	.7495	242431	221.00	0.9411 - 0.9720	259.80	240.40	233.95	230.80	227.40	224.85
1	1.0000	8	2 3/4	10 1/2	.8745	242432	221.00	0.9721 - 1.0030	259.80	240.40	233.95	230.80	227.40	224.85
1 1/16	1.0625	8	2 3/4	10 1/2	.8745	242434	227.30	1.0031 - 1.0660	266.10	246.65	240.15	237.10	233.65	231.10
1 1/8	1.1250	8	2 7/8	11	.8745	242436	235.20	1.0661 - 1.1280	273.95	254.55	247.95	244.90	241.55	238.90
1 3/16	1.1875	8	2 7/8	11	.9995	242438	251.90	1.1281 - 1.1905	290.75	271.25	264.65	261.70	258.35	255.75
1 1/4	1.2500	8	3	11 1/2	.9995	242440	255.15	1.1906 - 1.2530	294.05	274.55	268.05	265.00	261.70	259.10
1 5/16	1.3125	8	3	11 1/2	.9995	242442	262.50	1.2531 - 1.3155	301.35	281.85	275.40	272.20	268.95	266.35
1 3/8	1.3750	8	3 1/4	12	.9995	242444	273.15	1.3156 - 1.3780	311.95	292.45	286.05	282.90	279.60	276.90
1 7/16	1.4375	8	3 1/4	12	.9995	242446	281.65	1.3781 - 1.4405	320.55	301.05	294.60	291.50	288.15	285.55
1 1/2	1.5000	8	3 1/2	12 1/2	1.2495	242448	291.10	1.4406 - 1.5030	329.95	310.50	304.00	300.90	297.60	294.95
1 5/8	1.5625	8	3 1/2	12 1/2	1.2495	242450	309.95	1.5031 - 1.5660	346.95	328.45	322.25	319.30	316.05	313.65
1 3/4	1.6250	8	3 1/2	13	1.2495	242452	339.35	1.5661 - 1.6280	376.25	357.80	351.65	348.60	345.45	343.00
1 11/16	1.6875	8	3 1/2	13	1.2495	242454	346.50	1.6281 - 1.6910	383.50	365.05	358.85	355.85	352.65	350.20
1 3/4	1.7500	10	3 1/2	13 1/2	1.2495	242456	379.50	1.6911 - 1.7530	416.50	398.00	391.80	388.85	385.60	383.20
1 13/16	1.8125	10	3 1/2	13 1/2	1.4995	242458	395.00	1.7531 - 1.8160	432.00	413.50	407.30	404.35	401.10	398.70
1 7/8	1.8750	10	3 1/2	14	1.4995	242460	417.00	1.8161 - 1.8780	454.00	435.45	429.30	426.35	423.15	420.65
1 15/16	1.9375	10	3 1/2	14	1.4995	242462	442.10	1.8781 - 1.9410	479.10	460.60	454.40	451.45	448.25	445.75
2	2.0000	12	3 1/2	14	1.4995	242464	459.10	1.9411 - 2.0030	496.10	477.65	471.40	468.45	465.25	462.80

*Quantities of 15 or more; price of fractional size in same size range.



COOLANT FEEDING REAMERS

CARBIDE TIPPED - FLUTE FEED FOR THROUGH HOLES - STRAIGHT FLUTES

TYPE 2426 - COOLANT FEEDING REAMER

Coolant feed outlets in *each* flute.

Flute long carbide on .2841" tool diameter and larger.

Tool diameter tolerance .0003", -.0000".

USE:

Flute coolant feeding outlets for reaming through holes as chips are flushed *forward* through the hole being reamed.



OPTIONS:

Decimal sizes priced below.

Cut diam. reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Short shank or undersize shank diam.

Flat on shank or tapered shank.

TOOL DIAMETER		NO. OF FLUTES	LENGTH		MAX. SHANK DIAM.	TYPE 2426 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL		FLUTE	OVER-ALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	4	1 1/4	5	.1805	242606	\$124.15	0.1770 - 0.2040	\$161.50	\$142.90	\$136.55	\$133.55	\$130.35	\$127.75
1/8	.2031	4	1 1/4	5	.1805	24262031	124.15	-	-	-	-	-	-	-
7/32	.2188	4	1 1/4	5	.2075	242607	124.15	0.2041 - 0.2210	161.50	142.90	136.55	133.55	130.35	127.75
1/4	.2344	4	1 1/2	6	.2265	24262344	124.15	0.2211 - 0.2380	161.50	142.90	136.55	133.55	130.35	127.75
1/4	.2500	4	1 1/2	6	.2405	242608	124.15	0.2381 - 0.2530	161.50	142.90	136.55	133.55	130.35	127.75
17/64	.2656	4	1 1/2	6	.2485	24262656	127.00	-	-	-	-	-	-	-
9/32	.2812	4	1 1/2	6	.2485	242609	127.00	0.2531 - 0.2840	164.40	145.65	139.35	136.35	133.15	130.70
19/64	.2969	4	1 1/2	6	.2792	24262969	137.75	-	-	-	-	-	-	-
5/16	.3125	4	1 1/2	6	.2792	242610	137.75	0.2841 - 0.3150	175.20	156.40	150.10	147.15	144.00	141.45
21/64	.3281	4	1 1/2	6	.2792	24263281	137.75	-	-	-	-	-	-	-
11/32	.3438	4	1 1/2	6	.2792	242611	137.75	0.3151 - 0.3470	175.20	156.40	150.10	147.15	144.00	141.45
23/64	.3594	4	1 3/4	7	.3105	24263594	137.75	-	-	-	-	-	-	-
3/8	.3750	4	1 3/4	7	.3105	242612	137.75	0.3471 - 0.3780	175.20	156.40	150.10	147.15	144.00	141.45
25/64	.3906	4	1 3/4	7	.3105	24263906	141.15	-	-	-	-	-	-	-
13/32	.4062	4	1 3/4	7	.3105	242613	141.15	0.3781 - 0.4090	178.60	159.90	153.65	150.60	147.45	144.85
27/64	.4219	6	1 3/4	7	.3730	24264219	144.60	-	-	-	-	-	-	-
7/16	.4375	6	1 3/4	7	.3730	242614	144.60	0.4091 - 0.4410	182.00	163.30	157.10	154.00	150.90	148.30
29/64	.4531	6	1 3/4	7	.3730	24264531	144.60	-	-	-	-	-	-	-
15/32	.4688	6	1 3/4	7	.3730	242615	144.60	0.4411 - 0.4720	182.00	163.30	157.10	154.00	150.90	148.30
31/64	.4844	6	2	8	.4355	24264844	144.60	-	-	-	-	-	-	-
1/2	.5000	6	2	8	.4355	242616	144.60	0.4721 - 0.5030	182.00	163.30	157.10	154.00	150.90	148.30
33/64	.5156	6	2	8	.4355	24265156	152.95	-	-	-	-	-	-	-
17/32	.5312	6	2	8	.4355	242617	152.95	0.5031 - 0.5340	190.30	171.65	165.40	162.40	159.15	156.65
9/16	.5625	6	2	8	.4355	242618	155.15	0.5341 - 0.5660	192.50	173.85	167.50	164.50	161.30	158.75
19/32	.5938	6	2	8	.4355	242619	156.55	0.5661 - 0.5970	193.90	175.25	168.95	165.95	162.75	160.20
5/8	.6250	6	2 1/4	9	.5615	242620	156.55	0.5971 - 0.6280	193.90	175.25	168.95	165.95	162.75	160.20
21/32	.6562	6	2 1/4	9	.5615	242621	173.50	0.6281 - 0.6590	211.00	192.20	185.90	182.95	179.70	177.25
11/16	.6875	6	2 1/4	9	.5615	242622	173.50	0.6591 - 0.6910	211.00	192.20	185.90	182.95	179.70	177.25
23/32	.7188	6	2 1/4	9	.5615	242623	185.45	0.6911 - 0.7220	222.85	204.10	197.85	194.90	191.60	189.10
3/4	.7500	6	2 1/2	9 1/2	.6245	242624	185.45	0.7221 - 0.7530	222.85	204.10	197.85	194.90	191.60	189.10
25/32	.7812	6	2 1/2	9 1/2	.6245	242625	185.45	0.7531 - 0.7840	222.85	204.10	197.85	194.90	191.60	189.10
13/16	.8125	6	2 1/2	9 1/2	.6245	242626	185.45	0.7841 - 0.8160	222.85	204.10	197.85	194.90	191.60	189.10
27/32	.8438	6	2 1/2	9 1/2	.6245	242627	191.05	0.8161 - 0.8470	228.40	209.75	203.40	200.45	197.25	194.65
7/8	.8750	6	2 5/8	10	.7495	242628	198.30	0.8471 - 0.8780	237.10	217.60	211.10	208.00	204.70	202.05
29/32	.9062	6	2 5/8	10	.7495	242629	222.60	0.8781 - 0.9090	261.35	241.95	235.50	232.35	228.95	226.40
15/16	.9375	8	2 5/8	10	.7495	242630	227.85	0.9091 - 0.9410	266.55	247.15	240.60	237.55	234.15	231.60
31/32	.9688	8	2 5/8	10	.7495	242631	227.85	0.9411 - 0.9720	266.55	247.15	240.60	237.55	234.15	231.60
1	1.0000	8	2 3/4	10 1/2	.8745	242632	227.85	0.9721 - 1.0030	266.55	247.15	240.60	237.55	234.15	231.60
1 1/16	1.0625	8	2 3/4	10 1/2	.8745	242634	240.85	1.0031 - 1.0660	279.70	260.35	253.80	250.70	247.35	244.80
1 1/8	1.1250	8	2 7/8	11	.8745	242636	241.90	1.0661 - 1.1280	280.75	261.25	254.70	251.65	248.35	245.70
1 3/16	1.1875	8	2 7/8	11	.9995	242638	251.90	1.1281 - 1.1905	290.75	271.25	264.65	261.70	258.35	255.75
1 1/4	1.2500	8	3	11 1/2	.9995	242640	255.15	1.1906 - 1.2530	294.05	274.55	268.05	265.00	261.70	259.10
1 5/16	1.3125	8	3	11 1/2	.9995	242642	262.50	1.2531 - 1.3155	301.35	281.85	275.40	272.20	268.95	266.35
1 3/8	1.3750	8	3 1/4	12	.9995	242644	273.15	1.3156 - 1.3780	311.95	292.45	286.05	282.90	279.60	276.90
1 7/16	1.4375	8	3 1/4	12	.9995	242646	281.65	1.3781 - 1.4405	320.55	301.05	294.60	291.50	288.15	285.55
1 1/2	1.5000	8	3 1/2	12 1/2	1.2495	242648	291.10	1.4406 - 1.5030	329.95	310.50	304.00	300.90	297.60	294.95
1 9/16	1.5625	8	3 1/2	12 1/2	1.2495	242650	327.30	1.5031 - 1.5660	364.30	345.75	339.55	336.65	333.40	330.95
1 5/8	1.6250	8	3 1/2	13	1.2495	242652	359.85	1.5661 - 1.6280	396.85	378.40	372.10	369.20	366.00	363.55
1 11/16	1.6875	8	3 1/2	13	1.2495	242654	366.10	1.6281 - 1.6910	403.10	384.60	378.40	375.45	372.20	369.80
1 3/4	1.7500	10	3 1/2	13 1/2	1.2495	242656	400.10	1.6911 - 1.7530	437.10	418.60	412.35	409.45	406.25	403.75
1 13/16	1.8125	10	3 1/2	13 1/2	1.4995	242658	416.60	1.7531 - 1.8160	453.55	435.10	428.85	425.90	422.70	420.30
1 7/8	1.8750	10	3 1/2	14	1.4995	242660	438.65	1.8161 - 1.8780	475.65	457.10	450.90	448.00	444.75	442.30
1 15/16	1.9375	10	3 1/2	14	1.4995	242662	466.60	1.8781 - 1.9410	503.60	485.15	478.85	475.95	472.75	470.30
2	2.0000	12	3 1/2	14	1.4995	242664	483.55	1.9411 - 2.0030	520.55	502.05	495.85	492.90	489.65	487.25

*Quantities of 15 or more: price of fractional size in same size range.



COOLANT FEEDING REAMERS

CARBIDE TIPPED - CENTER FEED FOR BLIND HOLES -
RIGHT SPIRAL FLUTES



TYPE 2413 - COOLANT FEEDING REAMER

Center coolant outlet.

Polished flutes; flute long carbide on .2841" tool diameter and larger.

Tool diameter tolerance plus .0003", minus .0000".

USE:

Center coolant outlet for reaming blind holes as chips are flushed back towards the shank.

Improves hole finish and permits higher feeds & speeds with longer tool life.

OPTIONS:

Decimal sizes priced below.

Metric tool diameter.

Cutting diameter reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Increased/decreased circular margin.

Increased/decreased tool diam. back taper.

Shortened shank or reduced shank diameter.

Flat(s) or tang on shank.

TOOL DIAMETER		NO. OF FLUTES	LENGTH		MAX SHANK DIAM.	TYPE 2413 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DECIMAL		FLUTE	OVERALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	4	1 1/2	6	.2405	241308	\$122.90	.2381 - .2530	\$157.75	\$140.30	\$134.45	\$131.65	\$128.65	\$126.25
5/32	.2812	4	1 1/2	6	.2485	241309	125.70	.2531 - .2840	159.35	142.50	136.85	134.20	131.35	128.95
3/16	.3125	4	1 1/2	6	.2792	241310	137.75	.2841 - .3150	172.65	155.15	149.25	146.50	143.40	141.10
11/32	.3438	4	1 1/2	6	.2792	241311	138.75	.3151 - .3470	173.65	156.20	150.40	147.60	144.50	142.20
3/8	.3750	4	1 3/4	7	.3105	241312	140.25	.3471 - .3780	175.10	157.55	151.75	149.00	146.05	143.70
13/32	.4062	4	1 3/4	7	.3105	241313	140.60	.3781 - .4090	175.50	158.10	152.25	149.40	146.40	144.05
7/16	.4375	6	1 3/4	7	.3730	241314	142.05	.4091 - .4410	177.00	159.45	153.65	150.90	147.85	145.55
15/32	.4688	6	1 3/4	7	.3730	241315	143.30	.4411 - .4720	178.25	160.70	154.95	152.10	149.10	146.75
1/2	.5000	6	2	8	.4355	241316	148.90	.4721 - .5030	184.75	166.75	160.70	157.85	154.80	152.45
17/32	.5312	6	2	8	.4355	241317	154.30	.5031 - .5340	190.10	172.10	166.10	163.30	160.20	157.80
9/16	.5625	6	2	8	.4355	241318	154.30	.5341 - .5660	190.10	172.10	166.10	163.30	160.20	157.80
19/32	.5938	6	2	8	.4355	241319	160.40	.5661 - .5970	196.30	178.30	172.30	169.50	166.35	163.95
5/8	.6250	6	2 1/4	9	.5615	241320	160.40	.5971 - .6280	196.30	178.30	172.30	169.50	166.35	163.95
21/32	.6562	6	2 1/4	9	.5615	241321	181.30	.6281 - .6590	217.10	199.20	193.10	190.25	187.15	184.80
11/16	.6875	6	2 1/4	9	.5615	241322	181.30	.6591 - .6910	217.10	199.20	193.10	190.25	187.15	184.80
23/32	.7188	6	2 1/4	9	.5615	241323	189.10	.6911 - .7220	225.00	207.05	201.05	198.25	195.05	192.60
3/4	.7500	6	2 1/2	9 1/2	.6245	241324	177.65	.7221 - .7530	211.35	194.45	188.85	186.10	183.20	180.90
25/32	.7812	6	2 1/2	9 1/2	.6245	241325	203.85	.7531 - .7840	239.65	221.65	215.70	212.80	209.75	207.25
13/16	.8125	6	2 1/2	9 1/2	.6245	241326	206.30	.7841 - .8160	242.15	224.15	218.20	215.35	212.35	209.90
27/32	.8438	6	2 1/2	9 1/2	.6245	241327	210.15	.8161 - .8470	246.10	228.10	222.10	219.20	216.15	213.75
7/8	.8750	6	2 5/8	10	.7495	241328	221.50	.8471 - .8780	258.65	240.15	233.85	230.90	227.65	225.20
29/32	.9062	6	2 5/8	10	.7495	241329	234.70	.8781 - .9090	271.85	253.25	247.05	244.10	240.80	238.35
15/16	.9375	8	2 5/8	10	.7495	241330	245.95	.9091 - .9410	283.20	264.50	258.35	255.30	252.05	249.60
31/32	.9688	8	2 5/8	10	.7495	241331	246.65	.9411 - .9720	283.75	265.20	258.95	255.95	252.75	250.30
1	1.0000	8	2 3/4	10 1/2	.8745	241332	247.05	.9721 - 1.0030	284.20	265.55	259.35	256.40	253.20	250.70
1 1/16	1.0625	8	2 3/4	10 1/2	.8745	241334	253.90	1.0031 - 1.0660	291.05	272.55	266.25	263.25	260.05	257.60
1 1/8	1.1250	8	2 7/8	11	.8745	241336	262.70	1.0661 - 1.1280	299.95	281.30	275.10	272.10	268.95	266.45
1 3/16	1.1875	8	2 7/8	11	.9995	241338	281.45	1.1281 - 1.1905	318.65	300.10	293.75	290.85	287.55	285.05
1 1/4	1.2500	8	3	11 1/2	.9995	241340	285.05	1.1906 - 1.2530	322.25	303.65	297.45	294.45	291.30	288.80
1 5/16	1.3125	8	3	11 1/2	.9995	241342	293.35	1.2531 - 1.3155	330.50	311.85	305.60	302.65	299.50	296.95
1 3/8	1.3750	8	3 1/4	12	.9995	241344	305.25	1.3156 - 1.3780	342.45	323.80	317.55	314.65	311.35	308.90
1 7/16	1.4375	8	3 1/4	12	.9995	241346	314.75	1.3781 - 1.4405	351.90	333.30	327.10	324.10	320.85	318.45
1 1/2	1.5000	8	3 1/2	12 1/2	1.2495	241348	325.40	1.4406 - 1.5030	362.55	344.00	337.70	334.70	331.55	329.10

*Quantities of 15 or more: price of fractional size in same size range.



COOLANT FEEDING REAMERS

CARBIDE TIPPED - FLUTE FEED FOR THROUGH HOLES -
RIGHT SPIRAL FLUTES



TYPE 2418 - COOLANT FEEDING REAMER

Coolant outlets in *each* flute.

Polished flutes; flute long carbide on .2841" tool diameter and larger.

Tool diameter tolerance plus .0003", minus .0000".

USE:

Flute coolant outlets for reaming through holes as chips are flushed *forward* through the hole being reamed.

Improves hole finish and permits higher feeds & speeds with longer tool life.

OPTIONS:

Decimal sizes priced below.

Metric tool diameter.

Cutting diameter reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Increased/decreased circular margin.

Increased/decreased tool diam. back taper.

Shortened shank or reduced shank diameter.

Flat(s) or tang on shank.

TOOL DIAMETER		NO. OF FLUTES	LENGTH		MAX SHANK DIAM.	TYPE 2418 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DECIMAL		FLUTE	OVERALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	4	1 1/2	6	.2405	241808	\$131.65	.2381 - .2530	\$169.00	\$150.35	\$144.05	\$141.05	\$137.90	\$135.30
9/32	.2812	4	1 1/2	6	.2485	241809	139.65	.2531 - .2840	177.05	158.35	152.00	149.05	145.85	143.30
5/16	.3125	4	1 1/2	6	.2792	241810	147.60	.2841 - .3150	184.95	166.20	159.95	157.05	153.75	151.25
11/32	.3438	4	1 1/2	6	.2792	241811	148.70	.3151 - .3470	186.10	167.35	161.10	158.15	154.85	152.45
3/8	.3750	4	1 3/4	7	.3105	241812	150.15	.3471 - .3780	187.65	168.85	162.55	159.60	156.40	153.90
13/32	.4062	4	1 3/4	7	.3105	241813	150.65	.3781 - .4090	188.05	169.30	163.15	160.10	156.80	154.35
7/16	.4375	6	1 3/4	7	.3730	241814	152.25	.4091 - .4410	189.65	170.85	164.65	161.55	158.40	155.90
15/32	.4688	6	1 3/4	7	.3730	241815	153.65	.4411 - .4720	191.00	172.25	165.95	162.95	159.75	157.25
1/2	.5000	6	2	8	.4355	241816	155.30	.4721 - .5030	192.65	174.00	167.80	164.75	161.50	159.05
17/32	.5312	6	2	8	.4355	241817	161.05	.5031 - .5340	198.40	179.60	173.40	170.50	167.15	164.70
9/16	.5625	6	2	8	.4355	241818	161.05	.5341 - .5660	198.40	179.60	173.40	170.50	167.15	164.70
19/32	.5938	6	2	8	.4355	241819	167.40	.5661 - .5970	204.80	186.10	179.75	176.85	173.55	171.05
5/8	.6250	6	2 1/4	9	.5615	241820	167.40	.5971 - .6280	204.80	186.10	179.75	176.85	173.55	171.05
21/32	.6562	6	2 1/4	9	.5615	241821	189.10	.6281 - .6590	226.50	207.85	201.55	198.50	195.30	192.80
11/16	.6875	6	2 1/4	9	.5615	241822	189.10	.6591 - .6910	226.50	207.85	201.55	198.50	195.30	192.80
23/32	.7188	6	2 1/4	9	.5615	241823	197.35	.6911 - .7220	234.75	216.00	209.85	206.80	203.60	201.05
3/4	.7500	6	2 1/2	9 1/2	.6245	241824	197.35	.7221 - .7530	234.75	216.00	209.85	206.80	203.60	201.05
25/32	.7812	6	2 1/2	9 1/2	.6245	241825	212.65	.7531 - .7840	250.00	231.30	225.05	222.10	218.85	216.40
13/16	.8125	6	2 1/2	9 1/2	.6245	241826	215.30	.7841 - .8160	252.65	233.95	227.65	224.75	221.45	218.90
27/32	.8438	6	2 1/2	9 1/2	.6245	241827	219.35	.8161 - .8470	256.75	238.00	231.70	228.70	225.50	223.00
7/8	.8750	6	2 5/8	10	.7495	241828	231.15	.8471 - .8780	270.00	250.55	244.05	240.85	237.60	234.90
29/32	.9062	6	2 5/8	10	.7495	241829	244.90	.8781 - .9090	283.65	264.30	257.75	254.65	251.30	248.70
15/16	.9375	8	2 5/8	10	.7495	241830	256.65	.9091 - .9410	295.50	276.00	269.45	266.45	263.10	260.50
31/32	.9688	8	2 5/8	10	.7495	241831	257.35	.9411 - .9720	296.15	276.75	270.20	267.10	263.75	261.15
1	1.0000	8	2 3/4	10 1/2	.8745	241832	257.75	.9721 - 1.0030	296.60	277.20	270.60	267.50	264.20	261.60
1 1/16	1.0625	8	2 3/4	10 1/2	.8745	241834	297.25	1.0031 - 1.0660	336.05	316.60	310.10	307.00	303.70	301.05
1 1/8	1.1250	8	2 7/8	11	.8745	241836	298.55	1.0661 - 1.1280	337.35	317.85	311.35	308.25	305.00	302.35
1 3/16	1.1875	8	2 7/8	11	.9995	241838	310.90	1.1281 - 1.1905	349.60	330.15	323.70	320.60	317.30	314.65
1 1/4	1.2500	8	3	11 1/2	.9995	241840	314.95	1.1906 - 1.2530	353.75	334.30	327.85	324.70	321.35	318.75
1 5/16	1.3125	8	3	11 1/2	.9995	241842	324.05	1.2531 - 1.3155	362.85	343.40	336.80	333.75	330.45	327.85
1 3/8	1.3750	8	3 1/4	12	.9995	241844	337.05	1.3156 - 1.3780	375.95	356.50	349.90	346.90	343.55	340.90
1 7/16	1.4375	8	3 1/4	12	.9995	241846	347.60	1.3781 - 1.4405	386.50	367.00	360.50	357.45	354.15	351.45
1 1/2	1.5000	8	3 1/2	12 1/2	1.2495	241848	359.30	1.4406 - 1.5030	398.10	378.70	372.15	369.05	365.70	363.10

*Quantities of 15 or more: price of fractional size in same size range.



COOLANT FEEDING REAMERS

CARBIDE TIPPED - FLUTE FEED FOR THROUGH HOLES -
LEFT SPIRAL FLUTES



TYPE 2428 - COOLANT FEEDING REAMER

Coolant outlets in *each* flute.

Polished flutes; flute long carbide on .2841" tool diameter and larger.

Left spiral flutes should not be used on blind holes.

Tool diameter tolerance plus .0003", minus .0000".

USE:

Flute coolant outlets for reaming through holes as chips are flushed *forward* through the hole being reamed.

Improves hole finish and permits higher feeds & speeds with longer tool life.

OPTIONS:

Decimal sizes priced below.

Metric tool diameter.

Cutting diameter reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Increased/decreased circular margin.

Increased/decreased tool diam. back taper.

Shortened shank or reduced shank diameter.

Flat(s) or tang on shank.

TOOL DIAMETER		NO. OF FLUTES	LENGTH		MAX SHANK DIAM.	TYPE 2428 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DECIMAL		FLUTE	OVERALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14**
* 1/4	.2500	4	1 1/2	6	.2405	242808	\$152.25	.2381 - .2530	\$189.65	\$170.85	\$164.65	\$161.55	\$158.40	\$155.90
* 9/32	.2812	4	1 1/2	6	.2485	242809	161.40	.2531 - .2840	198.75	180.15	173.90	170.85	167.70	165.15
3/16	.3125	4	1 1/2	6	.2792	242810	170.60	.2841 - .3150	207.95	189.15	182.95	180.00	176.70	174.25
11/32	.3438	4	1 1/2	6	.2792	242811	171.90	.3151 - .3470	209.20	190.45	184.25	181.30	178.10	175.50
3/8	.3750	4	1 3/4	7	.3105	242812	173.55	.3471 - .3780	211.05	192.30	186.05	183.00	179.75	177.35
13/32	.4062	4	1 3/4	7	.3105	242813	174.30	.3781 - .4090	211.70	193.00	186.70	183.75	180.45	178.05
7/16	.4375	6	1 3/4	7	.3730	242814	175.95	.4091 - .4410	213.40	194.60	188.35	185.40	182.25	179.60
15/32	.4688	6	1 3/4	7	.3730	242815	177.50	.4411 - .4720	214.85	196.20	189.90	186.95	183.75	181.20
1/2	.5000	6	2	8	.4355	242816	179.75	.4721 - .5030	217.25	198.45	192.20	189.15	186.05	183.50
17/32	.5312	6	2	8	.4355	242817	183.55	.5031 - .5340	220.95	202.20	195.95	193.00	189.75	187.20
9/16	.5625	6	2	8	.4355	242818	186.20	.5341 - .5660	223.60	204.90	198.60	195.65	192.40	189.90
19/32	.5938	6	2	8	.4355	242819	190.10	.5661 - .5970	227.45	208.80	202.50	199.55	196.35	193.80
5/8	.6250	6	2 1/4	9	.5615	242820	193.65	.5971 - .6280	231.00	212.35	206.00	203.05	199.80	197.30
21/32	.6562	6	2 1/4	9	.5615	242821	214.45	.6281 - .6590	251.85	233.10	226.85	223.90	220.65	218.10
11/16	.6875	6	2 1/4	9	.5615	242822	218.75	.6591 - .6910	256.20	237.50	231.15	228.20	225.00	222.50
23/32	.7188	6	2 1/4	9	.5615	242823	223.45	.6911 - .7220	260.80	242.10	235.80	232.85	229.65	227.10
3/4	.7500	6	2 1/2	9 1/2	.6245	242824	228.20	.7221 - .7530	265.55	246.90	240.55	237.65	234.40	231.90
25/32	.7812	6	2 1/2	9 1/2	.6245	242825	232.10	.7531 - .7840	269.45	250.80	244.45	241.50	238.25	235.75
13/16	.8125	6	2 1/2	9 1/2	.6245	242826	234.90	.7841 - .8160	272.20	253.60	247.30	244.30	241.15	238.55
27/32	.8438	6	2 1/2	9 1/2	.6245	242827	239.20	.8161 - .8470	276.65	257.90	251.60	248.60	245.40	242.90
7/8	.8750	6	2 5/8	10	.7495	242828	252.20	.8471 - .8780	291.00	271.60	265.05	261.95	258.60	255.95
29/32	.9062	6	2 5/8	10	.7495	242829	267.05	.8781 - .9090	305.85	286.35	279.90	276.80	273.50	270.85
15/16	.9375	8	2 5/8	10	.7495	242830	280.10	.9091 - .9410	318.80	299.45	292.90	289.80	286.40	283.90
31/32	.9688	8	2 5/8	10	.7495	242831	280.80	.9411 - .9720	319.55	300.20	293.60	290.50	287.15	284.55
1	1.0000	8	2 3/4	10 1/2	.8745	242832	281.20	.9721 - 1.0030	319.95	300.55	294.05	290.90	287.55	284.95
1 1/16	1.0625	8	2 3/4	10 1/2	.8745	242834	297.25	1.0031 - 1.0660	336.05	316.60	310.10	307.00	303.70	301.05
1 1/8	1.1250	8	2 7/8	11	.8745	242836	298.55	1.0661 - 1.1280	337.35	317.85	311.35	308.25	305.00	302.35
1 3/16	1.1875	8	2 7/8	11	.9995	242838	310.90	1.1281 - 1.1905	349.60	330.15	323.70	320.60	317.30	314.65
1 1/4	1.2500	8	3	11 1/2	.9995	242840	314.95	1.1906 - 1.2530	353.75	334.30	327.85	324.70	321.35	318.75
1 5/16	1.3125	8	3	11 1/2	.9995	242842	324.05	1.2531 - 1.3155	362.85	343.40	336.80	333.75	330.45	327.85
1 3/8	1.3750	8	3 1/4	12	.9995	242844	337.05	1.3156 - 1.3780	375.95	356.50	349.90	346.90	343.55	340.90
1 7/16	1.4375	8	3 1/4	12	.9995	242846	347.60	1.3781 - 1.4405	386.50	367.00	360.50	357.45	354.15	351.45
1 1/2	1.5000	8	3 1/2	12 1/2	1.2495	242848	359.30	1.4406 - 1.5030	398.10	378.70	372.15	369.05	365.70	363.10

*1/2" Carbide Length

**Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTES & SHANK

TYPE 2400 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2400 METRIC EDP NO.	METRIC PRICE	DIMENSIONS					SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
				SHANK DIAM.	NO. OF FLUTES	LENGTH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
mm	INCH	FLT	CAR- BIDE			OVER- ALL										
4.0	.1575	2400040	\$51.25	.151	4	1	½	4	3.962 -4.493	\$77.40	\$60.05	\$54.15	\$51.30	\$48.40	\$45.90	\$42.60
4.5	.1772	2400045	47.70	1¼64	4	1 ⅛	½	4 ½	4.494 - 5.182	73.20	56.25	50.60	47.80	44.85	42.55	39.30
5.0	.1969	2400050	47.70	1¼64	4	1 ⅛	½	4 ½	-	-	-	-	-	-	-	-
5.5	.2165	2400055	47.70	1¾64	4	1 ¼	½	5	5.183 -5.613	73.20	56.25	50.60	47.80	44.85	42.55	39.30
6.0	.2362	2400060	49.90	7/32	4	1 ½	½	6	5.614 -6.045	75.40	58.45	52.70	49.95	47.05	44.70	41.40
6.3	.2480	2400063	47.70	1¼64	4	1 ½	½	6	6.046 -6.426	73.20	56.25	50.60	47.80	44.85	42.55	39.30
6.5	.2559	2400065	48.45	1¼64	4	1 ½	½	6	6.427 -7.214	74.05	57.00	51.35	48.55	45.70	43.30	40.05
7.0	.2756	2400070	48.45	1¼64	4	1 ½	½	6	-	-	-	-	-	-	-	-
7.5	.2953	2400075	48.45	9/32	4	1 ½	½	6	7.215 -8.001	74.05	57.00	51.35	48.55	45.70	43.30	40.05
8.0	.3150	2400080	48.45	9/32	4	1 ½	½	6	-	-	-	-	-	-	-	-
8.5	.3346	2400085	49.70	9/32	4	1 ½	⅝	6	8.002 -8.814	75.35	58.35	52.65	49.90	47.00	44.65	41.35
9.0	.3543	2400090	49.70	5/16	4	1 ¾	⅝	7	8.815 -9.601	75.35	58.35	52.65	49.90	47.00	44.65	41.35
9.5	.3740	2400095	49.70	5/16	4	1 ¾	⅝	7	-	-	-	-	-	-	-	-
10.0	.3937	2400100	51.60	5/16	4	1 ¾	⅝	7	9.602 -10.389	77.15	60.20	54.50	51.75	48.85	46.55	43.25
10.5	.4134	2400105	54.25	3/8	4	1 ¾	⅝	7	10.390 -11.201	79.85	62.90	57.25	54.45	51.60	49.25	45.95
11.0	.4331	2400110	54.25	3/8	4	1 ¾	⅝	7	-	-	-	-	-	-	-	-
11.5	.4528	2400115	54.95	3/8	4	1 ¾	⅝	7	11.202 -11.989	80.45	63.55	57.85	55.10	52.20	49.90	46.60
12.0	.4724	2400120	64.35	7/16	6	2	⅝	8	11.990 -12.776	92.50	73.80	67.60	64.60	61.40	58.80	55.20
12.5	.4921	2400125	64.35	7/16	6	2	⅝	8	-	-	-	-	-	-	-	-
13.0	.5118	2400130	69.00	7/16	6	2	⅝	8	12.777 -13.564	97.10	78.40	72.20	69.10	66.00	63.40	59.80
13.5	.5315	2400135	69.00	7/16	6	2	⅝	8	-	-	-	-	-	-	-	-
14.0	.5512	2400140	69.00	7/16	6	2	⅝	8	13.565 -14.376	97.10	78.40	72.20	69.10	66.00	63.40	59.80
14.5	.5709	2400145	71.25	7/16	6	2	⅝	8	14.377 -15.164	99.40	80.75	74.45	71.40	68.30	65.70	62.05
15.0	.5906	2400150	71.25	7/16	6	2	⅝	8	-	-	-	-	-	-	-	-
15.5	.6102	2400155	71.25	9/16	6	2 ¼	⅝	9	15.165 -15.951	99.40	80.75	74.45	71.40	68.30	65.70	62.05
16.0	.6299	2400160	72.25	9/16	6	2 ¼	⅝	9	15.952 -16.739	100.45	81.75	75.45	72.35	69.30	66.65	63.00
16.5	.6496	2400165	72.25	9/16	6	2 ¼	⅝	9	-	-	-	-	-	-	-	-
17.0	.6693	2400170	72.25	9/16	6	2 ¼	⅝	9	16.740 -17.551	100.45	81.75	75.45	72.35	69.30	66.65	63.00
17.5	.6890	2400175	72.25	9/16	6	2 ¼	⅝	9	-	-	-	-	-	-	-	-
18.0	.7087	2400180	75.05	9/16	6	2 ¼	⅝	9	17.552 -18.339	103.20	84.55	78.30	75.30	72.15	69.50	65.90
18.5	.7283	2400185	75.05	⅝	6	2 ½	¾	9 ½	18.340 -19.126	103.20	84.55	78.30	75.30	72.15	69.50	65.90
19.0	.7480	2400190	75.05	⅝	6	2 ½	¾	9 ½	-	-	-	-	-	-	-	-
19.5	.7677	2400195	77.15	⅝	6	2 ½	¾	9 ½	19.127 -19.914	105.25	86.65	80.35	77.25	74.20	71.55	68.00
20.0	.7874	2400200	77.15	⅝	6	2 ½	¾	9 ½	19.915 -20.726	105.25	86.65	80.35	77.25	74.20	71.55	68.00
20.5	.8071	2400205	77.15	⅝	6	2 ½	¾	9 ½	-	-	-	-	-	-	-	-
21.0	.8268	2400210	79.75	⅝	6	2 ½	¾	9 ½	20.727 -21.514	107.90	89.15	82.95	79.85	76.75	74.20	70.60
21.5	.8465	2400215	79.75	⅝	6	2 ½	¾	9 ½	-	-	-	-	-	-	-	-
22.0	.8661	2400220	79.75	¾	6	2 ⅝	¾	10	21.515 -22.301	107.90	89.15	82.95	79.85	76.75	74.20	70.60
22.5	.8858	2400225	94.30	¾	6	2 ⅝	¾	10	22.302 -23.089	123.45	104.05	97.60	94.45	91.20	88.50	84.75
23.0	.9055	2400230	94.30	¾	6	2 ⅝	¾	10	-	-	-	-	-	-	-	-
23.5	.9252	2400235	94.30	¾	8	2 ⅝	¾	10	23.090 -23.901	123.45	104.05	97.60	94.45	91.20	88.50	84.75
24.0	.9449	2400240	98.30	¾	8	2 ⅝	¾	10	23.902 -24.689	127.45	108.00	101.50	98.40	95.15	92.45	88.70
24.5	.9646	2400245	98.30	¾	8	2 ⅝	¾	10	-	-	-	-	-	-	-	-
25.0	.9843	2400250	98.30	7/8	8	2 ¾	¾	10 ½	24.690 -25.476	127.45	108.00	101.50	98.40	95.15	92.45	88.70
25.5	1.0039	2400255	100.55	7/8	8	2 ¾	¾	10 ½	25.477 -27.076	128.65	110.00	103.80	100.75	97.65	95.10	91.40
26.0	1.0236	2400260	100.55	7/8	8	2 ¾	¾	10 ½	-	-	-	-	-	-	-	-
27.0	1.0630	2400270	100.55	7/8	8	2 ¾	¾	10 ½	-	-	-	-	-	-	-	-
28.0	1.1024	2400280	107.80	7/8	8	2 7/8	7/8	11	27.077 -28.651	135.70	117.15	110.90	107.90	104.80	102.20	98.60
29.0	1.1417	2400290	112.60	1	8	2 7/8	7/8	11	28.652 -30.239	140.55	122.10	115.70	112.75	109.60	107.05	103.45
30.0	1.1811	2400300	112.60	1	8	2 7/8	7/8	11	-	-	-	-	-	-	-	-
31.0	1.2205	2400310	118.35	1	8	3	7/8	11 ½	30.240 -31.826	146.35	127.75	121.55	118.55	115.45	112.85	109.30
32.0	1.2598	2400320	123.80	1	8	3	7/8	11 ½	31.827 -33.414	151.85	133.35	127.05	124.05	120.90	118.25	114.65
33.0	1.2992	2400330	123.80	1	8	3	7/8	11 ½	-	-	-	-	-	-	-	-
34.0	1.3386	2400340	130.75	1	8	3 ¼	7/8	12	33.415 -35.001	158.65	140.15	133.85	130.85	127.70	125.10	121.55
35.0	1.3780	2400350	130.75	1	8	3 ¼	7/8	12	-	-	-	-	-	-	-	-
36.0	1.4173	2400360	144.25	1 ¼	8	3 ¼	7/8	12	35.002 - 36.589	172.25	153.65	147.45	144.35	141.30	138.65	135.10
37.0	1.4567	2400370	151.70	1 ¼	8	3 ½	7/8	12 ½	36.590 - 38.176	179.75	161.20	154.95	151.90	148.80	146.20	142.65

Modified tool diameters are available up to 50mm - contact us for price.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT POLISHED FLUTES - STRAIGHT SHANK



TYPE 2400 - FINISHED FRACTIONAL SIZES

Straight shank and straight polished flutes.
Carbide tips brazed to one piece hardened alloy steel bodies.
Cutting diameter tolerance plus .0003", minus .0000".

USE:

For all general reaming of steel, cast iron, non-ferrous metals, plastics and non-metals.

OPTIONS:

Intermediate decimal sizes (priced as indicated in extended table below).
Closer tolerances (see table on next page).
Cutting diameter reduced for small steps or pilot.
Radius end or end chamfer other than 45°.
End cutting.
Rose grind (twice normal back taper).
Short shank or undersize shank diameter.
Flat on shank or tanged shank.
Semi-finished type reamers in stock (see page 73).

TOOL DIAMETER		NO. OF FLUTES	LENGTH		SHANK DIAM.	TYPE 2400 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
Frac.	Dec.		FLUTE	OVER-ALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
5/32	.1562	4	1	4	.151	240005	\$39.65	0.1560 - 0.1769	\$74.95	\$57.00	\$51.25	\$48.40	\$45.40	\$43.05
1/16	.1719	4	1	4	.151	24001719	39.65	-	-	-	-	-	-	-
3/16	.1875	4	1 1/8	4 1/2	1/16	240006	36.35	0.1770 - 0.2040	70.30	53.30	47.70	44.85	42.00	39.70
3/16	.1875	4	1 1/4	5	1/16	240086	38.50	0.1770 - 0.2040	72.45	55.45	49.90	47.05	44.15	41.85
13/64	.2031	4	1 1/8	4 1/2	1/16	24002031	38.50	-	-	-	-	-	-	-
7/32	.2188	4	1 1/4	5	13/64	240007	36.35	0.2041 - 0.2210	70.30	53.30	47.70	44.85	42.00	39.70
15/64	.2344	4	1 1/2	6	7/32	24002344	38.50	0.2211 - 0.2380	72.45	55.45	49.90	47.05	44.15	41.85
1/4	.2500	4	1 1/2	6	15/64	240008	36.35	0.2381 - 0.2530	70.30	53.30	47.70	44.85	42.00	39.70
17/64	.2656	4	1 1/2	6	15/64	24002656	39.35	-	-	-	-	-	-	-
9/32	.2812	4	1 1/2	6	15/64	240009	37.15	0.2531 - 0.2840	71.10	54.10	48.45	45.70	42.75	40.45
19/64	.2969	4	1 1/2	6	9/32	24002969	39.35	-	-	-	-	-	-	-
5/16	.3125	4	1 1/2	6	9/32	240010	37.15	0.2841 - 0.3150	71.10	54.10	48.45	45.70	42.75	40.45
21/64	.3281	4	1 1/2	6	9/32	24003281	40.80	-	-	-	-	-	-	-
11/32	.3438	4	1 1/2	6	9/32	240011	38.45	0.3151 - 0.3470	72.40	55.40	49.70	47.00	44.10	41.80
23/64	.3594	4	1 3/4	7	5/16	24003594	40.80	-	-	-	-	-	-	-
3/8	.3750	4	1 3/4	7	5/16	240012	38.45	0.3471 - 0.3780	72.40	55.40	49.70	47.00	44.10	41.80
25/64	.3906	4	1 3/4	7	5/16	24003906	42.90	-	-	-	-	-	-	-
13/32	.4062	4	1 3/4	7	5/16	240013	40.35	0.3781 - 0.4090	74.30	57.30	51.60	48.85	45.95	43.70
27/64	.4219	4	1 3/4	7	3/8	24004219	45.65	-	-	-	-	-	-	-
7/16	.4375	4	1 3/4	7	3/8	240014	43.10	0.4091 - 0.4410	77.05	60.05	54.25	51.60	48.65	46.45
29/64	.4531	4	1 3/4	7	3/8	24004531	46.40	-	-	-	-	-	-	-
15/32	.4688	4	1 3/4	7	3/8	240015	43.70	0.4411 - 0.4720	77.65	60.65	54.95	52.20	49.30	47.00
31/64	.4844	6	2	8	7/16	24004844	50.10	-	-	-	-	-	-	-
1/2	.5000	6	2	8	7/16	240016	51.95	0.4721 - 0.5030	89.35	70.70	64.35	61.40	58.15	55.60
33/64	.5156	6	2	8	7/16	24005156	56.55	-	-	-	-	-	-	-
17/32	.5312	6	2	8	7/16	240017	56.55	0.5031 - 0.5340	94.00	75.30	69.00	66.00	62.75	60.25
35/64	.5469	6	2	8	7/16	24005469	56.55	-	-	-	-	-	-	-
9/16	.5625	6	2	8	7/16	240018	56.55	0.5341 - 0.5660	94.00	75.30	69.00	66.00	62.75	60.25
37/64	.5781	6	2	8	7/16	24005781	58.85	-	-	-	-	-	-	-
19/32	.5938	6	2	8	7/16	240019	58.85	0.5661 - 0.5970	96.30	77.50	71.25	68.30	65.00	62.60
39/64	.6094	6	2 1/4	9	9/16	24006094	58.85	-	-	-	-	-	-	-
5/8	.6250	6	2 1/4	9	9/16	240020	58.85	0.5971 - 0.6280	96.30	77.50	71.25	68.30	65.00	62.60
41/64	.6406	6	2 1/4	9	9/16	24006406	59.90	-	-	-	-	-	-	-
21/32	.6562	6	2 1/4	9	9/16	240021	59.90	0.6281 - 0.6590	97.25	78.45	72.25	69.30	66.05	63.55
43/64	.6719	6	2 1/4	9	9/16	24006719	59.90	-	-	-	-	-	-	-
11/16	.6875	6	2 1/4	9	9/16	240022	59.90	0.6591 - 0.6910	97.25	78.45	72.25	69.30	66.05	63.55
45/64	.7031	6	2 1/4	9	9/16	24007031	62.70	-	-	-	-	-	-	-
23/32	.7188	6	2 1/4	9	9/16	240023	62.70	0.6911 - 0.7220	100.05	81.40	75.05	72.15	68.85	66.40
47/64	.7344	6	2 1/2	9 1/2	5/8	24007344	62.70	-	-	-	-	-	-	-
3/4	.7500	6	2 1/2	9 1/2	5/8	240024	62.70	0.7221 - 0.7530	100.05	81.40	75.05	72.15	68.85	66.40

*Quantities of 15 or more; price of fractional size in same size range.

TOOL DIAMETER		NO. OF FLUTES	LENGTH		SHANK DIAM.	TYPE 2400 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE		PRICE EACH - FINISHED TO DECIMAL SIZE					
Frac.	Dec.		FLUTE	OVER-ALL						1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
$\frac{49}{64}$	.7656	6	2 1/2	9 1/2	5/8	24007656	\$64.75	0.7531 - 0.7840	-	-	-	-	-	-	-
$\frac{25}{32}$	.7812	6	2 1/2	9 1/2	5/8	240025	64.75		\$102.10	\$83.40	\$77.15	\$74.20	\$70.95	\$68.40	-
$\frac{51}{64}$	.7969	6	2 1/2	9 1/2	5/8	24007969	64.75		-	-	-	-	-	-	-
$\frac{13}{16}$	.8125	6	2 1/2	9 1/2	5/8	240026	64.75	0.7841 - 0.8160	102.10	83.40	77.15	74.20	70.95	68.40	-
$\frac{53}{64}$	.8281	6	2 1/2	9 1/2	5/8	24008281	67.35	0.8161 - 0.8470	-	-	-	-	-	-	-
$\frac{27}{32}$	.8438	6	2 1/2	9 1/2	5/8	240027	67.35		104.75	86.00	79.75	76.75	73.50	71.00	-
$\frac{55}{64}$	.8594	6	2 5/8	10	3/4	24008594	67.35		-	-	-	-	-	-	-
$\frac{7}{8}$	.8750	6	2 5/8	10	3/4	240028	69.90	0.8471 - 0.8780	108.65	89.25	82.80	79.70	76.25	73.65	-
$\frac{57}{64}$	.8906	6	2 5/8	10	3/4	24008906	81.40	0.8781 - 0.9090	-	-	-	-	-	-	-
$\frac{29}{32}$	.9062	6	2 5/8	10	3/4	240029	81.40		120.20	100.75	94.30	91.20	87.80	85.20	-
$\frac{59}{64}$	.9219	8	2 5/8	10	3/4	24009219	81.40		-	-	-	-	-	-	-
$\frac{15}{16}$	.9375	8	2 5/8	10	3/4	240030	81.40	0.9091 - 0.9410	120.20	100.75	94.30	91.20	87.80	85.20	-
$\frac{61}{64}$	.9531	8	2 5/8	10	3/4	24009531	85.30	0.9411 - 0.9720	-	-	-	-	-	-	-
$\frac{31}{32}$	.9688	8	2 5/8	10	3/4	240031	85.30		124.15	104.70	98.30	95.15	91.75	89.15	-
$\frac{63}{64}$	.9844	8	2 3/4	10 1/2	7/8	24009844	85.30		-	-	-	-	-	-	-
1	1.0000	8	2 3/4	10 1/2	7/8	240032	85.30	0.9721 - 1.0030	124.15	104.70	98.30	95.15	91.75	89.15	-
1 1/16	1.0625	8	2 3/4	10 1/2	7/8	240034	88.20	1.0031 - 1.0660	125.50	106.85	100.55	97.65	94.45	91.85	-
1 1/8	1.1250	8	2 7/8	11	7/8	240036	95.35	1.0661 - 1.1280	132.60	113.95	107.80	104.80	101.50	99.05	-
1 3/16	1.1875	8	2 7/8	11	1	240038	100.30	1.1281 - 1.1905	137.45	118.85	112.60	109.60	106.50	103.90	-
1 1/4	1.2500	8	3	11 1/2	1	240040	106.00	1.1906 - 1.2530	143.25	124.70	118.35	115.45	112.20	109.65	-
1 5/16	1.3125	8	3	11 1/2	1	240042	111.55	1.2531 - 1.3155	148.70	130.10	123.80	120.90	117.65	115.20	-
1 3/8	1.3750	8	3 1/4	12	1	240044	118.35	1.3156 - 1.3780	155.50	136.95	130.75	127.70	124.60	122.10	-
1 7/16	1.4375	8	3 1/4	12	1 1/4	240046	131.85	1.3781 - 1.4405	169.15	150.50	144.25	141.30	138.10	135.55	-
1 1/2	1.5000	8	3 1/2	12 1/2	1 1/4	240048	139.45	1.4406 - 1.5030	176.60	158.00	151.70	148.80	145.60	143.05	-
1 9/16	1.5625	8	3 1/2	12 1/2	1 1/4	240050	207.10	1.5031 - 1.5660	244.25	225.65	219.45	216.45	213.30	210.75	-
1 5/8	1.6250	8	3 3/4	13	1 1/4	240052	214.20	1.5661 - 1.6280	251.30	232.75	226.50	223.50	220.30	217.80	-
1 11/16	1.6875	8	3 3/4	13	1 1/4	240054	240.85	1.6281 - 1.6910	278.15	259.50	253.25	250.30	247.15	244.60	-
1 3/4	1.7500	10	4	13 1/2	1 1/4	240056	240.85	1.6911 - 1.7530	278.15	259.50	253.25	250.30	247.15	244.60	-
1 13/16	1.8125	10	4	13 1/2	1 1/2	240058	240.85	1.7531 - 1.8160	278.15	259.50	253.25	250.30	247.15	244.60	-
1 7/8	1.8750	10	4 1/4	14	1 1/2	240060	252.45	1.8161 - 1.8780	289.60	270.95	264.65	261.75	258.55	256.00	-
1 15/16	1.9375	10	4 1/4	14	1 1/2	240062	252.45	1.8781 - 1.9410	289.60	270.95	264.65	261.75	258.55	256.00	-
2	2.0000	12	4 1/4	14	1 1/2	240064	252.45	1.9411 - 2.0030	289.60	270.95	264.65	261.75	258.55	256.00	-

EXACT DECIMAL SIZE REAMERS -

*Quantities of 15 or more: price of fractional size in same size range.

For +.0002" tolerance add \$1.00 per tool. For +.0001" tolerance add \$3.00 per tool.

CARBIDE TIPPED OVER & UNDER SIZE REAMERS

TYPE 2478 - STRAIGHT FLUTE & SHANK

Cutting diameter tolerance plus .0002" minus .0000".

USE:

These precision ground carbide tipped reamers are very convenient for finishing accurate holes in most materials.

TOOL DIAMETER	SHANK DIAM.	OVERALL LENGTH	NO. OF FLUTES	TYPE 2478 EDP NO.	PRICE
.1865	$\frac{1}{16}$	4 1/2	4	247818	\$45.75
.1885	$\frac{1}{16}$	4 1/2	4	247819	45.75
.2490	$\frac{15}{64}$	6	4	247824	45.75
.2510	$\frac{15}{64}$	6	4	247825	45.75
.3115	$\frac{9}{32}$	6	4	247831	46.75
.3135	$\frac{9}{32}$	6	4	247832	46.75
.3740	$\frac{5}{16}$	7	4	247837	48.50
.3760	$\frac{5}{16}$	7	4	247838	48.50
.4365	$\frac{3}{8}$	7	4	247843	54.20
.4385	$\frac{3}{8}$	7	4	247844	54.20
.4990	$\frac{7}{16}$	8	6	247849	59.40
.5010	$\frac{7}{16}$	8	6	247850	59.40
.6240	$\frac{9}{16}$	9	6	247862	71.25
.6260	$\frac{9}{16}$	9	6	247863	71.25
.7490	$\frac{5}{8}$	9 1/2	6	247874	75.05
.7510	$\frac{5}{8}$	9 1/2	6	247875	75.05
.8740	$\frac{3}{4}$	10	6	247886	79.75
.8760	$\frac{3}{4}$	10	6	247887	82.80
.9990	$\frac{7}{8}$	10 1/2	8	247898	98.35
1.0010	$\frac{7}{8}$	10 1/2	8	247899	94.25

CARBIDE TIPPED DOWEL PIN SIZE REAMERS

TYPE 2476 - STRAIGHT FLUTE & SHANK

Cutting diameter tolerance plus .0000" minus .0002".

USE:

These precision ground carbide tipped reamers accurately finish dowel pin holes in most materials and result in properly fitted dowel pins subjected to shearing strain - assuring accurate alignment. Should be used in pairs of .0005" and .0020" under fraction size — Note special minus .0002" tolerance.

TOOL DIAMETER	SHANK DIAM.	OVERALL LENGTH	NO. OF FLUTES	TYPE 2476 EDP NO.	PRICE
.1855	$\frac{1}{16}$	4 1/2	4	247617	\$45.75
.1870	$\frac{1}{16}$	4 1/2	4	247618	45.75
.2480	$\frac{15}{64}$	6	4	247623	45.75
.2495	$\frac{15}{64}$	6	4	247624	45.75
.3105	$\frac{9}{32}$	6	4	247630	46.75
.3120	$\frac{9}{32}$	6	4	247631	46.75
.3730	$\frac{5}{16}$	7	4	247636	48.50
.3745	$\frac{5}{16}$	7	4	247637	48.50
.4355	$\frac{3}{8}$	7	4	247642	54.20
.4370	$\frac{3}{8}$	7	4	247643	54.20
.4980	$\frac{7}{16}$	8	6	247648	59.40
.4995	$\frac{7}{16}$	8	6	247649	59.40
CASED SET OF ABOVE 12 REAMERS				247600	\$570.80



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - SPECIAL DECIMAL SIZES - TYPE 2400

NOTE: Dimension details and modifications listed on page 42.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.1560	24001560	\$51.25	.1860	24001860	\$47.70	.2160	24002160	\$47.70	.2460	24002460	\$47.70	.2760	24002760	\$48.45
.1565	24001565	51.25	.1865	247818	45.75	.2165	2400055	47.70	.2465	24002465	47.70	.2765	24002765	48.45
.1570	24001570	51.25	.1870	24001870	47.70	.2170	24002170	47.70	.2470	24002470	47.70	.2770	24002770	48.45
.1575	2400040	51.25	.1875	240006	36.35	.2175	24002175	47.70	.2475	24002475	47.70	.2775	24002775	48.45
.1580	24001580	51.25	.1880	24001880	47.70	.2180	24002180	47.70	.2480	2400063	47.70	.2780	24002780	48.45
.1585	24001585	51.25	.1885	247819	45.75	.2185	24002185	47.70	.2485	24002485	47.70	.2785	24002785	48.45
.1590	24001590	51.25	.1890	2400048	47.70	.2190	24002190	47.70	.2490	247824	45.75	.2790	24002790	48.45
.1595	24001595	51.25	.1895	24001895	47.70	.2195	24002195	47.70	.2495	24002495	47.70	.2795	2400071	48.45
.1600	24001600	51.25	.1900	24001900	47.70	.2200	24002200	47.70	.2500	240008	36.35	.2800	24002800	48.45
.1605	24001605	51.25	.1905	24001905	47.70	.2205	2400056	47.70	.2505	24002505	47.70	.2805	24002805	48.45
.1610	24001610	51.25	.1910	24001910	47.70	.2210	24002210	47.70	.2510	247825	45.75	.2810	24002810	48.45
.1615	24001615	51.25	.1915	24001915	47.70	.2215	24002215	49.90	.2515	24002515	47.70	.2815	24002815	48.45
.1620	24001620	51.25	.1920	24001920	47.70	.2220	24002220	49.90	.2520	2400064	47.70	.2820	24002820	48.45
.1625	24001625	51.25	.1925	24001925	47.70	.2225	24002225	49.90	.2525	24002525	47.70	.2825	24002825	48.45
.1630	24001630	51.25	.1930	24001930	47.70	.2230	24002230	49.90	.2530	24002530	47.70	.2830	24002830	48.45
.1635	24001635	51.25	.1935	24001935	47.70	.2235	24002235	49.90	.2535	24002535	48.45	.2835	2400072	48.45
.1640	24001640	51.25	.1940	24001940	47.70	.2240	24002240	49.90	.2540	24002540	48.45	.2840	24002840	48.45
.1645	24001645	51.25	.1945	24001945	47.70	.2245	24002245	49.90	.2545	24002545	48.45	.2845	24002845	48.45
.1650	24001650	51.25	.1950	24001950	47.70	.2250	24002250	49.90	.2550	24002550	48.45	.2850	24002850	48.45
.1655	24001655	51.25	.1955	24001955	47.70	.2255	24002255	49.90	.2555	24002555	48.45	.2855	24002855	48.45
.1660	24001660	51.25	.1960	24001960	47.70	.2260	24002260	49.90	.2560	24002560	48.45	.2860	24002860	48.45
.1665	24001665	51.25	.1965	24001965	47.70	.2265	24002265	49.90	.2565	24002565	48.45	.2865	24002865	48.45
.1670	24001670	51.25	.1970	24001970	47.70	.2270	24002270	49.90	.2570	24002570	48.45	.2870	24002870	48.45
.1675	24001675	51.25	.1975	24001975	47.70	.2275	24002275	49.90	.2575	24002575	48.45	.2875	24002875	48.45
.1680	24001680	51.25	.1980	24001980	47.70	.2280	24002280	49.90	.2580	24002580	48.45	.2880	24002880	48.45
.1685	24001685	51.25	.1985	24001985	47.70	.2285	24002285	49.90	.2585	24002585	48.45	.2885	24002885	48.45
.1690	24001690	51.25	.1990	24001990	47.70	.2290	24002290	49.90	.2590	24002590	48.45	.2890	24002890	48.45
.1695	24001695	51.25	.1995	24001995	47.70	.2295	24002295	49.90	.2595	24002595	48.45	.2895	24002895	48.45
.1700	24001700	51.25	.2000	24002000	47.70	.2300	24002300	49.90	.2600	24002600	48.45	.2900	24002900	48.45
.1705	24001705	51.25	.2005	24002005	47.70	.2305	24002305	49.90	.2605	24002605	48.45	.2905	24002905	48.45
.1710	24001710	51.25	.2010	24002010	47.70	.2310	24002310	49.90	.2610	24002610	48.45	.2910	24002910	48.45
.1715	24001715	51.25	.2015	24002015	47.70	.2315	24002315	49.90	.2615	24002615	48.45	.2915	24002915	48.45
.1720	24001720	51.25	.2020	24002020	47.70	.2320	24002320	49.90	.2620	24002620	48.45	.2920	24002920	48.45
.1725	24001725	51.25	.2025	24002025	47.70	.2325	24002325	49.90	.2625	24002625	48.45	.2925	24002925	48.45
.1730	24001730	51.25	.2030	24002030	47.70	.2330	24002330	49.90	.2630	24002630	48.45	.2930	24002930	48.45
.1735	24001735	51.25	.2035	24002035	47.70	.2335	24002335	49.90	.2635	24002635	48.45	.2935	24002935	48.45
.1740	24001740	51.25	.2040	24002040	47.70	.2340	24002340	49.90	.2640	24002640	48.45	.2940	24002940	48.45
.1745	24001745	51.25	.2045	24002045	47.70	.2345	24002345	49.90	.2645	24002645	48.45	.2945	24002945	48.45
.1750	24001750	51.25	.2050	24002050	47.70	.2350	24002350	49.90	.2650	24002650	48.45	.2950	24002950	48.45
.1755	24001755	51.25	.2055	24002055	47.70	.2355	24002355	49.90	.2655	24002655	48.45	.2955	24002955	48.45
.1760	24001760	51.25	.2060	24002060	47.70	.2360	24002360	49.90	.2660	24002660	48.45	.2960	24002960	48.45
.1765	24001765	51.25	.2065	24002065	47.70	.2365	24002365	49.90	.2665	24002665	48.45	.2965	24002965	48.45
.1770	24001770	47.70	.2070	24002070	47.70	.2370	24002370	49.90	.2670	24002670	48.45	.2970	24002970	48.45
.1775	24001775	47.70	.2075	24002075	47.70	.2375	24002375	49.90	.2675	24002675	48.45	.2975	24002975	48.45
.1780	24001780	47.70	.2080	24002080	47.70	.2380	24002380	49.90	.2680	24002680	48.45	.2980	24002980	48.45
.1785	24001785	47.70	.2085	24002085	47.70	.2385	24002385	47.70	.2685	24002685	48.45	.2985	24002985	48.45
.1790	24001790	47.70	.2090	24002090	47.70	.2390	24002390	47.70	.2690	24002690	48.45	.2990	24002990	48.45
.1795	24001795	47.70	.2095	24002095	47.70	.2395	24002395	47.70	.2695	24002695	48.45	.2995	24002995	48.45
.1800	24001800	47.70	.2100	24002100	47.70	.2400	24002400	47.70	.2700	24002700	48.45	.3000	24003000	48.45
.1805	24001805	47.70	.2105	24002105	47.70	.2405	24002405	47.70	.2705	24002705	48.45	.3005	24003005	48.45
.1810	24001810	47.70	.2110	24002110	47.70	.2410	24002410	47.70	.2710	24002710	48.45	.3010	24003010	48.45
.1815	24001815	47.70	.2115	24002115	47.70	.2415	24002415	47.70	.2715	24002715	48.45	.3015	24003015	48.45
.1820	24001820	47.70	.2120	24002120	47.70	.2420	24002420	47.70	.2720	24002720	48.45	.3020	24003020	48.45
.1825	24001825	47.70	.2125	24002125	47.70	.2425	24002425	47.70	.2725	24002725	48.45	.3025	24003025	48.45
.1830	24001830	47.70	.2130	24002130	47.70	.2430	24002430	47.70	.2730	24002730	48.45	.3030	24003030	48.45
.1835	24001835	47.70	.2135	24002135	47.70	.2435	24002435	47.70	.2735	24002735	48.45	.3035	24003035	48.45
.1840	24001840	47.70	.2140	24002140	47.70	.2440	24002440	47.70	.2740	24002740	48.45	.3040	24003040	48.45
.1845	24001845	47.70	.2145	24002145	47.70	.2445	24002445	47.70	.2745	24002745	48.45	.3045	24003045	48.45
.1850	2400047	47.70	.2150	24002150	47.70	.2450	24002450	47.70	.2750	24002750	48.45	.3050	24003050	48.45
.1855	24001855	47.70	.2155	24002155	47.70	.2455	24002455	47.70	.2755	24002755	48.45	.3055	24003055	48.45



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - SPECIAL DECIMAL SIZES - TYPE 2400

NOTE: Dimension details and modifications listed on page 42.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.3060	24003060	\$48.45	.3360	24003360	\$49.70	.3660	24003660	\$49.70	.3960	24003960	\$51.60	.4260	24004260	\$54.25
.3065	24003065	48.45	.3365	24003365	49.70	.3665	24003665	49.70	.3965	24003965	51.60	.4265	24004265	54.25
.3070	24003070	48.45	.3370	24003370	49.70	.3670	24003670	49.70	.3970	24003970	51.60	.4270	24004270	54.25
.3075	24003075	48.45	.3375	24003375	49.70	.3675	24003675	49.70	.3975	24003975	51.60	.4275	24004275	54.25
.3080	24003080	48.45	.3380	24003380	49.70	.3680	24003680	49.70	.3980	24003980	51.60	.4280	24004280	54.25
.3085	24003085	48.45	.3385	24003385	49.70	.3685	24003685	49.70	.3985	24003985	51.60	.4285	24004285	54.25
.3090	24003090	48.45	.3390	24003390	49.70	.3690	24003690	49.70	.3990	24003990	51.60	.4290	24004290	54.25
.3095	24003095	48.45	.3395	24003395	49.70	.3695	24003695	49.70	.3995	24003995	51.60	.4295	24004295	54.25
.3100	24003100	48.45	.3400	24003400	49.70	.3700	24003700	49.70	.4000	24004000	51.60	.4300	24004300	54.25
.3105	24003105	48.45	.3405	24003405	49.70	.3705	24003705	49.70	.4005	24004005	51.60	.4305	24004305	54.25
.3110	2400079	48.45	.3410	24003410	49.70	.3710	24003710	49.70	.4010	24004010	51.60	.4310	24004310	54.25
.3115	247831	46.75	.3415	24003415	49.70	.3715	24003715	49.70	.4015	24004015	51.60	.4315	24004315	54.25
.3120	24003120	48.45	.3420	24003420	49.70	.3720	24003720	49.70	.4020	24004020	51.60	.4320	24004320	54.25
.3125	240010	37.15	.3425	2400087	49.70	.3725	24003725	49.70	.4025	24004025	51.60	.4325	24004325	54.25
.3130	24003130	48.45	.3430	24003430	49.70	.3730	24003730	49.70	.4030	24004030	51.60	.4330	24004330	54.25
.3135	247832	46.75	.3435	24003435	49.70	.3735	24003735	49.70	.4035	24004035	51.60	.4335	24004335	54.25
.3140	24003140	48.45	.3440	24003440	49.70	.3740	247837	48.50	.4040	24004040	51.60	.4340	24004340	54.25
.3145	24003145	48.45	.3445	24003445	49.70	.3745	24003745	49.70	.4045	24004045	51.60	.4345	24004345	54.25
.3150	2400080	48.45	.3450	24003450	49.70	.3750	240012	38.45	.4050	24004050	51.60	.4350	24004350	54.25
.3155	24003155	49.70	.3455	24003455	49.70	.3755	24003755	49.70	.4055	2400103	51.60	.4355	24004355	54.25
.3160	24003160	49.70	.3460	24003460	49.70	.3760	247838	48.50	.4060	24004060	51.60	.4360	24004360	54.25
.3165	24003165	49.70	.3465	2400088	49.70	.3765	24003765	49.70	.4065	24004065	51.60	.4365	247843	54.20
.3170	24003170	49.70	.3470	24003470	49.70	.3770	24003770	49.70	.4070	24004070	51.60	.4370	2400111	54.25
.3175	24003175	49.70	.3475	24003475	49.70	.3775	24003775	49.70	.4075	24004075	51.60	.4375	240014	43.10
.3180	24003180	49.70	.3480	24003480	49.70	.3780	2400096	49.70	.4080	24004080	51.60	.4380	24004380	54.25
.3185	24003185	49.70	.3485	24003485	49.70	.3785	24003785	51.60	.4085	24004085	51.60	.4385	247844	54.20
.3190	24003190	49.70	.3490	24003490	49.70	.3790	24003790	51.60	.4090	24004090	51.60	.4390	24004390	54.25
.3195	24003195	49.70	.3495	24003495	49.70	.3795	24003795	51.60	.4095	24004095	54.25	.4395	24004395	54.25
.3200	24003200	49.70	.3500	24003500	49.70	.3800	24003800	51.60	.4100	24004100	54.25	.4400	24004400	54.25
.3205	24003205	49.70	.3505	24003505	49.70	.3805	24003805	51.60	.4105	24004105	54.25	.4405	24004405	54.25
.3210	24003210	49.70	.3510	24003510	49.70	.3810	24003810	51.60	.4110	24004110	54.25	.4410	24004410	54.25
.3215	24003215	49.70	.3515	24003515	49.70	.3815	24003815	51.60	.4115	24004115	54.25	.4415	24004415	54.95
.3220	24003220	49.70	.3520	24003520	49.70	.3820	24003820	51.60	.4120	24004120	54.25	.4420	24004420	54.95
.3225	24003225	49.70	.3525	24003525	49.70	.3825	24003825	51.60	.4125	24004125	54.25	.4425	24004425	54.95
.3230	24003230	49.70	.3530	24003530	49.70	.3830	24003830	51.60	.4130	24004130	54.25	.4430	24004430	54.95
.3235	24003235	49.70	.3535	24003535	49.70	.3835	24003835	51.60	.4135	24004135	54.25	.4435	24004435	54.95
.3240	24003240	49.70	.3540	24003540	49.70	.3840	24003840	51.60	.4140	24004140	54.25	.4440	24004440	54.95
.3245	24003245	49.70	.3545	24003545	49.70	.3845	24003845	51.60	.4145	24004145	54.25	.4445	24004445	54.95
.3250	24003250	49.70	.3550	24003550	49.70	.3850	24003850	51.60	.4150	24004150	54.25	.4450	24004450	54.95
.3255	24003255	49.70	.3555	24003555	49.70	.3855	24003855	51.60	.4155	24004155	54.25	.4455	24004455	54.95
.3260	24003260	49.70	.3560	24003560	49.70	.3860	24003860	51.60	.4160	24004160	54.25	.4460	24004460	54.95
.3265	24003265	49.70	.3565	24003565	49.70	.3865	24003865	51.60	.4165	24004165	54.25	.4465	24004465	54.95
.3270	24003270	49.70	.3570	24003570	49.70	.3870	24003870	51.60	.4170	24004170	54.25	.4470	24004470	54.95
.3275	24003275	49.70	.3575	24003575	49.70	.3875	24003875	51.60	.4175	24004175	54.25	.4475	24004475	54.95
.3280	24003280	49.70	.3580	24003580	49.70	.3880	24003880	51.60	.4180	24004180	54.25	.4480	24004480	54.95
.3285	24003285	49.70	.3585	24003585	49.70	.3885	24003885	51.60	.4185	24004185	54.25	.4485	24004485	54.95
.3290	24003290	49.70	.3590	24003590	49.70	.3890	24003890	51.60	.4190	24004190	54.25	.4490	24004490	54.95
.3295	24003295	49.70	.3595	24003595	49.70	.3895	24003895	51.60	.4195	24004195	54.25	.4495	24004495	54.95
.3300	24003300	49.70	.3600	24003600	49.70	.3900	24003900	51.60	.4200	24004200	54.25	.4500	24004500	54.95
.3305	24003305	49.70	.3605	24003605	49.70	.3905	24003905	51.60	.4205	24004205	54.25	.4505	24004505	54.95
.3310	24003310	49.70	.3610	24003610	49.70	.3910	24003910	51.60	.4210	24004210	54.25	.4510	24004510	54.95
.3315	24003315	49.70	.3615	24003615	49.70	.3915	24003915	51.60	.4215	24004215	54.25	.4515	24004515	54.95
.3320	24003320	49.70	.3620	24003620	49.70	.3920	24003920	51.60	.4220	24004220	54.25	.4520	24004520	54.95
.3325	24003325	49.70	.3625	24003625	49.70	.3925	24003925	51.60	.4225	24004225	54.25	.4525	24004525	54.95
.3330	24003330	49.70	.3630	24003630	49.70	.3930	24003930	51.60	.4230	24004230	54.25	.4530	24004530	54.95
.3335	24003335	49.70	.3635	24003635	49.70	.3935	24003935	51.60	.4235	24004235	54.25	.4535	24004535	54.95
.3340	24003340	49.70	.3640	24003640	49.70	.3940	24003940	51.60	.4240	24004240	54.25	.4540	24004540	54.95
.3345	24003345	49.70	.3645	24003645	49.70	.3945	24003945	51.60	.4245	24004245	54.25	.4545	24004545	54.95
.3350	24003350	49.70	.3650	24003650	49.70	.3950	24003950	51.60	.4250	24004250	54.25	.4550	24004550	54.95
.3355	24003355	49.70	.3655	24003655	49.70	.3955	24003955	51.60	.4255	24004255	54.25	.4555	24004555	54.95



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - SPECIAL DECIMAL SIZES - TYPE 2400

NOTE: Dimension details and modifications listed on page 42.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.4560	24004560	\$54.95	.4860	24004860	\$64.35	.5160	24005160	\$69.00	.5460	24005460	\$69.00	.5760	24005760	\$71.25
.4565	24004565	54.95	.4865	24004865	64.35	.5165	24005165	69.00	.5465	24005465	69.00	.5765	24005765	71.25
.4570	24004570	54.95	.4870	24004870	64.35	.5170	24005170	69.00	.5470	24005470	69.00	.5770	24005770	71.25
.4575	24004575	54.95	.4875	24004875	64.35	.5175	24005175	69.00	.5475	24005475	69.00	.5775	24005775	71.25
.4580	24004580	54.95	.4880	24004880	64.35	.5180	24005180	69.00	.5480	24005480	69.00	.5780	24005780	71.25
.4585	24004585	54.95	.4885	24004885	64.35	.5185	24005185	69.00	.5485	24005485	69.00	.5785	24005785	71.25
.4590	24004590	54.95	.4890	24004890	64.35	.5190	24005190	69.00	.5490	24005490	69.00	.5790	24005790	71.25
.4595	24004595	54.95	.4895	24004895	64.35	.5195	24005195	69.00	.5495	24005495	69.00	.5795	24005795	71.25
.4600	24004600	54.95	.4900	24004900	64.35	.5200	24005200	69.00	.5500	24005500	69.00	.5800	24005800	71.25
.4605	24004605	54.95	.4905	24004905	64.35	.5205	24005205	69.00	.5505	24005505	69.00	.5805	24005805	71.25
.4610	24004610	54.95	.4910	24004910	64.35	.5210	24005210	69.00	.5510	24005510	69.00	.5810	24005810	71.25
.4615	24004615	54.95	.4915	24004915	64.35	.5215	24005215	69.00	.5515	24005515	69.00	.5815	24005815	71.25
.4620	24004620	54.95	.4920	24004920	64.35	.5220	24005220	69.00	.5520	24005520	69.00	.5820	24005820	71.25
.4625	24004625	54.95	.4925	24004925	64.35	.5225	24005225	69.00	.5525	24005525	69.00	.5825	24005825	71.25
.4630	24004630	54.95	.4930	24004930	64.35	.5230	24005230	69.00	.5530	24005530	69.00	.5830	24005830	71.25
.4635	24004635	54.95	.4935	24004935	64.35	.5235	24005235	69.00	.5535	24005535	69.00	.5835	24005835	71.25
.4640	24004640	54.95	.4940	24004940	64.35	.5240	24005240	69.00	.5540	24005540	69.00	.5840	24005840	71.25
.4645	24004645	54.95	.4945	24004945	64.35	.5245	24005245	69.00	.5545	24005545	69.00	.5845	24005845	71.25
.4650	24004650	54.95	.4950	24004950	64.35	.5250	24005250	69.00	.5550	24005550	69.00	.5850	24005850	71.25
.4655	24004655	54.95	.4955	24004955	64.35	.5255	24005255	69.00	.5555	24005555	69.00	.5855	24005855	71.25
.4660	24004660	54.95	.4960	24004960	64.35	.5260	24005260	69.00	.5560	24005560	69.00	.5860	24005860	71.25
.4665	24004665	54.95	.4965	24004965	64.35	.5265	24005265	69.00	.5565	24005565	69.00	.5865	24005865	71.25
.4670	24004670	54.95	.4970	24004970	64.35	.5270	24005270	69.00	.5570	24005570	69.00	.5870	24005870	71.25
.4675	24004675	54.95	.4975	24004975	64.35	.5275	24005275	69.00	.5575	24005575	69.00	.5875	24005875	71.25
.4680	24004680	54.95	.4980	24004980	64.35	.5280	24005280	69.00	.5580	24005580	69.00	.5880	24005880	71.25
.4685	2400119	54.95	.4985	24004985	64.35	.5285	24005285	69.00	.5585	24005585	69.00	.5885	24005885	71.25
.4690	24004690	54.95	.4990	247849	59.40	.5290	24005290	69.00	.5590	24005590	69.00	.5890	24005890	71.25
.4695	24004695	54.95	.4995	24004995	64.35	.5295	24005295	69.00	.5595	24005595	69.00	.5895	24005895	71.25
.4700	24004700	54.95	.5000	240016	51.95	.5300	24005300	69.00	.5600	24005600	69.00	.5900	24005900	71.25
.4705	24004705	54.95	.5005	24005005	64.35	.5305	24005305	69.00	.5605	24005605	69.00	.5905	24005905	71.25
.4710	24004710	54.95	.5010	247850	59.40	.5310	24005310	69.00	.5610	24005610	69.00	.5910	24005910	71.25
.4715	24004715	54.95	.5015	24005015	64.35	.5315	2400135	69.00	.5615	24005615	69.00	.5915	24005915	71.25
.4720	24004720	54.95	.5020	24005020	64.35	.5320	24005320	69.00	.5620	24005620	69.00	.5920	24005920	71.25
.4725	24004725	64.35	.5025	24005025	64.35	.5325	24005325	69.00	.5625	240018	56.55	.5925	24005925	71.25
.4730	24004730	64.35	.5030	24005030	64.35	.5330	24005330	69.00	.5630	2400143	69.00	.5930	24005930	71.25
.4735	24004735	64.35	.5035	24005035	69.00	.5335	24005335	69.00	.5635	24005635	69.00	.5935	24005935	71.25
.4740	24004740	64.35	.5040	24005040	69.00	.5340	24005340	69.00	.5640	24005640	69.00	.5940	24005940	71.25
.4745	24004745	64.35	.5045	24005045	69.00	.5345	24005345	69.00	.5645	24005645	69.00	.5945	2400151	71.25
.4750	24004750	64.35	.5050	24005050	69.00	.5350	24005350	69.00	.5650	24005650	69.00	.5950	24005950	71.25
.4755	24004755	64.35	.5055	24005055	69.00	.5355	24005355	69.00	.5655	24005655	69.00	.5955	24005955	71.25
.4760	24004760	64.35	.5060	24005060	69.00	.5360	24005360	69.00	.5660	24005660	69.00	.5960	24005960	71.25
.4765	24004765	64.35	.5065	24005065	69.00	.5365	24005365	69.00	.5665	24005665	71.25	.5965	24005965	71.25
.4770	24004770	64.35	.5070	24005070	69.00	.5370	24005370	69.00	.5670	24005670	71.25	.5970	24005970	71.25
.4775	24004775	64.35	.5075	24005075	69.00	.5375	24005375	69.00	.5675	24005675	71.25	.5975	24005975	71.25
.4780	24004780	64.35	.5080	24005080	69.00	.5380	24005380	69.00	.5680	24005680	71.25	.5980	24005980	71.25
.4785	24004785	64.35	.5085	24005085	69.00	.5385	24005385	69.00	.5685	24005685	71.25	.5985	24005985	71.25
.4790	24004790	64.35	.5090	24005090	69.00	.5390	24005390	69.00	.5690	24005690	71.25	.5990	24005990	71.25
.4795	24004795	64.35	.5095	24005095	69.00	.5395	24005395	69.00	.5695	24005695	71.25	.5995	24005995	71.25
.4800	24004800	64.35	.5100	24005100	69.00	.5400	24005400	69.00	.5700	24005700	71.25	.6000	24006000	71.25
.4805	24004805	64.35	.5105	24005105	69.00	.5405	24005405	69.00	.5705	24005705	71.25	.6005	24006005	71.25
.4810	24004810	64.35	.5110	24005110	69.00	.5410	24005410	69.00	.5710	24005710	71.25	.6010	24006010	71.25
.4815	24004815	64.35	.5115	24005115	69.00	.5415	24005415	69.00	.5715	24005715	71.25	.6015	24006015	71.25
.4820	24004820	64.35	.5120	24005120	69.00	.5420	24005420	69.00	.5720	24005720	71.25	.6020	24006020	71.25
.4825	24004825	64.35	.5125	24005125	69.00	.5425	24005425	69.00	.5725	24005725	71.25	.6025	24006025	71.25
.4830	24004830	64.35	.5130	24005130	69.00	.5430	24005430	69.00	.5730	24005730	71.25	.6030	24006030	71.25
.4835	24004835	64.35	.5135	24005135	69.00	.5435	24005435	69.00	.5735	24005735	71.25	.6035	24006035	71.25
.4840	24004840	64.35	.5140	24005140	69.00	.5440	24005440	69.00	.5740	24005740	71.25	.6040	24006040	71.25
.4845	24004845	64.35	.5145	24005145	69.00	.5445	24005445	69.00	.5745	24005745	71.25	.6045	24006045	71.25
.4850	24004850	64.35	.5150	24005150	69.00	.5450	24005450	69.00	.5750	24005750	71.25	.6050	24006050	71.25
.4855	24004855	64.35	.5155	24005155	69.00	.5455	24005455	69.00	.5755	24005755	71.25	.6055	24006055	71.25



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - SPECIAL DECIMAL SIZES - TYPE 2400

NOTE: Dimension details and modifications listed on page 42.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.6060	24006060	\$71.25	.6360	24006360	\$72.25	.6660	24006660	\$72.25	.6960	24006960	\$75.05	.7260	24007260	\$75.05
.6065	24006065	71.25	.6365	24006365	72.25	.6665	24006665	72.25	.6965	24006965	75.05	.7265	24007265	75.05
.6070	24006070	71.25	.6370	24006370	72.25	.6670	24006670	72.25	.6970	24006970	75.05	.7270	24007270	75.05
.6075	24006075	71.25	.6375	24006375	72.25	.6675	24006675	72.25	.6975	24006975	75.05	.7275	24007275	75.05
.6080	24006080	71.25	.6380	24006380	72.25	.6680	24006680	72.25	.6980	24006980	75.05	.7280	24007280	75.05
.6085	24006085	71.25	.6385	24006385	72.25	.6685	24006685	72.25	.6985	24006985	75.05	.7285	24007285	75.05
.6090	24006090	71.25	.6390	24006390	72.25	.6690	24006690	72.25	.6990	24006990	75.05	.7290	24007290	75.05
.6095	24006095	71.25	.6395	24006395	72.25	.6695	24006695	72.25	.6995	24006995	75.05	.7295	24007295	75.05
.6100	24006100	71.25	.6400	24006400	72.25	.6700	24006700	72.25	.7000	24007000	75.05	.7300	24007300	75.05
.6105	24006105	71.25	.6405	24006405	72.25	.6705	24006705	72.25	.7005	24007005	75.05	.7305	24007305	75.05
.6110	24006110	71.25	.6410	24006410	72.25	.6710	24006710	72.25	.7010	24007010	75.05	.7310	24007310	75.05
.6115	24006115	71.25	.6415	24006415	72.25	.6715	24006715	72.25	.7015	24007015	75.05	.7315	24007315	75.05
.6120	24006120	71.25	.6420	24006420	72.25	.6720	24006720	72.25	.7020	24007020	75.05	.7320	24007320	75.05
.6125	24006125	71.25	.6425	24006425	72.25	.6725	24006725	72.25	.7025	24007025	75.05	.7325	24007325	75.05
.6130	24006130	71.25	.6430	24006430	72.25	.6730	24006730	72.25	.7030	24007030	75.05	.7330	24007330	75.05
.6135	24006135	71.25	.6435	24006435	72.25	.6735	24006735	72.25	.7035	24007035	75.05	.7335	24007335	75.05
.6140	24006140	71.25	.6440	24006440	72.25	.6740	24006740	72.25	.7040	24007040	75.05	.7340	24007340	75.05
.6145	24006145	71.25	.6445	24006445	72.25	.6745	24006745	72.25	.7045	24007045	75.05	.7345	24007345	75.05
.6150	24006150	71.25	.6450	24006450	72.25	.6750	24006750	72.25	.7050	24007050	75.05	.7350	24007350	75.05
.6155	24006155	71.25	.6455	24006455	72.25	.6755	24006755	72.25	.7055	24007055	75.05	.7355	24007355	75.05
.6160	24006160	71.25	.6460	24006460	72.25	.6760	24006760	72.25	.7060	24007060	75.05	.7360	24007360	75.05
.6165	24006165	71.25	.6465	24006465	72.25	.6765	24006765	72.25	.7065	24007065	75.05	.7365	24007365	75.05
.6170	24006170	71.25	.6470	24006470	72.25	.6770	24006770	72.25	.7070	24007070	75.05	.7370	24007370	75.05
.6175	24006175	71.25	.6475	24006475	72.25	.6775	24006775	72.25	.7075	24007075	75.05	.7375	24007375	75.05
.6180	24006180	71.25	.6480	24006480	72.25	.6780	24006780	72.25	.7080	24007080	75.05	.7380	24007380	75.05
.6185	24006185	71.25	.6485	24006485	72.25	.6785	24006785	72.25	.7085	24007085	75.05	.7385	24007385	75.05
.6190	24006190	71.25	.6490	24006490	72.25	.6790	24006790	72.25	.7090	24007090	75.05	.7390	24007390	75.05
.6195	24006195	71.25	.6495	24006495	72.25	.6795	24006795	72.25	.7095	24007095	75.05	.7395	24007395	75.05
.6200	24006200	71.25	.6500	24006500	72.25	.6800	24006800	72.25	.7100	24007100	75.05	.7400	24007400	75.05
.6205	24006205	71.25	.6505	24006505	72.25	.6805	24006805	72.25	.7105	24007105	75.05	.7405	24007405	75.05
.6210	24006210	71.25	.6510	24006510	72.25	.6810	24006810	72.25	.7110	24007110	75.05	.7410	24007410	75.05
.6215	24006215	71.25	.6515	24006515	72.25	.6815	24006815	72.25	.7115	24007115	75.05	.7415	24007415	75.05
.6220	2400158	71.25	.6520	24006520	72.25	.6820	24006820	72.25	.7120	24007120	75.05	.7420	24007420	75.05
.6225	24006225	71.25	.6525	24006525	72.25	.6825	24006825	72.25	.7125	24007125	75.05	.7425	24007425	75.05
.6230	24006230	71.25	.6530	24006530	72.25	.6830	24006830	72.25	.7130	24007130	75.05	.7430	24007430	75.05
.6235	24006235	71.25	.6535	2400166	72.25	.6835	24006835	72.25	.7135	24007135	75.05	.7435	24007435	75.05
.6240	247862	71.25	.6540	24006540	72.25	.6840	24006840	72.25	.7140	24007140	75.05	.7440	24007440	75.05
.6245	24006245	71.25	.6545	24006545	72.25	.6845	24006845	72.25	.7145	24007145	75.05	.7445	24007445	75.05
.6250	240020	58.85	.6550	24006550	72.25	.6850	2400174	72.25	.7150	24007150	75.05	.7450	24007450	75.05
.6255	24006255	71.25	.6555	24006555	72.25	.6855	24006855	72.25	.7155	24007155	75.05	.7455	24007455	75.05
.6260	247863	71.25	.6560	24006560	72.25	.6860	24006860	72.25	.7160	24007160	75.05	.7460	24007460	75.05
.6265	24006265	71.25	.6565	24006565	72.25	.6865	24006865	72.25	.7165	2400182	75.05	.7465	24007465	75.05
.6270	24006270	71.25	.6570	24006570	72.25	.6870	24006870	72.25	.7170	24007170	75.05	.7470	24007470	75.05
.6275	24006275	71.25	.6575	2400167	72.25	.6875	240022	59.90	.7175	24007175	75.05	.7475	24007475	75.05
.6280	24006280	71.25	.6580	24006580	72.25	.6880	24006880	72.25	.7180	24007180	75.05	.7480	2400190	75.05
.6285	24006285	72.25	.6585	24006585	72.25	.6885	24006885	72.25	.7185	24007185	75.05	.7485	24007485	75.05
.6290	24006290	72.25	.6590	24006590	72.25	.6890	2400175	72.25	.7190	24007190	75.05	.7490	247874	75.05
.6295	24006295	72.25	.6595	24006595	72.25	.6895	24006895	72.25	.7195	24007195	75.05	.7495	24007495	75.05
.6300	24006300	72.25	.6600	24006600	72.25	.6900	24006900	72.25	.7200	24007200	75.05	.7500	240024	62.70
.6305	24006305	72.25	.6605	24006605	72.25	.6905	24006905	72.25	.7205	2400183	75.05	.7505	24007505	75.05
.6310	24006310	72.25	.6610	24006610	72.25	.6910	24006910	72.25	.7210	24007210	75.05	.7510	247875	75.05
.6315	24006315	72.25	.6615	24006615	72.25	.6915	24006915	75.05	.7215	24007215	75.05	.7515	24007515	75.05
.6320	24006320	72.25	.6620	24006620	72.25	.6920	24006920	75.05	.7220	24007220	75.05	.7520	2400191	75.05
.6325	24006325	72.25	.6625	24006625	72.25	.6925	24006925	75.05	.7225	24007225	75.05	.7525	24007525	75.05
.6330	24006330	72.25	.6630	24006630	72.25	.6930	24006930	75.05	.7230	24007230	75.05	.7530	24007530	75.05
.6335	24006335	72.25	.6635	24006635	72.25	.6935	24006935	75.05	.7235	24007235	75.05	.7535	24007535	77.15
.6340	24006340	72.25	.6640	24006640	72.25	.6940	24006940	75.05	.7240	24007240	75.05	.7540	24007540	77.15
.6345	24006345	72.25	.6645	24006645	72.25	.6945	24006945	75.05	.7245	24007245	75.05	.7545	24007545	77.15
.6350	24006350	72.25	.6650	24006650	72.25	.6950	24006950	75.05	.7250	24007250	75.05	.7550	24007550	77.15
.6355	24006355	72.25	.6655	24006655	72.25	.6955	24006955	75.05	.7255	24007255	75.05	.7555	24007555	77.15



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT POLISHED FLUTES - TAPER SHANK



TYPE 2402 - FINISHED FRACTIONAL SIZES

Taper shank and straight polished flutes.
Carbide tips brazed to one piece hardened alloy steel bodies.
Cutting diameter tolerance plus .0003", minus .0000".

USE:

For general reaming of steel, cast iron, non-ferrous metals, plastics and non-metals.

OPTIONS:

Intermediate decimal & metric sizes (priced as indicated in extended table below).
Cutting diameter reduced for small steps or pilot.
Radius end or end chamfer other than 45°.
End cutting.
Rose grind (twice normal back taper).
Semi-finished type reamers in stock (see page 73).
Closer tolerance.
For +.0002" add \$1.00 per tool.
For +.0001" add \$3.00 per tool.

TOOL DIAMETER		MORSE TAPER	NUMBER OF FLUTES	LENGTH		TYPE 2402 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	1	4	1 1/2	6	240208	\$41.90	0.2381 - 0.2530	\$75.80	\$58.85	\$53.20	\$50.50	\$47.65	\$45.35
9/32	.2812	1	4	1 1/2	6	240209	42.70	0.2531 - 0.2840	76.65	59.65	54.00	51.25	48.40	46.00
5/16	.3125	1	4	1 1/2	6	240210	42.70	0.2841 - 0.3150	76.65	59.65	54.00	51.25	48.40	46.00
11/32	.3438	1	4	1 1/2	6	240211	44.30	0.3151 - 0.3470	78.25	61.25	55.50	52.80	49.95	47.70
3/8	.3750	1	4	1 3/4	7	240212	40.65	0.3471 - 0.3780	71.80	56.20	50.90	48.50	45.80	43.70
13/32	.4062	1	4	1 3/4	7	240213	46.50	0.3781 - 0.4090	80.40	63.40	57.65	55.05	52.10	49.80
7/16	.4375	1	4	1 3/4	7	240214	49.45	0.4091 - 0.4410	83.40	66.40	60.70	58.00	55.10	52.75
15/32	.4688	1	4	1 3/4	7	240215	50.75	0.4411 - 0.4720	84.75	67.70	62.00	59.30	56.40	54.10
1/2	.5000	1	6	2	8	240216	59.80	0.4721 - 0.5030	97.15	78.40	72.20	69.25	66.00	63.50
17/32	.5312	1	6	2	8	240217	64.60	0.5031 - 0.5340	101.95	83.15	76.90	74.00	70.75	68.15
9/16	.5625	1	6	2	8	240218	64.60	0.5341 - 0.5660	101.95	83.15	76.90	74.00	70.75	68.15
19/32	.5938	1	6	2	8	240219	67.65	0.5661 - 0.5970	105.05	86.30	80.05	77.10	73.80	71.35
5/8	.6250	2	6	2 1/4	9	240220	67.65	0.5971 - 0.6280	105.05	86.30	80.05	77.10	73.80	71.35
21/32	.6562	2	6	2 1/4	9	240221	68.85	0.6281 - 0.6590	106.20	87.55	81.30	78.30	75.05	72.50
11/16	.6875	2	6	2 1/4	9	240222	68.85	0.6591 - 0.6910	106.20	87.55	81.30	78.30	75.05	72.50
23/32	.7188	2	6	2 1/4	9	240223	72.00	0.6911 - 0.7220	109.40	90.60	84.35	81.45	78.25	75.65
3/4	.7500	2	6	2 1/2	9 1/2	240224	72.00	0.7221 - 0.7530	109.40	90.60	84.35	81.45	78.25	75.65
25/32	.7812	2	6	2 1/2	9 1/2	240225	74.25	0.7531 - 0.7840	111.60	92.85	86.65	83.70	80.40	77.90
13/16	.8125	2	6	2 1/2	9 1/2	240226	74.25	0.7841 - 0.8160	111.60	92.85	86.65	83.70	80.40	77.90
27/32	.8438	2	6	2 1/2	9 1/2	240227	77.45	0.8161 - 0.8470	114.80	96.05	89.85	86.85	83.70	81.05
7/8	.8750	2	6	2 5/8	10	240228	80.40	0.8471 - 0.8780	119.10	99.75	93.25	90.05	86.80	84.15
29/32	.9062	2	6	2 5/8	10	240229	94.30	0.8781 - 0.9090	133.00	113.55	107.10	103.95	100.70	98.05
15/16	.9375	3	8	2 5/8	10	240230	94.30	0.9091 - 0.9410	133.00	113.55	107.10	103.95	100.70	98.05
31/32	.9688	3	8	2 5/8	10	240231	98.30	0.9411 - 0.9720	137.00	117.55	111.00	107.95	104.65	102.00
1	1.0000	3	8	2 3/4	10 1/2	240232	98.30	0.9721 - 1.0030	137.00	117.55	111.00	107.95	104.65	102.00
1 1/16	1.0625	3	8	2 3/4	10 1/2	240234	134.90	1.0031 - 1.0660	172.10	153.50	147.30	144.30	141.05	138.55
1 1/8	1.1250	3	8	2 7/8	11	240236	143.75	1.0661 - 1.1280	180.90	162.20	156.05	153.00	149.90	147.40
1 1/4	1.1875	3	8	2 7/8	11	240238	152.25	1.1281 - 1.1905	189.50	170.75	164.60	161.50	158.35	155.90
1 1/4	1.2500	4	8	3	11 1/2	240240	169.20	1.1906 - 1.2530	206.35	187.70	181.50	178.45	175.35	172.80
1 5/16	1.3125	4	8	3	11 1/2	240242	182.40	1.2531 - 1.3155	219.55	200.95	194.70	191.75	188.55	186.05
1 3/8	1.3750	4	8	3 1/4	12	240244	189.75	1.3156 - 1.3780	226.95	208.30	202.10	199.15	195.90	193.50
1 7/16	1.4375	4	8	3 1/4	12	240246	193.70	1.3781 - 1.4405	230.90	212.35	206.00	203.10	199.80	197.35
1 1/2	1.5000	4	8	3 1/2	12 1/2	240248	203.35	1.4406 - 1.5030	240.55	222.00	215.70	212.75	209.50	207.00
1 5/8	1.5625	4	8	3 1/2	12 1/2	240250	219.50	1.5031 - 1.5660	256.65	238.10	231.80	228.85	225.65	223.15
1 3/4	1.6250	4	8	3 3/4	13	240252	227.05	1.5661 - 1.6280	264.30	245.70	239.40	236.45	233.30	230.75
1 15/16	1.6875	4	8	3 3/4	13	240254	255.35	1.6281 - 1.6910	292.55	273.90	267.75	264.65	261.60	259.10
1 3/4	1.7500	4	10	4	13 1/2	240256	255.35	1.6911 - 1.7530	292.55	273.90	267.75	264.65	261.60	259.10
1 13/16	1.8125	4	10	4	13 1/2	240258	255.35	1.7531 - 1.8160	292.55	273.90	267.75	264.65	261.60	259.10
1 7/8	1.8750	4	10	4 1/4	14	240260	267.60	1.8161 - 1.8780	304.70	286.10	279.85	276.85	273.75	271.20
1 15/16	1.9375	4	10	4 1/4	14	240262	267.60	1.8781 - 1.9410	304.70	286.10	279.85	276.85	273.75	271.20
2	2.0000	4	12	4 1/4	14	240264	267.60	1.9411 - 2.0030	304.70	286.10	279.85	276.85	273.75	271.20

*Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTES & TAPER SHANK

TYPE 2402 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2402 METRIC EDP NO.	METRIC PRICE	DIMENSIONS					SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
				MORSE TAPER	NO. OF FLUTES	LENGTH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
mm	INCH	FLT	CAR- BIDE			OVER- ALL										
6.0	.2362	2402060	\$53.20	1	4	1 ½	½	6	6.000 - 6.426	\$78.80	\$61.80	\$56.15	\$53.30	\$50.50	\$48.05	\$44.80
6.5	.2559	2402065	54.00	1	4	1 ½	½	6	6.427 - 7.214	79.50	62.60	56.90	54.10	51.25	48.85	45.65
7.0	.2756	2402070	54.00	1	4	1 ½	½	6	-	-	-	-	-	-	-	-
7.5	.2953	2402075	54.00	1	4	1 ½	½	6	7.215 - 8.001	79.50	62.60	56.90	54.10	51.25	48.85	45.65
8.0	.3150	2402080	54.00	1	4	1 ½	½	6	-	-	-	-	-	-	-	-
8.5	.3346	2402085	55.50	1	4	1 ½	⅝	6	8.002 - 8.814	81.05	64.10	58.50	55.60	52.80	50.50	47.15
9.0	.3543	2402090	50.90	1	4	1 ¾	⅝	7	8.815 - 9.601	74.40	58.85	53.70	51.10	48.50	46.40	43.30
9.5	.3740	2402095	50.90	1	4	1 ¾	⅝	7	-	-	-	-	-	-	-	-
10.0	.3937	2402100	57.65	1	4	1 ¾	⅝	7	9.602 - 10.389	83.20	66.25	60.65	57.85	55.05	52.65	49.40
10.5	.4134	2402105	60.70	1	4	1 ¾	⅝	7	10.390 - 11.201	86.25	69.35	63.60	60.85	58.00	55.55	52.40
11.0	.4331	2402110	60.70	1	4	1 ¾	⅝	7	-	-	-	-	-	-	-	-
11.5	.4528	2402115	62.00	1	4	1 ¾	⅝	7	11.202 - 11.989	87.55	70.70	64.90	62.20	59.30	56.95	53.75
12.0	.4724	2402120	72.20	1	6	2	⅝	8	11.990 - 12.776	100.20	81.70	75.40	72.30	69.25	66.60	62.95
12.5	.4921	2402125	72.20	1	6	2	⅝	8	-	-	-	-	-	-	-	-
13.0	.5118	2402130	76.90	1	6	2	⅝	8	12.777 - 13.564	105.05	86.40	80.15	77.10	74.00	71.35	67.70
13.5	.5315	2402135	76.90	1	6	2	⅝	8	-	-	-	-	-	-	-	-
14.0	.5512	2402140	76.90	1	6	2	⅝	8	13.565 - 14.376	105.05	86.40	80.15	77.10	74.00	71.35	67.70
14.5	.5709	2402145	80.05	1	6	2	⅝	8	14.377 - 15.164	108.15	89.50	83.20	80.25	77.10	74.45	70.85
15.0	.5906	2402150	80.05	1	6	2	⅝	8	-	-	-	-	-	-	-	-
15.5	.6102	2402155	80.05	2	6	2 ¼	⅝	9	15.165 - 15.951	108.15	89.50	83.20	80.25	77.10	74.45	70.85
16.0	.6299	2402160	81.30	2	6	2 ¼	⅝	9	15.952 - 16.739	109.40	90.65	84.50	81.45	78.30	75.65	72.15
16.5	.6496	2402165	81.30	2	6	2 ¼	⅝	9	-	-	-	-	-	-	-	-
17.0	.6693	2402170	81.30	2	6	2 ¼	⅝	9	16.740 - 17.551	109.40	90.65	84.50	81.45	78.30	75.65	72.15
17.5	.6890	2402175	81.30	2	6	2 ¼	⅝	9	-	-	-	-	-	-	-	-
18.0	.7087	2402180	84.35	2	6	2 ½	⅝	9	17.552 - 18.339	112.55	93.85	87.65	84.55	81.45	78.85	75.30
18.5	.7283	2402185	84.35	2	6	2 ½	¾	9 ½	18.340 - 19.126	112.55	93.85	87.65	84.55	81.45	78.85	75.30
19.0	.7480	2402190	84.35	2	6	2 ½	¾	9 ½	-	-	-	-	-	-	-	-
19.5	.7677	2402195	86.65	2	6	2 ½	¾	9 ½	19.127 - 19.914	114.70	96.05	89.85	86.80	83.70	81.00	77.45
20.0	.7874	2402200	86.65	2	6	2 ½	¾	9 ½	19.915 - 20.726	114.70	96.05	89.85	86.80	83.70	81.00	77.45
20.5	.8071	2402205	86.65	2	6	2 ½	¾	9 ½	-	-	-	-	-	-	-	-
21.0	.8268	2402210	89.85	2	6	2 ½	¾	9 ½	20.727 - 21.514	118.00	99.35	93.00	89.95	86.85	84.20	80.70
21.5	.8465	2402215	89.85	2	6	2 ½	¾	9 ½	-	-	-	-	-	-	-	-
22.0	.8661	2402220	89.85	2	6	2 ⅝	¾	10	21.515 - 22.301	118.00	99.35	93.00	89.95	86.85	84.20	80.70
22.5	.8858	2402225	107.10	2	6	2 ⅝	¾	10	22.302 - 23.089	136.30	116.95	110.45	107.20	103.95	101.25	97.60
23.0	.9055	2402230	107.10	2	6	2 ⅝	¾	10	-	-	-	-	-	-	-	-
23.5	.9252	2402235	107.10	3	8	2 ⅝	¾	10	23.090 - 23.901	136.30	116.95	110.45	107.20	103.95	101.25	97.60
24.0	.9449	2402240	111.00	3	8	2 ⅝	¾	10	23.902 - 24.689	140.30	120.95	114.35	111.20	107.95	105.25	101.50
24.5	.9646	2402245	111.00	3	8	2 ⅝	¾	10	-	-	-	-	-	-	-	-
25.0	.9843	2402250	111.00	3	8	2 ¾	¾	10 ½	24.690 - 25.476	140.30	120.95	114.35	111.20	107.95	105.25	101.50
25.5	1.0039	2402255	147.30	3	8	2 ¾	¾	10 ½	25.477 - 27.076	175.30	156.65	150.50	147.45	144.30	141.75	138.20
26.0	1.0236	2402260	147.30	3	8	2 ¾	¾	10 ½	-	-	-	-	-	-	-	-
27.0	1.0630	2402270	147.30	3	8	2 ¾	¾	10 ½	-	-	-	-	-	-	-	-
28.0	1.1024	2402280	156.05	3	8	2 ⅞	⅞	11	27.077 - 28.651	184.00	165.40	159.20	156.15	153.00	150.50	146.90
29.0	1.1417	2402290	164.60	3	8	2 ⅞	⅞	11	28.652 - 30.239	192.50	173.95	167.80	164.70	161.50	159.05	155.40
30.0	1.1811	2402300	164.60	3	8	2 ⅞	⅞	11	-	-	-	-	-	-	-	-
31.0	1.2205	2402310	181.50	4	8	3	⅞	11 ½	30.240 - 31.826	209.45	190.95	184.70	181.60	178.45	175.90	172.35
32.0	1.2598	2402320	194.70	4	8	3	⅞	11 ½	31.827 - 33.414	222.65	204.15	197.85	194.85	191.75	189.10	185.60
33.0	1.2992	2402330	194.70	4	8	3	⅞	11 ½	-	-	-	-	-	-	-	-
34.0	1.3386	2402340	202.10	4	8	3 ¼	⅞	12	33.415 - 35.001	230.05	211.50	205.30	202.25	199.15	196.55	193.00
35.0	1.3780	2402350	202.10	4	8	3 ¼	⅞	12	-	-	-	-	-	-	-	-
36.0	1.4173	2402360	206.00	4	8	3 ¼	⅞	12	35.002 - 36.589	234.05	215.45	209.25	206.25	203.10	200.50	196.90
37.0	1.4567	2402370	215.70	4	8	3 ½	⅞	12 ½	36.590 - 38.176	243.70	225.15	218.85	215.90	212.75	210.15	206.65
38.0	1.4961	2402380	215.70	4	8	3 ½	⅞	12 ½	-	-	-	-	-	-	-	-
39.0	1.5354	2402390	231.80	4	8	3 ½	⅞	12 ½	38.177 - 39.776	259.80	241.25	235.00	232.00	228.85	226.20	222.65
40.0	1.5748	2402400	239.40	4	8	3 ¾	⅞	13	39.777 - 41.351	267.40	248.85	242.60	239.55	236.45	233.85	230.25
41.0	1.6142	2402410	239.40	4	8	3 ¾	⅞	13	-	-	-	-	-	-	-	-

Modified tool diameters are available up to 50mm - contact us for price.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE - STRAIGHT SHANK



TYPE 2450 - FINISHED FRACTIONAL SIZES

Straight shank and straight polished flutes.
Flute long carbide brazed to one piece hardened alloy steel bodies.
Cutting diameter tolerance plus .0003" minus .0000".

USE:

For all general reaming - especially designed with flute long carbide for deep hole reaming to precision tolerances and for long production runs.

OPTIONS:

Intermediate decimal sizes (priced as indicated in extended table below).
Cutting diameter reduced for small steps or pilot.
Radius end or end chamfer other than 45°.
End cutting.
Rose grind (twice normal back taper).
Short shank or undersized shank diameter.
Flat on shank or tapered shank.
Semi-finished type reamers in stock (see page 73).
Closer tolerance.
For +.0002" add \$1.00 per tool.
For +.0001" add \$3.00 per tool.

TOOL DIAMETER		SHANK DIAM.	NO. OF FLUTES	LENGTH		TYPE 2450 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	1/64	4	1 1/2	6	245006	\$43.50	0.1770 - 0.2040	\$78.40	\$60.90	\$55.20	\$52.35	\$49.30	\$46.95
7/32	.2188	1/64	4	1 1/2	6	245007	43.50	0.2041 - 0.2210	78.40	60.90	55.20	52.35	49.30	46.95
15/64	.2344	7/32	4	1 1/2	6	24502344	43.50	0.2211 - 0.2380	78.40	60.90	55.20	52.35	49.30	46.95
1/4	.2500	1/64	4	1 1/2	6	245008	43.50	0.2381 - 0.2530	78.40	60.90	55.20	52.35	49.30	46.95
9/32	.2812	1/64	4	1 1/2	6	245009	44.50	0.2531 - 0.2840	79.35	61.85	56.05	53.25	50.20	47.90
5/16	.3125	9/32	4	1 1/2	6	245010	44.50	0.2841 - 0.3150	79.35	61.85	56.05	53.25	50.20	47.90
11/32	.3438	9/32	4	1 1/2	6	245011	46.05	0.3151 - 0.3470	80.95	63.55	57.60	54.90	51.85	49.50
3/8	.3750	5/16	4	1 3/4	7	245012	46.05	0.3471 - 0.3780	80.95	63.55	57.60	54.90	51.85	49.50
13/32	.4062	5/16	4	1 3/4	7	245013	48.40	0.3781 - 0.4090	83.20	65.85	59.95	57.20	54.15	51.80
7/16	.4375	3/8	4	1 3/4	7	245014	52.35	0.4091 - 0.4410	87.20	69.70	63.85	61.15	58.10	55.75
15/32	.4688	3/8	4	1 3/4	7	245015	56.50	0.4411 - 0.4720	91.40	74.00	68.05	65.25	62.30	59.95
1/2	.5000	7/16	6	2	8	245016	60.50	0.4721 - 0.5030	97.90	79.20	73.00	69.95	66.80	64.15
17/32	.5312	7/16	6	2	8	245017	62.25	0.5031 - 0.5340	99.65	80.90	74.65	71.60	68.40	65.90
9/16	.5625	7/16	6	2	8	245018	62.25	0.5341 - 0.5660	99.65	80.90	74.65	71.60	68.40	65.90
19/32	.5938	7/16	6	2	8	245019	64.70	0.5661 - 0.5970	102.05	83.25	77.10	74.15	70.85	68.35
5/8	.6250	9/16	6	2	9	245020	64.70	0.5971 - 0.6280	102.05	83.25	77.10	74.15	70.85	68.35
21/32	.6562	9/16	6	2	9	245021	65.85	0.6281 - 0.6590	103.20	84.50	78.25	75.30	72.00	69.50
11/16	.6875	9/16	6	2	9	245022	65.85	0.6591 - 0.6910	103.20	84.50	78.25	75.30	72.00	69.50
23/32	.7188	9/16	6	2	9	245023	68.85	0.6911 - 0.7220	106.20	87.55	81.30	78.30	75.05	72.50
3/4	.7500	5/8	6	2	9 1/2	245024	68.85	0.7221 - 0.7530	106.20	87.55	81.30	78.30	75.05	72.50
25/32	.7812	5/8	6	2	9 1/2	245025	71.25	0.7531 - 0.7840	108.60	89.90	83.70	80.70	77.45	74.95
13/16	.8125	5/8	6	2	9 1/2	245026	71.25	0.7841 - 0.8160	108.60	89.90	83.70	80.70	77.45	74.95
27/32	.8438	5/8	6	2	9 1/2	245027	74.15	0.8161 - 0.8470	111.50	92.70	86.45	83.45	80.30	77.70
7/8	.8750	3/4	6	2 1/4	10	245028	76.90	0.8471 - 0.8780	115.65	96.30	89.75	86.60	83.25	80.70
29/32	.9062	3/4	6	2 1/4	10	245029	89.50	0.8781 - 0.9090	128.25	108.85	102.35	99.25	95.95	93.30
15/16	.9375	3/4	8	2 1/4	10	245030	89.50	0.9091 - 0.9410	128.25	108.85	102.35	99.25	95.95	93.30
31/32	.9688	3/4	8	2 1/4	10	245031	93.75	0.9411 - 0.9720	132.55	113.15	106.65	103.55	100.20	97.60
1	1.0000	7/8	8	2 1/4	10 1/2	245032	93.75	0.9721 - 1.0030	132.55	113.15	106.65	103.55	100.20	97.60
1 1/16	1.0625	7/8	8	2 1/4	10 1/2	245034	97.05	1.0031 - 1.0660	134.25	115.55	109.35	106.35	103.20	100.70
1 1/8	1.1250	7/8	8	2 1/4	11	245036	105.00	1.0661 - 1.1280	142.15	123.60	117.30	114.35	111.10	108.60
1 3/16	1.1875	1	8	2 1/4	11	245038	109.85	1.1281 - 1.1905	147.00	128.40	122.20	119.20	116.00	113.50
1 1/4	1.2500	1	8	2 1/2	11 1/2	245040	128.25	1.1906 - 1.2530	165.40	146.85	140.55	137.60	134.40	131.85
1 5/16	1.3125	1	8	2 1/2	11 1/2	245042	128.25	1.2531 - 1.3155	165.40	146.85	140.55	137.60	134.40	131.85
1 3/8	1.3750	1	8	2 1/2	12	245044	130.15	1.3156 - 1.3780	167.30	148.70	142.40	139.50	136.30	133.75
1 7/16	1.4375	1 1/4	8	2 1/2	12	245046	143.80	1.3781 - 1.4405	181.00	162.25	156.10	153.15	149.95	147.45
1 1/2	1.5000	1 1/4	8	2 1/2	12 1/2	245048	172.60	1.4406 - 1.5030	209.75	191.10	184.95	181.95	178.75	176.30
1 9/16	1.5625	1 1/4	8	2 1/2	12 1/2	245050	227.85	1.5031 - 1.5660	265.00	246.35	240.15	237.15	234.00	231.50
1 5/8	1.6250	1 1/4	8	2 3/4	13	245052	235.60	1.5661 - 1.6280	272.80	254.05	247.90	245.00	241.75	239.25
1 11/16	1.6875	1 1/4	8	2 3/4	13	245054	258.65	1.6281 - 1.6910	295.90	277.30	271.10	268.05	264.90	262.40
1 3/4	1.7500	1 1/4	10	3	13 1/2	245056	258.65	1.6911 - 1.7530	295.90	277.30	271.10	268.05	264.90	262.40
1 13/16	1.8125	1 1/2	10	3	13 1/2	245058	264.65	1.7531 - 1.8160	301.95	283.35	277.00	274.10	270.85	268.40
1 7/8	1.8750	1 1/2	10	3 1/4	14	245060	277.60	1.8161 - 1.8780	314.75	296.10	289.95	286.95	283.70	281.25
1 15/16	1.9375	1 1/2	10	3 1/4	14	245062	294.35	1.8781 - 1.9410	331.45	312.80	306.60	303.65	300.50	297.95
2	2.0000	1 1/2	12	3 1/4	14	245064	294.35	1.9411 - 2.0030	331.45	312.80	306.60	303.65	300.50	297.95

*Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE & STRAIGHT SHANK

TYPE 2450 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2450 METRIC EDP NO.	METRIC PRICE	DIMENSIONS				SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
mm	INCH			SHANK DIAM.	NO. OF FLUTES	LENGTH			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
4.5	.1772	2450045	\$55.20	1 ¹ / ₆₄	4	1 1 ¹ / ₂	6	4.494-5.182	\$81.40	\$63.95	58.10	\$55.25	\$52.35	\$49.90	\$46.55
5.0	.1969	2450050	55.20	1 ¹ / ₆₄	4	1 1 ¹ / ₂	6	-	-	-	-	-	-	-	-
5.5	.2165	2450055	55.20	1 ³ / ₆₄	4	1 1 ¹ / ₂	6	5.183-5.613	81.40	63.95	58.10	55.25	52.35	49.90	46.55
6.0	.2362	2450060	55.20	7 ¹ / ₃₂	4	1 1 ¹ / ₂	6	5.614-6.045	81.40	63.95	58.10	55.25	52.35	49.90	46.55
6.3	.2480	2450063	55.20	1 ⁵ / ₆₄	4	1 1 ¹ / ₂	6	6.046-6.426	81.40	63.95	58.10	55.25	52.35	49.90	46.55
6.5	.2559	2450065	56.05	1 ⁵ / ₆₄	4	1 1 ¹ / ₂	6	6.427-7.214	82.20	64.85	59.00	56.15	53.25	50.75	47.50
7.0	.2756	2450070	56.05	1 ⁵ / ₆₄	4	1 1 ¹ / ₂	6	-	-	-	-	-	-	-	-
7.5	.2953	2450075	56.05	9 ¹ / ₃₂	4	1 1 ¹ / ₂	6	7.215-8.001	82.20	64.85	59.00	56.15	53.25	50.75	47.50
8.0	.3150	2450080	56.05	9 ¹ / ₃₂	4	1 1 ¹ / ₂	6	-	-	-	-	-	-	-	-
8.5	.3346	2450085	57.60	9 ¹ / ₃₂	4	1 1 ¹ / ₂	6	8.002-8.814	83.90	66.55	60.65	57.80	54.90	52.45	49.10
9.0	.3543	2450090	57.60	5 ¹ / ₁₆	4	1 3 ¹ / ₄	7	8.815-9.601	83.90	66.55	60.65	57.80	54.90	52.45	49.10
9.5	.3740	2450095	57.60	5 ¹ / ₁₆	4	1 3 ¹ / ₄	7	-	-	-	-	-	-	-	-
10.0	.3937	2450100	59.95	5 ¹ / ₁₆	4	1 3 ¹ / ₄	7	9.602-10.389	86.20	68.80	62.90	60.10	57.20	54.75	51.35
10.5	.4134	2450105	63.85	3 ¹ / ₈	4	1 3 ¹ / ₄	7	10.390-11.201	90.20	72.65	66.85	64.00	61.15	58.65	55.30
11.0	.4331	2450110	63.85	3 ¹ / ₈	4	1 3 ¹ / ₄	7	-	-	-	-	-	-	-	-
11.5	.4528	2450115	68.05	3 ¹ / ₈	4	1 3 ¹ / ₄	7	11.202-11.989	94.35	76.90	71.10	68.25	65.25	62.85	59.50
12.0	.4724	2450120	73.00	7 ¹ / ₁₆	6	2	8	11.990-12.776	101.05	82.45	76.15	73.10	69.95	67.35	63.75
12.5	.4921	2450125	73.00	7 ¹ / ₁₆	6	2	8	-	-	-	-	-	-	-	-
13.0	.5118	2450130	74.65	7 ¹ / ₁₆	6	2	8	12.777-13.564	102.80	84.10	77.85	74.75	71.60	69.00	65.45
13.5	.5315	2450135	74.65	7 ¹ / ₁₆	6	2	8	-	-	-	-	-	-	-	-
14.0	.5512	2450140	74.65	7 ¹ / ₁₆	6	2	8	13.565-14.376	102.80	84.10	77.85	74.75	71.60	69.00	65.45
14.5	.5709	2450145	77.10	7 ¹ / ₁₆	6	2	8	14.377-15.164	105.20	86.50	80.30	77.20	74.15	71.45	67.90
15.0	.5906	2450150	77.10	7 ¹ / ₁₆	6	2	8	-	-	-	-	-	-	-	-
15.5	.6102	2450155	77.10	9 ¹ / ₁₆	6	2	9	15.165-15.951	105.20	86.50	80.30	77.20	74.15	71.45	67.90
16.0	.6299	2450160	78.25	9 ¹ / ₁₆	6	2	9	15.952-16.739	106.25	87.70	81.45	78.35	75.30	72.60	69.00
16.5	.6496	2450165	78.25	9 ¹ / ₁₆	6	2	9	-	-	-	-	-	-	-	-
17.0	.6693	2450170	78.25	9 ¹ / ₁₆	6	2	9	16.740-17.551	106.25	87.70	81.45	78.35	75.30	72.60	69.00
17.5	.6890	2450175	78.25	9 ¹ / ₁₆	6	2	9	-	-	-	-	-	-	-	-
18.0	.7087	2450180	81.30	9 ¹ / ₁₆	6	2	9	17.552-18.339	109.40	90.65	84.50	81.45	78.30	75.65	72.15
18.5	.7283	2450185	81.30	5 ¹ / ₈	6	2	9 1 ¹ / ₂	18.340-19.126	109.40	90.65	84.50	81.45	78.30	75.65	72.15
19.0	.7480	2450190	81.30	5 ¹ / ₈	6	2	9 1 ¹ / ₂	-	-	-	-	-	-	-	-
19.5	.7677	2450195	83.70	5 ¹ / ₈	6	2	9 1 ¹ / ₂	19.127-19.914	111.75	93.20	86.85	83.80	80.70	78.05	74.45
20.0	.7874	2450200	83.70	5 ¹ / ₈	6	2	9 1 ¹ / ₂	19.915-20.726	111.75	93.20	86.85	83.80	80.70	78.05	74.45
20.5	.8071	2450205	83.70	5 ¹ / ₈	6	2	9 1 ¹ / ₂	-	-	-	-	-	-	-	-
21.0	.8268	2450210	86.45	5 ¹ / ₈	6	2	9 1 ¹ / ₂	20.727-21.514	114.60	95.95	89.70	86.65	83.45	80.90	77.25
21.5	.8465	2450215	86.45	5 ¹ / ₈	6	2	9 1 ¹ / ₂	-	-	-	-	-	-	-	-
22.0	.8661	2450220	86.45	3 ¹ / ₄	6	2 1 ¹ / ₄	10	21.515-22.301	114.60	95.95	89.70	86.65	83.45	80.90	77.25
22.5	.8858	2450225	102.35	3 ¹ / ₄	6	2 1 ¹ / ₄	10	22.302-23.089	131.55	112.20	105.70	102.45	99.25	96.50	92.75
23.0	.9055	2450230	102.35	3 ¹ / ₄	6	2 1 ¹ / ₄	10	-	-	-	-	-	-	-	-
23.5	.9252	2450235	102.35	3 ¹ / ₄	8	2 1 ¹ / ₄	10	23.090-23.901	131.55	112.20	105.70	102.45	99.25	96.50	92.75
24.0	.9449	2450240	106.65	3 ¹ / ₄	8	2 1 ¹ / ₄	10	23.902-24.689	135.75	116.50	109.90	106.75	103.55	100.85	97.15
24.5	.9646	2450245	106.65	3 ¹ / ₄	8	2 1 ¹ / ₄	10	-	-	-	-	-	-	-	-
25.0	.9843	2450250	106.65	7 ¹ / ₈	8	2 1 ¹ / ₄	10 1 ¹ / ₂	24.690-25.476	135.75	116.50	109.90	106.75	103.55	100.85	97.15
25.5	1.0039	2450255	109.35	7 ¹ / ₈	8	2 1 ¹ / ₄	10 1 ¹ / ₂	25.477-27.076	137.30	118.80	112.55	109.50	106.35	103.80	100.20
26.0	1.0236	2450260	109.35	7 ¹ / ₈	8	2 1 ¹ / ₄	10 1 ¹ / ₂	-	-	-	-	-	-	-	-
27.0	1.0630	2450270	109.35	7 ¹ / ₈	8	2 1 ¹ / ₄	10 1 ¹ / ₂	-	-	-	-	-	-	-	-
28.0	1.1024	2450280	117.30	7 ¹ / ₈	8	2 1 ¹ / ₄	11	27.077-28.651	145.30	126.75	120.45	117.50	114.35	111.75	108.15
29.0	1.1417	2450290	122.20	1	8	2 1 ¹ / ₄	11	28.652-30.239	150.10	131.65	125.35	122.30	119.20	116.60	113.10
30.0	1.1811	2450300	122.20	1	8	2 1 ¹ / ₄	11	-	-	-	-	-	-	-	-
31.0	1.2205	2450310	140.55	1	8	2 1 ¹ / ₂	11 1 ¹ / ₂	30.240-31.826	168.60	150.00	143.80	140.80	137.60	134.95	131.45
32.0	1.2598	2450320	140.55	1	8	2 1 ¹ / ₂	11 1 ¹ / ₂	31.827-33.414	168.60	150.00	143.80	140.80	137.60	134.95	131.45
33.0	1.2992	2450330	140.55	1	8	2 1 ¹ / ₂	11 1 ¹ / ₂	-	-	-	-	-	-	-	-
34.0	1.3386	2450340	142.40	1	8	2 1 ¹ / ₂	12	33.415-35.001	170.50	151.90	145.65	142.65	139.50	136.95	133.40
35.0	1.3780	2450350	142.40	1	8	2 1 ¹ / ₂	12	-	-	-	-	-	-	-	-
36.0	1.4173	2450360	156.10	1 1 ¹ / ₄	8	2 1 ¹ / ₂	12	35.002-36.589	184.05	165.55	159.25	156.20	153.15	150.55	146.95
37.0	1.4567	2450370	184.95	1 1 ¹ / ₄	8	2 1 ¹ / ₂	12 1 ¹ / ₂	36.590-38.176	212.85	194.35	188.10	185.05	181.95	179.35	175.75
38.0	1.4961	2450380	184.95	1 1 ¹ / ₄	8	2 1 ¹ / ₂	12 1 ¹ / ₂	-	-	-	-	-	-	-	-

Modified tool diameters are available up to 50mm - contact us for price.



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - FLUTE LENGTH CARBIDE - TYPE 2450

NOTE: Dimension details and modifications listed on page 50.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.1770	24501770	\$55.20	.2070	24502070	\$55.20	.2370	24502370	\$55.20	.2670	24502670	\$56.05	.2970	24502970	\$56.05
.1775	24501775	55.20	.2075	24502075	55.20	.2375	24502375	55.20	.2675	24502675	56.05	.2975	24502975	56.05
.1780	24501780	55.20	.2080	24502080	55.20	.2380	24502380	55.20	.2680	24502680	56.05	.2980	24502980	56.05
.1785	24501785	55.20	.2085	24502085	55.20	.2385	24502385	55.20	.2685	24502685	56.05	.2985	24502985	56.05
.1790	24501790	55.20	.2090	24502090	55.20	.2390	24502390	55.20	.2690	24502690	56.05	.2990	24502990	56.05
.1795	24501795	55.20	.2095	24502095	55.20	.2395	24502395	55.20	.2695	24502695	56.05	.2995	24502995	56.05
.1800	24501800	55.20	.2100	24502100	55.20	.2400	24502400	55.20	.2700	24502700	56.05	.3000	24503000	56.05
.1805	24501805	55.20	.2105	24502105	55.20	.2405	24502405	55.20	.2705	24502705	56.05	.3005	24503005	56.05
.1810	24501810	55.20	.2110	24502110	55.20	.2410	24502410	55.20	.2710	24502710	56.05	.3010	24503010	56.05
.1815	24501815	55.20	.2115	24502115	55.20	.2415	24502415	55.20	.2715	24502715	56.05	.3015	24503015	56.05
.1820	24501820	55.20	.2120	24502120	55.20	.2420	24502420	55.20	.2720	24502720	56.05	.3020	24503020	56.05
.1825	24501825	55.20	.2125	24502125	55.20	.2425	24502425	55.20	.2725	24502725	56.05	.3025	24503025	56.05
.1830	24501830	55.20	.2130	24502130	55.20	.2430	24502430	55.20	.2730	24502730	56.05	.3030	24503030	56.05
.1835	24501835	55.20	.2135	24502135	55.20	.2435	24502435	55.20	.2735	24502735	56.05	.3035	24503035	56.05
.1840	24501840	55.20	.2140	24502140	55.20	.2440	24502440	55.20	.2740	24502740	56.05	.3040	24503040	56.05
.1845	24501845	55.20	.2145	24502145	55.20	.2445	24502445	55.20	.2745	24502745	56.05	.3045	24503045	56.05
.1850	2450047	55.20	.2150	24502150	55.20	.2450	24502450	55.20	.2750	24502750	56.05	.3050	24503050	56.05
.1855	24501855	55.20	.2155	24502155	55.20	.2455	24502455	55.20	.2755	24502755	56.05	.3055	24503055	56.05
.1860	24501860	55.20	.2160	24502160	55.20	.2460	24502460	55.20	.2760	24502760	56.05	.3060	24503060	56.05
.1865	24501865	55.20	.2165	2450055	55.20	.2465	24502465	55.20	.2765	24502765	56.05	.3065	24503065	56.05
.1870	24501870	55.20	.2170	24502170	55.20	.2470	24502470	55.20	.2770	24502770	56.05	.3070	24503070	56.05
.1875	245006	43.50	.2175	24502175	55.20	.2475	24502475	55.20	.2775	24502775	56.05	.3075	24503075	56.05
.1880	24501880	55.20	.2180	24502180	55.20	.2480	2450063	55.20	.2780	24502780	56.05	.3080	24503080	56.05
.1885	24501885	55.20	.2185	24502185	55.20	.2485	24502485	55.20	.2785	24502785	56.05	.3085	24503085	56.05
.1890	2450048	55.20	.2190	24502190	55.20	.2490	24502490	55.20	.2790	24502790	56.05	.3090	24503090	56.05
.1895	24501895	55.20	.2195	24502195	55.20	.2495	24502495	55.20	.2795	2450071	56.05	.3095	24503095	56.05
.1900	24501900	55.20	.2200	24502200	55.20	.2500	245008	43.50	.2800	24502800	56.05	.3100	24503100	56.05
.1905	24501905	55.20	.2205	2450056	55.20	.2505	24502505	55.20	.2805	24502805	56.05	.3105	24503105	56.05
.1910	24501910	55.20	.2210	24502210	55.20	.2510	24502510	55.20	.2810	24502810	56.05	.3110	2450079	56.05
.1915	24501915	55.20	.2215	24502215	55.20	.2515	24502515	55.20	.2815	24502815	56.05	.3115	24503115	56.05
.1920	24501920	55.20	.2220	24502220	55.20	.2520	2450064	55.20	.2820	24502820	56.05	.3120	24503120	56.05
.1925	24501925	55.20	.2225	24502225	55.20	.2525	24502525	55.20	.2825	24502825	56.05	.3125	245010	44.50
.1930	24501930	55.20	.2230	24502230	55.20	.2530	24502530	55.20	.2830	24502830	56.05	.3130	24503130	56.05
.1935	24501935	55.20	.2235	24502235	55.20	.2535	24502535	56.05	.2835	2450072	56.05	.3135	24503135	56.05
.1940	24501940	55.20	.2240	24502240	55.20	.2540	24502540	56.05	.2840	24502840	56.05	.3140	24503140	56.05
.1945	24501945	55.20	.2245	24502245	55.20	.2545	24502545	56.05	.2845	24502845	56.05	.3145	24503145	56.05
.1950	24501950	55.20	.2250	24502250	55.20	.2550	24502550	56.05	.2850	24502850	56.05	.3150	2450080	56.05
.1955	24501955	55.20	.2255	24502255	55.20	.2555	24502555	56.05	.2855	24502855	56.05	.3155	24503155	57.60
.1960	24501960	55.20	.2260	24502260	55.20	.2560	24502560	56.05	.2860	24502860	56.05	.3160	24503160	57.60
.1965	24501965	55.20	.2265	24502265	55.20	.2565	24502565	56.05	.2865	24502865	56.05	.3165	24503165	57.60
.1970	24501970	55.20	.2270	24502270	55.20	.2570	24502570	56.05	.2870	24502870	56.05	.3170	24503170	57.60
.1975	24501975	55.20	.2275	24502275	55.20	.2575	24502575	56.05	.2875	24502875	56.05	.3175	24503175	57.60
.1980	24501980	55.20	.2280	24502280	55.20	.2580	24502580	56.05	.2880	24502880	56.05	.3180	24503180	57.60
.1985	24501985	55.20	.2285	24502285	55.20	.2585	24502585	56.05	.2885	24502885	56.05	.3185	24503185	57.60
.1990	24501990	55.20	.2290	24502290	55.20	.2590	24502590	56.05	.2890	24502890	56.05	.3190	24503190	57.60
.1995	24501995	55.20	.2295	24502295	55.20	.2595	24502595	56.05	.2895	24502895	56.05	.3195	24503195	57.60
.2000	24502000	55.20	.2300	24502300	55.20	.2600	24502600	56.05	.2900	24502900	56.05	.3200	24503200	57.60
.2005	24502005	55.20	.2305	24502305	55.20	.2605	24502605	56.05	.2905	24502905	56.05	.3205	24503205	57.60
.2010	24502010	55.20	.2310	24502310	55.20	.2610	24502610	56.05	.2910	24502910	56.05	.3210	24503210	57.60
.2015	24502015	55.20	.2315	24502315	55.20	.2615	24502615	56.05	.2915	24502915	56.05	.3215	24503215	57.60
.2020	24502020	55.20	.2320	24502320	55.20	.2620	24502620	56.05	.2920	24502920	56.05	.3220	24503220	57.60
.2025	24502025	55.20	.2325	24502325	55.20	.2625	24502625	56.05	.2925	24502925	56.05	.3225	24503225	57.60
.2030	24502030	55.20	.2330	24502330	55.20	.2630	24502630	56.05	.2930	24502930	56.05	.3230	24503230	57.60
.2035	24502035	55.20	.2335	24502335	55.20	.2635	24502635	56.05	.2935	24502935	56.05	.3235	24503235	57.60
.2040	24502040	55.20	.2340	24502340	55.20	.2640	24502640	56.05	.2940	24502940	56.05	.3240	24503240	57.60
.2045	24502045	55.20	.2345	24502345	55.20	.2645	24502645	56.05	.2945	24502945	56.05	.3245	24503245	57.60
.2050	24502050	55.20	.2350	24502350	55.20	.2650	24502650	56.05	.2950	24502950	56.05	.3250	24503250	57.60
.2055	24502055	55.20	.2355	24502355	55.20	.2655	24502655	56.05	.2955	24502955	56.05	.3255	24503255	57.60
.2060	24502060	55.20	.2360	24502360	55.20	.2660	24502660	56.05	.2960	24502960	56.05	.3260	24503260	57.60
.2065	24502065	55.20	.2365	24502365	55.20	.2665	24502665	56.05	.2965	24502965	56.05	.3265	24503265	57.60



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - FLUTE LENGTH CARBIDE - TYPE 2450

NOTE: Dimension details and modifications listed on page 50.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.3270	24503270	\$57.60	.3570	24503570	\$57.60	.3870	24503870	\$59.95	.4170	24504170	\$63.85	.4470	24504470	\$68.15
.3275	24503275	57.60	.3575	24503575	57.60	.3875	24503875	59.95	.4175	24504175	63.85	.4475	24504475	68.15
.3280	24503280	57.60	.3580	24503580	57.60	.3880	24503880	59.95	.4180	24504180	63.85	.4480	24504480	68.15
.3285	24503285	57.60	.3585	24503585	57.60	.3885	24503885	59.95	.4185	24504185	63.85	.4485	24504485	68.15
.3290	24503290	57.60	.3590	24503590	57.60	.3890	24503890	59.95	.4190	24504190	63.85	.4490	24504490	68.15
.3295	24503295	57.60	.3595	24503595	57.60	.3895	24503895	59.95	.4195	24504195	63.85	.4495	24504495	68.15
.3300	24503300	57.60	.3600	24503600	57.60	.3900	24503900	59.95	.4200	24504200	63.85	.4500	24504500	68.15
.3305	24503305	57.60	.3605	24503605	57.60	.3905	24503905	59.95	.4205	24504205	63.85	.4505	24504505	68.15
.3310	24503310	57.60	.3610	24503610	57.60	.3910	24503910	59.95	.4210	24504210	63.85	.4510	24504510	68.15
.3315	24503315	57.60	.3615	24503615	57.60	.3915	24503915	59.95	.4215	24504215	63.85	.4515	24504515	68.15
.3320	24503320	57.60	.3620	24503620	57.60	.3920	24503920	59.95	.4220	24504220	63.85	.4520	24504520	68.15
.3325	24503325	57.60	.3625	24503625	57.60	.3925	24503925	59.95	.4225	24504225	63.85	.4525	24504525	68.15
.3330	24503330	57.60	.3630	24503630	57.60	.3930	24503930	59.95	.4230	24504230	63.85	.4530	24504530	68.15
.3335	24503335	57.60	.3635	24503635	57.60	.3935	24503935	59.95	.4235	24504235	63.85	.4535	24504535	68.15
.3340	24503340	57.60	.3640	24503640	57.60	.3940	24503940	59.95	.4240	24504240	63.85	.4540	24504540	68.15
.3345	24503345	57.60	.3645	24503645	57.60	.3945	24503945	59.95	.4245	24504245	63.85	.4545	24504545	68.15
.3350	24503350	57.60	.3650	24503650	57.60	.3950	24503950	59.95	.4250	24504250	63.85	.4550	24504550	68.15
.3355	24503355	57.60	.3655	24503655	57.60	.3955	24503955	59.95	.4255	24504255	63.85	.4555	24504555	68.15
.3360	24503360	57.60	.3660	24503660	57.60	.3960	24503960	59.95	.4260	24504260	63.85	.4560	24504560	68.15
.3365	24503365	57.60	.3665	24503665	57.60	.3965	24503965	59.95	.4265	24504265	63.85	.4565	24504565	68.15
.3370	24503370	57.60	.3670	24503670	57.60	.3970	24503970	59.95	.4270	24504270	63.85	.4570	24504570	68.15
.3375	24503375	57.60	.3675	24503675	57.60	.3975	24503975	59.95	.4275	24504275	63.85	.4575	24504575	68.15
.3380	24503380	57.60	.3680	24503680	57.60	.3980	24503980	59.95	.4280	24504280	63.85	.4580	24504580	68.15
.3385	24503385	57.60	.3685	24503685	57.60	.3985	24503985	59.95	.4285	24504285	63.85	.4585	24504585	68.15
.3390	24503390	57.60	.3690	24503690	57.60	.3990	24503990	59.95	.4290	24504290	63.85	.4590	24504590	68.15
.3395	24503395	57.60	.3695	24503695	57.60	.3995	24503995	59.95	.4295	24504295	63.85	.4595	24504595	68.15
.3400	24503400	57.60	.3700	24503700	57.60	.4000	24504000	59.95	.4300	24504300	63.85	.4600	24504600	68.15
.3405	24503405	57.60	.3705	24503705	57.60	.4005	24504005	59.95	.4305	24504305	63.85	.4605	24504605	68.15
.3410	24503410	57.60	.3710	24503710	57.60	.4010	24504010	59.95	.4310	24504310	63.85	.4610	24504610	68.15
.3415	24503415	57.60	.3715	24503715	57.60	.4015	24504015	59.95	.4315	24504315	63.85	.4615	24504615	68.15
.3420	24503420	57.60	.3720	24503720	57.60	.4020	24504020	59.95	.4320	24504320	63.85	.4620	24504620	68.15
.3425	2450087	57.60	.3725	24503725	57.60	.4025	24504025	59.95	.4325	24504325	63.85	.4625	24504625	68.15
.3430	24503430	57.60	.3730	24503730	57.60	.4030	24504030	59.95	.4330	24504330	63.85	.4630	24504630	68.15
.3435	24503435	57.60	.3735	24503735	57.60	.4035	24504035	59.95	.4335	24504335	63.85	.4635	24504635	68.15
.3440	24503440	57.60	.3740	2450095	57.60	.4040	24504040	59.95	.4340	24504340	63.85	.4640	24504640	68.15
.3445	24503445	57.60	.3745	24503745	57.60	.4045	24504045	59.95	.4345	24504345	63.85	.4645	24504645	68.15
.3450	24503450	57.60	.3750	245012	46.05	.4050	24504050	59.95	.4350	24504350	63.85	.4650	24504650	68.15
.3455	24503455	57.60	.3755	24503755	57.60	.4055	2450103	59.95	.4355	24504355	63.85	.4655	24504655	68.15
.3460	24503460	57.60	.3760	24503760	57.60	.4060	24504060	59.95	.4360	24504360	63.85	.4660	24504660	68.15
.3465	2450088	57.60	.3765	24503765	57.60	.4065	24504065	59.95	.4365	24504365	63.85	.4665	24504665	68.15
.3470	24503470	57.60	.3770	24503770	57.60	.4070	24504070	59.95	.4370	2450111	63.85	.4670	24504670	68.15
.3475	24503475	57.60	.3775	24503775	57.60	.4075	24504075	59.95	.4375	245014	52.35	.4675	24504675	68.15
.3480	24503480	57.60	.3780	2450096	57.60	.4080	24504080	59.95	.4380	24504380	63.85	.4680	24504680	68.15
.3485	24503485	57.60	.3785	24503785	59.95	.4085	24504085	59.95	.4385	24504385	63.85	.4685	2450119	68.15
.3490	24503490	57.60	.3790	24503790	59.95	.4090	24504090	59.95	.4390	24504390	63.85	.4690	24504690	68.15
.3495	24503495	57.60	.3795	24503795	59.95	.4095	24504095	63.85	.4395	24504395	63.85	.4695	24504695	68.15
.3500	24503500	57.60	.3800	24503800	59.95	.4100	24504100	63.85	.4400	24504400	63.85	.4700	24504700	68.15
.3505	24503505	57.60	.3805	24503805	59.95	.4105	24504105	63.85	.4405	24504405	63.85	.4705	24504705	68.15
.3510	24503510	57.60	.3810	24503810	59.95	.4110	24504110	63.85	.4410	24504410	63.85	.4710	24504710	68.15
.3515	24503515	57.60	.3815	24503815	59.95	.4115	24504115	63.85	.4415	24504415	68.15	.4715	24504715	68.15
.3520	24503520	57.60	.3820	24503820	59.95	.4120	24504120	63.85	.4420	24504420	68.15	.4720	24504720	68.15
.3525	24503525	57.60	.3825	24503825	59.95	.4125	24504125	63.85	.4425	24504425	68.15	.4725	24504725	73.05
.3530	24503530	57.60	.3830	24503830	59.95	.4130	24504130	63.85	.4430	24504430	68.15	.4730	24504730	73.05
.3535	24503535	57.60	.3835	24503835	59.95	.4135	24504135	63.85	.4435	24504435	68.15	.4735	24504735	73.05
.3540	24503540	57.60	.3840	24503840	59.95	.4140	24504140	63.85	.4440	24504440	68.15	.4740	24504740	73.05
.3545	24503545	57.60	.3845	24503845	59.95	.4145	24504145	63.85	.4445	24504445	68.15	.4745	24504745	73.05
.3550	24503550	57.60	.3850	24503850	59.95	.4150	24504150	63.85	.4450	24504450	68.15	.4750	24504750	73.05
.3555	24503555	57.60	.3855	24503855	59.95	.4155	24504155	63.85	.4455	24504455	68.15	.4755	24504755	73.05
.3560	24503560	57.60	.3860	24503860	59.95	.4160	24504160	63.85	.4460	24504460	68.15	.4760	24504760	73.05
.3565	24503565	57.60	.3865	24503865	59.95	.4165	24504165	63.85	.4465	24504465	68.15	.4765	24504765	73.05



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - FLUTE LENGTH CARBIDE - TYPE 2450

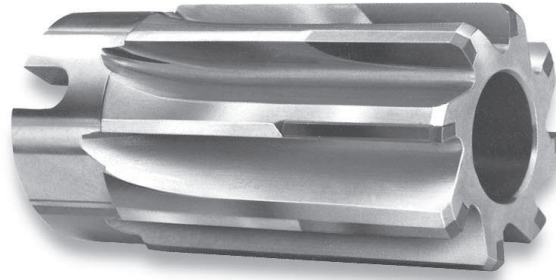
NOTE: Dimension details and modifications listed on page 50.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.4770	24504770	\$73.05	.5070	24505070	\$74.65	.5370	24505370	\$74.65	.5670	24505670	\$77.10	.5970	24505970	\$77.10
.4775	24504775	73.05	.5075	24505075	74.65	.5375	24505375	74.65	.5675	24505675	77.10	.5975	24505975	77.10
.4780	24504780	73.05	.5080	24505080	74.65	.5380	24505380	74.65	.5680	24505680	77.10	.5980	24505980	77.10
.4785	24504785	73.05	.5085	24505085	74.65	.5385	24505385	74.65	.5685	24505685	77.10	.5985	24505985	77.10
.4790	24504790	73.05	.5090	24505090	74.65	.5390	24505390	74.65	.5690	24505690	77.10	.5990	24505990	77.10
.4795	24504795	73.05	.5095	24505095	74.65	.5395	24505395	74.65	.5695	24505695	77.10	.5995	24505995	77.10
.4800	24504800	73.05	.5100	24505100	74.65	.5400	24505400	74.65	.5700	24505700	77.10	.6000	24506000	77.10
.4805	24504805	73.05	.5105	24505105	74.65	.5405	24505405	74.65	.5705	24505705	77.10	.6005	24506005	77.10
.4810	24504810	73.05	.5110	24505110	74.65	.5410	24505410	74.65	.5710	24505710	77.10	.6010	24506010	77.10
.4815	24504815	73.05	.5115	24505115	74.65	.5415	24505415	74.65	.5715	24505715	77.10	.6015	24506015	77.10
.4820	24504820	73.05	.5120	24505120	74.65	.5420	24505420	74.65	.5720	24505720	77.10	.6020	24506020	77.10
.4825	24504825	73.05	.5125	24505125	74.65	.5425	24505425	74.65	.5725	24505725	77.10	.6025	24506025	77.10
.4830	24504830	73.05	.5130	24505130	74.65	.5430	24505430	74.65	.5730	24505730	77.10	.6030	24506030	77.10
.4835	24504835	73.05	.5135	24505135	74.65	.5435	24505435	74.65	.5735	24505735	77.10	.6035	24506035	77.10
.4840	24504840	73.05	.5140	24505140	74.65	.5440	24505440	74.65	.5740	24505740	77.10	.6040	24506040	77.10
.4845	24504845	73.05	.5145	24505145	74.65	.5445	24505445	74.65	.5745	24505745	77.10	.6045	24506045	77.10
.4850	24504850	73.05	.5150	24505150	74.65	.5450	24505450	74.65	.5750	24505750	77.10	.6050	24506050	77.10
.4855	24504855	73.05	.5155	24505155	74.65	.5455	24505455	74.65	.5755	24505755	77.10	.6055	24506055	77.10
.4860	24504860	73.05	.5160	24505160	74.65	.5460	24505460	74.65	.5760	24505760	77.10	.6060	24506060	77.10
.4865	24504865	73.05	.5165	24505165	74.65	.5465	24505465	74.65	.5765	24505765	77.10	.6065	24506065	77.10
.4870	24504870	73.05	.5170	24505170	74.65	.5470	24505470	74.65	.5770	24505770	77.10	.6070	24506070	77.10
.4875	24504875	73.05	.5175	24505175	74.65	.5475	24505475	74.65	.5775	24505775	77.10	.6075	24506075	77.10
.4880	24504880	73.05	.5180	24505180	74.65	.5480	24505480	74.65	.5780	24505780	77.10	.6080	24506080	77.10
.4885	24504885	73.05	.5185	24505185	74.65	.5485	24505485	74.65	.5785	24505785	77.10	.6085	24506085	77.10
.4890	24504890	73.05	.5190	24505190	74.65	.5490	24505490	74.65	.5790	24505790	77.10	.6090	24506090	77.10
.4895	24504895	73.05	.5195	24505195	74.65	.5495	24505495	74.65	.5795	24505795	77.10	.6095	24506095	77.10
.4900	24504900	73.05	.5200	24505200	74.65	.5500	24505500	74.65	.5800	24505800	77.10	.6100	24506100	77.10
.4905	24504905	73.05	.5205	24505205	74.65	.5505	24505505	74.65	.5805	24505805	77.10	.6105	24506105	77.10
.4910	24504910	73.05	.5210	24505210	74.65	.5510	24505510	74.65	.5810	24505810	77.10	.6110	24506110	77.10
.4915	24504915	73.05	.5215	24505215	74.65	.5515	24505515	74.65	.5815	24505815	77.10	.6115	24506115	77.10
.4920	24504920	73.05	.5220	24505220	74.65	.5520	24505520	74.65	.5820	24505820	77.10	.6120	24506120	77.10
.4925	24504925	73.05	.5225	24505225	74.65	.5525	24505525	74.65	.5825	24505825	77.10	.6125	24506125	77.10
.4930	24504930	73.05	.5230	24505230	74.65	.5530	24505530	74.65	.5830	24505830	77.10	.6130	24506130	77.10
.4935	24504935	73.05	.5235	24505235	74.65	.5535	24505535	74.65	.5835	24505835	77.10	.6135	24506135	77.10
.4940	24504940	73.05	.5240	24505240	74.65	.5540	24505540	74.65	.5840	24505840	77.10	.6140	24506140	77.10
.4945	24504945	73.05	.5245	24505245	74.65	.5545	24505545	74.65	.5845	24505845	77.10	.6145	24506145	77.10
.4950	24504950	73.05	.5250	24505250	74.65	.5550	24505550	74.65	.5850	24505850	77.10	.6150	24506150	77.10
.4955	24504955	73.05	.5255	24505255	74.65	.5555	24505555	74.65	.5855	24505855	77.10	.6155	24506155	77.10
.4960	24504960	73.05	.5260	24505260	74.65	.5560	24505560	74.65	.5860	24505860	77.10	.6160	24506160	77.10
.4965	24504965	73.05	.5265	24505265	74.65	.5565	24505565	74.65	.5865	24505865	77.10	.6165	24506165	77.10
.4970	24504970	73.05	.5270	24505270	74.65	.5570	24505570	74.65	.5870	24505870	77.10	.6170	24506170	77.10
.4975	24504975	73.05	.5275	24505275	74.65	.5575	24505575	74.65	.5875	24505875	77.10	.6175	24506175	77.10
.4980	24504980	73.05	.5280	24505280	74.65	.5580	24505580	74.65	.5880	24505880	77.10	.6180	24506180	77.10
.4985	24504985	73.05	.5285	24505285	74.65	.5585	24505585	74.65	.5885	24505885	77.10	.6185	24506185	77.10
.4990	24504990	73.05	.5290	24505290	74.65	.5590	24505590	74.65	.5890	24505890	77.10	.6190	24506190	77.10
.4995	24504995	73.05	.5295	24505295	74.65	.5595	24505595	74.65	.5895	24505895	77.10	.6195	24506195	77.10
.5000	245016	60.50	.5300	24505300	74.65	.5600	24505600	74.65	.5900	24505900	77.10	.6200	24506200	77.10
.5005	24505005	73.05	.5305	24505305	74.65	.5605	24505605	74.65	.5905	24505905	77.10	.6205	24506205	77.10
.5010	24505010	73.05	.5310	24505310	74.65	.5610	24505610	74.65	.5910	24505910	77.10	.6210	24506210	77.10
.5015	24505015	73.05	.5315	2450135	74.65	.5615	24505615	74.65	.5915	24505915	77.10	.6215	24506215	77.10
.5020	24505020	73.05	.5320	24505320	74.65	.5620	24505620	74.65	.5920	24505920	77.10	.6220	2450158	77.10
.5025	24505025	73.05	.5325	24505325	74.65	.5625	245018	62.25	.5925	24505925	77.10	.6225	24506225	77.10
.5030	24505030	73.05	.5330	24505330	74.65	.5630	2450143	74.65	.5930	24505930	77.10	.6230	24506230	77.10
.5035	24505035	74.65	.5335	24505335	74.65	.5635	24505635	74.65	.5935	24505935	77.10	.6235	24506235	77.10
.5040	24505040	74.65	.5340	24505340	74.65	.5640	24505640	74.65	.5940	24505940	77.10	.6240	24506240	77.10
.5045	24505045	74.65	.5345	24505345	74.65	.5645	24505645	74.65	.5945	2450151	77.10	.6245	24506245	77.10
.5050	24505050	74.65	.5350	24505350	74.65	.5650	24505650	74.65	.5950	24505950	77.10	.6250	245020	64.70
.5055	24505055	74.65	.5355	24505355	74.65	.5655	24505655	74.65	.5955	24505955	77.10	.6255	24506255	77.10
.5060	24505060	74.65	.5360	24505360	74.65	.5660	24505660	74.65	.5960	24505960	77.10	.6260	2450159	77.10
.5065	24505065	74.65	.5365	24505365	74.65	.5665	24505665	77.10	.5965	24505965	77.10	.6265	24506265	77.10



SHELL REAMERS

CARBIDE TIPPED - STRAIGHT FLUTES



TYPE 2431 - FINISHED FRACTIONAL SIZES

Straight polished flutes.

Carbide tips brazed to hardened alloy steel bodies.

Arbor hole tapered 1/8" per foot: Drive slots.

Cutting diameter tolerance: thru 1" diameter: +.0001", +.0005".
over 1" diameter: +.0002", +.0006".

Shell reamers are used with an arbor which is tapered to fit the hole in the reamer. Drive slots in the reamer engage lugs on the arbor to supplement the rotational drive from the tapered arbor. The space between the reamer's drive end and the arbor collar permits easy removal of the shell reamer by prying.

OPTIONS:

Decimal sizes priced below.

Cut diam. reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Increased or decreased back taper.

TOOL DIAMETER		HOLE DIAM. LARGE END	FITS ARBOR NO.	LENGTH		NO. OF FLUTES	TYPE 2431 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/4	.7500	3/8	4	1 3/4	2 1/4	6	243124	\$173.00	0.7221 - 0.7530	\$244.75	\$208.85	\$196.80	\$191.05	\$184.95	\$180.15
25/32	.7812	3/8	4	1 3/4	2 1/4	6	243125	176.40	0.7531 - 0.7840	248.10	212.10	200.25	194.45	188.30	183.50
13/16	.8125	1/2	5	1 15/16	2 1/2	6	243126	176.40	0.7841 - 0.8160	248.10	212.10	200.25	194.45	188.30	183.50
7/8	.8750	1/2	5	1 15/16	2 1/2	6	243128	197.15	0.8161 - 0.8780	271.55	234.25	221.70	215.90	209.45	204.40
15/16	.9375	1/2	5	1 15/16	2 1/2	8	243130	197.15	0.8781 - 0.9410	271.55	234.25	221.70	215.90	209.45	204.40
1	1.0000	1/2	5	1 15/16	2 1/2	8	243132	200.70	0.9411 - 1.0030	275.10	237.80	225.40	219.45	213.00	208.00
1 1/16	1.0625	5/8	6	2 1/8	2 3/4	8	243134	207.75	1.0031 - 1.0660	282.10	244.85	232.25	226.40	220.05	214.95
1 1/8	1.1250	5/8	6	2 1/8	2 3/4	8	243136	211.20	1.0661 - 1.1280	285.55	248.35	235.80	229.95	223.50	218.55
1 3/16	1.1875	5/8	6	2 1/8	2 3/4	8	243138	214.80	1.1281 - 1.1905	289.05	251.90	239.40	233.50	227.05	222.10
1 1/4	1.2500	5/8	6	2 1/8	2 3/4	8	243140	228.85	1.1906 - 1.2530	303.20	265.95	253.50	247.50	241.20	236.10
1 5/16	1.3125	3/4	7	2 1/4	3	8	243142	232.25	1.2531 - 1.3155	306.65	269.45	257.00	251.05	244.75	239.65
1 3/8	1.3750	3/4	7	2 1/4	3	8	243144	239.35	1.3156 - 1.3780	313.75	276.45	264.00	258.00	251.65	246.65
1 7/16	1.4375	3/4	7	2 1/4	3	8	243146	246.40	1.3781 - 1.4405	320.75	283.50	271.10	265.15	258.65	253.75
1 1/2	1.5000	3/4	7	2 1/4	3	8	243148	257.00	1.4406 - 1.5030	331.35	294.10	281.60	275.65	269.25	264.30
1 9/16	1.5625	3/4	7	2 1/4	3	10	243150	297.55	1.5031 - 1.5660	375.10	336.30	323.25	317.00	310.30	305.10
1 5/8	1.6250	3/4	7	2 1/4	3	10	243152	312.15	1.5661 - 1.6280	389.85	350.95	337.90	331.70	325.05	319.80
1 11/16	1.6875	1	8	2 3/4	3 1/2	10	243154	337.95	1.6281 - 1.6910	415.65	376.70	363.70	357.50	350.85	345.60
1 3/4	1.7500	1	8	2 3/4	3 1/2	10	243156	337.95	1.6911 - 1.7530	415.65	376.70	363.70	357.50	350.85	345.60
1 13/16	1.8125	1	8	2 3/4	3 1/2	10	243158	363.60	1.7531 - 1.8160	441.15	402.35	389.30	383.15	376.45	371.20
1 7/8	1.8750	1	8	2 3/4	3 1/2	10	243160	363.60	1.8161 - 1.8780	441.15	402.35	389.30	383.15	376.45	371.20
1 15/16	1.9375	1	8	2 3/4	3 1/2	10	243162	389.40	1.8781 - 1.9410	466.90	428.05	415.05	408.95	402.25	397.00
2	2.0000	1	8	2 3/4	3 1/2	10	243164	389.40	1.9411 - 2.0030	466.90	428.05	415.05	408.95	402.25	397.00
2 1/16	2.0625	1 1/4	9	2 7/8	3 3/4	12	243166	418.70	2.0031 - 2.0660	496.30	457.50	444.40	438.25	431.55	426.40
2 1/8	2.1250	1 1/4	9	2 7/8	3 3/4	12	243168	418.70	2.0661 - 2.1280	496.30	457.50	444.40	438.25	431.55	426.40
2 3/16	2.1875	1 1/4	9	2 7/8	3 3/4	12	243170	455.45	2.1281 - 2.1905	533.05	494.15	481.15	474.95	468.35	463.00
2 1/4	2.2500	1 1/4	9	2 7/8	3 3/4	12	243172	455.45	2.1906 - 2.2530	533.05	494.15	481.15	474.95	468.35	463.00
2 5/16	2.3125	1 1/4	9	2 7/8	3 3/4	12	243174	481.15	2.2531 - 2.3155	558.80	519.85	506.90	500.65	494.00	488.75
2 3/8	2.3750	1 1/4	9	2 7/8	3 3/4	12	243176	481.15	2.3156 - 2.3780	558.80	519.85	506.90	500.65	494.00	488.75
2 7/16	2.4375	1 1/4	9	2 7/8	3 3/4	12	243178	506.95	2.3781 - 2.4405	584.55	545.65	532.65	526.45	519.75	514.50
2 1/2	2.5000	1 1/4	9	2 7/8	3 3/4	12	243180	506.95	2.4406 - 2.5030	584.55	545.65	532.65	526.45	519.75	514.50
2 9/16	2.5625	1 1/2	10	3 1/8	4	14	243182	556.45	2.5031 - 2.5660	634.00	595.15	582.15	575.95	569.30	564.05
2 5/8	2.6250	1 1/2	10	3 1/8	4	14	243184	577.10	2.5661 - 2.6280	654.65	615.70	602.85	596.55	589.90	584.65
2 11/16	2.6875	1 1/2	10	3 1/8	4	14	243186	599.50	2.6281 - 2.6910	677.10	638.25	625.20	619.05	612.35	607.10
2 3/4	2.7500	1 1/2	10	3 1/8	4	14	243188	620.30	2.6911 - 2.7530	697.95	659.00	646.00	639.85	633.20	627.90
2 13/16	2.8125	1 1/2	10	3 1/8	4	14	243190	642.10	2.7531 - 2.8160	719.70	680.85	667.85	661.65	655.00	649.80
2 7/8	2.8750	1 1/2	10	3 1/8	4	14	243192	667.85	2.8161 - 2.8780	745.35	706.60	693.50	687.40	680.70	675.50
2 15/16	2.9375	1 1/2	10	3 1/8	4	14	243194	693.65	2.8781 - 2.9410	771.25	732.35	719.30	713.20	706.55	701.25
3	3.0000	1 1/2	10	3 1/8	4	14	243196	719.40	2.9411 - 3.0030	796.95	758.15	745.10	739.00	732.30	727.05

*Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE - TAPER SHANK



TYPE 2452 - FINISHED FRACTIONAL SIZES

Taper shank and straight polished flutes.
Flute long carbide brazed to one piece hardened alloy steel bodies.
Cutting diameter tolerance plus .0003" minus .0000".

USE:

For all general reaming.
Especially designed with flute long carbide for deep hole reaming to precision tolerances and for long production runs.

OPTIONS:

Intermediate decimal sizes (priced as indicated in extended table below).
Cutting diameter reduced for small steps or pilot.
Radius end or end chamfer other than 45°.
End cutting.
Rose grind (twice normal back taper).
Closer tolerance.
For +.0002" add \$1.00 per tool.
For +.0001" add \$3.00 per tool.

TOOL DIAMETER		MORSE TAPER	NO. OF FLUTES	LENGTH		TYPE 2452 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DECIMAL			FLUTE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	1	4	1 1/2	6	245208	\$50.10	0.2381 - 0.2530	\$85.00	\$67.55	\$61.65	\$58.85	\$55.90	\$53.45
9/32	.2812	1	4	1 1/2	6	245209	50.75	0.2531 - 0.2840	85.70	68.25	62.35	59.55	56.55	54.20
5/16	.3125	1	4	1 1/2	6	245210	50.75	0.2841 - 0.3150	85.70	68.25	62.35	59.55	56.55	54.20
11/32	.3438	1	4	1 1/2	6	245211	51.90	0.3151 - 0.3470	86.85	69.40	63.55	60.70	57.65	55.35
3/8	.3750	1	4	1 3/4	7	245212	52.50	0.3471 - 0.3780	87.45	69.95	64.05	61.30	58.25	56.00
13/32	.4062	1	4	1 3/4	7	245213	55.30	0.3781 - 0.4090	90.25	72.65	66.85	64.05	61.15	58.75
7/16	.4375	1	4	1 3/4	7	245214	58.90	0.4091 - 0.4410	93.80	76.35	70.50	67.70	64.75	62.35
15/32	.4688	1	4	1 3/4	7	245215	60.15	0.4411 - 0.4720	95.10	77.50	71.75	68.90	65.95	63.60
1/2	.5000	1	6	2	8	245216	64.85	0.4721 - 0.5030	102.15	83.45	77.20	74.25	71.00	68.55
17/32	.5312	1	6	2	8	245217	71.00	0.5031 - 0.5340	108.45	89.70	83.40	80.40	77.20	74.65
9/16	.5625	1	6	2	8	245218	71.00	0.5341 - 0.5660	108.45	89.70	83.40	80.40	77.20	74.65
19/32	.5938	1	6	2	8	245219	74.30	0.5661 - 0.5970	111.65	92.95	86.70	83.75	80.50	78.00
5/8	.6250	2	6	2	9	245220	74.30	0.5971 - 0.6280	111.65	92.95	86.70	83.75	80.50	78.00
21/32	.6562	2	6	2	9	245221	75.65	0.6281 - 0.6590	113.15	94.35	88.00	85.10	81.85	79.40
11/16	.6875	2	6	2	9	245222	75.65	0.6591 - 0.6910	113.15	94.35	88.00	85.10	81.85	79.40
23/32	.7188	2	6	2	9	245223	76.75	0.6911 - 0.7220	114.20	95.40	89.10	86.15	82.95	80.40
3/4	.7500	2	6	2	9 1/2	245224	79.20	0.7221 - 0.7530	116.60	97.85	91.60	88.60	85.30	82.90
25/32	.7812	2	6	2	9 1/2	245225	79.80	0.7531 - 0.7840	117.25	98.50	92.25	89.15	86.00	83.45
13/16	.8125	2	6	2	9 1/2	245226	81.70	0.7841 - 0.8160	119.00	100.20	94.05	91.05	87.85	85.25
27/32	.8438	2	6	2	9 1/2	245227	85.20	0.8161 - 0.8470	122.65	103.90	97.60	94.65	91.40	88.95
7/8	.8750	2	6	2 1/4	10	245228	88.50	0.8471 - 0.8780	127.30	107.85	101.25	98.30	94.80	92.35
29/32	.9062	2	6	2 1/4	10	245229	99.65	0.8781 - 0.9090	138.40	119.00	112.55	109.40	106.00	103.45
15/16	.9375	3	8	2 1/4	10	245230	103.65	0.9091 - 0.9410	142.35	122.95	116.50	113.35	110.00	107.45
31/32	.9688	3	8	2 1/4	10	245231	107.90	0.9411 - 0.9720	146.70	127.30	120.75	117.65	114.30	111.75
1	1.0000	3	8	2 1/4	10 1/2	245232	107.90	0.9721 - 1.0030	146.70	127.30	120.75	117.65	114.30	111.75
1 1/16	1.0625	3	8	2 1/4	10 1/2	245234	147.90	1.0031 - 1.0660	185.05	166.35	160.15	157.25	154.00	151.50
1 1/8	1.1250	3	8	2 1/4	11	245236	159.25	1.0661 - 1.1280	196.45	177.80	171.65	168.65	165.40	162.90
1 3/16	1.1875	3	8	2 1/4	11	245238	171.15	1.1281 - 1.1905	208.30	189.70	183.45	180.45	177.35	174.75
1 1/4	1.2500	4	8	2 1/2	11 1/2	245240	181.85	1.1906 - 1.2530	219.00	200.40	194.25	191.15	187.95	185.50
1 5/16	1.3125	4	8	2 1/2	11 1/2	245242	205.35	1.2531 - 1.3155	242.50	223.95	217.60	214.75	211.50	209.00
1 3/8	1.3750	4	8	2 1/2	12	245244	234.65	1.3156 - 1.3780	271.80	253.20	246.90	243.95	240.75	238.25
1 7/16	1.4375	4	8	2 1/2	12	245246	244.90	1.3781 - 1.4405	282.10	263.45	257.20	254.35	251.05	248.55
1 1/2	1.5000	4	8	2 1/2	12 1/2	245248	255.10	1.4406 - 1.5030	292.30	273.75	267.50	264.50	261.30	258.75

*Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE & TAPER SHANK

TYPE 2452 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2452 METRIC EDP NO.	METRIC PRICE	DIMENSIONS				SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
				MORSE TAPER	NO. OF FLUTES	LENGTH			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
mm	INCH					FLUTE & CARBIDE	OVER- ALL								
6.0	.2362	2452060	\$61.65	1	4	1 ½	6	6.000-6.426	\$87.90	\$70.50	\$64.70	\$61.80	\$58.85	\$56.45	\$53.10
6.5	.2559	2452065	62.35	1	4	1 ½	6	6.427-7.214	88.60	71.25	65.40	62.55	59.55	57.20	53.80
7.0	.2756	2452070	62.35	1	4	1 ½	6	-	-	-	-	-	-	-	-
7.5	.2953	2452075	62.35	1	4	1 ½	6	7.215-8.001	88.60	71.25	65.40	62.55	59.55	57.20	53.80
8.0	.3150	2452080	62.35	1	4	1 ½	6	-	-	-	-	-	-	-	-
8.5	.3346	2452085	63.55	1	4	1 ½	6	8.002-8.814	89.80	72.35	66.55	63.65	60.70	58.25	54.95
9.0	.3543	2452090	64.05	1	4	1 ¾	7	8.815-9.601	90.35	73.00	67.05	64.15	61.30	58.85	55.45
9.5	.3740	2452095	64.05	1	4	1 ¾	7	-	-	-	-	-	-	-	-
10.0	.3937	2452100	66.85	1	4	1 ¾	7	9.602-10.389	93.20	75.65	69.80	67.00	64.05	61.65	58.25
10.5	.4134	2452105	70.50	1	4	1 ¾	7	10.390-11.201	96.70	79.35	73.50	70.70	67.70	65.25	61.95
11.0	.4331	2452110	70.50	1	4	1 ¾	7	-	-	-	-	-	-	-	-
11.5	.4528	2452115	71.75	1	4	1 ¾	7	11.202-11.989	98.00	80.50	74.70	71.85	68.90	66.55	63.05
12.0	.4724	2452120	77.20	1	6	2	8	11.990-12.776	105.35	86.70	80.40	77.35	74.25	71.60	68.05
12.5	.4921	2452125	77.20	1	6	2	8	-	-	-	-	-	-	-	-
13.0	.5118	2452130	83.40	1	6	2	8	12.777-13.564	111.55	92.85	86.65	83.65	80.40	77.85	74.25
13.5	.5315	2452135	83.40	1	6	2	8	-	-	-	-	-	-	-	-
14.0	.5512	2452140	83.40	1	6	2	8	13.565-14.376	111.55	92.85	86.65	83.65	80.40	77.85	74.25
14.5	.5709	2452145	86.70	1	6	2	8	14.377-15.164	114.80	96.25	89.90	86.85	83.75	81.05	77.50
15.0	.5906	2452150	86.70	1	6	2	8	-	-	-	-	-	-	-	-
15.5	.6102	2452155	86.70	2	6	2	9	15.165-15.951	114.80	96.25	89.90	86.85	83.75	81.05	77.50
16.0	.6299	2452160	88.00	2	6	2	9	15.952-16.739	116.20	97.50	91.30	88.20	85.10	82.55	78.90
16.5	.6496	2452165	88.00	2	6	2	9	-	-	-	-	-	-	-	-
17.0	.6693	2452170	88.00	2	6	2	9	16.740-17.551	116.20	97.50	91.30	88.20	85.10	82.55	78.90
17.5	.6890	2452175	88.00	2	6	2	9	-	-	-	-	-	-	-	-
18.0	.7087	2452180	89.10	2	6	2	9	17.552-18.339	117.30	98.60	92.40	89.30	86.15	83.65	79.90
18.5	.7283	2452185	91.60	2	6	2	9 ½	18.340-19.126	119.75	101.05	94.75	91.70	88.60	86.00	82.45
19.0	.7480	2452190	91.60	2	6	2	9 ½	-	-	-	-	-	-	-	-
19.5	.7677	2452195	92.25	2	6	2	9 ½	19.127-19.914	120.30	101.75	95.40	92.40	89.15	86.65	83.00
20.0	.7874	2452200	94.05	2	6	2	9 ½	19.915-20.726	122.20	103.45	97.25	94.20	91.05	88.45	84.90
20.5	.8071	2452205	94.05	2	6	2	9 ½	-	-	-	-	-	-	-	-
21.0	.8268	2452210	97.60	2	6	2	9 ½	20.727-21.514	125.75	107.10	100.85	97.75	94.65	92.10	88.45
21.5	.8465	2452215	97.60	2	6	2	9 ½	-	-	-	-	-	-	-	-
22.0	.8661	2452220	97.60	2	6	2 ¼	10	21.515-22.301	125.75	107.10	100.85	97.75	94.65	92.10	88.45
22.5	.8858	2452225	112.55	2	6	2 ¼	10	22.302-23.089	141.70	122.30	115.80	112.65	109.40	106.70	103.05
23.0	.9055	2452230	112.55	2	6	2 ¼	10	-	-	-	-	-	-	-	-
23.5	.9252	2452235	116.50	3	8	2 ¼	10	23.090-23.901	145.65	126.25	119.85	116.60	113.35	110.65	106.95
24.0	.9449	2452240	120.75	3	8	2 ¼	10	23.902-24.689	149.95	130.55	124.10	120.95	117.65	115.00	111.20
24.5	.9646	2452245	120.75	3	8	2 ¼	10	-	-	-	-	-	-	-	-
25.0	.9843	2452250	120.75	3	8	2 ¼	10 ½	24.690-25.476	149.95	130.55	124.10	120.95	117.65	115.00	111.20
25.5	1.0039	2452255	160.15	3	8	2 ¼	10 ½	25.477-27.076	188.20	169.65	163.35	160.35	157.25	154.65	151.10
26.0	1.0236	2452260	160.15	3	8	2 ¼	10 ½	-	-	-	-	-	-	-	-
27.0	1.0630	2452270	160.15	3	8	2 ¼	10 ½	-	-	-	-	-	-	-	-
28.0	1.1024	2452280	171.65	3	8	2 ¼	11	27.077-28.651	199.60	181.05	174.75	171.75	168.65	166.05	162.50
29.0	1.1417	2452290	183.45	3	8	2 ¼	11	28.652-30.239	211.45	192.90	186.60	183.60	180.45	177.90	174.35
30.0	1.1811	2452300	183.45	3	8	2 ¼	11	-	-	-	-	-	-	-	-
31.0	1.2205	2452310	194.25	4	8	2 ½	11 ½	30.240-31.826	222.15	203.60	197.35	194.35	191.15	188.60	185.05
32.0	1.2598	2452320	217.60	4	8	2 ½	11 ½	31.827-33.414	245.70	227.05	220.90	217.80	214.75	212.05	208.50
33.0	1.2992	2452330	217.60	4	8	2 ½	11 ½	-	-	-	-	-	-	-	-
34.0	1.3386	2452340	246.90	4	8	2 ½	12	33.415-35.001	274.90	256.40	250.15	247.15	243.95	241.40	237.80
35.0	1.3780	2452350	246.90	4	8	2 ½	12	-	-	-	-	-	-	-	-
36.0	1.4173	2452360	257.20	4	8	2 ½	12	35.002-36.589	285.15	266.60	260.45	257.35	254.35	251.65	248.00
37.0	1.4567	2452370	267.50	4	8	2 ½	12 ½	36.590-38.176	295.50	276.85	270.65	267.70	264.50	261.95	258.40
38.0	1.4961	2452380	267.50	4	8	2 ½	12 ½	-	-	-	-	-	-	-	-



CHUCKING REAMERS

CARBIDE TIPPED - FOR REAMING STEEL, TOUGH STEEL ALLOYS & CAST IRON



TYPE 2480 - FINISHED FRACTIONAL SIZES

Steel cutting grade flute long carbide brazed to hardened alloy steel bodies.

Special steel cutting tool geometry:

Positive radial rake (behind center).

Narrow circular lands.

Minimum back taper.

Longer flutes for straighter holes.

Straight shanks to ANSI specifications.

OPTIONS:

Decimal sizes priced below.

Cut diam. reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Short shank or undersize shank diam.

Flat on shank or tapered shank.

Closer tolerance.

For +.0002" add \$1.00 per tool.

For +.0001" add \$3.00 per tool.

USE:

This carbide tipped reamer's design is based on our extensive development and design experience in manufacturing special reamers for reaming steel in the automotive industry. This design is proven in an industry where performance is carefully evaluated.

Traditional steel reaming problems have been reduced by the following:

1. Holds size longer because steel cutting grade carbide is utilized — but not just any steel cutting grade carbide as we discovered only a few domestic manufacturers' carbide have the field proven wear characteristics necessary when reaming tough abrasive materials.
2. Contrary to the machinery data handbook our design utilizes a smaller positive radial rake — for better performance when reaming steel.
3. Improved hole surface finish as this reamer's reduced circular land minimizes possible material buildup that will reduce surface quality.
4. Straighter holes because of longer full flute length carbide and reduced back taper. Many more regrinds before reinserting.
5. Controlled deep (-300°F) cryogenic treatment after the carbide is brazed on the tool - also several other subtle features that only our tools have.

TOOL DIAMETER		MAX. SHANK DIAMETER	NO. OF FLUTES	LENGTH		TYPE 2480 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE & CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	.1805	4	1 1/8	4 1/2	248006	\$52.20	0.1770 - 0.2040	\$87.10	\$69.65	\$63.75	\$61.00	\$58.05	\$55.60
13/64	.2031	.1805	4	1 1/8	4 1/2	24802031	52.20	-	-	-	-	-	-	-
7/32	.2188	.2075	4	1 1/4	5	248007	52.20	0.2041 - 0.2210	87.10	69.65	63.75	61.00	58.05	55.60
15/64	.2344	.2265	4	1 1/2	6	24802344	52.20	0.2211 - 0.2380	87.10	69.65	63.75	61.00	58.05	55.60
1/4	.2500	.2405	4	1 1/2	6	248008	52.20	0.2381 - 0.2530	87.10	69.65	63.75	61.00	58.05	55.60
17/64	.2656	.2485	4	1 1/2	6	24802656	53.35	-	-	-	-	-	-	-
9/32	.2812	.2485	4	1 1/2	6	248009	53.35	0.2531 - 0.2840	88.20	70.80	64.90	62.20	59.15	56.85
19/64	.2969	.2792	4	1 1/2	6	24802969	53.35	-	-	-	-	-	-	-
5/16	.3125	.2792	4	1 1/2	6	248010	53.35	0.2841 - 0.3150	88.20	70.80	64.90	62.20	59.15	56.85
21/64	.3281	.2792	4	1 1/2	6	24803281	55.30	-	-	-	-	-	-	-
11/32	.3438	.2792	4	1 1/2	6	248011	55.30	0.3151 - 0.3470	90.25	72.65	66.85	64.05	61.15	58.75
23/64	.3594	.3105	4	1 3/4	7	24803594	55.30	-	-	-	-	-	-	-
3/8	.3750	.3105	4	1 3/4	7	248012	55.30	0.3471 - 0.3780	90.25	72.65	66.85	64.05	61.15	58.75
25/64	.3906	.3105	4	1 3/4	7	24803906	58.05	-	-	-	-	-	-	-
13/32	.4062	.3105	4	1 3/4	7	248013	58.05	0.3781 - 0.4090	92.85	75.45	69.60	66.80	63.75	61.40
27/64	.4219	.3730	6	1 3/4	7	24804219	67.20	-	-	-	-	-	-	-
7/16	.4375	.3730	6	1 3/4	7	248014	67.20	0.4091 - 0.4410	102.10	84.60	78.80	76.05	73.05	70.70
29/64	.4531	.3730	6	1 3/4	7	24804531	67.80	-	-	-	-	-	-	-
15/32	.4688	.3730	6	1 3/4	7	248015	67.80	0.4411 - 0.4720	102.80	85.20	79.45	76.65	73.60	71.30
31/64	.4844	.4355	6	2	8	24804844	72.65	-	-	-	-	-	-	-
1/2	.5000	.4355	6	2	8	248016	72.65	0.4721 - 0.5030	110.10	91.35	85.10	82.10	78.90	76.40
33/64	.5156	.4355	6	2	8	24805156	74.75	-	-	-	-	-	-	-
17/32	.5312	.4355	6	2	8	248017	74.75	0.5031 - 0.5340	112.15	93.40	87.10	84.15	80.95	78.40
35/64	.5469	.4355	6	2	8	24805469	74.75	-	-	-	-	-	-	-
9/16	.5625	.4355	6	2	8	248018	74.75	0.5341 - 0.5660	112.15	93.40	87.10	84.15	80.95	78.40
37/64	.5781	.4355	6	2	8	24805781	77.60	-	-	-	-	-	-	-
19/32	.5938	.4355	6	2	8	248019	77.60	0.5661 - 0.5970	115.00	96.30	89.95	87.00	83.80	81.30
39/64	.6094	.5615	6	2 1/4	9	24806094	77.60	-	-	-	-	-	-	-

*Quantities of 15 or more: price of fractional size in same size range.

TOOL DIAMETER		MAX. SHANK DIAMETER	NO. OF FLUTES	LENGTH		TYPE 2480 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE & CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
$\frac{5}{8}$	.6250	.5615	6	2 $\frac{1}{4}$	9	248020	\$77.60	0.5971 - 0.6280	\$115.00	\$96.30	\$89.95	\$87.00	\$83.80	\$81.30
$\frac{41}{64}$	.6406	.5615	6	2 $\frac{1}{4}$	9	24806406	79.05	-	-	-	-	-	-	-
$\frac{21}{32}$	.6562	.5615	6	2 $\frac{1}{4}$	9	248021	79.05	0.6281 - 0.6590	116.50	97.70	91.40	88.45	85.20	82.75
$\frac{43}{64}$	.6719	.5615	6	2 $\frac{1}{4}$	9	24806719	79.05	-	-	-	-	-	-	-
$\frac{11}{16}$	.6875	.5615	6	2 $\frac{1}{4}$	9	248022	79.05	0.6591 - 0.6910	116.50	97.70	91.40	88.45	85.20	82.75
$\frac{45}{64}$	.7031	.5615	6	2 $\frac{1}{4}$	9	24807031	82.65	-	-	-	-	-	-	-
$\frac{23}{32}$	.7188	.5615	6	2 $\frac{1}{4}$	9	248023	82.65	0.6911 - 0.7220	120.05	101.25	95.10	92.10	88.85	86.30
$\frac{47}{64}$	.7344	.6245	6	2 $\frac{1}{2}$	9 $\frac{1}{2}$	24807344	82.65	-	-	-	-	-	-	-
$\frac{3}{4}$	.7500	.6245	6	2 $\frac{1}{2}$	9 $\frac{1}{2}$	248024	82.65	0.7221 - 0.7530	120.05	101.25	95.10	92.10	88.85	86.30
$\frac{49}{64}$	.7656	.6245	6	2 $\frac{1}{2}$	9 $\frac{1}{2}$	24807656	85.55	-	-	-	-	-	-	-
$\frac{25}{32}$	.7812	.6245	6	2 $\frac{1}{2}$	9 $\frac{1}{2}$	248025	85.55	0.7531 - 0.7840	122.85	104.10	97.85	94.80	91.65	89.10
$\frac{51}{64}$	.7969	.6245	6	2 $\frac{1}{2}$	9 $\frac{1}{2}$	24807969	85.55	-	-	-	-	-	-	-
$\frac{13}{16}$	.8125	.6245	6	2 $\frac{1}{2}$	9 $\frac{1}{2}$	248026	85.55	0.7841 - 0.8160	122.85	104.10	97.85	94.80	91.65	89.10
$\frac{53}{64}$	.8281	.6245	6	2 $\frac{1}{2}$	9 $\frac{1}{2}$	24808281	88.95	-	-	-	-	-	-	-
$\frac{27}{32}$	.8438	.6245	6	2 $\frac{1}{2}$	9 $\frac{1}{2}$	248027	88.95	0.8161 - 0.8470	126.25	107.50	101.25	98.35	95.15	92.55
$\frac{55}{64}$	.8594	.7495	6	2 $\frac{3}{8}$	10	24808594	88.95	-	-	-	-	-	-	-
$\frac{7}{8}$	.8750	.7495	6	2 $\frac{3}{8}$	10	248028	92.35	0.8471 - 0.8780	131.00	111.60	105.10	102.00	98.65	96.05
$\frac{57}{64}$	.8906	.7495	6	2 $\frac{3}{8}$	10	24808906	107.45	-	-	-	-	-	-	-
$\frac{29}{32}$	.9062	.7495	6	2 $\frac{3}{8}$	10	248029	107.45	0.8781 - 0.9090	146.25	126.85	120.25	117.15	113.85	111.20
$\frac{59}{64}$	.9219	.7495	8	2 $\frac{3}{8}$	10	24809219	107.45	-	-	-	-	-	-	-
$\frac{15}{16}$	.9375	.7495	8	2 $\frac{3}{8}$	10	248030	107.45	0.9091 - 0.9410	146.25	126.85	120.25	117.15	113.85	111.20
$\frac{61}{64}$	.9531	.7495	8	2 $\frac{3}{8}$	10	24809531	112.60	-	-	-	-	-	-	-
$\frac{31}{32}$	.9688	.7495	8	2 $\frac{3}{8}$	10	248031	112.60	0.9411 - 0.9720	151.40	132.00	125.40	122.30	119.00	116.35
$\frac{63}{64}$	.9844	.8745	8	2 $\frac{3}{4}$	10 $\frac{1}{2}$	24809844	112.60	-	-	-	-	-	-	-
1	1.0000	.8745	8	2 $\frac{3}{4}$	10 $\frac{1}{2}$	248032	112.60	0.9721 - 1.0030	151.40	132.00	125.40	122.30	119.00	116.35
1 $\frac{1}{16}$	1.0625	.8745	8	2 $\frac{3}{4}$	10 $\frac{1}{2}$	248034	116.40	1.0031 - 1.0660	153.60	134.90	128.75	125.75	122.55	120.10
1 $\frac{1}{8}$	1.1250	.8745	8	2 $\frac{7}{8}$	11	248036	126.10	1.0661 - 1.1280	163.25	144.60	138.35	135.45	132.25	129.70
1 $\frac{3}{16}$	1.1875	.9995	8	2 $\frac{7}{8}$	11	248038	138.10	1.1281 - 1.1905	175.30	156.60	150.40	147.45	144.25	141.75
1 $\frac{1}{4}$	1.2500	.9995	8	3	11 $\frac{1}{2}$	248040	153.90	1.1906 - 1.2530	191.05	172.40	166.15	163.25	160.05	157.50
1 $\frac{5}{16}$	1.3125	.9995	8	3	11 $\frac{1}{2}$	248042	153.90	1.2531 - 1.3155	191.05	172.40	166.15	163.25	160.05	157.50
1 $\frac{3}{8}$	1.3750	.9995	8	3 $\frac{1}{4}$	12	248044	156.15	1.3156 - 1.3780	193.30	174.70	168.50	165.55	162.25	159.85
1 $\frac{7}{16}$	1.4375	.9995	8	3 $\frac{1}{4}$	12	248046	172.55	1.3781 - 1.4405	209.70	191.05	184.90	181.85	178.65	176.25
1 $\frac{1}{2}$	1.5000	1.2495	8	3 $\frac{1}{2}$	12 $\frac{1}{2}$	248048	207.15	1.4406 - 1.5030	244.35	225.70	219.50	216.50	213.40	210.80

*Quantities of 15 or more: price of fractional size in same size range.

CARBIDE TIPPED FOR REAMING STEEL OVER & UNDER SIZE REAMERS

TYPE 2488 - STRAIGHT FLUTE & SHANK

Cutting diameter tolerance plus .0002" minus .0000".

USE:

These precision ground carbide tipped reamers are very convenient for finishing accurate holes in steel, tough steel alloys and cast steels.

TOOL DIAMETER	MAX. SHANK DIAM.	OVERALL LENGTH	NO. OF FLUTES	TYPE 2488 EDP NO.	PRICE
.1865	.1805	4 $\frac{1}{2}$	4	248818	\$65.25
.1885	.1805	4 $\frac{1}{2}$	4	248819	65.25
.2490	.2405	6	4	248824	65.25
.2510	.2405	6	4	248825	65.25
.3115	.2792	6	4	248831	66.45
.3135	.2792	6	4	248832	66.45
.3740	.3105	7	4	248837	68.35
.3760	.3105	7	4	248838	68.35
.4365	.3730	7	6	248843	80.30
.4385	.3730	7	6	248844	80.30
.4990	.4355	8	6	248849	86.70
.5010	.4355	8	6	248850	86.70
Cased set of above 12 reamers				248800	821.50

CARBIDE TIPPED FOR REAMING STEEL DOWEL PIN SIZE REAMERS

TYPE 2486 - STRAIGHT FLUTE & SHANK

Cutting diameter tolerance plus .0000" minus .0002".

USE:

These precision ground carbide tipped reamers accurately finish dowel pin holes in steels, tough steel alloys and cast steels and result in properly fitted dowel pins subjected to shearing strain - assuring accurate alignment. Should be used in pairs of .0005" and .0020" under fraction size — Note special minus .0002" tolerance.

TOOL DIAMETER	MAX. SHANK DIAM.	OVERALL LENGTH	NO. OF FLUTES	TYPE 2486 EDP NO.	PRICE
.1855	.1805	4 $\frac{1}{2}$	4	248617	\$65.25
.1870	.1805	4 $\frac{1}{2}$	4	248618	65.25
.2480	.2405	6	4	248623	65.25
.2495	.2405	6	4	248624	65.25
.3105	.2792	6	4	248630	66.45
.3120	.2792	6	4	248631	66.45
.3730	.3105	7	4	248636	68.35
.3745	.3105	7	4	248637	68.35
.4355	.3730	7	6	248642	80.30
.4370	.3730	7	6	248643	80.30
.4980	.4355	8	6	248648	86.70
.4995	.4355	8	6	248649	86.70
Cased set of above 12 reamers				248600	821.50



NAS 897 CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE - STRAIGHT SHANK



OPTIONS:

Decimal sizes priced below.
Cut diam. reduced for step or pilot.
End chamfer other than 45°.
End cutting or corner radius.
Short shank or undersize shank diam.
Flat on shank or tanged shank.

Closer tolerance.
For +.0002" add \$1.00 per tool.
For +.0001" add \$3.00 per tool.

TYPE 2458 - NAS 897 REAMER

National Aerospace Standards.
Type "C" with flute long carbide tips.
Carbide tips brazed to hardened alloy steel bodies.
Precision ground cutting edges.
Straight shank.

TOOL DIAMETER		MAX. SHANK DIAMETER	NO. OF FLUTES	LENGTH		TYPE 2458 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DEC.			FLUTE & CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	.1805	4	1 1/8	4 1/2	245806	\$52.20	0.1770 - 0.2040	\$87.10	\$69.65	\$63.75	\$61.00	\$58.05	\$55.60
7/32	.2188	.2075	4	1 1/4	5	245807	52.20	0.2041 - 0.2210	87.10	69.65	63.75	61.00	58.05	55.60
15/64	.2344	.2265	4	1 1/2	6	24582344	52.20	0.2211 - 0.2380	87.10	69.65	63.75	61.00	58.05	55.60
1/4	.2500	.2405	4	1 1/2	6	245808	52.20	0.2381 - 0.2530	87.10	69.65	63.75	61.00	58.05	55.60
9/32	.2812	.2485	4	1 1/2	6	245809	53.35	0.2531 - 0.2840	88.20	70.80	64.90	62.20	59.15	56.85
5/16	.3125	.2792	4	1 1/2	6	245810	53.35	0.2841 - 0.3150	88.20	70.80	64.90	62.20	59.15	56.85
11/32	.3438	.2792	4	1 1/2	6	245811	55.30	0.3151 - 0.3470	90.25	72.65	66.85	64.05	61.15	58.75
3/8	.3750	.3105	4	1 3/4	7	245812	55.30	0.3471 - 0.3780	90.25	72.65	66.85	64.05	61.15	58.75
13/32	.4062	.3105	4	1 3/4	7	245813	58.05	0.3781 - 0.4090	92.85	75.45	69.60	66.80	63.75	61.40
7/16	.4375	.3730	6	1 3/4	7	245814	62.80	0.4091 - 0.4410	97.65	80.25	74.35	71.55	68.60	66.15
15/32	.4688	.3730	6	1 3/4	7	245815	67.80	0.4411 - 0.4720	102.80	85.20	79.45	76.65	73.60	71.30
1/2	.5000	.4355	6	2	8	245816	72.65	0.4721 - 0.5030	110.10	91.35	85.10	82.10	78.90	76.40
17/32	.5312	.4355	6	2	8	245817	74.75	0.5031 - 0.5340	112.15	93.40	87.10	84.15	80.95	78.40
9/16	.5625	.4355	6	2	8	245818	74.75	0.5341 - 0.5660	112.15	93.40	87.10	84.15	80.95	78.40
19/32	.5938	.4355	6	2	8	245819	77.60	0.5661 - 0.5970	115.00	96.30	89.95	87.00	83.80	81.30
5/8	.6250	.5615	6	2 1/4	9	245820	77.60	0.5971 - 0.6280	115.00	96.30	89.95	87.00	83.80	81.30
21/32	.6562	.5615	6	2 1/4	9	245821	79.05	0.6281 - 0.6590	116.50	97.70	91.40	88.45	85.20	82.75
11/16	.6875	.5615	6	2 1/4	9	245822	79.05	0.6591 - 0.6910	116.50	97.70	91.40	88.45	85.20	82.75
23/32	.7188	.5615	6	2 1/4	9	245823	82.65	0.6911 - 0.7220	120.05	101.25	95.10	92.10	88.85	86.30
3/4	.7500	.6245	6	2 1/2	9 1/2	245824	82.65	0.7221 - 0.7530	120.05	101.25	95.10	92.10	88.85	86.30
25/32	.7812	.6245	6	2 1/2	9 1/2	245825	85.55	0.7531 - 0.7840	122.85	104.10	97.85	94.80	91.65	89.10
13/16	.8125	.6245	6	2 1/2	9 1/2	245826	85.55	0.7841 - 0.8160	122.85	104.10	97.85	94.80	91.65	89.10
27/32	.8438	.6245	6	2 1/2	9 1/2	245827	88.95	0.8161 - 0.8470	126.25	107.50	101.25	98.35	95.15	92.55
7/8	.8750	.7495	6	2 5/8	10	245828	92.35	0.8471 - 0.8780	131.00	111.60	105.10	102.00	98.65	96.05
29/32	.9062	.7495	6	2 5/8	10	245829	107.45	0.8781 - 0.9090	146.25	126.85	120.25	117.15	113.85	111.20
15/16	.9375	.7495	8	2 5/8	10	245830	107.45	0.9091 - 0.9410	146.25	126.85	120.25	117.15	113.85	111.20
31/32	.9688	.7495	8	2 5/8	10	245831	112.60	0.9411 - 0.9720	151.40	132.00	125.40	122.30	119.00	116.35
1	1.0000	.8745	8	2 3/4	10 1/2	245832	112.60	0.9721 - 1.0030	151.40	132.00	125.40	122.30	119.00	116.35
1 1/16	1.0625	.8745	8	2 3/4	10 1/2	245834	116.40	1.0031 - 1.0660	153.60	134.90	128.75	125.75	122.55	120.10
1 1/8	1.1250	.8745	8	2 7/8	11	245836	126.10	1.0661 - 1.1280	163.25	144.60	138.35	135.45	132.25	129.70
1 3/16	1.1875	.9995	8	2 7/8	11	245838	131.80	1.1281 - 1.1905	169.00	150.40	144.15	141.25	138.00	135.50
1 1/4	1.2500	.9995	8	3	11 1/2	245840	142.40	1.1906 - 1.2530	179.60	161.10	154.75	151.85	148.65	146.10
1 5/16	1.3125	.9995	8	3	11 1/2	245842	146.40	1.2531 - 1.3155	183.60	165.00	158.70	155.80	152.60	150.05
1 3/8	1.3750	.9995	8	3 1/4	12	245844	156.15	1.3156 - 1.3780	193.30	174.70	168.50	165.55	162.25	159.85
1 7/16	1.4375	.9995	8	3 1/4	12	245846	169.15	1.3781 - 1.4405	206.30	187.65	181.40	178.40	175.30	172.75
1 1/2	1.5000	1.2495	8	3 1/2	12 1/2	245848	174.00	1.4406 - 1.5030	211.20	192.55	186.35	183.40	180.25	177.70
1 9/16	1.5625	1.2495	8	3 1/2	12 1/2	245850	273.35	1.5031 - 1.5660	310.60	292.00	285.75	282.75	279.55	277.00
1 5/8	1.6250	1.2495	8	3 1/2	13	245852	282.70	1.5661 - 1.6280	319.95	301.35	295.10	292.15	288.90	286.40
1 11/16	1.6875	1.2495	8	3 1/2	13	245854	310.40	1.6281 - 1.6910	347.65	329.10	322.80	319.85	316.60	314.10
1 3/4	1.7500	1.2495	10	3 1/2	13 1/2	245856	310.40	1.6911 - 1.7530	347.65	329.10	322.80	319.85	316.60	314.10
1 13/16	1.8125	1.4995	10	3 1/2	13 1/2	245858	317.65	1.7531 - 1.8160	354.90	336.30	330.05	327.10	323.80	321.35
1 7/8	1.8750	1.4995	10	3 1/2	14	245860	333.15	1.8161 - 1.8780	370.40	351.80	345.50	342.60	339.35	336.85
1 15/16	1.9375	1.4995	10	3 1/2	14	245862	353.15	1.8781 - 1.9410	390.40	371.80	365.55	362.60	359.35	356.90
2	2.0000	1.4995	12	3 1/2	14	245864	352.65	1.9411 - 2.0030	389.95	371.30	365.10	362.10	358.90	356.40
2 1/8	2.1250	1.4995	12	3 1/2	14 1/2	245868	655.25	2.0031 - 2.1280	692.50	673.85	667.60	664.70	661.40	658.95
2 1/4	2.2500	1.7495	12	3 1/2	14 1/2	245872	703.75	2.1281 - 2.2530	741.00	722.35	716.15	713.20	709.95	707.50
2 3/8	2.3750	1.7495	12	3 1/2	15	245876	728.20	2.2531 - 2.3780	765.45	746.80	740.55	737.65	734.40	731.90
2 1/2	2.5000	1.7495	12	3 1/2	15	245880	728.20	2.3781 - 2.5030	765.45	746.80	740.55	737.65	734.40	731.90

*Quantities of 15 or more: price of fractional size in same size range.



EXTENDED LENGTH REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE - STRAIGHT SHANK



TYPE 2458EL - EXTENDED LENGTH REAMER

Extended length version of type 2458 found on page 60.
Extended length reamers provided with controlled shank.
Specify overall length when ordering (centers supplied only at maximum overall length).
Precision ground cutting edges.
Straight shank.

OPTIONS:

See page 60

Closer tolerance.

For +.0002" add \$1.00 per tool.

For +.0001" add \$3.00 per tool.

TOOL DIAMETER RANGE	MAX. SHANK DIAMETER	NO. OF FLUTES	LENGTH		TYPE 2458EL EDP NO.	PRICE EACH - FINISHED TO DECIMAL SIZE					
			FLUTE	OVERALL RANGE		1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14**
* 0.1121-0.1280	.1099	4	1 1/2	2 9/32 - 6	245804EL	\$251.20	\$220.00	\$209.50	\$204.55	\$199.25	\$195.00
* 0.1281-0.1435	.1255	4	1 1/2	2 17/32 - 6 1/2	2458045EL	252.05	220.90	210.45	205.40	200.05	195.90
* 0.1436-0.1590	.1411	4	1 1/2	2 17/32 - 7	245805EL	256.25	225.00	214.55	209.55	204.25	200.00
* 0.1591-0.1750	.1567	4	1 1/2	2 25/32 - 8	2458055EL	261.10	229.80	219.45	214.45	209.10	204.90
* 0.1751-0.1910	.1724	4	1 1/2	4 17/32 - 9	245806EL	268.00	236.80	226.30	221.40	216.00	211.80
* 0.1911-0.2210	.1880	4	1 1/2	5 1/32 - 10	245807EL	277.00	245.90	235.45	230.45	225.05	220.90
* 0.2211-0.2530	.2193	4	1 1/2	6 1/32 - 12	245808EL	294.95	263.70	253.35	248.35	243.00	238.80
* 0.2531-0.2840	.2505	4	1 1/2	6 1/32 - 12	245809EL	310.30	279.15	268.70	263.65	258.35	254.05
0.2841-0.3150	.2792	4	1 1/2	6 1/32 - 12	245810EL	220.20	189.00	178.60	173.55	168.20	164.05
0.3151-0.3470	.2792	4	1 1/2	6 1/32 - 12	245811EL	220.20	189.00	178.60	173.55	168.20	164.05
0.3471-0.3780	.3105	4	1 3/4	7 1/32 - 14	245812EL	227.40	196.25	185.80	180.75	175.45	171.20
0.3781-0.4090	.3105	4	1 3/4	7 1/32 - 14	245813EL	227.40	196.25	185.80	180.75	175.45	171.20
0.4091-0.4410	.3730	6	1 3/4	7 1/32 - 14	245814EL	234.65	203.40	193.00	187.95	182.65	178.40
0.4411-0.4720	.3730	6	1 3/4	7 1/32 - 14	245815EL	234.65	203.40	193.00	187.95	182.65	178.40
0.4721-0.5030	.4355	6	2	8 1/32 - 16	245816EL	239.50	208.20	197.80	192.85	187.55	183.30
0.5031-0.5340	.4355	6	2	8 1/32 - 16	245817EL	239.50	208.20	197.80	192.85	187.55	183.30
0.5341-0.5660	.4355	6	2	8 1/32 - 16	245818EL	243.95	212.70	202.30	197.30	191.95	187.75
0.5661-0.5970	.4355	6	2	8 1/32 - 16	245819EL	243.95	212.70	202.30	197.30	191.95	187.75
0.5971-0.6280	.5615	6	2 1/4	9 1/32 - 18	245820EL	249.10	217.85	207.40	202.45	197.15	192.90
0.6281-0.6590	.5615	6	2 1/4	9 1/32 - 18	245821EL	249.10	217.85	207.40	202.45	197.15	192.90
0.6591-0.6910	.5615	6	2 1/4	9 1/32 - 18	245822EL	249.80	218.60	208.10	203.15	197.80	193.60
0.6911-0.7220	.5615	6	2 1/4	9 1/32 - 18	245823EL	249.80	218.60	208.10	203.15	197.80	193.60
0.7221-0.7530	.6245	6	2 1/2	9 17/32 - 18	245824EL	268.15	236.90	226.40	221.50	216.20	211.95
0.7531-0.7840	.6245	6	2 1/2	9 17/32 - 18	245825EL	325.40	295.65	285.65	281.00	275.90	271.90
0.7841-0.8160	.6245	6	2 1/2	9 17/32 - 18	245826EL	335.75	306.00	296.05	291.35	286.25	282.25
0.8161-0.8470	.6245	6	2 1/2	9 17/32 - 18	245827EL	339.65	309.90	299.90	295.20	290.15	286.15
0.8471-0.8780	.7495	6	2 5/8	10 1/32 - 18	245828EL	346.85	317.05	307.10	302.40	297.30	293.25
0.8781-0.9090	.7495	6	2 5/8	10 1/32 - 18	245829EL	361.40	331.65	321.70	317.00	311.90	307.90
0.9091-0.9410	.7495	8	2 5/8	10 1/32 - 18	245830EL	365.05	335.25	325.30	320.60	315.50	311.55
0.9411-0.9720	.7495	8	2 5/8	10 1/32 - 18	245831EL	368.50	338.75	328.80	324.10	319.00	315.00
0.9721-1.0030	.8745	8	2 3/4	10 17/32 - 18	245832EL	377.10	347.35	337.40	332.70	327.55	323.55

*Solid Carbide

**Quantities of 15 or more: contact Rock River Tool Specials Dept.



NAS 897 CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE - STRAIGHT SHANK



TYPE 2408 - NAS 897 REAMER

National Aerospace Standards.

Type "C" with short carbide tip.

Carbide tips brazed to hardened alloy steel bodies.

Precision ground cutting edges.

Straight polished flutes.

Straight shank.

OPTIONS:

Decimal sizes priced below.

Cut diam. reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Short shank or undersize shank diam.

Flat on shank or tanged shank.

Closer tolerance.

For +.0002" add \$1.00 per tool.

For +.0001" add \$3.00 per tool.

TOOL DIAMETER		MAX. SHANK DIAMETER	NO. OF FLUTES	LENGTH			TYPE 2408 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DEC.			FLUTE	CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
5/32	.1562	.1510	4	1	1/2	4	240805	\$47.65	0.1560 - 0.1769	\$82.55	\$64.95	\$59.15	\$56.40	\$53.35	\$51.00
3/16	.1875	.1805	4	1 1/8	1/2	4 1/2	240806	43.70	0.1770 - 0.2040	77.65	60.65	54.95	52.20	49.30	47.00
7/32	.2188	.2075	4	1 1/4	1/2	5	240807	43.70	0.2041 - 0.2210	77.65	60.65	54.95	52.20	49.30	47.00
15/64	.2344	.2265	4	1 1/2	1/2	6	24082344	46.40	0.2211 - 0.2380	80.30	63.30	57.55	54.90	51.90	49.65
1/4	.2500	.2405	4	1 1/2	1/2	6	240808	43.95	0.2381 - 0.2530	77.90	60.90	55.25	52.50	49.55	47.30
9/32	.2812	.2485	4	1 1/2	1/2	6	240809	44.80	0.2531 - 0.2840	78.85	61.80	56.15	53.35	50.50	48.10
5/16	.3125	.2792	4	1 1/2	1/2	6	240810	44.80	0.2841 - 0.3150	78.85	61.80	56.15	53.35	50.50	48.10
3/8	.3125	.2792	6	1 1/2	1/2	6	240890	49.30	0.2841 - 0.3150	83.20	66.20	60.50	57.85	54.95	52.65
11/32	.3438	.2792	4	1 1/2	5/8	6	240811	46.55	0.3151 - 0.3470	80.45	63.50	57.80	55.10	52.15	49.90
11/32	.3438	.2792	6	1 1/2	5/8	6	240891	51.10	0.3151 - 0.3470	85.05	68.05	62.35	59.65	56.70	54.45
3/8	.3750	.3105	4	1 3/4	5/8	7	240812	42.70	0.3471 - 0.3780	73.80	58.20	53.05	50.55	47.85	45.75
3/8	.3750	.3105	6	1 3/4	5/8	7	240892	46.85	0.3471 - 0.3780	78.05	62.40	57.25	54.75	52.05	49.95
13/32	.4062	.3105	4	1 3/4	5/8	7	240813	48.75	0.3781 - 0.4090	82.75	65.70	60.05	57.30	54.30	52.10
13/32	.4062	.3105	6	1 3/4	5/8	7	240893	51.95	0.3781 - 0.4090	85.95	68.90	63.30	60.50	57.60	55.35
7/16	.4375	.3730	6	1 3/4	5/8	7	240814	51.95	0.4091 - 0.4410	85.95	68.90	63.30	60.50	57.60	55.35
15/32	.4688	.3730	6	1 3/4	5/8	7	240815	52.75	0.4411 - 0.4720	86.70	69.70	64.00	61.30	58.45	56.15
1/2	.5000	.4355	6	2	5/8	8	240816	62.35	0.4721 - 0.5030	99.80	81.00	74.75	71.80	68.60	66.05
17/32	.5312	.4355	6	2	5/8	8	240817	67.90	0.5031 - 0.5340	105.25	86.50	80.30	77.25	74.15	71.55
9/16	.5625	.4355	6	2	5/8	8	240818	67.90	0.5341 - 0.5660	105.25	86.50	80.30	77.25	74.15	71.55
19/32	.5938	.4355	6	2	5/8	8	240819	70.70	0.5661 - 0.5970	108.05	89.30	83.00	80.05	76.85	74.30
5/8	.6250	.5615	6	2 1/4	5/8	9	240820	70.70	0.5971 - 0.6280	108.05	89.30	83.00	80.05	76.85	74.30
21/32	.6562	.5615	6	2 1/4	5/8	9	240821	71.85	0.6281 - 0.6590	109.30	90.50	84.20	81.30	78.05	75.55
11/16	.6875	.5615	6	2 1/4	5/8	9	240822	71.85	0.6591 - 0.6910	109.30	90.50	84.20	81.30	78.05	75.55
23/32	.7188	.5615	6	2 1/4	5/8	9	240823	75.30	0.6911 - 0.7220	112.65	93.85	87.65	84.60	81.45	78.90
3/4	.7500	.6245	6	2 1/2	3/4	9 1/2	240824	75.30	0.7221 - 0.7530	112.65	93.85	87.65	84.60	81.45	78.90
25/32	.7812	.6245	6	2 1/2	3/4	9 1/2	240825	77.65	0.7531 - 0.7840	115.05	96.35	90.05	87.05	83.85	81.40
13/16	.8125	.6245	6	2 1/2	3/4	9 1/2	240826	77.65	0.7841 - 0.8160	115.05	96.35	90.05	87.05	83.85	81.40
27/32	.8438	.6245	6	2 1/2	3/4	9 1/2	240827	80.80	0.8161 - 0.8470	118.15	99.45	93.25	90.25	87.00	84.50
7/8	.8750	.7495	6	2 5/8	3/4	10	240828	83.85	0.8471 - 0.8780	122.65	103.20	96.65	93.65	90.35	87.70
29/32	.9062	.7495	6	2 5/8	3/4	10	240829	97.65	0.8781 - 0.9090	136.45	117.00	110.55	107.45	104.05	101.40
15/16	.9375	.7495	8	2 5/8	3/4	10	240830	97.65	0.9091 - 0.9410	136.45	117.00	110.55	107.45	104.05	101.40
31/32	.9688	.7495	8	2 5/8	3/4	10	240831	102.30	0.9411 - 0.9720	141.05	121.60	115.15	111.95	108.65	106.00
1	1.0000	.8745	8	2 3/4	3/4	10 1/2	240832	102.30	0.9721 - 1.0030	141.05	121.60	115.15	111.95	108.65	106.00
1 1/16	1.0625	.8745	8	2 3/4	3/4	10 1/2	240834	105.90	1.0031 - 1.0660	143.05	124.50	118.20	115.25	112.00	109.55
1 1/8	1.1250	.8745	8	2 7/8	7/8	11	240836	114.50	1.0661 - 1.1280	151.65	133.00	126.85	123.80	120.65	118.15
1 3/16	1.1875	.9995	8	2 7/8	7/8	11	240838	120.30	1.1281 - 1.1905	157.50	138.95	132.70	129.70	126.50	124.05
1 1/4	1.2500	.9995	8	3	7/8	11 1/2	240840	127.15	1.1906 - 1.2530	164.40	145.80	139.50	136.55	133.40	130.85
1 5/16	1.3125	.9995	8	3	7/8	11 1/2	240842	133.85	1.2531 - 1.3155	171.05	152.50	146.20	143.25	140.00	137.50
1 3/8	1.3750	.9995	8	3 1/4	7/8	12	240844	142.00	1.3156 - 1.3780	179.25	160.60	154.30	151.40	148.10	145.65
1 7/16	1.4375	.9995	8	3 1/4	7/8	12	240846	158.25	1.3781 - 1.4405	195.55	176.80	170.65	167.70	164.45	162.00
1 1/2	1.5000	1.2495	8	3 1/2	7/8	12 1/2	240848	167.30	1.4406 - 1.5030	204.50	185.90	179.60	176.70	173.45	170.95

*Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - RIGHT OR LEFT SPIRAL FLUTES - STRAIGHT SHANK



**TYPE 2410 - RIGHT SPIRAL FLUTES
STRAIGHT SHANK**

USE:

Right spiral flutes have greater chip clearing ability for use with ductile materials, highly abrasive materials or blind holes. Spiral flutes tend to bridge interruptions such as keyways, slots or intersecting holes, permitting better finishes.

BOTH TYPES:

Straight shanks and polished spiral flutes.
Carbide tips brazed to one piece hardened alloy steel bodies.
Cutting diameter tolerance plus .0003" minus .0000".



**TYPE 2420 - LEFT SPIRAL FLUTES
STRAIGHT SHANK**

USE:

Left spiral flutes should only be used on through holes for heat treated steels, hard cast iron and other hard materials. Finishes are much better as spiral flutes tend to bridge interruptions such as keyways, slots or intersecting holes.

OPTIONS:

Intermediate decimal & metric sizes (priced as indicated in extended table below).

Cutting diameter reduced for small steps or pilot.

Radius end or end chamfer other than 45°.

End cutting.

Rose grind (twice normal back taper).

Short shank or undersize shank diameter.

Flat on shank or tanged shank.

Semi-finished type reamers in stock (see page 73).

Closer tolerance.

For .0002" add \$1.00 per tool.

For .0001" add \$3.00 per tool.

TOOL DIAMETER		SHANK DIAMETER	NUMBER OF FLUTES	LENGTH		TYPE 2410 RIGHT EDP NO.	PRICE	TYPE 2420 LEFT EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL						1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	1/64	4	1 1/8	4 1/2	241006	\$51.25	242006	\$51.25	0.1770 - 0.2040	\$84.50	\$67.80	\$62.25	\$59.55	\$56.70	\$54.50
7/32	.2188	1/64	4	1 1/4	5	241007	51.25	242007	51.25	0.2041 - 0.2210	84.50	67.80	62.25	59.55	56.70	54.50
15/64	.2344	3/32	4	1 1/2	6	24102344	51.25	24202344	51.25	0.2211 - 0.2380	84.50	67.80	62.25	59.55	56.70	54.50
1/4	.2500	1/64	4	1 1/2	6	241008	51.25	242008	51.25	0.2381 - 0.2530	84.50	67.80	62.25	59.55	56.70	54.50
9/32	.2812	1/64	4	1 1/2	6	241009	51.40	242009	51.40	0.2531 - 0.2840	84.60	67.95	62.35	59.70	56.85	54.60
5/16	.3125	3/32	4	1 1/2	6	241010	51.40	242010	51.40	0.2841 - 0.3150	84.60	67.95	62.35	59.70	56.85	54.60
11/32	.3438	3/32	4	1 1/2	6	241011	56.55	242011	56.55	0.3151 - 0.3470	89.80	73.10	67.55	64.90	62.05	59.85
3/8	.3750	5/16	4	1 3/4	7	241012	57.10	242012	57.10	0.3471 - 0.3780	90.30	73.65	68.05	65.50	62.65	60.35
13/32	.4062	5/16	4	1 3/4	7	241013	59.65	242013	59.65	0.3781 - 0.4090	92.90	76.25	70.70	68.00	65.10	62.90
7/16	.4375	3/8	4	1 3/4	7	241014	62.05	242014	62.05	0.4091 - 0.4410	95.25	78.60	73.05	70.40	67.55	65.30
15/32	.4688	3/8	4	1 3/4	7	241015	65.85	242015	65.85	0.4411 - 0.4720	99.10	82.45	76.90	74.20	71.40	69.05
1/2	.5000	7/16	6	2	8	241016	68.35	242016	68.35	0.4721 - 0.5030	102.40	85.25	79.60	76.90	74.00	71.65
17/32	.5312	7/16	6	2	8	241017	70.40	242017	70.40	0.5031 - 0.5340	104.55	87.45	81.75	79.00	76.10	73.75
9/16	.5625	7/16	6	2	8	241018	70.40	242018	70.40	0.5341 - 0.5660	104.55	87.45	81.75	79.00	76.10	73.75
19/32	.5938	7/16	6	2	8	241019	72.50	242019	72.50	0.5661 - 0.5970	106.60	89.55	83.80	81.05	78.15	75.80
5/8	.6250	9/16	6	2 1/4	9	241020	72.50	242020	72.50	0.5971 - 0.6280	106.60	89.55	83.80	81.05	78.15	75.80
21/32	.6562	9/16	6	2 1/4	9	241021	74.55	242021	74.55	0.6281 - 0.6590	108.75	91.65	85.90	83.15	80.20	78.00
11/16	.6875	9/16	6	2 1/4	9	241022	79.45	242022	79.45	0.6591 - 0.6910	113.50	96.40	90.70	87.95	85.05	82.80
23/32	.7188	9/16	6	2 1/4	9	241023	80.50	242023	80.50	0.6911 - 0.7220	114.60	97.50	91.80	89.10	86.15	83.85
3/4	.7500	5/8	6	2 1/2	9 1/2	241024	81.80	242024	81.80	0.7221 - 0.7530	115.90	98.80	93.10	90.35	87.45	85.10
25/32	.7812	5/8	6	2 1/2	9 1/2	241025	83.85	242025	83.85	0.7531 - 0.7840	118.05	100.95	95.20	92.45	89.55	87.20
13/16	.8125	5/8	6	2 1/2	9 1/2	241026	83.85	242026	83.85	0.7841 - 0.8160	118.05	100.95	95.20	92.45	89.55	87.20
27/32	.8438	5/8	6	2 1/2	9 1/2	241027	88.45	242027	88.45	0.8161 - 0.8470	122.65	105.50	99.80	97.10	94.10	91.80
7/8	.8750	3/4	6	2 5/8	10	241028	91.80	242028	91.80	0.8471 - 0.8780	127.20	109.50	103.45	100.75	97.65	95.25
29/32	.9062	3/4	6	2 5/8	10	241029	106.95	242029	106.95	0.8781 - 0.9090	142.35	124.65	118.70	115.85	112.80	110.45
15/16	.9375	3/4	8	2 5/8	10	241030	106.95	242030	106.95	0.9091 - 0.9410	142.35	124.65	118.70	115.85	112.80	110.45
31/32	.9688	3/4	8	2 5/8	10	241031	112.15	242031	112.15	0.9411 - 0.9720	147.60	129.80	123.95	121.05	118.00	115.65
1	1.0000	7/8	8	2 3/4	10 1/2	241032	112.15	242032	112.15	0.9721 - 1.0030	147.60	129.80	123.95	121.05	118.00	115.65
1 1/16	1.0625	7/8	8	2 3/4	10 1/2	241034	120.30	242034	120.30	1.0031 - 1.0660	155.75	138.00	132.10	129.20	126.15	123.80
1 1/8	1.1250	7/8	8	2 7/8	11	241036	124.05	242036	124.05	1.0661 - 1.1280	159.40	141.75	135.75	132.90	129.85	127.55
1 3/16	1.1875	1	8	2 7/8	11	241038	130.35	242038	130.35	1.1281 - 1.1905	165.75	148.00	142.05	139.20	136.20	133.80
1 1/4	1.2500	1	8	3	11 1/2	241040	137.95	242040	137.95	1.1906 - 1.2530	173.35	155.55	149.70	146.85	143.80	141.45
1 5/16	1.3125	1	8	3	11 1/2	241042	152.60	242042	152.60	1.2531 - 1.3155	188.10	170.35	164.30	161.55	158.50	156.10
1 3/8	1.3750	1	8	3 1/4	12	241044	167.25	242044	167.25	1.3156 - 1.3780	202.65	184.95	179.00	176.20	173.10	170.75
1 7/16	1.4375	1 1/4	8	3 1/4	12	241046	177.15	242046	177.15	1.3781 - 1.4405	212.60	194.85	188.90	186.15	183.05	180.65
1 1/2	1.5000	1 1/4	8	3 1/2	12 1/2	241048	187.15	242048	187.15	1.4406 - 1.5030	222.55	204.80	198.95	196.00	193.05	190.65

*Quantities of 15 or more: price of fractional size in same size range.



EXPANSION CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE AND STRAIGHT SHANK



TYPE 2465 - FINISHED FRACTIONAL SIZES

Expansion screw permits expansion of cutting diameter for re-grinding after wear without reinserting carbide.

Straight shank and straight polished flutes.

Flute long carbide tips brazed to one piece alloy steel bodies.

Cutting diameter tolerance plus .0003" minus .0000".

Guaranteed minimum expansion - see pg. 66.

OPTIONS: See page 66.

USE:

Expansion reamers are recommended for reaming abrasive materials and as the diameter wears down, the reamers can be expanded many times by tightening the end screw and regrounding it to original size. Because this procedure can be repeated several times, the expansion reamer is a very economical tool. Expansion reamers should not be expanded to use at diameters larger than listed diameters nor be considered as adjustable for use in producing holes of several sizes. The expansion screw should never be loosened.

TOOL DIAMETER		SHANK DIAM.	NO. OF FLUTES	LENGTH		TYPE 2465 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE & CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
5/16	.3125	5/32	4	1	6	246510	\$67.10	0.2841 - 0.3150	\$102.05	\$84.55	\$78.60	\$76.00	\$73.00	\$70.60
11/32	.3438	5/32	4	1	6	246511	67.10	0.3151 - 0.3470	102.05	84.55	78.60	76.00	73.00	70.60
3/8	.3750	5/16	4	1	7	246512	62.90	0.3471 - 0.3780	95.70	79.25	73.70	71.15	68.35	66.10
13/32	.4062	5/16	4	1	7	246513	66.80	0.3781 - 0.4090	99.45	83.05	77.60	75.00	72.20	69.95
7/16	.4375	3/8	4	1	7	246514	66.80	0.4091 - 0.4410	99.45	83.05	77.60	75.00	72.20	69.95
15/32	.4688	3/8	4	1	7	246515	70.80	0.4411 - 0.4720	103.40	87.05	81.65	79.00	76.20	74.05
1/2	.5000	7/16	6	1	8	246516	70.80	0.4721 - 0.5030	103.40	87.05	81.65	79.00	76.20	74.05
17/32	.5312	7/16	6	1	8	246517	72.50	0.5031 - 0.5340	105.30	88.90	83.40	80.80	78.00	75.75
9/16	.5625	7/16	6	1 1/8	8	246518	72.50	0.5341 - 0.5660	105.30	88.90	83.40	80.80	78.00	75.75
19/32	.5938	7/16	6	1 1/8	8	246519	75.70	0.5661 - 0.5970	108.45	92.10	86.60	83.95	81.15	78.95
5/8	.6250	9/16	6	1 1/4	9	246520	75.70	0.5971 - 0.6280	108.45	92.10	86.60	83.95	81.15	78.95
21/32	.6562	9/16	6	1 1/4	9	246521	82.85	0.6281 - 0.6590	115.50	99.10	93.65	91.05	88.20	86.00
11/16	.6875	9/16	6	1 1/4	9	246522	82.85	0.6591 - 0.6910	115.50	99.10	93.65	91.05	88.20	86.00
23/32	.7188	9/16	6	1 1/4	9	246523	85.85	0.6911 - 0.7220	118.65	102.15	96.65	94.10	91.30	89.10
3/4	.7500	5/8	6	1 3/8	9 1/2	246524	85.85	0.7221 - 0.7530	118.65	102.15	96.65	94.10	91.30	89.10
25/32	.7812	5/8	6	1 3/8	9 1/2	246525	92.55	0.7531 - 0.7840	125.30	108.90	103.35	100.80	98.00	95.80
13/16	.8125	5/8	6	1 3/8	9 1/2	246526	92.55	0.7841 - 0.8160	125.30	108.90	103.35	100.80	98.00	95.80
27/32	.8438	5/8	6	1 3/8	9 1/2	246527	96.25	0.8161 - 0.8470	128.85	112.55	107.05	104.40	101.70	99.40
7/8	.8750	3/4	6	1 1/2	10	246528	99.85	0.8471 - 0.8780	133.70	116.75	111.00	108.40	105.45	103.15
29/32	.9062	3/4	6	1 1/2	10	246529	106.25	0.8781 - 0.9090	140.25	123.15	117.55	114.85	111.90	109.60
15/16	.9375	3/4	8	1 1/2	10	246530	106.25	0.9091 - 0.9410	140.25	123.15	117.55	114.85	111.90	109.60
31/32	.9688	3/4	8	1 1/2	10	246531	110.45	0.9411 - 0.9720	144.30	127.35	121.60	118.95	116.00	113.70
1	1.0000	7/8	8	1 5/8	10 1/2	246532	110.45	0.9721 - 1.0030	144.30	127.35	121.60	118.95	116.00	113.70
1 1/32	1.0312	7/8	8	1 5/8	10 1/2	246533	121.00	-	-	-	-	-	-	-
1 1/16	1.0625	7/8	8	1 5/8	10 1/2	246534	121.00	1.0031 - 1.0660	154.95	137.95	132.25	129.55	126.60	124.30
1 3/32	1.0938	7/8	8	1 3/4	11	246535	121.00	-	-	-	-	-	-	-
1 1/8	1.1250	7/8	8	1 3/4	11	246536	121.00	1.0661 - 1.1280	154.95	137.95	132.25	129.55	126.60	124.30
1 3/16	1.1875	1	8	1 3/4	11	246538	132.05	1.1281 - 1.1905	166.00	148.95	143.25	140.55	137.60	135.45
1 1/4	1.2500	1	8	1 7/8	11 1/2	246540	132.05	1.1906 - 1.2530	166.00	148.95	143.25	140.55	137.60	135.45
1 5/16	1.3125	1	8	1 7/8	11 1/2	246542	146.35	1.2531 - 1.3155	180.35	163.35	157.70	154.95	152.00	149.80
1 3/8	1.3750	1	8	2	12	246544	153.30	1.3156 - 1.3780	187.20	170.20	164.50	161.90	158.85	156.60
1 7/16	1.4375	1 1/4	8	2	12	246546	181.15	1.3781 - 1.4405	217.35	199.20	193.10	190.20	187.10	184.70
1 1/2	1.5000	1 1/4	8	2 1/8	12 1/2	246548	186.40	1.4406 - 1.5030	222.65	204.45	198.45	195.60	192.45	189.95
1 9/16	1.5625	1 1/4	8	2 1/8	12 1/2	246550	244.85	1.5031 - 1.5660	281.00	262.95	256.75	253.85	250.80	248.35
1 5/8	1.6250	1 1/4	8	2 1/4	13	246552	244.85	1.5661 - 1.6280	281.00	262.95	256.75	253.85	250.80	248.35
1 11/16	1.6875	1 1/4	8	2 1/4	13	246554	271.15	1.6281 - 1.6910	307.35	289.20	283.20	280.25	277.20	274.65
1 3/4	1.7500	1 1/4	10	2 3/8	13 1/2	246556	271.15	1.6911 - 1.7530	307.35	289.20	283.20	280.25	277.20	274.65
1 13/16	1.8125	1 1/2	10	2 3/8	13 1/2	246558	321.10	1.7531 - 1.8160	357.20	339.10	333.05	330.15	327.10	324.60
1 7/8	1.8750	1 1/2	10	2 1/2	14	246560	321.10	1.8161 - 1.8780	357.20	339.10	333.05	330.15	327.10	324.60
1 15/16	1.9375	1 1/2	10	2 1/2	14	246562	350.80	1.8781 - 1.9410	386.95	368.85	362.75	359.80	356.80	354.30
2	2.0000	1 1/2	12	2 1/2	14	246564	350.80	1.9411 - 2.0030	386.95	368.85	362.75	359.80	356.80	354.30
2 1/8	2.1250	1 1/2	12	2 3/4	14 1/2	246568	569.75	2.0031 - 2.1280	606.00	587.85	581.80	578.95	575.80	573.30
2 1/4	2.2500	1 3/4	12	2 3/4	14 1/2	246572	611.95	2.1281 - 2.2530	648.05	629.95	623.90	621.00	617.90	615.45
2 3/8	2.3750	1 3/4	12	3	15	246576	633.25	2.2531 - 2.3780	669.50	651.35	645.25	642.35	639.25	636.75
2 1/2	2.5000	1 3/4	12	3	15	246580	633.25	2.3781 - 2.5030	669.50	651.35	645.25	642.35	639.25	636.75

*Quantities of 15 or more: price of fractional size in same size range.



EXPANSION CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE & STRAIGHT SHANK

TYPE 2465 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2465 METRIC EDP NO.	METRIC PRICE	DIMENSIONS				SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE							
mm	INCH			SHANK DIAM.	NO. OF FLUTES	LENGTH			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14	
						FLUTE & CARBIDE	OVERALL									
7.5	.2953	2465075	\$78.60	5/32	4	1	6	7.215 -8.001	\$105.00	\$87.55	\$81.70	\$78.90	\$76.00	\$73.50	\$70.10	
8.0	.3150	2465080	78.60	5/32	4	1	6	-	-	-	-	-	-	-	-	
8.5	.3346	2465085	78.60	5/32	4	1	6	8.002 -8.814	105.00	87.55	81.70	78.90	76.00	73.50	70.10	
9.0	.3543	2465090	73.70	5/16	4	1	7	8.815 -9.601	98.45	82.05	76.55	74.00	71.15	68.90	65.75	
9.5	.3740	2465095	73.70	5/16	4	1	7	-	-	-	-	-	-	-	-	
10.0	.3937	2465100	77.60	5/16	4	1	7	9.602 -10.389	102.15	85.85	80.40	77.70	75.00	72.65	69.60	
10.5	.4134	2465105	77.60	3/8	4	1	7	10.390 -11.201	102.15	85.85	80.40	77.70	75.00	72.65	69.60	
11.0	.4331	2465110	77.60	3/8	4	1	7	-	-	-	-	-	-	-	-	
11.5	.4528	2465115	81.65	3/8	4	1	7	11.202 -11.989	106.15	89.90	84.35	81.75	79.00	76.70	73.55	
12.0	.4724	2465120	81.65	7/16	6	1	8	11.990 -12.776	106.15	89.90	84.35	81.75	79.00	76.70	73.55	
12.5	.4921	2465125	81.65	7/16	6	1	8	-	-	-	-	-	-	-	-	
13.0	.5118	2465130	83.40	7/16	6	1	8	12.777 -13.564	108.05	91.70	86.20	83.60	80.80	78.50	75.40	
13.5	.5315	2465135	83.40	7/16	6	1	8	-	-	-	-	-	-	-	-	
14.0	.5512	2465140	83.40	7/16	6	1 1/8	8	13.565 -14.376	108.05	91.70	86.20	83.60	80.80	78.50	75.40	
14.5	.5709	2465145	86.60	7/16	6	1 1/8	8	14.377 -15.164	111.20	94.80	89.35	86.70	83.95	81.70	78.50	
15.0	.5906	2465150	86.60	7/16	6	1 1/8	8	-	-	-	-	-	-	-	-	
15.5	.6102	2465155	86.60	9/16	6	1 1/4	9	15.165 -15.951	111.20	94.80	89.35	86.70	83.95	81.70	78.50	
16.0	.6299	2465160	93.65	9/16	6	1 1/4	9	15.952 -16.739	118.20	101.95	96.45	93.75	91.05	88.80	85.65	
16.5	.6496	2465165	93.65	9/16	6	1 1/4	9	-	-	-	-	-	-	-	-	
17.0	.6693	2465170	93.65	9/16	6	1 1/4	9	16.740 -17.551	118.20	101.95	96.45	93.75	91.05	88.80	85.65	
17.5	.6890	2465175	93.65	9/16	6	1 1/4	9	-	-	-	-	-	-	-	-	
18.0	.7087	2465180	96.65	9/16	6	1 1/4	9	17.552 -18.339	121.35	105.00	99.50	96.90	94.10	91.85	88.70	
18.5	.7283	2465185	96.65	5/8	6	1 3/8	9 1/2	18.340 -19.126	121.35	105.00	99.50	96.90	94.10	91.85	88.70	
19.0	.7480	2465190	96.65	5/8	6	1 3/8	9 1/2	-	-	-	-	-	-	-	-	
19.5	.7677	2465195	103.35	5/8	6	1 3/8	9 1/2	19.127 -19.914	128.10	111.75	106.15	103.45	100.80	98.55	95.35	
20.0	.7874	2465200	103.35	5/8	6	1 3/8	9 1/2	19.915 -20.726	128.10	111.75	106.15	103.45	100.80	98.55	95.35	
20.5	.8071	2465205	103.35	5/8	6	1 3/8	9 1/2	-	-	-	-	-	-	-	-	
21.0	.8268	2465210	107.05	5/8	6	1 3/8	9 1/2	20.727 -21.514	131.65	115.35	109.80	107.15	104.40	102.10	99.00	
21.5	.8465	2465215	107.05	5/8	6	1 3/8	9 1/2	-	-	-	-	-	-	-	-	
22.0	.8661	2465220	107.05	3/4	6	1 1/2	10	21.515 -22.301	131.65	115.35	109.80	107.15	104.40	102.10	99.00	
22.5	.8858	2465225	117.55	3/4	6	1 1/2	10	22.302 -23.089	143.05	126.15	120.40	117.65	114.85	112.50	109.20	
23.0	.9055	2465230	117.55	3/4	6	1 1/2	10	-	-	-	-	-	-	-	-	
23.5	.9252	2465235	117.55	3/4	8	1 1/2	10	23.090 -23.901	143.05	126.15	120.40	117.65	114.85	112.50	109.20	
24.0	.9449	2465240	121.60	3/4	8	1 1/2	10	23.902 -24.689	147.15	130.25	124.60	121.75	118.95	116.55	113.30	
24.5	.9646	2465245	121.60	3/4	8	1 1/2	10	-	-	-	-	-	-	-	-	
25.0	.9843	2465250	121.60	7/8	8	1 5/8	10 1/2	24.690 -25.476	147.15	130.25	124.60	121.75	118.95	116.55	113.30	
25.5	1.0039	2465255	132.25	7/8	8	1 5/8	10 1/2	25.477 -27.076	157.80	140.85	135.10	132.35	129.55	127.15	123.90	
26.0	1.0236	2465260	132.25	7/8	8	1 5/8	10 1/2	-	-	-	-	-	-	-	-	
27.0	1.0630	2465270	132.25	7/8	8	1 5/8	10 1/2	-	-	-	-	-	-	-	-	
28.0	1.1024	2465280	132.25	7/8	8	1 3/4	11	27.077 -28.651	157.80	140.85	135.10	132.35	129.55	127.15	123.90	
29.0	1.1417	2465290	143.25	1	8	1 3/4	11	28.652 -30.239	168.80	151.85	146.20	143.35	140.55	138.25	134.90	
30.0	1.1811	2465300	143.25	1	8	1 3/4	11	-	-	-	-	-	-	-	-	
31.0	1.2205	2465310	143.25	1	8	1 7/8	11 1/2	30.240 -31.826	168.80	151.85	146.20	143.35	140.55	138.25	134.90	
32.0	1.2598	2465320	157.70	1	8	1 7/8	11 1/2	31.827 -33.414	183.15	166.20	160.60	157.80	154.95	152.60	149.35	
33.0	1.2992	2465330	157.70	1	8	1 7/8	11 1/2	-	-	-	-	-	-	-	-	
34.0	1.3386	2465340	164.50	1	8	2	12	33.415 -35.001	190.05	173.10	167.40	164.70	161.90	159.45	156.15	
35.0	1.3780	2465350	164.50	1	8	2	12	-	-	-	-	-	-	-	-	
36.0	1.4173	2465360	193.10	1 1/4	8	2	12	35.002 -36.589	220.30	202.30	196.25	193.25	190.20	187.70	184.25	
37.0	1.4567	2465370	198.45	1 1/4	8	2 1/8	12 1/2	36.590 -38.176	225.70	207.65	201.60	198.55	195.60	193.05	189.60	
38.0	1.4961	2465380	198.45	1 1/4	8	2 1/8	12 1/2	-	-	-	-	-	-	-	-	
39.0	1.5354	2465390	256.75	1 1/4	8	2 1/8	12 1/2	38.177 -39.776	284.05	265.95	259.85	256.95	253.85	251.30	247.90	
40.0	1.5748	2465400	256.75	1 1/4	8	2 1/4	13	39.777 -41.351	284.05	265.95	259.85	256.95	253.85	251.30	247.90	
41.0	1.6142	2465410	256.75	1 1/4	8	2 1/4	13	-	-	-	-	-	-	-	-	
42.0	1.6535	2465420	283.20	1 1/4	8	2 1/4	13	41.352 -42.951	310.35	292.30	286.25	283.35	280.25	277.70	274.20	
43.0	1.6929	2465430	283.20	1 1/4	10	2 3/8	13 1/2	42.952 -44.526	310.35	292.30	286.25	283.35	280.25	277.70	274.20	
44.0	1.7323	2465440	283.20	1 1/4	10	2 3/8	13 1/2	-	-	-	-	-	-	-	-	

Modified tool diameters are available up to 63mm - contact us for price.



EXPANSION CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE AND TAPER SHANK



TYPE 2467 - FINISHED FRACTIONAL SIZES

Expansion screw permits expansion of cutting diameter for regrounding after wear without reinserting carbide.

Taper shank and straight polished flutes.

Flute long carbide tips brazed to one piece alloy steel bodies.

Cutting diameter tolerance plus .0003" minus .0000".

TOOL DIAMETER	GUARANTEED MINIMUM EXPANSION
$\frac{5}{16}$ " - $\frac{1}{32}$ "	.006"
$\frac{1}{2}$ " - $\frac{3}{32}$ "	.010"
1" - $1\frac{1}{2}$ "	.013"
$1\frac{9}{16}$ " - $2\frac{1}{2}$ "	.015"

OPTIONS:

Intermediate decimal and metric sizes (priced as indicated in extended table below).

Cutting diameter reduced for small steps or pilot.

Radius end or end chamfer other than 45°.

End cutting.

Rose grind (twice normal back taper).

Type 2465 semi-finished reamers in stock. (see pg. 73).

Closer tolerance.

For +.0002" add \$1.00 per tool.

For +.0001" add \$3.00 per tool.

USE - See page 64.

TOOL DIAMETER		MORSE TAPER	NO. OF FLUTES	LENGTH		TYPE 2467 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE & CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
$\frac{5}{16}$	.3125	1	4	1	6	246710	\$75.60	0.2841 - 0.3150	\$110.55	\$93.00	\$87.20	\$84.35	\$81.45	\$79.05
$\frac{1}{32}$	.3438	1	4	1	6	246711	75.60	0.3151 - 0.3470	110.55	93.00	87.20	84.35	81.45	79.05
$\frac{3}{8}$	.3750	1	4	1	7	246712	70.90	0.3471 - 0.3780	103.65	87.20	81.75	79.15	76.35	74.15
$\frac{1}{2}$	.4062	1	4	1	7	246713	73.10	0.3781 - 0.4090	105.80	89.35	83.90	81.30	78.45	76.25
$\frac{7}{16}$	.4375	1	4	1	7	246714	73.10	0.4091 - 0.4410	105.80	89.35	83.90	81.30	78.45	76.25
$\frac{1}{2}$	.4688	1	4	1	7	246715	76.65	0.4411 - 0.4720	109.40	93.00	87.50	84.90	82.05	79.85
$\frac{1}{2}$	.5000	1	6	1	8	246716	76.65	0.4721 - 0.5030	109.40	93.00	87.50	84.90	82.05	79.85
$\frac{1}{2}$	.5312	1	6	1	8	246717	79.00	0.5031 - 0.5340	111.75	95.30	89.85	87.20	84.35	82.15
$\frac{9}{16}$	.5625	1	6	1 1/8	8	246718	79.00	0.5341 - 0.5660	111.75	95.30	89.85	87.20	84.35	82.15
$\frac{1}{2}$	.5938	1	6	1 1/8	8	246719	82.15	0.5661 - 0.5970	114.90	98.55	93.10	90.45	87.70	85.45
$\frac{5}{8}$	.6250	2	6	1 1/4	9	246720	82.15	0.5971 - 0.6280	114.90	98.55	93.10	90.45	87.70	85.45
$\frac{1}{2}$	.6562	2	6	1 1/4	9	246721	92.50	0.6281 - 0.6590	125.25	108.75	103.30	100.75	97.90	95.75
$\frac{1}{2}$	.6875	2	6	1 1/4	9	246722	92.50	0.6591 - 0.6910	125.25	108.75	103.30	100.75	97.90	95.75
$\frac{3}{4}$	.7188	2	6	1 1/4	9	246723	92.70	0.6911 - 0.7220	125.50	109.15	103.65	101.05	98.15	96.00
$\frac{3}{4}$	.7500	2	6	1 3/8	9 1/2	246724	92.70	0.7221 - 0.7530	125.50	109.15	103.65	101.05	98.15	96.00
$\frac{3}{4}$	.7812	2	6	1 3/8	9 1/2	246725	99.60	0.7531 - 0.7840	132.35	115.90	110.50	107.90	105.00	102.85
$\frac{13}{16}$	.8125	2	6	1 3/8	9 1/2	246726	99.60	0.7841 - 0.8160	132.35	115.90	110.50	107.90	105.00	102.85
$\frac{7}{8}$	.8438	2	6	1 3/8	9 1/2	246727	103.80	0.8161 - 0.8470	136.50	120.10	114.60	111.95	109.20	106.95
$\frac{7}{8}$	.8750	2	6	1 1/2	10	246728	107.75	0.8471 - 0.8780	141.60	124.70	118.95	116.25	113.30	110.95
$\frac{7}{8}$	.9062	2	6	1 1/2	10	246729	113.90	0.8781 - 0.9090	147.85	130.85	125.10	122.40	119.50	117.25
$\frac{15}{16}$	.9375	3	8	1 1/2	10	246730	113.90	0.9091 - 0.9410	147.85	130.85	125.10	122.40	119.50	117.25
$\frac{15}{16}$	.9688	3	8	1 1/2	10	246731	118.05	0.9411 - 0.9720	151.90	134.90	129.20	126.50	123.65	121.30
1	1.0000	3	8	1 5/8	10 1/2	246732	118.05	0.9721 - 1.0030	151.90	134.90	129.20	126.50	123.65	121.30
1	1.0312	3	8	1 5/8	10 1/2	246733	129.10	-	-	-	-	-	-	-
1 1/16	1.0625	3	8	1 5/8	10 1/2	246734	129.10	1.0031 - 1.0660	163.20	146.10	140.40	137.70	134.80	132.45
1 1/16	1.0938	3	8	1 3/4	11	246735	129.10	-	-	-	-	-	-	-
1 1/8	1.1250	3	8	1 3/4	11	246736	129.10	1.0661 - 1.1280	163.20	146.10	140.40	137.70	134.80	132.45
1 1/8	1.1875	3	8	1 3/4	11	246738	145.25	1.1281 - 1.1905	179.15	162.15	156.50	153.80	150.90	148.60
1 1/4	1.2500	4	8	1 7/8	11 1/2	246740	147.20	1.1906 - 1.2530	181.15	164.15	158.50	155.80	152.80	150.55
1 1/4	1.3125	4	8	1 7/8	11 1/2	246742	160.90	1.2531 - 1.3155	194.85	177.80	172.10	169.45	166.60	164.20
1 1/4	1.3750	4	8	2	12	246744	176.30	1.3156 - 1.3780	210.15	193.20	187.55	184.80	181.85	179.55
1 1/4	1.4375	4	8	2	12	246746	197.85	1.3781 - 1.4405	234.05	215.95	209.85	206.95	203.85	201.40
1 1/2	1.5000	4	8	2 1/8	12 1/2	246748	204.90	1.4406 - 1.5030	241.15	222.90	216.80	214.00	210.85	208.40
1 1/2	1.5625	4	8	2 1/8	12 1/2	246750	281.50	1.5031 - 1.5660	317.75	299.60	293.55	290.70	287.50	285.05
1 1/2	1.6250	4	8	2 1/4	13	246752	281.50	1.5661 - 1.6280	317.75	299.60	293.55	290.70	287.50	285.05
1 1/2	1.6875	4	8	2 1/4	13	246754	311.80	1.6281 - 1.6910	348.05	329.90	323.80	320.85	317.80	315.35
1 3/4	1.7500	4	10	2 3/8	13 1/2	246756	311.80	1.6911 - 1.7530	348.05	329.90	323.80	320.85	317.80	315.35
1 3/4	1.8125	4	10	2 3/8	13 1/2	246758	369.15	1.7531 - 1.8160	405.40	387.30	381.25	378.30	375.15	372.75
1 7/8	1.8750	4	10	2 1/2	14	246760	369.15	1.8161 - 1.8780	405.40	387.30	381.25	378.30	375.15	372.75
1 7/8	1.9375	4	10	2 1/2	14	246762	403.45	1.8781 - 1.9410	439.60	421.45	415.35	412.50	409.35	407.05
2	2.0000	4	12	2 1/2	14	246764	403.45	1.9411 - 2.0030	439.60	421.45	415.35	412.50	409.35	407.05
2 1/8	2.1250	5	12	2 3/4	14 1/2	246768	604.00	2.0031 - 2.1280	640.20	622.10	616.00	613.10	610.05	607.55
2 1/4	2.2500	5	12	2 3/4	14 1/2	246772	648.65	2.1281 - 2.2530	684.90	666.70	660.70	657.70	654.65	652.25
2 3/8	2.3750	5	12	3	15	246776	671.20	2.2531 - 2.3780	707.35	689.30	683.15	680.35	677.20	674.80
2 1/2	2.5000	5	12	3	15	246780	671.20	2.3781 - 2.5030	707.35	689.30	683.15	680.35	677.20	674.80

*Quantities of 15 or more: price of fractional size in same size range.



EXPANSION CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE & TAPER SHANK

TYPE 2467 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2467 METRIC EDP NO.	METRIC PRICE	DIMENSIONS				SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
				MORSE TAPER	NO. OF FLUTES	LENGTH			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
		FLUTE & CARBIDE	OVERALL												
7.5	.2953	2467075	\$87.20	1	4	1	6	7.215 -8.001	\$113.45	\$96.05	\$90.25	\$87.35	\$84.35	\$81.95	\$78.55
8.0	.3150	2467080	87.20	1	4	1	6	-	-	-	-	-	-	-	-
8.5	.3346	2467085	87.20	1	4	1	6	8.002 -8.814	113.45	96.05	90.25	87.35	84.35	81.95	78.55
9.0	.3543	2467090	81.75	1	4	1	7	8.815 -9.601	106.35	90.00	84.55	81.85	79.15	76.85	73.65
9.5	.3740	2467095	81.75	1	4	1	7	-	-	-	-	-	-	-	-
10.0	.3937	2467100	83.90	1	4	1	7	9.602 -10.389	108.50	92.25	86.70	84.00	81.30	79.00	75.80
10.5	.4134	2467105	83.90	1	4	1	7	10.390 -11.201	108.50	92.25	86.70	84.00	81.30	79.00	75.80
11.0	.4331	2467110	83.90	1	4	1	7	-	-	-	-	-	-	-	-
11.5	.4528	2467115	87.50	1	4	1	7	11.202 -11.989	112.15	95.80	90.35	87.70	84.90	82.65	79.45
12.0	.4724	2467120	87.50	1	6	1	8	11.990 -12.776	112.15	95.80	90.35	87.70	84.90	82.65	79.45
12.5	.4921	2467125	87.50	1	6	1	8	-	-	-	-	-	-	-	-
13.0	.5118	2467130	89.85	1	6	1	8	12.777 -13.564	114.50	98.10	92.60	89.95	87.20	85.00	81.80
13.5	.5315	2467135	89.85	1	6	1	8	-	-	-	-	-	-	-	-
14.0	.5512	2467140	89.85	1	6	1 ½	8	13.565 -14.376	114.50	98.10	92.60	89.95	87.20	85.00	81.80
14.5	.5709	2467145	93.10	1	6	1 ½	8	14.377 -15.164	117.65	101.30	95.90	93.25	90.45	88.15	85.05
15.0	.5906	2467150	93.10	1	6	1 ½	8	-	-	-	-	-	-	-	-
15.5	.6102	2467155	93.10	2	6	1 ¼	9	15.165 -15.951	117.65	101.30	95.90	93.25	90.45	88.15	85.05
16.0	.6299	2467160	103.30	2	6	1 ¼	9	15.952 -16.739	128.00	111.60	106.10	103.40	100.75	98.50	95.30
16.5	.6496	2467165	103.30	2	6	1 ¼	9	-	-	-	-	-	-	-	-
17.0	.6693	2467170	103.30	2	6	1 ¼	9	16.740 -17.551	128.00	111.60	106.10	103.40	100.75	98.50	95.30
17.5	.6890	2467175	103.30	2	6	1 ¼	9	-	-	-	-	-	-	-	-
18.0	.7087	2467180	103.65	2	6	1 ¼	9	17.552 -18.339	128.25	111.90	106.50	103.80	101.05	98.70	95.60
18.5	.7283	2467185	103.65	2	6	1 ¾	9 ½	18.340 -19.126	128.25	111.90	106.50	103.80	101.05	98.70	95.60
19.0	.7480	2467190	103.65	2	6	1 ¾	9 ½	-	-	-	-	-	-	-	-
19.5	.7677	2467195	110.50	2	6	1 ¾	9 ½	19.127 -19.914	135.05	118.80	113.30	110.60	107.90	105.55	102.40
20.0	.7874	2467200	110.50	2	6	1 ¾	9 ½	19.915 -20.726	135.05	118.80	113.30	110.60	107.90	105.55	102.40
20.5	.8071	2467205	110.50	2	6	1 ¾	9 ½	-	-	-	-	-	-	-	-
21.0	.8268	2467210	114.60	2	6	1 ¾	9 ½	20.727 -21.514	139.20	122.90	117.45	114.70	111.95	109.65	106.60
21.5	.8465	2467215	114.60	2	6	1 ¾	9 ½	-	-	-	-	-	-	-	-
22.0	.8661	2467220	114.60	2	6	1 ½	10	21.515 -22.301	139.20	122.90	117.45	114.70	111.95	109.65	106.60
22.5	.8858	2467225	125.10	2	6	1 ½	10	22.302 -23.089	150.70	133.70	128.10	125.25	122.40	120.10	116.80
23.0	.9055	2467230	125.10	2	6	1 ½	10	-	-	-	-	-	-	-	-
23.5	.9252	2467235	125.10	3	8	1 ½	10	23.090 -23.901	150.70	133.70	128.10	125.25	122.40	120.10	116.80
24.0	.9449	2467240	129.20	3	8	1 ½	10	23.902 -24.689	154.80	137.90	132.20	129.45	126.50	124.15	120.95
24.5	.9646	2467245	129.20	3	8	1 ½	10	-	-	-	-	-	-	-	-
25.0	.9843	2467250	129.20	3	8	1 ⅝	10 ½	24.690 -25.476	154.80	137.90	132.20	129.45	126.50	124.15	120.95
25.5	1.0039	2467255	140.40	3	8	1 ⅝	10 ½	25.477 -27.076	166.00	149.00	143.30	140.55	137.70	135.45	132.10
26.0	1.0236	2467260	140.40	3	8	1 ⅝	10 ½	-	-	-	-	-	-	-	-
27.0	1.0630	2467270	140.40	3	8	1 ⅝	10 ½	-	-	-	-	-	-	-	-
28.0	1.1024	2467280	140.40	3	8	1 ¾	11	27.077 -28.651	166.00	149.00	143.30	140.55	137.70	135.45	132.10
29.0	1.1417	2467290	156.50	3	8	1 ¾	11	28.652 -30.239	182.00	165.10	159.40	156.60	153.80	151.40	148.10
30.0	1.1811	2467300	156.50	3	8	1 ¾	11	-	-	-	-	-	-	-	-
31.0	1.2205	2467310	158.50	4	8	1 ⅞	11 ½	30.240 -31.826	184.05	167.10	161.35	158.60	155.80	153.40	150.10
32.0	1.2598	2467320	172.10	4	8	1 ⅞	11 ½	31.827 -33.414	197.65	180.70	175.10	172.30	169.45	167.10	163.85
33.0	1.2992	2467330	172.10	4	8	1 ⅞	11 ½	-	-	-	-	-	-	-	-
34.0	1.3386	2467340	187.55	4	8	2	12	33.415 -35.001	213.00	196.15	190.40	187.65	184.80	182.40	179.15
35.0	1.3780	2467350	187.55	4	8	2	12	-	-	-	-	-	-	-	-
36.0	1.4173	2467360	209.85	4	8	2	12	35.002 -36.589	237.10	219.00	212.90	210.00	206.95	204.40	201.00
37.0	1.4567	2467370	216.80	4	8	2 ⅛	12 ½	36.590 -38.176	244.15	226.05	220.05	217.10	214.00	211.50	208.00
38.0	1.4961	2467380	216.80	4	8	2 ⅛	12 ½	-	-	-	-	-	-	-	-
39.0	1.5354	2467390	293.55	4	8	2 ⅛	12 ½	38.177 -39.776	320.75	302.70	296.70	293.65	290.70	288.15	284.65
40.0	1.5748	2467400	293.55	4	8	2 ¼	13	39.777 -41.351	320.75	302.70	296.70	293.65	290.70	288.15	284.65
41.0	1.6142	2467410	293.55	4	8	2 ¼	13	-	-	-	-	-	-	-	-
42.0	1.6535	2467420	323.80	4	8	2 ¼	13	41.352 -42.951	351.05	333.00	326.95	324.00	320.85	318.45	314.85
43.0	1.6929	2467430	323.80	4	10	2 ⅜	13 ½	42.952 -44.526	351.05	333.00	326.95	324.00	320.85	318.45	314.85
44.0	1.7323	2467440	323.80	4	10	2 ⅜	13 ½	-	-	-	-	-	-	-	-

Modified tool diameters are available up to 63mm - contact us for price.



SOLID CARBIDE HEAD REAMERS

STRAIGHT FLUTES & STRAIGHT STEEL SHANK

TYPE 2800 - FINISHED FRACTIONAL SIZES

Solid carbide head.

Straight steel shank on .1911" tool diameter and larger (smaller sizes have a straight solid carbide shank).

Diameters $\frac{7}{64}$ " and below provided with male centers.

Tool diameter tolerance thru .2500": plus .0002", minus .0000".
over .2500": plus .0003", minus .0000".

Shank diameter tolerance: plus .0000", minus .0010".

NOTE: For best results in reaming tough steel alloys and cast steels, we recommend Type 2480 Carbide Tipped Reamer (page 58).

This reamer utilizes a special steel cutting grade carbide with excellent cutting and wear characteristics.

OPTIONS:

Decimal sizes priced below.

Metric tool diameter.

Cutting diameter reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Increased/decreased circular margin.

Increased/decreased tool diam. back taper.

Shortened shank or reduced shank diameter.

Flat(s) or tang on shank.

TOOL DIAMETER		MAX. SHANK DIAM.	NUMBER OF FLUTES	LENGTH		TYPE 2800 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14**
* -	-	.0800	4	$\frac{3}{4}$	3	280099	-	.0811 - .0890	\$70.50	\$52.15	\$45.80	\$42.95	\$39.70	\$37.30
* $\frac{3}{32}$	.0938	.0880	4	$\frac{3}{4}$	3	280006	\$33.70	.0891 - .0970	70.50	52.15	45.80	42.95	39.70	37.30
* $\frac{7}{64}$	.1094	.0943	4	$\frac{7}{8}$	3 $\frac{1}{2}$	280007	33.70	.0971 - .1120	70.50	52.15	45.80	42.95	39.70	37.30
* $\frac{1}{8}$	.1250	.1099	4	$\frac{7}{8}$	3 $\frac{1}{2}$	280008	33.70	.1121 - .1280	70.50	52.15	45.80	42.95	39.70	37.30
* $\frac{9}{64}$	.1406	.1255	4	$\frac{7}{8}$	3 $\frac{1}{2}$	280009	38.50	.1281 - .1435	75.35	56.85	50.65	47.75	44.60	42.10
* $\frac{5}{32}$	.1562	.1411	4	1	4	280010	39.60	.1436 - .1590	76.40	58.00	51.75	48.85	45.65	43.30
* $\frac{11}{64}$	.1719	.1567	4	1	4	280011	44.65	.1591 - .1750	81.40	63.10	56.85	53.90	50.80	48.30
* $\frac{3}{16}$	.1875	.1724	4	1 $\frac{1}{8}$	4 $\frac{1}{2}$	280012	45.60	.1751 - .1910	82.45	64.00	57.75	54.85	51.70	49.30
$\frac{13}{64}$	.2031	.1880	6	1 $\frac{1}{4}$	5	280013	48.60	-	-	-	-	-	-	-
$\frac{7}{32}$	.2188	.1880	6	1 $\frac{1}{4}$	5	280014	48.60	.1911 - .2210	85.45	67.05	60.85	57.85	54.70	52.30
$\frac{15}{64}$	.2344	.2193	6	1 $\frac{1}{2}$	6	280015	51.70	-	-	-	-	-	-	-
$\frac{1}{4}$	.2500	.2193	6	1 $\frac{1}{2}$	6	280016	51.70	.2211 - .2530	88.50	70.05	63.90	61.05	57.75	55.35
$\frac{17}{64}$	.2656	.2505	6	1 $\frac{1}{2}$	6	280017	55.60	-	-	-	-	-	-	-
$\frac{9}{32}$	.2812	.2505	6	1 $\frac{1}{2}$	6	280018	55.60	.2531 - .2840	92.35	74.00	67.80	64.90	61.75	59.25
$\frac{19}{64}$	.2969	.2817	6	1 $\frac{5}{8}$	6	280019	57.85	-	-	-	-	-	-	-
$\frac{5}{16}$	.3125	.2817	6	1 $\frac{5}{8}$	6	280020	57.85	.2841 - .3150	94.65	76.25	70.05	67.15	64.00	61.50
$\frac{21}{64}$	.3281	.3130	6	1 $\frac{5}{8}$	6	280021	61.95	-	-	-	-	-	-	-
$\frac{11}{32}$	.3438	.3130	6	1 $\frac{5}{8}$	6	280022	61.95	.3151 - .3470	98.70	80.25	74.05	71.10	68.00	65.55
$\frac{23}{64}$	.3594	.3443	6	1 $\frac{3}{4}$	7	280023	66.60	-	-	-	-	-	-	-
$\frac{3}{8}$	.3750	.3443	6	1 $\frac{3}{4}$	7	280024	66.60	.3471 - .3780	103.35	84.90	78.75	75.85	72.70	70.25
$\frac{25}{64}$	.3906	.3755	6	1 $\frac{3}{4}$	7	280025	76.10	-	-	-	-	-	-	-
$\frac{13}{32}$	.4062	.3755	6	1 $\frac{3}{4}$	7	280026	76.10	.3781 - .4090	112.85	94.45	88.35	85.40	82.20	79.70
$\frac{27}{64}$	.4219	.4067	6	1 $\frac{3}{4}$	7	280027	80.85	-	-	-	-	-	-	-
$\frac{7}{16}$	.4375	.4067	6	1 $\frac{3}{4}$	7	280028	80.85	.4091 - .4410	117.60	99.15	93.05	90.15	86.90	84.40
$\frac{29}{64}$	.4531	.4380	6	1 $\frac{3}{4}$	8	280029	85.70	-	-	-	-	-	-	-
$\frac{15}{32}$	.4688	.4380	6	1 $\frac{3}{4}$	8	280030	85.70	.4411 - .4720	122.50	104.05	97.90	95.00	91.85	89.30
$\frac{31}{64}$	.4844	.4693	6	1 $\frac{3}{4}$	8	280031	92.00	-	-	-	-	-	-	-
$\frac{1}{2}$	.5000	.4693	6	1 $\frac{3}{4}$	8	280032	92.00	.4721 - .5030	128.85	110.40	104.15	101.25	98.10	95.65
$\frac{33}{64}$	.5156	.5005	6	1 $\frac{7}{8}$	9	280033	118.70	-	-	-	-	-	-	-
$\frac{17}{32}$	.5312	.5005	6	1 $\frac{7}{8}$	9	280034	118.70	.5031 - .5340	155.45	137.00	130.90	127.95	124.75	122.25
$\frac{35}{64}$	.5469	.5005	6	1 $\frac{7}{8}$	9	280035	140.10	-	-	-	-	-	-	-
$\frac{9}{16}$	.5625	.5005	6	1 $\frac{7}{8}$	9	280036	137.55	.5341 - .5660	173.65	155.50	149.45	146.60	143.50	141.10
$\frac{37}{64}$	.5781	.5630	6	1 $\frac{7}{8}$	9	280037	156.10	-	-	-	-	-	-	-
$\frac{19}{32}$	.5938	.5630	6	1 $\frac{7}{8}$	9	280038	156.10	.5661 - .5970	192.20	174.15	168.05	165.15	162.10	159.60
$\frac{39}{64}$	.6094	.5630	6	1 $\frac{7}{8}$	9	280039	157.85	-	-	-	-	-	-	-
$\frac{5}{8}$	.6250	.5630	6	1 $\frac{7}{8}$	9	280040	157.85	.5971 - .6280	193.90	175.80	169.85	166.95	163.85	161.35
$\frac{21}{32}$	.6562	.6255	6	2	9 $\frac{1}{2}$	280042	228.35	.6281 - .6590	262.70	245.50	239.75	237.00	234.40	231.70
$\frac{11}{16}$	.6875	.6255	6	2	9 $\frac{1}{2}$	280044	228.35	.6591 - .6910	262.70	245.50	239.75	237.00	234.40	231.70
$\frac{23}{32}$	.7188	.6880	6	2	9 $\frac{1}{2}$	280046	256.95	.6911 - .7220	291.30	274.05	268.35	265.55	263.00	260.30
$\frac{3}{4}$	.7500	.6880	6	2	9 $\frac{1}{2}$	280048	256.95	.7221 - .7530	291.30	274.05	268.35	265.55	263.00	260.30
$\frac{25}{32}$	.7812	.7505	8	2	10	280050	285.25	.7531 - .7840	319.55	302.35	296.60	293.85	291.20	288.50
$\frac{13}{16}$	.8125	.7817	8	2	10	280052	311.20	.7841 - .8160	345.55	328.30	322.60	319.85	317.25	314.55
$\frac{27}{32}$	.8438	.8130	8	2	10	280054	328.20	.8161 - .8470	362.55	345.35	339.60	336.85	334.20	331.55
$\frac{7}{8}$	.8750	.8440	8	2	10	280056	321.35	.8471 - .8780	355.70	338.45	332.75	330.00	327.35	324.65
$\frac{29}{32}$	.9062	.8755	8	2	10	280058	376.00	.8781 - .9090	410.35	393.10	387.40	384.65	382.00	379.35
$\frac{15}{16}$	.9375	.9067	8	2	10	280060	395.25	.9091 - .9410	429.55	412.35	406.60	403.85	401.25	398.55
$\frac{31}{32}$	.9688	.9380	8	2	10	280062	414.00	.9411 - .9720	448.35	431.15	425.40	422.65	420.00	417.30
1	1.0000	.9693	8	2	10	280064	429.60	.9721 - 1.0030	463.95	446.75	441.00	438.25	435.65	432.95

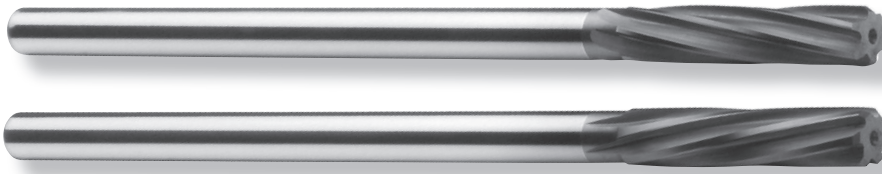
*Solid carbide head and shank (.0811" - .1910" tool diameters)

**Quantities of 15 or more: price of fractional size in same size range.



SOLID CARBIDE HEAD REAMERS

RIGHT OR LEFT SPIRAL FLUTES & STRAIGHT STEEL SHANK



TYPE 2810 - FINISHED FRACTIONAL SIZES - RIGHT HAND SPIRAL

TYPE 2820 - FINISHED FRACTIONAL SIZES - LEFT HAND SPIRAL

Solid carbide head.

Straight steel shank on .1911" tool diameter and larger (smaller sizes have a straight solid carbide shank).

Tool diameter tolerance thru .2500": plus .0002", minus .0000".
over .2500": plus .0003", minus .0000".

Shank diameter tolerance: plus .0000", minus .0010".

Left spiral flutes should not be used on blind holes.

OPTIONS:

Decimal sizes priced below.

Metric tool diameter.

Cutting diameter reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Increased/decreased circular margin.

Increased/decreased tool diam. back taper.

Shortened shank or reduced shank diameter.

Flat(s) or tang on shank.

NOTE: For best results in reaming tough steel alloys and cast steels, we recommend Type 2480 Carbide Tipped Reamer (page 58). This reamer utilizes a special steel cutting grade of carbide with excellent cutting and wear characteristics.

TOOL DIAMETER		MAX. SHANK DIAM.	NO. OF FLTS.	LENGTH		TYPE 2810 R SPIRAL EDP NO.	TYPE 2820 L SPIRAL EDP NO.	BOTH TYPES PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DEC.			FLUTE	OVERALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14**
* 1/8	.1250	.1099	4	7/8	3 1/2	281008	282008	\$37.30	.1121 - .1280	\$70.80	\$54.05	\$48.35	\$45.70	\$42.80	\$40.60
* 9/64	.1406	.1255	4	7/8	3 1/2	281009	282009	42.60	.1281 - .1435	76.10	59.30	53.70	51.05	48.20	45.95
* 5/32	.1562	.1411	4	1	4	281010	282010	44.00	.1436 - .1590	77.45	60.60	55.00	52.35	49.45	47.20
* 11/64	.1719	.1567	4	1	4	281011	282011	54.45	.1591 - .1750	91.35	72.90	66.65	63.75	60.60	58.20
3/16	.1875	.1724	4	1 1/8	4 1/2	281012	282012	55.60	.1751 - .1910	92.35	74.00	67.80	64.90	61.75	59.25
13/64	.2031	.1880	6	1 1/4	5	281013	282013	59.25	-	-	-	-	-	-	-
7/32	.2188	.1880	6	1 1/4	5	281014	282014	59.25	.1911 - .2210	96.05	77.60	71.50	68.60	65.30	62.85
15/64	.2344	.2193	6	1 1/2	6	281015	282015	63.15	-	-	-	-	-	-	-
1/4	.2500	.2193	6	1 1/2	6	281016	282016	63.15	.2211 - .2530	99.90	81.40	75.35	72.30	69.15	66.65
17/64	.2656	.2505	6	1 1/2	6	281017	282017	67.80	-	-	-	-	-	-	-
9/32	.2812	.2505	6	1 1/2	6	281018	282018	67.80	.2531 - .2840	104.60	86.20	79.95	77.05	73.85	71.50
19/64	.2969	.2817	6	1 3/4	6	281019	282019	70.70	-	-	-	-	-	-	-
5/16	.3125	.2817	6	1 3/8	6	281020	282020	70.70	.2841 - .3150	107.40	89.00	82.85	79.85	76.70	74.20
21/64	.3281	.3130	6	1 3/8	6	281021	282021	75.45	-	-	-	-	-	-	-
11/32	.3438	.3130	6	1 3/8	6	281022	282022	75.45	.3151 - .3470	112.20	93.85	87.60	84.65	81.50	79.10
23/64	.3594	.3443	6	1 3/4	7	281023	282023	81.25	-	-	-	-	-	-	-
3/8	.3750	.3443	6	1 3/4	7	281024	282024	81.25	.3471 - .3780	117.90	99.50	93.40	90.50	87.30	84.75
25/64	.3906	.3755	6	1 3/4	7	281025	282025	92.85	-	-	-	-	-	-	-
13/32	.4062	.3755	6	1 3/4	7	281026	282026	92.85	.3781 - .4090	129.60	111.15	105.00	102.00	98.95	96.40
27/64	.4219	.4067	6	1 3/4	7	281027	282027	98.50	-	-	-	-	-	-	-
7/16	.4375	.4067	6	1 3/4	7	281028	282028	98.50	.4091 - .4410	135.25	116.80	110.70	107.80	104.60	102.10
29/64	.4531	.4380	6	1 3/4	8	281029	282029	104.55	-	-	-	-	-	-	-
15/32	.4688	.4380	6	1 3/4	8	281030	282030	104.55	.4411 - .4720	141.25	122.85	116.70	113.80	110.65	108.15
31/64	.4844	.4693	6	1 3/4	8	281031	282031	112.15	-	-	-	-	-	-	-
1/2	.5000	.4693	6	1 3/4	8	281032	282032	112.15	.4721 - .5030	148.90	130.50	124.35	121.40	118.30	115.80
33/64	.5156	.5005	6	1 7/8	9	281033	282033	144.60	-	-	-	-	-	-	-
17/32	.5312	.5005	6	1 7/8	9	281034	282034	141.95	.5031 - .5340	178.15	160.00	153.90	151.05	147.95	145.60
35/64	.5469	.5005	6	1 7/8	9	281035	282035	167.70	-	-	-	-	-	-	-
9/16	.5625	.5005	6	1 7/8	9	281036	282036	167.70	.5341 - .5660	203.85	185.70	179.60	176.75	173.65	171.20
37/64	.5781	.5630	6	1 7/8	9	281037	282037	190.25	-	-	-	-	-	-	-
19/32	.5938	.5630	6	1 7/8	9	281038	282038	190.25	.5661 - .5970	226.30	208.30	202.25	199.35	196.25	193.80
39/64	.6094	.5630	6	1 7/8	9	281039	282039	192.45	-	-	-	-	-	-	-
5/8	.6250	.5630	6	1 7/8	9	281040	282040	192.45	.5971 - .6280	228.65	210.55	204.40	201.55	198.45	196.00
21/32	.6562	.6255	6	2	9 1/2	281042	282042	278.65	.6281 - .6590	320.55	299.55	292.55	289.15	286.00	282.70
11/16	.6875	.6255	6	2	9 1/2	281044	282044	278.65	.6591 - .6910	320.55	299.55	292.55	289.15	286.00	282.70
23/32	.7188	.6880	6	2	9 1/2	281046	282046	313.50	.6911 - .7220	355.45	334.30	327.35	324.05	320.80	317.50
3/4	.7500	.6880	6	2	9 1/2	281048	282048	313.50	.7221 - .7530	355.45	334.30	327.35	324.05	320.80	317.50
25/32	.7812	.7505	8	2	10	281050	282050	348.00	.7531 - .7840	389.90	368.85	361.85	358.50	355.25	352.05
13/16	.8125	.7817	8	2	10	281052	282052	379.65	.7841 - .8160	421.60	400.55	393.60	390.20	387.00	383.70
27/32	.8438	.8130	8	2	10	281054	282054	400.40	.8161 - .8470	442.30	421.30	414.30	411.00	407.75	404.45
7/8	.8750	.8440	8	2	10	281056	282056	392.05	.8471 - .8780	433.95	412.95	405.95	402.55	399.40	396.10
29/32	.9062	.8755	8	2	10	281058	282058	458.75	.8781 - .9090	500.65	479.65	472.60	469.25	466.05	462.80
15/16	.9375	.9067	8	2	10	281060	282060	482.15	.9091 - .9410	524.05	503.05	496.10	492.70	489.50	486.25
31/32	.9688	.9380	8	2	10	281062	282062	505.05	.9411 - .9720	546.95	525.95	519.00	515.60	512.40	509.15
1	1.0000	.9693	8	2	10	281064	282064	524.10	.9721 - 1.0030	566.05	545.00	538.05	534.75	531.45	528.25

*Solid carbide head and shank (.1121" - .1910" tool diameters)

**Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

SOLID CARBIDE - STRAIGHT FLUTES & STRAIGHT SHANK - SHORT SERIES

TYPE 2804 - .0005 INCREMENTS

STOCKED DECIMAL TOOL DIAMETERS (.0280 - .1765)

NOTE: Dimension details (.0591 and larger) on page 72.



TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.0280	28040280	\$23.30	.0580	28040580	\$23.95	.0880	28040880	\$24.95	.1180	28041180	\$28.15	.1480	28041480	\$31.00
.0285	28040285	24.60	.0585	28040585	23.95	.0885	28040885	24.95	.1185	28041185	28.25	.1485	28041485	31.00
.0290	28040290	24.60	.0590	28040590	20.85	.0890	28040890	24.15	.1190	28041190	28.25	.1490	28041490	31.00
.0295	28040295	23.30	.0595	28040595	22.75	.0895	28040895	25.55	.1195	28041195	28.25	.1495	28041495	29.50
.0300	28040300	24.60	.0600	28040600	24.60	.0900	28040900	25.55	.1200	28041200	26.85	.1500	28041500	31.00
.0305	28040305	24.60	.0605	28040605	24.60	.0905	28040905	25.55	.1205	28041205	28.25	.1505	28041505	31.00
.0310	28040310	23.30	.0610	28040610	23.30	.0910	28040910	25.65	.1210	28041210	28.25	.1510	28041510	31.00
.0315	2804008	23.30	.0615	28040615	24.60	.0915	28040915	25.65	.1215	28041215	28.25	.1515	28041515	31.00
.0320	28040320	23.30	.0620	28040620	24.60	.0920	28040920	25.65	.1220	2804031	26.85	.1520	28041520	29.50
.0325	28040325	24.60	.0625	280404	21.45	.0925	28040925	24.25	.1225	28041225	28.25	.1525	28041525	32.35
.0330	28040330	23.30	.0630	2804016	23.30	.0930	28040930	25.65	.1230	28041230	28.25	.1530	28041530	32.35
.0335	28040335	23.30	.0635	28040635	23.30	.0935	28040935	24.25	.1235	28041235	28.25	.1535	2804039	30.75
.0340	28040340	23.75	.0640	28040640	24.60	.0940	28040940	25.65	.1240	28041240	28.25	.1540	28041540	30.75
.0345	28040345	23.75	.0645	28040645	24.60	.0945	2804024	24.25	.1245	28041245	28.25	.1545	28041545	32.35
.0350	28040350	22.60	.0650	28040650	24.75	.0950	28040950	25.95	.1250	280408	24.75	.1550	28041550	32.35
.0355	28040355	23.75	.0655	28040655	24.75	.0955	28040955	25.95	.1255	28041255	28.25	.1555	28041555	30.75
.0360	28040360	22.60	.0660	28040660	24.75	.0960	28040960	24.75	.1260	2804032	26.85	.1560	28041560	32.35
.0365	28040365	23.75	.0665	28040665	24.75	.0965	28040965	24.75	.1265	28041265	28.35	.1565	28041565	33.50
.0370	28040370	22.60	.0670	28040670	23.60	.0970	28040970	25.95	.1270	28041270	28.35	.1570	28041570	31.80
.0375	28040375	23.75	.0675	28040675	24.75	.0975	28040975	25.95	.1275	28041275	28.35	.1575	2804040	29.05
.0380	28040380	22.60	.0680	28040680	24.75	.0980	28040980	24.75	.1280	28041280	26.90	.1580	28041580	34.20
.0385	28040385	23.75	.0685	28040685	24.75	.0985	28040985	26.20	.1285	28041285	26.90	.1585	28041585	34.20
.0390	28040390	22.60	.0690	28040690	24.75	.0990	28040990	26.20	.1290	28041290	28.35	.1590	28041590	32.60
.0395	28040395	23.75	.0695	28040695	24.75	.0995	28040995	24.95	.1295	28041295	28.35	.1595	28041595	34.75
.0400	28040400	22.60	.0700	28040700	23.60	.1000	28041000	26.20	.1300	28041300	28.35	.1600	28041600	34.75
.0405	28040405	23.75	.0705	28040705	24.75	.1005	28041005	26.20	.1305	28041305	28.35	.1605	28041605	34.75
.0410	28040410	22.60	.0710	28040710	24.75	.1010	28041010	26.20	.1310	28041310	28.35	.1610	28041610	33.00
.0415	28040415	23.75	.0715	28040715	24.75	.1015	28041015	24.95	.1315	28041315	28.35	.1615	28041615	34.75
.0420	28040420	22.60	.0720	28040720	24.75	.1020	28041020	26.40	.1320	28041320	28.35	.1620	28041620	34.75
.0425	28040425	23.75	.0725	28040725	24.75	.1025	28041025	26.50	.1325	28041325	28.35	.1625	28041625	34.75
.0430	28040430	22.60	.0730	28040730	23.60	.1030	28041030	26.50	.1330	28041330	28.35	.1630	28041630	34.75
.0435	28040435	23.95	.0735	28040735	24.75	.1035	28041035	26.50	.1335	28041335	28.35	.1635	28041635	34.85
.0440	28040440	23.95	.0740	28040740	24.75	.1040	28041040	26.50	.1340	28041340	28.35	.1640	28041640	34.75
.0445	28040445	23.95	.0745	28040745	24.75	.1045	28041045	26.50	.1345	28041345	28.35	.1645	28041645	34.75
.0450	28040450	23.95	.0750	28040750	24.75	.1050	28041050	26.50	.1350	28041350	28.35	.1650	28041650	34.75
.0455	28040455	23.95	.0755	28040755	24.75	.1055	28041055	26.50	.1355	28041355	28.35	.1655	28041655	34.75
.0460	28040460	23.95	.0760	28040760	23.60	.1060	28041060	26.50	.1360	28041360	26.90	.1660	28041660	33.20
.0465	28040465	22.75	.0765	28040765	24.75	.1065	28041065	25.20	.1365	28041365	28.35	.1665	28041665	35.20
.0470	28040470	23.95	.0770	28040770	24.75	.1070	28041070	26.90	.1370	28041370	28.35	.1670	28041670	35.20
.0475	28040475	23.95	.0775	28040775	24.75	.1075	28041075	26.90	.1375	28041375	28.35	.1675	28041675	35.20
.0480	28040480	23.95	.0780	28040780	24.75	.1080	28041080	26.90	.1380	28041380	28.85	.1680	28041680	35.20
.0485	28040485	23.95	.0785	28040785	23.65	.1085	28041085	27.25	.1385	28041385	28.85	.1685	28041685	35.20
.0490	28040490	23.95	.0790	28040790	24.85	.1090	28041090	27.25	.1390	28041390	28.85	.1690	28041690	35.20
.0495	28040495	23.95	.0795	28040795	24.85	.1095	28041095	27.25	.1395	28041395	28.85	.1695	28041695	33.55
.0500	28040500	23.95	.0800	28040800	24.85	.1100	28041100	25.95	.1400	28041400	28.85	.1700	28041700	35.95
.0505	28040505	23.95	.0805	28040805	24.85	.1105	28041105	27.65	.1405	28041405	27.25	.1705	28041705	35.95
.0510	28040510	23.95	.0810	28040810	23.65	.1110	28041110	26.40	.1410	28041410	29.95	.1710	28041710	35.95
.0515	28040515	23.95	.0815	28040815	24.95	.1115	28041115	28.15	.1415	28041415	29.95	.1715	28041715	35.95
.0520	28040520	22.75	.0820	28040820	23.75	.1120	28041120	28.15	.1420	28041420	29.95	.1720	28041720	35.95
.0525	28040525	23.95	.0825	28040825	24.95	.1125	28041125	28.15	.1425	28041425	29.95	.1725	28041725	35.95
.0530	28040530	23.95	.0830	28040830	24.95	.1130	28041130	26.75	.1430	28041430	29.95	.1730	28041730	34.20
.0535	28040535	23.95	.0835	28040835	24.95	.1135	28041135	28.15	.1435	28041435	29.95	.1735	28041735	36.45
.0540	28040540	23.95	.0840	28040840	24.95	.1140	28041140	28.15	.1440	28041440	28.50	.1740	28041740	36.45
.0545	28040545	23.95	.0845	28040845	24.95	.1145	28041145	28.15	.1445	28041445	30.10	.1745	28041745	36.45
.0550	28040550	22.75	.0850	28040850	24.95	.1150	28041150	28.15	.1450	28041450	30.15	.1750	28041750	36.45
.0555	28040555	23.95	.0855	28040855	24.95	.1155	28041155	28.15	.1455	28041455	30.15	.1755	28041755	36.85
.0560	28040560	23.95	.0860	28040860	23.75	.1160	28041160	26.75	.1460	28041460	30.95	.1760	28041760	36.85
.0565	28040565	23.95	.0865	28040865	24.95	.1165	28041165	28.15	.1465	28041465	30.95	.1765	28041765	36.85
.0570	28040570	23.95	.0870	28040870	24.95	.1170	28041170	28.15	.1470	28041470	29.35	-	-	-
.0575	28040575	23.95	.0875	28040875	24.95	.1175	28041175	28.15	.1475	28041475	30.95	-	-	-



CHUCKING REAMERS

SOLID CARBIDE - STRAIGHT FLUTES & STRAIGHT SHANK - SHORT SERIES

TYPE 2804 - FRACTIONAL, WIRE/LETTER & METRIC



NOTE: Dimension details (.0591 and larger) on page 72.

TOOL DIAMETER				TYPE 2804 EDP NO.	PRICE
FRACTION	WIRE	METRIC (mm)	DECIMAL		
* 1/32			.0312 .0394 .0433 .0469	280402 2804010 2804011 280403	\$21.45 20.55 22.60 22.75
* 3/64					
		*1.2 *1.3 *1.4 1.5	.0472 .0512 .0551 .0591	2804012 2804013 2804014 2804015	22.75 22.75 22.75 20.85
1/16		1.6 1.7	.0625 .0630 .0669 .0670	280404 2804016 2804017 28040670	21.45 23.30 23.60 23.60
	51				
	50		.0700 .0709	28040700 2804018	23.60 23.60
	49	1.8 1.9	.0730 .0748	28040730 2804019	23.60 23.60
5/64	48		.0760 .0781	28040760 280405	23.60 23.60
	47		.0785 .0787	28040785 2804020	23.65 21.75
		2.0			
	46		.0810	28040810	23.65
	45		.0820	28040820	23.75
		2.1	.0827 .0860	2804021 28040860	23.75 23.75
	44				
		2.2	.0866	2804022	23.75
	43		.0890	28040890	24.15
		2.3	.0906 .0935	2804023 28040935	24.15 24.25
3/32			.0938 .0945 .0960 .0980	280406 2804024 28040960 28040980	22.35 24.25 24.75 24.75
	41	2.4			
	40				
		2.5	.0984 .0995 .1015 .1024	2804025 28040995 28041015 2804026	22.60 24.95 24.95 25.05
	39				
	38				
		2.6			
	37	2.7	.1040 .1063 .1065 .1094	28041040 2804027 28041065 280407	26.50 25.20 25.20 25.95
7/64	36				
	35		.1100 .1102 .1110 .1130	28041100 2804028 28041110 28041130	25.95 25.95 26.40 26.75
	34	2.8			
	33				
	32	2.9	.1142 .1160 .1181 .1200	2804029 28041160 2804030 28041200	26.75 26.75 24.75 26.85
	31	3.0			
1/8			.1220 .1250 .1260 .1285	2804031 280408 2804032 28041285	26.85 24.75 26.85 26.90
	30	3.2			
		3.3 3.4 3.5	.1299 .1339 .1360 .1378	2804033 2804034 28041360 2804035	26.90 26.90 26.90 25.05
	29				
	28		.1405 .1406 .1417 .1440	28041405 280409 2804036 28041440	27.25 28.15 28.50 28.50
9/64	27	3.6			
TOOL DIAMETER				TYPE 2804 EDP NO.	PRICE
FRACTION	WIRE/LETTER	METRIC (mm)	DECIMAL		
		3.7	.1457 .1470 .1495 .1496	2804037 28041470 28041495 2804038	\$28.85 29.35 29.50 31.00
	26				
	25				
		3.8			
	24		.1520 .1535 .1540 .1562	28041520 2804039 28041540 280410	29.50 30.75 30.75 29.05
5/32	23	3.9			
	22		.1570 .1575 .1590 .1610	28041570 2804040 28041590 28041610	31.80 29.05 32.60 33.00
	21	4.0			
	20				
		4.1 4.2 4.3	.1614 .1654 .1660 .1693	2804041 2804042 28041660 2804043	33.00 33.20 33.20 33.55
11/64	18		.1695 .1719 .1730 .1732	28041695 280411 28041730 2804044	33.55 34.20 34.20 34.20
	17				
		4.4			
	16		.1770 .1772 .1800 .1811	28041770 2804045 28041800 2804046	35.05 31.80 35.20 35.65
	15	4.5			
	14		.1820 .1850 .1875 .1890	28041820 2804047 280412 2804048	35.70 35.95 34.50 37.90
3/16	13	4.7			
	12	4.8			
	11		.1910 .1929 .1935 .1960	28041910 2804049 28041935 28041960	38.35 38.35 38.60 39.95
	10	4.9			
	9				
		5.0 5.1	.1969 .1990 .2008 .2010	2804050 28041990 2804051 28042010	36.45 40.15 41.45 41.45
13/64	8				
	7				
		5.2	.2031 .2040 .2047 .2055	280413 28042040 2804052 28042055	41.45 41.45 41.45 41.45
	6				
	5				
		5.3 5.4	.2087 .2090 .2126 .2130	2804053 28042090 2804054 28042130	41.45 43.55 41.45 41.45
7/32	4				
	3				
		5.5 5.6	.2165 .2188 .2205 .2210	2804055 280414 2804056 28042210	37.90 37.80 46.20 46.20
	2				
		5.7 5.8 5.9	.2244 .2280 .2283 .2323	2804057 28042280 2804058 2804059	47.95 48.55 48.55 48.55
15/64	1				
	A		.2340 .2344 .2362 .2380	28042340 280415 2804060 28042380	48.55 48.55 45.00 49.50
	6.0				
		6.1 6.2	.2402 .2420 .2441 .2460	2804061 28042420 2804062 28042460	49.50 49.50 49.50 49.50
	C				
	D				
TOOL DIAMETER				TYPE 2804 EDP NO.	PRICE
FRACTION	LETTER	METRIC (mm)	DECIMAL		
1/4	E	6.3 6.4 6.5	.2480 .2500 .2520 .2559	2804063 280416 2804064 2804065	\$49.50 45.00 54.55 54.50
	F		.2570 .2598 .2610 .2638	28042570 2804066 2804068 2804067	54.50 57.15 54.50 57.15
	G	6.6 6.7			
17/64	H		.2656 .2660 .2677 .2717	280417 28042660 2804068 2804069	54.50 54.50 57.15 57.15
		6.8 6.9			
	I		.2720 .2756 .2770 .2795	28042720 2804070 28042770 2804071	54.50 49.70 54.50 62.05
	J	7.0 7.1			
9/32	K		.2810 .2812 .2835 .2874	28042810 280418 2804072 2804073	59.05 54.00 67.05 67.05
		7.2 7.3			
	L		.2900 .2913 .2950 .2953	28042900 2804074 28042950 2804075	63.95 67.05 63.95 63.95
	M	7.4 7.5			
19/64	N		.2969 .2992 .3020 .3031	280419 2804076 28043020 2804077	63.95 69.95 66.60 69.95
		7.6 7.7			
5/16			.3071 .3110 .3125 .3150	2804078 2804079 280420 2804080	69.95 69.95 60.90 60.90
		7.8 7.9 8.0			
	O		.3160 .3189 .3228 .3230	28043160 2804081 2804082 28043230	69.95 74.45 74.45 70.80
	P	8.1 8.2			
21/64			.3268 .3281 .3307 .3320	2804083 280421 2804084 28043320	85.15 81.05 85.15 81.05
	Q	8.3 8.4			
		8.5 8.6 8.7	.3346 .3386 .3390 .3425	2804085 2804086 28043390 2804087	81.05 85.15 81.05 85.15
11/32	R				
		8.8 8.9	.3438 .3465 .3480 .3504	280422 2804088 28043480 2804089	81.05 85.50 81.40 85.50
	S				
		9.0 9.1	.3543 .3580 .3583 .3594	2804090 28043580 2804091 280423	74.85 81.75 86.30 82.15
23/64	T				
		9.2 9.3 9.4	.3622 .3661 .3680 .3701	2804092 2804093 28043680 2804094	87.35 87.35 83.20 87.80
	U				
3/8	V		.3740 .3750 .3770 .3780	2804095 280424 28043770 2804096	83.70 76.60 99.40 104.50
		9.5 9.6			

*Dimensions thru .0590" tool diameter: # of flutes = 4; flute length = 3/8" (except for .0312" & .0394" tool diameters, flute = 1/4"); overall length = 1 1/2"



CHUCKING REAMERS - SOLID CARBIDE

STRAIGHT FLUTES & STRAIGHT SHANK - SHORT SERIES

TYPE 2802 - STRAIGHT FLUTES - STRAIGHT SHANK

Solid carbide head and straight shank.

Tool diameter tolerance thru .2500": plus .0002", minus .0000"
over .2500": plus .0003", minus .0000".

Shank diameter tolerance: plus .0000", minus .0010".



TOOL DIAMETER RANGE	DIMENSIONS				TYPE 2802 STRAIGHT EDP NO.	PRICE EACH - FINISHED TO DECIMAL SIZE						
	MAX. SHANK DIAM.	NO. OF FLUTES	LENGTH			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
			FLUTE	OVERALL								
* 0.0591 - 0.0660	.0580	4	¾	1 ½	280204	\$71.95	\$44.80	\$35.70	\$31.45	\$26.80	\$23.10	\$17.80
* 0.0661 - 0.0740	.0650	4	½	1 ¾	280245	72.20	45.00	35.95	31.60	27.00	23.30	18.00
* 0.0741 - 0.0810	.0730	4	½	1 ¾	280205	72.30	45.10	36.00	31.80	27.05	23.50	18.05
* 0.0811 - 0.0890	.0800	4	½	2	280255	72.70	45.60	36.50	32.20	27.60	23.90	18.60
* 0.0891 - 0.0970	.0880	4	½	2	280206	73.20	46.00	36.95	32.65	28.05	24.25	19.05
* 0.0971 - 0.1120	.0943	4	⅝	2 ¼	280207	73.45	46.25	37.20	32.90	28.25	24.60	19.30
0.1121 - 0.1280	.1099	4	⅝	2 ¼	280208	74.75	47.55	38.50	34.20	29.50	25.85	20.55
0.1281 - 0.1435	.1255	4	¾	2 ½	280209	75.25	48.10	39.00	34.75	30.10	26.45	21.10
0.1436 - 0.1590	.1411	4	¾	2 ½	280210	76.55	49.35	40.30	36.00	31.40	27.65	22.35
0.1591 - 0.1750	.1567	4	⅞	2 ¾	280211	79.45	52.20	43.15	38.90	34.25	30.60	25.25
0.1751 - 0.1910	.1724	4	⅞	2 ¾	280212	81.35	54.15	45.10	40.85	36.10	32.55	27.15
0.1911 - 0.2210	.1880	6	1	3	280214	84.70	57.55	48.50	44.20	39.60	35.90	30.60
0.2211 - 0.2530	.2193	6	1	3	280216	90.45	63.35	54.25	50.00	45.35	41.65	36.35
0.2531 - 0.2840	.2505	6	1 ⅛	3 ¼	280218	97.20	70.00	60.95	56.65	52.05	48.35	43.05
0.2841 - 0.3150	.2817	6	1 ⅛	3 ¼	280220	104.60	77.45	68.25	64.10	59.45	55.75	50.45
0.3151 - 0.3470	.3130	6	1 ¼	3 ½	280222	115.55	88.45	79.40	75.10	70.45	66.65	61.50
0.3471 - 0.3780	.3443	6	1 ¼	3 ½	280224	117.00	89.90	80.90	76.55	71.90	68.15	62.90
0.3781 - 0.4090	.3755	6	1 ⅜	3 ¾	280226	126.70	99.55	90.45	86.10	81.50	77.85	72.50
0.4091 - 0.4410	.4067	6	1 ⅜	3 ¾	280228	127.80	100.60	91.55	87.25	82.65	78.90	73.60
0.4411 - 0.4720	.4380	6	1 ½	4	280230	135.55	108.40	99.30	95.05	90.40	86.75	81.40
0.4721 - 0.5150	.4693	6	1 ½	4	280232	143.10	115.95	106.80	102.60	97.95	94.30	88.95

*Provided with male centers

CHUCKING REAMERS - SOLID CARBIDE

RIGHT SPIRAL OR LEFT SPIRAL FLUTES - STRAIGHT SHANK - SHORT SERIES

TYPE 2812 - RIGHT SPIRAL FLUTES - STRAIGHT SHANK

TYPE 2822 - LEFT SPIRAL FLUTES - STRAIGHT SHANK

Solid carbide head and straight shank.

Tool diameter tolerance thru .2500": plus .0002", minus .0000"
over .2500": plus .0003", minus .0000".

Shank diameter tolerance: plus .0000", minus .0010".

Left spiral flutes should not be used on blind holes.



TOOL DIAMETER RANGE	DIMENSIONS				TYPE 2812 R SPIRAL EDP NO.	TYPE 2822 L SPIRAL EDP NO.	PRICE EACH - FINISHED TO DECIMAL SIZE						
	MAX. SHANK DIAM.	NO. OF FLUTES	LENGTH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
			FLUTE	OVERALL									
* 0.0971 - 0.1120	.0943	4	5/8	2 ¼	281207	282207	\$73.80	\$47.25	\$38.35	\$34.15	\$29.55	\$25.95	\$20.75
0.1121 - 0.1280	.1099	4	5/8	2 ¼	281208	282208	75.20	48.60	39.70	35.55	30.90	27.30	22.15
0.1281 - 0.1435	.1255	4	¾	2 ½	281209	282209	79.60	51.75	42.40	37.95	33.20	29.40	23.90
0.1436 - 0.1590	.1411	4	¾	2 ½	281210	282210	81.10	53.15	43.80	39.40	34.60	30.80	25.45
0.1591 - 0.1750	.1567	4	7/8	2 ¾	281211	282211	84.35	56.45	47.10	42.60	37.90	34.05	28.60
0.1751 - 0.1910	.1724	4	7/8	2 ¾	281212	282212	86.45	58.60	49.20	44.75	39.95	36.20	30.75
0.1911 - 0.2210	.1880	6	1	3	281214	282214	94.55	65.35	55.55	50.90	45.90	41.90	36.20
0.2211 - 0.2530	.2193	6	1	3	281216	282216	101.50	72.15	62.35	57.80	52.75	48.85	43.15
0.2531 - 0.2840	.2505	6	1 ⅛	3 ¼	281218	282218	109.45	80.20	70.40	65.85	60.75	56.85	51.10
0.2841 - 0.3150	.2817	6	1 ⅛	3 ¼	281220	282220	118.10	88.85	79.05	74.45	69.45	65.45	59.70
0.3151 - 0.3470	.3130	6	1 ¼	3 ½	281222	282222	131.15	101.90	92.10	87.50	82.45	78.45	72.75
0.3471 - 0.3780	.3443	6	1 ¼	3 ½	281224	282224	132.90	103.65	93.90	89.20	84.25	80.25	74.50
0.3781 - 0.4090	.3755	6	1 ⅜	3 ¾	281226	282226	136.60	107.30	97.50	92.85	87.85	83.90	78.20
0.4091 - 0.4410	.4067	6	1 ⅜	3 ¾	281228	282228	137.75	108.40	98.60	94.00	89.00	85.00	79.35
0.4411 - 0.4720	.4380	6	1 ½	4	281230	282230	146.10	116.80	107.05	102.45	97.45	93.45	87.70
0.4721 - 0.5150	.4693	6	1 ½	4	281232	282232	154.20	124.95	115.15	110.60	105.50	101.55	95.85

*Provided with male centers



SEMI-FINISHED CHUCKING REAMERS & COUNTERBORE PILOTS

Before semi-finished reamers can be used, the cutting diameter must be finish ground and relieved.
The reamer end must be faced and chamfered.

SEMI-FINISHED TOOL DIAMETER RANGE	TYPE 2400 - PAGE 38		TYPE 2402 - PAGE 44		TYPE 2410 - PAGE 58		TYPE 2430 PAGE 31	TYPE 2440 PAGE 31	TYPE 2430 OR 2440 PRICE	TYPE 2450 - PAGE 46		TYPE 2465 - PAGE 54	
	EDP NO.	PRICE	EDP NO.	PRICE	EDP NO.	PRICE	EDP NO.	EDP NO.		EDP NO.	PRICE	EDP NO.	PRICE
0.1770 - 0.2040	240006SF	\$30.95	-	-	241006SF	\$43.60	243006SF	244006SF	\$40.35	245006SF	\$37.05	-	-
0.2041 - 0.2210	240007SF	30.95	-	-	241007SF	43.60	243007SF	244007SF	40.35	245007SF	37.05	-	-
0.2211 - 0.2380	24002344SF	32.70	-	-	24102344SF	43.60	24302344SF	24402344SF	40.35	24502344SF	37.05	-	-
0.2381 - 0.2530	240008SF	30.95	240208SF	\$35.70	241008SF	43.60	243008SF	244008SF	40.35	245008SF	37.05	-	-
0.2531 - 0.2840	240009SF	31.55	240209SF	36.25	241009SF	43.70	243009SF	244009SF	40.35	245009SF	37.90	-	-
0.2841 - 0.3150	240010SF	31.55	240210SF	36.25	241010SF	43.70	243010SF	244010SF	46.85	245010SF	37.90	246510SF	\$57.15
0.3151 - 0.3470	240011SF	32.65	240211SF	37.60	241011SF	48.05	243011SF	244011SF	47.35	245011SF	39.20	246511SF	57.15
0.3471 - 0.3780	240012SF	29.95	240212SF	34.55	241012SF	48.50	243012SF	244012SF	51.30	245012SF	39.20	246512SF	53.45
0.3781 - 0.4090	240013SF	34.25	240213SF	39.40	241013SF	50.70	243013SF	244013SF	51.95	245013SF	41.10	246513SF	56.70
0.4091 - 0.4410	240014SF	36.50	240214SF	42.00	241014SF	52.70	243014SF	244014SF	61.65	245014SF	44.50	246514SF	56.70
0.4411 - 0.4720	240015SF	37.15	240215SF	43.20	241015SF	56.00	243015SF	244015SF	61.65	245015SF	48.05	246515SF	60.15
0.4721 - 0.5030	240016SF	44.25	240216SF	50.80	241016SF	58.10	243016SF	244016SF	67.40	245016SF	51.55	246516SF	60.15
0.5031 - 0.5340	240017SF	48.05	240217SF	54.95	241017SF	59.90	243017SF	244017SF	67.40	245017SF	52.85	246517SF	61.65
0.5341 - 0.5660	240018SF	48.05	240218SF	54.95	241018SF	59.90	243018SF	244018SF	71.10	245018SF	52.85	246518SF	61.65
0.5661 - 0.5970	240019SF	50.00	240219SF	57.45	241019SF	61.65	243019SF	244019SF	71.10	245019SF	55.05	246519SF	64.35
0.5971 - 0.6280	240020SF	50.00	240220SF	57.45	241020SF	61.65	243020SF	244020SF	73.00	245020SF	55.05	246520SF	64.35
0.6281 - 0.6590	240021SF	50.85	240221SF	58.55	241021SF	63.40	243021SF	244021SF	73.00	245021SF	56.00	246521SF	70.40
0.6591 - 0.6910	240022SF	50.85	240222SF	58.55	241022SF	67.55	243022SF	244022SF	76.35	245022SF	56.00	246522SF	70.40
0.6911 - 0.7220	240023SF	53.25	240223SF	61.25	241023SF	68.45	243023SF	244023SF	76.35	245023SF	58.55	246523SF	73.10
0.7221 - 0.7530	240024SF	53.25	240224SF	61.25	241024SF	69.55	243024SF	244024SF	78.30	245024SF	58.55	246524SF	73.10
0.7531 - 0.7840	240025SF	55.10	240225SF	63.05	241025SF	71.30	243025SF	244025SF	78.30	245025SF	60.50	246525SF	78.80
0.7841 - 0.8160	240026SF	55.10	240226SF	63.05	241026SF	71.30	243026SF	244026SF	85.05	245026SF	60.50	246526SF	78.80
0.8161 - 0.8470	240027SF	57.30	240227SF	65.85	241027SF	75.15	243027SF	244027SF	85.05	245027SF	62.95	246527SF	81.80
0.8471 - 0.8780	240028SF	59.40	240228SF	68.30	241028SF	78.05	243028SF	244028SF	92.95	245028SF	65.40	246528SF	84.90
0.8781 - 0.9090	240029SF	69.35	240229SF	80.15	241029SF	90.95	243029SF	244029SF	92.95	245029SF	76.10	246529SF	90.35
0.9091 - 0.9410	240030SF	69.35	240230SF	80.15	241030SF	90.95	243030SF	244030SF	102.35	245030SF	76.10	246530SF	90.35
0.9411 - 0.9720	240031SF	72.60	240231SF	83.40	241031SF	95.30	243031SF	244031SF	102.35	245031SF	79.75	246531SF	93.85
0.9721 - 1.0030	240032SF	72.60	240232SF	83.40	241032SF	95.30	243032SF	244032SF	107.45	245032SF	79.75	246532SF	93.85

TYPE 2500 - CARBON STEEL PILOTS

The shank diameter ordered must be the same as the pilot shank hole diameter in the counterbore to be used.
The pilot diameter is always larger than the shank diameter and is determined by the part to be machined.

OPTIONS: Intermediate decimal or metric pilot diameters.
Shank diameter tolerance plus .0000" minus .0005".

Pilot diameter tolerance:

1/8" to 1/4" minus .001" minus .002"

5/32" to 7/8" minus .003" minus .004"

1 1/16" to 1 1/8" minus .005" minus .006"



PILOT HEAD DIAMETER		SHANK DIAMETER								ALL TYPES PRICE
FRAC.	DECIMAL	³ / ₃₂ EDP NO.	⁵ / ₃₂ EDP NO.	³ / ₁₆ EDP NO.	¹ / ₄ EDP NO.	⁵ / ₁₆ EDP NO.	³ / ₈ EDP NO.	⁷ / ₁₆ EDP NO.	¹ / ₂ EDP NO.	
¹ / ₈	.1250	250104	-	-	-	-	-	-	-	\$21.00
⁵ / ₃₂	.1562	250105	-	-	-	-	-	-	-	17.05
³ / ₁₆	.1875	250106	250306	-	-	-	-	-	-	17.40
⁷ / ₃₂	.2188	250107	250307	250407	-	-	-	-	-	19.70
¹ / ₄	.2500	250108	250308	250408	-	-	-	-	-	19.70
⁹ / ₃₂	.2812	250109	250309	250409	250509	-	-	-	-	21.00
⁵ / ₁₆	.3125	250110	250310	250410	250510	-	-	-	-	21.00
³ / ₈	.3750	-	250312	250412	250512	250612	-	-	-	23.15
⁷ / ₁₆	.4375	-	250314	250414	250514	250614	250714	-	-	23.70
¹ / ₂	.5000	-	-	250416	250516	250616	250716	250816	-	27.10
⁹ / ₁₆	.5625	-	-	250418	250518	250618	250718	250818	250918	35.50
⁵ / ₈	.6250	-	-	250420	250520	250620	250720	250820	250920	39.00
¹¹ / ₁₆	.6875	-	-	250422	250522	250622	250722	250822	250922	39.90
³ / ₄	.7500	-	-	250424	250524	250624	250724	250824	250924	45.20
¹³ / ₁₆	.8125	-	-	250426	250526	250626	250726	250826	250926	50.80
⁷ / ₈	.8750	-	-	250428	250528	250628	250728	250828	250928	56.20
¹⁵ / ₁₆	.9375	-	-	250430	250530	250630	250730	250830	250930	59.30
1	1.0000	-	-	250432	250532	250632	250732	250832	250932	61.35
1 ¹ / ₁₆	1.0625	-	-	-	-	250634	250734	250834	250934	63.60
1 ¹ / ₈	1.1250	-	-	-	-	250636	250736	250836	250936	76.65



REDUCED SHANK COUNTERBORES

CARBIDE TIPPED - STRAIGHT SHANK - INTERCHANGEABLE PILOT TYPE



TYPE 2522 - STRAIGHT SHANK

3 flutes.

Furnished with $\frac{1}{64}$ " corner radius.

Carbide tips brazed to tough alloy steel body.

Tool diameter tolerance: plus .001", minus .000".

Shank diameter tolerance: plus .0000", minus .001".

USE:

For counterboring and spotfacing non-ferrous materials, composites, and non-metals used in airframe manufacturing.

OPTIONS:

Modified tool diameter - priced below.

Metric tool diameter.

Cutting diameter reduced for step.

Corner chamfer or corner radius.

TOOL DIAMETER		DIMENSIONS				TYPE 2522 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
		MIN CUT DIAM.	PILOT HOLE DIAM.	SMALL SHANK DIAM.	OVERALL LENGTH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
FRAC.	DEC.													
$\frac{1}{4}$	.2500	.1250	.0938	$\frac{1}{4}$	2 $\frac{3}{8}$	252208	\$56.90	0.2381 - 0.2530	\$96.75	\$76.95	\$70.20	\$67.05	\$63.65	\$60.85
$\frac{9}{32}$	.2812	.1250	.0938	$\frac{1}{4}$	2 $\frac{3}{8}$	252209	57.00	0.2531 - 0.2840	96.85	77.00	70.30	67.10	63.70	60.95
$\frac{5}{16}$	.3125	.1250	.0938	$\frac{1}{4}$	2 $\frac{3}{8}$	252210	58.50	0.2841 - 0.3150	98.40	78.35	71.70	68.40	65.10	62.40
$\frac{11}{32}$	.3438	.1250	.0938	$\frac{1}{4}$	2 $\frac{3}{8}$	252211	59.65	0.3151 - 0.3470	99.55	79.50	72.90	69.65	66.30	63.60
$\frac{3}{8}$	.3750	.1250	.0938	$\frac{1}{4}$	2 $\frac{3}{8}$	252212	59.80	0.3471 - 0.3780	99.65	79.70	73.15	69.80	66.40	63.70
$\frac{13}{32}$	.4062	.1560	.1250	$\frac{1}{4}$	2 $\frac{3}{4}$	252213	68.00	0.3781 - 0.4090	107.75	88.00	81.25	78.05	74.60	71.95
$\frac{7}{16}$	.4375	.1560	.1250	$\frac{1}{4}$	2 $\frac{3}{4}$	252214	73.30	0.4091 - 0.4410	113.15	93.20	86.60	83.25	80.00	77.20
$\frac{15}{32}$	.4688	.1560	.1250	$\frac{1}{4}$	2 $\frac{3}{4}$	252215	74.50	0.4411 - 0.4720	114.40	94.45	87.80	84.60	81.20	78.45
$\frac{1}{2}$	.5000	.1560	.1250	$\frac{1}{4}$	2 $\frac{3}{4}$	252216	75.45	0.4721 - 0.5030	115.35	95.40	88.70	85.40	82.05	79.30
$\frac{17}{32}$	.5312	.1560	.1250	$\frac{1}{4}$	2 $\frac{3}{4}$	252217	75.85	0.5031 - 0.5340	115.65	95.70	89.10	85.80	82.40	79.70
$\frac{9}{16}$	.5625	.1560	.1250	$\frac{1}{4}$	2 $\frac{3}{4}$	252218	76.15	0.5341 - 0.5660	116.00	96.10	89.40	86.10	82.85	80.05
$\frac{19}{32}$	.5938	.1560	.1250	$\frac{1}{4}$	2 $\frac{3}{4}$	252219	76.55	0.5661 - 0.5970	116.50	96.55	89.95	86.60	83.20	80.45
$\frac{5}{8}$	.6250	.1560	.1250	$\frac{1}{4}$	2 $\frac{3}{4}$	252220	77.40	0.5971 - 0.6280	117.25	97.40	90.70	87.50	84.10	81.30
$\frac{21}{32}$	.6562	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252221	86.00	0.6281 - 0.6590	125.85	105.90	99.35	96.10	92.70	90.00
$\frac{11}{16}$	.6875	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252222	90.35	0.6591 - 0.6910	130.20	110.30	103.60	100.35	96.90	94.25
$\frac{23}{32}$	.7188	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252223	93.40	0.6911 - 0.7220	133.15	113.35	106.60	103.45	100.00	97.35
$\frac{3}{4}$	.7500	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252224	94.55	0.7221 - 0.7530	134.40	114.50	107.75	104.60	101.25	98.50
$\frac{25}{32}$	.7812	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252225	94.95	0.7531 - 0.7840	134.85	114.90	108.25	104.90	101.60	98.85
$\frac{13}{16}$	.8125	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252226	95.75	0.7841 - 0.8160	135.75	115.70	109.10	105.80	102.45	99.70
$\frac{27}{32}$	.8438	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252227	96.50	0.8161 - 0.8470	136.35	116.25	109.70	106.45	103.05	100.35
$\frac{7}{8}$	.8750	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252228	97.40	0.8471 - 0.8780	137.20	117.25	110.70	107.40	103.95	101.30
$\frac{29}{32}$	.9062	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252229	98.00	0.8781 - 0.9090	137.90	118.00	111.40	108.10	104.70	101.95
$\frac{15}{16}$	.9375	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252230	98.95	0.9091 - 0.9410	138.85	118.95	112.30	109.00	105.70	102.85
$\frac{31}{32}$	.9688	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252231	99.65	0.9411 - 0.9720	139.50	119.55	113.00	109.65	106.30	103.55
1	1.0000	.2190	.1875	$\frac{1}{4}$	2 $\frac{3}{4}$	252232	99.95	0.9721 - 1.0030	139.85	119.90	113.20	109.95	106.55	103.85
1 $\frac{1}{16}$	1.0625	.2190	.1875	$\frac{3}{8}$	2 $\frac{3}{4}$	252234	127.60	1.0031 - 1.0660	167.40	147.45	140.90	137.55	134.15	131.45
1 $\frac{1}{8}$	1.1250	.2190	.1875	$\frac{3}{8}$	2 $\frac{3}{4}$	252236	136.10	1.0661 - 1.1280	175.95	156.05	149.45	146.15	142.75	140.00
1 $\frac{1}{4}$	1.1875	.2190	.1875	$\frac{3}{8}$	2 $\frac{3}{4}$	252238	137.85	1.1281 - 1.1905	177.70	157.80	151.15	147.90	144.50	141.80
1 $\frac{1}{2}$	1.2500	.2810	.2500	$\frac{3}{8}$	2 $\frac{3}{4}$	252240	140.40	1.1906 - 1.2530	180.40	160.35	153.65	150.40	147.15	144.40
1 $\frac{3}{8}$	1.3125	.2810	.2500	$\frac{3}{8}$	2 $\frac{3}{4}$	252242	143.00	1.2531 - 1.3155	182.85	162.90	156.35	153.05	149.60	146.90
1 $\frac{5}{8}$	1.3750	.2810	.2500	$\frac{3}{8}$	2 $\frac{3}{4}$	252244	144.65	1.3156 - 1.3780	184.60	164.75	158.05	154.70	151.40	148.60
1 $\frac{3}{4}$	1.4375	.2810	.2500	$\frac{3}{8}$	2 $\frac{3}{4}$	252246	146.40	1.3781 - 1.4405	186.35	166.35	159.75	156.45	153.10	150.35
1 $\frac{1}{2}$	1.5000	.2810	.2500	$\frac{3}{8}$	2 $\frac{3}{4}$	252248	154.15	1.4406 - 1.5030	195.45	174.80	167.90	164.50	160.95	158.20
1 $\frac{9}{16}$	1.5625	.3430	.3125	$\frac{1}{2}$	3 $\frac{1}{16}$	252250	171.45	1.5031 - 1.5660	212.75	192.15	185.25	181.85	178.40	175.60
1 $\frac{5}{8}$	1.6250	.3430	.3125	$\frac{1}{2}$	3 $\frac{1}{16}$	252252	173.70	1.5661 - 1.6280	215.05	194.40	187.60	184.15	180.65	177.75
1 $\frac{11}{16}$	1.6875	.3430	.3125	$\frac{1}{2}$	3 $\frac{1}{16}$	252254	176.00	1.6281 - 1.6910	217.35	196.70	189.80	186.45	182.95	180.10
1 $\frac{3}{4}$	1.7500	.3430	.3125	$\frac{1}{2}$	3 $\frac{1}{16}$	252256	178.70	1.6911 - 1.7530	220.05	199.30	192.45	189.05	185.60	182.80
1 $\frac{13}{16}$	1.8125	.3430	.3125	$\frac{1}{2}$	3 $\frac{1}{16}$	252258	180.85	1.7531 - 1.8160	221.80	201.20	194.30	190.90	187.30	184.50
1 $\frac{7}{8}$	1.8750	.3430	.3125	$\frac{1}{2}$	3 $\frac{1}{16}$	252260	182.15	1.8161 - 1.8780	223.50	202.85	195.90	192.60	189.05	186.20
1 $\frac{15}{16}$	1.9375	.3430	.3125	$\frac{1}{2}$	3 $\frac{1}{16}$	252262	201.00	1.8781 - 1.9410	242.35	221.65	214.75	211.35	207.85	205.05
2	2.0000	.3430	.3125	$\frac{1}{2}$	3 $\frac{1}{16}$	252264	250.10	1.9411 - 2.0030	291.60	270.90	264.00	260.60	257.10	254.20

*Quantities of 15 or more: price of fractional size in same size range.



COUNTERBORES

CARBIDE TIPPED - STRAIGHT SHANK - INTERCHANGEABLE PILOT TYPE

OPTIONS:

Intermediate decimal or metric diameters.
Short shank or undersize diameter or flat on shank.
Chamfers or radius end.
Cutting diameter ground down for small step.
Tanged shanks.



TYPE 2512 - FOUR FLUTES - STRAIGHT SHANK

TYPE 2514 - THREE/FOUR FLUTES - STRAIGHT SHANK

BOTH TYPES:

For machining cast iron, non-ferrous materials, composites, plastics and non-metals.

Right spiral polished flutes.

Carbide tips brazed to hardened alloy steel bodies.

Cutting diameter tolerance: plus .001", minus .000".

Shank diameter tolerance: plus .0000", minus .0005".

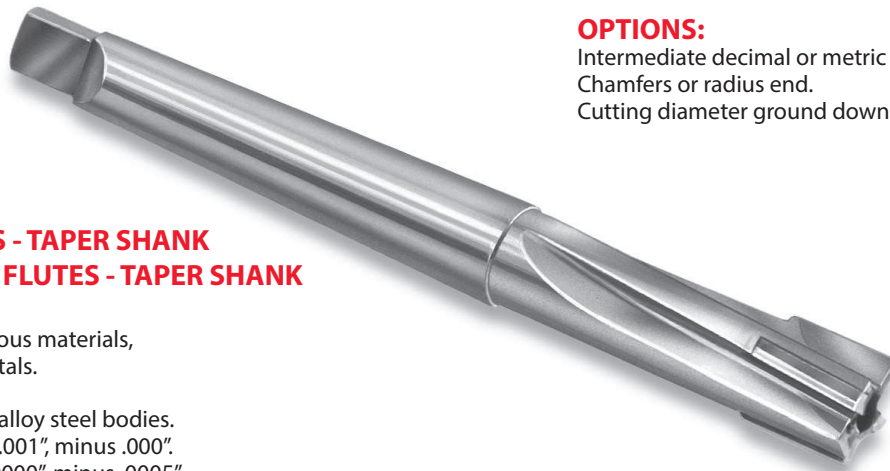
TOOL DIAMETER		MIN CUT DIAM.	PILOT HOLE DIAM.	OVER-ALL LENGTH	SHANK DIAM.	TYPE 2512		TYPE 2514		BOTH TYPES PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DEC.					NO. OF FLTS	EDP NO.	NO. OF FLTS	EDP NO.			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	.114	3/32	3 13/16	15/64	-	-	3	251408	\$70.55	0.2381 - 0.2530	\$110.40	\$90.50	\$83.90	\$80.55	\$77.15	\$74.45
9/32	.2812	.114	3/32	3 13/16	17/64	-	-	3	251409	86.25	0.2531 - 0.2840	126.00	106.20	99.55	96.25	92.90	90.15
5/16	.3125	.114	3/32	3 13/16	19/64	-	-	3	251410	73.60	0.2841 - 0.3150	110.95	92.35	86.10	83.00	79.85	77.25
11/32	.3438	.114	3/32	3 13/16	5/16	-	-	3	251411	93.20	0.3151 - 0.3470	130.50	111.80	105.55	102.50	99.35	96.70
3/8	.3750	.182	5/32	4 1/16	5/16	-	-	3	251412	78.05	0.3471 - 0.3780	112.55	95.30	89.55	86.70	83.80	81.45
13/32	.4062	.182	5/32	4 1/16	3/8	-	-	3	251413	88.00	0.3781 - 0.4090	122.45	105.30	99.50	96.65	93.75	91.40
7/16	.4375	.182	5/32	4 1/16	3/8	-	-	3	251414	80.10	0.4091 - 0.4410	114.55	97.30	91.55	88.80	85.80	83.45
15/32	.4688	.228	3/16	4 5/16	7/16	-	-	3	251415	97.75	0.4411 - 0.4720	132.25	115.00	109.30	106.50	103.45	101.15
1/2	.5000	.228	3/16	4 5/16	7/16	4	251216	3	251416	88.90	0.4721 - 0.5030	123.35	106.05	100.40	97.50	94.60	92.30
17/32	.5312	.228	3/16	4 5/16	1/2	4	251217	3	251417	100.60	0.5031 - 0.5340	135.05	117.90	112.15	109.30	106.35	103.95
9/16	.5625	.228	3/16	4 5/16	1/2	4	251218	3	251418	91.50	0.5341 - 0.5660	126.00	108.70	103.00	100.10	97.25	94.80
19/32	.5938	.228	3/16	5 1/8	1/2	4	251219	3	251419	101.70	0.5661 - 0.5970	136.10	118.90	113.20	110.30	107.35	105.00
5/8	.6250	.228	3/16	5 1/8	1/2	4	251220	3	251420	92.40	0.5971 - 0.6280	126.85	109.55	103.85	101.05	98.10	95.75
21/32	.6562	.228	3/16	5 1/8	1/2	4	251221	3	251421	107.60	0.6281 - 0.6590	142.00	124.85	119.05	116.20	113.35	110.95
11/16	.6875	.228	3/16	5 1/8	1/2	4	251222	3	251422	97.85	0.6591 - 0.6910	132.35	115.05	109.35	106.55	103.65	101.20
23/32	.7188	.290	1/4	5 3/8	1/2	4	251223	3	251423	110.15	0.6911 - 0.7220	144.50	127.35	121.60	118.85	115.85	113.50
3/4	.7500	.290	1/4	5 3/8	1/2	4	251224	3	251424	100.05	0.7221 - 0.7530	134.55	117.30	111.55	108.70	105.85	103.40
25/32	.7812	.290	1/4	5 3/8	5/8	4	251225	3	251425	112.50	0.7531 - 0.7840	146.90	129.65	123.95	121.10	118.15	115.80
13/16	.8125	.290	1/4	5 3/8	5/8	4	251226	3	251426	102.15	0.7841 - 0.8160	136.60	119.35	113.65	110.75	107.95	105.55
27/32	.8438	.290	1/4	5 3/8	3/4	4	251227	3	251427	119.10	0.8161 - 0.8470	153.60	136.30	130.65	127.75	124.90	122.45
7/8	.8750	.290	1/4	5 3/8	3/4	4	251228	3	251428	108.30	0.8471 - 0.8780	142.80	125.55	119.85	116.95	114.05	111.65
29/32	.9062	.290	1/4	6 1/8	3/4	4	251229	3	251429	121.50	0.8781 - 0.9090	156.05	138.75	133.00	130.25	127.30	124.95
15/16	.9375	.290	1/4	6 1/8	3/4	4	251230	3	251430	110.55	0.9091 - 0.9410	145.05	127.75	122.05	119.20	116.25	113.90
31/32	.9688	.353	5/16	6 3/8	3/4	4	251231	3	251431	125.05	0.9411 - 0.9720	159.50	142.25	136.55	133.70	130.80	128.45
1	1.0000	.353	5/16	6 3/8	3/4	4	251232	3	251432	113.70	0.9721 - 1.0030	148.20	130.90	125.15	122.35	119.45	117.05
1 1/16	1.0625	.353	5/16	6 3/8	3/4	4	251233	3	251433	114.90	1.0031 - 1.0660	149.40	132.10	126.35	123.60	120.65	118.25
1 1/8	1.1250	.353	5/16	6 3/8	1	4	251236	3	251436	117.90	1.0661 - 1.1280	152.30	135.05	129.40	126.45	123.60	121.25
1 3/16	1.1875	.353	5/16	6 3/8	1	4	251238	3	251438	123.05	1.1281 - 1.1905	157.50	140.35	134.60	131.75	128.80	126.45
1 1/4	1.2500	.426	3/8	6 5/8	1	-	-	4	251440	137.10	1.1906 - 1.2530	174.40	155.80	149.55	146.50	143.25	140.80
1 5/16	1.3125	.426	3/8	6 5/8	1	-	-	4	251442	147.95	1.2531 - 1.3155	185.40	166.70	160.40	157.35	154.20	151.65
1 3/8	1.3750	.426	3/8	6 5/8	1	-	-	4	251444	155.70	1.3156 - 1.3780	193.00	174.30	168.05	164.95	161.85	159.25
1 7/16	1.4375	.426	3/8	7 7/8	1 1/4	-	-	4	251446	170.65	1.3781 - 1.4405	211.20	190.90	184.10	180.75	177.40	174.55
1 1/2	1.5000	.426	3/8	7 7/8	1 1/4	-	-	4	251448	197.25	1.4406 - 1.5030	239.40	218.25	211.30	207.90	204.30	201.35
1 9/16	1.5625	.489	7/16	8 1/8	1 1/4	-	-	4	251450	203.05	1.5031 - 1.5660	245.25	224.10	217.10	213.60	210.10	207.20
1 5/8	1.6250	.489	7/16	8 1/8	1 1/4	-	-	4	251452	207.30	1.5661 - 1.6280	249.50	228.40	221.45	217.95	214.40	211.50
1 11/16	1.6875	.489	7/16	8 1/8	1 1/4	-	-	4	251454	248.10	1.6281 - 1.6910	293.50	270.80	263.20	259.40	255.60	252.45
1 3/4	1.7500	.489	7/16	8 1/8	1 1/4	-	-	4	251456	248.10	1.6911 - 1.7530	293.50	270.80	263.20	259.40	255.60	252.45
1 13/16	1.8125	.489	7/16	8 1/8	1 1/2	-	-	4	251458	293.65	1.7531 - 1.8160	339.15	316.45	308.85	305.10	301.15	298.15
1 7/8	1.8750	.489	7/16	8 1/8	1 1/2	-	-	4	251460	293.65	1.8161 - 1.8780	339.15	316.45	308.85	305.10	301.15	298.15
1 15/16	1.9375	.489	7/16	8 1/8	1 1/2	-	-	4	251462	320.90	1.8781 - 1.9410	366.50	343.75	336.10	332.30	328.50	325.40
2	2.0000	.551	1/2	8 3/8	1 1/2	-	-	4	251464	320.90	1.9411 - 2.0030	366.50	343.75	336.10	332.30	328.50	325.40

*Quantities of 15 or more: price of fractional size in same size range.



COUNTERBORES

CARBIDE TIPPED - TAPER SHANK - INTERCHANGEABLE PILOT TYPE



OPTIONS:

Intermediate decimal or metric diameters.

Chamfers or radius end.

Cutting diameter ground down for small step.

TYPE 2518 - FOUR FLUTES - TAPER SHANK

TYPE 2516 - THREE/FOUR FLUTES - TAPER SHANK

BOTH TYPES:

For machining cast iron, non-ferrous materials, composites, plastics and non-metals.

Right spiral polished flutes.

Carbide tips brazed to hardened alloy steel bodies.

Cutting diameter tolerance: plus .001", minus .000".

Shank diameter tolerance: plus .0000", minus .0005".

TOOL DIAMETER		MORSE TAPER	MIN CUT DIAM.	PILOT HOLE DIAM.	OVER- ALL LENGTH	TYPE 2518		TYPE 2516			SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTION	DEC.					NO. OF FLTS	EDP NO.	NO. OF FLTS	EDP NO.	BOTH TYPES PRICE		1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	1	.114	3/32	3 13/16	-	-	3	251608	\$85.60	0.2381 - 0.2530	\$126.95	\$106.30	\$99.40	\$96.00	\$92.50	\$89.70
9/32	.2812	1	.114	3/32	3 13/16	-	-	3	251609	103.05	0.2531 - 0.2840	144.25	123.55	116.70	113.35	109.95	107.00
5/16	.3125	1	.114	3/32	3 13/16	-	-	3	251610	88.00	0.2841 - 0.3150	126.75	107.35	100.95	97.75	94.45	91.80
11/32	.3438	1	.114	3/32	3 13/16	-	-	3	251611	108.45	0.3151 - 0.3470	147.20	127.75	121.30	118.15	114.85	112.20
3/8	.3750	1	.182	5/32	4 1/16	-	-	3	251612	90.85	0.3471 - 0.3780	126.50	108.70	102.70	99.80	96.80	94.40
13/32	.4062	1	.182	5/32	4 1/16	-	-	3	251613	102.60	0.3781 - 0.4090	138.35	120.45	114.55	111.55	108.60	106.10
7/16	.4375	1	.182	5/32	4 1/16	-	-	3	251614	93.30	0.4091 - 0.4410	128.95	111.15	105.15	102.30	99.25	96.80
15/32	.4688	1	.228	3/16	4 5/16	-	-	3	251615	113.30	0.4411 - 0.4720	149.00	131.10	125.15	122.25	119.25	116.80
1/2	.5000	1	.228	3/16	4 5/16	4	251816	3	251616	103.00	0.4721 - 0.5030	138.80	120.85	114.85	112.05	108.90	106.50
17/32	.5312	1	.228	3/16	4 5/16	4	251817	3	251617	115.35	0.5031 - 0.5340	151.05	133.20	127.20	124.30	121.30	118.85
9/16	.5625	1	.228	3/16	4 5/16	4	251818	3	251618	104.90	0.5341 - 0.5660	140.65	122.75	116.85	113.85	110.90	108.45
19/32	.5938	2	.228	3/16	5 1/8	4	251819	3	251619	118.50	0.5661 - 0.5970	154.30	136.40	130.45	127.50	124.50	122.00
5/8	.6250	2	.228	3/16	5 1/8	4	251820	3	251620	107.70	0.5971 - 0.6280	143.40	125.60	119.60	116.75	113.60	111.20
21/32	.6562	2	.228	3/16	5 1/8	4	251821	3	251621	125.10	0.6281 - 0.6590	160.85	143.00	137.00	134.15	131.05	128.65
11/16	.6875	2	.228	3/16	5 1/8	4	251822	3	251622	113.60	0.6591 - 0.6910	149.45	131.50	125.60	122.60	119.60	117.15
23/32	.7188	2	.290	1/4	5 3/8	4	251823	3	251623	127.15	0.6911 - 0.7220	162.90	145.05	139.10	136.20	133.15	130.75
3/4	.7500	2	.290	1/4	5 3/8	4	251824	3	251624	115.60	0.7221 - 0.7530	151.30	133.45	127.50	124.60	121.50	119.00
25/32	.7812	2	.290	1/4	5 3/8	4	251825	3	251625	129.35	0.7531 - 0.7840	165.00	147.20	141.20	138.25	135.25	132.85
13/16	.8125	2	.290	1/4	5 3/8	4	251826	3	251626	117.60	0.7841 - 0.8160	153.30	135.50	129.55	126.50	123.55	121.10
27/32	.8438	2	.290	1/4	5 3/8	4	251827	3	251627	135.95	0.8161 - 0.8470	171.75	153.90	147.95	145.00	142.00	139.55
7/8	.8750	2	.290	1/4	5 3/8	4	251828	3	251628	123.60	0.8471 - 0.8780	159.35	141.45	135.55	132.55	129.60	127.10
29/32	.9062	3	.290	1/4	6 1/8	4	251829	3	251629	139.70	0.8781 - 0.9090	175.40	157.50	151.65	148.60	145.65	143.20
15/16	.9375	3	.290	1/4	6 1/8	4	251830	3	251630	127.00	0.9091 - 0.9410	162.70	144.85	138.90	135.90	133.00	130.50
31/32	.9688	3	.353	5/16	6 3/8	4	251831	3	251631	142.95	0.9411 - 0.9720	178.65	160.80	154.85	151.90	148.80	146.35
1	1.0000	3	.353	5/16	6 3/8	4	251832	3	251632	134.85	0.9721 - 1.0030	171.95	153.40	147.20	144.20	140.95	138.45
1 1/16	1.0625	3	.353	5/16	6 3/8	4	251834	3	251634	136.60	1.0031 - 1.0660	173.60	155.10	148.95	145.90	142.70	140.20
1 1/8	1.1250	3	.353	5/16	6 3/8	4	251836	3	251636	140.90	1.0661 - 1.1280	178.05	159.55	153.25	150.25	147.10	144.55
1 1/16	1.1875	3	.353	5/16	6 3/8	4	251838	3	251638	145.70	1.1281 - 1.1905	182.90	164.30	158.05	155.05	151.90	149.35
1 1/4	1.2500	3	.426	3/8	6 3/8	-	-	4	251640	162.00	1.1906 - 1.2530	202.20	182.10	175.40	172.10	168.70	165.90
1 1/16	1.3125	3	.426	3/8	6 3/8	-	-	4	251642	173.60	1.2531 - 1.3155	213.95	193.70	187.10	183.70	180.40	177.60
1 3/8	1.3750	3	.426	3/8	6 3/8	-	-	4	251644	181.95	1.3156 - 1.3780	222.15	202.05	195.35	192.00	188.70	185.85
1 7/16	1.4375	4	.426	3/8	7 7/8	-	-	4	251646	202.40	1.3781 - 1.4405	246.15	224.30	216.90	213.35	209.70	206.65
1 1/2	1.5000	4	.426	3/8	7 7/8	-	-	4	251648	224.40	1.4406 - 1.5030	268.15	246.30	239.00	235.40	231.75	228.70
1 9/16	1.5625	4	.489	7/16	8 1/8	-	-	4	251650	241.10	1.5031 - 1.5660	286.90	264.05	256.50	252.60	248.80	245.70
1 5/8	1.6250	4	.489	7/16	8 1/8	-	-	4	251652	245.45	1.5661 - 1.6280	291.20	268.40	260.75	256.95	253.05	250.00
1 11/16	1.6875	4	.489	7/16	8 1/8	-	-	4	251654	293.65	1.6281 - 1.6910	343.15	318.45	310.25	306.15	301.90	298.55
1 3/4	1.7500	4	.489	7/16	8 1/8	-	-	4	251656	293.65	1.6911 - 1.7530	343.15	318.45	310.25	306.15	301.90	298.55
1 13/16	1.8125	4	.489	7/16	8 1/8	-	-	4	251658	347.60	1.7531 - 1.8160	397.00	372.35	364.05	359.95	355.80	352.35
1 7/8	1.8750	4	.489	7/16	8 1/8	-	-	4	251660	347.60	1.8161 - 1.8780	397.00	372.35	364.05	359.95	355.80	352.35
1 15/16	1.9375	4	.489	7/16	8 1/8	-	-	4	251662	379.75	1.8781 - 1.9410	429.25	404.50	396.20	392.20	388.05	384.60
2	2.0000	4	.551	1/2	8 3/8	-	-	4	251664	379.75	1.9411 - 2.0030	429.25	404.50	396.20	392.20	388.05	384.60

*Quantities of 15 or more: price of fractional size in same size range.



COUNTERBORES

CARBIDE TIPPED - STRAIGHT SHANK & TAPER SHANK - INTERCHANGEABLE PILOT TYPE FOR STEEL

**OPTIONS:**

Intermediate decimal or metric diameters.
Short shank or undersize diameter or flat on shank.
Chamfers or radius end.
Cutting diameter ground down for small step.
Tanged shanks.

TYPE 2510 - STRAIGHT SHANK FOR MACHINING STEEL

Carbide tips brazed to hardened alloy steel bodies.
Right hand spiral polished flutes.
Cutting diameter tolerance: plus .001" minus .000"
Shank diameter tolerance: plus .0000" minus .0005"

USE:

The special steel cutting grade of carbide permits the heavy chip loads and speeds required for machining steel - appropriate primary and secondary relief angles.

TYPE 2511 - TAPER SHANK FOR MACHINING STEEL

Same as Type 2510 above but with taper shank.

TOOL DIAMETER		MIN CUT DIAM.	PILOT HOLE DIAM.	OVER-ALL LENGTH	SHANK DIAM.	NO. OF FLTS	TYPE 2510 STRAIGHT SHANK EDP NO.	TYPE 2511 TAPER SHANK EDP NO.	MORSE TAPER	BOTH TYPES PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DEC.											1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	.114	3/32	3 13/16	15/64	3	251008	251108	1	\$85.60	0.2381 - 0.2530	\$126.95	\$106.30	\$99.40	\$96.00	\$92.50	\$89.70
9/32	.2812	.114	3/32	3 13/16	17/64	3	251009	251109	1	103.05	0.2531 - 0.2840	144.25	123.55	116.70	113.35	109.95	107.00
5/16	.3125	.114	3/32	3 13/16	19/64	3	251010	251110	1	88.00	0.2841 - 0.3150	126.75	107.35	100.95	97.75	94.45	91.80
11/32	.3438	.114	3/32	3 13/16	5/16	3	251011	251111	1	108.45	0.3151 - 0.3470	147.20	127.75	121.30	118.15	114.85	112.20
3/8	.3750	.182	5/32	4 1/16	5/16	3	251012	251112	1	90.85	0.3471 - 0.3780	126.50	108.70	102.70	99.80	96.80	94.40
13/32	.4062	.182	5/32	4 1/16	3/8	3	251013	251113	1	102.60	0.3781 - 0.4090	138.35	120.45	114.55	111.55	108.60	106.10
7/16	.4375	.182	5/32	4 1/16	3/8	3	251014	251114	1	93.30	0.4091 - 0.4410	128.95	111.15	105.15	102.30	99.25	96.80
15/32	.4688	.228	3/16	4 3/16	7/16	3	251015	251115	1	113.30	0.4411 - 0.4720	149.00	131.10	125.15	122.25	119.25	116.80
1/2	.5000	.228	3/16	4 3/16	7/16	3	251016	251116	1	103.00	0.4721 - 0.5030	138.80	120.85	114.85	112.05	108.90	106.50
17/32	.5312	.228	3/16	4 3/16	1/2	3	251017	251117	1	111.20	0.5031 - 0.5340	145.60	128.40	122.65	119.85	116.90	114.55
9/16	.5625	.228	3/16	4 3/16	1/2	3	251018	251118	1	101.10	0.5341 - 0.5660	135.55	118.25	112.60	109.65	106.85	104.45
19/32	.5938	.228	3/16	5 1/8	1/2	3	251019	251119	2	114.20	0.5661 - 0.5970	148.65	131.45	125.70	122.85	120.00	117.55
5/8	.6250	.228	3/16	5 1/8	1/2	3	251020	251120	2	103.80	0.5971 - 0.6280	138.25	121.05	115.30	112.50	109.50	107.15
21/32	.6562	.228	3/16	5 1/8	1/2	3	251021	251121	2	120.55	0.6281 - 0.6590	155.00	137.75	132.00	129.20	126.25	123.95
11/16	.6875	.228	3/16	5 1/8	1/2	3	251022	251122	2	109.50	0.6591 - 0.6910	144.00	126.75	121.05	118.15	115.30	112.85
23/32	.7188	.290	1/4	5 3/8	1/2	3	251023	251123	2	122.55	0.6911 - 0.7220	157.05	139.80	134.10	131.25	128.35	126.00
3/4	.7500	.290	1/4	5 3/8	1/2	3	251024	251124	2	111.40	0.7221 - 0.7530	145.80	128.55	122.85	120.05	117.05	114.70
25/32	.7812	.290	1/4	5 3/8	5/8	3	251025	251125	2	124.65	0.7531 - 0.7840	159.05	141.85	136.10	133.20	130.35	128.00
13/16	.8125	.290	1/4	5 3/8	5/8	3	251026	251126	2	113.35	0.7841 - 0.8160	147.75	130.55	124.85	121.95	119.05	116.70
27/32	.8438	.290	1/4	5 3/8	3/4	3	251027	251127	2	131.00	0.8161 - 0.8470	165.55	148.30	142.55	139.70	136.85	134.45
7/8	.8750	.290	1/4	5 3/8	3/4	3	251028	251128	2	119.10	0.8471 - 0.8780	153.60	136.30	130.65	127.75	124.90	122.45
29/32	.9062	.290	1/4	6 1/8	3/4	3	251029	251129	3	134.60	0.8781 - 0.9090	169.00	151.80	146.10	143.20	140.35	138.00
15/16	.9375	.290	1/4	6 1/8	3/4	3	251030	251130	3	122.35	0.9091 - 0.9410	156.75	139.55	133.80	130.95	128.15	125.75
31/32	.9688	.353	5/16	6 3/8	3/4	3	251031	251131	3	137.70	0.9411 - 0.9720	172.10	154.95	149.20	146.35	143.35	141.05
1	1.0000	.353	5/16	6 3/8	3/4	3	251032	251132	3	129.90	0.9721 - 1.0030	165.75	147.85	141.85	138.95	135.80	133.45
1 1/16	1.0625	.353	5/16	6 3/8	3/4	3	251033	251133	3	131.65	1.0031 - 1.0660	167.30	149.45	143.50	140.55	137.55	135.10
1 1/8	1.1250	.353	5/16	6 3/8	1	3	251036	251136	3	135.75	1.0661 - 1.1280	171.55	153.75	147.70	144.75	141.75	139.30
1 1/16	1.1875	.353	5/16	6 3/8	1	3	251038	251138	3	140.40	1.1281 - 1.1905	176.25	158.35	152.35	149.40	146.35	143.95
1 1/4	1.2500	.426	3/8	6 5/8	1	4	251040	251140	3	156.10	1.1906 - 1.2530	194.85	175.45	169.00	165.85	162.55	159.90
1 3/16	1.3125	.426	3/8	6 5/8	1	4	251042	251142	3	167.30	1.2531 - 1.3155	206.15	186.70	180.30	177.05	173.85	171.15
1 3/8	1.3750	.426	3/8	6 5/8	1	4	251044	251144	3	175.35	1.3156 - 1.3780	214.05	194.70	188.25	185.05	181.80	179.10
1 7/16	1.4375	.426	3/8	7 7/8	1 1/4	4	251046	251146	4	195.00	1.3781 - 1.4405	237.20	216.15	209.05	205.65	202.05	199.15
1 1/2	1.5000	.426	3/8	7 7/8	1 1/4	4	251048	251148	4	224.40	1.4406 - 1.5030	268.15	246.30	239.00	235.40	231.75	228.70
1 9/16	1.5625	.489	7/16	8 1/8	1 1/4	4	251050	251150	4	241.10	1.5031 - 1.5660	286.90	264.05	256.50	252.60	248.80	245.70
1 5/8	1.6250	.489	7/16	8 1/8	1 1/4	4	251052	251152	4	245.45	1.5661 - 1.6280	291.20	268.40	260.75	256.95	253.05	250.00
1 11/16	1.6875	.489	7/16	8 1/8	1 1/4	4	251054	251154	4	293.65	1.6281 - 1.6910	343.15	318.45	310.25	306.15	301.90	298.55
1 3/4	1.7500	.489	7/16	8 1/8	1 1/4	4	251056	251156	4	293.65	1.6911 - 1.7530	343.15	318.45	310.25	306.15	301.90	298.55
1 13/16	1.8125	.489	7/16	8 1/8	1 1/2	4	251058	251158	4	347.60	1.7531 - 1.8160	397.00	372.35	364.05	359.95	355.80	352.35
1 7/8	1.8750	.489	7/16	8 1/8	1 1/2	4	251060	251160	4	347.60	1.8161 - 1.8780	397.00	372.35	364.05	359.95	355.80	352.35
1 15/16	1.9375	.489	7/16	8 1/8	1 1/2	4	251062	251162	4	379.75	1.8781 - 1.9410	429.25	404.50	396.20	392.20	388.05	384.60
2	2.0000	.551	1/2	8 3/8	1 1/2	4	251064	251164	4	379.75	1.9411 - 2.0030	429.25	404.50	396.20	392.20	388.05	384.60

*Quantities of 15 or more: price of fractional size in same size range.



CAPSCREW COUNTERBORES

CARBIDE TIPPED - STRAIGHT SHANK



TYPE 2513 - STRAIGHT SHANK - FOR NON-FERROUS & CAST IRON

TYPE 2515 - STRAIGHT SHANK - FOR STEEL

Carbide tips brazed to hardened alloy steel bodies.

Right spiral smooth flutes.

Integral pilot type.

Tools are designed with appropriate carbide grade and tool geometry for material being machined. The pilot is manufactured in nominal screw body diameters as well as 1/64" and 1/32" over size diameters.

OPTIONS:

Intermediate decimal diameters.

TOOL DIAMETER		PILOT DIAMETER	PILOT LENGTH	SHANK DIAMETER	OVERALL LENGTH	TYPE 2513 - NON-FERR/CI		PRICE	TYPE 2515 - STEEL		PRICE
DECIMAL	SCREW SIZE					NO. OF FLTS.	EDP NO.		NO. OF FLTS.	EDP NO.	
.3820	1/4	.2500	.3125	5/16	5 5/8	3	25132500	\$82.05	3	25152500	\$90.25
.3980	1/4	.2650	.3125	5/16	5 5/8	3	25132650	91.15	3	25152650	100.30
.4140	1/4	.2810	.3125	5/16	5 5/8	3	25132810	91.15	3	25152810	100.30
.4750	5/16	.3125	.3750	3/8	6 1/8	3	25133125	91.75	3	25153125	101.00
.4910	5/16	.3280	.3750	3/8	6 1/8	3	25133280	91.75	3	25153280	101.00
.5070	5/16	.3430	.3750	3/8	6 1/8	3	25133430	91.75	3	25153430	101.00
.5720	3/8	.3750	.5000	1/2	6 1/2	3	25133750	103.45	3	25153750	113.85
.5880	3/8	.3900	.5000	1/2	6 1/2	3	25133900	103.45	3	25153900	113.85
.6040	3/8	.4060	.5000	1/2	6 1/2	3	25134060	103.45	3	25154060	113.85
.6630	7/16	.4375	.5000	1/2	7	3	25134375	99.95	3	25154375	109.95
.6790	7/16	.4530	.5000	1/2	7	3	25134530	99.95	3	25154530	109.95
.6950	7/16	.4680	.5000	1/2	7	3	25134680	99.95	3	25154680	109.95
.7570	1/2	.5000	.5000	1/2	7 1/2	3	25135000	113.35	3	25155000	124.75
.7730	1/2	.5150	.5000	1/2	7 1/2	3	25135150	113.35	3	25155150	124.75
.7890	1/2	.5310	.5000	1/2	7 1/2	3	25135310	113.35	3	25155310	124.75
.8510	9/16	.5625	.5625	5/8	7 5/8	3	25135625	109.55	3	25155625	120.55
.8670	9/16	.5780	.5625	5/8	7 5/8	3	25135780	109.55	3	25155780	120.55
.8830	9/16	.5930	.5625	5/8	7 5/8	3	25135930	109.55	3	25155930	120.55
.9450	5/8	.6250	.6250	5/8	7 5/8	3	25136250	124.90	3	25156250	137.40
.9610	5/8	.6400	.6250	5/8	7 5/8	3	25136400	124.90	3	25156400	137.40
.9770	5/8	.6560	.6250	5/8	7 5/8	3	25136560	124.90	3	25156560	137.40
1.1330	3/4	.7500	.7500	3/4	7 3/4	3	25137500	123.10	3	25157500	135.45
1.1490	3/4	.7650	.7500	3/4	7 3/4	3	25137650	123.10	3	25157650	135.45
1.1650	3/4	.7810	.7500	3/4	7 3/4	3	25137810	123.10	3	25157810	135.45
1.3220	7/8	.8750	.8750	7/8	8 1/8	4	25138750	136.85	4	25158750	150.65
1.3380	7/8	.8910	.8750	7/8	8 1/8	4	25138910	136.85	4	25158910	150.65
1.3540	7/8	.9060	.8750	7/8	8 1/8	4	25139060	136.85	4	25159060	150.65
1.5100	1	1.0000	1.0000	1	8 1/2	4	25130000	156.70	4	25150000	172.40
1.5260	1	1.0150	1.0000	1	8 1/2	4	25130156	156.70	4	25150156	172.40
1.5420	1	1.0310	1.0000	1	8 1/2	4	25130313	156.70	4	25150313	172.40

TYPE 2513 - STRAIGHT SHANK - FOR NON-FERROUS & CAST IRON - METRIC

TYPE 2515 - STRAIGHT SHANK - FOR STEEL - METRIC

Same as above except metric sizes.

TOOL DIAMETER		PILOT DIAMETER	PILOT LENGTH	SHANK DIAMETER	OVERALL LENGTH	TYPE 2513 - NON-FERR/CI		PRICE	TYPE 2515 - STEEL		PRICE
DECIMAL	SCREW SIZE MM					NO. OF FLTS.	EDP NO.		NO. OF FLTS.	EDP NO.	
.3543	5	5.5	9/32	5/16	5 5/8	3	2513055	\$90.90	3	2515055	\$99.95
.4134	6	6.5	5/16	5/16	5 5/8	3	2513065	95.95	3	2515065	105.55
.5315	8	8.5	3/8	1/2	6 1/2	3	2513085	113.95	3	2515085	125.30
.6496	10	10.5	1/2	1/2	7	3	2513105	123.95	3	2515105	136.35
.7283	12	12.5	1/2	1/2	7 1/2	3	2513125	116.30	3	2515125	127.85
.8465	14	14.5	9/16	5/8	7 5/8	3	2513145	135.60	3	2515145	149.10
.9646	16	16.5	5/8	5/8	7 5/8	3	2513165	141.70	3	2515165	155.85
1.2008	20	20.5	3/4	7/8	8	3	2513205	131.40	3	2515205	144.50



PORT CONTOUR CUTTERS

CARBIDE TIPPED

S.A.E. PORTS - MS16142 • J514F • J1926

STRAIGHT SHANK - TWO TYPES:

TYPE 2780 - FOR NON-FERROUS AND CAST IRON

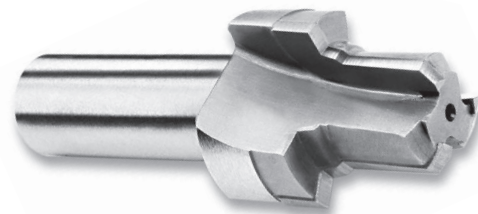
TYPE 2781 - FOR STEEL

5° axial rake.

Negative radial rake.

Heat treated bodies.

All tolerances within military specs.



USE:

In a single operation, a port contour cutter can produce the form and finish required on internal straight thread o-ring ports.

OPTIONS:

Reamer diameter.
Spotface diameter.
Reamer length.
Shank style.
Port ID groove.

Whistle notch.
Tang.
Shank length.
Metric tool diameter.
Weldon flats.

TUBE		DIMENSIONS									TYPE 2780 N-F/CI EDP NO.	TYPE 2781 STEEL EDP NO.	BOTH TYPES PRICE
NO.	SIZE	THREAD SIZE	DIAMETER			SEALING SEAT ANGLE	LENGTH						
			REAMER	SPOTFACE	SHANK		SHANK	REAMER	HEAD	OVERALL			
2	⅛	⅝-24	.2720	.6820	.5000	12°	2	.4730	1 ⅝	3 ⅝	278002	278102	\$303.90
3	⅜	¾-24	.3350	.7600	.5000	12°	2	.4730	1 ¼	3 ¼	278003	278103	303.90
4	¼	⅞-20	.3890	.8380	.5000	12°	2	.5520	1 ¼	3 ¼	278004	278104	303.90
5	⅝	½-20	.4520	.9160	.5000	12°	2	.5520	1 ¼	3 ¼	278005	278105	313.45
6	⅜	⅝-18	.5090	.9790	.5000	12°	2	.6140	1 ¼	3 ¼	278006	278106	313.45
8	½	¾-16	.6890	1.1980	.7500	15°	2	.6930	1 ⅜	3 ⅜	278008	278108	343.05
10	⅝	⅞-14	.8060	1.3540	.7500	15°	2	.7860	1 ⅝	3 ⅝	278010	278110	388.00
12	¾	1 ⅙-12	.9810	1.6350	.7500	15°	2 ¼	.9110	1 ⅞	4 ⅞	278012	278112	418.55
14	⅞	1 ⅜-12	1.1060	1.7750	.7500	15°	2 ¼	.9110	1 ⅞	4 ⅞	278014	278114	425.30
16	1	1 ⅝-12	1.2310	1.9200	.7500	15°	2 ¼	.9110	1 ⅞	4 ⅞	278016	278116	457.75
20	1 ¼	1 ⅝-12	1.5440	2.2800	1.0000	15°	2 ¼	.9110	2	4 ¼	278020	278120	504.30
24	1 ½	1 ⅞-12	1.7940	2.5700	1.0000	15°	2 ¼	.9110	2	4 ¼	278024	278124	620.20
32	2	2 ½-12	2.4190	3.4900	1.0000	15°	2 ¼	.9110	2 ¼	4 ½	278032	278132	809.95

MS 33649 INTEGRAL REAMER PILOT

STRAIGHT SHANK - TWO TYPES:

TYPE 2792 - FOR NON-FERROUS AND CAST IRON

TYPE 2793 - FOR STEEL

NOTE: For use & option information, see above.



TUBE		DIMENSIONS								TYPE 2792 N-F/CI EDP NO.	TYPE 2793 STEEL EDP NO.	BOTH TYPES PRICE
NO.	SIZE	THREAD SIZE	DIAMETER			LENGTH						
			REAMER	SPOTFACE	SHANK	SHANK	REAMER	HEAD	OVERALL			
1	1/16	1/4-28	.2150	.6500	.5000	2	.4070	1	3	279201	279301	\$354.95
2	1/8	5/16-24	.2750	.7420	.5000	2	.5820	1 1/8	3 1/8	279202	279302	354.95
3	3/16	3/8-24	.3390	.8050	.5000	2	.5880	1 1/4	3 1/4	279203	279303	336.75
4	1/4	7/16-20	.3930	.8880	.5000	2	.6610	1 1/4	3 1/4	279204	279304	345.85
5	5/16	1/2-20	.4550	.9500	.5000	2	.6610	1 1/4	3 1/4	279205	279305	354.95
6	3/8	9/16-18	.5120	1.0120	.5000	2	.7140	1 1/2	3 1/2	279206	279306	373.15
7	7/16	5/8-18	.5750	1.1050	.5000	2	.7300	1 1/2	3 1/2	279207	279307	382.25
8	1/2	3/4-16	.6930	1.2400	.7500	2	.8390	1 5/8	3 3/8	279208	279308	391.35
9	5/8	13/16-16	.7560	1.3020	.7500	2	.8550	1 5/8	3 3/8	279209	279309	400.45
10	3/4	7/8-14	.8100	1.4150	.7500	2 1/4	.9350	1 7/8	4 1/8	279210	279310	409.55
11	7/8	1-12	.9250	1.6020	.7500	2 1/4	1.0690	2 1/8	4 3/8	279211	279311	445.95
12	1	1 1/16-12	.9870	1.6650	.7500	2 1/4	1.0690	2 1/8	4 3/8	279212	279312	473.25
14	1 1/8	1 3/16-12	1.1120	1.7900	.7500	2 1/4	1.0690	2 1/8	4 3/8	279214	279314	540.65
16	1 1/4	1 5/16-12	1.2370	1.9650	.7500	2 1/4	1.0690	2 1/8	4 3/8	279216	279316	607.00
18	1 1/2	1 7/8-12	1.4250	2.0900	.7500	2 1/4	1.1210	2 1/4	4 1/2	279218	279318	654.20
20	1 3/4	2-12	1.5500	2.3100	1.0000	2 1/4	1.1210	2 1/4	4 1/2	279220	279320	762.20
24	2	2 1/2-12	1.8000	2.6000	1.0000	2 1/4	1.1320	2 1/4	4 1/2	279224	279324	922.85
32	2 1/2	3-12	2.4250	3.5200	1.0000	2 1/2	1.3730	2 1/2	5	279232	279332	1312.40



SHELL END MILLS HIGH SPIRAL END MILLS CARBIDE TIPPED

SHELL END MILLS

TYPE 2530 - FOR NON-FERROUS MACHINING

For production machining of most non-ferrous materials.
Large open flutes for easy chip disposal.
Right hand spiral.

TYPE 2531 - FOR CAST IRON MACHINING

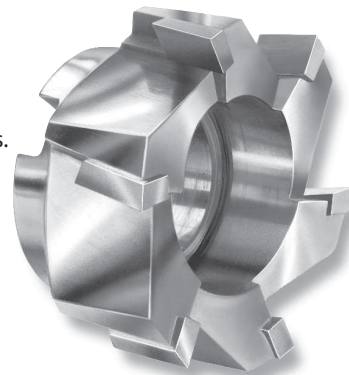
For production machining of cast iron and malleable iron.
Open flutes for easy chip disposal.

TYPE 2532 - FOR STEEL MACHINING

For production machining of steel.
Steel cutting grade of carbide permits high chip loads.
Left-hand spiral absorbs the impact shock on entering steel.

OPTIONS:

Intermediate decimal
cutting diameter.
Cutting diameter steps.
Radius corners.
Chamfer corners.



ALL TYPES:

Carbide tips brazed to alloy steel bodies.
Cutting diameter tolerance plus 1/16" minus .000".
Arbor hole tolerance plus .001" minus .000".

TOOL DIAM.	ARBOR HOLE	OVERALL LENGTH	DRIVE SLOTS		TYPE 2530 FOR NON-FERROUS			TYPE 2531 FOR CAST IRON			TYPE 2532 FOR STEEL		
			WIDTH	DEPTH	NO. OF TEETH	EDP NO.	PRICE	NO. OF TEETH	EDP NO.	PRICE	NO. OF TEETH	EDP NO.	PRICE
1 1/4	1/2	1	1/4	5/32	4	253024	\$185.35	4	253124	\$185.35	4	253224	\$192.80
1 1/2	1/2	1 1/8	1/4	5/32	4	253026	193.00	4	253126	193.00	4	253226	200.70
1 3/4	3/4	1 1/4	5/16	3/16	4	253028	240.50	4	253128	240.50	4	253228	250.05
2	3/4	1 3/8	5/16	3/16	4	253032	252.55	4	253132	268.70	4	253232	279.40
2 1/4	1	1 1/2	3/8	7/32	6	253036	266.80	6	253136	290.90	6	253236	302.55
2 1/2	1	1 5/8	3/8	7/32	6	253040	280.90	6	253140	317.10	6	253240	317.10
2 3/4	1	1 3/4	3/8	7/32	6	253044	296.45	6	253144	332.65	6	253244	332.65
3	1 1/4	1 3/4	1/2	9/32	6	253048	324.95	6	253148	361.80	6	253248	361.80
3 1/2	1 1/4	1 7/8	1/2	9/32	6	253056	397.75	8	253156	425.50	6	253256	449.75
4	1 1/2	2 1/4	5/8	3/8	6	253064	499.80	8	253164	526.40	6	253264	558.70

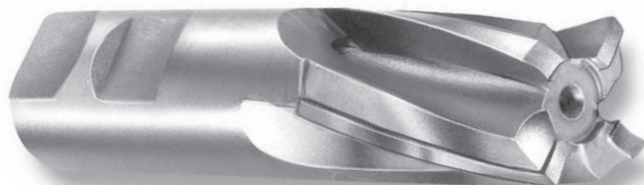
TYPE 2350 - 15° RIGHT SPIRAL FLUTES

For milling all types of steel. The right spiral flutes permit fast chip removal and reduces cutting pressures. The constant spiral flutes distributes the impact load more evenly throughout the tool revolution and thus improves tool life while permitting faster cutting with smoother finishes.

Flute long, steel cutting grade carbide tips brazed to hardened alloy steel bodies.

Cutting diameter NC tolerance plus .002" minus .000".

Straight shank with drive flats.



OPTIONS:

Intermediate decimal cutting diameters.
Radius end.
End chamfer.
Undersize shank diameter.

TOOL DIAM.	SHANK DIAMETER	LENGTH		TYPE 2350 15° RIGHT SPIRAL		
		CARBIDE	OVERALL	NO. OF FLUTES	EDP NO.	PRICE
1/2	3/8	1	3	4	235016	\$99.35
1/2	1/2	1	3	4	235017	99.35
9/16	1/2	1	3	4	235018	106.70
5/8	1/2	1 1/4	3 1/4	4	235020	114.90
5/8	5/8	1 1/4	3 3/8	4	235021	114.90
11/16	1/2	1 1/4	3 1/4	4	235022	119.70
11/16	5/8	1 1/4	3 3/8	4	235023	119.70
3/4	1/2	1 1/4	3 1/4	4	235024	127.80
3/4	5/8	1 1/4	3 3/8	4	235025	127.80
13/16	5/8	1 1/2	3 3/8	4	235026	137.90
7/8	5/8	1 1/2	3 5/8	4	235028	146.35
7/8	7/8	1 1/2	3 3/4	4	235029	146.35

TOOL DIAM.	SHANK DIAMETER	LENGTH		TYPE 2350 15° RIGHT SPIRAL		
		CARBIDE	OVERALL	NO. OF FLUTES	EDP NO.	PRICE
15/16	5/8	1 1/2	3 3/4	4	235030	\$216.80
15/16	7/8	1 1/2	3 3/4	4	235031	216.80
1	7/8	1 1/2	3 3/4	6	235032	205.30
1	1	1 1/2	4	6	235033	205.30
1 1/8	1	1 3/4	4 1/4	6	235036	241.60
1 1/4	1	1 3/4	4 1/4	6	235040	276.90
1 1/8	1	1 3/4	4 1/4	6	235044	323.50
1 1/2	1 1/4	2	4 1/2	6	235048	318.65
1 5/8	1 1/4	2	4 1/2	8	235052	424.80
1 3/4	1 1/4	2	4 1/2	8	235056	453.05
1 7/8	1 1/4	2	4 1/2	8	235060	484.50
2	1 1/4	2	4 1/2	8	235064	511.70



HIGH SPIRAL END MILLS

CARBIDE TIPPED
FOR MILLING CAST IRON, NON-FERROUS METALS, NON-METALS



TYPE 2325 - 25° RIGHT SPIRAL FLUTES

For milling all non-ferrous metals and non-metals. The high spiral flutes permit fast chip removal so maximum feeds and speeds can be used. The constant spiral flute distributes the impact load more evenly throughout the tool's revolution and thus improves tool life while permitting faster cutting with smoother finishes.

BOTH TYPES:

Flute long carbide tips brazed to hardened alloy steel bodies.
Cutting diameter NC tolerance plus .002" minus .000".
Straight shanks with drive flats.



TYPE 2375 - 15° RIGHT SPIRAL FLUTES

For milling cast iron and malleable iron. The 15° spiral flutes permit fast chip removal so maximum feeds and speeds can be used. The constant spiral flute distributes the impact load more evenly throughout the tool's revolution and thus improves tool life while permitting faster cutting with smoother finishes.

OPTIONS:

Intermediate decimal cutting diameters.
Radius end.
End chamfer.
Undersize shank diameter.

TOOL DIAM.	SHANK DIAMETER	LENGTH		TYPE 2325 25° RIGHT SPIRAL			TYPE 2375 15° RIGHT SPIRAL		
		CARBIDE	OVERALL	NUMBER OF FLUTES	EDP NO.	PRICE	NUMBER OF FLUTES	EDP NO.	PRICE
1/2	3/8	1	3	2	232516	\$99.35	2	237516	\$91.55
1/2	1/2	1	3	2	232517	99.35	2	237517	91.55
9/16	1/2	1	3	2	232518	106.70	2	237518	98.45
5/8	1/2	1 1/4	3 1/4	2	232520	114.90	2	237520	105.80
5/8	5/8	1 1/4	3 3/8	2	232521	114.90	2	237521	105.80
11/16	1/2	1 1/4	3 1/4	2	232522	119.70	2	237522	110.30
11/16	5/8	1 1/4	3 3/8	2	232523	119.70	2	237523	110.30
3/4	1/2	1 1/4	3 1/4	2	232524	127.80	2	237524	117.75
3/4	5/8	1 1/4	3 3/8	2	232525	127.80	2	237525	117.75
13/16	5/8	1 1/2	3 3/8	2	232526	137.90	2	237526	127.10
7/8	5/8	1 1/2	3 3/8	2	232528	146.35	2	237528	134.95
7/8	7/8	1 1/2	3 3/4	2	232529	146.35	2	237529	134.95
15/16	5/8	1 1/2	3 3/4	2	232530	165.55	3	237530	199.75
15/16	7/8	1 1/2	3 3/4	2	232531	165.55	3	237531	199.75
1	7/8	1 1/2	3 3/4	2	232532	169.00	3	237532	189.10
1	1	1 1/2	4	2	232533	169.00	3	237533	189.10
1 1/8	1	1 3/4	4 1/4	2	232536	185.05	3	237536	222.70
1 1/4	1	1 3/4	4 1/4	3	232540	245.45	4	237540	255.20
1 3/8	1	1 3/4	4 1/4	3	232544	266.10	4	237544	298.00
1 1/2	1 1/4	2	4 1/2	3	232548	297.20	4	237548	293.65
1 5/8	1 1/4	2	4 1/2	3	232552	351.80	4	237552	359.15
1 3/4	1 1/4	2	4 1/2	3	232556	377.45	4	237556	382.95
1 7/8	1 1/4	2	4 1/2	3	232560	406.30	4	237560	409.65
2	1 1/4	2	4 1/2	3	232564	434.35	4	237564	432.70



END MILLS

CARBIDE TIPPED - FOR MILLING STEEL & TOUGH STEEL ALLOYS



TYPE 2300 - TWO STRAIGHT FLUTES

Maximum chip room for easier chip removal. Also used when machine horsepower is too low for higher capacity end mills.



TYPE 2308 - 6° RIGHT SPIRAL FLUTES

The right spiral flutes greater capacity to remove chips permits heavier feeds and faster speeds, especially when machining free-cutting steels.



TYPE 2310 - 6° LEFT SPIRAL FLUTES

The left spiral flutes maintain a constant pressure on the work piece and better absorb the impact shock on entering steel. For milling all types of steel, including hardened steel and other tough steel alloys.

ALL TYPES:

Steel cutting grade flute long carbide tips brazed to hardened alloy steel bodies.
Cutting diameter NC tolerance plus .002" minus .000".
Straight shanks with drive flats.

OPTIONS:

Intermediate decimal cutting diameters.
Radius end.
End chamfer.
Undersize shank diameter.

USE:

For milling steels and tough steel alloys as indicated.
Special steel cutting grade of carbide permits the higher chip loads and higher speeds required for milling steel.

TOOL DIAM.	SHANK DIAMETER	LENGTH		TYPE 2300 STRAIGHT FLUTES			TYPE 2308 RIGHT SPIRAL			TYPE 2310 LEFT SPIRAL		
		CARBIDE	OVERALL	NUMBER OF FLUTES	EDP NO.	PRICE	NUMBER OF FLUTES	EDP NO.	PRICE	NUMBER OF FLUTES	EDP NO.	PRICE
1/4	3/8	1/2	2 1/2	2	230008	\$62.45	2	230808	\$64.30	2	231008	\$64.30
5/16	3/8	5/8	2 1/2	2	230010	65.05	2	230810	69.35	2	231010	69.35
3/8	3/8	5/8	2 1/2	2	230012	69.45	2	230812	73.50	2	231012	73.50
7/16	3/8	1	2 11/16	2	230014	69.45	2	230814	73.50	2	231014	73.50
1/2	1/2	1	3 1/4	2	230016	71.05	4	230816	79.20	4	231016	79.20
9/16	1/2	1	3 3/8	2	230018	78.80	4	230818	85.10	4	231018	85.10
5/8	1/2	1	3 3/8	2	230020	78.80	4	230820	105.00	4	231020	105.00
3/4	5/8	1	3 5/8	2	230024	88.45	4	230824	117.00	4	231024	117.00
7/8	5/8	1 1/4	4	2	230028	104.50	4	230828	140.95	4	231028	140.95
1	7/8	1 1/4	4	2	230032	115.50	6	230832	162.05	6	231032	162.05
1 1/8	1	1 1/4	4 1/4	2	230036	118.30	6	230836	171.85	6	231036	171.85
1 1/4	1	1 1/4	4 1/4	2	230040	131.90	6	230840	207.70	6	231040	207.70
1 1/2	1 1/4	1 1/2	4 1/2	2	230048	169.90	6	230848	252.60	6	231048	252.60
1 3/4	1 1/4	1 1/2	4 1/2	2	230056	190.55	8	230856	304.20	8	231056	304.20
2	1 1/4	1 1/2	4 1/2	2	230064	227.55	8	230864	339.60	8	231064	339.60



END MILLS

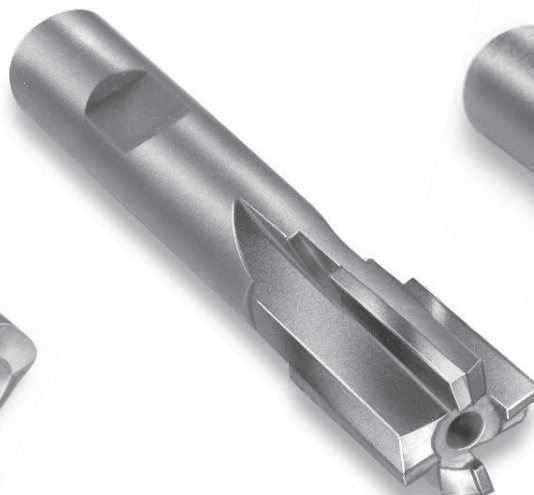
CARBIDE TIPPED

FOR MILLING CAST IRON, NON-FERROUS & NON-METALS



TYPE 2302 - TWO STRAIGHT FLUTES

Maximum chip room for easier chip removal. Also used when machine horsepower is too low for higher capacity end mills.



TYPE 2304 - STRAIGHT FLUTES

Where the machine horsepower permits a higher capacity end mill - feeds less than .002" per flute per revolution may result in fast dulling of cutting edges.



TYPE 2306 - 6° RIGHT SPIRAL FLUTES

The spiral flutes capacity to remove chips permits heavier feeds and faster speeds, especially on free cutting zinc and aluminum.

ALL TYPES:

Flute long carbide tips brazed to hardened alloy steel bodies.
Cutting diameter NC tolerance plus .002" minus .000".
Straight shanks with drive flats.

OPTIONS:

Intermediate decimal cutting diameters.
Radius end.
End chamfer.
Undersize shank diameter.

USE:

For milling cast iron, non-ferrous metals and non-metals but excluding steel.

TOOL DIAM.	SHANK DIAMETER	LENGTH		TYPE 2302 TWO FLUTES			TYPE 2304 FOUR FLUTES			TYPE 2306 RIGHT SPIRAL		
		CARBIDE	OVERALL	NUMBER OF FLUTES	EDP NO.	PRICE	NUMBER OF FLUTES	EDP NO.	PRICE	NUMBER OF FLUTES	EDP NO.	PRICE
1/4	3/8	1/2	2 1/2	2	230208	\$54.35	4	230408	\$54.85	2	230608	\$55.55
5/16	3/8	5/8	2 1/2	2	230210	56.40	4	230410	58.60	2	230610	57.55
3/8	3/8	5/8	2 1/2	2	230212	60.50	4	230412	61.75	2	230612	61.60
7/16	3/8	1	2 11/16	2	230214	60.50	4	230414	61.75	2	230614	61.60
1/2	1/2	1	3 1/4	2	230216	62.00	4	230416	63.20	2	230616	63.25
9/16	1/2	1	3 3/8	2	230218	68.55	4	230418	70.95	2	230618	70.05
5/8	1/2	1	3 3/8	2	230220	68.55	4	230420	74.30	4	230620	72.75
11/16	5/8	1	3 3/8	2	230222	74.20	4	230422	81.80	-	-	-
3/4	5/8	1	3 5/8	2	230224	77.00	4	230424	76.50	4	230624	83.10
13/16	5/8	1	3 5/8	2	230226	93.05	4	230426	90.35	-	-	-
7/8	5/8	1 1/4	4	2	230228	93.65	4	230428	90.35	4	230628	111.10
15/16	7/8	1 1/4	4	2	230230	100.30	4	230430	100.35	-	-	-
1	7/8	1 1/4	4	2	230232	100.55	4	230432	104.40	4	230632	128.35
1 1/8	1	1 1/4	4 1/4	2	230236	103.20	4	230436	118.40	4	230636	145.55
1 1/4	1	1 1/4	4 1/4	2	230240	124.45	4	230440	133.15	4	230640	163.60
1 1/2	1 1/4	1 1/2	4 1/2	2	230248	154.10	4	230448	171.65	4	230648	202.50
1 3/4	1 1/4	1 1/2	4 1/2	2	230256	182.70	6	230456	221.25	6	230656	261.40
2	1 1/4	1 1/2	4 1/2	2	230264	203.80	6	230464	254.90	6	230664	301.00



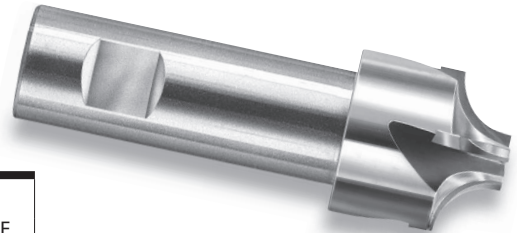
CORNER ROUNDING END MILLS CENTER CUTTING END MILLS CARBIDE TIPPED

TYPE 2740 - CORNER ROUNDING END MILLS FOR NON-FERROUS AND CAST IRON

TYPE 2741 - CORNER ROUNDING END MILLS FOR STEEL

All sizes have three flutes and are used to mill round corners on square edges.

CIRCLE RADIUS	TOOL DIAM.	END DIAM.	SHANK DIAM.	LENGTH		TYPE 2740 CAST IRON EDP NO.	PRICE	TYPE 2741 STEEL EDP NO.	PRICE
				CARBIDE	OVERALL				
1/16	7/16	17/64	3/8	13/32	2 3/4	274002	\$120.40	274102	\$130.15
3/32	1/2	17/64	3/8	13/32	2 3/4	274003	120.40	274103	130.15
1/8	5/8	19/64	1/2	13/32	3	274004	124.70	274104	134.55
5/32	3/4	23/64	1/2	13/32	3	274005	132.25	274105	142.80
3/16	7/8	13/32	3/4	13/32	3 1/4	274006	139.90	274106	151.05
1/4	1	13/32	3/4	15/32	3 1/4	274008	159.45	274108	172.15
5/16	1 1/8	13/32	7/8	19/32	3 1/2	274010	163.80	274110	176.90
3/8	1 1/4	13/32	7/8	25/32	3 3/4	274012	170.15	274112	183.80
7/16	1 3/8	13/32	1	7/8	4	274014	189.50	274114	204.65
1/2	1 1/2	13/32	1	1	4	274016	210.85	274116	227.85
5/8	2	21/32	1 1/4	1 1/32	4 1/4	274020	259.50	274120	280.30



TYPE 2312 FOR MILLING STEEL

Three straight flutes.
One flute is center cutting.
Steel cutting grade carbide.

TYPE 2314 FOR MILLING CAST IRON

Three straight flutes.
One flute is center cutting.
General purpose carbide.

ALL TYPES:

Carbide tips brazed to hardened alloy steel bodies.
Cutting diameter NC tolerance plus .002" minus .000".

USE:

For plunge and side cut milling at moderate feeds and speeds. Extremely versatile and economical for machining splines, keyways, spot facing or regular peripheral milling.

TOOL DIAM.	SHANK DIAM.	NUMBER OF FLUTES	LENGTH		TYPE 2312 EDP NO.	TYPE 2314 EDP NO.	BOTH TYPES PRICE
			CARBIDE	OVERALL			
3/8	3/8	3	1/2	2 1/2	231212	231412	\$103.90
7/16	3/8	3	3/4	2 1/2	231214	231414	106.20
1/2	1/2	3	3/4	3	231216	231416	108.80
9/16	1/2	3	3/4	3	231218	231418	113.15
5/8	5/8	3	3/4	3 1/4	231220	231420	132.30
3/4	5/8	3	3/4	3 3/8	231224	231424	138.55
7/8	7/8	3	3/4	3 3/4	231228	231428	161.75
1	7/8	3	3/4	3 3/4	231232	231432	177.65
1 1/8	1	3	3/4	4	231236	231436	190.20
1 1/4	1	3	3/4	4	231240	231440	220.55
1 1/2	1 1/4	3	3/4	4	231248	231448	262.15



TYPE 2318 FOR MILLING NON-FERROUS MATERIALS

Two 25° right spiral shear cutting flutes.
One flute is center cutting. Large flute capacity for heavy milling of non-ferrous material.

OPTIONS:

Radius end.
End chamfer.

TOOL DIAM.	SHANK DIAM.	NUMBER OF FLUTES	LENGTH		TYPE 2318 - RIGHT SPIRAL	
			CARBIDE	OVERALL	EDP NO.	PRICE
1/2	1/2	2	1	3	231816	\$167.15
5/8	5/8	2	1 1/4	3 3/8	231820	186.85
3/4	3/4	2	1 1/4	3 3/8	231824	198.00
7/8	7/8	2	1 1/2	3 3/4	231828	217.75
1	1	2	1 1/2	4	231832	250.25
1 1/4	1 1/4	2	1 3/4	4 1/4	231840	340.15
1 1/2	1 1/2	2	2	4 3/4	231848	396.90



SPIRAL FLUTE COUNTERSINKS & DOUBLE ANGLE CUTTERS

CARBIDE TIPPED



SINGLE FLUTE TYPES:

The single flute design with a positive rake assures burr-free holes.

Right spiral flute.

Carbide tips brazed to alloy steel bodies.

Not recommended for portable tool use - see three flute types.

TYPE 2561 - 60° SINGLE FLUTE COUNTERSINKS

TYPE 2581 - 82° SINGLE FLUTE COUNTERSINKS

TYPE 2591 - 90° SINGLE FLUTE COUNTERSINKS

TYPE 2584 - 100° SINGLE FLUTE COUNTERSINKS

TOOL DIAM.	SHANK DIAM.	MIN. CUTTING DIAM.	EDP NO.				PRICE ALL TYPES
			TYPE 2561 60° ANGLE	TYPE 2581 82° ANGLE	TYPE 2591 90° ANGLE	TYPE 2584 100° ANGLE	
1/4	3/16	1/16	256108	258108	259108	258408	\$61.10
3/8	1/4	5/64	256112	258112	259112	258412	61.10
1/2	3/8	3/32	256116	258116	259116	258416	72.55
3/4	1/2	1/8	256124	258124	259124	258424	90.75
1	1/2	1/8	256132	258132	259132	258432	118.50
1 1/4	1/2	5/32	256140	258140	259140	258440	150.80
1 1/2	1/2	3/16	256148	258148	259148	258448	169.10



THREE FLUTE TYPES:

The three flute design tends to center the tool in portable use and results in longer tool life.

Right spiral flutes.

Carbide tips brazed to alloy steel bodies.

TYPE 2563 - 60° THREE FLUTE COUNTERSINKS

TYPE 2583 - 82° THREE FLUTE COUNTERSINKS

TYPE 2590 - 90° THREE FLUTE COUNTERSINKS

TYPE 2585 - 100° THREE FLUTE COUNTERSINKS

TOOL DIAM.	SHANK DIAM.	MIN. CUTTING DIAM.	EDP NO.				PRICE ALL TYPES
			TYPE 2563 60° ANGLE	TYPE 2583 82° ANGLE	TYPE 2590 90° ANGLE	TYPE 2585 100° ANGLE	
1/4	3/16	5/64	256308	258308	259008	258508	\$67.20
3/8	1/4	7/64	256312	258312	259012	258512	67.20
1/2	3/8	9/64	256316	258316	259016	258516	79.80
3/8	3/8	9/64	256320	258320	259020	258520	83.95
3/4	1/2	3/16	256324	258324	259024	258524	100.95
7/8	1/2	3/16	256328	258328	259028	258528	115.70
1	1/2	1/4	256332	258332	259032	258532	126.20
1 1/4	1/2	5/16	256340	258340	259040	258540	157.00
1 1/2	1/2	3/8	256348	258348	259048	258548	183.10

DOUBLE ANGLE CUTTERS

TYPE 2746 - 60° - FOR NON-FERROUS & CAST IRON

TYPE 2747 - 60° - FOR STEEL

TYPE 2748 - 90° - FOR NON-FERROUS & CAST IRON

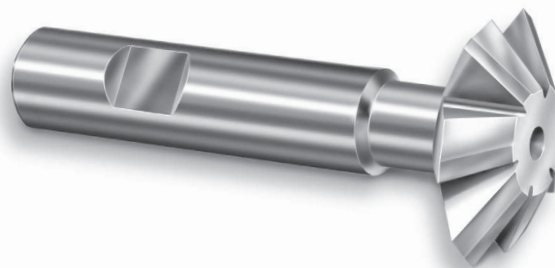
TYPE 2749 - 90° - FOR STEEL

Carbide tips brazed to hardened alloy steel bodies. Right hand cut. Straight shank with Weldon flats.

ALL TYPES:

Angle tolerance: +/- 1/4°.

Tool diameter tolerance: plus .015", minus .000"; Corner radius: .010" - .020".



TOOL DIAM.	SHANK DIAM.	NO. OF TEETH	60° INCLUDED ANGLE						90° INCLUDED ANGLE					
			OVERALL LENGTH	CUTTER WIDTH	TYPE 2746 EDP NO.	PRICE	TYPE 2747 EDP NO.	PRICE	OVERALL LENGTH	CUTTER WIDTH	TYPE 2748 EDP NO.	PRICE	TYPE 2749 EDP NO.	PRICE
¾	⅜	6	2 ⅜	⅜	274624	\$152.40	274724	\$167.65	2 ⅜	¼	274824	\$152.40	274924	\$167.65
1	½	6	2 27/32	5/16	274632	180.00	274732	198.05	2 29/32	⅜	274832	180.00	274932	198.05
1 ⅜	⅝	6	3 7/32	7/16	274644	208.50	274744	229.40	3 9/32	½	274844	208.50	274944	229.40
1 ½	⅞	6	3 3/8	½	274648	219.00	274748	240.85	3 7/16	9/16	274848	219.00	274948	240.85
1 7/8	¾	6	3 25/32	5/8	274660	332.50	274760	365.80	3 25/32	⅝	274860	332.50	274960	365.80
2 ¼	7/8	6	4 3/32	¾	274672	450.10	274772	495.10	4 3/32	¾	274872	450.10	274972	495.10



KEYSEAT CUTTERS

CARBIDE TIPPED - STRAIGHT TOOTH FOR NON-FERROUS & CAST IRON

TYPE 2700 - STRAIGHT TOOTH FOR NON-FERROUS & CAST IRON

Fast cutting to close tolerances with longer tool life.
Carbide tips brazed to hardened alloy steel bodies.
Cutting diameter tolerance: plus .020", plus .015".
Face width tolerance: plus .0000" minus .0005".
Straight shank - 1/2" diameter, 2" long.
Chip breakers on cutters 3/32" and greater in width.
Decimal sized cutters DO NOT have chip breakers.

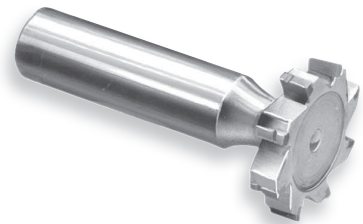
OPTIONS: Intermediate decimal & metric face width.

Intermediate decimal & metric cutting diameter.

Drive flats on shanks.

Radius corners or chamfer corners.

USE: For milling slots in cast iron, non-ferrous metals, plastic and non-metals.



AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2700 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
		FACE WIDTH	NECK DIAM.	OVERALL LENGTH	NO. OF TEETH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
204	1/2	1/16	.130	2 1/16	6	27000204	\$95.40	.0575 - .0787	\$128.50	\$114.20	\$109.45	\$107.15	\$104.75	\$102.75
304	1/2	3/32	.160	2 3/32	6	27000304	95.40	.0788 - .1088	128.50	114.20	109.45	107.15	104.75	102.75
404	1/2	1/8	.191	2 1/8	6	27000404	95.40	.1089 - .1400	128.50	114.20	109.45	107.15	104.75	102.75
305	5/8	3/32	.191	2 3/32	6	27000305	98.85	.0788 - .1088	132.10	117.80	113.00	110.65	108.25	106.35
405	5/8	1/8	.223	2 1/8	6	27000405	98.85	.1089 - .1400	132.10	117.80	113.00	110.65	108.25	106.35
505	5/8	3/32	.252	2 3/32	6	27000505	98.85	.1401 - .1713	132.10	117.80	113.00	110.65	108.25	106.35
605	5/8	3/16	.279	2 3/16	6	27000605	98.85	.1714 - .2025	132.10	117.80	113.00	110.65	108.25	106.35
406	3/4	1/8	.217	2 1/8	6	27000406	103.15	.1100 - .1400	136.60	122.35	117.50	115.25	112.85	110.85
506	3/4	3/32	.246	2 3/32	6	27000506	103.15	.1401 - .1713	136.60	122.35	117.50	115.25	112.85	110.85
606	3/4	3/16	.279	2 3/16	6	27000606	103.15	.1714 - .2025	136.60	122.35	117.50	115.25	112.85	110.85
-	3/4	7/32	.342	2 7/32	6	27002407	113.00	.2026 - .2339	136.60	122.35	117.50	115.25	112.85	110.85
806	3/4	1/4	.342	2 1/4	6	27000806	103.15	.2340 - .2650	136.60	122.35	117.50	115.25	112.85	110.85
507	7/8	5/32	.246	2 5/32	6	27000507	108.05	.1401 - .1713	141.70	127.45	122.60	120.40	117.95	115.95
607	7/8	3/16	.279	2 3/16	6	27000607	108.05	.1714 - .2025	141.70	127.45	122.60	120.40	117.95	115.95
707	7/8	7/32	.312	2 7/32	6	27000707	108.05	.2026 - .2339	141.70	127.45	122.60	120.40	117.95	115.95
807	7/8	1/4	.342	2 1/4	6	27000807	108.05	.2340 - .2650	141.70	127.45	122.60	120.40	117.95	115.95
608	1	3/16	.279	2 3/16	8	27000608	121.90	.1714 - .2025	156.20	141.95	137.10	134.85	132.40	130.45
708	1	7/32	.312	2 7/32	8	27000708	121.90	.2026 - .2339	156.20	141.95	137.10	134.85	132.40	130.45
808	1	1/4	.342	2 1/4	8	27000808	121.90	.2340 - .2650	156.20	141.95	137.10	134.85	132.40	130.45
-	1	9/32	.401	2 9/32	8	27003209	133.50	.2651 - .2968	156.20	141.95	137.10	134.85	132.40	130.45
1008	1	5/16	.401	2 5/16	8	27001008	121.90	.2969 - .3281	156.20	141.95	137.10	134.85	132.40	130.45
-	1	11/32	.467	2 11/32	8	27003211	133.50	.3282 - .3593	156.20	141.95	137.10	134.85	132.40	130.45
1208	1	3/8	.467	2 3/8	8	27001208	121.90	.3594 - .3900	156.20	141.95	137.10	134.85	132.40	130.45
609	1 1/8	3/16	.312	2 3/16	8	27000609	128.00	.1714 - .2025	162.60	148.40	143.55	141.30	138.85	136.90
709	1 1/8	7/32	.342	2 7/32	8	27000709	128.00	.2026 - .2339	162.60	148.40	143.55	141.30	138.85	136.90
809	1 1/8	1/4	.374	2 1/4	8	27000809	128.00	.2340 - .2650	162.60	148.40	143.55	141.30	138.85	136.90
-	1 1/8	9/32	.435	2 9/32	8	27003609	140.25	.2651 - .2968	162.60	148.40	143.55	141.30	138.85	136.90
1009	1 1/8	3/16	.435	2 3/16	8	27001009	128.00	.2969 - .3281	162.60	148.40	143.55	141.30	138.85	136.90
610	1 1/4	3/16	.312	2 3/16	8	27000610	134.40	.1714 - .2025	169.30	155.10	150.30	148.00	145.55	143.55
710	1 1/4	7/32	.342	2 7/32	8	27000710	134.40	.2026 - .2339	169.30	155.10	150.30	148.00	145.55	143.55
810	1 1/4	1/4	.374	2 1/4	8	27000810	134.40	.2340 - .2650	169.30	155.10	150.30	148.00	145.55	143.55
-	1 1/4	9/32	.435	2 9/32	8	27004009	147.20	.2651 - .2968	169.30	155.10	150.30	148.00	145.55	143.55
1010	1 1/4	5/16	.435	2 5/16	8	27001010	134.40	.2969 - .3281	169.30	155.10	150.30	148.00	145.55	143.55
-	1 1/4	11/32	.467	2 11/32	8	27004011	147.20	.3282 - .3593	169.30	155.10	150.30	148.00	145.55	143.55
1210	1 1/4	3/8	.467	2 3/8	8	27001210	134.40	.3594 - .3900	169.30	155.10	150.30	148.00	145.55	143.55
811	1 3/8	1/4	.401	2 1/4	8	27000811	141.25	.2340 - .2650	176.45	162.20	157.40	155.10	152.65	150.75
-	1 3/8	9/32	.467	2 9/32	8	27004409	154.65	.2651 - .2968	176.45	162.20	157.40	155.10	152.65	150.75
1011	1 3/8	5/16	.467	2 5/16	8	27001011	141.25	.2969 - .3281	176.45	162.20	157.40	155.10	152.65	150.75
-	1 3/8	11/32	.467	2 11/32	8	27004411	154.65	.3282 - .3593	176.45	162.20	157.40	155.10	152.65	150.75
1211	1 3/8	3/8	.467	2 3/8	8	27001211	141.25	.3594 - .3900	176.45	162.20	157.40	155.10	152.65	150.75
812	1 1/2	1/4	.435	2 1/4	8	27000812	148.25	.2340 - .2650	183.80	169.60	164.80	162.50	160.05	158.15
-	1 1/2	9/32	.467	2 9/32	8	27004809	162.40	.2651 - .2968	183.80	169.60	164.80	162.50	160.05	158.15
1012	1 1/2	3/16	.467	2 3/16	8	27001012	148.25	.2969 - .3281	183.80	169.60	164.80	162.50	160.05	158.15
-	1 1/2	11/32	.467	2 11/32	8	27004811	162.40	.3282 - .3593	183.80	169.60	164.80	162.50	160.05	158.15
1212	1 1/2	3/8	.467	2 3/8	8	27001212	148.25	.3594 - .3900	183.80	169.60	164.80	162.50	160.05	158.15
-	1 1/2	13/32	.467	2 13/32	8	27004813	162.40	.3901 - .4219	183.80	169.60	164.80	162.50	160.05	158.15
-	1 1/2	7/16	.467	2 7/16	8	27004814	162.40	.4220 - .4531	183.80	169.60	164.80	162.50	160.05	158.15
-	1 1/2	15/32	.467	2 15/32	8	27004815	162.40	.4532 - .4843	183.80	169.60	164.80	162.50	160.05	158.15
-	1 1/2	1/2	.467	2 1/2	8	27004816	162.40	.4844 - .5150	183.80	169.60	164.80	162.50	160.05	158.15

*Quantities of 15 or more: price of fractional size in same size range.



KEYSEAT CUTTERS

CARBIDE TIPPED - STAGGERED TOOTH FOR NON-FERROUS & CAST IRON

TYPE 2701 - STAGGERED TOOTH FOR NON-FERROUS & CAST IRON

Alternate right and left axial rake.

Fast cutting to close tolerances with longer tool life.

Carbide tips brazed to hardened alloy steel bodies.

Cutting diameter tolerance: plus .020", plus .015".

Face width tolerance: plus .0000" minus .0005".

Straight shank - 1/2" diameter, 2" long.

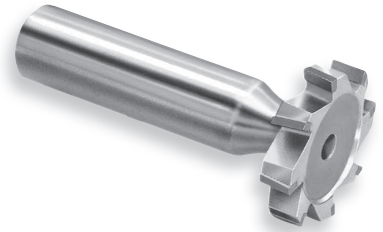
OPTIONS: Intermediate decimal & metric face width.

Intermediate decimal & metric cutting diameter.

Drive flats on shanks.

Radius corners or chamfer corners.

USE: For milling slots in cast iron, non-ferrous metals, plastic and non-metals.



AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2701 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
		FACE WIDTH	NECK DIAM.	OVERALL LENGTH	NO. OF TEETH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
204	1/2	1/16	.130	2 1/16	6	27010204	\$112.25	.0575 - .0787	\$146.10	\$131.85	\$127.05	\$124.80	\$122.35	\$120.40
304	1/2	3/32	.160	2 3/32	6	27010304	112.25	.0788 - .1088	146.10	131.85	127.05	124.80	122.35	120.40
404	1/2	1/8	.191	2 1/8	6	27010404	112.25	.1089 - .1400	146.10	131.85	127.05	124.80	122.35	120.40
305	5/8	3/32	.191	2 3/32	6	27010305	116.25	.0788 - .1088	150.35	136.10	131.30	128.95	126.55	124.60
405	5/8	1/8	.223	2 1/8	6	27010405	116.25	.1089 - .1400	150.35	136.10	131.30	128.95	126.55	124.60
505	5/8	3/32	.252	2 3/32	6	27010505	116.25	.1401 - .1713	150.35	136.10	131.30	128.95	126.55	124.60
605	5/8	3/16	.279	2 3/16	6	27010605	116.25	.1714 - .2025	150.35	136.10	131.30	128.95	126.55	124.60
406	3/4	1/8	.217	2 1/8	6	27010406	121.45	.1100 - .1400	155.80	141.55	136.70	134.40	132.05	130.10
506	3/4	3/32	.246	2 3/32	6	27010506	121.45	.1401 - .1713	155.80	141.55	136.70	134.40	132.05	130.10
606	3/4	3/16	.279	2 3/16	6	27010606	121.45	.1714 - .2025	155.80	141.55	136.70	134.40	132.05	130.10
-	3/4	7/32	.342	2 7/32	6	27012407	133.05	.2026 - .2339	155.80	141.55	136.70	134.40	132.05	130.10
806	3/4	1/4	.342	2 1/4	6	27010806	121.45	.2340 - .2650	155.80	141.55	136.70	134.40	132.05	130.10
507	7/8	5/32	.246	2 5/32	6	27010507	127.05	.1401 - .1713	161.60	147.30	142.55	140.25	137.80	135.90
607	7/8	3/16	.279	2 3/16	6	27010607	127.05	.1714 - .2025	161.60	147.30	142.55	140.25	137.80	135.90
707	7/8	7/32	.312	2 7/32	6	27010707	127.05	.2026 - .2339	161.60	147.30	142.55	140.25	137.80	135.90
807	7/8	1/4	.342	2 1/4	6	27010807	127.05	.2340 - .2650	161.60	147.30	142.55	140.25	137.80	135.90
608	1	3/16	.279	2 3/16	8	27010608	143.35	.1714 - .2025	178.70	164.40	159.65	157.30	154.90	153.00
708	1	7/32	.312	2 7/32	8	27010708	143.35	.2026 - .2339	178.70	164.40	159.65	157.30	154.90	153.00
808	1	1/4	.342	2 1/4	8	27010808	143.35	.2340 - .2650	178.70	164.40	159.65	157.30	154.90	153.00
-	1	9/32	.401	2 9/32	8	27013209	157.05	.2651 - .2968	178.70	164.40	159.65	157.30	154.90	153.00
1008	1	5/16	.401	2 5/16	8	27011008	143.35	.2969 - .3281	178.70	164.40	159.65	157.30	154.90	153.00
-	1	11/32	.467	2 11/32	8	27013211	157.05	.3282 - .3593	178.70	164.40	159.65	157.30	154.90	153.00
1208	1	3/8	.467	2 3/8	8	27011208	143.35	.3594 - .3900	178.70	164.40	159.65	157.30	154.90	153.00
609	1 1/8	3/16	.312	2 3/16	8	27010609	150.50	.1714 - .2025	186.15	171.85	167.10	164.80	162.40	160.40
709	1 1/8	7/32	.342	2 7/32	8	27010709	150.50	.2026 - .2339	186.15	171.85	167.10	164.80	162.40	160.40
809	1 1/8	1/4	.374	2 1/4	8	27010809	150.50	.2340 - .2650	186.15	171.85	167.10	164.80	162.40	160.40
-	1 1/8	9/32	.435	2 9/32	8	27013609	164.80	.2651 - .2968	186.15	171.85	167.10	164.80	162.40	160.40
1009	1 1/8	5/16	.435	2 5/16	8	27011009	150.50	.2969 - .3281	186.15	171.85	167.10	164.80	162.40	160.40
610	1 1/4	3/16	.312	2 3/16	8	27010610	158.10	.1714 - .2025	194.05	179.80	175.05	172.70	170.25	168.30
710	1 1/4	7/32	.342	2 7/32	8	27010710	158.10	.2026 - .2339	194.05	179.80	175.05	172.70	170.25	168.30
810	1 1/4	1/4	.374	2 1/4	8	27010810	158.10	.2340 - .2650	194.05	179.80	175.05	172.70	170.25	168.30
-	1 1/4	9/32	.435	2 9/32	8	27014009	173.10	.2651 - .2968	194.05	179.80	175.05	172.70	170.25	168.30
1010	1 1/4	5/16	.435	2 5/16	8	27011010	158.10	.2969 - .3281	194.05	179.80	175.05	172.70	170.25	168.30
-	1 1/4	11/32	.467	2 11/32	8	27014011	173.10	.3282 - .3593	194.05	179.80	175.05	172.70	170.25	168.30
1210	1 1/4	3/8	.467	2 3/8	8	27011210	158.10	.3594 - .3900	194.05	179.80	175.05	172.70	170.25	168.30
811	1 3/8	1/4	.401	2 1/4	8	27010811	166.05	.2340 - .2650	202.45	188.25	183.45	181.10	178.70	176.70
-	1 3/8	9/32	.467	2 9/32	8	27014409	181.85	.2651 - .2968	202.45	188.25	183.45	181.10	178.70	176.70
1011	1 3/8	5/16	.467	2 5/16	8	27011011	166.05	.2969 - .3281	202.45	188.25	183.45	181.10	178.70	176.70
-	1 3/8	11/32	.467	2 11/32	8	27014411	181.85	.3282 - .3593	202.45	188.25	183.45	181.10	178.70	176.70
1211	1 3/8	3/8	.467	2 3/8	8	27011211	166.05	.3594 - .3900	202.45	188.25	183.45	181.10	178.70	176.70
812	1 1/2	1/4	.435	2 1/4	8	27010812	174.40	.2340 - .2650	211.15	196.90	192.10	189.85	187.40	185.45
-	1 1/2	9/32	.467	2 9/32	8	27014809	191.00	.2651 - .2968	211.15	196.90	192.10	189.85	187.40	185.45
1012	1 1/2	5/16	.467	2 5/16	8	27011012	174.40	.2969 - .3281	211.15	196.90	192.10	189.85	187.40	185.45
-	1 1/2	11/32	.467	2 11/32	8	27014811	191.00	.3282 - .3593	211.15	196.90	192.10	189.85	187.40	185.45
1212	1 1/2	3/8	.467	2 3/8	8	27011212	174.40	.3594 - .3900	211.15	196.90	192.10	189.85	187.40	185.45
-	1 1/2	13/32	.467	2 13/32	8	27014813	191.00	.3901 - .4219	211.15	196.90	192.10	189.85	187.40	185.45
-	1 1/2	7/16	.467	2 7/16	8	27014814	191.00	.4220 - .4531	211.15	196.90	192.10	189.85	187.40	185.45
-	1 1/2	15/32	.467	2 15/32	8	27014815	191.00	.4532 - .4843	211.15	196.90	192.10	189.85	187.40	185.45
-	1 1/2	1/2	.467	2 1/2	8	27014816	191.00	.4844 - .5150	211.15	196.90	192.10	189.85	187.40	185.45

*Quantities of 15 or more: price of fractional size in same size range.



KEYSEAT CUTTERS

CARBIDE TIPPED - STRAIGHT TOOTH FOR STEEL

TYPE 2702 - STRAIGHT TOOTH FOR STEEL

Fast cutting to close tolerances with longer tool life.
Carbide tips brazed to hardened alloy steel bodies.
Cutting diameter tolerance: plus .020", plus .015".
Face width tolerance: plus .0000" minus .0005".
Straight shank - 1/2" diameter, 2" long.
Chip breakers on cutters 5/32" and greater in width.
Decimal sized cutters DO NOT have chip breakers.

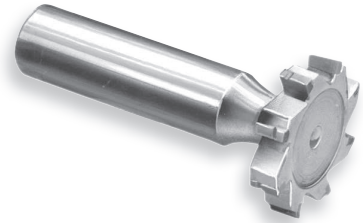
OPTIONS: Intermediate decimal & metric face width.

Intermediate decimal & metric cutting diameter.

Drive flats on shanks.

Radius corners or chamfer corners.

USE: For milling slots in steel.



AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2702 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
		FACE WIDTH	NECK DIAM.	OVERALL LENGTH	NO. OF TEETH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
204	1/2	1/16	.130	2 1/16	6	27020204	\$110.25	.0575 - .0787	\$145.45	\$130.45	\$125.40	\$123.00	\$120.45	\$118.40
304	1/2	3/32	.160	2 3/32	6	27020304	110.25	.0788 - .1088	145.45	130.45	125.40	123.00	120.45	118.40
404	1/2	1/8	.191	2 1/8	6	27020404	110.25	.1089 - .1400	145.45	130.45	125.40	123.00	120.45	118.40
305	5/8	3/32	.191	2 3/32	6	27020305	114.20	.0788 - .1088	149.50	134.50	129.55	127.10	124.60	122.50
405	5/8	1/8	.223	2 1/8	6	27020405	114.20	.1089 - .1400	149.50	134.50	129.55	127.10	124.60	122.50
505	5/8	3/32	.252	2 5/32	6	27020505	114.20	.1401 - .1713	149.50	134.50	129.55	127.10	124.60	122.50
605	5/8	3/16	.279	2 3/16	6	27020605	114.20	.1714 - .2025	149.50	134.50	129.55	127.10	124.60	122.50
406	3/4	1/8	.217	2 1/8	6	27020406	119.20	.1100 - .1400	154.85	139.85	134.80	132.35	129.80	127.75
506	3/4	5/32	.246	2 5/32	6	27020506	119.20	.1401 - .1713	154.85	139.85	134.80	132.35	129.80	127.75
606	3/4	3/16	.279	2 3/16	6	27020606	119.20	.1714 - .2025	154.85	139.85	134.80	132.35	129.80	127.75
-	3/4	7/32	.342	2 7/32	6	27022407	130.50	.2026 - .2339	154.85	139.85	134.80	132.35	129.80	127.75
806	3/4	1/4	.342	2 1/4	6	27020806	119.20	.2340 - .2650	154.85	139.85	134.80	132.35	129.80	127.75
507	7/8	5/32	.246	2 5/32	6	27020507	124.85	.1401 - .1713	160.70	145.70	140.65	138.20	135.70	133.60
607	7/8	3/16	.279	2 3/16	6	27020607	124.85	.1714 - .2025	160.70	145.70	140.65	138.20	135.70	133.60
707	7/8	7/32	.312	2 7/32	6	27020707	124.85	.2026 - .2339	160.70	145.70	140.65	138.20	135.70	133.60
807	7/8	1/4	.342	2 1/4	6	27020807	124.85	.2340 - .2650	160.70	145.70	140.65	138.20	135.70	133.60
608	1	3/16	.279	2 3/16	8	27020608	140.80	.1714 - .2025	177.35	162.45	157.35	155.00	152.45	150.40
708	1	7/32	.312	2 7/32	8	27020708	140.80	.2026 - .2339	177.35	162.45	157.35	155.00	152.45	150.40
808	1	1/4	.342	2 1/4	8	27020808	140.80	.2340 - .2650	177.35	162.45	157.35	155.00	152.45	150.40
-	1	9/32	.401	2 9/32	8	27023209	154.25	.2651 - .2968	177.35	162.45	157.35	155.00	152.45	150.40
1008	1	5/16	.401	2 5/16	8	27021008	140.80	.2969 - .3281	177.35	162.45	157.35	155.00	152.45	150.40
-	1	11/32	.467	2 11/32	8	27023211	154.25	.3282 - .3593	177.35	162.45	157.35	155.00	152.45	150.40
1208	1	3/8	.467	2 3/8	8	27021208	140.80	.3594 - .3900	177.35	162.45	157.35	155.00	152.45	150.40
609	1 1/8	3/16	.312	2 3/16	8	27020609	147.90	.1714 - .2025	184.85	169.90	164.80	162.45	159.90	157.80
709	1 1/8	7/32	.342	2 7/32	8	27020709	147.90	.2026 - .2339	184.85	169.90	164.80	162.45	159.90	157.80
809	1 1/8	1/4	.374	2 1/4	8	27020809	147.90	.2340 - .2650	184.85	169.90	164.80	162.45	159.90	157.80
-	1 1/8	9/32	.435	2 9/32	8	27023609	161.95	.2651 - .2968	184.85	169.90	164.80	162.45	159.90	157.80
1009	1 1/8	5/16	.435	2 5/16	8	27021009	147.90	.2969 - .3281	184.85	169.90	164.80	162.45	159.90	157.80
610	1 1/4	3/16	.312	2 3/16	8	27020610	155.25	.1714 - .2025	192.60	177.60	172.60	170.15	167.60	165.55
710	1 1/4	7/32	.342	2 7/32	8	27020710	155.25	.2026 - .2339	192.60	177.60	172.60	170.15	167.60	165.55
810	1 1/4	1/4	.374	2 1/4	8	27020810	155.25	.2340 - .2650	192.60	177.60	172.60	170.15	167.60	165.55
-	1 1/4	9/32	.435	2 9/32	8	27024009	170.05	.2651 - .2968	192.60	177.60	172.60	170.15	167.60	165.55
1010	1 1/4	5/16	.435	2 5/16	8	27021010	155.25	.2969 - .3281	192.60	177.60	172.60	170.15	167.60	165.55
-	1 1/4	11/32	.467	2 11/32	8	27024011	170.05	.3282 - .3593	192.60	177.60	172.60	170.15	167.60	165.55
1210	1 1/4	3/8	.467	2 3/8	8	27021210	155.25	.3594 - .3900	192.60	177.60	172.60	170.15	167.60	165.55
811	1 3/8	1/4	.401	2 1/4	8	27020811	163.10	.2340 - .2650	200.90	185.85	180.80	178.35	175.80	173.80
-	1 3/8	9/32	.467	2 9/32	8	27024409	178.60	.2651 - .2968	200.90	185.85	180.80	178.35	175.80	173.80
1011	1 3/8	5/16	.467	2 5/16	8	27021011	163.10	.2969 - .3281	200.90	185.85	180.80	178.35	175.80	173.80
-	1 3/8	11/32	.467	2 11/32	8	27024411	178.60	.3282 - .3593	200.90	185.85	180.80	178.35	175.80	173.80
1211	1 3/8	3/8	.467	2 3/8	8	27021211	163.10	.3594 - .3900	200.90	185.85	180.80	178.35	175.80	173.80
812	1 1/2	1/4	.435	2 1/4	8	27020812	171.25	.2340 - .2650	209.35	194.45	189.40	187.00	184.40	182.40
-	1 1/2	9/32	.467	2 9/32	8	27024809	187.55	.2651 - .2968	209.35	194.45	189.40	187.00	184.40	182.40
1012	1 1/2	5/16	.467	2 5/16	8	27021012	171.25	.2969 - .3281	209.35	194.45	189.40	187.00	184.40	182.40
-	1 1/2	11/32	.467	2 11/32	8	27024811	187.55	.3282 - .3593	209.35	194.45	189.40	187.00	184.40	182.40
1212	1 1/2	3/8	.467	2 3/8	8	27021212	171.25	.3594 - .3900	209.35	194.45	189.40	187.00	184.40	182.40
-	1 1/2	13/32	.467	2 13/32	8	27024813	187.55	.3901 - .4219	209.35	194.45	189.40	187.00	184.40	182.40
-	1 1/2	7/16	.467	2 7/16	8	27024814	187.55	.4220 - .4531	209.35	194.45	189.40	187.00	184.40	182.40
-	1 1/2	15/32	.467	2 15/32	8	27024815	187.55	.4532 - .4843	209.35	194.45	189.40	187.00	184.40	182.40
-	1 1/2	1/2	.467	2 1/2	8	27024816	187.55	.4844 - .5150	209.35	194.45	189.40	187.00	184.40	182.40

*Quantities of 15 or more: price of fractional size in same size range.



KEYSEAT CUTTERS

CARBIDE TIPPED - STAGGERED TOOTH FOR STEEL

TYPE 2703 - STAGGERED TOOTH FOR STEEL

Alternate right and left axial rake.

Fast cutting to close tolerances with longer tool life.

Carbide tips brazed to hardened alloy steel bodies.

Cutting diameter tolerance: plus .020", plus .015".

Face width tolerance: plus .0000" minus .0005".

Straight shank - 1/2" diameter, 2" long.

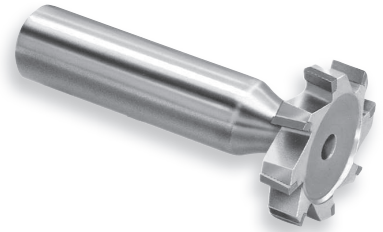
OPTIONS: Intermediate decimal & metric face width.

Intermediate decimal & metric cutting diameter.

Drive flats on shanks.

Radius corners or chamfer corners.

USE: For milling slots in steel.



AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2703 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
		FACE WIDTH	NECK DIAM.	OVERALL LENGTH	NO. OF TEETH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
204	1/2	1/16	.130	2 1/16	6	27030204	\$129.70	.0575 - .0787	\$165.80	\$150.80	\$145.80	\$143.35	\$140.80	\$138.80
304	1/2	3/32	.160	2 3/32	6	27030304	129.70	.0788 - .1088	165.80	150.80	145.80	143.35	140.80	138.80
404	1/2	1/8	.191	2 1/8	6	27030404	129.70	.1089 - .1400	165.80	150.80	145.80	143.35	140.80	138.80
305	5/8	3/32	.191	2 3/32	6	27030305	134.25	.0788 - .1088	170.60	155.65	150.65	148.20	145.70	143.60
405	5/8	1/8	.223	2 1/8	6	27030405	134.25	.1089 - .1400	170.60	155.65	150.65	148.20	145.70	143.60
505	5/8	3/32	.252	2 3/32	6	27030505	134.25	.1401 - .1713	170.60	155.65	150.65	148.20	145.70	143.60
605	5/8	3/16	.279	2 3/16	6	27030605	134.25	.1714 - .2025	170.60	155.65	150.65	148.20	145.70	143.60
406	3/4	1/8	.217	2 1/8	6	27030406	140.30	.1100 - .1400	176.95	162.00	157.00	154.55	151.95	149.90
506	3/4	5/32	.246	2 5/32	6	27030506	140.30	.1401 - .1713	176.95	162.00	157.00	154.55	151.95	149.90
606	3/4	3/16	.279	2 3/16	6	27030606	140.30	.1714 - .2025	176.95	162.00	157.00	154.55	151.95	149.90
-	3/4	7/32	.342	2 7/32	6	27032407	153.65	.2026 - .2339	176.95	162.00	157.00	154.55	151.95	149.90
806	3/4	1/4	.342	2 1/4	6	27030806	140.30	.2340 - .2650	176.95	162.00	157.00	154.55	151.95	149.90
507	7/8	5/32	.246	2 5/32	6	27030507	146.80	.1401 - .1713	183.65	168.70	163.65	161.15	158.65	156.70
607	7/8	3/16	.279	2 3/16	6	27030607	146.80	.1714 - .2025	183.65	168.70	163.65	161.15	158.65	156.70
707	7/8	7/32	.312	2 7/32	6	27030707	146.80	.2026 - .2339	183.65	168.70	163.65	161.15	158.65	156.70
807	7/8	1/4	.342	2 1/4	6	27030807	146.80	.2340 - .2650	183.65	168.70	163.65	161.15	158.65	156.70
608	1	3/16	.279	2 3/16	8	27030608	165.55	.1714 - .2025	203.35	188.45	183.40	180.95	178.40	176.40
708	1	7/32	.312	2 7/32	8	27030708	165.55	.2026 - .2339	203.35	188.45	183.40	180.95	178.40	176.40
808	1	1/4	.342	2 1/4	8	27030808	165.55	.2340 - .2650	203.35	188.45	183.40	180.95	178.40	176.40
-	1	9/32	.401	2 9/32	8	27033209	181.40	.2651 - .2968	203.35	188.45	183.40	180.95	178.40	176.40
1008	1	5/16	.401	2 5/16	8	27031008	165.55	.2969 - .3281	203.35	188.45	183.40	180.95	178.40	176.40
-	1	11/32	.467	2 11/32	8	27033211	181.40	.3282 - .3593	203.35	188.45	183.40	180.95	178.40	176.40
1208	1	3/8	.467	2 3/8	8	27031208	165.55	.3594 - .3900	203.35	188.45	183.40	180.95	178.40	176.40
609	1 1/8	3/16	.312	2 3/16	8	27030609	173.80	.1714 - .2025	212.00	197.00	192.00	189.60	187.10	184.95
709	1 1/8	7/32	.342	2 7/32	8	27030709	173.80	.2026 - .2339	212.00	197.00	192.00	189.60	187.10	184.95
809	1 1/8	1/4	.374	2 1/4	8	27030809	173.80	.2340 - .2650	212.00	197.00	192.00	189.60	187.10	184.95
-	1 1/8	9/32	.435	2 9/32	8	27033609	190.30	.2651 - .2968	212.00	197.00	192.00	189.60	187.10	184.95
1009	1 1/8	5/16	.435	2 5/16	8	27031009	173.80	.2969 - .3281	212.00	197.00	192.00	189.60	187.10	184.95
610	1 1/4	3/16	.312	2 3/16	8	27030610	182.55	.1714 - .2025	221.15	206.15	201.20	198.75	196.25	194.15
710	1 1/4	7/32	.342	2 7/32	8	27030710	182.55	.2026 - .2339	221.15	206.15	201.20	198.75	196.25	194.15
810	1 1/4	1/4	.374	2 1/4	8	27030810	182.55	.2340 - .2650	221.15	206.15	201.20	198.75	196.25	194.15
-	1 1/4	9/32	.435	2 9/32	8	27034009	200.00	.2651 - .2968	221.15	206.15	201.20	198.75	196.25	194.15
1010	1 1/4	5/16	.435	2 5/16	8	27031010	182.55	.2969 - .3281	221.15	206.15	201.20	198.75	196.25	194.15
-	1 1/4	11/32	.467	2 11/32	8	27034011	200.00	.3282 - .3593	221.15	206.15	201.20	198.75	196.25	194.15
1210	1 1/4	3/8	.467	2 3/8	8	27031210	182.55	.3594 - .3900	221.15	206.15	201.20	198.75	196.25	194.15
811	1 3/8	1/4	.401	2 1/4	8	27030811	191.85	.2340 - .2650	230.85	215.95	210.80	208.45	205.90	203.85
-	1 3/8	9/32	.467	2 9/32	8	27034409	210.05	.2651 - .2968	230.85	215.95	210.80	208.45	205.90	203.85
1011	1 3/8	5/16	.467	2 5/16	8	27031011	191.85	.2969 - .3281	230.85	215.95	210.80	208.45	205.90	203.85
-	1 3/8	11/32	.467	2 11/32	8	27034411	210.05	.3282 - .3593	230.85	215.95	210.80	208.45	205.90	203.85
1211	1 3/8	3/8	.467	2 3/8	8	27031211	191.85	.3594 - .3900	230.85	215.95	210.80	208.45	205.90	203.85
812	1 1/2	1/4	.435	2 1/4	8	27030812	201.40	.2340 - .2650	240.90	225.95	220.90	218.50	215.95	213.95
-	1 1/2	9/32	.467	2 9/32	8	27034809	220.60	.2651 - .2968	240.90	225.95	220.90	218.50	215.95	213.95
1012	1 1/2	5/16	.467	2 5/16	8	27031012	201.40	.2969 - .3281	240.90	225.95	220.90	218.50	215.95	213.95
-	1 1/2	11/32	.467	2 11/32	8	27034811	220.60	.3282 - .3593	240.90	225.95	220.90	218.50	215.95	213.95
1212	1 1/2	3/8	.467	2 3/8	8	27031212	201.40	.3594 - .3900	240.90	225.95	220.90	218.50	215.95	213.95
-	1 1/2	13/32	.467	2 13/32	8	27034813	220.60	.3901 - .4219	240.90	225.95	220.90	218.50	215.95	213.95
-	1 1/2	7/16	.467	2 7/16	8	27034814	220.60	.4220 - .4531	240.90	225.95	220.90	218.50	215.95	213.95
-	1 1/2	15/32	.467	2 15/32	8	27034815	220.60	.4532 - .4843	240.90	225.95	220.90	218.50	215.95	213.95
-	1 1/2	1/2	.467	2 1/2	8	27034816	220.60	.4844 - .5150	240.90	225.95	220.90	218.50	215.95	213.95

*Quantities of 15 or more: price of fractional size in same size range.



KEYSEAT CUTTERS

CARBIDE TIPPED - HIGH PERFORMANCE FOR ALUMINUM

TYPE 2704 - STRAIGHT TOOTH - FOR ALUMINUM

HIGH PERFORMANCE

Carbide tips brazed to hardened alloy steel bodies.
Cutting diameter tolerance: plus .020", plus .015".
Face width tolerance: plus .0005" minus .0005".

*TOOL DIAM.	SHANK DIAM.
Up to 1 1/2"	1/2"
1 3/4" to 2"	3/4"



OPTIONS: Intermediate decimal & metric face width.
Intermediate decimal & metric cutting diameter.
Drive flats on shanks.

Radius corners or chamfer corners.

USE: For milling, slotting, grooving, snap rings, and O-rings. Also used in circular interpolation of spotfacing, back spotfacing, and counterboring. Starting point for Aluminum slotting: 1K-4K SFPM, .002-.008 IPT. Reduce SFPM and IPT by 25% for widths under .0938.

AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2704 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE
		FACE WIDTH	NECK DIAM.	OVER-ALL LEN.	NO. OF TEETH			
-	5/8	1/16	.160	2 1/16	2	27042002	\$116.95	.0575 - .0787
305	5/8	3/32	.191	2 3/32	2	27040305	116.95	.0788 - .1099
405	5/8	1/8	.223	2 1/8	2	27040405	116.95	.1100 - .1400
505	5/8	5/32	.252	2 5/32	2	27040505	116.95	.1401 - .1713
605	5/8	3/16	.279	2 3/16	2	27040605	116.95	.1714 - .2025
-	5/8	7/32	.342	2 7/32	2	27042007	116.95	.2026 - .2339
-	5/8	1/4	.342	2 1/4	2	27042008	116.95	.2340 - .2650
-	3/4	1/16	.160	2 1/16	2	27042402	122.80	.0575 - .0787
-	3/4	3/32	.191	2 3/32	2	27042403	122.80	.0788 - .1099
406	3/4	1/8	.217	2 1/8	2	27040406	122.80	.1100 - .1400
506	3/4	5/32	.246	2 5/32	2	27040506	122.80	.1401 - .1713
606	3/4	3/16	.279	2 3/16	2	27040606	122.80	.1714 - .2025
-	3/4	7/32	.342	2 7/32	2	27042407	122.80	.2026 - .2339
-	3/4	1/4	.342	2 1/4	2	27040806	122.80	.2340 - .2650
-	7/8	1/16	.160	2 1/16	2	27042802	131.60	.0575 - .0787
-	7/8	3/32	.191	2 3/32	2	27042803	131.60	.0788 - .1099
-	7/8	1/8	.217	2 1/8	2	27042804	131.60	.1100 - .1400
507	7/8	5/32	.246	2 5/32	2	27040507	131.60	.1401 - .1713
607	7/8	3/16	.279	2 3/16	2	27040607	131.60	.1714 - .2025
707	7/8	7/32	.312	2 7/32	2	27040707	131.60	.2026 - .2339
807	7/8	1/4	.342	2 1/4	2	27040807	131.60	.2340 - .2650
-	1	3/32	.191	2 3/32	2	27043203	138.90	.0788 - .1088
-	1	1/8	.217	2 1/8	2	27043204	138.90	.1089 - .1400
-	1	5/32	.246	2 5/32	2	27043205	138.90	.1401 - .1713
608	1	3/16	.279	2 3/16	2	27040608	138.90	.1714 - .2025
708	1	7/32	.312	2 7/32	2	27040708	138.90	.2026 - .2339
808	1	1/4	.342	2 1/4	2	27040808	138.90	.2340 - .2650
-	1	9/32	.401	2 9/32	2	27043209	138.90	.2651 - .2968
1008	1	5/16	.401	2 5/16	2	27041008	138.90	.2969 - .3281
-	1	11/32	.467	2 11/32	2	27043211	138.90	.3282 - .3593
1208	1	3/8	.467	2 3/8	2	27041208	138.90	.3594 - .3900
-	1 1/8	3/32	.217	2 3/32	2	27043603	138.90	.0788 - .1088
-	1 1/8	1/8	.246	2 1/8	2	27043604	138.90	.1089 - .1400
-	1 1/8	5/32	.279	2 5/32	2	27043605	138.90	.1401 - .1713
609	1 1/8	3/16	.312	2 3/16	2	27040609	138.90	.1714 - .2025
709	1 1/8	7/32	.342	2 7/32	2	27040709	138.90	.2026 - .2339
809	1 1/8	1/4	.374	2 1/4	2	27040809	138.90	.2340 - .2650
-	1 1/8	9/32	.435	2 9/32	2	27043609	138.90	.2651 - .2968
1009	1 1/8	5/16	.435	2 5/16	2	27041009	138.90	.2969 - .3281
-	1 1/8	11/32	.467	2 11/32	2	27043611	138.90	.3282 - .3593
-	1 1/8	3/8	.467	2 3/8	2	27043612	138.90	.3594 - .3900
-	1 1/4	3/32	.217	2 3/32	3	27044003	146.15	.0788 - .1088
-	1 1/4	1/8	.246	2 1/8	3	27044004	146.15	.1089 - .1400
-	1 1/4	5/32	.279	2 5/32	3	27044005	146.15	.1401 - .1713
610	1 1/4	3/16	.312	2 3/16	3	27040610	146.15	.1714 - .2025
710	1 1/4	7/32	.342	2 7/32	3	27040710	146.15	.2026 - .2339
810	1 1/4	1/4	.374	2 1/4	3	27040810	146.15	.2340 - .2650
-	1 1/4	9/32	.435	2 9/32	3	27044009	146.15	.2651 - .2968
1010	1 1/4	5/16	.435	2 5/16	3	27041010	146.15	.2969 - .3281
-	1 1/4	11/32	.467	2 11/32	3	27044011	146.15	.3282 - .3593
1210	1 1/4	3/8	.467	2 3/8	3	27041210	146.15	.3594 - .3900

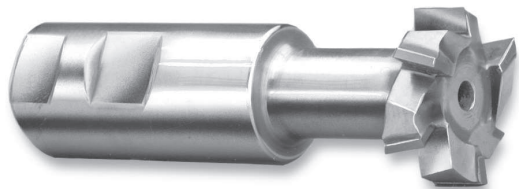
AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2704 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE
		FACE WIDTH	NECK DIAM.	OVER-ALL LEN.	NO. OF TEETH			
-	1 3/8	3/32	.312	2 3/32	3	27044403	\$160.80	.0788 - .1088
-	1 3/8	1/8	.342	2 1/8	3	27044404	160.80	.1089 - .1400
-	1 3/8	5/32	.374	2 5/32	3	27044405	160.80	.1401 - .1713
-	1 3/8	3/16	.401	2 3/16	3	27044406	160.80	.1714 - .2025
-	1 3/8	7/32	.401	2 7/32	3	27044407	160.80	.2026 - .2339
811	1 3/8	1/4	.401	2 1/4	3	27040811	160.80	.2340 - .2650
-	1 3/8	9/32	.467	2 9/32	3	27044409	160.80	.2651 - .2968
1011	1 3/8	5/16	.467	2 5/16	3	27041011	160.80	.2969 - .3281
-	1 3/8	11/32	.467	2 11/32	3	27044411	160.80	.3282 - .3593
1211	1 3/8	3/8	.467	2 3/8	3	27041211	160.80	.3594 - .3900
-	1 1/2	3/32	.435	2 3/32	3	27044803	182.80	.0788 - .1088
-	1 1/2	1/8	.435	2 1/8	3	27044804	182.80	.1089 - .1400
-	1 1/2	5/32	.435	2 5/32	3	27044805	182.80	.1401 - .1713
-	1 1/2	3/16	.435	2 3/16	3	27044806	182.80	.1714 - .2025
-	1 1/2	7/32	.435	2 7/32	3	27044807	182.80	.2026 - .2339
812	1 1/2	1/4	.435	2 1/4	3	27040812	182.80	.2340 - .2650
-	1 1/2	9/32	.467	2 9/32	3	27044809	182.80	.2651 - .2968
1012	1 1/2	5/16	.467	2 5/16	3	27041012	182.80	.2969 - .3281
-	1 1/2	11/32	.467	2 11/32	3	27044811	182.80	.3282 - .3593
1212	1 1/2	3/8	.467	2 3/8	3	27041212	219.30	.3594 - .3900
-	1 1/2	13/32	.467	2 13/32	3	27044813	219.30	.3901 - .4219
-	1 1/2	7/16	.467	2 7/16	3	27044814	219.30	.4220 - .4531
-	1 1/2	15/32	.467	2 15/32	3	27044815	219.30	.4532 - .4843
-	1 1/2	1/2	.467	2 1/2	3	27044816	219.30	.4844 - .5150
-	1 3/4	1/8	.718	3 1/8	4	27045604	201.75	.1089 - .1400
-	1 3/4	5/32	.718	3 5/32	4	27045605	201.75	.1401 - .1713
-	1 3/4	3/16	.718	3 3/16	4	27045606	201.75	.1714 - .2025
-	1 3/4	7/32	.718	3 7/32	4	27045607	201.75	.2026 - .2339
-	1 3/4	1/4	.718	3 1/4	4	27045608	201.75	.2340 - .2650
-	1 3/4	9/32	.718	3 9/32	4	27045609	201.75	.2651 - .2968
-	1 3/4	5/16	.718	3 5/16	4	27045610	201.75	.2969 - .3281
-	1 3/4	11/32	.718	3 11/32	4	27045611	201.75	.3282 - .3593
-	1 3/4	3/8	.718	3 3/8	4	27045612	236.90	.3594 - .3900
-	1 3/4	13/32	.718	3 13/32	4	27045613	236.90	.3901 - .4219
-	1 3/4	7/16	.718	3 7/16	4	27045614	236.90	.4220 - .4531
-	1 3/4	15/32	.718	3 15/32	4	27045615	236.90	.4532 - .4843
-	1 3/4	1/2	.718	3 1/2	4	27045616	236.90	.4844 - .5150
-	2	1/8	.718	3 1/8	4	27046404	233.90	.1089 - .1400
-	2	5/32	.718	3 5/32	4	27046405	233.90	.1401 - .1713
-	2	3/16	.718	3 3/16	4	27046406	233.90	.1714 - .2025
-	2	7/32	.718	3 7/32	4	27046407	233.90	.2026 - .2339
-	2	1/4	.718	3 1/4	4	27046408	233.90	.2340 - .2650
-	2	9/32	.718	3 9/32	4	27046409	233.90	.2651 - .2968
-	2	5/16	.718	3 5/16	4	27046410	233.90	.2969 - .3281
-	2	11/32	.718	3 11/32	4	27046411	233.90	.3282 - .3593
-	2	3/8	.718	3 3/8	4	27046412	270.50	.3594 - .3900
-	2	13/32	.718	3 13/32	4	27046413	270.50	.3901 - .4219
-	2	7/16	.718	3 7/16	4	27046414	270.50	.4220 - .4531
-	2	15/32	.718	3 15/32	4	27046415	270.50	.4532 - .4843
-	2	1/2	.718	3 1/2	4	27046416	270.50	.4844 - .5150

*Contact Rock River Tool for price and availability on diameters greater than 2".



T-SLOT & DOVETAIL CUTTERS

CARBIDE TIPPED



TYPE 2720 - T-SLOT CUTTERS FOR NON-FERROUS AND CAST IRON

Right and left hand helix with side cutting teeth.

Straight shank with drive flats.

Cutting diameter tolerance plus .000", minus .010".

TYPE 2721 - T-SLOT CUTTERS FOR STEEL

Same as Type 2720 above except carbide grade and geometry selected for cutting steel.

BOLT DIAMETER	TOOL DIAMETER	CUTTER WIDTH	NECK DIAMETER	OVERALL LENGTH	SHANK DIAMETER	UNDERCUT LENGTH	NO. OF TEETH	TYPE 2720 CAST IRON EDP NO.	PRICE	TYPE 2721 STEEL EDP NO.	PRICE
1/4	9/16	15/64	17/64	2 19/32	1/2	35/64	6	272008	\$131.25	272108	\$141.75
5/16	21/32	17/64	21/64	2 11/16	1/2	39/64	6	272010	129.65	272110	140.00
3/8	25/32	21/64	13/32	3 1/4	3/4	55/64	6	272012	163.15	272112	176.25
1/2	31/32	25/64	17/32	3 7/16	3/4	63/64	6	272016	177.40	272116	191.55
5/8	1 1/4	31/64	21/32	3 15/16	1	1 9/64	6	272020	235.45	272120	254.35
3/4	1 15/32	5/8	25/32	4 7/16	1	1 1/2	6	272024	263.10	272124	284.10
1	1 27/32	53/64	1 1/32	4 13/16	1 1/4	1 43/64	8	272032	375.60	272132	405.70
1 1/4	2 7/32	1 3/32	1 7/32	5 3/8	1 1/4	1 31/32	8	272040	474.00	272140	511.95
1 1/2	2 21/32	1 11/32	1 17/32	5 29/32	1 1/4	2 1/8	8	272048	548.90	272148	592.85

DOVETAIL CUTTERS

TYPE 2734 - 45° DOVETAIL - FOR NON-FERROUS AND CAST IRON

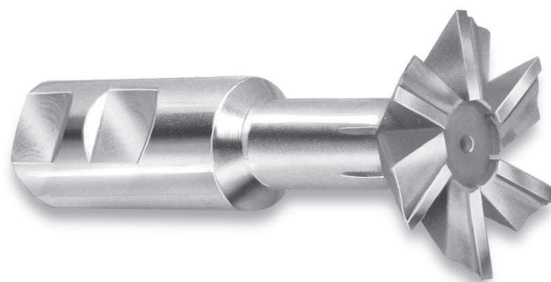
TYPE 2735 - 45° DOVETAIL - FOR STEEL

TYPE 2736 - 60° DOVETAIL - FOR NON-FERROUS AND CAST IRON

TYPE 2737 - 60° DOVETAIL - FOR STEEL

Right Hand Cut

Straight shank with drive flats.



NOTE:

These dovetail cutters have a corner radius of .015" - .020".

TOOL DIAM.	SHANK DIAM.	OVER- ALL LENGTH	NECK DIAM.	NO. OF TEETH	45° INCLUDED ANGLE					60° INCLUDED ANGLE				
					CUTTER WIDTH	TYPE 2734 CAST IRON EDP NO.	PRICE	TYPE 2735 STEEL EDP NO.	PRICE	CUTTER WIDTH	TYPE 2736 CAST IRON EDP NO.	PRICE	TYPE 2737 STEEL EDP NO.	PRICE
1/2	3/8	2 1/8	3/16	3	5/32	273416	\$131.40	273516	\$133.40	7/32	273616	\$131.40	273716	\$133.40
3/4	3/8	2 1/4	1/4	3	1/4	273424	141.80	273524	143.75	1/4	273624	141.80	273724	143.75
1	1/2	2 1/2	3/8	4	5/16	273432	151.65	273532	153.85	3/8	273632	151.65	273732	153.85
1 1/4	5/8	2 3/4	1/2	4	3/8	273440	172.40	273540	174.90	1/2	273640	172.40	273740	174.90
1 1/2	3/4	3 1/4	1/2	4	1/2	273448	201.40	273548	204.35	5/8	273648	201.40	273748	204.35
2	1	4 1/4	3/4	6	5/8	273464	323.65	273564	328.25	3/4	273664	323.65	273764	328.25
2 1/2	1 1/4	4 3/8	1	6	3/4	273480	437.70	273580	443.85	7/8	273680	437.70	273780	443.85
3	1 1/4	4 1/2	1	6	1	273496	516.10	273596	523.55	1 1/8	273696	516.10	273796	523.55



CHAMFER MILLING CUTTERS

CARBIDE TIPPED - 45° AND 60° CUTTERS

TYPE 2730 - 45° FOR NON-FERROUS & CAST IRON

TYPE 2731 - 45° FOR STEEL

TYPE 2732 - 60° FOR NON-FERROUS & CAST IRON

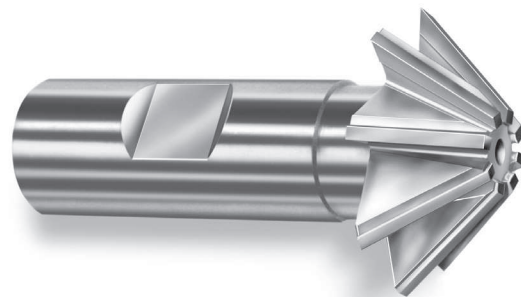
TYPE 2733 - 60° FOR STEEL

Right hand cut.

Straight shank with Weldon flats.

Tool diameter tolerance: plus .015", minus .000".

Tool geometry & carbide grade appropriate for material being machined.



OPTIONS:

Reduced neck diameter.

Shortened shank or reduced shank diameter.

Additional shank drive flat(s).

TOOL DIAMETER	DIMENSIONS			45° ANGLE					60° ANGLE				
	SHANK DIAM.	OVERALL LENGTH	NO. OF TEETH	TOOL WIDTH	TYPE 2730 N-F/CI EDP NO.	PRICE	TYPE 2731 STEEL EDP NO.	PRICE	TOOL WIDTH	TYPE 2732 N-F/CI EDP NO.	PRICE	TYPE 2733 STEEL EDP NO.	PRICE
1/2	3/8	2 1/8	4	1/8	273016	\$160.55	273116	\$176.55	7/32	273216	\$160.55	273316	\$176.55
3/4	3/8	2 1/8	6	3/16	273024	173.05	273124	190.30	5/16	273224	173.05	273324	190.30
1	1/2	2 1/2	6	5/16	273032	203.05	273132	223.30	7/16	273232	203.05	273332	223.30
1 1/2	3/4	2 3/4	8	1/2	273048	257.30	273148	283.20	5/8	273248	257.30	273348	283.20

RADIUS CUTTERS - CARBIDE TIPPED

TYPE 2718 - FOR NON-FERROUS & CAST IRON

TYPE 2719 - FOR STEEL

Right hand cut; Convex radius.

Straight shank with Weldon flats.

Tool geometry & carbide grade appropriate for material being machined.

Tool diameter tolerance: plus .005", minus .000".

Tool radius tolerance thru 1/8" radius: plus .001", minus .001".

over 1/8" radius: plus .002", minus .002".



OPTIONS:

Reduced neck diameter.

Shortened shank or reduced shank diameter.

Additional shank drive flat(s).

TOOL RADIUS	TOOL DIAMETER	DIMENSIONS				TYPE 2718 N-F/CI EDP NO.	PRICE	TYPE 2719 STEEL EDP NO.	PRICE
		TOOL WIDTH	SHANK DIAM.	OVERALL LENGTH	NO. OF TEETH				
1/32	3/4	1/16	1/2	3	6	271801	\$190.15	271901	\$209.20
1/16	3/4	1/8	1/2	3	6	271802	190.15	271902	209.20
3/32	7/8	3/16	1/2	3	6	271803	207.90	271903	228.60
1/8	1 1/4	1/4	3/4	3 1/2	6	271804	226.20	271904	248.90
5/32	1 5/16	5/16	3/4	3 1/2	6	271805	260.35	271905	286.35
3/16	1 3/8	3/8	3/4	3 1/2	6	271806	275.50	271906	303.05
1/4	1 1/2	1/2	3/4	4	6	271808	285.15	271908	313.75



ANGLE & STAGGERED TOOTH CUTTERS

CARBIDE TIPPED

SINGLE ANGLE CUTTERS

TYPE 2714 - 45° RIGHT

TYPE 2716 - 45° LEFT

TYPE 2724 - 60° RIGHT

TYPE 2726 - 60° LEFT

Carbide tips brazed to alloy steel bodies.

General purpose cutters for cutting non-ferrous materials and cast iron.

TOOL DIAMETER	WIDTH	ARBOR HOLE	NO. OF TEETH	RIGHT 45° TYPE 2714 EDP NO.	LEFT 45° TYPE 2716 EDP NO.	RIGHT 60° TYPE 2724 EDP NO.	LEFT 60° TYPE 2726 EDP NO.	ALL TYPES PRICE
3	½	1	8	271408	271608	272408	272608	\$387.00
4	½	1 ¼	10	271416	271616	272416	272616	478.90
4	¾	1 ¼	10	271424	271624	272424	272624	519.55



DOUBLE ANGLE CUTTERS

TYPE 2750 - 45° INCLUDED

TYPE 2752 - 60° INCLUDED

TYPE 2754 - 90° INCLUDED

Carbide tips brazed to alloy steel bodies.

General purpose cutters for cutting non-ferrous materials and cast iron.

TOOL DIAMETER	WIDTH	ARBOR HOLE	NO. OF TEETH	45° TYPE 2750 EDP NO.	60° TYPE 2752 EDP NO.	90° TYPE 2754 EDP NO.	ALL TYPES PRICE
2 ¾	½	1	8	-	275207	275407	325.80
3	½	1	8	275008	275208	275408	406.30
4	½	1 ¼	10	275016	275216	275416	502.85
4	¾	1 ¼	10	275024	275224	275424	545.45
4	1	1 ¼	10	-	275232	275432	638.35

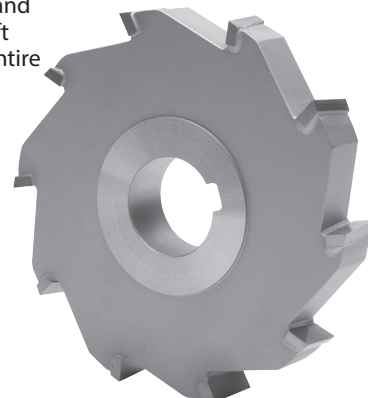


TOOL DIAM.	THICKNESS		TYPE 2547 FOR MOST MATERIALS			
	FRAC.	DEC.	NO. OF TEETH	1" ARBOR EDP NO.	1 ¼" ARBOR EDP NO.	PRICE
3	⅜	.1875	8	254710	-	\$510.70
3	¼	.2500	8	254712	-	522.90
3	⅜	.3125	8	254714	-	527.55
3	¾	.3750	8	254716	-	529.65
3	½	.5000	8	254718	-	546.10
3	⅝	.6250	8	254720	-	584.65
4	⅜	.1875	10	254722	-	554.90
4	¼	.2500	10	254724	-	561.80
4	⅜	.3125	10	254726	-	568.60
4	¾	.3750	10	254728	-	575.45
4	½	.5000	10	254730	-	583.50
4	⅝	.6250	10	254732	-	594.40
4	¾	.7500	10	254734	-	601.10
6	¼	.2500	14	-	254750	721.35
6	⅜	.3125	14	-	254752	726.80
6	¾	.3750	14	-	254754	727.85
6	½	.5000	14	-	254756	737.35
6	⅝	.6250	14	-	254758	741.55
6	¾	.7500	14	-	254760	765.70
6	1	1.0000	14	-	254762	819.85

STAGGERED TOOTH SIDE MILLING CUTTERS

TYPE 2547 - FOR MOST MATERIALS

For milling most types of materials including steels, stainless steels, cast irons, aluminums, and composite materials. Alternating right and left hand axial rake. Carbide extends across the entire length of each tooth.



Tool diameter tolerance: +.001"/-0"
Face width tolerance: +.001"/-0"
Arbor hole tolerance: +.001"/-0"



SIDE MILLING CUTTERS

CARBIDE TIPPED - FOUR TYPES - NON-FERROUS, CAST IRON, STEEL OR HIGH TEMP ALLOY

TYPE 2540 - FOR NON-FERROUS MACHINING

Use for production milling of aluminum, magnesium, zinc, brass, bronze, plastics and non-metals.
Very large flute capacity assures good chip flow and permits high feed rates.

TYPE 2541 - FOR CAST IRON MACHINING

Use for heavy production milling of cast iron and malleable iron.
Large flute capacity but more teeth permits high metal removal at moderate speeds and feeds.

TYPE 2542 - FOR STEEL MACHINING

Use for production milling of steel.
Steel cutting grade of carbide permits the heavy chip loads recommended for milling steel.

TYPE 2543 - FOR HIGH TEMP ALLOY MACHINING

Use for production milling of austenitic and PH series of stainless steel and other high temp alloys. Larger number of teeth.

ALL TYPES:

For slotting, straddle milling and face milling.
Carbide tips brazed to alloy steel bodies.
Cutting diameter tolerance: plus 1/16" minus .000".
Face width tolerance: plus .001" minus .000".
Arbor hole tolerance: plus .001" minus .000".



OPTIONS:

Alternate chamfer every other tooth.
Radius both sides.
Chamfer both sides.

TOOL DIAM.	THICKNESS		TYPE 2540 FOR NON-FERROUS				TYPE 2541 FOR CAST IRON				TYPE 2542 FOR STEEL				TYPE 2543 FOR HIGH TEMP ALLOY			
	FRAC.	DEC.	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE
3	1/4	.2500	4	254030	-	\$123.95	6	254130	-	\$155.05	6	254230	-	\$153.10	8	254330	-	\$190.95
3	5/16	.3125	4	254031	-	130.15	6	254131	-	155.75	6	254231	-	155.15	8	254331	-	200.10
3	3/8	.3750	4	254032	-	134.90	6	254132	-	158.80	6	254232	-	157.15	8	254332	-	202.80
3	7/16	.4375	4	254033	-	140.40	6	254133	-	171.75	6	254233	-	175.25	-	-	-	-
3	1/2	.5000	4	254034	-	147.20	6	254134	-	178.85	6	254234	-	177.60	8	254334	-	226.75
4	1/4	.2500	4	254040	-	161.55	8	254140	-	200.30	8	254240	-	201.60	10	254340	-	238.80
4	5/16	.3125	4	254041	-	166.15	8	254141	-	207.05	8	254241	-	214.05	10	254341	-	250.85
4	3/8	.3750	4	254042	254043	170.50	8	254142	254143	217.55	8	254242	254243	214.05	10	254342	254343	256.50
4	7/16	.4375	4	254074	-	171.30	8	254174	-	221.95	8	254274	-	220.45	10	254374	-	278.50
4	1/2	.5000	4	254044	254045	171.30	8	254144	254145	229.25	8	254244	254245	228.10	10	254344	254345	280.60
4	9/16	.5625	4	254094	-	186.20	8	254194	-	235.60	8	254294	-	239.40	-	-	-	-
4	5/8	.6250	4	254046	254047	199.80	8	254146	254147	255.35	8	254246	254247	279.85	10	254346	254347	295.50
4	3/4	.7500	4	254048	254049	223.90	8	254148	254149	255.35	8	254248	254249	283.40	10	254348	254349	304.35
5	1/4	.2500	6	254050	-	225.70	10	254150	-	265.25	10	254250	-	265.40	-	-	-	-
5	5/16	.3125	-	-	-	-	10	254151	-	265.25	10	254251	-	265.40	-	-	-	-
5	3/8	.3750	-	-	-	-	10	-	254153	271.65	10	-	254253	278.65	-	-	-	-
5	7/16	.4375	6	-	254075	234.80	10	-	254175	273.00	10	-	254275	287.60	-	-	-	-
5	1/2	.5000	6	254054	254055	237.60	10	254154	254155	289.80	10	254254	254255	287.65	12	254354	254355	322.35
5	9/16	.5625	6	-	254095	245.20	10	-	254195	294.80	10	-	254295	300.35	-	-	-	-
5	5/8	.6250	6	-	254057	257.95	10	-	254157	313.75	10	-	254257	352.50	12	-	254357	352.05
5	3/4	.7500	6	254058	254059	275.00	10	254158	254159	355.25	10	254258	254259	390.15	12	254358	254359	394.80
5	1	1.0000	6	-	254015	275.45	10	-	254115	386.60	10	-	254215	411.50	-	-	-	-
6	3/8	.3750	6	254062	-	242.20	12	-	254163	333.75	12	-	254263	352.60	-	-	-	-
6	1/2	.5000	6	254064	254065	265.25	12	254164	254165	354.45	12	254264	254265	363.15	14	254364	254365	414.65
6	5/8	.6250	6	-	254067	290.70	12	-	254167	387.35	12	-	254267	395.05	14	-	254367	418.00
6	3/4	.7500	6	254068	254069	334.30	12	254168	254169	434.60	12	254268	254269	450.05	14	254368	254369	451.05
6	1	1.0000	6	-	254016	383.20	12	-	254116	439.20	12	-	254216	459.15	-	-	-	-
				1 1/4" ARBOR	1 1/2" ARBOR			1 1/4" ARBOR	1 1/2" ARBOR			1 1/4" ARBOR	1 1/2" ARBOR			1 1/4" ARBOR	1 1/2" ARBOR	
8	3/4	.7500	8	254088	254089	434.90	12	254188	254189	456.10	12	254288	254289	473.15	14	254388	-	483.60
8	1	1.0000	8	254080	254081	471.95	12	254180	254181	475.35	12	254280	254281	492.45	-	-	-	-



SLITTING SAWS - COARSE TOOTH

CARBIDE TIPPED - FOUR TYPES - NON-FERROUS, CAST IRON, STEEL OR HIGH TEMP ALLOY

TYPE 2550 - FOR NON-FERROUS

Use for machining aluminum, magnesium, zinc, brass, bronze, plastics and non-metals.

TYPE 2552 - FOR CAST IRON

Use for machining cast iron and malleable iron.

TYPE 2554 - FOR STEEL

Use for machining steel.
Steel cutting grade of carbide.

TYPE 2558 - FOR HIGH TEMP ALLOY

Use for production milling of austenitic and PH series of stainless steel and other high temp alloys.
Larger number of teeth.

ALL TYPES:

For slitting, slotting, milling and cut-off operations.
Precision ground.
Cutting diameter tolerance plus 1/16" minus .000".
Arbor hole tolerance plus .001" minus .000".
Face width tolerance plus .001" minus .000".

OPTIONS:

Alternate chamfer every other tooth.
Chamfer both sides.
Radius both sides.
Tighter tolerances for cutting diameter and face width.



SAW DIAM.	THICKNESS		ARBOR HOLE	TYPE 2550 FOR NON-FERROUS			TYPE 2552 FOR CAST IRON			TYPE 2554 FOR STEEL			TYPE 2558 FOR HIGH TEMP ALLOY		
	FRAC.	DEC.		NO. OF TEETH	EDP NO.	PRICE	NO. OF TEETH	EDP NO.	PRICE	NO. OF TEETH	EDP NO.	PRICE	NO. OF TEETH	EDP NO.	PRICE
3	3/32	.0938	1	6	255032	\$147.00	6	255232	\$169.20	8	255432	\$167.70	8	255832	\$157.15
3	1/8	.1250	1	6	255034	151.40	6	255234	179.15	8	255434	187.70	8	255834	163.15
3	3/16	.1875	1	6	255036	157.40	6	255236	189.50	8	255436	189.50	8	255836	169.45
3	1/4	.2500	1	6	255037	107.05	6	255237	155.35	8	255437	155.35	8	255837	186.45
3	5/16	.3125	1	6	255031	112.45	6	255231	155.35	8	255431	155.35	8	255831	186.45
3	3/8	.3750	1	6	255038	114.65	6	255238	157.85	8	255438	157.85	8	255838	189.50
4	3/32	.0938	1	6	255042	180.45	8	255242	216.90	8	255442	216.90	10	255842	226.10
4	1/8	.1250	1	6	255044	185.80	8	255244	219.80	8	255444	219.80	10	255844	228.95
4	3/16	.1875	1	6	255046	188.60	8	255246	236.85	8	255446	236.85	10	255846	232.10
4	1/4	.2500	1	6	255047	137.60	8	255247	201.15	8	255447	201.15	10	255847	241.50
4	5/16	.3125	1	6	255041	141.45	8	255241	208.95	8	255441	208.95	10	255841	250.60
4	3/8	.3750	1	6	255048	145.20	8	255248	216.55	8	255448	216.55	10	255848	259.80
4	3/8	.3750	1 1/4	6	255049	145.20	8	255249	216.55	8	255449	216.55	10	255849	259.80
5	3/32	.0938	1	8	255052	195.25	10	255252	291.20	10	255452	291.20	12	255852	307.35
5	1/8	.1250	1	8	255054	195.25	10	255254	313.20	10	255454	313.20	12	255854	313.75
5	3/16	.1875	1	-	-	-	10	255256	352.60	10	255456	352.60	12	255856	326.25
6	1/8	.1250	1 1/4	8	255063	265.90	12	255263	382.25	12	255463	382.25	14	255863	367.05
6	3/16	.1875	1 1/4	8	255065	350.40	12	255265	394.85	12	255465	394.85	14	255865	376.50
6	1/4	.2500	1 1/4	8	255067	362.95	12	255267	403.10	12	255467	403.10	14	255867	382.65
8	1/8	.1250	1 1/4	10	255083	339.90	-	-	-	-	-	-	-	-	-
8	3/16	.1875	1 1/4	-	-	-	16	255285	543.40	16	255485	543.40	-	-	-
8	1/4	.2500	1 1/4	-	-	-	16	255287	564.15	16	255487	564.15	-	-	-



SLITTING SAWS - STANDARD TOOTH

CARBIDE TIPPED - FOUR TYPES - NON-FERROUS, CAST IRON, STEEL OR HIGH TEMP ALLOY

TYPE 2551 - FOR NON-FERROUS

Similar to our Type 2550.

Except designed with more teeth for better finishes.

TYPE 2553 - FOR CAST IRON

Similar to our Type 2552.

Except designed with more teeth for better finishes.

TYPE 2556 - FOR STEEL

Similar to our Type 2554.

Except designed with more teeth for better finishes.

TYPE 2559 - FOR HIGH TEMP ALLOY

Similar to our Type 2558.

Except designed with more teeth for better finishes.



SAW DIAM.	THICKNESS		TYPE 2551 FOR NON-FERROUS				TYPE 2553 FOR CAST IRON				TYPE 2556 FOR STEEL				TYPE 2559 FOR HIGH TEMP ALLOY			
	FRACTIONAL	DECIMAL	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE
3	1/16	.0625	12	255198	-	\$231.60	12	255398	-	\$231.60	16	255698	-	\$276.90	12	255998	-	\$260.50
3	3/64	.0781	12	255100	-	273.90	12	255300	-	273.90	16	255600	-	334.85	12	255900	-	291.80
3	3/32	.0938	12	255102	-	231.60	12	255302	-	231.60	16	255602	-	276.90	12	255902	-	260.50
3	7/64	.1094	12	255104	-	230.75	12	255304	-	230.75	16	255604	-	255.55	12	255904	-	248.65
3	1/8	.1250	12	255106	255107	186.20	12	255306	255307	186.20	16	255606	-	231.55	12	255906	255907	237.50
3	5/32	.1562	12	255108	-	221.90	12	255308	-	221.90	16	255608	-	243.20	12	255908	-	243.20
3	3/16	.1875	12	255109	-	198.45	12	255309	-	198.45	16	255609	-	254.95	12	255909	-	249.05
3	7/32	.2188	12	255110	-	229.60	12	255310	-	229.60	16	255610	-	266.60	12	255910	-	256.95
3	1/4	.2500	12	255111	-	241.40	12	255311	-	241.40	16	255611	-	278.40	12	255911	-	264.65
3	5/16	.3125	12	255112	-	264.65	12	255312	-	264.65	16	255612	-	305.20	12	255912	-	289.95
3	3/8	.3750	12	255113	-	288.05	12	255313	-	288.05	16	255613	-	332.15	12	255913	-	317.15
3	7/16	.4375	-	-	-	-	-	-	-	-	16	255614	-	369.10	12	255914	-	344.65
3	1/2	.5000	-	-	-	-	-	-	-	-	16	255615	-	410.15	12	255915	-	371.95
4	1/16	.0625	14	255116	255117	269.70	14	255316	-	269.70	20	255616	-	334.85	14	255916	255917	296.25
4	3/64	.0781	14	255118	255119	318.55	14	255318	255319	318.55	20	255618	255619	366.40	14	255918	255919	339.45
4	3/32	.0938	14	255120	255121	269.70	14	255320	255321	269.70	20	255620	255621	334.85	14	255920	255921	296.25
4	7/64	.1094	14	255122	255123	275.40	14	255322	255323	275.40	20	255622	255623	316.65	14	255922	255923	351.25
4	1/8	.1250	14	255124	255125	243.20	14	255324	255325	243.20	20	255624	255625	295.80	14	255924	255925	295.80
4	5/32	.1562	14	255126	255127	276.25	14	255326	255327	276.25	20	255626	255627	317.80	14	255926	255927	303.60
4	3/16	.1875	14	255128	255129	258.90	14	255328	255329	258.90	20	255628	255629	319.20	14	255928	255929	313.25
4	7/32	.2188	14	255130	255131	293.85	14	255330	255331	293.85	20	255630	255631	337.95	14	255930	255931	323.15
4	1/4	.2500	14	255132	255133	299.55	14	255332	255333	299.55	20	255632	255633	342.35	14	255932	255933	330.85
4	5/16	.3125	14	255134	255135	323.15	14	255334	255335	323.15	20	255634	255635	371.45	14	255934	255935	354.20
4	3/8	.3750	14	255136	255137	346.40	14	255336	255337	346.40	20	255636	255637	398.35	14	255936	255937	381.35
4	7/16	.4375	-	-	-	-	-	-	-	-	20	255638	-	442.60	14	255938	-	408.85
4	1/2	.5000	-	-	-	-	-	-	-	-	20	255640	-	491.85	14	255940	-	436.25
5	3/64	.0781	16	255142	255143	394.60	16	255342	255343	394.60	24	255642	255643	453.70	16	255942	255943	418.25
5	3/32	.0938	16	255144	255145	325.55	16	255344	255345	325.55	24	255644	255645	456.90	16	255944	255945	358.70
5	7/64	.1094	16	255146	255147	370.65	16	255346	255347	370.65	24	255646	255647	426.30	16	255946	255947	394.60
5	1/8	.1250	16	255148	255149	300.75	16	255348	255349	300.75	24	255648	255649	369.65	16	255948	255949	348.35
5	5/32	.1562	16	255150	255151	328.85	16	255350	255351	328.85	24	255650	255651	378.15	16	255950	255951	359.85
5	3/16	.1875	16	255152	255153	336.80	16	255352	255353	336.80	24	255652	255653	404.75	16	255952	255953	379.45
5	7/32	.2188	16	255154	255155	361.90	16	255354	255355	361.90	24	255654	255655	416.25	16	255954	255955	398.95
5	1/4	.2500	16	255156	255157	377.55	16	255356	255357	377.55	24	255656	255657	434.15	16	255956	255957	418.30
5	5/16	.3125	16	255158	255159	410.50	16	255358	255359	410.50	24	255658	255659	472.20	16	255958	255959	451.40
5	3/8	.3750	16	255160	255161	443.65	16	255360	255361	443.65	24	255660	255661	510.15	16	255960	255961	486.50
5	7/16	.4375	-	-	-	-	-	-	-	-	24	255662	-	566.90	16	255962	-	513.90
5	1/2	.5000	-	-	-	-	-	-	-	-	24	255664	-	629.85	16	255964	-	541.30
6	3/64	.0781	18	255166	255167	443.60	18	255366	255367	443.60	28	255666	255667	510.10	18	255966	255967	470.35
6	3/32	.0938	18	255168	255169	395.05	18	255368	255369	395.05	28	255668	255669	467.30	18	255968	255969	433.15
6	7/64	.1094	18	255170	255171	445.10	18	255370	255371	445.10	28	255670	255671	511.85	18	255970	255971	471.95
6	1/8	.1250	18	255172	255173	376.55	18	255372	255373	376.55	28	255672	255673	490.30	18	255972	255973	445.55
6	5/32	.1562	18	255174	255175	426.05	18	255374	255375	426.05	28	255674	255675	490.10	18	255974	255975	465.00
6	3/16	.1875	18	255176	255177	412.50	18	255376	255377	412.50	28	255676	255677	525.75	18	255976	255977	484.45
6	7/32	.2188	18	255178	255179	465.00	18	255378	255379	465.00	28	255678	255679	534.80	18	255978	255979	503.95
6	1/4	.2500	18	255180	255181	484.50	18	255380	255381	484.50	28	255680	255681	571.65	18	255980	255981	530.80
6	5/16	.3125	18	255182	255183	504.05	18	255382	255383	504.05	28	255682	255683	579.65	18	255982	255983	554.55
6	3/8	.3750	18	255184	255185	523.40	18	255384	255385	523.40	28	255684	255685	601.90	18	255984	255985	575.90
6	7/16	.4375	-	-	-	-	-	-	-	-	28	255690	-	668.70	18	255990	-	603.30
6	1/2	.5000	-	-	-	-	-	-	-	-	28	255692	-	743.05	18	255992	-	630.75
8	1/8	.1250	24	-	255186	625.15	24	-	255386	625.15	24	-	255686	660.85	24	-	255986	660.85
8	5/32	.1562	24	-	255187	632.60	24	-	255387	632.60	24	-	255687	668.35	24	-	255987	668.35
8	3/16	.1875	24	-	255188	640.05	24	-	255388	640.05	24	-	255688	675.75	24	-	255988	675.75
8	1/4	.2500	24	-	255189	678.65	24	-	255389	678.65	24	-	255689	714.45	24	-	255989	714.45



3" CARBIDE TIPPED MILLING CUTTERS FOR STEEL

Width grinds between .0600" and .5312"

TYPE 2556 - FOR STEEL

Cutter Notes (All cutters on page)

16 Teeth

C-5 Carbide

1° - 3° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

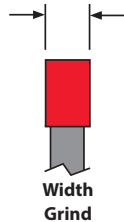
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 475 Brinell (50Rc)



Width Grind

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600-0.0703	255698D	.0555	\$337.40	\$314.60	\$310.35	\$308.25	\$306.95	\$276.90
3	0.0704-0.0859	255600D	.0711	395.25	372.45	368.30	366.25	364.95	334.85
3	0.0860-0.1015	255602D	.0867	337.40	314.60	310.35	308.25	306.95	276.90
3	0.1016-0.1171	255604D	.1024	315.90	293.05	288.90	286.85	285.50	255.55
3	0.1172-0.1406	255606D	.1180	291.90	269.15	265.00	262.95	261.50	231.55
3	0.1407-0.1718	255608D	.1562	303.65	280.85	276.70	274.60	273.20	243.20
3	0.1719-0.2031	255609D	.1875	315.35	292.55	288.40	286.30	284.95	254.95
3	0.2032-0.2343	255610D	.2188	327.00	304.25	300.15	297.95	296.70	266.60
3	0.2344-0.2812	255611D	.2500	338.80	316.00	311.85	309.80	308.40	278.40
3	0.2813-0.3437	255612D	.3125	365.65	342.80	338.70	336.60	335.25	305.25
3	0.3438-0.4062	255613D	.3750	392.65	369.85	365.65	363.55	362.20	332.15
3	0.4063-0.4687	255614D	.4375	429.45	406.65	402.55	400.45	399.10	369.10
3	0.4688-0.5312	255615D	.5000	470.50	447.70	443.60	441.50	440.15	410.15

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600-0.0703	255698R1	.0555	\$352.60	\$319.25	\$314.60	\$312.15	\$310.70	\$309.95
3	0.0704-0.0859	255600R1	.0711	410.55	377.15	372.50	370.10	368.65	367.90
3	0.0860-0.1015	255602R1	.0867	352.60	319.25	314.60	312.15	310.70	309.95
3	0.1016-0.1171	255604R1	.1024	331.20	297.75	293.10	290.75	289.30	288.45
3	0.1172-0.1406	255606R1	.1180	307.20	273.85	269.20	266.80	265.30	264.50
3	0.1407-0.1718	255608R1	.1562	318.85	285.55	280.90	278.55	276.95	276.25
3	0.1719-0.2031	255609R1	.1875	330.65	297.25	292.65	290.20	288.75	288.00
3	0.2032-0.2343	255610R1	.2188	342.35	308.95	304.30	301.85	300.45	299.65
3	0.2344-0.2812	255611R1	.2500	354.10	320.70	316.05	313.70	312.15	311.35
3	0.2813-0.3437	255612R1	.3125	380.90	347.50	342.85	340.45	339.00	338.25
3	0.3438-0.4062	255613R1	.3750	407.80	374.55	369.90	367.45	365.95	365.20
3	0.4063-0.4687	255614R1	.4375	444.80	411.35	406.75	404.35	402.90	402.20
3	0.4688-0.5312	255615R1	.5000	485.85	452.45	447.80	445.45	443.90	443.25

Specify side for radius or chamfer



Radius Notes

Maximum radius on one side is .2656"

Full radius and maximum radius on both sides is ½ the width of the cutter

A non-tangent radii must be quoted

Chamfer Notes

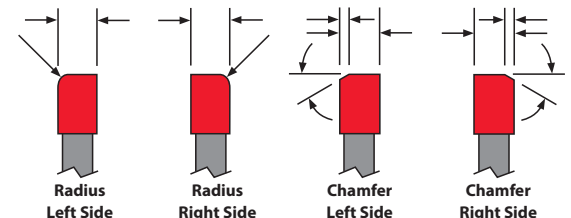
Chamfer Angles can range from 0° to 45°

Chamfer is measured off of the OD

Maximum chamfer is the LESSER of ½ the width of the cutter OR .2656" length of angle when measured across the OD

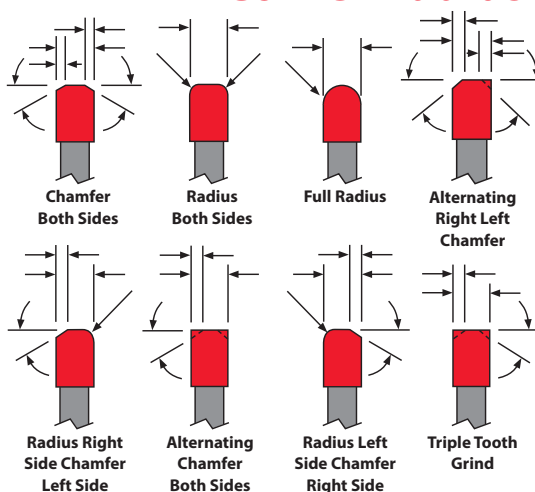
Chamfer Angle Tolerance: $\pm 1/2^\circ$

Chamfers greater than 45° must be quoted



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600-0.0703	255698R2	.0555	\$361.00	\$324.00	\$318.75	\$316.05	\$314.50	\$313.65
3	0.0704-0.0859	255600R2	.0711	419.00	381.90	376.65	374.00	372.40	371.45
3	0.0860-0.1015	255602R2	.0867	361.00	324.00	318.75	316.05	314.50	313.65
3	0.1016-0.1171	255604R2	.1024	339.55	302.50	297.25	294.60	293.00	292.15
3	0.1172-0.1406	255606R2	.1180	315.65	278.55	273.35	270.70	269.05	268.15
3	0.1407-0.1718	255608R2	.1562	327.30	290.20	285.05	282.40	280.75	279.90
3	0.1719-0.2031	255609R2	.1875	339.00	301.95	296.80	294.15	292.45	291.65
3	0.2032-0.2343	255610R2	.2188	350.80	313.70	308.45	305.80	304.20	303.25
3	0.2344-0.2812	255611R2	.2500	362.50	325.40	320.20	317.55	315.90	315.05
3	0.2813-0.3437	255612R2	.3125	389.35	352.25	347.05	344.35	342.75	341.85
3	0.3438-0.4062	255613R2	.3750	416.25	379.15	374.00	371.35	369.75	368.85
3	0.4063-0.4687	255614R2	.4375	453.20	416.10	410.95	408.30	406.60	405.75
3	0.4688-0.5312	255615R2	.5000	494.25	457.10	452.00	449.35	447.65	446.80



4" CARBIDE TIPPED MILLING CUTTERS FOR STEEL

Width grinds between .0600" and .5312"

TYPE 2556 - FOR STEEL

Cutter Notes (All cutters on page)

20 Teeth

C-5 Carbide

1° - 3° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

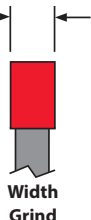
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 475 Brinell (50Rc)



Width Grind

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600-0.0703	255616D	.0545	\$406.15	\$379.80	\$374.85	\$372.30	\$370.75	\$334.85
4	0.0704-0.0859	255618D	.0701	437.60	411.30	406.35	403.80	402.30	366.40
4	0.0860-0.1015	255620D	.0858	406.15	379.80	374.85	372.30	370.75	334.85
4	0.1016-0.1171	255622D	.1014	388.00	361.65	356.70	354.15	352.55	316.65
4	0.1172-0.1406	255624D	.1170	367.05	340.70	335.75	333.20	331.70	295.75
4	0.1407-0.1718	255626D	.1562	389.10	362.75	357.85	355.25	353.75	317.85
4	0.1719-0.2031	255628D	.1875	390.35	364.05	359.10	356.55	354.95	319.05
4	0.2032-0.2343	255630D	.2188	409.20	382.90	377.95	375.35	373.90	338.00
4	0.2344-0.2812	255632D	.2500	413.65	387.30	382.35	379.80	378.30	342.35
4	0.2813-0.3437	255634D	.3125	442.70	416.45	411.45	408.95	407.40	371.45
4	0.3438-0.4062	255636D	.3750	469.65	443.35	438.45	435.85	434.20	398.35
4	0.4063-0.4687	255638D	.4375	513.90	487.55	482.65	480.00	478.50	442.60
4	0.4688-0.5312	255640D	.5000	563.05	536.80	531.80	529.25	527.70	491.85

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600-0.0703	255616R1	.0545	\$422.60	\$384.85	\$379.45	\$376.55	\$374.80	\$373.90
4	0.0704-0.0859	255618R1	.0701	454.15	416.45	410.95	408.00	406.35	405.40
4	0.0860-0.1015	255620R1	.0858	422.60	384.85	379.45	376.55	374.80	373.90
4	0.1016-0.1171	255622R1	.1014	404.40	366.70	361.30	358.40	356.65	355.75
4	0.1172-0.1406	255624R1	.1170	383.50	345.85	340.35	337.50	335.70	334.85
4	0.1407-0.1718	255626R1	.1562	405.60	367.90	362.45	359.55	357.85	356.90
4	0.1719-0.2031	255628R1	.1875	406.80	369.15	363.70	360.75	359.05	358.15
4	0.2032-0.2343	255630R1	.2188	425.75	388.05	382.55	379.65	377.95	377.05
4	0.2344-0.2812	255632R1	.2500	430.10	392.35	386.95	384.10	382.30	381.40
4	0.2813-0.3437	255634R1	.3125	459.20	421.60	416.00	413.15	411.45	410.50
4	0.3438-0.4062	255636R1	.3750	486.10	448.40	442.85	440.00	438.30	437.35
4	0.4063-0.4687	255638R1	.4375	530.35	492.65	487.20	484.35	482.55	481.70
4	0.4688-0.5312	255640R1	.5000	579.55	541.90	536.35	533.45	531.75	530.80

Specify side for radius or chamfer



Radius Notes

Maximum radius on one side is .2656"

Full radius and maximum radius on both sides is ½ the width of the cutter

A non-tangent radii must be quoted

Chamfer Notes

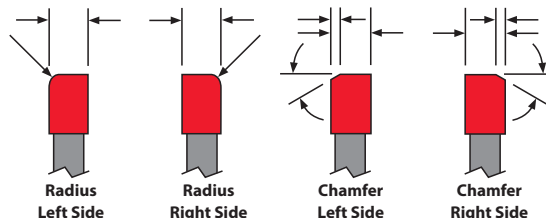
Chamfer Angles can range from 0° to 45°

Chamfer is measured off of the OD

Maximum chamfer is the LESSER of ½ the width of the cutter OR .2656" length of angle when measured across the OD

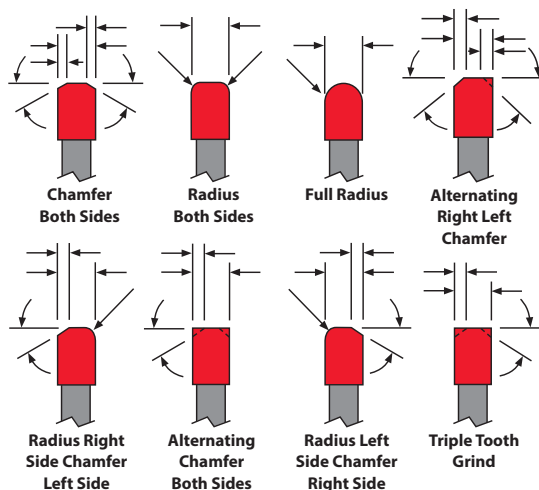
Chamfer Angle Tolerance: $\pm \frac{1}{2}^\circ$

Chamfers greater than 45° must be quoted



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600-0.0703	255616R2	.0545	\$431.55	\$390.00	\$383.95	\$380.80	\$378.85	\$377.85
4	0.0704-0.0859	255618R2	.0701	463.05	421.60	415.55	412.30	410.40	409.35
4	0.0860-0.1015	255620R2	.0858	431.55	390.00	383.95	380.80	378.85	377.85
4	0.1016-0.1171	255622R2	.1014	413.40	371.85	365.75	362.65	360.70	359.70
4	0.1172-0.1406	255624R2	.1170	392.55	350.95	344.95	341.70	339.80	338.80
4	0.1407-0.1718	255626R2	.1562	414.60	373.00	367.00	363.80	361.85	360.85
4	0.1719-0.2031	255628R2	.1875	415.85	374.20	368.15	365.10	363.15	362.10
4	0.2032-0.2343	255630R2	.2188	434.75	393.10	387.15	383.90	382.00	380.95
4	0.2344-0.2812	255632R2	.2500	439.05	397.55	391.50	388.30	386.35	385.40
4	0.2813-0.3437	255634R2	.3125	468.25	426.65	420.60	417.40	415.60	414.45
4	0.3438-0.4062	255636R2	.3750	495.05	453.50	447.45	444.30	442.40	441.40
4	0.4063-0.4687	255638R2	.4375	539.35	497.75	491.65	488.55	486.65	485.60
4	0.4688-0.5312	255640R2	.5000	588.55	546.95	540.90	537.75	535.90	534.85



5" CARBIDE TIPPED MILLING CUTTERS FOR STEEL

Width grinds between .0704" and .5312"

TYPE 2556 - FOR STEEL

Cutter Notes (All cutters on page)

24 Teeth

C-5 Carbide

1° - 3° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

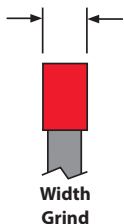
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 475 Brinell (50Rc)



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255642D	.0691	\$526.55	\$499.70	\$494.70	\$492.00	\$490.45	\$453.70
5	0.0860 - 0.1015	255644D	.0848	529.75	502.85	497.85	495.20	493.60	456.90
5	0.1016 - 0.1171	255646D	.1004	499.05	472.25	467.20	464.50	462.95	426.30
5	0.1172 - 0.1406	255648D	.1160	442.50	415.65	410.55	407.90	406.35	369.65
5	0.1407 - 0.1718	255650D	.1562	451.00	424.15	419.10	416.45	414.90	378.15
5	0.1719 - 0.2031	255652D	.1875	477.60	450.70	445.65	443.00	441.45	404.75
5	0.2032 - 0.2343	255654D	.2188	489.15	462.30	457.10	454.50	452.95	416.25
5	0.2344 - 0.2812	255656D	.2500	507.00	480.10	475.05	472.45	470.90	434.15
5	0.2813 - 0.3437	255658D	.3125	544.95	518.15	513.05	510.45	508.80	472.20
5	0.3438 - 0.4062	255660D	.3750	583.05	556.20	551.05	548.50	546.85	510.20
5	0.4063 - 0.4687	255662D	.4375	639.75	612.85	607.80	605.10	603.60	566.90
5	0.4688 - 0.5312	255664D	.5000	702.75	675.80	670.80	668.15	666.65	629.85

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255642R1	.0691	\$543.25	\$504.80	\$499.20	\$496.25	\$494.50	\$493.55
5	0.0860 - 0.1015	255644R1	.0848	546.50	508.05	502.40	499.50	497.70	496.75
5	0.1016 - 0.1171	255646R1	.1004	515.80	477.30	471.70	468.75	467.10	466.15
5	0.1172 - 0.1406	255648R1	.1160	459.15	420.70	415.05	412.20	410.40	409.50
5	0.1407 - 0.1718	255650R1	.1562	467.70	429.25	423.65	420.70	419.00	418.00
5	0.1719 - 0.2031	255652R1	.1875	494.25	455.80	450.25	447.30	445.55	444.60
5	0.2032 - 0.2343	255654R1	.2188	505.80	467.35	461.70	458.85	457.00	456.10
5	0.2344 - 0.2812	255656R1	.2500	523.75	485.30	479.65	476.70	474.95	473.95
5	0.2813 - 0.3437	255658R1	.3125	561.70	523.20	517.65	514.75	512.95	512.05
5	0.3438 - 0.4062	255660R1	.3750	599.80	561.30	555.60	552.70	550.90	550.05
5	0.4063 - 0.4687	255662R1	.4375	656.40	618.00	612.35	609.45	607.70	606.75
5	0.4688 - 0.5312	255664R1	.5000	719.40	680.95	675.30	672.40	670.70	669.70

Radius Notes

Maximum radius on one side is .2656"

Full radius and maximum radius on both sides is ½ the width of the cutter

A non-tangent radii must be quoted

Chamfer Notes

Chamfer Angles can range from 0° to 45°

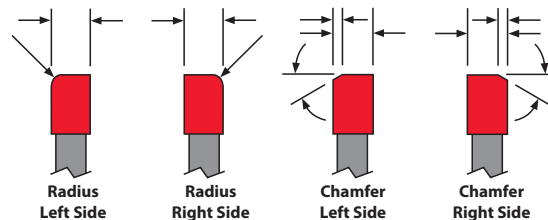
Chamfer is measured off of the OD

Maximum chamfer is the LESSER of ⅓ the width of the cutter OR .2656" length of angle when measured across the OD

Chamfer Angle Tolerance: ± ½°

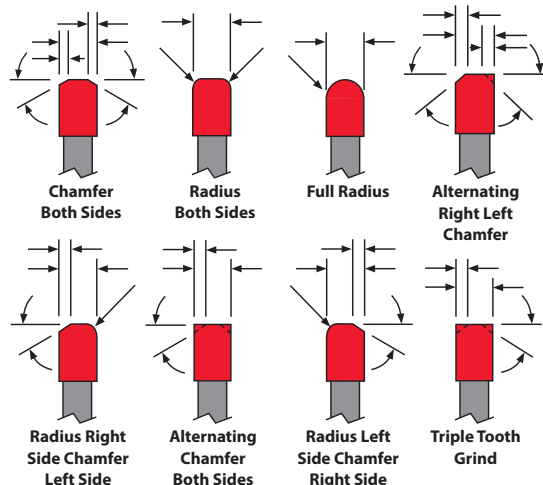
Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255642R2	.0691	561.15	\$515.00	\$508.30	\$504.80	\$502.70	\$501.55
5	0.0860 - 0.1015	255644R2	.0848	564.40	518.20	511.50	507.90	505.80	504.75
5	0.1016 - 0.1171	255646R2	.1004	533.70	487.55	480.80	477.25	475.15	474.05
5	0.1172 - 0.1406	255648R2	.1160	477.10	430.90	424.20	420.65	418.55	417.45
5	0.1407 - 0.1718	255650R2	.1562	485.60	439.50	432.75	429.20	427.10	426.00
5	0.1719 - 0.2031	255652R2	.1875	512.20	466.05	459.25	455.80	453.70	452.50
5	0.2032 - 0.2343	255654R2	.2188	523.75	477.60	470.90	467.30	465.20	464.00
5	0.2344 - 0.2812	255656R2	.2500	541.60	495.45	488.70	485.25	483.10	481.95
5	0.2813 - 0.3437	255658R2	.3125	579.65	533.45	526.70	523.15	521.10	519.95
5	0.3438 - 0.4062	255660R2	.3750	617.60	571.50	564.75	561.20	559.10	558.00
5	0.4063 - 0.4687	255662R2	.4375	674.35	628.25	621.45	617.90	615.75	614.70
5	0.4688 - 0.5312	255664R2	.5000	737.30	691.20	684.40	680.90	678.85	677.70



6" CARBIDE TIPPED MILLING CUTTERS FOR STEEL

Width grinds between .0704" and .5312"

TYPE 2556 – FOR STEEL

Cutter Notes (All cutters on page)

28 Teeth

C-5 Carbide

1° - 3° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

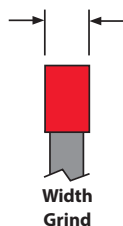
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 475 Brinell (50RC)



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704 - 0.0859	255666D	.0681	591.75	562.25	556.50	553.50	551.75	510.10
6	0.0860 - 0.1015	255668D	.0838	548.95	519.50	513.75	510.75	509.00	467.30
6	0.1016 - 0.1171	255670D	.0994	593.50	564.00	558.25	555.30	553.45	511.85
6	0.1172 - 0.1406	255672D	.1150	572.00	542.50	536.80	533.75	532.00	490.30
6	0.1407 - 0.1718	255674D	.1562	571.75	542.15	536.45	533.45	531.70	490.10
6	0.1719 - 0.2031	255676D	.1875	607.45	577.95	572.25	569.25	567.45	525.75
6	0.2032 - 0.2343	255678D	.2188	616.45	586.95	581.25	578.25	576.45	534.80
6	0.2344 - 0.2812	255680D	.2500	653.40	623.80	618.10	615.10	613.35	571.65
6	0.2813 - 0.3437	255682D	.3125	661.30	631.75	626.00	623.00	621.25	579.65
6	0.3438 - 0.4062	255684D	.3750	683.60	653.95	648.20	645.25	643.50	601.90
6	0.4063 - 0.4687	255690D	.4375	750.45	720.90	715.20	712.10	710.40	668.70
6	0.4688 - 0.5312	255692D	.5000	824.70	795.25	789.55	786.45	784.75	743.05

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704 - 0.0859	255666R1	.0681	609.40	567.80	561.50	558.15	556.20	555.10
6	0.0860 - 0.1015	255668R1	.0838	566.55	525.05	518.70	515.40	513.40	512.30
6	0.1016 - 0.1171	255670R1	.0994	611.10	569.55	563.20	559.95	557.95	556.85
6	0.1172 - 0.1406	255672R1	.1150	589.55	548.10	541.75	538.40	536.40	535.30
6	0.1407 - 0.1718	255674R1	.1562	589.35	547.80	541.45	538.15	536.15	535.10
6	0.1719 - 0.2031	255676R1	.1875	625.05	583.50	577.15	573.80	571.85	570.80
6	0.2032 - 0.2343	255678R1	.2188	634.10	592.55	586.15	582.90	580.90	579.80
6	0.2344 - 0.2812	255680R1	.2500	670.95	629.40	623.00	619.75	617.80	616.70
6	0.2813 - 0.3437	255682R1	.3125	678.95	637.30	631.00	627.70	625.75	624.65
6	0.3438 - 0.4062	255684R1	.3750	701.15	659.55	653.25	649.95	647.95	646.85
6	0.4063 - 0.4687	255690R1	.4375	768.05	726.40	720.10	716.75	714.85	713.75
6	0.4688 - 0.5312	255692R1	.5000	842.35	800.75	794.45	791.10	789.10	788.10

Radius Notes

Maximum radius on one side is .2656"

Full radius and maximum radius on both sides is 1/2 the width of the cutter

A non-tangent radii must be quoted

Chamfer Notes

Chamfer Angles can range from 0° to 45°

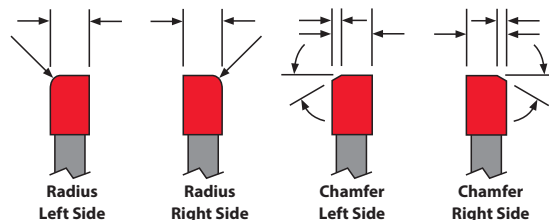
Chamfer is measured off of the OD

Maximum chamfer is the LESSER of 1/3 the width of the cutter OR .2656" length of angle when measured across the OD

Chamfer Angle Tolerance: ± 1/2°

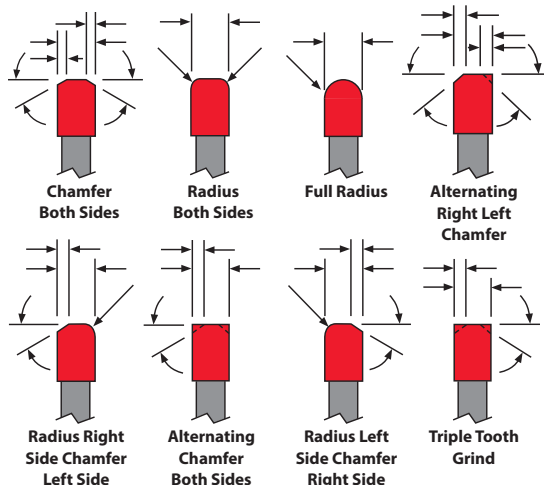
Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADIUS, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704 - 0.0859	255666R2	.0681	628.50	578.95	571.30	567.45	565.05	563.80
6	0.0860 - 0.1015	255668R2	.0838	585.70	536.10	528.55	524.60	522.25	521.00
6	0.1016 - 0.1171	255670R2	.0994	630.25	580.65	573.10	569.10	566.85	565.50
6	0.1172 - 0.1406	255672R2	.1150	608.70	559.10	551.55	547.60	545.35	544.00
6	0.1407 - 0.1718	255674R2	.1562	608.45	558.90	551.35	547.35	545.00	543.75
6	0.1719 - 0.2031	255676R2	.1875	644.15	594.60	587.00	583.05	580.75	579.40
6	0.2032 - 0.2343	255678R2	.2188	653.20	603.60	596.05	592.10	589.80	588.50
6	0.2344 - 0.2812	255680R2	.2500	690.00	640.45	632.95	628.95	626.60	625.30
6	0.2813 - 0.3437	255682R2	.3125	698.05	648.45	640.85	636.95	634.60	633.30
6	0.3438 - 0.4062	255684R2	.3750	720.25	670.70	663.10	659.10	656.85	655.50
6	0.4063 - 0.4687	255690R2	.4375	787.10	737.55	729.95	726.05	723.70	722.40
6	0.4688 - 0.5312	255692R2	.5000	861.45	811.85	804.30	800.35	798.05	796.70



3" CARBIDE TIPPED MILLING CUTTERS

Width grinds between .0600" and .5312"

TYPE 2559 - MULTI-PURPOSE

Cutter Notes (All cutters on page)

12 Teeth

C-2(m) Carbide

5° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

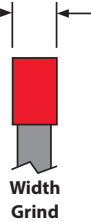
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 363 Brinell (39Rc)



Width Grind

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600 - 0.0703	255998D	.0555	\$320.25	\$297.10	\$293.10	\$291.00	\$289.75	\$260.50
3	0.0704 - 0.0859	255900D	.0711	351.60	328.45	324.45	322.35	321.00	291.80
3	0.0860 - 0.1015	255902D	.0867	320.25	297.10	293.10	291.00	289.75	260.50
3	0.1016 - 0.1171	255904D	.1024	308.40	285.35	281.30	279.20	277.90	248.65
3	0.1172 - 0.1406	255906D	.1180	297.25	274.10	270.05	267.95	266.70	237.50
3	0.1407 - 0.1718	255908D	.1562	303.00	279.95	275.90	273.80	272.55	243.20
3	0.1719 - 0.2031	255909D	.1875	308.85	285.65	281.60	279.55	278.30	249.05
3	0.2032 - 0.2343	255910D	.2188	316.65	293.65	289.60	287.45	286.20	256.95
3	0.2344 - 0.2812	255911D	.2500	324.55	301.45	297.30	295.20	294.00	264.65
3	0.2813 - 0.3437	255912D	.3125	349.75	326.65	322.60	320.55	319.30	289.95
3	0.3438 - 0.4062	255913D	.3750	376.90	353.80	349.75	347.60	346.35	317.15
3	0.4063 - 0.4687	255914D	.4375	404.35	381.25	377.20	375.10	373.85	344.65
3	0.4688 - 0.5312	255915D	.5000	431.85	408.65	404.60	402.55	401.35	371.95

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600 - 0.0703	255998R1	.0555	\$335.90	\$301.70	\$297.10	\$294.85	\$293.45	\$292.75
3	0.0704 - 0.0859	255900R1	.0711	367.25	333.00	328.45	326.10	324.70	324.00
3	0.0860 - 0.1015	255902R1	.0867	335.90	301.70	297.10	294.85	293.45	292.75
3	0.1016 - 0.1171	255904R1	.1024	324.10	289.85	285.35	283.00	281.55	280.80
3	0.1172 - 0.1406	255906R1	.1180	312.90	278.65	274.10	271.80	270.40	269.60
3	0.1407 - 0.1718	255908R1	.1562	318.65	284.45	279.95	277.55	276.15	275.40
3	0.1719 - 0.2031	255909R1	.1875	324.50	290.20	285.65	283.40	282.05	281.25
3	0.2032 - 0.2343	255910R1	.2188	332.30	298.20	293.65	291.20	289.85	289.05
3	0.2344 - 0.2812	255911R1	.2500	340.15	305.90	301.45	299.05	297.65	296.90
3	0.2813 - 0.3437	255912R1	.3125	365.40	331.25	326.65	324.30	322.95	322.10
3	0.3438 - 0.4062	255913R1	.3750	392.65	358.35	353.80	351.45	350.10	349.35
3	0.4063 - 0.4687	255914R1	.4375	420.00	385.80	381.25	378.90	377.55	376.75
3	0.4688 - 0.5312	255915R1	.5000	447.45	413.20	408.65	406.40	404.90	404.20

Specify side for radius or chamfer



Radius Notes

Maximum radius on one side is .2656"

Full radius and maximum radius on both sides is 1/2 the width of the cutter

A non-tangent radii must be quoted

Chamfer Notes

Chamfer Angles can range from 0° to 45°

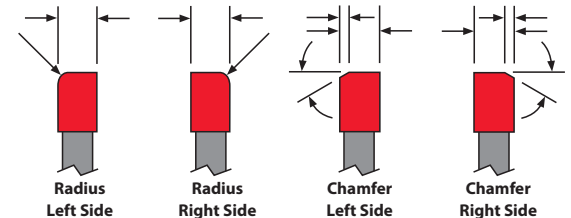
Chamfer is measured off of the OD

Maximum chamfer is the LESSER of 1/3 the width of the cutter OR .2656" length of

angle when measured across the OD

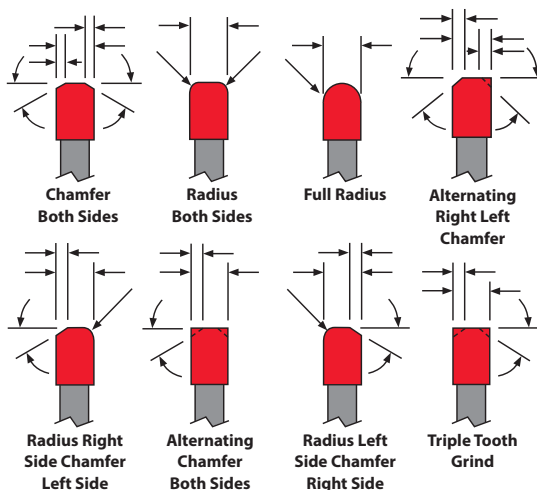
Chamfer Angle Tolerance: +/- 1/2°

Chamfers greater than 45° must be quoted



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600 - 0.0703	255998R2	.0555	\$344.25	\$306.30	\$301.30	\$298.60	\$297.05	\$296.25
3	0.0704 - 0.0859	255900R2	.0711	375.60	337.60	332.60	329.95	328.30	327.45
3	0.0860 - 0.1015	255902R2	.0867	344.25	306.30	301.30	298.60	297.05	296.25
3	0.1016 - 0.1171	255904R2	.1024	332.55	294.45	289.45	286.85	285.25	284.40
3	0.1172 - 0.1406	255906R2	.1180	321.30	283.30	278.20	275.60	274.00	273.20
3	0.1407 - 0.1718	255908R2	.1562	327.10	289.00	284.00	281.40	279.85	278.95
3	0.1719 - 0.2031	255909R2	.1875	332.80	294.85	289.80	287.15	285.60	284.80
3	0.2032 - 0.2343	255910R2	.2188	340.80	302.70	297.70	295.10	293.50	292.75
3	0.2344 - 0.2812	255911R2	.2500	348.50	310.45	305.50	302.85	301.30	300.45
3	0.2813 - 0.3437	255912R2	.3125	373.80	335.75	330.70	328.15	326.60	325.75
3	0.3438 - 0.4062	255913R2	.3750	401.00	362.95	357.90	355.30	353.70	352.90
3	0.4063 - 0.4687	255914R2	.4375	428.35	390.40	385.40	382.70	381.20	380.30
3	0.4688 - 0.5312	255915R2	.5000	455.80	417.90	412.80	410.20	408.60	407.75



4" CARBIDE TIPPED MILLING CUTTERS

Width grinds between .0600" and .5312"

TYPE 2559 – MULTI-PURPOSE

Cutter Notes (All cutters on page)

14 Teeth

C-2(m) Carbide

5° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

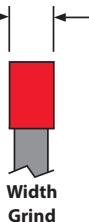
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 363 Brinell (39Rc)



Width Grind

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600 - 0.0703	255916D	.0545	\$366.65	\$340.15	\$335.30	\$332.80	\$331.30	\$296.30
4	0.0704 - 0.0859	255918D	.0701	409.90	383.30	378.45	375.95	374.50	339.45
4	0.0860 - 0.1015	255920D	.0858	366.65	340.15	335.30	332.80	331.30	296.30
4	0.1016 - 0.1171	255922D	.1014	421.75	395.15	390.30	387.90	386.30	351.25
4	0.1172 - 0.1406	255924D	.1170	366.30	339.65	334.75	332.25	330.80	295.80
4	0.1407 - 0.1718	255926D	.1562	374.00	347.45	342.60	340.15	338.60	303.60
4	0.1719 - 0.2031	255928D	.1875	383.65	357.10	352.25	349.80	348.25	313.25
4	0.2032 - 0.2343	255930D	.2188	393.55	367.00	362.10	359.65	358.05	323.10
4	0.2344 - 0.2812	255932D	.2500	401.35	374.70	369.85	367.35	365.80	330.85
4	0.2813 - 0.3437	255934D	.3125	424.55	398.00	393.10	390.65	389.10	354.20
4	0.3438 - 0.4062	255936D	.3750	451.85	425.30	420.45	417.95	416.35	381.35
4	0.4063 - 0.4687	255938D	.4375	479.25	452.75	447.80	445.35	443.75	408.85
4	0.4688 - 0.5312	255940D	.5000	506.75	480.05	475.25	472.75	471.25	436.25

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600 - 0.0703	255916R1	.0545	\$383.60	\$345.10	\$339.75	\$336.90	\$335.30	\$334.40
4	0.0704 - 0.0859	255918R1	.0701	426.75	388.25	382.90	380.05	378.45	377.55
4	0.0860 - 0.1015	255920R1	.0858	383.60	345.10	339.75	336.90	335.30	334.40
4	0.1016 - 0.1171	255922R1	.1014	438.70	400.15	394.75	392.00	390.30	389.40
4	0.1172 - 0.1406	255924R1	.1170	383.20	344.65	339.25	336.45	334.75	333.90
4	0.1407 - 0.1718	255926R1	.1562	390.90	352.35	347.05	344.25	342.60	341.65
4	0.1719 - 0.2031	255928R1	.1875	400.65	362.10	356.70	353.90	352.25	351.30
4	0.2032 - 0.2343	255930R1	.2188	410.50	371.90	366.55	363.80	362.10	361.15
4	0.2344 - 0.2812	255932R1	.2500	418.20	379.65	374.25	371.45	369.85	368.95
4	0.2813 - 0.3437	255934R1	.3125	441.50	402.90	397.60	394.80	393.10	392.15
4	0.3438 - 0.4062	255936R1	.3750	468.70	430.20	424.80	422.00	420.45	419.45
4	0.4063 - 0.4687	255938R1	.4375	496.20	457.70	452.25	449.50	447.80	446.90
4	0.4688 - 0.5312	255940R1	.5000	523.65	485.15	479.75	476.95	475.25	474.40

Specify side for radius or chamfer



Radius Notes

Maximum radius on one side is .2656"

Full radius and maximum radius on both sides is ½ the width of the cutter

A non-tangent radii must be quoted

Chamfer Notes

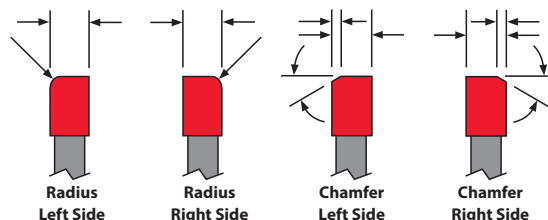
Chamfer Angles can range from 0° to 45°

Chamfer is measured off of the OD

Maximum chamfer is the LESSER of ½ the width of the cutter OR .2656" length of angle when measured across the OD

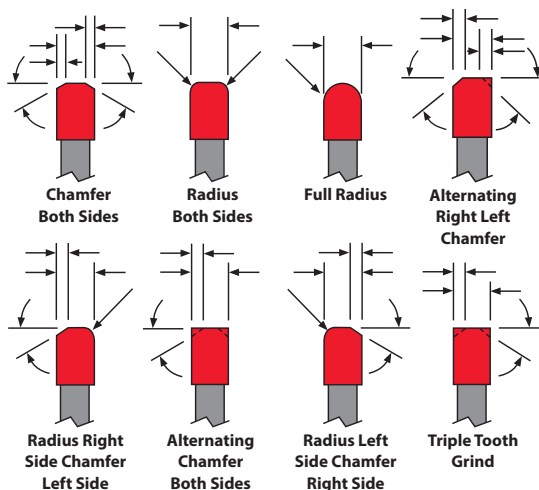
Chamfer Angle Tolerance: $\pm \frac{1}{2}^\circ$

Chamfers greater than 45° must be quoted



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600 - 0.0703	255916R2	.0545	\$392.65	\$350.15	\$344.15	\$341.10	\$339.25	\$338.25
4	0.0704 - 0.0859	255918R2	.0701	435.65	393.25	387.30	384.25	382.35	381.35
4	0.0860 - 0.1015	255920R2	.0858	392.65	350.15	344.15	341.10	339.25	338.25
4	0.1016 - 0.1171	255922R2	.1014	447.60	405.15	399.15	396.15	394.25	393.25
4	0.1172 - 0.1406	255924R2	.1170	392.05	349.60	343.65	340.60	338.75	337.70
4	0.1407 - 0.1718	255926R2	.1562	399.85	357.45	351.40	348.40	346.45	345.50
4	0.1719 - 0.2031	255928R2	.1875	409.60	367.10	361.15	358.05	356.15	355.25
4	0.2032 - 0.2343	255930R2	.2188	419.40	376.90	371.00	367.95	366.10	365.10
4	0.2344 - 0.2812	255932R2	.2500	427.10	384.65	378.70	375.60	373.80	372.75
4	0.2813 - 0.3437	255934R2	.3125	450.40	407.95	402.00	398.95	397.05	396.10
4	0.3438 - 0.4062	255936R2	.3750	477.70	435.20	429.25	426.20	424.40	423.35
4	0.4063 - 0.4687	255938R2	.4375	505.10	462.65	456.75	453.60	451.75	450.85
4	0.4688 - 0.5312	255940R2	.5000	532.55	490.15	484.10	481.05	479.20	478.15



5" CARBIDE TIPPED MILLING CUTTERS

Width grinds between .0704" and .5312"

TYPE 2559 – MULTI-PURPOSE

Cutter Notes (All cutters on page)

16 Teeth

C-2(m) Carbide

5° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

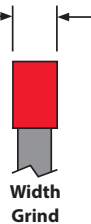
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 363 Brinell (39Rc)



Width Grind

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255942D	.0691	\$490.30	\$463.05	\$458.10	\$455.60	\$454.10	\$418.25
5	0.0860 - 0.1015	255944D	.0848	430.80	403.60	398.70	396.15	394.65	358.70
5	0.1016 - 0.1171	255946D	.1004	466.55	439.40	434.40	431.90	430.35	394.60
5	0.1172 - 0.1406	255948D	.1160	420.45	393.10	388.25	385.65	384.20	348.35
5	0.1407 - 0.1718	255950D	.1562	431.95	404.75	399.85	397.20	395.70	359.85
5	0.1719 - 0.2031	255952D	.1875	451.50	424.35	419.40	416.90	415.30	379.45
5	0.2032 - 0.2343	255954D	.2188	471.05	443.75	438.85	436.30	434.75	398.95
5	0.2344 - 0.2812	255956D	.2500	490.35	463.10	458.25	455.70	454.20	418.30
5	0.2813 - 0.3437	255958D	.3125	523.40	496.20	491.30	488.70	487.20	451.40
5	0.3438 - 0.4062	255960D	.3750	558.45	531.25	526.40	523.80	522.25	486.50
5	0.4063 - 0.4687	255962D	.4375	585.90	558.75	553.90	551.30	549.70	513.90
5	0.4688 - 0.5312	255964D	.5000	613.40	586.15	581.25	578.70	577.15	541.30

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255942R1	.0691	\$507.40	\$468.05	\$462.60	\$459.70	\$457.95	\$457.10
5	0.0860 - 0.1015	255944R1	.0848	448.00	408.60	403.10	400.30	398.55	397.60
5	0.1016 - 0.1171	255946R1	.1004	483.70	444.40	438.85	436.05	434.25	433.40
5	0.1172 - 0.1406	255948R1	.1160	437.50	398.15	392.75	389.85	388.15	387.25
5	0.1407 - 0.1718	255950R1	.1562	449.10	409.70	404.25	401.45	399.65	398.80
5	0.1719 - 0.2031	255952R1	.1875	468.60	429.30	423.80	420.95	419.25	418.30
5	0.2032 - 0.2343	255954R1	.2188	488.10	448.75	443.30	440.50	438.70	437.80
5	0.2344 - 0.2812	255956R1	.2500	507.50	468.25	462.65	459.85	458.10	457.15
5	0.2813 - 0.3437	255958R1	.3125	540.55	501.15	495.70	492.85	491.20	490.25
5	0.3438 - 0.4062	255960R1	.3750	575.60	536.25	530.75	527.90	526.30	525.35
5	0.4063 - 0.4687	255962R1	.4375	603.05	563.75	558.20	555.40	553.65	552.75
5	0.4688 - 0.5312	255964R1	.5000	630.45	591.20	585.70	582.90	581.05	580.20

Radius Notes

Maximum radius on one side is .2656"

Full radius and maximum radius on both

sides is ½ the width of the cutter

A non-tangent radii must be quoted

Chamfer Notes

Chamfer Angles can range from 0° to 45°

Chamfer is measured off of the OD

Maximum chamfer is the LESSER of ⅓ the

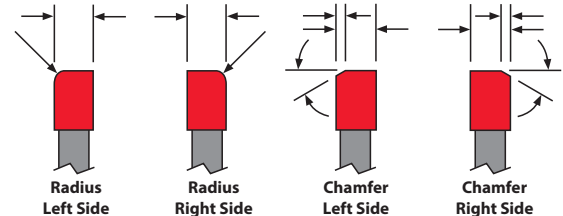
width of the cutter OR .2656" length of

angle when measured across the OD

Chamfer Angle Tolerance: ± ½°

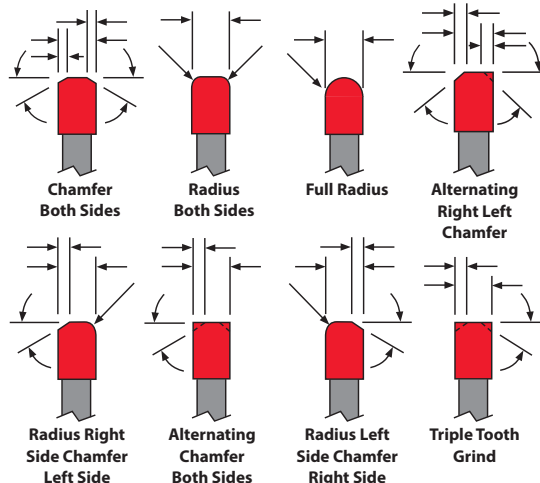
Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255942R2	.0691	\$525.25	\$478.05	\$471.40	\$468.00	\$465.95	\$464.90
5	0.0860 - 0.1015	255944R2	.0848	465.80	418.55	411.95	408.55	406.50	405.45
5	0.1016 - 0.1171	255946R2	.1004	501.50	454.30	447.70	444.30	442.30	441.15
5	0.1172 - 0.1406	255948R2	.1160	455.35	408.15	401.55	398.10	396.10	395.00
5	0.1407 - 0.1718	255950R2	.1562	466.90	419.70	413.10	409.70	407.65	406.50
5	0.1719 - 0.2031	255952R2	.1875	486.50	439.25	432.60	429.25	427.20	426.10
5	0.2032 - 0.2343	255954R2	.2188	505.85	458.80	452.15	448.75	446.70	445.60
5	0.2344 - 0.2812	255956R2	.2500	525.35	478.10	471.45	468.15	466.15	465.00
5	0.2813 - 0.3437	255958R2	.3125	558.30	511.15	504.60	501.10	499.05	498.00
5	0.3438 - 0.4062	255960R2	.3750	593.45	546.20	539.70	536.20	534.15	533.15
5	0.4063 - 0.4687	255962R2	.4375	620.95	573.65	567.05	563.70	561.65	560.55
5	0.4688 - 0.5312	255964R2	.5000	648.30	601.15	594.55	591.20	589.05	587.95



6" CARBIDE TIPPED MILLING CUTTERS

Width grinds between .0704" and .5312"

TYPE 2559 – MULTI-PURPOSE

Cutter Notes (All cutters on page)

18 Teeth

C-2(m) Carbide

5° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

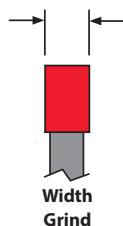
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 363 Brinell (39RC)



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704-0.0859	255966D	.0681	\$545.60	\$517.15	\$512.05	\$509.40	\$507.70	\$470.35
6	0.0860-0.1015	255968D	.0838	508.35	479.95	474.80	472.20	470.50	433.15
6	0.1016-0.1171	255970D	.0994	547.20	518.85	513.60	510.95	509.40	471.95
6	0.1172-0.1406	255972D	.1150	520.70	492.35	487.20	484.50	482.90	445.55
6	0.1407-0.1718	255974D	.1562	540.15	511.85	506.70	504.00	502.40	465.00
6	0.1719-0.2031	255976D	.1875	559.70	531.25	526.25	523.40	521.80	484.45
6	0.2032-0.2343	255978D	.2188	579.15	550.75	545.60	542.90	541.30	503.95
6	0.2344-0.2812	255980D	.2500	606.05	577.70	572.45	569.80	568.25	530.80
6	0.2813-0.3437	255982D	.3125	629.80	601.35	596.25	593.55	592.00	554.55
6	0.3438-0.4062	255984D	.3750	651.15	622.65	617.60	614.90	613.30	575.85
6	0.4063-0.4687	255990D	.4375	678.50	650.10	645.00	642.30	640.70	603.30
6	0.4688-0.5312	255992D	.5000	705.95	677.60	672.40	669.75	668.15	630.75

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704-0.0859	255966R1	.0681	\$563.00	\$522.15	\$516.40	\$513.50	\$511.70	\$510.75
6	0.0860-0.1015	255968R1	.0838	525.80	484.90	479.20	476.30	474.50	473.55
6	0.1016-0.1171	255970R1	.0994	564.70	523.75	518.00	515.05	513.25	512.35
6	0.1172-0.1406	255972R1	.1150	538.20	497.30	491.55	488.60	486.85	485.90
6	0.1407-0.1718	255974R1	.1562	557.70	516.85	511.05	508.20	506.35	505.40
6	0.1719-0.2031	255976R1	.1875	577.15	536.25	530.55	527.60	525.80	524.90
6	0.2032-0.2343	255978R1	.2188	596.60	555.75	550.10	547.00	545.35	544.35
6	0.2344-0.2812	255980R1	.2500	623.55	582.70	576.95	574.00	572.20	571.20
6	0.2813-0.3437	255982R1	.3125	647.25	606.40	600.75	597.75	595.95	594.95
6	0.3438-0.4062	255984R1	.3750	668.55	627.70	621.95	619.00	617.25	616.30
6	0.4063-0.4687	255990R1	.4375	696.00	655.20	649.45	646.50	644.65	643.75
6	0.4688-0.5312	255992R1	.5000	723.45	682.55	676.80	673.90	672.15	671.10

Radius Notes

Maximum radius on one side is .2656"

Full radius and maximum radius on both sides is ½ the width of the cutter

A non-tangent radii must be quoted

Chamfer Notes

Chamfer Angles can range from 0° to 45°

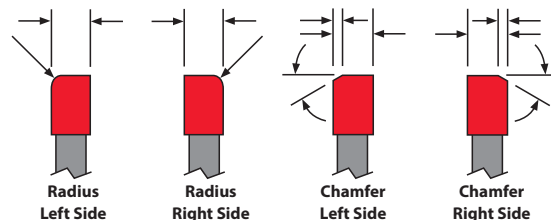
Chamfer is measured off of the OD

Maximum chamfer is the LESSER of ⅓ the width of the cutter OR .2656" length of angle when measured across the OD

Chamfer Angle Tolerance: ± ½°

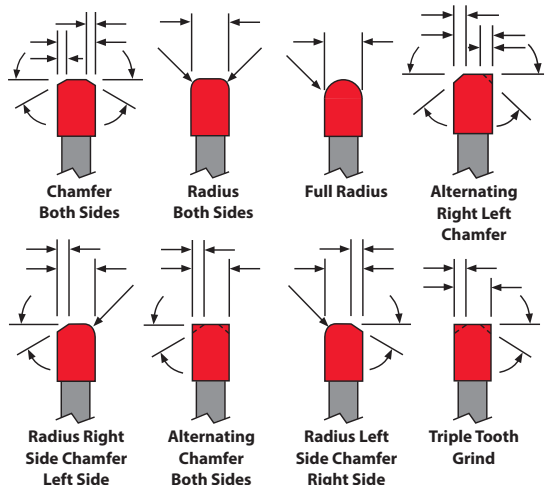
Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADIUS, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704-0.0859	255966R2	.0681	\$580.90	\$532.15	\$525.35	\$521.80	\$519.65	\$518.45
6	0.0860-0.1015	255968R2	.0838	543.65	494.95	488.10	484.55	482.45	481.25
6	0.1016-0.1171	255970R2	.0994	582.55	533.75	526.90	523.40	521.25	520.15
6	0.1172-0.1406	255972R2	.1150	556.10	507.35	500.45	496.95	494.85	493.65
6	0.1407-0.1718	255974R2	.1562	575.55	526.75	519.95	516.40	514.30	513.15
6	0.1719-0.2031	255976R2	.1875	594.95	546.20	539.40	535.95	533.85	532.65
6	0.2032-0.2343	255978R2	.2188	614.45	565.75	558.90	555.40	553.25	552.10
6	0.2344-0.2812	255980R2	.2500	641.35	592.60	585.80	582.25	580.10	579.05
6	0.2813-0.3437	255982R2	.3125	665.05	616.40	609.55	606.05	603.90	602.75
6	0.3438-0.4062	255984R2	.3750	686.35	637.65	630.85	627.35	625.20	624.10
6	0.4063-0.4687	255990R2	.4375	713.85	665.05	658.30	654.80	652.65	651.50
6	0.4688-0.5312	255992R2	.5000	741.30	692.55	685.75	682.30	680.15	678.95



BRAZED SINGLE POINT TOOLS

CARBIDE TIPPED - 883/PREMIUM C2 FOR CAST IRON & NON-FERROUS
370/PREMIUM C5-C6 FOR STEEL

FINISH GROUND - READY FOR USE



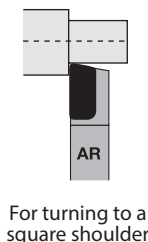
AR

0° SIDE CUTTING EDGE ANGLE

For machining to a square shoulder

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
AR-4	211104	\$11.00	211204	\$8.05	1/4	1/4	2	12
AR-5	211105	9.70	211205	8.55	5/16	5/16	2 1/4	12
AR-6	211106	9.90	211206	8.70	3/8	3/8	2 1/2	12
AR-7	211107	10.65	211207	9.45	7/16	7/16	3	12
AR-8	211108	9.15	211208	9.15	1/2	1/2	3 1/2	12
AR-10	211110	13.55	211210	12.55	5/8	5/8	4	12
AR-12	211112	17.40	211212	15.60	3/4	3/4	4 1/2	12
AR-16	211116	31.90	211216	31.10	1	1	7	6
AR-20	211120	CALL US	211220	CALL US	1 1/4	1 1/4	8	1
AR-44	211144	CALL US	211244	CALL US	1/2	1	7	12

*Some sizes not available in premium grade carbide. Prices subject to change.



For turning to a square shoulder



AL

0° SIDE CUTTING EDGE ANGLE

For machining to a square shoulder

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
AL-4	211404	\$11.00	211504	\$8.05	1/4	1/4	2	12
AL-5	211405	9.70	211505	8.55	5/16	5/16	2 1/4	12
AL-6	211406	9.90	211506	8.70	3/8	3/8	2 1/2	12
AL-7	211407	10.65	211507	9.45	7/16	7/16	3	12
AL-8	211408	9.15	211508	9.15	1/2	1/2	3 1/2	12
AL-10	211410	12.85	211510	12.55	5/8	5/8	4	12
AL-12	211412	16.60	211512	16.45	3/4	3/4	4 1/2	12
AL-16	211416	32.35	211516	32.35	1	1	7	6
AL-20	-	-	211520	CALL US	1 1/4	1 1/4	8	1
AL-44	211444	CALL US	211544	CALL US	1/2	1	7	12

*Some sizes not available in premium grade carbide. Prices subject to change.



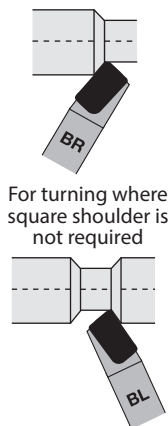
BR

15° SIDE CUTTING EDGE ANGLE

For interrupted or irregular cuts

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
BR-4	212104	\$11.00	212204	\$8.05	1/4	1/4	2	12
BR-5	212105	9.70	212205	8.55	5/16	5/16	2 1/4	12
BR-6	212106	9.90	212206	8.70	3/8	3/8	2 1/2	12
BR-7	212107	10.65	212207	9.45	7/16	7/16	3	12
BR-8	212108	9.15	212208	9.15	1/2	1/2	3 1/2	12
BR-10	212110	13.55	212210	12.55	5/8	5/8	4	12
BR-12	212112	17.40	212212	15.60	3/4	3/4	4 1/2	12
BR-16	212116	31.90	212216	31.10	1	1	7	6
BR-20	212120	CALL US	212220	CALL US	1 1/4	1 1/4	8	1
BR-44	212144	CALL US	212244	CALL US	1/2	1	7	12

*Some sizes not available in premium grade carbide. Prices subject to change.



For turning where square shoulder is not required



BL

15° SIDE CUTTING EDGE ANGLE

For interrupted or irregular cuts

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
BL-4	212404	\$11.00	212504	\$8.05	1/4	1/4	2	12
BL-5	212405	9.70	212505	8.55	5/16	5/16	2 1/4	12
BL-6	212406	9.90	212506	8.70	3/8	3/8	2 1/2	12
BL-7	212407	10.65	212507	9.45	7/16	7/16	3	12
BL-8	212408	9.15	212508	9.15	1/2	1/2	3 1/2	12
BL-10	212410	12.85	212510	12.55	5/8	5/8	4	12
BL-12	212412	16.60	212512	16.45	3/4	3/4	4 1/2	12
BL-16	212416	32.35	212516	32.35	1	1	7	6
BL-20	212420	CALL US	212520	CALL US	1 1/4	1 1/4	8	1
BL-44	212444	CALL US	212544	CALL US	1/2	1	7	12

*Some sizes not available in premium grade carbide. Prices subject to change.



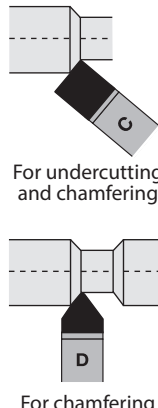
C

0° SQUARE NOSE

No nose radius

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
C-4	213704	\$7.25	213804	\$7.25	1/4	1/4	2	12
C-5	213705	8.00	213805	7.70	5/16	5/16	2 1/4	12
C-6	213706	10.35	213806	8.55	3/8	3/8	2 1/2	12
C-7	213707	7.90	213807	10.90	7/16	7/16	3	12
C-8	213708	12.70	213808	11.75	1/2	1/2	3 1/2	12
C-10	213710	14.30	213810	15.60	5/8	5/8	4	12
C-12	213712	19.70	213812	22.35	3/4	3/4	4 1/2	12
C-16	213716	40.90	213816	39.30	1	1	7	6
C-20	213720	CALL US	213820	CALL US	1 1/4	1 1/4	8	1
C-44	213744	CALL US	213844	CALL US	1/2	1	7	12

*Some sizes not available in premium grade carbide. Prices subject to change.



For undercutting and chamfering



D

40° SIDE CUTTING EDGE ANGLE

80° pointed nose

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
D-4	214704	\$6.75	214804	\$6.75	1/4	1/4	2	12
D-5	214705	7.80	214805	8.05	5/16	5/16	2 1/4	12
D-6	214706	8.00	214806	8.60	3/8	3/8	2 1/2	12
D-7	214707	10.90	214807	13.25	7/16	7/16	3	12
D-8	214708	10.50	214808	11.10	1/2	1/2	3 1/2	12
D-10	214710	14.65	214810	16.25	5/8	5/8	4	12
D-12	214712	20.95	214812	18.40	3/4	3/4	4 1/2	12
D-16	214716	31.15	214816	32.15	1	1	7	6

*Some sizes not available in premium grade carbide. Prices subject to change.

For chamfering



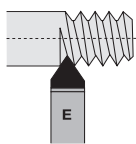
BRAZED SINGLE POINT TOOLS

CARBIDE TIPPED - 883/PREMIUM C2 FOR CAST IRON & NON-FERROUS
370/PREMIUM C5-C6 FOR STEEL

FINISH GROUND - READY FOR USE

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
E-4	215704	\$6.75	215804	\$6.75	1/4	1/4	2	12
E-5	215705	7.35	215805	7.35	3/16	3/16	2 1/4	12
E-6	215706	7.65	215806	7.45	3/8	3/8	2 1/2	12
E-7	215707	11.85	215807	14.20	7/16	7/16	3	12
E-8	215708	17.55	215808	9.40	1/2	1/2	3 1/2	12
E-10	215710	14.55	215810	13.20	5/8	5/8	4	12
E-12	215712	18.10	215812	18.30	3/4	3/4	4 1/2	12
E-16	215716	31.70	215816	30.50	1	1	7	6

*Some sizes not available in premium grade carbide. Prices subject to change.



For cutting threads



**60° INCLUDED ANGLE;
30° SIDE CUTTING EDGE ANGLE**

For threading, chamfering,
notching, or undercutting

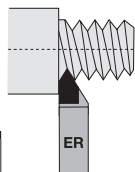


30° SIDE CUTTING EDGE ANGLE

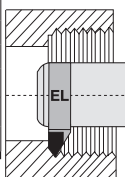
Offset for threading or boring

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
ER-4	215104	\$8.35	215204	\$6.75	1/4	1/4	2	12
ER-5	215105	8.35	215205	7.50	3/16	3/16	2 1/4	12
ER-6	215106	8.50	215206	7.70	3/8	3/8	2 1/2	12
ER-8	215108	15.00	215208	15.00	1/2	1/2	3 1/2	12
ER-10	215110	16.35	215210	16.35	5/8	5/8	4	12
ER-12	215112	17.70	215212	19.20	3/4	3/4	4 1/2	12

*Some sizes not available in premium grade carbide. Prices subject to change.



For cutting threads



30° SIDE CUTTING EDGE ANGLE

Offset for threading or boring

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
EL-4	215404	\$9.60	215504	\$6.75	1/4	1/4	2	12
EL-5	215405	9.60	215505	9.25	3/16	3/16	2 1/4	12
EL-6	215406	9.60	215506	9.35	3/8	3/8	2 1/2	12
EL-8	215408	15.00	215508	16.50	1/2	1/2	3 1/2	12
EL-10	215410	16.35	215510	18.05	5/8	5/8	4	12
EL-12	215412	17.70	215512	19.20	3/4	3/4	4 1/2	12

*Some sizes not available in premium grade carbide. Prices subject to change.



0° END CUTTING EDGE ANGLE

Offset for facing to a square shoulder or close to chuck jaws

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
FR-8	216108	\$12.60	216208	\$12.40	1/2	1/2	3 1/2	12
FR-10	216110	18.25	216210	17.35	5/8	5/8	4	12
FR-12	216112	23.60	216212	23.25	3/4	3/4	4 1/2	6
FR-16	216116	49.35	216216	51.90	1	1	7	4
FR-44	216144	CALL US	216244	CALL US	1/2	1	6	6

*Some sizes not available in premium grade carbide. Prices subject to change.

For bore threading
in a 90° bar



For facing to a
square shoulder



0° END CUTTING EDGE ANGLE

Offset for facing to a square shoulder or close to chuck jaws

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
FL-8	216408	\$12.70	216508	\$12.05	1/2	1/2	3 1/2	12
FL-10	216410	19.05	216510	17.35	5/8	5/8	4	12
FL-12	216412	24.45	216512	21.65	3/4	3/4	4 1/2	6
FL-16	216416	46.00	216516	51.90	1	1	7	4
FL-44	216444	CALL US	216544	CALL US	1/2	1	6	6

*Some sizes not available in premium grade carbide. Prices subject to change.

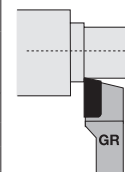


0° SIDE CUTTING EDGE ANGLE

Offset for facing or turning to a square shoulder
or close to chuck jaws

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
GR-8	217108	\$12.70	217208	\$12.05	1/2	1/2	3 1/2	12
GR-10	217110	19.05	217210	17.35	5/8	5/8	4	12
GR-12	217112	24.45	217212	21.65	3/4	3/4	4 1/2	6
GR-16	217116	51.55	217216	51.90	1	1	7	4
GR-20	217120	CALL US	217220	CALL US	1 1/4	1 1/4	8	1
GR-44	217144	CALL US	217244	CALL US	1/2	1	6	6

*Some sizes not available in premium grade carbide. Prices subject to change.



For turning to a
square shoulder



0° SIDE CUTTING EDGE ANGLE

Offset for facing or turning to a square shoulder
or close to chuck jaws

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
GL-8	217408	\$12.60	217508	\$12.40	1/2	1/2	3 1/2	12
GL-10	217410	18.25	217510	17.35	5/8	5/8	4	12
GL-12	217412	23.60	217512	23.25	3/4	3/4	4 1/2	6
GL-16	217416	50.00	217516	51.90	1	1	7	4
GL-20	217420	CALL US	217520	CALL US	1 1/4	1 1/4	8	1
GL-44	217444	CALL US	217544	CALL US	1/2	1	6	6

*Some sizes not available in premium grade carbide. Prices subject to change.



BRAZED CUT-OFF TOOLS

CARBIDE TIPPED - 883/PREMIUM C2 FOR CAST IRON & NON-FERROUS
370/PREMIUM C5-C6 FOR STEEL



STANDARD CUT-OFF TOOL

For stock cut-off of solid bars
Finish ground - ready for use

TOOL STYLE	CUT-OFF WIDTH	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS		
		EDP NO.	PRICE	EDP NO.	PRICE	W	H	L
CT-111	1/8	210111	\$16.30	210211	\$16.95	1/2	1	5
CT-122	3/16	210122	16.80	210222	17.30	1/2	1	5
CT-121	1/4	210133	17.35	210233	17.95	1/2	1	5
CT-120	5/16	210144	17.30	210244	17.95	1/2	1	5
CT-130	3/8	210155	20.95	210255	22.30	5/8	1 1/4	5
CT-140	3/8	210166	23.20	210266	24.05	3/4	1 1/2	6

*Some sizes not available in premium grade carbide.
Prices subject to change.

Standard packaging
quantity is 6



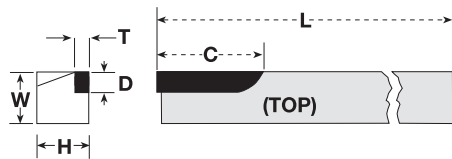
STANDARD CUT-OFF TOOL

For stock cut-off of solid bars
Finish ground - ready for use

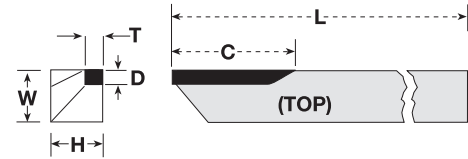
TOOL STYLE	CUT-OFF WIDTH	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS		
		EDP NO.	PRICE	EDP NO.	PRICE	W	H	L
CTL-111	1/8	210411	\$16.30	210511	\$16.95	1/2	1	5
CTL-122	3/16	210422	16.80	210522	17.30	1/2	1	5
CTL-121	1/4	210433	17.35	210533	17.95	1/2	1	5
CTL-120	5/16	210444	17.30	210544	17.95	1/2	1	5
CTL-130	3/8	210455	20.95	210555	22.30	5/8	1 1/4	5
CTL-140	3/8	210466	23.20	210566	24.05	3/4	1 1/2	6

*Some sizes not available in premium grade carbide.
Prices subject to change.

Standard packaging
quantity is 6



H = Tool Height
W = Tool Width
L = Overall Tool Length
T = Carbide Thickness
D = Cut-off Width
C = Carbide Length



S.A. SERIES SWISS AUTOMATIC TOOL

Requires finish grind for cut-off, forming or turning

TOOL STYLE	C2 CARBIDE*		SHANK DIMENSIONS			CARBIDE DIMENSIONS		
	EDP NO.	PRICE	"W"	"H"	"L"	"T"	"D"	"C"
SA6T	219901	\$14.75	1/4	1/4	6	3/32	1/8	1 1/4
SA7T	219902	15.80	9/32	9/32	6	3/32	1/8	1 1/4
SA8T	219903	17.25	5/16	5/16	6	3/32	3/16	1 1/4
SA9T	219904	18.30	3/8	3/8	6	3/32	3/16	1 1/4
SA10T	219905	19.80	13/32	13/32	6	3/32	3/16	1 1/4
SA11T	219906	20.55	7/16	7/16	6	1/8	1/4	1
SA11.5T	219907	20.65	15/32	15/32	6	1/8	1/4	1
SA12T	219908	21.90	1/2	1/2	6	1/8	1/4	1

*Prices subject to change.

Standard packaging
quantity is 10

S.A. SERIES SWISS AUTOMATIC TOOL

Requires finish grind for cut-off, forming or turning

TOOL STYLE	C2 CARBIDE*		SHANK DIMENSIONS			CARBIDE DIMENSIONS		
	EDP NO.	PRICE	"W"	"H"	"L"	"T"	"D"	"C"
SA6C	219921	\$14.75	1/4	1/4	6	1/8	3/32	1 1/4
SA7C	219922	15.80	9/32	9/32	6	1/8	3/32	1 1/4
SA8C	219923	17.25	5/16	5/16	6	1/8	3/32	1 1/4
SA9C	219924	18.30	3/8	3/8	6	1/8	3/32	1 1/4
SA10C	219925	19.80	13/32	13/32	6	1/8	3/32	1 1/4
SA11C	219926	20.55	7/16	7/16	6	3/32	1/8	1 1/4
SA11.5C	219927	20.65	15/32	15/32	6	3/32	1/8	1 1/4
SA12C	219928	21.90	1/2	1/2	6	3/32	1/8	1 1/4

*Prices subject to change.

Standard packaging
quantity is 10

MADE IN USA



ROCK RIVER TOOL WILL GIVE YOU –

CONSISTENT HIGH QUALITY TOOLS

- Critical tool dimensions 100% inspected.
- Modern quality assurance system maintains consistent high quality tool production.
- Optimum performance tool geometries & carbide grades.
- Close tolerance tools will greatly reduce wear rates and maintain machined part quality.

SERVICE – PROMPT DELIVERY

- Most orders shipped same day received.
- Very large stock tool inventory reduces need for costly user & distributor inventories.
- No minimum orders.

LOWER TOOLING COST

- Improved cutting tool performance with much higher cutting speeds & feeds – far shorter machining cycle costs.
- Dramatic tool wear reduction results in much longer production runs with fewer tool changes & set-up scrap.
- Optional modifications of stocked standard tools eliminates need for costly special tools.
- Optional modifications reduce lead time for special tooling needs.

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