TOOL-FLO

General Catalog

Cutting Tools and Tool Holders

Catalog 60

Providing the World with the Cutting Edge!

for

35 Years!

Building 1 - Main Offices
7803 Hansen Road • Houston, TX 77061
Houses the administration offices and the insert manufacturing facilities.

Building 2 - Engineering/Mill Department
7811 Hansen Road • Houston, TX 77061
Houses the engineering department as well as manufacturing of standard and special tool holders

Since 1978 Tool-Flo has been providing quality cutting tools for companies around the world.

Our corporate mission calls for us to achieve and maintain leadership by designing and manufacturing standard and special cutting tools and tool holders that bring our customers an unparalleled level of satisfaction. Tool-Flo's ongoing commitment in pursuit of that goal is to produce "ultimate quality" cutting tools that exceed customer's expectations through meticulous manufacturing and innovative use of the latest state of the art CNC machine tools.

Building 3 - Training Center

8930 Tallyho • Houston, TX 77061

Technical training for end users, distributors and representitives.

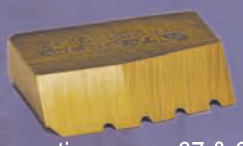
Building 4 - Sales/Shipping/Coating

7815 Hansen Road • Houston, TX 77061

Houses the sales, shipping and material preparation departments as well as the coating facilities.

TOOL-FLO

Chipbreakers for chasers



API section page 7/Chaser section pages 67 & 68

with coolant cavity and grooves

Tube scarfing

API section page 26

API section page 12

Chip control

API section page 16

API section page 9

8 & 10 round

Rotary shoulder connections

Cut off system

Cut off section pages 72-74

Partial Topping Acme Threading

Laydown section page 115

Flo-Lock section page 101

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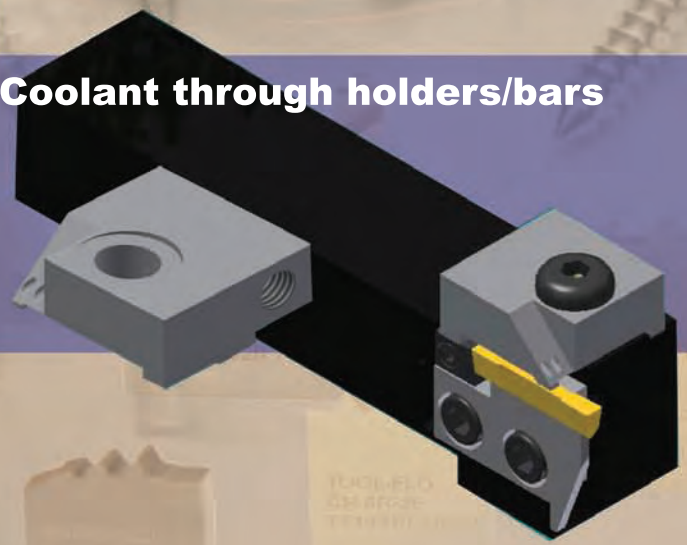
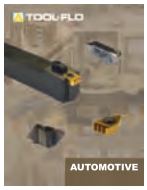
Coolant through holders/bars



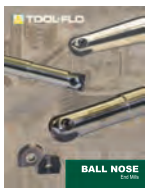
NEW PRODUCTS

INDEX

API



AUTOMOTIVE



BALLNOSE

BANTAM/SWISS TOOLING

CHASERS

CUT OFF

DEEP GROOVING

FACE GROOVING

FLO-LOCK

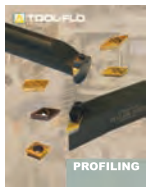
LAYDOWN

MEDICAL

MILLING

ON EDGE

PCBN



PROFILING

THREADMILLING

TURNING

VEE BOTTOM

SPARE PARTS
GENERAL TECHNICAL

TOOL-FLO

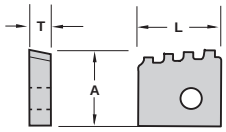
API

Oil & Gas

CHASERS

External API Buttress

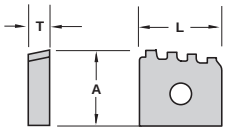
For holders see pg. 68



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	CVD Coated G50	CVD Coated GP50	TiN Coated AC3	AlTiN Coated AC50
CR-5B75-3E #1 ┐	M16415188	5	3/4	.670	.573	.205	3	●	●	●	●
CR-5B75-3E #2 ├ SET	M16415189	5	3/4	.670	.582	.205	3	●	●	●	●
CR-5B75-3E #3 ┘	M16426149	5	3/4	.670	.590	.205	3	●	●	●	●
CR-5B75-4E	M16422675	5	3/4	.804	.625	.200	4	●	●	●	●
CR-5B1-4E	M1741130	5	1	.800	.640	.200	4	●	●	●	●
CR-8B75-4E	M2145353	8	3/4	.800	.605	.200	4	●	●	●	●

Internal API Buttress

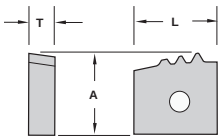
For bars see pg. 69



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	G50	GP50	AC3	AC50
CR-5B75-3I	M1681847	5	3/4	.630	.577	.204	3	●		●	●
CR-5B75-4I	M1681347	5	3/4	.800	.582	.205	4	●	●	●	●
CR-5B75-5I	M16815688	5	3/4	1.000	.590	.205	5	●		●	●
CR-5B1-3I	M1782052	5	1	.635	.635	.200	3	●		●	●
CR-5B1-4I	M1782051	5	1	.800	.640	.200	4	●		●	●
CR-8B75-4I	M2185353	8	3/4	.800	.590	.205	4	●	●	●	●

External API Round

For holders see pg. 68

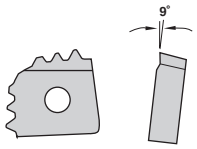


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	G50	GP50	AC3	AC50
CR-8R-3E #1 ┐	M32416731	8	3/4	.630	.577	.204	3	●	●	●	●
CR-8R-3E #2 ├ SET	M32416732	8	3/4	.630	.586	.204	3	●	●	●	●
CR-8R-3E #3 ┘	M32416733	8	3/4	.630	.591	.204	3	●	●	●	●
CR-8R-3E	M32419310	8	3/4	.630	.592	.204	3	●	●	●	●
CR-8R-4E 6°	M3241136	8	3/4	.640	.625	.200	4	●	●	●	●
CR-8R-4E 12°	M3241163	8	3/4	.635	.625	.200	4	●	●	●	●
CR-10R-3E #1 ┐	M34416728	10	3/4	.628	.563	.204	3	●	●	●	●
CR-10R-3E #2 ├ SET	M34416729	10	3/4	.628	.572	.204	3	●	●	●	●
CR-10R-3E #3 ┘	M34416730	10	3/4	.628	.575	.204	3	●	●	●	●
CR-10R-3E	M3441291	10	3/4	.630	.625	.204	3	●	●	●	●

External API Round and Buttress Chaser Style

CNGA - Double Sided (2 cutting edges)

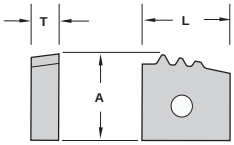
For holders see pg. 68



Description	EDP Code	TPI	TPF	No. of Teeth	G50	GP50	AC3	AC50
CNGA-8R-3E	M32427407	8	3/4	3	●	●	●	●
CNGA-10R-3E	M34427408	10	3/4	3	●		●	●
CNGA-5B75-3E	M16427408	5	3/4	3	●	●	●	●

Internal API Round

For bars see pg. 69



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	G50	GP50	AC3	AC50
CR-8R-3I	M3287464	8	3/4	.640	.592	.200	3	●	●	●	●
CR-8R-4I 6°	M3281136	8	3/4	.640	.625	.200	4	●	●	●	●
CR-8R-4I	M32825150	8	3/4	.640	.625	.200	4	●	●	●	●
CR-8R-7I	M32814828	8	3/4	1.000	.625	.200	7	●	●	●	●
CR-8R-7I	M32817968	8	3/4	1.000	.625	.200	7	●	●	●	●
CR-10R-3I	M3481291	10	3/4	.630	.625	.200	3	●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

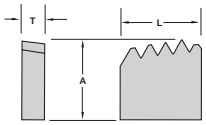
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	G50	GP50	AC3	AC50
J-Series		▲		●
K-Series		▲		●
L-Series		▲		
N-Series		●		▲
P-Series		●		▲
Q-Series		●		●

CHASERS

External LPT/NPT

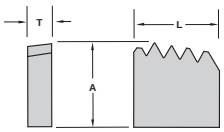
For holders see pg. 68



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	CVD Coated G50	TiN Coated GP50	AlTiN* Coated AC3	AlTiN* Coated AC50
CR-8NPT-4E	M3648996	8	3/4	.625	.620	.203	4	●	●	●	●
CR-11.5NPT-4E	M3649668	11.5	3/4	.625	.620	.1875	4	●	●	●	●

Internal LPT/NPT

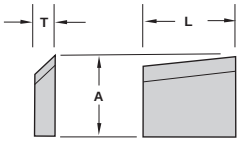
For bars see pg. 69

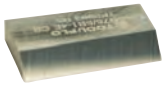


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	G50	GP50	AC3	AC50
CR-8NPT-4I	M3689804	8	3/4	.625	.620	.2030	4	●	●	●	●
CR-11.5NPT-4I	M3689804	11.5	3/4	.625	.620	.1875	4	●	●	●	●
CR-8NPT-7I	M3689804	8	3/4	.625	.620	.1875	7	●	●	●	●

CHIPBREAKERS

External



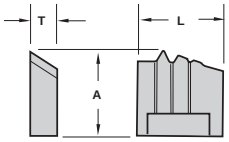


Description	EDP Code	L	A	T	Inserts
CR-5B75/5B1-4E-CB	TF2993	.800	.500	.125	CR-5B75-4E/CR-5B1-4E
CR-8R/10R-3E/4E-CB	TF1353E	.630	.460	.125	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8NPT-4E
#3 CB W/O COOLANT GROOVES .170	TF26424	.618	.460	.170`	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8NPT-4E

External

with coolant grooves

Also available at -.010, -.020 and -.030 off the A dimension.

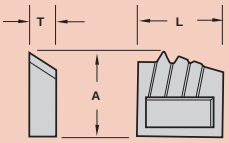


Description	EDP Code	L	A	T	Coolant Grooves	Inserts
TD4601 5B75-1-CB	TF16660	.665	.550	.170	✓	CR-5B75-3E #1
TD4602 5B75-2-CB	TF16661	.668	.550	.170	✓	CR-5B75-3E #2
TD4603 5B75-3-CB	TF16662	.665	.560	.170	✓	CR-5B75-3E #3
TD3931 8R-1-CB	TF16657	.628	.518	.165	✓	CR-8R-3E #1
TD3932 8R-2-CB	TF16658	.635	.526	.165	✓	CR-8R-3E #2
TD3933 8R-3-CB	TF27129	.628	.520	.165	✓	CR-8R-3E #3
TA2237 10R-1-CB	TF16760	.628	.503	.175	✓	CR-10R-3E #1
TA2238 10R-2-CB	TF16761	.628	.512	.175	✓	CR-10R-3E #2
TA2239 10R-3-CB	TF16762	.628	.515	.175	✓	CR-10R-3E #3
#3 CB W/COOLANT GROOVES .170	TF26423	.618	.460	.170	✓	CR-8R-3E

External

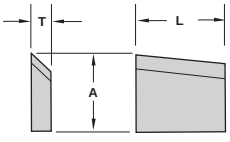
with coolant grooves and cavity

Also available at -.010, -.020 and -.030 off the A dimension.



Description	EDP Code	L	A	T	Coolant Grooves	Inserts
TD4601 5B75-1-CB W/CAVITY	TF30297	.665	.550	.170	✓	CR-5B75-3E #1
TD4602 5B75-2-CB W/CAVITY	TF30298	.668	.550	.170	✓	CR-5B75-3E #2
TD4603 5B75-3-CB W/CAVITY	TF30299	.665	.560	.170	✓	CR-5B75-3E #3
TD3931 8R-1-CB W/CAVITY	TF28130	.628	.518	.165	✓	CR-8R-3E #1
TD3932 8R-2-CB W/CAVITY	TF28131	.635	.526	.165	✓	CR-8R-3E #2
TD3933 8R-3-CB W/CAVITY	TF28132	.628	.520	.165	✓	CR-8R-3E #3

Internal



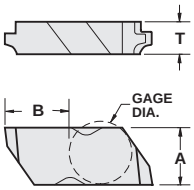
Description	EDP Code	L	A	T	Coolant Grooves	Inserts
CR-5B75/5B1-4I-CB	TF16104	.800	.500	.125		CR-5B75-4I/CR-5B1-4I
CR-8R/10R-3I/4I-CB	TF1353I	.630	.488	.125		CR-8R-3I/CR-8R-4I/CR-10R-3I/CR-8LPT-4I
CR-5B75-5I-CB	TF28765	1.000	.540	.125	✓	CR-5B75-5I
CR-8R-7I-CB	TF3435	1.000	.520	.125		CR-8R-7I
CR-8R-7I-CB	TF18096	1.000	.510	.125	✓	CR-8R-7I

API

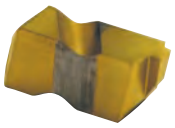
FLO-LOCK

API Buttress Threading

For holders and bars see pgs. 107-109



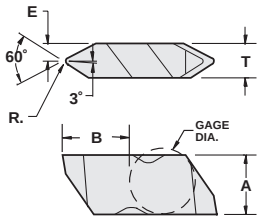
RH Shown



Description	EDP Code	TPI	TPF	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-3-5B75E	553616E	5	3/4	.250	.344	.4026	.3750			●		
FLDC-3-5B75I	553616I	5	3/4	.250	.344	.4026	.3750			●		
FLDC-3-5B1E	553617E	5	1	.250	.344	.4026	.3750			●		
FLDC-3-5B1I	553617I	5	1	.250	.344	.4026	.3750			●		
FLDC-4-5B75E	554616E	5	3/4	.255	.453	.6320	.3750			●		
FLDC-4-5B75I	554616I	5	3/4	.255	.453	.6320	.3750			●		
FLDC-4-5B1E	554617E	5	1	.255	.453	.6320	.3750			●		
FLDC-4-5B1I	554617I	5	1	.255	.453	.6320	.3750			●		

API Threading Non-Topping

For holders and bars see pgs. 107-109

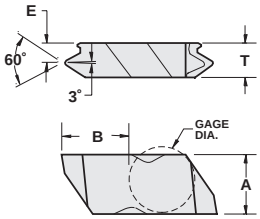


RH Shown

Description	EDP Code	TPI	R	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLD-3038R	553438R	4	.033/.038	.195	.082	.344	.3991	.3750			●		
FLD-3038L	553438L	4	.033/.038	.195	.082	.344	.3991	.3750			●		
FLD-3040R	553440R	5	.015/.020	.195	.082	.344	.3991	.3750			●		
FLD-3040L	553440L	5	.015/.020	.195	.082	.344	.3991	.3750			●		
FLD-4038R	554438R	4	.033/.038	.255	.128	.453	.6293	.3750			●		
FLD-4038L	554438L	4	.033/.038	.255	.128	.453	.6293	.3750			●		
FLD-4040R	554440R	5	.015/.020	.255	.128	.453	.6293	.3750			●		
FLD-4040L	554440L	5	.015/.020	.255	.128	.453	.6293	.3750			●		
FLD-4050R	554450R	4	.020/.025	.255	.128	.453	.6293	.3750			●		
FLD-4050L	554450L	4	.020/.025	.255	.128	.453	.6293	.3750			●		

API Rotary Shoulder Connextion Threading

For holders and bars see pgs. 107-109

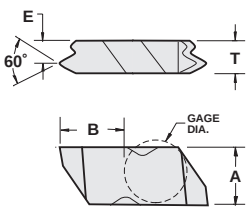


RH Shown

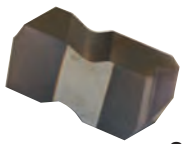
Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Conn. No. or Size	TiN Coated GP3	TiN Coated GP50	TiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-3-530E	553613E	5	3	.250	.147	.344	.4026	.3750	3-1/2 FH, 2-3/8-4-1/2 Reg.		●			
FLDC-3-530I	553613I	5	3	.250	.147	.344	.4026	.3750	3-1/2 FH, 2-3/8-4-1/2 Reg.		●			
FLDC-4-425E	554609E	4	2	.312	.183	.453	.6320	.3750	5-1/2 FH, 6-5/8 FH & Reg.		●			
FLDC-4-425I	554609I	4	2	.312	.183	.453	.6320	.3750	5-1/2 FH, 6-5/8 FH & Reg.		●	●	●	
FLDC-4-428E	554610E	4	2	.312	.183	.453	.6320	.3750	NC23-NC50, 2-3/8-5-1/2IF		●	●		●
FLDC-4-428I	554610I	4	2	.312	.183	.453	.6320	.3750	NC23-NC50, 2-3/8-5-1/2IF		●	●		●
FLDC-4-435E	554611E	4	3	.312	.183	.453	.6320	.3750	5-1/2, 7-5/8, 8-5/8 Reg.		●			
FLDC-4-435I	554611I	4	3	.312	.183	.453	.6320	.3750	5-1/2, 7-5/8, 8-5/8 Reg.		●			
FLDC-4-438E	554612E	4	3	.312	.183	.453	.6320	.3750	NC56 - NC71		●			
FLDC-4-438I	554612I	4	3	.312	.183	.453	.6320	.3750	NC56 - NC71		●			

API Round Threading

For holders and bars see pgs. 107-109



RH Shown



Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-3-8RDR75	553632R	8	3/4	.195	.125	.344	.4010	.3750			●	●	●
FLDC-3-8RDL75	553632L	8	3/4	.195	.125	.344	.4010	.3750			●	●	●
FLDC-3-10RDR75	553634R	10	3/4	.195	.125	.344	.4010	.3750			●	●	●
FLDC-3-10RDL75	553634L	10	3/4	.195	.125	.344	.4010	.3750			●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

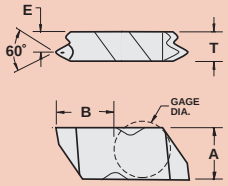
Cast Iron					
Non-Ferrous					
Stainless/High Temp					
Steel			▲		

FLO-LOCK

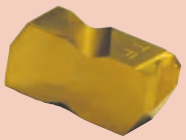
API Round Threading with Chipbreaker

Exclusive patented design!

For holders and bars see pgs. 107-109



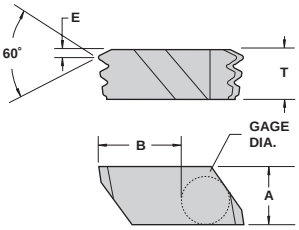
RH Shown



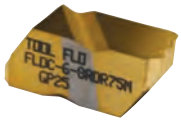
Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-3-8RDR75-CB	553632PR	8	3/4	.195	.125	.344	.4010	.3750			●	●	●
FLDC-3-8RDL75-CB	553632PL	8	3/4	.195	.125	.344	.4010	.3750			●	●	●

API Round Threading Multi-Tooth

For holders and bars see pgs. 107-109



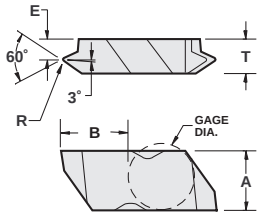
RH Shown



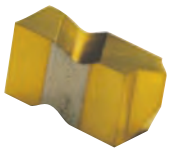
Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-6-8RDR-75M	5566323R	8	3/4	.070	.383	.453	.636	.3750			●	●	●
FLDC-6-10RDR-75M	556634R	10	3/4	.184	.383	.453	.636	.3750			●	●	●

NPT Threading

For holders and bars see pgs. 107-109



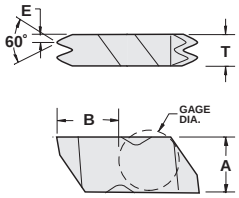
RH Shown



Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-38VR-75	553608R	8	3/4	.195	.100	.344	.4000	.3750		●	●	●	●
FLDC-38VL-75	553608L	8	3/4	.195	.100	.344	.4000	.3750		●	●	●	●
FLDC-3115VR-75	553611R	11.5	3/4	.195	.144	.344	.4000	.3750		●	●	●	●
FLDC-3115VL-75	553611L	11.5	3/4	.195	.144	.344	.4000	.3750		●	●	●	●
FLDC-314VR-75	553614R	14	3/4	.195	.148	.344	.4023	.3750		●	●	●	●
FLDC-314VL-75	553614L	14	3/4	.195	.148	.344	.4023	.3750		●	●	●	●
FLDC-318VR-75	553618R	18	3/4	.195	.154	.344	.4023	.3750		●	●	●	●
FLDC-318VL-75	553618L	18	3/4	.195	.154	.344	.4023	.3750			●	●	●
FLDC-327VR-75	553627R	27	3/4	.195	.162	.344	.4023	.3750		●	●	●	●
FLDC-327VL-75	553627L	27	3/4	.195	.162	.344	.4023	.3750			●	●	●

NPT Threading Multi-Tooth

For holders and bars see pgs. 107-109



RH Shown

Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-3-8 NPT-2E	553708E	8	3/4	.250	.058	.344	.4050	.3750			●	●	●
FLDC-3-8 NPT-2I	553708I	8	3/4	.250	.058	.344	.4050	.3750			●	●	
FLDC-3-11.5 NPT-2E	553711E	11.5	3/4	.250	.048	.344	.4050	.3750			●	●	
FLDC-3-11.5 NPT-2I	553711I	11.5	3/4	.250	.048	.344	.4050	.3750			●	●	

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

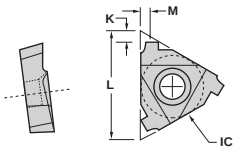
Cast Iron		▲		●
Non-Ferrous		▲		●
Stainless/High Temp		▲		●
Steel			▲	

API

LAYDOWN-LT

API Buttress Threading

For holders and bars see pgs. 125-126



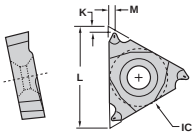
EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
22ER 8B75	5102100	8	3/4	1/2	.87	.102	.073	U.S. Improved Buttress		●	●		
22ER 5B75	5101600	5	3/4	1/2	.87	.087	.087	4-1/2 - 13-3/8			●	●	●
22ER 5B1	5101700	5	1	1/2	.87	.095	.087	16 and larger		●	●	●	●
22NR 8B75	5122100	8	3/4	1/2	.87	.102	.073	U.S. Improved Buttress			●		
22NR 5B75	5121600	5	3/4	1/2	.87	.087	.087	4-1/2 - 13-3/8			●	●	●
22NR 5B1	5121700	5	1	1/2	.87	.095	.090	16 and larger			●	●	●

NPT Threading with Chipbreaker

Exclusive patented design!

For holders and bars see pgs. 125-126

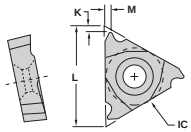


EXT RH SHOWN

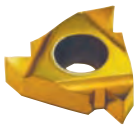
Description	EDP Code	TPI	IC	L	M	K	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
16ER 27NPT-CB	5003627P	27	3/8	.65	.03	.02		●	●	●	●
16ER 18NPT-CB	5003618P	18	3/8	.65	.03	.02		●	●	●	●
16ER 14NPT-CB	5003614P	14	3/8	.65	.06	.04		●	●	●	●
16ER 11.5NPT-CB	5003611P	11.5	3/8	.65	.06	.04		●	●	●	●
16ER 8NPT-CB	5003608P	8	3/8	.65	.06	.04		●	●	●	●
16NR 27NPT-CB	5023627P	27	3/8	.65	.03	.02		●	●	●	●
16NR 18NPT-CB	5023618P	18	3/8	.65	.03	.02		●	●	●	●
16NR 14NPT-CB	5023614P	14	3/8	.65	.06	.04		●	●	●	●
16NR 11.5NPT-CB	5023611P	11.5	3/8	.65	.06	.04		●	●	●	●
16NR 8NPT-CB	5023608P	8	3/8	.65	.06	.04		●	●	●	●

NPT Threading

For holders and bars see pgs. 125-126



EXT RH SHOWN



Description	EDP Code	TPI	IC	L	M	K	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
16ER 27NPT	5003627	27	3/8	.65	.03	.03		●	●	●	●
16EL 27NPT	5043627	27	3/8	.65	.03	.03		●			
16ER 18NPT	5003618	18	3/8	.65	.04	.03		●	●	●	●
16EL 18NPT	5043618	18	3/8	.65	.04	.03		●			
16ER 14NPT	5003614	14	3/8	.65	.05	.04		●	●	●	●
16EL 14NPT	5043614	14	3/8	.65	.05	.04		●			
16ER 11.5NPT	5003611	11.5	3/8	.65	.06	.04		●	●	●	●
16EL 11.5NPT	5043611	11.5	3/8	.65	.06	.04				●	
16ER 8NPT	5003608	8	3/8	.65	.07	.05		●	●	●	●
16EL 8NPT	5043608	8	3/8	.65	.07	.05		●			
11NR 18NPT	4923618	18	1/4	.43	.04	.03		●	●		
11NR 27NPT	4923627	27	1/4	.43	.03	.03		●	●		
16NR 27NPT	5023627	27	3/8	.65	.03	.03		●	●	●	●
16NL 27NPT	5063627	27	3/8	.65	.03	.03		●			
16NR 18NPT	5023618	18	3/8	.65	.04	.03		●	●	●	●
16NL 18NPT	5063618	18	3/8	.65	.04	.03		●			
16NR 14NPT	5023614	14	3/8	.65	.05	.04		●	●	●	●
16NL 14NPT	5063614	14	3/8	.65	.05	.04		●			
16NR 11.5NPT	5023611	11.5	3/8	.65	.06	.04		●	●	●	●
16NL 11.5NPT	5063611	11.5	3/8	.65	.06	.04		●			
16NR 8NPT	5023608	8	3/8	.65	.06	.05		●	●	●	●
16NL 8NPT	5063608	8	3/8	.65	.06	.05		●			

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● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

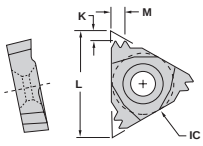
Cast Iron		▲		●	
Non-Ferrous		▲		●	
Stainless/High Temp		▲		●	
Steel			▲		●

LAYDOWN-LT

NPT Threading

Multi-Tooth

For holders and bars see pgs. 125-126



EXT RH SHOWN

Description	EDP Code	No of Teeth	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP25	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC50
22ER 11.5NPT2M	5103811	2	11.5	1/2	.87	.13	.09	●		●		●	●
27ER 11.5NPT3M	5203811	3	11.5	5/8	1.08	.22	.14			●			
27ER 8NPT2M	5203808	2	8	5/8	1.08	.19	.11		●	●		●	●
22NR 11.5NPT2M	5123811	2	11.5	1/2	.87	.13	.09		●	●	●	●	●
27NR 11.5NPT3M	5223811	3	11.5	5/8	1.08	.22	.14			●			●
27NR 8NPT2M	5223808	2	8	5/8	1.08	.19	.11			●		●	●

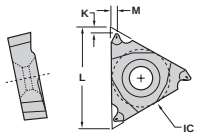
NPTF Threading

Chipbreaker

For Dry Seal listing see page

Exclusive patented design!

For holders and bars see pgs. 125-126

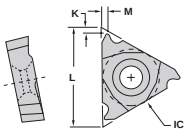


EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
16ER 27NPTF-CB	5004027P	27	3/8	.65	.03	.03		●			
16ER 18NPTF-CB	5004018P	18	3/8	.65	.04	.03		●			
16ER 14NPTF-CB	5004014P	14	3/8	.65	.05	.04		●			
16ER 11.5NPTF-CB	5004011P	11.5	3/8	.65	.06	.04		●			
16ER 8NPTF-CB	5004008P	8	3/8	.65	.07	.05		●			
16NR 27NPTF--CB	5024027P	27	3/8	.65	.03	.03		●			
16NR 18NPTF-CB	5024018P	18	3/8	.65	.03	.02		●			
16NR 14NPTF-CB	5024014P	14	3/8	.65	.06	.04		●			
16NR 11.5NPTF-CB	5024011P	11.5	3/8	.65	.06	.04		●			
16NR 8NPTF-CB	5024008P	8	3/8	.65	.06	.04		●			

NPTF Threading

For holders and bars see pgs. 125-126



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
16ER 27NPTF	5004027	27	3/8	.65	.03	.03		●			
16EL 27NPTF	5044027	27	3/8	.65	.03	.03					
16ER 18NPTF	5004018	18	3/8	.65	.04	.03		●			
16EL 18NPTF	5044018	18	3/8	.65	.04	.03					
16ER 14NPTF	5004014	14	3/8	.65	.05	.04		●			
16EL 14NPTF	5044014	14	3/8	.65	.05	.04					
16ER 11.5NPTF	5004011	11.5	3/8	.65	.06	.04		●			
16EL 11.5NPTF	5044011	11.5	3/8	.65	.06	.04					
16ER 8NPTF	5004008	8	3/8	.65	.07	.05		●			
16EL 8NPTF	5044008	8	3/8	.65	.07	.05					
11NR 27NPTF	4923827	27	1/4	.43	.03	.03		●			
11NR 18NPTF	4924018	18	1/4	.43	.04	.03		●		●	
16NR 27NPTF	5024027	27	3/8	.65	.03	.03		●			
16NL 27NPTF	5064027	27	3/8	.65	.03	.03					
16NR 18NPTF	5024018	18	3/8	.65	.04	.03		●			
16NL 18NPTF	5064018	18	3/8	.65	.04	.03					
16NR 14NPTF	5024014	14	3/8	.65	.05	.04		●			
16NL 14NPTF	5064014	14	3/8	.65	.05	.04					
16NR 11.5NPTF	5024011	11.5	3/8	.65	.06	.04		●			
16NL 11.5NPTF	5064011	11.5	3/8	.65	.06	.04					
16NR 8NPTF	5024008	8	3/8	.65	.07	.05		●			
16NL 8NPTF	5064008	8	3/8	.65	.07	.05					

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● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

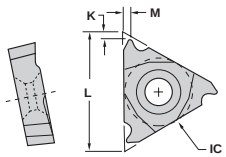
Cast Iron		▲	●	
Non-Ferrous		▲	●	
Stainless/High Temp		▲	●	
Steel				●

API

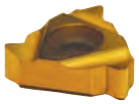
LAYDOWN-LT

API Rotary Shoulder Connection Threading

For holders and bars see pgs. 125-126



EXT SHOWN
INT OPPOSITE



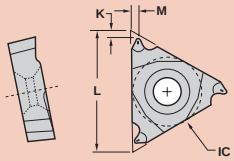
Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
22ER 530	5101300	5	3	1/2	.87	.10	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.			●	●	●
22ER 4PAC	5101500	4	1-1/2	1/2	.87	.11	.08	American Open Hole			●	●	
22ER 438	5101200	4	3	1/2	.87	.11	.11	NC56 - NC71			●	●	●
22ER 435	5101100	4	3	1/2	.87	.11	.08	5-1/2, 7-5/8, 8-5/8 Reg.			●	●	●
22ER 42F	5101400	4	2	1/2	.87	.11	.08	VO.065*			●		
22ER 428	5101000	4	2	1/2	.87	.10	.08	NC23-NC50, 2-3/8 - 5-1/2IF			●	●	●
22ER 425	5100900	4	2	1/2	.87	.10	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.		●	●	●	●
22NR 530	5121300	5	3	1/2	.87	.10	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.			●	●	●
22NR 4PAC	5121500	4	1-1/2	1/2	.87	.11	.08	American Open Hole			●	●	
22NR 438	5121200	4	3	1/2	.87	.11	.11	NC56 - NC71			●	●	●
22NR 435	5121100	4	3	1/2	.87	.11	.08	5-1/2, 7-5/8, 8-5/8 Reg.			●	●	●
22NR 42F	5121400	4	2	1/2	.87	.11	.08	VO.065*			●		
22NR 428	5121000	4	2	1/2	.87	.10	.08	NC23-NC50, 2-3/8 - 5-1/2IF			●	●	●
22NR 425	5120900	4	2	1/2	.87	.10	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.			●	●	●
27ER 530	5201300	5	3	5/8	.108	.11	.07	3-1/2FH, 2-3/8, 4-1/2 Reg.			●	●	●
27ER 438	5201200	4	3	5/8	.108	.11	.08	NC56 - NC71			●	●	●
27ER 435	5201100	4	3	5/8	.108	.12	.08	5-1/2, 7-5/8, 8-5/8 Reg.			●	●	●
27ER 428	5201000	4	2	5/8	.108	.11	.08	NC23-NC50, 2-3/8 - 5-1/2IF			●	●	●
27ER 425	5200900	4	2	5/8	.108	.12	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.			●	●	●
27NR 530	5221300	5	3	5/8	.108	.11	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.			●	●	●
27NR 438	5221200	4	3	5/8	.108	.11	.08	NC56 - NC71			●	●	●
27NR 435	5221100	4	3	5/8	.108	.12	.08	5-1/2, 7-5/8, 8-5/8 Reg.			●	●	●
27NR 428	5221000	4	2	5/8	.108	.11	.08	NC23-NC50, 2-3/8 - 5-1/2IF			●	●	●
27NR 425	5220900	4	2	5/8	.108	.12	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.			●	●	●

* Obsolescent thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

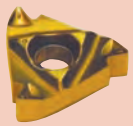
API Round Threading

Chipbreaker

For holders and bars see pgs. 125-126



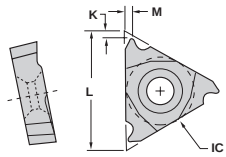
EXT SHOWN
INT OPPOSITE



Description	EDP Code	TPI	IC	L	M	K	Uncoated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 8RD-CB	5003200HC	8	3/8	.65	.051	.059	●	●	●	●	●
16ER 10RD-CB	5003400HC	10	3/8	.65	.047	.059	●	●	●	●	●
16NR 8RD-CB	5023200HC	8	3/8	.65	.051	.059	●	●	●	●	●
16NR 10RD-CB	5023400HC	10	3/8	.65	.047	.059	●	●	●	●	●

API Round Threading

For holders and bars see pgs. 125-126



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	L	M	K	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
16ER 8RD	5003200	8	3/4	3/8	.65	.059	.056		●	●	●	●
16ER 10RD	5003400	10	3/4	3/8	.65	.059	.056		●	●	●	●
22ER 8RD	5103200	8	3/4	1/2	.87	.060	.056			●	●	●
22ER 10RD	5103400	10	3/4	1/2	.87	.046	.048			●	●	●
16NR 8RD	5023200	8	3/4	3/8	.65	.059	.056		●	●	●	●
16NR 10RD	5023400	10	3/4	3/8	.65	.059	.056		●	●	●	●
22NR 8RD	5123200	8	3/4	1/2	.87	.060	.056			●	●	●
22NR 10RD	5123400	10	3/4	1/2	.87	.046	.048			●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

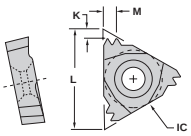
	C22	GP22	GP50	AC22	AC50
Cast Iron		▲		●	
Non-Ferrous		▲		●	
Stainless/High Temp		▲		●	
Steel			▲		●

LAYDOWN-LT

API Round Threading

Multi-Tooth

For holders and bars see pgs. 125-126



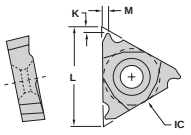
EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
22ER 10RD2M	5103500	10	1/2	.87	.146	.094				●	●
27ER 8RD2M	5203300	8	5/8	1.08	.177	.114				●	●
22NR 10RD2M	5123500	10	1/2	.87	.146	.094				●	●
27NR 8RD2M	5223300	8	5/8	1.08	.177	.114			●	●	●

API VO.055

American MT, AMT & AMMT*

For holders and bars see pgs. 125-126



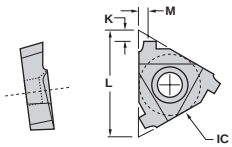
EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
16ER 6P VO.055 MT	5004300	6	1-1/2	3/8	.65	.059	.051	NC10-NC16, VO.055, 1, 1-1/2 REG		●	●	●	
22ER 6P VO.055 MT	5104300	6	1-1/2	1/2	.87	.072	.060	NC10-NC16, VO.055, 1, 1-1/2 REG			●	●	
16NR 6P VO.055 MT	5024300	6	1-1/2	3/8	.65	.059	.051	NC10-NC16, VO.055, 1, 1-1/2 REG		●	●	●	
22NR 6P VO.055 MT	5124300	6	1-1/2	1/2	.87	.072	.060	NC10-NC16, VO.055, 1, 1-1/2 REG		●	●	●	

* MT is Macaroni Tubing, AMT is American Macaroni Tubing and AMMT is American Mining Macaroni Tubing.

API VAM Threading

For holders and bars see pgs. 125-126

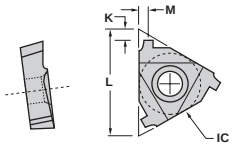


EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
22ER 8VAM	5102500	8	1/2	.87	.059	.059			●		
22ER 6VAM	5102400	6	1/2	.87	.079	.079			●	●	
22ER 5VAM	5102300	5	1/2	.87	.079	.079			●		
22NR 8VAM	5122500	8	1/2	.87	.059	.059			●		
22NR 6VAM	5122400	6	1/2	.87	.079	.079			●	●	
22NR 5VAM	5122300	5	1/2	.87	.079	.079			●		

API X-Line Threading

For holders and bars see pgs. 125-126



EXT RH SHOWN

Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
22ER 6XL75	5102000	6	3/4	1/2	.87	.075	.078				●		
22ER 6XL15	5101900	6	1-1/2	1/2	.87	.075	.086	5 - 7-5/8			●		
22ER 5XL12	5101800	5	1-1/4	1/2	.87	.087	.083	8-5/8 - 10-3/4			●		
22NR 6XL75	5122000	6	3/4	1/2	.87	.075	.078				●		
22NR 6XL15	5121900	6	1-1/2	1/2	.87	.075	.086	5 - 7-5/8			●		
22NR 5XL12	5121800	5	1-1/4	1/2	.87	.087	.083	8-5/8 - 10-3/4			●		

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● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

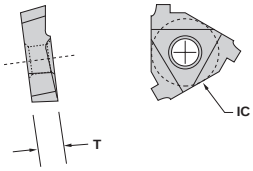
Cast Iron				●	
Non-Ferrous				●	
Stainless/High Temp				●	
Steel			▲		●

API

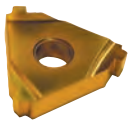
LAYDOWN

API Buttress Threading

For holders and bars see pgs. 136-138



EXT SHOWN
INT OPPOSITE

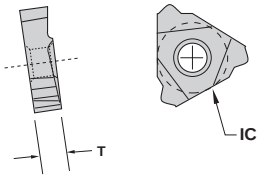


Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated C6H	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC50	AlTiN Coated AC54
L43 5B75 EXT-FC	16154F	5	3/4	.500	.189	4-1/2 - 13-3/8		●		●	
L43 5B1 EXT-FC	17514F	5	1	.500	.189	16 and larger		●		●	
L43 8B75 EXT-FC	21154F	8	3/4	.500	.189	US Improved Buttress		●			
L53 5B75 EXT-FC	16474F	5	3/4	.625	.189	4-1/2 - 13-3/8		●		●	
L53 5B1 EXT-FC	17474F	5	1	.625	.189	16 and larger		●			
L53 8B75 EXT-FC	21474F	8	3/4	.625	.189	US Improved Buttress		●		●	
L43 5B75 INT-FC	16158F	5	3/4	.500	.189	4-1/2 - 13-3/8		●		●	
L43 5B1 INT-FC	17518F	5	1	.500	.189	16 and larger		●		●	
L43 8B75 INT-FC	21158F	8	3/4	.500	.189	US Improved Buttress		●			
L53 5B75 INT-FC	16478F	5	3/4	.625	.189	4-1/2 - 13-3/8		●		●	
L53 5B1 INT-FC	17478F	5	1	.625	.189	16 and larger		●		●	
L53 8B75 INT-FC	21478F	8	3/4	.625	.189	US Improved Buttress		●			

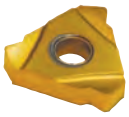
FC designates 5° flank clearance

API Hughes H90 Threading

For holders and bars see pgs. 136-138



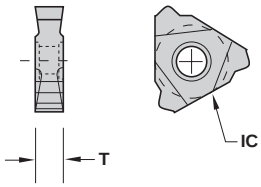
EXT SHOWN
INT OPPOSITE



Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated C6H	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC50	AlTiN Coated AC54
L53 H902 EXT	28474	3-1/2	2	.625	.189	3-1/2 - 6-5/8 H90		●			
L53 H903 EXT	29474	3-1/2	3	.625	.189	7 - 8-5/8 H90		●			
L53 H90S EXT	27474	3	1-1/4	.625	.189	2-3/8 - 3-1/2 Slimline		●			
L53 H902 INT	28478	3-1/2	2	.625	.189	3-1/2 - 6-5/8 H90		●			
L53 H903 INT	29478	3-1/2	3	.625	.189	7 - 8-5/8 H90		●			
L53 H90S INT	27478	3	1-1/4	.625	.189	2-3/8 - 3-1/2 Slimline		●			

API Hughes H90 Threading
LDS Double Sided
Internal/External

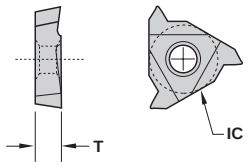
For holders and bars see pgs. 136-138



Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated C6H	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC50	AlTiN Coated AC54
LDS 54 H902	28490	3-1/2	2	.625	.252	3-1/2 - 6-5/8 H90			●		●
LDS 54 H903	29490	3-1/2	3	.625	.252	7 - 8-5/8 H90			●		
LDS 54 H90S	27490	3	1-1/4	.625	.252	2-3/8 - 3-1/2 Slimline			●		

NPT Threading

For holders and bars see pgs. 136-138



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Description	EDP Code	TPI	TPF	IC	T	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
L43 8NPT EXT	3615084	8	3/4	.500	.189			●		
L43 11.5NPT EXT	3615114	11.5	3/4	.500	.189			●		
L43 8NPT INT	3615088	8	3/4	.500	.189			●		
L43 11.5NPT INT	3615118	11.5	3/4	.500	.189			●		●

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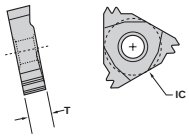
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		▲	●	
Non-Ferrous		▲	●	
Stainless/High Temp		▲	●	
Steel		▲	●	●

LAYDOWN-LT

NPT Threading
Multi-Tooth

For holders and bars see pgs. 136-138

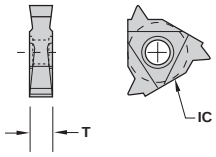


EXT SHOWN

Description	EDP Code	TPI	TPF	IC	T	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
L43 11.5NPT2M EXT	3615114T	11.5	3/4	.500	.189				●	
L43 11.5NPT2M INT	3615118T	11.5	3/4	.500	.189			●	●	●

NPT Threading
LDS Double Sided
Internal/External

For holders and bars see pgs. 136-138



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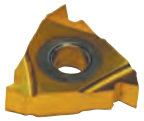
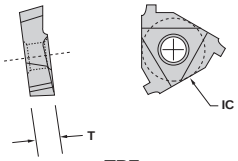


Description	EDP Code	TPI	TPF	IC	T	Uncoated C22	TiN Coated GP22	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22
LDS 43 8NPT	361808	8	3/4	.500	.189				●	
LDS 43 11.5NPT	361811	11.5	3/4	.500	.189				●	
LDS 43 14NPT	361814	14	3/4	.500	.189				●	

Pittsburg Acme Threading

For holders and bars see pgs. 136-138



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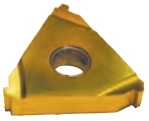
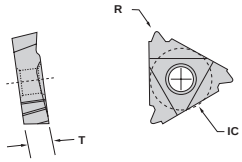


Description	EDP Code	TPI	TPF	IC	T	Uncoated C22	TiN Coated GP22	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22
L43 8PA75 EXT	22154	8	3/4	.500	.189			●		
L53 8PA75 EXT	22474	8	3/4	.625	.189			●		
L43 8PA75 INT	22158	8	3/4	.500	.189			●		
L53 8PA75 INT	22478	8	3/4	.625	.189			●		

API Rotary Shoulder Connection Threading

For holders and bars see pgs. 136-138



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	R	IC	T	Connection	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC50	AlTiN Coated AC54
L43 425 EXT	09154	4	2	.025	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	
L43 428 EXT	10154	4	2	.038	.500	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●		●	●	
L43 42F EXT*	14154	4	2	---	.500	.189	V0.065*					
L43 435 EXT	11154	4	3	.025	.500	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●			●	
L43 438 EXT	12154	4	3	.038	.500	.189	NC56 - NC71	●			●	
L43 530 EXT	13154	5	3	.020	.500	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●			●	
L43 4PAC EXT	15154	4	1-1/2	---	.500	.189	American Open Hole	●				
L53 425 EXT	09474	4	2	.025	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	
L53 428 EXT	10474	4	2	.038	.625	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●		●	●	
L53 42F EXT*	14474	4	2	---	.625	.189	V0.065*					
L53 435 EXT	11474	4	3	.025	.625	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●		●	●	
L53 438 EXT	12474	4	3	.038	.625	.189	NC56 - NC71	●			●	
L53 530 EXT	13474	5	3	.020	.625	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●		●	●	
L53 4PAC EXT	15474	4	1-1/2	---	.625	.189	American Open Hole	●				
L43 425 INT	09158	4	2	.025	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	
L43 428 INT	10158	4	2	.038	.500	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●		●	●	
L43 42F INT*	14158	4	2	---	.500	.189	V0.065*					
L43 435 INT	11158	4	3	.025	.500	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●			●	
L43 438 INT	12158	4	3	.038	.500	.189	NC56 - NC71	●		●	●	
L43 530 INT	13158	5	3	.020	.500	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●			●	
L43 4PAC INT	15158	4	1-1/2	---	.500	.189	American Open Hole	●				
L53 425 INT	09478	4	2	.025	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	
L53 428 INT	10478	4	2	.038	.625	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●		●	●	
L53 42F INT*	14478	4	2	---	.625	.189	V0.065*					
L53 435 INT	11478	4	3	.025	.625	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●		●	●	
L53 438 INT	12478	4	3	.038	.625	.189	NC56 - NC71	●			●	
L53 530 INT	13478	5	3	.020	.625	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●		●	●	
L53 4PAC INT	15478	4	1-1/2	---	.625	.189	American Open Hole	●				

* Obsolescent thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	GP50	GP54	AC22	AC50	AC54
Cast Iron					●
Non-Ferrous					●
Stainless/High Temp					●
Steel			▲	▲	

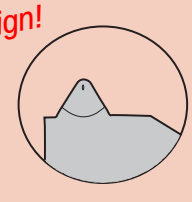
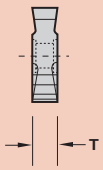
API

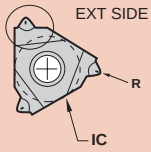
LAYDOWN

API Rotary Shoulder Connection Threading

LDS Double Sided
Lead Follow Topping
Internal/External
with patented chipbreaker

Exclusive patented design!



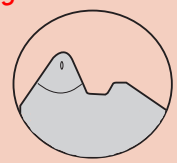
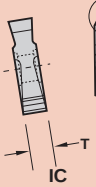
■ For holders and bars see pgs. 136-138

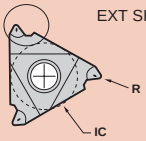
Description	EDP Code	TPI	TPF	R	IC	T	Connection	Uncoated C6H	TiN Coated GP54	AlTiN Coated AC22	AC50	AC54
LDS 54 428-CB #1	10490HC	4	2	.038	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF		●	●		●
LDS 54 438-CB #2	12490HC	4	3	.038	.625	.252	NC56-NC71		●	●		●
LDS 54 425-CB #3	09490HC	4	2	.025	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.		●	●		●
LDS 54 435-CB #4	11490HC	4	3	.025	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.		●	●		●
LDS 54 530-CB #5	13490HC	5	3	.020	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.		●	●		●

API Rotary Shoulder Connection Threading

LDS Double Sided
Follow Topping
Internal/External
with patented chipbreaker

Exclusive patented design!

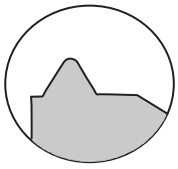
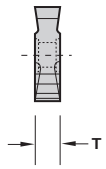


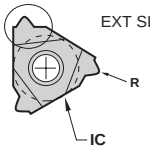
■ For holders and bars see pgs. 136-138

Description	EDP Code	TPI	TPF	R	IC	T	Connection	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AC50	AC54
LDS 54 428 FT-CB #1	10495HC	4	2	.038	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF		●	●		●
LDS 54 438 FT-CB #2	12495HC	4	3	.038	.625	.252	NC56-NC71		●	●		●
LDS 54 425 FT-CB #3	09495HC	4	2	.025	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.		●	●		●
LDS 54 435 FT-CB #4	11495HC	4	3	.025	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.		●	●		●
LDS 54 530 FT-CB #5	13495HC	5	3	.020	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.		●	●		●

API Rotary Shoulder Connection Threading

LDS Double Sided
Lead Follow Topping
Internal/External



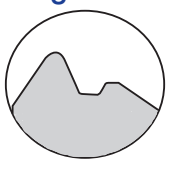
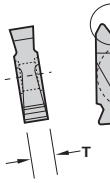
■ For holders and bars see pgs. 136-138

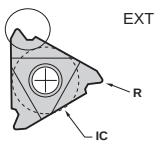
Description	EDP Code	TPI	TPF	R	IC	T	Connection	Uncoated C6H	TiN Coated GP54	AlTiN Coated AC22	AC50	AC54
LDS 54 428 #1	10490	4	2	.038	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF		●	●		●
LDS 54 438 #2	12490	4	3	.038	.625	.252	NC56-NC71		●	●		●
LDS 54 425 #3	09490	4	2	.025	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.		●	●		●
LDS 54 435 #4	11490	4	3	.025	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.		●	●		●
LDS 54 530 #5	13490	5	3	.020	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.		●	●		●
LDS 54 42F	14490	4	2	---	.625	.252	V0.065*		●			
LDS 54 4PAC	15490	4	1-1/2	---	.625	.252	American Open Hole		●	●		

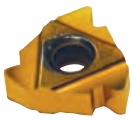
* Obsolescent thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

API Rotary Shoulder Connection Threading

LDS Double Sided
Follow Topping
Internal/External





■ For holders and bars see pgs. 136-138

Description	EDP Code	TPI	TPF	R	IC	T	Connection	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AC50	AC54
LDS 54 428 #1-FT	10495	4	2	.038	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF		●	●		●
LDS 54 438 #2-FT	12495	4	3	.038	.625	.252	NC56-NC71		●	●		●
LDS 54 425 #3-FT	09495	4	2	.025	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.		●	●		●
LDS 54 435 #4-FT	11495	4	3	.025	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.		●	●		●
LDS 54 530 #5-FT	13495	5	3	.020	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.		●	●		●
LDS 54 42F-FT	11495	4	2	---	.625	.252	V0.065*		●	●		●
LDS 54 4PAC-FT	15495	4	1-1/2	---	.625	.252	American Open Hole		●			

*Obsolesent thread form - see API Spec 7, 35th Edition, May 1, 1985 Section 9.4.

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

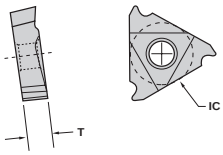
Cast Iron			●		●
Non-Ferrous			●		●
Stainless/High Temp			●		●
Steel	▲	▲		●	●

API

LAYDOWN

API Round Threading

For holders and bars see pgs. 136-138



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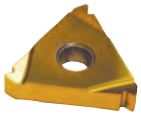
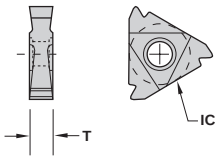


Description	EDP Code	TPI	TPF	IC	T	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC50	AlTiN Coated AC54
L43 8RD EXT	32154	8	3/4	.500	.189	●		●	●	
L43 10RD EXT	34154	10	3/4	.500	.189	●			●	
L53 8RD EXT	32474	8	3/4	.625	.189	●		●	●	
L43 8RD INT	32158	8	3/4	.500	.189	●		●	●	
L43 10RD INT	34158	10	3/4	.500	.189	●			●	
L53 8RD INT	32478	8	3/4	.625	.189	●		●	●	

API Round Threading
LDS Double Sided
Internal/External

For holders and bars see pgs. 136-138

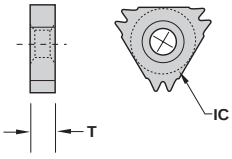


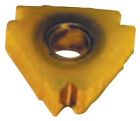
EXT SIDE SHOWN

Description	EDP Code	TPI	TPF	IC	T	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC50	AlTiN Coated AC54
LDS 43 8RD	32180	8	3/4	.500	.189		●	●		
LDS 43 10RD	34180	10	3/4	.500	.189		●	●		
LDS 54 8RD	32490	8	3/4	.625	.252		●	●		
LDS 54 10RD	34490	10	3/4	.625	.252		●	●		

API Round Threading
Double Sided
Internal/External

For holders and bars see pgs. 136-138

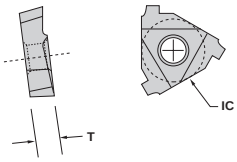




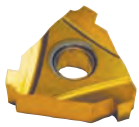
Description	EDP Code	TPI	TPF	IC	T	Uncoated C6H	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC50	AlTiN Coated AC54
TNFA 43 8RD	32N70	8	3/4	.500	.187		●			

API VAM Threading

For holders and bars see pgs. 136-138



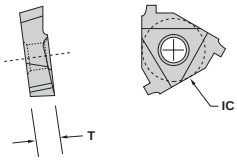
EXT SHOWN
INT OPPOSITE



Description	EDP Code	TPI	TPF	IC	T	Uncoated C6H	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC50	AlTiN Coated AC54
L43 5VAM EXT	23154	5	3/4	.500	.189		●			
L43 6VAM EXT	24154	6	3/4	.500	.189		●			
L43 8VAM EXT	25154	8	3/4	.500	.189		●			
L43 5VAM INT	23158	5	3/4	.500	.189		●			
L43 6VAM INT	24158	6	3/4	.500	.189		●			
L43 8VAM INT	25158	8	3/4	.500	.189		●			

API X-Line Threading

For holders and bars see pgs. 136-138



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated C6H	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC50	AlTiN Coated AC54
L43 6XL15 EXT	19154	6	1-1/2	.500	.189	5 - 7-5/8		●			
L43 6XL75 EXT	20154	6	3/4	.500	.189	-		●			
L43 5XL12 EXT	18154	5	1-1/4	.500	.189	8-5/8 - 10-3/4		●			
L53 6XL15 EXT	19474	6	1-1/2	.625	.252	5 - 7-5/8		●			
L53 6XL75 EXT	20474	6	3/4	.625	.252	-		●			
L53 5XL12 EXT	18474	5	1-1/4	.625	.252	8-5/8 - 10-3/4		●			
L43 6XL15 INT	19158	6	1-1/2	.500	.189	5 - 7-5/8		●			
L43 6XL75 INT	20158	6	3/4	.500	.189	-		●			
L43 5XL12 INT	18158	5	1-1/4	.500	.189	8-5/8 - 10-3/4		●			
L53 6XL15 INT	19478	6	1-1/2	.625	.252	5 - 7-5/8		●			
L53 6XL75 INT	20478	6	3/4	.625	.252	-		●			
L53 5XL12 INT	18478	5	1-1/4	.625	.252	8-5/8 - 10-3/4		●			

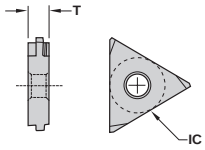
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up -to- date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron			●		●
Non-Ferrous			●		●
Stainless/High Temp			●		●
Steel	▲	▲		●	●

ON-EDGE

API Buttress Threading
Straight Hole



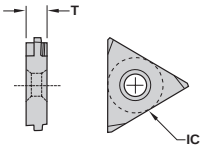
EXT SHOWN
INT OPPOSITE

For holders and bars see pgs. 156-158

Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 43 8B75 EXT	21394	8	3/4	.500	.189	U.S. Improved Buttress				●		
TNMA 44 5B75 EXT	16434	5	3/4	.500	.252	4-1/2 - 13-3/8				●		
TNMA 54 5B1 EXT -FC*	17514F	5	1	.625	.252	16 and larger				●		●
TNMA 54 5B75 EXT-FC	16514F	5	3/4	.625	.252	4-1/2 - 13-3/8				●		●
TNMA 43 8B75 INT	21398	8	3/4	.500	.189	U.S. Improved Buttress				●		
TNMA 44 5B75 INT	16438	5	3/4	.500	.252	4-1/2 - 13-3/8				●		●
TNMA 54 5B1 INT-FC	17518F	5	1	.625	.252	16 and larger				●		●
TNMA 54 5B75 INT-FC	16518F	5	3/4	.625	.252	4-1/2 - 13-3/8				●		●

*FC indicates 5˚ flank clearance

API Buttress Threading
Countersink Hole



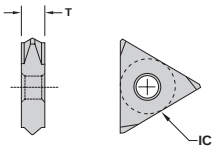
EXT SHOWN
INT OPPOSITE

For holders and bars see pgs. 156-158

Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 43 8B75 EXT	21414	8	3/4	.500	.189	U.S. Improved Buttress				●		
TNMC 54 5B75 EXT-FC*	16534F	5	3/4	.625	.252	4-1/2 - 13-3/8				●		●
TNMC 54 5B1 EXT-FC	17534F	5	1	.625	.252	16 and larger				●		●
TNMC 43 8B75 INT	21418	8	3/4	.500	.189	U.S. Improved Buttress				●		●
TNMC 54 5B75 INT-FC	16538F	5	3/4	.625	.252	4-1/2 - 13-3/8				●		●
TNMC 54 5B1 INT-FC	17538F	5	1	.625	.252	16 and larger				●		●

*FC indicates 5˚ flank clearance

API Hughes H90 Threading
Straight Hole

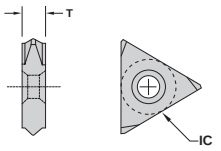


EXT SHOWN
INT OPPOSITE

For holders and bars see pgs. 156-158

Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 55 H902 EXT	28554	3-1/2	2	.625	.314	3-1/2 - 6-5/8 H90				●		
TNMA 55 H903 EXT	29554	3-1/2	3	.625	.314	7 - 8-5/8 H90				●		
TNMA 56 H90S EXT	27Q14	3	1-1/4	.625	.377	2-3/8 - 3-1/2 Slimline				●		
TNMA 55 H902 INT	28558	3-1/2	2	.625	.314	3-1/2 - 6-5/8 H90				●		
TNMA 55 H903 INT	29558	3-1/2	3	.625	.314	7 - 8-5/8 H90				●		
TNMA 56 H90S INT	27Q18	3	1-1/4	.625	.377	2-3/8 - 3-1/2 Slimline				●		

API Hughes H90 Threading
Countersink Hole



EXT SHOWN
INT OPPOSITE

For holders and bars see pgs. 156-158

Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 55 H902 EXT	28564	3-1/2	2	.625	.314	3-1/2 - 6-5/8 H90				●		
TNMC 55 H903 EXT	29564	3-1/2	3	.625	.314	7 - 8-5/8 H90				●		
TNMC 56 H90S EXT	27Q34	3	1-1/4	.625	.377	2-3/8 - 3-1/2 Slimline				●		
TNMC 55 H902 INT	28568	3-1/2	2	.625	.314	3-1/2 - 6-5/8 H90				●		
TNMC 55 H903 INT	29568	3-1/2	3	.625	.314	7 - 8-5/8 H90				●		
TNMC 56 H90S INT	27Q38	3	1-1/4	.625	.377	2-3/8 - 3-1/2 Slimline				●		

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

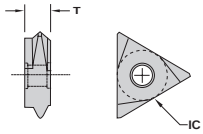
Cast Iron						
Non-Ferrous						
Stainless/High Temp						
Steel			▲			

ON-EDGE

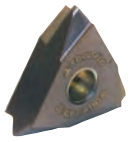
API Rotary Shoulder Connection Threading

Straight Hole

■ For holders and bars see pgs. 156-158



EXT SHOWN
INT OPPOSITE



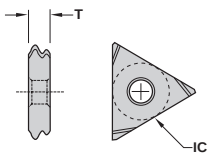
Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 54 530 EXT	13514	5	3	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.				●		●
TNMA 55 425 EXT	09554	4	2	.625	.314	5-1/2 FH 6-5/8 FH 6-5/8 Reg.				●		●
TNMA 55 428 EXT	10554	4	2	.625	.314	NC 23-NC50 2-3/8 - 5-1/2 IF				●		●
TNMA 55 42F EXT	14554	4	2	.625	.314	V0.065*						
TNMA 55 435 EXT	11554	4	3	.625	.314	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.				●		●
TNMA 55 438 EXT	12554	4	3	.625	.314	NC56-NC71				●		●
TNMA 55 530 EXT	13554	5	3	.625	.314	3-1/2 FH 2-3/8 - 4-1/2 Reg.				●		●
TNMA 55 4PAC EXT	15554	4	1-1/2	.625	.314	American Open Hole				●		
TNMA 54 530 INT	13518	5	3	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.				●		●
TNMA 55 425 INT	09558	4	2	.625	.314	5-1/2 FH 6-5/8 FH 6-5/8 Reg.				●		●
TNMA 55 428 INT	10558	4	2	.625	.314	NC 23-NC50 2-3/8 - 5-1/2 IF				●		●
TNMA 55 42F INT	14558	4	2	.625	.314	V0.065*						
TNMA 55 435 INT	11558	4	3	.625	.314	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.				●		●
TNMA 55 438 INT	12558	4	3	.625	.314	NC56-NC71				●		●
TNMA 55 530 INT	13558	5	3	.625	.314	3-1/2 FH 2-3/8 - 4-1/2 Reg.				●		●
TNMA 55 4PAC INT	15558	4	1-1/2	.625	.314	American Open Hole				●		

*Obsolesent thread form - see API Spec 7, 35th Edition, May 1, 1985 Section 9.4.

API Round Threading

Straight Hole

■ For holders and bars see pgs. 156-158



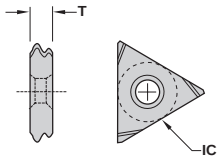
INT SHOWN
EXT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 43 8RD EXT	32394	8	3/4	.500	.189				●	●	●
TNMA 43 10RD EXT	34394	10	3/4	.500	.189				●		●
TNMA 54 8RD EXT	32514	8	3/4	.625	.252				●		●
TNMA 43 8RD INT	32398	8	3/4	.500	.189				●	●	●
TNMA 43 10RD INT	34398	10	3/4	.500	.189				●		●
TNMA 54 8RD INT	32518	8	3/4	.625	.252				●		●

API Round Threading

Countersink Hole

■ For holders and bars see pgs. 156-158



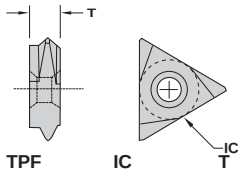
INT SHOWN
EXT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 43 8RD EXT	32414	8	3/4	.500	.189				●	●	●
TNMC 43 10RD EXT	34414	10	3/4	.500	.189				●		●
TNMC 54 8RD EXT	32534	8	3/4	.625	.252				●		●
TNMC 43 8RD INT	32418	8	3/4	.500	.189				●	●	●
TNMC 43 10RD INT	34418	10	3/4	.500	.189				●		●
TNMC 54 8RD INT	32538	8	3/4	.625	.252				●		●

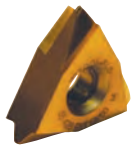
API Rotary Shoulder Connection Threading

Countersink Hole

■ For holders and bars see pgs. 156-158



EXT SHOWN
INT OPPOSITE



Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 54 530 EXT	13534	5	3	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.				●		●
TNMC 55 425 EXT	09564	4	2	.625	.312	5-1/2 FH 6-5/8 FH 6-5/8 Reg.				●		●
TNMC 55 428 EXT	10564	4	2	.625	.312	NC 23-NC50 2-3/8 - 5-1/2 IF				●		●
TNMC 55 42F EXT*	14564	4	2	.625	.312	V0.065*						
TNMC 55 435 EXT	11564	4	3	.625	.312	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.				●		●
TNMC 55 438 EXT	12564	4	3	.625	.312	NC56-NC71				●		●
TNMC 55 530 EXT	13564	5	3	.625	.312	3-1/2 FH 2-3/8 - 4-1/2 Reg.				●		●
TNMC 55 4PAC EXT	15564	4	1-1/2	.625	.312	American Open Hole				●		
TNMC 54 530 INT	13538	5	3	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.						
TNMC 55 425 INT	09568	4	2	.625	.312	5-1/2 FH 6-5/8 FH 6-5/8 Reg.				●		●
TNMC 55 428 INT	10568	4	2	.625	.312	NC 23-NC50 2-3/8 - 5-1/2 IF				●		●
TNMC 55 42F INT*	14568	4	2	.625	.312	V0.065*						
TNMC 55 435 INT	11568	4	3	.625	.312	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.				●		●
TNMC 55 438 INT	12568	4	3	.625	.312	NC56-NC71				●		●
TNMC 55 530 INT	13568	5	3	.625	.312	3-1/2 FH 2-3/8 - 4-1/2 Reg.				●		●
TNMC 55 4PAC INT	15568	4	1-1/2	.625	.312	American Open Hole				●		

*Obsolesent thread form - see API Spec 7, 35th Edition, May 1, 1985 Section 9.4.

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up -to- date grade offering.

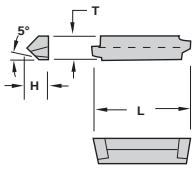
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron					●	
Non-Ferrous					●	
Stainless/High Temp					●	
Steel				▲		●

VEE-BOTTOM

API Buttress Threading

For holders and bars see pgs. 215-218



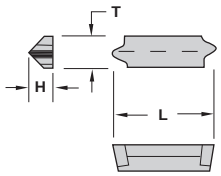
EXT SHOWN
INT OPPOSITE

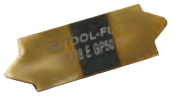
Description	EDP Code	TPI	TPF	T	L	H	Connection	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 5B75 EXT-FC*	16614F	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8				●		
V84 5B1 EXT-FC	17614F	5	1	.250	1.000	.250	16 AND LARGER				●		
V84 8B75 EXT-FC	21614F	8	3/4	.250	1.000	.250	U.S. IMPROVED BUTTRESS				●		
V84 5B75 INT-FC	16618F	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8				●		
V84 5B1 INT-FC	17618F	5	1	.250	1.000	.250	16 AND LARGER				●		
V84 8B75 INT-FC	21618F	8	3/4	.250	1.000	.250	U.S. IMPROVED BUTTRESS				●		

*FC indicates 5° flank clearance

API Rotary Shoulder Connection Threading

For holders and bars see pgs. 215-218





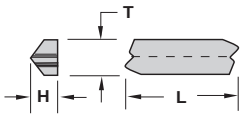
EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	T	L	H	Connection	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V85 425 EXT	09634	4	2	.312	1.000	.250	5-1/2 - 6-5/8 FH, 6-5/8 REG				●	●	●
V85 428 EXT	10634	4	2	.312	1.000	.250	NC23 - 50, 2-3/8 - 5-1/2 IF				●	●	●
V85 42F EXT*	14634	4	2	.312	1.000	.250	VO.065*						
V85 435 EXT	11634	4	3	.312	1.000	.250	5-1/2 REG, 7-5/8 REG, 8-5/8 REG				●		●
V85 438 EXT	12634	4	3	.312	1.000	.250	NC56 - NC71				●		●
V85 530 EXT	13634	5	3	.312	1.000	.250	3-1/2FH, 2-3/8 - 4-1/2 REG				●		●
V85 4PAC EXT	15634	4	1-1/2	.312	1.000	.250	American Open Hole				●		
V85 425 INT	09638	4	2	.312	1.000	.250	5-1/2 - 6-5/8 FH, 6-5/8 REG				●	●	●
V85 428 INT	10638	4	2	.312	1.000	.250	NC23 - 50, 2-3/8 - 5-1/2 IF				●	●	●
V85 42F INT*	14638	4	2	.312	1.000	.250	VO.065*						
V85 435 INT	11638	4	3	.312	1.000	.250	5-1/2 REG, 7-5/8 REG, 8-5/8 REG				●		●
V85 438 INT	12638	4	3	.312	1.000	.250	NC56 - NC71				●		●
V85 530 INT	13638	5	3	.312	1.000	.250	3-1/2FH, 2-3/8 - 4-1/2 REG				●		●
V85 4PAC INT	15638	4	1-1/2	.312	1.000	.250	American Open Hole				●		

* Obsolescent thread form, - See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

API Round Threading

For holders and bars see pgs. 215-218

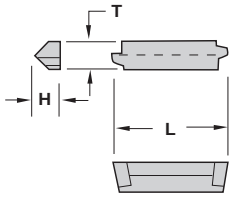


EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	T	L	H	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 10RD EXT	34614	10	3/4	.250	1.000	.250				●	●	●
V84 10RD INT	34618	10	3/4	.250	1.000	.250				●	●	●
V84 8RD EXT	32614	8	3/4	.250	1.000	.250				●	●	●
V84 8RD INT	32618	8	3/4	.250	1.000	.250				●	●	●

API VAM Threading

For holders and bars see pgs. 215-218



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	T	L	H	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 5 VAM EXT	23614	5	3/4	.250	1.000	.250				●		
V84 5 VAM INT	23618	5	3/4	.250	1.000	.250				●		
V84 6 VAM EXT	24614	6	3/4	.250	1.000	.250				●		
V84 6 VAM INT	24618	6	3/4	.250	1.000	.250				●		
V84 8 VAM EXT	25614	8	3/4	.250	1.000	.250				●		
V84 8 VAM INT	25618	8	3/4	.250	1.000	.250				●		

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up -to- date grade offering.

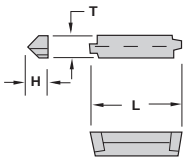
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
Cast Iron					●	
Non-Ferrous					●	
Stainless/High Temp					●	
Steel				▲		●

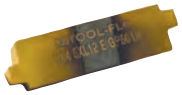
VEE-BOTTOM

API X-LINE THREADING

For holders and bars see pgs. 215-218



EXT SHOWN
INT OPPOSITE

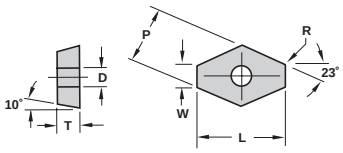


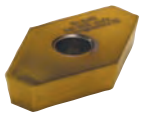
Description	EDP Code	TPI	TPF	T	L	H	Connection	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 5XL12 EXT	18614	5	1-1/4	.250	1.000	.250	8-5/8 - 10-3/4				●		●
V84 5XL12 INT	18618	5	1-1/4	.250	1.000	.250	8-5/8 - 10-3/4				●		●
V84 6XL15 EXT	19614	6	1-1/2	.250	1.000	.250	5 - 7-5/8				●		●
V84 6XL15 INT	19618	6	1-1/2	.250	1.000	.250	5 - 7-5/8				●		●
V84 6XL75 EXT	20614	6	3/4	.250	1.000	.250	-				●		●
V84 6XL75 INT	20618	6	3/4	.250	1.000	.250	-				●		●

API 46° RING GROOVERS

APIP

For holders see pg. 22





Description	EDP Code	R	W	P	T	L	D	Style	Uncoated C6H	TiN Coated GP25	TiN Coated GP6	AlTiN Coated AC25	AlTiN Coated AC6
APIP 086-3	754000	.015	.079	.372	.187	3/4	-	Clamp	●		●		●
APIP 131-3	754005	.031	.125	.407	.187	3/4	-	Clamp	●		●		●
APIP (PGN-1A)	754003	.031	.131	.414	.187	3/4	-	Clamp	●		●	●	●
APIP 162-3 (PGN-6A)	75403	.031	.156	.437	.187	3/4	-	Clamp	●		●	●	●
APIP (PGN-7A)	75887	.031	.203	.484	.187	3/4	-	Clamp	●		●		●
APIP 203-3 (PGN-2A)	75413	.031	.197	.574	.187	1"	-	Clamp	●		●	●	●
APIP 203-3H	75413H	.031	.197	.574	.187	1"	.203	Lock Pin			●	●	●
APIP 213-3	75423	.062	.206	.574	.187	1"	.203	Lock Pin			●		●
APIP 265-3	75433	.031	.260	.633	.187	1"	.250	Lock Pin			●		●
APIP 281-3	75443	.031	.277	.645	.187	1"	.250	Lock Pin			●		●
APIP 300-3	75463	.031	.295	.662	.187	1"	.250	Lock Pin			●		●
APIP 329-3	75473	.031	.324	.683	.187	1"	.250	Lock Pin			●		●
APIP 355-3	75476	.031	.350	.712	.187	1"	.250	Lock Pin			●		●
APIP 420-3	75490	.031	.415	.772	.187	1"	.250	Lock Pin	●		●		●
HEAVY DUTY													
APIP 284-3	75753	.062	.278	.713	.187	1-3/16	.250	Lock Pin			●		●
APIP 162-4NL	75404NL	.031	.156	.733	.250	1-1/2	.250	Lock Pin	●		●		●
APIP 162-4 (Counter sink hole)	75404	.031	.156	.733	.250	1-1/2	.250	Screw	●		●		●
APIP 203-4NL	75414NL	.031	.197	.773	.250	1-1/2	.250	Lock Pin	●		●		●
APIP 203-4 (Counter sink hole)	75414	.031	.197	.773	.250	1-1/2	.250	Screw	●		●		●
APIP 213-4 (Counter sink hole)	75424	.062	.206	.773	.250	1-1/2	.250	Screw	●		●		●
APIP 265-4 (Counter sink hole)	75436	.031	.260	.773	.250	1-3/8	.250	Screw			●		●
APIP 281-4 (Counter sink hole)	75444	.031	.277	.773	.250	1-5/16	.250	Screw			●		●
APIP 300-4 (Counter sink hole)	75464	.031	.295	.773	.250	1-9/32	.250	Screw			●		●
APIP 329-4	75474	.031	.324	.773	.250	1-7/32	.250	Lock Pin			●		●
APIP 355-4	75484	.031	.350	.773	.250	1-5/32	.250	Lock Pin			●		●
APIP 420-4	75492	.031	.415	.773	.250	1"	.250	Lock Pin	●		●		●

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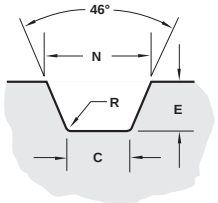
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron					
Non-Ferrous					
Stainless/High Temp					
Steel			▲		●

RING GROOVE SPECIFICATIONS



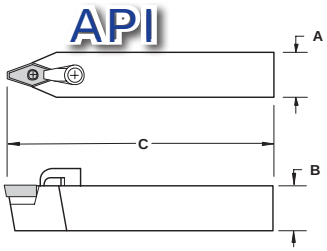
Groove Description	C	E	N	R	Insert Description
BX-150	.260	.220	.450	.031	APIP 265-3 or APIP 265-4
BX-151	.277	.220	.466	.031	APIP 281-3 or APIP 281-4
BX-152	.295	.230	.498	.031	APIP 300-3 or APIP 300-4
BX-153	.324	.270	.554	.031	APIP 329-3 or APIP 329-4
BX-154	.350	.300	.606	.031	APIP 355-3 or APIP 355-4
BX-155	.415	.330	.698	.031	APIP 420-3 or APIP 420-4
R19, 20, 22, 25, 29, 33, 36, 40, 43, 48, 52, 56, 59, 64, 68, 72, 76 & RX-20	.125	.250	.344	.031	APIP 131-3
R21, 23, 24, 26, 27, 30, 31, 34, 35, 37, 39, 41, 44, 45, 49, 53, 57, 61, 65, 69, 82, 84, 92, 99 & RX-215	.197	.310	.469	.031	APIP 203-3, 203-3H, 203-4
R28, 32, 46, 73 & 85	.206	.380	.531	.062	APIP 213-4
R38, 50, 54, 62, 66, 77, 86 & 87	.278	.440	.656	.062	APIP 213-4, 284-3
R42, 47, 70, 74, 83, 88, 89 & 93	.350	.500	.781	.062	APIP 213-4
R51, 58 & 90	.422	.560	.906	.062	APIP 213-4
RX-201 & 205	.079	.160	.219	.015	APIP 086-3
RX-210	.156	.250	.375	.031	APIP 162-3, PGN-1A

RING GROOVING HOLDERS

FGNR

Most holders and bars available with coolant port

(ie: Add CP to end of description)



RH SHOWN

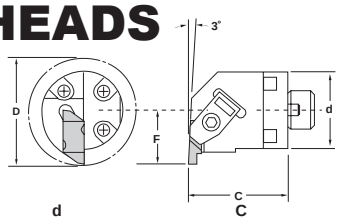
PARTS

Description	EDP Code	Insert	A	B	C	Seat	Seat/Insert Screw	Clamp	Clamp Screw
FGNR 16-0863	92801600	APIP 086-3	1	1	6	-	-	TC-311	STC-8
FGNR-16-1A/1313	92801604	PGN 1A/131/3	1	1	6	FGS1A	SF10	TC-311	XNS-510
FGNR-16-2A*	92801612	PGN 2A/213-3	1	1	6	FGS2ANL	S46	TC-311	STC-4
FGNR-20-2A*	92802012	PGN 2A/213-3	1-1/4	1-1/4	7	FGS2ANL	S46	TC-311	STC-4
FGNR 16-6A	92801606	PGN 6A	1	1	6	-	-	CL-30	STC-4
FGNR-16-7A	92801615	PGN 7A	1	1	6	-	-	CL-30	STC-4
FGNR-20-1624	92802013	APIP 162-4	1-1/4	1-1/4	7	-	SD-3	CL-30	XNS-510
FGNR-24-1624	92802413	APIP 162-4	1-1/2	1-1/2	7	-	SD-3	CL-30	XNS-510
FGNR-20-2034	92802014	APIP 203-4	1-1/4	1-1/4	7	-	SD-3	CL-30	XNS-510
FGNR-24-2034	92802414	APIP 203-4	1-1/2	1-1/2	7	-	SD-3	CL-30	XNS-510
FGNR-20-2134	92802015	APIP 213-4	1-1/4	1-1/4	7	-	SD-3	CL-30	XNS-510
FGNR-20-2654	92802016	APIP 265-4	1-1/4	1-1/4	7	-	SD-3	CL-30	STC-4
FGNR-20-2814	92802811	APIP 281-4	1-1/4	1-1/4	7	-	SD-3	CL-30	STC-4
FGNR-20-3004	92802034	APIP 300-4	1-1/4	1-1/4	7	-	SD-3	CL-30	STC-4
FGNR-20-4203	92802019	APIP 420-3	1-1/4	1-1/4	7	-	NL-56	CL-30	STC-4

* Holder can be used with APIP 203-3H (w/hole) insert. Order NL-46 lock pin to replace the S46 seat screw.

INTERCHANGEABLE HEADS FLO-LOCK

H-FLEL/R*



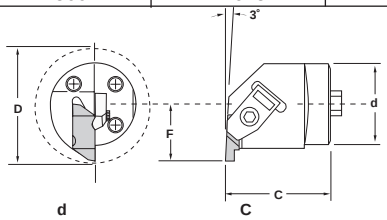
RH SHOWN

PARTS

Description	EDP Code	Insert	d	C	F	Min. Bore (D)	Clamp	Clamp Screw
H20-FLER3W	93502016W	FL-3L	1.250	1.625	0.875	1.750	TF-73	S-412
H24-FLER3W	93502416W	FL-3L	1.500	1.625	1.000	2.000	TF-73	S-412
H28-FLER3W	93502816E	FL-3L	1.750	1.625	1.125	2.250	TF-73	S-412
H32-FLER3W	93503216W	FL-3L	2.000	1.625	1.250	2.500	TF-73	S-412
H40-FLER3W	93504016W	FL-3L	2.500	1.625	1.500	3.000	TF-73	S-412
H28-FLER4W	93502820W	FL-4L	1.750	1.625	1.250	2.250	TF-73	S-412
H32-FLER4W	93503220W	FL-4L	2.000	1.625	1.375	2.500	TF-73	S-412
H36-FLER4W	93503620W	FL-4L	2.250	1.625	1.500	2.500	TF-73	S-412
H40-FLER4W	93504020W	FL-4L	2.500	1.625	1.625	3.000	TF-73	S-412
H28-FLER6W	93502828W	FL-6L	1.750	1.625	1.250	2.500	TF-121	S-412
H32-FLER6W	93503228W	FL-6L	2.000	1.625	1.375	2.750	TF-121	S-412
H40-FLER6W	93504028W	FL-6L	2.500	1.625	1.625	3.250	TF-121	S-412

*Left hand quoted on request.

HS-FLEL/R*



RH SHOWN

PARTS

Description	EDP Code	Insert	d	C	F	Min. Bore (D)	Clamp	Clamp Screw
HS32-FLER3W	9IHS65032M16	FL-3L	1.25	1.34	0.866	1.730	TF-73	S-412
HS40-FLER3W	9IHS65040M16	FL-3L	1.57	1.58	1.102	2.210	TF-73	S-412
HS50-FLER3W	9IHS65050M16	FL-3L	1.97	1.65	1.380	2.760	TF-73	S-412
HS60-FLER3W	9IHS65060M16	FL-3L	2.36	1.75	1.740	3.480	TF-73	S-412
HS50-FLER4W	9IHS65050M20	FL-4L	1.97	1.65	1.380	2.760	TF-73	S-412
HS60-FLER4W	9IHS65060M20	FL-4L	2.36	1.75	1.740	3.480	TF-73	S-412

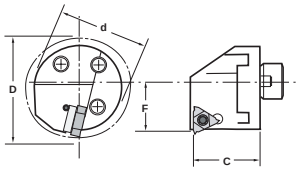
*Left hand quoted on request.

LAYDOWN

H-LNFR/L*

Most heads available with coolant port

(ie: Add CP to end of description)



RH SHOWN

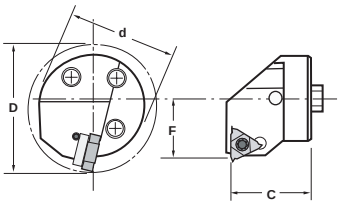
PARTS

Description	EDP Code	Insert	d	C	F	Min. Bore (D)	Seat	Clamp	Clamp Screw	Lock Pin
H20-LNFR-43	9IH4206856	L43	1.250	1.625	0.765	1.450	-	TC-190	STC-9	NL-44
H24-LNFR-43	9IH4207256	L43	1.500	1.625	0.890	1.760	-	TC-190	STC-9	NL-44
H32-LNFR-43	9IH4208056	L43	2.000	1.625	1.281	2.400	LS43	TC-190	STC-5	NL-46
H24-LNFR-53API	9IH4407262	L53	1.500	1.625	0.890	1.760	-	TC-250	STC-11	NL-56
H32-LNFR-53API	9IH4408062	L53	2.000	1.625	1.281	2.400	-	TC-250	STC-11	NL-56
H24-LNFR-54API	9IH4407264	LDS 54	1.500	1.625	0.890	1.760	-	TC-250	STC-11	H410-1
H32-LNFR-54API	9IH4408064	LDS 54	2.000	1.625	1.281	2.400	-	TC-250	STC-11	NL-56

*Non API heads only for 8RD, 10RD, 5B75, 5B1 threads. API heads required for rotary shoulder connections threads.

INTERCHANGEABLE HEADS

HS-LNFR/L*



RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

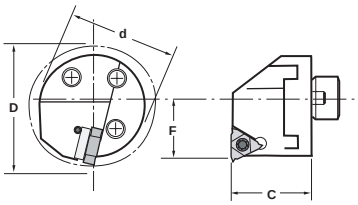
PARTS

Description	EDP Code	Insert	d	C	F	Min. Bore (D)	Clamp	Clamp Screw	Lock Pin
HS32-LNFR-43	9IHS42032M56	L43	1.25	1.26	0.866	1.570	TC-190	STC-9	NL-44
HS40-LNFR-43	9IHS42040M56	L43	1.57	1.26	1.063	1.970	TC-190	STC-9	NL-44
HS50-LNFR-43	9IHS42050M56	L43	1.97	1.57	1.378	2.480	TC-190	STC-9	NL-44
HS40-LNFR-53API	9IHS4440M62	L53	1.57	1.26	1.063	1.970	TC-250	STC-11	NL-56
HS50-LNFR-53API	9IHS4450M62	L53	1.97	1.57	1.378	2.480	TC-250	STC-11	NL-56
HS40-LNFR-54API	9IHS4440M64	LDS 54	1.57	1.26	1.063	1.970	TC-250	STC-11	H410-1
HS50-LNFR-54API	9IHS4450M64	LDS 54	1.97	1.57	1.378	2.480	TC-250	STC-11	NL-56

*Non API heads only for 8RD, 10RD, 5B75, 5B1 threads. API heads required for rotary shoulder connections threads.

LAYDOWN

H-AVR/L*



RH SHOWN

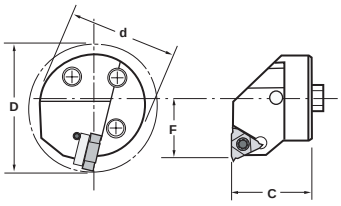
Most heads available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Insert Screw	Seat Screw	Seat
H16-AVR-3R	9IH18064361	16NR	1.000	1.625	0.650	1.200	SA-3	SY-3	YI3
H20-AVR-3R	9IH18068361	16NR	1.250	1.625	0.765	1.450	SA-3	SY-3	YI3
H24-AVR-3R	9IH18072361	16NR	1.500	1.625	0.890	1.760	SA-3	SY-3	YI3
H32-AVR-3R	9IH18080361	16NR	2.000	1.625	1.281	2.400	SA-3	SY-3	YI3
H24-AVR-4R	9IH18072401	22NR	1.500	1.625	0.978	1.760	SA-4	SY-4	YI4
H32-AVR-4R	9IH18080401	22NR	2.000	1.625	1.281	2.400	SA-4	SY-4	YI4

*Left hand quoted on request.

HS-AVR/L*



RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

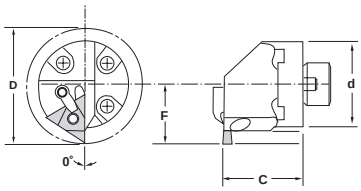
PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Insert Screw	Seat Screw	Seat
HS25-AVR-3R	9IHS18025M361	16NR	0.98	0.98	0.669	1.260	SA-3	SY-3	YI3
HS32-AVR-3R	9IHS18032M361	16NR	1.26	1.26	0.866	1.570	SA-3	SY-3	YI3
HS40-AVR-3R	9IHS18040M361	16NR	1.57	1.26	1.063	1.970	SA-3	SY-3	YI3
HS50-AVR-3R	9IHS18050M361	16NR	1.97	1.57	1.378	2.480	SA-3	SY-3	YI3
HS40-AVR-4R	9IHS18040M401	22NR	1.57	1.26	1.063	1.970	SA-4	SY-4	YI4
HS50-AVR-4R	9IHS18050M401	22NR	1.97	1.57	1.378	2.480	SA-4	SY-4	YI4

*Left hand quoted on request.

ON-EDGE

H-MTHOR/L*



RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	d	C	F	Min. Bore (D)	Clamp	Clamp Screw	Lock Pin
H16-MTHOR-3	9IH7301648	TNMA/C 32	1.000	1.625	0.688	1.690	TC-190	STC-5	NL-33
H20-MTHOR-3	9IH7302048	TNMA/C 32	1.250	1.625	0.798	1.788	TC-190	STC-5	NL-33
H24-MTHOR-3	9IH7302448	TNMA/C 32	1.500	1.625	0.923	1.875	TC-190	STC-5	NL-33
H20-MTHOR-4	9IH7302056	TNMA/C 43	1.250	1.625	1.048	2.420	TC-190	STC-5	NL-44
H24-MTHOR-4	9IH7302456	TNMA/C 43	1.500	1.625	1.173	2.625	TC-190	STC-5	NL-44
H28-MTHOR-4	9IH7302856	TNMA/C 43	1.750	1.625	1.298	2.875	TC-190	STC-5	NL-44
H32-MTHOR-4	9IH7303256	TNMA/C 43	2.000	1.625	1.423	2.875	TC-190	STC-5	NL-44
H40-MTHOR-4	9IH7304056	TNMA/C 43	2.500	1.625	1.673	3.375	TC-190	STC-5	NL-44
H24-MTHOR-5	9IH7302464	TNMA/C 54	1.500	1.625	1.173	3.200	TC-250	STC-11	NL-56
H28-MTHOR-5	9IH7302864	TNMA/C 54	1.750	1.625	1.298	3.250	TC-250	STC-11	NL-56
H32-MTHOR-5	9IH7303264	TNMA/C 54	2.000	1.625	1.423	3.250	TC-250	STC-11	NL-56
H40-MTHOR-5	9IH7304064	TNMA/C 54	2.500	1.625	1.673	3.375	TC-250	STC-11	NL-56

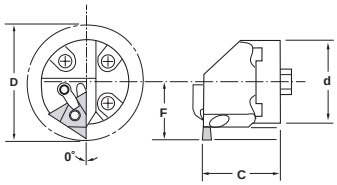
*Left hand quoted on request.

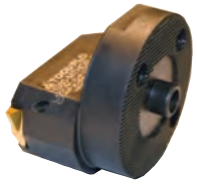
INTERCHANGEABLE HEADS

ON-EDGE

HS-MTHOR/L*

Most heads available with coolant port
(ie: Add CP to end of description)





RH SHOWN

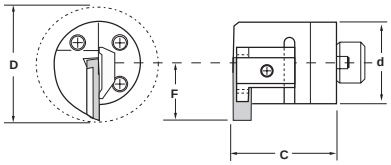
Description	EDP Code	Insert	D	C	F	Min. Bore	PARTS Clamp	Clamp Screw	Lock Pin
HS25-MTHOR-3	9IHS73025M48	TNMA/C 32	0.98	0.98	0.678	1.690	TC-190	STC-5	NL-33
HS32-MTHOR-3	9IHS73032M48	TNMA/C 32	1.26	1.26	0.800	1.788	TC-190	STC-5	NL-33
HS40-MTHOR-3	9IHS73040M48	TNMA/C 32	1.57	1.26	0.933	1.875	TC-190	STC-5	NL-33
HS32-MTHOR-4	9IHS73032M56	TNMA/C 43	1.26	1.26	1.050	2.420	TC-190	STC-5	NL-44
HS40-MTHOR-4	9IHS73040M56	TNMA/C 43	1.57	1.26	1.203	2.625	TC-190	STC-5	NL-44
HS50-MTHOR-4	9IHS73050M56	TNMA/C 43	1.97	1.57	1.413	2.875	TC-190	STC-5	NL-44
HS60-MTHOR-4	9IHS73060M56	TNMA/C 43	2.36	1.57	1.603	3.375	TC-190	STC-5	NL-44
HS40-MTHOR-5	9IHS73040M64	TNMA/C 54	1.57	1.26	1.203	3.200	TC-190	STC-11	NL-56
HS50-MTHOR-5	9IHS73050M64	TNMA/C 54	1.97	1.57	1.413	3.250	TC-250	STC-11	NL-56
HS60-MTHOR-5	9IHS73060M64	TNMA/C 54	2.36	1.57	1.603	3.375	TC-250	STC-11	NL-56

*Left hand quoted on request.

VEE BOTTOM

H-CDHOR/L*

Most heads available with coolant port
(ie: Add CP to end of description)



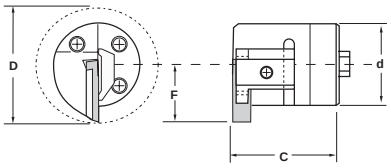
RH SHOWN

Description	EDP Code	Insert	d	C	F	Min. Bore (D)	PARTS Clamp	Clamp Screw
H16-CDHOR-8	9IH6801682	V84/V85	1.000	1.625	0.925	1.525	CBL-84	S-526
H20-CDHOR-8	9IH6802082	V84/V85	1.250	1.625	0.875	1.600	CBL-84	S-526
H24-CDHOR-8	9IH6802482	V84/V85	1.500	1.625	1.000	1.850	CBL-84	S-526
H32-CDHOR-8	9IH6803282	V84/V85	2.000	1.625	1.285	2.385	CBL-84	S-526
H40-CDHOR-8	9IH6804082	V84/V85	2.500	1.625	1.500	2.850	CBL-84	S-526
H32-CDHOR-9	9IH6803286	V96/V98	2.000	1.625	1.410	2.510	CBL-98	SS110
H40-CDHOR-9	9IH6804086	V96/V98	2.500	1.625	1.584	2.935	CBL-98	SS110
H40-CDHOR-12	9IH6804092	V120	2.500	1.625	1.820	3.170	CBL-120	SB100

*Left hand quoted on request.

HS-CDHOR/L*

Most heads available with coolant port
(ie: Add CP to end of description)



RH SHOWN

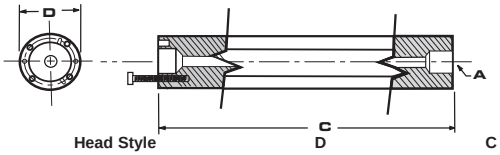
Description	EDP Code	Insert	d	C	F	Min. Bore (D)	PARTS Clamp	Clamp Screw
HS25-CDHOR-8	9IHS68025M82	V84/V85	0.984	1.355	0.925	1.517	CBL-84	S-526
HS32-CDHOR-8	9IHS68032M82	V84/V85	1.260	1.625	0.875	1.600	CBL-84	S-526
HS40-CDHOR-8	9IHS68040M82	V84/V85	1.575	1.625	1.084	1.971	CBL-84	S-526
HS50-CDHOR-8	9IHS68050M82	V84/V85	1.970	1.625	1.281	2.366	CBL-84	S-526
HS60-CDHOR-8	9IHS68060M82	V84/V85	2.360	1.625	1.476	2.756	CBL-84	S-526
HS50-CDHOR-9	9IHS68050M86	V96/V98	1.970	1.625	1.362	2.447	CBL-98	SS110
HS60-CDHOR-9	9IHS68060M86	V96/V98	2.360	1.625	1.558	2.838	CBL-98	SS110
HS60-CDHOR-12	9IHS68060M92	V120	2.360	1.625	1.750	3.030	CBL-120	SB100

*Left hand quoted on request.

API

S-4400W

Steel Shank with Through Coolant

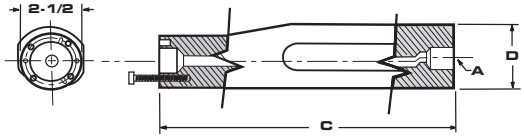


PARTS

Description	EDP Code	Head Style	D	C	A	Screw (4 req/d)
S-4416W	9IBS4416W	H16-_____	1.000	9.000	1/4 - 18NPT	SS61
S-4420W	9IBS4420W	H20-_____	1.250	9.000	3/8 - 18NPT	SS81
S-4424W	9IBS4424W	H24-_____	1.500	10.000	3/8 - 18NPT	SS85
S-4428W	9IBS4428W	H28-_____	1.750	12.000	3/8 - 18NPT	SS100
S-4432W	9IBS4432W	H32-_____	2.000	13.000	3/8 - 18NPT	SS100
S-4436W	9IBS4436W	H36-_____	2.250	15.000	3/8 - 18NPT	SS100
S-4440W	9IBS4440W	H40-_____	2.500	17.000	3/8 - 18NPT	SS83

S-4400W48

Steel Shank with Through Coolant

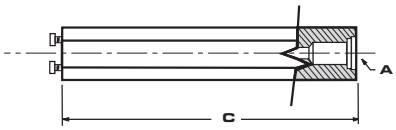


PARTS

Description	EDP Code	Head Style	D	C	A	Screw (4 req/d)
S-4440W48	9IBS4440W48	H40-_____	3.000	18.000	3/8 - 18NPT	SS89

S-570

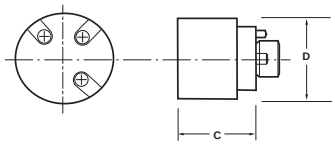
Steel Shank with Through Coolant



PARTS

Description	EDP Code	Head Style	D	C	A	Screw (4 req/d)
S-570-10-16	9IBS5701016	HS16-_____	0.625	4.210	1/8 - 27NPT	SS62
S-570-12-20	9IBS5701220	HS20-_____	0.750	5.200	1/4 - 18NPT	SS63
S-570-16-25	9IBS5701625	HS25-_____	1.000	7.200	1/4 - 18NPT	SS64
S-570-20-32	9IBS5702032	HS32-_____	1.250	8.740	3/8 - 18NPT	SS81
S-570-24-40	9IBS5702440	HS40-_____	1.500	10.750	1/2 - 14NPT	SS100
S-570-32-50	9IBS5703250	HS50-_____	2.000	14.410	1/2 - 14NPT	SS94
S-570-40-60	9IBS5704060	HS60-_____	2.500	18.430	1/2 - 14NPT	SS95

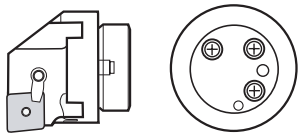
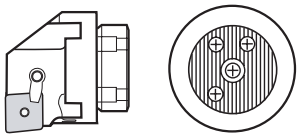
H/HS-BLANKS



Description	EDP Code	D	C
H16-BLANK RH/LH*	9IH16BLKRH/LH	1.500	1.630
H20-BLANK RH/LH*	9IH20BLKRH/LH	1.625	1.630
H24-BLANK RH/LH*	9IH24BLKRH/LH	2.000	1.630
H28-BLANK RH/LH*	9IH28BLKRH/LH	2.000	1.630
H32-BLANK RH/LH*	9IH32BLKRH/LH	2.750	1.630
H40-BLANK RH/LH*	9IH40BLKRH/LH	2.750	1.900
HS25-BLANK RH/LH*	9IHS25BLKRH/LH	1.340	1.500
HS32-BLANK RH/LH*	9IHS32BLKRH/LH	1.740	1.665
HS40-BLANK RH/LH*	9IHS40BLKRH/LH	2.100	1.675
HS50-BLANK RH/LH*	9IHS50BLKRH/LH	2.708	1.650
HS60-BLANK RH/LH*	9IHS60BLKRH/LH	3.480	1.800

*Specify right or left hand when ordering.

CROSSOVER CHART

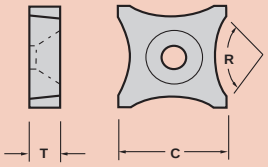
INTERCHANGEABLE HEAD	T00L-FLO DESCRIPTION	KENNAMETAL®	SANDVIK®
H Style 	H_-FLER_W	H_-FLER_W	
	H_-AVR-_	H_-LSER-	
	H_-MTHOR_	H_-MTHOR_	
	H_-MCLNR_	H_-MCLNR_	
	H_-MDUNR_	H_-MDUNR_	
	H_-MSKNR_	H_-MSKNR_	
	H_-MTFNR_	H_-MTFNR_	
	H_-MVUNR_	H_-MVUNR_	
	H_-MWLNR_	H_-MWLNR_	
HS Style 	HS_-FLER_W		570C-TLER-__-_
	HS_-AVR-_		R566-4KFC-___-__
	HS_-MTHOR_		
	HS_-MCLNR_		R571.31C-___-__
	HS_-MDUNR_		R571.35C-___-__
	HS_-MSKNR_		
	HS_-MTFNR_		
	HS_-MVUNR_		
	HS_-MWLNR_		

EXTERNAL SCARFING INSERTS

SPUB-63 - EXTERNAL

3/4" Square 4-sided - OD

■ Holders may be quoted upon request.

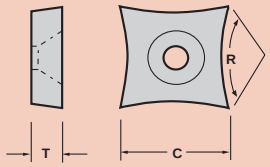


Description	EDP Code	Tube Diameter	T	C	R - Radius	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC50	AlTiN Coated ZA50
SPUB-63B-E	SI63EB	up to 7/8"	3/16"	3/4"	.475	●			●	●
SPUB-63C-E	SI63EC	7/8" - 1-1/8"	3/16"	3/4"	.590	●			●	●
SPUB-63D-E	SI63ED	1-1/8" - 1-1/2"	3/16"	3/4"	.785	●			●	●
SPUB-63E-E	SI63EE	1-1/2" - 1-7/8"	3/16"	3/4"	.985	●			●	●
SPUB-63F-E	SI63EF	1-7/8" - 2-1/4"	3/16"	3/4"	1.180	●			●	●
SPUB-63G-E	SI63EG	2-1/4" - 3-1/8"	3/16"	3/4"	1.575	●			●	●
SPUB-63H-E	SI63EH	3-1/8" - 3-7/8"	3/16"	3/4"	1.970	●			●	●
SPUB-63I-E	SI63EI	3-7/8" - 4-7/8"	3/16"	3/4"	2.470	●			●	●
SPUB-63J-E	SI63EJ	4-7/8" - 5-7/8"	3/16"	3/4"	2.970	●			●	●
SPUB-63K-E	SI63EK	5-7/8" - 6-7/8"	3/16"	3/4"	3.470	●			●	●
SPUB-63L-E	SI63EL	6-7/8" - 7-7/8"	3/16"	3/4"	3.970	●			●	●
SPUB-63M-E	SI63EM	7-7/8" and up	3/16"	3/4"	None	●			●	●
SPUB-63M-30-E	SI63EM30	30˚ Relief	3/16"	3/4"	None	●			●	●

SQ86 - EXTERNAL

1" Square 4-sided - OD

■ Holders may be quoted upon request.

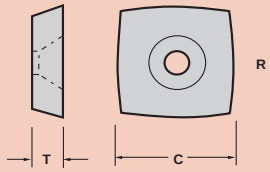


Description	EDP Code	Tube Diameter	T	C	R - Radius	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC50	AlTiN Coated ZA50
SQ86-14-0-E	SI86E0	ANY	3/8"	1.000	0.000	●			●	●
SQ86-14-2.5-E	SI86E25	3" - 4-3/4"	3/8"	1.000	2.500	●			●	●
SQ86-10-3.4-E	SI86E34	4-3/4" - 6-3/4"	3/8"	1.000	3.400	●			●	●
SQ86-14-4.5-E	SI86E45	6-3/4" - 8-3/4"	3/8"	1.000	4.500	●			●	●
SQ86-10-9.5-E	SI86E95	8-3/4" - 18"	3/8"	1.000	9.500	●			●	●

SQ86 - INTERNAL

1" Square 4-sided - ID

■ Holders may be quoted upon request.

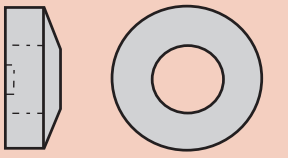


Description	EDP Code	Tube Diameter	T	C	R - Radius	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC50	AlTiN Coated ZA50
SQ86-14-0-I	SI86I0	ANY	3/8"	1.000	0.750	●			●	●
SQ86-14-2.5-I	SI86I25	3" - 4-3/4"	3/8"	1.000	1.000	●			●	●
SQ86-10-3.4-I	SI86I34	4-3/4" - 6-3/4"	3/8"	1.000	1.250	●			●	●

INTERNAL SCARFING INSERTS

IDR

■ Holders may be quoted upon request.

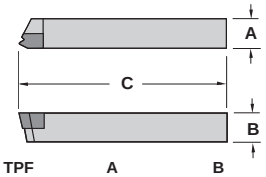


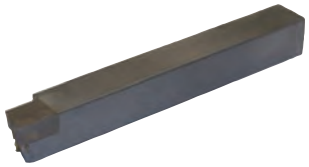
Description	EDP Code	Int'l Tube Diameter	Description	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC50	AlTiN Coated ZA50
IDR-2010	IDSR2010	9/16" - 11/16"	#1			●	●	●
IDR-2020	IDSR2020	11/16" - 13/16"	#2			●	●	●
IDR-2030	IDSR2030	13/16" - 1-1/32"	#3			●	●	●
IDR-2040	IDSR2040	1-1/32" - 1-3/8"	#4			●	●	●
IDR-2050	IDSR2050	5/16" - 1-7/16"	#5			●	●	●
IDR-2060	IDSR2060	1-1/32" - 1-1/8"	#6			●	●	●
IDR-2070	IDSR2070	1-1/8" - 1-3/16"	#7			●	●	●
IDR-2080	IDSR2080	1-3/16" - 1-3/8"	#8			●	●	●
IDR-2090	IDSR2090	1-14" - 1-5/8"	#9			●	●	●
IDR-2100	IDSR2100	1-5/8" - 2"	#10			●	●	●
IDR-2110	IDSR2110	1-7/8" - 2-7/8"	#11			●	●	●
IDR-2120	IDSR2120	2-3/4" - 3-3/8"	#12			●	●	●
IDR-2130	IDSR2130	3-3/8" - 4"	#13			●	●	●
IDR-2140	IDSR2140	4" - 5"	#14			●	●	●
IDR-2150	IDSR2150	5" - 6-1/4"	#15			●	●	●
IDR-2160	IDSR2160	6" - 10-1/4"	#16			●	●	●

BRAZED TOOLS

API THREADING

API





Description	EDP Code	TPI	TPF	A	B	C	Conn No orSize	C5H
B8 8RD EXT	77332E	8	3/4	1/2	1/2	4”	-	●
B8 8RD INT	77332I	8	3/4	1/2	1/2	4”	-	●
B8 10RD EXT	77334E	10	3/4	1/2	1/2	4”	-	●
B8 10RD INT	77334I	10	3/4	1/2	1/2	4”	-	●
B8 425 EXT	77309E	4	2	1/2	1/2	3-1/2	5-1/2 - 6-5/8 FH, 6-5/8 REG	
B8 425 INT	77309I	4	2	1/2	1/2	3-1/2	5-1/2 - 6-5/8 FH, 6-5/8 REG	
B8 428 EXT	77310E	4	2	1/2	1/2	3-1/2	NC23 - 50, 2-3/8 - 5-1/2 IF	
B8 428 INT	77310I	4	2	1/2	1/2	3-1/2	NC23 - 50, 2-3/8 - 5-1/2 IF	
B8 435 EXT	77311E	4	3	1/2	1/2	3-1/2	5-1/2 REG, 7-5/8 REG, 8-5/8 REG	
B8 435 INT	77311I	4	3	1/2	1/2	3-1/2	5-1/2 REG, 7-5/8 REG, 8-5/8 REG	
B8 438 EXT	77312E	4	3	1/2	1/2	3-1/2	NC56 - NC71	
B8 438 INT	77312I	4	3	1/2	1/2	3-1/2	NC56 - NC71	
B8 42F EXT*	77314E	4	2	1/2	1/2	3-1/2	VO.065*	
B8 42F INT*	77314I	4	2	1/2	1/2	3-1/2	VO.065*	
B8 530 EXT	77313E	5	3	1/2	1/2	3-1/2	3-1/2FH, 2-3/8 - 4-1/2 REG	
B8 530 INT	77313I	5	3	1/2	1/2	3-1/2	3-1/2FH, 2-3/8 - 4-1/2 REG	
B8 5B75 EXT	77316E	5	3/4	1/2	1/2	3-1/2	4-1/2 - 13-3/8	
B8 5B75 INT	77316I	5	3/4	1/2	1/2	3-1/2	4-1/2 - 13-3/8	
B8 5B1 EXT	77317E	5	1	1/2	1/2	3-1/2	16 AND LARGER	
B8 5B1 INT	77317I	5	1	1/2	1/2	3-1/2	16 AND LARGER	
B8 8B75 EXT	77321E	8	3/4	1/2	1/2	3-1/2	U.S. IMPROVED BUTTRESS	
B8 8B75 INT	77321I	8	3/4	1/2	1/2	3-1/2	U.S. IMPROVED BUTTRESS	
B10 8RD EXT	77532E	8	3/4	5/8	5/8	4”	-	●
B10 8RD INT	77532I	8	3/4	5/8	5/8	4”	-	●
B10 10RD EXT	77534E	10	3/4	5/8	5/8	4”	-	●
B10 10RD INT	77534I	10	3/4	5/8	5/8	4”	-	●
B10 425 EXT	77509E	4	2	5/8	5/8	3-1/2	5-1/2 - 6-5/8 FH, 6-5/8 REG	
B10 425 INT	77509I	4	2	5/8	5/8	3-1/2	5-1/2 - 6-5/8 FH, 6-5/8 REG	
B10 428 EXT	77510E	4	2	5/8	5/8	3-1/2	NC23 - 50, 2-3/8 - 5-1/2 IF	
B10 428 INT	77510I	4	2	5/8	5/8	3-1/2	NC23 - 50, 2-3/8 - 5-1/2 IF	
B10 435 EXT	77511E	4	3	5/8	5/8	3-1/2	5-1/2 REG, 7-5/8 REG, 8-5/8 REG	
B10 435 INT	77511I	4	3	5/8	5/8	3-1/2	5-1/2 REG, 7-5/8 REG, 8-5/8 REG	
B10 438 EXT	77512E	4	3	5/8	5/8	3-1/2	NC56 - NC71	
B10 438 INT	77512I	4	3	5/8	5/8	3-1/2	NC56 - NC71	
B10 42F EXT*	77514E	4	2	5/8	5/8	3-1/2	VO.065*	
B10 42F INT*	77514I	4	2	5/8	5/8	3-1/2	VO.065*	
B10 530 EXT	77513E	5	3	5/8	5/8	3-1/2	3-1/2FH, 2-3/8 - 4-1/2 REG	
B10 530 INT	77513I	5	3	5/8	5/8	3-1/2	3-1/2FH, 2-3/8 - 4-1/2 REG	
B10 5B75 EXT	77516E	5	3/4	5/8	5/8	3-1/2	4-1/2 - 13-3/8	
B10 5B75 INT	77516I	5	3/4	5/8	5/8	3-1/2	4-1/2 - 13-3/8	
B10 5B1 EXT	77517E	5	1	5/8	5/8	3-1/2	16 AND LARGER	
B10 5B1 INT	77517I	5	1	5/8	5/8	3-1/2	16 AND LARGER	
B10 8B75 EXT	77521E	8	3/4	5/8	5/8	3-1/2	U.S. IMPROVED BUTTRESS	
B10 8B75 INT	77521I	8	3/4	5/8	5/8	3-1/2	U.S. IMPROVED BUTTRESS	

* Obsolescent thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

Cast Iron	
Non-Ferrous	
Stainless/High Temp	
Steel	

Cross Reference Chart

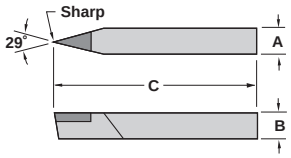
TOOL-FLO	VALENITE®	CARBOLOY®	VARDEX®	ISCAR®	TGI®	KENNAMETAL®
L43	TNEM 43					
LDS 43	TNEG 43					
L53						
LDS 54	TNEG 54					
LDS 54 - FT	TNEGX 54					
TNMC	TNEC/TNMC					
TNFA	TNFA					
16ER		16ER	3ER	16ER		
16NR		16NR	3IR	16IR		
22ER		22ER	4ER	22ER		
22NR		22NR	4IR	22IR		
27ER		27ER	5ER	27ER		
27NR		27NR	5NR	27IR		
V84					LCE/LPE 444	
V85					LCE/LPE 454	
FLD						ND
FLDC						NDC
FLTC						NTC

API

BRAZED TOOLS

ACME THREADING

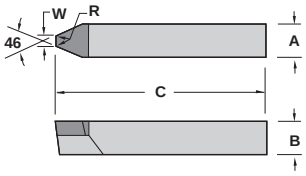
NO PITCH



Description	EDP Code	TPI	A	B	C	Uncoated C5H
B6 NT NO PITCH	77104A	6-16	3/8	3/8	2-1/2	●
B8 NT NO PITCH	77304A	4-16	1/2	1/2	3-1/2	●
B10 NT NO PITCH	77504A	2-16	5/8	5/8	4	●
B12 NT NO PITCH	77604A	2-16	3/4	3/4	4-1/2	●

RING GROOVING

NO PITCH

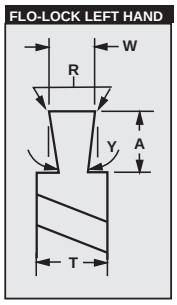


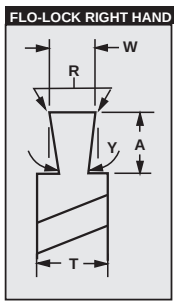
Description	EDP Code	W	R	A	B	C	Conn No or Size	Uncoated C5H
B10 RG125	77506V	.125	1/32	5/8	5/8	4	R19, 20, 22, 25, 29, 33, 36, 40, 43, 48, 52, 56, 59, 64, 68, 72 & 76	●
B12 RG156	77706W	.156	1/32	3/4	3/4	5	RX210	●
B64 RG197	77806X	.197	1/32	3/4	1	6	R21, 23, 24, 27, 30, 31, 34, 35, 37, 39, 41, 44, 45, 49, 53, 57, 61, 65, 69, 84, 92, 99 & RX-215	●
B85 RG197	77906X	.197	1/32	1	1-1/4	7	R21, 23, 24, 27, 30, 31, 34, 35, 37, 39, 41, 44, 45, 49, 53, 57, 61, 65, 69, 84, 92, 99 & RX-215	●
B64 RG206	77806Y	.206	1/16	3/4	1	6	R26, 32, 46, 73 & 85	●
B85 RG206	77906Y	.206	1/16	1	1-1/4	7	R26, 32, 46, 73 & 85	●
B86 RG278	77907C	.278	1/16	1	1-1/2	8	BX-151	●
B86 RG350	77907Z	.350	1/16	1	1-1/2	8	BX-154	●

* See page 21 for ring groove specs.

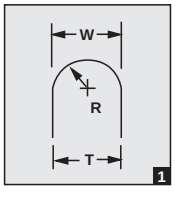
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

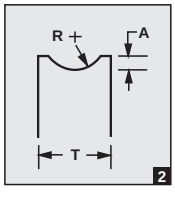
Cast Iron
Non-Ferrous
Stainless/High Temp
Steel

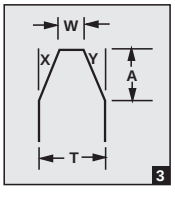


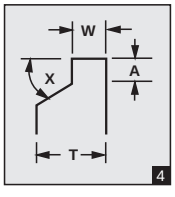


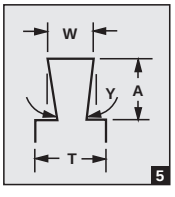
We welcome specials!
Please call us with your specs.

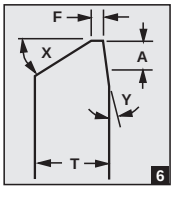


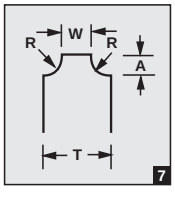


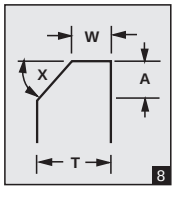


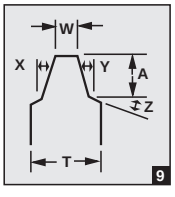


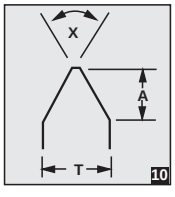


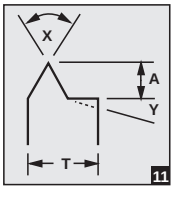


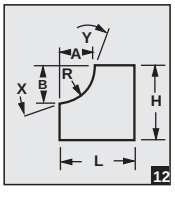












API

TECHNICAL INFORMATION

thread form	Tool-Flo insert		tool joint application	minimum box size
	cresting	non-cresting		
V-.038R 2” tpf 4 tpi	TNMA 55 428 FLDC-4-428 E/I 22E/NR 428 27E/NR 428 L53 428 L43 428 V85 428	FLD-3038R/L	2-3/8 API Internal Flush 2-7/8 API Internal Flush 3-1/2 API Internal Flush 4 API Internal Flush 4-1/2 API Internal Flush 5-1/2 API Internal Flush 4 API Full Hole NC23 NC26 NC31 NC35 NC38 NC40 NC44 NC46 NC50	NC31 2-7/8 IF
V-.038R 3” tpf 4 tpi	FLDC-4-438 E/I 22E/N 438	FLD-3038R/L	NC56 NC61 NC70 NC77	NC56
V-.050 2” tpf 4 tpi	FLDC-4-425 E/I 27E/N 425	FLD-4050R/L	5-1/2 API Full Hole 6-5/8 API Regular 6-5/8 API Full Hole	5-1/2 API Full Hole
V-.050 3” tpf 4 tpi	FLDC-4-435 E/I 22E/NR 435	FLD-4050R/L	5-1/2 API Regular 7-5/8 API Regular 8-5/8 API Regular	5-1/2 API Regular
V-.040 3” tpf 5 tpi	FLDC-3-530 E/I FLDC-4-530 E/I 22E/NR 530	FLD-3040R/L FLD-4040R/L	2-3/8 API Regular 2-7/8 API Regular 3-1/2 API Regular 4-1/2 API Regular 3-1/2 API Full Hole 4-1/2 API Full Hole	3-1/2 API Regular

API NC SPECIFICATIONS

Conn. No. of Size	Thread Form	TPI	TPF	Cat. No.
NC10	V-0.055	6	1-1/2	VO.055
NC12	V-0.055	6	1-1/2	VO.055
NC13	V-0.055	6	1-1/2	VO.055
NC16	V-0.055	6	1-1/2	VO.055
NC23	V-0.038	4	2	428
NC26	V-0.038	4	2	428
NC31	V-0.038	4	2	428
NC35	V-0.038	4	2	428
NC38	V-0.038	4	2	428
NC40	V-0.038	4	2	428
NC44	V-0.038	4	2	428
NC46	V-0.038	4	2	428
NC50	V-0.038	4	2	428
NC56	V-0.038	4	3	438
NC61	V-0.038	4	3	438
NC70	V-0.038	4	3	438
NC71	V-0.038	4	3	438

API REGULAR SPECIFICATIONS

Conn. No. of Size	Thread Form	TPI	TPF	Cat. No.
1, 1-1/2 REG	V0.055	6	1-1/2	MT
2-3/8 REG.	V-0.040	5	3	530
2-7/8 REG.	V-0.040	5	3	530
3-1/2 REG.	V-0.040	5	3	530
4-1/2 REG.	V-0.040	5	3	530
5-1/2 REG.	V-0.050	4	3	435
6-5/8 REG.	V-0.050	4	2	425
7-5/8 REG.	V-0.050	4	3	435
8-5/8 REG.	V-0.050	4	3	435

API FULL HOLE SPECIFICATIONS

Conn. No. of Size	Thread Form	TPI	TPF	Cat. No.
3-1/2 FH	V-0.040	5	3	530
4 FH	V-0.038	4	2	428
4-1/2 FH	V-0.040	5	3	530
5-1/2 FH	V-0.050	4	2	425
6-5/8 FH	V-0.050	4	2	425

API INTERNAL FLUSH SPECIFICATIONS

Conn. No. of Size	Thread Form	TPI	TPF	Cat. No.
2-3/8 IF	V-0.038	4	2	428
2-7/8 IF	V-0.038	4	2	428
3-1/2 IF	V-0.038	4	2	428
4 IF	V-0.038	4	2	428
5-1/2 IF	V-0.038	4	2	428

API THREAD FORM SPECIFICATIONS

Thread Form	TPI	TPF	Width or Flat Crest	Root	Root Radius	Cat. No.
V-0.038	4	2	.065	-	.038	428
V-0.038	4	3	.065	-	.038	438
V-0.040	5	3	.040	-	.020	530
V-0.050	4	3	.050	-	.025	435
V-0.050	4	2	.050	-	.025	425
V-0.065*	4	2	.065	.056	-	42F*
V-0.076	4	1-1/2	.076	.067	-	4PAC
V-0.055	6	1-1/2	.055	.047	-	VO.055

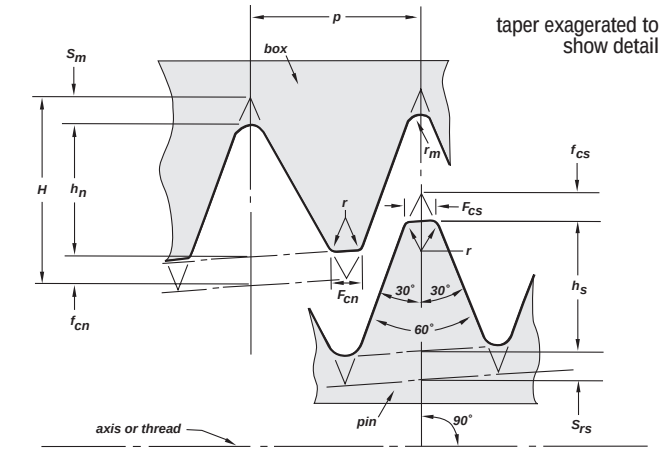
*Obsolescent thread form - See API Spec 7, 35th Edition, May 1, 1985, Section 9.4

API

PRODUCT THREAD DIMENSIONS - ROTARY SHOULDER CONNECTIONS

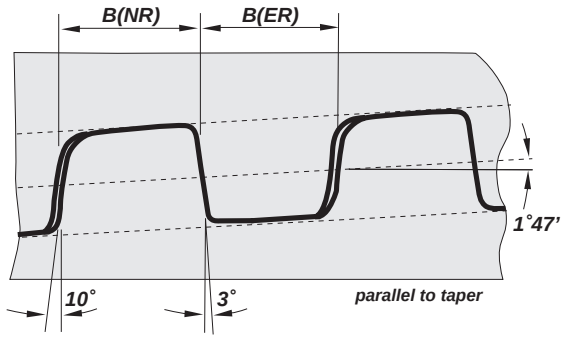
thread form	taper in. per ft.	thread height not truncated H	thread height truncated $h_n = h_s$	root truncation $S_m = S_{rs}$ $f_m = f_{rs}$	crest truncation $f_{cn} = f_{cs}$	width of flat: crest $f_{cn} = f_{cs}$	width of flat: crest $f_m = f_{rs}$	root radius $r_m = r_{rs}$	radius at thread corners r	pitch p
V-038R	2	.216005	.121844	.038000	.056161	.065	-	.038	.015	.250
V-038R	3	.215379	.121381	.038000	.055998	.065	-	.038	.015	.250
V-040	3	.172303	.117842	.020000	.034461	.040	-	.020	.015	.200
V-050	3	.215379	.147303	.025000	.043076	.050	-	.025	.015	.250
V-050	2	.216005	.147804	.025000	.043201	.050	-	.025	.015	.250

V-.040 AND V-.050 PRODUCT THREAD FORM



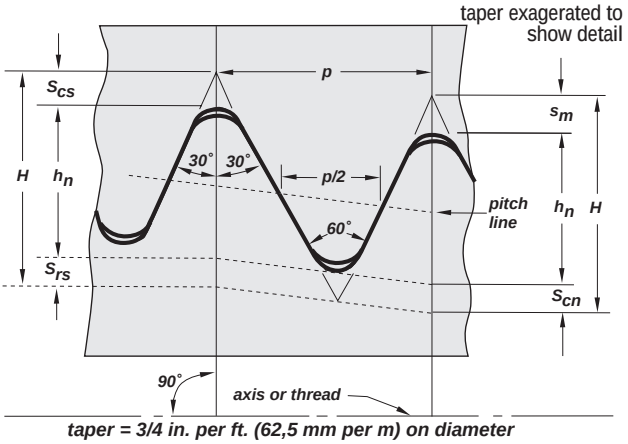
For inserts with this form see pages 8, 14, 17, 18, and 21-23
Chart based on API Spec 7, 38th Edition, April 1994, pg 30

API BUTTRESS



For inserts with this form see pages 6, 8, 11, 13, and 23
Chart based on API Spec Standard 5B, 14th Edition, August 1996, pg 52

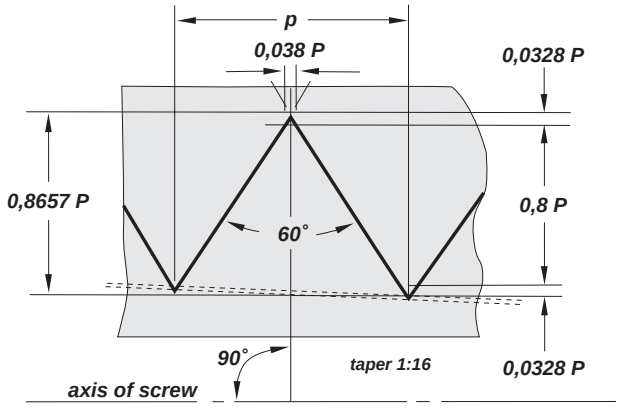
API CASING AND TUBING ROUND THREAD FORM



taper = 3/4 in. per ft. (62,5 mm per m) on diameter

For inserts with this form see pages 7, 9, 12, 13, 18, 19, and 21-23
Chart based on API Spec Standard 5B, 14th Edition, August 1996, pg 12

AMERICAN NATIONAL PIPE THREAD (NPT)



Use: fittings and pipe couplings

For inserts with this form see pages 7, 9, 15, 16, and 19
Chart based on API Spec Standard 5B, 14th Edition, August 1996, pg 52

CASING AND TUBING ROUND THREAD (Height Dimensions)

thread element			10 threads per inch p=.1000	8 threads per inch p=.1250
H	=	.866p	.08660	.10825
$H_s = h_n$	=	.626p - .007	.05560	.07125
$S_{rs} = S_m$	=	.120p + .002	.01400	.01700
$S_{cs} = S_{cn}$	=	.120p + .005	.01700	.02000

NPT PIPE SIZE CROSSOVER

pipe size	NPT thread per inch
1/16", 1/8"	27 NPT
1/4", 3/8"	18NPT
1/2", 3/4"	14 NPT
1" - 2"	11.5 NPT
2-1/2" and up	8 NPT

TOOL-FLO

AUTOMOTIVE

AUTOMOTIVE

Poly-Vee Insert Identification Chart

PV – 5 – 140 – 4E – S – GP3 – A

- **PV** — poly-vee
- **5** — insert size

Size	I.C.
5	.625
6	.750

- **140** — groove pitch

#	Size
092	.092
140	.140
185	.185

- **4E** — number of teeth
  - 2E = 2 Teeth EXT
  - 4E = 4 Teeth EXT
  - 6E = 6 Teeth EXT
- **S** — shoulder
- **GP3** — grade
- **A** — edge prep

FL – V – 3 – R – J

- **FL** — Flo-Lock
- **V** — poly-vee
- **3** — insert size

Size	Inch	Metric
3	.195	4,95
4	.255	6,48

- **R** — insert hand
  - L = Left Hand
  - R = Right Hand
- **J** — groove pitch
  - J
  - L

PV
- Multi-tooth inserts for faster cycle times
- Inserts are precision ground for premium tolerance
- Strong cutting edge able to withstand moderate interruption

PV-S
- Multi-tooth inserts for faster cycle times
- Inserts are precision ground for premium tolerance
- Strong cutting edge able to withstand moderate interruption
- Shoulder configuration produces more finished grooves per plunge

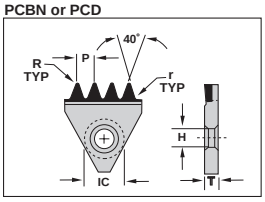
FLV
- Single-point insert for flexible programming
- Inserts are precision ground for premium tolerance
- Strong cutting edge able to withstand moderate interruption
- Fits into industry standard holders

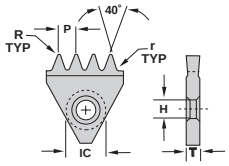
POLY-VEE

PV-S
Multi-Tooth w/ Shoulder

For holder STCNR see next page

PCBN or PCD



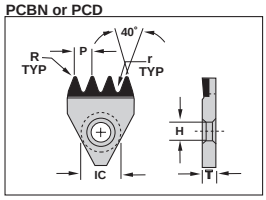


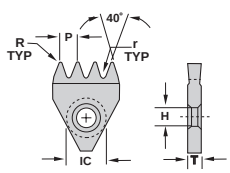
Insert Description	EDP Code	Cross Section*	IC	H	T	P	r	R	# of teeth	Uncoated C25	TiN Coated GP25	AlTiN Coated AC25	AlTiN Coated AC3	AlTiN Coated AC50	CBN Tipped CB200	PCD Tipped PC33
PV-5092-4E-S	PV50924ES	J	.625	.203	.252	.092	.008	.012	4		●		●	●		
PV-5092-6E-S	PV50926ES	J	.625	.203	.252	.092	.008	.012	6		●		●	●	●	●
PV-5140-2E-S	PV51402ES	K	.625	.203	.252	.140	.013	.016	2		●		●	●		
PV-5140-4E-S	PV51404ES	K	.625	.203	.252	.140	.013	.016	4		●	●	●	●	●	●
PV-6140-6E-S	PV61406ES	K	.750	.203	.250	.140	.013	.016	6		●		●	●		
PV-6185-4E-S	PV61854ES	L	.750	.203	.250	.185	.021	.013	4		●		●	●		

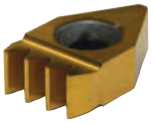
PV
Multi-Tooth w/o Shoulder

For holder STCNR see next page

PCBN or PCD







Insert Description	EDP Code	Cross Section*	IC	H	T	P	r	R	# of teeth	Uncoated C25	TiN Coated GP25	AlTiN Coated AC25	AlTiN Coated AC3	AlTiN Coated AC50	CBN Tipped CB200	PCD Tipped PC33
PV-5092-4E	PV50924E	J	.625	.203	.252	.092	.008	.012	4		●		●	●		
PV-5092-6E	PV50926E	J	.625	.203	.252	.092	.008	.012	6		●		●	●	●	●
PV-5140-2E	PV51402E	K	.625	.203	.252	.140	.013	.016	2		●		●	●		
PV-5140-4E	PV51404E	K	.625	.203	.252	.140	.013	.016	4		●	●	●	●	●	●
PV-6140-6E	PV61406E	K	.750	.203	.250	.140	.013	.016	6		●		●	●		
PV-6185-4E	PV61854E	L	.750	.203	.250	.185	.021	.013	4		●		●	●		

*See table on page.

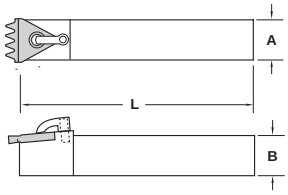
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up -to- date grade offering.

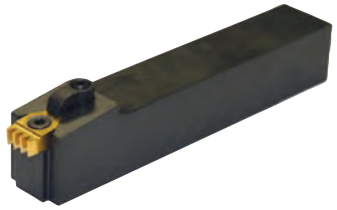
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		●		●		
Non-Ferrous		●				
Stainless/High Temp		●				
Steel			●			

POLY-VEE
STCNR

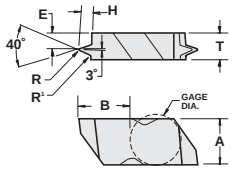
Most holders available with coolant port
(ie: Add CP to end of description)





Description	EDP Code	A	B	L	Insert	Insert Screw	Clamp	Clamp Screw
STCNR-165	977064641	1.000	1.000	6.000	PV-5	SD-2	TC-250	STC-11
STCNR-205	9770206641	1.250	1.250	6.000	PV-5	SD-2	TC-250	STC-11
STCNR-206	9770206761	1.250	1.250	6.000	PV-6	SD-2	TC-251	STC-11

POLY-VEE
FLO-LOCK
FLV

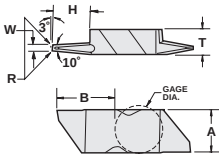


RH Shown

Insert Description	EDP Code	R	R1	T	E	H	A	B	Uncoated C25	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLV-3RJ	623800R	.012	.008	.195	.125	.087	.344	.4013	●	●	●		●
FLV-3RK	623900R	.016	.013	.195	.100	.136	.344	.4000		●	●		●
FLV-4RL	624800R	.012	.015	.255	.118	.201	.453	.6288		●			●
FLV-3LJ	623800L	.012	.008	.195	.125	.087	.344	.4013	●	●	●		●
FLV-3LK	623900L	.016	.013	.195	.100	.136	.344	.4000		●	●		●
FLV-4LL	624800L	.012	.015	.255	.118	.201	.453	.6288		●			●

PISTON GROOVING
KEYSTONE
FLG
Chipbreaker

Exclusive patented design!



RH Shown

Insert Description	EDP Code	W	R	H	T	A	B	Uncoated C25	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLG-4R W.059 TF19908	TF19908	.059	.012	.275	.255	.453	.6288		●			●

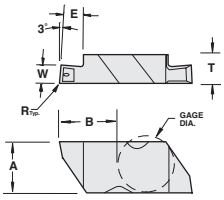
Available in PCD!
TNMA
TNMC
FLG
Any width or configuration!
Call us with your piston grooving needs!

GROOVING
CHIP-FLO
FLG-CB
Chipbreaker

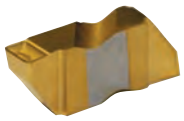
Exclusive patented design!

See page 92 for a complete listing!

Features:
- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Industry standard widths



RH Shown



Insert Description	EDP Code	W Metric	W Inch	R	E Metric	E Inch	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50	AlTiN Coated AC22
FLG-2M100R-CB	562M100PR	1,00	.039	.005/.010	1,90	.075	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M100L-CB	562M100PL	1,00	.039	.005/.010	1,90	.075	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M150R-CB	562M150PR	1,50	.059	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M150L-CB	562M150PL	1,50	.059	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M170R-CB	562M170PR	1,70	.067	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M170L-CB	562M170PL	1,70	.067	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M195R-CB	562M195PR	1,95	.077	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M195L-CB	562M195PL	1,95	.077	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M200R-CB	562M200PR	2,00	.079	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M200L-CB	562M200PL	2,00	.079	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M220R-CB	562M220PR	2,20	.087	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M220L-CB	562M220PL	2,20	.087	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M225R-CB	562M225PR	2,25	.089	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M225L-CB	562M225PL	2,25	.089	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M250R-CB	562M250PR	2,50	.098	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●
FLG-2M250L-CB	562M250PL	2,50	.098	.005/.010	2,79	.110	.150	.219	.2700	.1875		●	●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

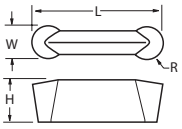
Cast Iron		▲		●		▲
Non-Ferrous		●				
Stainless/High Temp		▲		●		▲
Steel			▲		●	▲

WHEEL TURNING

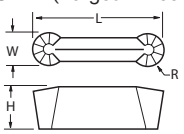
DBV

High Polish

CB



CBYZ(Forged Wheels)



Insert Description	EDP Code	W	R	L	H	Uncoated C2P	TiB2 Coated ALS2	AlTiN Coated AC3	AlTiN Coated AC50
DBV-315 FNR-CB	TF17420	.315	.157	1.180	.320	●	●		
DBV-315 FNR-CBYZ	TF22487	.315	.157	1.180	.320	●			

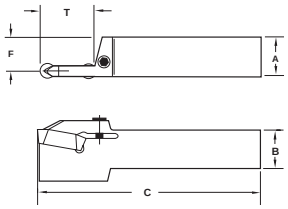
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Aluminum	▲	●		
Steel				●

WHEEL TURNING

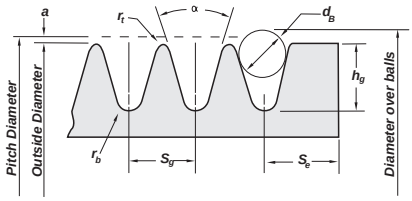
TFHDR/L



RH SHOWN

Description	EDP Code	Insert	T	A	B	C	F	Screw
TFHDR-25.4-8	9828168	DBV	1.000	1.000	1.000	6.000	.884	S-412
TFHDL-25.4-8	9827168	DBV	1.000	1.000	1.000	6.000	.884	S-412
TFHDR-31.7-8	9828208	DBV	1.000	1.250	1.250	6.700	1.133	S-412
TFHDL-31.7-8	9827208	DBV	1.000	1.250	1.250	6.700	1.133	S-412

POLY-VEE TECHNICAL INFORMATION



Face width = $S_e(N_g - 1) + 2S_e$,where N_g is number of grooves

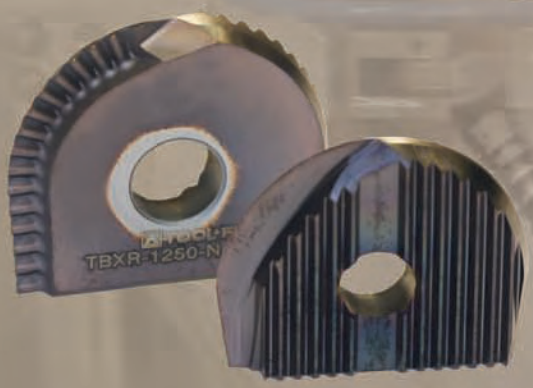
Cross Section	Minimum Recommended Outside Diameter	Groove Angle ± 0.25 (deg)	S_g[a]	r_t + 0.005 - 0.000	2_a	r_b	h_g (min)	d_B ± 0.0005	S_e
H	0.50	40	0.063 ± 0.001	0.005	0.020	0.013 + 0.000 - 0.005	0.041	0.0469	0.080 + 0.020 - 0.010
J	0.80	40	0.092 ± 0.001	0.008	0.030	0.015 + 0.000 - 0.005	0.071	0.0625	0.125 + 0.030 - 0.015
K	1.50	40	0.140 ± 0.002	0.010	0.038	0.020 + 0.000 - 0.005	0.122	0.1093	0.125 + 0.050 - 0.000
L	3.00	40	0.185 ± 0.002	0.015	0.058	0.015 + 0.000 - 0.005	0.183	0.1406	0.375 + 0.075 - 0.030
M	7.00	40	0.370 ± 0.003	0.030	0.116	0.030 + 0.000 - 0.010	0.377	0.2812	0.500 + 0.100 - 0.040

Other Sheave Tolerances

Outside Diameter	Radial Runout	Axial Runout
Up through 2.9 in. outside diameter ± 0.010 in. Over 2.9 in. to and including 8.0 in. outside diameter ± 0.020 in. For each additional inch of outside diameter over 8.0 in., add ± 0.025 in. add 0.0005 in.	Up through 2.9 in. outside diameter ± 0.005 in. Over 2.9 in. to and including 10.0 in. outside diameter± 0.010 in. For each additional inch of outside diameter over 10.0 in.,	0.001 in. per inch of outside diameter

All diminsions in inches.
[a]Summation of the deviations from S for all groovers in any one sheave shall not exceed ± 0.010 in.
[b]Variations in pitch diameter between groovers in any one sheave must be within the following limits: Up through 2.9 in. outside diameter and up through 6 grooves, 0.002 in. (add 0.001 in. for each additional groove); over 2.9 in. to and including 19.9 in. and up through 10 grooves. 0.010 in. (add 0.0005 in. for each additional groove.) This variation can be obtained by measuring the distance across two measuring balls or rods placed in the grooves diametrically opposite each other. Comparing this "diameter-over-balls or -rods" measurement between grooves will give the variation in pitch diameter.
[c]Total indicator reading.

TOOL-FLO



BALL NOSE

End Mills

BALLNOSE

Ball Nose End Mills

RIGID-LOCK
SERRATED LOCKING SYSTEM

Rigid-Lock Ball Nose Cutter Nomenclature Chart

TBN **S** **C** – **100** – **94** **WT** **750**

end mill style

TBNS

- Finishing style ballnose end mill for precision milling applications
- Inserts are CNC ground to tolerance of +/- .0005 effective in the cutter
- Run at high speeds to reduce machining time by as much as 50%

TBDS

- Flat bottom/Back draft style for parts where square shoulders are required
- Inserts are CNC ground to tolerance of +/- .0005 effective in the cutter
- Run at high speeds to reduce machining time by as much as 50%

shank material

C	Carbide Cored
Z	Solid Carbide
H	Heavy Metal
S	Steel

coolant port

*not available in carbide shanks

shank diameter

overall length

shank type

WT	Tapered
WS	Straight

insert diameter

TOOL-FLO GUARANTEE

All above endmills feature our patented RIGID-LOCK serrated locking system. Precision ground serrations provide increased stability in the pocket and allow for increased speeds/feeds while preventing insert movement in the pocket. No insert movement means longer insert life as well as longer cutter body life. **Tool-Flo Mfg will replace any cutter body that experiences pocket wear***

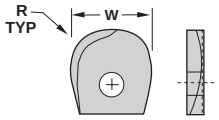
*excludes insert screw wear, or tools that have been crashed.

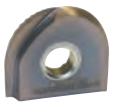
BALLNOSE

TBNR-N

Neutral-Rake Finishing Inserts

For cutter bodies see pg. 38, 39





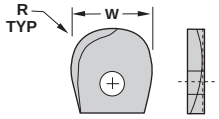
Insert Description	EDP Code	Dia	R	Uncoated C26S	TiN Coated GP26	AlTiN Coated ZS26S	AlTiN Coated ZS26	AlTiN Coated AC3	PCD Coated DX200	CBN Tipped* CB200
TBNR-250-N	TBNR250N	.250	.125	●		●	●	●	●	
TBNR-312-N	TBNR312N	.312	.156	●		●	●	●	●	
TBNR-375-N	TBNR375N	.375	.187	●		●	●	●	●	●
TBNR-500-N	TBNR500N	.500	.250	●		●	●	●	●	●
TBNR-625-N	TBNR625N	.625	.312	●		●	●	●	●	
TBNR-750-N	TBNR750N	.750	.375	●		●	●	●	●	●
TBNR-1000-N	TBNR1000N	1.000	.500	●		●	●	●	●	●
TBNR-1250-N	TBNR1250N	1.250	.625	●		●	●	●	●	

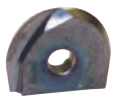
*CBN tipped inserts must run in machine with head tilted at 5° minimum

TBNR-P

Positive-Rake Finishing Inserts

For cutter bodies see pg. 38, 39





Insert Description	EDP Code	Dia	R	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
TBNR-250-P	TBNR250P	.250	.125	●	●		●	●		
TBNR-312-P	TBNR312P	.312	.156	●	●		●	●		
TBNR-375-P	TBNR375P	.375	.187	●	●		●	●	●	
TBNR-500-P	TBNR500P	.500	.250	●	●		●	●	●	
TBNR-625-P	TBNR625P	.625	.312	●	●		●	●		
TBNR-750-P	TBNR750P	.750	.375	●	●		●	●	●	
TBNR-875-P	TBNR875P	.875	.437	●	●		●	●		
TBNR-1000-P	TBNR1000P	1.000	.500	●	●		●	●	●	
TBNR-1125-P*	TBNR1125P	1.125	.562		●		●	●		
TBNR-1250-P	TBNR1250P	1.250	.625		●		●	●		
TBNR-1500-P	TBNR1500P	1.500	.750		●		●	●		
TBNR-1625-P	TBNR1625P	1.625	.812		●		●	●	●	
TBNR-1750-P	TBNR1750P	1.750	.875		●		●	●		
TBNR-2000-P	TBNR2000P	2.000	1.000		●		●	●		
TBNR-2500-P	TBNR2500P	2.500	1.250		●		●	●		

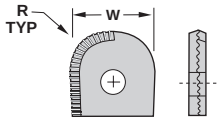
*Use in cutter for TBNR-1000P

TBXR-N

Neutral-Rake Roughing Inserts

Special Design for Roughing!

For cutter bodies see pg. 38, 39



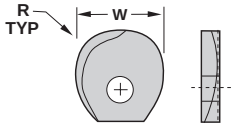
Insert Description	EDP Code	Dia	R	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
TBXR-500-N	TBXR500N	.500	.250		●		●	●	●	
TBXR-625-N	TBXR625N	.625	.312		●		●	●		
TBXR-750-N	TBXR750N	.750	.375		●		●	●	●	
TBXR-875-N	TBXR875N	.875	.437		●		●	●		
TBXR-1000-N	TBXR1000N	1.000	.500		●		●	●	●	
TBXR-1250-N	TBXR1250N	1.250	.625		●		●	●		
TBXR-1500-N	TBXR1500N	1.500	.750		●		●	●		

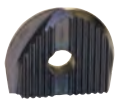
SPHEROID STYLE

TBRR-P

Positive-Rake Finishing Inserts

For cutter bodies see pg. 38, 39





Insert Description	EDP Code	Dia	R	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
TBRR-250-P	TBRR250P	.250	.125		●		●	●		
TBRR-312-P	TBRR312P	.312	.156		●		●	●		
TBRR-375-P	TBRR375P	.375	.187		●		●	●	●	
TBRR-500-P	TBRR500P	.500	.250		●		●	●	●	
TBRR-625-P	TBRR625P	.625	.312		●		●	●		
TBRR-750-P	TBRR750P	.750	.375	●	●		●	●	●	
TBRR-875-P	TBRR875P	.875	.437		●		●	●		
TBRR-1000-P	TBRR1000P	1.000	.500	●	●		●	●	●	
TBRR-1125-P*	TBRR1125P	1.125	.562		●		●	●		
TBRR-1250-P	TBRR1250P	1.250	.625		●		●	●		
TBRR-1500-P	TBRR1500P	1.500	.750		●		●	●		

*Use in cutter for TBRR-1000P

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up -to- date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

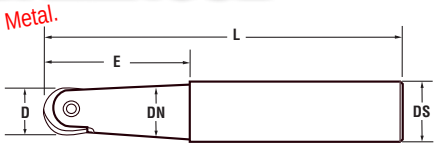
	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
Cast Iron					●		
Non-Ferrous		▲			●		
Stainless/High Temp					●		
Steel					●		
Hardened Material					▲		
Composite					▲		

BALL NOSE

TBNS-WT

Available in Steel, Carbide Cored & Heavy Metal.

Tapered neck holders (Inch) w/coolant port



Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
3/4”	TBNSC-100-75WT750	TBNSC10075WT750	.750	3.000	7.500	1.000	3° Taper	TBNR/RR-750	STBN-6	K4
3/4”	TBNSC-100-94WT750	TBNSC10094WT750	.750	3.000	9.437	1.000	3° Taper	TBNR/RR-750	STBN-6	K4
1”	TBNSC-125-82WT1000	TBNSC12582WT1000	1.000	3.875	8.250	1.250	3° Taper	TBNR/RR-1000	STBN-7	K5
1”	TBNSC-125-94WT1000	TBNSC12594WT1000	1.000	3.875	9.437	1.250	3° Taper	TBNR/RR-1000	STBN-7	K5
1-1/4”	TBNSC-150-94WT1250	TBNSC15094WT1250	1.250	4.750	9.437	1.500	3° Taper	TBNR/RR-1250	STBN-8	K6

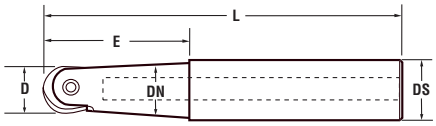
Tapered neck holders (Inch) without coolant port

Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
1/4”	TBNS-375-40WT250	TBNS37540WT250	.250	1.375	4.000	.375	3° Taper	TBNR/RR-250	STBN-1A	K2
5/16”	TBNS-500-50WT312	TBNS50050WT312	.312	1.906	5.000	.500	3° Taper	TBNR/RR-312	STBN-2	K3
3/8”	TBNS-500-50WT375	TBNS50050WT375	.375	1.375	5.000	.500	3° Taper	TBNR/RR-375	STBN-3	K3
1/2”	TBNS-625-60WT500	TBNS62560WT500	.500	2.312	6.000	.625	3° Taper	TBNR/RR-500	STBN-4	K3
5/8”	TBNS-750-68WT625	TBNS75068WT625	.625	2.562	6.875	.750	3° Taper	TBNR/RR-625	STBN-5	K3
3/4”	TBNS-100-75WT750	TBNS10075WT750	.750	3.000	7.500	1.000	3° Taper	TBNR/RR-750	STBN-6	K4
3/4”	TBNS-100-94WT750	TBNS10094WT750	.750	3.000	9.437	1.000	3° Taper	TBNR/RR-750	STBN-6	K4
1”	TBNS-125-82WT1000	TBNS12582WT1000	1.000	3.875	8.250	1.250	3° Taper	TBNR/RR-1000	STBN-7	K5
1”	TBNS-125-94WT1000	TBNS12594WT1000	1.000	3.875	9.437	1.250	3° Taper	TBNR/RR-1000	STBN-7	K5
1-1/4”	TBNS-150-94WT1250	TBNS15094WT1250	1.250	4.750	9.437	1.500	3° Taper	TBNR/RR-1250	STBN-8	K6

TBNC-WT

Carbide Cored Shank

Tapered neck holders (Inch) without coolant port

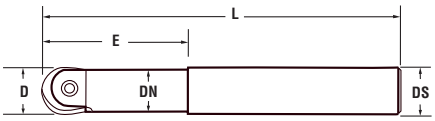


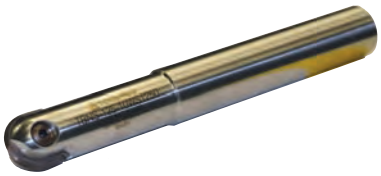
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
5/8”	TBNC-750-68WT625	TBNC75068WT625	.625	2.562	6.875	.750	3° Taper	TBNR/RR-625	STBN-5	K3
3/4”	TBNC-100-75WT750	TBNC10075WT750	.750	3.000	7.500	1.000	3° Taper	TBNR/RR-750	STBN-6	K4
3/4”	TBNC-100-94WT750	TBNC10094WT750	.750	3.000	9.437	1.000	3° Taper	TBNR/RR-750	STBN-6	K4
1”	TBNC-125-82WT1000	TBNC12582WT1000	1.000	3.875	8.250	1.250	3° Taper	TBNR/RR-1000	STBN-7	K5
1”	TBNC-125-94WT1000	TBNC12594WT1000	1.000	3.875	9.437	1.250	3° Taper	TBNR/RR-1000	STBN-7	K5
1-1/4”	TBNC-150-94WT1250	TBNC15094WT1250	1.250	4.750	9.437	1.500	3° Taper	TBNR/RR-1250	STBN-8	K6

TBNS-WS

Available in Steel, Carbide Cored & Heavy Metal.

Straight neck holders (Inch) w/coolant port





Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
3/4”	TBNSC-750-45WS750	TBNSC75045WS750	.750	1.750	6.750	.750	.690	TBNR/RR-750	STBN-6	K4
3/4”	TBNSC-750-67WS750	TBNSC75067WS750	.750	2.375	6.750	.750	.690	TBNR/RR-750	STBN-6	K4
1”	TBNSC-100-62WS1000	TBNSC10062WS1000	1.000	1.750	6.281	1.000	.906	TBNR/RR-1000	STBN-7	K5
1”	TBNSC-100-75WS1000	TBNSC10075WS1000	1.000	2.750	7.500	1.000	.906	TBNR/RR-1000	STBN-7	K5
1-1/4”	TBNSC-125-10WS1250	TBNSC12510WS1250	1.250	3.850	10.000	1.250	1.142	TBNR/RR-1250	STBN-8	K6

Straight neck holders (Inch) without coolant port

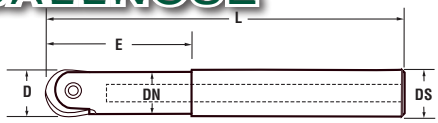
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
1/4”	TBNS-375-40WS250	TBNS37540WS250	.250	.750	4.000	.375	.225	TBNR/RR-250	STBN-1A	K2
5/16”	TBNS-375-40WS312	TBNS37540WS312	.312	.750	4.000	.375	.281	TBNR/RR-312	STBN-2	K3
3/8”	TBNS-500-35WS375	TBNS50035WS375	.375	1.344	3.562	.500	.355	TBNR/RR-375	STBN-3	K3
1/2”	TBNS-500-35WS500	TBNS50035WS500	.500	1.250	3.562	.500	.470	TBNR/RR-500	STBN-4	K3
1/2”	TBNS-500-50WS500	TBNS50050WS500	.500	1.250	5.000	.500	.470	TBNR/RR-500	STBN-4	K3
5/8”	TBNS-625-55WS625	TBNS62555WS625	.625	1.375	5.500	.625	.551	TBNR/RR-625	STBN-5	K3
5/8”	TBNS-625-62WS625	TBNS62562WS625	.625	2.000	6.281	.625	.551	TBNR/RR-625	STBN-5	K3
3/4”	TBNS-750-45WS750	TBNS75045WS750	.750	1.750	4.500	.750	.690	TBNR/RR-750	STBN-6	K4
3/4”	TBNS-750-62WS750	TBNS75062WS750	.750	1.750	6.281	.750	.690	TBNR/RR-750	STBN-6	K4
3/4”	TBNS-750-67WS750	TBNS75067WS750	.750	2.375	6.750	.750	.690	TBNR/RR-750	STBN-6	K4
3/4”	TBNS-750-82WS750	TBNS75082WS750	.750	2.375	8.250	.750	.690	TBNR/RR-750	STBN-6	K4
7/8”	TBNS-100-62WS875	TBNS10062WS875	.875	1.750	6.281	1.000	.794	TBNR/RR-875	STBN-7	K5
1”	TBNS-100-62WS1000	TBNS10062WS1000	1.000	1.750	6.281	1.000	.906	TBNR/RR-1000	STBN-7	K5
1”	TBNS-100-75WS1000	TBNS10075WS1000	1.000	2.750	7.500	1.000	.906	TBNR/RR-1000	STBN-7	K5
1”	TBNS-100-90WS1000	TBNS10090WS1000	1.000	3.125	9.062	1.000	.906	TBNR/RR-1000	STBN-7	K5
1-1/4”	TBNS-125-10WS1250	TBNS12510WS1250	1.250	3.875	10.000	1.250	1.125	TBNR/RR-1250	STBN-8	K6
1-1/2”	TBNS-150-12WS1500	TBNS15012WS1500	1.500	4.000	12.000	1.500	1.375	TBNR/RR-1500	STBN-8	K6
1-5/8”	TBNS-162-12WS1625	TBNS16212WS1625	1.625	4.000	12.000	1.625	1.375	TBNR/RR-1625	STBN-9	K7
1-3/4”	TBNS-175-14WS1750	TBNS17514WS1750	1.750	5.000	14.000	1.750	1.500	TBNR/RR-1750	STBN-9	K7
2”	TBNS-200-16WS2000	TBNS20016WS2000	2.000	6.000	16.000	2.000	1.625	TBNR/RR-2000	STBN-10	K8
2-1/2”	TBNS-250-16WS2500	TBNS25016WS2500	2.500	6.000	16.000	2.500	2.125	TBNR/RR-2500	STBN-10	K8

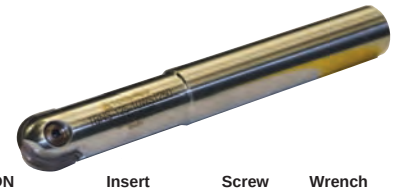
BALLNOSE

TBNC-WS

Carbide Cored Shank

Straight neck holders (Inch) without coolant port

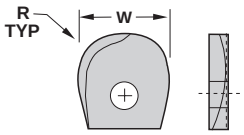


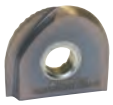


Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
1/2”	TBNC-500-35WS500	TBNC50035WS500	.500	1.250	3.562	.500	.470	TBNR/RR-500	STBN-4	K3
1/2”	TBNC-500-50WS500	TBNC50050WS500	.500	1.250	5.000	.500	.470	TBNR/RR-500	STBN-4	K3
5/8”	TBNC-625-55WS625	TBNC62555WS625	.625	1.375	5.500	.625	.551	TBNR/RR-625	STBN-5	K3
5/8”	TBNC-625-62WS625	TBNC62562WS625	.625	2.000	6.281	.625	.551	TBNR/RR-625	STBN-5	K3
3/4”	TBNC-750-45WS750	TBNC75045WS750	.750	1.750	4.500	.750	.709	TBNR/RR-750	STBN-6	K4
3/4”	TBNC-750-62WS750	TBNC75062WS750	.750	1.750	6.281	.750	.709	TBNR/RR-750	STBN-6	K4
3/4”	TBNC-750-67WS750	TBNC75067WS750	.750	2.375	6.750	.750	.709	TBNR/RR-750	STBN-6	K4
3/4”	TBNC-750-82WS750	TBNC75082WS750	.750	2.375	8.250	.750	.709	TBNR/RR-750	STBN-6	K4
7/8”	TBNC-100-62WS875	TBNC10062WS875	.875	2.375	6.281	1.000	.810	TBNR/RR-875	STBN-7	K5
1”	TBNC-100-62WS1000	TBNC10062WS1000	1.000	1.750	6.281	1.000	.906	TBNR/RR-1000	STBN-7	K5
1”	TBNC-100-75WS1000	TBNC10075WS1000	1.000	2.750	7.500	1.000	.906	TBNR/RR-1000	STBN-7	K5
1”	TBNC-100-90WS1000	TBNC10090WS1000	1.000	3.125	9.062	1.000	.906	TBNR/RR-1000	STBN-7	K5
1-1/4”	TBNC-125-10WS1250	TBNC12510WS1250	1.250	3.875	10.000	1.250	1.125	TBNR/RR-1250	STBN-8	K6
1-1/2”	TBNC-150-12WS1500	TBNC15012WS1500	1.500	4.000	12.000	1.500	1.375	TBNR/RR-1500	STBN-8	K6
1-5/8”	TBNC-162-12WS1625	TBNC16212WS1625	1.625	4.000	12.000	1.625	1.375	TBNR/RR-1625	STBN-9	K7
1-3/4”	TBNC-175-14WS1750	TBNC17514WS1750	1.750	5.000	14.000	1.750	1.500	TBNR/RR-1750	STBN-9	K7
2”	TBNC-200-16WS2000	TBNC20016WS2000	2.000	6.000	16.000	2.000	1.625	TBNR/RR-2000	STBN-10	K8
2-1/2”	TBNC-250-16WS2500	TBNC25016WS2500	2.500	6.000	16.000	2.500	2.125	TBNR/RR-2500	STBN-10	K8

TBNR-M-N

Neutral Rake - Finishing Insert (METRIC)





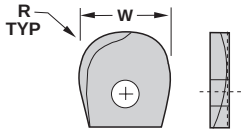
Cutter: TBNSC/TBNS/TBNC

Insert Description	EDP Code	Dia	R	Uncoated C26S	TiN Coated GP26	AlTiN Coated ZS26S	AlTiN Coated ZS26	AlTiN Coated AC3	PCD Coated DX200	CBN Tipped* CB200
TBNR-10M-N	TBNR10MN	10,0	5,0	●		●	●			
TBNR-12M-N	TBNR12MN	12,0	6,0	●		●	●	●		
TBNR-16M-N	TBNR16MN	16,0	8,0	●		●	●			
TBNR-20M-N	TBNR20MN	20,0	10,0	●		●	●	●		
TBNR-25M-N	TBNR25MN	25,0	12,5	●		●	●	●		
TBNR-30M-N	TBNR30MN	30,0	15,0	●		●	●			
TBNR-32M-N	TBNR32MN	32,0	16,0	●		●	●			

*CBN tipped inserts must run in machine with head tilted at 5° minimum

TBNR-M-P

Positive Rake - Finishing Insert (METRIC)



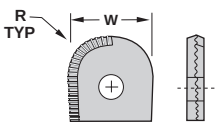
Cutter: TBNSC/TBNS/TBNC

Insert Description	EDP Code	Dia	R	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
TBNR-8M-P	TBNR8MP	8,0	4,0	●	●		●	●		
TBNR-10M-P	TBNR10MP	10,0	5,0	●	●		●	●		
TBNR-12M-P	TBNR12MP	12,0	6,0	●	●		●	●	●	
TBNR-16M-P	TBNR16MP	16,0	8,0	●	●		●	●		
TBNR-20M-P	TBNR20MP	20,0	10,0	●	●		●	●	●	
TBNR-25M-P	TBNR25MP	25,0	12,5	●	●		●	●	●	
TBNR-30M-P	TBNR30MP	30,0	15,0	●	●		●	●		
TBNR-32M-P	TBNR32MP	32,0	16,0	●	●		●	●		
TBNR-40M-P	TBNR40MP	40,0	20,0		●		●	●	●	
TBNR-50M-P	TBNR50MP	50,0	25,0		●		●	●	●	
TBNR-65M-P	TBNR65MP	65,0	32,5		●		●	●		

TBXR-M-N

Special Design for Roughing!

Neutral Rake - Roughing Insert (METRIC)



Cutter: TBNSC/TBNS/TBNC

Insert Description	EDP Code	Dia	R	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
TBXR-16M-N	TBXR16MN	16,0	8,0	●	●		●	●		
TBXR-20M-N	TBXR20MN	20,0	10,0	●	●		●	●	●	
TBXR-25M-N	TBXR25MN	25,0	12,5	●	●		●	●	●	
TBXR-30M-N	TBXR30MN	30,0	15,0	●	●		●	●		
TBXR-32M-N	TBXR32MN	32,0	16,0	●	●		●	●		
TBXR-40M-N	TBXR40MN	40,0	20,0		●		●	●	●	

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up -to- date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

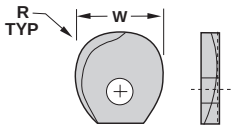
	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
Cast Iron					●		
Non-Ferrous		▲			●		
Stainless/High Temp					●		
Steel					●		
Hardened Material					▲		
Composite							

SPHEROID STYLE

TBRR-M-P

Positive-Rake Finishing Insert - METRIC

Cutter: TBNSC/TBNS/TBNC



Insert Description	EDP Code	Dia	R	Uncoated	TiN Coated	AlTiN Coated		PCD Coated	CBN Tipped*
				C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
TBRR-8M-P	TBRR8MP	8,0	4,0		●		●	●		
TBRR-10M-P	TBRR10MP	10,0	5,0		●		●	●		
TBRR-12M-P	TBRR12MP	12,0	6,0		●		●	●	●	
TBRR-16M-P	TBRR16MP	16,0	8,0		●		●	●		
TBRR-20M-P	TBRR20MP	20,0	10,0		●		●	●	●	
TBRR-25M-P	TBRR25MP	25,0	12,5		●		●	●	●	
TBRR-30M-P	TBRR30MP	30,0	15,0		●		●	●		
TBRR-32M-P	TBRR32MP	32,0	16,0		●		●	●		

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up -to- date grade offering.

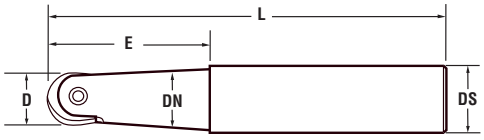
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron					●			
Non-Ferrous	▲				●			
Stainless/High Temp					●			
Steel					●			
Hardened Material					▲			●
Composite					▲	●		

TBNS-WT

Tapered Neck Holder (METRIC) w/coolant port

Available in Steel, Carbide Cored & Heavy Metal.



Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
16mm	TBNSC-20M-175WT16	TBNSC20M175WT16	16,0	60,0	175,0	20,0	3° Taper	TBNR/RR-16M	STBN-5	K3
20mm	TBNSC-25M-200WT20	TBNSC25M200WT20	20,0	80,0	200,0	25,0	3° Taper	TBNR/RR-20M	STBN-6	K4
25mm	TBNSC-32M-225WT25	TBNSC32M225WT25	25,0	100,0	225,0	32,0	3° Taper	TBNR/RR-25M	STBN-7	K5
30mm	TBNSC-40M-225WT30	TBNSC40M225WT30	30,0	120,0	225,0	40,0	3° Taper	TBNR/RR-30M	STBN-8	K6
32mm	TBNSC-40M-225WT32	TBNSC40M225WT32	32,0	120,0	225,0	40,0	3° Taper	TBNR/RR-32M	STBN-8	K6

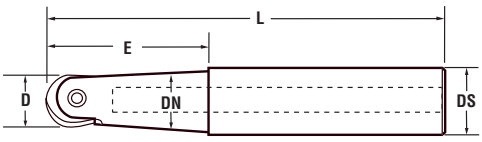
Tapered Neck Holder (METRIC) without coolant port

Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
8mm	TBNS-10M-125WT8	TBNS10M125WT8	8,0	35,0	125,0	10,0	3° Taper	TBNR/RR-8M	STBN-2	K3
10mm	TBNS-12M-125WT10	TBNS12M125WT10	10,0	35,0	125,0	12,0	3° Taper	TBNR/RR-10M	STBN-3	K3
12mm	TBNS-16M-160WT12	TBNS16M160WT12	12,0	60,0	160,0	16,0	3° Taper	TBNR/RR-12M	STBN-4	K3
16mm	TBNS-20M-180WT16	TBNS20M180WT16	16,0	60,0	180,0	20,0	3° Taper	TBNR/RR-16M	STBN-5	K3
20mm	TBNS-25M-190WT20	TBNS25M190WT20	20,0	80,0	190,0	25,0	3° Taper	TBNR/RR-20M	STBN-6	K4
20mm	TBNS-25M-230WT20	TBNS25M230WT20	20,0	80,0	230,0	25,0	3° Taper	TBNR/RR-20M	STBN-6	K4
25mm	TBNS-32M-210WT25	TBNS32M210WT25	25,0	100,0	210,0	32,0	3° Taper	TBNR/RR-25M	STBN-7	K5
25mm	TBNS-32M-240WT25	TBNS32M240WT25	25,0	100,0	240,0	32,0	3° Taper	TBNR/RR-25M	STBN-7	K5
30mm	TBNS-40M-250WT30	TBNS40M250WT30	30,0	120,0	250,0	40,0	3° Taper	TBNR/RR-30M	STBN-8	K6
32mm	TBNS-40M-250WT32	TBNS40M250WT32	32,0	120,0	250,0	40,0	3° Taper	TBNR/RR-32M	STBN-8	K6

TBNC-WT

Tapered Neck Holder (METRIC) without coolant port

Carbide Cored Shank

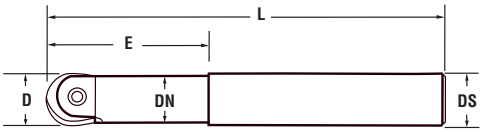


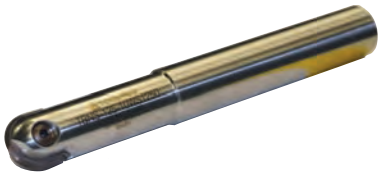
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
16mm	TBNC-20M-180WT16	TBNC20M180WT16	16,0	60,0	180,0	20,0	3° Taper	TBNR/RR-16M	STBN-5	K3
20mm	TBNC-25M-190WT20	TBNC25M190WT20	20,0	80,0	190,0	25,0	3° Taper	TBNR/RR-20M	STBN-6	K4
20mm	TBNC-25M-230WT20	TBNC25M230WT20	20,0	80,0	230,0	25,0	3° Taper	TBNR/RR-20M	STBN-6	K4
25mm	TBNC-32M-210WT25	TBNC32M210WT25	25,0	100,0	210,0	32,0	3° Taper	TBNR/RR-25M	STBN-7	K5
25mm	TBNC-32M-240WT25	TBNC32M240WT25	25,0	100,0	240,0	32,0	3° Taper	TBNR/RR-25M	STBN-7	K5
30mm	TBNC-40M-250WT30	TBNC40M250WT30	30,0	120,0	250,0	40,0	3° Taper	TBNR/RR-30M	STBN-8	K6
32mm	TBNC-40M-250WT32	TBNC40M250WT32	32,0	120,0	250,0	40,0	3° Taper	TBNR/RR-32M	STBN-8	K6

TBNS-WS

Straight Neck Holder (METRIC) w/coolant port (RH only)

Available in Steel, Carbide Cored & Heavy Metal.





Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
20mm	TBNSC-20M-175WS20	TBNSC20M175WS20	20,0	45,0	175,0	20,0	18,0	TBNR/RR-20M	STBN-6	K4
25mm	TBNSC-25M-190WS25	TBNSC25M190WS25	25,0	70,0	190,0	25,0	23,0	TBNR/RR-25M	STBN-7	K5
32mm	TBNSC-32M-210WS32	TBNSC32M210WS32	32,0	80,0	210,0	32,0	27,2	TBNR/RR-32M	STBN-8	K6

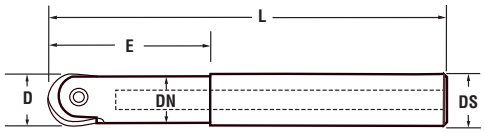
Straight Neck Holder (METRIC) without coolant port (RH only)

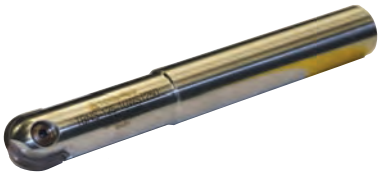
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
8mm	TBNS-8M-100WS8	TBNS8M100WS8	8,0	19,0	100,0	8,0	7,5	TBNR/RR-8M	STBN-2	K3
10mm	TBNS-10M-100WS10	TBNS10M100WS10	10,0	19,0	100,0	10,0	9,0	TBNR/RR-10M	STBN-3	K3
12mm	TBNS-12M-130WS12	TBNS12M130WS12	12,0	36,0	130,0	12,0	10,5	TBNR/RR-12M	STBN-4	K3
12mm	TBNS-12M-150WS12	TBNS12M150WS12	12,0	46,0	150,0	12,0	10,5	TBNR/RR-12M	STBN-4	K3
16mm	TBNS-16M-140WS16	TBNS16M140WS16	16,0	36,0	140,0	16,0	14,0	TBNR/RR-16M	STBN-5	K3
16mm	TBNS-16M-160WS16	TBNS16M160WS16	16,0	36,0	160,0	16,0	14,0	TBNR/RR-16M	STBN-5	K3
20mm	TBNS-20M-160WS20	TBNS20M160WS20	20,0	45,0	160,0	20,0	18,0	TBNR/RR-20M	STBN-6	K4
20mm	TBNS-20M-175WS20	TBNS20M175WS20	20,0	45,0	175,0	20,0	18,0	TBNR/RR-20M	STBN-6	K4
25mm	TBNS-25M-160WS25	TBNS25M160WS25	25,0	45,0	160,0	25,0	23,0	TBNR/RR-25M	STBN-7	K5
25mm	TBNS-25M-190WS25	TBNS25M190WS25	25,0	70,0	190,0	25,0	23,0	TBNR/RR-25M	STBN-7	K5
30mm	TBNS-30M-175WS30	TBNS30M175WS30	30,0	56,0	175,0	30,0	27,2	TBNR/RR-30M	STBN-8	K6
30mm	TBNS-30M-210WS30	TBNS30M210WS30	30,0	80,0	210,0	30,0	27,2	TBNR/RR-30M	STBN-8	K6
32mm	TBNS-32M-175WS32	TBNS32M175WS32	32,0	56,0	175,0	32,0	27,2	TBNR/RR-32M	STBN-8	K6
32mm	TBNS-32M-210WS32	TBNS32M210WS32	32,0	80,0	210,0	32,0	27,2	TBNR/RR-32M	STBN-8	K6
40mm	TBNS-40M-305WS40	TBNS40M305WS40	40,0	101,0	305,0	32,0	35,0	TBNR/RR-40M	STBN-8	K6
50mm	TBNS-50M-406WS50	TBNS50M406WS50	50,0	152,0	406,0	50,0	41,0	TBNR/RR-50M	STBN-10	K8
65mm	TBNS-65M-406WS65	TBNS65M406WS65	65,0	152,0	406,0	65,0	54,0	TBNR/RR-65M	STBN-10	K8

TBNC-WS

Straight Neck Holder (METRIC) without coolant port (RH only)

Carbide Cored Shank





Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
12mm	TBNC-12M-130WS12	TBNC12M130WS12	12,0	36,0	130,0	12,0	10,5	TBNR/RR-12M	STBN-4	K3
12mm	TBNC-12M-150WS12	TBNC12M150WS12	12,0	46,0	150,0	12,0	10,5	TBNR/RR-12M	STBN-4	K3
16mm	TBNC-16M-140WS16	TBNC16M140WS16	16,0	36,0	140,0	16,0	14,0	TBNR/RR-16M	STBN-5	K3
16mm	TBNC-16M-160WS16	TBNC16M160WS16	16,0	36,0	160,0	16,0	14,0	TBNR/RR-16M	STBN-5	K3
20mm	TBNC-20M-160WS20	TBNC20M160WS20	20,0	45,0	160,0	20,0	18,0	TBNR/RR-20M	STBN-6	K4
20mm	TBNC-20M-175WS20	TBNC20M175WS20	20,0	45,0	175,0	20,0	18,0	TBNR/RR-20M	STBN-6	K4
25mm	TBNC-25M-160WS25	TBNC25M160WS25	25,0	45,0	160,0	25,0	23,0	TBNR/RR-25M	STBN-7	K5
25mm	TBNC-25M-190WS25	TBNC25M190WS25	25,0	70,0	190,0	25,0	23,0	TBNR/RR-25M	STBN-7	K5
30mm	TBNC-30M-175WS30	TBNC30M175WS30	30,0	56,0	175,0	30,0	27,2	TBNR/RR-30M	STBN-8	K6
30mm	TBNC-30M-210WS30	TBNC30M210WS30	30,0	80,0	210,0	30,0	27,2	TBNR/RR-30M	STBN-8	K6
32mm	TBNC-32M-175WS32	TBNC32M175WS32	32,0	56,0	175,0	32,0	27,2	TBNR/RR-32M	STBN-8	K6
32mm	TBNC-32M-210WS32	TBNC32M210WS32	32,0	80,0	210,0	32,0	27,2	TBNR/RR-32M	STBN-8	K6

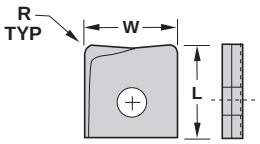
BALLNOSE

FLAT BOTTOM STYLE

TBFI

Neutral Rake Finishing Insert - INCH

Cutter: TBDS & TBDC



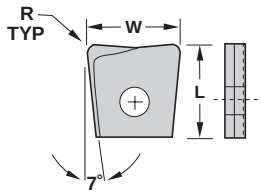
Size	Insert Description	EDP Code	W	R	L	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
1/2”	TBFI-500-02	TBDI50002	.500	.032	.500		●	●	●	●		●
1/2”	TBFI-500-04	TBFI50004	.500	.063	.500		●	●	●	●		●
5/8”	TBFI-625-02	TBFI62502	.625	.032	.580		●	●		●		
5/8”	TBFI-625-04	TBFI62504	.625	.063	.580		●		●	●		
3/4”	TBFI-750-02	TBFI75002	.750	.032	.642		●	●		●		●
3/4”	TBFI-750-04	TBFI75004	.750	.063	.642		●	●		●		●
1”	TBFI-1000-02	TBFI100002	1.000	.032	.867		●		●	●		●
1”	TBFI-1000-04	TBFI100004	1.000	.063	.867		●	●	●	●		●
1”	TBFI-1000-08	TBFI100008	1.000	.125	.867		●	●		●		●

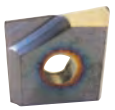
BACK DRAFT STYLE

TBDI

Neutral Rake Finishing Insert - INCH

Cutter: TBDS & TBDC





Size	Insert Description	EDP Code	W	R	L	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
1/2”	TBDI-500-02	TBDI50002	.500	.032	.500		●	●	●	●		●
1/2”	TBDI-500-04	TBDI50004	.500	.063	.500		●	●	●	●		●
5/8”	TBDI-625-02	TBDI62502	.625	.032	.580		●	●		●		
5/8”	TBDI-625-04	TBDI62504	.625	.063	.580		●	●		●		
3/4”	TBDI-750-02	TBDI75002	.750	.032	.642		●		●	●		●
3/4”	TBDI-750-04	TBDI75004	.750	.063	.642		●	●	●	●		●
1”	TBDI-1000-02	TBDI100002	1.000	.032	.867		●		●	●		●
1”	TBDI-1000-04	TBDI100004	1.000	.063	.867		●		●	●		●
1”	TBDI-1000-08	TBDI100008	1.000	.125	.867		●		●	●		●

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

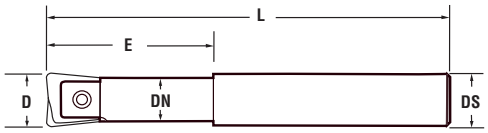
	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
Cast Iron					●		
Non-Ferrous		▲			●		
Stainless/High Temp					●		
Steel					●		
Hardened Material					▲		●
Composite					▲	●	

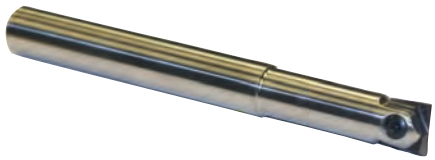
FLAT BOTTOM/ BACK DRAFT STYLE

TBDS-WS

Straight Neck Holder (INCH)

Use TBDI & TBFI Inserts Only





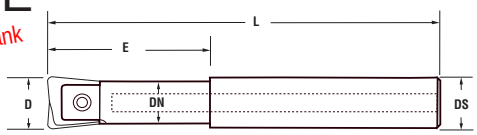
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
1/2”	TBDS-500-59WS500	TBDS50059WS500	.500	1.890	5.980	.500	.413	TBDI / FI-500	STBN-4	K3 / T-10
5/8”	TBDS-625-63WS625	TBDS62563WS625	.625	2.160	6.380	.625	.551	TBDI / FI-625	STBN-5	K3 / T-10
3/4”	TBDS-750-68WS750	TBDS75068WS750	.750	2.480	6.890	.750	.709	TBDI / FI-750	STBN-6	K4 / T-20
1”	TBDS-100-74WS1000	TBDS10074WS1000	1.000	2.830	7.480	1.000	.882	TBDI / FI-1000	STBN-7	K5 / T-25

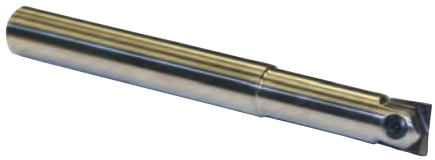
FLAT BOTTOM/ BACK DRAFT STYLE

TBDC-WS

Straight Neck Holder (INCH) Carbide Cored Shank

Use TBDI & TBFI Inserts Only





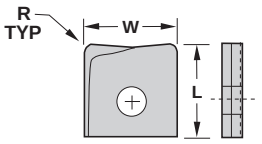
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
1/2”	TBDC-500-59WS500	TBDC50059WS500	.500	1.890	5.980	.500	.413	TBDI / FI-500	STBN-4	K3 / T-10
5/8”	TBDC-625-63WS625	TBDC62563WS625	.625	2.160	6.380	.625	.551	TBDI / FI-625	STBN-5	K3 / T-10
3/4”	TBDC-750-68WS750	TBDC75068WS750	.750	2.480	6.890	.750	.709	TBDI / FI-750	STBN-6	K4 / T-20
1”	TBDC-100-74WS1000	TBDC10074WS1000	1.000	2.830	7.480	1.000	.882	TBDI / FI-1000	STBN-7	K5 / T-25

FLAT BOTTOM STYLE

TBFI

Neutral Rake Finishing Insert - METRIC

Cutter: TBDS & TBDC



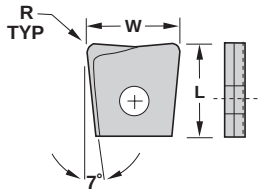
Size	Insert Description	EDP Code	W	R	L	Uncoated C26S	TiN Coated GP26	AlTiN Coated ZS26S	AlTiN Coated ZS26	AlTiN Coated AC3	PCD Coated DX200	CBN Tipped* CB200
8mm	TBFI-8M-02	TBDI8M02	8,0	(02) 0,81	12,7		●			●		●
8mm	TBFI-8M-04	TBFI8M04	8,0	(04) 1,60	12,7		●			●		●
16mm	TBFI-16M-02	TBFI16M02	16,0	(02) 0,81	14,7		●		●	●		
16mm	TBFI-16M-04	TBFI16M04	16,0	(04) 1,60	14,7		●			●		
20mm	TBFI-20M-02	TBFI20M02	20,0	(02) 0,81	16,3		●		●	●		●
20mm	TBFI-20M-04	TBFI20M04	20,0	(04) 1,60	16,3		●			●		●
25mm	TBFI-25M-02	TBFI25M02	25,0	(02) 0,81	22,0		●			●		●
25mm	TBFI-25M-04	TBFI25M04	25,0	(04) 1,60	22,0		●			●		●
25mm	TBFI-25M-08	TBFI25M08	25,0	(08) 3,18	22,0		●			●		●

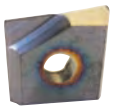
BACK DRAFT STYLE

TBDI

Neutral Rake Finishing Insert - METRIC

Cutter: TBDS & TBDC





Size	Insert Description	EDP Code	W	R	L	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
8mm	TBDI-8M-02	TBDI8M02	8,0	(02) 0,81	12,7		●			●		●
8mm	TBDI-8M-04	TBFI8M04	8,0	(04) 1,60	12,7		●			●		●
16mm	TBDI-16M-02	TBFI16M02	16,0	(02) 0,81	14,7		●		●	●		
16mm	TBDI-16M-04	TBFI16M04	16,0	(04) 1,60	14,7		●			●		
20mm	TBDI-20M-02	TBFI20M02	20,0	(02) 0,81	16,3		●		●	●		●
20mm	TBDI-20M-04	TBFI20M04	20,0	(04) 1,60	16,3		●			●		●
25mm	TBDI-25M-02	TBFI25M02	25,0	(02) 0,81	22,0		●			●		●
25mm	TBDI-25M-04	TBFI25M04	25,0	(04) 1,60	22,0		●			●		●
25mm	TBDI-25M-08	TBFI25M08	25,0	(08) 3,18	22,0		●			●		●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

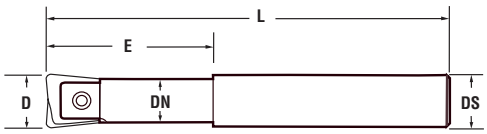
Cast Iron					●		
Non-Ferrous		▲			●		
Stainless/High Temp					●		
Steel					●		
Hardened Material					▲		●
Composite					▲	●	

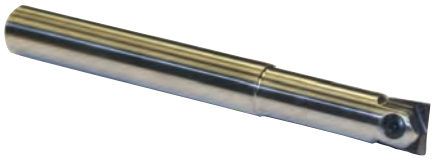
FLAT BOTTOM/ BACK DRAFT STYLE

TBDS-WS

Straight Neck Holder (METRIC)

Use TBDI & TBFI Inserts Only





Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
8mm	TBDS-8M-59WS8	TBDS8M59WS8	8,0	48,0	151,9	8,0	10,5	TBDI / FI-8M	STBN-4	K3 / T-10
16mm	TBDS-16M-63WS16	TBDS16M63WS16	16,0	54,9	162,1	16,0	13,9	TBDI / FI-16M	STBN-5	K3 / T-10
20mm	TBDS-20M-68WS20	TBDS20M68WS20	20,0	62,9	175,0	20,0	18,0	TBDI / FI-20M	STBN-6	K4 / T-20
25mm	TBDS-25M-74WS25	TBDS25M74WS25	25,0	71,8	189,9	25,0	17,3	TBDI / FI-25M	STBN-7	K5 / T-25

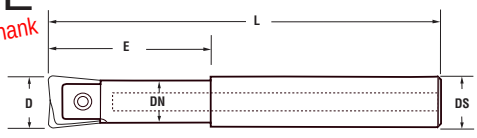
FLAT BOTTOM/ BACK DRAFT STYLE

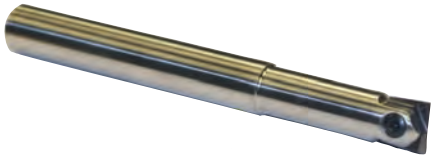
TBDC-WS

Carbide Cored Shank

Straight Neck Holder (METRIC)

Use TBDI & TBFI Inserts Only





Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
8mm	TBDS-8M-59WS8	TBDS8M59WS8	8,0	48,0	151,9	8,0	10,5	TBDI / FI-8M	STBN-4	K3 / T-10
16mm	TBDS-16M-63WS16	TBDS16M63WS16	16,0	54,9	162,1	16,0	13,9	TBDI / FI-16M	STBN-5	K3 / T-10
20mm	TBDS-20M-68WS20	TBDS20M68WS20	20,0	62,9	175,0	20,0	18,0	TBDI / FI-20M	STBN-6	K4 / T-20
25mm	TBDS-25M-74WS25	TBDS25M74WS25	25,0	71,8	189,9	25,0	17,3	TBDI / FI-25M	STBN-7	K5 / T-25

BALLNOSE

RIGID-LOCK — Trouble Shooting

Problem	Solution	Problem	Solution	Problem	Solution	Problem	Solution	Problem	Solution
Insert is wearing prematurely	Decrease speed Increase feed Increase DOC	Insert is chipping	Use ZS26 grade Increase speed Decrease feed Decrease DOC Use Tapered Shank Use Neutral insert	Insert has built up edge	Increase speed Increase feed	Insert is wearing at center	Increase feed by 10% Decrease speed	Toolholder failure DOC	Reduce feed Decrease tool extension Reduce

RIGID-LOCK — Grade Description

Grades	Descriptions
C26S	Uncoated, tough, fine grain substrate with sharp edge. Ideal for plastics and soft materials that produce little or no heat.
ZS26	PVD AlTiN grade with a tough, fine grain substrate. FIRST CHOICE for general applications in steels, stainless, and high temp alloys. Excellent in low to high speeds and will handle interruptions and high feed rates. Coating provides highest resistance to oxidation, physical abrasion and chip welding. Dry machining capable.
ZS26S	Same as grade AT26 except with a sharper edge for light depths of cut in finishing operations. FIRST CHOICE for non-ferrous and composite materials at medium to high SFM.
CB400	PCBN tip brazed onto a carbide insert. To be used for roughing to finishing in hardened steels greater than 45 HRC such as bearing steel, hot and cold work tool steels, high-speed steels, die steels, case hardened steels, nitrided irons and some hard coatings.
DX200	CVD PCD coated grade. Excellent wear resistance in nonmetalic materials such as graphite, epoxy based resins and plastics. FIRST CHOICE in aluminum and composites at high SFM.

Chart 1 — Feed, Speed and Diameter Information

Materials	Cast Iron		Steels				Stainless Steels		Nickel Based Alloys	Titanium	Aluminum
Materials	Grey	Nodular	Low Carbon up to 240 BHN	High Carbon Medium Tensile 240-300 BHN	High Alloy Tool Steel 300-400	Hard Steels 48-65 HRC	300 Series	400 Series	Inconel Waspalloy Hastalloy	6AL 4V	6061 T6 7075 T6
Insert Grades	ZS26	ZS26	ZS26	ZS26	ZS26	ZS26	ZS26	ZS26	ZS26	ZS26	ZS26S/C26S
Speed (SFPM)	500-1000	400-800	500-1000	400-800	300-600	125-300	300-700	400-800	100-200	200-300	1500-5000
Feed Rate (IPR)	.006/.020	.006/.020	.006/.016	.006/.016	.006/.016	.003/.009	.006/.012	.006/.014	.004/.010	.004/.011	.015/.035

Effective Cutting Diameter Information

The charts listed below are applicable when the depth of cut is less than the radius of the tool. The IPR can be increased as the DOC is reduced.

Chart 2 — Select the effective diameter of the insert based on DOC

DOC	INSERT DIAMETER							
	0.250	0.312	0.375	0.500	0.625	0.750	1.000	1.250
0.020	0.136	0.153	0.169	0.196	0.220	0.242	0.280	0.314
0.050	0.200	0.229	0.255	0.300	0.339	0.374	0.436	0.490
0.075	0.229	0.267	0.300	0.357	0.406	0.450	0.527	0.594
0.100	0.245	0.292	0.332	0.400	0.458	0.510	0.600	0.678
0.125	0.250	0.306	0.354	0.433	0.500	0.559	0.661	0.750
0.156		0.312	0.370	0.463	0.541	0.609	0.726	0.826
0.188			0.375	0.484	0.573	0.650	0.781	0.893
0.250				0.500	0.612	0.707	0.866	1.000
0.312					0.625	0.739	0.927	1.082
0.375						0.750	0.968	1.146
0.500							1.000	1.225
0.625	Effective diameters for standard inserts at various DOC's							1.250

RPM = SFM X 3.82/Effective cutting diameter

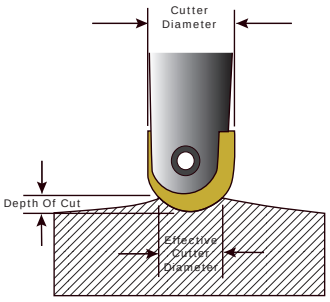


Chart 3 — Feed - Multiply factor below times IPR in Chart 1 for adjusted IPR

DOC	INSERT DIAMETER							
	0.250	0.312	0.375	0.500	0.625	0.750	1.000	1.250
0.020	3.356	3.953	4.330	5.000	5.590	6.124	7.071	7.906
0.050	2.236	2.500	2.739	3.162	3.536	3.873	4.472	5.000
0.075	1.826	2.041	2.236	2.582	2.887	3.162	3.651	4.082
0.100	1.581	1.768	1.936	2.236	2.500	2.739	3.162	3.536
0.125	1.414	1.581	1.732	2.000	2.236	2.449	2.828	3.162
0.156		1.415	1.550	1.790	2.002	2.193	2.532	2.831
0.188			1.414	1.633	1.826	2.000	2.309	2.582
0.250				1.414	1.581	1.732	2.000	2.236
0.312					1.415	1.550	1.790	2.002
0.375						1.414	1.633	1.826
0.500							1.414	1.581
0.625								1.414

EXAMPLE

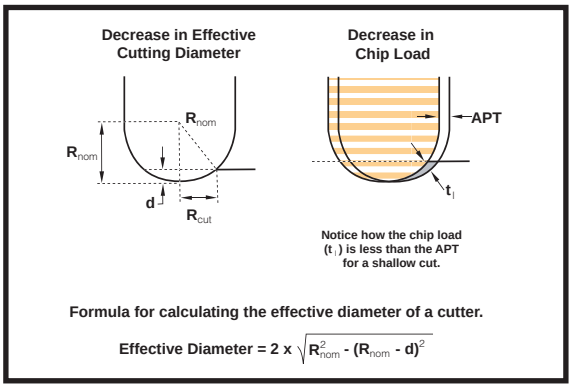
EFFECTIVE DIAMETER		
ACTUAL DIAMETER	DOC	EFFECTIVE DIAMETER
.750	.100	.510

EXAMPLE

ADJUSTED FEED RATE FOR ABOVE		
CHART 1 IPR	CHART 3 MULTIPLIER	ADJUSTED IPR
.008	2.739	.022

BALLNOSE

Shallow Cutting with Rigid-Lock Ball Nose End Mill



Using your Rigid-Lock Ball Nose End Mill

Use Anti-seize grease every time an insert is changed.
Use positive geometry inserts on stainless, aluminum, titanium and Inconel.
Climb mill whenever possible.
Step over should be greater than depth of cut
Use TBFI inserts if work piece has a draft angle on the walls. TBDI inserts are for work pieces with straight walls.
Balance chipload, RPM, feed rate, tool extension, and material.
TBFI and TBDI inserts cannot plunge, ramp at 1˚ to 2˚ angle maximum.
1/4" and 5/16" endmills have a maximum feed rate of .006 to .008 per revolution and a .015 to .018 depth of cut.

Recommended torque specifications for Rigid-Lock insert screws

	INSERT SIZE			TORQUE	
	inch	metric	wrench	Nm/inch lbs.	anti-seize
STBN-1	1/4"	1/4"	K2/T-8	Manual	Yes
STBN-2	5/16"	8mm	K3/T-10	Manual	Yes
STBN-3	3/8"	10mm	K3/T-10	Manual	Yes
STBN-4	1/2"	12mm	K35/T-15	6.0/53	Yes
STBN-5	5/8"	16mm	K35/T-15	6.2/55	Yes
STBN-6/TS352	3/4"	20mm	K4/T-20	6.2/55	Yes
STBN-7/TS41	1"	25mm	K5/T-25	6.5/58	Yes
STBN-8/TS50	1-1/4"	32mm	K6/T-30	6.5/58	Yes
STBN-8	1-1/2"	38mm	K6/T-30	6.5/58	Yes
STBN-8	2"	55mm	K8/T-40	6.5/58	Yes
STBN-10	2-1/2"	63mm	K8/T-40	6.5/58	Yes

Using your Rigid-Lock Ball Nose End Mill for Roughing - TBXR

Adjust to your own cutting conditions.

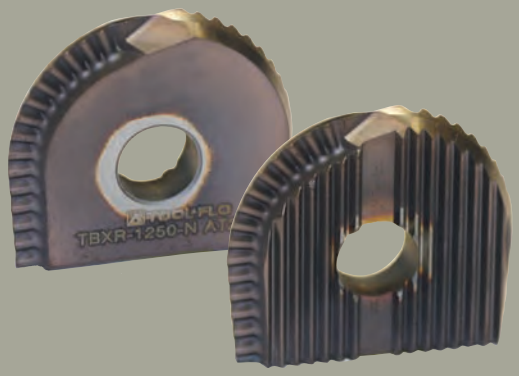
Ex: Cutting 4140 material, 3/4 diameter ball nose insert, .010 chip load and .375 D.O.C.

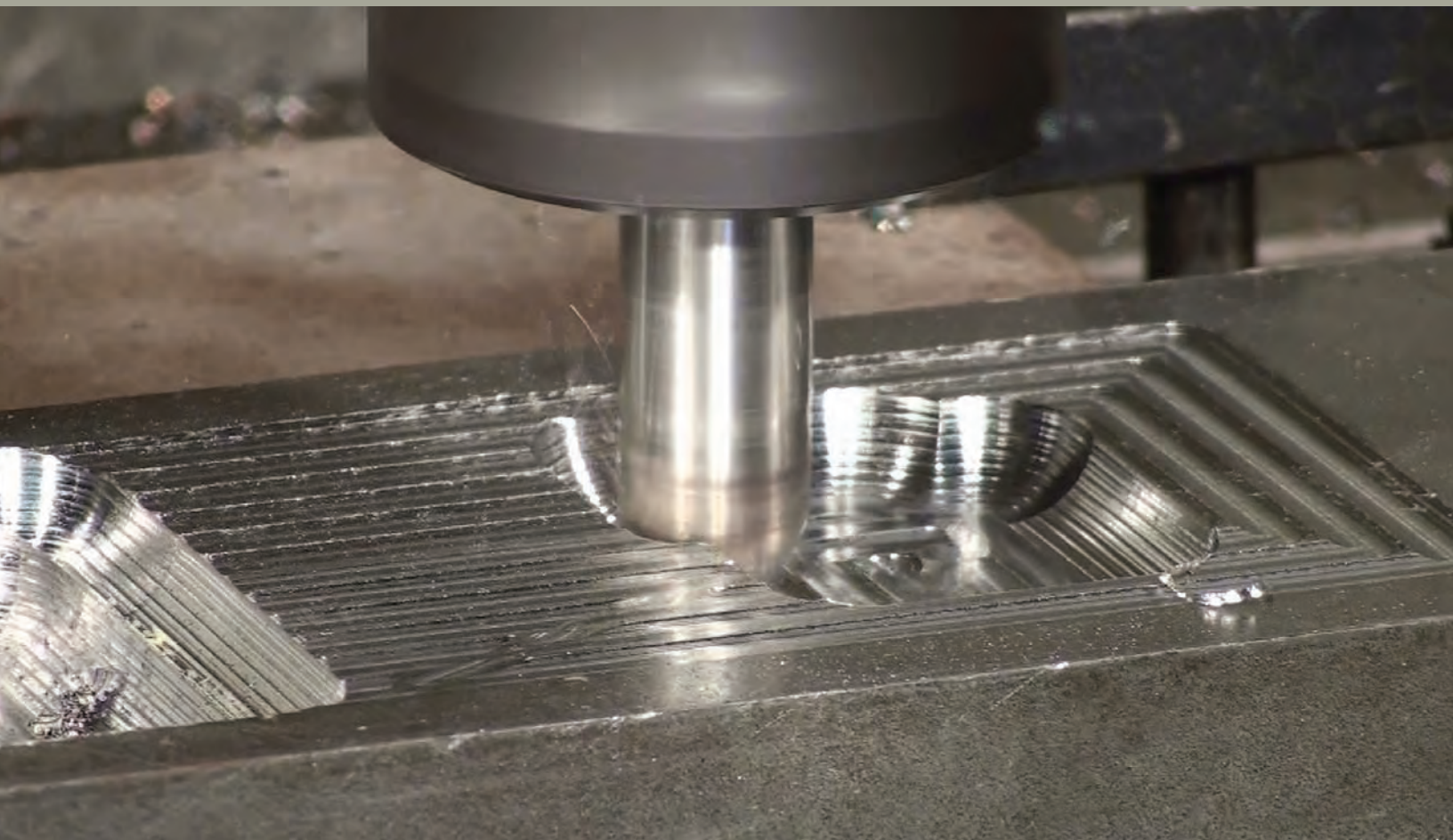
Chip load per tooth: Should be a maximum of .007-.010.

Maximum Depth of Cut: Equal to half the raduis of the insert.

Ex. If you are using a 1” diameter insert, then the D.O.C. would be up too 1/2”.

For optimal tool life of our ballnose system, we recommend lighter feed rates and higher surface speeds.





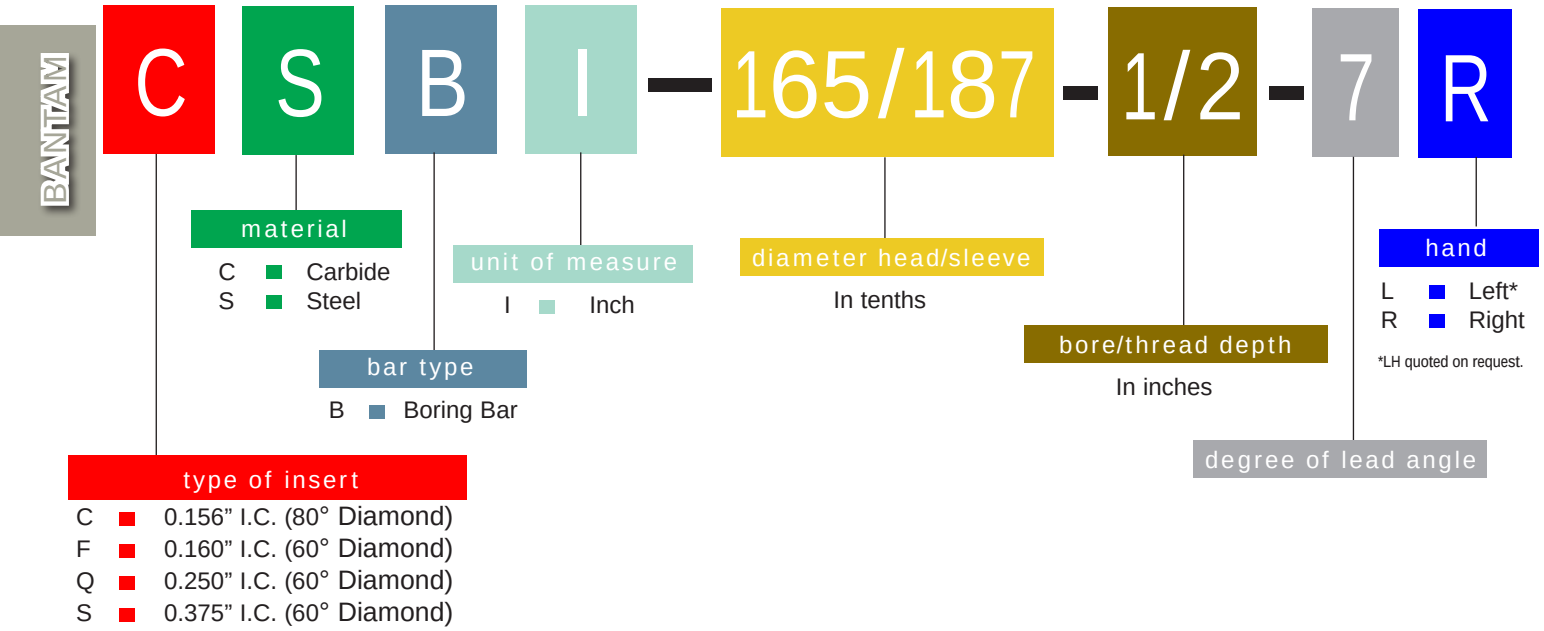
TOOL-FLO

BANTAM

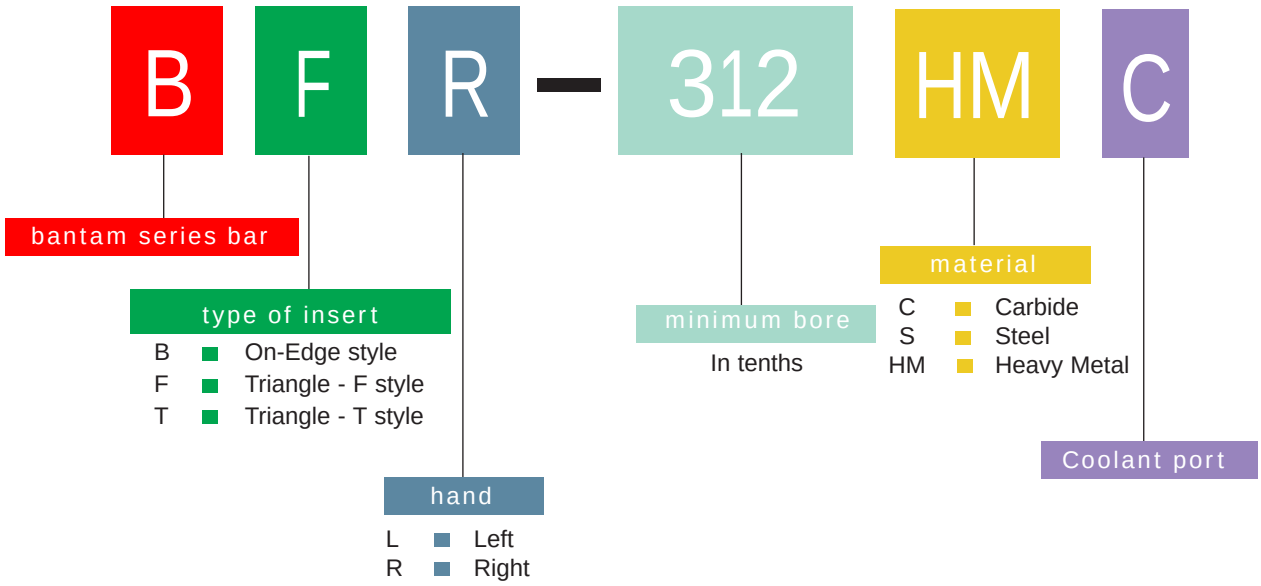
Small diameter

Threading • Boring • Grooving

Bantam Boring Bar Nomenclature Chart



Bantam Grooving/Threading Bar Nomenclature Chart



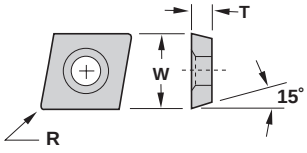
SAVE!!!

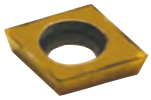
Ask about our refurbished heavy metal bars at a discount price!

MINIMUM BORE .180

BORING

CDCD

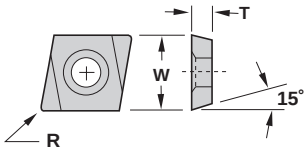


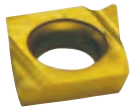


Description	EDP Code	T	W	R	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
CDCD-500	9BCD500	.040	.156	.002	●	●	●		
CDCD-505	9BCD505	.040	.156	.007	●	●	●		
CDCD-51	9BCD51	.040	.156	.015	●	●	●		

BORING - Positive Rake

CDCG





Description	EDP Code	T	W	R	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
CDCG-500L	9BCG500L	.040	.156	.002		●	●		
CDCG-505L	9BCG505L	.040	.156	.007		●	●		
CDCG-51L	9BCG51L	.040	.156	.015	●	●	●		

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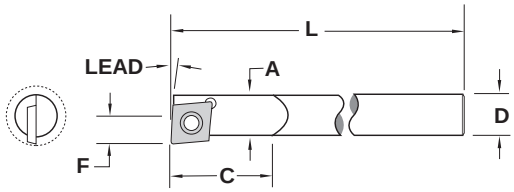
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		●	▲		
Non-Ferrous	●	▲			
Stainless/High Temp	●	▲			
Steel	●	▲			

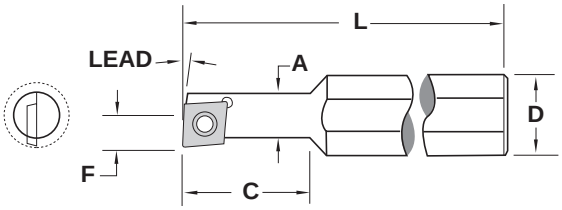
CCBI/CSBI



Description	EDP Code	Stk	Material	Insert	Lead	A	D	L	C	F	Min Bore	Screw*
CSBI-165/187-1/2-7R	9BCS16187R	●	Steel	CDCD/G	7°	.165	.187	2.50	.500	.094	.180	TS1
CCBI-165/156-6-7R	9BCC16157R	●	Carbide	CDCD/G	7°	.165	.156	6.00	---	.094	.180	TS1
CSBI-180/187-2 1/2-5R	9BCS18185R	●	Steel	CDCD/G	5°	.180	.187	2.50	.500	.104	.208	TS1
CCBI-180/187-4-5R	9BCC18185R	●	Carbide	CDCD/G	5°	.189	.187	4.00	---	.104	.208	TS1
CSBI-250-3-5R	9BCS255R	●	Steel	CDCD/G	5°	.260	.250	3.00	---	.145	.285	TS1
CCBI-250-4-5R	9BCC255R	●	Carbide	CDCD/G	5°	.258	.250	4.00	---	.145	.285	TS1
CSBI-250-3-0R	9BCS250R	●	Steel	CDCD/G	0°	.260	.250	3.00	---	.152	.292	TS1
CCBI-250-4-0R	9BCC250R	●	Carbide	CDCD/G	0°	.258	.250	4.00	---	.152	.292	TS1

*TS1 screw uses K05 wrench

CCBI/CSBI



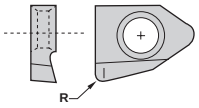
Description	EDP Code	Stk	Material	Insert	Lead	A	D	L	C	F	Min Bore	Screw*
CSBI-180/500-1/2-5R	9BCS18505R	●	Steel	CDCD/G	5°	.180	.500	2.75	.500	.104	.208	TS1
CCBI-180/500-7/8-5R	9BCC18505R	●	Carbide	CDCD/G	5°	.189	.500	2.37	.875	.104	.208	TS1
CSBI-250/500-3/4-5R	9BCS25505R	●	Steel	CDCD/G	5°	.260	.500	2.75	.750	.145	.285	TS1
CCBI-250/500-1 1/4-5R	9BCC25505R	●	Carbide	CDCD/G	5°	.258	.500	2.75	1.25	.145	.285	TS1
CSBI-250/500-3/4-0R	9BCS25500R	●	Steel	CDCD/G	0°	.260	.500	2.75	.750	.152	.292	TS1
CCBI-250/500-1 1/4-0R	9BCC25500R	●	Carbide	CDCD/G	0°	.258	.500	2.75	1.25	.152	.292	TS1

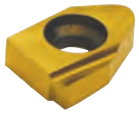
*TS1 screw uses K05 wrench

MINIMUM BORE .250

BORING

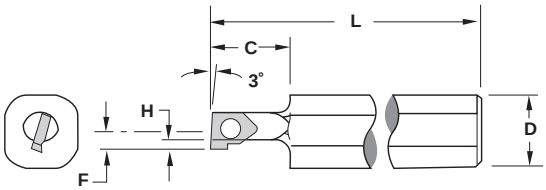
BSBR





Description	EDP Code	R	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BSBR-005	9BSBR	.005			●		

BSR



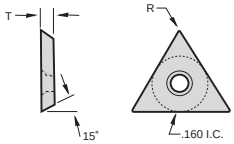
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F**	Min. Bore	Screw*
BSR-250S	9B250S	●	Steel	BSBR		5.000	.500	.500	.050	.125	.250	TS1
BSR-250SC	9B250SC	●	Steel	BSBR	✓	5.000	.500	.500	.050	.125	.250	TS1

*TS1 screw uses K05 wrench
** Dimension over sharp point

MINIMUM BORE .275 - .360

BORING

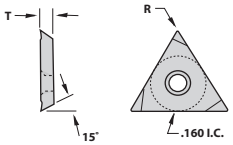
TDAB



Description	EDP Code	R	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
TDAB-505	9BDB505	.007	.047		●	●		
TDAB-51	9BDB51	.015	.047		●	●		

BORING - Positive Rake

TDCG



Description	EDP Code	R	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
TDCG-505L	9BDG505L	.007	.047		●	●		
TDCG-51L	9BDG51L	.015	.047		●	●		

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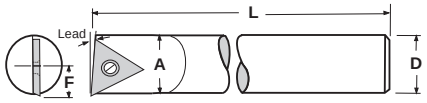
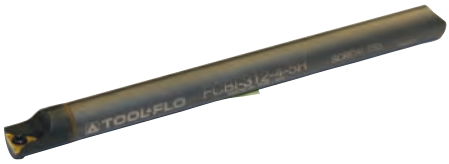
▲ Recommended grade under general conditions.

Cast Iron		●	▲		
Non-Ferrous	●	▲			
Stainless/High Temp	●	▲			
Steel	●	▲			

FCBI/FSBI



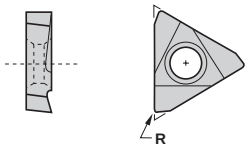


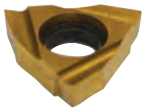
Description	EDP Code	Stk	Material	Insert	Lead	A	D	L	F	Min. Bore	Screw*
FCBI-187-4-5R	9BFC185R	●	Carbide	TDAB/TDCG	5°	.203	.187	4.000	.126	.275	TS3
FCBI-250-4-5R	9BFC255R	●	Carbide	TDAB/TDCG	5°	.250	.250	4.000	.156	.300	TS3
FSBI-250-4-5R	9BFS255R	●	Steel	TDAB/TDCG	5°	.260	.250	4.000	.156	.300	TS3
FCBI-312-4-5R	9BFC315R	●	Carbide	TDAB/TDCG	5°	.312	.312	4.000	.187	.360	TS3

*TS3 screw uses K1 wrench

MINIMUM BORE .312

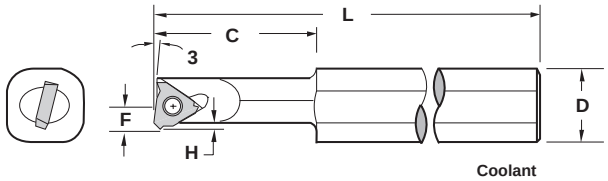
BORING
BFR3





Description	EDP Code	R	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BFR3-BR	9BFR3B	.005		●	●		

BFR3

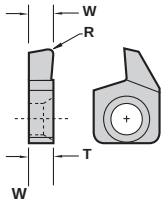


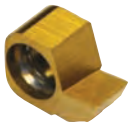
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F	Min. Bore	Screw*
BFR-312S	9BF312S	●	Steel	BFR3		5.000	.500	.500	.050	.150	.312	TS25
BFR-312SC	9BF312SC	●	Steel	BFR3	✓	5.000	.500	.500	.050	.150	.312	TS25
BFR-312HM	9BF312HM	●	Heavy Metal	BFR3		5.000	.500	1.250	.050	.150	.312	TS25
BFR-312HMC	9BF312HMC	●	Heavy Metal	BFR3	✓	5.000	.500	1.250	.050	.150	.312	TS25

*TS25 screw uses K2 wrench

MINIMUM BORE .312 - .440

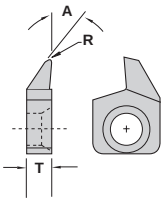
BORING
BNBR/L

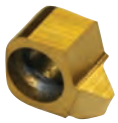




Description	EDP Code	W	R	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BNBR-125W	9BB125R	.125	.005/.010	.137		●	●		
BNBL-125W	9BB125L	.125	.005/.010	.137		●	●		

Back Turning
BNPR/L





Description	EDP Code	A	R	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BNPR-015R	9BP015R	45°	.015	.137		●	●		
BNPL-015R	9BP015L	45°	.015	.137		●	●		

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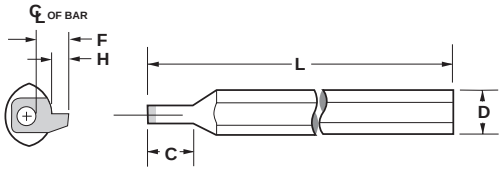
	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
Cast Iron		●	▲		
Non-Ferrous	●	▲			
Stainless/High Temp	●	▲			
Steel	●	▲			

BB



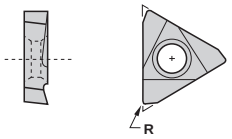
Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	Min. Bore	Screw*
BB-312S	9B312S	●	Steel	BNBR/L BNPR/L	5.000	.500	.750	.156	.070	.312	TS25
BB-344S	9B344S	●	Steel	BNBR/L BNPR/L	5.000	.500	.750	.152	.070	.344	TS25
BB-375S	9B375S	●	Steel	BNBR/L BNPR/L	5.000	.500	.750	.1625	.070	.375	TS25
BB-440S	9B440S	●	Steel	BNBR/L BNPR/L	5.000	.500	1.000	.190	.070	.440	TS25
BB-312HM	9B312HM	●	Heavy Metal	BNBR/L BNPR/L	5.000	.500	1.000	.156	.070	.312	TS25
BB-344HM	9B344HM	●	Heavy Metal	BNBR/L BNPR/L	5.000	.500	1.000	.152	.070	.344	TS25
BB-375HM	9B375HM	●	Heavy Metal	BNBR/L BNPR/L	5.000	.500	1.250	.1625	.070	.375	TS25
BB-440HM	9B440HM	●	Heavy Metal	BNBR/L BNPR/L	5.000	.500	1.500	.190	.070	.440	TS25
BB-312C	9B312C	●	Carbide	BNBR/L BNPR/L	5.000	.500	1.250	.156	.070	.312	TS25
BB-440C	9B440C	●	Carbide	BNBR/L BNPR/L	5.000	.500	1.500	.190	.070	.440	TS25

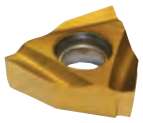
*TS25 screw uses K2 wrench

MINIMUM BORE .400

BORING

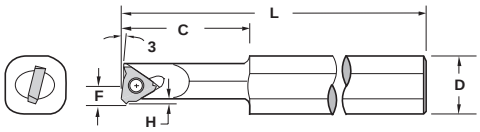
BFR4





Description	EDP Code	R	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BFR4-BR	9BFR4B	.005		●	●		

BFR4



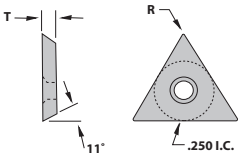
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F**	Min. Bore	Screw*
BFR-400S	9BF400S	●	Steel	BFR4		5.000	.500	1.000	.050	.237	.400	TS25
BFR-400SC	9BF400SC	●	Steel	BFR4	✓	5.000	.500	1.000	.050	.237	.400	TS25
BFR-400HM	9BF400HM	●	Heavy Metal	BFR4		5.000	.500	1.000	.050	.237	.400	TS25
BFR-400HMC	9BF400HMC	●	Heavy Metal	BFR4	✓	5.000	.500	1.000	.050	.237	.400	TS25

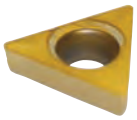
*TS25 screw uses K2 wrench
** Dimension over sharp point

MINIMUM BORE .438

BORING

TPCB

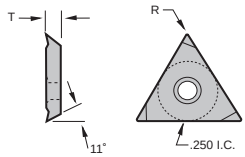


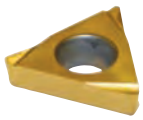


Description	EDP Code	R	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
TPCB-2205	9BPB2205	.007	.096		●	●		
TPCB-221	9BPB221	.015	.096		●	●		

BORING - Positive Rake

TPCG





Description	EDP Code	R	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
TPCG-2205L	9BPG2205	.007	.096		●	●		
TPCG-221L	9BPG221L	.015	.096		●	●		

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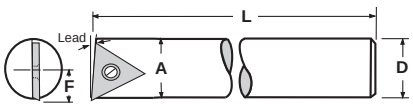
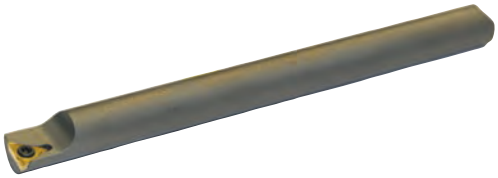
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
Cast Iron		●	▲		
Non-Ferrous	●	▲			
Stainless/High Temp	●	▲			
Steel	●	▲			

QCBI/QSBI





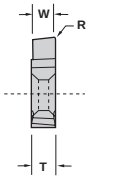
Description	EDP Code	Stk	Material	Insert	Lead	A	D	L	F	Min. Bore	Screw*
QSBI-375-5-5R	9BQS375R	●	Steel	TPCB/G	5°	.385	.375	5.000	.221	.438	TS6
QCBI-375-6-5R	9BQC375R	●	Carbide	TPCB/G	5°	.390	.375	6.000	.211	.438	TS6
QCBI-500-8-5R	9BQC505R	●	Carbide	TPCB/G	5°	.510	.500	8.000	.296	.563	TS6

*TS6 screw uses K3 wrench

MINIMUM BORE .500

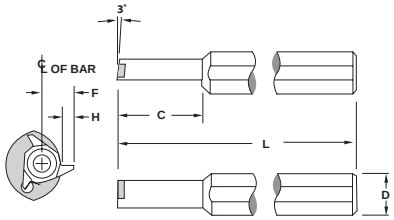
BORING

BTBR/L



Description	EDP Code	W	R	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BTBR-125	9BTB125R	.125	.005/.010	.130		●	●		
BTBL-125	9BTB125L	.125	.005/.010	.130		●	●		

BTR/L



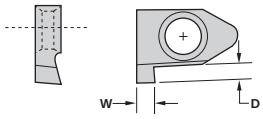
Description	EDP Code	Stk	Material	Insert	L	D	C	H	F	Min. Bore	Screw*
BTR-500S	9BTR500S	●	Steel	BTBR	5.000	.500	1.250	.075	.225	.500	TS25
BTL-500S	9BTL500S	●	Steel	BTBL	5.000	.500	1.250	.075	.225	.500	TS25
BTR-500HM	9BTR500HM	●	Heavy Metal	BTBR	5.000	.500	1.500	.075	.225	.500	TS25
BTL-500HM	9BTL500HM	●	Heavy Metal	BTBL	5.000	.500	1.500	.075	.225	.500	TS25

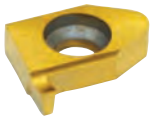
*TS25 screw uses K2 wrench
** Dimension over sharp point

MINIMUM BORE .250

GROOVING

BSGR





Description	EDP Code	W	D	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BSGR-015W	9BSG015R	.015	.030			●		
BSGR-020W	9BSG020R	.020	.050			●		
BSGR-031W	9BSG031R	.031	.050			●		
BSGR-047W	9BSG047R	.047	.050			●		

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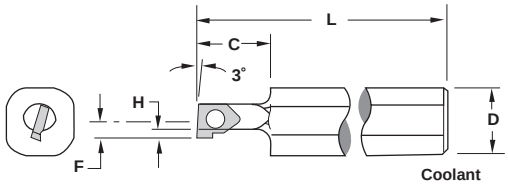
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		●	▲		
Non-Ferrous	●	▲			
Stainless/High Temp	●	▲			
Steel	●	▲			

BSR

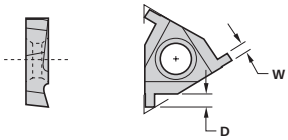


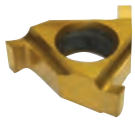
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F**	Min. Bore	Screw
BSR-250S	9B250S	●	Steel	BSGR		5.000	.500	.500	.050	.157	.250	TS20
BSR-250SC	9B250SC	●	Steel	BSGR	✓	5.000	.500	.500	.050	.157	.250	TS20

MINIMUM BORE .312

GROOVING

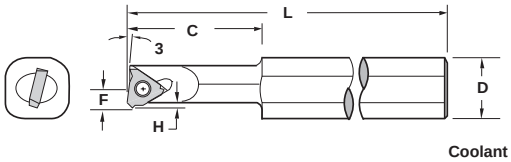
BFR3





Description	EDP Code	W	D	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BFR3-015W	9BFR3G015	.015	.020			●		
BFR3-020W	9BFR3G020	.020	.030			●		
BFR3-031W	9BFR3G031	.031	.035			●		

BFR3



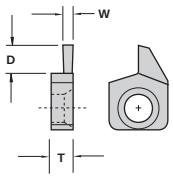
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F	Min. Bore	Screw*
BFR-312S	9BF312S	●	Steel	BFR3		5.000	.500	1.000	.050	.150	.312	TS25
BFR-312SC	9BF312SC	●	Steel	BFR3	✓	5.000	.500	1.000	.050	.150	.312	TS25
BFR-312HM	9BF312HM	●	Heavy Metal	BFR3		5.000	.500	1.000	.050	.150	.312	TS25
BFR-312HMC	9BF312HMC	●	Heavy Metal	BFR3	✓	5.000	.500	1.000	.050	.150	.312	TS25

*TS25 screw uses K2 wrench

MINIMUM BORE .312 - .440

GROOVING

BNGR/L

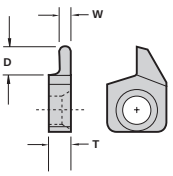


RH Shown

Description	EDP Code	W	D	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BNGR-031W	9BG031R	.031	.050	.137		●	●		
BNGL-031W	9BG031L	.031	.050	.137		●	●		
BNGR-047W	9BG047R	.047	.070	.137		●	●		
BNGL-047W	9BG047L	.047	.070	.137		●	●		
BNGR-062W	9BG062R	.062	.070	.137		●	●		
BNGL-062W	9BG062L	.062	.070	.137		●	●		
BNGR-094W	9BG094R	.094	.070	.137		●	●		
BNGL-094W	9BG094L	.094	.070	.137		●	●		
BNGR-125W	9BG125R	.125	.070	.137		●	●		
BNGL-125W	9BG125L	.125	.070	.137		●	●		

GROOVING - Full Nose Radius

BNRR/L



RH Shown

Description	EDP Code	W	R	D	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BNRR-031W	9BR031R	.031	.0155	.050	.137		●	●		
BNRL-031W	9BR031L	.031	.0155	.050	.137		●	●		
BNRR-047W	9BR047R	.047	.0235	.070	.137		●	●		
BNRL-047W	9BR047L	.047	.0235	.070	.137		●	●		
BNRR-062W	9BR062R	.062	.0310	.070	.137		●	●		
BNRL-062W	9BR062L	.062	.0310	.070	.137		●	●		
BNRR-094W	9BR094R	.094	.0470	.070	.137		●	●		
BNRL-094W	9BR094L	.094	.0470	.070	.137		●	●		
BNRR-125W	9BR125R	.125	.0625	.070	.137		●	●		
BNRL-125W	9BR125L	.125	.0625	.070	.137		●	●		

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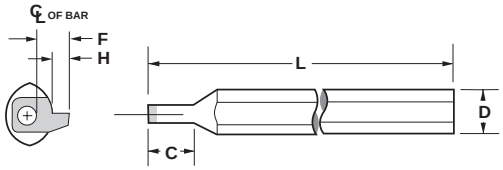
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
Cast Iron		●	▲		
Non-Ferrous	●	▲			
Stainless/High Temp	●	▲			
Steel	●	▲			

BB



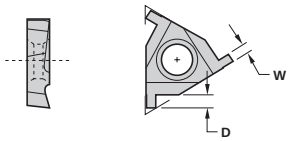
Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	Min. Bore	Screw*
BB-312S	9B312S	●	Steel	BNGR/L BNRR/L	5.000	.500	.750	.156	.070	.312	TS25
BB-344S	9B344S	●	Steel	BNGR/L BNRR/L	5.000	.500	.750	.152	.070	.344	TS25
BB-375S	9B375S	●	Steel	BNGR/L BNRR/L	5.000	.500	.750	.1625	.070	.375	TS25
BB-440S	9B440S	●	Steel	BNGR/L BNRR/L	5.000	.500	1.000	.190	.070	.440	TS25
BB-312HM	9B312HM	●	Heavy Metal	BNGR/L BNRR/L	5.000	.500	1.000	.156	.070	.312	TS25
BB-344HM	9B344HM	●	Heavy Metal	BNGR/L BNRR/L	5.000	.500	1.000	.152	.070	.344	TS25
BB-375HM	9B375HM	●	Heavy Metal	BNGR/L BNRR/L	5.000	.500	1.250	.1625	.070	.375	TS25
BB-440HM	9B440HM	●	Heavy Metal	BNGR/L BNRR/L	5.000	.500	1.500	.190	.070	.440	TS25
BB-312C	9B312C	●	Carbide	BNGR/L BNRR/L	5.000	.500	1.250	.156	.070	.312	TS25
BB-440C	9B440C	●	Carbide	BNGR/L BNRR/L	5.000	.500	1.500	.190	.070	.440	TS25

*TS25 screw uses K2 wrench

MINIMUM BORE .400

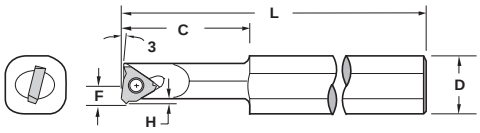
GROOVING

BFR4



Description	EDP Code	W	D	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BFR4-015W	9BFR4G015	.015	.035			●		
BFR4-020W	9BFR4G020	.020	.035			●		
BFR4-031W	9BFR4G031	.031	.035			●		

BFR4



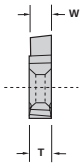
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F**	Min. Bore	Screw
BFR-400S	9BF400S	●	Steel	BFR4		5.000	.500	1.000	.050	.237	.400	TS25
BFR-400SC	9BF400SC	●	Steel	BFR4	✓	5.000	.500	1.000	.050	.237	.400	TS25
BFR-400HM	9BF400HM	●	Heavy Metal	BFR4		5.000	.500	1.000	.050	.237	.400	TS25
BFR-400HMC	9BF400HMC	●	Heavy Metal	BFR4	✓	5.000	.500	1.000	.050	.237	.400	TS25

*TS25 screw uses K2 wrench
** Dimension over sharp point

MINIMUM BORE .500

GROOVING

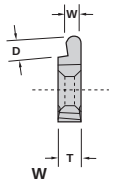
BTGR/L



Description	EDP Code	W	D	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BTGR-031W	9BTG031R	.031	.050	.130		●	●		
BTGL-031W	9BTG031L	.031	.050	.130		●	●		
BTGR-047W	9BTG047R	.047	.070	.130			●		
BTGL-047W	9BTG047L	.047	.070	.130			●		
BTGR-062W	9BTG062R	.062	.075	.130			●		
BTGL-062W	9BTG062L	.062	.075	.130			●		
BTGR-094W	9BTG094R	.094	.075	.130			●		
BTGL-094W	9BTG094L	.094	.075	.130			●		
BTGR-125W	9BTG125R	.125	.075	.130			●		
BTGL-125W	9BTG125L	.125	.075	.130			●		

GROOVING - Full Nose Radius

BTRR/L



Description	EDP Code	W	R	D	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BTRR-031W	9BTR031R	.031	.0155	.050	.130			●		
BTRL-031W	9BTR031L	.031	.0155	.050	.130			●		
BTRR-047W	9BTR047R	.047	.0235	.070	.130			●		
BTRL-047W	9BTR047L	.047	.0235	.070	.130			●		
BTRR-062W	9BTR062R	.062	.0310	.075	.130			●		
BTRL-062W	9BTR062L	.062	.0310	.075	.130			●		
BTRR-094W	9BTR094R	.094	.0470	.075	.130			●		
BTRL-094W	9BTR094L	.094	.0470	.075	.130			●		
BTRR-125W	9BTR125R	.125	.0625	.075	.130			●		
BTRL-125W	9BTR125L	.125	.0625	.075	.130			●		

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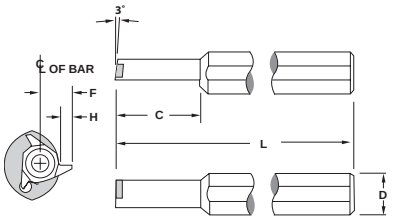
▲ Recommended grade under general conditions.

Cast Iron			●		
Non-Ferrous		●			
Stainless/High Temp		●			
Steel		●			

BTR/L



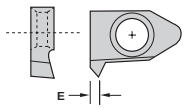
Description	EDP Code	Stk	Material	Insert	L	D	C	H	F	Min. Bore	Screw*
BTR-500S	9BTR500S	●	Steel	BTBR/BTRR	5.000	.500	1.250	.075	.225	.500	TS25
BTL-500S	9BTL500S	●	Steel	BTBL/BTRL	5.000	.500	1.250	.075	.225	.500	TS25
BTR-500HM	9BTR500HM	●	Heavy Metal	BTBR/BTRR	5.000	.500	1.500	.075	.225	.500	TS25
BTL-500HM	9BTL500HM	●	Heavy Metal	BTBLBTRL	5.000	.500	1.500	.075	.225	.500	TS25

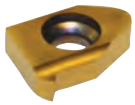
*TS25 screw uses K2 wrench

MINIMUM BORE .250

THREADING - NPT

BSVR

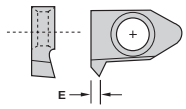


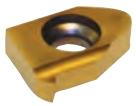


Description	EDP Code	TPI	E	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BSVR-14NPT	9BSV14R	14	.045			●		
BSVR-18NPT	9BSV18R	18	.033			●		
BSVR-27NPT	9BSV27R	27	.026			●		

THREADING - UN

BSVR

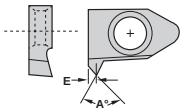




Description	EDP Code	TPI	E	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BSVR-12UN	9BSU12R	12	.040			●		
BSVR-16UN	9BSU16R	16	.031			●		
BSVR-18UN	9BSU18R	18	.029			●		
BSVR-20UN	9BSU20R	20	.026			●		
BSVR-24UN	9BSU24R	24	.023			●		
BSVR-28UN	9BSU28R	28	.021			●		
BSVR-32UN	9BSU32R	32	.019			●		

THREADING - 55°/60° V

BSVR



Description	EDP Code	TPI	R/F	E	A	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BSVR-55	9BSV55R	16-48	.003F	.039	55°			●		
BSVR-60	9BSV60R	16-48	.003R	.039	60°			●		

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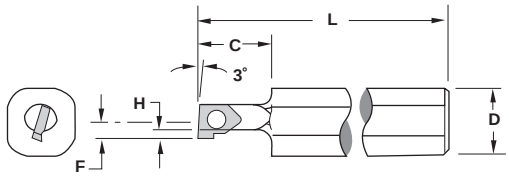
	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
Cast Iron			●		
Non-Ferrous		●			
Stainless/High Temp		●			
Steel		●			

BSR



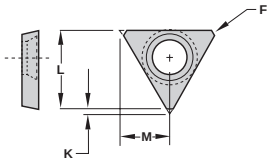
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F**	Min. Bore	Screw*
BSR-250S	9B250S	●	Steel	BSVR		5.000	.500	.500	.050	.157	.250	TS1
BSR-250SC	9B250SC	●	Steel	BSVR	✓	5.000	.500	.500	.050	.157	.250	TS1

*TS1 screw uses K05 wrench
** Dimension over sharp point

MINIMUM BORE .312

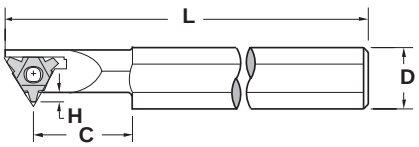
THREADING - 60° V

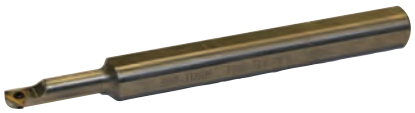
BHV



Description	EDP Code	TPI	F	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BHV-002	9BHV002	16-48	.002		●	●		

BHR





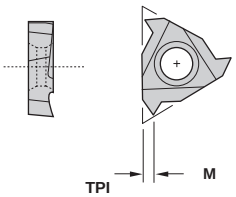
Description	EDP Code	Stk	Material	Insert	L	D	C	H	Min. Bore	Screw*
BHR-312S	9BHR312S	●	Steel	BHV	4.000	.500	.750	.060	.312	TS3
BHR-312HM	9BHR312HM	●	Heavy Metal	BHV	4.000	.500	1.000	.060	.312	TS3

*TS3 screw uses K1 wrench

MINIMUM BORE .312

THREADING - NPT

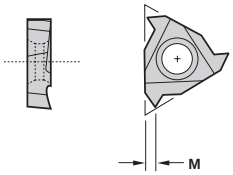
BFR3



Description	EDP Code	TPI	M	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BFR3-18NPT	9BFR3V18	18	.033		●	●		
BFR3-27NPT	9BFR3V27	27	.026		●	●		

THREADING - UN

BFR3



Description	EDP Code	TPI	M	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BFR3-20UN	9BFR3U20	20	.026			●		
BFR3-24UN	9BFR3U24	24	.026			●		
BFR3-28UN	9BFR3U28	28	.021			●		
BFR3-32UN	9BFR3U32	32	.019		●	●		

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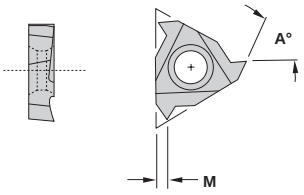
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
Cast Iron			●		
Non-Ferrous		●			
Stainless/High Temp		●			
Steel		●			

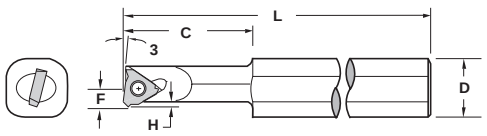
THREADING - 55°/60° V

BFR3



Description	EDP Code	TPI	M	A	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BFR3-55V	9BFR3V55	20-48	.028	55°			●		
BFR3-60V	9BFR3V60	27-48	.031	60°		●	●		

BFR3



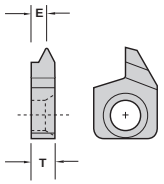
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F	Min. Bore	Screw*
BFR-312S	9BF312S	●	Steel	BFR3		5.000	.500	.500	.050	.150	.312	TS25
BFR-312SC	9BF312SC	●	Steel	BFR3	✓	5.000	.500	.500	.050	.150	.312	TS25
BFR-312HM	9BF312HM	●	Heavy Metal	BFR3		5.000	.500	1.250	.050	.150	.312	TS25
BFR-312HMC	9BF312HMC	●	Heavy Metal	BFR3	✓	5.000	.500	1.250	.050	.150	.312	TS25

*TS25 screw uses K2 wrench

MINIMUM BORE .312 - .440

THREADING - NPT

BNVR/L

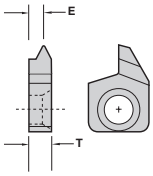


Description	EDP Code	TPI	E	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BNVR-14NPT	9BNP14R	14	.040	.137		●	●		
BNVL-14NPT	9BNP14L	14	.040	.137		●	●		
BNVR-18NPT	9BNP18R	18	.030	.137		●	●		
BNVL-18NPT	9BNP18L	18	.030	.137		●	●		
BNVR-27NPT	9BNP27R	27	.030	.137		●	●		
BNVL-27NPT	9BNP27L	27	.030	.137		●	●		

MINIMUM BORE .312 - .440

THREADING - UN

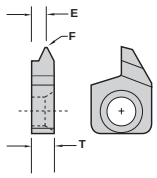
BNVR/L



Description	EDP Code	TPI	E	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BNVR-12UN	9BNV12R	12	.040	.137		●	●		
BNVL-12UN	9BNV12L	12	.040	.137		●	●		
BNVR-16UN	9BNV16R	16	.031	.137		●	●		
BNVL-16UN	9BNV16L	16	.031	.137		●	●		
BNVR-18UN	9BNV18R	18	.031	.137		●	●		
BNVL-18UN	9BNV18L	18	.031	.137		●	●		
BNVR-20UN	9BNV20R	20	.030	.137		●	●		
BNVL-20UN	9BNV20L	20	.030	.137		●	●		
BNVR-24UN	9BNV24R	24	.030	.137		●	●		
BNVL-24UN	9BNV24L	24	.030	.137		●	●		
BNVR-28UN	9BNV28R	28	.030	.137		●	●		
BNVL-28UN	9BNV28L	28	.030	.137		●	●		
BNVR-32UN	9BNV32R	32	.030	.137		●	●		
BNVL-32UN	9BNV32L	32	.030	.137		●	●		

THREADING - 60° V

BNVR/L



Description	EDP Code	TPI	F	E	T	Uncoated GFI	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BNVR-60	9BNV60R	18-40	.003F	.095	.137	●	●	●	●		●
BNVL-60	9BNV60L	18-40	.003F	.095	.137	●	●	●	●		●

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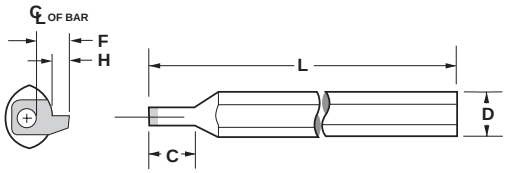
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron				●	
Non-Ferrous			●		
Stainless/High Temp			●		
Steel			●		

BB



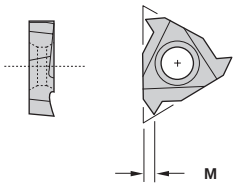
Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	Min. Bore	Screw*
BB-312S	9B312S	●	Steel	BNVR/L	5.000	.500	.750	.156	.070	.312	TS25
BB-344S	9B344S	●	Steel	BNVR/L	5.000	.500	.750	.152	.070	.344	TS25
BB-375S	9B375S	●	Steel	BNVR/L	5.000	.500	.750	.1625	.070	.375	TS25
BB-440S	9B440S	●	Steel	BNVR/L	5.000	.500	1.000	.190	.070	.440	TS25
BB-312HM	9B312HM	●	Heavy Metal	BNVR/L	5.000	.500	1.000	.156	.070	.312	TS25
BB-344HM	9B344HM	●	Heavy Metal	BNVR/L	5.000	.500	1.000	.152	.070	.344	TS25
BB-375HM	9B375HM	●	Heavy Metal	BNVR/L	5.000	.500	1.250	.1625	.070	.375	TS25
BB-440HM	9B440HM	●	Heavy Metal	BNVR/L	5.000	.500	1.500	.190	.070	.440	TS25
BB-312C	9B312C	●	Carbide	BNVR/L	5.000	.500	1.250	.156	.070	.312	TS25
BB-440C	9B440C	●	Carbide	BNVR/L	5.000	.500	1.500	.190	.070	.440	TS25

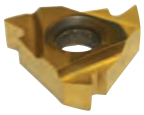
*TS25 screw uses K2 wrench

MINIMUM BORE .400

THREADING - NPT

BFR4

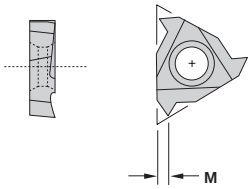


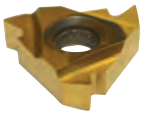


Description	EDP Code	TPI	M	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BFR4-18NPT	9BFR4V18	18	.033		●			
BFR4-27NPT	9BFR4V27	27	.026		●			

THREADING - UN

BFR4

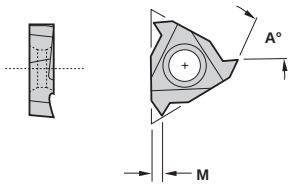


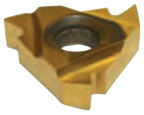


Description	EDP Code	TPI	M	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BFR4-12UN	9BFR4U12	12	.043		●			
BFR4-14UN	9BFR4U14	14	.039		●			
BFR4-16UN	9BFR4U16	16	.034		●			
BFR4-20UN	9BFR4U20	20	.026		●			
BFR4-24UN	9BFR4U24	24	.026		●			
BFR4-28UN	9BFR4U28	28	.021		●			
BFR4-32UN	9BFR4U32	32	.019		●			

THREADING - 55°/60° V

BFR4





Description	EDP Code	TPI	M	A	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BFR4-55V	9BFR4V55	14-48	.043	55°		●	●		
BFR4-60V	9BFR4V60	14-48	.043	60°		●	●		
				Cast Iron		●	▲		
				Non-Ferrous	●	▲			
				Stainless/High Temp	●	▲			
				Steel	●	▲			

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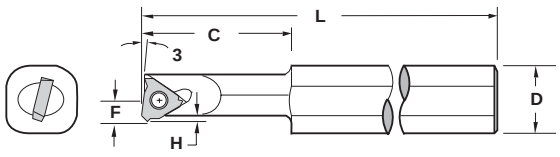
▲ Recommended grade under general conditions.

BFR4



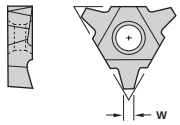
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F**	Min. Bore	Screw*
BFR-400S	9BF400S	●	Steel	BFR4		5.000	.500	1.000	.050	.237	.400	TS25
BFR-400SC	9BF400SC	●	Steel	BFR4	✓	5.000	.500	1.000	.050	.237	.400	TS25
BFR-400HM	9BF400HM	●	Heavy Metal	BFR4		5.000	.500	1.000	.050	.237	.400	TS25
BFR-400HMC	9BF400HMC	●	Heavy Metal	BFR4	✓	5.000	.500	1.000	.050	.237	.400	TS25

*TS25 screw uses K2 wrench
** Dimension over sharp point

MINIMUM BORE .450

THREADING - ACME

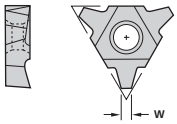
BHR4



Description	EDP Code	TPI	W	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BHR4-8ACME	9BHA080R	8	.0411			●		
BHR4-10ACME	9BHA100R	10	.0319			●		
BHR4-12ACME	9BHA120R	12	.0283			●		
BHR4-16ACME	9BHA160R	16	.0206			●		

THREADING - STUB ACME

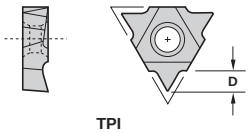
BHR4

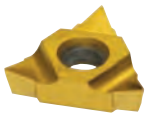


Description	EDP Code	TPI	W	C22	GP22	GP4	AC22	AC4
BHR4-8STACME	9BHA081R	8	.0476			●		
BHR4-10STACME	9BHA101R	10	.0370			●		
BHR4-12STACME	9BHA121R	12	.0326			●		
BHR4-16STACME	9BHA161R	16	.0238			●		

THREADING - 60° V

BHR4





Description	EDP Code	TPI	D	C22	GP22	GP4	AC22	AC4
BHR4-60V	9BH460R	16-48	.075			●	●	

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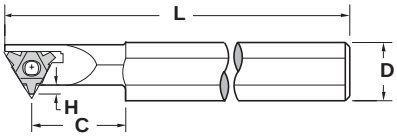
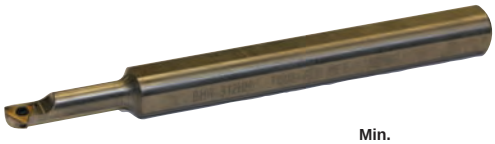
▲ Recommended grade under general conditions.

Cast Iron	●	▲
Non-Ferrous	●	▲
Stainless/High Temp	●	▲
Steel	●	▲

BHR4



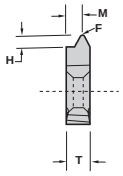


Description	EDP Code	Stk	Material	Insert	L	D	C	H	Min. Bore	Screw
BHR-450S	9BHR450S	●	Steel	BHR4	5.000	.500	1.000	.075	.450	TS25
BHR-450HM	9BHR450HM	●	Heavy Metal	BHR4	5.000	.500	1.000	.075	.450	TS25

MINIMUM BORE .500

THREADING - 60° V

BTVR/L



Description	EDP Code	TPI	M	H	T	F	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BTVR-60	9BTV60R	8-40	.047	.075	.130	.004		●	●		
BTVL-60	9BTV60L	8-40	.047	.075	.130	.004		●	●		

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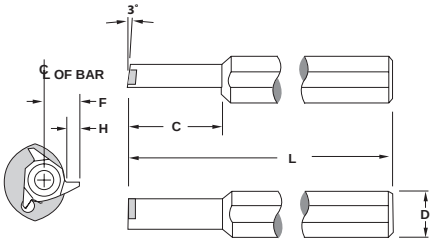
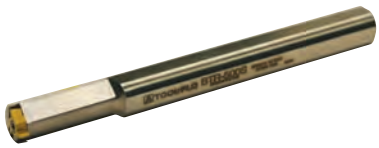
▲ Recommended grade under general conditions.

Cast Iron		● ▲
Non-Ferrous	●	▲
Stainless/High Temp	●	▲
Steel	●	▲

BTR/L



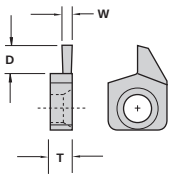


Description	EDP Code	Stk	Material	Insert	L	D	C	H	F	Min. Bore	Screw*
BTR-500S	9BTR500S	●	Steel	BTVR	5.000	.500	1.250	.075	.225	.500	TS25
BTL-500S	9BTL500S	●	Steel	BTVL	5.000	.500	1.250	.075	.225	.500	TS25
BTR-500HM	9BTR500HM	●	Heavy Metal	BTVR	5.000	.500	1.500	.075	.225	.500	TS25
BTL-500HM	9BTL500HM	●	Heavy Metal	BTVL	5.000	.500	1.500	.075	.225	.500	TS25

*TS25 screw uses K2 wrench

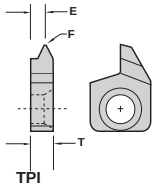
MINIMUM BORE .516

CIRCULAR INTERPOLATING MILLGROOVING
BNGR



Description	EDP Code	W	D	T	Uncoated C22	TiN Coated GP22	TiN Coated GP4	AlTiN Coated AC22	AlTiN Coated AC4
BNGR-031W	9BG031R	.031	.050	.137		●	●		
BNGR-047W	9BG047R	.047	.070	.137		●	●		
BNGR-062W	9BG062R	.062	.070	.137		●	●		
BNGR-094W	9BG094R	.094	.070	.137		●	●		
BNGR-125W	9BG125R	.125	.070	.137		●	●		

THREADMILLING
BNVR



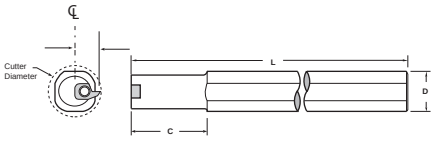
Description	EDP Code	TPI	F	E	T	GFI	GP22	GP4	AC22	AC4
BNVR-60	9BNV60R	18-40	.003F	.095	.137	●	●	●		●
BNVL-60	9BNV60L	18-40	.003F	.095	.137	●	●	●		●

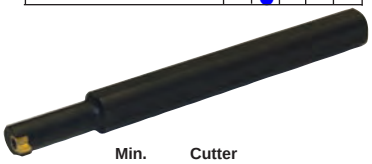
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron			●		
Non-Ferrous		●			
Stainless/High Temp		●			
Steel		●			

CIRCULAR INTERPOLATING THREADMILLING & MILLGROOVING
BBC





Description	EDP Code	Stk	Material	Insert	L	D	C	Min. Dia.	Cutter Dia.	Screw*
BBC-516S	9BC516S	●	Steel	BN_R/L	5.000	.500	1.250	.800	.516	TS25
BBC-516HM	9BC516HM	●	Heavy Metal	BN_R/L	5.000	.500	1.500	.800	.516	TS25

*TS25 screw uses K2 wrench

Bantam Series Kits

SAVE! **Buy in Kits**

THREADING KITS

V-THREADING
KIT #1

Kit Contents

1	BFR-312S
10	BFR3-60V GP22
1	T8 WRENCH
1	TS25 SCREW

18NPT-THREADING
KIT #2

Kit Contents

1	BFR-312S
10	BFR3-18NPT GP22
1	T8 WRENCH
1	TS25 SCREW

27NPT-THREADING
KIT #3

Kit Contents

1	BFR-312S
10	BFR3-27NPT GP22
1	T8 WRENCH
1	TS25 SCREW

GROOVING KITS

W.031 GROOVING
KIT #4

Kit Contents

1	BB-312S
10	BNGR-031W GP4
1	T8 WRENCH
1	TS25 SCREW

W.047 GROOVING
KIT #5

Kit Contents

1	BB-312S
10	BNGR-047W GP4
1	T8 WRENCH
1	TS25 SCREW

W.062 GROOVING
KIT #6

Kit Contents

1	BB-312S
10	BNGR-062W GP4
1	T8 WRENCH
1	TS25 SCREW

BORING KITS

.180 MIN BORE
KIT #7

Kit Contents

1	CSBI-165/187-1/2-7R
10	CDCG-505L GP22
1	T6 WRENCH
1	TS1 SCREW

.285 MIN BORE
KIT #8

Kit Contents

1	CSBI-250-3-5R
10	CDCG-505L GP22
1	T6 WRENCH
1	TS1 SCREW

Technical Information

SURFACE FOOTAGE PER MINUTE (SFPM)

	Tool-Flo grade	uncoated		TiN coated		AlTiN coated	
		GFI	C22	GP4	GP22	AC4	AC22
WORKPIECE MATERIAL	Alloy Steel 4000 Series	60-120			100-250	100-180	200-500
	Aluminum		80-200		200-400		300-600
	Carbon Steel		80-150		80-200	100-210	200-500
	Ductile Iron	60-120			100-250		200-500
	Non Metals	60-120	80-150	60-150	200-400		300-600
	Stainless Steel 300 Series	60-120	80-150	60-150	100-250	80-180	150-350
	Stainless Steel 400 Series	60-120		60-150	100-300	80-180	200-500

FEED RATE

	Application	THREADING	GROOVING	BORING
WORKPIECE MATERIAL	Alloy Steel 4000 Series	Set by pitch (DOC per pass= .002-.004)	IPR=.002-.004	.002-.004
	Aluminum Non-Metals	Set by pitch (DOC per pass= .004-.006)	IPR=.004-.006	.004-.006
	Carbon Steel	Set by pitch (DOC per pass= .002-.004)	IPR=.002-.004	.002-.004
	300Stainless Steel High Temp Alloys	Set by pitch (DOC per pass= .002-.004)	IPR=.002-.004	.002-.004
	Stainless Steel 400 Series	Set by pitch (DOC per pass= .002-.004)	IPR=.002-.004	.002-.004

CUTTING DATA

TOOL-FLO MFG, on all threading and grooving bars, sets the cutting edge of inserts above centerline. This decreases the deflection reducing the load on the insert. The result is a better finish with less chatter. We recommend following the same procedure for boring operations.

*When using the BB-312S/HM bar with a grooving insert .062 wide or greater, reduce the recommended IPR by 50%.

GRADE CROSSOVER CHART

TOOL-FLO	CIRCLE	EVEREDE
C22	C2,C3,C25	CS2,CM2
GFI	C50	CS-4, CS-6, CS-7
GP22	CG5/CM-10	CVM-2, CV-7
GP4	C-4	CT-7
AC22	CG6	CA2
AC4	C70	CC-7

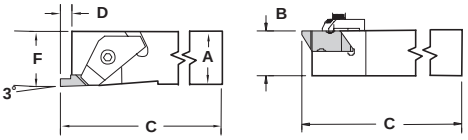
EXTERNAL HOLDER (METRIC)

THREADING, GROOVING

FLASR/L

Design for Swiss machines

SEE FLO-LOCK SECTION FOR COMPLETE INSERT OFFERING



RH SHOWN

RH Holder uses RH Inserts

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLASR-1010M2	92711008	FL_-2R	10,0	10,0	150,0	3,51	10,0	TF-182	S-310
FLASL-1010M2	92661008	FL_-2L	10,0	10,0	150,0	3,51	10,0	TF-183	S-310
FLASR-1212M2	92711208	FL_-2R	12,0	12,0	150,0	3,51	12,0	TF-182	S-310
FLASL-1212M2	92661208	FL_-2L	12,0	12,0	150,0	3,51	12,0	TF-183	S-310
FLASR-1616M2	92711608	FL_-2R	16,0	16,0	125,0	3,51	16,0	TF-184	S-412
FLASR-1616M3	92711616	FL_-3R	16,0	16,0	125,0	5,31	16,0	TF-184	S-412
FLASL-1616M3	92661616	FL_-3L	16,0	16,0	125,0	5,31	16,0	TF-185	S-412

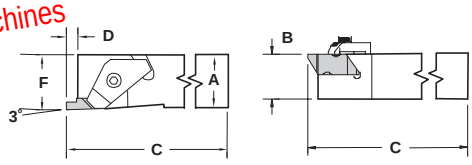
EXTERNAL HOLDER (INCH)

THREADING, GROOVING

FLASR/L

Design for Swiss machines

SEE FLO-LOCK SECTION FOR COMPLETE INSERT OFFERING



RH SHOWN

RH Holder uses RH Inserts

Most holders available with coolant port
(ie: Add CP to end of description)

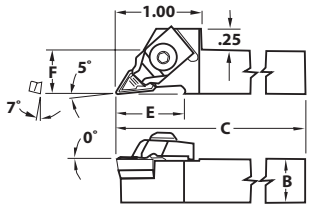
Description	EDP Code	Insert	A	B	C	F	D	Clamp	Clamp Screw
FLASR-062D	92900608D	FL_-2R	3/8	3/8	6	.375	.138	TF-182	S-310
FLASL-062D	92650608D	FL_-2L	3/8	3/8	6	.375	.138	TF-183	S-310
FLASR-082D	92900808D	FL_-2R	1/2	1/2	6	.500	.138	TF-182	S-310
FLASL-082D	92650808D	FL_-2L	1/2	1/2	6	.500	.138	TF-183	S-310
FLASR-102B	92901008B	FL_-2R	5/8	5/8	4-1/2	.625	.138	TF-184	S-412
FLASR-083D	92650816D	FL_-3R	1/2	1/2	6	.500	.210	TF-184	S-412
FLASR-103B	92901016B	FL_-3R	5/8	5/8	4-1/2	.625	.210	TF-184	S-412
FLASL-103B	92651016B	FL_-3L	5/8	5/8	4-1/2	.625	.210	TF-185	S-412

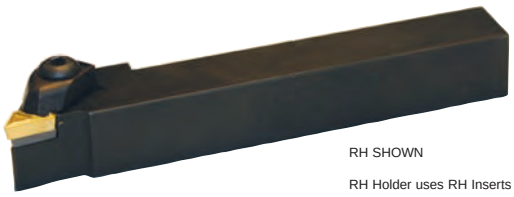
EXTERNAL HOLDER (INCH)

PROFILING

FLKL-F

SEE PROFILING SECTION FOR COMPLETE INSERT OFFERING





RH SHOWN

RH Holder uses RH Inserts

Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw
FLKLCRF-0805D	93150829D	FLPR-5_	1/2	1/2	6	.750	.500	SM-285	S-959	CM180	S-524
FLKLCLF-0805D	93140829D	FLPL-5_	1/2	1/2	6	.750	.500	SM-286	S-959	CM181	S-524
FLKLCRF-1005B	93151029B	FLPR-5_	5/8	5/8	4-1/2	.750	.625	SM-285	S-959	CM180	S-524
FLKLCLF-1005B	93141029B	FLPL-5_	5/8	5/8	4-1/2	.750	.625	SM-286	S-959	CM181	S-524

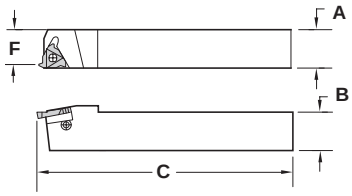
EXTERNAL HOLDER (METRIC)

THREADING, GROOVING

AL

Design for Swiss machines

SEE LAYDOWN SECTION FOR COMPLETE INSERT OFFERING



RH SHOWN

RH Holder uses RH Inserts

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	F	Insert Screw	Seat Screw	Wrench	Seat
AL0808M2R	916108321	11ER	8,0	8,0	100,0	11,0	SN2	---	K2	
AL1010M2R	916110321	11ER	10,0	10,0	100,0	10,0	SN2	---	K2	---
AL1616M3R	916116361	16ER	16,0	16,0	100,0	16,0	SA3	SY3	K3	YE3
AL1616M3L	916116362	16EL	16,0	16,0	100,0	16,0	SA3	SY3	K3	YI3
AL2020M3R	916120361	16ER	20,0	20,0	128,6	20,0	SA3	SY3	K3	YE3
AL2020M3L	916120362	16EL	20,0	20,0	128,6	20,0	SA3	SY3	K3	YI3
AL2525M3R	916125361	16ER	25,0	25,0	153,6	25,0	SA3	SY3	K3	YE3
AL2525M3L	916125362	16EL	25,0	25,0	153,6	25,0	SA3	SY3	K3	YI3

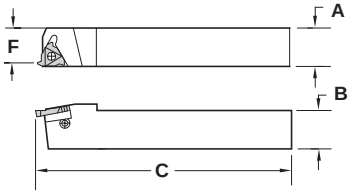
EXTERNAL HOLDER (INCH)

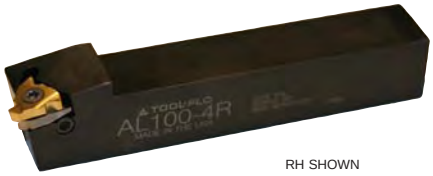
THREADING, GROOVING

AL

Design for Swiss machines

SEE LAYDOWN SECTION FOR COMPLETE INSERT OFFERING





RH SHOWN

RH Holder uses RH Inserts

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	Insert Screw	Seat Screw	Wrench	Seat
AL0500-3R	916050361	16ER	1/2	1/2	5	1.15	.63	SA3	SY3	K3	YE3
AL0500-3L	916050362	16EL	1/2	1/2	5	1.15	.63	SA3	SY3	K3	YI3
AL0625-3R	916052361	16ER	5/8	5/8	5	1.15	.63	SA3	SY3	K3	YE3
AL075-3R	916056361	16ER	3/4	3/4	5	1.2	.75	SA3	SY3	K3	YE3
AL075-3L	916056362	16EL	3/4	3/4	5	1.2	.75	SA3	SY3	K3	YI3
AL100-3R	916064361	16ER	1	1	6	1.2	1.0	SA3	SY3	K3	YE3
AL100-3L	916064362	16EL	1	1	6	1.2	1.0	SA3	SY3	K3	YI3
AL100-4R	916064401	22ER	1	1	6	1.42	1.0	SA4	SY4	K4	YE4
AL100-4L	916064402	22EL	1	1	6	1.42	1.0	SA4	SY4	K4	YI4
AL125-4R	916068401	22ER	1-1/4	1-1/4	7	1.42	1.250	SA4	SY4	K4	YE4
AL125-5R	916068441	27ER	1-1/4	1-1/4	7	1.57	1.250	SA5	SY5	K5	YE5
AL125-5L	916068442	27EL	1-1/4	1-1/4	7	1.57	1.250	SA5	SY5	K5	YI5

TOOL-FLO

CHASERS

Oil & Gas

Chaser Insert Nomenclature Chart

CR	5	B	75	3	E	#1	GP3	A
chaser	pitch (TPI)	thread type	taper	number of teeth	cutting type	set number	grade	edge prep

pitch (TPI)
5
8
10

thread type
B ■ Buttress
R ■ Round
NPT ■ National Pipe Thd

taper
75 ■ 3/4”
1 ■ 1”

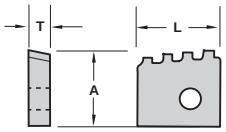
number of teeth
3
4
5
7

cutting type
I ■ Internal
E ■ External

API BUTTRESS

External

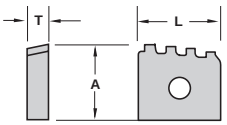
■ For holders see pg. 68



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	CVD Coated: G50	CVD Coated: GP50	TiN Coated: AC3	AlTiN* Coated: AC50
CR-5B75-3E #1 (SET)	M16415188	5	3/4	.670	.573	.205	3	●	●	●	●
CR-5B75-3E #2 (SET)	M16415189	5	3/4	.670	.582	.205	3	●	●	●	●
CR-5B75-3E #3 (SET)	M16426149	5	3/4	.670	.590	.205	3	●	●	●	●
CR-5B75-4E	M16422675	5	3/4	.804	.625	.200	4	●	●	●	●
CR-5B1-4E	M1741130	5	1	.800	.640	.200	4	●	●	●	●
CR-8B75-4E	M2145353	8	3/4	.800	.605	.200	4	●	●	●	●

Internal

■ For bars see pg. 69

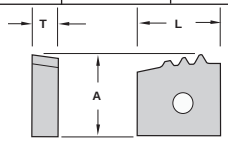


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	G50	GP50	AC3	AC50
CR-5B75-3I	M1681847	5	3/4	.630	.577	.204	3	●		●	●
CR-5B75-4I	M1681347	5	3/4	.800	.582	.205	4	●	●	●	●
CR-5B75-5I	M16815688	5	3/4	1.000	.590	.205	5	●		●	●
CR-5B1-3I	M1782052	5	1	.635	.635	.200	3	●		●	●
CR-5B1-4I	M1782051	5	1	.800	.640	.200	4	●		●	●
CR-8B75-4I	M2185353	8	3/4	.800	.590	.205	4	●	●	●	●

API ROUND

External

■ For holders see pg. 68



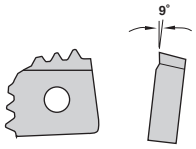
Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	G50	GP50	AC3	AC50
CR-8R-3E #1 (SET)	M32416731	8	3/4	.630	.577	.204	3	●	●	●	●
CR-8R-3E #2 (SET)	M32416732	8	3/4	.630	.586	.204	3	●	●	●	●
CR-8R-3E #3 (SET)	M32416733	8	3/4	.630	.591	.204	3	●	●	●	●
CR-8R-3E	M32419310	8	3/4	.630	.592	.204	3	●	●	●	●
CR-8R-4E 6°	M3241136	8	3/4	.640	.625	.200	4	●	●	●	●
CR-8R-4E 12°	M3241163	8	3/4	.635	.625	.200	4	●	●	●	●
CR-10R-3E #1 (SET)	M34416728	10	3/4	.628	.563	.204	3	●	●	●	●
CR-10R-3E #2 (SET)	M34416729	10	3/4	.628	.572	.204	3	●	●	●	●
CR-10R-3E #3 (SET)	M34416730	10	3/4	.628	.575	.204	3	●	●	●	●
CR-10R-3E	M3441291	10	3/4	.630	.625	.204	3	●	●	●	●

API ROUND & BUTTRESS

External

CNGA - Double Sided (2 cutting edges)

■ For holders see pg. 68

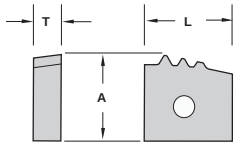


Description	EDP Code	TPI	TPF	No. of Teeth	GP50	AC3	AC50
CNGA-8R-3E	M32427407	8	3/4	3	●	●	●
CNGA-10R-3E	M34427408	10	3/4	3	●	●	●
CNGA-5B75-3E	M16427408	5	3/4	3	●	●	●

API ROUND

Internal

For bars see pg. 69

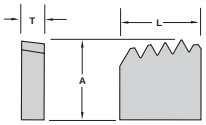


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	CVD Coated G50	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
CR-8R-3I	M3287464	8	3/4	.630	.592	.204	3	●	●	●	●
CR-8R-4I	M3281136	8	3/4	.635	.625	.204	4	●	●	●	●
CR-8R-4I	M32825150	8	3/4	.640	.625	.204	4	●	●	●	●
CR-8R-7I	M32814828	8	3/4	1.000	.625	.204	7	●	●	●	●
CR-8R-7I	M32817968	8	3/4	1.000	.625	.204	7	●	●	●	●
CR-10R-3I	M3481291	10	3/4	.630	.625	.204	3	●	●	●	●

LPT/NPT

External

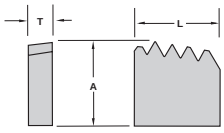
For holders see pg. 68



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	G50	GP50	AC3	AC50
CR-8NPT-4E	M3648996	8	3/4	.630	.620	.204	4	●	●	●	●
CR-11.5NPT-4E	M3649668	11.5	3/4	.625	.620	.1875	4	●	●	●	●

Internal

For bars see pg. 69



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	G50	GP50	AC3	AC50
CR-8NPT-4I	M3689804	8	3/4	.625	.620	.204	4	●		●	●
CR-11.5NPT-4I	M36823951	11.5	3/4	.625	.620	.1875	4	●		●	●
CR-8NPT-7I	M36817755	8	3/4	.625	.620	.1875	7	●	●	●	●

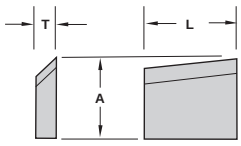
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

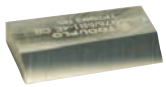
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

J-Series	▲	▲	●	●
K-Series	▲	▲	●	●
L-Series	▲	▲	●	●
N-Series	▲	▲	●	●
P-Series	▲	▲	●	●
Q-Series	▲	▲	●	●

CHIPBREAKERS

External

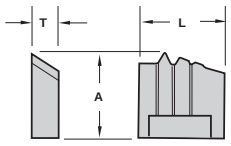




Description	EDP Code	L	A	T	Coolant Grooves	Inserts
CR-5B75/5B1-4E-CB	TF2993	.800	.500	.125	CR-5B75-4E/CR-5B1-4E	
CR-8R/10R-3E/4E-CB	TF1353E	.625	.460	.120	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8NPT-4E	
#3 CB without COOLANT GROOVES .170	TF26424	.618	.460	.170	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8NPT-4E	

External with coolant grooves

Also available at -.010, -.020 and -.030 off the A dimension.



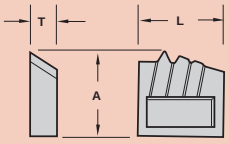
Description	EDP Code	L	A	T	Coolant Grooves	Inserts
TD4601 5B75-1-CB	TF16660	.665	.530	.170	✔	CR-5B75-3E #1
TD4602 5B75-2-CB	TF16661	.668	.543	.170	✔	CR-5B75-3E #2
TD4603 5B75-3-CB	TF16662	.665	.553	.170	✔	CR-5B75-3E #3
TD3931 8R-1-CB	TF16657	.628	.518	.175	✔	CR-8R-3E #1
TD3932 8R-2-CB	TF16658	.635	.526	.175	✔	CR-8R-3E #2
TD3933 8R-3-CB	TF27129	.630	.540	.175	✔	CR-8R-3E #3
TA2237 10R-1-CB	TF16760	.628	.503	.175	✔	CR-10R-3E #1
TA2238 10R-2-CB	TF16761	.628	.512	.175	✔	CR-10R-3E #2
TA2239 10R-3-CB	TF16762	.628	.515	.175	✔	CR-10R-3E #3
#3 CB W/COOLANT GROOVES .170	TF26423	.618	.460	.170	✔	CR-8R-3E

CHIPBREAKER

External

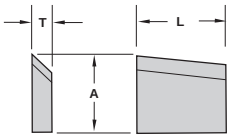
with coolant grooves and cavity

Also available at -.010, -.020 and -.030 off the A dimension.



Description	EDP Code	L	A	T	Coolant Grooves	Inserts
TD4601 5B75-1-CB W/CAVITY	TF30297	.665	.550	.170	✔	CR-5B75-3E #1
TD4602 5B75-2-CB W/CAVITY	TF30298	.668	.550	.170	✔	CR-5B75-3E #2
TD4603 5B75-3-CB W/CAVITY	TF30299	.665	.560	.170	✔	CR-5B75-3E #3
TD3931 8R-1-CB W/CAVITY	TF28130	.628	.518	.165	✔	CR-8R-3E #1
TD3932 8R-2-CB W/CAVITY	TF28131	.635	.526	.165	✔	CR-8R-3E #2
TD3933 8R-3-CB W/CAVITY	TF28132	.628	.520	.165	✔	CR-8R-3E #3

Internal



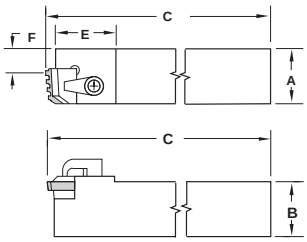
Description	EDP Code	L	A	T	Coolant Grooves	Inserts
CR-5B75/5B1-4I-CB	TF16104	.800	.500	.125		CR-5B75-4I/CR-5B1-4I
CR-8R/10R-3I/4I-CB	TF1353I	.630	.488	.125		CR-8R-3I/CR-8R-4I/CR-10R-3I/CR-8LPT-4I
CR-5B75-5I-CB	TF28765	1.000	.540	.125	✔	CR-5B75-5I
CR-8R-7I-CB	TF3435	1.000	.520	.125		CR-8R-7I
CR-8R-7I-CB	TF18096	1.010	.540	.125	✔	CR-8R-7I

EXTERNAL HOLDER

Threading

CLVOR

Most holders available with coolant port
(ie: Add CP to end of description)



RH SHOWN

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw	Chip Breaker
CLVOR-166	92601694	3 TOOTH*	1	1	8	1.25	.475	TF1207	SF80	TC311	STC-4	TF1353
CLVOR-206	92602060	3 TOOTH*	1-1/4	1-1/4	7	1.25	.725	TF1207	SF80	TC311	STC-4	TF1353
CLVOR-168	92601696	4 TOOTH**	1	1	6	1.25	.800	TF8132E	SF80	TC311	STC-4	TF2993
CLVOR-208	92602096	4 TOOTH**	1-1/4	1-1/4	7	1.25	.800	TF8132E	SF60	TC311	STC-4	TF2993
CLVOR-248	92602496	4 TOOTH**	1-1/2	1-1/2	7	1.25	.800	TF8132E	SF60	TC311	STC-4	TF2993

*Accepts 3 & 4 Tooth RD, NPT, and 3 Tooth Buttress **Accepts 4 Tooth Buttress Only

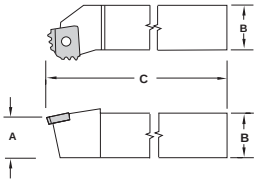
METRIC

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw	Chip Breaker
CLVOR-25M6	9260M2560	3 TOOTH*	25	25	177,8	32	16,1	TF1207-S	SF80	TC311	STC-4	TF1353
CLVOR-32M6	9260M3260	3 TOOTH*	32	32	177,8	32	16,1	TF1207-S	SF85	TC311	STC-4	TF1353
CLVOR-40M6	9260M4094	4 TOOTH**	40	40	179,1	32	29,8	TF8132E	SF80	TC311	STC-4	TF2993
CLVOR-40M8	9260M4096	4 TOOTH**	40	40	179,1	32	29,8	TF8132E	SF60	TC311	STC-4	TF2993

*Accepts 3 & 4 Tooth RD, NPT, and 3 Tooth Buttress **Accepts 4 Tooth Buttress Only

PCFNR

For double sided CNGA chaser style



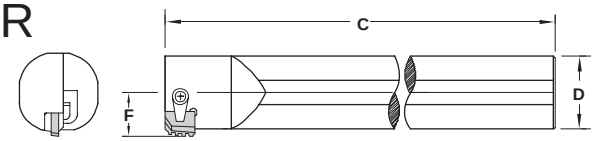
RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	Lock Pin	Clamp	Clamp Screw
PCFNR-165	96301664	CNGA 8R/10R/5B75-3E	1	1	6	NL-44	TC311	STC-11
PCFNR-205	96302064	CNGA 8R/10R/5B75-3E	1-1/4	1-1/4	6	NL-44	TC311	STC-11

INTERNAL BAR

Threading
SI-CLHOR



RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	D	F	C	Min. Bore	Seat	Seat Screw	Clamp	Clamp Screw
SI-CLHOR-206	97002094	CR-8R-3I	1-1/4	.750	14	1.500	-	-	TC311	STC-8
		CR-8R-4I	1-1/4	.750	14	1.500	-	-	TC311	STC-8
		CR-5B75-3I	1-1/4	.750	14	1.500	-	-	TC311	STC-8
SI-CLHOR-326	97003294	CR-8R-3IDC	2	1.125	14	2.250	TF1780I	SF60	TC311	STC-8
SI-CLHOR-328	97003296	CR-5B1-4I	2	1.125	14	2.250	TF8132I	SF60	TC311	STC-8
		CR-5B75-4I	2	1.125	14	2.250	TF8132I	SF60	TC311	STC-8
		CR-8B75-4I	2	1.125	14	2.250	TF8132I	SF60	TC311	STC-8
SI-CLHOR-408	97004096	CR-5B1-4I	2-1/2	1.375	14	2.750	TF8132I	SF60	TC311	STC-8
		CR-5B75-4I	2-1/2	1.375	14	2.750	TF8132I	SF60	TC311	STC-8
		CR-8B75-4I	2-1/2	1.375	14	2.750	TF8132I	SF60	TC311	STC-8
SI-CLHOR-329	97003298	CR-8R-7I	2	1.125	16	2.250	TF3218	SF48	TC311	STC-4
SI-CLHOR-409	97004098	CR-5B75-5I	2-1/2	1.375	16	2.750	TF3218	SF48	TC311	STC-4

Threading - METRIC
SI-CLHOR

Description	EDP Code	Insert	D	F	C	Min. Bore	Seat	Seat Screw	Clamp	Clamp Screw
SI-CLHOR-40M6	970M4094	CR-8R-3I	40	23,16	400	50,8	-	-	TC311	STC-8
		CR-8R-4I	40	23,16	400	50,8	-	-	TC311	STC-8
		CR-5B75-3I	40	23,16	400	50,8	-	-	TC311	STC-8

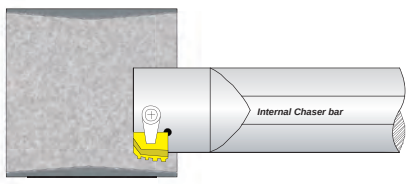
Technical Information

API ROUND THREADING — application	***8 & 10 PITCH*** surface feet/minute (SFPM)
External	500 - 800
Internal	500 - 700

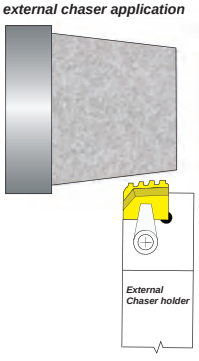
API BUTTRESS THREADING — application	***5 PITCH*** surface feet/minute (SFPM)
External	300 - 500
Internal	500 - 700

- Number of passes is dictated by the number of teeth on the insert.
  - 3-4 tooth requires 3-5 passes
  - 7 tooth requires 1-2 passes
  - One or two addtional passes may be required for heat treated materials.

internal chaser application



external chaser application



Recommended SFPM for Chasers

EXTERNAL 8 Round Sets

Material

Material	1st Choice AlTiN PVD Coated ZA3	2nd Choice AlTiN PVD Coated AC3	AlTiN PVD Coated AC50	CVD Coated G50	General purpose TiN PVD Coated GP50
H	500	500	500	500	800
J	500	500	500	500	800
K	500	500	500	500	800
L	500	500	500	500	600
N	500	500	500	500	600
P	500	500	500	500	600

ZA3 - All diameters
AC3 - All diameters
AC50 - All diameters
G50 - 4-1/2" - 9-5/8" Casing
GP50 - 2-3/8" - 3-1/2" Tubing

EXTERNAL 8 Round Stand Alone TF19310

Material

Material	1st Choice AlTiN PVD Coated ZA3	2nd Choice AlTiN PVD Coated AC3	TiN PVD Coated AC50	TiN CVD Coated G50
H	500	500	500	500
J	500	500	500	500
K	500	500	500	500
L	500	500	500	500
N	500	500	500	500
P	500	500	500	500

AC50 - 3-1/2" - 7" diameters
G50 - Only over 7" diameters
4 PASSES

INTERNAL 8 Round Stand Alone TF19437 4 TOOTH

Material

Material	1st Choice AlTiN PVD Coated ZA3	AlTiN PVD Coated AC3	AlTiN PVD Coated AC50
H	700	700	700
J	700	700	700
K	700	700	700
L	700	700	700
N	700	700	700
P	700	700	700

ZA3 - All diameters
AC3 - All diameters
AC50 - All diameters
4-5 PASSES

INTERNAL 8 Round Stand Alone TF17968 7 TOOTH

Material

Material	1st Choice AlTiN PVD Coated ZA3	2nd Choice AlTiN PVD Coated AC3	TiN PVD Coated AC50
H	500	500	700
J	500	500	700
K	500	500	700
L	500	500	700
N	500	500	700
P	500	500	700

AC50 - All diameters
1-2 PASSES

EXTERNAL Buttress Sets

Material

Material	TiN CVD Coated G50
H	500
J	500
K	500
L	500
N	500
P	500

G50 - All diameters

EXTERNAL Buttress Stand Alone TF1130 1" TAPER

Material

Material	TiN CVD Coated G50
H	800
J	800
K	800
L	600
N	600
P	600

G50 - All diameters
5 PASSES

EXTERNAL Buttress Stand Alone TF22675 3/4" TAPER

Material

Material	TiN CVD Coated G50
H	800
J	800
K	800
L	600
N	600
P	600

G50 - All diameters
5 PASSES

INTERNAL Buttress Stand Alone TF22675 3/4" TAPER

Material

Material	TiN CVD Coated G50
H	800
J	800
K	800
L	600
N	600
P	600

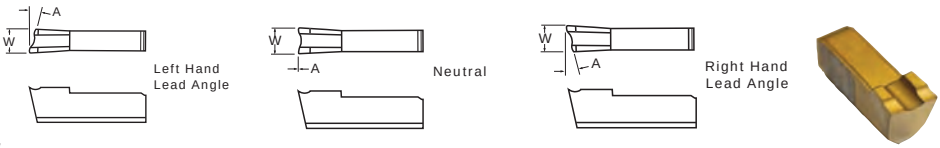
G50 - All diameters
5 PASSES

TOOL-FLO

CUT OFF

FC SERIES CUT OFF

INSERT
FC



■ Toolholders listed below

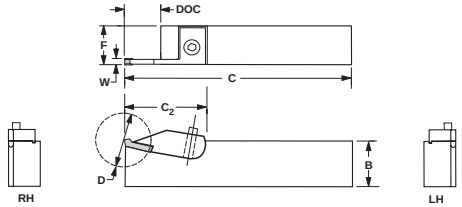
Description	EDP Code	Competitor Nomenclature	Insert Width	A	Hand	Uncoated C36	TiN Coated GP26	TiN Coated GP530	AlTiN Coated AC26	AlTiN Coated AC3	AlTiN Coated AC530
FC-094-N	FC094N	507-140	3/32 (.094)	0°	N		●		●		
FC-094-L-4	FC094L4	507-144	3/32 (.094)	4°	L		●		●		
FC-094-L-12	FC094L12	507-152	3/32 (.094)	12°	L		●		●		
FC-094-R-4	FC094R4	507-143	3/32 (.094)	4°	R		●		●		
FC-094-R-12	FC094R12	507-151	3/32 (.094)	12°	R		●		●		
FC-094-R-18	FC094R18	507-161	3/32 (.094)	18°	R		●		●		
FC-125-N	FC125N	507-117	1/8 (.125)	0°	N	●	●	●	●	●	●
FC-125-L-4	FC125L4	507-129	1/8 (.125)	4°	L	●	●	●	●	●	●
FC-125-L-12	FC125L12	507-154	1/8 (.125)	12°	L	●	●	●	●	●	●
FC-125-R-4	FC125R4	507-128	1/8 (.125)	4°	R	●	●	●	●	●	●
FC-125-R-12	FC125R12	507-146	1/8 (.125)	12°	R	●	●	●	●	●	●
FC-125-R-18	FC125R18	507-155	1/8 (.125)	18°	R	●	●	●	●	●	●
FC-187-N	FC187N	507-116	3/16 (.187)	0°	N	●	●	●	●	●	●
FC-187-L-4	FC187L4	507-125/507-127	3/16 (.187)	4°	L	●	●	●	●	●	●
FC-187-R-4	FC187R4	507-124/507-126	3/16 (.187)	4°	R	●	●	●	●	●	●
FC-187-R-12	FC187R12	507-176	3/16 (.187)	12°	R	●	●	●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up -to- date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

COMPETITOR'S GRADES	M40	M50	M43		
Steel (Low to moderate speeds)	●				
Steel (Moderate to high speeds)			●		
Stainless (Low to moderate speeds)		●			
Stainless (Moderate to high speeds)				●	

HOLDERS
FCIVOR
1/2"

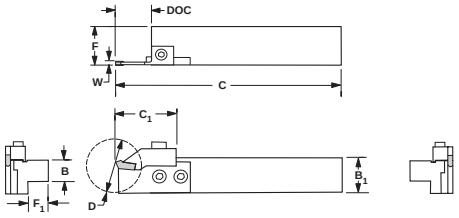


Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Competitor Part No.	Max Dia. D	B	C	C 2	F	Clamp Screw	CLAMP Description	D.O.C.	EDP Code	Competitor Part No.
FCIVOR-0500-094	9FCIR050094	206-175	1.063	.500	6.00	1.00	.500	SS65	CHR-FCI094	.531	9HCHRFCI094	435-152
FCIVOR-0500-125	9FCIR0500125	206-145	1.063	.500	6.00	1.00	.500	SS65	CHR-FCI125	.531	9HCHRFCI125	435-130

HOLDERS
FCVOR/L
1/2" & 3/4"

■ RH holders use RH components



Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Competitor Nomenclature	D-Max	B	B_1	C	C_1	F	F_1	Anvil Screw	Clamp Screw
FCVOR-080B	9FCR0800	206-179	1.625	.500	.750	4.50	1.38	1.00	.460	SS84M	SS91
FCVOL-080B	9FCL0800	206-180	1.625	.500	.750	4.50	1.38	1.00	.460	SS84M	SS91
FCVOR/L-1200B	9FCR/L1200	206-178	1.625	.750	.750	4.50	1.38	1.00	.460	SS84M	SS91

COMPONENT PARTS
AVR-FCS Anvils

Description	EDP Code	Competitor Part No.	Width	D.O.C.
AVR-FCS094	911FC094	333-101	3/32	.812
AVR-FCS125	911FC125	333-102	1/8	.812
AVL-FCS094	910FC094	333-103	3/32	.812
AVL-FCS125	910FC125	333-104	1/8	.812

COMPONENT PARTS
CHR-FCS Clamps

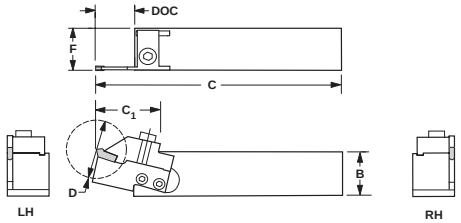
Description	EDP Code	Competitor Part No.	Width	D.O.C.
CHR-FCS094	9H1FCR094	435-154	3/32	.812
CHR-FCS125	9H1FCR125	435-155	1/8	.812
CHL-FCS094	9H1FCL094	435-156	3/32	.812
CHL-FCS125	9H1FCL125	435-157	1/8	.812

FC SERIES CUT OFF

HOLDERS
FCVOR/L
1" & 1-1/4"

■ RH holders use RH components

Most holders available with coolant port
(ie: Add CP to end of description)

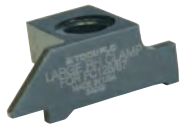


Description	EDP Code	Competitor Nomenclature	D-Max	B	C	C_1	F	Anvil Screw	Clamp Screw
FCVOR-1600D	9FCR1600D	206-141	1.625	1.000	6.00	1.50	1.25	SS82M	SS83
FCVOL-1600D	9FCL1600D	206-142	1.625	1.000	6.00	1.50	1.25	SS82M	SS83
FCVOR-2000D	9FCR2000D	206-143	1.625	1.250	6.00	1.50	1.50	SS82M	SS83
FCVOL-2000D	9FCL2000D	206-144	1.625	1.250	6.00	1.50	1.50	SS82M	SS83

COMPONENT PARTS
AVR-FCL Anvils

Description	EDP Code	Competitor Part No.	Width	D.O.C.
AVR-FCL094	901FC094	331-117	3/32	.500
AVR-FCL125	901FC125	331-101	1/8	.800
AVR-FCL187	901FC187	331-103	3/16	.800
AVL-FCL094	900FC094	331-118	3/32	.500
AVL-FCL125	900FC125	331-102	1/8	.800
AVL-FCL187	900FC187	331-104	3/16	.800

COMPONENT PARTS
CHR-FCL Clamps

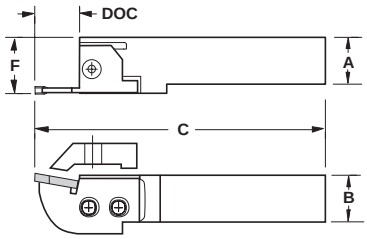


Description	EDP Code	Competitor Part No.	Width	D.O.C.
CHR-FCL094	9H0FCR094	435-142	3/32	.500
CHR-FCL125/187	9H0FCR125/187	435-128	1/8 & 3/16	.800
CHL-FCL094	9H0FCL094	435-143	3/32	.500
CHL-FCL125/187	9H0FCL125/187	435-129	1/8 & 3/16	.800

HOLDERS
CDVOR/L
1", 1-1/4", 1-1/2"

■ RH holders use RH components

Most holders available with coolant port
(ie: Add CP to end of description)



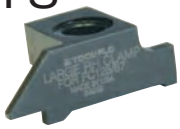
Description	EDP Code	Insert Width	A	B	C	F	Clamp Screw	Anvil Screw
CDVOR-16	92401600	1.063	1.00	1.00	*	1.236	SB90	SF95
CDVOL-16	92301600	1.063	1.00	1.00	*	1.236	SB90	SF95
CDVOR-20	92402000	1.063	1.25	1.25	*	1.744	SB90	SF95
CDVOL-24	92402400	1.063	1.50	1.50	*	1.744	SB90	SF95

*Determined by the anvil

COMPONENT PARTS
AHR-FC Anvils

Description	EDP Code	D.O.C.
AHR-FC094	9150FC094	.500
AHR-FC125	9150FC125	1.000
AHR-FC187	9150FC187	1.000
AHL-FC094	9151FC094	.500
AHL-FC125	9151FC125	1.000
AHL-FC187	9151FC187	1.000

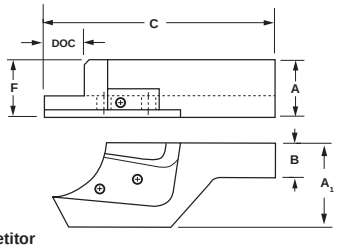
COMPONENT PARTS
CHR-FC Clamps



Description	EDP Code	D.O.C.
CHR-FC094	9HCHRFC094	.500
CHR-FC125	9HCHRFC125	1.000
CHR-FC187	9HCHRFC187	1.000
CHL-FC094	9HCHLFC094	.500
CHL-FC125	9HCHLFC125	1.000
CHL-FC187	9HCHLFC187	1.000

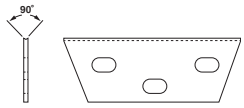
HOLDERS
FCEDV0R
1", 1-1/4"

■ RH holders use RH components listed on following page.



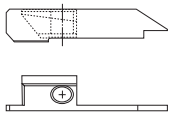
Description	EDP Code	Competitor Nomenclature	DOC	A	A_1	B	F	C	Anvil Screw	Clamp Screw
FCEDVOR-1600D	9FCEDR1600D	206-116	1.500	1.769	2.224	1.000	1.76	6.000	S-352	S-628
FCEDVOL-1600D	9FCEDL1600D	206-119	1.500	1.769	2.224	1.000	1.76	6.000	S-352	S-628
FCEDVOR-2000D	9FCEDR2000D	206-121	1.500	1.899	2.224	1.250	1.89	6.000	S-352	S-628
FCEDVOL-2000D	9FCEDL2000D	206-124	1.500	1.899	2.224	1.250	1.89	6.000	S-352	S-628

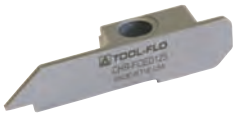
COMPONENT PARTS
AVR/L-FCED Anvils



Description	EDP Code	D.O.C.
AVR/L-FCED125	902FCED125	1.500
AVR/L-FCED187	902FCED187	1.500

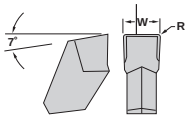
COMPONENT PARTS
CHR/L-FCED Clamps





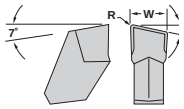
Description	EDP Code	D.O.C.
CHR-FCED125	9H2FCEDR187	1.500
CHL-FCED125	9H2FCEDL094	1.500
CHR-FCED187	9H2FCEDR125	1.500
CHL-FCED187	9H2FCEDL187	1.500

NEUTRAL
TFN



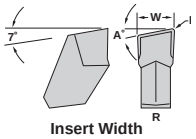
Description	EDP Code	Insert Width	A	R	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC50
TFN-2	COTN200	2,0 (.078)	0°	0,2 (.008)					●
TFN-2.4	COTN240	2,4 (.094)	0°	0,2 (.008)					●
TFN-3	COTN300	3,0 (.118)	0°	0,2 (.008)					●
TFN-4	COTN400	4,0 (.157)	0°	0,2 (.008)					●
TFN-4.8	COTN480	4,8 (.187)	0°	0,3 (.012)					●

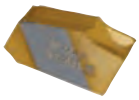
LEFT HAND
TFL



Description	EDP Code	Insert Width	A	R	C22	GP22	GP50	AC22	AC50
TFL-2-4	COTL240	2,0 (.078)	4°	0,2 (.008)					●
TFL-2-8	COTL280	2,0 (.078)	8°	0,2 (.008)					●
TFL-2-15	COTL215	2,0 (.078)	15°	0,2 (.008)					●
TFL-2.4-4	COTL244	2,4 (.094)	4°	0,2 (.008)					●
TFL-2.4-8	COTL248	2,4 (.094)	8°	0,2 (.008)					●
TFL-2.4-15	COTL2415	2,4 (.078)	15°	0,2 (.008)					●
TFL-3-4	COTL340	3,0 (.118)	4°	0,2 (.008)					●
TFL-3-8	COTL380	3,0 (.118)	8°	0,2 (.008)					●
TFL-3-15	COTL315	3,0 (.118)	15°	0,2 (.008)					●
TFL-4-4	COTL440	4,0 (.157)	4°	0,2 (.008)					●
TFL-4-8	COTL480	4,0 (.157)	8°	0,2 (.008)					●
TFL-4-15	COTL415	4,0 (.157)	15°	0,2 (.008)					●
TFL-4.8-4	COTL484	4,8 (.187)	4°	0,3 (.012)					●
TFL-4.8-8	COTL488	4,8 (.187)	8°	0,3 (.012)					●

RIGHT HAND
TFR





Description	EDP Code	Insert Width	A	R	C22	GP22	GP50	AC22	AC50
TFR-2-4	COTR240	2,0 (.078)	4°	0,2 (.008)					●
TFR-2-8	COTR280	2,0 (.078)	8°	0,2 (.008)					●
TFR-2-15	COTR215	2,0 (.078)	15°	0,2 (.008)					●
TFR-2.4-4	COTR244	2,4 (.094)	4°	0,2 (.008)					●
TFR-2.4-8	COTR248	2,4 (.094)	8°	0,2 (.008)					●
TFR-2.4-15	COTR2415	2,4 (.078)	15°	0,2 (.008)					●
TFR-3-4	COTR340	3,0 (.118)	4°	0,2 (.008)					●
TFR-3-8	COTR380	3,0 (.118)	8°	0,2 (.008)					●
TFR-3-15	COTR315	3,0 (.118)	15°	0,2 (.008)					●
TFR-4-4	COTR440	4,0 (.157)	4°	0,2 (.008)					●
TFR-4-8	COTR480	4,0 (.157)	8°	0,2 (.008)					●
TFR-4-15	COTR415	4,0 (.157)	15°	0,2 (.008)					●
TFR-4.8-4	COTR484	4,8 (.187)	4°	0,3 (.012)					●
TFR-4.8-8	COTR488	4,8 (.187)	8°	0,3 (.012)					●

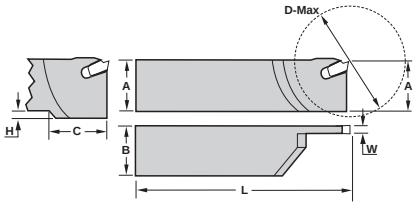
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up -to- date grade offering.

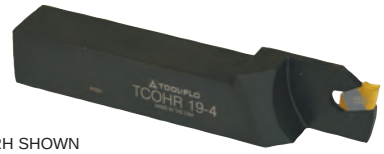
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron						
Non-Ferrous						
Stainless/High Temp						
Steel						●

INTEGRAL SHANK
TCOHR/L

- Inserts: TFN, TFR, TFL



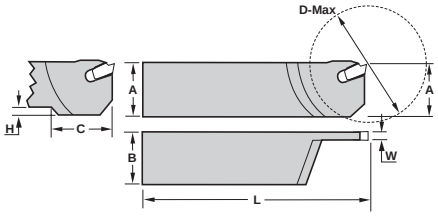


RH SHOWN

Description	EDP Code	Insert Width	D-Max	A	B	L	C	H
TCOHR 9.5-2	9824952	.071-.106	1.130	.375	.375	3.000	.700	.250
TCOHL 9.5-2	9823952	.071-.106	1.130	.375	.375	3.000	.700	.250
TCOHR 12.7-2	98241272	.071-.106	1.250	.500	.500	4.300	.750	.130
TCOHL 12.7-2	98231272	.071-.106	1.250	.500	.500	4.300	.750	.130
TCOHR 12.7-3	98241273	.106-.139	1.250	.500	.500	4.300	.750	.190
TCOHL 12.7-3	98231273	.106-.139	1.250	.500	.500	4.300	.750	.190
TCOHR 16-2	9824162	.071-.106	1.250	.625	.625	4.500	----	----
TCOHL 16-2	9823162	.071-.106	1.250	.625	.625	4.500	----	----
TCOHR 16-3	9824163	.106-.139	1.380	.625	.625	4.500	.750	.120
TCOHL 16-3	9823163	.106-.139	1.380	.625	.625	4.500	.750	.120
TCOHR 16-4	9824164	.138-.178	1.500	.625	.625	4.500	.810	.120
TCOHL 19-4	9823164	.138-.178	1.500	.625	.625	4.500	.810	.120
TCOHR 19-2	9824192	.071-.106	1.380	.750	.750	4.500	----	----
TCOHL 19-2	9823192	.071-.106	1.380	.750	.750	4.500	----	----
TCOHR 19-3	9824193	.106-.139	1.750	.750	.750	4.500	----	----
TCOHL 19-3	9823193	.106-.139	1.750	.750	.750	4.500	----	----
TCOHR 19-4	9824194	.138-.178	2.000	.750	.750	4.500	----	----
TCOHL 19-4	9823194	.138-.178	2.000	.750	.750	4.500	----	----

INTEGRAL SHANK FOR AUTOMATICS
TCOHR/L - (Metric)

- Inserts: TFN, TFR, TFL

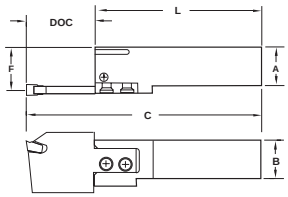


LH SHOWN

Description	EDP Code	Insert Width	D-Max	A	B	L	C	H
TCOHAR 10-2	9826102	1,8-2,7	30,0 (1.180)	10,0	10,0	120,0	17,0	6,1
TCOHAL 10-2	9825102	1,8-2,7	30,0 (1.180)	10,0	10,0	120,0	17,0	6,1
TCOHAR 12-2	9826122	1,8-2,7	30,0 (1.180)	12,0	12,0	140,0	17,0	4,1
TCOHAL 12-2	9825122	1,8-2,7	30,0 (1.180)	12,0	12,0	140,0	17,0	4,1
TCOHAR 14-2	9826142	1,8-2,7	35,1 (1.380)	14,0	14,0	140,0	20,0	2,0
TCOHAL 14-2	9825142	1,8-2,7	35,1 (1.380)	14,0	14,0	140,0	20,0	2,0
TCOHAR 16-2	9826162	1,8-2,7	36,1 (1.420)	16,0	16,0	140,0	-	-
TCOHAL 16-2	9825162	1,8-2,7	36,1 (1.420)	16,0	16,0	140,0	-	-

COMPONENT HOLDER
CODVOR/L

- RH holders use RH components



RH SHOWN

Description	EDP Code	A	B	L	F	Anvil Screw
CODVOR-16	92451600	1	1	5.190	1.150	SF95
CODVOL-16	92441600	1	1	5.190	1.150	SF95
CODVOR-20	92452000	1-1/4	1-1/4	5.190	1.400	SF95
CODVOL-20	92442000	1-1/4	1-1/4	5.190	1.400	SF95
CODVOR-24	92452400	1-1/2	1-1/2	5.190	1.650	SF95
CODVOL-24	92442400	1-1/2	1-1/2	5.190	1.650	SF95

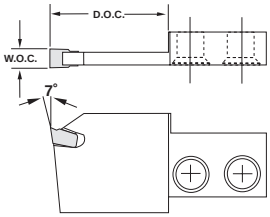
*The "C" dimension is determined by the D.O.C. of the anvil.

Metric

Description	EDP Code	A	B	L	F	Anvil Screw
CODVOR-25M	92462500	25,0	25,0	132,0	28,2	SF95
CODVOL-25M	92432500	25,0	25,0	132,0	28,2	SF95
CODVOR-32M	92463200	32,0	32,0	132,0	36,0	SF95
CODVOL-32M	92433200	32,0	32,0	132,0	36,0	SF95
CODVOR-40M	92464000	40,0	40,0	132,0	43,5	SF95
CODVOL-40M	92434000	40,0	40,0	132,0	43,5	SF95

*The "C" dimension is determined by the D.O.C. of the anvil.

COMPONENTS
CUT OFF ANVILS
COAHR/L



RH SHOWN

Description	EDP Code	Insert	DOC	WOC	Extractor Wrench
COAHR-113	9246113	TFN/R/L	1.250	.071-.106	Extractor Wrench EDP Code: 9HEW1
COAHL-113	9245113	TFN/R/L	1.250	.071-.106	
COAHR-138	9246138	TFN/R/L	1.375	.106-.139	
COAHL-138	9245138	TFN/R/L	1.375	.106-.139	
COAHR-248	9246248	TFN/R/L	1.500	.139-.178	
COAHL-248	9245248	TFN/R/L	1.500	.139-.178	
COAHR-258	9246258	TFN/R/L	1.750	.178-.217	
COAHL-258	9245258	TFN/R/L	1.750	.178-.217	

Recommended SFM & IPR for Parting Applications

Workpiece Group	Uncoated	TiN PVD Coated		AlTiN PVD Coated		Feed/IPR
	C22	GP22	GP50	AT22	AT50	
Free Machining Carbon Steels	---	150-300	200-600	***200-400***	***400-800***	.003-.008
Plain Carbon Steels	---	150-300	200-600	***200-400***	***400-800***	.003-.008
Alloy Steels 190-330 HB	---	150-300	200-500	***200-350***	***400-800***	.003-.008
Alloy Steels 330-450 HB	---	150-300	200-450	***200-350***	***400-750***	.003-.008
Martensitic/Ferritic Stainless Steel 400 Series	---	150-300	200-500	***200-400***	***350-700***	.003-.008
Austenitic Stainless 300 Series	150-300	150-400	---	***300-600***	---	.002-.007
Gray Cast Iron 190-330 HB	100-350	150-400	---	***300-600***	---	.002-.007
Gray Cast Iron 330-450 HB	100-300	150-350	---	***200-550***	---	.002-.007
Alloy / Ductile Irons	---	150-300	200-500	***250-450***	***300-700***	.003-.008
Free Machining Aluminum Alloys	100-1500	150-2000	---	***600-2200***	---	.004-.008
High-Silicon Aluminum Alloys	---	---	---	---	---	---
Copper / Zinc / Brass	100-500	150-700	---	***300-900***	---	.004-.008
Non-Metallics	100-1000	150-1500	---	***350-1200***	---	.004-.008
High Temperature Alloys 200-260 HB	80-130	100-175	---	***80-200***	---	.002-.006
High Temperature Alloys 260-450 HB	50-100	80-150	---	***80-175***	---	.002-.006
Titanium Alloys (Ti 6Al-4V)	100-200	100-250	---	***80-300***	---	.002-.006

Bold print items denote the top choices for the materials listed, provided it can be machined within the SFM stated under the appropriate machining conditions. For the best performance in optimal machining conditions, select the grade that will provide you with the highest allowable SFM.

TOOL-FLO

DEEP GROOVING

Deep Grooving Insert Nomenclature Chart

VDG – 125 – A 008 – CB GP3 A

- **VDG** — vee-bottom deep grooving
- **125** — groove width

Inch	Metric
.125	3,18
.156	3,96
.188	4,78
.218	5,54
.250	6,35
.312	7,92
.375	9,53

- **A** — insert height

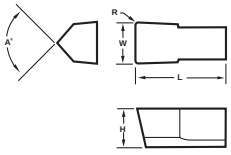
A	.250
B	.337

- **008** — corner radius

Inch	Metric
.008	0,2
.010	0,25
.015	0,4
.031	0,8

- **CB** — chipbreaker
- **GP3** — grade
- **A** — edge prep

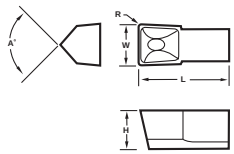
DEEP GROOVING
VDG



Description	EDP Code	W Inch	W Metric	R	L	H	A	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
VDG-125-A008	882125A08	.125	3,18	.008	.500	.250	90°			●		●	●
VDG-125-A015	82125A	.125	3,18	.015	.500	.250	90°			●	●	●	●
VDG-156-A008	82156A08	.156	3,96	.008	.500	.250	90°			●	●	●	●
VDG-156-A015	82156A	.156	3,96	.015	.500	.250	90°			●	●	●	●
VDG-188-A008	82188A08	.188	4,78	.008	.500	.250	90°			●	●	●	●
VDG-188-A015	82188A	.188	4,78	.015	.500	.250	90°			●	●	●	●
VDG-188-A031	82188A31	.188	4,78	.031	.500	.250	90°			●	●	●	●
VDG-218-A015	82218A	.218	5,54	.015	.500	.250	90°			●		●	●
VDG-250-B015	82250B	.250	6,35	.015	.500	.337	90°			●	●	●	●
VDG-250-B031	82250B31	.250	6,35	.031	.500	.337	90°			●	●	●	●
VDG-312-B015	82312B	.312	7,92	.015	.500	.337	90°			●	●	●	●
VDG-312-B031	82312B31	.312	7,92	.031	.500	.337	90°			●	●	●	●
VDG-375-B015	82375B	.375	9,53	.015	.500	.337	90°			●	●	●	●
VDG-375-B031	82375B31	.375	9,53	.031	.500	.337	90°			●	●	●	●

DEEP GROOVING
VDG-CB
w/patented chipbreaker

Exclusive patented design!



Description	EDP Code	W Inch	W Metric	R	L	H	A	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
VDG-125-A008-CB	82125A08C	.125	3,18	.008	.500	.250	90°			●		●	●
VDG-125-A015-CB	82125AC	.125	3,18	.015	.500	.250	90°			●	●	●	●
VDG-156-A008-CB	82156A08C	.156	3,96	.008	.500	.250	90°			●	●	●	●
VDG-156-A015-CB	82156AC	.156	3,96	.015	.500	.250	90°			●	●	●	●
VDG-188-A008-CB	82188A08C	.188	4,78	.008	.500	.250	90°			●	●	●	●
VDG-188-A015-CB	82188AC	.188	4,78	.015	.500	.250	90°			●	●	●	●
VDG-188-A031-CB	82188A31C	.188	4,78	.031	.500	.250	90°			●	●	●	●
VDG-218-A015-CB	82218AC	.218	5,54	.015	.500	.250	90°			●		●	●
VDG-250-B015-CB	82250BC	.250	6,35	.015	.500	.337	90°			●	●	●	●
VDG-250-B031-CB	82250B31C	.250	6,35	.031	.500	.337	90°			●	●	●	●
VDG-312-B015-CB	82312BC	.312	7,92	.015	.500	.337	90°			●	●	●	●
VDG-312-B031-CB	82312B31C	.312	7,92	.031	.500	.337	90°			●		●	●
VDG-375-B015-CB	82375BC	.375	9,53	.015	.500	.337	90°			●	●	●	●
VDG-375-B031-CB	82375B31C	.375	9,53	.031	.500	.337	90°			●		●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up -to- date grade offering.

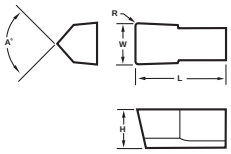
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron			▲		●	
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel				▲	●	

DEEP GROOVING

VDG

METRIC



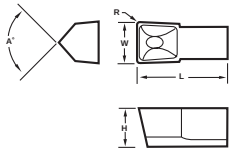
Description	EDP Code	W Metric	W Inch	R	L	H	A	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
VDG-3M-A02	823M02	3,00	.118	0,2	12,7	6,35	90°			●	●	●	●
VDG-3M-A04	823M04	3,00	.118	0,4	12,7	6,35	90°			●	●	●	●
VDG-4M-A02	824M02	4,00	.157	0,2	12,7	6,35	90°			●	●	●	●
VDG-4M-A04	824M04	4,00	.157	0,4	12,7	6,35	90°			●	●	●	●
VDG-5M-A02	825M02	5,00	.197	0,2	12,7	6,35	90°			●	●	●	●
VDG-5M-A04	825M04	5,00	.197	0,4	12,7	6,35	90°			●	●	●	●
VDG-6M-B04	826M04	6,00	.236	0,4	12,7	8,55	90°			●	●	●	●
VDG-6M-B08	826M08	6,00	.236	0,8	12,7	8,55	90°			●	●	●	●
VDG-8M-B04	828M04	8,00	.315	0,4	12,7	8,55	90°			●	●	●	●
VDG-8M-B08	828M08	8,00	.315	0,8	12,7	8,55	90°			●	●	●	●

DEEP GROOVING

VDG-CB

METRIC w/patented chipbreaker

Exclusive patented design!



Description	EDP Code	W Metric	W Inch	R	L	H	A	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
VDG-3M-A02-CB	823M02C	3,00	.118	0,2	12,7	6,35	90°			●	●	●	●
VDG-3M-A04-CB	823M04C	3,00	.118	0,4	12,7	6,35	90°			●	●	●	●
VDG-4M-A02-CB	824M02C	4,00	.157	0,2	12,7	6,35	90°			●	●	●	●
VDG-4M-A04-CB	824M04C	4,00	.157	0,4	12,7	6,35	90°			●	●	●	●
VDG-5M-A02-CB	825M02C	5,00	.197	0,2	12,7	6,35	90°			●	●	●	●
VDG-5M-A04-CB	825M04C	5,00	.197	0,4	12,7	6,35	90°			●	●	●	●
VDG-6M-B04-CB	826M04C	6,00	.236	0,4	12,7	8,55	90°			●	●	●	●
VDG-6M-B08-CB	826M08C	6,00	.236	0,8	12,7	8,55	90°			●	●	●	●
VDG-8M-B04-CB	828M04C	8,00	.315	0,4	12,7	8,55	90°			●	●	●	●
VDG-8M-B08-CB	828M08C	8,00	.315	0,8	12,7	8,55	90°			●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up -to- date grade offering.

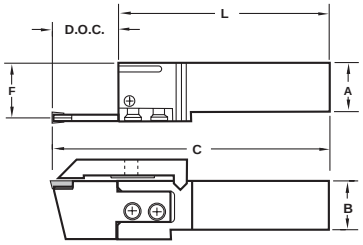
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	C3	C6H	GP3	GP50	AC3	AC50
Cast Iron			▲		●	
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel				▲	●	

EXTERNAL STRAIGHT HOLDER

CEDVOR/L

RH holders use RH components



RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	A	B	L	F	Clamp Screw	Anvil Screw
CEDVOR-16	91951600	1	1	5.190	1.150	SB90	SF95
CEDVOL-16	91901600	1	1	5.190	1.150	SB90	SF95
CEDVOR-20	91952000	1-1/4	1-1/4	5.190	1.150	SB90	SF95
CEDVOL-20	91902000	1-1/4	1-1/4	5.190	1.150	SB90	SF95
CEDVOR-24	91952400	1-1/2	1-1/2	5.190	1.400	SB90	SF95
CEDVOL-24	91902400	1-1/2	1-1/2	5.190	1.400	SB90	SF95

*The "C" dimension is determined by the D.O.C. of the anvil.

METRIC

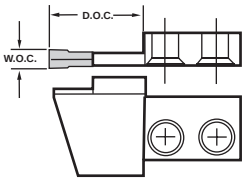
Description	EDP Code	A	B	L	F	Clamp Screw	Anvil Screw
CEDVOR-25M	91962500	25,0	25,0	132,0	28,5	SB90	SF95
CEDVOL-25M	91912500	25,0	25,0	132,0	28,5	SB90	SF95
CEDVOR-32M	91963200	32,0	32,0	132,0	28,5	SB90	SF95
CEDVOL-32M	91913200	32,0	32,0	132,0	28,5	SB90	SF95
CEDVOR-40M	91964000	40,0	40,0	132,0	36,0	SB90	SF95
CEDVOL-40M	91914000	40,0	40,0	132,0	36,0	SB90	SF95

*The "C" dimension is determined by the D.O.C. of the anvil.

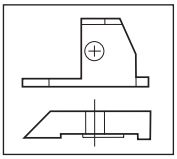
COMPONENTS

DGAHR/L

Anvils for CEDVOR/L



RH SHOWN



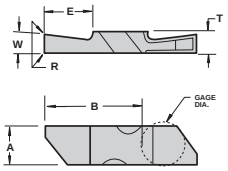
Description	EDP Code	Insert	DOC	WOC	Clamp
DGAHR-113	9263113	VDG	1.250	.125	DGCHR-132
DGAHL-113	9262113	VDG	1.250	.125	DGCHL-132
DGAHR-138	9263138	VDG	1.375	.170-.188	DGCHR-382
DGAHL-138	9262138	VDG	1.375	.170-.188	DGCHL-382
DGAHR-248	9263248	VDG	1.500	.218	DGCHR-482
DGAHL-248	9262248	VDG	1.500	.218	DGCHL-482
DGAHR-258	9263258	VDG	1.500	.250-.312	DGCHR-500
DGAHL-258	9262258	VDG	1.500	.250-.312	DGCHL-500
DGAHR-268	9263268	VDG	1.750	.350-.375	DGCHR-582
DGAHL-268	9262268	VDG	1.750	.350-.375	DGCHL-582

DEEP GROOVING

FLGT

Double ended

Exclusive TOOL-FLO design!



Description	EDP Code	W Inch	W Metric	R	T	E	A	B	Gage Dia	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLGT-3094R	6332094R	.094	2,39	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-3094L	6332094L	.094	2,39	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-3125R	6332125R	.125	3,18	.005/.010	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-3125L	6332125L	.125	3,18	.005/.010	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-3189R	6332189R	.189	4,80	.020/.025	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-3189L	6332189L	.189	4,80	.020/.025	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-4125R	6342125R	.125	3,18	.005/.010	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-4125L	6342125L	.125	3,18	.005/.010	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-4189R	6342189R	.189	4,80	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-4189L	6342189L	.189	4,80	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-4250R	6342250R	.250	6,35	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-4250L	6342250L	.250	6,35	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●

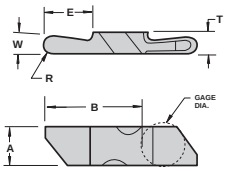
METRIC

Description	EDP Code	W Metric	W Inch	R	T	E	A	B	Gage Dia	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLGT-330R	633230R	3,00	.118	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-330L	633230L	3,00	.118	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-340R	633240R	4,00	.157	.005/.010	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-340L	633240L	4,00	.157	.005/.010	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-450R	6344250R	5,00	.197	.020/.025	.255	.550	.453	1.136	.3750		●	●	●	●	●
FLGT-450L	6344250L	5,00	.197	.020/.025	.255	.550	.453	1.136	.3750		●	●	●	●	●
FLGT-460R	6344260R	6,00	.236	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-460L	6344260L	6,00	.236	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●

FLRT

Full Nose Radius - Double ended

Exclusive TOOL-FLO design!



Description	EDP Code	W Inch	W Metric	R	T	E	A	B	Gage Dia	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLRT-3062R	6337062R	.125	3,18	.062	.195	.437	.344	.855	.3750			●	●	●	●
FLRT-3062L	6337062L	.125	3,18	.062	.195	.437	.344	.855	.3750			●	●	●	●
FLRT-3094R	6337094R	.189	4,80	.094	.195	.437	.344	.855	.3750			●	●	●	●
FLRT-3094L	6337094L	.189	4,80	.094	.195	.437	.344	.855	.3750			●	●	●	●
FLRT-4062R	6347062R	.125	3,18	.062	.255	.550	.453	1.136	.3750			●	●	●	●
FLRT-4062L	6347062L	.125	3,18	.062	.255	.550	.453	1.136	.3750			●	●	●	●
FLRT-4094R	6347094R	.189	4,80	.094	.255	.550	.453	1.136	.3750			●	●	●	●
FLRT-4094L	6347094L	.189	4,80	.094	.255	.550	.453	1.136	.3750			●	●	●	●
FLRT-4125R	6347125R	.250	6,35	.125	.255	.550	.453	1.136	.3750			●	●	●	●
FLRT-4125L	6347125L	.250	6,35	.125	.255	.550	.453	1.136	.3750			●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	C3	C6H	GP3	GP50	AC3	AC50
Cast Iron			▲		●	
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel				▲	●	

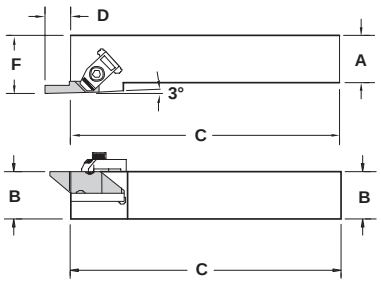
EXTERNAL HOLDER

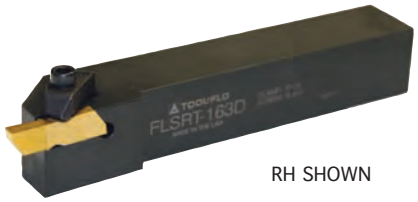
FLSR/LT

For double ended FLGT/FLRT inserts
Inch

Exclusive TOOL-FLO design!

Most holders available with coolant port
(ie: Add CP to end of description)





RH SHOWN

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLSRT-163D	93431616D	FLGT-3R	1.000	1.000	6.000	.440	1.250	TF-72	S-412
FLSLT-163D	93421616D	FLGT-3L	1.000	1.000	6.000	.440	1.250	TF-73	S-412
FLSRT-203D	93432016D	FLGT-3R	1.250	1.250	6.000	.440	1.500	TF-72	S-412
FLSLT-203D	93422016D	FLGT-3L	1.250	1.250	6.000	.440	1.500	TF-73	S-412
FLSRT-164D	93431620D	FLGT-4R	1.000	1.000	6.000	.560	1.250	TF-72	S-412
FLSLT-164D	93421620D	FLGT-4L	1.000	1.000	6.000	.560	1.250	TF-73	S-412
FLSRT-204D	93432020D	FLGT-4R	1.250	1.250	6.000	.560	1.500	TF-72	S-412
FLSLT-204D	93422020D	FLGT-4L	1.250	1.250	6.000	.560	1.500	TF-73	S-412

METRIC

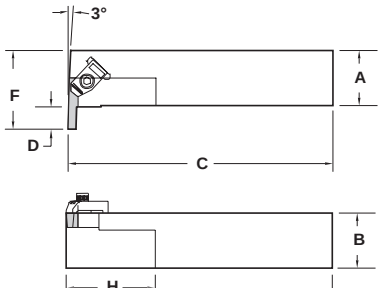
Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLSRT-2525M3	934325M16	FLGT/RT-3R	25,0	25,0	152,4	11,2	32,0	TF-72	S-412
FLSLT-2525M3	934225M16	FLGT/RT-3L	25,0	25,0	152,4	11,2	32,0	TF-73	S-412
FLSRT-3232M3	934332M16	FLGT/RT-3R	32,0	32,0	152,4	11,2	40,0	TF-72	S-412
FLSLT-3232M3	934232M16	FLGT/RT-3L	32,0	32,0	152,4	11,2	40,0	TF-73	S-412
FLSRT-2525M4	934325M20	FLGT/RT-4R	25,0	25,0	152,4	14,2	32,0	TF-72	S-412
FLSLT-2525M4	934225M20	FLGT/RT-4L	25,0	25,0	152,4	14,2	32,0	TF-73	S-412
FLSRT-3232M4	934332M20	FLGT/RT-4R	32,0	32,0	152,4	14,2	40,0	TF-72	S-412
FLSLT-3232M4	934232M20	FLGT/RT-4L	32,0	32,0	152,4	14,2	40,0	TF-73	S-412

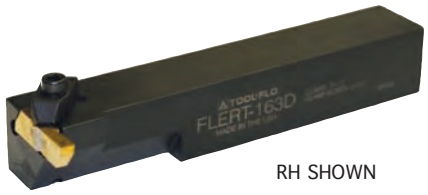
FLER/LT

For double ended FLGT/FLRT inserts

Exclusive TOOL-FLO design!

Most holders available with coolant port
(ie: Add CP to end of description)





RH SHOWN

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLERT-163D	93111616D	FLGT-3L	1.000	1.000	6.000	.440	1.250	TF-72	S-412
FLELT-163D	93011616D	FLGT-3R	1.000	1.000	6.000	.440	1.250	TF-73	S-412
FLERT-203D	93112016D	FLGT-3L	1.250	1.250	6.000	.440	1.500	TF-72	S-412
FLELT-203D	93012016D	FLGT-3R	1.250	1.250	6.000	.440	1.500	TF-73	S-412
FLERT-164D	93111620D	FLGT-4L	1.000	1.000	6.000	.560	1.250	TF-72	S-412
FLELT-164D	93011620D	FLGT-4R	1.000	1.000	6.000	.560	1.250	TF-73	S-412
FLERT-204D	93112020D	FLGT-4L	1.250	1.250	6.000	.560	1.500	TF-72	S-412
FLELT-204D	93012020D	FLGT-4R	1.250	1.250	6.000	.560	1.500	TF-73	S-412

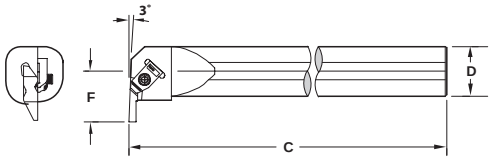
INTERNAL BAR

A_FLER/LT

Exclusive TOOL-FLO design!

For double ended FLGT/FLRT inserts

Inch



RH SHOWN

Most holders available with coolant port

(ie: Add CP to end of description)

Description	EDP Code	Insert	D	C	F	Min. Bore	Clamp	Clamp Screw
A20-FLERT3	96552016	FLGT/RT-3L	1.250	14.000	1.082	1.807	TF-73	S-412
A20-FLELT3	96452016	FLGT/RT-3R	1.250	14.000	1.082	1.807	TF-72	S-412
A24-FLERT3	96552416	FLGT/RT-3L	1.500	14.000	1.207	2.057	TF-73	S-412
A24-FLELT3	96452416	FLGT/RT-3R	1.500	14.000	1.207	2.057	TF-72	S-412
A28-FLERT4	96552820	FLGT/RT-4L	1.750	14.000	1.500	2.475	TF-73	S-412
A28-FLELT4	96452820	FLGT/RT-4R	1.750	14.000	1.500	2.475	TF-72	S-412

METRIC

Description	EDP Code	Insert	D	C	F	Min. Bore	Clamp	Clamp Screw
A32M-FLERT3	96442016	FLGT/RT-3L	32,0	350,0	27,48	46,0	TF-72	S-412
A32M-FLELT3	96432016	FLGT/RT-3R	32,0	350,0	27,48	46,0	TF-73	S-412
A40M-FLERT3	96442416	FLGT/RT-3L	40,0	350,0	31,60	54,15	TF-72	S-412
A40M-FLELT3	96432416	FLGT/RT-3R	40,0	350,0	31,60	54,15	TF-73	S-412
A50M-FLERT4	96442820	FLGT/RT-4L	50,0	350,0	40,87	68,43	TF-72	S-412
A50M-FLELT4	96432820	FLGT/RT-4R	50,0	350,0	40,87	68,43	TF-73	S-412

Recommended SFM & IPR for Deep Grooving Applications

Workpiece Group	Uncoated	TiN PVD Coated		AlTiN PVD Coated		Feed/IPR	
	C3	GP3	GP50	AT3	AT50	Neutral Rake	Chipbreaker
Free Machining Carbon Steels	---	200-400	200-600	250-450	***400-800***	.004-.010	.005-.014
Plain Carbon Steels	---	200-400	200-600	250-450	***400-800***	.004-.010	.005-.014
Alloy Steels 190-330 HB	---	200-400	200-500	250-400	***400-800***	.004-.010	.005-.014
Alloy Steels 330-450 HB	---	200-350	200-450	250-400	***400-750***	.003-.009	.005-.012
Martensitic/Ferritic Stainless Steel 400 Series	---	200-400	200-500	250-450	***350-700***	.004-.010	.005-.014
Austenitic Stainless 300 Series	200-300	200-500	---	***250-700***	---	.003-.009	.004-.008
Gray Cast Iron 190-330 HB	100-300	200-600	---	***250-700***	---	.004-.010	---
Gray Cast Iron 330-450 HB	100-250	200-500	---	***200-600***	---	.003-.009	---
Alloy / Ductile Irons	100-250	200-400	200-500	200-450	***300-700***	.004-.010	.005-.014
Free Machining Aluminum Alloys	500-1500	300-2000	---	***600-2500***	---	.005-.012	.008-.016
High-Silicon Aluminum Alloys	---	---	---	---	---	---	---
Copper / Zinc / Brass	200-700	200-900	---	***400-1000***	---	.005-.012	.007-.016
Non-Metallics	400-1400	300-1500	---	***400-1500***	---	.005-.012	---
High Temperature Alloys 200-260 HB	80-130	100-200	---	***100-250***	---	.003-.006	.004-.007
High Temperature Alloys 260-450 HB	50-100	100-175	---	***100-200***	---	.003-.006	.004-.007
Titanium Alloys (Ti 6Al-4V)	100-200	150-300	---	***100-300***	---	.003-.006	.004-.008

Bold print items denote the top choices for the materials listed, provided it can be machined within the SFM stated under the appropriate machining conditions. For the best performance in optimal machining conditions, select the grade that will provide you with the highest allowable SFM.

TOOL-FLO

FACE GROOVING

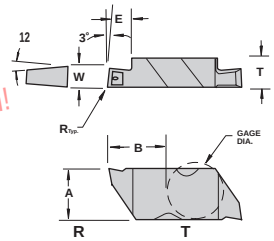
FACE GROOVING

FLF-CB

w/Patented chipbreaker

Exclusive patented design!

For holders see next page.

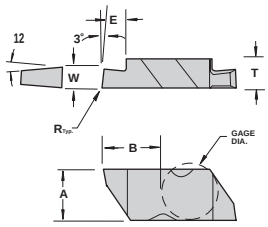


RH SHOWN

Description	EDP Code	W	R	T	E	A	B	Gage Dia	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLF-3125R-CB	563025PR	.125	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3125L-CB	563025PL	.125	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3156R-CB	563056PR	.156	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3156L-CB	563056PL	.156	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3188R-CB	563088PR	.188	.020/.025	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3188L-CB	563088PL	.188	.020/.025	.195	.180	.344	.4050	.3750			●	●	●	●

FLF

For holders see next page.



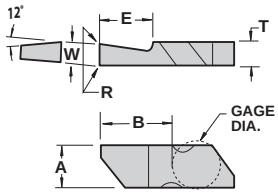
RH SHOWN

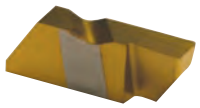
Description	EDP Code	W	R	T	E	A	B	Gage Dia	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLF-3125R	563025R	.125	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3125L	563025L	.125	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3156R	563056R	.156	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3156L	563056L	.156	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3188R	563088R	.188	.020/.025	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3188L	563088L	.188	.020/.025	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-4250R	564250R	.250	.020/.025	.255	.290	.453	.6360	.3750			●	●	●	●
FLF-4250L	564250L	.250	.020/.025	.255	.290	.453	.6360	.3750			●	●	●	●
FLF-6218R	566218R	.218	.030/.035	.383	.290	.453	.6360	.3750						
FLF-6218L	566218L	.218	.030/.035	.383	.290	.453	.6360	.3750						
FLF-6250R	566250R	.250	.030/.035	.383	.290	.453	.6360	.3750						
FLF-6250L	566250L	.250	.030/.035	.383	.290	.453	.6360	.3750						
FLF-6375R	566475R	.375	.030/.035	.383	.290	.453	.6360	.3750						
FLF-6375L	566475L	.375	.030/.035	.383	.290	.453	.6360	.3750						

FLFD

Single ended - Deep Grooving

For holders see next page.





RH SHOWN

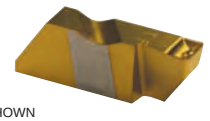
Description	EDP Code	W	R	T	E	A	B	Gage Dia	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLFD-3125R	6338125R	.125	.005/.010	.195	.270	.344	.4050	.3750			●	●	●	●
FLFD-3125L	6338125L	.125	.005/.010	.195	.270	.344	.4050	.3750			●	●	●	●
FLFD-4189R	6348189R	.189	.020/.025	.255	.390	.453	.7610	.3750			●	●	●	●
FLFD-4189L	6348189L	.189	.020/.025	.255	.390	.453	.7610	.3750			●	●	●	●
FLFD-4250R	6348250R	.250	.020/.025	.255	.520	.453	.8860	.3750			●	●	●	●
FLFD-4250L	6348250L	.250	.020/.025	.255	.520	.453	.8860	.3750			●	●	●	●

FLFD-CB

Single ended - Deep Grooving
w/Patented chipbreaker

Exclusive patented design!

For holders see next page.



RH SHOWN

Description	EDP Code	W	R	T	E	A	B	Gage Dia	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLFD-3125R-CB	6338125PR	.125	.005/.010	.195	.270	.344	.5050	.3750			●	●	●	●
FLFD-3125L-CB	6338125PL	.125	.005/.010	.195	.270	.344	.5050	.3750			●	●	●	●
FLFD-4189R-CB	6348189PR	.189	.020/.025	.255	.390	.453	.7610	.3750			●	●	●	●
FLFD-4189L-CB	6348189PL	.189	.020/.025	.255	.390	.453	.7610	.3750			●	●	●	●
FLFD-4250R-CB	6348250PR	.250	.020/.025	.255	.500	.453	.8860	.3750			●	●	●	●
FLFD-4250L-CB	6348250PL	.250	.020/.025	.255	.500	.453	.8860	.3750			●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

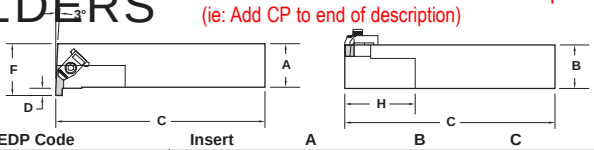
	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
Cast Iron			▲		●	
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel			▲		●	

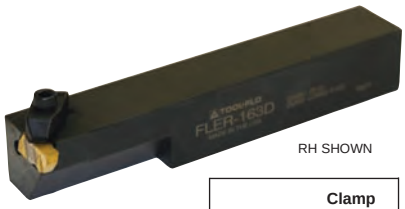
EXTERNAL HOLDERS

FLER/L

90˚ for FLF/FLFD inserts

Most holders available with coolant port
(ie: Add CP to end of description)



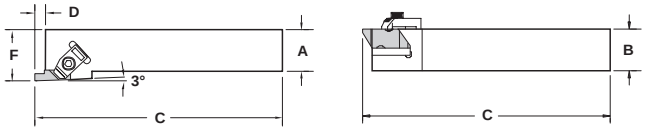


RH SHOWN

Description	EDP Code	Insert	A	B	C	D	F	H	Clamp	Clamp Screw
FLER-123B	93101216B	FL-3L	.750	.750	4.500	.210	1.125	1.500	TF-73	S-412
FLEL-123B	93001216B	FL-3R	.750	.750	4.500	.210	1.125	1.500	TF-72	S-412
FLER-163D	93101616D	FL-3L	1.000	1.000	6.000	.210	1.250	2.000	TF-73	S-412
FLEL-163D	93001616D	FL-3R	1.000	1.000	6.000	.210	1.250	2.000	TF-72	S-412
FLER-203D	93102016D	FL-3L	1.250	1.250	6.000	.210	1.500	2.000	TF-73	S-412
FLEL-203D	93002016D	FL-3R	1.250	1.250	6.000	.210	1.500	2.000	TF-72	S-412
FLER-164D	93101620D	FL-4L	1.000	1.000	6.000	.290	1.375	2.000	TF-73	S-412
FLEL-164D	93001620D	FL-4R	1.000	1.000	6.000	.290	1.375	2.000	TF-72	S-412
FLER-204D	93102020D	FL-4L	1.250	1.250	6.000	.290	1.625	2.000	TF-73	S-412
FLEL-204D	93002020D	FL-4R	1.250	1.250	6.000	.290	1.625	2.000	TF-72	S-412
FLER-206D	93102028D	FL-6L	1.250	1.250	6.000	.290	1.625	2.000	TF-121	S-412
FLEL-206D	93002028D	FL-6R	1.250	1.250	6.000	.290	1.625	2.000	TF-120	S-412

FLSR/L

Straight for FLF/FLFD inserts



RH SHOWN

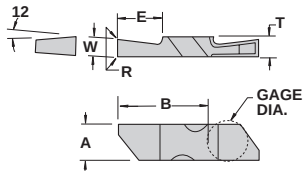
Most holders available with coolant port (ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	D	F*	Seat	Seat Screw	Clamp	Clamp Screw
FLSR-123B	93401216B	FL-3R	.750	.750	4.500	.210	1.000	---	---	TF-72	S-412
FLSL-123B	93301216B	FL-3L	.750	.750	4.500	.210	1.000	---	---	TF-73	S-412
FLSR-163C	93401616C	FL-3R	1.000	1.000	5.000	.210	1.250	---	---	TF-72	S-412
FLSL-163C	93301616C	FL-3L	1.000	1.000	5.000	.210	1.250	---	---	TF-73	S-412
FLSR-163D	93401616D	FL-3R	1.000	1.000	6.000	.210	1.250	---	---	TF-72	S-412
FLSL-163D	93301616D	FL-3L	1.000	1.000	6.000	.210	1.250	---	---	TF-73	S-412
FLSR-203D	93402016D	FL-3R	1.250	1.250	6.000	.210	1.500	---	---	TF-72	S-412
FLSL-203D	93302016D	FL-3L	1.250	1.250	6.000	.210	1.500	---	---	TF-73	S-412
FLSR-164D	93401620D	FL-4R	1.000	1.000	6.000	.290	1.250	SM-420	SL-344	TF-72	S-412
FLSL-164D	93301620D	FL-4L	1.000	1.000	6.000	.290	1.250	SM-420	SL-344	TF-73	S-412
FLSR-204D	93402020D	FL-4R	1.250	1.250	6.000	.290	1.500	SM-420	SL-344	TF-72	S-412
FLSL-204D	93302020D	FL-4L	1.250	1.250	6.000	.290	1.500	SM-420	SL-344	TF-73	S-412
FLSR-206D	93402028D	FL-6R	1.250	1.250	6.000	.290	1.500	SM-416	SL-111	TF-120	S-412
FLSL-206D	93302028D	FL-6L	1.250	1.250	6.000	.290	1.500	SM-416	SL-111	TF-121	S-412

FACE/DEEP GROOVING

FLFT

Double ended - Deep Face Grooving




RH SHOWN

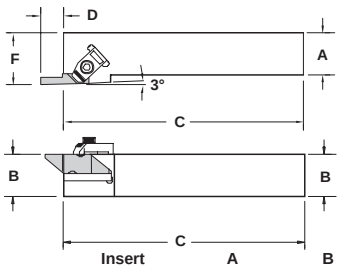
Description	EDP Code	W	R	T	E	A	B	Gage Dia	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLFT-3125R	6339125R	.125	.005/.010	.195	.375	.344	.855	.3750			●	●	●	
FLFT-3125L	6339125L	.125	.005/.010	.195	.375	.344	.855	.3750			●	●	●	
FLFT-4189R	6349189R	.189	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	
FLFT-4189L	6349189L	.189	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	
FLFT-4250R	6349250R	.250	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	
FLFT-4250L	6349250L	.250	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	

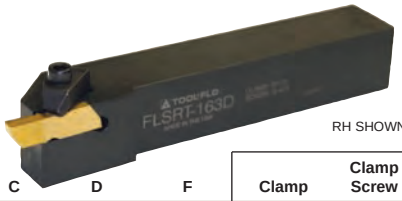
Cast Iron			▲		●	
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel			▲		●	

EXTERNAL HOLDERS

FLSRT/LT

Straight for FLFT inserts





RH SHOWN

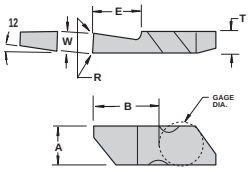
Most holders available with coolant port
(ie: Add CP to end of description)

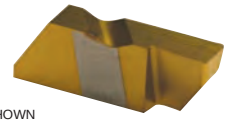
Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLSRT-163D	93431616D	FLFT-3R	1.000	1.000	6.000	.440	1.250	TF-72	S-412
FLSLT-163D	93421616D	FLFT-3L	1.000	1.000	6.000	.440	1.250	TF-73	S-412
FLSRT-203D	93432016D	FLFT-3R	1.250	1.250	6.000	.440	1.500	TF-72	S-412
FLSLT-203D	93422016D	FLFT-3L	1.250	1.250	6.000	.440	1.500	TF-73	S-412
FLSRT-164D	93431620D	FLFT-4R	1.000	1.000	6.000	.560	1.250	TF-72	S-412
FLSLT-164D	93421620D	FLFT-4L	1.000	1.000	6.000	.560	1.250	TF-73	S-412
FLSRT-204D	93432020D	FLFT-4R	1.250	1.250	6.000	.560	1.500	TF-72	S-412
FLSLT-204D	93422020D	FLFT-4L	1.250	1.250	6.000	.560	1.500	TF-73	S-412

INTERNAL FACE GROOVING

FLFD-I

Single ended - Internal Deep/Face Grooving





RH SHOWN

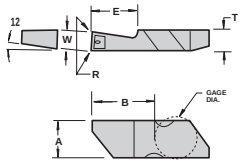
Description	EDP Code	W	R	T	E	A	B	Gage Dia	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLFD-3125RI	6338125RI	.125	.005/.010	.195	.270	.344	.5050	.3750			●	●	●	
FLFD-3125LI	6338125LI	.125	.005/.010	.195	.270	.344	.5050	.3750			●	●	●	
FLFD-3189RI	6338189RI	.189	.020/.025	.195	.270	.344	.5050	.3750			●	●	●	
FLFD-3189LI	6338189LI	.189	.020/.025	.195	.270	.344	.5050	.3750			●	●	●	

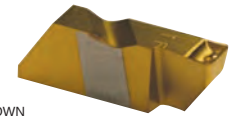
INTERNAL FACE GROOVING

FLFD-I-CB

Exclusive patented design!

Single ended - Internal Deep/Face Grooving
w/Patented chipbreaker





RH SHOWN

Description	EDP Code	W	R	T	E	A	B	Gage Dia	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLFD-3125RI-CB	6338125PRI	.125	.005/.010	.195	.270	.344	.5050	.3750			●	●	●	
FLFD-3125LI-CB	6338125PLI	.125	.005/.010	.195	.270	.344	.5050	.3750			●	●	●	
FLFD-3189RI-CB	6338189PRI	.189	.020/.025	.195	.270	.344	.5050	.3750			●	●	●	
FLFD-3189LI-CB	6338189PLI	.189	.020/.025	.195	.270	.344	.5050	.3750			●	●	●	

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

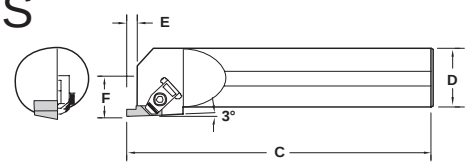
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron			▲		●
Non-Ferrous		●		▲	
Stainless/High Temp		▲		●	
Steel			▲		●

INTERNAL BARS

A-FLSR/L

For FLFD-I inserts
w/Coolant hole

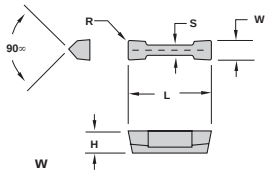


RH SHOWN

Description	EDP Code	Insert	Min. Bore	E	D	C	F	Clamp	Clamp Screw
A16-FLSR3	96521616	FLFD-3RI	2.250	.290	1.000	12.000	.640	TF-72	S-412
A16-FLSL3	96421616	FLFD-3LI	2.250	.290	1.000	12.000	.640	TF-73	S-412
A20-FLSR3	96522016	FLFD-3RI	2.250	.290	1.250	14.000	.765	TF-72	S-412
A20-FLSL3	96422016	FLFD-3LI	2.250	.290	1.250	14.000	.765	TF-73	S-412
A24-FLSR3	96522416	FLFD-3RI	2.250	.290	1.500	14.000	.890	TF-72	S-412
A24-FLSL3	96422416	FLFD-3LI	2.250	.290	1.500	14.000	.890	TF-73	S-412
A28-FLSR3	96522816	FLFD-3RI	2.250	.290	1.750	14.000	1.015	TF-72	S-412
A28-FLSL3	96422816	FLFD-3LI	2.250	.290	1.750	14.000	1.015	TF-73	S-412
A32-FLSR3	96523216	FLFD-3RI	2.375	.290	2.000	16.000	1.281	TF-72	S-412
A32-FLSL3	96423216	FLFD-3LI	2.375	.290	2.000	16.000	1.281	TF-73	S-412

FACE GROOVING

VDB



Description	EDP Code	Inch	Metric	R	L	H	S	Uncoated C25	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
VDB 125 A008	79125A08	.125	3,18	.008	1.125	.250	.106				●		
VDB 125 A015	79125A	.125	3,18	.015	1.125	.250	.106	●		●	●	●	●
VDB 156 A008	79156A08	.156	3,96	.008	1.125	.250	.106				●		
VDB 156 A015	79156A	.156	3,96	.015	1.125	.250	.106			●	●	●	●
VDB 188 A008	79188A08	.188	4,78	.008	1.125	.250	.144	●			●		●
VDB 188 A015	79188A	.188	4,78	.015	1.125	.250	.144	●		●	●	●	●
VDB 188 A031	79188A031	.188	4,78	.031	1.125	.250	.144			●	●	●	●
VDB 218-A015	79218A	.218	5,54	.015	1.125	.250	.144			●	●	●	●
VDB 250 A015	79250A	.250	6,35	.015	1.125	.250	.144	●		●	●	●	●
VDB 250 B015	79250B	.250	6,35	.015	1.125	.337	.144	●		●	●	●	●
VDB 250 B031	79250B031	.250	6,35	.031	1.125	.337	.144			●	●	●	●
VDB 281 B015	79281B	.281	7,14	.015	1.125	.337	.202				●	●	
VDB 312 B015	79312B	.312	7,92	.015	1.125	.337	.202			●	●	●	●
VDB 312 B031	79312B031	.312	7,92	.031	1.125	.337	.202			●	●	●	●
VDB 344 B015	79344B	.344	8,74	.015	1.125	.337	.276				●		
VDB 344 B031	79344B031	.344	8,74	.031	1.125	.337	.276				●		
VDB 375 B015	79375B	.375	9,53	.015	1.125	.337	.276			●	●	●	●
VDB 375 B031	79375B031	.375	9,53	.031	1.125	.337	.276				●	●	

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

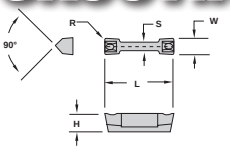
Cast Iron			▲		●
Non-Ferrous		●		▲	
Stainless/High Temp		▲		●	
Steel			▲		●

FACE GROOVING

VDB-CB

Exclusive patented design!

w/Patented chipbreaker



Description	EDP Code	Inch	Metric	R	L	H	S	Uncoated C25	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
VDB 125 A008-CB	79125A08P	.125	3,18	.008	1.125	.250	.106				●		
VDB 125 A015-CB	79125AP	.125	3,18	.015	1.125	.250	.106	●		●	●	●	●
VDB 156 A008-CB	79156A08P	.156	3,96	.008	1.125	.250	.106				●		
VDB 156 A015-CB	79156AP	.156	3,96	.015	1.125	.250	.106			●	●	●	●
VDB 188 A008-CB	79188A08P	.188	4,78	.008	1.125	.250	.144	●					●
VDB 188 A015-CB	79188AP	.188	4,78	.015	1.125	.250	.144	●		●	●	●	●
VDB 188 A031-CB	79188A031P	.188	4,78	.031	1.125	.250	.144			●	●	●	●
VDB 218-A015-CB	79218AP	.218	5,54	.015	1.125	.250	.144			●	●	●	●
VDB 250 B015-CB	79250BP	.250	6,35	.015	1.125	.337	.144			●	●	●	●
VDB 250 B031-CB	79250B031P	.250	6,35	.031	1.125	.337	.144			●	●	●	●
VDB 312 B015-CB	79312BP	.312	7,92	.015	1.125	.337	.202			●		●	●
VDB 312 B031-CB	79312B031P	.312	7,92	.031	1.125	.337	.202			●	●	●	●
VDB 375 B015-CB	79375BP	.375	9,53	.015	1.125	.337	.276			●	●	●	●
VDB 375 B031-CB	79375B031P	.375	9,53	.031	1.125	.337	.276			●	●	●	●

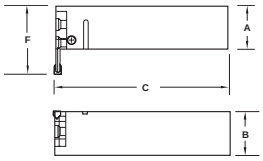
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	C25	C3	GP3	GP50	AC3	AC50
Cast Iron			▲		●	
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel			▲		●	

EXTERNAL 90° HOLDER

CDHOR/L (RH HOLDERS USE LH COMPONENTS)



RH SHOWN

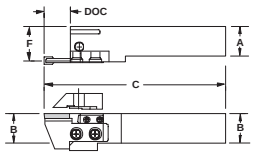
Metric holders on page 216.

Description	EDP Code	A	B	C	F* .312(1)	F* .812(1)	Clamp Screw	Stop Screw	Anvil Screw
CDHOR-16	92101600	1	1	6	1.312	1.812	SB90	SS20	SF95
CDHOL-16	92001600	1	1	6	1.312	1.812	SB90	SS20	SF95
CDHOR-20	92102000	1-1/4	1-1/4	6	1.562	2.062	SB90	SS20	SF95
CDHOL-20	92002000	1-1/4	1-1/4	6	1.562	2.062	SB90	SS20	SF95
CDHOR-24	92102400	1-1/2	1-1/2	6	1.812	2.312	SB90	SS20	SF95
CDHOL-24	92002400	1-1/2	1-1/2	6	1.812	2.312	SB90	SS20	SF95

*The "f" dimension is determined by the D.O.C. of the anvil.

EXTERNAL STRAIGHT HOLDER

CDVOR/L (RH HOLDERS USE RH COMPONENTS)



RH SHOWN

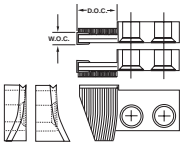
Metric holders on page 216.

Description	EDP Code	A	B	C	F	Clamp Screw	Stop Screw	Anvil Screw
CDVOR-16	92401600	1	1	*	1.150	SB90	SS20	SF95
CDVOL-16	92301600	1	1	*	1.150	SB90	SS20	SF95
CDVOR-20	92402000	1-1/4	1-1/4	*	1.400	SB90	SS20	SF95
CDVOL-20	92302000	1-1/4	1-1/4	*	1.400	SB90	SS20	SF95
CDVOR-24	92402400	1-1/2	1-1/2	*	1.650	SB90	SS20	SF95
CDVOL-24	92302400	1-1/2	1-1/2	*	1.650	SB90	SS20	SF95

*The "C" dimension is determined by the D.O.C. of the anvil.

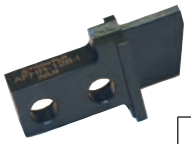
FACE GROOVING COMPONENTS

FOR CDHOR/L AND CDVOR/L



INSIDE

OUTSIDE



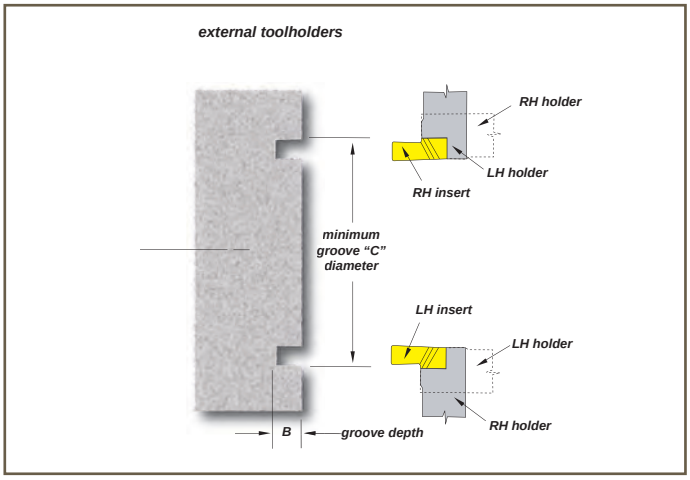
RH SHOWN

Description	EDP Code	Insert	Outside Dia. Range	DOC	WOC	Clamp	Stop Block
AFHR-128-I	91211281	DBP24/VDB125	2.750-3.000	.650	.105-.125	CHRF-282I	SBH-2
AFHR-128-O	91211280	DBP24/VDB125	2.750-3.000	.650	.105-.125	CHRF-282O	SBH-2
AFHL-128-I	91201281	DBP24/VDB125	2.750-3.000	.650	.105-.125	CHLF-282I	SBH-2
AFHL-128-O	91201280	DBP24/VDB125	2.750-3.000	.650	.105-.125	CHLF-282O	SBH-2
AFHR-138-I	91211381	DBP34/VDB188	3.000-4.000	.650	.170-.188	CHRF-382I	SBH-2
AFHR-138-O	91211380	DBP34/VDB188	3.000-4.000	.650	.170-.188	CHRF-382O	SBH-2
AFHL-138-I	91201381	DBP34/VDB188	3.000-4.000	.650	.170-.188	CHLF-382I	SBH-2
AFHL-138-O	91201380	DBP34/VDB188	3.000-4.000	.650	.170-.188	CHLF-382O	SBH-2
AFHR-148-I	91211481	VDB250A	3.000-4.000	.812	.220-.250	CHRF-482I	SBH-1
AFHR-148-O	91211480	VDB250A	3.000-4.000	.812	.220-.250	CHRF-482O	SBH-1
AFHL-148-I	91201481	VDB250A	3.000-4.000	.812	.220-.250	CHLF-482I	SBH-1
AFHL-148-O	91201480	VDB250A	3.000-4.000	.812	.220-.250	CHLF-482O	SBH-1
AFHR-248-I	91212481	DBP45/VDB250B	4.000-6.000	.812	.250-.312	CHRF-482I	SBH-1
AFHR-248-O	91212480	DBP45/VDB250B	4.000-6.000	.812	.250-.312	CHRF-482O	SBH-1
AFHL-248-I	91202481	DBP45/VDB250B	4.000-6.000	.812	.250-.312	CHLF-482I	SBH-1
AFHL-248-O	91202480	DBP45/VDB250B	4.000-6.000	.812	.250-.312	CHLF-482O	SBH-1
AFHR-268-I	91212681	DBP65/VDB375	6.000-12.000	.812	.350-.375	CHRF-582I	SBH-1
AFHR-268-O	91212680	DBP65/VDB375	6.000-12.000	.812	.350-.375	CHRF-582O	SBH-1
AFHL-268-I	91202681	DBP65/VDB375	6.000-12.000	.812	.350-.375	CHLF-582I	SBH-1
AFHL-268-O	91202680	DBP65/VDB375	6.000-12.000	.812	.350-.375	CHLF-582O	SBH-1

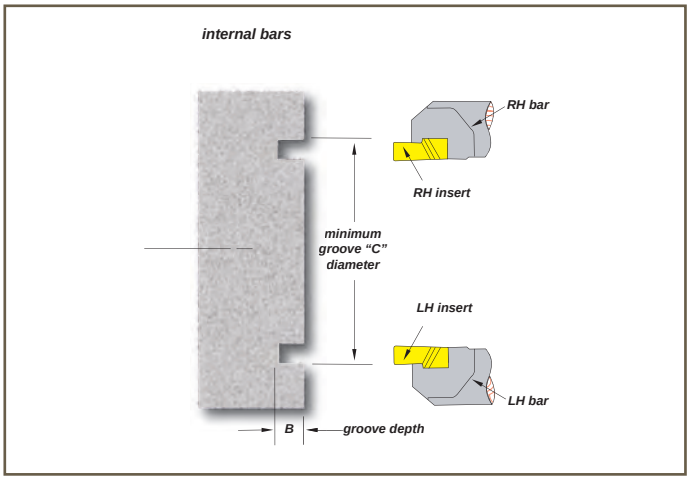
Guidelines for Face Grooving Operations

EXTERNAL

STANDARD FLF/FLFD INSERTS		
insert type	maximum groove depth "B"	minimum groove diameter "C"
FLF-3	.060	.940
FLF-3	.090	1.200
FLF-3	.125	1.420
FLF-3	.150	1.625
FLFD-3	.250	1.875
FLF-4/6	.060	.940
FLF-4/6	.090	1.200
FLF-4/6	.125	1.420
FLF-4/6	.150	1.625
FLF-4/6	.188	1.875
FLF-4/6	.250	2.250
FLFD-4	.375	2.250
FLFD-4	.500	2.250

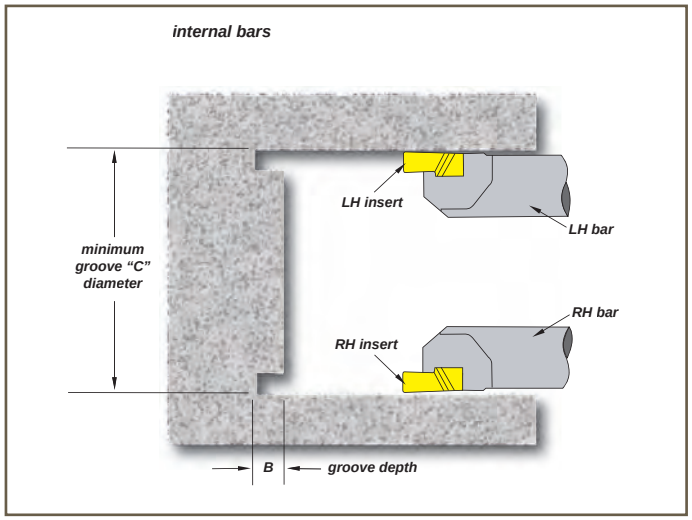


STANDARD FLG/FLGD INSERTS		
insert type	maximum groove depth "B"	minimum groove diameter "C"
FLG-2	.060	2.125
FLG-2	.094	3.500
FLG-3	.094	4.000
FLG-3	.125	5.000
FLG-3	.150	5.500
FLGD-3	.250	6.875
FLG-4	.150	6.000
FLG-4	.250	8.250
FLGD-4	.375	8.750
FLGD-4	.500	8.750
FLG-5	.375	13.000



INTERNAL

insert type	maximum groove depth "D"	minimum groove diameter "E"
FLFD-3-R	.250	2.250 Also check minimum bore diameter of boring bar.

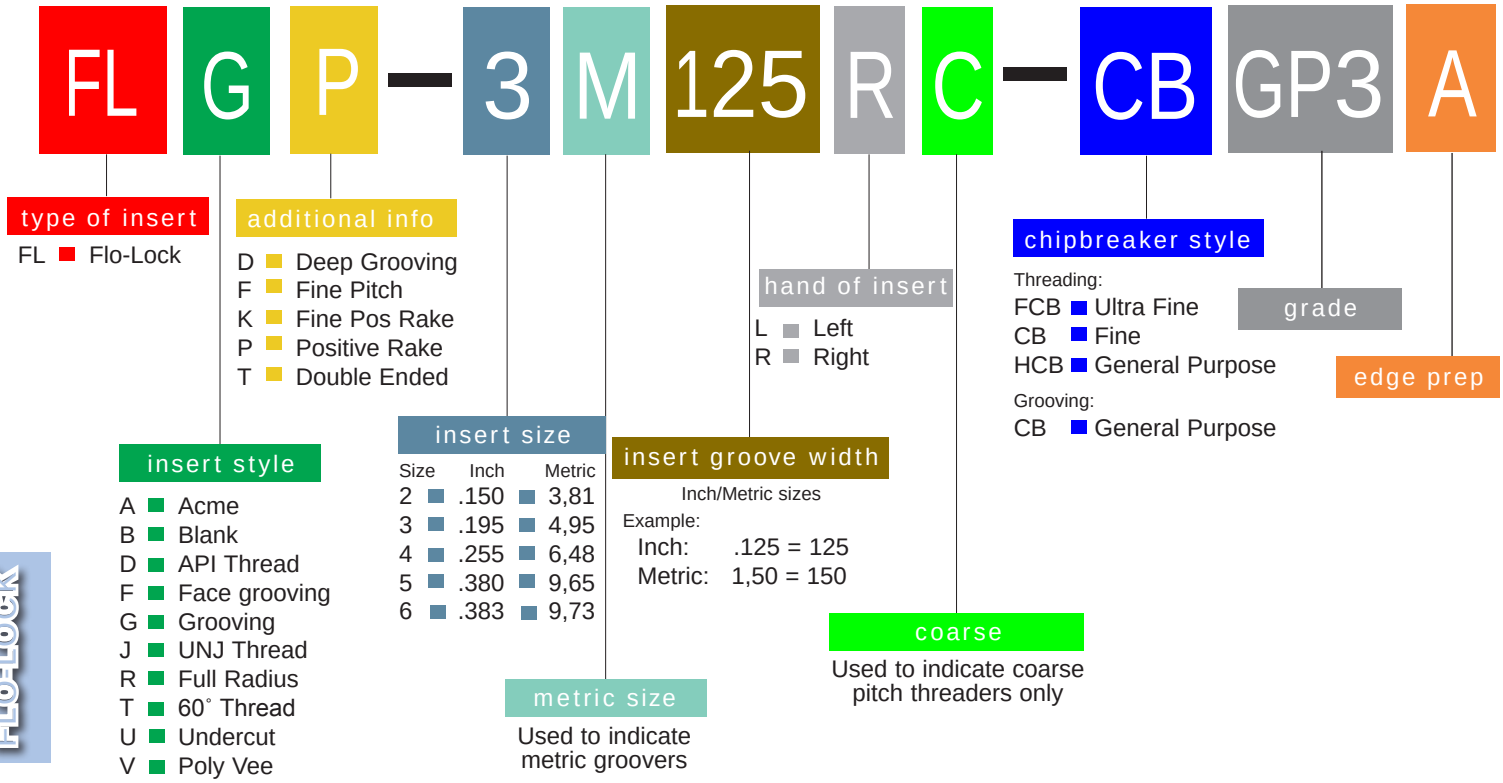


TOOL-FLO

FLO-LOCK

Threading & Grooving

Flo-Lock Grooving/Threading Insert Identification Chart



FLO-LOCK

Flo-Lock Cross Reference Chart

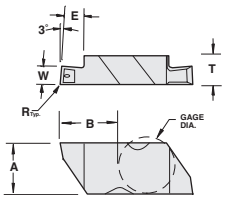
STYLE	TOOL-FLO	KENNAMETAL®	SANDVIK®*	VALENITE®*	HORIZON®*	RTW®*
ACME	FLA	NA	TLA	VLA	HA	PA
ACME STUBFLAS	NAS	TLAS	VLAS	HAS	PAS	
API-NON TOPPING	FLD	ND	TLD	#	#	#
API-TOPPING	FLDC	NDC	TLDC	#	HDC	PDC
DEEP GROOVING	FLGD	NGD	#	#	HGD	#
FACE GROOVING	FLF	NF	TLF	#	HF	#
GROOVING	FLG	NG	TLG	VLG	HG	PG
GROOVING-POSITIVE	FLGP	NGP	TLGP	VLGD	HGD	PGD
UNJ	FLJ	NJ	TLJ	#	HJ	#
UNJ-FINE PITCH	FLJF	NJF	TLJF	#	HJF	#
UNJ-FINE PITCH-POSITIVE	FLJK	NJK	TLJK	#	#	#
UNJ-POSITIVE	FLJP	NJP	TLJP	#	#	#
PROFILING - LH	FLPL	NPL	#	#	#	#
PROFILING - RH	FLPR	NPR	#	#	#	#
GROOVING - FNR	FLR	NR	TLR	VLR	HR	PR
GROOVING - FNR POS.	FLRP	NRP	TLRP	VLRD	HRP	PRP
60˚ V	FLT	NT	TLT	VLRT	HT	PT
AMERICAN STANDARD BUTTRESS	FLTB	NTB	TLTB	#	HTB	#
UN - UNIFIED	FLTC	NTC	TLTC	VLTC	HTC	PTC
60˚ V - FINE PITCH	FLTF	NTF	TLTF	VLTF	HTF	PTF
60˚ V - FINE PITCH POSITIVE	FLTK	NTK	TLTK	VLTK	HTK	PTK
60˚ V - POSITIVE	FLTP	NTP	TLTP	VLTP	HTP	PTP
POLY-V GROOVING	FLV	NV	TLV	#	HV	#

*Top Clamp change is required when converting from SANDVIK®

GROOVING-CHIP-FLO

FLG-CB

w/patented chipbreaker *Exclusive patented design!*



RH Shown

Features:

- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Industry standard widths

Description	EDP Code	W Inch	W Metric	R	E Inch	E Metric	T	A	B	Gage Dia.	Uncoated C25	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
FLG-2047R-CB	562647PR	.047	1,20	.002/.005	.050	1,27	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2047L-CB	562647PL	.047	1,20	.002/.005	.050	1,27	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2062R-CB	562662PR	.062	1,57	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●	●	●	●
FLG-2062L-CB	562662PL	.062	1,57	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●	●	●	●
FLG-2078R-CB	562678PR	.078	1,98	.005/.010	.110	2,79	.150	.219	.2700	.1875			●	●		●	●
FLG-2078L-CB	562678PL	.078	1,98	.005/.010	.110	2,79	.150	.219	.2700	.1875			●	●		●	●
FLG-2094R-CB	562694PR	.094	2,39	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2094L-CB	562694PL	.094	2,39	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2125R-CB	562825PR	.125	3,18	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2125L-CB	562825PL	.125	3,18	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●		●	●
FLG-3031R-CB	563631PR	.031	0,79	.002/.005	.050	1,27	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3031L-CB	563631PL	.031	0,79	.002/.005	.050	1,27	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3047R-CB	563647PR	.047	1,19	.005/.010	.075	1,90	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3047L-CB	563647PL	.047	1,19	.005/.010	.075	1,90	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3062R-CB	563662PR	.062	1,57	.005/.010	.120	3,05	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3062L-CB	563662PL	.062	1,57	.005/.010	.120	3,05	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3072R-CB	563672PR	.072	1,83	.005/.010	.120	3,05	.195	.344	.4050	.3750			●	●		●	●
FLG-3072L-CB	563672PL	.072	1,83	.005/.010	.120	3,05	.195	.344	.4050	.3750			●	●		●	●
FLG-3078R-CB	563678PR	.078	1,98	.005/.010	.120	3,05	.195	.344	.4050	.3750			●	●		●	●
FLG-3078L-CB	563678PL	.078	1,98	.005/.010	.120	3,05	.195	.344	.4050	.3750			●	●		●	●
FLG-3088R-CB	563688PR	.088	2,24	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3088L-CB	563688PL	.088	2,24	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3094R-CB	563694PR	.094	2,39	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●	●	●	●
FLG-3094L-CB	563694PL	.094	2,39	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●	●	●	●
FLG-3097R-CB	563697PR	.097	2,46	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3097L-CB	563697PL	.097	2,46	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3125R-CB	563825PR	.125	3,18	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3125L-CB	563825PL	.125	3,18	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3189R-CB	563889PR	.189	4,80	.020/.025	.180	4,57	.195	.344	.4050	.3750	●	●	●	●		●	●
FLG-3189L-CB	563889PL	.189	4,80	.020/.025	.180	4,57	.195	.344	.4050	.3750	●	●	●	●		●	●
FLG-4125R-CB	564825PR	.125	3,18	.005/.010	.250	6,35	.255	.453	.6360	.3750			●	●		●	●
FLG-4125L-CB	564825PL	.125	3,18	.005/.010	.250	6,35	.255	.453	.6360	.3750			●	●		●	●
FLG-4189R-CB	564889PR	.189	4,80	.020/.025	.250	6,35	.255	.453	.6360	.3750		●	●	●		●	●
FLG-4189L-CB	564889PL	.189	4,80	.020/.025	.250	6,35	.255	.453	.6360	.3750		●	●	●		●	●
FLG-4250R-CB	574050PR	.250	6,35	.020/.025	.250	6,35	.255	.453	.6360	.3750		●	●	●		●	●
FLG-4250L-CB	574050PL	.250	6,35	.020/.025	.250	6,35	.255	.453	.6360	.3750		●	●	●		●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

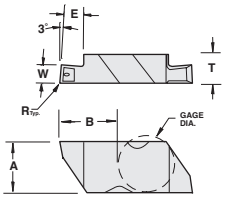
Cast Iron				▲		●	
Non-Ferrous				▲		●	
Stainless/High Temp				▲		●	
Steel					▲		●

GROOVING-CHIP-FLO

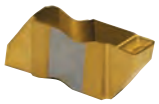
FLG-CB - METRIC

w/patented chipbreaker

Exclusive patented design!



RH Shown



Features:

- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Industry standard widths

Description	EDP Code	W Metric	W Inch	R	E Metric	E Inch	T	A	B	Gage Dia.	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
FLG-2M100R-CB	562M100PR	1,00	.039	.005/.010	1,90	.075	.150	.219	.2700	.1875	●	●		●	●
FLG-2M100L-CB	562M100PL	1,00	.039	.005/.010	1,90	.075	.150	.219	.270	.1875	●	●		●	●
FLG-2M150R-CB	562M150PR	1,50	.059	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M150L-CB	562M150PL	1,50	.059	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M170R-CB	562M170PR	1,70	.067	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●	●	●	●
FLG-2M170L-CB	562M170PL	1,70	.067	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●	●	●	●
FLG-2M195R-CB	562M195PR	1,95	.077	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M195L-CB	562M195PL	1,95	.077	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M200R-CB	562M200PR	2,00	.079	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M200L-CB	562M200PL	2,00	.079	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M220R-CB	562M220PR	2,20	.087	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M220L-CB	562M220PL	2,20	.087	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M225R-CB	562M225PR	2,25	.089	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M225L-CB	562M225PL	2,25	.089	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M250R-CB	562M250PR	2,50	.098	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●	●	●	●
FLG-2M250L-CB	562M250PL	2,50	.098	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●	●	●	●
FLG-2M300R-CB	562M300PR	3,00	.118	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M300L-CB	562M300PL	3,00	.118	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M325R-CB	562M325PR	3,25	.128	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-2M325L-CB	562M325PL	3,25	.128	.005/.010	2,79	.110	.150	.219	.2700	.1875	●	●		●	●
FLG-3M100R-CB	563M100PR	1,00	.039	.005/.010	1,90	.075	.195	.344	.4050	.3750	●	●		●	●
FLG-3M100L-CB	563M100PL	1,00	.039	.005/.010	1,90	.075	.195	.344	.4050	.3750	●	●		●	●
FLG-3M120R-CB	563M120PR	1,20	.047	.005/.010	1,90	.075	.195	.344	.4050	.3750	●	●		●	●
FLG-3M120L-CB	563M120PL	1,20	.047	.005/.010	1,90	.075	.195	.344	.4050	.3750	●	●		●	●
FLG-3M150R-CB	563M150PR	1,50	.059	.005/.010	3,05	.120	.195	.344	.4050	.3750	●	●		●	●
FLG-3M150L-CB	563M150PL	1,50	.059	.005/.010	3,05	.120	.195	.344	.4050	.3750	●	●		●	●
FLG-3M170R-CB	563M170PR	1,70	.067	.005/.010	3,05	.120	.195	.344	.4050	.3750	●	●	●	●	●
FLG-3M170L-CB	563M170PL	1,70	.067	.005/.010	3,05	.120	.195	.344	.4050	.3750	●	●	●	●	●
FLG-3M175R-CB	563M175PR	1,75	.069	.005/.010	3,05	.120	.195	.344	.4050	.3750	●	●		●	●
FLG-3M175L-CB	563M175PL	1,75	.069	.005/.010	3,05	.120	.195	.344	.4050	.3750	●	●		●	●
FLG-3M200R-CB	563M200PR	2,00	.079	.005/.010	3,05	.120	.195	.344	.4050	.3750	●	●		●	●
FLG-3M200L-CB	563M200PL	2,00	.079	.005/.010	3,05	.120	.195	.344	.4050	.3750	●	●		●	●
FLG-3M220R-CB	563M220PR	2,20	.087	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M220L-CB	563M220PL	2,20	.087	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M225R-CB	563M225PR	2,25	.089	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M225L-CB	563M225PL	2,25	.089	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M250R-CB	563M250PR	2,50	.098	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●	●	●	●
FLG-3M250L-CB	563M250PL	2,50	.098	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●	●	●	●
FLG-3M300R-CB	563M300PR	3,00	.118	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M300L-CB	563M300PL	3,00	.118	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M320R-CB	563M320PR	3,20	.126	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M320L-CB	563M320PL	3,20	.126	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M325R-CB	563M325PR	3,25	.128	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M325L-CB	563M325PL	3,25	.128	.005/.010	4,57	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M400R-CB	563M400PR	4,00	.157	.010/.015	6,35	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-3M400L-CB	563M400PL	4,00	.157	.010/.015	6,35	.180	.195	.344	.4050	.3750	●	●		●	●
FLG-4M320R-CB	564M320PR	3,20	.126	.020/.025	6,35	.250	.255	.453	.6360	.3750	●	●		●	●
FLG-4M320L-CB	564M320PL	3,20	.126	.020/.025	6,35	.250	.255	.453	.6360	.3750	●	●		●	●

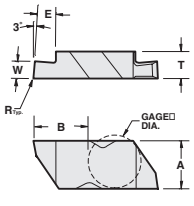
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron	▲			●	
Non-Ferrous	▲			●	
Stainless/High Temp	▲			●	
Steel		▲		●	

GROOVING

FLG



RH Shown

Description	EDP Code	W Inch	W Metric	R	E Inch	E Metric	T	A	B	Gage Dia.	Uncoated C25	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
FLG-2031R	562631R	.031	0,79	.002/.005	.050	1,27	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2031L	562631L	.031	0,79	.002/.005	.050	1,27	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2041R	562641R	.041	1,04	.002/.005	.050	1,27	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2041L	562641L	.041	1,04	.002/.005	.050	1,27	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2047R	562647R	.047	1,19	.002/.005	.050	1,27	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2047L	562647L	.047	1,19	.002/.005	.050	1,27	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2058R	562658R	.058	1,47	.005/.010	.050	1,27	.150	.219	.2700	.1875			●	●		●	●
FLG-2058L	562658L	.058	1,47	.005/.010	.050	1,27	.150	.219	.2700	.1875			●	●		●	●
FLG-2062R	562662R	.062	1,57	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2062L	562662L	.062	1,57	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2094R	562694R	.094	2,39	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2094L	562694L	.094	2,39	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2125R	562825R	.125	3,18	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●		●	●
FLG-2125L	562825L	.125	3,18	.005/.010	.110	2,79	.150	.219	.2700	.1875		●	●	●		●	●
FLG-3031R	563631R	.031	0,79	.002/.005	.050	1,27	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3031L	563631L	.031	0,79	.002/.005	.050	1,27	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3047R	563647R	.047	1,19	.005/.010	.075	1,90	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3047L	563647L	.047	1,19	.005/.010	.075	1,90	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3062R	563662R	.062	1,57	.005/.010	.120	3,05	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3062L	563662L	.062	1,57	.005/.010	.120	3,05	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3072R	563672R	.072	1,83	.005/.010	.120	3,05	.195	.344	.4050	.3750			●	●		●	●
FLG-3072L	563672L	.072	1,83	.005/.010	.120	3,05	.195	.344	.4050	.3750			●	●		●	●
FLG-3078R	563678R	.078	1,98	.005/.010	.120	3,05	.195	.344	.4050	.3750			●	●		●	●
FLG-3078L	563678L	.078	1,98	.005/.010	.120	3,05	.195	.344	.4050	.3750			●	●		●	●
FLG-3088R	563688R	.088	2,24	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3088L	563688L	.088	2,24	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3094R	563694R	.094	2,39	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3094L	563694L	.094	2,39	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3097R	563697R	.097	2,46	.010/.015	.180	4,57	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3097L	563697L	.097	2,46	.010/.015	.180	4,57	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3105R	563805R	.105	2,67	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3105L	563805L	.105	2,67	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3110R	563810R	.110	2,79	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3110L	563810L	.110	2,79	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3122R	563822R	.122	3,10	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●	●	●	●
FLG-3122L	563822L	.122	3,10	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●	●	●	●
FLG-3125R	563825R	.125	3,18	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3125L	563825L	.125	3,18	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●		●	●
FLG-3142R	563842R	.142	3,61	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3142L	563842L	.142	3,61	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3156R	563856R	.156	3,96	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3156L	563856L	.156	3,96	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3178R	563878R	.178	4,52	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3178L	563878L	.178	4,52	.005/.010	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3185R	563885R	.185	4,70	.020/.025	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3185L	563885L	.185	4,70	.020/.025	.180	4,57	.195	.344	.4050	.3750			●	●		●	●
FLG-3189R	563889R	.189	4,80	.020/.025	.180	4,57	.195	.344	.4050	.3750		●	●	●	●	●	●
FLG-3189L	563889L	.189	4,80	.020/.025	.180	4,57	.195	.344	.4050	.3750		●	●	●	●	●	●
FLG-3250R	573050R	.250	6,35	.020/.025	.180	4,57	.250	.344	.4050	.3750						●	
FLG-3250L	573050L	.250	6,35	.020/.025	.180	4,57	.250	.344	.4050	.3750						●	

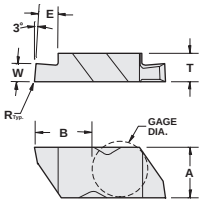
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	C25	C3	GP3	GP50	AC22	AC3	AC50
Cast Iron				▲		●	
Non-Ferrous				▲		●	
Stainless/High Temp				▲		●	
Steel					▲		●

GROOVING

FLG



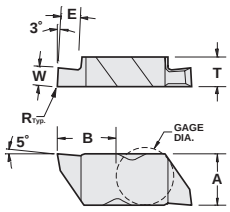
RH Shown

Description	EDP Code	W Inch	W Metric	R	E Inch	E Metric	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLG-4125R	564825R	.125	3,18	.005/.010	.250	6,35	.255	.453	.6360	.3750		●		●	●	●
FLG-4125L	564825L	.125	3,18	.005/.010	.250	6,35	.255	.453	.6360	.3750		●		●	●	●
FLG-4189R	564889R	.189	4,80	.020/.025	.250	6,35	.255	.453	.6360	.3750		●		●	●	●
FLG-4189L	564889L	.189	4,80	.020/.025	.250	6,35	.255	.453	.6360	.3750		●		●	●	●
FLG-4213R	574013R	.213	5,41	.005/.010	.250	6,35	.255	.453	.6360	.3750		●		●		
FLG-4213L	574013L	.213	5,41	.005/.010	.250	6,35	.255	.453	.6360	.3750		●		●		
FLG-4219R	574019R	.219	5,56	.020/.025	.250	6,35	.255	.453	.6360	.3750		●		●		
FLG-4219L	574019L	.219	5,56	.020/.025	.250	6,35	.255	.453	.6360	.3750		●		●		
FLG-4250R	574050R	.250	6,35	.020/.025	.250	6,35	.255	.453	.6360	.3750	●	●		●	●	●
FLG-4250L	574050L	.250	6,35	.020/.025	.250	6,35	.255	.453	.6360	.3750	●	●		●	●	●
FLG-4312R	574212R	.312	7,92	.030/.035	.250	6,35	.312	.453	.6360	.3750				●		
FLG-4312L	574212L	.312	7,92	.030/.035	.250	6,35	.312	.453	.6360	.3750				●		
FLG-5250R	575050R	.250	6,35	.020/.025	.375	9,53	.380	.688	.9520	.5000			●			
FLG-5250L	575050L	.250	6,35	.020/.025	.375	9,53	.380	.688	.9520	.5000			●			
FLG-5281R	575081R	.281	7,14	.030/.035	.375	9,53	.380	.688	.9520	.5000			●			
FLG-5281L	575081L	.281	7,14	.030/.035	.375	9,53	.380	.688	.9520	.5000			●			
FLG-5312R	575212R	.312	7,92	.030/.035	.375	9,53	.380	.688	.9520	.5000			●			
FLG-5312L	575212L	.312	7,92	.030/.035	.375	9,53	.380	.688	.9520	.5000			●			
FLG-5344R	575244R	.344	8,74	.030/.035	.375	9,53	.380	.688	.9520	.5000			●			
FLG-5344L	575244L	.344	8,74	.030/.035	.375	9,53	.380	.688	.9520	.5000			●			
FLG-5375R	575275R	.375	9,53	.030/.035	.375	9,53	.380	.688	.9520	.5000			●			
FLG-5375L	575275L	.375	9,53	.030/.035	.375	9,53	.380	.688	.9520	.5000			●			
FLG-6281R	576081R	.281	7,14	.030/.035	.250	6,35	.383	.453	.6360	.3750				●		
FLG-6281L	576081L	.281	7,14	.030/.035	.250	6,35	.383	.453	.6360	.3750				●		
FLG-6312R	576212R	.312	7,92	.030/.035	.250	6,35	.383	.453	.6360	.3750				●		
FLG-6312L	576212L	.312	7,92	.030/.035	.250	6,35	.383	.453	.6360	.3750				●		
FLG-6375R	576275R	.375	9,53	.030/.035	.250	6,35	.383	.453	.6360	.3750				●		
FLG-6375L	576275L	.375	9,53	.030/.035	.250	6,35	.383	.453	.6360	.3750				●		

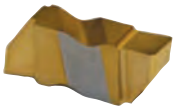
GROOVING

FLGP

w/positive rake



RH Shown



Description	EDP Code	W Inch	W Metric	R	E Inch	E Metric	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50	TiN Coated Cermet GPM6
FLGP-2031R	572431R	.031	0,79	.002/.005	.050	1,27	.150	.219	.2700	.1875	●	●	●	●	●	
FLGP-2031L	572431L	.031	0,79	.002/.005	.050	1,27	.150	.219	.2700	.1875	●	●	●	●	●	
FLGP-2062R	572462R	.062	1,57	.005/.010	.110	2,79	.150	.219	.2700	.1875	●	●	●	●	●	
FLGP-2062L	572462L	.062	1,57	.005/.010	.110	2,79	.150	.219	.2700	.1875	●	●	●	●	●	
FLGP-2125R	572625R	.125	3,18	.005/.010	.110	2,79	.150	.219	.2700	.1875	●	●	●	●	●	
FLGP-2125L	572625L	.125	3,18	.005/.010	.110	2,79	.150	.219	.2700	.1875	●	●	●	●	●	
FLGP-3047R	573447R	.047	1,19	.005/.010	.075	1,90	.195	.344	.4050	.3750	●	●	●	●	●	●
FLGP-3047L	573447L	.047	1,19	.005/.010	.075	1,05	.195	.344	.4050	.3750	●	●	●	●	●	●
FLGP-3062R	573462R	.062	1,57	.005/.010	.120	3,05	.195	.344	.4050	.3750		●	●	●	●	●
FLGP-3062L	573462L	.062	1,57	.005/.010	.120	3,05	.195	.344	.4050	.3750		●	●	●	●	●
FLGP-3088R	573488R	.088	2,24	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●	●	
FLGP-3088L	573488L	.088	2,24	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●	●	
FLGP-3094R	573494R	.094	2,39	.005/.010	.180	4,57	.195	.344	.4050	.3750	●	●	●	●	●	●
FLGP-3094L	573494L	.094	2,39	.005/.010	.180	4,57	.195	.344	.4050	.3750	●	●	●	●	●	●
FLGP-3125R	573625R	.125	3,18	.005/.010	.180	4,57	.195	.344	.4050	.3750	●	●	●	●	●	●
FLGP-3125L	573625L	.125	3,18	.005/.010	.180	4,57	.195	.344	.4050	.3750	●	●	●	●	●	●
FLGP-3156R	573656R	.156	3,96	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●	●	●
FLGP-3156L	573656L	.156	3,96	.005/.010	.180	4,57	.195	.344	.4050	.3750		●	●	●	●	●
FLGP-3189R	573689R	.189	4,80	.020/.025	.180	4,57	.195	.344	.4050	.3750	●	●	●	●	●	●
FLGP-3189L	573689L	.189	4,80	.020/.025	.180	4,57	.195	.344	.4050	.3750	●	●	●	●	●	●
FLGP-4125R	574625R	.125	3,18	.005/.010	.250	6,35	.255	.453	.6360	.3750		●	●	●	●	
FLGP-4125L	574625L	.125	3,18	.005/.010	.250	6,35	.255	.453	.6360	.3750		●	●	●	●	
FLGP-4189R	574689R	.189	4,80	.020/.025	.250	6,35	.255	.453	.6360	.3750		●	●	●	●	
FLGP-4189L	574689L	.189	4,80	.020/.025	.250	6,35	.255	.453	.6360	.3750		●	●	●	●	
FLGP-4250R	574850R	.250	6,35	.020/.025	.250	6,35	.255	.453	.6360	.3750		●	●	●	●	
FLGP-4250L	574850L	.250	6,35	.020/.025	.250	6,35	.255	.453	.6360	.3750		●	●	●	●	

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	C3	GP3	GP50	AC3	AC50	GPM6
Cast Iron	▲			●		
Non-Ferrous	▲			●		
Stainless/High Temp	▲			●		
Steel		▲	▲		●	

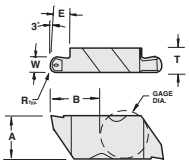
GROOVING - CHIP-FLO

FLR-CB

w/full nose radius

Features:
- Patented chipbreaker
  Patent No. 6,146,064
- Maximum chip control
- Industry standard widths

Exclusive patented design!



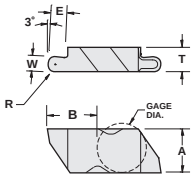
RH Shown

Description	EDP Code	W Inch	W Metric	R Inch	R Metric	E Inch	E Metric	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLR-3031R-CB	593031PR	.062	1,57	.031	0,78	.125	3,18	.195	.344	.4033	.3750	●	●	●	●	●
FLR-3031L-CB	593031PL	.062	1,57	.031	0,78	.125	3,18	.195	.344	.4033	.3750	●	●	●	●	●
FLR-3047R-CB	593047PR	.094	2,39	.047	1,19	.180	4,57	.195	.344	.4025	.3750	●	●	●	●	●
FLR-3047L-CB	593047PL	.094	2,39	.047	1,19	.180	4,57	.195	.344	.4025	.3750	●	●	●	●	●
FLR-3062R-CB	593062PR	.125	3,18	.062	1,57	.180	4,57	.195	.344	.4017	.3750	●	●	●	●	●
FLR-3062L-CB	593062PL	.125	3,18	.062	1,57	.180	4,57	.195	.344	.4017	.3750	●	●	●	●	●

GROOVING

FLR

w/full nose radius



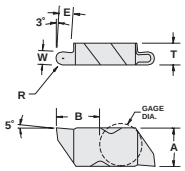
RH Shown

Description	EDP Code	W Inch	W Metric	R Inch	R Metric	E Inch	E Metric	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLR-2031R	592031R	.062	1,57	.031	0,78	.110	2,79	.150	.219	.2683	.1875		●	●	●	●
FLR-2031L	592031L	.062	1,57	.031	0,78	.110	2,79	.150	.219	.2683	.1875		●	●	●	●
FLR-2047R	592047R	.094	2,39	.047	1,19	.110	2,79	.150	.219	.2675	.1875		●	●	●	●
FLR-2047L	592047L	.094	2,39	.047	1,19	.110	2,79	.150	.219	.2675	.1875		●	●	●	●
FLR-2062R	592062R	.125	3,18	.062	1,57	.110	2,79	.150	.219	.2667	.1875		●	●	●	●
FLR-2062L	592062L	.125	3,18	.062	1,57	.110	2,79	.150	.219	.2667	.1875		●	●	●	●
FLR-3031R	593031R	.062	1,57	.031	0,78	.125	3,18	.195	.344	.4033	.3750	●	●	●	●	●
FLR-3031L	593031L	.062	1,57	.031	0,78	.125	3,18	.195	.344	.4033	.3750	●	●	●	●	●
FLR-3047R	593047R	.094	2,39	.047	1,19	.180	4,57	.195	.344	.4025	.3750	●	●	●	●	●
FLR-3047L	593047L	.094	2,39	.047	1,19	.180	4,57	.195	.344	.4025	.3750	●	●	●	●	●
FLR-3062R	593062R	.125	3,18	.062	1,57	.180	4,57	.195	.344	.4017	.3750	●	●	●	●	●
FLR-3062L	593062L	.125	3,18	.062	1,57	.180	4,57	.195	.344	.4017	.3750	●	●	●	●	●
FLR-3078R	593078R	.156	3,96	.078	1,98	.180	4,57	.195	.344	.4008	.3750		●	●	●	●
FLR-3078L	593078L	.156	3,96	.078	1,98	.180	4,57	.195	.344	.4008	.3750		●	●	●	●
FLR-3094R	593094R	.189	4,80	.094	2,39	.180	4,57	.195	.344	.4000	.3750		●	●	●	●
FLR-3094L	593094L	.189	4,80	.094	2,39	.180	4,57	.195	.344	.4000	.3750		●	●	●	●
FLR-4062R	594062R	.125	3,18	.062	1,57	.250	6,35	.255	.453	.6327	.3750	●	●	●	●	●
FLR-4062L	594062L	.125	3,18	.062	1,57	.250	6,35	.255	.453	.6327	.3750	●	●	●	●	●
FLR-4094R	594094R	.189	4,80	.094	2,39	.250	6,35	.255	.453	.6310	.3750	●	●	●	●	●
FLR-4094L	594094L	.189	4,80	.094	2,39	.250	6,35	.255	.453	.6310	.3750	●	●	●	●	●
FLR-4125R	594225R	.250	6,35	.125	3,18	.250	6,35	.255	.453	.6293	.3750	●	●	●	●	●
FLR-4125L	594225L	.250	6,35	.125	3,18	.250	6,35	.255	.453	.6293	.3750	●	●	●	●	●

GROOVING

FLRP

w/full nose radius and positive rake



RH Shown

Description	EDP Code	W Inch	W Metric	R Inch	R Metric	E Inch	E Metric	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLRP-3031R	593831R	.062	1,57	.031	0,78	.125	0,79	.195	.344	.4033	.3750	●	●	●	●	●
FLRP-3031L	593831L	.062	1,57	.031	0,78	.125	0,79	.195	.344	.4033	.3750	●	●	●	●	●
FLRP-3047R	593847R	.094	2,39	.047	1,19	.180	4,57	.195	.344	.4025	.3750	●	●	●	●	●
FLRP-3047L	593847L	.094	2,39	.047	1,19	.180	4,57	.195	.344	.4025	.3750	●	●	●	●	●
FLRP-3062R	593862R	.125	3,18	.062	1,57	.180	4,57	.195	.344	.4017	.3750	●	●	●	●	●
FLRP-3062L	593862L	.125	3,18	.062	1,57	.180	4,57	.195	.344	.4017	.3750	●	●	●	●	●
FLRP-3078R	593878R	.156	3,96	.078	1,98	.180	4,57	.195	.344	.4008	.3750		●	●	●	●
FLRP-3078L	593878L	.156	3,96	.078	1,98	.180	4,57	.195	.344	.4008	.3750		●	●	●	●
FLRP-3094R	593894R	.189	4,80	.094	2,39	.180	4,57	.195	.344	.4000	.3750	●	●	●	●	●
FLRP-3094L	593894L	.189	4,80	.094	2,39	.180	4,57	.195	.344	.4000	.3750	●	●	●	●	●
FLRP-4062R	594862R	.125	3,18	.062	1,57	.250	6,35	.255	.453	.6327	.3750		●	●	●	●
FLRP-4062L	594862L	.125	3,18	.062	1,57	.250	6,35	.255	.453	.6327	.3750		●	●	●	●
FLRP-4094R	594894R	.189	4,80	.094	2,39	.250	6,35	.255	.453	.6310	.3750		●	●	●	●
FLRP-4094L	594894L	.189	4,80	.094	2,39	.250	6,35	.255	.453	.6310	.3750		●	●	●	●
FLRP-4125R	604025R	.250	6,35	.125	3,18	.250	6,35	.255	.453	.6293	.3750		●	●	●	●
FLRP-4125L	604025L	.250	6,35	.125	3,18	.250	6,35	.255	.453	.6293	.3750		●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

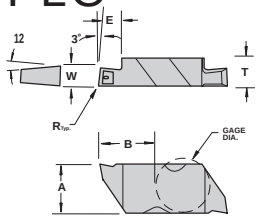
Cast Iron		▲		●	
Non-Ferrous		▲		●	
Stainless/High Temp		▲		●	
Steel			▲		●

FACE GROOVING - CHIP-FLO

FLF-CB

Exclusive patented design!

Features:
- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Industry standard widths

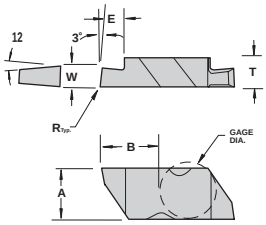


RH Shown

Description	EDP Code	W Inch	W Metric	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLF-3125R-CB	563025PR	.125	3,18	.005/.010	.180	.195	.344	.4050	.3750		●	●	●	
FLF-3125L-CB	563025PL	.125	3,18	.005/.010	.180	.195	.344	.4050	.3750		●	●	●	
FLF-3156R-CB	563056PR	.156	3,96	.005/.010	.180	.195	.344	.4050	.3750		●	●	●	
FLF-3156L-CB	563056PL	.156	3,96	.005/.010	.180	.195	.344	.4050	.3750		●	●	●	
FLF-3188R-CB	563088PR	.188	4,77	.020/.025	.180	.195	.344	.4050	.3750		●	●	●	
FLF-3188L-CB	563088PL	.188	4,77	.020/.025	.180	.195	.344	.4050	.3750		●	●	●	

FACE GROOVING

FLF



RH Shown

Description	EDP Code	W Inch	W Metric	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLF-3125R	563025R	.125	3,18	.005/.010	.180	.195	.344	.4050	.3750		●	●	●	
FLF-3125L	563025L	.125	3,18	.005/.010	.180	.195	.344	.4050	.3750		●	●	●	
FLF-3156R	563056R	.156	3,96	.005/.010	.180	.195	.344	.4050	.3750		●	●	●	
FLF-3156L	563025L	.156	3,96	.005/.010	.180	.195	.344	.4050	.3750		●	●	●	
FLF-3188R	563088R	.188	4,77	.020/.025	.180	.195	.344	.4050	.3750		●	●		
FLF-3188L	563088L	.188	4,77	.020/.025	.180	.195	.344	.4050	.3750		●	●		
FLF-4250R	564250R	.250	6,35	.020/.025	.250	.255	.453	.6360	.3750		●	●	●	
FLF-4250L	564250L	.250	6,35	.020/.025	.250	.255	.453	.6360	.3750		●	●	●	
FLF-6218R	566218R	.218	5,54	.030/.035	.250	.383	.453	.6360	.3750					
FLF-6218L	566218L	.218	5,54	.030/.035	.250	.383	.453	.6360	.3750					
FLF-6250R	566250R	.250	6,35	.030/.035	.250	.383	.453	.6360	.3750					
FLF-6250L	566250L	.250	6,35	.030/.035	.250	.383	.453	.6360	.3750					
FLF-6375R	566475R	.375	9,53	.030/.035	.250	.383	.453	.6360	.3750					
FLF-6375L	566475L	.375	9,53	.030/.035	.250	.383	.453	.6360	.3750					

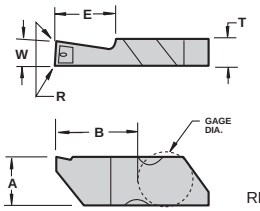
DEEP GROOVING - CHIP-FLO

FLGD-CB

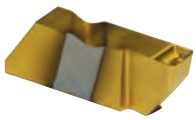
Single ended

Exclusive patented design!

Features:
- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Industry standard widths



RH Shown



Description	EDP Code	W Inch	W Metric	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLGD-3062R-CB (FLG-3062R-CB)*	563662PR	.062	1,57	.005/.010	.120	.195	.344	.5050	.3750	●	●	●	●	●
FLGD-3062L-CB (FLG-3062L-CB)*	563662PL	.062	1,57	.005/.010	.120	.195	.344	.5050	.3750	●	●	●	●	●
FLGD-3094R-CB	6335094PR	.094	2,39	.005/.010	.250	.195	.344	.5050	.3750		●	●	●	●
FLGD-3094L-CB	6335094PL	.094	2,39	.005/.010	.250	.195	.344	.5050	.3750		●	●	●	●
FLGD-3125R-CB	6335125PR	.125	3,18	.005/.010	.250	.195	.344	.5050	.3750		●	●	●	●
FLGD-3125L-CB	6335125PL	.125	3,18	.005/.010	.250	.195	.344	.5050	.3750		●	●	●	●
FLGD-3189R-CB	6335189PR	.189	4,80	.020/.025	.250	.195	.344	.5050	.3750		●	●	●	●
FLGD-3189L-CB	6335189PL	.189	4,80	.020/.025	.250	.195	.344	.5050	.3750		●	●	●	●
FLGD-4189R-CB	6345189PR	.189	4,80	.020/.025	.375	.255	.453	.7610	.3750		●	●	●	●
FLGD-4189L-CB	6345189PL	.189	4,80	.020/.025	.375	.255	.453	.7610	.3750		●	●	●	●
FLGD-4250R-CB	6345250PR	.250	6,35	.020/.025	.500	.255	.453	.8860	.3750		●	●	●	●
FLGD-4250L-CB	6345250PL	.250	6,35	.020/.025	.500	.255	.453	.8860	.3750		●	●	●	●

*Inserts are double ended.

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

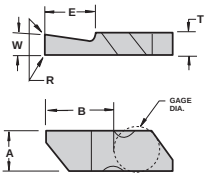
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

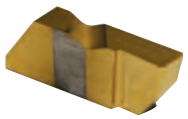
	C3	GP3	GP50	AC3	AC50
Cast Iron		▲		●	
Non-Ferrous		▲		●	
Stainless/High Temp		▲		●	
Steel			▲		●

DEEP GROOVING

FLGD

Single ended





RH Shown

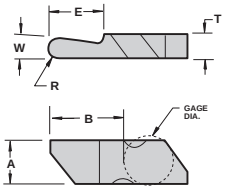
Description	EDP Code	Inch	Metric	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLGD-3062R (FLG-3062R)	563662R	.062	1,57	.005/.010	.120	.195	.344	.5050	.3750	●	●	●	●	●
FLGD-3062L (FLG-3062L)	563662L	.062	1,57	.005/.010	.120	.195	.344	.5050	.3750	●	●	●	●	●
FLGD-3094R	6334094R	.094	2,39	.005/.010	.250	.195	.344	.5050	.3750		●	●		
FLGD-3094L	6334094L	.094	2,39	.005/.010	.250	.195	.344	.5050	.3750		●	●		
FLGD-3125R	6334125R	.125	3,18	.005/.010	.250	.195	.344	.5050	.3750		●	●		
FLGD-3125L	6334125L	.125	3,18	.005/.010	.250	.195	.344	.5050	.3750		●	●		
FLGD-3189R	6334189R	.189	4,8	.020/.025	.250	.195	.344	.5050	.3750		●	●		
FLGD-3189L	6334189L	.189	4,8	.020/.025	.250	.195	.344	.5050	.3750		●	●		
FLGD-4125R*	6344125R	.125	3,18	.005/.010	.290	.255	.453	.6360	.3750		●	●		
FLGD-4125L*	6344125L	.125	3,18	.005/.010	.290	.255	.453	.6360	.3750		●	●		
FLGD-4189R	6344189R	.189	4,8	.020/.025	.375	.255	.453	.7610	.3750		●	●	●	
FLGD-4189L	6344189L	.189	4,8	.020/.025	.375	.255	.453	.7610	.3750		●	●	●	
FLGD-4250R	6344250R	.250	6,35	.020/.025	.500	.255	.453	.8860	.3750		●	●		
FLGD-4250L	6344250L	.250	6,35	.020/.025	.500	.255	.453	.8860	.3750		●	●		

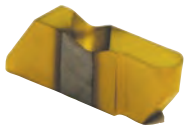
*Inserts are double ended.

DEEP GROOVING - FNR

FLRD

Full nose radius - Single ended





RH Shown

Description	EDP Code	Inch	Metric	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLRD-3031R (FLR-3062R)	593062R	.062	1,57	.031	.125	.195	.344	.5016	.3750	●	●	●	●	●
FLRD-3031L (FLR-3062L)	593062L	.062	1,57	.031	.125	.195	.344	.5016	.3750	●	●	●	●	●
FLRD-3062R	6336062R	.125	3,19	.062	.250	.195	.344	.5016	.3750		●	●	●	●
FLRD-3062L	6336062L	.125	3,19	.062	.250	.195	.344	.5016	.3750		●	●	●	●
FLRD-3094R	6336094R	.189	4,8	.094	.250	.195	.344	.5016	.3750		●	●	●	●
FLRD-3094L	6336094L	.189	4,8	.094	.250	.195	.344	.5016	.3750		●	●	●	●
FLRD-4094R	6346094R	.189	4,8	.094	.500	.255	.453	.8860	.3750		●	●	●	●
FLRD-4094L	6346094L	.189	4,8	.094	.500	.255	.453	.8860	.3750		●	●	●	●
FLRD-4125R	6346125R	.250	6,35	.125	.500	.255	.453	.8860	.3750		●	●	●	●
FLRD-4125L	6346125L	.250	6,35	.125	.500	.255	.453	.8860	.3750		●	●	●	●

INTERNAL DEEP FACE GROOVING - CHIP-FLO

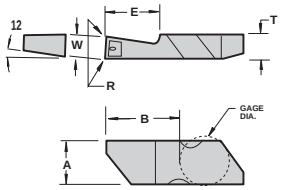
FLFD-I-CB

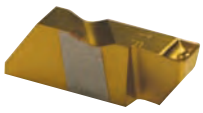
Single ended

Exclusive patented design!

Features:

- Patented chipbreaker
  Patent No. 6,146,064
- Maximum chip control
- Industry standard widths





RH Shown

Description	EDP Code	Inch	Metric	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLFD-3125R-I-CB	6338125PRI	.125	3,18	.005/.010	.250	.195	.344	.5050	.3750		●	●	●	●
FLFD-3125L-I-CB	6338125PLI	.125	3,18	.005/.010	.250	.195	.344	.5050	.3750		●	●	●	●
FLFD-3189R-I-CB	6338189PRI	.189	4,80	.020/.025	.250	.195	.344	.5050	.3750		●	●	●	●
FLFD-3189L-I-CB	6338189PLI	.189	4,80	.020/.025	.250	.195	.344	.5050	.3750		●	●	●	●

DEEP FACE GROOVING CHIP-FLO

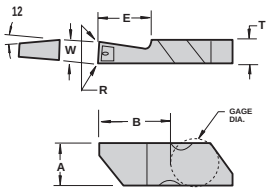
FLFD-CB

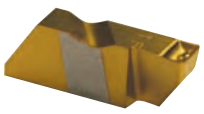
Single ended

Exclusive patented design!

Features:

- Patented chipbreaker
  Patent No. 6,146,064
- Maximum chip control
- Industry standard widths





RH Shown

Description	EDP Code	Inch	Metric	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLFD-3125R-CB	6338125PR	.125	3,18	.005/.010	.250	.195	.344	.5050	.3750		●	●	●	●
FLFD-3125L-CB	6338125PL	.125	3,18	.005/.010	.250	.195	.344	.5050	.3750		●	●	●	●
FLFD-3189R-CB	6338189PR	.189	4,80	.020/.025	.250	.195	.344	.5050	.3750		●	●	●	●
FLFD-3189L-CB	6338189PL	.189	4,80	.020/.025	.250	.195	.344	.5050	.3750		●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		▲		●
Non-Ferrous		▲		●
Stainless/High Temp		▲		●
Steel			▲		●

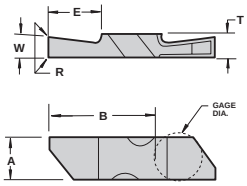
DEEP GROOVING

FLGT

Double ended

Exclusive 2 edge design!

Fits FLSLT/RT Holders. See page 110



RH Shown

Description	EDP Code	W Inch	W Metric	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLGT-3094R	6332094R	.094	2,39	.005/.010	.275	.195	.344	.855	.3750		●	●	●	●
FLGT-3094L	6332094L	.094	2,39	.005/.010	.275	.195	.344	.855	.3750		●	●	●	●
FLGT-3125R	6332125R	.125	3,18	.005/.010	.437	.195	.344	.855	.3750		●	●	●	●
FLGT-3125L	6332125L	.125	3,18	.005/.010	.437	.195	.344	.855	.3750		●	●	●	●
FLGT-3189R	6332189R	.189	4,8	.020/.025	.437	.195	.344	.855	.3750		●	●	●	●
FLGT-3189L	6332189L	.189	4,8	.020/.025	.437	.195	.344	.855	.3750		●	●	●	●
FLGT-4125R	6342125R	.125	3,18	.005/.010	.550	.255	.453	1.136	.3750		●	●	●	●
FLGT-4125L	6342125L	.125	3,18	.005/.010	.550	.255	.453	1.136	.3750		●	●	●	●
FLGT-4189R	6342189R	.189	4,8	.020/.025	.550	.255	.453	1.136	.3750		●	●	●	●
FLGT-4189L	6342189L	.189	4,8	.020/.025	.550	.255	.453	1.136	.3750		●	●	●	●
FLGT-4250R	6342250R	.250	6,35	.020/.025	.550	.255	.453	1.136	.3750		●	●	●	●
FLGT-4250L	6342250L	.250	6,35	.020/.025	.550	.255	.453	1.136	.3750		●	●	●	●

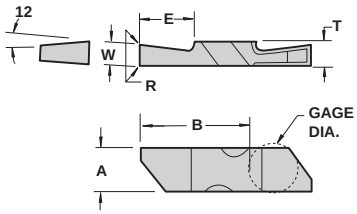
DEEP FACE GROOVING

FLFT

Double ended

Exclusive 2 edge design!

Fits FLSLT/RT Holders. See page 110



RH Shown

Description	EDP Code	W Inch	W Metric	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLFT-3125R	6339125R	.125	3,18	.005/.010	.375	.195	.344	.885	.3750		●	●	●	●
FLFT-3125L	6339125L	.125	3,18	.005/.010	.375	.195	.344	.885	.3750		●	●	●	●
FLFT-4189R	6349189R	.189	4,8	.020/.025	.550	.255	.453	1.136	.3750		●	●	●	●
FLFT-4189L	6349189L	.189	4,8	.020/.025	.550	.255	.453	1.136	.3750		●	●	●	●
FLFT-4250R	6349250R	.250	6,35	.020/.025	.550	.255	.453	1.136	.3750		●	●		
FLFT-4250L	6349250L	.250	6,35	.020/.025	.550	.255	.453	1.136	.3750		●	●		

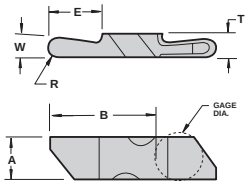
DEEP GROOVING - FNR

FLRT

Double ended

Exclusive 2 edge design!

Fits FLSLT/RT Holders. See page 110



RH Shown

Description	EDP Code	W Inch	W Metric	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLRT-3062R	6337062R	.125	3,18	.062	.437	.195	.344	.855	.3750			●	●	
FLRT-3062L	6337062L	.125	3,18	.062	.437	.195	.344	.855	.3750			●	●	
FLRT-3094R	6337094R	.189	4,80	.094	.437	.195	.344	.855	.3750			●	●	
FLRT-3094L	6337094L	.189	4,80	.094	.437	.195	.344	.855	.3750			●	●	
FLRT-4062R	6347062R	.125	3,18	.062	.550	.255	.453	1.136	.3750			●	●	
FLRT-4062L	6347062L	.125	3,18	.062	.550	.255	.453	1.136	.3750			●	●	
FLRT-4094R	6347094R	.189	4,8	.094	.550	.255	.453	1.136	.3750			●	●	
FLRT-4094L	6347094L	.189	4,8	.094	.550	.255	.453	1.136	.3750			●	●	
FLRT-4125R	6347125R	.250	6,35	.125	.550	.255	.453	1.136	.3750			●	●	
FLRT-4125L	6347125L	.250	6,35	.125	.550	.255	.453	1.136	.3750			●	●	

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		▲		●	
Non-Ferrous		▲		●	
Stainless/High Temp		▲		●	
Steel			▲		●

Recommended Feed rate - inch/rev (mm/rev)

Workpiece Group	Insert Rake Configuration: FLG-Neutral	FLG-CB
Free Machining Carbon Steels	.004-.010	.005-.014
Plain Carbon Steels	.004-.010	.005-.014
Alloy Steels 190-330 HB	.004-.010	.005-.014
Alloy Steels 330-450 HB	.003-.009	.005-.012
Martensitic/Ferritic Stainless Steel 400 Series	.004-.010	.005-.014
Austenitic Stainless 300 Series	.003-.006	.004-.008
Gray Cast Iron 190-330 HB	.004-.010	---
Gray Cast Iron 330-450 HB	.003-.009	---
Alloy / Ductile Irons	.004-.010	.005-.014
Free Machining Aluminum Alloys	.005-.012	.006-.016
High-Silicon Aluminum Alloys	.003-.006	---
Copper / Zinc / Brass	.005-.012	.006-.016
Non-Metallics	.005-.012	---
High Temperature Alloys 200-260 HB	.003-.006	.004-.007
High Temperature Alloys 260-450 HB	.003-.006	.004-.007
Titanium Alloys (Ti 6Al-4V)	.003-.006	.004-.008
Hardened Materials 48-65 HRC	.0015-.005	---

Flo-Lock Series Kits

SAVE! **Buy in Kits**

THREADING KITS

V-THREADING
KIT #1A
Kit Contents

1	FLSR-163D
4	FLT-3R-HCB GP50
1	S-412 SCREW

V-THREADING
KIT #1B
Kit Contents

1	FLSR-163D
4	FLT-3R-HCB GP3
1	S-412 SCREW

GROOVING KITS

W.125 GROOVING
KIT #2A
Kit Contents

1	FLSR-163D
4	FLG-3125R-CB GP50
1	S-412 SCREW

W.125 GROOVING
KIT #2B
Kit Contents

1	FLSR-163D
4	FLG-3125R-CB GP3
1	S-412 SCREW

W.094 GROOVING
KIT #3A
Kit Contents

1	FLSR-163D
4	FLG-3094R-CB GP50
1	S-412 SCREW

W.094 GROOVING
KIT #3B
Kit Contents

1	FLSR-163D
4	FLG-3094R-CB GP3
1	S-412 SCREW

W.062 GROOVING
KIT #4A
Kit Contents

1	FLSR-163D
4	FLG-3062R-CB GP50
1	S-412 SCREW

W.062 GROOVING
KIT #4B
Kit Contents

1	FLSR-163D
4	FLG-3062R-CB GP3
1	S-412 SCREW

W.047 GROOVING
KIT #5A
Kit Contents

1	FLSR-163D
4	FLG-3047R-CB GP50
1	S-412 SCREW

W.047 GROOVING
KIT #5B
Kit Contents

1	FLSR-163D
4	FLG-3047R-CB GP3
1	S-412 SCREW

DEEP GROOVING KITS

W.125 GROOVING
KIT #6
Kit Contents

1	FLSR-163D
4	FLGD-3125R-CB AC3
1	S-412 SCREW

W.094 GROOVING
KIT #7
Kit Contents

1	FLSR-163D
4	FLGD-3094R-CB AC3
1	S-412 SCREW

Recommended SFM for Grooving Applications

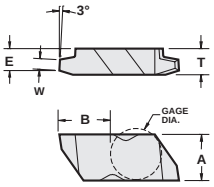
Workpiece Group	Uncoated	TiN PVD Coated				AlTiN PVD Coated			TiN Cermet	CBN		PCD
	C3	GP22	GP3	GP4	GP50	AC22	AC3	AC50	GPM6	CB200	CB400	PC33
Free Machining Carbon Steels	---	150-300	200-400	60-175	***200-600***	200-400	250-450	***400-800***	***600-1500***	---	---	---
Plain Carbon Steels	---	150-300	200-400	60-175	***200-600***	200-400	250-450	***450-800***	***600-1200***	---	---	---
Alloy Steels 190-330 HB	---	150-300	200-400	60-150	***200-500***	200-350	250-400	***400-800***	***500-1100***	---	---	---
Alloy Steels 330-450 HB	---	150-300	200-350	60-150	***200-450***	200-350	250-400	***400-750***	***600-800***	---	---	---
Martensitic/Ferritic Stainless Steel 400 Series	---	150-300	200-400	60-150	***200-500***	200-400	250-450	***350-700***	***500-800***	---	---	---
Austenitic Stainless 300 Series	200-400	150-400	***200-500***	60-150	---	300-600	***250-700***	---	***500-1000***	---	---	---
Gray Cast Iron 190-330 HB	100-375	150-400	***200-600***	60-150	---	300-600	***250-700***	---	***400-1100***	***1400-2500***	---	---
Gray Cast Iron 330-450 HB	100-350	150-350	***200-500***	60-150	---	200-550	***250-600***	---	***350-950***	***1200-1800***	---	---
Alloy / Ductile Irons	100-350	150-300	200-400	60-150	***200-500***	250-450	200-450	***300-700***	***350-950***	---	---	---
Free Machining Aluminum Alloys	500-2000	150-2000	***300-2000***	60-150	---	600-2200	***600-2500***	---	---	---	---	***1000-8000***
High-Silicon Aluminum Alloys	---	---	---	---	---	---	---	---	---	---	---	***1000-5000***
Copper / Zinc / Brass	200-700	150-700	***200-900***	---	---	300-900	***400-1000***	---	---	---	---	***1000-4000***
Non-Metallics	400-1400	150-1500	***300-1500***	---	---	350-1200	400-1500	---	---	---	---	***1000-4500***
High Temperature Alloys 200-260 HB	80-130	100-175	100-200	50-80	---	80-200	100-250	---	---	***300-600***	---	---
High Temperature Alloys 260-450 HB	50-100	80-150	100-175	50-80	---	80-175	***100-200***	---	---	***250-450***	---	---
Titanium Alloys (Ti 6Al-4V)	100-200	100-250	150-300	50-80	---	80-300	***100-300***	---	---	---	---	---
Hardened Materials 48-65 HRC	---	---	---	---	---	---	***80-150***	---	---	***150-350***	***200-550***	---

Bold print items denote the top choices for the materials listed, provided it can be machined within the SFM stated under the appropriate machining conditions. For the best performance in optimal machining conditions, select the grade that will provide you with the highest allowable SFM.

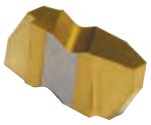
ACME THREADING

FLA

For Flo-Lock acme thread limits see pg. 111,112.



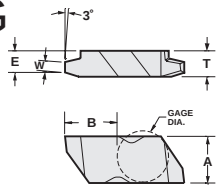
RH Shown



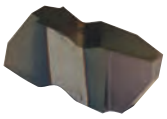
Description	EDP Code	TPI	W	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLA-3R16	553016R	16	.0206	.195	.149	.344	.4026	.3750			●		●
FLA-3L16	553016L	16	.0206	.195	.149	.344	.4026	.3750			●		●
FLA-3R14	553014R	14	.0239	.195	.149	.344	.4026	.3750			●		●
FLA-3L14	553014L	14	.0239	.195	.149	.344	.4026	.3750			●		●
FLA-3R12	553012R	12	.0283	.195	.149	.344	.4026	.3750			●		●
FLA-3L12	553012L	12	.0283	.195	.149	.344	.4026	.3750			●		●
FLA-3R10	553010R	10	.0319	.195	.149	.344	.4026	.3750		●	●	●	
FLA-3L10	553010L	10	.0319	.195	.149	.344	.4026	.3750		●	●	●	
FLA-3R8	553008R	8	.0411	.195	.149	.344	.4026	.3750		●	●	●	●
FLA-3L8	553008L	8	.0411	.195	.149	.344	.4026	.3750		●	●	●	●
FLA-3R6	553006R	6	.0566	.195	.149	.344	.4026	.3750	●	●	●	●	●
FLA-3L6	553006L	6	.0566	.195	.149	.344	.4026	.3750	●	●	●	●	●
FLA-3R5	553005R	5	.0689	.195	.149	.344	.4026	.3750	●	●	●	●	●
FLA-3L5	553005L	5	.0689	.195	.149	.344	.4026	.3750	●	●	●	●	●
FLA-3R4	553004R	4	.0875	.195	.133	.344	.4018	.3750	●	●	●	●	●
FLA-3L4	553004L	4	.0875	.195	.133	.344	.4018	.3750	●	●	●	●	●
FLA-4R8	554008R	8	.0411	.255	.202	.453	.6332	.3750		●	●		
FLA-4L8	554008L	8	.0411	.255	.202	.453	.6332	.3750		●	●		
FLA-4R6	554006R	6	.0566	.255	.202	.453	.6332	.3750		●	●		
FLA-4L6	554006L	6	.0566	.255	.202	.453	.6332	.3750		●	●		
FLA-4R5	554005R	5	.0689	.255	.202	.453	.6332	.3750		●	●		
FLA-4L5	554005L	5	.0689	.255	.202	.453	.6332	.3750		●	●		
FLA-4R4	554004R	4	.0875	.255	.202	.453	.6332	.3750		●	●	●	●
FLA-4L4	554004L	4	.0875	.255	.202	.453	.6332	.3750		●	●	●	●
FLA-6R3	556003R	3	.1184	.383	.283	.453	.6308	.3750			●		
FLA-6L3	556003L	3	.1184	.383	.283	.453	.6308	.3750			●		
FLA-6R2.5	5560025R	2.5	.1431	.383	.283	.453	.6308	.3750			●		
FLA–6L2.5	5560025L	2.5	.1431	.383	.283	.453	.6308	.3750			●		
FLA-6R2	556002R	2	.1802	.383	.283	.453	.6308	.3750			●		
FLA-6L2	556002L	2	.1802	.383	.283	.453	.6308	.3750			●		

ACME STUB THREADING

FLAS



RH Shown



Description	EDP Code	TPI	W	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLAS-3R16	553216R	16	.0238	.195	.149	.344	.4026	.375		●	●	●	
FLAS-3L16	553216L	16	.0238	.195	.149	.344	.4026	.375		●	●	●	
FLAS-3R14	553214R	14	.0276	.195	.149	.344	.4026	.375			●		●
FLAS-3L14	553214L	14	.0276	.195	.149	.344	.4026	.375			●		●
FLAS-3R12	553212R	12	.0326	.195	.149	.344	.4026	.375			●		
FLAS-3L12	553212L	12	.0326	.195	.149	.344	.4026	.375			●		
FLAS-3R10	553210R	10	.0370	.195	.149	.344	.4026	.375		●	●	●	
FLAS-3L10	553210L	10	.0370	.195	.149	.344	.4026	.375		●	●	●	
FLAS-3R8	553208R	8	.0476	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3L8	553208L	8	.0476	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3R6	553206R	6	.0652	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3L6	553206L	6	.0652	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3R5	553205R	5	.0793	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3L5	553205L	5	.0793	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3R4	553204R	4	.1004	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3L4	553204L	4	.1004	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-4R3	554203R	3	.1356	.255	.202	.453	.6332	.375		●	●		
FLAS-4L3	554203L	3	.1356	.255	.202	.453	.6332	.375		●	●		
FLAS-6R2	556202R	2	.2060	.383	.283	.453	.6308	.375			●		
FLAS-6L2	556202L	2	.2060	.383	.283	.453	.6308	.375			●		

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

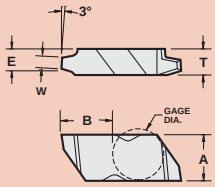
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		▲		●	
Non-Ferrous		▲		●	
Stainless/High Temp		▲		●	
Steel			▲		●

PARTIAL TOPPING ACME THREADING

FLA-PT (with corner radii)

For Flo-Lock acme thread limits see pg. 111,112.

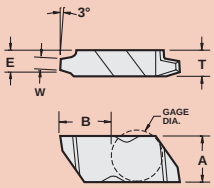


RH Shown

Description	EDP Code	TPI	W	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLA-3R16-PT	553016PTR	16	.0206	.195	.149	.344	.4026	.3750			●		●
FLA-3L16-PT	553016PTL	16	.0206	.195	.149	.344	.4026	.3750			●		●
FLA-3R14-PT	553014PTR	14	.0239	.195	.149	.344	.4026	.3750			●		●
FLA-3L14-PT	553014PTL	14	.0239	.195	.149	.344	.4026	.3750			●		●
FLA-3R12-PT	553012PTR	12	.0283	.195	.149	.344	.4026	.3750			●		●
FLA-3L12-PT	553012PTL	12	.0283	.195	.149	.344	.4026	.3750			●		●
FLA-3R10-PT	553010PTR	10	.0319	.195	.149	.344	.4026	.3750		●	●	●	
FLA-3L10-PT	553010PTL	10	.0319	.195	.149	.344	.4026	.3750		●	●	●	
FLA-3R8-PT	553008PTR	8	.0411	.195	.149	.344	.4026	.3750		●	●	●	●
FLA-3L8-PT	553008PTL	8	.0411	.195	.149	.344	.4026	.3750		●	●	●	●
FLA-3R6-PT	553006PTR	6	.0566	.195	.149	.344	.4026	.3750	●	●	●	●	●
FLA-3L6-PT	553006PTL	6	.0566	.195	.149	.344	.4026	.3750	●	●	●	●	●
FLA-3R5-PT	553005PTR	5	.0689	.195	.149	.344	.4026	.3750	●	●	●	●	●
FLA-3L5-PT	553005PTL	5	.0689	.195	.149	.344	.4026	.3750	●	●	●	●	●
FLA-3R4-PT	553004PTR	4	.0875	.195	.133	.344	.4018	.3750	●	●	●	●	●
FLA-3L4-PT	553004PTL	4	.0875	.195	.133	.344	.4018	.3750	●	●	●	●	●
FLA-4R8-PT	554008PTR	8	.0411	.255	.202	.453	.6332	.3750		●	●		
FLA-4L8-PT	554008PTL	8	.0411	.255	.202	.453	.6332	.3750		●	●		
FLA-4R6-PT	554006PTR	6	.0566	.255	.202	.453	.6332	.3750		●	●		
FLA-4L6-PT	554006PTL	6	.0566	.255	.202	.453	.6332	.3750		●	●		
FLA-4R5-PT	554005PTR	5	.0689	.255	.202	.453	.6332	.3750		●	●		
FLA-4L5-PT	554005PTL	5	.0689	.255	.202	.453	.6332	.3750		●	●		
FLA-4R4-PT	554004PTR	4	.0875	.255	.202	.453	.6332	.3750		●	●	●	●
FLA-4L4-PT	554004PTL	4	.0875	.255	.202	.453	.6332	.3750		●	●	●	●
FLA-6R3-PT	556003PTR	3	.1184	.383	.283	.453	.6308	.3750			●		
FLA-6L3-PT	556003PTL	3	.1184	.383	.283	.453	.6308	.3750			●		
FLA-6R2.5-PT	556025PTR	2.5	.1431	.383	.283	.453	.6308	.3750			●		
FLA–6L2.5-PT	556025PTL	2.5	.1431	.383	.283	.453	.6308	.3750			●		
FLA-6R2-PT	556002PTR	2	.1802	.383	.283	.453	.6308	.3750			●		
FLA-6L2-PT	556002PTL	2	.1802	.383	.283	.453	.6308	.3750			●		

PARTIAL TOPPING ACME STUB THREADING

FLAS-PT (with corner radii)



RH Shown

Description	EDP Code	TPI	W	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLAS-3R16-PT	553216PTR	16	.0238	.195	.149	.344	.4026	.375		●	●	●	
FLAS-3L16-PT	553216PTL	16	.0238	.195	.149	.344	.4026	.375		●	●	●	
FLAS-3R14-PT	553214PTR	14	.0276	.195	.149	.344	.4026	.375			●		●
FLAS-3L14-PT	553214PTL	14	.0276	.195	.149	.344	.4026	.375			●		●
FLAS-3R12-PT	553212PTR	12	.0326	.195	.149	.344	.4026	.375			●		
FLAS-3L12-PT	553212PTL	12	.0326	.195	.149	.344	.4026	.375			●		
FLAS-3R10-PT	553210PTR	10	.0370	.195	.149	.344	.4026	.375		●	●	●	
FLAS-3L10-PT	553210PTL	10	.0370	.195	.149	.344	.4026	.375		●	●	●	
FLAS-3R8-PT	553208PTR	8	.0476	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3L8-PT	553208PTL	8	.0476	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3R6-PT	553206PTR	6	.0652	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3L6-PT	553206PTL	6	.0652	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3R5-PT	553205PTR	5	.0793	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3L5-PT	553205PTL	5	.0793	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3R4-PT	553204PTR	4	.1004	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-3L4-PT	553204PTL	4	.1004	.195	.149	.344	.4026	.375		●	●	●	●
FLAS-4R3-PT	554203PTR	3	.1356	.255	.202	.453	.6332	.375		●	●		
FLAS-4L3-PT	554203PTL	3	.1356	.255	.202	.453	.6332	.375		●	●		
FLAS-6R2-PT	556202PTR	2	.2060	.383	.283	.453	.6308	.375			●		
FLAS-6L2-PT	556202PTL	2	.2060	.383	.283	.453	.6308	.375			●		

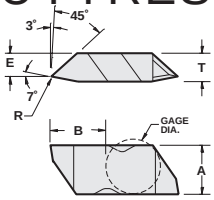
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		▲	●	
Non-Ferrous		▲	●	
Stainless/High Temp		▲	●	
Steel		▲		●

AMERICAN STANDARD BUTTRESS
7° LEAD
FLTB

For ASB specifications and application see pg. 111.

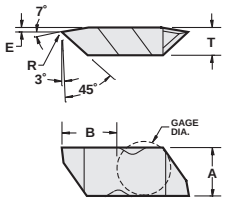


RH Shown

Description	EDP Code	TPI	R	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLTB-2RA	602801R	16-20	.002/.004	.150	.126	.219	.2688	.1875		●	●	●	●
FLTB-2LA	602801L	16-20	.002/.004	.150	.126	.219	.2688	.1875		●	●	●	●
FLTB-3RA	603801R	8-16	.005/.008	.195	.164	.344	.4034	.3750		●	●	●	●
FLTB-3LA	603801L	8-16	.005/.008	.195	.164	.344	.4034	.3750		●	●	●	●
FLTB-4RA	604801R	4-6	.008/.012	.255	.206	.453	.6334	.3750		●	●	●	●
FLTB-4LA	604801L	4-6	.008/.012	.255	.206	.453	.6334	.3750		●	●	●	●

AMERICAN STANDARD BUTTRESS
45° LEAD
FLTB

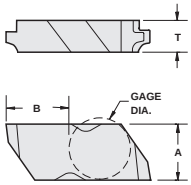
For ASB specifications and application see pg. 111.

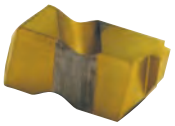


RH Shown

Description	EDP Code	TPI	R	T	E	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLTB-2RB	602802R	16-20	.002/.004	.150	.010	.219	.2627	.1875		●	●	●	●
FLTB-2LB	602802L	16-20	.002/.004	.150	.010	.219	.2627	.1875		●	●	●	●
FLTB-3RB	603802R	8-16	.005/.008	.195	.012	.344	.3954	.3750		●	●	●	●
FLTB-3LB	603802L	8-16	.005/.008	.195	.012	.344	.3954	.3750		●	●	●	●
FLTB-4RB	604802R	4-6	.008/.012	.255	.016	.453	.6235	.3750		●	●	●	●
FLTB-4LB	604802L	4-6	.008/.012	.255	.016	.453	.6235	.3750		●	●	●	●

API BUTTRESS THREADING
FLDC

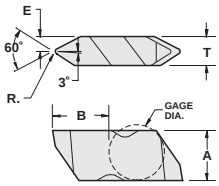




RH EXT Shown

Description	EDP Code	TPI	TPF	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-3-5B75E	553616E	5	3/4	.250	.344	.4026	.3750			●		
FLDC-3-5B75I	553616I	5	3/4	.250	.344	.4026	.3750			●		
FLDC-3-5B1E	553617E	5	1	.250	.344	.4026	.3750			●		
FLDC-3-5B1I	553617I	5	1	.250	.344	.4026	.3750			●		
FLDC-4-5B75E	554616E	5	3/4	.255	.453	.6320	.3750			●		
FLDC-4-5B75I	554616I	5	3/4	.255	.453	.6320	.3750			●		
FLDC-4-5B1E	554617E	5	1	.255	.453	.6320	.3750			●		
FLDC-4-5B1I	554617I	5	1	.255	.453	.6320	.3750			●		

API THREADING NON TOPPING
FLD



RH Shown

Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLD-3038R	553438R	4	.033/.038	.082	.195	.344	.3991	.3750			●		
FLD-3038L	553438L	4	.033/.038	.082	.195	.344	.3991	.3750			●		
FLD-3040R	553440R	5	.015/.020	.082	.195	.344	.3991	.3750			●		
FLD-3040L	553440L	5	.015/.020	.082	.195	.344	.3991	.3750			●		
FLD-4038R	554438R	4	.033/.038	.128	.255	.453	.6293	.3750			●		
FLD-4038L	554438L	4	.033/.038	.128	.255	.453	.6293	.3750			●		
FLD-4040R	554440R	5	.015/.020	.128	.255	.453	.6293	.3750			●		
FLD-4040L	554440L	5	.015/.020	.128	.255	.453	.6293	.3750			●		
FLD-4050R	554450R	4	.020/.025	.128	.255	.453	.6293	.3750			●	●	
FLD-4050L	554450L	4	.020/.025	.128	.255	.453	.6293	.3750			●	●	

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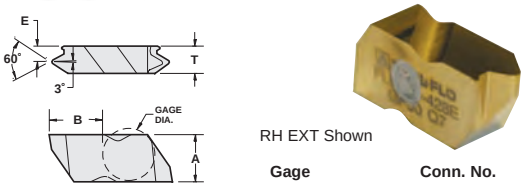
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		▲		●
Non-Ferrous		▲		●
Stainless/High Temp		▲		●
Steel			▲	

API ROTARY SHOULDER CONNECTION THREADING

FLDC

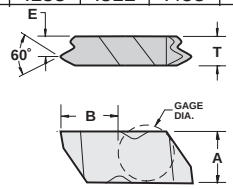


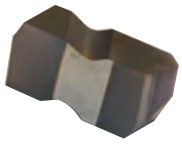
RH EXT Shown

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Conn. No. or Size	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-3-530E	553613E	5	3	.147	.250	.344	.4026	.3750	3-1/2 FH, 2-3/8-4-1/2 Reg.		●			
FLDC-3-530I	553613I	5	3	.147	.250	.344	.4026	.3750	3-1/2 FH, 2-3/8-4-1/2 Reg.		●			
FLDC-4-425E	554609E	4	2	.183	.312	.453	.6320	.3750	5-1/2 FH, 6-5/8 FH & Reg.		●	●	●	
FLDC-4-425I	554609I	4	2	.183	.312	.453	.6320	.3750	5-1/2 FH, 6-5/8 FH & Reg.		●	●	●	
FLDC-4-428E	554610E	4	2	.183	.312	.453	.6320	.3750	NC23-NC50, 2-3/8-5-1/2IF		●	●		●
FLDC-4-428I	554610I	4	2	.183	.312	.453	.6320	.3750	NC23-NC50, 2-3/8-5-1/2IF		●	●		●
FLDC-4-435E	554611E	4	3	.183	.312	.453	.6320	.3750	5-1/2, 7-5/8, 8-5/8 Reg.		●			
FLDC-4-435I	554611I	4	3	.183	.312	.453	.6320	.3750	5-1/2, 7-5/8, 8-5/8 Reg.		●			
FLDC-4-438E	554612E	4	3	.183	.312	.453	.6320	.3750	NC56 - NC71		●			
FLDC-4-438I	554612I	4	3	.183	.312	.453	.6320	.3750	NC56 - NC71		●			

API ROUND THREADING

FLDC



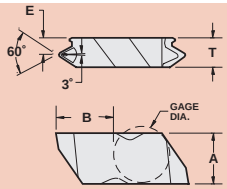


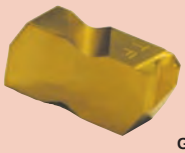
RH Shown

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-3-8RDR75	553632R	8	3/4	.195	.125	.344	.4010	.3750			●	●	●
FLDC-3-8RDL75	553632L	8	3/4	.195	.125	.344	.4010	.3750			●	●	●
FLDC-3-10RDR75	553634R	10	3/4	.195	.125	.344	.4010	.3750			●	●	●
FLDC-3-10RDL75	553634L	10	3/4	.195	.125	.344	.4010	.3750			●	●	●

FLDC
with chipbreaker

Exclusive patented design!

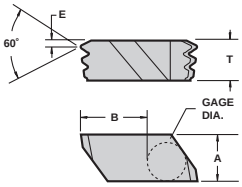




RH Shown

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-3-8RDR75-CB	553632PR	8	3/4	.195	.125	.344	.4010	.3750			●	●	●
FLDC-3-8RDL75-CB	553632PL	8	3/4	.195	.125	.344	.4010	.3750			●	●	●

FLDC
Multi-tooth

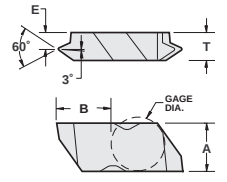


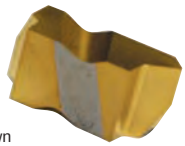
RH Shown

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-6-8RDR75M	556633R	8	3/4	.070	.383	.453	.6360	.3750					
FLDC-6-10RDR75M	556635R	10	3/4	.134	.383	.453	.6360	.3750					

NPT THREADING

FLDC





RH Shown

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-38VR-75	553608R	8	3/4	.100	.195	.344	.4000	.3750		●	●	●	
FLDC-38VL-75	553608L	8	3/4	.100	.195	.344	.4000	.3750		●	●	●	
FLDC-3115VR-75	553611R	11.5	3/4	.144	.195	.344	.4000	.3750		●	●	●	
FLDC-3115VL-75	553611L	11.5	3/4	.144	.195	.344	.4000	.3750		●	●	●	
FLDC-314VR-75	553614R	14	3/4	.148	.195	.344	.4023	.3750		●	●	●	
FLDC-314VL-75	553614L	14	3/4	.148	.195	.344	.4023	.3750		●	●	●	
FLDC-318VR-75	553618R	18	3/4	.154	.195	.344	.4023	.3750		●	●	●	
FLDC-318VL-75	553618L	18	3/4	.154	.195	.344	.4023	.3750		●	●	●	
FLDC-327VR-75	553627R	27	3/4	.162	.195	.344	.4023	.3750		●	●	●	
FLDC-327VL-75	553627L	27	3/4	.162	.195	.344	.4023	.3750		●	●	●	

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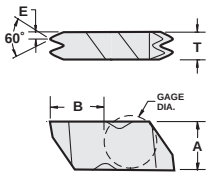
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron				●	
Non-Ferrous				●	
Stainless/High Temp			▲	●	
Steel			▲		●

NPT THREADING

FLDC

Multi-tooth

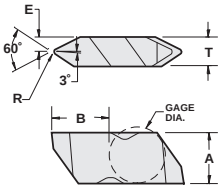


RH Shown

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLDC-3-8 NPT-2E	553708E	8	3/4	.058	.250	.344	.4050	.3750			●	●	●
FLDC -3-8 NPT-2I	553708I	8	3/4	.058	.250	.344	.4050	.3750			●	●	●
FLDC-3-11.5 NPT-2E	553711E	11.5	3/4	.048	.250	.344	.4050	.3750			●	●	
FLDC-3-11.5 NPT-2I	553711I	11.5	3/4	.048	.250	.344	.4050	.3750			●	●	

UNJ THREADING

FLJ



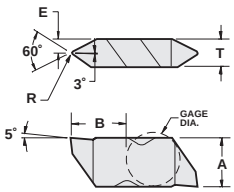
RH Shown

Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLJ-3010R16	583216R	16	.0094/.0104	.098	.195	.344	.3999	.3750		●	●	●	
FLJ-3010L16	583216L	16	.0094/.0104	.098	.195	.344	.3999	.3750		●	●	●	
FLJ-3014R12	583212R	12	.0125/.0135	.098	.195	.344	.3999	.3750		●	●	●	
FLJ-3014L12	583212L	12	.0125/.0135	.098	.195	.344	.3999	.3750		●	●	●	
FLJ-3020R8	583208R	8	.0188/.0198	.098	.195	.344	.3999	.3750		●	●	●	
FLJ-3020L8	583208L	8	.0188/.0198	.098	.195	.344	.3999	.3750		●	●	●	

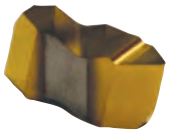
UNJ THREADING

FLJP

Positive rake



RH Shown

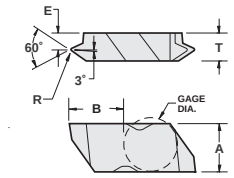


Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLJP-3010R16	583816R	16	.0094/.0104	.098	.195	.344	.3999	.3750		●	●	●	
FLJP-3010L16	583816L	16	.0094/.0104	.098	.195	.344	.3999	.3750		●	●	●	
FLJP-3014R12	583812R	12	.0125/.0135	.098	.195	.344	.3999	.3750		●	●	●	
FLJP-3014L12	583812L	12	.0125/.0135	.098	.195	.344	.3999	.3750		●	●	●	
FLJP-3020R8	583808R	8	.0188/.0198	.098	.195	.344	.3999	.3750		●	●	●	
FLJP-3020L8	583808L	8	.0188/.0198	.098	.195	.344	.3999	.3750		●	●	●	

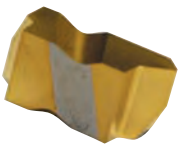
UNJ FINE PITCH THREADING

FLJF

For cutting close to shoulder



RH Shown



Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLJF-3005R32	583432R	32	.0047/.0057	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3005L32	583432L	32	.0047/.0057	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3006R28	583428R	28	.0054/.0064	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3006L28	583428L	28	.0054/.0064	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3007R24	583424R	24	.0063/.0073	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3007L24	583424L	24	.0063/.0073	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3008R20	583420R	20	.0075/.0085	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3008L20	583420L	20	.0075/.0085	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3009R18	583418R	18	.0083/.0093	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3009L18	583418L	18	.0083/.0093	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3010R16	583416R	16	.0094/.0104	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3010L16	583416L	16	.0094/.0104	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3012R14	583414R	14	.0107/.0117	.141	.195	.344	.4022	.3750		●	●	●	
FLJF-3012L14	583414L	14	.0107/.0117	.141	.195	.344	.4022	.3750		●	●	●	

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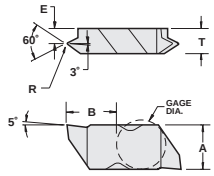
▲ Recommended grade under general conditions.

	C3	GP3	GP50	AC3	AC50
Cast Iron		▲		●	
Non-Ferrous		▲		●	
Stainless/High Temp		▲		●	
Steel			▲		

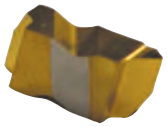
UNJ FINE PITCH THREADING

FLJK

Positive rake



RH Shown

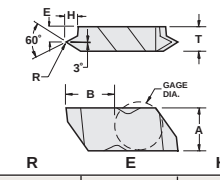


Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLJK-3005R32	583632R	32	.0047/.0057	.141	.195	.344	.4022	.3750		●	●	●	●
FLJK-3005L32	583632L	32	.0047/.0057	.141	.195	.344	.4022	.3750		●	●	●	●
FLJK-3006R28	583628R	28	.0054/.0064	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3006L28	583628L	28	.0054/.0064	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3007R24	583624R	24	.0063/.0073	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3007L24	583624L	24	.0063/.0073	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3008R20	583620R	20	.0075/.0085	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3008L20	583620L	20	.0075/.0085	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3009R18	583618R	18	.0083/.0093	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3009L18	583618L	18	.0083/.0093	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3010R16	583616R	16	.0094/.0104	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3010L16	583616L	16	.0094/.0104	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3012R14	583614R	14	.0107/.0117	.141	.195	.344	.4022	.3750		●	●	●	
FLJK-3012L14	583614L	14	.0107/.0117	.141	.195	.344	.4022	.3750		●	●	●	

UN THREADING

FLTC

Crest topping



RH EXT Shown

Description	EDP Code	TPI	R	E	H	T	A	B	Gage Dia.	Uncoated C3	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLTC-3R7E	613007R	7	.017	.107	.108	.195	.344	.4004	.3750		●	●	●	
FLTC-3L7E	613007L	7	.017	.107	.108	.195	.344	.4004	.3750		●	●	●	
FLTC-3R7I	613207R	7	.009	.107	.092	.195	.344	.4004	.3750		●	●	●	
FLTC-3L7I	613207L	7	.009	.107	.092	.195	.344	.4004	.3750		●	●	●	
FLTC-3R8E	613008R	8	.015	.107	.094	.195	.344	.4004	.3750		●	●	●	
FLTC-3L8E	613008L	8	.015	.107	.094	.195	.344	.4004	.3750		●	●	●	
FLTC-3R8I	613208R	8	.007	.107	.081	195	.344	.4004	.3750		●	●	●	
FLTC-3L8I	613208L	8	.007	.107	.081	.195	.344	.4004	.3750		●	●	●	
FLTC-3R9E	613009R	9	.013	.107	.084	.195	.344	.4004	.3750		●	●	●	
FLTC-3L9E	613009L	9	.013	.107	.084	.195	.344	.4004	.3750		●	●	●	
FLTC-3R9I	613209R	9	.006	.107	.072	.195	.344	.4004	.3750		●	●	●	
FLTC-3L9I	613209L	9	.006	.107	.072	.195	.344	.4004	.3750		●	●	●	
FLTC-3R10E	613010R	10	.012	.107	.076	.195	.344	.4004	.3750		●	●	●	
FLTC-3L10E	613010L	10	.012	.107	.076	.195	.344	.4004	.3750		●	●	●	
FLTC-3R10I	613210R	10	.005	.107	.065	.195	.344	.4004	.3750		●	●	●	
FLTC-3L10I	613210L	10	.005	.107	.065	.195	.344	.4004	.3750		●	●	●	
FLTC-3R11E	613011R	11	.011	.107	.069	.195	.344	.4004	.3750		●	●	●	
FLTC-3L11E	613011L	11	.011	.107	.069	.195	.344	.4004	.3750		●	●	●	
FLTC-3R11I	613211R	11	.005	.107	.059	.195	.344	.4004	.3750		●	●	●	
FLTC-3L11I	613211L	11	.005	.107	.059	.195	.344	.4004	.3750		●	●	●	
FLTC-3R12E	613012R	12	.010	.148	.051	.195	.344	.4025	.3750		●	●	●	
FLTC-3L12E	613012L	12	.010	.148	.051	.195	.344	.4025	.3750		●	●	●	
FLTC-3R12I	613212R	12	.004	.148	.048	.195	.344	.4025	.3750		●	●	●	
FLTC-3L12I	613212L	12	.004	.148	.048	.195	.344	.4025	.3750		●	●	●	
FLTC-3R14E	613014R	14	.009	.148	.054	.195	.344	.4025	.3750		●	●	●	
FLTC-3L14E	613014L	14	.009	.148	.054	.195	.344	.4025	.3750		●	●	●	
FLTC-3R14I	613214R	14	.003	.148	.044	.195	.344	.4025	.3750		●	●	●	
FLTC-3L14I	613214L	14	.003	.148	.044	.195	.344	.4025	.3750		●	●	●	
FLTC-3R16E	613016R	16	.008	.148	.046	.195	.344	.4025	.3750		●	●	●	
FLTC-3L16E	613016L	16	.008	.148	.046	.195	.344	.4025	.3750		●	●	●	
FLTC-3R16I	613216R	16	.003	.148	.040	.195	.344	.4025	.3750		●	●	●	
FLTC-3L16I	613216L	16	.003	.148	.040	.195	.344	.4025	.3750		●	●	●	
FLTC-3R18E	613018R	18	.007	.148	.041	.195	.344	.4025	.3750		●	●	●	
FLTC-3L18E	613018L	18	.007	.148	.041	.195	.344	.4025	.3750		●	●	●	
FLTC-3R18I	613218R	18	.003	.148	.036	.195	.344	.4025	.3750		●	●	●	
FLTC-3L18I	613218L	18	.003	.148	.036	.195	.344	.4025	.3750		●	●	●	
FLTC-3R20E	613020R	20	.006	.148	.037	.195	.344	.4025	.3750		●	●	●	
FLTC-3L20E	613020L	20	.006	.148	.037	.195	.344	.4025	.3750			●	●	
FLTC-3R20I	613220R	20	.003	.148	.031	.195	.344	.4025	.3750		●	●		
FLTC-3L20I	613220L	20	.003	.148	.031	.195	.344	.4025	.3750			●		
FLTC-3R24E	613024R	24	.005	.148	.031	.195	.344	.4025	.3750		●	●		
FLTC-3L24E	613024L	24	.005	.148	.031	.195	.344	.4025	.3750		●	●		
FLTC-3R24I	613224R	24	.003	.148	.026	.195	.344	.4025	.3750		●			
FLTC-3L24I	613224L	24	.003	.148	.026	.195	.344	.4025	.3750					
FLTC-3R28*	613028R	28	.003	.148	.023	.195	.344	.4025	.3750		●	●		
FLTC-3L28*	613028L	28	.003	.148	.023	.195	.344	.4025	.3750			●		
FLTC-3R32*	613228R	32	.003	.148	.021	.195	.344	.4025	.3750		●			
FLTC-3L32*	613228L	32	.003	.148	.021	.195	.344	.4025	.3750					

*Will work for either internal or external.

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

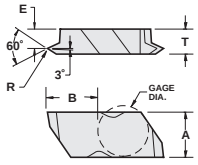
Cast Iron		▲		●	
Non-Ferrous		▲		●	
Stainless/High Temp		▲		●	
Steel			▲		●

60° V-THREADING

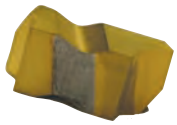
FLTF

Fine pitch

For 60˚V-thread limits see pg. 112.



RH Shown

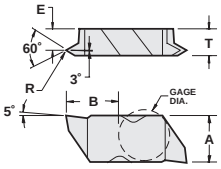


Description	EDP Code	TPI Int	TPI Ext	R	E	T	A	B	Gage Dia.	Uncoated C25	TiN Coated GP3	TiN Coated GP4	TiN Coated GP50	TiN Coated GP520	AlTiN Coated AC3	AlTiN Coated AC50
FLTF-2R	612400R	12-24	14-44	.002/.004	.110	.150	.219	.2679	.1875	●	●		●		●	●
FLTF-2L	612400L	12-24	14-44	.002/.004	.110	.150	.219	.2679	.1875	●	●		●		●	●
FLTF-3R	613400R	9-24	10-44	.002/.004	.141	.195	.344	.4022	.3750	●	●		●		●	●
FLTF-3L	613400L	9-24	10-44	.002/.004	.141	.195	.344	.4022	.3750	●	●		●		●	●
FLTF-4R	614400R	9-24	10-44	.002/.004	.201	.255	.453	.6322	.3750	●	●		●		●	●
FLTF-4L	614400L	9-24	10-44	.002/.004	.201	.255	.453	.6322	.3750	●	●		●		●	●

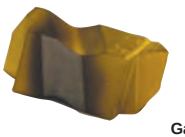
60° V-THREADING

FLTK

Positive rake



RH Shown



Description	EDP Code	TPI Int	TPI Ext	R	E	T	A	B	Gage Dia.	Uncoated C25	TiN Coated GP3	TiN Coated GP4	TiN Coated GP50	TiN Coated GP520	AlTiN Coated AC3	AlTiN Coated AC50
FLTK-2R	612600R	12-24	14-44	.002/.004	.110	.150	.219	.2679	.1875	●	●		●		●	●
FLTK-2L	612600L	12-24	14-44	.002/.004	.110	.150	.219	.2679	.1875	●	●		●		●	●
FLTK-3R	613600R	9-24	10-44	.002/.004	.141	.195	.344	.4022	.3750	●	●		●		●	●
FLTK-3L	613600L	9-24	10-44	.002/.004	.141	.195	.344	.4022	.3750	●	●		●		●	●
FLTK-4R	614600R	9-24	10-44	.002/.004	.201	.255	.453	.6322	.3750	●	●		●		●	●
FLTK-4L	614600L	9-24	10-44	.002/.004	.201	.255	.453	.6322	.3750	●	●		●		●	●

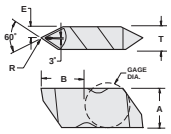
60° V-THREADING - CHIP-FLO

FLT-CB

Exclusive patented design!

Features:

- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Fewer scarred threads
- For coarse and fine pitches



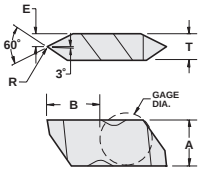
RH Shown

Description	EDP Code	TPI Int	TPI Ext	R	E	T	A	B	Gage Dia.	Uncoated C25	Uncoated C3	TiN Coated GP22	TiN Coated GP4	TiN Coated GP50	TiN Coated GP520	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
FLT-3R-HCB	603600HCR	5-12	6-20	.005/.008	.098	.195	.344	.3999	.3750	●		●	●	●	●	●		●
FLT-3L-HCB	603600HCL	5-12	6-20	.005/.008	.098	.195	.344	.3999	.3750	●		●	●	●	●	●		●
FLT-3RC-HCB	603612HCR	5-6	6-11	.012/.015	.098	.195	.344	.3999	.3750			●		●		●	●	●
FLT-3LC-HCB	603612HCL	5-6	6-11	.012/.015	.098	.195	.344	.3999	.3750			●		●		●	●	●
FLT-3R-CB	603600CR	8-12	8-20	.005/.008	.098	.195	.344	.3999	.3750	●		●	●	●	●	●		●
FLT-3L-CB	603600CL	8-12	8-20	.005/.008	.098	.195	.344	.3999	.3750	●		●	●	●	●	●		●
FLT-3R-FCB	603600FCR	7-20	8-36	.003/.005	.098	.195	.344	.3999	.3750	●		●	●	●	●	●	●	
FLT-3L-FCB	603600FCL	7-20	8-36	.003/.005	.098	.195	.344	.3999	.3750	●		●	●	●	●	●		●
FLT-4R-HCB	604600HCR	4-12	4-20	.005/.008	.128	.255	.453	.6298	.3750	●	●	●		●		●	●	●
FLT-4L-HCB	604600HCL	4-12	4-20	.005/.008	.128	.255	.453	.6298	.3750	●	●	●		●		●	●	●

60° V-THREADING

FLT

For 60˚V-thread limits see pg. 112.



RH Shown

Description	EDP Code	TPI Int	TPI Ext	R	E	T	A	B	Gage Dia.	Uncoated C25	TiN Coated GP3	TiN Coated GP4	TiN Coated GP50	TiN Coated GP520	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
FLT-2R	602600R	7-20	8-36	.003/.005	.075	.150	.219	.2661	.1875	●	●	●	●	●		●	●
FLT-2L	602600L	7-20	8-36	.003/.005	.075	.150	.219	.2661	.1875	●	●	●	●	●		●	●
FLT-3R	603600R	5-12	6-20	.005/.008	.098	.195	.344	.3999	.3750	●	●	●	●	●	●	●	●
FLT-3L	603600L	5-12	6-20	.005/.008	.098	.195	.344	.3999	.3750	●	●	●	●	●	●	●	●
FLT-3010R	603610R	5-12	6-18	.009/.011	.098	.195	.344	.3999	.3750		●		●			●	●
FLT-3010L	603610L	5-12	6-18	.009/.011	.098	.195	.344	.3999	.3750		●		●			●	●
FLT-4R	604600R	4-12	4-20	.005/.008	.128	.255	.453	.6298	.3750	●	●		●			●	●
FLT-4L	604600L	4-12	4-20	.005/.008	.128	.255	.453	.6298	.3750	●	●		●			●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

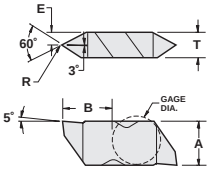
	GP3	GP4	GP50	GP520	AC3	AC50
Cast Iron	▲				●	
Non-Ferrous	▲				●	
Stainless/High Temp	▲				●	
Steel			▲	▲		●

60° V-THREADING

FLTP

Positive rake

For 60˚V-thread limits see pg. 112.



RH Shown

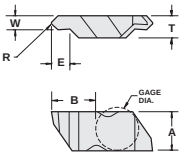
TPI

Description	EDP Code	Int	Ext	R	E	T	A	B	Gage Dia.	Uncoated C25	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLTP-2R	612800R	7-20	8-36	.003/.005	.075	.150	.219	.2661	.1875	●	●	●	●	●
FLTP-2L	612800L	7-20	8-36	.003/.005	.075	.150	.219	.2661	.1875	●	●	●	●	●
FLTP-3R	613800R	5-12	6-20	.005/.008	.098	.195	.344	.3999	.3750	●	●	●	●	●
FLTP-3L	613800L	5-12	6-20	.005/.008	.098	.195	.344	.3999	.3750	●	●	●	●	●
FLTP-4R	614800R	4-12	4-20	.005/.008	.128	.255	.453	.6293	.3750	●	●	●	●	●
FLTP-4L	614800L	4-12	4-20	.005/.008	.128	.255	.453	.6293	.3750	●	●	●	●	●

UNDERCUTTING

FLU

For use in FLRR/L holders



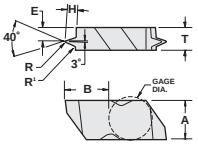
RH Shown

W

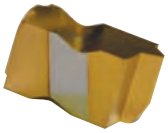
Description	EDP Code	Inch	Metric	R	E	T	A	B	Gage Dia.	C3	GP3	GP50	AC3	AC50
FLU-3094R	623094R	.094	2,39	.020	.125	.195	.344	.4050	.3750		●	●	●	
FLU-3094L	623094L	.094	2,39	.020	.125	.195	.344	.4050	.3750		●	●	●	
FLU-3125R	623125R	.125	3,18	.047	.188	.195	.344	.4050	.3750			●	●	
FLU-3125L	623125L	.125	3,18	.047	.188	.195	.344	.4050	.3750			●	●	
FLU-3156R	623156R	.156	3,96	.047	.188	.195	.344	.4050	.3750			●	●	
FLU-3156L	623156L	.156	3,96	.047	.188	.195	.344	.4050	.3750			●	●	

POLY-V

FLV



RH Shown



Description	EDP Code	R	R1	E	T	H	A	B	Gage Dia.	Uncoated C25	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
FLV-3RJ	623800R	.012	.008	.125	.195	.087	.344	.4013	.3750	●	●	●		●
FLV-3LJ	623800L	.012	.008	.125	.195	.087	.344	.4013	.3750	●	●	●		●
FLV-4RL	624800R	.012	.015	.118	.255	.201	.453	.6288	.3750		●	●		●
FLV-4LL	624800L	.012	.015	.118	.255	.201	.453	.6288	.3750		●	●		●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

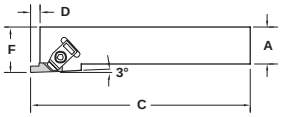
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

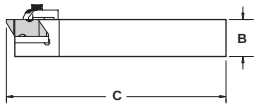
Cast Iron		▲		●
Non-Ferrous		▲		●
Stainless/High Temp		▲		●
Steel			▲		●

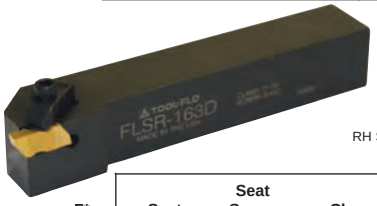
EXTERNAL HOLDER (INCH)

FLSR/L

Threading and Grooving







RH SHOWN

Most holders available with coolant port (ie: Add CP to end of description)

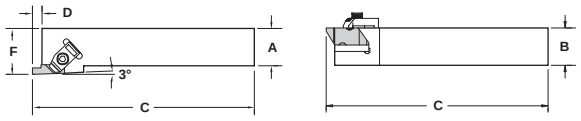
Description	EDP Code	Insert	A	B	C	D	F*	Seat	Seat Screw	Clamp	Clamp Screw
FLSR-62	93400608C	FL_-2R	3/8	3/8	2-1/2	.14	.562	-	-	TF-74	S-310
FLSL-62	93300608C	FL_-2L	3/8	3/8	2-1/2	.14	.562	-	-	TF-75	S-310
FLSR-82V	93400808V	FL_-2R	1/2	1/2	3-1/2	.14	.750	-	-	TF-74	S-310
FLSL-82V	93300808V	FL_-2L	1/2	1/2	3-1/2	.14	.750	-	-	TF-75	S-310
FLSR-102B	93401008B	FL_-2R	5/8	5/8	4-1/2	.14	1.000	-	-	TF-74	S-310
FLSR-122B	93401208B	FL_-2R	3/4	3/4	4-1/2	.14	1.000	-	-	TF-74	S-310
FLSL-122B	93301208B	FL_-2L	3/4	3/4	4-1/2	.14	1.000	-	-	TF-75	S-310
FLSR-162C	93401608C	FL_-2R	1	1.000	5	.14	1.250	-	-	TF-74	S-310
FLSL-162C	93301608C	FL_-2L	1	1.000	5	.14	1.250	-	-	TF-75	S-310
FLSR-123B	93401216B	FL_-3R	3/4	3/4	4-1/2	.21	1.000	-	-	TF-72	S-412
FLSL-123B	93301216B	FL_-3L	3/4	3/4	4-1/2	.21	1.000	-	-	TF-73	S-412
FLSR-163C	93401616C	FL_-3R	1	1	5	.21	1.250	-	-	TF-72	S-412
FLSL-163C	93301616C	FL_-3L	1	1	5	.21	1.250	-	-	TF-73	S-412
FLSR-163D	93401616D	FL_-3R	1	1	6	.21	1.250	-	-	TF-72	S-412
FLSL-163D	93301616D	FL_-3L	1	1	6	.21	1.250	-	-	TF-73	S-412
FLSR-203D	93402016D	FL_-3R	1-1/4	1-1/4	6	.21	1.500	-	-	TF-72	S-412
FLSL-203D	93302016D	FL_-3L	1-1/4	1-1/4	6	.21	1.500	-	-	TF-73	S-412
FLSR-164D	93401620D	FL_-4R	1	1	6	.29	1.250	SM-420	SL-344	TF-72	S-412
FLSL-164D	93301620D	FL_-4L	1	1	6	.29	1.250	SM-420	SL-344	TF-73	S-412
FLSR-204D	93402020D	FL_-4R	1-1/4	1-1/4	6	.29	1.500	SM-420	SL-344	TF-72	S-412
FLSL-204D	93302020D	FL_-4L	1-1/4	1-1/4	6	.29	1.500	SM-420	SL-344	TF-73	S-412
FLSR-205D	93402024D	FL_-5R	1-1/4	1-1/4	6	.40	1.500	-	-	TF-80	S-352
FLSL-205D	93302024D	FL_-5L	1-1/4	1-1/4	6	.40	1.500	-	-	TF-81	S-352
FLSR-206D	93402028D	FL_-6R	1-1/4	1-1/4	6	.29	1.500	SM-416	S-111	TF-120	S-412
FLSL-206D	93302028D	FL_-6L	1-1/4	1-1/4	6	.29	1.500	SM-416	S-111	TF-121	S-412

* "F" Dim. over sharp point of grooving insert.

EXTERNAL HOLDER (METRIC)

FLSR/L

Threading and Grooving



RH SHOWN

Most holders available with coolant port (ie: Add CP to end of description)

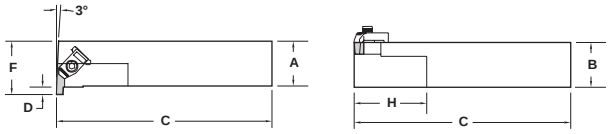
Description	EDP Code	Insert	A	B	C	D	F*	Seat	Seat Screw	Clamp	Clamp Screw
FLSR-2020M2	93412008	FL_-2R	20,0	20,0	125,0	3,0	25,0	-	-	TF-74	S-310
FLSL-2020M2	93312008	FL_-2L	20,0	20,0	125,0	3,0	25,0	-	-	TF-75	S-310
FLSR-2525M2	93412508	FL_-2R	25,0	25,0	150,0	3,0	32,0	-	-	TF-74	S-310
FLSL-2525M2	93312508	FL_-2L	25,0	25,0	150,0	3,0	32,0	-	-	TF-75	S-310
FLSR-2020M3	93412016	FL_-3R	20,0	20,0	125,0	5,0	32,0	-	-	TF-72	S-412
FLSL-2020M3	93312016	FL_-3L	20,0	20,0	125,0	5,0	32,0	-	-	TF-73	S-412
FLSR-2525M3	93412516	FL_-3R	25,0	25,0	150,0	5,0	32,0	-	-	TF-72	S-412
FLSL-2525M3	93312516	FL_-3L	25,0	25,0	150,0	5,0	32,0	-	-	TF-73	S-412

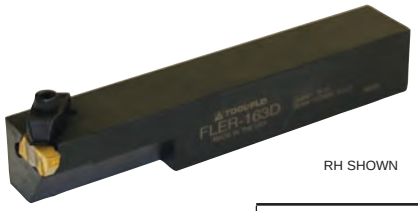
* "F" Dim. over sharp point of grooving insert.

EXTERNAL HOLDER (INCH)

FLER/L

Threading and Grooving





RH SHOWN

Most holders available with coolant port (ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	D	F*	H	Clamp	Clamp Screw
FLER-82V	93100808V	FL_-2L	1/2	1/2	3-1/2	.14	.750	1	TF-75	S-310
FLER-122B	93101208B	FL_-2L	3/4	3/4	4-1/2	.14	1.000	1	TF-75	S-310
FLEL-122B	93001208B	FL_-2R	3/4	3/4	4-1/2	.14	1.000	1	TF-74	S-310
FLER-162C	93101608C	FL_-2L	1	1	5	.14	1.250	1	TF-75	S-310
FLEL-162C	93001608C	FL_-2R	1	1	5	.14	1.250	1	TF-74	S-310
FLER-123B	93101216B	FL_-3L	3/4	3/4	4-1/2	.21	1.125	2	TF-73	S-412
FLEL-123B	93001216B	FL_-3R	3/4	3/4	4-1/2	.21	1.125	2	TF-72	S-412
FLER-163D	93101616D	FL_-3L	1	1	6.000	.21	1.250	2	TF-73	S-412
FLEL-163D	93001616D	FL_-3R	1	1	6.000	.21	1.250	2	TF-72	S-412
FLER-203D	93102016D	FL_-3L	1-1/4	1-1/4	6.000	.21	1.500	2	TF-73	S-412
FLEL-203D	93002016D	FL_-3R	1-1/4	1-1/4	6.000	.21	1.500	2	TF-72	S-412
FLER-164D	93101620D	FL_-4L	1	1	6.000	.29	1.375	2	TF-73	S-412
FLEL-164D	93001620D	FL_-4R	1	1	6.000	.29	1.375	2	TF-72	S-412
FLER-204D	93102020D	FL_-4L	1-1/4	1-1/4	6.000	.29	1.625	2	TF-73	S-412
FLEL-204D	93002020D	FL_-4R	1-1/4	1-1/4	6.000	.29	1.625	2	TF-72	S-412
FLER-205D	93102024D	FL_-5L	1-1/4	1-1/4	6.000	.29	2.000	2	TF-81	S-352
FLEL-205D	93002024D	FL_-5R	1-1/4	1-1/4	6.000	.29	2.000	2	TF-80	S-352
FLER-206D	93102028D	FL_-6L	1-1/4	1-1/4	6.000	.29	1.625	2	TF-121	S-412
FLEL-206D	93002028D	FL_-6R	1-1/4	1-1/4	6.000	.29	1.625	2	TF-120	S-412

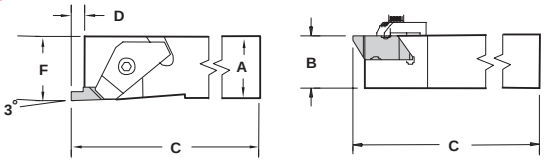
* C&F measured over sharp point of grooving insert

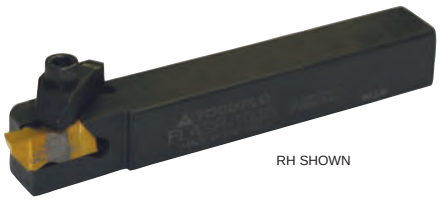
EXTERNAL HOLDER (INCH)

FLASR/L

Threading and Grooving

Design for Swiss machines





RH SHOWN

Most holders available with coolant port (ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLASR-062D	92900608D	FL_-2R	3/8	3/8	6	.138	.375	TF-182	S-310
FLASL-062D	92650608D	FL_-2L	3/8	3/8	6	.138	.375	TF-183	S-310
FLASR-082D	92900808D	FL_-2R	1/2	1/2	6	.138	.500	TF-182	S-310
FLASL-082D	92650808D	FL_-2L	1/2	1/2	6	.138	.500	TF-183	S-310
FLASR-102B	92901008B	FL_-2R	5/8	5/8	4-1/2	.138	.625	TF-184	S-412
FLASR-103B	92901016B	FL_-3R	5/8	5/8	4-1/2	.21	.625	TF-184	S-412
FLASL-103B	92891016B	FL_-3L	5/8	5/8	4-1/2	.21	.625	TF-185	S-412

* "F" Dim. over sharp point of grooving insert.

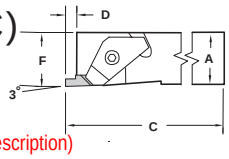
EXTERNAL HOLDER (METRIC)

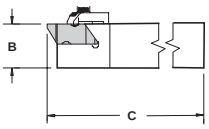
FLASR/L

Threading and Grooving

Design for Swiss machines

Most holders available with coolant port (ie: Add CP to end of description)





RH SHOWN

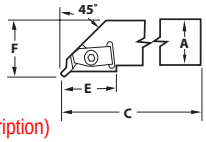
Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLASR-1010M2	92711008	FL_-2R	10,0	10,0	150,0	3,51	10,0	TF-182	S-310
FLASL-1010M2	92661008	FL_-2L	10,0	10,0	150,0	3,51	10,0	TF-183	S-310
FLASR-1212M2	92711208	FL_-2R	12,0	12,0	150,0	3,51	12,0	TF-182	S-310
FLASL-1212M2	92661208	FL_-2L	12,0	12,0	150,0	3,51	12,0	TF-183	S-310
FLASR-1616M2	92711608	FL_-2R	16,0	16,0	150,0	3,51	16,0	TF-184	S-412
FLASR-1616M3	92711616	FL_-3R	16,0	16,0	125,0	5,31	16,0	TF-184	S-412
FLASL-1616M3	92661616	FL_-3L	16,0	16,0	125,0	5,31	16,0	TF-185	S-412

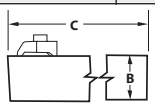
EXTERNAL HOLDER (INCH)

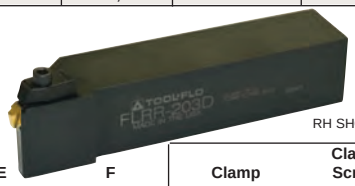
FLRR/L

Undercutting

Most holders available with coolant port (ie: Add CP to end of description)







RH SHOWN

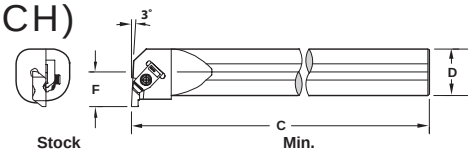
Description	EDP Code	Insert	A	B	C	E	F	Clamp	Clamp Screw
FLRR-123B	93201216B	FLU-3L	3/4	3/4	4-1/2	1-1/4	1.000	TF-73	S-412
FLRL-123B	93181216B	FLU-3R	3/4	3/4	4-1/2	1-1/4	1.000	TF-72	S-412
FLRR-163D	93201616D	FLU-3L	1	1	6	1-1/4	1.250	TF-73	S-412
FLRL-163D	93181616D	FLU-3R	1	1	6	1-1/4	1.250	TF-72	S-412
FLRR-203D	93202016D	FLU-3L	1-1/4	1-1/4	6	1-1/4	1.500	TF-73	S-412
FLRL-203D	93182016D	FLU-3R	1-1/4	1-1/4	6	1-1/4	1.500	TF-72	S-412

INTERNAL HOLDER (INCH)

A-FLER/L

Threading and Grooving

Coolant hole



RH SHOWN

Description	EDP Code	Stock Status	Insert	Min. Bore	D	C	F	Clamp	Clamp Screw
A08-FLER2	96500808	●	FL-2L	.730	.500	8	.437	TF-147	S-39
A08-FLEL2	96400808	●	FL-2R	.730	.500	8	.437	TF-146	S-39
A10-FLER2	96501008	●	FL-2L	1.000	.625	10	.500	TF-75	S-310
A12-FLER2	96501208	●	FL-2L	1.125	.750	10	.562	TF-75	S-310
A12-FLEL2	96401208	●	FL-2R	1.125	.750	10	.562	TF-74	S-310
A16-FLER2	96501608	●	FL-2L	1.375	1.000	12	.688	TF-75	S-310
A16-FLEL2	96401608	●	FL-2R	1.375	1.000	12	.688	TF-74	S-310
A16-FLER3	96501616	●	FL-3L	1.375	1.000	12	.688	TF-73	S-412
A16-FLEL3	96401616	●	FL-3R	1.375	1.000	12	.688	TF-72	S-412
A20-FLER3	96502016	❍	FL-3L	1.750	1.250	14	.875	TF-73	S-412
A20-FLEL3	96402016	❍	FL-3R	1.750	1.250	14	.875	TF-72	S-412
A24-FLER3	96502416	●	FL-3L	2.000	1.500	14	1.000	TF-73	S-412
A24-FLEL3	96402416	●	FL-3R	2.000	1.500	14	1.000	TF-72	S-412
A28-FLER3	96502816	❍	FL-3L	2.250	1.750	14	1.125	TF-73	S-412
A32-FLER3	96503216	●	FL-3L	2.500	2.000	16	1.250	TF-73	S-412
A32-FLEL3	96403216	●	FL-3R	2.500	2.000	16	1.250	TF-72	S-412
A28-FLER4	96502820	●	FL-4L	2.250	1.750	16	1.250	TF-73	S-412
A28-FLEL4	96402820	●	FL-4R	2.250	1.750	16	1.250	TF-72	S-412
A32-FLER4	96503220	●	FL-4L	2.750	2.000	16	1.296	TF-73	S-412
A32-FLEL4	96403220	●	FL-4R	2.750	2.000	16	1.296	TF-72	S-412
A32-FLER5	96503224	●	FL-5L	2.812	2.000	16	1.406	CM-81	S-352
A32-FLER6	96503228	●	FL-6L	2.750	2.000	16	1.375	CM-121	S-412

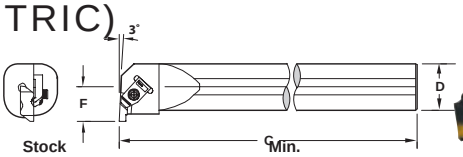
"F" and "C" Dim. over sharp point of grooving insert.

INTERNAL HOLDER (METRIC)

A_M-FLER/L

Threading and Grooving

Coolant hole



RH SHOWN

Description	EDP Code	Stock Status	Insert	Min. Bore	D	C	F	Clamp	Clamp Screw
A16M-FLER2	96441608	●	FL-2L	25,4	16,0	250,0	12,65	TF-75	S-310
A20M-FLER2	96442008	●	FL-2L	28,6	20,0	250,0	13,8	TF-75	S-310
A25M-FLER2	96442508	●	FL-2L	34,9	25,0	300,0	17,7	TF-75	S-310
A25M-FLEL2	96432508	●	FL-2R	34,9	25,0	300,0	17,7	TF-74	S-310
A25M-FLER3	96442516	●	FL-3L	34,9	25,0	300,0	17,7	TF-73	S-412
A25M-FLEL3	96432516	●	FL-3R	34,9	25,0	300,0	17,7	TF-72	S-412
A32M-FLER3	96443216	❍	FL-3L	44,45	32,0	350,0	22,1	TF-73	S-412
A32M-FLEL3	96433216	❍	FL-3R	44,45	32,0	350,0	22,1	TF-72	S-412
A40M-FLER3	96444016	●	FL-3L	50,8	40,0	350,0	24,45	TF-73	S-412
A40M-FLEL3	96434016	●	FL-3R	50,8	40,0	350,0	24,45	TF-72	S-412
A50M-FLER4	96445020	●	FL-4L	63,5	50,0	400,0	35,3	TF-72	S-412
A50M-FLEL4	96435020	●	FL-4R	63,5	50,0	400,0	35,3	TF-72	S-412

"F" and "C" Dim. over sharp point of grooving insert.

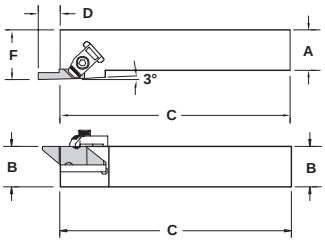
EXTERNAL HOLDER

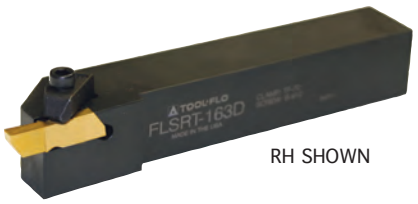
FLSR/LT

For double ended FLGT/FLRT inserts
Inch

Exclusive TOOL-FLO design!

Most holders available with coolant port
(ie: Add CP to end of description)





RH SHOWN

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLSRT-163D	93431616D	FLGT-3R	1.000	1.000	6.000	.440	1.250	TF-72	S-412
FLSLT-163D	93421616D	FLGT-3L	1.000	1.000	6.000	.440	1.250	TF-73	S-412
FLSRT-203D	93432016D	FLGT-3R	1.250	1.250	6.000	.440	1.500	TF-72	S-412
FLSLT-203D	93422016D	FLGT-3L	1.250	1.250	6.000	.440	1.500	TF-73	S-412
FLSRT-164D	93431620D	FLGT-4R	1.000	1.000	6.000	.560	1.250	TF-72	S-412
FLSLT-164D	93421620D	FLGT-4L	1.000	1.000	6.000	.560	1.250	TF-73	S-412
FLSRT-204D	93432020D	FLGT-4R	1.250	1.250	6.000	.560	1.500	TF-72	S-412
FLSLT-204D	93422020D	FLGT-4L	1.250	1.250	6.000	.560	1.500	TF-73	S-412

METRIC

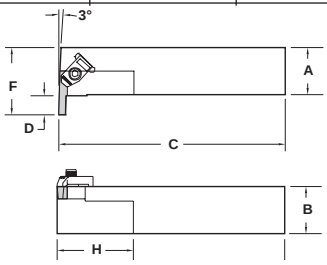
Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLSRT-2525M3	934325M16	FLGT/RT-3R	25,0	25,0	152,4	11,2	32,0	TF-72	S-412
FLSLT-2525M3	934225M16	FLGT/RT-3L	25,0	25,0	152,4	11,2	32,0	TF-73	S-412
FLSRT-3232M3	934332M16	FLGT/RT-3R	32,0	32,0	152,4	11,2	40,0	TF-72	S-412
FLSLT-3232M3	934232M16	FLGT/RT-3L	32,0	32,0	152,4	11,2	40,0	TF-73	S-412
FLSRT-2525M4	934325M20	FLGT/RT-4R	25,0	25,0	152,4	14,2	32,0	TF-72	S-412
FLSLT-2525M4	934225M20	FLGT/RT-4L	25,0	25,0	152,4	14,2	32,0	TF-73	S-412
FLSRT-3232M4	934332M20	FLGT/RT-4R	32,0	32,0	152,4	14,2	40,0	TF-72	S-412
FLSLT-3232M4	934232M20	FLGT/RT-4L	32,0	32,0	152,4	14,2	40,0	TF-73	S-412

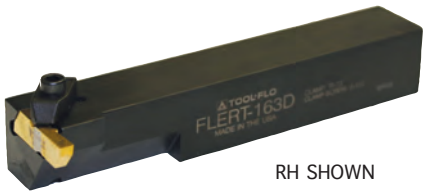
FLER/LT

For double ended FLGT/FLRT inserts

Exclusive TOOL-FLO design!

Most holders available with coolant port
(ie: Add CP to end of description)





RH SHOWN

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLERT-163D	93111616D	FLGT-3L	1.000	1.000	6.000	.440	1.582	TF-72	S-412
FLELT-163D	93011616D	FLGT-3R	1.000	1.000	6.000	.440	1.582	TF-73	S-412
FLERT-203D	93112016D	FLGT-3L	1.250	1.250	6.000	.440	1.832	TF-72	S-412
FLELT-203D	93012016D	FLGT-3R	1.250	1.250	6.000	.440	1.832	TF-73	S-412
FLERT-164D	93111620D	FLGT-4L	1.000	1.000	6.000	.560	1.582	TF-72	S-412
FLELT-164D	93011620D	FLGT-4R	1.000	1.000	6.000	.560	1.582	TF-73	S-412
FLERT-204D	93112020D	FLGT-4L	1.250	1.250	6.000	.560	1.832	TF-72	S-412
FLELT-204D	93012020D	FLGT-4R	1.250	1.250	6.000	.560	1.832	TF-73	S-412

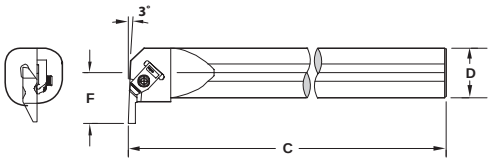
INTERNAL BAR

A_FLER/LT

Exclusive TOOL-FLO design!

For double ended FLGT/FLRT inserts
Inch

Most holders available with coolant port
(ie: Add CP to end of description)



RH SHOWN

Description	EDP Code	Insert	D	C	F	Min. Bore	Clamp	Clamp Screw
A20-FLERT3	96552016	FLGT/RT-3L	1.250	6.000	1.082	1.807	TF-72	S-412
A20-FLELT3	96452016	FLGT/RT-3R	1.250	6.000	1.082	1.807	TF-73	S-412
A24-FLERT3	96552416	FLGT/RT-3L	1.500	6.000	1.207	2.057	TF-72	S-412
A24-FLELT3	96452416	FLGT/RT-3R	1.500	6.000	1.207	2.057	TF-73	S-412
A28-FLERT4	96552820	FLGT/RT-4L	1.750	6.000	1.500	2.475	TF-72	S-412
A28-FLELT4	96452820	FLGT/RT-4R	1.750	6.000	1.500	2.475	TF-73	S-412

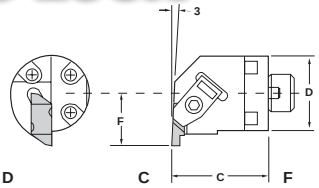
METRIC

Description	EDP Code	Insert	D	C	F	Min. Bore	Clamp	Clamp Screw
A32M-FLERT3	96442016	FLGT/RT-3L	32,0	152,4	27,48	46,0	TF-72	S-412
A32M-FLELT3	96432016	FLGT/RT-3R	32,0	152,4	27,48	46,0	TF-73	S-412
A40M-FLERT3	96442416	FLGT/RT-3L	40,0	152,4	31,60	54,15	TF-72	S-412
A40M-FLELT3	96432416	FLGT/RT-3R	40,0	152,4	31,60	54,15	TF-73	S-412
A50M-FLERT4	96442820	FLGT/RT-4L	50,0	152,4	40,87	68,43	TF-72	S-412
A50M-FLELT4	96432820	FLGT/RT-4R	50,0	152,4	40,87	68,43	TF-73	S-412

INTERCHANGEABLE HEADS

H-FLER

Threading and Grooving

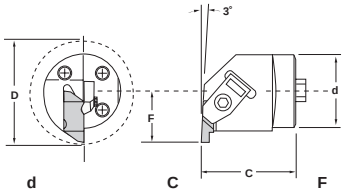


RH SHOWN

Description	EDP Code	Insert	D	C	F	Min. Bore	PARTS Clamp	PARTS Clamp Screw
H20-FLER3W	93502016W	FL-3L	1-1/4	1.625	.875	1.750	TF-73	S-412
H24-FLER3W	93502416W	FL-3L	1-1/2	1.625	1.000	2.000	TF-73	S-412
H28-FLER3W	93502816W	FL-3L	1-3/4	1.625	1.125	2.250	TF-73	S-412
H32-FLER3W	93503216W	FL-3L	2	1.625	1.250	2.500	TF-73	S-412
H40-FLER3W	93504016W	FL-3L	2-1/2	1.625	1.500	3.000	TF-73	S-412
H28-FLER4W	93502820W	FL-4L	1-3/4	1.625	1.250	2.500	TF-73	S-412
H32-FLER4W	93503220W	FL-4L	2	1.625	1.375	2.750	TF-73	S-412
H36-FLER4W	93503620W	FL-4L	2-1/4	1.625	1.500	3.000	TF-73	S-412
H40-FLER4W	93504020W	FL-4L	2-1/2	1.625	1.625	3.250	TF-73	S-412
H28-FLER6W	93502828W	FL-6L	1-3/4	1.625	1.250	2.500	TF-121	S-412
H32-FLER6W	93503228W	FL-6L	2	1.625	1.375	2.750	TF-121	S-412
H40-FLER6W	93504028W	FL-6L	2-1/2	1.625	1.625	3.250	TF-121	S-412

*Left hand quoted on request

HS-FLEL/R*



RH SHOWN

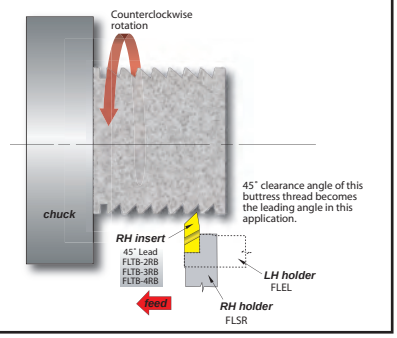
Description	EDP Code	Insert	d	C	F	Min. Bore (D)	PARTS Clamp	PARTS Clamp Screw
HS32-FLER3W	9IHS65032M16	FL-3L	1.25	1.34	0.866	1.730	TF-73	S-412
HS40-FLER3W	9IHS65040M16	FL-3L	1.57	1.58	1.102	2.210	TF-73	S-412
HS50-FLER3W	9IHS65050M16	FL-3L	1.97	1.65	1.380	2.760	TF-73	S-412
HS60-FLER3W	9IHS65060M16	FL-3L	2.36	1.75	1.740	3.480	TF-73	S-412
HS50-FLER4W	9IHS65050M20	FL-4L	1.97	1.65	1.380	2.760	TF-73	S-412
HS60-FLER4W	9IHS65060M20	FL-4L	2.36	1.75	1.740	3.480	TF-73	S-412

*Left hand quoted on request.

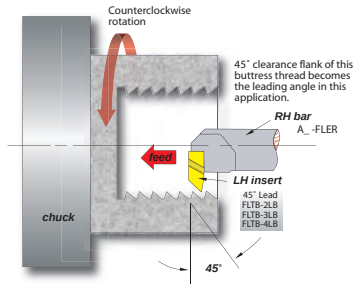
American Standard Buttress Thread Designations

- When only the designation BUTT is used, the thread is a “pull” type buttress (external thread pulls) with the clearance flank (45˚) leading and the pressure flank (7˚) following.
- When the designation PUSH-BUTT is used, the thread is a push type buttress (external thread pushes) with the load flank (7˚) leading and the 45˚ clearance flank following.
- Whenever possible this description should be confirmed by a simplified view showing thread angles on the drawing of the product that has the buttress thread.
- Always remember that the position of your holder and direction of your feed will determine the lead angle on the insert.

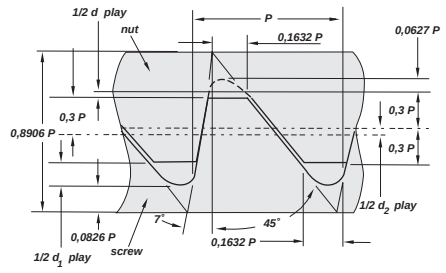
external buttress (45˚ lead) thread



internal buttress (45˚ lead) thread



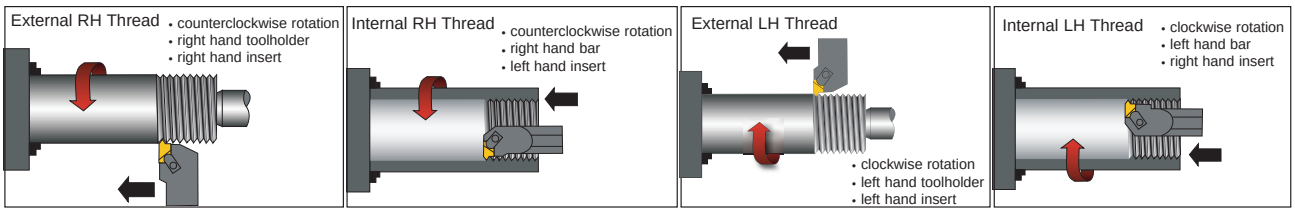
AMERICAN STANDARD BUTTRESS



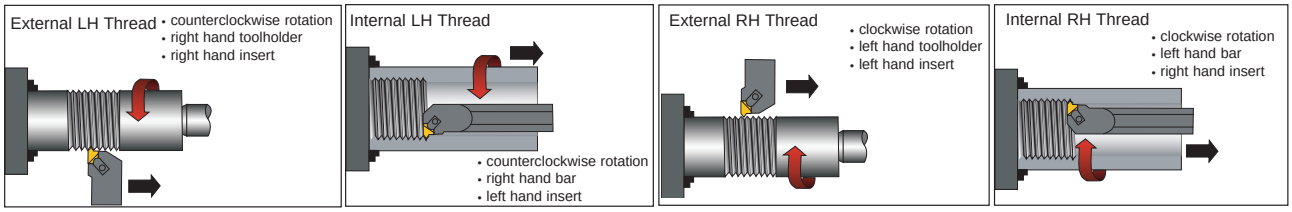
Use: fittings and pipe couplings

For insert with this form see pages

Feed direction towards the chuck



Feed direction towards the tailstock



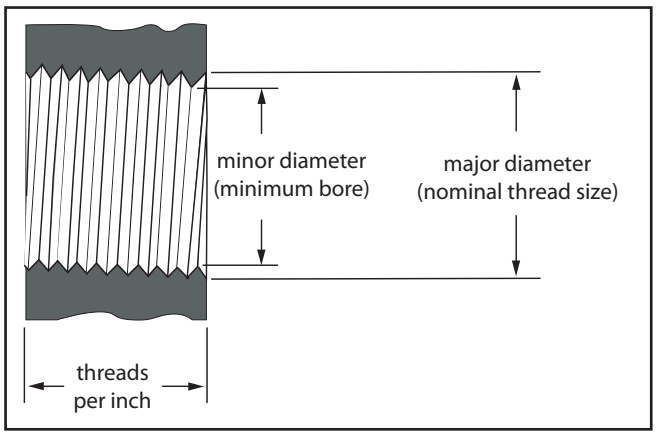
Threading Limits with Standard Flo-Lock Inserts

The following charts list the largest pitch that can be applied on internal applications for Acme and V-Threading Flo-Lock inserts in sizes 2,3, 4 and 6. For Buttress threads, please see previous page.

60˚ V-Threading Limits

FLT-2 Inserts	internal threading limitations	
threads per inch	nominal thread size	minimum minor diameter
6	1-7/8	1.695
7	1-3/4	1.595
8	1-5/8	1.490
9	1-9/16	1.442
10	1-1/2	1.392
11	1-7/16	1.339
12	1-3/8	1.285
13	1-5/16	1.229
14	1-1/4	1.173
16	1-1/4	1.182
18	1-1/8	1.065
20	1-1/8	1.071
24	1-1/16	1.017

* 24 TPI and finer can be cut with a #2 series inseret provided thart the minor diameter is 1.000 or larger.



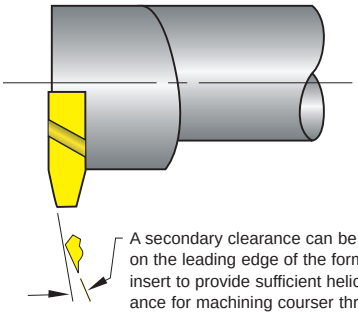
FLT-3 & 4 Inserts	internal threading limitations	
threads per inch	nominal thread size	minimum minor diameter
4**	3	2.729
4-1/2**	2-7/8	2.634
5	2-3/4	2.534
6	2-1/2	2.320
7	2-1/4	2.095
8	2	1.865
9	1-15/16	1.817
10	1-7/8	1.767
11	1-13/16	1.714
12	1-3/4	1.660
13	1-5/8	1.542
14	1-9/16	1.485
16*	1-7/16	1.370

*16 pitch V threads and finer can be cut provided the minor diameter is 1.370 or larger.
**FLT-4 only.

Acme Threading Limits

FLA-2	internal threading limitations	
threads per inch	nominal thread size	minimum minor diameter
6	2-1/2	2.333
8	2-1/4	2.125
10	2	1.900
12	1-3/4	1.667
14	1-5/8	1.554
16*	1-1/2	1.438

*16 pitch acme threads and finer can be cut provided the minor diameter is 1.438 or larger.



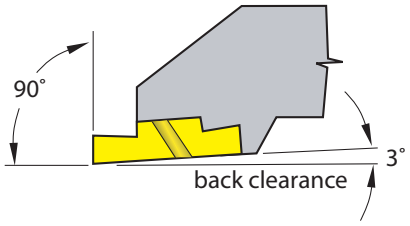
A secondary clearance can be ground on the leading edge of the form of the insert to provide sufficient helical clearance for machining courser threads and multiple start threads.

Modified standard inserts may be produced for special threads or ones not listed on the charts shown. Quoted upon request.

FLA-3, 4 & 6	internal threading limitations	
threads per inch	nominal thread size	minimum minor diameter
2**	5	4.500
2-1/2**	4-1/2	4.100
3**	4	3.665
4	3-1/2	3.250
5	3	2.800
6	2-1/2	2.333
8	2-1/4	2.125
10	2	1.900
12	1-3/4	1.667
14	1-5/8	1.554
16*	1-1/2	1.438

*16 pitch acme threads and finer can be cut provided the minor diameter is 1.438 or larger.
**FLA-6 only.

NOTE: Positive rake acme inserts are recommended for stainless steels and high-temp alloy applications. Quoted upon request.



NOTE: Tool holders are designed to locate the insert at a 3˚ angle to provide back clearance down the side.

FLTB-2A & 2B	internal threading limitations	
threads per inch	nominal thread size	minimum minor diameter
8	1-3/4	1.600
10	1-5/8	1.505
12	1-1/2	1.400
16	1-1/4	1.175
20	1-1/16	1.002

FLTB-3A & 4A	internal threading limitations	
threads per inch	nominal thread size	minimum minor diameter
4*	2-1/2	2.200
5	2-1/4	2.010
6	2	1.800
8	1-3/4	1.600
10	1-5/8	1.505
12**	1-1/2	1.400

* FLTB-4A insert only
** Sixteen or 20 threads per inch can be cut providing minor diameter is 1.375 or larger.

FLTB-3B & 4B	internal threading limitations	
threads per inch	nominal thread size	minimum minor diameter
4	*2-7/8	2.575
5	2-3/4	2.510
6	2-3/8	1.175
8	2-1/8	1.975
10	1-7/8	1.755
12	1-5/8	1.525
16	1-1/2	1.407
20	1-7/16	1.378

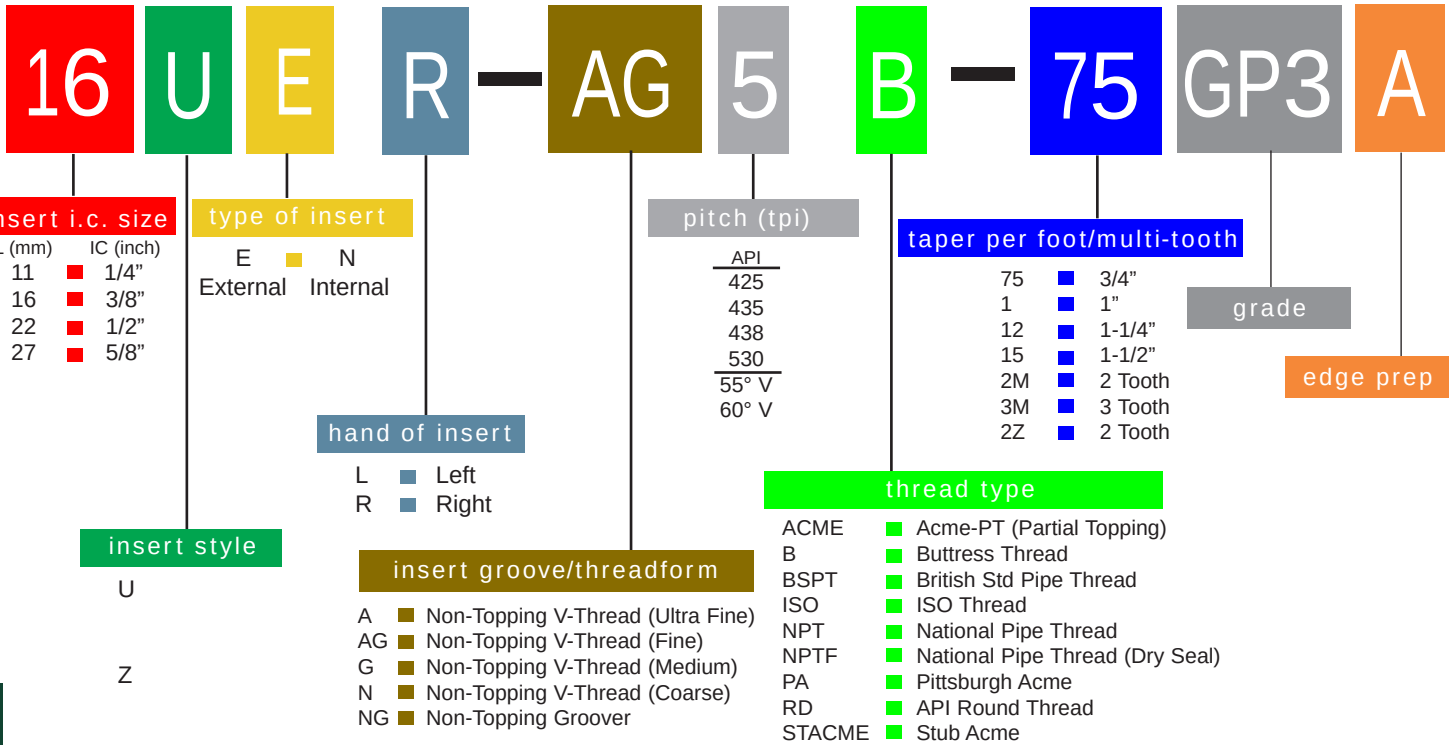
* FLTB-4B insert only

TOOL-FLO

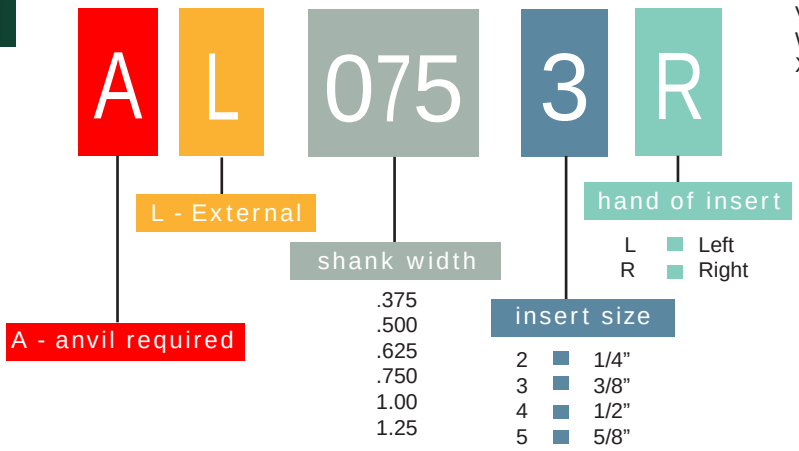
LAYDOWN

Threading & Grooving

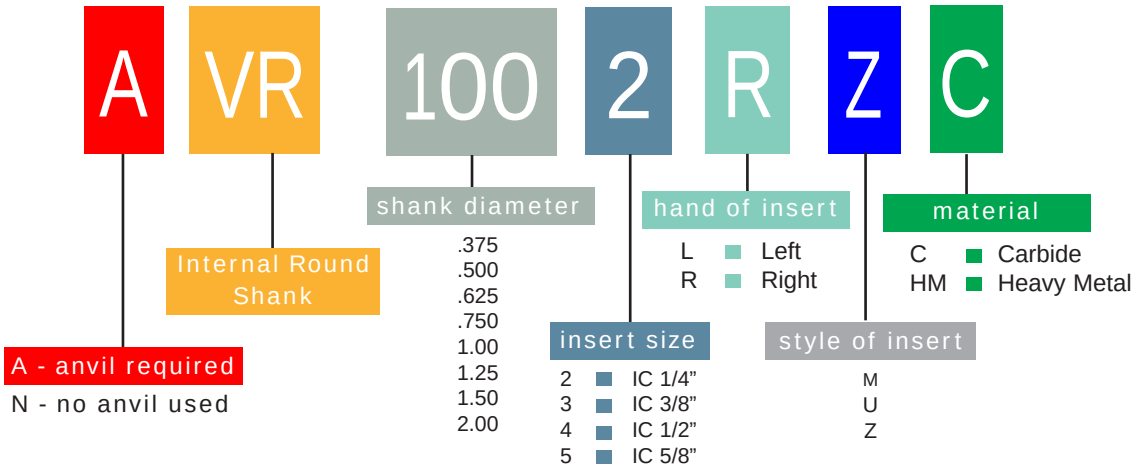
LT Style Laydown Insert Nomenclature Chart



External Toolholder Nomenclature Chart

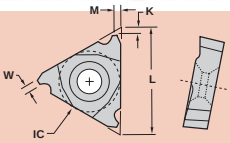


Internal Bar Nomenclature Chart



ACME

16, 22 & 27NR/ER - 3/8", 1/2", 5/8" I.C.

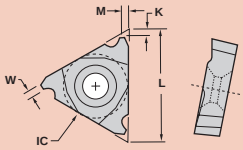


EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	W	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 16ACME-PT	5006216PT	16	.0206	3/8	.63	.04	.04	●	●	●	●	●
16EL 16ACME-PT	5046216PT	16	.0206	3/8	.63	.04	.04	●	●			
16ER 14ACME-PT	5006214PT	14	.0239	3/8	.63	.05	.04	●	●	●	●	●
16EL 14ACME-PT	5046214PT	14	.0239	3/8	.63	.05	.04	●	●			
16ER 12ACME-PT	5006212PT	12	.0283	3/8	.63	.05	.04	●	●	●	●	●
16EL 12ACME-PT	5046212PT	12	.0283	3/8	.63	.05	.04	●	●			
16ER 10ACME-PT	5006210PT	10	.0319	3/8	.63	.06	.05	●	●	●	●	●
16EL 10ACME-PT	5046210PT	10	.0319	3/8	.63	.06	.05	●	●			
16ER 8ACME-PT	5006208PT	8	.0411	3/8	.63	.06	.06	●	●	●	●	●
16EL 8ACME-PT	5046208PT	8	.0411	3/8	.63	.06	.06	●	●			
22ER 6ACME-PT	5106206PT	6	.0566	1/2	.87	.08	.07	●	●	●	●	●
22EL 6ACME-PT	5146206PT	6	.0566	1/2	.87	.08	.07		●			
22ER 5ACME-PT	5106205PT	5	.0689	1/2	.87	.09	.08	●	●	●	●	●
22EL 5ACME-PT	5146205PT	5	.0689	1/2	.87	.09	.08		●			
27ER 4ACME-PT	5206204PT	4	.0875	5/8	1.06	.11	.09	●	●	●	●	●
27EL 4ACME-PT	5246204PT	4	.0875	5/8	1.06	.11	.09	●				
16NR 16ACME-PT	5026216PT	16	.0206	3/8	.63	.04	.04	●	●	●	●	●
16NL 16ACME-PT	5066216PT	16	.0206	3/8	.63	.04	.04	●	●			
16NR 14ACME-PT	5026214PT	14	.0239	3/8	.63	.05	.04	●	●	●	●	●
16NL 14ACME-PT	5066214PT	14	.0239	3/8	.63	.05	.04					
16NR 12ACME-PT	5026212PT	12	.0283	3/8	.63	.05	.05	●	●	●	●	●
16NL 12ACME-PT	5066212PT	12	.0283	3/8	.63	.05	.05	●				
16NR 10ACME-PT	5026210PT	10	.0319	3/8	.63	.05	.05	●	●	●	●	●
16NL 10ACME-PT	5066210PT	10	.0319	3/8	.63	.05	.05	●				
16NR 8ACME-PT	5026208PT	8	.0411	3/8	.63	.06	.06	●	●	●	●	●
16NL 8ACME-PT	5066208PT	8	.0411	3/8	.63	.06	.06	●				
22NR 6ACME-PT	5126206PT	6	.0566	1/2	.87	.08	.07	●	●	●	●	●
22NL 6ACME-PT	5166206PT	6	.0566	1/2	.87	.08	.07		●			
22NR 5ACME-PT	5126205PT	5	.0689	1/2	.87	.09	.08	●	●	●	●	●
22NL 5ACME-PT	5166205PT	5	.0689	1/2	.87	.09	.08		●			
27NR 4ACME-PT	5226204PT	4	.0875	5/8	1.06	.10	.09	●	●	●	●	●
27NL 4ACME-PT	5266204PT	4	.0875	5/8	1.06	.10	.09	●				

ACME STUB

16, 22 & 27NR/ER - 3/8", 1/2", 5/8" I.C.



EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	W	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 16STACME-PT	5006416PT	16	.0238	3/8	.63	.04	.04	●	●	●	●	●
16EL 16STACME-PT	5046416PT	16	.0238	3/8	.63	.04	.04	●	●			
16ER 14STACME-PT	5006414PT	14	.0276	3/8	.63	.04	.04	●	●	●	●	●
16EL 14STACME-PT	5046414PT	14	.0276	3/8	.63	.04	.04	●	●			
16ER 12STACME-PT	5006412PT	12	.0326	3/8	.63	.05	.05	●	●	●	●	●
16EL 12STACME-PT	5046412PT	12	.0326	3/8	.63	.05	.05	●	●			
16ER 10STACME-PT	5006410PT	10	.0370	3/8	.63	.05	.05	●	●	●	●	●
16EL 10STACME-PT	5046410PT	10	.0370	3/8	.63	.05	.05	●	●			
16ER 8STACME-PT	5006408PT	8	.0476	3/8	.63	.06	.06	●	●	●	●	●
16EL 8STACME-PT	5046408PT	8	.0476	3/8	.63	.06	.06	●				
22ER 6STACME-PT	5106406PT	6	.0652	1/2	.87	.07	.07	●	●	●	●	●
22EL 6STACME-PT	5146406PT	6	.0652	1/2	.87	.07	.07		●			
22ER 5STACME-PT	5106405PT	5	.0793	1/2	.87	.08	.08	●	●	●	●	●
22EL 5STACME-PT	5146405PT	5	.0793	1/2	.87	.08	.08		●			
27ER 4STACME-PT	5206404PT	4	.1004	5/8	1.06	.09	.11	●	●	●	●	●
27EL 4STACME-PT	5246404PT	4	.1004	5/8	1.06	.09	.11		●			
16NR 16STACME-PT	5026416PT	16	.0238	3/8	.63	.04	.04	●	●	●	●	●
16NL 16STACME-PT	5066416PT	16	.0238	3/8	.63	.04	.04	●	●			
16NR 14STACME-PT	5026414PT	14	.0276	3/8	.63	.04	.04	●	●	●	●	●
16NL 14STACME-PT	5066414PT	14	.0276	3/8	.63	.04	.04					
16NR 12STACME-PT	5026412PT	12	.0326	3/8	.63	.05	.04	●	●	●	●	●
16NL 12STACME-PT	5066412PT	12	.0326	3/8	.63	.05	.04	●				
16NR 10STACME-PT	5026410PT	10	.0370	3/8	.63	.05	.05	●	●	●	●	●
16NL 10STACME-PT	5066410PT	10	.0370	3/8	.63	.05	.05	●				
16NR 8STACME-PT	5026408PT	8	.0476	3/8	.63	.06	.06	●	●	●	●	●
16NL 8STACME-PT	5066408PT	8	.0476	3/8	.63	.06	.06	●				
22NR 6STACME-PT	5126406PT	6	.0652	1/2	.87	.07	.07	●	●	●	●	●
22NL 6STACME-PT	5166406PT	6	.0652	1/2	.87	.07	.07		●			
22NR 5STACME-PT	5126405PT	5	.0793	1/2	.87	.09	.08	●	●	●	●	●
22NL 5STACME-PT	5166405PT	5	.0793	1/2	.87	.09	.08		●			
27NR 4STACME-PT	5226404PT	4	.1004	5/8	1.06	.09	.09	●	●	●	●	●
27NL 4STACME-PT	5266404PT	4	.1004	5/8	1.06	.09	.09	●				

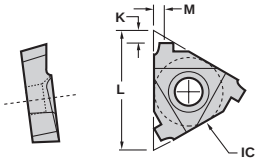
In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	GP22	GP50	AC22	AC3	AC50
Cast Iron	▲		●	●	
Non-Ferrous	▲		●	●	
Stainless/High Temp	▲		●	●	
Steel		▲			●

API BUTTRESS

22NR/ER - 1/2" I.C.

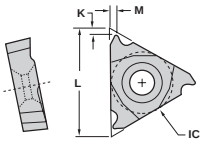


EXT SHOWN
INT OPPOSITE

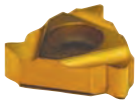
Description	EDP Code	TPI	TPF	IC	L	M	K	Conn. No.	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
22ER 8B75	5102100	8	3/4	1/2	.87	.102	.073	U.S. Improved Buttress	●	●	●	●	●
22ER 5B75	5101600	5	3/4	1/2	.87	.087	.087	4-1/2 - 13-3/8		●	●	●	●
22ER 5B1	5101700	5	1	1/2	.87	.095	.087	16 and larger	●	●	●	●	●
22NR 8B75	5122100	8	3/4	1/2	.87	.102	.073	U.S. Improved Buttress		●	●	●	●
22NR 5B75	5121600	5	3/4	1/2	.87	.081	.087	4-1/2 - 13-3/8		●	●	●	●
22NR 5B1	5121700	5	1	1/2	.87	.081	.090	16 and larger		●	●	●	●

API ROTARY SHOULDER CONNECTION

22 & 27NR/ER - 1/2" & 5/8" I.C.



EXT RH SHOWN
INT OPPOSITE



Description	EDP Code	TPI	TPF	IC	L	M	K	Conn. No.	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
22ER 530	5101300	5	3	1/2	.87	.10	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.	●	●	●	●	●
22ER 4PAC	5101500	4	1-1/2	1/2	.87	.11	.08	American Open Hole		●	●		
22ER 438	5101200	4	3	1/2	.87	.11	.11	NC56 - NC71	●	●	●	●	●
22ER 435	5101100	4	3	1/2	.87	.11	.08	5-1/2, 7-5/8, 8-5/8 Reg.	●	●	●	●	●
22ER 42F*	5101400	4	2	1/2	.87	.11	.08	VO.065*	●	●	●		
22ER 428	5101000	4	2	1/2	.87	.10	.08	NC23-NC50, 2-3/8 - 5-1/2IF	●	●	●	●	●
22ER 425	5100900	4	2	1/2	.87	.10	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.	●	●	●	●	●
22NR 530	5121300	5	3	1/2	.87	.10	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.	●	●	●	●	●
22NR 4PAC	5121500	4	1-1/2	1/2	.87	.11	.08	American Open Hole		●	●		
22NR 438	5121200	4	3	1/2	.87	.11	.11	NC56 - NC71	●	●	●	●	●
22NR 435	5121100	4	3	1/2	.87	.11	.08	5-1/2, 7-5/8, 8-5/8 Reg.	●	●	●	●	●
22NR 42F*	5121400	4	2	1/2	.87	.11	.08	VO.065*	●	●	●		
22NR 428	5121000	4	2	1/2	.87	.10	.08	NC23-NC50, 2-3/8 - 5-1/2IF	●	●	●	●	●
22NR 425	5120900	4	2	1/2	.87	.10	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.	●	●	●	●	●
27ER 530	5201300	5	3	5/8	.126	.11	.07	3-1/2FH, 2-3/8, 4-1/2 Reg.	●	●	●	●	●
27ER 438	5201200	4	3	5/8	.126	.11	.08	NC56 - NC71	●	●	●	●	●
27ER 435	5201100	4	3	5/8	.126	.12	.08	5-1/2, 7-5/8, 8-5/8 Reg.	●	●	●	●	●
27ER 428	5201000	4	2	5/8	.126	.11	.08	NC23-NC50, 2-3/8 - 5-1/2IF	●	●	●	●	●
27ER 425	5200900	4	2	5/8	.126	.12	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.	●	●	●	●	●
27NR 530	5221300	5	3	5/8	.126	.11	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.	●	●	●	●	●
27NR 438	5221200	4	3	5/8	.126	.11	.08	NC56 - NC71	●	●	●	●	●
27NR 435	5221100	4	3	5/8	.126	.12	.08	5-1/2, 7-5/8, 8-5/8 Reg.	●	●	●	●	●
27NR 428	5221000	4	2	5/8	.126	.11	.08	NC23-NC50, 2-3/8 - 5-1/2IF	●	●	●	●	●
27NR 425	5220900	4	2	5/8	.126	.12	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.	●	●	●	●	●

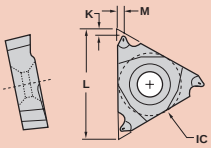
* Obsolescent thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

API ROUND

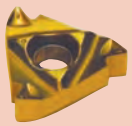
16NR/ER - 3/8" I.C.

w/patented chipbreaker

Exclusive patented chipbreaker!



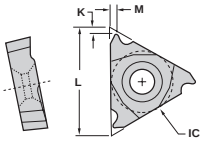
EXT RH SHOWN
INT OPPOSITE



Description	EDP Code	TPI	IC	L	M	K	Uncoated C22	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 8RD-CB	5003200HC	8	3/8	.63	.051	.059		●	●	●	●	●
16ER 10RD-CB	5003400HC	10	3/8	.63	.047	.059		●	●	●	●	●
16NR 8RD-CB	5023200HC	8	3/8	.63	.051	.059		●	●	●	●	●
16NR 10RD-CB	5023400HC	10	3/8	.63	.047	.059		●	●	●	●	●

API ROUND

16 & 22NR/ER - 3/8" & 1/2" I.C.



EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 8RD	5003200	8	3/8	.65	.059	.056	●	●	●	●	●
16ER 10RD	5003400	10	3/8	.65	.059	.056	●	●	●	●	●
22ER 8RD	5103200	8	1/2	.87	.060	.056	●	●	●	●	●
22ER 10RD	5103400	10	1/2	.87	.046	.048	●	●	●	●	●
16NR 8RD	5023200	8	3/8	.65	.059	.056	●	●	●	●	●
16NR 10RD	5023400	10	3/8	.65	.059	.056	●	●	●	●	●
22NR 8RD	5123200	8	1/2	.87	.060	.056	●	●	●	●	●
22NR 10RD	5123400	10	1/2	.87	.046	.048	●	●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

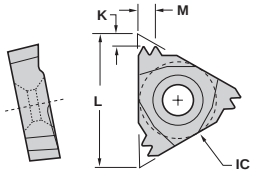
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	GP22	GP50	AC22	AC3	AC50
Cast Iron				●	
Non-Ferrous				●	
Stainless/High Temp				●	
Steel			▲		●

API ROUND

22 & 27NR/ER - 1/2” & 5/8” I.C.

Multi-tooth



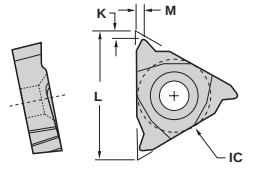
EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
27ER 8RD2M	5203300	8	5/8	1.08	.177	.114		●	●	●	●
22ER 10RD2M	5103500	10	1/2	0.87	.146	.094		●	●	●	●
27NR 8RD2M	5223300	8	5/8	1.08	.177	.114		●	●	●	●
22NR 10RD2M	5123500	10	1/2	0.87	.146	.094		●	●	●	●

API VO.055

American MT, AMT, AMMT*

16 & 22NR/ER - 3/8” & 1/2” I.C.



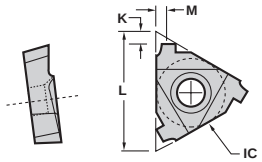
EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 6P VO.055 MT	5004300	6	1-1/2	3/8	.65	.059	.051	NC10-NC16, VO.055, 1, 1-1/2 REG	●	●	●	●	
22ER 6P VO.055 MT	5104300	6	1-1/2	1/2	.87	.072	.060	NC10-NC16, VO.055, 1, 1-1/2 REG		●	●	●	
16NR 6P VO.055 MT	5024300	6	1-1/2	3/8	.65	.059	.051	NC10-NC16, VO.055, 1, 1-1/2 REG	●	●	●	●	
22NR 6P VO.055 MT	5124300	6	1-1/2	1/2	.87	.072	.060	NC10-NC16, VO.055, 1, 1-1/2 REG	●	●	●	●	

* MT is Macaroni Tubing, AMT is American Macaroni Tubing and AMMT is American Mining Macaroni Tubing.

API VAM

22NR/ER - 1/2” I.C.

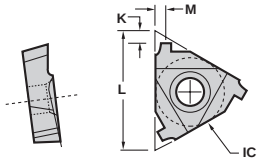


EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
22ER 8VAM	5102500	8	1/2	.87	.059	.059		●	●	●	
22ER 6VAM	5102400	6	1/2	.87	.079	.079		●	●	●	
22ER 5VAM	5102300	5	1/2	.87	.079	.079		●	●	●	
22NR 8VAM	5122500	8	1/2	.87	.059	.059		●	●	●	
22NR 6VAM	5122400	6	1/2	.87	.079	.079		●	●	●	
22NR 5VAM	5122300	5	1/2	.87	.079	.079		●	●	●	

API X-LINE

22NR/ER - 1/2” I.C.



EXT RH SHOWN

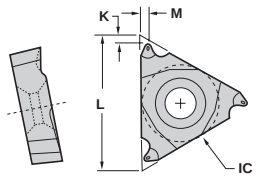
Description	EDP Code	TPI	TPF	IC	L	M	K	Conn. No.	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
22ER 6XL75	5102000	6	3/4	1/2	.87	.075	.078			●	●	●	
22ER 6XL15	5101900	6	1-1/2	1/2	.87	.075	.086	5 - 7-5/8		●	●	●	
22ER 5XL12	5101800	5	1-1/4	1/2	.87	.087	.083	8-5/8 - 10-3/4		●	●	●	
22NR 6XL75	5122000	6	3/4	1/2	.87	.075	.078			●	●	●	
22NR 6XL15	5121900	6	1-1/2	1/2	.87	.075	.086	5 - 7-5/8		●	●	●	
22NR 5XL12	5121800	5	1-1/4	1/2	.87	.087	.083	8-5/8 - 10-3/4		●	●	●	

BSPT

16NR/ER - 3/8” I.C.

55˚ w/patented chipbreaker

Exclusive patented chipbreaker!



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 28BSPT-CB	5004428HC	28	3/8	.63	.031	.028	●	●	●	●	
16ER 19BSPT-CB	5004419HC	19	3/8	.63	.031	.028	●	●	●	●	
16ER 14BSPT-CB	5004414HC	14	3/8	.63	.059	.059	●	●	●	●	
16ER 11BSPT-CB	5004411HC	11	3/8	.63	.059	.059	●	●	●	●	
16NR 28BSPT-CB	5024428HC	28	3/8	.63	.031	.031	●	●	●	●	
16NR 19BSPT-CB	5024419HC	19	3/8	.63	.031	.031	●	●	●	●	
16NR 14BSPT-CB	5024428HC	14	3/8	.63	.031	.031	●	●	●	●	
16NR 11BSPT-CB	5024419HC	11	3/8	.63	.031	.031	●	●	●	●	

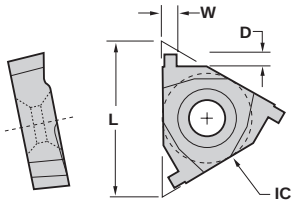
In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	GP22	GP50	AC22	AC3	AC50
Cast Iron				●	
Non-Ferrous				●	
Stainless/High Temp				●	
Steel			▲		●

GROOVING

16NR/ER - 3/8” I.C.



EXT RH SHOWN

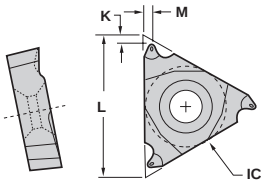
Description	EDP Code	IC	W	D	L	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER NG W.031	5007431	3/8	.031	.050	.63	●	●			●
16EL NG W.031	5047431	3/8	.031	.050	.63	●				
16ER NG W.047	5007447	3/8	.047	.070	.63	●	●			●
16EL NG W.047	5047447	3/8	.047	.070	.63					
16ER NG W.062	5007462	3/8	.062	.080	.63	●	●			●
16EL NG W.062	5047462	3/8	.062	.080	.63	●				
16ER NG W.093	5007493	3/8	.093	.070	.63	●	●			●
16EL NG W.093	5047493	3/8	.093	.070	.63	●				
16ER NG W.125	5007625	3/8	.125	.045	.63	●	●			●
16EL NG W.125	5047625	3/8	.125	.045	.63	●				
16NR NG W.031	5027431	3/8	.031	.050	.63	●	●			●
16NL NG W.031	5067431	3/8	.031	.050	.63	●				
16NR NG W.047	5027447	3/8	.047	.070	.63	●	●			●
16NL NG W.047	5067447	3/8	.047	.070	.63					
16NR NG W.062	5027462	3/8	.062	.080	.63	●	●			●
16NL NG W.062	5067462	3/8	.062	.080	.63	●				
16NR NG W.093	5027493	3/8	.093	.070	.63	●	●			●
16NL NG W.093	5067493	3/8	.093	.070	.63					
16NR NG W.125	5027625	3/8	.125	.045	.63		●			●
16NL NG W.125	5067625	3/8	.125	.045	.63	●				

ISO

16NR/ER - 3/8” I.C.

w/patented chipbreaker

Exclusive patented chipbreaker!



EXT RH SHOWN

Description	EDP Code	Pitch	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16NR 0.75ISO-CB	50242075HC	0,75	3/8	.63	.02	.04	●	●	●	●	●
16NR 1.0ISO-CB	5024201HC	1,00	3/8	.63	.03	.03	●	●	●	●	●
16NR 1.25ISO-CB	502420125HC	1,25	3/8	.63	.03	.03	●	●	●	●	●
16NR 1.5ISO-CB	50242015HC	1,50	3/8	.63	.03	.03	●	●	●	●	●
16NR 1.75ISO-CB	502420175HC	1,75	3/8	.63	.06	.04	●	●	●	●	●
16NR 2.0ISO-CB	5024202HC	2,00	3/8	.63	.06	.04	●	●	●	●	●
16NR 2.5ISO-CB	50242025HC	2,50	3/8	.63	.06	.04	●	●	●	●	
16NR 3.0ISO-CB	5024203HC	3,00	3/8	.63	.06	.04	●	●	●	●	●
16ER 0.75ISO-CB	50042075HC	0,75	3/8	.63	.02	.04	●	●	●	●	●
16ER 1.0ISO-CB	5004201HC	1,00	3/8	.63	.03	.03	●	●	●	●	●
16ER 1.25ISO-CB	500420125HC	1,25	3/8	.63	.03	.03	●	●	●	●	●
16ER 1.5ISO-CB	50042015HC	1,50	3/8	.63	.03	.03	●	●	●	●	●
16ER 1.75ISO-CB	500420175HC	1,75	3/8	.63	.06	.04	●	●	●	●	●
16ER 2.0ISO-CB	5004202HC	2,00	3/8	.63	.06	.04	●	●	●	●	●
16ER 2.5ISO-CB	50042025HC	2,50	3/8	.63	.06	.04	●	●	●	●	
16ER 3.0ISO-CB	5004203HC	3,00	3/8	.63	.06	.04	●	●	●	●	●

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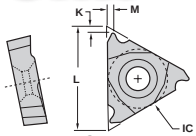
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron				●	
Non-Ferrous				●	
Stainless/High Temp				●	
Steel		▲			●

ISO

11, 16, 22 & 27NR/ER - 1/4", 3/8", 1/2" & 5/8" I.C.



EXT RH SHOWN

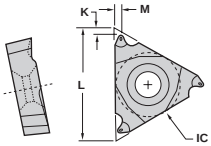
Description	EDP Code	Pitch	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
11NR 0.5ISO	4924205	0,50	1/4	.43	.02	.015	●	●	●		
11NR 0.75ISO	49242075	0,75	1/4	.43	.02	.02	●	●	●		
11NR 1.0ISO	4924210	1,0	1/4	.43	.03	.03	●	●	●		
16NR 1.0ISO	5024201	1,0	3/8	.63	.03	.02	●	●	●	●	●
16NR 1.5ISO	50242015	1,5	3/8	.63	.04	.03	●	●	●	●	●
16NR 2.0ISO	5024202	2,0	3/8	.63	.05	.04	●	●	●	●	●
22NR 3.5ISO	51242035	3,5	1/2	.87	.09	.06	●	●	●	●	
22NR 4.0ISO	5124204	4,0	1/2	.87	.09	.06	●	●		●	
22NR 5.0ISO	5124205	5,0	1/2	.87	.09	.06	●	●		●	
27NR 5.5ISO	52242055	5,5	5/8	1.06	.09	.06	●	●		●	
27NR 6.0ISO	5224206	6,0	5/8	1.06	.10	.07	●	●		●	
11ER 0.5ISO	4904205	0,50	1/4	.43	.02	.02	●	●	●		
11ER 0.75ISO	49042075	0,75	1/4	.43	.02	.02	●	●	●		
11ER 1.0ISO	4904210	1,0	1/4	.43	.03	.02	●	●	●		
16ER 1.0ISO	5004201	1,0	3/8	.63	.03	.03	●	●	●	●	●
16ER 1.5ISO	50042015	1,5	3/8	.63	.04	.03	●	●	●	●	●
16ER 2.0ISO	5004202	2,0	3/8	.63	.05	.04	●	●	●	●	●
22ER 3.5ISO	50042035	3,5	1/2	.87	.09	.06	●	●		●	
22ER 4.0ISO	5104204	4,0	1/2	.87	.09	.07	●	●		●	
22ER 5.0ISO	5104205	5,0	1/2	.87	.10	.07	●	●		●	
27ER 5.5ISO	52042055	5,5	5/8	1.06	.11	.07	●	●		●	
27ER 6.0ISO	5204206	6,0	5/8	1.06	.11	.08	●	●		●	

NPT

16NR/ER - 3/8" I.C.

w/patented chipbreaker

Exclusive patented chipbreaker!

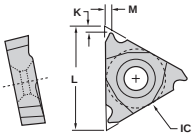


EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	GP22	GP50	AC22	AC3	AC50
16ER 27NPT-CB	5003627HC	27	3/8	.63	.03	.02	●	●	●	●	●
16ER 18NPT-CB	5003618HC	18	3/8	.63	.03	.02	●	●	●	●	●
16ER 14NPT-CB	5003614HC	14	3/8	.63	.06	.04	●	●	●	●	●
16ER 11.5NPT-CB	5003611HC	11.5	3/8	.63	.06	.04	●	●	●	●	●
16ER 8NPT-CB	5003608HC	8	3/8	.63	.06	.04	●	●	●	●	●
16NR 27NPT-CB	5023627HC	27	3/8	.63	.03	.02	●	●	●	●	●
16NR 18NPT-CB	5023618HC	18	3/8	.63	.03	.02	●	●	●	●	●
16NR 14NPT-CB	5023614HC	14	3/8	.63	.06	.04	●	●	●	●	●
16NR 11.5NPT-CB	5023611HC	11.5	3/8	.63	.06	.04	●	●	●	●	●
16NR 8NPT-CB	5023608HC	8	3/8	.63	.06	.04	●	●	●	●	●

NPT

11 & 16NR/ER - 1/4" & 3/8" I.C.



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	GP22	GP50	AC22	AC3	AC50
16ER 27NPT	5003627	27	3/8	.63	.03	.03	●	●	●	●	●
16EL 27NPT	5043627	27	3/8	.63	.03	.03	●				
16ER 18NPT	5003618	18	3/8	.63	.04	.03	●	●	●	●	●
16EL 18NPT	5043618	18	3/8	.63	.04	.03	●				
16ER 14NPT	5003614	14	3/8	.63	.05	.04	●	●	●	●	●
16EL 14NPT	5043614	14	3/8	.63	.05	.04	●				
16ER 11.5NPT	5003611	11.5	3/8	.63	.06	.04	●	●	●	●	●
16EL 11.5NPT	5043611	11.5	3/8	.63	.06	.04			●		
16ER 8NPT	5003608	8	3/8	.63	.07	.05	●	●	●	●	●
16EL 8NPT	5043608	8	3/8	.63	.07	.05	●				
11NR 18NPT	4923618	18	1/4	.43	.04	.03	●	●	●		
11NR 27NPT	4923627	27	1/4	.43	.03	.03	●	●	●		
16NR 27NPT	5023627	27	3/8	.63	.03	.03	●	●	●	●	●
16NL 27NPT	5063627	27	3/8	.63	.03	.03	●				
16NR 18NPT	5023618	18	3/8	.63	.04	.03	●	●	●	●	●
16NL 18NPT	5063618	18	3/8	.63	.04	.03	●				
16NR 14NPT	5023614	14	3/8	.63	.05	.04	●	●	●	●	●
16NL 14NPT	5063614	14	3/8	.63	.05	.04	●				
16NR 11.5NPT	5023611	11.5	3/8	.63	.06	.04	●	●	●	●	●
16NL 11.5NPT	5063611	11.5	3/8	.63	.06	.04	●				
16NR 8NPT	5023608	8	3/8	.63	.06	.05	●	●	●	●	●
16NL 8NPT	5063608	8	3/8	.63	.06	.05	●				

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

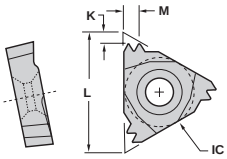
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	GP22	GP50	AC22	AC3	AC50
Cast Iron	▲			●	
Non-Ferrous	▲			●	
Stainless/High Temp	▲			●	
Steel		▲			●

NPT

22 & 27NR/ER - 1/2" & 5/8" I.C.

Multi-tooth

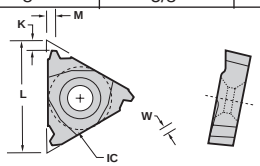


EXT RH SHOWN

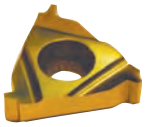
Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
22ER 11.5NPT2M	5103811	11.5	1/2	0.87	.13	.09	●		●	●	●
27ER 11.5NPT3M	5203811	11.5	5/8	1.06	.22	.14		●	●	●	
27ER 8NPT2M	5203808	8	5/8	1.06	.19	.11		●	●	●	●
22NR 11.5NPT2M	5123811	11.5	1/2	0.87	.13	.09		●	●	●	
27NR 11.5NPT3M	5223811	11.5	5/8	1.06	.22	.14		●	●	●	●
27NR 8NPT2M	5223808	8	5/8	1.06	.19	.11		●	●	●	●

TRAPEZOIDAL

16NR/ER - 3/8" I.C.



EXT RH SHOWN



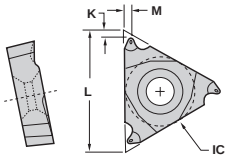
Description	EDP Code	Pitch	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER I.5TR	5007015	1,5	3/8	.63	.04	.04	●	●	●	●	
16ER 2.0TR	5007020	2,0	3/8	.63	.05	.04	●	●	●	●	
16ER 3.0TR	5007030	3,0	3/8	.63	.06	.05	●	●	●	●	
16NR I.5TR	5027015	1,5	3/8	.63	.04	.04	●	●	●	●	
16NR 2.0TR	5027020	2,0	3/8	.63	.05	.04	●	●	●	●	
16NR 3.0TR	5027030	3,0	3/8	.63	.06	.05	●	●	●	●	

NPTF DRY SEAL

16NR/ER - 3/8" I.C.

w/ patented chipbreaker

Exclusive patented chipbreaker!

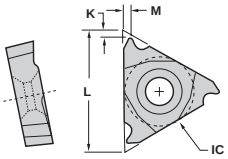


EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 27NPTF-CB	5004027HC	27	3/8	.63	.03	.03	●	●		●	
16ER 18NPTF-CB	5004018HC	18	3/8	.63	.04	.03	●	●		●	
16ER 14NPTF-CB	5004014HC	14	3/8	.63	.05	.04	●	●		●	
16ER 11.5NPTF-CB	5004011HC	11.5	3/8	.63	.06	.04	●	●		●	
16ER 8NPTF-CB	5004008HC	8	3/8	.63	.07	.05	●	●		●	
16NR 27NPTF-CB	5024027HC	27	3/8	.63	.03	.03	●	●		●	
16NR 18NPTF-CB	5024018HC	18	3/8	.63	.03	.02	●	●		●	
16NR 14NPTF-CB	5024014HC	14	3/8	.63	.06	.04	●	●		●	
16NR 11.5NPTF-CB	5024011HC	11.5	3/8	.63	.06	.04	●	●		●	
16NR 8NPTF-CB	5024008HC	8	3/8	.63	.06	.04	●	●		●	

NPTF DRY SEAL

11 & 16NR/NL/ER/EL - 1/4" & 3/8" I.C.



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 27NPTF	5004027	27	3/8	.63	.03	.03	●	●		●	
16EL 27NPTF	5043827	27	3/8	.63	.03	.03	●				
16ER 18NPTF	5004018	18	3/8	.63	.04	.03	●	●		●	
16EL 18NPTF	5043818	18	3/8	.63	.04	.03	●				
16ER 14NPTF	5004014	14	3/8	.63	.05	.04	●	●		●	
16EL 14NPTF	5043814	14	3/8	.63	.05	.04	●				
16ER 11.5NPTF	5004011	11.5	3/8	.63	.06	.04	●	●		●	
16EL 11.5NPTF	5043811	11.5	3/8	.63	.06	.04			●		
16ER 8NPTF	5004008	8	3/8	.63	.07	.05	●	●		●	
16EL 8NPTF	5043808	8	3/8	.63	.07	.05	●				
11NR 27NPTF	4923827	27	1/4	.43	.03	.03	●	●		●	
11NR 18NPTF	4924018	18	1/4	.43	.04	.03	●		●		
16NR 27NPTF	5024027	27	3/8	.63	.03	.03	●	●		●	
16NL 27NPTF	5063827	27	3/8	.63	.03	.03	●				
16NR 18NPTF	5024018	18	3/8	.63	.04	.03	●	●		●	
16NL 18NPTF	5063818	18	3/8	.63	.04	.03	●				
16NR 14NPTF	5024014	14	3/8	.63	.05	.04	●	●		●	
16NL 14NPTF	5063814	14	3/8	.63	.05	.04	●				
16NR 11.5NPTF	5024011	11.5	3/8	.63	.06	.04	●	●		●	
16NL 11.5NPTF	5063811	11.5	3/8	.63	.06	.04					
16NR 8NPTF	5024008	8	3/8	.63	.07	.05	●	●		●	
16NL 8NPTF	5063808	8	3/8	.63	.07	.05	●				

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● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

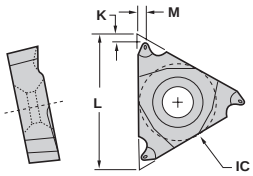
	GP22	GP50	AC22	AC3	AC50
Cast Iron	▲			●	
Non-Ferrous	▲			●	
Stainless/High Temp	▲			●	
Steel		▲			●

UN

16ER - 3/8” I.C.

w/ patented chipbreaker

Exclusive patented chipbreaker!

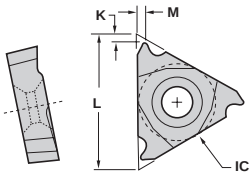


EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 32UN-CB	5006632HC	32	3/8	.63	.01	.05	●	●	●	●	●
16ER 28UN-CB	5006628HC	28	3/8	.63	.03	.03	●	●	●	●	●
16ER 24UN-CB	5006624HC	24	3/8	.63	.03	.03	●	●	●	●	●
16ER 20UN-CB	5006620HC	20	3/8	.63	.03	.03	●	●	●	●	●
16ER 18UN-CB	5006618HC	18	3/8	.63	.03	.03	●	●	●	●	●
16ER 16UN-CB	5006616HC	16	3/8	.63	.03	.03	●	●	●	●	●
16ER 14UN-CB	5006614HC	14	3/8	.63	.06	.05	●	●	●	●	●
16ER 13UN-CB	5006613HC	13	3/8	.63	.06	.05	●	●	●	●	●
16ER 12UN-CB	5006612HC	12	3/8	.63	.06	.05	●	●	●	●	●
16ER 10UN-CB	5006610HC	10	3/8	.63	.06	.05	●	●	●	●	●
16ER 8UN-CB	5006608HC	8	3/8	.63	.06	.05	●	●	●	●	●

UN

16 & 22ER/EL - 3/8” & 1/2” I.C.



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 32UN	5006632	32	3/8	.63	.02	.02	●	●	●	●	●
16EL 32UN	5046632	32	3/8	.63	.02	.02	●				
16ER 28UN	5006628	28	3/8	.63	.03	.02	●	●	●	●	●
16EL 28UN	5046628	28	3/8	.63	.03	.02	●				
16ER 24UN	5006624	24	3/8	.63	.03	.03	●	●	●	●	●
16EL 24UN	5046624	24	3/8	.63	.03	.03	●				
16ER 20UN	5006620	20	3/8	.63	.04	.03	●	●	●	●	●
16EL 20UN	5046620	20	3/8	.63	.04	.03	●				
16ER 18UN	5006618	18	3/8	.63	.04	.03	●	●	●	●	●
16EL 18UN	5046618	18	3/8	.63	.04	.03	●				
16ER 16UN	5006616	16	3/8	.63	.04	.04	●	●	●	●	●
16EL 16UN	5046616	16	3/8	.63	.04	.04		●			
16ER 14UN	5006614	14	3/8	.63	.05	.04	●	●	●	●	●
16EL 14UN	5046614	14	3/8	.63	.05	.04	●				
16ER 13UN	5006613	13	3/8	.63	.05	.04	●	●	●	●	●
16EL 13UN	5046613	13	3/8	.63	.05	.04		●			
16ER 12UN	5006612	12	3/8	.63	.06	.04	●	●	●	●	●
16EL 12UN	5046612	12	3/8	.63	.06	.04		●			
16ER 11UN	5006611	11	3/8	.63	.06	.04	●	●	●	●	●
16EL 11UN	5046611	11	3/8	.63	.06	.04			●		
16ER 10UN	5006610	10	3/8	.63	.06	.04	●	●	●	●	●
16EL 10UN	5046610	10	3/8	.63	.06	.04			●		
16ER 9UN	5006609	9	3/8	.63	.07	.05	●	●	●	●	●
16EL 9UN	5046609	9	3/8	.63	.07	.05	●				
16ER 8UN	5006608	8	3/8	.63	.06	.05	●	●	●	●	●
16EL 8UN	5046608	8	3/8	.63	.06	.05	●				
22ER 7UN	5106607	7	1/2	.87	.09	.06	●	●	●	●	●
22EL 7UN	5146607	7	1/2	.87	.09	.06		●			
22ER 6UN	5106606	6	1/2	.87	.09	.06	●	●	●	●	●
22EL 6UN	5146606	6	1/2	.87	.09	.06		●			
22ER 5UN	5106605	5	1/2	.87	.10	.07	●	●	●	●	●
22EL 5UN	5146605	5	1/2	.87	.10	.07		●			
27ER 4.5UN	52066045	4.5	5/8	1.06	.11	.07	●	●	●	●	●
27EL 4.5UN	52466045	4.5	5/8	1.06	.11	.07	●				
27ER 4UN	5206604	4	5/8	1.06	.12	.08	●	●	●	●	●
27EL 4UN	5246604	4	5/8	1.06	.12	.08	●				

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● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

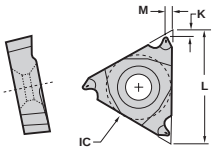
	GP22	GP50	AC22	AC3	AC50
Cast Iron	▲			●	
Non-Ferrous	▲			●	
Stainless/High Temp	▲			●	
Steel		▲			●

UN

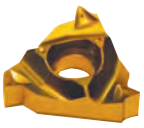
16NR - 3/8" I.C.

w/ patented chipbreaker

Exclusive patented chipbreaker!



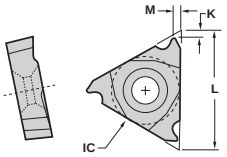
INT RH SHOWN



Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16NR 32UN-CB	5026632HC	32	3/8	.63	.02	.04	●	●	●	●	●
16NR 28UN-CB	5026628HC	28	3/8	.63	.03	.02	●	●	●	●	●
16NR 24UN-CB	5026624HC	24	3/8	.63	.03	.03	●	●	●	●	●
16NR 20UN-CB	5026620HC	20	3/8	.63	.03	.02	●	●	●	●	●
16NR 18UN-CB	5026618HC	18	3/8	.63	.03	.02	●	●	●	●	●
16NR 16UN-CB	5026616HC	16	3/8	.63	.03	.03	●	●	●	●	●
16NR 14UN-CB	5026614HC	14	3/8	.63	.05	.04	●	●	●	●	●
16NR 13UN-CB	5026613HC	13	3/8	.63	.05	.04	●	●	●	●	●
16NR 12UN-CB	5026612HC	12	3/8	.63	.05	.04	●	●	●	●	●
16NR 10UN-CB	5026610HC	10	3/8	.63	.05	.04	●	●	●	●	●
16NR 8UN-CB	5026608HC	8	3/8	.63	.05	.04	●	●	●	●	●

UN

11, 16, 22 & 27NR - 1/4", 3/8", 1/2" & 5/8" I.C.



INT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
11NR 32UN	4926632	32	1/4	.43	.02	.02	●	●	●		
11NR 28UN	4926628	28	1/4	.43	.03	.02	●	●	●		
11NR 24UN	4926624	24	1/4	.43	.03	.03	●	●	●		
11NR 20UN	4926620	20	1/4	.43	.04	.03	●	●	●		
11NR 18UN	4926618	18	1/4	.43	.04	.03	●	●	●		
16NR 32UN	5026632	32	3/8	.63	.02	.02	●	●	●	●	●
16NL 32UN	5066632	32	3/8	.63	.02	.02	●				
16NR 28UN	5026628	28	3/8	.63	.03	.02	●	●	●	●	●
16NL 28UN	5066628	28	3/8	.63	.03	.02	●				
16NR 24UN	5026624	24	3/8	.63	.03	.03	●	●	●	●	●
16NL 24UN	5066624	24	3/8	.63	.03	.03	●				
16NR 20UN	5026620	20	3/8	.63	.04	.03	●	●	●	●	●
16NL 20UN	5066620	20	3/8	.63	.04	.03	●				
16NR 18UN	5026618	18	3/8	.63	.04	.03	●	●	●	●	●
16NL 18UN	5066618	18	3/8	.63	.04	.03	●				
16NR 16UN	5026616	16	3/8	.63	.04	.04	●	●	●	●	●
16NL 16UN	5066616	16	3/8	.63	.04	.04	●				
16NR 14UN	5026614	14	3/8	.63	.05	.04	●	●	●	●	●
16NL 14UN	5066614	14	3/8	.63	.05	.04					
16NR 13UN	5026613	13	3/8	.63	.05	.04	●	●	●	●	●
16NL 13UN	5066613	13	3/8	.63	.05	.04	●				
16NR 12UN	5026612	12	3/8	.63	.06	.04	●	●	●	●	●
16NL 12UN	5066612	12	3/8	.63	.06	.04	●				
16NR 11UN	5026611	11	3/8	.63	.06	.04	●	●	●	●	●
16NL 11UN	5066611	11	3/8	.63	.06	.04					
16NR 10UN	5026610	10	3/8	.63	.06	.04	●	●	●	●	●
16NL 10UN	5066610	10	3/8	.63	.06	.04		●			
16NR 9UN	5026609	9	3/8	.63	.07	.05	●	●	●	●	●
16NL 9UN	5066609	9	3/8	.63	.07	.05	●				
16NR 8UN	5026608	8	3/8	.63	.06	.04	●	●	●	●	●
16NL 8UN	5066608	8	3/8	.63	.06	.04					●
22NR 7UN	5126607	7	1/2	.87	.09	.06	●	●	●	●	●
22NL 7UN	5166607	7	1/2	.87	.09	.06		●			
22NR 6UN	5126606	6	1/2	.87	.09	.06	●	●	●	●	●
22NL 6UN	5166606	6	1/2	.87	.09	.06		●			
22NR 5UN	5126605	5	1/2	.87	.09	.06	●	●	●	●	●
22NL 5UN	5166605	5	1/2	.87	.09	.06		●			
27NR 4.5UN	52266045	4.5	5/8	1.06	.09	.07	●	●	●	●	●
27NL 4.5UN	52666045	4.5	5/8	1.06	.09	.07		●			
27NR 4UN	5226604	4	5/8	1.06	.11	.07	●	●	●	●	●
27NL 4UN	5266604	4	5/8	1.06	.11	.07		●			

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

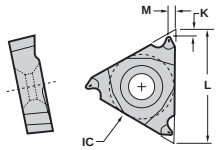
	GP22	GP50	AC22	AC3	AC50
Cast Iron	▲			●	
Non-Ferrous	▲			●	
Stainless/High Temp	▲			●	
Steel		▲			●

UNJ

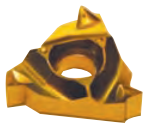
16NR - 3/8" I.C.

w/ patented chipbreaker

Exclusive patented chipbreaker!



INT RH SHOWN



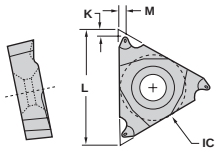
Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16NR 32UNJ-CB	5026832HC	32	3/8	.63	.02	.04		●		●	
16NR 28UNJ-CB	5026828HC	28	3/8	.63	.03	.02		●		●	
16NR 24UNJ-CB	5026824HC	24	3/8	.63	.03	.02		●		●	
16NR 20UNJ-CB	5026820HC	20	3/8	.63	.03	.02		●	●	●	
16NR 18UNJ-CB	5026818HC	18	3/8	.63	.03	.02	●	●	●	●	
16NR 16UNJ-CB	5026816HC	16	3/8	.63	.03	.02		●	●	●	
16NR 14UNJ-CB	5026814HC	14	3/8	.63	.06	.04	●	●		●	
16NR 12UNJ-CB	5026812HC	12	3/8	.63	.06	.04		●	●	●	
16NR 10UNJ-CB	5026810HC	10	3/8	.63	.06	.04		●		●	

UNJ

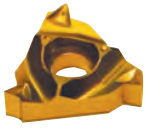
16ER - 3/8" I.C.

w/ patented chipbreaker

Exclusive patented chipbreaker!



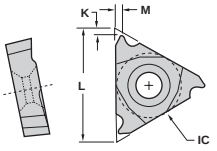
EXT RH SHOWN



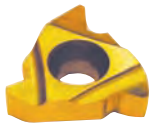
Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 32UNJ-CB	5006832HC	32	3/8	.63	.02	.05	●	●	●	●	
16ER 28UNJ-CB	5006828HC	28	3/8	.63	.03	.03	●	●	●	●	
16ER 24UNJ-CB	5006824HC	24	3/8	.63	.03	.03	●	●	●	●	
16ER 20UNJ-CB	5006820HC	20	3/8	.63	.03	.03	●	●	●	●	
16ER 18UNJ-CB	5006818HC	18	3/8	.63	.03	.03	●	●	●	●	
16ER 16UNJ-CB	5006816HC	16	3/8	.63	.03	.03	●	●	●	●	
16ER 14UNJ-CB	5006814HC	14	3/8	.63	.06	.05	●	●	●	●	
16ER 12UNJ-CB	5006812HC	12	3/8	.63	.06	.05	●	●	●	●	
16ER 10UNJ-CB	5006810HC	10	3/8	.63	.06	.05	●	●	●	●	

UNJ

16ER - 3/8" I.C.



EXT RH SHOWN



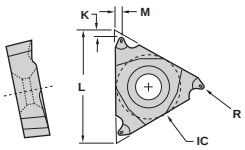
Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 32UNJ	5006832	32	3/8	.63	.03	.02	●	●	●	●	
16ER 28UNJ	5006828	28	3/8	.63	.03	.03	●	●	●	●	
16ER 24UNJ	5006824	24	3/8	.63	.03	.03	●	●	●	●	
16ER 20UNJ	5006820	20	3/8	.63	.04	.03	●	●	●	●	
16ER 18UNJ	5006818	18	3/8	.63	.04	.03	●	●	●	●	
16ER 16UNJ	5006816	16	3/8	.63	.04	.04	●	●	●	●	
16ER 14UNJ	5006814	14	3/8	.63	.05	.04	●	●	●	●	
16ER 12UNJ	5006812	12	3/8	.63	.05	.04	●	●	●	●	
16ER 10UNJ	5006810	10	3/8	.63	.06	.05	●	●	●	●	
16ER 8UNJ	5006808	8	3/8	.63	.06	.05	●	●	●	●	

V THREADING - 60°

16ER/NR - 3/8" I.C.

w/ patented chipbreaker

Exclusive patented chipbreaker!



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	R	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER A60-CB	5004600HC	16-48	3/8	.63	.03	.02	.003	●	●	●	●	●
16ER AG60-CB	5004800HC	8-48	3/8	.63	.06	.04	.003	●	●	●	●	●
16ER G60-CB	5005000HC	8-14	3/8	.63	.06	.04	.007	●	●	●	●	●
16NR A60-CB	5024600HC	16-48	3/8	.63	.03	.03	.002	●	●	●	●	●
16NR AG60-CB	5024800HC	8-48	3/8	.63	.06	.04	.002	●	●	●	●	●
16NR G60-CB	5025000HC	8-14	3/8	.63	.06	.04	.007	●	●	●	●	●

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● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

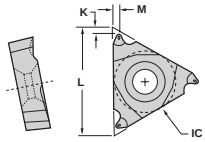
Cast Iron		▲		●	
Non-Ferrous		▲		●	
Stainless/High Temp		▲		●	
Steel			▲		●

V THREADING - 55°

16ER/NR - 3/8" I.C.

w/ patented chipbreaker

Exclusive patented chipbreaker!

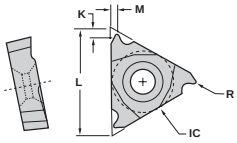


EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	R	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER A55-CB	5005400HC	16-48	3/8	.63	.03	.02	.002	●	●	●	●	
16ER AG55-CB	5005600HC	8-48	3/8	.63	.06	.04	.003	●	●	●	●	
16ER G55-CB	5005800HC	8-14	3/8	.63	.06	.04	.008	●	●	●	●	
16NR A55-CB	5025400HC	16-48	3/8	.63	.03	.02	.002	●	●	●	●	
16NR AG55-CB	5025600HC	8-48	3/8	.63	.06	.04	.003	●	●	●	●	●
16NR G55-CB	5025800HC	8-14	3/8	.63	.06	.04	.008	●	●	●	●	●

V THREADING - 55° & 60°

11, 16 & 22ER/NR - 1/4", 3/8" & 1/2" I.C.



EXT RH SHOWN

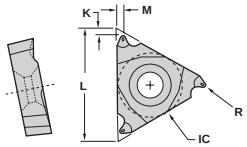
Description	EDP Code	TPI	IC	L	M	K	R	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER A60	5004600	16-48	3/8	.63	.04	.03	.003	●	●	●	●	●
16EL A60	5044600	16-48	3/8	.63	.04	.03	.003			●	●	
16ER AG60	5004800	8-48	3/8	.63	.07	.05	.003	●	●	●	●	●
16EL AG60	5044800	8-48	3/8	.63	.07	.05	.003	●	●	●	●	
16ER G60	5005000	8-14	3/8	.63	.07	.05	.007	●	●	●	●	●
16EL G60	5045000	8-14	3/8	.63	.07	.05	.007			●	●	
22ER N60	5105200	5-7	1/2	.87	.10	.07	.016	●	●	●	●	●
22EL N60	5145200	5-7	1/2	.87	.10	.07	.016		●	●	●	
11NR A55	4925400	16-48	1/4	.43	.04	.03	.003	●	●	●	●	●
11NR A60	4924600	16-48	1/4	.43	.04	.03	.003	●		●	●	
16NR A60	5024600	16-48	3/8	.63	.04	.03	.003	●	●	●	●	●
16NL A60	5064600	16-48	3/8	.63	.04	.03	.003			●	●	
16NR AG60	5024800	8-48	3/8	.63	.07	.05	.003	●	●	●	●	●
16NL AG60	5064800	8-48	3/8	.63	.07	.05	.003			●	●	
16NR G60	5025000	8-14	3/8	.63	.07	.05	.007	●	●	●	●	●
16NL G60	5065000	8-14	3/8	.63	.07	.05	.007			●	●	
22NR N60	5125200	5-7	1/2	.87	.10	.07	.010	●	●	●	●	●
22NL N60	5165200	5-7	1/2	.87	.10	.07	.010			●	●	

WHITWORTH

16ER/NR - 3/8" I.C.

w/ patented chipbreaker

Exclusive patented chipbreaker!



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 36W-CB	5006036HC	36	3/8	.63	.02	.05	●	●		●	
16ER 32W-CB	5006032HC	32	3/8	.63	.02	.05	●	●		●	
16ER 28W-CB	5006028HC	28	3/8	.63	.03	.03	●	●		●	
16ER 24W-CB	5006024HC	24	3/8	.63	.03	.03	●	●		●	
16ER 20W-CB	5006020HC	20	3/8	.63	.03	.03	●	●		●	
16ER 19W-CB	5006019HC	19	3/8	.63	.03	.03	●	●		●	
16ER 18W-CB	5006018HC	18	3/8	.63	.03	.03	●	●		●	
16ER 16W-CB	5006016HC	16	3/8	.63	.03	.03	●	●		●	
16ER 14W-CB	5006014HC	14	3/8	.63	.06	.05	●	●		●	
16ER 12W-CB	5006012HC	12	3/8	.63	.06	.05	●	●	●	●	
16ER 11W-CB	5006011HC	11	3/8	.63	.06	.05	●	●	●	●	
16ER 10W-CB	5006010HC	10	3/8	.63	.06	.05	●	●		●	
16ER 8W-CB	5006008HC	8	3/8	.63	.06	.05	●	●	●	●	
16NR 28W-CB	5026028HC	28	3/8	.63	.03	.03	●	●		●	
16NR 24W-CB	5026024HC	24	3/8	.63	.03	.03	●	●		●	
16NR 20W-CB	5026020HC	20	3/8	.63	.03	.03	●	●	●	●	
16NR 19W-CB	5026019HC	19	3/8	.63	.03	.03	●	●		●	

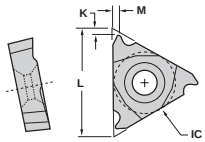
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	GP22	GP50	AC22	AC3	AC50
Cast Iron	▲			●	
Non-Ferrous	▲			●	
Stainless/High Temp	▲			●	
Steel		▲			●

WHITWORTH

16, 22 & 27ER/NR - 3/8", 1/2" & 5/8" I.C.



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	TiN Coated GP22	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
16ER 28W	5006028	28	3/8	.63	.03	.02	●			●	
16ER 20W	5006020	20	3/8	.63	.04	.03	●			●	
16ER 19W	5006019	19	3/8	.63	.04	.03	●			●	
16ER 18W	5006018	18	3/8	.63	.04	.03	●			●	
16ER 16W	5006016	16	3/8	.63	.04	.04	●			●	
16ER 14W	5006014	14	3/8	.63	.05	.04	●			●	
16ER 12W	5006012	12	3/8	.63	.06	.04	●		●	●	
16ER 11W	5006011	11	3/8	.63	.06	.04	●		●	●	
16ER 10W	5006010	10	3/8	.63	.06	.04	●	●		●	
16ER 9W	5006009	9	3/8	.63	.07	.05	●			●	
16ER 8W	5006008	8	3/8	.63	.06	.05	●		●	●	
22ER 7W	5106007	7	1/2	.87	.09	.06	●	●		●	
22ER 6W	5106006	6	1/2	.87	.09	.06	●			●	
22ER 5W	5106005	5	1/2	.87	.09	.07	●	●		●	
27ER 4W	5206004	4	5/8	1.06	.11	.08	●	●	●	●	
16NR 28W	5026028	28	3/8	.63	.03	.02	●			●	
16NR 20W	5026020	20	3/8	.63	.04	.03	●	●	●	●	
16NR 19W	5026019	19	3/8	.63	.04	.03	●	●		●	
16NR 18W	5026018	18	3/8	.63	.04	.03	●	●		●	
16NR 16W	5026016	16	3/8	.63	.04	.04	●	●	●	●	
16NR 14W	5026014	14	3/8	.63	.05	.04	●		●	●	
16NR 12W	5026012	12	3/8	.63	.06	.04	●	●	●	●	
16NR 11W	5026011	11	3/8	.63	.06	.04	●			●	
16NR 10W	5026010	10	3/8	.63	.06	.04	●	●	●	●	
16NR 9W	5026009	9	3/8	.63	.07	.05	●			●	
16NR 8W	5026008	8	3/8	.63	.08	.05	●	●	●	●	
22NR 7W	5126007	7	1/2	.87	.06	.05	●			●	
22NR 6W	5126006	6	1/2	.87	.09	.06	●			●	
22NR 5W	5126005	5	1/2	.87	.09	.07	●			●	
27NR 4W	5226004	4	5/8	1.06	.11	.08	●			●	

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● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	GP22	GP50	AC22	AC3	AC50
Cast Iron	▲			●	
Non-Ferrous	▲			●	
Stainless/High Temp	▲			●	
Steel	▲			●	

EXTERNAL HOLDER

AL

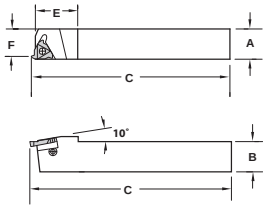
For Threading and Grooving

Inch

Most holders available with coolant port

(ie: Add CP to end of description)

RH Holder uses RH Inserts



RH SHOWN

Description	EDP Code	Insert	A	B	C	E	F*	Insert Screw	Seat Screw	Wrench	Seat
AL0500-3R	916050361	16ER	1/2	1/2	3.27	1.15	.63	SA3	SY3	K3	YE3
AL0500-3L	916050352	16EL	1/2	1/2	3.27	1.15	.63	SA3	SY3	K3	YI3
AL0625-3R	916052361	16ER	5/8	5/8	5	1.15	.63	SA3	SY3	K3	YE3
AL075-3R	916056361	16ER	3/4	3/4	5	1.2	.75	SA3	SY3	K3	YE3
AL075-3L	916056362	16EL	3/4	3/4	5	1.2	.75	SA3	SY3	K3	YI3
AL100-3R	916064361	16ER	1	1	6	1.2	1.0	SA3	SY3	K3	YE3
AL100-3L	916064362	16EL	1	1	6	1.2	1.0	SA3	SY3	K3	YI3
AL100-4R	916064401	22ER	1	1	6	1.42	1.0	SA4	SY4	K4	YE4
AL100-4L	916064402	22EL	1	1	6	1.42	1.0	SA4	SY4	K4	YI4
AL125-4R	916068401	22ER	1-1/4	1-1/4	7	1.42	1.125	SA4	SY4	K4	YE4
AL125-5R	916068441	27ER	1-1/4	1-1/4	7	1.57	1.125	SA5	SY5	K5	YE5
AL125-5L	916068442	27EL	1-1/4	1-1/4	7	1.57	1.125	SA5	SY5	K5	YI5
AL150-5R	916070441	27ER	1-1/2	1-1/2	8	1.57	1.500	SA5	SY5	K5	YE5

METRIC

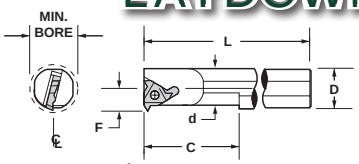
Description	EDP Code	Insert	A	B	C	E	F*	Insert Screw	Seat Screw	Wrench	Seat
AL2020M-3R	916120361	16ER	20,0	20,0	128,6	30,0	20,0	SA3	SY3	K3	YE3
AL2020M-3L	916120362	16EL	20,0	20,0	128,6	30,0	20,0	SA3	SY3	K3	YI3
AL2525M-3R	916125361	16ER	25,0	25,0	150,0	30,0	25,0	SA3	SY3	K3	YE3
AL2525M-3L	916125362	16EL	25,0	25,0	150,0	30,0	25,0	SA3	SY3	K3	YI3
AL3232M-3R	916132361	16ER	32,0	32,0	173,6	30,0	32,0	SA3	SY3	K3	YE3
AL3232M-3L	916132362	16EL	32,0	32,0	173,6	30,0	32,0	SA3	SY3	K3	YI3
AL2525M-4R	916125401	22ER	25,0	25,0	150,0	30,0	25,0	SA3	SY3	K3	YE4
AL2525M-4L	916125402	22EL	25,0	25,0	150,0	30,0	25,0	SA4	SY4	K4	YI4
AL3232M-4R	916132401	22ER	32,0	32,0	173,6	30,0	32,0	SA4	SY4	K4	YE4
AL3232M-4L	916132402	22EL	32,0	32,0	173,6	30,0	32,0	SA4	SY4	K4	YI4
AL3232M-5R	916032441	27ER	32,0	32,0	173,6	30,0	32,0	SA5	SY5	K5	YE5
AL3232M-5L	916032442	27EL	32,0	32,0	173,6	30,0	32,0	SA5	SY5	K5	YI5
AL4040M-5R	916040441	27ER	40,0	40,0	206,6	36,0	38,1	SA5	SY5	K5	YE5

INTERNAL BAR

AVR/NVR

Inch

Most bars available with coolant port
(ie: Add CP to end of description)



RH SHOWN

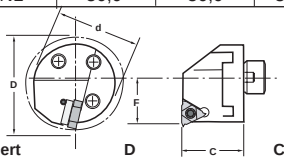
Description	EDP Code	Insert	d	D	F**	L	C	Min. Bore	Insert Screw	Seat Screw & Washer	Wrench	Seat
NVR 375-2R*	962048351	11NR	.375	.620	.260	5	1.00	.470	SN-2T	-	K3	-
NVR 500-2R*	962008511	11NR	.500	.625	.320	5.5	1.25	.630	SN-2T	-	K3	-
NVR 500-3R*	962008361	16NR	.500	.625	.390	6	1.25	.640	SA3	-	K3	-
NVR 625-3R*	962052361	16NR	.625	.750	.450	7	1.50	.750	SA3	-	K3	-
NVR 625-3L*	962052362	16NL	.625	.750	.450	7	1.50	.750	SA3	-	K3	-
AVR 750-3R	918056361	16NR	.750	.750	.510	8	-	1.000	SA3	SY3	K3	YI3
AVR 750-3L	918056362	16NL	.750	.750	.510	8	-	1.000	SA3	SY3	K3	YE3
AVR 100-3R	918064361	16NR	1.000	1.000	.650	8	-	1.200	SA3	SY3	K3	YI3
AVR 100-3L	918064362	16NL	1.000	1.000	.650	8	-	1.200	SA3	SY3	K3	YE3
AVR 125-3R	918068361	16NR	1.250	1.250	.770	10	-	1.420	SA3	SY3	K3	YI3
AVR 125-3L	918068362	16NL	1.250	1.250	.770	10	-	1.420	SA3	SY3	K3	YE3
AVR 150-3R	918072361	16NR	1.500	1.500	.900	12	-	1.650	SA3	SY3	K3	YI3
AVR 150-3L	918072362	16NL	1.500	1.500	.900	12	-	1.650	SA3	SY3	K3	YE3
NVR 750-4R	962056401	22NR	.750	.750	.510	7	-	.950	SA4	-	K4	-
NVR 750-4L	962056402	22NL	.750	.750	.510	7	-	.950	SA4	-	K4	-
AVR 100-4R	918064401	22NR	1.000	1.000	.710	8	-	1.200	SA4	SY4	K4	YI4
AVR 100-4L	918064402	22NL	1.000	1.000	.710	8	-	1.200	SA4	SY4	K4	YE4
AVR 125-4R	918068401	22NR	1.250	1.250	.850	10	-	1.500	SA4	SY4	K4	YI4
AVR 125-4L	918068402	22NL	1.250	1.250	.850	10	-	1.500	SA4	SY4	K4	YE4
AVR 150-4R	918072401	22NR	1.500	1.500	.980	12	-	1.750	SA4	SY4	K4	YI4
AVR 150-4L	918072402	22NL	1.500	1.500	.980	12	-	1.750	SA4	SY4	K4	YE4
AVR 125-5R	918068441	27NR	1.250	1.250	.880	10	-	1.560	SA5	SY5	K4	YI5
AVR 125-5L	918068442	27NL	1.250	1.250	.880	10	-	1.560	SA5	SY5	K4	YE5
AVR 150-5R	918072441	27NR	1.500	1.500	1.000	12	-	1.800	SA5	SY5	K4	YI5
AVR 150-5L	918072442	27NL	1.500	1.500	1.000	12	-	1.800	SA5	SY5	K4	YE5
AVR 200-5R	918080441	27NR	2.000	2.000	1.250	14	-	2.300	SA5	SY5	K4	YI5
AVR 200-5L	918080442	27NL	2.000	2.000	1.250	14	-	2.300	SA5	SY5	K4	YE5

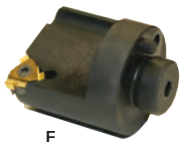
*Over NV Insert **Support must be slightly modified if used for grooving.

Description	EDP Code	Insert	d	D	F**	L	C	Min. Bore	Insert Screw	Seat Screw & Washer	Wrench	Seat
AVR 20M-3R	918020M361	16NR	20,0	20,0	13,7	170,0	-	24,0	SA3	SY3	K3	YI3
AVR 20M-3L	918020M362	16NL	20,0	20,0	13,7	170,0	-	24,0	SA3	SY3	K3	YE3
AVR 25M-3R	918025M361	16NR	25,0	25,0	16,3	250,0	-	29	SA3	SY3	K3	YI3
AVR 25M-3L	918025M362	16NL	25,0	25,0	16,3	250,0	-	29	SA3	SY3	K3	YE3
AVR 32M-3R	918032M361	16NR	32,0	32,0	19,7	250	-	36	SA3	SY3	K3	YI3
AVR 32M-3L	918032M362	16NL	32,0	32,0	19,7	250	-	36	SA3	SY3	K3	YE3
AVR 40M-3R	918040M361	16NR	40,0	40,0	23,7	300	-	44	SA3	SY3	K3	YI3
AVR 40M-3L	918040M362	16NL	40,0	40,0	23,7	300	-	44	SA3	SY3	K3	YE3
AVR 25M-4R	918025M401	22NR	25,0	25,0	17,2	200	-	29	SA4	SY4	K4	YI4
AVR 25M-4L	918025M402	22NL	25,0	25,0	17,2	200	-	29	SA4	SY4	K4	YE4
AVR 32M-4R	918032M401	22NR	32,0	32,0	21,5	250	-	38	SA4	SY4	K4	YI4
AVR 32M-4L	918032M402	22NL	32,0	32,0	21,5	250	-	38	SA4	SY4	K4	YE4
AVR 40M-4R	918040M401	22NR	40,0	40,0	25,8	300,0	-	46	SA4	SY4	K4	YI4
AVR 40M-4L	918040M402	22NL	40,0	40,0	25,8	300,0	-	46	SA4	SY4	K4	YE4
AVR 50M-4R	918050M401	22NR	50,0	50,0	30,6	350,0	-	56	SA5	SY4	K4	YI4
AVR 50M-4L	918050M402	22NL	50,0	50,0	30,6	350,0	-	56	SA5	SY4	K4	YE4
AVR 50M-5R	918050M41	27NR	50,0	50,0	31,6	350,0	-	58	SA5	SY5	K4	YI5
AVR 50M-5L	918050M42	27NL	50,0	50,0	31,6	350,0	-	58	SA5	SY5	K4	YE5

*Over NV Insert **Support must be slightly modified if used for grooving.

H-AVR/L*





RH SHOWN

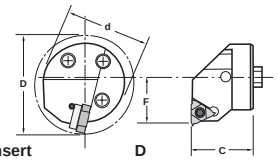
PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Insert Screw	Seat Screw	Seat
H16-AVR-3R	9IH18064361	16NR	1.000	1.625	0.650	1.200	SA-3	SY-3	YI3
H20-AVR-3R	9IH18068361	16NR	1.250	1.625	0.765	1.450	SA-3	SY-3	YI3
H24-AVR-3R	9IH18072361	16NR	1.500	1.625	0.890	1.760	SA-3	SY-3	YI3
H32-AVR-3R	9IH18080361	16NR	2.000	1.625	1.281	2.400	SA-3	SY-3	YI3
H24-AVR-4R	9IH18072401	22NR	1.500	1.625	0.978	1.760	SA-4	SY-4	YI4
H32-AVR-4R	9IH18080401	22NR	2.000	1.625	1.281	2.400	SA-4	SY-4	YI4

*Left Hand quoted on request.

HS-AVR/L*

Most bars available with coolant port
(ie: Add CP to end of description)



RH SHOWN

PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Insert Screw	Seat Screw	Seat
HS25-AVR-3R	9IHS18025M361	16NR	0.98	0.98	0.669	1.260	SA-3	SY-3	YI3
HS32-AVR-3R	9IHS18032M361	16NR	1.26	1.26	0.866	1.570	SA-3	SY-3	YI3
HS40-AVR-3R	9IHS18040M361	16NR	1.57	1.26	1.063	1.970	SA-3	SY-3	YI3
HS50-AVR-3R	9IHS18050M361	16NR	1.97	1.57	1.378	2.480	SA-3	SY-3	YI3
HS40-AVR-4R	9IHS18040M401	22NR	1.57	1.26	1.063	1.970	SA-4	SY-4	YI4
HS50-AVR-4R	9IHS18050M401	22NR	1.97	1.57	1.378	2.480	SA-4	SY-4	YI4

*Left Hand quoted on request.

ANVILS

Resultant Helix Angle			4.5˚	3.5˚	2.5˚	1.5˚	0.5˚	0˚	-0.5˚	-1.5˚
IC	L	Holder	Anvil Description							
3/8”	.63 .63	ER/NL EL/NR	YE3-3P YI3-3P	YE3-2P YI3-2P	YE3-1P YI3-1P	YE3 YI3	YE3-1N YI3-1N	YE3-1.5N YI3-1.5N	YE3-2N YI3-2N	YE3-1N YI3-1N
1/2”	.87 .87	ER/NL EL/NR	YE4-3P YI4-3P	YE4-2P YI4-2P	YE4-1P YI4-1P	YE4 YI4	YE4-1N YI4-1N	YE4-1.5N YI4-1.5N	YE4-2N YI4-2N	YE4-1N YI4-1N
5/8”	1.06 1.06	ER/NL EL/NR	YE5-3P YI5-3P	YE5-2P YI5-2P	YE5-1P YI5-1P	YE5 YI5	YE5-1N YI5-1N	YE5-1.5N YI5-1.5N	YE5-2N YI5-2N	YE5-1N YI5-1N
3/8”M	.63 .63	ER/NL EL/NR				YE3M YI3M	YE3M-1N YI3M-1N	YE3M-1.5N YI3M-1.5N	YE3M-2N	
1/2”M	.87 .87	ER/NL EL/NR				YE4M YI4M	YE4M-1N YI4M-1N	YE4M-1.5N YI4M-1.5N	YE4M-2N	
5/8”M	1.06 1.06	ER/NL EL/NR				YE5M YI5M	YE5M-1N YI5M-1N	YE5M-1.5N YI5M-1.5N		
1/2”Z	.87	EL/NR			YI4Z-1P					
1/2”U	.87 .87	ER/NL EL/NR	YE4U-3P YI4U-3P	YE4U-2P YI4U-2P	YE4U-1P YI4U-1P	YE4U YI4U	YE4U-1N YI4U-1N	YE4U-1.5N YI4U-1.5N	YE4U-2N YI4U-2N	YE4U-1N YI4U-1N

ANVIL KITS

IC	L	TF #	Included Anvils
3/8”	.63	**KTY3**	YE3-2P, 1P, 1N, 2N, 3N
	.63		YI3-2P, 1P, 1N, 2N, 3N
1/2”	.87	**KTY4**	YE4-2P, 1P, 1N, 2N, 3N
	.87		YI4-2P, 1P, 1N, 2N, 3N
1/2”U	.87	**KTY4U**	YE4U-2P, 1P, 1N, 2N, 3N
	.87		YI4U-2P, 1P, 1N, 2N, 3N
5/8”	1.06	**KTYE5**	YE5-2P, 1P, 1N, 2N, 3N
	1.06	**KTYI5**	YI5-2P, 1P, 1N, 2N, 3N
5/8”U	1.06	**KTYE5U**	YE5U-2P, 1P, 1N, 2N, 3N
	1.06	**KTYI5U**	YI5U-2P, 1P, 1N, 2N, 3N

Standard Anvil		M Style Anvil		Z Style Anvil	
					
ER/NL	EL/NR	ER/NL	EL/NR	ER/NL	EL/NR

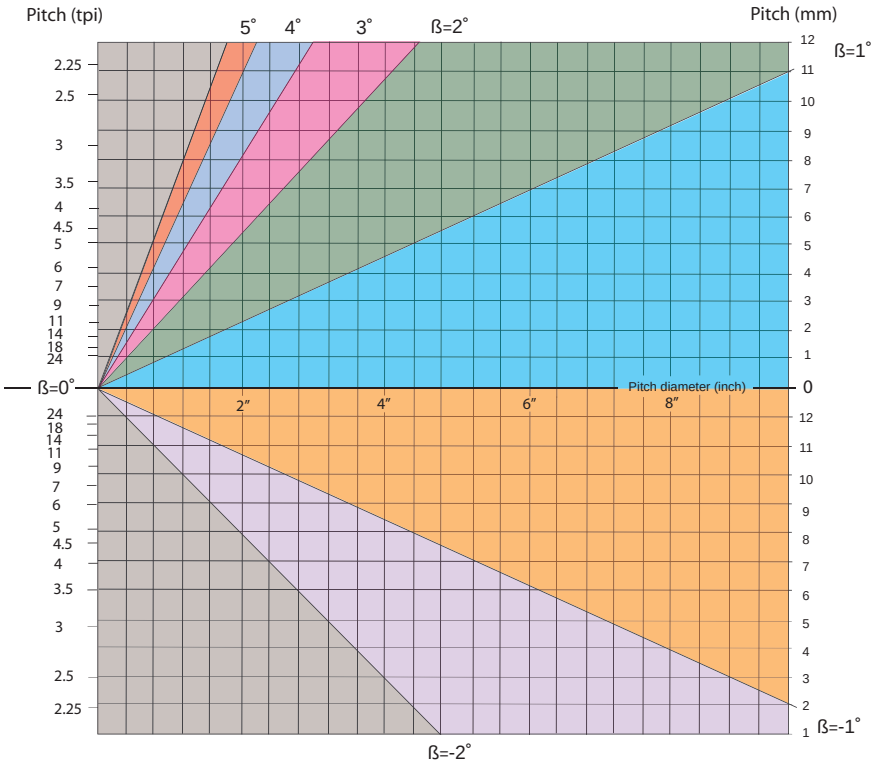
ANVIL FORMS

1/2”	YE4-11.5NPT-2M YI4-11.5NPT-2M
5/8”	YE5-8NPT-2M, YE5-8RD-2M YI5-8NPT-2M, YI5-8RD-2M

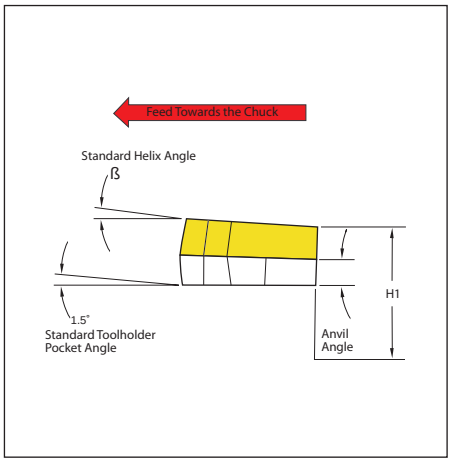
Helix Angle Table (For Given Pitch and Diameter)

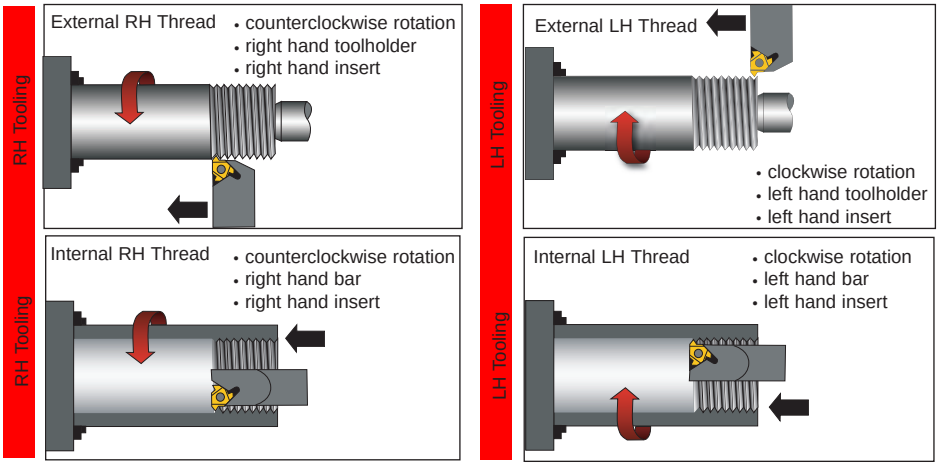
resultant helical angle →	4.5˚	3.5˚	2.5˚	1.5˚	0.5˚	0˚	-0.5˚	-1.5˚
threads per inch ↓	DIAMETER							
48			0.12 - 0.18	0.18 - 0.48	0.48 - 1.28	> 1.28	1.28 - 0.48	0.48 - 0.18
44		0.13 - 0.20	0.20 - 0.52	0.52 - 1.40	> 1.40	1.40 - 0.52	0.52 - 0.20	
40		0.11 - 0.14	0.14 - 0.22	0.22 - 0.57	0.57 - 1.52	> 1.52	1.52 - 0.57	0.57 - 0.22
36		0.12 - 0.16	0.16 - 0.24	0.24 - 0.64	0.64 - 1.70	> 1.70	1.70 - 0.64	0.64 - 0.24
32	0.12 - 0.13	0.13 - 0.18	0.18 - 0.27	0.27 - 0.71	0.71 - 1.90	> 1.90	1.90 - 0.71	0.71 - 0.27
28	0.12 - 0.15	0.15 - 0.20	0.20 - 0.31	0.31 - 0.82	0.82 - 2.19	> 2.19	2.19 - 0.82	0.82 - 0.31
27	0.14 - 0.16	0.16 - 0.21	0.21 - 0.32	0.32 - 0.84	0.84 - 2.25	> 2.25	2.25 - 084	0.84 - 0.32
24	0.16 - 0.18	0.18 - 0.24	0.24 - 0.36	0.36 - 0.96	0.96 - 2.55	> 2.55	2.55 - 0.86	0.96 - 0.36
20	0.19 - 0.22	0.22 - 0.28	0.28 - 0.43	0.43 - 1.14	1.14 - 3.04	> 3.04	3.04 - 1.14	1.14 - 0.43
18	0.21 - 0.24	0.24 - 0.32	0.32 - 0.49	0.49 - 1.28	1.28 - 3.40	> 3.40	3.40 - 1.28	1.28 - 0.49
16	0.23 - 0.27	0.27 - 0.35	0.35 - 0.54	0.54 - 1.41	1.41 - 3.77	> 3.77	3.77 - 1.41	1.41 - 0.54
14	0.27 - 0.31	0.31 - 0.40	0.40 - 0.62	0.62 - 1.62	1.62 - 4.32	> 4.32	4.32 - 1.62	1.62 - 0.62
13	0.29 - 0.33	0.33 - 0.44	0.44 - 0.67	0.67 - 1.76	1.76 - 4.68	> 4.68	4.68 - 1.76	1.76 - 0.67
12	0.32 - 0.36	0.36 - 0.48	0.48 - 0.73	0.73 - 1.92	1.92 - 5.11	> 5.11	5.11 - 1.92	1.92 - 0.73
11.5	0.33 - 0.38	0.38 - 0.49	0.49 - 0.76	0.76 - 1.98	1.98 - 5.29	> 5.29	5.29 - 1.98	1.98 - 0.76
11	0.35 - 0.39	0.39 - 0.52	0.52 - 0.79	0.79 - 2.07	2.07 - 5.53	> 5.53	5.53 - 2.07	2.07 - 0.79
10	0.38 - 0.43	0.43 - 0.57	0.57 - 0.87	0.87 - 2.28	2.28 - 6.08	> 6.06	6.08 - 2.28	2.28 - 0.87
9	0.42 - 0.48	0.48 - 0.63	0.63 - 0.96	0.96 - 2.53	2.53 - 6.75	> 6.75	6.75 - 2.53	2.53 - 0.96
8	0.47 - 0.54	0.54 - 0.71	0.71 - 1.09	1.09 - 2.85	2.85 - 7.60	> 7.60	7.60 - 2.85	2.85 - 1.09
7	0.54 - 0.62	0.62 - .081	0.81 - 1.24	1.24 - 3.26	3.26 - 8.69	> 8.69	8.69 - 3.26	3.26 - 1.24
6	0.63 - 0.72	0.72 - .095	0.95 - 1.45	1.45 - 3.81	3.81 - 10.15	> 10.15	10.15 - 3.81	3.81 - 1.45
5	0.76 - 0.87	0.87 - 1.14	1.14 - 1.74	1.74 - 4.56	4.56 - 12.16	> 12.16	12.16 - 4.56	4.56 - 1.74
4.5	0.84 - 0.96	0.96 - 1.26	1.26 - 1.93	1.93 - 5.06	5.06 - 13.49	> 13.49	13.49 - 5.06	5.06 - 1.93
4	0.95 - 1.08	1.08 - 1.42	1.42 - 2.17	2.17 - 5.70	5.70 - 15.20	> 15.20	15.20 - 5.70	5.70 - 2.17

Helix Angle Diagram

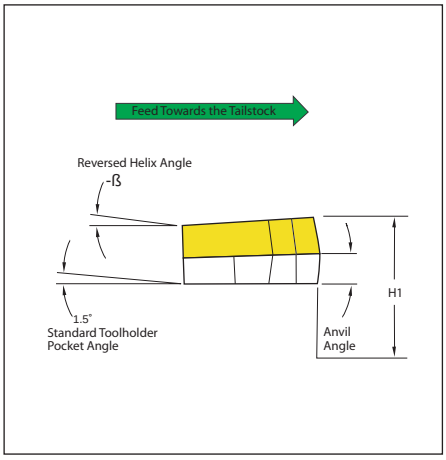


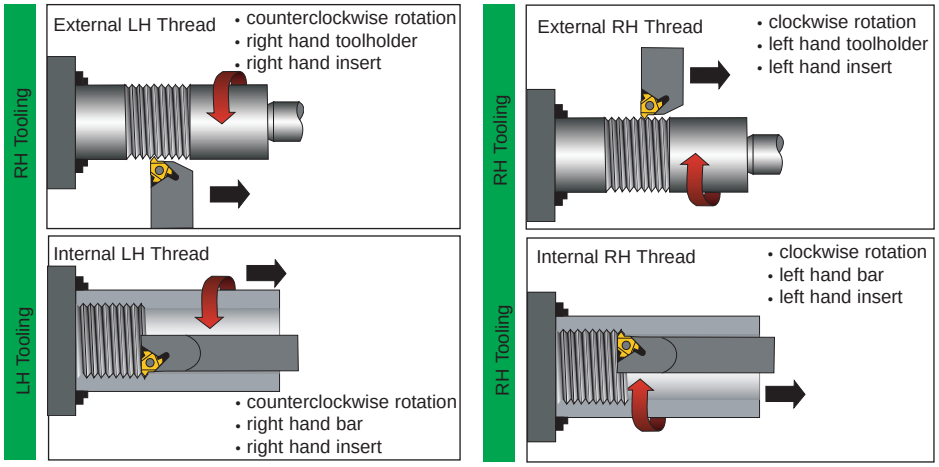
Feed direction towards the chuck





Feed direction towards the tailstock





L-Style Laydown Insert Nomenclature Chart

L	43	NT	5	B	75	EXT	GP3	A

type of insert

L	Laydown
LDS	Double sided
LPGC	Laydown
TPGC	T-style

insert ic size

32	3/8”
42	1/2”
43	1/2”
53	5/8”
54	5/8

thread form

NT	Non-Topping Acme Thread
NV	Non-Topping 60˚ V-Thread
H90	API Hughes H90 Thread

pitch (tpi)

threaders

4
5
8
10

thread type

B	Buttress Thread
NPT	National Pipe Thread
PA	Pittsburgh Acme
RD	API Round Thread
UN	Unified Thread
VAM	VAM Thread
XL	X-Line Thread

taper per foot

75	3/4”
1	1”
12	1-1/4”
15	1-1/2”

type of insert

EXT	External
INT	Internal

grade

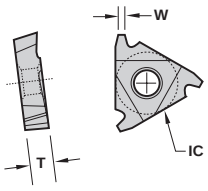
edge prep

api form

cat no.	tpi	tpf
425	4	2
428	4	2
435	4	3
438	4	3
530	5	3
4PAC	4	1-1/2
H902	3-1/2	2
H903	3-1/2	3
H90S	3	1-1/4

ACME

L43/L53 - 1/2” & 5/8” I.C.



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	W	IC	T	TiN Coated GP22	TiN Coated GP50	TiN Coated GP5	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
L43 NT 8P EXT	0215C080	8	.0411	.500	.189		●				●
L43 NT 6P EXT	0215C060	6	.0566	.500	.189		●				●
L43 NT 5P EXT	0215C050	5	.0689	.500	.189		●				●
L53 NT 4P EXT	0247C040	4	.0875	.625	.189		●				●
L43 NT 8P INT	0215A080	8	.0411	.500	.189		●				●
L43 NT 6P INT	0215A060	6	.0566	.500	.189		●				●
L43 NT 5P INT	0215A050	5	.0689	.500	.189		●				●
L53 NT 4P INT	0247A040	4	.0875	.625	.189		●				●

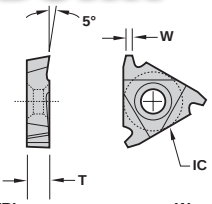
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron							▲				●
Non-Ferrous							▲				●
Stainless/High Temp							▲				●
Steel							▲				●

ACME

LPGC 32, 42 & 43 - 3/8” & 1/2 I.C.

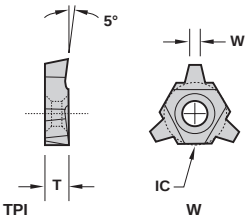


EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	W	IC	T	TiN Coated GP22	TiN Coated GP50	TiN Coated GP5	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
LPGC 32 NT 12P INT RH	0204A120	12	.0283	.375	.127			●			
LPGC 32 NT 10P INT RH	0204A100	10	.0319	.375	.127			●			
LPGC 32 NT 8P INT RH	0204A080	8	.0411	.375	.127			●			
LPGC 42 NT 8P INT RH	0213A080	8	.0411	.500	.127			●			
LPGC 42 NT 6P INT RH	0213A060	6	.0566	.500	.127			●			
LPGC 42 NT 5P INT RH	0213A050	5	.0689	.500	.127			●			
LPGC 42 NT 4P INT RH*	0213A040	4	.0875	.500	.127			●			
LPGC 43 NT 8P INT RH	0227A080	8	.0411	.500	.189			●			
LPGC 43 NT 6P INT RH	0227A060	6	.0566	.500	.189			●			
LPGC 43 NT 5P INT RH	0227A050	5	.0689	.500	.189			●			
LPGC 43 NT 4P INT RH*	0227A040	4	.0875	.500	.189			●			

*Bar must be modified to clear depth.

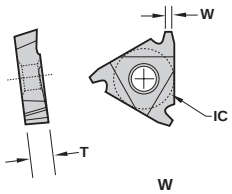
TPGC 32, 42 & 43 - 3/8” & 1/2 I.C.



Description	EDP Code	TPI	W	IC	T	TiN Coated GP22	TiN Coated GP50	TiN Coated GP5	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
TPGC 32 NT 10P	0207100	10	.0319	.375	.127			●			
TPGC 32 NT 8P	0207080	8	.0411	.375	.127			●			
TPGC 32 NT 6P	0207060	6	.0566	.375	.127			●			
TPGC 32 NT 5P	0207050	5	.0689	.375	.127			●			
TPGC 42 NT 8P	0214080	8	.0411	.500	.127			●			
TPGC 42 NT 6P	0214060	6	.0566	.500	.127			●			
TPGC 42 NT 5P	0214050	5	.0689	.500	.127			●			
TPGC 42 NT 4P	0214040	4	.0875	.500	.127			●			
TPGC 43 NT 5P	0238050	5	.0689	.500	.189			●			
TPGC 43 NT 4P	0238040	4	.0875	.500	.189			●			

ACME STUB

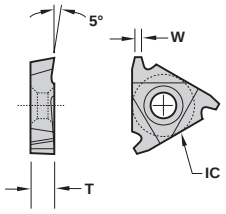
L43/L53 - 1/2” & 5/8” I.C.



INT SHOWN
EXT OPPOSITE

Description	EDP Code	TPI	W	IC	T	TiN Coated GP22	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
L43 NT 8P STUB EXT	0215C081	8	.0476	.500	.189		●				
L43 NT 6P STUB EXT	0215C061	6	.0652	.500	.189		●				
L43 NT 5P STUB EXT	0215C051	5	.0793	.500	.189		●				
L53 NT 4P STUB EXT	0247C041	4	.1004	.625	.189		●				
L43 NT 8P STUB INT	0215A081	8	.0476	.500	.189		●				
L43 NT 6P STUB INT	0215A061	6	.0652	.500	.189		●				
L43 NT 5P STUB INT	0215A051	5	.0793	.500	.189		●				
L53 NT 4P STUB INT	0247A041	4	.1004	.625	.189		●				

LPGC 32, 42 & 43 - 3/8” & 1/2 I.C.



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	W	IC	T	TiN Coated GP22	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC25	AlTiN Coated AC3	AlTiN Coated AC50
LPGC 32 NT 8P STUB INT	0204A081	8	.0476	.375	.127		●	●			
LPGC 42 NT 8P STUB INT	0213A081	8	.0476	.500	.127		●	●			
LPGC 42 NT 6P STUB INT	0213A061	6	.0652	.500	.127		●	●			
LPGC 42 NT 5P STUB INT	0213A051	5	.0793	.500	.127		●	●			
LPGC 42 NT 4P STUB INT	0213A041	4	.1004	.500	.127		●	●			
LPGC 43 NT 8P STUB INT	0227A081	8	.0476	.500	.189		●	●			
LPGC 43 NT 6P STUB INT	0227A061	6	.0652	.500	.189		●	●			
LPGC 43 NT 5P STUB INT	0227A051	5	.0793	.500	.189			●	●		
LPGC 43 NT 4P STUB INT	0227A041	4	.1004	.500	.189		●	●			

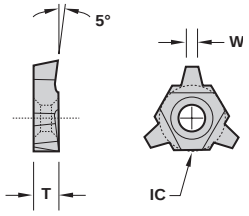
In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron			
Non-Ferrous			
Stainless/High Temp			
Steel	▲		

ACME STUB

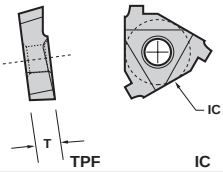
TPGC 32, 42 & 43 - 3/8" & 1/2 I.C.



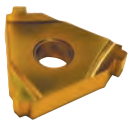
Description	EDP Code	TPI	W	IC	T	TiN Coated GP22	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
TPGC 32 NT 8P STUB	0207081	8	.0476	.375	.127		●	●			
TPGC 32 NT 6P STUB	0207061	6	.0652	.375	.127		●	●			
TPGC 32 NT 5P STUB	0207051	5	.0793	.375	.127		●	●			
TPGC 42 NT 8P STUB	0214081	8	.0476	.500	.127		●	●			
TPGC 42 NT 6P STUB	0214061	6	.0652	.500	.127		●	●			
TPGC 42 NT 5P STUB	0214051	5	.0793	.500	.127		●	●			
TPGC 42 NT 4P STUB	0214041	4	.1004	.500	.127		●	●			
TPGC 43 NT 5P STUB	0238051	5	.0793	.500	.189		●	●			
TPGC 43 NT 4P STUB	0238041	4	.1004	.500	.189		●	●			

API BUTTRESS

L43/L53 - 1/2" & 5/8" I.C.



EXT SHOWN
INT OPPOSITE

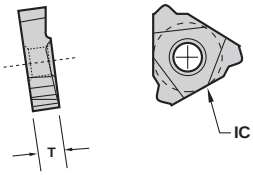


Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TiN Coated GP22	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
L43 5B75 EXT-FC	16154F	5	3/4	.500	.189	4-1/2 - 13-3/8		●			●	●
L43 5B1 EXT -FC	17154F	5	1	.500	.189	16 and larger		●			●	
L43 8B75 EXT-FC	21154F	8	3/4	.500	.189	US Improved Buttress		●				
L53 5B75 EXT-FC	16474F	5	3/4	.625	.189	4-1/2 - 13-3/8		●			●	●
L53 5B1 EXT-FC	17474F	5	1	.625	.189	16 and larger		●				
L53 8B75 EXT-FC	21474F	8	3/4	.625	.189	US Improved Buttress		●			●	
L43 5B75 INT-FC	16158F	5	3/4	.500	.189	4-1/2 - 13-3/8		●			●	
L43 5B1 INT-FC	17158F	5	1	.500	.189	16 and larger		●			●	
L43 8B75 INT-FC	21158F	8	3/4	.500	.189	US Improved Buttress		●				
L53 5B75 INT-FC	16478F	5	3/4	.625	.189	4-1/2 - 13-3/8		●			●	
L53 5B1 INT-FC	17478F	5	1	.625	.189	16 and larger		●				
L53 8B75 INT-FC	21478F	8	3/4	.625	.189	US Improved Buttress		●			●	

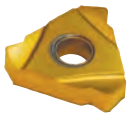
FC designates 5° flank clearance

API HUGHES H90

L53 - 5/8" I.C.



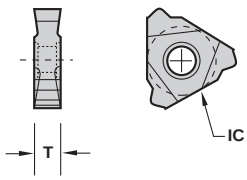
EXT SHOWN
INT OPPOSITE



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TiN Coated GP22	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
L53 H902 EXT	28474	3-1/2	2	.625	.189	3-1/2 - 6-5/8 H90		●				
L53 H903 EXT	29474	3-1/2	3	.625	.189	7 - 8-5/8 H90		●				
L53 H90S EXT	27474	3	1-1/4	.625	.189	2-3/8 - 3-1/2 Slimline		●				
L53 H902 INT	28478	3-1/2	2	.625	.189	3-1/2 - 6-5/8 H90		●				
L53 H903 INT	29478	3-1/2	3	.625	.189	7 - 8-5/8 H90		●				
L53 H90S INT	27478	3	1-1/4	.625	.189	2-3/8 - 3-1/2 Slimline		●				

LDS 54 - 5/8 I.C.

Double Sided



EXT SIDE SHOWN

Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TiN Coated GP22	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
LDS 54 H902	28490	3-1/2	2	.625	.252	3-1/2 - 6-5/8 H90			●			
LDS 54 H903	29490	3-1/2	3	.625	.252	7 - 8-5/8 H90			●			
LDS 54 H90S	27490	3	1-1/4	.625	.252	2-3/8 - 3-1/2 Slimline			●			

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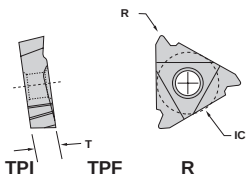
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron						
Non-Ferrous						
Stainless/High Temp						
Steel			▲			

API ROTARY SHOULDER CONNECTION

L43/53 - 1/2" & 5/8" I.C.

■ Must be used with API bars.



EXT SHOWN
INT OPPOSITE

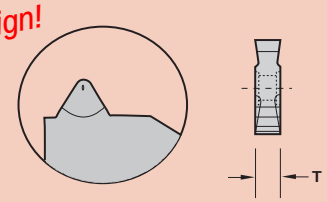
Description	EDP Code	TPI	TPF	R	IC	T	Connection	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
L43 425 EXT	09154	4	2	.025	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	●
L43 428 EXT	10154	4	2	.038	.500	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●		●	●	●
L43 42F EXT*	14154	4	2	---	.500	.189	V0.065*					
L43 435 EXT	11154	4	3	.025	.500	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●			●	●
L43 438 EXT	12154	4	3	.038	.500	.189	NC56 - NC71	●			●	●
L43 530 EXT	13154	5	3	.020	.500	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●			●	●
L43 4PAC EXT	15154	4	1-1/2	---	.500	.189	American Open Hole	●				
L53 425 EXT	09474	4	2	.025	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	●
L53 428 EXT	10474	4	2	.038	.625	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●		●	●	●
L53 42F EXT*	14474	4	2	---	.625	.189	V0.065*					
L53 435 EXT	11474	4	3	.025	.625	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●			●	●
L53 438 EXT	12474	4	3	.038	.625	.189	NC56 - NC71	●			●	●
L53 530 EXT	13474	5	3	.020	.625	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●			●	●
L53 4PAC EXT	15474	4	1-1/2	---	.625	.189	American Open Hole	●				
L43 425 INT	09158	4	2	.025	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	●
L43 428 INT	10158	4	2	.038	.500	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●		●	●	●
L43 42F INT*	14158	4	2	---	.500	.189	V0.065*					
L43 435 INT	11158	4	3	.025	.500	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●			●	●
L43 438 INT	12158	4	3	.038	.500	.189	NC56 - NC71	●		●	●	●
L43 530 INT	13158	5	3	.020	.500	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●			●	●
L43 4PAC INT	15158	4	1-1/2	---	.500	.189	American Open Hole	●				
L53 425 INT	09478	4	2	.025	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	●
L53 428 INT	10478	4	2	.038	.625	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●		●	●	●
L53 42F INT*	14478	4	2	---	.625	.189	V0.065*					
L53 435 INT	11478	4	3	.025	.625	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●		●	●	●
L53 438 INT	12478	4	3	.038	.625	.189	NC56 - NC71	●			●	●
L53 530 INT	13478	5	3	.020	.625	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●		●	●	●
L53 4PAC INT	15478	4	1-1/2	---	.625	.189	American Open Hole	●				

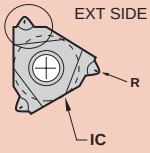
* Obsolescent thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

LDS 54 Double Sided Lead Follow Topping Internal/External with patented chipbreaker

Exclusive patented design!

■ For holders see pg. 136, 138



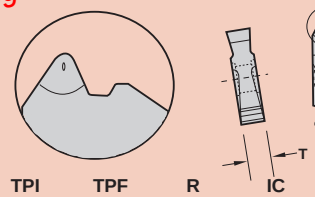


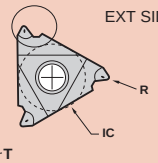
Description	EDP Code	TPI	TPF	R	IC	T	Connection	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50	AlTiN Coated AC54
LDS 54 428-CB #1	10490HC	4	2	.038	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF	●	●	●	●	●
LDS 54 438-CB #2	12490HC	4	3	.038	.625	.252	NC56-NC71	●	●	●	●	●
LDS 54 425-CB #3	09490HC	4	2	.025	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.	●	●	●	●	●
LDS 54 435-CB #4	11490HC	4	3	.025	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.	●	●	●	●	●
LDS 54 530-CB #5	13490HC	5	3	.020	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●	●	●	●	●

LDS 54 Double Sided Follow Topping Internal/External with patented chipbreaker

Exclusive patented design!

■ For holders see pg. 136, 138





Description	EDP Code	TPI	TPF	R	IC	T	Connection	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50	AlTiN Coated AC54
LDS 54 428 FT-CB #1	10495HC	4	2	.038	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF	●	●	●	●	●
LDS 54 438 FT-CB #2	12495HC	4	3	.038	.625	.252	NC56-NC71	●	●	●	●	●
LDS 54 425 FT-CB #3	09495HC	4	2	.025	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.	●	●	●	●	●
LDS 54 435 FT-CB #4	11495HC	4	3	.025	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.	●	●	●	●	●
LDS 54 530 FT-CB #5	13495HC	5	3	.020	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●	●	●	●	●

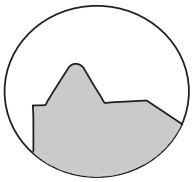
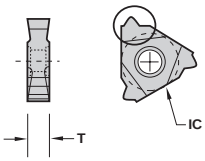
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron			●		
Non-Ferrous			●		
Stainless/High Temp			●		
Steel		▲	●	●	

API ROTARY SHOULDER CONNECTION

LDS 54 - 5/8" I.C.
Double Sided
Full Topping

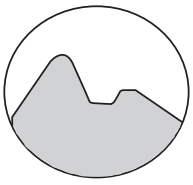
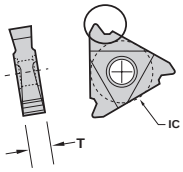



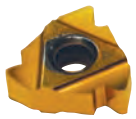
EXT SIDE SHOWN


Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TiN Coated: GP22	TiN Coated: GP54	AlTiN Coated: AC22	AlTiN Coated: AC3	AlTiN Coated: AC50	AlTiN Coated: AC54
LDS 54 428 #1	10490	4	2	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF		●	●	●	●	●
LDS 54 438 #2	12490	4	3	.625	.252	NC56-NC71		●	●	●	●	●
LDS 54 425 #3	09490	4	2	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.		●	●	●	●	●
LDS 54 435 #4	11490	4	3	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.		●	●	●	●	●
LDS 54 530 #5	13490	5	3	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.		●	●	●	●	●
LDS 54 42F*	14490	4	2	.625	.252	V0.065*		●				
LDS 54 4PAC	15490	4	1-1/2	.625	.252	American Open Hole		●	●			

* Obsolescent thread form,
See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

LDS 54 - 5/8" I.C.
Double Sided
Follow Topping

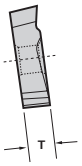
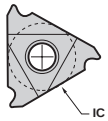
EXT SIDE SHOWN


Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TiN Coated: GP22	TiN Coated: GP54	AlTiN Coated: AC22	AlTiN Coated: AC3	AlTiN Coated: AC50	AlTiN Coated: AC54
LDS 54 428 #1 FT	10495	4	2	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF		●	●	●	●	●
LDS 54 438 #2 FT	12495	4	3	.625	.252	NC56-NC71		●	●	●	●	●
LDS 54 425 #3 FT	09495	4	2	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.		●	●	●	●	●
LDS 54 435 #4 FT	11495	4	3	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.		●	●	●	●	●
LDS 54 530 #5 FT	13495	5	3	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.		●	●	●	●	●
LDS 54 42F* FT	14495	4	2	.625	.252	V0.065*				●		
LDS 54 4PAC FT	15495	4	1-1/2	.625	.252	American Open Hole		●		●		

* Obsolescent thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

API ROUND

L43/L53 - 1/2" & 5/8" I.C.

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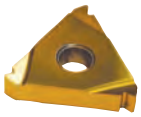
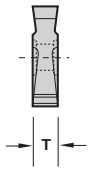
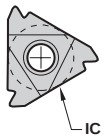


Description	EDP Code	TPI	TPF	IC	T	TiN Coated: GP22	TiN Coated: GP50	TiN Coated: GP54	AlTiN Coated: AC22	AlTiN Coated: AC3	AlTiN Coated: AC50
L43 10RD EXT	34154	10	3/4	.500	.189		●			●	●
L43 8RD EXT	32154	8	3/4	.500	.189		●		●	●	●
L53 8RD EXT	32474	8	3/4	.625	.189		●		●	●	●
L43 8RD INT	34158	8	3/4	.500	.189		●			●	●
L43 10RD INT	32158	10	3/4	.500	.189		●		●	●	●
L53 8RD INT	32478	8	3/4	.625	.189		●		●	●	●

LDS 43 & 54 - 1/2" & 5/8" I.C.
Double Sided

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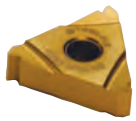
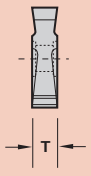
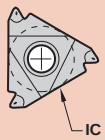


Description	EDP Code	TPI	TPF	IC	T	TiN Coated: GP22	TiN Coated: GP50	TiN Coated: GP54	AlTiN Coated: AC22	AlTiN Coated: AC3	AlTiN Coated: AC50
LDS 43 10RD	34180	10	3/4	.500	.189			●	●	●	●
LDS 43 8RD	32180	8	3/4	.500	.189			●	●	●	●
LDS 54 10RD	34490	10	3/4	.625	.252			●	●	●	●
LDS 54 8RD	32490	8	3/4	.625	.252			●	●	●	●

LDS 54 - 5/8" I.C.
Double Sided
Internal/External
with patented chipbreaker

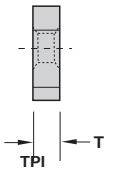
Exclusive patented design!

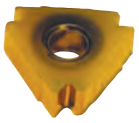
EXT SIDE SHOWN


Description	EDP Code	TPI	TPF	IC	T	TiN Coated: GP22	TiN Coated: GP50	TiN Coated: GP54	AlTiN Coated: AC22	AlTiN Coated: AC3	AlTiN Coated: AC50
LDS 54 10RD-CB	34490	10	3/4	.625	.252			●	●	●	●
LDS 54 8RD-CB	32490	8	3/4	.625	.252			●	●	●	●

API ROUND
TNFA 43 - 1/2" I.C.

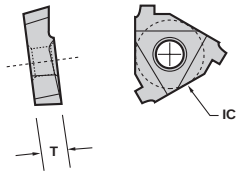


EXT SIDE SHOWN

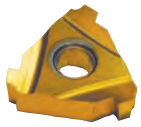


Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AC22	AC3	AC50
TNFA 43 8RD	32N70	8	3/4	.500	.187		●			●	●

API VAM
L43 - 1/2" I.C.

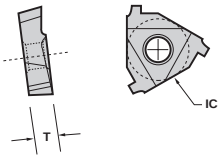


EXT SHOWN
INT OPPOSITE



Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AC22	AC3	AC50
L43 5VAM EXT	23154	5	3/4	.500	.189		●				
L43 6VAM EXT	24154	6	3/4	.500	.189		●				
L43 8VAM EXT	25154	8	3/4	.500	.189		●				
L43 5VAM INT	23158	5	3/4	.500	.189		●				
L43 6VAM INT	24158	6	3/4	.500	.189		●				
L43 8VAM INT	25158	8	3/4	.500	.189		●				

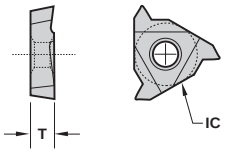
API X-LINE
L43/L53 - 1/2" & 5/8" I.C.



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Conn. No.	GP22	GP50	GP54	AC22	AC3	AC50
L43 6XL15 EXT	19154	6	1-1/2	.500	.189	5 - 7-5/8		●				
L43 6XL75 EXT	20154	6	3/4	.500	.189	-		●				
L43 5XL12 EXT	18154	5	1-1/4	.500	.189	8-5/8 - 10-3/4		●				
L53 6XL15 EXT	19474	6	1-1/2	.625	.189	5 - 7-5/8		●				
L53 6XL75 EXT	20474	6	3/4	.625	.189	-		●				
L53 5XL12 EXT	18474	5	1-1/4	.625	.189	8-5/8 - 10-3/4		●				
L43 6XL15 INT	19158	6	1-1/2	.500	.189	5 - 7-5/8		●				
L43 6XL75 INT	20158	6	3/4	.500	.189	-		●				
L43 5XL12 INT	18158	5	1-1/4	.500	.189	8-5/8 - 10-3/4		●				
L53 6XL15 INT	19478	6	1-1/2	.625	.189	5 - 7-5/8		●				
L53 6XL75 INT	20478	6	3/4	.625	.189	-		●				
L53 5XL12 INT	18478	5	1-1/4	.625	.189	8-5/8 - 10-3/4		●				

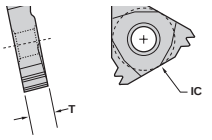
NPT
L43 - 1/2" I.C.



EXT SHOWN

Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AC22	AC3	AC50
L43 11.5NPT EXT	3615114	11.5	3/4	.500	.189		●				
L43 8NPT EXT	3615084	8	3/4	.500	.189		●				
L43 11.5NPT INT	3615118	11.5	3/4	.500	.189		●				●
L43 8NPT INT	3615088	8	3/4	.500	.189		●				

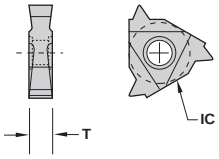
L43 - 1/2" I.C.
Multi-Tooth



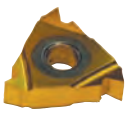
EXT SHOWN

Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AC22	AC3	AC50
L43 11.5NPT2M EXT	3615114T	11.5	3/4	.500	.189		●		●		
L43 11.5NPT2M INT	3615118T	11.5	3/4	.500	.189		●		●		●

LDS 43 - 1/2" I.C.
Double Sided



EXT SIDE SHOWN



Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AC22	AC3	AC50
LDS 43 14NPT	3618140	14	3/4	.500	.189			●			
LDS 43 11.5NPT	3618110	11.5	3/4	.500	.189			●			
LDS 43 8NPT	3618080	8	3/4	.500	.189			●			

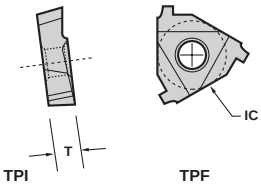
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	GP22	GP50	GP54	AC22	AC3	AC50
Cast Iron						
Non-Ferrous						
Stainless/High Temp						
Steel						

PITTSBURGH ACME

L43/L53 - 1/2” & 5/8” I.C.



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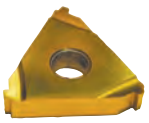
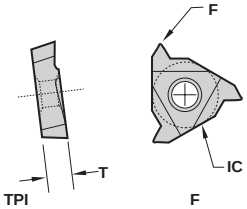


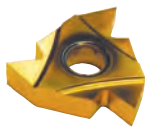
Description	EDP Code	TPI	TPF	IC	T	TiN Coated GP22	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
L43 8PA75 EXT	22154	8	3/4	.500	.189		●				
L53 8PA75 EXT	22474	8	3/4	.625	.189		●				
L43 8PA75 INT	22158	8	3/4	.500	.189		●				
L53 8PA75 INT	22478	8	3/4	.625	.189		●				

V THREADING - 60°

L43 & 53- 1/2” & 5/8” I.C.

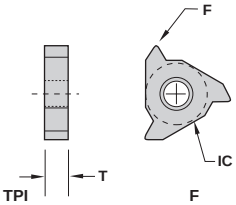


EXT SHOWN
INT OPPOSITE

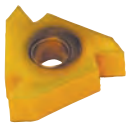


Description	EDP Code	TPI	F	IC	T	TiN Coated GP22	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
L43 NV EXT	0115040	8-48	.006/.008	.500	.189		●			●	●
L53 NV EXT	0147040	5-32	.006/.008	.625	.189		●			●	
L43 NV INT	0115080	8-48	.006/.008	.500	.189		●			●	●
L53 NV INT	0147080	5-32	.006/.008	.625	.189		●			●	

LN 43 - 1/2” I.C.
Double Sided



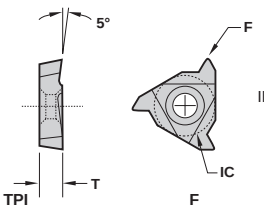
EXT SIDE SHOWN



Description	EDP Code	TPI	F	IC	T	TiN Coated GP22	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
LN 43 NV	0120000	8-48	.006/.008	.500	.189		●				

V THREADING - 60°

LPGC 32, 42 & 43 - 3/8” & 1/2” I.C.



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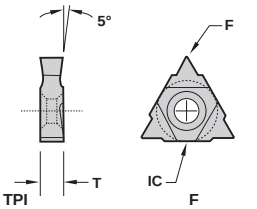
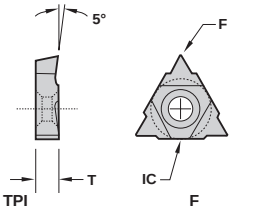
Description	EDP Code	TPI	F	IC	T	TiN Coated GP22	TiN Coated GP5	TiN Coated GP54	AlTiN Coated AC25	AlTiN Coated AC3	AlTiN Coated AC50
LPGC 32 NV INT RH	0104R80	8-48	.004/.006	.375	.127		●				
LPGC 32 NV INT LH	0104L80	8-48	.004/.006	.375	.127		●				
LPGC 42 NV INT RH	0113R80	8-20	.006/.008	.500	.127		●		●		
LPGC 42 NV INT LH	0113L80	8-20	.006/.008	.500	.127		●		●		
LPGC 43 NV INT RH	0127R80	5-16	.006/.008	.500	.189		●		●		
LPGC 43 NV INT LH	0127L80	5-16	.006/.008	.500	.189		●		●		

TNPGC 43 - 1/2” I.C.
Double Sided



Description	EDP Code	TPI	F	IC	T	TiN Coated GP22	TiN Coated GP50	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
TNPGC 43 NV	0137000	8-48	.005/.007	.500	.189		●				

TPGC 32, 42 & 43 - 3/8” & 1/2” I.C.



Description	EDP Code	TPI	F	IC	T	TiN Coated GP22	TiN Coated GP5	TiN Coated GP54	AlTiN Coated AC22	AlTiN Coated AC3	AlTiN Coated AC50
TPGC 32 NV	0107000	8-48	.005/.007	.375	.127		●		●		
TPGC 42 NV	0114000	5-32	.005/.007	.500	.127		●				
TPGC 43 NV	0138000	4-16	.005/.007	.500	.189		●				

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

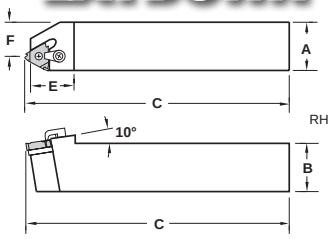
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel		▲				

EXTERNAL HOLDER

MTENR/L

Threading

Most holders available with coolant port
(ie: Add CP to end of description)



RH SHOWN

PARTS

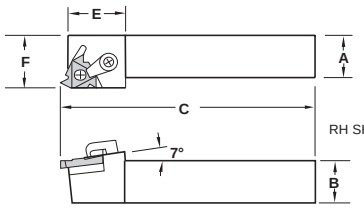
Description	EDP Code	Insert	A	B	C	E	F*	Seat	Lock Pin	Clamp	Clamp Screw
MTENR-164	95201656	TNPGC 43	1	1	6	1.47	.63	TS 43*	NL46	TC-190	STC5
MTENR-204	95202056	TNPGC 43	1-1/4	1-1/4	7	1.47	.88	TS 43*	NL46	TC-190	STC5

*Seats can be ordered as NO FORM or a FORM can be specified. Ex: TS 43 API EXT Seat.

MTVNR/L

Threading & Grooving
Inch

Most holders available with coolant port
(ie: Add CP to end of description)



RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F*	Seat	Lock Pin	Clamp	Clamp Screw
MTVNR-164	95801656	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNL-164	95701656	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNR-204	95802056	L43	1-1/4	1-1/4	7	1.27	1.500	LS43*	NL46	TC-190	STC5
MTVNR-165	95801662	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNL-165	95701662	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNR-205	95802062	L53	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11
MTVNR-2054	95802064	LDS 54	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11

*Seats can be ordered as NO FORM or a FORM can be specified. Ex: LS 43 API EXT. Seat.

METRIC

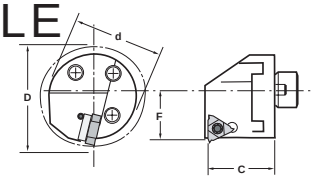
PARTS

Description	EDP Code	Insert	A	B	C	E	F*	Seat	Lock Pin	Clamp	Clamp Screw
MTVNR-2525M4	9580M2556	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNL-2525M4	9570M2556	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNR-3232M4	9580M3256	L43	1-1/4	1-1/4	7	1.27	1.500	LS43*	NL46	TC-190	STC5
MTVNR-2525M5	9580M2562	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNL-2525M5	9570M2562	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNR-3232M5	9580M3262	L53	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11
MTVNR-3232M54	9580M3264	LDS 54	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11

*Seats can be ordered as NO FORM or a FORM can be specified. Ex: LS 43 API EXT. Seat.

INTERCHANGEABLE HEADS

H-LNFR/L*



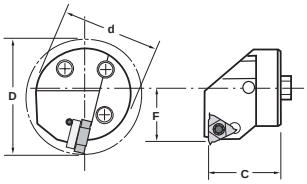
RH SHOWN

PARTS

Description	EDP Code	Insert	d	C	F	Min. Bore (D)	Seat	Clamp	Clamp Screw	Lock Pin
H20-LNFR-43	9IH4206856	L43	1.250	1.625	0.765	1.450	-	TC-190	STC-9	NL-44
H24-LNFR-43	9IH4207256	L43	1.500	1.625	0.890	1.760	-	TC-190	STC-9	NL-44
H32-LNFR-43	9IH4208056	L43	2.000	1.625	1.281	2.400	LS43	TC-190	STC-5	NL-46
H24-LNFR-53API	9IH4407262	L53	1.500	1.625	0.890	1.760	-	TC-250	STC-11	NL-56
H32-LNFR-53API	9IH4408062	L53	2.000	1.625	1.281	2.400	-	TC-250	STC-11	NL-56
H24-LNFR-54API	9IH4407264	LDS 54	1.500	1.625	0.890	1.760	-	TC-250	STC-11	H410-1
H32-LNFR-54API	9IH4408064	LDS 54	2.000	1.625	1.281	2.400	-	TC-250	STC-11	NL-56

*Non API heads only for 8RD, 10RD, 5B75, 5B1 threads. API heads required for rotary shoulder connections threads.

HS-LNFR/L*



RH SHOWN

PARTS

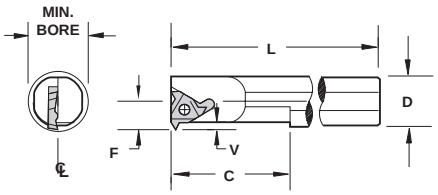
Description	EDP Code	Insert	d	C	F	Min. Bore (D)	Clamp	Clamp Screw	Lock Pin
HS32-LNFR-43	9IHS42032M56	L43	1.25	1.26	0.866	1.570	TC-190	STC-9	NL-44
HS40-LNFR-43	9IHS42040M56	L43	1.57	1.26	1.063	1.970	TC-190	STC-9	NL-44
HS50-LNFR-43	9IHS42050M56	L43	1.97	1.57	1.378	2.480	TC-190	STC-9	NL-44
HS40-LNFR-53API	9IHS4440M62	L53	1.57	1.26	1.063	1.970	TC-250	STC-11	NL-56
HS50-LNFR-53API	9IHS4450M62	L53	1.97	1.57	1.378	2.480	TC-250	STC-11	NL-56
HS40-LNFR-54API	9IHS4440M64	LDS 54	1.57	1.26	1.063	1.970	TC-250	STC-11	H410-1
HS50-LNFR-54API	9IHS4450M64	LDS 54	1.97	1.57	1.378	2.480	TC-250	STC-11	NL-56

*Non API heads only for 8RD, 10RD, 5B75, 5B1 threads. API heads required for rotary shoulder connections threads.

INTERNAL BAR

LFR/L

Threading & Grooving



RH SHOWN

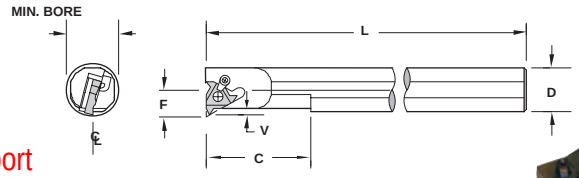
Most bars available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V	Torx Screw
LFR 625-32	93905248	LPGC 32	.625	8	.625	2-1/2	.312	.100	SF30
LFL 625-32	93805248	LPGC 32	.625	8	.625	2-1/2	.312	.100	SF30
LFR 750-32	93905648	LPGC 32	.750	8	.750	2-3/4	.375	.100	SF30
LFL 750-32	93805648	LPGC 32	.750	8	.750	2-3/4	.375	.100	SF30
LFR 100-32	93906448	LPGC 32	1.000	10	1.000	2-3/4	.500	.100	SF30
LFL 100-32	93806448	LPGC 32	1.000	10	1.000	2-3/4	.500	.100	SF40
LFR 750-42	93905654	LPGC 42	.750	8	.750	2-3/4	.375	.100	SF50
LFL 750-42	93805654	LPGC 42	.750	8	.750	2-3/4	.375	.100	SF60
LFR 100-43	93906456	LPGC 43	1.000	10	1.000	2-3/4	.500	.125	SF60
LFL 100-43	93806456	LPGC 43	1.000	10	1.000	2-3/4	.500	.125	SF60
LFR 125-43	93906856	LPGC 43	1.250	12	1.250	2-3/4	.625	.125	SF60
LFL 125-43	93806856	LPGC 43	1.250	12	1.250	2-3/4	.625	.125	SF60
LFR 150-43	93907256	LPGC 43	1.500	14	1.500	3-3/4	.750	.125	SF60
LFL 150-43	93807256	LPGC 43	1.500	14	1.500	3-3/4	.750	.125	SF60
LFR 200-43	93908056	LPGC 43	2.000	14	2.000	3-3/4	1.000	.125	SF60
LFL 200-43	93808056	LPGC 43	2.000	14	2.000	3-3/4	1.000	.125	SF60
LFR 150-53	93907262	LPGC 53	1.500	14	1.500	3-3/4	.750	.150	SF67
LFL 150-53	93807262	LPGC 53	1.500	14	1.500	3-3/4	.750	.150	SF67
LFR 200-53	93908062	LPGC 53	2.000	14	2.000	3-3/4	1.000	.150	SF85

*Over NV Insert

LNFR/L

Threading & Grooving
Inch



RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Seat	Screw/ Lock Pin	Clamp	Clamp Screw
LNFR 100-43	94206456	L43	1.031	10	1	2-3/4	.564	.125	-	TS65	-	-
LNFL 100-43	94106456	L43	1.031	10	1	2-3/4	.564	.125	-	TS65	-	-
LNFR 125-43	94206856	L43	1.250	12	1-1/4	2-3/4	.625	.125	-	NL44	TC190	STC-5
LNFL 125-43	94106856	L43	1.250	12	1-1/4	2-3/4	.625	.125	-	NL44	TC190	STC-5
LNFR 150-43	94207256	L43	1.500	14	1-1/2	3-3/4	.750	.125	-	NL44	TC190	STC-9
LNFL 150-43	94107256	L43	1.500	14	1-1/2	3-3/4	.750	.125	-	NL44	TC190	STC-9
LNFR 200-43	94208056	L43	2.000	14	2	3-3/4	1.000	.125	LS43*	NL46	TC190	STC-9
LNFL 200-43	94108056	L43	2.000	14	2	3-3/4	1.000	.125	LS43*	NL46	TC190	STC-9
LNFR 150-53	94207262	L53	1.500	14	1-1/2	3-3/4	.750	.150	-	NL56	TC250	STC-11
LNFL 150-53	94107262	L53	1.500	14	1-1/2	3-3/4	.750	.150	-	NL56	TC250	STC-11
LNFR 200-53	94208062	L53	2.000	14	2	3-3/4	1.000	.150	LS53*	NL58	TC250	STC-11
LNFL 200-53	94108062	L53	2.000	14	2	3-3/4	1.000	.150	LS53*	NL58	TC250	STC-11
LNFR 150-54	94207264	LDS54	1.500	14	1-1/2	3-3/4	.750	.150	-	NL56	TC250	STC-11
LNFL 150-54	94107264	LDS54	1.500	14	1-1/2	3-3/4	.750	.150	-	NL56	TC250	STC-11
LNFR 200-54	94208064	LDS54	2.000	14	2	3-3/4	1.000	.150	-	NL56	TC250	STC-11
LNFL 200-54	94108064	LDS54	2.000	14	2	3-3/4	1.000	.150	-	NL56	TC250	STC-11

*Seat can be ordered as NO FORM or a FORM can be specified. EX: LS 43 API INT SEAT ** Over Sharp
**Non API bars will work for 8/10RD and 5B75/5B1 threadforms. API bars required for rotary shoulder connection threadforms.

METRIC

PARTS

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Seat	Screw/ Lock Pin	Clamp	Clamp Screw
LNFR 32M-43	942M3256	L43	35,0	304,8	32,0	69,5	17,5	3,2	-	NL44	TC190	STC-5
LNFL 32M-43	941M3256	L43	35,0	304,8	32,0	69,5	17,5	3,2	-	NL44	TC190	STC-5
LNFR 40M-43	942M4056	L43	43,2	355,6	40,0	95,2	21,6	3,2	-	NL44	TC190	STC-9
LNFL 40M-43	941M4056	L43	43,2	355,6	40,0	95,2	21,6	3,2	-	NL44	TC190	STC-9
LNFR 50M-43	942M5056	L43	54,1	355,6	50,0	101,6	27,0	3,2	LS43*	NL46	TC190	STC-5
LNFL 50M-43	941M5056	L43	54,1	355,6	50,0	101,6	27,0	3,2	LS43*	NL46	TC190	STC-5
LNFR 40M-53	942M4062	L53	44,1	355,6	40,0	101,6	22,0	3,8	-	NL56	TC250	STC-11
LNFL 40M-53	941M4062	L53	44,1	355,6	40,0	101,6	22,0	3,8	-	NL56	TC250	STC-11
LNFR 50M-53	942M5062	L53	54,1	355,6	50,0	101,6	27,4	3,8	LS53*	NL58	TC250	STC-11
LNFL 50M-53	941M5062	L53	54,1	355,6	50,0	101,6	27,4	3,8	LS53*	NL58	TC250	STC-11
LNFR 40M-54	942M4064	LDS54	44,1	355,6	40,0	101,6	22,0	3,8	-	NL56	TC250	STC-11
LNFL 40M-54	941M4064	LDS54	44,1	355,6	40,0	101,6	22,0	3,8	-	NL56	TC250	STC-11
LNFR 50M-54	942M5064	LDS54	54,1	355,6	50,0	101,6	27,4	3,8	-	NL56	TC250	STC-11
LNFL 50M-54	941M5064	LDS54	54,1	355,6	50,0	101,6	27,4	3,8	-	NL56	TC250	STC-11

*Seat can be ordered as NO FORM or a FORM can be specified. EX: LS 43 API INT SEAT ** Over Sharp
**Non API bars will work for 8/10RD and 5B75/5B1 threadforms. API bars required for rotary shoulder connection threadforms.

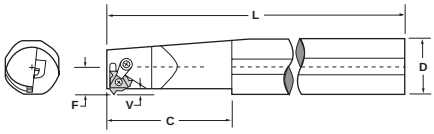
INTERNAL BAR

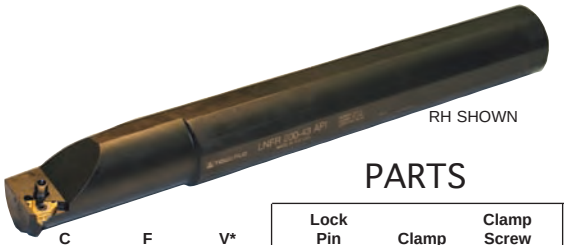
LNFR/L-API

Threading

Inch

Tapered Head for API Forms





Most bars available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Lock Pin	Clamp	Clamp Screw
LNFR 150-43API	94407256	L43	1.500	14	1-1/2	4-1/2	.750	.167	NL44	TC190	XNS-36
LNFR 200-43API	94408056	L43	2.000	14	2	4-1/2	1.000	.167	NL44	TC190	XNS-36
LNFR 150-53API	94407262	L53	1.500	16	1-1/2	4-1/2	.750	.200	NL56	TC250	STC-11
LNFR 200-53API	94408062	L53	2.000	16	2	4-1/2	1.000	.200	NL56	TC250	STC-11
LNFR 200-54API	94408064	LDS 54	2.000	16	2	4-1/2	1.000	.200	NL56	TC250	STC-11

*Seat can be ordered as NO FORM or a FORM can be specified. EX: LS 43 API INT SEAT if required.
**Required for rotary shoulder connection theading inserts.

METRIC

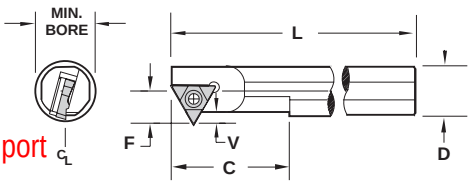
PARTS

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Lock Pin	Clamp	Clamp Screw
LNFR 40M-43API	944M4056	L43	41,9	355,6	40,0	114,3	20,9	4,2	NL44	TC190	XNS-36
LNFR 50M-43API	944M5056	L43	55,0	355,6	50,0	114,3	27,4	4,2	NL44	TC190	XNS-36
LNFR 40M-53API	944M4062	L53	42,1	355,6	40,0	114,3	20,9	5,8	NL56	TC250	STC-11
LNFR 50M-53API	944M5062	L53	55,2	406,4	50,0	114,3	27,6	5,8	NL56	TC250	STC-11
LNFR 50M-54API	944M5064	LDS 54	55,2	406,4	50,0	114,3	27,6	5,8	NL56	TC250	STC-11

*Seat can be ordered as NO FORM or a FORM can be specified. EX: LS 43 API INT SEAT if required.
**Required for rotary shoulder connection theading inserts.

LNTR/L

Threading



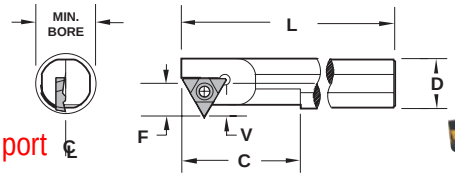
Most bars available with coolant port
(ie: Add CP to end of description)

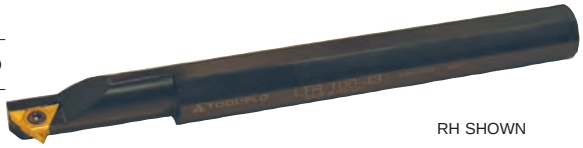
Description	EDP Code	Insert	Min. Bore	L	D	C	F*	V	Torx Screw
LNTR 880-43	94706056	TNPGC 43	.880	8	1.000	2.750	.440	.199	SF60
LNTL 880-43	94606056	TNPGC 43	.880	8	1.000	2.750	.440	.199	SF60
LNTR 100-43	94706456	TNPGC 43	1.000	10	1.000	2.750	.490	.213	SF60
LNTL 100-43	94606456	TNPGC 43	1.000	10	1.000	2.750	.490	.213	SF60
LNTR 125-43	94706856	TNPGC 43	1.250	12	1.250	2.750	.640	.213	SF60
LNTL 125-43	94606856	TNPGC 43	1.250	12	1.250	2.750	.640	.213	SF60
LNTR 150-43	94707256	TNPGC 43	1.500	14	1.500	3.750	.740	.213	SF60
LNTL 150-43	94607256	TNPGC 43	1.500	14	1.500	3.750	.740	.213	SF60
LNTR 200-43	94708056	TNPGC 43	2.000	14	2.000	3.750	.990	.213	SF60
LNTL 200-43	94608056	TNPGC 43	2.000	14	2.000	3.750	.990	.213	SF60

*Over NV Insert

LTR/L

Threading & Grooving



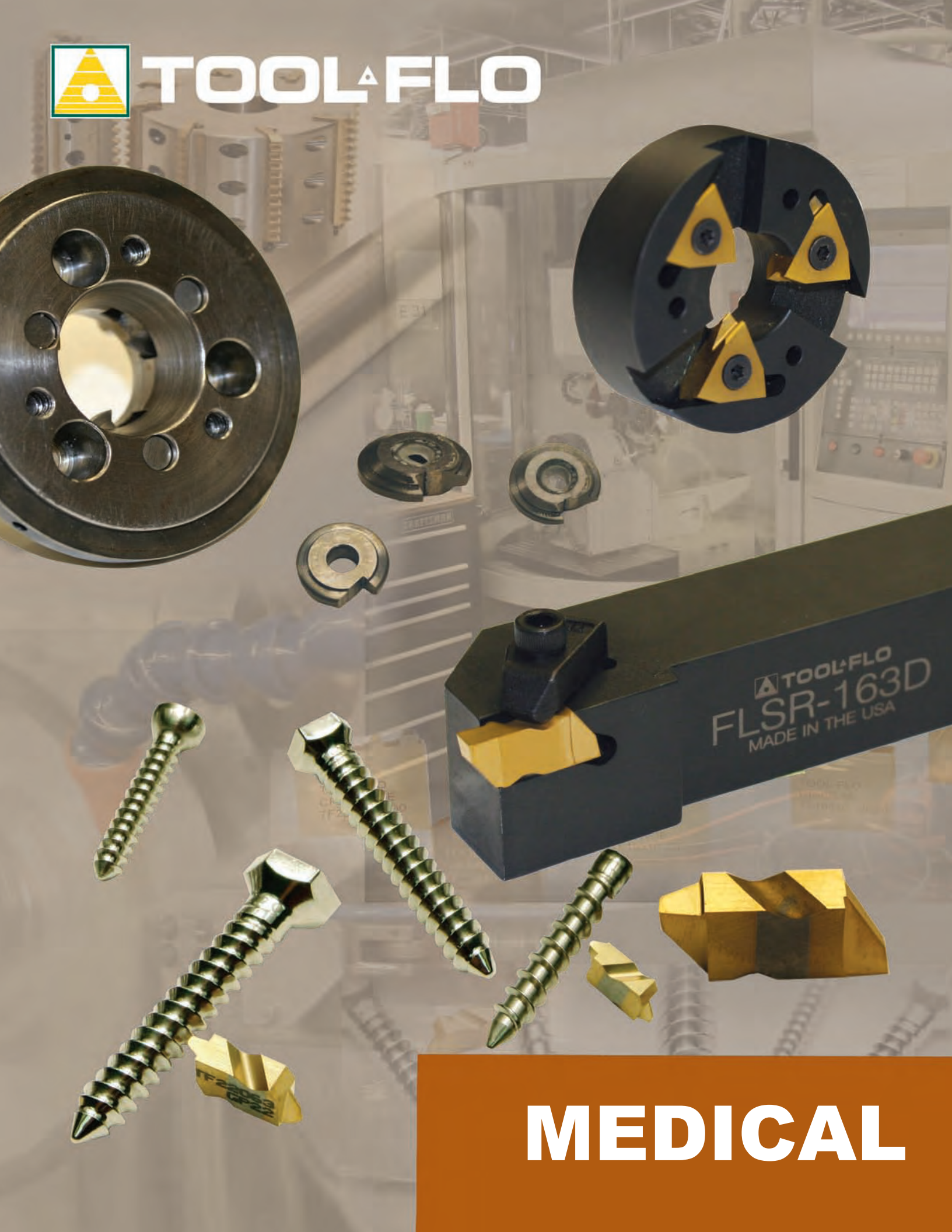


Most bars available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Torx Screw
LTR 625-32	95005248	TPGC 32	.625	8	.625	2.500	.375	.150	SF40
LTL 625-32	94905248	TPGC 32	.625	8	.625	2.500	.375	.150	SF40
LTR 750-32	95005648	TPGC 32	.750	8	.750	2.750	.375	.150	SF40
LTL 750-32	94905648	TPGC 32	.750	8	.750	2.750	.375	.150	SF40
LTR 100-32	95006448	TPGC 32	1.000	10	1.000	2.750	.500	.150	SF40
LTL 100-32	94906448	TPGC 32	1.000	10	1.000	2.750	.500	.150	SF40
LTR 750-42	95005654	TPGC 42	.750	8	.750	2.750	.390	.125	SF60
LTL 750-42	94905654	TPGC 42	.750	8	.750	2.750	.390	.125	SF60
LTR 100-43	95006456	TPGC 43	1.000	10	1.000	2.750	.500	.213	SF60
LTL 100-43	94906456	TPGC 43	1.000	10	1.000	2.750	.500	.213	SF60
LTR 125-43	95006856	TPGC 43	1.250	12	1.250	2.750	.625	.213	SF60
LTL 125-43	94906856	TPGC 43	1.250	12	1.250	2.750	.625	.213	SF60
LTR 150-43	95007256	TPGC 43	1.500	14	1.500	3.750	.750	.213	SF60
LTL 150-43	94907256	TPGC 43	1.500	14	1.500	3.750	.750	.213	SF60
LTR 200-43	95008056	TPGC 43	2.000	14	2.000	3.750	1.000	.213	SF60
LTL 200-43	94908056	TPGC 43	2.000	14	2.000	3.750	1.000	.213	SF60
LTR 150-53	95007262	TPGC 53	1.500	14	1.500	3.750	.750	.300	SF85
LTL 150-53	94907262	TPGC 53	1.500	14	1.500	3.750	.750	.300	SF85
LTR 200-53	95008062	TPGC 53	2.000	14	2.000	3.750	1.000	.300	SF85
LTL 200-53	94908062	TPGC 53	2.000	14	2.000	3.750	1.000	.300	SF85

*Over NV Insert

TOOL-FLO



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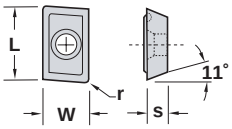
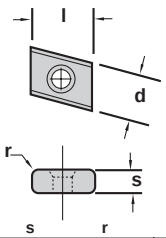
MILLING INSERTS

APKT



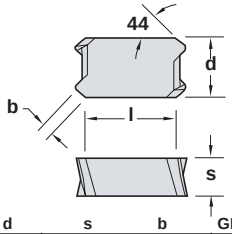
Description	EDP Code	L	W	s	r	GP201	AC202	AG6M	P56M	G55M	P5M	GP5	AC5
APKT 1003PDER-SCM	MAPKT1003SCM	0.413	0.263	0.137	0.019	●	●		●		●		

CDE



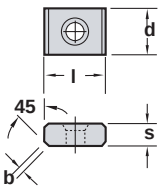
Description	EDP Code	l	d	s	r	C56	AC202	AG6M	P56M	G55M	P5M	GP5	AC5
CDE 313-R01	MC31301R	0.375	0.437	0.187	.020 x 45°							●	
CDE 313-R15	MC31305R	0.375	0.437	0.187	0.125							●	
CDE 313-R64	MC31364R	0.375	0.437	0.187	0.060							●	
CDE 322-L02	MC32202L	0.500	0.375	0.150	0.060							●	
CDE 322-L03	MC32203L	0.500	0.375	0.150	0.090							●	●
CDE 322-L04	MC32204L	0.500	0.375	0.150	0.125							●	
CDE 322-L05	MC32205L	0.500	0.375	0.150	0.031	●						●	
CDE 322-R02	MC32202R	0.500	0.375	0.150	0.060							●	
CDE 322-R03	MC32203R	0.500	0.375	0.150	0.090							●	●
CDE 322-R04	MC32204R	0.500	0.375	0.150	0.125							●	
CDE 322-R05	MC32205R	0.500	0.375	0.150	0.031	●						●	
CDE 322-R10	MC32210R	0.500	0.375	0.150	0.015							●	
CDE 323-L05	MC32305L	0.500	0.375	0.187	0.031	●						●	
CDE 323-R01	MC32301R	0.500	0.375	0.187	.020 x 45°							●	
CDE 323-R05	MC32305R	0.500	0.375	0.187	0.031	●						●	
CDE 334-R04	MC33404R	0.750	0.375	0.250	0.030							●	
CDE 334-R09	MC33409R	0.750	0.375	0.250	0.030							●	
CDE 424-R01	MC42401R	0.500	0.562	0.250	.020 x 45°							●	
CDE 424-R22	MC42422R	0.500	0.562	0.250	0.060							●	
CDE 424-R24	MC42424R	0.500	0.562	0.250	0.125							●	

LNCX



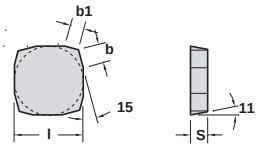
Description	EDP Code	l	d	s	b	GP201	AC202	AG6M	P56M	G55M	P5M	GP5	AC5
LNCX 1806AZ-L11	MLNCXL	0.739	0.394	0.250	0.085							●	●
LNCX 1806AZ-R11	MLNCXR	0.739	0.394	0.250	0.085							●	●

LNE



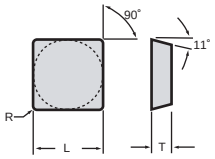
Description	EDP Code	l	d	s	b	C56	AC202	AG6M	P56M	G55M	P5M	GP5	AC5
LNE 323-02	ML323	0.625	0.375	0.187	.030 x 45°							●	
LNE 323-04	ML32304	0.625	0.375	0.187	0.060							●	
LNE 323-88	ML32388	0.625	0.375	0.187	.060 x 45°							●	
LNE 324-01	ML32401	0.625	0.375	0.250	0.060							●	
LNE 324-05	ML32405	0.625	0.375	0.250	.030 x 45°							●	
LNE 324-11	ML32411	0.625	0.375	0.250	0.125							●	
LNE 324-47	ML32447	0.625	0.375	0.250	.060 x 45°							●	
LNE 434-02	ML43402	0.750	0.562	0.250	.030 x 45°	●						●	
LNE 443-01	ML44301	1.000	0.562	0.250	0.093							●	

SEKN



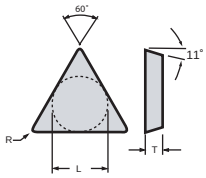
Description	EDP Code	l	s	b	b1	AG450	A460	AG501	P56M	G55M	P5M	GP5	AT5
SEKN 42AFSN	MSEKN425N	0.500	0.125	-	-							●	
SEKN 42AFSN-11	MSEKN425N11	0.500	0.125	-	-							●	
SEKN 42AFSN-HCM	MSEKN425NHCM	0.500	0.125	-	-							●	
SEKN 42AFSN-SCM	MSEKN425NSCM	0.500	0.125	-	-							●	
SEKN 53AFSN	MSEKN535N	0.625	0.188	-	-							●	
SEKN 53AFSN-11	MSEKN535N11	0.625	0.188	-	-							●	

SPG



Description	EDP Code	L	L	T	r	GP201	AT202	AG6M	P56M	G55M	P5M	GP5	AT5
SPG 422	MSG422	0.500	0.500	0.125	0.031							●	
SPG 423	MSG423	0.500	0.500	0.125	0.047							●	
SPG 633	MSG633	0.750	0.750	0.187	0.047							●	
SPG 634	MSG634	0.750	0.750	0.187	0.062							●	

TPG

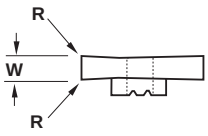


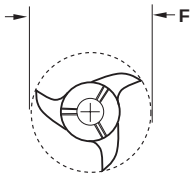
Description	EDP Code	l	T	R	C3	C56	AG6M	P56M	G55M	P5M	GP5	AT5
TPG 321	MTG321	0.620	0.125	0.015		●					●	
TPG 322	MTG322	0.620	0.125	0.031	●	●					●	
TPG 431	MTG431	0.866	0.187	0.015		●					●	
TPG 432	MTG432	0.866	0.187	0.031							●	
TPG 433	MTG433	0.866	0.187	0.047							●	

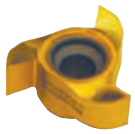
MILL GROOVING INSERT

TFMG

Grooving



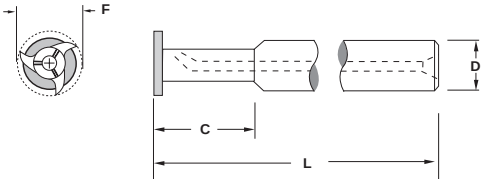




Description	EDP Code	W	D.O.C.	R	F	GP22
TFMG-039W	9MG039O3	0.039	.177	-	0.854	●
TFMG-056W	9MG056O3	0.056	.177	-	0.854	●
TFMG-062W	9MG062O3	0.062	.177	0.008	0.854	●
TFMG-078W	9MG078O3	0.078	.177	0.008	0.854	●
TFMG-094W	9MG094O3	0.094	.177	0.008	0.854	●
TFMG-125W	9MG125O3	0.125	.177	0.008	0.854	●
TFMG-187W	9MG187O3	0.187	.177	0.008	0.854	●
TFMG-250W	9MG250O3	0.250	.177	0.008	0.854	●

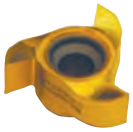
MILL GROOVING HOLDER

TFM



Description	EDP Code	C	L	D	F	Insert Screw
TFM-7-12M-100C	9CMI712M100	Straight shank	100mm	12mm	0.854	SD25
TFM-7-12M-130C	9CMI712M130	Straight shank	130mm	12mm	0.854	SD25
TFM-7-16M-42C	9CMI716M42	42mm	100mm	16mm	0.854	SD25
TFM-7-16M-60C	9CMI716M60	60mm	130mm	16mm	0.854	SD25
TFM-7-16M-85C	9CMI716M85	85mm	160mm	16mm	0.854	SD25
TFM-7-500-394C	9CMI7500394	Straight shank	3.94	0.500	0.854	SD25
TFM-7-500-512C	9CMI7500512	Straight shank	5.12	0.500	0.854	SD25
TFM-7-625-165C	9CMI7625165	1.650	3.94	0.625	0.854	SD25
TFM-7-625-236C	9CMI7625236	2.630	5.12	0.625	0.854	SD25
TFM-7-625-335C	9CMI7625335	3.350	6.30	0.625	0.854	SD25

Mill Grooving - TFMG



Workpiece Group	Recommended Speed & Feed rate - inch/rev (mm/rev)	
	Cutting Speed (sfpm)	*Feed Rate (fpt)*
		Rigid ‣ Very Rigid*
Free Machining Carbon Steels	600 - 700	.010 - .016
Plain Carbon Steels	600 - 700	.010 - .016
Alloy Steels 190-330 HB	350 - 450	.010 - .016
Alloy Steels 330-450 HB	350 - 450	.010 - .016
Martensitic/Ferritic Stainless Steel 400 Series	200 - 400	.010 - .016
Austenitic Stainless 300 Series	350 - 550	.010 - .016
Gray Cast Iron 190-330 HB	300 - 350	.012 - .020
Gray Cast Iron 330-450 HB	300	.012 - .020
Alloy / Ductile Irons	200 - 300	.012 - .020
Free Machining Aluminum Alloys	500 - 2300	.012 - .020
High-Silicon Aluminum Alloys	450 - 900	.012 - .020
Copper / Zinc / Brass	120 - 450	.012 - .020
Non-Metallics	120 - 300	.012 - .020
High Temperature Alloys 200-260 HB	100 - 250	.004 - .010
High Temperature Alloys 260-450 HB	80 - 130	.003 - .008
Titanium Alloys (Ti 6Al-4V)	80 - 130	.003 - .008
Hardened Materials 48-65 HRC	---	---

* For not rigid set ups start at .0005 fpt

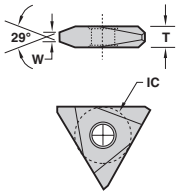
TOOL-FLO

ON EDGE

ACME

TNMA

Straight hole

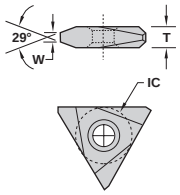


Description	EDP Code	TPI	W	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 32 NT 6P	0208060	6	.0566	.375	.127	●	●		●		●
TNMA 32 NT 8P	0208080	8	.0411	.375	.127	●	●		●	●	●
TNMA 32 NT 10P	0208100	10	.0319	.375	.127			●	●		●
TNMA 32 NT 12P	0208120	12	.0283	.375	.127				●		●
TNMA 32 NT 14P	0208140	14	.0239	.375	.127				●		
TNMA 32 NT 16P	0208160	16	.0206	.375	.127				●		
TNMA 43 NT 4P	0239040	4	.0875	.500	.189			●	●	●	●
TNMA 43 NT 5P	0239050	5	.0689	.500	.189			●	●	●	●
TNMA 43 NT 6P	0239060	6	.0566	.500	.189			●	●	●	●
TNMA 43 NT 8P	0239080	8	.0411	.500	.189			●	●	●	●
TNMA 43 NT 10P	0239100	10	.0319	.500	.189			●	●	●	●
TNMA 43 NT 12P	0239120	12	.0283	.500	.189				●	●	
TNMA 43 NT 14P	0239140	14	.0239	.500	.189				●		
TNMA 43 NT 16P	0239160	16	.0206	.500	.189				●		
TNMA 54 NT 3P	0251030	3	.1184	.625	.252			●	●	●	●
TNMA 54 NT 4P	0251040	4	.0875	.625	.252			●	●	●	●
TNMA 54 NT 5P	0251050	5	.0689	.625	.252			●	●	●	●
TNMA 55 NT 2.5P	02550250	2.5	.1431	.625	.312				●		
TNMA 66 NT 2P	0279020	2	.1802	.750	.375				●		

*Acme threads provided with sharp corners - radius available on a quotation basis.

TNMC

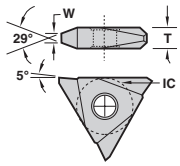
Countersink hole



Description	EDP Code	TPI	W	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 32 NT 6P	0209060	6	.0566	.375	.127			●	●	●	●
TNMC 32 NT 8P	0209080	8	.0411	.375	.127			●	●	●	●
TNMC 32 NT 10P	0209100	10	.0319	.375	.127			●	●	●	●
TNMC 32 NT 12P	0209120	12	.0283	.375	.127				●		
TNMC 32 NT 14P	0209140	14	.0239	.375	.127				●		
TNMC 32 NT 16P	0209160	16	.0206	.375	.127				●		
TNMC 43 NT 4P	0241040	4	.0875	.500	.189			●	●	●	●
TNMC 43 NT 5P	0241050	5	.0689	.500	.189			●	●	●	●
TNMC 43 NT 6P	0241060	6	.0566	.500	.189			●	●	●	●
TNMC 43 NT 8P	0241080	8	.0411	.500	.189			●	●	●	●
TNMC 43 NT 10P	0241100	10	.0319	.500	.189			●	●	●	●
TNMC 43 NT 12P	0241120	12	.0283	.500	.189				●		
TNMC 43 NT 14P	0241140	14	.0239	.500	.189				●		
TNMC 43 NT 16P	0241160	16	.0206	.500	.189				●		
TNMC 54 NT 3P	0253030	3	.1184	.625	.252			●	●	●	●
TNMC 54 NT 4P	0253040	4	.0875	.625	.252			●	●	●	●
TNMC 54 NT 5P	0253050	5	.0689	.625	.252			●	●		●
TNMC 55 NT 2.5P	02560250	2.5	.1431	.625	.312				●		
TNMC 66 NT 2P	0280020	2	.1802	.750	.375		●		●		●

TPMA

Straight hole - Positive Rake



Description	EDP Code	TPI	W	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TPMA 32 NT 6P	0210060	6	.0566	.375	.127					●	
TPMA 32 NT 8P	0210080	8	.0411	.375	.127					●	
TPMA 32 NT 10P	0210100	10	.0319	.375	.127					●	
TPMA 32 NT 12P	0210120	12	.0283	.375	.127					●	
TPMA 43 NT 4P	0240040	4	.0875	.500	.189					●	
TPMA 43 NT 5P	0240050	5	.0689	.500	.189					●	
TPMA 43 NT 6P	0240060	6	.0566	.500	.189					●	
TPMA 43 NT 8P	0240080	8	.0411	.500	.189					●	

*Acme threads provided with sharp corners radius available on a quotation basis.

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

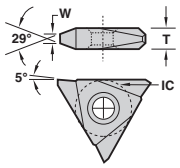
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron					●	
Non-Ferrous					●	
Stainless/High Temp					●	
Steel				▲		●

ACME

TPMC

Countersink hole - Positive Rake

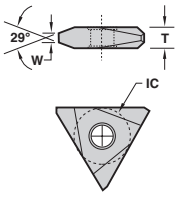


Description	EDP Code	TPI	W	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TPMC 32 NT 6P	0211060	6	.0566	.375	.127					●	
TPMC 32 NT 8P	0211080	8	.0411	.375	.127					●	
TPMC 32 NT 10P	0211100	10	.0319	.375	.127					●	
TPMC 32 NT 12P	0211120	12	.0283	.375	.127					●	
TPMC 43 NT 4P	0242040	4	.0875	.500	.189					●	
TPMC 43 NT 5P	0242050	5	.0689	.500	.189					●	
TPMC 43 NT 6P	0242060	6	.0566	.500	.189					●	
TPMC 43 NT 8P	0242080	8	.0411	.500	.189					●	

STUB ACME

TNMA

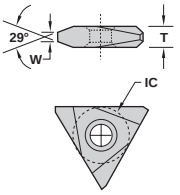
Straight hole



Description	EDP Code	TPI	W	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 32 NT 6P STUB	0208061	6	.0652	.375	.127			●	●		●
TNMA 32 NT 8P STUB	0208081	8	.0476	.375	.127			●	●		●
TNMA 32 NT 10P STUB	0208101	10	.0370	.375	.127			●	●		●
TNMA 32 NT 12P STUB	0208121	12	.0326	.375	.127				●		
TNMA 32 NT 14P STUB	0208141	14	.0276	.375	.127				●		
TNMA 32 NT 16P STUB	0208161	16	.0238	.375	.127				●		
TNMA 43 NT 4P STUB	0239041	4	.1004	.500	.189			●	●		●
TNMA 43 NT 5P STUB	0239051	5	.0793	.500	.189			●	●		●
TNMA 43 NT 6P STUB	0239061	6	.0652	.500	.189			●	●	●	●
TNMA 43 NT 8P STUB	0239081	8	.0476	.500	.189			●	●	●	●
TNMA 43 NT 10P STUB	0239101	10	.0370	.500	.189			●	●	●	●
TNMA 43 NT 12P STUB	0239121	12	.0326	.500	.189				●		
TNMA 43 NT 14P STUB	0239141	14	.0276	.500	.189				●		
TNMA 43 NT 16P STUB	0239161	16	.0238	.500	.189				●		
TNMA 54 NT 3P STUB	0251031	3	.1356	.625	.252				●	●	●
TNMA 54 NT 4P STUB	0251041	4	.1004	.625	.252				●	●	●
TNMA 54 NT 5P STUB	0251051	5	.0793	.625	.252				●	●	●
TNMA 55 NT 2.5P STUB	02550251	2.5	.1638	.625	.312				●		
TNMA 66 NT 2P STUB	0279021	2	.2060	.750	.375				●		

TNMC

Countersink hole



Description	EDP Code	TPI	W	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 32 NT 6P STUB	0209061	6	.0652	.375	.127			●	●	●	●
TNMC 32 NT 8P STUB	0209081	8	.0476	.375	.127			●	●	●	●
TNMC 32 NT 10P STUB	0209101	10	.0370	.375	.127			●	●		●
TNMC 32 NT 12P STUB	0209121	12	.0326	.375	.127				●		
TNMC 32 NT 14P STUB	0209141	14	.0276	.375	.127				●		
TNMC 32 NT 16P STUB	0209161	16	.0238	.375	.127				●		
TNMC 43 NT 4P STUB	0241041	4	.1004	.500	.189			●	●	●	●
TNMC 43 NT 5P STUB	0241051	5	.0793	.500	.189			●	●	●	●
TNMC 43 NT 6P STUB	0241061	6	.0652	.500	.189			●	●	●	●
TNMC 43 NT 8P STUB	0241081	8	.0476	.500	.189			●	●	●	●
TNMC 43 NT 10P STUB	0241101	10	.0370	.500	.189			●	●	●	●
TNMC 43 NT 12P STUB	0241121	12	.0326	.500	.189				●		
TNMC 43 NT 14P STUB	0241141	14	.0276	.500	.189				●		
TNMC 43 NT 16P STUB	0241161	16	.0238	.500	.189				●		
TNMC 54 NT 3P STUB	0253031	3	.1356	.625	.252			●	●	●	●
TNMC 54 NT 4P STUB	0253041	4	.1004	.625	.252			●	●	●	●
TNMC 54 NT 5P STUB	0253051	5	.0793	.625	.252			●	●		●
TNMC 66 NT 2P STUB	0280021	2	.2060	.750	.375				●		●

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

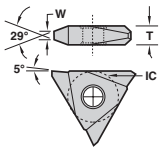
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
Cast Iron					●	
Non-Ferrous					●	
Stainless/High Temp					●	
Steel				▲		●

STUB ACME

TPMA

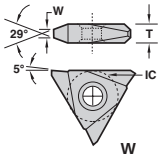
Straight hole - Positive Rake



Description	EDP Code	TPI	W	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TPMA 32 NT 6P STUB	0210061	6	.0652	.375	.127					●	
TPMA 32 NT 8P STUB	0210081	8	.0476	.375	.127					●	
TPMA 32 NT 10P STUB	0210101	10	.0370	.375	.127					●	
TPMA 32 NT 12P STUB	0210121	12	.0326	.375	.127					●	
TPMA 43 NT 4P STUB	0240041	4	.1004	.500	.189					●	
TPMA 43 NT 5P STUB	0240051	5	.0793	.500	.189					●	
TPMA 43 NT 6P STUB	0240061	6	.0652	.500	.189					●	
TPMA 43 NT 8P STUB	0240081	8	.0476	.500	.189					●	

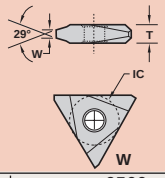
TPMC

Countersink hole - Positive Rake



Description	EDP Code	TPI	W	IC	T	C3	C6H	GP3	GP50	AC3	AC50
TPMC 32 NT 6P STUB	0211061	6	.0652	.375	.127					●	
TPMC 32 NT 8P STUB	0211081	8	.0476	.375	.127					●	
TPMC 32 NT 10P STUB	0211101	10	.0370	.375	.127					●	
TPMC 32 NT 12P STUB	0211121	12	.0326	.375	.127					●	
TPMC 43 NT 4P STUB	0242041	4	.1004	.500	.189					●	
TPMC 43 NT 5P STUB	0242051	5	.0793	.500	.189					●	
TPMC 43 NT 6P STUB	0242061	6	.0652	.500	.189					●	
TPMC 43 NT 8P STUB	0242081	8	.0476	.500	.189					●	

PARTIAL TOPPING ACME



TNMA (with corner radii)

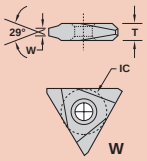
Straight hole

Description	EDP Code	TPI	W	IC	T	C3	C6H	GP3	GP50	AC3	AC50
TNMA 32 NT 6P-PT	0208060PT	6	.0566	.375	.127	●	●		●		●
TNMA 32 NT 8P-PT	0208080PT	8	.0411	.375	.127	●	●		●	●	●
TNMA 32 NT 10P-PT	0208100PT	10	.0319	.375	.127			●	●		●
TNMA 32 NT 12P-PT	0208120PT	12	.0283	.375	.127				●		●
TNMA 32 NT 14P-PT	0208140PT	14	.0239	.375	.127				●		
TNMA 32 NT 16P-PT	0208160PT	16	.0206	.375	.127				●		
TNMA 43 NT 4P-PT	0239040PT	4	.0875	.500	.189			●	●	●	●
TNMA 43 NT 5P-PT	0239050PT	5	.0689	.500	.189			●	●	●	●
TNMA 43 NT 6P-PT	0239060PT	6	.0566	.500	.189			●	●	●	●
TNMA 43 NT 8P-PT	0239080PT	8	.0411	.500	.189			●	●	●	●
TNMA 43 NT 10P-PT	0239100PT	10	.0319	.500	.189			●	●	●	●
TNMA 43 NT 12P-PT	0239120PT	12	.0283	.500	.189				●		
TNMA 43 NT 14P-PT	0239140PT	14	.0239	.500	.189				●		
TNMA 43 NT 16P-PT	0239160PT	16	.0206	.500	.189				●		
TNMA 54 NT 3P-PT	0251030PT	3	.1184	.625	.252			●	●	●	●
TNMA 54 NT 4P-PT	0251040PT	4	.0875	.625	.252			●	●	●	●
TNMA 54 NT 5P-PT	0251050PT	5	.0689	.625	.252			●	●		●
TNMA 55 NT 2.5P-PT	02550250PT	2.5	.1431	.625	.312				●		
TNMA 66 NT 2P-PT	0279020PT	2	.1802	.750	.375				●		●

*Acme threads provided with sharp corners - radius available on a quotation basis.

TNMC (with corner radii)

Countersink hole

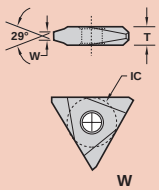


Description	EDP Code	TPI	W	IC	T	C3	C6H	GP3	GP50	AC3	AC50
TNMC 32 NT 6P-PT	0209060PT	6	.0566	.375	.127			●	●	●	●
TNMC 32 NT 8P-PT	0209080PT	8	.0411	.375	.127			●	●	●	●
TNMC 32 NT 10P-PT	0209100PT	10	.0319	.375	.127			●	●		●
TNMC 32 NT 12P-PT	0209120PT	12	.0283	.375	.127				●		
TNMC 32 NT 14P-PT	0209140PT	14	.0239	.375	.127				●		
TNMC 32 NT 16P-PT	0209160PT	16	.0206	.375	.127				●		
TNMC 43 NT 4P-PT	0241040PT	4	.0875	.500	.189			●	●	●	●
TNMC 43 NT 5P-PT	0241050PT	5	.0689	.500	.189			●	●	●	●
TNMC 43 NT 6P-PT	0241060PT	6	.0566	.500	.189			●	●	●	●
TNMC 43 NT 8P-PT	0241080PT	8	.0411	.500	.189			●	●	●	●
TNMC 43 NT 10P-PT	0241100PT	10	.0319	.500	.189			●	●	●	●
TNMC 43 NT 12P-PT	0241120PT	12	.0283	.500	.189				●		
TNMC 43 NT 14P-PT	0241140PT	14	.0239	.500	.189				●		
TNMC 43 NT 16P-PT	0241160PT	16	.0206	.500	.189				●		
TNMC 54 NT 3P-PT	0253030PT	3	.1184	.625	.252			●	●	●	●
TNMC 54 NT 4P-PT	0253040PT	4	.0875	.625	.252			●	●	●	●
TNMC 54 NT 5P-PT	0253050PT	5	.0689	.625	.252			●	●		●
TNMC 55 NT 2.5P-PT	02560250PT	2.5	.1431	.625	.312				●		
TNMC 66 NT 2P-PT	0280020PT	2	.1802	.750	.375				●		●

PARTIAL TOPPING STUB ACME

TNMA (with corner radii)

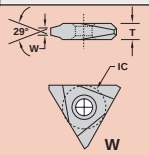
Straight hole



Description	EDP Code	TPI	W	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 32 NT 6P STUB-PT	0208061PT	6	.0652	.375	.127			●	●		●
TNMA 32 NT 8P STUB-PT	0208081PT	8	.0476	.375	.127			●	●	●	●
TNMA 32 NT 10P STUB-PT	0208101PT	10	.0370	.375	.127			●	●		●
TNMA 32 NT 12P STUB-PT	0208121PT	12	.0326	.375	.127				●		●
TNMA 32 NT 14P STUB-PT	0208141PT	14	.0276	.375	.127				●		
TNMA 32 NT 16P STUB-PT	0208161PT	16	.0238	.375	.127				●		
TNMA 43 NT 4P STUB-PT	0239041PT	4	.1004	.500	.189			●	●	●	●
TNMA 43 NT 5P STUB-PT	0239051PT	5	.0793	.500	.189			●	●	●	●
TNMA 43 NT 6P STUB-PT	0239061PT	6	.0652	.500	.189			●	●	●	●
TNMA 43 NT 8P STUB-PT	0239081PT	8	.0476	.500	.189			●	●	●	●
TNMA 43 NT 10P STUB-PT	0239101PT	10	.0370	.500	.189			●	●	●	●
TNMA 43 NT 12P STUB-PT	0239121PT	12	.0326	.500	.189				●		
TNMA 43 NT 14P STUB-PT	0239141PT	14	.0276	.500	.189				●		
TNMA 43 NT 16P STUB-PT	0239161PT	16	.0238	.500	.189				●		
TNMA 54 NT 3P STUB-PT	0251031PT	3	.1356	.625	.252				●	●	●
TNMA 54 NT 4P STUB-PT	0251041PT	4	.1004	.625	.252				●	●	●
TNMA 54 NT 5P STUB-PT	0251051PT	5	.0793	.625	.252				●	●	●
TNMA 55 NT 2.5P STUB-PT	02550251PT	2.5	.1638	.625	.312				●		
TNMA 66 NT 2P STUB-PT	0279021PT	2	.2060	.750	.375				●		

TNMC (with corner radii)

Countersink hole



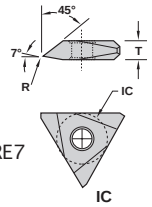
Description	EDP Code	TPI	W	IC	T	C3	C6H	GP3	GP50	AC3	AC50
TNMC 32 NT 6P STUB-PT	0209061PT	6	.0652	.375	.127			●	●	●	●
TNMC 32 NT 8P STUB-PT	0209081PT	8	.0476	.375	.127			●	●	●	●
TNMC 32 NT 10P STUB-PT	0209101PT	10	.0370	.375	.127			●	●	●	●
TNMC 32 NT 12P STUB-PT	0209121PT	12	.0326	.375	.127				●		
TNMC 32 NT 14P STUB-PT	0209141PT	14	.0276	.375	.127				●		
TNMC 32 NT 16P STUB-PT	0209161PT	16	.0238	.375	.127				●		
TNMC 43 NT 4P STUB-PT	0241041PT	4	.1004	.500	.189			●	●	●	●
TNMC 43 NT 5P STUB-PT	0241051PT	5	.0793	.500	.189			●	●	●	●
TNMC 43 NT 6P STUB-PT	0241061PT	6	.0652	.500	.189			●	●	●	●
TNMC 43 NT 8P STUB-PT	0241081PT	8	.0476	.500	.189			●	●	●	●
TNMC 43 NT 10P STUB-PT	0241101PT	10	.0370	.500	.189			●	●	●	●
TNMC 43 NT 12P STUB-PT	0241121PT	12	.0326	.500	.189				●		
TNMC 43 NT 14P STUB-PT	0241141PT	14	.0276	.500	.189				●		
TNMC 43 NT 16P STUB-PT	0241161PT	16	.0238	.500	.189				●		
TNMC 54 NT 3P STUB-PT	0253031PT	3	.1356	.625	.252			●	●	●	●
TNMC 54 NT 4P STUB-PT	0253041PT	4	.1004	.625	.252			●	●	●	●
TNMC 54 NT 5P STUB-PT	0253051PT	5	.0793	.625	.252			●	●		●
TNMC 66 NT 2P STUB-PT	0280021PT	2	.2060	.750	.375		●		●		●

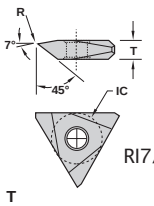
AMERICAN STANDARD BUTTRESS

TNMA & TNMC

For thread specifications & applications see page

RI45/RE7





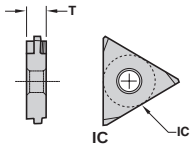
RI7/RE45

Description	EDP Code	TPI	R	IC	T	Lead Angle	C3	C6H	GP3	GP50	AC3	AC50
TNMA 43 ASB RI45/RE7	403900R008	8-16	.007-.009	.500	.189	45° Internal/7° External				●		
TNMA 43 ASB RI7/RE45	393900R008	8-16	.007-.009	.500	.189	7° Internal/45° External				●		
TNMA 54 ASB RI45/RE7	405100R010	4-6	.009-.011	.625	.252	45° Internal/7° External				●		
TNMA 54 ASB RI7/RE45	395100R010	4-6	.009-.011	.625	.252	7° Internal/45° External				●		
TNMC 43 ASB RI45/RE7	404100R008	8-16	.007-.009	.500	.189	45° Internal/7° External				●		
TNMC 43 ASB RI7/RE45	394100R008	8-16	.007-.009	.500	.189	7° Internal/45° External				●		
TNMC 54 ASB RI45/RE7	405300R010	4-6	.009-.011	.625	.252	45° Internal/7° External				●		
TNMC 54 ASB RI7/RE45	395300R010	4-6	.009-.011	.625	.252	7° Internal/45° External				●		

API BUTTRESS

TNMA

Straight hole



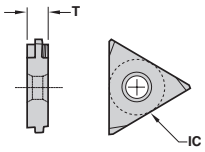
Description	EDP Code	TPI	TPF	IC	T	Conn. No.	C3	C6H	GP3	GP50	AC3	AC50
TNMA 43 8B75 EXT-FC*	21394F	8	.750	.500	.189	U.S. Improved Buttress				●		
TNMA 44 5B75 EXT-FC	16434F	5	.750	.500	.252	4-1/2 - 13-3/8				●		
TNMA 54 5B1 EXT-FC	17514F	5	1.000	.625	.252	16 and larger				●		●
TNMA 54 5B75 EXT-FC	16514F	5	.750	.625	.252	4-1/2 - 13-3/8				●		●
TNMA 43 8B75 INT-FC	21398F	8	.750	.500	.189	U.S. Improved Buttress				●		
TNMA 44 5B75 INT-FC	16438F	5	.750	.500	.252	4-1/2 - 13-3/8				●		●
TNMA 54 5B1 INT-FC	17518F	5	1.000	.625	.252	16 and larger				●		●
TNMA 54 5B75 INT-FC	16518F	5	.750	.625	.252	4-1/2 - 13-3/8				●		●

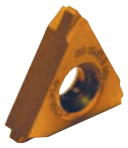
*FC designates flank clearance.

API BUTTRESS

TNMC

Countersink hole





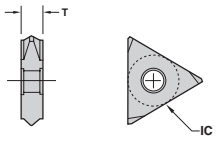
Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 43 8B75 EXT-FC*	21414F	8	.750	.500	.189	U.S. Improved Buttress				●		
TNMC 54 5B1 EXT-FC	17534F	5	1.000	.625	.252	16 and larger				●		●
TNMC 54 5B75 EXT-FC	16534F	5	.750	.625	.252	4-1/2 - 13-3/8				●		●
TNMC 43 8B75 INT-FC	21418F	8	.750	.500	.189	U.S. Improved Buttress				●		●
TNMC 54 5B1 INT-FC	17538F	5	1.000	.625	.252	16 and larger				●		●
TNMC 54 5B75 INT-FC	16538F	5	.750	.625	.252	4-1/2 - 13-3/8				●		●

*FC designates flank clearance.

API HUGHES H90

TNMA

Straight hole

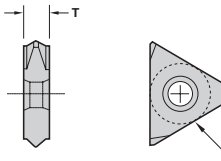


Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 55 H902 EXT	28554	3.5	2.000	.625	.312	3-1/2 - 6-5/8 H90				●		
TNMA 55 H903 EXT	29554	3.5	3.000	.625	.312	7 - 8-5/8 H90				●		
TNMA 56 H90S EXT	27Q14	3	1.250	.625	.375	2-3/8 - 3-1/2 Slimline				●		
TNMA 55 H902 INT	28558	3.5	2.000	.625	.312	3-1/2 - 6-5/8 H90				●		
TNMA 55 H903 INT	29558	3.5	3.000	.625	.312	7 - 8-5/8 H90				●		
TNMA 56 H90S INT	27Q18	3	1.250	.625	.375	2-3/8 - 3-1/2 Slimline				●		

API HUGHES H90

TNMC

Countersink hole

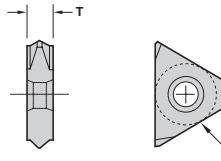


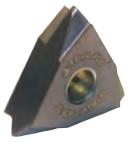
Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 55 H902 EXT	28564	3.5	2.000	.625	.312	3-1/2 - 6-5/8 H90				●		
TNMC 55 H903 EXT	29564	3.5	3.000	.625	.312	7 - 8-5/8 H90				●		
TNMC 56 H90S EXT	27Q34	3	1.250	.625	.375	2-3/8 - 3-1/2 Slimline				●		
TNMC 55 H902 INT	28568	3.5	2.000	.625	.312	3-1/2 - 6-5/8 H90				●		
TNMC 55 H903 INT	29568	3.5	3.000	.625	.312	7 - 8-5/8 H90				●		
TNMC 56 H90S INT	27Q38	3	1.250	.625	.375	2-3/8 - 3-1/2 Slimline				●		

API ROTARY SHOULDER CONNECTION

TNMA

Straight hole





Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 54 530 EXT	13514	5	3	.625	.252	3-1/2 FH, 2-3/8 - 4-1/2 Reg.				●		●
TNMA 55 425 EXT	09554	4	2	.625	.312	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.				●		●
TNMA 55 428 EXT	10554	4	2	.625	.312	NC23 - NC50, 2-3/8 - 5-1/2				●		●
TNMA 55 42F EXT*	14554	4	2	.625	.312	VO.065*						
TNMA 55 435 EXT	11554	4	3	.625	.312	5-1/2, 7-5/8, 8-5/8 Reg.				●		●
TNMA 55 438 EXT	12554	4	3	.625	.312	NC56 - NC71				●		●
TNMA 55 530 EXT	13554	5	3	.625	.312	3-1/2 FH, 2-3/8 - 4-1/2 Reg.				●		●
TNMA 55 4PAC EXT	15554	4	1.5	.625	.312	American Open Hole				●		
TNMA 54 530 INT	13518	5	3	.625	.252	3-1/2 FH, 2-3/8 - 4-1/2 Reg.				●		●
TNMA 55 425 INT	09558	4	2	.625	.312	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.				●		●
TNMA 55 428 INT	10558	4	2	.625	.312	NC23 - NC50, 2-3/8 - 5-1/2				●		●
TNMA 55 42F INT*	14558	4	2	.625	.312	VO.065*						
TNMA 55 435 INT	11558	4	3	.625	.312	5-1/2, 7-5/8, 8-5/8 Reg.				●		●
TNMA 55 438 INT	12558	4	3	.625	.312	NC56 - NC71				●		●
TNMA 55 530 INT	13558	5	3	.625	.312	3-1/2 FH, 2-3/8 - 4-1/2 Reg.				●		●
TNMA 55 4PAC INT	15558	4	1.5	.625	.312	American Open Hole				●		

*Obsolesent thread form - see API Spec 7, 35th Edition, May 1, 1985 Section 9.4.

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

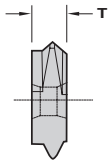
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

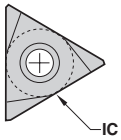
	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
Cast Iron						
Non-Ferrous						
Stainless/High Temp						
Steel				▲		●

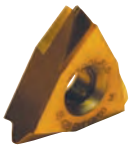
API ROTARY SHOULDER CONNECTION

TNMC

Countersink hole







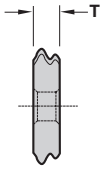
Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 54 530 EXT	13534	5	3	.625	.252	3-1/2 FH, 2-3/8 - 4-1/2 Reg.				●		●
TNMC 55 425 EXT	09564	4	2	.625	.312	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.				●		●
TNMC 55 428 EXT	10564	4	2	.625	.312	NC23 - NC50, 2-3/8 - 5-1/2				●		●
TNMC 55 42F EXT*	14564	4	2	.625	.312	VO.065*						
TNMC 55 435 EXT	11564	4	3	.625	.312	5-1/2, 7-5/8, 8-5/8 Reg.				●		●
TNMC 55 438 EXT	12564	4	3	.625	.312	NC56 - NC71				●		●
TNMC 55 530 EXT	13564	5	3	.625	.312	3-1/2 FH, 2-3/8 - 4-1/2 Reg.				●		●
TNMC 55 4PAC EXT	15564	4	1.5	.625	.312	American Open Hole				●		
TNMC 54 530 INT	13538	5	3	.625	.252	3-1/2 FH, 2-3/8 - 4-1/2 Reg.				●		●
TNMC 55 425 INT	09568	4	2	.625	.312	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.				●		●
TNMC 55 428 INT	10568	4	2	.625	.312	NC23 - NC50, 2-3/8 - 5-1/2				●		●
TNMC 55 42F INT*	14568	4	2	.625	.312	VO.065*						
TNMC 55 435 INT	11568	4	3	.625	.312	5-1/2, 7-5/8, 8-5/8 Reg.				●		●
TNMC 55 438 INT	12568	4	3	.625	.312	NC56 - NC71				●		●
TNMC 55 530 INT	13568	5	3	.625	.312	3-1/2 FH, 2-3/8 - 4-1/2 Reg.				●		●
TNMC 55 4PAC INT	15568	4	1.5	.625	.312	American Open Hole				●		

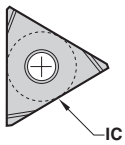
*Obsolesent thread form - see API Spec 7, 35th Edition, May 1, 1985 Section 9.4.

API ROUND

TNMA

Straight hole

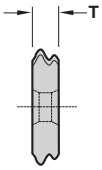


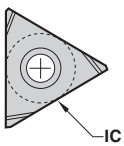


Description	EDP Code	TPI	TPF	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 43 8RD EXT	32394	8	.750	.500	.189				●	●	●
TNMA 43 10RD EXT	34394	10	.750	.500	.189				●		●
TNMA 54 8RD EXT	32514	8	.750	.625	.252				●		●
TNMA 43 8RD INT	32398	8	.750	.500	.189				●	●	●
TNMA 43 10RD INT	34398	10	.750	.500	.189				●		●
TNMA 54 8RD INT	32518	8	.750	.625	.252				●		●

TNMC

Countersink hole



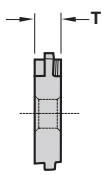


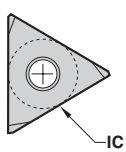
Description	EDP Code	TPI	TPF	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 43 8RD EXT	32414	8	.750	.500	.189				●	●	●
TNMC 43 10RD EXT	34414	10	.750	.500	.189				●		●
TNMC 54 8RD EXT	32534	8	.750	.625	.252				●		●
TNMC 43 8RD INT	32418	8	.750	.500	.189				●	●	●
TNMC 43 10RD INT	34418	10	.750	.500	.189				●		●
TNMC 54 8RD INT	32538	8	.750	.625	.252				●		●

API VAM

TNMA

Straight hole





Description	EDP Code	TPI	TPF	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 43 6VAM EXT	24394	6	.750	.500	.189				●		
TNMA 43 8VAM EXT	25394	8	.750	.500	.189				●		
TNMA 54 5VAM EXT	23514	5	.750	.625	.252				●		
TNMA 43 6VAM INT	24398	6	.750	.500	.189				●		
TNMA 43 8VAM INT	25398	8	.750	.500	.189				●		
TNMA 54 5VAM INT	23518	5	.750	.625	.252				●		

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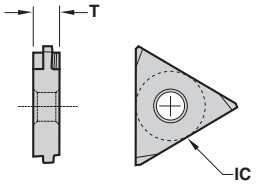
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron							
Non-Ferrous							
Stainless/High Temp							
Steel				▲		●	

API X-LINE

TNMA

Straight hole

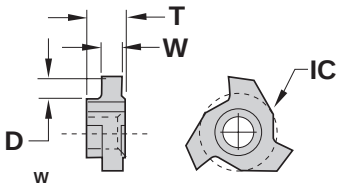


Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 54 5XL12 EXT	18514	5	1.250	.625	.252	8-5/8 - 10-3/4				●		
TNMA 54 6XL15 EXT	19514	6	1.500	.625	.252	5 - 7-5/8				●		
TNMA 54 6XL75 EXT	20514	6	.750	.625	.252	-				●		
TNMA 54 5XL12 INT	18518	5	1.250	.625	.252	8-5/8 - 10-3/4				●		
TNMA 54 6XL15 INT	19518	6	1.500	.625	.252	5 - 7-5/8				●		
TNMA 54 6XL75 INT	20518	6	.750	.625	.252	-				●		

GROOVING

TNEB

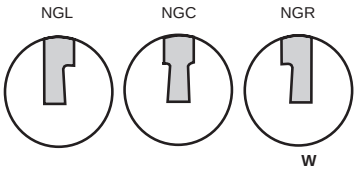
Small Diameter

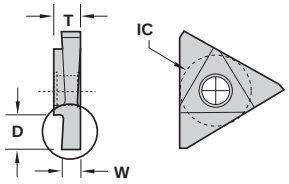


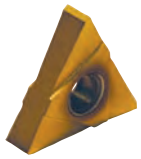
Description	EDP Code	Inch	Metric	D	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP5	AlTiN Coated AC3	AlTiN Coated AC50
TNEB 2.52 NGL-40 W.125	LD512500	.125	3,18	.070	.312	.125				●		
TNEB 33 NGL-40 W.062	L1206200	.062	1,57	.120	.375	.187				●		
TNEB 33 NGL-40 W.094	L1209400	.094	2,39	.120	.375	.187				●		
TNEB 33 NGL-40 W.125	L1212500	.125	3,18	.120	.375	.187				●		
TNEB 33 NGL-40 W.187	L1218700	.187	4,75	.120	.375	.187				●		

TNMA

Straight hole







Description	EDP Code	Inch	Metric	D	IC	T	Uncoated C25	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 32 NGC W.062	C0806200	.062	1,57	.150	.375	.127			●	●		●
TNMA 32 NGC W.094	C0809400	.094	2,39	.150	.375	.127			●	●		●
TNMA 32 NG W.125	C0912500	.125	3,18	.150	.375	.127			●	●		●
TNMA 33 NG W.187	CK318700	.187	4,75	.150	.375	.189				●		
TNMA 43 NGC W.062	C3906200	.062	1,57	.156	.500	.189			●	●		●
TNMA 43 NGC W.094	C3909400	.094	2,39	.215	.500	.189			●	●		●
TNMA 43 NGC W.125	C3912500	.125	3,18	.215	.500	.189			●	●		●
TNMA 43 NGC W.156	C3915600	.156	3,96	.215	.500	.189			●	●		●
TNMA 43 NG W.187	C3918700	.187	4,75	.215	.500	.189		●	●	●		●
TNMA 44 NG W.250	C4325000	.250	6,35	.215	.500	.250				●		
TNMA 54 NGC W.125	C5112500	.125	3,18	.275	.625	.252			●	●		●
TNMA 54 NGC W.187	C5118700	.187	4,75	.275	.625	.252			●	●		●
TNMA 54 NG W.250	C5125000	.250	6,35	.275	.625	.252			●	●		●
TNMA 55 NG W.312	C5531200	.312	7,92	.275	.625	.312						
TNMA 64 NG W.250	C7425000	.250	6,35	.335	.750	.250				●		
TNMA 66 NG W.375	C7937500	.375	9,53	.335	.750	.375				●		
TNMA 67 NG W.437	C8343700	.437	11,10	.335	.750	.437				●		
TNMA 69 NG W.562	C8856200	.562	14,27	.335	.750	.562				●		
TNMA 32 NGL W.062	L0806200	.062	1,57	.150	.375	.127				●		
TNMA 32 NGL W.094	L0809400	.094	2,39	.150	.375	.127				●		
TNMA 43 NGL W.062	L3906200	.062	1,57	.156	.500	.189				●		
TNMA 43 NGL W.094	L3909400	.094	2,39	.215	.500	.189				●		
TNMA 43 NGL W.125	L3912500	.125	3,18	.215	.500	.189				●		
TNMA 43 NGL W.156	L3915600	.156	3,96	.215	.500	.189				●		
TNMA 54 NGL W.125	L5112500	.125	3,18	.275	.625	.252				●		
TNMA 54 NGL W.187	L5118700	.187	4,75	.275	.625	.252				●		●
TNMA 32 NGR W.062	R0806200	.062	1,57	.150	.375	.127			●	●		●
TNMA 32 NGR W.094	R0809400	.094	2,39	.150	.375	.127			●	●		●
TNMA 43 NGR W.062	R3906200	.062	1,57	.156	.500	.189			●	●		●
TNMA 43 NGR W.094	R3909400	.094	2,39	.215	.500	.189			●	●		●
TNMA 43 NGR W.125	R3912500	.125	3,18	.215	.500	.189			●	●		●
TNMA 43 NGR W.156	R3915600	.156	3,96	.215	.500	.189			●	●		●
TNMA 54 NGR W.125	R5112500	.125	3,18	.275	.625	.252			●	●		●
TNMA 54 NGR W.187	R5118700	.187	4,75	.275	.625	.252			●	●		●

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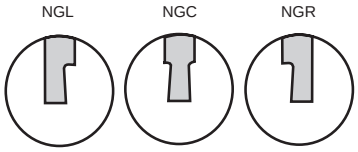
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

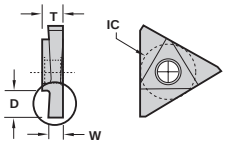
Cast Iron			●		
Non-Ferrous			●		
Stainless/High Temp			●		
Steel			▲		●

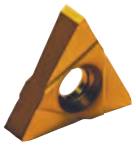
GROOVING

TNMC

Countersink hole



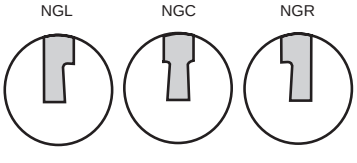


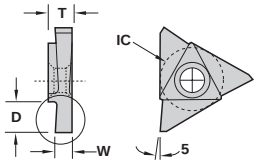


Description	EDP Code	Inch	Metric	D	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 32 NGC W.062	C0906200	.062	1,57	.150	.375	.127			●	●		●
TNMC 32 NGC W.094	C0909400	.094	2,39	.150	.375	.127			●	●		●
TNMC 32 NG W.125	C0912500	.125	3,18	.150	.375	.127			●	●		●
TNMC 33 NG W.187	CK818700	.187	4,75	.150	.375	.189				●		
TNMC 43 NGC W.062	C4106200	.062	1,57	.156	.500	.189			●	●		●
TNMC 43 NGC W.094	C4109400	.094	2,39	.215	.500	.189			●	●		●
TNMC 43 NGC W.125	C4112500	.125	3,18	.215	.500	.189			●	●		●
TNMC 43 NGC W.156	C4115600	.156	3,96	.215	.500	.189			●	●		●
TNMC 43 NG W.187	C4118700	.187	4,75	.215	.500	.189			●	●		●
TNMC 44 NG W.250	C4425000	.250	6,35	.215	.500	.250				●		
TNMC 54 NGC W.125	C5312500	.125	3,18	.275	.625	.252			●	●		●
TNMC 54 NGC W.187	C5318700	.187	4,75	.275	.625	.252			●	●		●
TNMC 54 NG W.250	C5325000	.250	6,35	.275	.625	.252		●	●	●		●
TNMC 55 NG W.312	C5631200	.312	7,92	.275	.625	.312				●		
TNMC 64 NG W.250	C7525000	.250	6,35	.335	.750	.250				●		
TNMC 66 NG W.375	C8037500	.375	9,53	.335	.750	.375				●		
TNMC 67 NG W.437	C8443700	.437	11,10	.335	.750	.437				●		
TNMC 69 NG W.562	C8956200	.562	14,27	.335	.750	.562				●		
TNMC 32 NGL W.062	L0906200	.062	1,57	.150	.375	.127				●		
TNMC 32 NGL W.094	L0909400	.094	2,39	.150	.375	.127				●		
TNMC 43 NGL W.062	L4106200	.062	1,57	.156	.500	.189				●		
TNMC 43 NGL W.094	L4109400	.094	2,39	.215	.500	.189				●		
TNMC 43 NGL W.125	L4112500	.125	3,18	.215	.500	.189				●		
TNMC 43 NGL W.156	L4115600	.156	3,96	.215	.500	.189				●		
TNMC 54 NGL W.125	L5312500	.125	3,18	.275	.625	.252				●		
TNMC 54 NGL W.187	L5318700	.187	4,75	.275	.625	.252				●		
TNMC 32 NGR W.062	R0906200	.062	1,57	.150	.375	.127			●	●		●
TNMC 32 NGR W.094	R0909400	.094	2,39	.150	.375	.127			●	●		●
TNMC 43 NGR W.062	R4106200	.062	1,57	.156	.500	.189			●	●		●
TNMC 43 NGR W.094	R4109400	.094	2,39	.215	.500	.189			●	●		●
TNMC 43 NGR W.125	R4112500	.125	3,18	.215	.500	.189			●	●		●
TNMC 43 NGR W.156	R4115600	.156	3,96	.215	.500	.189			●	●		●
TNMC 54 NGR W.125	R5312500	.125	3,18	.275	.625	.252			●	●		●
TNMC 54 NGR W.187	R5318700	.187	4,75	.275	.625	.252			●	●		●

TPMA

Straight hole - Positive Rake





Description	EDP Code	Inch	Metric	D	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TPMA 32 NGC W.062	C1006200	.062	1,57	.150	.375	.127				●		
TPMA 32 NGC W.094	C1009400	.094	2,39	.150	.375	.127				●		
TPMA 32 NG W.125	C1012500	.125	3,18	.150	.375	.127				●		
TPMA 33 NG W.187	CL318700	.187	4,75	.150	.375	.189				●		
TPMA 43 NGC W.062	C4006200	.062	1,57	.156	.500	.189				●		
TPMA 43 NGC W.094	C4009400	.094	2,39	.215	.500	.189				●		
TPMA 43 NGC W.125	C4012500	.125	3,18	.215	.500	.189				●		
TPMA 43 NG W.187	C4018700	.187	4,75	.215	.500	.189				●		
TPMA 44 NG W.250	C4525000	.250	6,35	.215	.500	.250						
TPMA 54 NG W.250	C5225000	.250	6,35	.275	.625	.252				●		
TPMA 55 NG W.312	C5631200	.312	7,92	.275	.625	.312				●		
TPMA 32 NGR W.062	R1006200	.062	1,57	.150	.375	.127				●		
TPMA 32 NGR W.094	R1009400	.094	2,39	.150	.375	.127				●		
TPMA 43 NGR W.062	R4006200	.062	1,57	.156	.500	.189				●		
TPMA 43 NGR W.094	R4009400	.094	2,39	.215	.500	.189				●		
TPMA 43 NGR W.125	R4012500	.125	3,18	.215	.500	.189				●		

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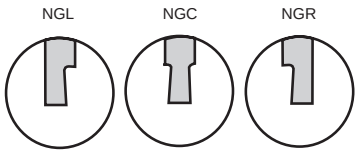
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

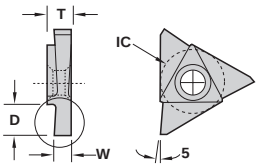
	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
Cast Iron			●			
Non-Ferrous			●			
Stainless/High Temp			●			
Steel				▲		●

GROOVING

TPMC

Countersink hole - Positive Rake



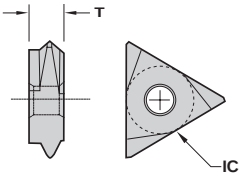


Description	EDP Code	W Inch	W Metric	D	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TPMC 32 NGC W.062	C1106200	.062	1,57	.150	.375	.127				●		
TPMC 32 NGC W.094	C1109400	.094	2,39	.150	.375	.127				●		
TPMC 32 NG W.125	C1112500	.125	3,18	.150	.375	.127				●		
TPMC 33 NG W.187	CL818700	.187	4,75	.150	.375	.189						
TPMC 43 NGC W.062	C4206200	.062	1,57	.156	.500	.189				●		
TPMC 43 NGC W.094	C4209400	.094	2,39	.215	.500	.189				●		
TPMC 43 NGC W.125	C4212500	.125	3,18	.215	.500	.189				●		
TPMC 43 NG W.187	C4218700	.187	4,75	.215	.500	.189				●		
TPMC 44 NG W.250	C4625000	.250	6,35	.215	.500	.250						
TPMC 54 NG W.250	C5425000	.250	6,35	.275	.625	.252				●		
TPMC 55 NG W.312	CP631200	.312	7,92	.275	.625	.312						
TPMC 32 NGL W.062	L1106200	.062	1,57	.150	.375	.127				●		
TPMC 32 NGL W.094	L1109400	.094	2,39	.150	.375	.127				●		
TPMC 43 NGL W.062	L4206200	.062	1,57	.156	.500	.189				●		
TPMC 43 NGL W.094	L4209400	.094	2,39	.215	.500	.189				●		
TPMC 43 NGL W.125	L4212500	.125	3,18	.215	.500	.189				●		
TPMC 32 NGR W.062	R1106200	.062	1,57	.150	.375	.127				●		
TPMC 32 NGR W.094	R1109400	.094	2,39	.150	.375	.127						
TPMC 43 NGR W.062	R4206200	.062	1,57	.156	.500	.189				●		
TPMC 43 NGR W.094	R4209400	.094	2,39	.215	.500	.189				●		
TPMC 43 NGR W.125	R4212500	.125	3,18	.215	.500	.189				●		

NPT

TNMA

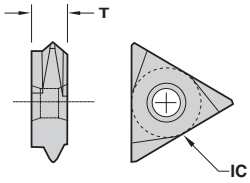
Straight hole



Description	EDP Code	Pipe Size	TPI	TPF	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 43 8NPT EXT	3639084	2.5" and up	8	.750	.500	.189				●		
TNMA 43 11.5NPT EXT	3639114	1"- 2"	11.5	.750	.500	.189				●		
TNMA 43 8NPT INT	3639088	2.5" and up	8	.750	.500	.189				●		
TNMA 43 11.5NPT INT	3639118	1"- 2"	11.5	.750	.500	.189				●		

TNMC

Countersink hole

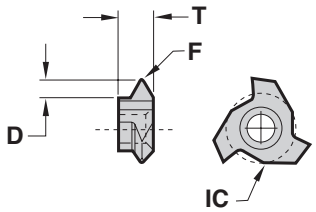


Description	EDP Code	Pipe Size	TPI	TPF	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 43 8NPT EXT	3641084	2.5" and up	8	.750	.500	.189				●		
TNMC 43 11.5NPT EXT	3641114	1"- 2"	11.5	.750	.500	.189				●		
TNMC 43 8NPT INT	3641088	2.5" and up	8	.750	.500	.189				●		
TNMC 43 11.5NPT INT	3641118	1"- 2"	11.5	.750	.500	.189				●		

60° V-THREADING

TNEB

Small Diameter



Description	EDP Code	TPI	F	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP5	AlTiN Coated AC3	AlTiN Coated AC50
TNEB 2.52 NVL-40	01D5000	7-32	.003/.005	.312	.125				●		
TNEB 33 NVL-40	0112000	5-16	.003/.005	.375	.187				●		

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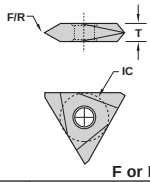
▲ Recommended grade under general conditions.

Cast Iron							
Non-Ferrous							
Stainless/High Temp							
Steel				●			

60° V-THREADING

TNMA

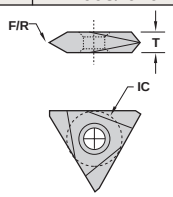
Straight hole



Description	EDP Code	TPI	F or R	IC	T	Uncoated C25	TiN Coated GP4	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 32 NV	0108000	8-36	.003/.005 Flat	.375	.127		●	●	●	●	●
TNMA 43 NV	0139000	5-24	.005/.007 Flat	.500	.189	●		●	●	●	●
TNMA 43 NV .010R	0139R10	4-20	.010 Radius	.500	.189			●	●		
TNMA 44 NV	0143000	4-24	.005/.009 Flat	.500	.250				●		
TNMA 54 NV	0151000	4-20	.008/.010 Flat	.625	.252	●	●	●	●	●	●
TNMA 54 NV .010R	0151R10	4-20	.010 Radius	.625	.252				●		
TNMA 54 NV .020R	0151R20	4-12	.020 Radius	.625	.252				●		
TNMA 54 NV .025R	0151R25	4-8	.025 Radius	.625	.252				●		
TNMA 54 NV .038R	0151R38	4-6	.038 Radius	.625	.252				●		
TNMA 64 NV	0174000	4-20	.008/.010 Flat	.750	.252						
TNMA 66 NV	0179000	3-12	.008/.010 Flat	.750	.375				●		

TNMC

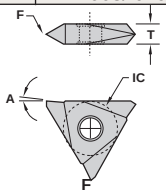
Countersink hole

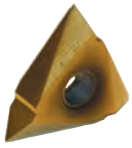


Description	EDP Code	TPI	F or R	IC	T	Uncoated C25	TiN Coated GP4	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMC 32 NV	0109000	8-36	.003/.005 Flat	.375	.127	●	●	●	●	●	●
TNMC 43 NV	0141000	5-24	.005/.007 Flat	.500	.189	●	●	●	●	●	●
TNMC 43 NV .010R	0141R10	4-20	.010 Radius	.500	.189			●	●		
TNMC 44 NV	0144000	4-24	.003/.005 Flat	.500	.250				●		
TNMC 54 NV	0153000	4-20	.008/.010 Flat	.625	.252	●	●	●	●	●	●
TNMC 54 NV .010R	0153R10	4-20	.010 Radius	.625	.252				●		●
TNMC 54 NV .020R	0153R20	4-12	.020 Radius	.625	.252				●		●
TNMC 54 NV .025R	0153R25	4-8	.025 Radius	.625	.252				●		●
TNMC 54 NV .038R	0153R38	4-6	.038 Radius	.625	.252				●		●
TNMC 64 NV	0175000	4-20	.008/.010 Flat	.750	.252						
TNMC 66 NV	0180000	3-12	.008/.010 Flat	.750	.375				●		

TPMA

Straight hole - Positive Rake

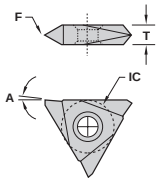




Description	EDP Code	TPI	F	A°	IC	T	Uncoated C25	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TPMA 32 NV	0110000	8-36	.003/.005	5	.375	.127			●	●	●	
TPMA 32 NV-10	0110100	8-36	.003/.005	10	.375	.127				●		
TPMA 43 NV	0140000	5-24	.005/.007	5	.500	.189	●		●	●	●	●
TPMA 43 NV-10	0140100	5-24	.005/.007	10	.500	.189				●		
TPMA 54 NV	0152000	4-20	.008/.010	5	.500	.252			●	●		
TPMA 66 NV	0181000	3-12	.008/.010	5	.750	.375				●		

TPMC

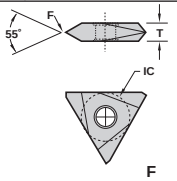
Countersink hole - Positive Rake



Description	EDP Code	TPI	F	A°	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TPMC 32 NV	0111000	8-36	.003/.005	5	.375	.127			●	●	●	
TPMC 32 NV-10	0111100	8-36	.003/.005	10	.375	.127				●		
TPMC 43 NV	0142000	5-24	.005/.007	5	.500	.189			●	●	●	●
TPMC 43 NV-10	0142100	5-24	.003/.005	10	.500	.189				●		
TPMC 54 NV	0154000	4-20	.008/.010	5	.500	.252			●	●		
TPMC 66 NV	0182000	3-12	.008/.010	5	.750	.375				●		

55° WHITWORTH

TNMA/C



Description	EDP Code	TPI	F	IC	T	Uncoated C3	Uncoated C6H	TiN Coated GP3	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
TNMA 43 NV-55	0139055	5-24	.005/.007	.500	.189				●		
TNMC 43 NV-55	0141055	5-24	.005/.007	.500	.189				●		

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▲ Recommended grade under general conditions.

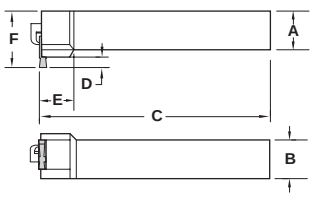
Cast Iron			▲		●
Non-Ferrous			▲		●
Stainless/High Temp			▲		●
Steel				▲		●

EXTERNAL HOLDER

MTHOR/L

Threading/Grooving

Most holders available with coolant port
(ie: Add CP to end of description)



RH SHOWN

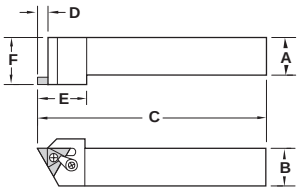
Description	EDP Code	Insert	A	B	C	D	E	F	PARTS Lock Pin	PARTS Clamp	PARTS Clamp Screw
MTHOR-164	95501656	T_MA/C 43	1	1	6	.19	.74	1.5	NL44	TC-250	STC11
MTHOL-164	95401656	T_MA/C 43	1	1	6	.19	.74	1.5	NL44	TC-250	STC11
MTHOR-204	95502056	T_MA/C 43	1-1/4	1-1/4	7	.19	.99	1.75	NL44	TC-250	STC11
MTHOR-165	95501664	T_MA/C 54	1	1	6	.24	.99	1.5	NL56	TC-250	STC11
MTHOL-165	95401664	T_MA/C 54	1	1	6	.24	.99	1.5	NL56	TC-250	STC11
MTHOR-205	95502064	T_MA/C 54	1-1/4	1-1/4	7	.24	.99	1.75	NL56	TC-250	STC11

MTVOR/L

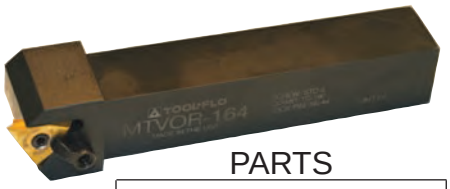
Threading/Grooving

Inch

Most holders available with coolant port
(ie: Add CP to end of description)



RH SHOWN



Description	EDP Code	Insert	A	B	C	D	E	F	PARTS Lock Pin	PARTS Clamp	PARTS Clamp Screw
MTVOR-123	96001248	T_MA/C 32	3/4	3/4	4-1/2	.15	1.08	1.00	NL33	TC-190	STC5
MTVOL-123	95901248	T_MA/C 32	3/4	3/4	4-1/2	.15	1.08	1.00	NL33	TC-190	STC5
MTVOR-163	96001648	T_MA/C 32	1	1	6	.15	1.08	1.25	NL33	TC-190	STC9
MTVOL-163	95901648	T_MA/C 32	1	1	6	.15	1.08	1.25	NL33	TC-190	STC9
MTVOR-124	96001256	T_MA/C 43	3/4	3/4	4-1/2	.23	1.23	1.00	NL44	TC-190	STC5
MTVOL-124	95901256	T_MA/C 43	3/4	3/4	4-1/2	.23	1.23	1.00	NL44	TC-190	STC5
MTVOR-164	96001656	T_MA/C 43	1	1	6	.23	1.23	1.25	NL44	TC-190	STC5
MTVOL-164	95901656	T_MA/C 43	1	1	6	.23	1.23	1.25	NL44	TC-190	STC5
MTVOR-204	96002056	T_MA/C 43	1-1/4	1-1/4	7	.23	1.23	1.50	NL44	TC-190	STC5
MTVOR-165	96001664	T_MA/C 54	1	1	6	.29	1.43	1.25	NL56	TC-250	STC11
MTVOL-165	95901664	T_MA/C 54	1	1	6	.29	1.43	1.25	NL56	TC-250	STC11
MTVOR-205	96002064	T_MA/C 54	1-1/4	1-1/4	7	.29	1.43	1.50	NL56	TC-250	STC11
MTVOR-2055	96002066	T_MA/C 55	1-1/4	1-1/4	7	.37	1.43	1.50	NL56	TC-250	STC11
MTVOR-2064	96002072	T_MA/C 64	1-1/4	1-1/4	7	.37	1.62	1.50	NL66	TC-310	STC4
MTVOR-206	96002076	T_MA/C 66	1-1/4	1-1/4	7	.37	1.62	1.50	NL66L	TC-310	STC4
MTVOL-206	95902076	T_MA/C 66	1-1/4	1-1/4	7	.37	1.62	1.50	NL66L	TC-310	STC4
MTVOR-246	96002476	T_MA/C 66	1-1/2	1-1/2	7	.37	1.62	2.00	NL66L	TC-310	STC4
MTVOR-2067	96002078	T_MA/C 67	1-1/4	1-1/4	7	.37	1.62	1.50	NL56L	TC-310	STC8

METRIC

Description	EDP Code	Insert	A	B	C	D	E	F	PARTS Lock Pin	PARTS Clamp	PARTS Clamp Screw
MTVOR-2525M3	960025M3	T_MA/C 32	25,0	25,0	150,0	3,8	27,4	31,7	NL33	TC-190	STC9
MTVOL-2525M3	959025M48	T_MA/C 32	25,0	25,0	150,0	3,8	27,4	31,7	NL33	TC-190	STC9
MTVOR-2525M4	960025M56	T_MA/C 43	25,0	25,0	150,0	5,8	31,2	31,7	NL44	TC-190	STC5
MTVOL-2525M4	959025M56	T_MA/C 43	25,0	25,0	150,0	5,8	31,2	31,7	NL44	TC-190	STC5
MTVOR-3232M4	960032M56	T_MA/C 43	32,0	32,0	177,8	5,8	31,2	38,1	NL44	TC-190	STC5
MTVOR-2525M5	960025M64	T_MA/C 54	25,0	25,0	150,0	7,3	35,8	31,7	NL56	TC-250	STC11
MTVOL-2525M5	959025M64	T_MA/C 54	25,0	25,0	150,0	7,3	35,8	31,7	NL56	TC-250	STC11
MTVOR-3232M5	960032M64	T_MA/C 54	32,0	32,0	177,8	7,3	35,8	38,1	NL56	TC-250	STC11
MTVOR-2525M55	960025M66	T_MA/C 55	25,0	25,0	177,8	7,9	35,8	38,1	NL56	TC-250	STC11
MTVOR-3232M6	960032M76	T_MA/C 66	32,0	32,0	177,8	9,6	41,1	38,1	NL66L	TC-310	STC8
MTVOL-3232M6	960032M76	T_MA/C 66	32,0	32,0	177,8	9,6	41,1	38,1	NL66L	TC-310	STC4

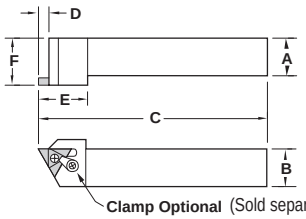
EXTERNAL HOLDER

STVOR/L

Threading/Grooving

Inch

Most holders available with coolant port
(ie: Add CP to end of description)



Clamp Optional (Sold separately)

RH SHOWN

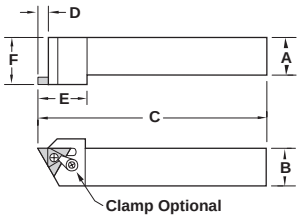
Description	EDP Code	Insert	A	B	C	D	E	F	PARTS Screw	PARTS Clamp	PARTS Clamp Screw
STVOR-123	98001248	T_MC 32	3/4	3/4	4-1/2	.15	1.08	1.00	SD-1	TC-190	STC9
STVOL-123	97801248	T_MC 32	3/4	3/4	4-1/2	.15	1.08	1.00	SD-1	TC-190	STC5
STVOR-163	98001648	T_MC 32	1	1	6	.15	1.08	1.25	SD-1	TC-190	STC5
STVOL-163	97801648	T_MC 32	1	1	6	.15	1.08	1.25	SD-1	TC-190	STC5
STVOR-124	98001256	T_MC 43	3/4	3/4	4-1/2	.23	1.23	1.00	SD-2	TC-190	STC9
STVOR-164	98001656	T_MC 43	1	1	6	.23	1.23	1.25	SD-2	TC-190	STC9
STVOL-164	97801656	T_MC 43	1	1	6	.23	1.23	1.25	SD-2	TC-190	STC9
STVOR-204	98002056	T_MC 43	1-1/4	1-1/4	7	.23	1.23	1.50	SD-2	TC-190	STC9
STVOR-165	98001664	T_MC 54	1	1	6	.29	1.43	1.25	SD-3	TC-250	STC11
STVOL-165	97801664	T_MC 54	1	1	6	.29	1.43	1.25	SD-3	TC-250	STC11
STVOR-205	98002064	T_MC 54	1-1/4	1-1/4	7	.29	1.43	1.50	SD-3	TC-250	STC11
STVOR-2055	98002066	T_MC 55	1-1/4	1-1/4	7	.37	1.43	1.50	SD-3	TC-250	STC11
STVOR-206	98002076	T_MC 66	1-1/4	1-1/4	7	.37	1.62	1.50	SD-4	TC-310	STC8
STVOR-246	98002476	T_MC 66	1-1/2	1-1/2	7	.37	1.62	2.00	SD-4	TC-310	STC8

EXTERNAL HOLDER

STVOR/L

Threading/Grooving

METRIC



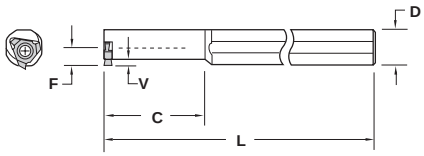
RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	D	E	F	PARTS Screw	PARTS Clamp	PARTS Clamp Screw
STVOR-2525M4	980125M56	T_MC 43	25,0	25,0	152,4	5,8	31,2	31,7	SD-2	TC-190	STC9
STVOL-2525M4	978025M56	T_MC 43	25,0	25,0	152,4	5,8	31,2	31,7	SD-2	TC-190	STC9
STVOR-3232M4	980132M56	T_MC 43	32,0	32,0	177,8	5,8	31,2	38,1	SD-2	TC-190	STC9
STVOR-2525M5	980125M64	T_MC 54	25,0	25,0	152,4	7,4	36,3	31,7	SD-3	TC-250	STC11
STVOL-2525M5	978025M64	T_MC 54	25,0	25,0	152,4	7,4	36,3	31,7	SD-3	TC-250	STC11
STVOR-3232M5	980132M64	T_MC 54	32,0	32,0	177,8	7,4	36,3	38,1	SD-3	TC-250	STC11
STVOR-323255	980132M66	T_MC 55	32,0	32,0	177,8	9,4	36,3	38,1	SD-3	TC-250	STC11
STVOR-3232M6	980132M76	T_MC 66	32,0	32,0	177,8	9,4	41,1	38,1	SD-4	TC-310	STC8

GTB

Threading/Grooving




RH SHOWN

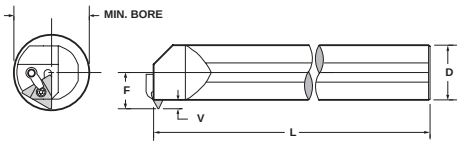
Most bars available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	Min. Bore	F	V	L	C	D	Torx Screw
GTB-062	93605000	TNEB 2.52	.862	.312	.070	6.00	2.00	.625	PT-324
GTB-075	93605200	TNEB 33	1.097	.375	.120	6.00	2.00	.750	PT-324

INTERNAL BAR

SI-MTHOR/L

Threading/Grooving




RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

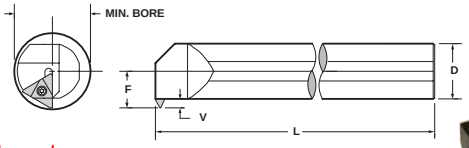
Description	EDP Code	Insert	Min. Bore	D	L	F	V	PARTS Lock Pin	PARTS Clamp	PARTS Clamp Screw
SI-MTHOR-163	97301648	T_MA 32	1.383	1.000	14	.687	.120	NL-33	TC-190	STC-5
SI-MTHOL-163	97201648	T_MA 32	1.383	1.000	14	.687	.120	NL-33	TC-190	STC-5
SI-MTHOR-204	97302056	T_MA 43	1.815	1.250	14	.875	.190	NL-44	TC-190	STC-9
SI-MTHOL-204	97202056	T_MA 43	1.815	1.250	14	.875	.190	NL-44	TC-190	STC-9
SI-MTHOR-244	97302456	T_MA 43	1.892	1.500	14	1.000	.190	NL-44	TC-190	STC-5
SI-MTHOL-244	97202456	T_MA 43	1.892	1.500	14	1.000	.190	NL-44	TC-190	STC-5
SI-MTHOR-245	97302464	T_MA 54	2.125	1.500	14	1.073	.220	NL-56	TC-250	STC-11
SI-MTHOL-245	97202464	T_MA 54	2.125	1.500	14	1.073	.220	NL-56	TC-250	STC-11
SI-MTHOR-325	97303264	T_MA 54	2.750	2.000	16	1.323	.220	NL-56	TC-250	STC-11
SI-MTHOR-406	97304076	T_MA 66	3.250	2.500	16	1.625	.320	NL-66L	TC-380	STC-19

METRIC

Description	EDP Code	Insert	Min. Bore	D	L	F	V	PARTS Lock Pin	PARTS Clamp	PARTS Clamp Screw
SI-MTHOR-32M4	973032M56	T_MA 43	46,1	32,0	355,6	22,5	4,8	NL-44	TC-190	STC-9
SI-MTHOL-32M4	972032M56	T_MA 43	46,1	32,0	355,6	22,5	4,8	NL-44	TC-190	STC-9
SI-MTHOR-40M4	973040M56	T_MA 43	48,1	40,0	355,6	25,9	4,8	NL-44	TC-190	STC-5
SI-MTHOL-40M4	972040M56	T_MA 43	48,1	40,0	355,6	25,9	4,8	NL-44	TC-190	STC-5
SI-MTHOR-50M4	973050M56	T_MA 43	69,9	50,0	406,4	32,9	4,8	NL-44	TC-190	STC-5
SI-MTHOR-60M4	973060M56	T_MA 43	82,6	60,0	406,4	36,8	4,8	NL-44	TC-190	STC-5
SI-MTHOR-63M4	973063M56	T_MA 43	89,0	63,0	406,4	40,0	4,8	NL-44	TC-190	STC-5
SI-MTHOR-40M5	973040M64	T_MA 54	48,1	40,0	355,6	25,9	5,6	NL-56	TC-250	STC-11
SI-MTHOL-40M5	972040M64	T_MA 54	48,1	40,0	355,6	25,9	5,6	NL-56	TC-250	STC-11
SI-MTHOR-50M5	973050M64	T_MA 54	69,9	50,0	406,4	32,9	5,6	NL-56	TC-250	STC-11
SI-MTHOR-60M5	973060M64	T_MA 54	82,6	60,0	406,4	36,8	5,6	NL-56	TC-250	STC-11
SI-MTHOR-63M5	973063M64	T_MA 54	89,0	63,0	406,4	40,0	5,6	NL-56	TC-250	STC-11
SI-MTHOR-50M6	973050M76	T_MA 66	69,9	50,0	406,4	32,9	8,1	NL-66L	TC-380	STC-19
SI-MTHOR-63M6	973063M76	T_MA 66	89,0	63,0	406,4	40,0	8,1	NL-66L	TC-380	STC-19

SI-STHOR/L

Threading/Grooving



CLAMP OPTIONAL

RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

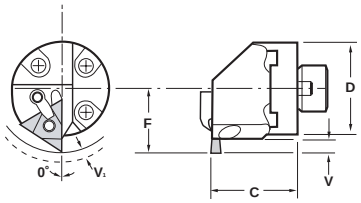
Description	EDP Code	Insert	Min. Bore	D	L	F	V	PARTS Screw	Clamp	Clamp Screw
SI-STHOR-163	97601648	T_MC 32	1.383	1.000	14	.687	.120	SD-1	TC-190	STC-9
SI-STHOL-163	97501648	T_MC 32	1.383	1.000	14	.687	.120	SD-1	TC-190	STC-9
SI-STHOR-204	97602056	T_MC 43	1.815	1.250	14	.875	.190	SD-2	TC-190	STC-9
SI-STHOL-204	97502056	T_MC 43	1.815	1.250	14	.875	.190	SD-2	TC-190	STC-9
SI-STHOR-244	97602456	T_MC 43	1.892	1.500	14	1.000	.190	SD-2	TC-190	STC-9
SI-STHOL-244	97502456	T_MC 43	1.892	1.500	14	1.000	.190	SD-2	TC-190	STC-9
SI-STHOR-245	97602464	T_MC 54	2.240	1.500	14	1.073	.220	SD-3	TC-250	STC-11
SI-STHOL-245	97502464	T_MC 54	2.240	1.500	16	1.323	.220	SD-3	TC-250	STC-11
SI-STHOR-325	97603264	T_MC 54	2.750	2.000	16	1.323	.220	SD-3	TC-250	STC-11
SI-STHOR-406	97604076	T_MC 66	3.250	2.500	16	1.625	.320	SD-4	TC-380	STC-19

METRIC

Description	EDP Code	Insert	Min. Bore	D	L	F	V	PARTS Screw	Clamp	Clamp Screw
SI-STHOR-25M3	976025M48	T_MC 32	35,1	25,0	355,6	17,4	3,1	SD-1	TC-190	STC-9
SI-STHOL-25M3	975025M48	T_MC 32	35,1	25,0	355,6	17,4	3,1	SD-1	TC-190	STC-9
SI-STHOR-32M4	976032M56	T_MC 43	46,1	32,0	355,6	22,5	4,8	SD-2	TC-190	STC-9
SI-STHOL-32M4	975032M56	T_MC 43	46,1	32,0	355,6	22,5	4,8	SD-2	TC-190	STC-9
SI-STHOR-40M4	976040M56	T_MC 43	48,1	40,0	355,6	25,9	4,8	SD-2	TC-190	STC-9
SI-STHOL-40M4	975040M56	T_MC 43	48,1	40,0	355,6	25,9	4,8	SD-2	TC-190	STC-9
SI-STHOR-40M5	976040M64	T_MC 54	48,1	40,0	355,6	26,8	5,6	SD-3	TC-250	STC-11
SI-STHOL-40M5	975040M64	T_MC 54	56,9	40,0	406,4	33,6	5,6	SD-3	TC-250	STC-11
SI-STHOR-50M5	976050M64	T_MC 54	69,9	50,0	406,4	33,6	5,6	SD-3	TC-250	STC-11
SI-STHOR-60M6	976060M76	T_MC 66	82,6	60,0	406,4	40,6	8,1	SD-4	TC-380	STC-19

INTERCHANGEABLE HEADS

H-MTHOR/L*



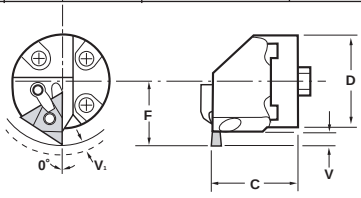
RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	D	C	F	Min. Bore	PARTS Clamp	Clamp Screw	Lock Pin
H16-MTHOR-3	9IH7301648	T_MA/C 32	1.000	1.625	0.688	1.690	TC-190	STC-5	NL-33
H20-MTHOR-3	9IH7302048	T_MA/C 32	1.250	1.625	0.798	1.788	TC-190	STC-5	NL-33
H24-MTHOR-3	9IH7302448	T_MA/C 32	1.500	1.625	0.923	1.875	TC-190	STC-5	NL-33
H20-MTHOR-4	9IH7302056	T_MA/C 43	1.250	1.625	1.048	2.420	TC-190	STC-5	NL-44
H24-MTHOR-4	9IH7302456	T_MA/C 43	1.500	1.625	1.173	2.625	TC-190	STC-5	NL-44
H28-MTHOR-4	9IH7302856	T_MA/C 43	1.750	1.625	1.298	2.875	TC-190	STC-5	NL-44
H32-MTHOR-4	9IH7303256	T_MA/C 43	2.000	1.625	1.423	2.875	TC-190	STC-5	NL-44
H40-MTHOR-4	9IH7304056	T_MA/C 43	2.500	1.625	1.673	3.375	TC-190	STC-5	NL-44
H24-MTHOR-5	9IH7302464	T_MA/C 54	1.500	1.625	1.173	3.200	TC-250	STC-11	NL-56
H28-MTHOR-5	9IH7302864	T_MA/C 54	1.750	1.625	1.298	3.250	TC-250	STC-11	NL-56
H32-MTHOR-5	9IH7303264	T_MA/C 54	2.000	1.625	1.423	3.250	TC-250	STC-11	NL-56
H40-MTHOR-5	9IH7304064	T_MA/C 54	2.500	1.625	1.673	3.375	TC-250	STC-11	NL-56

*Left hand quoted on request.

HS-MTHOR/L*



RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

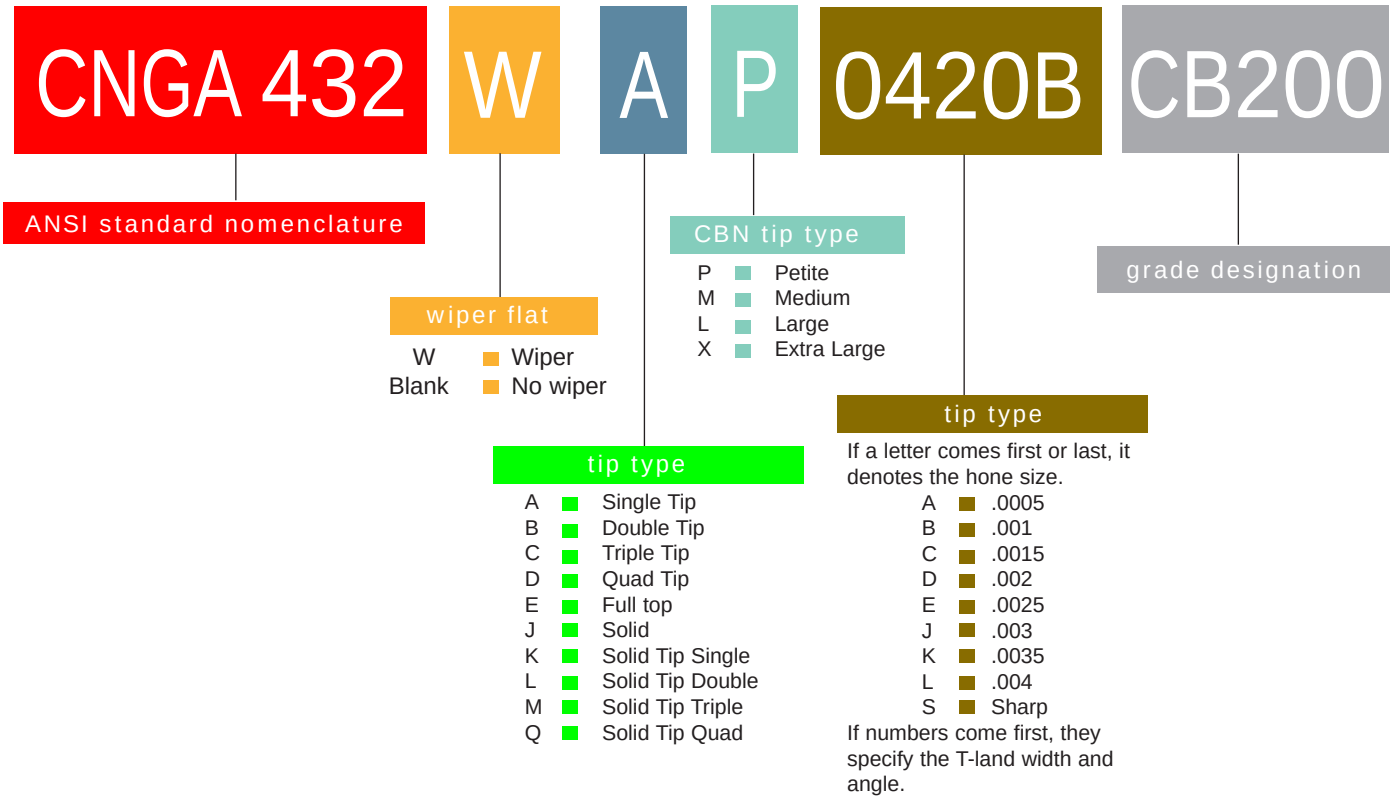
Description	EDP Code	Insert	D	C	F	Min. Bore	PARTS Clamp	Clamp Screw	Lock Pin
HS25-MTHOR-3	9IHS73025M48	TNMA/C 32	0.98	0.98	0.678	1.690	TC-190	STC-5	NL-33
HS32-MTHOR-3	9IHS73032M48	TNMA/C 32	1.26	1.26	0.800	1.788	TC-190	STC-5	NL-33
HS40-MTHOR-3	9IHS73040M48	TNMA/C 32	1.57	1.26	0.933	1.875	TC-190	STC-5	NL-33
HS32-MTHOR-4	9IHS73032M56	TNMA/C 43	1.26	1.26	1.050	2.420	TC-190	STC-5	NL-44
HS40-MTHOR-4	9IHS73040M56	TNMA/C 43	1.57	1.26	1.203	2.625	TC-190	STC-5	NL-44
HS50-MTHOR-4	9IHS73050M56	TNMA/C 43	1.97	1.57	1.413	2.875	TC-190	STC-5	NL-44
HS60-MTHOR-4	9IHS73060M56	TNMA/C 43	2.36	1.57	1.603	3.375	TC-190	STC-5	NL-44
HS40-MTHOR-5	9IHS73040M64	TNMA/C 54	1.57	1.26	1.203	3.200	TC-250	STC-11	NL-56
HS50-MTHOR-5	9IHS73050M64	TNMA/C 54	1.97	1.57	1.413	3.250	TC-250	STC-11	NL-56
HS60-MTHOR-5	9IHS73060M64	TNMA/C 54	2.36	1.57	1.603	3.375	TC-250	STC-11	NL-56

*Left hand quoted on request.

TOOL-FLO

PCBN

PCBN - Polycrystalline Cubic Boron Nitride Insert Nomenclature Chart

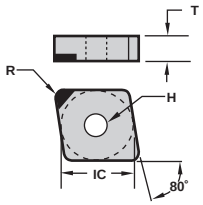


PCBN *Grade Descriptions*

Grades	Descriptions
CB200	A high CBN content, PCBN tip brazed onto a carbide insert. Superior impact resistance. Ideally suited for machining cast iron and powder metal alloys, fully pearlitic gray cast iron, chilled irons; excellent results in high temperature alloys such as Inconel with an up sharp edge. Apply to tool steels and hard steels 45 HRC and higher; high chrome alloy steels. Application ranges from continuous to highly interrupted cuts.
CB400	A low CBN content, PCBN tip brazed onto a carbide insert. Ideally suited for roughing to finishing of hardened steels 45 HRC and higher. Use on bearing steel, hot and cold work steels, die steels, case hardened steels, carburized and nitrided irons.
CB410	PCBN tip brazed onto a carbide insert. Ideally suited for roughing to finishing of hardened steels 45 HRC and higher. Use on bearing steel, hot and cold work steels, die steels, case hardened steels, carburized and nitrided irons.

SINGLE TIP PCBN
CNGA

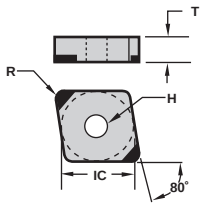
For Holders see pg. 187-206.

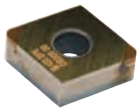


Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
CNGA-431 APS	CBGAM1APS	.500	.015	.187	.203	Sharp	●	●
CNGA-432 APS	CBGAM2APS	.500	.031	.187	.203	Sharp	●	●
CNGA-433 APS	CBGAM3APS	.500	.047	.187	.203	Sharp	●	●
CNGA-431 AP 0420A	CBGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●
CNGA-432 AP 0420A	CBGAM2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●
CNGA-433 AP 0420A	CBGAM3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●
CNGA-431 AL 0420A	CBGAM1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●
CNGA-432 AL 0420A	CBGAM2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●
CNGA-433 AL 0420A	CBGAM3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●

DOUBLE TIP PCBN
CNGA

For Holders see pg. 187-206.

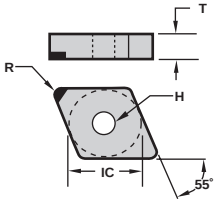


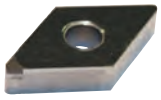


Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400
CNGA-431 BPS	CBGAM1BPS	.500	.015	.187	.203		Sharp	●	●
CNGA-432 BPS	CBGAM2BPS	.500	.031	.187	.203		Sharp	●	●
CNGA-433 BPS	CBGAM3BPS	.500	.047	.187	.203		Sharp	●	●
CNGA-431 BP 0420A	CBGAM1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20˚	●	●
CNGA-432 BP 0420A	CBGAM2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20˚	●	●
CNGA-433 BP 0420A	CBGAM3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20˚	●	●
CNGA-431 WBP 0420A	CBGAM1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●
CNGA-432 WBP 0420A	CBGAM2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●
CNGA-433 WBP 0420A	GBGAM2WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●

SINGLE TIP PCBN
DNGA

For Holders see pg. 187-206.





Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
DNGA-431 APS	CEGAM1APS	.500	.015	.187	.203	Sharp	●	●
DNGA-432 APS	CEGAM2APS	.500	.031	.187	.203	Sharp	●	●
DNGA-433 APS	CEGAM3APS	.500	.047	.187	.203	Sharp	●	●
DNGA-431 AP 0420A	CEGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●
DNGA-432 AP 0420A	CEGAM2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●
DNGA-433 AP 0420A	CEGAM3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●
DNGA-431 AL 0420A	CEGAM1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●
DNGA-432 AL 0420A	CEGAM2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●
DNGA-433 AL 0420A	CEGAM3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●

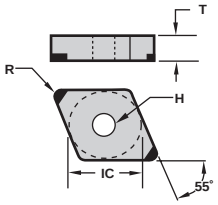
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

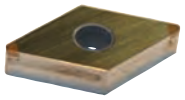
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	CB200	CB400
Cast Irons	●	
Hardened & Bearing Steel		●
Powdered Metals	●	
Super Alloys	●	

DOUBLE TIP PCBN
DNGA

For Holders see pg. 187-206.

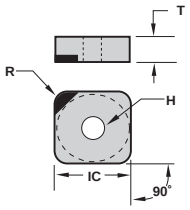




Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400
DNGA-431 BPS	CEGAM1BPS	.500	.015	.187	.203		Sharp	●	●
DNGA-432 BPS	CEGAM2BPS	.500	.031	.187	.203		Sharp	●	●
DNGA-433 BPS	CEGAM3BPS	.500	.047	.187	.203		Sharp	●	●
DNGA-431 BP 0420A	CEGAM1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20˚	●	●
DNGA-432 BP 0420A	CEGAM2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20˚	●	●
DNGA-433 BP 0420A	CEGAM3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20˚	●	●
DNGA-431 WBP 0420A	CEGAM1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●
DNGA-432 WBP 0420A	CEGAM2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●
DNGA-433 WBP 0420A	CEGAM3WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●

SINGLE TIP PCBN
SNGA

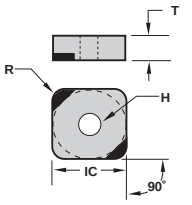
For Holders see pg. 187-206.

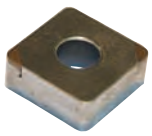


Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
SNGA-431 APS	CNGAM1APS	.500	.015	.187	.203	Sharp	●	●
SNGA-432 APS	CNGAM2APS	.500	.031	.187	.203	Sharp	●	●
SNGA-433 APS	CNGAM3APS	.500	.047	.187	.203	Sharp	●	●
SNGA-431 AP 0420A	CNGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●
SNGA-432 AP 0420A	CNGAM2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●
SNGA-433 AP 0420A	CNGAM2AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●
SNGA-431 AL 0420A	CNGAM1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●
SNGA-432 AL 0420A	CNGAM2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●
SNGA-433 AL 0420A	CNGAM3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●

DOUBLE TIP PCBN
SNGA

For Holders see pg. 187-206.





Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400
SNGA-431 BPS	CNGAM1BPS	.500	.015	.187	.203		Sharp	●	●
SNGA-432 BPS	CNGAM2BPS	.500	.031	.187	.203		Sharp	●	●
SNGA-433 BPS	CNGAM3BPS	.500	.047	.187	.203		Sharp	●	●
SNGA-431 BP 0420A	CNGAM1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20˚	●	●
SNGA-432 BP 0420A	CNGAM2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20˚	●	●
SNGA-433 BP 0420A	CNGAM3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20˚	●	●
SNGA-431 WBP 0420A	CNGAM1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●
SNGA-432 WBP 0420A	CNGAM2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●
SNGA-433 WBP 0420A	CNGAM3WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

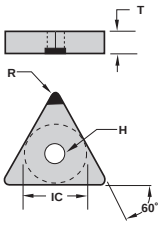
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	CB200	CB400
Cast Irons	●	
Hardened & Bearing Steel		●
Powdered Metals	●	
Super Alloys	●	

SINGLE TIP PCBN

TNGA

For Holders see pg. 187-206.

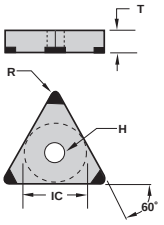


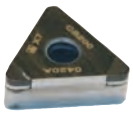
Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
TNGA-331 APS	CTGAH1APS	.375	.015	.187	.150	Sharp	●	●
TNGA-332 APS	CTGAH2APS	.375	.031	.187	.150	Sharp	●	●
TNGA-333 APS	CTGAH3APS	.375	.047	.187	.150	Sharp	●	●
TNGA-331 AP 0420A	CTGAH1AP0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20˚	●	●
TNGA-332 AP 0420A	CTGAH2AP0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20˚	●	●
TNGA-333 AP 0420A	CTGAH3AP0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20˚	●	●
TNGA-331 AL 0420A	CTGAH1AL0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20˚	●	●
TNGA-332 AL 0420A	CTGAH2AL0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20˚	●	●
TNGA-333 AL 0420A	CTGAH3AL0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20˚	●	●
TNGA-431 APS	CTGAJ1APS	.500	.015	.187	.203	Sharp	●	●
TNGA-432 APS	CTGAJ2APS	.500	.031	.187	.203	Sharp	●	●
TNGA-433 APS	CTGAJ3APS	.500	.047	.187	.203	Sharp	●	●
TNGA-431 AP 0420A	CTGAJ1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●
TNGA-432 AP 0420A	CTGAJ2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●
TNGA-433 AP 0420A	CTGAJ3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●
TNGA-431 AL 0420A	CTGAJ1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●
TNGA-432 AL 0420A	CTGAJ2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●
TNGA-433 AL 0420A	CTGAJ3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●

TRIPLE TIP PCBN

TNGA

For Holders see pg. 187-206.





Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400
TNGA-331 CPS	CTGAH1CPS	.375	.015	.187	.150		Sharp	●	●
TNGA-332 CPS	CTGAH2CPS	.375	.031	.187	.150		Sharp	●	●
TNGA-333 CPS	CTGAH3CPS	.375	.047	.187	.150		Sharp	●	●
TNGA-331 CP 0420A	CTGAH1CP0420A	.375	.015	.187	.150		T-Land W=.004, Angle 20˚	●	●
TNGA-332 CP 0420A	CTGAH2CP0420A	.375	.031	.187	.150		T-Land W=.004, Angle 20˚	●	●
TNGA-333 CP 0420A	CTGAH3CP0420A	.375	.047	.187	.150		T-Land W=.004, Angle 20˚	●	●
TNGA-331 WCP 0420A	CTGAH1WCP0420A	.375	.015	.187	.150	✓	T-Land W=.004, Angle 20˚	●	●
TNGA-332 WCP 0420A	CTGAH2WCP0420A	.375	.031	.187	.150	✓	T-Land W=.004, Angle 20˚	●	●
TNGA-333 WCP 0420A	CTGAH3WCP0420A	.375	.047	.187	.150	✓	T-Land W=.004, Angle 20˚	●	●
TNGA-431 CPS	CTGAJ1CPS	.500	.015	.187	.203		Sharp	●	●
TNGA-432 CPS	CTGAJ2CPS	.500	.031	.187	.203		Sharp	●	●
TNGA-433 CPS	CTGAJ3CPS	.500	.047	.187	.203		Sharp	●	●
TNGA-431 CP 0420A	CTGAJ1CP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20˚	●	●
TNGA-432 CP 0420A	CTGAJ2CP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20˚	●	●
TNGA-433 CP 0420A	CTGAJ3CP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20˚	●	●
TNGA-431 WCP 0420A	CTGAJ1WCP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●
TNGA-432 WCP 0420A	CTGAJ2WCP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●
TNGA-433 WCP 0420A	CTGAJ3WCP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

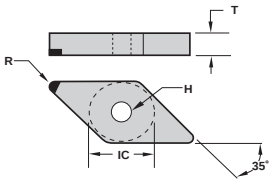
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Irons	●	
Hardened & Bearing Steel		●
Powdered Metals	●	
Super Alloys	●	

SINGLE TIP PCBN

VNGA

For Holders see pg. 187-206.

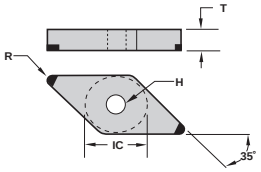


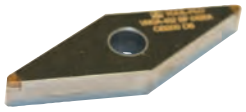
Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
VNGA-331 APS	CXGAH1APS	.375	.015	.187	.150	Sharp	●	●
VNGA-332 APS	CXGAH2APS	.375	.031	.187	.150	Sharp	●	●
VNGA-333 APS	CXGAH3APS	.375	.047	.187	.150	Sharp	●	●
VNGA-331 AP 0420A	CXGAH1AP0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20˚	●	●
VNGA-332 AP 0420A	CXGAH2AP0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20˚	●	●
VNGA-333 AP 0420A	CXGAH3AP0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20˚	●	●
VNGA-331 AL 0420A	CXGAH1AL0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20˚	●	●
VNGA-332 AL 0420A	CXGAH2AL0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20˚	●	●
VNGA-333 AL 0420A	CXGAH3AL0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20˚	●	●
VNGA-431 APS	CXGAJ1APS	.500	.015	.187	.203	Sharp	●	●
VNGA-432 APS	CXGAJ2APS	.500	.031	.187	.203	Sharp	●	●
VNGA-433 APS	CXGAJ3APS	.500	.047	.187	.203	Sharp	●	●
VNGA-431 AP 0420A	CXGAJ1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●
VNGA-432 AP 0420A	CXGAJ2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●
VNGA-433 AP 0420A	CXGAJ3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●
VNGA-431 AL 0420A	CXGAJ1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20˚	●	●
VNGA-432 AL 0420A	CXGAJ2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20˚	●	●
VNGA-433 AL 0420A	CXGAJ3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20˚	●	●

DOUBLE TIP PCBN

VNGA

For Holders see pg. 187-206.





Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400
VNGA-331 BPS	CXGAH1BPS	.375	.015	.187	.150		Sharp	●	●
VNGA-332 BPS	CXGAH2BPS	.375	.031	.187	.150		Sharp	●	●
VNGA-331 BP 0420A	CXGAH1BP0420A	.375	.015	.187	.150		T-Land W=.004, Angle 20˚	●	●
VNGA-332 BP 0420A	CXGAH2BP0420A	.375	.031	.187	.150		T-Land W=.004, Angle 20˚	●	●
VNGA-333 BP 0420A	CXGAH3BP0420A	.375	.047	.187	.150		T-Land W=.004, Angle 20˚	●	●
VNGA-331 WBP 0420A	CXGAH1WBP0420A	.375	.015	.187	.150	✓	T-Land W=.004, Angle 20˚	●	●
VNGA-332 WBP 0420A	CXGAH2WBP0420A	.375	.031	.187	.150	✓	T-Land W=.004, Angle 20˚	●	●
VNGA-333 WBP 0420A	CXGAH3WBP0420A	.375	.047	.187	.150	✓	T-Land W=.004, Angle 20˚	●	●
VNGA-431 BPS	CXGAJ1BPS	.500	.015	.187	.203		Sharp	●	●
VNGA-432 BPS	CXGAJ2BPS	.500	.031	.187	.203		Sharp	●	●
VNGA-433 BPS	CXGAJ3BPS	.500	.047	.187	.203		Sharp	●	●
VNGA-431 BP 0420A	CXGAJ1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20˚	●	●
VNGA-432 BP 0420A	CXGAJ2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20˚	●	●
VNGA-433 BP 0420A	CXGAJ3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20˚	●	●
VNGA-431 WBP 0420A	CXGAJ1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●
VNGA-432 WBP 0420A	CXGAJ2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●
VNGA-433 WBP 0420A	CXGAJ3WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20˚	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

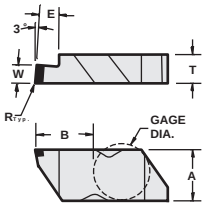
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

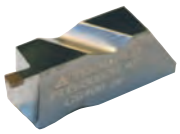
Cast Irons	●	
Hardened & Bearing Steel		●
Powdered Metals	●	
Super Alloys	●	

SINGLE TIP PCBN GROOVING

FLG

For Holders see pg. 107-109.





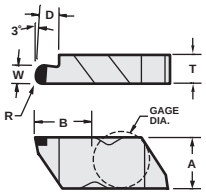
Description	EDP Code	W	R	T	H	E	Edge Prep	CB200	CB400
FLG-3047L APB	CB563647LAPB	.047	.005/.010	.195	.219	.075	.001 Hone	●	●
FLG-3047R APB	CB563647RAPB	.047	.005/.010	.195	.219	.075	.001 Hone	●	●
FLG-3062L APB	CB563662LAPB	.062	.005/.010	.195	.219	.120	.001 Hone	●	●
FLG-3062R APB	CB563662RAPB	.062	.005/.010	.195	.219	.120	.001 Hone	●	●
FLG-3094L AMB	CB563694LAMB	.094	.005/.010	.195	.219	.180	.001 Hone	●	●
FLG-3094R AMB	CB563694RAMB	.094	.005/.010	.195	.219	.180	.001 Hone	●	●
FLG-3125L AMB	CB563825LAMB	.125	.005/.010	.195	.219	.180	.001 Hone	●	●
FLG-3125R AMB	CB563625RAMB	.125	.005/.010	.195	.219	.180	.001 Hone	●	●
FLG-3189L ALB	CB563889LALB	.189	.020/.025	.195	.219	.180	.001 Hone	●	●
FLG-3189R ALB	CB563889RALB	.189	.020/.025	.195	.219	.180	.001 Hone	●	●
FLG-4250L ALB	CB574050LALB	.250	.020/.025	.255	.453	.250	.001 Hone	●	●
FLG-4250R ALB	CB574050RALB	.250	.020/.025	.255	.453	.250	.001 Hone	●	●

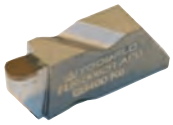
SINGLE TIP PCBN GROOVING

FLR

Full Nose Radius

For Holders see pg.107-109.



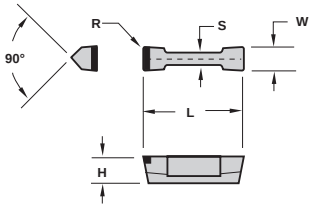


Description	EDP Code	W	R	T	H	E	Edge Prep	CB200	CB400
FLR-3031L APB	CB593031LAPB	.062	.031	.195	.219	.125	.001 Hone	●	●
FLR-3031R APB	CB593031RAPB	.062	.031	.195	.219	.125	.001 Hone	●	●
FLR-3062L APB	CB593062LAPB	.125	.062	.195	.219	.180	.001 Hone	●	●
FLR-3062R APB	CB593062RAPB	.125	.062	.195	.219	.180	.001 Hone	●	●

SINGLE TIP PCBN GROOVING

VDB

For Holders see pg. 215-218



Description	EDP Code	W	R	L	H	S	Edge Prep	CB200	CB400
VDB 125 A015 AMB	CB79125AMB	.125	.015	1.125	.250	.106	.001 Hone	●	●
VDB 188 A015 ALB	CB79188ALB	.188	.015	1.125	.250	.144	.001 Hone	●	●
VDB 250 A015 ALB	CB79250ALB	.250	.015	1.125	.250	.144	.001 Hone	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	CB200	CB400
Cast Irons	●	
Hardened & Bearing Steel		●
Powdered Metals	●	
Super Alloys	●	

Recommended Feed rate - inch/rev (mm/rev)

workpiece material	hardened steels	grey cast irons	white alloy cast iron	super alloys	powder metal	bearing steels
CB200 *high content CBN for finishing*		.010 - .020 (0,25 - 0,51)	.010 - .030 (0,25 - 0,76)	.003 - .008 (0,08 - 0,20)	.003 - .008 (0,08 - 0,20)	
CB400 *low content CBN for roughing*	.004 - .008 (0,10 - 0,20)					.002 - .008 (0,05 - 0,20)

Recommended Grade and Speed - sfpm (mm/min)

workpiece material	hardened steels	grey cast irons	white alloy cast iron	super alloys		bearing steels
CB200 *high content CBN for finishing*		*< 240 HBN* 1500 - 3500(457 - 1067) *> 240 HBN* 1000 - 2000(305 - 610)	300 - 600 (91 - 200)	500 - 1000 (152 - 305)	300 - 1000 (91 - 305)	
CB400 *low content CBN for roughing*	400 - 500 (122 - 152)					375 - 500 (114 - 152)

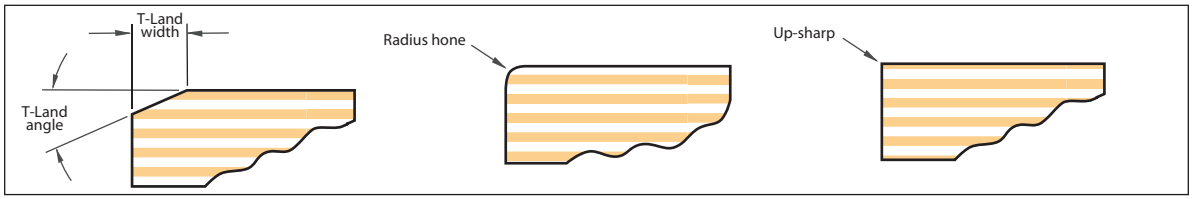
Recommended Edge Preparation

The following are suggestions for standard edge preperations.

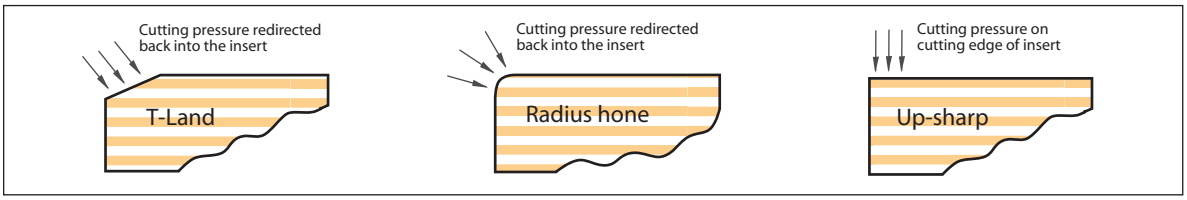
Turning	CB200	.008 x 20˚ and/or .001 hone
Grooving (Flo-Lock and Vee-Bottom)	CB400	.004 x 20˚ and/or .001 hone

Due to unique applications, special edge preparations may be required.

T-Land and hones protect the cutting edge by eliminating a sharp cutting edge which reduces edge chipping and breakage. Up-sharp edges are prone to chipping or breakage.



T-Land and hones strengthen the cutting edges by redirecting the cutting forces back into the insert.

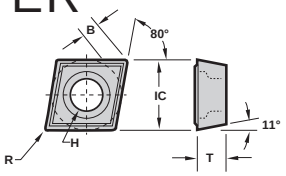


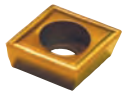
TOOL-FLO

PROFILING

BORING SMALL DIAMETER

CPGM

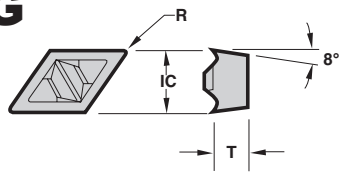




Description	EDP Code	IC	R	T	B	H	TiN Coated GP25	TiN Coated GP50	AlTiN Coated AC25	AlTiN Coated AC50
CPGM-21.50	SA20	.250	.004	.094	.0672	.110	●	●	●	●
CPGM-21.505	SA205	.250	.008	.094	.0650	.110	●	●	●	●
CPGM-21.51	SA21	.250	.015	.094	.0607	.110	●	●	●	●
CPGM-21.52	SA22	.250	.031	.094	.0521	.110	●	●	●	●
CPGM-32.50	SA30	.375	.004	.156	.1020	.173	●	●	●	●
CPGM-32.505	SA305	.375	.008	.156	.0998	.173	●	●	●	●
CPGM-32.51	SA31	.375	.015	.156	.0855	.173	●	●	●	●
CPGM-32.52	SA32	.375	.031	.156	.0868	.173	●	●	●	●

55° DIAMOND PROFILING

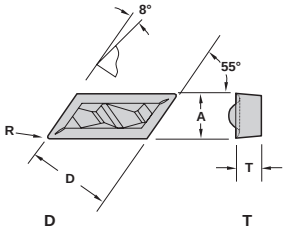
DPGR



Description	EDP Code	D	T	R	TiN Coated GP25	TiN Coated GP50	AlTiN Coated AC25	AlTiN Coated AC50
DPGR-432	643432	.500	.187	.031	●	●	●	●

55° PARALLELOGRAM PROFILING

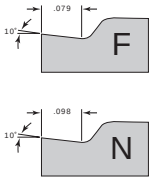
FLPGL/R

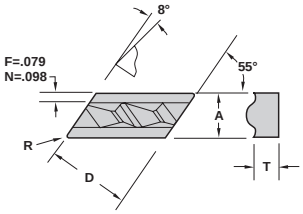


RH Shown

Description	EDP Code	D	T	A	R	TiN Coated GP25	TiN Coated GP50	AlTiN Coated AC25	AlTiN Coated AC50
FLPGL-51	641G51	.375	.125	.250	.015		●	●	●
FLPGR-51	642G51	.375	.125	.250	.015		●	●	●
FLPGL-52	641G52	.375	.125	.250	.031		●	●	●
FLPGR-52	642G52	.375	.125	.250	.031		●	●	●

FLPL/R





RH Shown

Description	EDP Code	R	T	D	A	TiN Coated GP25	TiN Coated GP50	AlTiN Coated AC25	AlTiN Coated AC50
FLPR-50.5	642505	.005	.125	.375	.250	●	●	●	●
FLPL-50.5	641505	.005	.125	.375	.250	●	●	●	●
FLPR-51	64251	.015	.125	.375	.250	●	●	●	●
FLPL-51	64151	.015	.125	.375	.250	●	●	●	●
FLPR-52	64252	.031	.125	.375	.250	●	●	●	●
FLPL-52	64152	.031	.125	.375	.250	●	●	●	●
FLPR-130.5	6421305	.005	.187	.500	.375	●	●	●	●
FLPL-130.5	6411305	.005	.187	.500	.375	●	●	●	●
FLPR-131F	642131F	.015	.187	.500	.375	●	●	●	●
FLPL-131F	641131F	.015	.187	.500	.375	●	●	●	●
FLPR-132F	642132F	.031	.187	.500	.375	●	●	●	●
FLPL-132F	641132F	.031	.187	.500	.375	●	●	●	●
FLPR-132N	642132N	.031	.187	.500	.375	●	●	●	●
FLPL-132N	641132N	.031	.187	.500	.375	●	●	●	●
FLPR-331N	642331N	.015	.187	.734	.375	●	●	●	●
FLPL-331N	641331N	.015	.187	.734	.375	●	●	●	●
FLPR-332F	642332F	.031	.187	.734	.375	●	●	●	●
FLPL-332F	641332F	.031	.187	.734	.375	●	●	●	●
FLPR-332N	642332N	.031	.187	.734	.375	●	●	●	●
FLPL-332N	641332N	.031	.187	.734	.375	●	●	●	●

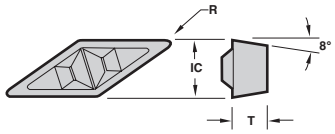
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

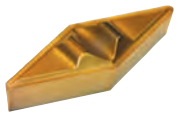
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron	▲		●	
Non-Ferrous	▲		●	
Stainless/High Temp	▲		●	
Steel		▲		●

35° DIAMOND PROFILING

VPGR





Description	EDP Code	IC	T	R	TiN Coated GP25	TiN Coated GP50	AlTiN Coated AC25	AlTiN Coated AC50
VPGR-330.5	6443305	.375	.187	.008	●	●	●	●
VPGR-331	644331	.375	.187	.015	●	●	●	●
VPGR-332	644332	.375	.187	.031	●	●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

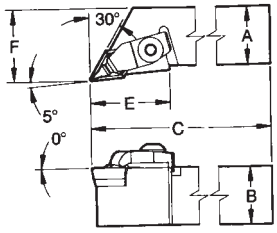
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron	▲		●	
Non-Ferrous	▲		●	
Stainless/High Temp	▲		●	
Steel		▲		●

EXTERNAL HOLDERS

FLDLPR/L

Profiling



RH SHOWN

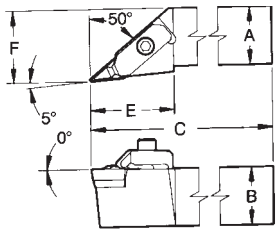
Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw
FLDLPR-164D	92831625	DPGR-432	1	1	6	1.38	1.250	SM-414	S-111	CM116	S-532
FLDLPL-164D	92821625	DPGR-432	1	1	6	1.38	1.250	SM-414	S-111	CM117	S-532
FLDLPR-204D	92832025	DPGR-432	1-1/4	1-1/4	6	1.38	1.500	SM-414	S-111	CM116	S-532
FLDLPL-204D	92822025	DPGR-432	1-1/4	1-1/4	6	1.38	1.500	SM-414	S-111	CM117	S-532

FLVLCR/L

Profiling



RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

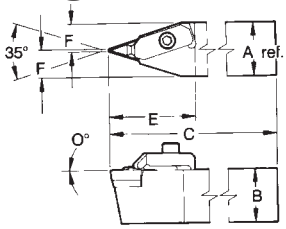
PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw
FLVLCR-123B	93531226	VPGR-33_	3/4	3/4	4-1/2	1.44	1.000	SM-412	S-959	CM113	S-412
FLVLCL-123B	93521226	VPGR-33_	3/4	3/4	4-1/2	1.44	1.000	SM-412	S-959	CM114	S-412
FLVLCR-163D	93531626	VPGR-33_	1	1	6	1.44	1.250	SM-412	S-959	CM113	S-412
FLVLCL-163D	93521626	VPGR-33_	1	1	6	1.44	1.250	SM-412	S-959	CM114	S-412
FLVLCR-203D	93532026	VPGR-33_	1-1/4	1-1/4	6	1.44	1.500	SM-412	S-959	CM113	S-412
FLVLCL-203D	93522026	VPGR-33_	1-1/4	1-1/4	6	1.44	1.500	SM-412	S-959	CM114	S-412

EXTERNAL HOLDERS

FLVVCN

Profiling



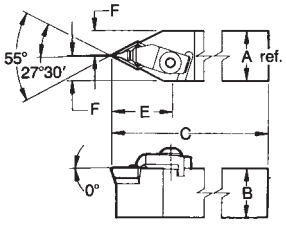
Most holders available with coolant port
(ie: Add CP to end of description)

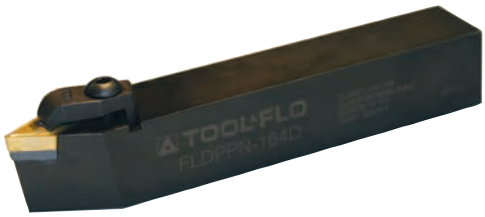
PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw
FLVVCN-163D	93541626	VPGR-33_	1	1	6	1.62	0.522	SM-412	S-959	CM113	S-412
FLVVCN-203D	93542026	VPGR-33_	1-1/4	1-1/4	6	1.62	0.647	SM-412	S-959	CM113	S-412

FLDPPN

Profiling





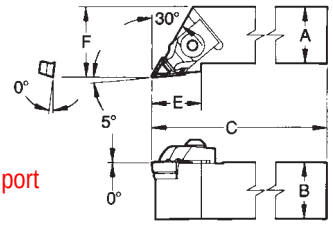
Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw
FLDPPN-164D	92841625	DPGR-432	1	1	6	1.59	.519	SM-414	S-111	CM116	S-532
FLDPPN-204D	92842025	DPGR-432	1-1/4	1-1/4	6	1.59	.644	SM-414	S-111	CM116	S-532

FLKL

Profiling



RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

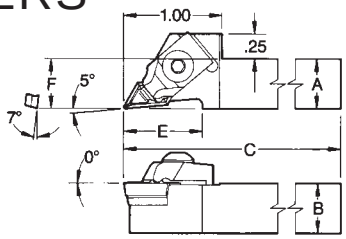
Description	EDP Code	Insert	A	B	C	F	E	Seat	Seat Screw	Clamp	Clamp Screw
FLKLCR-0805V	93130829	FLPR-5_*	1/2	1/2	3-1/2	.750	.875	SM-285	S-959	CM79	S-524
FLKLCL-0805V	93120829	FLPL-5_*	1/2	1/2	3-1/2	.750	.875	SM-286	S-959	CM71	S-524
FLKLCR-1205B	93131229	FLPR-5_*	3/4	3/4	4-1/2	1.000	.875	SM-285	S-959	CM68	S-524
FLKLCL-1205B	93121229	FLPL-5_*	3/4	3/4	4-1/2	1.000	.875	SM-286	S-959	CM68	S-524
FLKLNR-121B	93131230	FLPR-13_	3/4	3/4	4-1/2	1.000	1.250	SM-272	SL-344	CM66	S-625
FLKLNL-121B	93121230	FLPL-13_	3/4	3/4	4-1/2	1.000	1.250	SM-271	SL-344	CM66	S-625
FLKLNR-161C	93131630	FLPR-13_	1	1	5	.750	.875	SM-272	SL-344	CM66	S-625
FLKLNL-161C	93121630	FLPL-13_	1	1	5	.750	.875	SM-271	SL-344	CM66	S-625
FLKLNR-163D	93131631	FLPR-33_	1	1	6	1.500	.875	SM-268	SL-344	CM65	S-625
FLKLNL-163D	93121631	FLPL-33_	1	1	6	1.500	.875	SM-267	SL-344	CM65	S-625
FLKLNR-203D	93132031	FLPR-33_	1-1/4	1-1/4	6	1.500	1.438	SM-268	SL-344	CM65	S-625
FLKLNL-203D	93122031	FLPL-33_	1-1/4	1-1/4	6	1.500	1.438	SM-267	SL-344	CM65	S-625

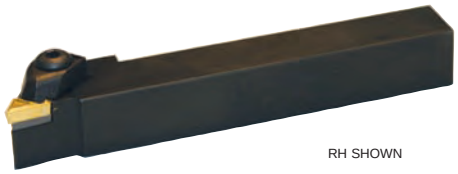
*Also used with inserts FLPGR/FLPGL.

EXTERNAL HOLDERS

FLKL-F

Profiling





RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

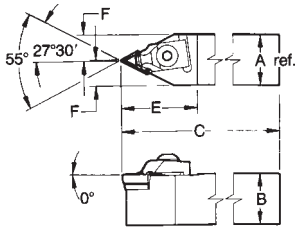
PARTS

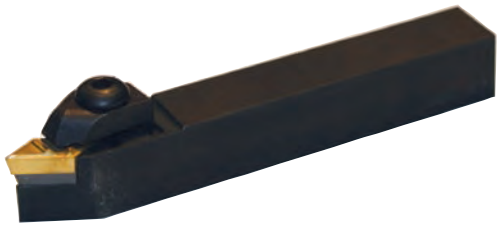
Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw
FLKLCRF-0805D	93150829	FLPR-5_*	1/2	1/2	6	.750	.500	SM-285	S-959	CM180	S-524
FLKLCLF-0805D	93140829	FLPL-5_*	1/2	1/2	6	.750	.500	SM-286	S-959	CM181	S-524
FLKLCRF-1005B	93151029	FLPR-5_*	5/8	5/8	4-1/2	.750	.625	SM-285	S-959	CM180	S-524
FLKLCLF-1005B	93141029	FLPL-5_*	5/8	5/8	4-1/2	.750	.625	SM-286	S-959	CM181	S-524

*Also used with inserts FLPGR/FLPGL.

FLKPCN

Profiling





Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

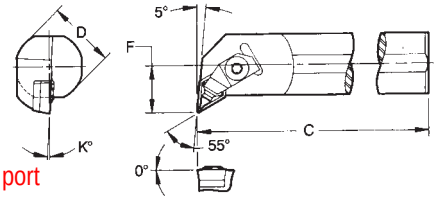
Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw
FLKPCN-0805V	93160829V	FLPR-5_*	1/2	1/2	3-1/2	1.125	.260	SM-285	S-959	CM79	S-524
FLKPCN-0805D	93160829D	FLPR-5_*	1/2	1/2	6	1.125	.260	SM-285	S-959	CM79	S-524
FLKPCN-1205B	93161229	FLPR-5_*	3/4	3/4	4-1/2	1.125	.385	SM-285	S-959	CM68	S-524

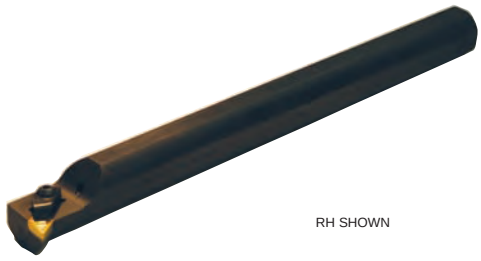
*Also used with inserts FLPGR/FLPGL.

INTERNAL BARS

A-FLDL

Profiling





RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

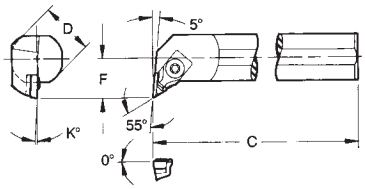
PARTS

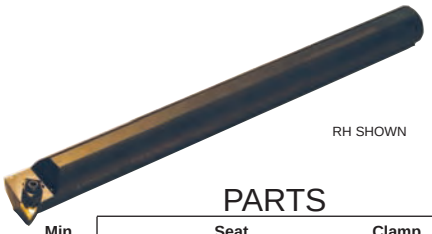
Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat	Seat Screw	Clamp	Clamp Screw
A20-FLDLPR4	90522025	DPGR-432	1.250	14	.875	3°	1.585	SM-414	S-111	CM118	S-532
A20-FLDLPL4	90502025	DPGR-432	1.250	14	.875	3°	1.585	SM-414	S-111	CM119	S-532
A24-FLDLPR4	90522425	DPGR-432	1.500	14	1.000	2°	1.835	SM-414	S-111	CM118	S-532
A24-FLDLPL4	90502425	DPGR-432	1.500	14	1.000	2°	1.835	SM-414	S-111	CM119	S-532
A28-FLDLPR4	90522825	DPGR-432	1.750	14	1.125	2°	2.120	SM-414	S-111	CM118	S-532
A28-FLDLPL4	90502825	DPGR-432	1.750	14	1.125	2°	2.120	SM-414	S-111	CM119	S-532
A32-FLDLPR4	90523225	DPGR-432	2.000	16	1.250	2°	2.400	SM-414	S-111	CM118	S-532
A32-FLDLPL4	90503225	DPGR-432	2.000	16	1.250	2°	2.400	SM-414	S-111	CM119	S-532

INTERNAL BARS

A-FLKL
Profiling

Most bars available with coolant port
(ie: Add CP to end of description)




RH SHOWN

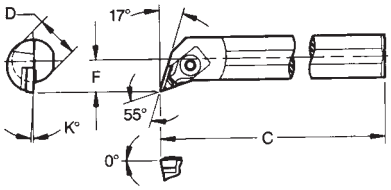
PARTS

Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat	Seat Screw	Clamp	Clamp Screw
A10-FLKLCR05	90561029	FLPL-5_*	.625	10	.500	5°	.900	SM-286	S-959	CM79	S-524
A10-FLKLCL05	90541029	FLPR-5_*	.625	10	.500	5°	.900	SM-285	S-959	CM71	S-524
A12-FLKLCR05	90561229	FLPL-5_*	.750	10	.562	5°	.980	SM-286	S-959	CM79	S-524
A12-FLKLCL05	90541229	FLPR-5_*	.750	10	.562	5°	.980	SM-285	S-959	CM71	S-524
A16-FLKLCR05	90561629	FLPL-5_*	1.000	12	.750	3°	1.300	SM-286	S-959	CM68	S-524
A16-FLKLCL05	90541629	FLPR-5_*	1.000	12	.750	3°	1.300	SM-285	S-959	CM68	S-524
A20-FLKLCR05	90562029	FLPL-5_*	1.250	14	.875	3°	1.585	SM-286	S-959	CM68	S-524
A20-FLKLCL05	90542029	FLPR-5_*	1.250	14	.875	3°	1.585	SM-285	S-959	CM68	S-524
A24-FLKLCR05	90562429	FLPL-5_*	1.500	14	1.000	2°	1.835	SM-286	S-959	CM68	S-524
A24-FLKLCL05	90542429	FLPR-5_*	1.500	14	1.000	2°	1.835	SM-285	S-959	CM68	S-524
A32-FLKLCR05	90563229	FLPL-5_*	2.000	16	1.250	2°	2.400	SM-286	S-959	CM68	S-524
A32-FLKLCL05	90543229	FLPR-5_*	2.000	16	1.250	2°	2.400	SM-285	S-959	CM68	S-524

*Also used with inserts FLPGR/FLPGL.

A-FLKQ
Profiling

Most bars available with coolant port
(ie: Add CP to end of description)




RH SHOWN

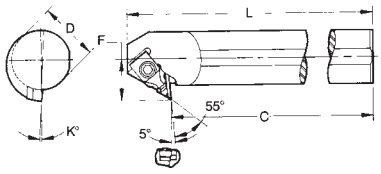
PARTS

Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat	Seat Screw	Clamp	Clamp Screw
A08-FLKQCR05	90600829	FLPL-5_*	.500	8	.375	6°	.670	-	-	CM112	S-518
A08-FLKQCL05	90580829	FLPR-5_*	.500	8	.375	6°	.670	-	-	CM111	S-518
A12-FLKQCR05	90601229	FLPL-5_*	.750	10	.562	6°	.980	SM-286	S-959	CM68	S-524
A12-FLKQCL05	90581229	FLPR-5_*	.750	10	.562	6°	.980	SM-285	S-959	CM68	S-524
A16-FLKQCR05	90601629	FLPL-5_*	1.000	12	.750	3°	1.300	SM-286	S-959	CM68	S-524
A16-FLKQCL05	90581629	FLPR-5_*	1.000	12	.750	3°	1.300	SM-285	S-959	CM68	S-524

*Also used with inserts FLPGR/FLPGL.

A-FLKX
Profiling

Most bars available with coolant port
(ie: Add CP to end of description)




RH SHOWN

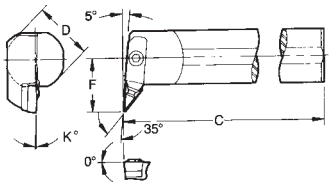
PARTS

Description	EDP Code	Insert	D	C	L	F	K°	Min. Bore	Seat	Seat Screw	Clamp	Clamp Screw
A12-FLKXCR05	90641229	FLPR-5_*	.750	10	10.00	.625	5°	1.060	SM-285	S-959	CM79	S-524
A12-FLKXCL05	90621229	FLPL-5_*	.750	10	10.00	.625	5°	1.060	SM-286	S-959	CM71	S-524
A16-FLKXCR05	90641629	FLPR-5_*	1.000	12	12.00	.750	5°	1.300	SM-285	S-959	CM79	S-524
A16-FLKXCL05	90621629	FLPL-5_*	1.000	12	12.00	.750	5°	1.300	SM-286	S-959	CM71	S-524

*Also used with inserts FLPGR/FLPGL.

A-FLVL
Profiling

Most bars available with coolant port
(ie: Add CP to end of description)

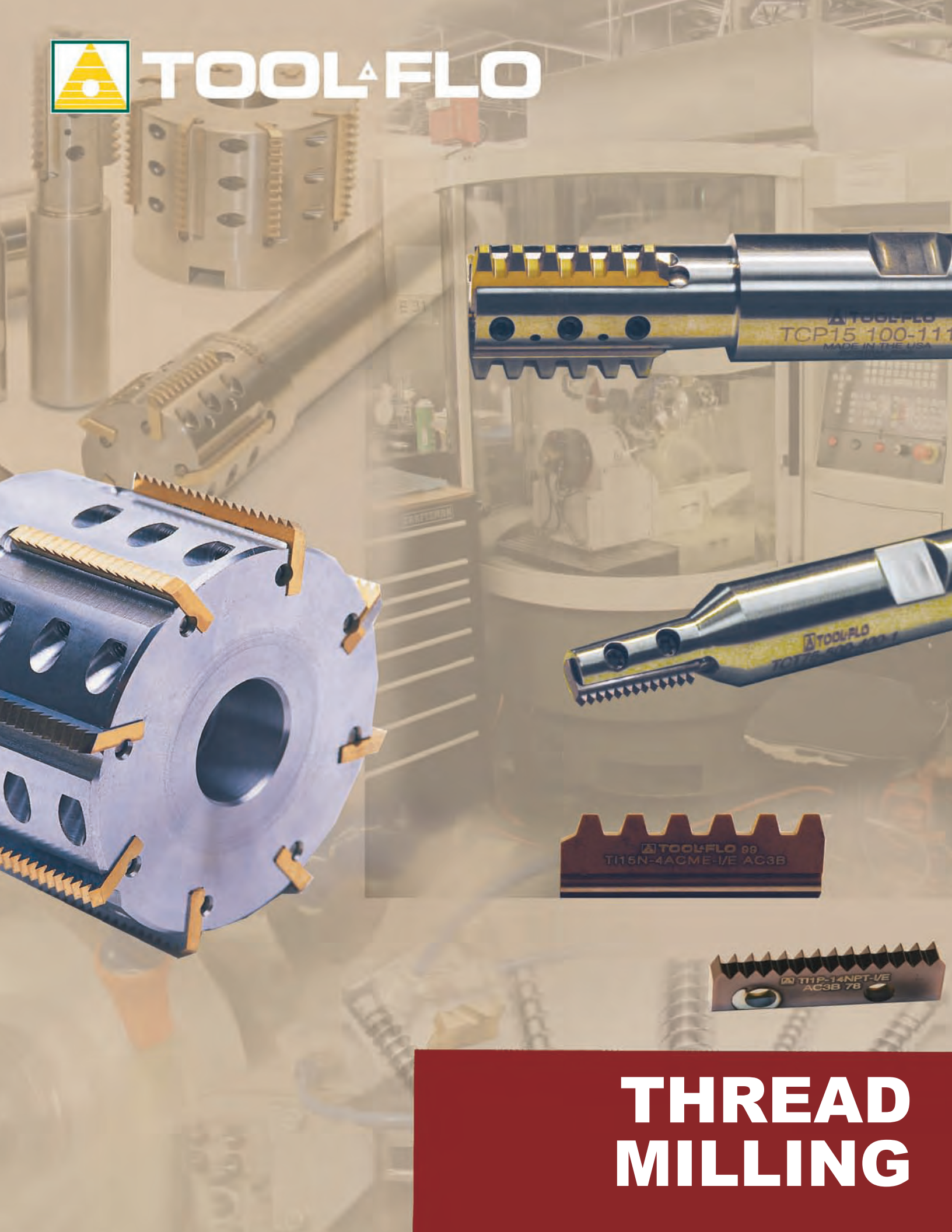



RH SHOWN

PARTS

Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat	Seat Screw	Clamp	Clamp Screw
A20-FLVLCR3	90682026	VPGR-33_	1.250	14	1.125	2°	1.830	SM-412	S-959	CM113	S-412
A20-FLVLCL3	90662026	VPGR-33_	1.250	14	1.125	2°	1.830	SM-412	S-959	CM114	S-412
A24-FLVLCR3	90682426	VPGR-33_	1.500	14	1.250	2°	2.120	SM-412	S-959	CM113	S-412
A24-FLVLCL3	90662426	VPGR-33_	1.500	14	1.250	2°	2.120	SM-412	S-959	CM114	S-412
A32-FLVLCR3	90683226	VPGR-33_	2.000	16	1.500	2°	2.620	SM-412	S-959	CM113	S-412
A32-FLVLCL3	90663226	VPGR-33_	2.000	16	1.500	2°	2.620	SM-412	S-959	CM114	S-412

TOOL-FLO



THREAD MILLING

TC SERIES THREADMILLING

Threadmilling Insert Nomenclature Chart

TI | 15 | N | — | 8 | UN | — | I

- TI — threadmilling insert
- 15 — insert length
  - 75 .750
  - 1 1.000
  - 1.5 1.500
- N — type of insert
  - N Neutral
  - P Positive
- 8 — thread pitch
- UN — threadform
- I — type of insert
  - E External
  - I Internal

Threadmilling Cutter Nomenclature Chart

TC | S | 15 | — | 300 | — | 334 | — | 8

- TC — tc series cutter
- S — cutter design
  - N Neutral Pocket design
  - P Positive Pocket design
  - S Shell Mill design
- 15 — insert length
  - 75 .750
  - 1 1.000
  - 1.5 1.500
- 300 — diameter
  - Shank
  - Head (Shell Mill only)
- 334 — cutter diameter
- 8 — no. of flutes

Solid Threadmill Nomenclature Chart

TS | H | I | 250 | — | 079 | — | 40 | UN

- TS — threadmill solid
- H — flute geometry
  - S Straight
- I — application
  - I Internal
  - E External
  - X Int/Ext
- 250 — shank diameter
- 079 — cutter diameter
- 40 — pitch
- UN — threadform

TCT/TCN

- TCT cutters offer tapered head to accommodate NPT and NPTF style inserts
- TCN cutters offer straight head to accommodate UN and ISO style inserts
- Inserts are CNC ground to tolerance of +/-.0005 effective in the cutter
- Positive geometry provides high shear action which results in better quality threads

TCP

- Cutters feature our patented locking system for accurate indexes
- Inserts are CNC ground to tolerance of +/-.0005 effective in the cutter
- Positive geometry provides high shear action which results in better quality threads
- Design allows for maximum number of flutes in minimum part diameter

TCS

- Cutters feature our patented locking system for accurate indexes
- Inserts are CNC ground to tolerance of +/-.0005 effective in the cutter
- Positive geometry provides high shear action which results in better quality threads
- Design allows for maximum number of flutes in minimum part diameter
- Run at high speeds to reduce machining time by as much as 50%

TSSI/X

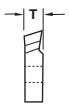
- Produce better quality threads than tapping
- Excels in materials that are difficult to cut

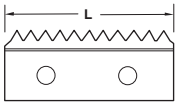
BSPT THREADING

TI_P

Positive Rake

■ Internal/External





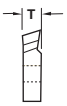
Description	EDP Code	Pitch	L	T	Uncoated C3	TiN Coated GP3	ATiN Coated ZS3
TI75P-19BSPT-I/E	TMIA4419I/E	19	.750	.080		●	●
TI1P-19BSPT-I/E	TMIB4419I/E	19	1.000	.140		●	●
TI1P-14BSPT-I/E	TMIB4414I/E	14	1.000	.140		●	●
TI1N-11BSPT-I/E - Neutral Rake	TMIC4411I/E	11	1.000	.140		●	●

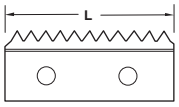
BSPP THREADING

TI_P

Positive Rake

■ Internal/External





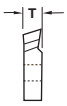
Description	EDP Code	TPI	L	T	Uncoated C3	TiN Coated GP3	AlTiN Coated ZS3
TI75P-19BSPP-I/E	TMIA4419I/E	19	.750	.080		●	●
TI1P-19BSPP-I/E	TMIB4419I/E	19	1.000	.140		●	●
TI1P-14BSPP-I/E	TMIB4414I/E	14	1.000	.140		●	●

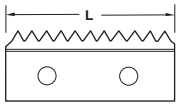
NPT/NPTF THREADING

TI_P

Positive Rake

■ Internal/External





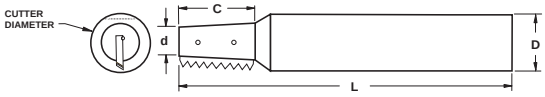
Description	EDP Code	TPI	L	T	C3	GP3	ZS3
TI75P-18NPT-I/E	TMIA3618I/E	18	.750	.080		●	●
TI75P-18NPTF-I/E	TMIA4618I/E	18	.750	.080		●	●
TI1P-14NPT-I/E	TMIB3614I/E	14	1.000	.140		●	●
TI1P-14NPTF-I/E	TMIB4614I/E	14	1.000	.140		●	●

NPT/NPTF THREADING

TCT_

Cutter Bodies

■ Internal/External



Description	EDP Code	Insert	D	d	L	Cutter Dia	C	Flutes	Screw*
TCT75-500-400-1	TMTA084001	TI75P-18NPT/NPTF/BSPT	.500	.229	3.000	.400	.750	1	TS250
TCT1-500-659-1	TMTB086591	TI1P-14NPT/NPTF/BSPT	.500	.379	3.000	.659	1.000	1	TS45

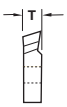
*TS250 uses K-2 wrench, TS45 uses K-3 wrench

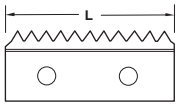
UN THREADING

TI_P

Positive Rake

■ Internal





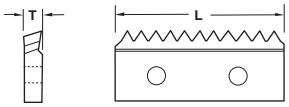
Description	EDP Code	Pitch	L	T	C3	GP3	ZS3
TI75P-32UN-I	TMIA6632I	32	.750	.080		●	●
TI75P-24UN-I	TMIA6624I	24	.750	.080		●	●
TI75P-20UN-I	TMIA6620I	20	.750	.080		●	●
TI75P-18UN-I	TMIA6618I	18	.750	.080		●	●
TI75P-16UN-I	TMIA6616I	16	.750	.080		●	●
TI1P-32UN-I	TMIB6632I	32	1.000	.140		●	●
TI1P-24UN-I	TMIB6624I	24	1.000	.140		●	●
TI1P-20UN-I	TMIB6620I	20	1.000	.140		●	●
TI1P-18UN-I	TMIB6618I	18	1.000	.140		●	●
TI1P-16UN-I	TMIB6616I	16	1.000	.140		●	●
TI1P-14UN-I	TMIB6614I	14	1.000	.140		●	●
TI1P-12UN-I	TMIB6612I	12	1.000	.140		●	●
TI1P-10UN-I*	TMIB6610I	10	1.000	.140		●	●

*To be used in TCN1 750-611-1 cutter only.

UNJ THREADING

TI_P

Positive Rake



■ Internal

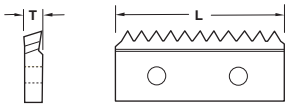
Description	EDP Code	TPI	L	T	C3	GP3	ZS3
TI75P-32UNJ-I	TMIA6832I	32	.750	.080		●	●
TI75P-24UNJ-I	TMIA6824I	24	.750	.080		●	●
TI75P-20UNJ-I	TMIA6820I	20	.750	.080		●	●
TI75P-18UNJ-I	TMIA6818I	18	.750	.080		●	●
TI75P-16UNJ-I	TMIA6816I	16	.750	.080		●	●
TI1P-32UNJ-I	TMIB6832I	32	1.000	.140		●	●
TI1P-24UNJ-I	TMIB6824I	24	1.000	.140		●	●
TI1P-20UNJ-I	TMIB6820I	20	1.000	.140		●	●
TI1P-18UNJ-I	TMIB6818I	18	1.000	.140		●	●
TI1P-16UNJ-I	TMIB6816I	16	1.000	.140		●	●
TI1P-14UNJ-I	TMIB6814I	14	1.000	.140		●	●
TI1P-12UNJ-I	TMIB6812I	12	1.000	.140		●	●
TI1P-10UNJ-I	TMIB6810I	10	1.000	.140		●	●

Uncoated | TiN Coated | AlTiN Coated

ISO THREADING

TI_P

Positive Rake



■ Internal

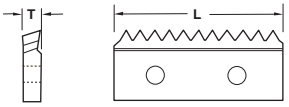
Description	EDP Code	Pitch	L	T	C3	GP3	ZS3
TI75P-1.5 ISO-I	TMIA7015I	1,5	.750	.080		●	●
TI75P-1.25 ISO-I	TMIA70125I	1,25	.750	.080		●	●
TI75P-1.0 ISO-I	TMIA7010I	1,0	.750	.080		●	●
TI75P-0.5 ISO-I	TMIA7005I	0,5	.750	.080		●	●
TI1P-2.0 ISO-I	TMIB7020I	2,0	1.000	.140		●	●
TI1P-1.5 ISO-I	TMIB7015I	1,5	1.000	.140		●	●
TI1P-1.0 ISO-I	TMIB7010I	1,0	1.000	.140		●	●

Uncoated | TiN Coated | AlTiN Coated

UN THREADING

TI_P

Positive Rake



■ External

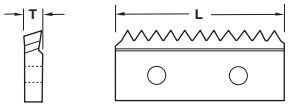
Description	EDP Code	TPI	L	T	C3	GP3	ZS3
TI75P-32UN-E	TMIA6632E	32	.750	.080		●	●
TI75P-24UN-E	TMIA6624E	24	.750	.080		●	●
TI75P-20UN-E	TMIA6620E	20	.750	.080		●	●
TI75P-18UN-E	TMIA6618E	18	.750	.080		●	●
TI75P-16UN-E	TMIA6616E	16	.750	.080		●	●
TI1P-32UN-E	TMIB6632E	32	1.000	.140		●	●
TI1P-24UN-E	TMIB6624E	24	1.000	.140		●	●
TI1P-20UN-E	TMIB6620E	20	1.000	.140		●	●
TI1P-18UN-E	TMIB6618E	18	1.000	.140		●	●
TI1P-16UN-E	TMIB6616E	16	1.000	.140		●	●
TI1P-12UN-E	TMIB6612E	12	1.000	.140		●	●

Uncoated | TiN Coated | AlTiN Coated

UNJ THREADING

TI_P

Positive Rake



■ External

Description	EDP Code	TPI	L	T	C3	GP3	ZS3
TI75P-32UNJ-E	TMIA6832E	32	.750	.080		●	●
TI75P-24UNJ-E	TMIA6824E	24	.750	.080		●	●
TI75P-20UNJ-E	TMIA6820E	20	.750	.080		●	●
TI75P-18UNJ-E	TMIA6818E	18	.750	.080		●	●
TI75P-16UNJ-E	TMIA6816E	16	.750	.080		●	●
TI1P-32UNJ-E	TMIB6832E	32	1.000	.140		●	●
TI1P-24UNJ-E	TMIB6824E	24	1.000	.140		●	●
TI1P-20UNJ-E	TMIB6820E	20	1.000	.140		●	●
TI1P-18UNJ-E	TMIB6818E	18	1.000	.140		●	●
TI1P-16UNJ-E	TMIB6816E	16	1.000	.140		●	●
TI1P-12UNJ-E	TMIB6812E	12	1.000	.140		●	●

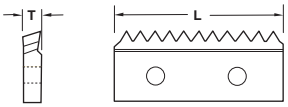
Uncoated | TiN Coated | AlTiN Coated

ISO THREADING

TI1P

Positive Rake

■ External



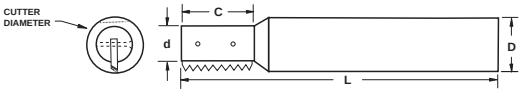
Description	EDP Code	Pitch	L	T	Uncoated C3	TiN Coated GP3	AlTiN Coated ZS3
TI1P-2.0 ISO-E	TMIB7020E	2,0	1.000	.140		●	●
TI1P-1.5 ISO-E	TMIB7015E	1,5	1.000	.140		●	●
TI1P-1.0 ISO-E	TMIB7010E	1,0	1.000	.140		●	●

UN THREADING

TCN_

Cutter Bodies

■ Internal/External



Description	EDP Code	Insert	D	d	L	Cutter Dia	C	Flutes	Screw*
TCN75-500-394-1	TMNA083941	TI75P-UN/ISO/BSPP/NGT/SGT/UNJ	.500	.250	3.000	.394	.750	1	TS250
TCN75-500-468-1	TMNA084681	TI75P-UN/ISO/BSPP/NGT/SGT/UNJ	.500	.330	3.500	.468	.750	1	TS25
TCN1-750-625-1	TMNB126251	TI1P-UN/ISO/BSPP/NGT/SGT/UNJ	.750	.454	3.500	.625	1.000	1	TS40
TCN1-750-611-1	TMNB126111	TI1P-10UN	.750	.383	3.500	.611	1.000	1	TS40

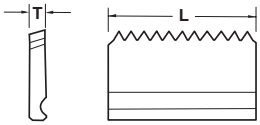
*TS250 and TS25 uses K-2 wrench, TS40 uses K-3 wrench

NGT/SGT THREADING

TI_N

Neutral Rake

■ Internal/External



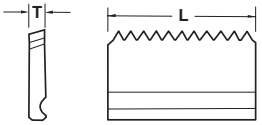
Description	EDP Code	TPI	L	T	C3	GP3	ZS3
TI15N-14NGT-I/E	TMID4714I/E	14	1.500	.140		●	●
TI15N-14SGT-I/E	TMID4914I/E	14	1.500	.140		●	●

NPT/NPTF THREADING

TI_N

Neutral Rake

■ Internal/External



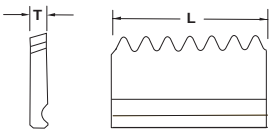
Description	EDP Code	TPI	L	T	Uncoated C3	TiN Coated GP3	AlTiN Coated ZS3
TI15N-11.5NPT-I/E	TMID3611I/E	11.5	1.500	.140		●	●
TI15N-11.5NPTF-I/E	TMID4611I/E	11.5	1.500	.140		●	●
TI15N-8NPT-I/E	TMID3608I/E	8	1.500	.140		●	●
TI15N-8NPTF-I/E	TMID4608I/E	8	1.500	.140		●	●

API ROUND THREADING

TI15N

Neutral Rake

■ Internal/External



Description	EDP Code	TPI	L	T	Uncoated C3	TiN Coated GP3	AlTiN Coated ZS3
TI15N-10RD-I/E	TMID3410I/E	10	1.500	.140		●	●
TI15N-8RD-I/E	TMID3200I/E	8	1.500	.140		●	●

UN THREADING

TI_N

Neutral Rake

■ Internal

Description	EDP Code	TPI	L	T	Uncoated C3	TiN Coated GP3	AlTiN Coated ZS3
TI1N-32UN-I	TMIC6632I	32	1.000	.140		●	●
TI1N-24UN-I	TMIC6624I	24	1.000	.140		●	●
TI1N-20UN-I	TMIC6620I	20	1.000	.140		●	●
TI1N-18UN-I	TMIC6618I	18	1.000	.140		●	●
TI1N-16UN-I	TMIC6616I	16	1.000	.140		●	●
TI1N-12UN-I	TMIC6612I	12	1.000	.140		●	●
TI1N-10UN-I	TMIC6610I	10	1.000	.140		●	●
TI15N-24UN-I	TMID6624I	24	1.500	.140		●	●
TI15N-20UN-I	TMID6620I	20	1.500	.140		●	●
TI15N-18UN-I	TMID6618I	18	1.500	.140		●	●
TI15N-16UN-I	TMID6616I	16	1.500	.140		●	●
TI15N-14UN-I	TMID6614I	14	1.500	.140		●	●
TI15N-12UN-I	TMID6612I	12	1.500	.140		●	●
TI15N-10UN-I	TMID6610I	10	1.500	.140		●	●
TI15N-8UN-I	TMID6608I	8	1.500	.140		●	●
TI15N-7UN-I	TMID6607I	7	1.500	.140		●	●
TI15N-6UN-I	TMID6606I	6	1.500	.140		●	●

UNJ THREADING

TI_N

Neutral Rake

■ Internal

Description	EDP Code	TPI	L	T	Uncoated C3	TiN Coated GP3	AlTiN Coated ZS3
TI1N-32UNJ-I	TMIC6832I	32	1.000	.140		●	●
TI1N-24UNJ-I	TMIC6824I	24	1.000	.140		●	●
TI1N-20UNJ-I	TMIC6820I	20	1.000	.140		●	●
TI1N-18UNJ-I	TMIC6818I	18	1.000	.140		●	●
TI1N-16UNJ-I	TMIC6816I	16	1.000	.140		●	●
TI1N-12UNJ-I	TMIC6812I	12	1.000	.140		●	●
TI1N-10UNJ-I	TMIC6810I	10	1.000	.140		●	●
TI15N-24UNJ-I	TMID6824I	24	1.500	.140		●	●
TI15N-20UNJ-I	TMID6820I	20	1.500	.140		●	●
TI15N-18UNJ-I	TMID6818I	18	1.500	.140		●	●
TI15N-16UNJ-I	TMID6816I	16	1.500	.140		●	●
TI15N-12UNJ-I	TMID6812I	12	1.500	.140		●	●
TI15N-10UNJ-I	TMID6810I	10	1.500	.140		●	●
TI15N-8UNJ-I	TMID6808I	8	1.500	.140		●	●

ISO THREADING

TI15N

Neutral Rake

■ Internal

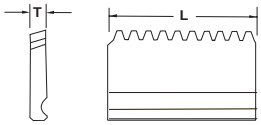
Description	EDP Code	TPI	L	T	Uncoated C3	TiN Coated GP3	AlTiN Coated ZS3
TI15N-6.0 ISO-I	TMID7060I	6.0	1.500	.140		●	●
TI15N-5.0 ISO-I	TMID7050I	5.0	1.500	.140		●	●
TI15N-4.5 ISO-I	TMID7045I	4.5	1.500	.140		●	●
TI15N-4.0 ISO-I	TMID7040I	4.0	1.500	.140		●	●
TI15N-3.5 ISO-I	TMID7035I	3.5	1.500	.140		●	●
TI15N-3.0 ISO-I	TMID7030I	3.0	1.500	.140		●	●
TI15N-2.5 ISO-I	TMID7025I	2.5	1.500	.140		●	●
TI15N-2.0 ISO-I	TMID7020I	2.0	1.500	.140		●	●
TI15N-1.5 ISO-I	TMID7015I	1.5	1.500	.140		●	●

ACME THREADING

TI_N

Neutral Rake - Full Profile

■ Internal/External



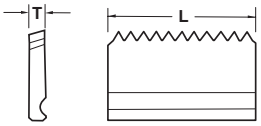
Description	EDP Code	TPI	L	T	C3	GP3	ZS3
TI1N-12ACME-I/E	TMIC0212I/E	12	1.000	.140		●	●
TI1N-10ACME-I/E	TMIC0210I/E	10	1.000	.140		●	●
TI1N-8ACME-I/E	TMIC0208I/E	8	1.000	.140		●	●
TI15N-12ACME-I/E	TMID0212I/E	12	1.500	.140		●	●
TI15N-10ACME-I/E	TMID0210I/E	10	1.500	.140		●	●
TI15N-8ACME-I/E	TMID0208I/E	8	1.500	.140		●	●
TI15N-6ACME-I/E	TMID0206I/E	6	1.500	.140		●	●
TI15N-5ACME-I/E	TMID0205I/E	5	1.500	.140		●	●
TI15N-4ACME-I/E	TMID0204I/E	4	1.500	.140		●	●

UN THREADING

TI_N

Neutral Rake

■ External



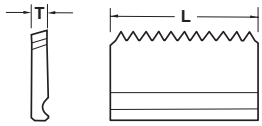
Description	EDP Code	TPI	L	T	Uncoated C3	TiN Coated GP3	AlTiN Coated ZS3
TI1N-32UN-E	TMIC6632E	32	1.000	.140		●	●
TI1N-24UN-E	TMIC6624E	24	1.000	.140		●	●
TI1N-20UN-E	TMIC6620E	20	1.000	.140		●	●
TI1N-18UN-E	TMIC6618E	18	1.000	.140		●	●
TI1N-16UN-E	TMIC6616E	16	1.000	.140		●	●
TI1N-12UN-E	TMIC6612E	12	1.000	.140		●	●
TI1N-10UN-E	TMIC6610E	10	1.000	.140		●	●
TI15N-24UN-E	TMID6624E	24	1.500	.140		●	●
TI15N-20UN-E	TMID6620E	20	1.500	.140		●	●
TI15N-18UN-E	TMID6618E	18	1.500	.140		●	●
TI15N-16UN-E	TMID6616E	16	1.500	.140		●	●
TI15N-12UN-E	TMID6612E	12	1.500	.140		●	●
TI15N-10UN-E	TMID6610E	10	1.500	.140		●	●
TI15N-8UN-E	TMID6608E	8	1.500	.140		●	●
TI15N-6UN-E	TMID6606E	6	1.500	.140		●	●

UNJ THREADING

TI_N

Neutral Rake

■ External



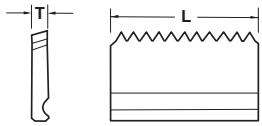
Description	EDP Code	TPI	L	T	Uncoated C3	TiN Coated GP3	AlTiN Coated ZS3
TI1N-32UNJ-E	TMIC6832E	32	1.000	.140		●	●
TI1N-24UNJ-E	TMIC6824E	24	1.000	.140		●	●
TI1N-20UNJ-E	TMIC6820E	20	1.000	.140		●	●
TI1N-18UNJ-E	TMIC6818E	18	1.000	.140		●	●
TI1N-16UNJ-E	TMIC6816E	16	1.000	.140		●	●
TI1N-12UNJ-E	TMIC6812E	12	1.000	.140		●	●
TI1N-10UNJ-E	TMIC6810E	10	1.000	.140		●	●
TI15N-24UNJ-E	TMID6824E	24	1.500	.140		●	●
TI15N-20UNJ-E	TMID6820E	20	1.500	.140		●	●
TI15N-18UNJ-E	TMID6818E	18	1.500	.140		●	●
TI15N-16UNJ-E	TMID6816E	16	1.500	.140		●	●
TI15N-12UNJ-E	TMID6812E	12	1.500	.140		●	●
TI15N-10UNJ-E	TMID6810E	10	1.500	.140		●	●
TI15N-8UNJ-E	TMID6808E	8	1.500	.140		●	●

ISO THREADING

TI15N

Neutral Rake

■ External



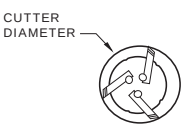
Description	EDP Code	TPI	L	T	Uncoated C3	TiN Coated GP3	AlTiN Coated ZS3
TI15N-6.0 ISO-E	TMID7060E	6.0	1.500	.140		●	●
TI15N-5.0 ISO-E	TMID7050E	5.0	1.500	.140		●	●
TI15N-4.5 ISO-E	TMID7045E	4.5	1.500	.140		●	●
TI15N-4.0 ISO-E	TMID7040E	4.0	1.500	.140		●	●
TI15N-2.0 ISO-E	TMID7020E	2.0	1.500	.140		●	●

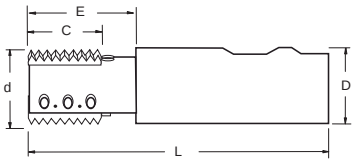
UN/NPT/ISO/ACME/API THREADING

TCP_

Cutter Bodies

■ Internal/External





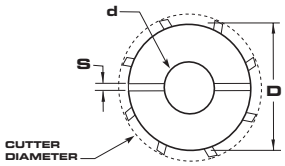
Description	EDP Code	Insert	Coolant Port	D	d	E	L	Cutter Dia. (UN/115NPT)	Cutter Dia. (8NPT)	C	Flutes	Screw	Pin
TCP1 100-969-2	TMPB169692	TI1N		1.000	.750	1.500	4.500	.969	.969	1.000	2	TSS-3	DP1
TCP1 125-175-5	TMPB201755	TI1N	✔	1.250	1.500	1.750	4.000	1.755	1.755	1.000	5	TSS-2	DP1
TCP15 100-932-1	TMPC169321	TI15N		1.000	.722	1.900	4.500	.932	1.065	1.500	1	TSS-2	DP135
TCP15 100-111-3	TMPC161113	TI15N	✔	1.000	.812	2.000	4.500	1.116	1.247	1.500	3	TSS-3	DP135
TCP15 125-175-5	TMPC201755	TI15N	✔	1.250	1.500	2.550	4.500	1.755	1.888	1.500	5	TSS-2	DP135
TCP15 125-175-5L	TMPC201755L	TI15N	✔	1.250	1.500	2.750	8.750	1.755	1.888	1.500	5	TSS-2	DP135

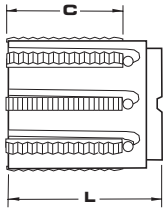
UN/NPT/ISO/ACME THREADING

TCS_

Shell Mill Cutter Bodies

■ Internal/External





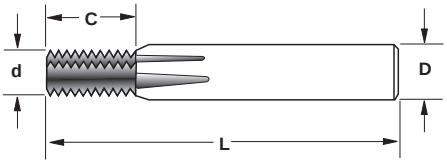
Description	EDP Code	Insert	D	d	S	L	Cutter Dia.	C	Flutes	Pin	Screw
TCS15 200-234-6	TMSC322346	TI15N	2.000	.750	.250	2.250	2.349	1.500	6	DP135	TSS-2
TCS15 250-274-7	TMSC402747	TI15N	2.500	1.000	.375	2.250	2.846	1.500	7	DP135	TSS-2
TCS15 300-334-8	TMSC483348	TI15N	3.000	1.250	.500	2.250	3.341	1.500	8	DP135	TSS-2

UN THREADING

TSSI

Solid Threadmills

■ Internal



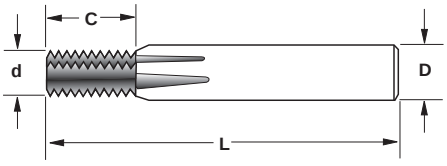
Min. I.D. Thread/Pitch	Description	EDP Code	d	C	Flutes	D	L	AlTiN Coated	AC22
8-32	TSSI 125-120-32UN	TMCS0012032U	.120	.250	3	.125	1.500		●
12-24	TSSI 187-140-24UN	TMCS0114024U	.140	.417	3	.187	1.650		●
12-28	TSSI 187-145-28UN	TMCS0114528U	.145	.321	3	.187	1.650		●
10-32	TSSI 187-140-32UN	TMCS0114032U	.140	.343	3	.187	1.650		●
1/4-20	TSSI 187-160-20UN	TMCS0116020U	.160	.400	3	.187	1.650		●
5/16-18	TSSI 250-200-18UN	TMCS0220018U	.200	.500	3	.250	2.250		●
5/16-24	TSSI 250-200-24UN	TMCS0220024U	.200	.500	3	.250	2.250		●
3/8-16	TSSI 250-240-16UN	TMCS0224016U	.240	.563	5	.250	2.250		●
3/8-24	TSSI 250-240-24UN	TMCS0224024U	.240	.583	5	.250	2.250		●
7/16-14	TSSI 312-310-14UN	TMCS0431014U	.310	.625	5	.312	2.480		●
7/16-20	TSSI 312-310-20UN	TMCS0431020U	.310	.750	5	.312	2.480		●
1/2-13	TSSI 312-310-13UN	TMCS0431013U	.310	.769	5	.312	2.480		●
9/16-12	TSSI 375-375-12UN	TMCS0637512U	.375	.917	5	.375	2.840		●
9/16-18	TSSI 375-370-18UN	TMCS0637518U	.370	.944	5	.375	2.840		●
5/8-11	TSSI 500-437-11UN	TMCS0843711U	.437	1.090	5	.500	3.270		●
3/4-10	TSSI 500-470-10UN	TMCS0847010U	.470	1.100	5	.500	3.270		●
3/4-12	TSSI 500-470-12UN	TMCS0847012U	.470	1.167	5	.500	3.270		●
7/8-14	TSSI 500-470-14UN	TMCS0847014U	.470	1.142	5	.500	3.270		●
1-8	TSSI 625-620-8UN	TMCS1062008U	.620	1.500	6	.625	3.620		●

NPT THREADING

TSSX

Solid Threadmills

■ Internal/External



Min. I.D. Thread/Pitch	Description	EDP Code	d	C	Flutes	D	L	AlTiN Coated	AC22
1/16&1/8-27	TSSX 250-240-27NPT	TMCS0224027N	.240	.370	5	.250	2.250		●
1/4&3/8-18	TSSX 312-310-18NPT	TMCS0431018N	.310	.556	5	.312	2.480		●
1/2&3/4-14	TSSX 500-470-14NPT	TMCS0847014N	.470	.786	5	.500	3.270		●

Threadmilling Kits

SAVE!
Buy in Kits

NPT THREADING KITS

18NPT-THREADING
KIT #101

Kit Contents

1	TCT75 500-400-1
4	TI75-18NPT AC3
1	T8 WRENCH
1	TS252 INSERT SCREW

14NPT-THREADING
KIT #102

Kit Contents

1	TCT1 500-659-1
4	TI1P-14NPT AC3
1	T8 WRENCH
1	TS252 INSERT SCREW

We welcome specials! Please call us with your specs.

UN THREADING KITS

16UN-THREADING
KIT #201

Kit Contents

1	TCN75 500-394-1
4	TI75P-16UN AC3
1	T8 WRENCH
1	TS252 INSERT SCREW

18UN-THREADING
KIT #202

Kit Contents

1	TCN75 500-394-1
4	TI75P-18UN AC3
1	T8 WRENCH
1	TS252 INSERT SCREW

20UN-THREADING
KIT #203

Kit Contents

1	TCN75 500-394-1
4	TI75P-20UN AC3
1	T8 WRENCH
1	TS252 INSERT SCREW

24UN-THREADING
KIT #204

Kit Contents

1	TCN75 500-394-1
4	TI75P-24UN AC3
1	T6 WRENCH
1	TS252 INSERT SCREW

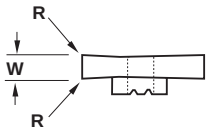
32UN-THREADING
KIT #205

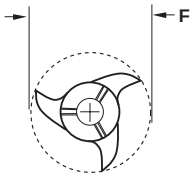
Kit Contents

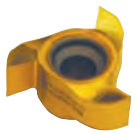
1	TCN75 500-394-1
4	TI75P-32UN AC3
1	T6 WRENCH
1	TS252 INSERT SCREW

MILL GROOVING INSERT

TFMG
Grooving



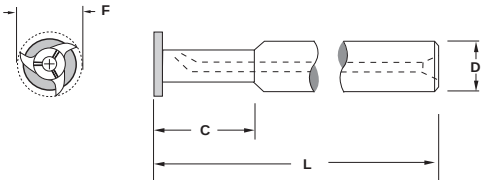




Description	EDP Code	W	D.O.C.	R	F	GP22
TFMG-039W	9MG039	0.039	.177	-	0.854	●
TFMG-056W	9MG056	0.056	.177	-	0.854	●
TFMG-062W	9MG062	0.062	.177	0.008	0.854	●
TFMG-078W	9MG078	0.078	.177	0.008	0.854	●
TFMG-094W	9MG094	0.094	.177	0.008	0.854	●
TFMG-125W	9MG125	0.125	.177	0.008	0.854	●
TFMG-187W	9MG187	0.187	.177	0.008	0.854	●
TFMG-250W	9MG250	0.250	.177	0.008	0.854	●

MILL GROOVING HOLDER

TFM



Description	EDP Code	C	L	D	F	Insert Screw
TFM-7-12M-100C	9CMI712M100	Straight shank	100mm	12mm	0.854	SD25
TFM-7-12M-130C	9CMI712M130	Straight shank	130mm	12mm	0.854	SD25
TFM-7-16M-42C	9CMI716M42	42mm	100mm	16mm	0.854	SD25
TFM-7-16M-60C	9CMI716M60	60mm	130mm	16mm	0.854	SD25
TFM-7-16M-85C	9CMI716M85	85mm	160mm	16mm	0.854	SD25
TFM-7-500-394C	9CMI7500394	Straight shank	3.94	0.500	0.854	SD25
TFM-7-500-512C	9CMI7500512	Straight shank	5.12	0.500	0.854	SD25
TFM-7-625-165C	9CMI7625165	1.650	3.94	0.625	0.854	SD25
TFM-7-625-236C	9CMI7625236	2.630	5.12	0.625	0.854	SD25
TFM-7-625-335C	9CMI7625335	3.350	6.30	0.625	0.854	SD25

Technical Information

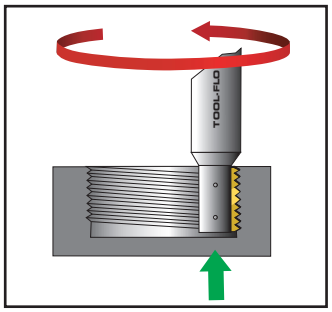
NPT & NPTF

When programming an NPT or NPTF thread form, a correction factor to compensate for the tapered thread form may need to be made. This is achieved by dividing the circular move into quarters or eighths, and moving the cutter out as the arc is generated so that the taper is included in the movement. The amount of taper for a given form is determined by the following formula:

$$\text{Taper per pitch} = \frac{.0625”}{\text{pitch}}$$

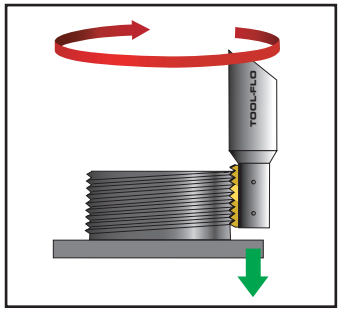
This amount of taper per pitch is then divided by number of programmed quadrants. This determines the amount that the cutter forms of the thread.

Climb Milling



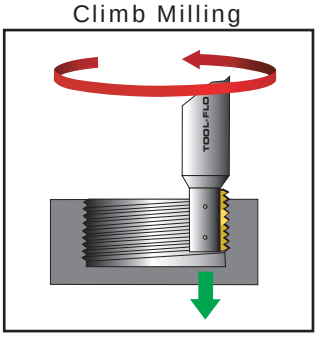
INTERNAL RIGHT HAND

Climb Milling



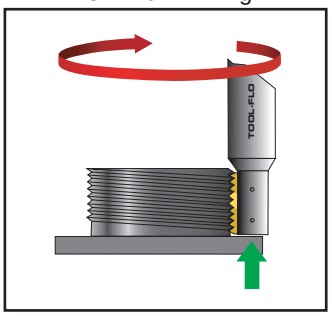
EXTERNAL RIGHT HAND

Climb Milling



INTERNAL LEFT HAND

Climb Milling



EXTERNAL LEFT HAND

NPT SELECTION CHART		
SIZE	CUTTER	INSERT
1/4”, 3/8”	TCT75 500-400-1	TI75P-18NPT
1/2”. 3/4”	TCT1 500-659-1	TI1P-14NPT
1”	TCP15 100-932-1	TI15N-11.5NPT
1-1/4”, 1-1/2”	TCP15 100-111-3	TI15N-11.5NPT
2”	TCP15 125-175-5	TI15N-11.5NPT
3”	TCP15 125-175-5	TI15N-8NPT

RECOMMENDED SPEED AND FEED RATES		
MATERIAL	CHIP LOAD	SPEED (SFPM)
1018 Steel	.0008 - .002	250 - 500
Standard steel (4140)	.0005 - .002	175 - 350
300 Series Stainless	.0005 - .0035	250 - 500
400 Series Stainless	.0002 - .0015	125 - 300
Gray Iron	.0005 - .003	400 - 800
Ductile iron	.001 - .005	600 - 1000
Aluminum	.0015 - .006	800 - 1200
Brass	.002 - .0065	400 - 700

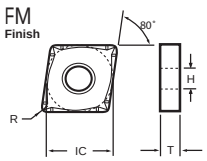
Minimum internal thread size vs pitch for given cutter body for UN threads

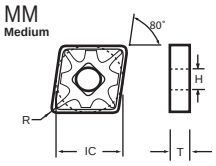
cutter body description / pitch	32	24	20	18	16	14	12	10	8
TCN75 500-394-1	1/2”	1/2”	1/2”	9/16”	9/16”	9/16”	9/16”		
TCN75 500-468-1	5/8”	5/8”	5/8”	5/8”	5/8”	11/16”	11/16”		
TCN1 750-625-1	3/4”	3/4”	3/4”	3/4”	3/4”	3/4”	3/4”		
TCP1 100-969-2	1-1/8”	1-1/8”	1-1/8”	1-3/16”	1-3/16”	1-3/16”	1-3/16”		
TCP1 125-175-5	1-15/16”	1-15/16”	1-15/16”	1-15/16”	1-15/16”	1-15/16”	1-15/16”		
TCP15 100-932-1			1-1/8”	1-1/8”	1-1/8”	1-1/8”	1-1/8”	1-1/8”	1-1/8”
TCP15 100-111-3			1-5/16”	1-5/16”	1-5/16”	1-5/16”	1-5/16”	1-3/8”	1-3/8”
TCP15 125-175-5			1-15/16”	1-15/16”	1-15/16”	2”	2”	2”	2”

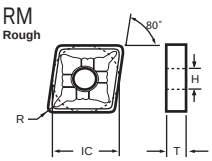
TOOL-FLO

TURNING

CNMG
80° General Purpose

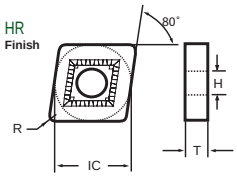






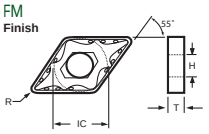
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Steel grades AGS50	Steel grades AGS54	Cast iron grades AS20	Stainless/Exotic APS35
CNMG-322 MM	CNMG-090308 MM	JBMGG2MM	.375	.031	.125	.150	●	●		
CNMG-431 FM	CNMG-120404 FM	JBMGJ1FM	.500	.016	.187	.203	●	●		●
CNMG-431 MM	CNMG-120404 MM	JBMGJ1MM	.500	.016	.187	.203	●	●		
CNMG-432 FM	CNMG-120408 FM	JBMGJ2FM	.500	.031	.187	.203	●	●		●
CNMG-432 MM	CNMG-120408 MM	JBMGJ2MM	.500	.031	.187	.203	●	●		
CNMG-432 RM	CNMG-120408 RM	JBMGJ2RM	.500	.031	.187	.203	●	●	●	●
CNMG-433 MM	CNMG-120412 MM	JBMGJ3MM	.500	.047	.187	.203	●	●		
CNMG-433 RM	CNMG-120412 RM	JBMGJ3RM	.500	.047	.187	.203	●	●	●	●
CNMG-543 RM	CNMG-160612 RM	JBMGO3RM	.625	.047	.250	.253	●	●		●
CNMG-643 RM	CNMG-190612 RM	JBMGR3RM	.750	.047	.250	.313	●	●		●
CNMG-644 RM	CNMG-190616 RM	JBMGR4RM	.750	.063	.250	.313	●	●		●

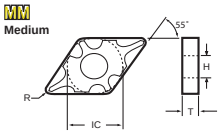
CNMM
80° Roughing

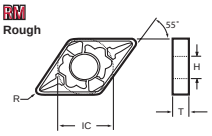


ANSI Description	ISO Description	EDP Code	IC	R	T	H	Steel grades AGS50	Steel grades AGS54	Cast iron grades AS20	Stainless/Exotic APS35
CNMM-432 HR	CNMM-120408 HR	JBMMJ2HR	.500	.031	.187	.203	●	●		
CNMM-433 HR	CNMM-120412 HR	JBMMJ3HR	.500	.047	.187	.203	●	●		
CNMM-543 HR	CNMM-160612 HR	JBMMO3HR	.625	.047	.250	.253	●	●		
CNMM-644 HR	CNMM-090616 HR	JBMMR4HR	.750	.063	.250	.313	●	●		

DNMG
55° General Purpose







ANSI Description	ISO Description	EDP Code	IC	R	T	H	Steel grades AGS50	Steel grades AGS54	Cast iron grades AS20	Stainless/Exotic APS35
DNMG-331 MM	DNMG-110404 MM	JEMGG1MM	.375	.016	.187	.150				
DNMG-332 MM	DNMG-110408 MNS	JEMGG2MM	.375	.031	.187	.150				
DNMG-431 FM	DNMG-150404 FM	JEMGJ1FM	.500	.016	.187	.203	●	●		
DNMG-431 MM	DNMG-150404 MM	JEMGJ1MM	.500	.016	.187	.203	●	●		
DNMG-432 FM	DNMG-150408 FM	JEMGJ2FM	.500	.031	.187	.203	●	●		
DNMG-432 MM	DNMG-150408 MM	JEMGJ2MM	.500	.031	.187	.203	●	●		
DNMG-432 RM	DNMG-150408 RM	JEMGJ2RM	.500	.031	.187	.203	●	●		
DNMG-433 MM	DNMG-150412 MM	JEMGJ3MM	.500	.047	.187	.203	●	●		
DNMG-433 RM	DNMG-150412 RM	JEMGJ3RM	.500	.047	.187	.203	●	●		
DNMG-441 FM	DNMG-150604 FM	JEMGN1FM	.500	.016	.250	.203	●	●		
DNMG-442 FM	DNMG-150608 FM	JEMGN2FM	.500	.031	.250	.203	●	●		
DNMG-442 MM	DNMG-150608 MM	JEMGN2MM	.500	.031	.250	.203				
DNMG-442 RM	DNMG-150608 RM	JEMGN2RM	.500	.031	.250	.203	●	●		
DNMG-443 MM	DNMG-150612 MM	JEMGN2MM	.500	.047	.250	.203				
DNMG-443 RM	DNMG-150612 RM	JEMGN3RM	.500	.047	.250	.203				
DNMG-444 RM	DNMG-150616 RM	JEMGN3RM	.500	.063	.250	.203				

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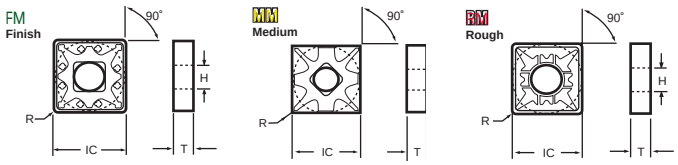
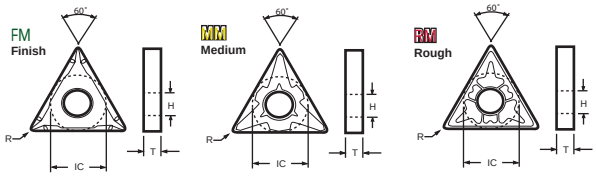
SNMG
90° General Purpose



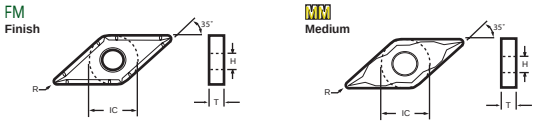
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Steel grades AGS50	Steel grades AGS54	Cast iron grades AS20	Stainless/Exotic APS35
SNMG-431 FM	SNMG-120404 FM	JNMGJ1FM	.500	.016	.187	.203		●		
SNMG-432 FM	SNMG-120408 FM	JNMGJ2FM	.500	.031	.187	.203	●	●		
SNMG-432 MM	SNMG-120408 MM	JNMGJ2MM	.500	.031	.187	.203	●			
SNMG-432 RM	SNMG-120408 RM	JNMGJ2RM	.500	.031	.187	.203	●	●		●
SNMG-433 RM	SNMG-120412 RM	JNMGJ3RM	.500	.047	.187	.203	●	●		●

TNMG
60° General Purpose



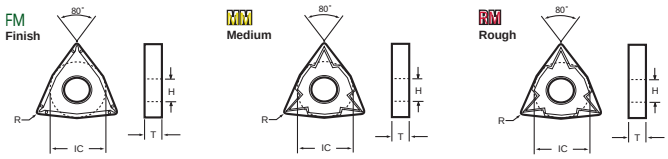
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Steel grades AGS50	Steel grades AGS54	Cast iron grades AS20	Stainless/Exotic APS35
TNMG-331 FM	TNMG-160404 MNS	JTMGH1MNS	.375	.016	.187	.150				
TNMG-331 MM	TNMG-160408 FNC	JTMGH2FNC	.375	.031	.187	.150	●			
TNMG-332 FM	TNMG-160408 FNS	JTMGH2FNS	.375	.031	.187	.150		●	●	
TNMG-332 MM	TNMG-160408 MNS	JTMGH2MNS	.375	.031	.187	.150				
TNMG-332 RM	TNMG-160408 RNS	JTMGH2RNS	.375	.031	.187	.150	●			
TNMG-333 MM	TNMG-160412 MNS	JTMGH3MNS	.375	.047	.187	.150				
TNMG-333 RM	TNMG-160412 RNS	JTMGH3RNS	.375	.047	.187	.150	●			

VNMG
35° General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Steel grades AGS50	Steel grades AGS54	Cast iron grades AS20	Stainless/Exotic APS35
VNMG-331 FM	VNMG-160404 FM	JXMGH1FM	.375	.016	.187	.150		●		
VNMG-331 MM	VNMG-160404 MM	JXMGH1MM	.375	.016	.187	.150		●		

WNMG
80° General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Steel grades AGS50	Steel grades AGS54	Cast iron grades AS20	Stainless/Exotic APS35
WNMG-332 MM	WNMG-060408 MM	JZMAH2MM	.375	.031	.187	.150				
WNMG-431 FM	WNMG-080404 FM	JZMAJ1FM	.500	.016	.187	.203	●			
WNMG-431 MM	WNMG-080404 MM	JZMAJ1MM	.500	.016	.187	.203				
WNMG-432 FM	WNMG-080408 FM	JZMAJ2FM	.500	.031	.187	.203	●			
WNMG-432 MM	WNMG-080408 MM	JZMAJ2MM	.500	.031	.187	.203	●			
WNMG-432 RM	WNMG-080408 RM	JZMAJ2RM	.500	.031	.187	.203	●			
WNMG-433 MM	WNMG-080412 MM	JZMAJ3MM	.500	.047	.187	.203				
WNMG-433 RM	WNMG-080412 RM	JZMAJ2RM	.500	.047	.187	.203	●			

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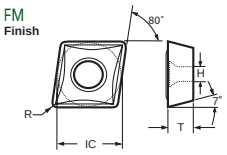
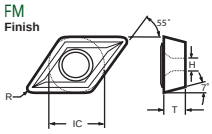
CCMT
80° Screwdown



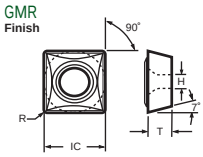
ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
CCMT-21.51 FM	CCMT-060204 FM	JAMTD1FM	.250	.016	.094	.114				●
CCMT-32.51 FM	CCMT-09T304 FM	JAMTG1FM	.375	.016	.156	.177				●
CCMT-32.52 FM	CCMT-09T308 FM	JAMTG2FM	.375	.031	.156	.177				●
CCMT-431 FM	CCMT-120404 FM	JAMTJ1FM	.500	.016	.187	.203				●
CCMT-432 FM	CCMT-120408 FM	JAMTJ2FM	.500	.031	.187	.203				●

DCMT
55° Screwdown



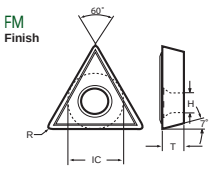
ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
DCMT-21.51 FM	DCMT-070204 FM	JDMTD1FM	.250	.016	.094	.114		●	●	
DCMT-21.52 FM	DCMT-070208 FM	JDMTD2FM	.250	.031	.094	.114		●		
DCMT-32.51 FM	DCMT-11T302 FM	JDMTG0FM	.375	.016	.156	.177		●	●	
DCMT-32.52 FM	DCMT-11T304 FM	JDMTG2FM	.375	.031	.156	.177		●		

SCMT
90° Screwdown



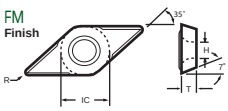
ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
SCMT-32.51 GMR	SCMT-09T304 GMR	JLMTG1GMR	.375	.016	.156	.117	●			

TCMT
60° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
TCMT-21.51 FM	TCMT-110204 FM	JQMTD1FM	.250	.016	.094	.114			●	
TCMT-21.52 FM	TCMT-110208 FM	JQMTD2FM	.250	.031	.094	.114	●			
TCMT-32.51 FM	TCMT-16T304 FM	JQMTG1FM	.375	.016	.156	.177	●			
TCMT-32.52 FM	TCMT-16T308 FM	JQMTG2FM	.375	.031	.156	.177	●			

VCMT
35° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
VCMT-331 FM	VCMT-160404 FM	JWMTH1FM	.375	.016	.187	.173	●	●		
VCMT-332 FM	VCMT-160408 FM	JWMTH2FM	.375	.031	.187	.173	●			

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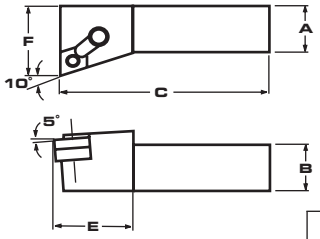
MCFNL/R
10° Holder for 80° Diamond



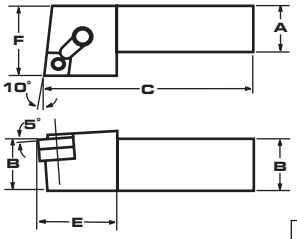
RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MCFNR-164D	9T2521656D	CN__-43	1.000	1.000	6.000	1.250	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCFNL-164D	9T2501656D	CN__-43	1.000	1.000	6.000	1.250	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCFNR-165D	9T2521664D	CN__-54	1.000	1.000	6.000	1.380	1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCFNL-165D	9T2501664D	CN__-54	1.000	1.000	6.000	1.380	1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCFNR-205D	9T2522064D	CN__-54	1.250	1.250	6.000	1.380	1.500	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCFNL-205D	9T2502064D	CN__-54	1.250	1.250	6.000	1.380	1.500	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCFNR-166D	9T2521672D	CN__-64	1.000	1.000	6.000	1.500	1.250	ICSN-633	NL-68	CL-9	XNS-510	S-68
MCFNL-166D	9T2501672D	CN__-64	1.000	1.000	6.000	1.500	1.250	ICSN-633	NL-68	CL-9	XNS-510	S-68
MCFNR-206D	9T2522072D	CN__-64	1.250	1.250	6.000	1.500	1.500	ICSN-633	NL-68	CL-9	XNS-510	S-68
MCFNL-206D	9T2502072D	CN__-64	1.250	1.250	6.000	1.500	1.500	ICSN-633	NL-68	CL-9	XNS-510	S-68

MCGNL/R
10° Holder for 80° Diamond



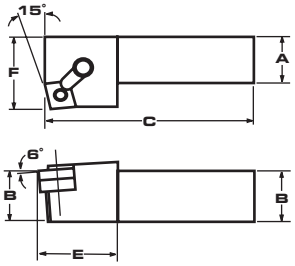
RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MCGNR-164D	9T2581656D	CN__-43	1.000	1.000	6.000	1.250	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCGNL-164D	9T2561656D	CN__-43	1.000	1.000	6.000	1.250	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCGNR-165D	9T2581664D	CN__-54	1.000	1.000	6.000	1.380	1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCGNL-165D	9T2561664D	CN__-54	1.000	1.000	6.000	1.380	1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCGNR-205D	9T2582064D	CN__-54	1.250	1.250	6.000	1.380	1.500	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCGNL-205D	9T2562064D	CN__-54	1.250	1.250	6.000	1.380	1.500	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCGNR-166D	9T2581672D	CN__-64	1.000	1.000	6.000	1.500	1.250	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCGNL-166D	9T2561672D	CN__-64	1.000	1.000	6.000	1.500	1.250	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCGNR-206D	9T2582072D	CN__-64	1.250	1.250	6.000	1.500	1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCGNL-206D	9T2562072D	CN__-64	1.250	1.250	6.000	1.500	1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68

MCKNL/R
15° Holder for 80° Diamond



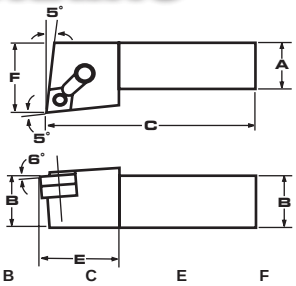
RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MCKNR-124B	9T2641256B	CN__-43	0.750	0.750	4.500	1.210	1.000	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCKNL-124B	9T2621256B	CN__-43	0.750	0.750	4.500	1.210	1.000	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCKNR-164D	9T2641656D	CN__-43	1.000	1.000	6.000	1.250	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCKNL-164D	9T2621656D	CN__-43	1.000	1.000	6.000	1.250	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCKNR-204D	9T2642056D	CN__-43	1.250	1.250	6.000	1.250	1.500	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCKNL-204D	9T2622056D	CN__-43	1.250	1.250	6.000	1.250	1.500	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCKNR-165D	9T2641664D	CN__-54	1.000	1.000	6.000	1.500	1.250	ICSN-533	NL-58	CL-9	XNS-58	S-58
MCKNL-165D	9T2621664D	CN__-54	1.000	1.000	6.000	1.500	1.250	ICSN-533	NL-58	CL-9	XNS-58	S-58
MCKNR-205D	9T2642064D	CN__-54	1.250	1.250	6.000	1.500	1.500	ICSN-533	NL-58	CL-9	XNS-58	S-58
MCKNL-205D	9T2622064D	CN__-54	1.250	1.250	6.000	1.500	1.500	ICSN-533	NL-58	CL-9	XNS-58	S-58
MCKNR-166D	9T2641672D	CN__-64	1.000	1.000	6.000	1.470	1.250	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCKNL-166D	9T2621672D	CN__-64	1.000	1.000	6.000	1.470	1.250	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCKNR-206D	9T2642072D	CN__-64	1.250	1.250	6.000	1.470	1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCKNL-206D	9T2622072D	CN__-64	1.250	1.250	6.000	1.470	1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCKNR-246E	9T2642472E	CN__-64	1.500	1.500	7.000	1.470	2.000	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCKNL-246E	9T2622472E	CN__-64	1.500	1.500	7.000	1.470	2.000	ICSN-633	NL-68	CL-12	XNS-510	S-68

MCLNL/R
5° Holder for 80° Diamond

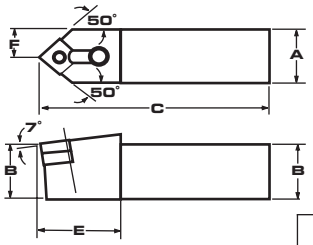


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MCLNR-104A	9T2801056A	CN__-43	0.625	0.625	4.000	1.200	1.000	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNL-104A	9T2781056A	CN__-43	0.625	0.625	4.000	1.200	1.000	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNR-124B	9T2801256B	CN__-43	0.750	0.750	4.500	1.200	1.000	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNL-124B	9T2781256B	CN__-43	0.750	0.750	4.500	1.200	1.000	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNR-164C	9T2801656C	CN__-43	1.000	1.000	5.000	1.200	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNL-164C	9T2781656C	CN__-43	1.000	1.000	5.000	1.200	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNR-164D	9T2801656D	CN__-43	1.000	1.000	6.000	1.200	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNL-164D	9T2781656D	CN__-43	1.000	1.000	6.000	1.200	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNR-204D	9T2802056D	CN__-43	1.250	1.250	6.000	1.200	1.500	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNL-204D	9T2782056D	CN__-43	1.250	1.250	6.000	1.200	1.500	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNR-854D	9T2804456D	CN__-43	1.000	1.250	6.000	1.200	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNL-854D	9T2784456D	CN__-43	1.000	1.250	6.000	1.200	1.250	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCLNR-165D	9T2801664D	CN__-54	1.000	1.000	6.000	1.370	1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCLNL-165D	9T2781664D	CN__-54	1.000	1.000	6.000	1.370	1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCLNR-205D	9T2802064D	CN__-54	1.250	1.250	6.000	1.370	1.500	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCLNL-205D	9T2782064D	CN__-54	1.250	1.250	6.000	1.370	1.500	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCLNR-855D	9T2804464D	CN__-54	1.000	1.250	6.000	1.370	1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCLNL-855D	9T2784464D	CN__-54	1.000	1.250	6.000	1.370	1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCLNR-865E	9T2804664E	CN__-54	1.000	1.500	7.000	1.370	1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCLNL-865E	9T2784664E	CN__-54	1.000	1.500	7.000	1.370	1.250	ICSN-533	NL-58	CL-12	XNS-510	S-58
MCLNR-166D	9T2801672D	CN__-64	1.000	1.000	6.000	1.490	1.250	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCLNL-166D	9T2781672D	CN__-64	1.000	1.000	6.000	1.490	1.250	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCLNR-206D	9T2802072D	CN__-64	1.250	1.250	6.000	1.490	1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCLNL-206D	9T2782072D	CN__-64	1.250	1.250	6.000	1.490	1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCLNR-246E	9T2802472E	CN__-64	1.500	1.500	7.000	1.490	2.000	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCLNL-246E	9T2782472E	CN__-64	1.500	1.500	7.000	1.490	2.000	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCLNR-856D	9T2804472D	CN__-64	1.000	1.250	6.000	1.490	2.000	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCLNL-856D	9T2784472D	CN__-64	1.000	1.250	6.000	1.490	2.000	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCLNR-866E	9T2804672E	CN__-64	1.000	1.500	7.000	1.490	2.000	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCLNL-866E	9T2784672E	CN__-64	1.000	1.500	7.000	1.490	2.000	ICSN-633	NL-68	CL-12	XNS-510	S-68

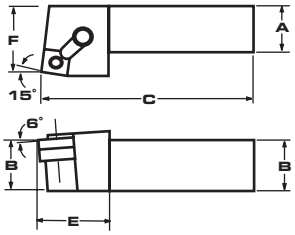
MCMNN
50° Holder for 80° Diamond



Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MCMNN-164D	9T2821656D	CN__-43	1.000	1.000	6.000	1.390	0.500	ICSN-433	NL-46	CL-20	XNS-48	S-46
MCMNN-206E	9T2822072E	CN__-64	1.250	1.250	7.000	1.670	0.625	ICSN-633	NL-68	CL-12	XNS-510	S-68

MCRNL/R
15° Holder for 80° Diamond

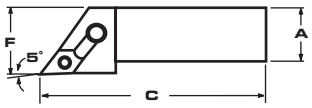


RH SHOWN

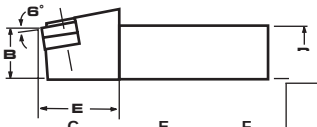
Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MCRNR-124B	9T2521256B	CN__-43	0.750	0.750	4.500	1.240	0.750	ICSN-433	NL-46	CL-9	XNS-58	S-46
MCRNL-124B	9T2501256B	CN__-43	0.750	0.750	4.500	1.240	0.755	ICSN-433	NL-46	CL-9	XNS-58	S-46
MCRNR-164D	9T2521656D	CN__-43	1.000	1.000	6.000	1.240	1.250	ICSN-433	NL-46	CL-9	XNS-58	S-46
MCRNL-164D	9T2501656D	CN__-43	1.000	1.000	6.000	1.240	1.250	ICSN-433	NL-46	CL-9	XNS-58	S-46
MCRNR-165D	9T2521664D	CN__-54	1.000	1.000	6.000	1.340	1.250	ICSN-533	NL-58	CL-9	XNS-510	S-58
MCRNL-165D	9T2501664D	CN__-54	1.000	1.000	6.000	1.340	1.250	ICSN-533	NL-58	CL-9	XNS-510	S-58
MCRNR-205D	9T2522064D	CN__-54	1.250	1.250	6.000	1.340	1.500	ICSN-533	NL-58	CL-9	XNS-510	S-58
MCRNL-205D	9T2502064D	CN__-54	1.250	1.250	6.000	1.340	1.500	ICSN-533	NL-58	CL-9	XNS-510	S-58
MCRNR-206D	9T2522072D	CN__-64	1.250	1.250	6.000	1.490	1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCRNL-206D	9T2502072D	CN__-64	1.250	1.250	6.000	1.490	1.500	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCRNR-246E	9T2522472E	CN__-64	1.500	1.500	7.000	1.490	2.000	ICSN-633	NL-68	CL-12	XNS-510	S-68
MCRNL-246E	9T2502472E	CN__-64	1.500	1.500	7.000	1.490	2.000	ICSN-633	NL-68	CL-12	XNS-510	S-68

MDJNL/R
5° Holder for 55° Diamond



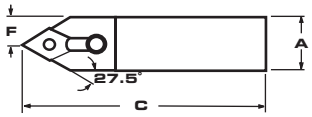
RH SHOWN

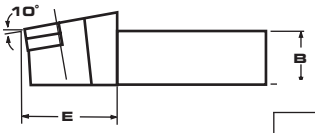


Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MDJNR-124B	9T2921256B	DN__-43	0.750	0.750	4.500	1.380	1.000	IDSN-433	NL-46	TC-250	STC-11	S-46
MDJNL-124B	9T2901256B	DN__-43	0.750	0.750	4.500	1.380	1.000	IDSN-433	NL-46	TC-250	STC-11	S-46
MDJNR-164D	9T2921656D	DN__-43	1.000	1.000	6.000	1.240	1.250	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNL-164D	9T2901656D	DN__-43	1.000	1.000	6.000	1.240	1.250	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNR-204D	9T2922056D	DN__-43	1.250	1.250	6.000	1.240	1.500	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNL-204D	9T2902056D	DN__-43	1.250	1.250	6.000	1.240	1.500	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNR-854D	9T2924456D	DN__-43	1.000	1.250	6.000	1.240	1.250	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNL-854D	9T2904456D	DN__-43	1.000	1.250	6.000	1.240	1.250	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNR-165D	9T2921664D	DN__-54	1.000	1.000	6.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNL-165D	9T2901664D	DN__-54	1.000	1.000	6.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNR-205D	9T2922064D	DN__-54	1.250	1.250	6.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNL-205D	9T2902064D	DN__-54	1.250	1.250	6.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNR-855D	9T2924464D	DN__-54	1.000	1.250	6.000	1.470	1.500	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNL-855D	9T2904464D	DN__-54	1.000	1.250	6.000	1.470	1.500	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNR-865E	9T2924664E	DN__-54	1.000	1.500	7.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNL-865E	9T2904664E	DN__-54	1.000	1.500	7.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58

MDPNN
27.5° Holder for 55° Diamond

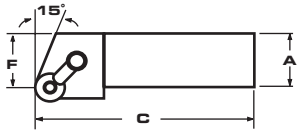




Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MDPNN-164D	9T2961656D	DN__-43	1.000	1.000	6.000	1.630	0.519	IDSN-433	NL-46	CL-12	XNS-510	S-46
MDPNN-204D	9T2962056D	DN__-43	1.250	1.250	6.000	1.630	0.750	IDSN-433	NL-46	CL-12	XNS-510	S-46
MDPNN-165D	9T2961664D	DN__-54	1.000	1.000	6.000	1.920	0.528	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDPNN-205D	9T2962064D	DN__-54	1.250	1.250	6.000	1.920	0.653	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDPNN-855D	9T2964464D	DN__-54	1.000	1.250	6.000	1.920	0.528	IDSN-533	NL-58	CL-12	XNS-510	S-58

MRGNL/R
15° Holder for Round Insert



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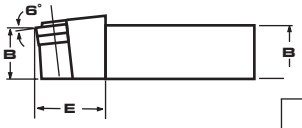
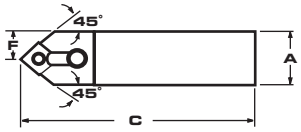
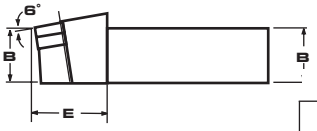


Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MRGNR-164D	9T3141656D	RN__-43	1.000	1.000	6.000	1.250	1.250	IRSN-433	NL-46	CL-20	XNS-48	S-46
MRGNL-164D	9T3121656D	RN__-43	1.000	1.000	6.000	1.250	1.250	IRSN-433	NL-46	CL-20	XNS-48	S-46
MRGNR-165D	9T3141664D	RN__-54	1.000	1.000	6.000	1.380	1.250	IRSN-533	NL-58	CL-12	XNS-510	S-58
MRGNL-165D	9T3121664D	RN__-54	1.000	1.000	6.000	1.380	1.250	IRSN-533	NL-58	CL-12	XNS-510	S-58
MRGNR-205D	9T3142064D	RN__-54	1.250	1.250	6.000	1.380	1.500	IRSN-533	NL-58	CL-12	XNS-510	S-58
MRGNL-205D	9T3122064D	RN__-54	1.250	1.250	6.000	1.380	1.500	IRSN-533	NL-58	CL-12	XNS-510	S-58
MRGNR-166D	9T3141672D	RN__-64	1.000	1.000	6.000	1.500	1.250	IRSN-633	NL-68	CL-9	XNS-510	S-68
MRGNL-166D	9T3121672D	RN__-64	1.000	1.000	6.000	1.500	1.250	IRSN-633	NL-68	CL-9	XNS-510	S-68
MRGNR-206D	9T3142072D	RN__-64	1.250	1.250	6.000	1.500	1.500	IRSN-633	NL-68	CL-9	XNS-510	S-68
MRGNL-206D	9T3122072D	RN__-64	1.250	1.250	6.000	1.500	1.500	IRSN-633	NL-68	CL-9	XNS-510	S-68

MSDNN
45° Holder for 90° Square





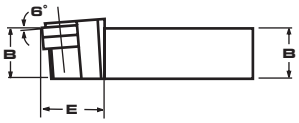
Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock Seat	Lock Pin	Clamp Clamp	Clamp Screw	Seat Screw
MSDNN-103B	9T3301048B	SN__-32	0.625	0.625	4.500	1.140	0.312	ISSN-322	NL-34	CL-6	XNS-36	S-34
MSDNN-123B	9T3301248B	SN__-32	0.750	0.750	4.500	1.140	0.375	ISSN-322	NL-34	CL-6	XNS-36	S-34
MSDNN-124B	9T3301256B	SN__-43	0.750	0.750	4.500	1.340	0.375	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSDNN-164D	9T3301656D	SN__-43	1.000	1.000	6.000	1.340	0.500	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSDNN-165D	9T3301664D	SN__-54	1.000	1.000	6.000	1.610	0.500	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSDNN-205D	9T3302064D	SN__-54	1.250	1.250	6.000	1.610	0.625	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSDNN-855D	9T3304464D	SN__-54	1.000	1.250	6.000	1.610	0.500	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSDNN-206E	9T3302072E	SN__-64	1.250	1.250	7.000	1.620	0.625	ISSN-633	NL-68	CL-12	XNS-510	S-69
MSDNN-856D	9T3304472D	SN__-64	1.000	1.500	6.000	1.730	0.500	ISSN-633	NL-68	CL-12	XNS-510	S-69
MSDNN-248E	9T3302483E	SN__-86	1.500	1.500	7.000	2.240	0.750	ISSN-844	NL-810	CL-24	XNS-610	S-810
MSDNN-328K	9T3303283K	SN__-86	2.000	2.000	14.000	2.240	1.000	ISSN-844	NL-810	CL-24	XNS-610	S-810

MSKNL/R
15° Holder for 90° Square

RH SHOWN

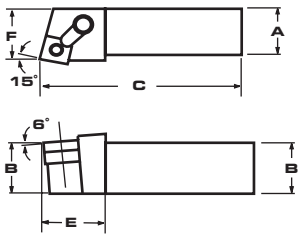


Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock Seat	Lock Pin	Clamp Clamp	Clamp Screw	Seat Screw
MSKNR-123B	9T3361248B	SN__-32	0.750	0.750	4.500	1.210	1.000	ISSN-322	NL-34	CL-6	XNS-56	S-34
MSKNL-123B	9T3341248B	SN__-32	0.750	0.750	4.500	1.210	1.000	ISSN-322	NL-34	CL-6	XNS-56	S-34
MSKNR-124B	9T3361256B	SN__-43	0.750	0.750	4.500	1.210	1.000	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSKNL-124B	9T3341256B	SN__-43	0.750	0.750	4.500	1.210	1.000	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSKNR-164D	9T3361656D	SN__-43	1.000	1.000	6.000	1.250	1.250	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSKNL-164D	9T3341656D	SN__-43	1.000	1.000	6.000	1.250	1.250	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSKNR-165D	9T3361664D	SN__-54	1.000	1.000	6.000	1.500	1.250	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSKNL-165D	9T3341664D	SN__-54	1.000	1.000	6.000	1.500	1.250	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSKNR-205D	9T3362064D	SN__-54	1.250	1.250	6.000	1.500	1.500	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSKNL-205D	9T3342064D	SN__-54	1.250	1.250	6.000	1.500	1.500	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSKNR-206D	9T3362072D	SN__-64	1.250	1.250	6.000	1.470	1.500	ISSN-633	NL-68	CL-24	XNS-610	S-69
MSKNL-206D	9T3342072D	SN__-64	1.250	1.250	6.000	1.470	1.500	ISSN-633	NL-68	CL-24	XNS-610	S-69
MSKNR-246E	9T3362472E	SN__-64	1.500	1.500	7.000	1.470	2.000	ISSN-633	NL-68	CL-24	XNS-610	S-69
MSKNL-246E	9T3342472E	SN__-64	1.500	1.500	7.000	1.470	2.000	ISSN-633	NL-68	CL-24	XNS-610	S-69

MSRNL/R
15° Holder for 90° Square

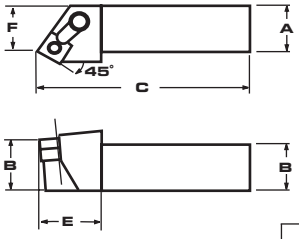


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MSRNR-83B	9T3420848B	SN__-32	0.500	0.500	4.500	1.030	0.658	ISSN-322	NL-34	CL-6	XNS-36	S-46
MSRNL-83B	9T3400848B	SN__-32	0.500	0.500	4.500	1.030	0.658	ISSN-322	NL-34	CL-6	XNS-36	S-46
MSRNR-124B	9T3421256B	SN__-43	0.750	0.750	4.500	1.250	0.878	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSRNL-124B	9T3401256B	SN__-43	0.750	0.750	4.500	1.250	0.878	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSRNR-164D	9T3421656D	SN__-43	1.000	1.000	6.000	1.250	1.128	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSRNL-164D	9T3401656D	SN__-43	1.000	1.000	6.000	1.250	1.128	ISSN-433	NL-46	CL-9	XNS-59	S-46
MSRNR-165D	9T3421664D	SN__-54	1.000	1.000	6.000	1.440	1.100	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSRNL-165D	9T3401664D	SN__-54	1.000	1.000	6.000	1.440	1.100	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSRNR-205D	9T3422064D	SN__-54	1.250	1.250	6.000	1.440	1.350	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSRNL-205D	9T3402064D	SN__-54	1.250	1.250	6.000	1.440	1.350	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSRNR-855D	9T3424464D	SN__-54	1.000	1.250	6.000	1.460	1.100	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSRNL-855D	9T3404464D	SN__-54	1.000	1.250	6.000	1.460	1.100	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSRNR-206D	9T3422072D	SN__-64	1.250	1.250	6.000	1.560	1.318	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSRNL-206D	9T3402072D	SN__-64	1.250	1.250	6.000	1.560	1.318	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSRNR-246E	9T3422472E	SN__-64	1.500	1.500	7.000	1.560	1.818	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSRNL-246E	9T3402472E	SN__-64	1.500	1.500	7.000	1.560	1.818	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSRNR-856D	9T3422472E	SN__-64	1.000	1.250	6.000	1.500	1.068	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSRNL-856D	9T3402472E	SN__-64	1.000	1.250	6.000	1.500	1.068	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSRNR-328K	9T3423283K	SN__-86	2.000	2.000	14.000	1.620	2.262	ISSN-844	NL-810	CL-24	XNS-610	S-810
MSRNL-328K	9T3403283K	SN__-86	2.000	2.000	14.000	1.620	2.262	ISSN-844	NL-810	CL-24	XNS-610	S-810

MSSNL/R
45° Holder for 90° Square

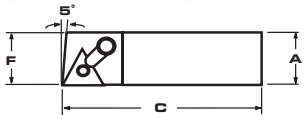


RH SHOWN

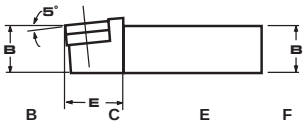
Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MSSNR-83B	9T3480848B	SN__-32	0.500	0.500	4.500	1.030	0.658	ISSN-322	NL-34	CL-6	XNS-46	S-46
MSSNL-83B	9T3460848B	SN__-32	0.500	0.500	4.500	1.030	0.658	ISSN-322	NL-34	CL-6	XNS-46	S-46
MSSNR-124B	9T3481256B	SN__-43	0.750	0.750	4.500	1.240	0.662	ISSN-433	NL-46	CL-9	XNS-49	S-46
MSSNL-124B	9T3461256B	SN__-43	0.750	0.750	4.500	1.240	0.662	ISSN-433	NL-46	CL-9	XNS-49	S-46
MSSNR-164D	9T3481656D	SN__-43	1.000	1.000	6.000	1.240	0.912	ISSN-433	NL-46	CL-9	XNS-49	S-46
MSSNL-164D	9T3461656D	SN__-43	1.000	1.000	6.000	1.240	0.912	ISSN-433	NL-46	CL-9	XNS-49	S-46
MSSNR-165D	9T3481664D	SN__-54	1.000	1.000	6.000	1.370	0.912	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSSNL-165D	9T3461664D	SN__-54	1.000	1.000	6.000	1.370	0.912	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSSNR-205D	9T3482064D	SN__-54	1.250	1.250	6.000	1.370	1.500	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSSNL-205D	9T3462064D	SN__-54	1.250	1.250	6.000	1.370	1.500	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSSNR-855D	9T3484464D	SN__-54	1.000	1.250	6.000	1.370	1.250	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSSNL-855D	9T3464464D	SN__-54	1.000	1.250	6.000	1.370	1.250	ISSN-533	NL-58	CL-12	XNS-510	S-58
MSSNR-206D	9T3482072D	SN__-64	1.250	1.250	6.000	1.490	1.500	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSSNL-206D	9T3462072D	SN__-64	1.250	1.250	6.000	1.490	1.500	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSSNR-246E	9T3482472E	SN__-64	1.500	1.500	7.000	1.490	2.000	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSSNL-246E	9T3462472E	SN__-64	1.500	1.500	7.000	1.490	2.000	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSSNR-856D	9T3482472E	SN__-64	1.000	1.250	6.000	1.490	2.000	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSSNL-856D	9T3462472E	SN__-64	1.000	1.250	6.000	1.490	2.000	ISSN-633	NL-68	CL-12	XNS-510	S-68
MSSNR-328K	9T3483283K	SN__-86	2.000	2.000	14.000	1.620	2.262	ISSN-844	NL-810	CL-24	XNS-610	S-810
MSSNL-328K	9T3463283K	SN__-86	2.000	2.000	14.000	1.620	2.262	ISSN-844	NL-810	CL-24	XNS-610	S-810

MTANL/R
5° Holder for 60° Triangle



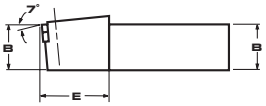
RH SHOWN



Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MTANR-123A	9T3541248B	TN__-32	0.750	0.750	4.000	1.060	0.750	ITSN-322	NL-34	CL-6	XNS-36	S-34
MTANL-123A	9T3521248B	TN__-32	0.750	0.750	4.000	1.060	0.750	ITSN-322	NL-34	CL-6	XNS-36	S-34
MTANR-164D	9T3541656D	TN__-43	1.000	1.000	6.000	1.220	1.000	ITSN-433	NL-46	CL-9	XNS-49	S-46
MTANL-164D	9T3521656D	TN__-43	1.000	1.000	6.000	1.220	1.000	ITSN-433	NL-46	CL-9	XNS-49	S-46

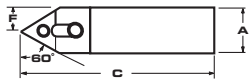
MTCNN
0° Holder for 60° Triangle

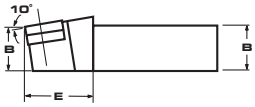


Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MTCNN-443F	9T3640949F	TN__-33	0.500	0.500	8.000	1.130	N/A	ITSN-323	NL-34L	CL-7	XNS-36	S-46
MTCNN-124D	9T3641256D	TN__-43	0.750	0.750	6.000	1.430	N/A	ITSN-433	NL-46	CL-12	XNS-59	S-46
MTCNN-644F	9T3641456F	TN__-43	0.750	1.000	8.000	1.430	N/A	ITSN-433	NL-46	CL-12	XNS-59	S-46

MTENNS
60° Holder for 60° Triangle

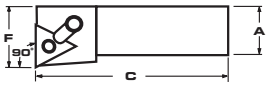




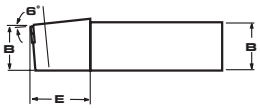
Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MTENNS-103B	9T3681049B	TN__-33	0.625	0.625	4.500	1.160	0.312	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTENNS-123B	9T3681249B	TN__-33	0.750	0.750	4.500	1.160	0.375	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTENNS-853D	9T3684449D	TN__-33	1.000	1.250	6.000	1.160	0.500	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTENNS-104B	9T3681056B	TN__-43	0.625	0.625	4.500	1.140	0.312	ITSN-433	NL-46	CL-9	XNS-59	N/A
MTENNS-124B	9T3681256B	TN__-43	0.750	0.750	4.500	1.500	0.375	ITSN-433	NL-46	CL-9	XNS-59	N/A
MTENNS-164D	9T3681656B	TN__-43	1.000	1.000	6.000	1.500	0.500	ITSN-433	NL-46	CL-9	XNS-59	N/A
MTENNS-854D	9T3684456D	TN__-43	1.000	1.250	6.000	1.500	0.500	ITSN-433	NL-46	CL-9	XNS-59	N/A
MTENNS-864E	9T3684656E	TN__-43	1.000	1.500	7.000	1.500	0.500	ITSN-433	NL-46	CL-9	XNS-59	N/A
MTENNS-205D	9T3682064D	TN__-54	1.250	1.250	6.000	1.640	0.625	ITSN-533	NL-58	CL-9	XNS-510	N/A
MTENNS-246E	9T3682476E	TN__-64	1.500	1.500	7.000	1.950	0.750	ITSN-637	NL-68L	CL-12	XNS-510	N/A

MTFNL/R
90° Holder for 60° Triangle



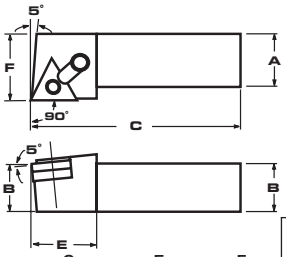
RH SHOWN



Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MTFNR-123B	9T3741249B	TN__-33	0.750	0.750	4.500	0.940	1.000	ITSN-323	NL-34L	CL-6	XNS-36	S-46
MTFNL-123B	9T3721249B	TN__-33	0.750	0.750	4.500	0.940	1.000	ITSN-323	NL-34L	CL-6	XNS-36	S-46
MTFNR-163C	9T3741649C	TN__-33	1.000	1.000	5.000	0.940	1.250	ITSN-323	NL-34L	CL-6	XNS-36	S-46
MTFNL-163C	9T3721649C	TN__-33	1.000	1.000	5.000	0.940	1.250	ITSN-323	NL-34L	CL-6	XNS-36	S-46
MTFNR-164D	9T3741656D	TN__-43	1.000	1.000	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNL-164D	9T3721656D	TN__-43	1.000	1.000	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNR-204D	9T3742056D	TN__-43	1.250	1.250	6.000	1.220	1.500	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNL-204D	9T3722056D	TN__-43	1.250	1.250	6.000	1.220	1.500	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNR-854D	9T3744456D	TN__-43	1.000	1.250	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNL-854D	9T3724456D	TN__-43	1.000	1.250	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNR-165D	9T3741664D	TN__-54	1.000	1.000	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNL-165D	9T3721664D	TN__-54	1.000	1.000	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNR-205D	9T3742064D	TN__-54	1.250	1.250	6.000	1.430	1.500	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNL-205D	9T3722064D	TN__-54	1.250	1.250	6.000	1.430	1.500	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNR-855D	9T3744464D	TN__-54	1.000	1.250	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNL-855D	9T3724464D	TN__-54	1.000	1.250	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNR-246E	9T3742476E	TN__-66	1.500	1.500	7.000	1.490	1.250	ITSN-633	NL-68L	CL-12	XNS-510	S-68
MTFNL-246E	9T3722476E	TN__-66	1.500	1.500	7.000	1.490	2.000	ITSN-633	NL-68L	CL-12	XNS-510	S-68

MTGNL/R
90° Holder for 60° Triangle

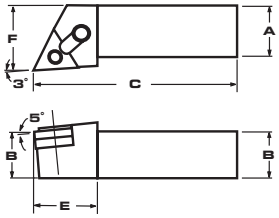


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MTGNR-123B	9T3801249B	TN__-33	0.750	0.750	4.500	1.120	1.000	ITSN-323	NL-34L	CL-6	XNS-36	S-34
MTGNL-123B	9T3781249B	TN__-33	0.750	0.750	4.500	1.120	1.000	ITSN-323	NL-34L	CL-6	XNS-36	S-34
MTGNR-163C	9T3801649C	TN__-33	1.000	1.000	5.000	1.120	1.250	ITSN-323	NL-34L	CL-6	XNS-36	S-46
MTGNL-163C	9T3781649C	TN__-33	1.000	1.000	5.000	1.120	1.250	ITSN-323	NL-34L	CL-6	XNS-36	S-46
MTGNR-164D	9T3801656D	TN__-43	1.000	1.000	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTGNL-164D	9T3781656D	TN__-43	1.000	1.000	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTGNR-204D	9T3802056D	TN__-43	1.250	1.250	6.000	1.220	1.500	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTGNL-204D	9T3782056D	TN__-43	1.250	1.250	6.000	1.220	1.500	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTGNR-854D	9T3804456D	TN__-43	1.000	1.250	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTGNL-854D	9T3784456D	TN__-43	1.000	1.250	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTGNR-165D	9T3801664D	TN__-54	1.000	1.000	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTGNL-165D	9T3781664D	TN__-54	1.000	1.000	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTGNR-205D	9T3802064D	TN__-54	1.250	1.250	6.000	1.430	1.500	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTGNL-205D	9T3782064D	TN__-54	1.250	1.250	6.000	1.430	1.500	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTGNR-855D	9T3804464D	TN__-54	1.000	1.250	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTGNL-855D	9T3784464D	TN__-54	1.000	1.250	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTGNR-246E	9T3802472E	TN__-66	1.500	1.500	7.000	1.490	1.250	ITSN-633	NL-68L	CL-12	XNS-510	S-68
MTGNL-246E	9T3782472E	TN__-66	1.500	1.500	7.000	1.490	2.000	ITSN-633	NL-68L	CL-12	XNS-510	S-68

MTJNLS/RS
3° Holder for 60° Triangle

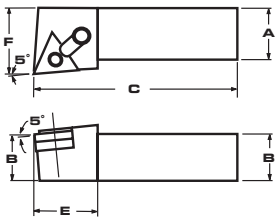


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MTJNRS-123B	9T3861249B	TN__-33	0.750	0.750	4.500	1.120	1.000	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTJNLS-123B	9T3841249B	TN__-33	0.750	0.750	4.500	1.120	1.000	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTJNRS-164D	9T3861656D	TN__-43	1.000	1.000	6.000	1.190	1.250	ITSN-433	NL-46	CL-9	XNS-510	N/A
MTJNLS-164D	9T3841656D	TN__-43	1.000	1.000	6.000	1.190	1.250	ITSN-433	NL-46	CL-9	XNS-510	N/A
MTJNRS-204D	9T3862056D	TN__-43	1.250	1.250	6.000	1.190	1.500	ITSN-433	NL-46	CL-9	XNS-510	N/A
MTJNLS-204D	9T3842056D	TN__-43	1.250	1.250	6.000	1.190	1.500	ITSN-433	NL-46	CL-9	XNS-510	N/A
MTJNRS-854D	9T3864456D	TN__-43	1.000	1.250	6.000	1.190	1.250	ITSN-433	NL-46	CL-9	XNS-510	N/A
MTJNLS-854D	9T3844456D	TN__-43	1.000	1.250	6.000	1.190	1.250	ITSN-433	NL-46	CL-9	XNS-510	N/A
MTJNRS-864E	9T3864656E	TN__-43	1.000	1.500	7.000	1.190	1.250	ITSN-433	NL-46	CL-9	XNS-510	N/A
MTJNLS-864E	9T3844656E	TN__-43	1.000	1.500	7.000	1.190	1.250	ITSN-433	NL-46	CL-9	XNS-510	N/A
MTJNRS-205D	9T3862064D	TN__-54	1.250	1.250	6.000	1.440	1.500	ITSN-533	NL-58	CL-9	XNS-510	N/A
MTJNLS-205D	9T3842064D	TN__-54	1.250	1.250	6.000	1.440	1.500	ITSN-533	NL-58	CL-9	XNS-510	N/A
MTJNRS-865D	9T3864664D	TN__-54	1.000	1.500	6.000	1.440	1.250	ITSN-533	NL-58	CL-9	XNS-510	N/A
MTJNLS-865D	9T3844664D	TN__-54	1.000	1.500	6.000	1.440	1.250	ITSN-533	NL-58	CL-9	XNS-510	N/A
MTJNRS-246E	9T3862472E	TN__-66	1.500	1.500	7.000	1.670	2.000	ITSN-633	NL-68L	CL-12	XNS-510	N/A
MTJNLS-246E	9T3842472E	TN__-66	1.500	1.500	7.000	1.670	2.000	ITSN-633	NL-68L	CL-12	XNS-510	N/A

MTLNL/R
5° Holder for 60° Triangle

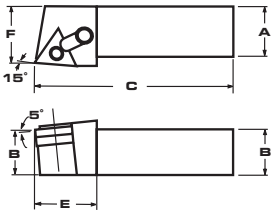


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MTLNR-123B	9T3921249B	TN__-33	0.750	0.750	4.500	1.120	1.000	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTLNL-123B	9T3901249B	TN__-33	0.750	0.750	4.500	1.120	1.000	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTLNR-163D	9T3921649D	TN__-33	1.000	1.000	6.000	1.120	1.250	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTLNL-163D	9T3901649D	TN__-33	1.000	1.000	6.000	1.120	1.250	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTLNR-164D	9T3921656D	TN__-43	1.000	1.000	6.000	1.240	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTLNL-164D	9T3901656D	TN__-43	1.000	1.000	6.000	1.240	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTLNR-204D	9T3922056D	TN__-43	1.250	1.250	6.000	1.280	1.500	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTLNL-204D	9T3902056D	TN__-43	1.250	1.250	6.000	1.280	1.500	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTLNR-205D	9T3922064D	TN__-54	1.250	1.250	6.000	1.400	1.500	ITSN-533	NL-58	CL-9	XNS-510	S-58
MTLNL-205D	9T3902064D	TN__-54	1.250	1.250	6.000	1.400	1.500	ITSN-533	NL-58	CL-9	XNS-510	S-58

MTRNL/R
15° Holder for 60° Triangle

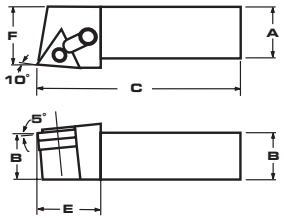


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MTRNR-123B	9T3981249B	TN__-33	0.750	0.750	4.500	1.200	0.847	ITSN-323	NL-34L	CL-20	XNS-46	S-34
MTRNL-123B	9T3961249B	TN__-33	0.750	0.750	4.500	1.200	0.847	ITSN-323	NL-34L	CL-20	XNS-46	S-34
MTRNR-163D	9T3981649D	TN__-33	1.000	1.000	6.000	1.200	1.097	ITSN-323	NL-34L	CL-20	XNS-46	S-34
MTRNL-163D	9T3961649D	TN__-33	1.000	1.000	6.000	1.200	1.097	ITSN-323	NL-34L	CL-20	XNS-46	S-34
MTRNR-164D	9T3981656D	TN__-43	1.000	1.000	6.000	1.240	1.040	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTRNL-164D	9T3961656D	TN__-43	1.000	1.000	6.000	1.240	1.040	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTRNR-165D	9T3981664D	TN__-54	1.000	1.000	6.000	1.620	0.990	ITSN-533	NL-58	CL-9	XNS-510	S-58
MTRNL-165D	9T3961664D	TN__-54	1.000	1.000	6.000	1.620	0.990	ITSN-533	NL-58	CL-9	XNS-510	S-58
MTRNR-205D	9T3982064D	TN__-54	1.250	1.250	6.000	1.620	1.240	ITSN-533	NL-58	CL-9	XNS-510	S-58
MTRNL-205D	9T3962064D	TN__-54	1.250	1.250	6.000	1.620	1.240	ITSN-533	NL-58	CL-9	XNS-510	S-58
MTRNR-246E	9T3982072E	TN__-66	1.500	1.500	7.000	1.680	1.685	ITSN-633	NL-68L	CL-12	XNS-510	S-68
MTRNL-246E	9T3962072E	TN__-66	1.500	1.500	7.000	1.680	1.685	ITSN-633	NL-68L	CL-12	XNS-510	S-68

MTWNL/R
10° Holder for 60° Triangle

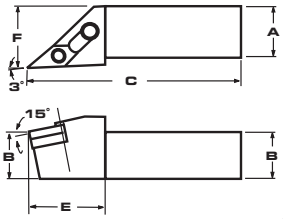


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MTWNR-123D	9T4141249D	TN__-33	0.750	0.750	6.000	1.350	0.875	ITSN-323	NL-34L	CL-6	XNS-36	S-34
MTWNL-123D	9T4101249D	TN__-33	0.750	0.750	6.000	1.350	0.875	ITSN-323	NL-34L	CL-6	XNS-36	S-34
MTWNR-164E	9T4141656E	TN__-43	1.000	1.000	7.000	1.750	1.094	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTWNL-164E	9T4101656E	TN__-43	1.000	1.000	7.000	1.750	1.094	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTWNR-205F	9T4142064F	TN__-54	1.250	1.250	8.000	1.840	1.312	ITSN-533	NL-58	CL-9	XNS-510	S-58
MTWNL-205F	9T4102064F	TN__-54	1.250	1.250	8.000	1.840	1.312	ITSN-533	NL-58	CL-9	XNS-510	S-58

MVJNL/R
3° Holder for 35° Diamond

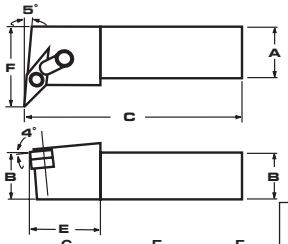


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Clamp	Screw	Screw
MVJNR-123B	9T4221249B	VN__-33	0.750	0.750	4.500	1.660	1.000	IVSN-324	NL-34L	CL-30	XNS-36	S-34
MVJNL-123B	9T4181249B	VN__-33	0.750	0.750	4.500	1.660	1.000	IVSN-324	NL-34L	CL-30	XNS-36	S-34
MVJNR-163C	9T4221649C	VN__-33	1.000	1.000	5.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-36	S-34
MVJNL-163C	9T4181649C	VN__-33	1.000	1.000	5.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-36	S-34
MVJNR-203D	9T4222049D	VN__-33	1.250	1.250	6.000	1.660	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVJNL-203D	9T4182049D	VN__-33	1.250	1.250	6.000	1.660	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVJNR-853D	9T4224449D	VN__-33	1.000	1.250	6.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVJNL-853D	9T4184449D	VN__-33	1.000	1.250	6.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVJNR-164D	9T4221656D	VN__-43	1.000	1.000	6.000	2.000	1.250	IVSN-433	NL-46	CL-30	XNS-510	S-46
MVJNL-164D	9T4181656D	VN__-43	1.000	1.000	6.000	2.000	1.250	IVSN-433	NL-46	CL-30	XNS-510	S-46
MVJNR-204D	9T4222056D	VN__-43	1.250	1.250	6.000	2.000	1.500	IVSN-433	NL-46	CL-30	XNS-510	S-46
MVJNL-204D	9T4182056D	VN__-43	1.250	1.250	6.000	2.000	1.500	IVSN-433	NL-46	CL-30	XNS-510	S-46
MVJNR-864E	9T4224656E	VN__-43	1.000	1.500	8.000	2.000	1.250	IVSN-433	NL-46	CL-30	XNS-510	S-46
MVJNL-864E	9T4184656E	VN__-43	1.000	1.500	8.000	2.000	1.250	IVSN-433	NL-46	CL-30	XNS-510	S-46

MVLNL/R
5° Holder for 35° Diamond

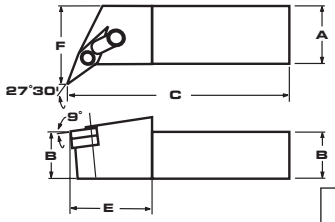


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MVLNR-164D	9T4281656D	VN__-43	1.000	1.000	6.000	1.500	1.750	IVSN-433	NL-46	CL-12	XNS-510	S-46
MVLNL-164D	9T4261656D	VN__-43	1.000	1.000	6.000	1.500	1.750	IVSN-433	NL-46	CL-12	XNS-510	S-46
MVLNR-204D	9T4282056D	VN__-43	1.250	1.250	6.000	1.500	2.000	IVSN-433	NL-46	CL-12	XNS-510	S-46
MVLNL-204D	9T4262056D	VN__-43	1.250	1.250	6.000	1.500	2.000	IVSN-433	NL-46	CL-12	XNS-510	S-46

MVNNL/R
27.5° Holder for 35° Diamond

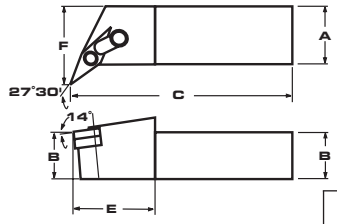


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MVNNR-123B	9T4341249B	VN__-33	0.750	0.750	4.500	0.940	1.000	IVSN-323	NL-34L	CL-6	XNS-36	S-34
MVNNL-123B	9T4321249B	VN__-33	0.750	0.750	4.500	0.940	1.000	IVSN-323	NL-34L	CL-6	XNS-36	S-34
MVNNR-163D	9T4341649D	VN__-33	1.000	1.000	6.000	1.220	1.250	IVSN-323	NL-34L	CL-6	XNS-36	S-34
MVNNL-163D	9T4321649D	VN__-33	1.000	1.000	6.000	1.220	1.250	IVSN-323	NL-34L	CL-6	XNS-36	S-34
MVNNR-203D	9T4342049D	VN__-33	1.250	1.250	6.000	1.220	1.500	IVSN-323	NL-34L	CL-6	XNS-36	S-34
MVNNL-203D	9T4322049D	VN__-33	1.250	1.250	6.000	1.220	1.500	IVSN-323	NL-34L	CL-6	XNS-36	S-34

MVTNL/R
27.5° Holder for 35° Diamond

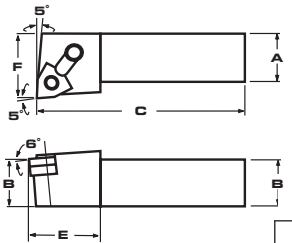


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MVTNR-123B	9T4461249B	VN__-33	0.750	0.750	4.500	1.710	1.000	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNL-123B	9T4441249B	VN__-33	0.750	0.750	4.500	1.710	1.000	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNR-163D	9T4461649D	VN__-33	1.000	1.000	6.000	1.710	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNL-163D	9T4441649D	VN__-33	1.000	1.000	6.000	1.710	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNR-203D	9T4462049D	VN__-33	1.250	1.250	6.000	1.710	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNL-203D	9T4442049D	VN__-33	1.250	1.250	6.000	1.710	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNR-243E	9T4462449E	VN__-33	1.500	1.500	7.000	1.710	1.750	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNL-243E	9T4442449E	VN__-33	1.500	1.500	7.000	1.710	1.750	IVSN-324	NL-34L	CL-30	XNS-510	S-34

MWLNL/R
5° Holder for 80° Trigon

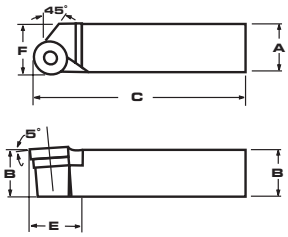


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
MWLNR-123B	9T4561249B	WN__-33	0.750	0.750	4.500	1.200	1.000	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNL-123B	9T4541249B	WN__-33	0.750	0.750	4.500	1.200	1.000	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNR-163D	9T4561649D	WN__-33	1.000	1.000	6.000	1.200	1.250	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNL-163D	9T4541649D	WN__-33	1.000	1.000	6.000	1.200	1.250	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNR-203D	9T4562049D	WN__-33	1.250	1.250	6.000	1.200	1.500	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNL-203D	9T4542049D	WN__-33	1.250	1.250	6.000	1.200	1.500	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNR-124B	9T4561256B	WN__-43	0.750	0.750	4.500	1.200	1.000	IWSN-433	NL-46	CL-20	XNS-47	N/A
MWLNL-124B	9T4541256B	WN__-43	0.750	0.750	4.500	1.200	1.000	IWSN-433	NL-46	CL-20	XNS-47	N/A
MWLNR-164D	9T4561656D	WN__-43	1.000	1.000	6.000	1.200	1.250	IWSN-433	NL-46	CL-20	XNS-47	N/A
MWLNL-164D	9T4541656D	WN__-43	1.000	1.000	6.000	1.200	1.250	IWSN-433	NL-46	CL-20	XNS-47	N/A
MWLNR-204D	9T4562056D	WN__-43	1.250	1.250	6.000	1.200	1.500	IWSN-433	NL-46	CL-20	XNS-47	N/A
MWLNL-204D	9T4542056D	WN__-43	1.250	1.250	6.000	1.200	1.500	IWSN-433	NL-46	CL-20	XNS-47	N/A

RAL/R
45° Holder for Round Insert

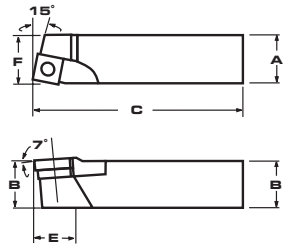


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS		
									Lock	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Screw
RAR-164	9T5121656	RN__-43	1.000	1.000	6.000	0.690	1.000	IRSN-43	CLP-38	N/A
RAL-164	9T5111656	RN__-43	1.000	1.000	6.000	0.690	1.000	IRSN-43	CLP-38	N/A
RAR-854	9T5124456	RN__-43	1.000	1.250	6.000	0.690	1.000	IRSN-43	CLP-310	N/A
RAL-854	9T5114456	RN__-43	1.000	1.250	6.000	0.690	1.000	IRSN-43	CLP-310	N/A
RAR-864	9T5124656	RN__-43	1.000	1.500	7.000	0.690	1.000	IRSN-43	CLP-312	N/A
RAL-864	9T5114656	RN__-43	1.000	1.500	7.000	0.690	1.000	IRSN-43	CLP-312	N/A
RAR-166	9T5121672	RN__-64	1.000	1.000	6.000	0.950	1.000	IRSN-63	CLP-58	N/A
RAL-166	9T5111672	RN__-64	1.000	1.000	6.000	0.950	1.000	IRSN-63	CLP-58	N/A
RAR-856	9T5124472	RN__-64	1.000	1.250	6.000	0.950	1.000	IRSN-63	CLP-510	N/A
RAL-856	9T5114472	RN__-64	1.000	1.250	6.000	0.950	1.000	IRSN-63	CLP-510	N/A
RAR-248	9T5122483	RN__-86	1.500	1.500	7.000	1.200	1.500	IRSN-84	CLP-612	N/A
RAL-248	9T5112483	RN__-86	1.500	1.500	7.000	1.200	1.500	IRSN-84	CLP-612	N/A

SBL/R
15° Holder for 90° Square

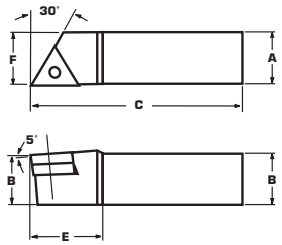


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS		
									Lock	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Screw
SBR-124	9T5171256	SN__-43	0.750	0.750	4.500	0.870	0.630	ISSN-432	CLP-36	N/A
SBL-124	9T5161256	SN__-43	0.750	0.750	4.500	0.870	0.630	ISSN-432	CLP-36	N/A
SBR-164	9T5171656	SN__-43	1.000	1.000	6.000	0.870	0.780	ISSN-432	CLP-38	N/A
SBL-164	9T5161656	SN__-43	1.000	1.000	6.000	0.870	0.780	ISSN-432	CLP-38	N/A
SBR-206	9T5172072	SN__-64	1.250	1.250	7.000	1.250	1.030	ISSN-632	CLP-510	N/A
SBL-206	9T5162072	SN__-64	1.250	1.250	7.000	1.250	1.030	ISSN-632	CLP-510	N/A

TAL/R
30° Holder for 60° Triangle

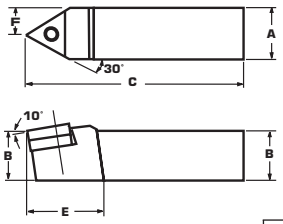


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

								PARTS		
									Lock	Seat
Description	EDP Code	Insert	A	B	C	E	F	Seat	Pin	Screw
TAR-103	9T8521048	TN__-32	0.625	0.625	4.500	0.780	0.640	ITSN-324	CLP-25	N/A
TAL-103	9T8501048	TN__-32	0.625	0.625	4.500	0.780	0.640	ITSN-324	CLP-25	N/A
TAR-123	9T8521248	TN__-32	0.750	0.750	4.500	0.780	0.770	ITSN-324	CLP-25	N/A
TAL-123	9T8501248	TN__-32	0.750	0.750	4.500	0.780	0.770	ITSN-324	CLP-25	N/A
TAR-164	9T8521656	TN__-43	1.000	1.000	6.000	1.000	1.030	ITSN-435	CLP-38	N/A
TAL-164	9T8501656	TN__-43	1.000	1.000	6.000	1.000	1.030	ITSN-435	CLP-38	N/A
TAR-854	9T8524456	TN__-43	1.000	1.250	6.000	1.000	1.030	ITSN-435	CLP-310	N/A
TAL-854	9T8504456	TN__-43	1.000	1.250	6.000	1.000	1.030	ITSN-435	CLP-310	N/A
TAR-165	9T8521664	TN__-54	1.000	1.000	6.000	1.190	1.030	ITSN-535	CLP-48	N/A
TAL-165	9T8501664	TN__-54	1.000	1.000	6.000	1.190	1.030	ITSN-535	CLP-48	N/A
TAR-205	9T8522064	TN__-54	1.250	1.250	7.000	1.190	1.280	ITSN-535	CLP-410	N/A
TAL-205	9T8502064	TN__-54	1.250	1.250	7.000	1.190	1.280	ITSN-535	CLP-410	N/A
TAR-855	9T8524464	TN__-54	1.000	1.250	6.000	1.190	1.030	ITSN-535	CLP-410	N/A
TAL-855	9T8504464	TN__-54	1.000	1.250	6.000	1.190	1.030	ITSN-535	CLP-410	N/A

TE
30° Holder for 60° Triangle

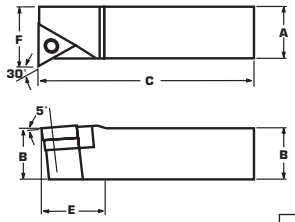


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Seat Screw
TE-103	9T8621048	TN__-32	0.625	0.625	4.500	0.730	0.375	ITSN-324	CLP-25	N/A
TE-124	9T8621248	TN__-43	0.750	0.750	4.500	1.020	0.375	ITSN-434	CLP-36	N/A
TE-164	9T8621656	TN__-43	1.000	1.000	6.000	1.020	0.500	ITSN-434	CLP-38	N/A
TE-205	9T8622064	TN__-54	1.250	1.250	7.000	1.150	0.625	ITSN-534	CLP-410	N/A
TE-246	9T8622476	TN__-66	1.500	1.500	8.000	1.340	0.750	ITSN-637	CLP-512T	N/A

TFL/R
30° Holder for 60° Triangle

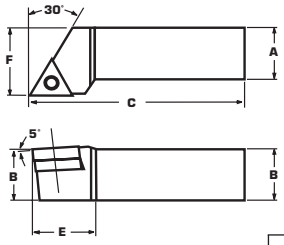


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Seat Screw
TFR-164	9T8681656	TN__-43	1.000	1.000	6.000	1.000	1.240	ITSN-434	CLP-38	N/A
TFL-164	9T8661656	TN__-43	1.000	1.000	6.000	1.000	1.240	ITSN-434	CLP-38	N/A
TFR-205	9T8682064	TN__-54	1.250	1.250	7.000	1.190	1.470	ITSN-534	CLP-410	N/A
TFL-205	9T8662064	TN__-54	1.250	1.250	7.000	1.190	1.470	ITSN-534	CLP-410	N/A
TFR-245	9T8682464	TN__-54	1.500	1.500	7.000	1.190	1.720	ITSN-537	CLP-412T	N/A
TFL-245	9T8662464	TN__-54	1.500	1.500	7.000	1.190	1.720	ITSN-537	CLP-412T	N/A
TFR-246	9T8682476	TN__-66	1.500	1.500	7.000	N/A	1.730	ITSN-637	CLP-512T	N/A
TFL-246	9T8662476	TN__-66	1.500	1.500	7.000	N/A	1.730	ITSN-637	CLP-512T	N/A

TGL/R
30° Holder for 60° Triangle

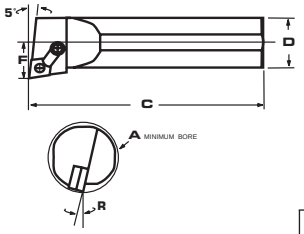


RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	E	F	PARTS Seat	Lock Pin	Seat Screw
TGR-123	9T8741248	TN__-32	0.750	0.750	4.500	0.900	1.020	ITSN-324	CLP-25	N/A
TGL-123	9T8721248	TN__-32	0.750	0.750	4.500	0.900	1.020	ITSN-324	CLP-25	N/A
TGR-164	9T8741656	TN__-43	1.000	1.000	6.000	1.140	1.280	ITSN-435	CLP-38	N/A
TGL-164	9T8721656	TN__-43	1.000	1.000	6.000	1.140	1.280	ITSN-435	CLP-38	N/A
TGR-854	9T8744456	TN__-43	1.000	1.250	6.000	1.140	1.280	ITSN-435	CLP-310	N/A
TGL-854	9T8724456	TN__-43	1.000	1.250	6.000	1.140	1.280	ITSN-435	CLP-310	N/A
TGR-165	9T8741664	TN__-54	1.000	1.000	6.000	1.310	1.280	ITSN-535	CLP-48	N/A
TGL-165	9T8721664	TN__-54	1.000	1.000	6.000	1.310	1.280	ITSN-535	CLP-48	N/A
TGR-205	9T8742064	TN__-54	1.250	1.250	7.000	1.310	1.530	ITSN-535	CLP-410	N/A
TGL-205	9T8722064	TN__-54	1.250	1.250	7.000	1.310	1.530	ITSN-535	CLP-410	N/A
TGR-245	9T8742464	TN__-54	1.500	1.500	7.000	1.310	1.780	ITSN-535	CLP-412	N/A
TGL-245	9T8722464	TN__-54	1.500	1.500	7.000	1.310	1.780	ITSN-535	CLP-412	N/A
TGR-246	9T8742476	TN__-66	1.500	1.500	7.000	1.480	1.790	ITSN-637	CLP-512T	N/A
TGL-246	9T8722476	TN__-66	1.500	1.500	7.000	1.480	1.790	ITSN-637	CLP-512T	N/A

SI-MCLNL/R
5° Bar for 80° Diamond



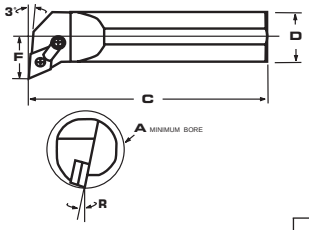
RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
SI-MCLNR-164	9T6761656	CN__-43	1.280	12.000	1.000	0.640	14°	N/A	NL-44	CL-20	XNS-47	N/A
SI-MCLNL-164	9T6741656	CN__-43	1.280	12.000	1.000	0.640	14°	N/A	NL-44	CL-20	XNS-47	N/A
SI-MCLNR-204	9T6762056	CN__-43	1.530	14.000	1.250	0.765	14°	N/A	NL-44	CL-20	XNS-47	N/A
SI-MCLNL-204	9T6742056	CN__-43	1.530	14.000	1.250	0.765	14°	N/A	NL-44	CL-20	XNS-47	N/A
SI-MCLNR-244	9T6762456	CN__-43	1.780	14.000	1.500	0.890	14°	ICSN-432	NL-46	CL-20	XNS-47	S-46
SI-MCLNL-244	9T6742456	CN__-43	1.780	14.000	1.500	0.890	14°	ICSN-432	NL-46	CL-20	XNS-47	S-46
SI-MCLNR-284	9T6762856	CN__-43	2.030	14.000	1.750	1.015	12°	ICSN-432	NL-46	CL-20	XNS-47	S-46
SI-MCLNL-284	9T6742856	CN__-43	2.030	14.000	1.750	1.015	12°	ICSN-432	NL-46	CL-20	XNS-47	S-46
SI-MCLNR-325	9T6763264	CN__-54	2.562	16.000	2.000	1.281	12°	ICSN-533	NL-58	CL-12	XNS-510	S-58
SI-MCLNL-325	9T6743264	CN__-54	2.562	16.000	2.000	1.281	12°	ICSN-533	NL-58	CL-12	XNS-510	S-58
SI-MCLNR-326	9T6763272	CN__-64	2.562	16.000	2.000	1.281	12°	ICSN-633	NL-68	CL-12	XNS-510	S-68
SI-MCLNL-326	9T6743272	CN__-64	2.562	16.000	2.000	1.281	12°	ICSN-633	NL-68	CL-12	XNS-510	S-68
SI-MCLNR-406	9T6764072	CN__-64	3.062	16.000	2.500	1.531	10°	ICSN-633	NL-68	CL-12	XNS-510	S-68
SI-MCLNL-406	9T6744072	CN__-64	3.062	16.000	2.500	1.531	10°	ICSN-633	NL-68	CL-12	XNS-510	S-68

SI-MDJNL/R
3° Bar for 55° Diamond



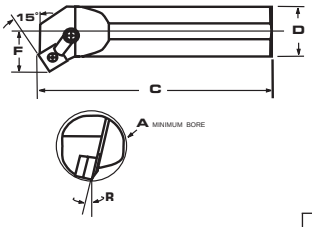
RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
SI-MDJNR-204	9T6822056	DN__-43	2.000	14.000	1.250	1.000	10°	IDSN-433	NL-46	CL-20	XNS-59	S-46
SI-MDJNL-204	9T6802056	DN__-43	2.000	14.000	1.250	1.000	10°	IDSN-433	NL-46	CL-20	XNS-59	S-46
SI-MDJNR-244	9T6822456	DN__-43	2.250	14.000	1.500	1.125	10°	IDSN-433	NL-46	CL-12	XNS-59	S-46
SI-MDJNL-244	9T6802456	DN__-43	2.250	14.000	1.500	1.125	10°	IDSN-433	NL-46	CL-12	XNS-59	S-46
SI-MDJNR-324	9T6823256	DN__-43	3.000	16.000	2.000	1.500	10°	IDSN-433	NL-46	CL-12	XNS-59	S-46
SI-MDJNL-324	9T6803256	DN__-43	3.000	16.000	2.000	1.500	10°	IDSN-433	NL-46	CL-12	XNS-59	S-46
SI-MDJNR-325	9T6823264	DN__-54	3.000	16.000	2.000	1.500	10°	IDSN-533	NL-58	CL-12	XNS-510	S-58
SI-MDJNL-325	9T6803264	DN__-54	3.000	16.000	2.000	1.500	10°	IDSN-533	NL-58	CL-12	XNS-510	S-58

SI-MSKNL/R
15° Bar for 90° Square



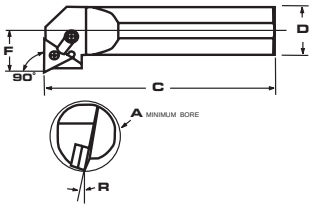
RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
SI-MSKNR-204	9T7002056	SN__-43	1.530	14.000	1.250	0.765	12°	N/A	NL-44	CL-9	XNS-59	N/A
SI-MSKNL-204	9T6982056	SN__-43	1.530	14.000	1.250	0.765	12°	N/A	NL-44	CL-9	XNS-59	N/A
SI-MSKNR-244	9T7002456	SN__-43	1.780	14.000	1.500	0.890	12°	ISSN-433	NL-46	CL-9	XNS-59	S-46
SI-MSKNL-244	9T6982456	SN__-43	1.780	14.000	1.500	0.890	12°	ISSN-433	NL-46	CL-9	XNS-59	S-46
SI-MSKNR-284	9T7002856	SN__-43	2.030	14.000	1.750	1.015	12°	ISSN-433	NL-46	CL-9	XNS-59	S-46
SI-MSKNL-284	9T6982856	SN__-43	2.030	14.000	1.750	1.015	12°	ISSN-433	NL-46	CL-9	XNS-59	S-46
SI-MSKNR-325	9T7003264	SN__-54	2.562	16.000	2.000	1.281	12°	ISSN-533	NL-58	CL-12	XNS-510	S-58
SI-MSKNL-325	9T6983264	SN__-54	2.562	16.000	2.000	1.281	12°	ISSN-533	NL-58	CL-12	XNS-510	S-58
SI-MSKNR-405	9T7004064	SN__-54	3.062	16.000	2.500	1.531	10°	ISSN-533	NL-58	CL-12	XNS-510	S-58
SI-MSKNL-405	9T6984064	SN__-54	3.062	16.000	2.500	1.531	10°	ISSN-533	NL-58	CL-12	XNS-510	S-58
SI-MSKNR-485	9T7004864	SN__-54	3.562	22.000	3.000	1.781	10°	ISSN-533	NL-58	CL-12	XNS-510	S-58
SI-MSKNL-485	9T6984864	SN__-54	3.562	22.000	3.000	1.781	10°	ISSN-533	NL-58	CL-12	XNS-510	S-58

SI-MTFNL/R
90° Bar for 60° Triangle

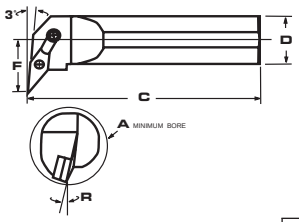


RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	C	D	F	R	Seat	Pin	Clamp	Screw	Screw
SI-MTFNR-163	9T7061649	TN__-33	1.280	12.000	1.000	0.640	12°	N/A	NL-33L	CL-9	XNS-59	N/A
SI-MTFNL-163	9T7041649	TN__-33	1.280	12.000	1.000	0.640	12°	N/A	NL-33L	CL-9	XNS-59	N/A
SI-MTFNR-203	9T7062049	TN__-33	1.530	14.000	1.250	0.765	12°	N/A	NL-33L	CL-9	XNS-59	N/A
SI-MTFNL-203	9T7042049	TN__-33	1.530	14.000	1.250	0.765	12°	N/A	NL-33L	CL-9	XNS-59	N/A
SI-MTFNR-244	9T7062456	TN__-43	2.062	14.000	1.500	1.031	10°	ITSN-433	NL-46	CL-9	XNS-59	S-46
SI-MTFNL-244	9T7042456	TN__-43	2.062	14.000	1.500	1.031	10°	ITSN-433	NL-46	CL-9	XNS-59	S-46
SI-MTFNR-284	9T7062856	TN__-43	2.312	14.000	1.750	1.156	10°	ITSN-433	NL-46	CL-9	XNS-59	S-46
SI-MTFNL-284	9T7042856	TN__-43	2.312	14.000	1.750	1.156	10°	ITSN-433	NL-46	CL-9	XNS-59	S-46
SI-MTFNR-324	9T7063256	TN__-43	2.562	16.000	2.000	1.281	8°	ITSN-433	NL-46	CL-9	XNS-59	S-46
SI-MTFNL-324	9T7043256	TN__-43	2.562	16.000	2.000	1.281	8°	ITSN-433	NL-46	CL-9	XNS-59	S-46
SI-MTFNR-404	9T7064056	TN__-43	3.062	16.000	2.500	1.531	8°	ITSN-433	NL-46	CL-9	XNS-59	S-46
SI-MTFNL-404	9T7044056	TN__-43	3.062	16.000	2.500	1.531	8°	ITSN-433	NL-46	CL-9	XNS-59	S-46

SI-MVJNL/R
3° Bar for 35° Diamond

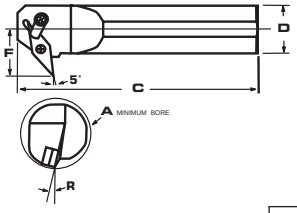


RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	C	D	F	R	Seat	Pin	Clamp	Screw	Screw
SI-MVJNR-203	9T7122049	VN__-33	2.250	14.000	1.250	1.125	12°	IVSN-324	NL-34L	CL-30	XNS-510	S-34
SI-MVJNL-203	9T7102049	VN__-33	2.250	14.000	1.250	1.125	12°	IVSN-324	NL-34L	CL-30	XNS-510	S-34
SI-MVJNR-243	9T7122449	VN__-33	2.500	14.000	1.500	1.250	12°	IVSN-324	NL-34L	CL-30	XNS-510	S-34
SI-MVJNL-243	9T7102449	VN__-33	2.500	14.000	1.500	1.250	12°	IVSN-324	NL-34L	CL-30	XNS-510	S-34
SI-MVJNR-284	9T7122856	VN__-43	3.000	14.000	1.750	1.500	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVJNL-284	9T7102856	VN__-43	3.000	14.000	1.750	1.500	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVJNR-324	9T7123256	VN__-43	3.250	16.000	2.000	1.625	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVJNL-324	9T7103256	VN__-43	3.250	16.000	2.000	1.625	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVJNR-404	9T7124056	VN__-43	3.750	16.000	2.500	1.875	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVJNL-404	9T7104056	VN__-43	3.750	16.000	2.500	1.875	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46

SI-MVLNL/R
5° Bar for 35° Diamond

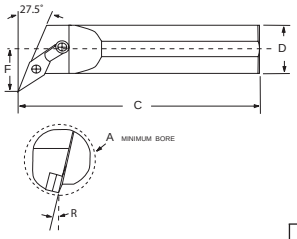


RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	C	D	F	R	Seat	Pin	Clamp	Screw	Screw
SI-MVLNR-243	9T7162449	VN__-33	2.250	14.000	1.500	1.250	12°	IVSN-324	NL-34L	CL-20	XNS-47	S-34
SI-MVLNL-243	9T7142449	VN__-33	2.250	14.000	1.500	1.250	12°	IVSN-324	NL-34L	CL-20	XNS-47	S-34
SI-MVLNR-283	9T7162849	VN__-33	2.500	14.000	1.750	1.375	12°	IVSN-324	NL-34L	CL-12	XNS-47	S-34
SI-MVLNL-283	9T7142849	VN__-33	2.500	14.000	1.750	1.250	12°	IVSN-324	NL-34L	CL-12	XNS-47	S-34
SI-MVLNR-324	9T7163256	VN__-43	3.000	16.000	2.000	1.375	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVLNL-324	9T7143256	VN__-43	3.000	16.000	2.000	1.500	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVLNR-364	9T7163656	VN__-43	3.250	16.000	2.250	1.500	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVLNL-364	9T7143656	VN__-43	3.250	16.000	2.250	1.500	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46

SI-MVPNL/R
27.5° Bar for 35° Diamond

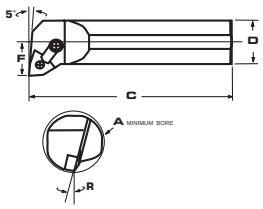


RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

								PARTS				
									Lock		Clamp	Seat
Description	EDP Code	Insert	A	C	D	F	R	Seat	Pin	Clamp	Screw	Screw
SI-MVPNR-203	9T7222049	VN__-33	1.750	14.000	1.250	0.875	12°	IVSN-324	NL-34L	CL-30	XNS-58	S-34
SI-MVPNL-203	9T7202049	VN__-33	1.750	14.000	1.250	0.875	12°	IVSN-324	NL-34L	CL-30	XNS-58	S-34
SI-MVPNR-323	9T7223249	VN__-33	2.500	16.000	2.000	1.250	12°	IVSN-324	NL-34L	CL-30	XNS-58	S-34
SI-MVPNL-323	9T7203249	VN__-33	2.500	16.000	2.000	1.250	12°	IVSN-324	NL-34L	CL-30	XNS-58	S-34

SI-MWLNL/R
5° Bar for 80° Trigon

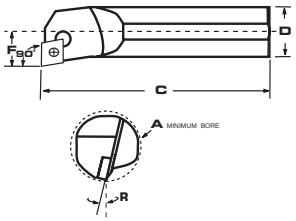


RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

								PARTS				
Description	EDP Code	Insert	A	C	D	F	R	Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
SI-MWLNR-123	9T7301249	WN__-33	0.930	10.000	0.750	0.500	14°	N/A	NL-33L	CL-6	XNS-36	N/A
SI-MWLNL-123	9T7281249	WN__-33	0.930	10.000	0.750	0.500	14°	N/A	NL-33L	CL-6	XNS-36	N/A
SI-MWLNR-163	9T7301649	WN__-33	1.200	12.000	1.000	0.640	14°	N/A	NL-33L	CL-6	XNS-36	N/A
SI-MWLNL-163	9T7281649	WN__-33	1.200	12.000	1.000	0.640	14°	N/A	NL-33L	CL-6	XNS-36	N/A
SI-MWLNR-203	9T7302049	WN__-33	1.470	14.000	1.250	0.765	14°	IWSN-323	NL-34L	CL-6	XNS-36	N/A
SI-MWLNL-203	9T7282049	WN__-33	1.470	14.000	1.250	0.765	14°	IWSN-323	NL-34L	CL-6	XNS-36	N/A
SI-MWLNR-164	9T7301656	WN__-43	1.280	12.000	1.000	0.640	14°	N/A	NL-44	CL-20	XNS-47	N/A
SI-MWLNL-164	9T7281656	WN__-43	1.280	12.000	1.000	0.640	14°	N/A	NL-44	CL-20	XNS-47	N/A
SI-MWLNR-204	9T7302056	WN__-43	1.530	14.000	1.250	0.765	14°	IWSN-433	NL-46	CL-20	XNS-47	N/A
SI-MWLNL-204	9T7282056	WN__-43	1.530	14.000	1.250	0.765	14°	IWSN-433	NL-46	CL-20	XNS-47	N/A

S_-SCFCL/R
90° Bar for 80° Diamond

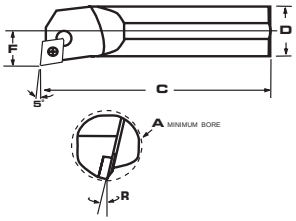


RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

								PARTS
Description	EDP Code	Insert	A	C	D	F	R	Insert Screw
S06-SCFCR-2	9T5220640	CC__-21.5	0.510	6.000	0.375	0.250	11°	C02506
S06-SCFCL-2	9T5230640	CC__-21.5	0.510	6.000	0.375	0.250	11°	C02506
S08-SCFCR-3	9T5220848	CC__-32.5	0.625	8.000	0.500	0.313	9°	C04008
S08-SCFCL-3	9T5230848	CC__-32.5	0.625	8.000	0.500	0.313	9°	C04008

S_-SCLCL/R
5° Bar for 80° Diamond

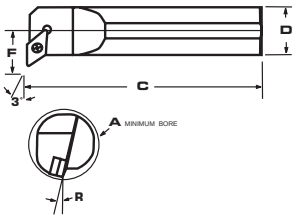


RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	C	D	F	R	PARTS Insert Screw
S06-SCLCR-2	9T5320640	CC__-21.5	0.500	6.000	0.375	0.250	11°	C02506
S06-SCLCL-2	9T5300640	CC__-21.5	0.500	6.000	0.375	0.250	11°	C02506
S08-SCLCR-2	9T5320840	CC__-21.5	0.625	8.000	0.500	0.313	9°	C02506
S08-SCLCL-2	9T5300840	CC__-21.5	0.625	8.000	0.500	0.313	9°	C02506
S10-SCLCR-2	9T5321040	CC__-21.5	0.812	10.000	0.625	0.406	7°	C02506
S10-SCLCL-2	9T5301040	CC__-21.5	0.812	10.000	0.625	0.406	7°	C02506
S06-SCLCR-3	9T5320648	CC__-32.5	0.500	6.000	0.375	0.250	11°	C04008
S06-SCLCL-3	9T5300648	CC__-32.5	0.500	6.000	0.375	0.250	11°	C04008
S08-SCLCR-3	9T5320848	CC__-32.5	0.625	8.000	0.500	0.313	9°	C04008
S08-SCLCL-3	9T5300848	CC__-32.5	0.625	8.000	0.500	0.313	9°	C04008
S10-SCLCR-3	9T5321048	CC__-32.5	0.812	10.000	0.625	0.406	7°	C04008
S10-SCLCL-3	9T5301048	CC__-32.5	0.812	10.000	0.625	0.406	7°	C04008
S12-SCLCR-3	9T5321248	CC__-32.5	1.000	10.000	0.750	0.500	10°	C04008
S12-SCLCL-3	9T5301248	CC__-32.5	1.000	10.000	0.750	0.500	10°	C04008
S16-SCLCR-3	9T5321648	CC__-32.5	1.250	12.000	1.000	0.625	5°	C04008
S16-SCLCL-3	9T5301648	CC__-32.5	1.250	12.000	1.000	0.625	5°	C04008

S_-SDUCL/R
3° Bar for 55° Diamond

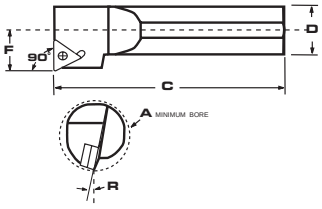


RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	C	D	F	R	PARTS Insert Screw
S08-SDUCR-2	9T5350840	DC__-21.5	0.780	8.000	0.500	0.437	11°	C02506
S08-SDUCL-2	9T5340840	DC__-21.5	0.780	8.000	0.500	0.437	11°	C02506
S10-SDUCR-2	9T5351040	DC__-21.5	0.840	10.000	0.625	0.500	5°	C02506
S10-SDUCL-2	9T5341040	DC__-21.5	0.840	10.000	0.625	0.500	5°	C02506
S12-SDUCR-3	9T5351248	DC__-32.5	1.125	10.000	0.750	0.562	6°	C04008
S12-SDUCL-3	9T5341248	DC__-32.5	1.125	10.000	0.750	0.562	6°	C04008
S16-SDUCR-3	9T5351648	DC__-32.5	1.500	12.000	1.000	0.750	4°	C04008
S16-SDUCL-3	9T5341648	DC__-32.5	1.500	12.000	1.000	0.750	4°	C04008

S_-STFCL/R
90° Bar for 60° Triangle

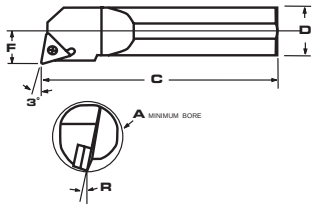


RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

Description	EDP Code	Insert	A	C	D	F	R	PARTS Insert Screw
S06-STFCR-2	9T5400640	TC__-21.5	0.500	6.000	0.375	0.250	11°	C02506
S06-STFCL-2	9T5390640	TC__-21.5	0.500	6.000	0.375	0.250	11°	C02506
S08-STFCR-2	9T5400840	TC__-21.5	0.625	8.000	0.500	0.313	9°	C02506
S08-STFCL-2	9T5390840	TC__-21.5	0.625	8.000	0.500	0.313	9°	C02506
S10-STFCR-2	9T5401040	TC__-21.5	0.812	10.000	0.625	0.406	7°	C02506
S10-STFCL-2	9T5391040	TC__-21.5	0.812	10.000	0.625	0.406	7°	C02506
S12-STFCR-2	9T5401240	TC__-21.5	1.000	10.000	0.750	0.500	6°	C02506
S12-STFCL-2	9T5391240	TC__-21.5	1.000	10.000	0.750	0.500	6°	C02506

S_-STUCL/R
3° Bar for 60° Triangle

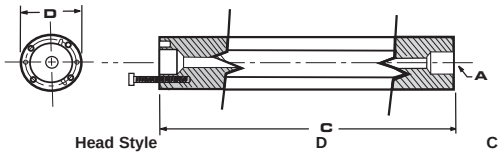


RH SHOWN

Most bars available with coolant port
(ie: Add CP to end of description)

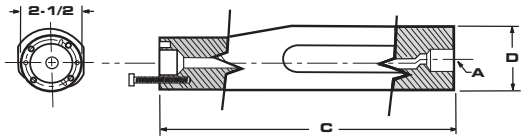
Description	EDP Code	Insert	A	C	D	F	R	PARTS Insert Screw
S06-STUCR-2	9T5430640	TC__-21.5	0.500	6.000	0.375	0.250	11°	C02506
S06-STUCL-2	9T5420640	TC__-21.5	0.500	6.000	0.375	0.250	11°	C02506
S08-STUCR-2	9T5430840	TC__-21.5	0.625	8.000	0.500	0.313	9°	C02506
S08-STUCL-2	9T5420840	TC__-21.5	0.625	8.000	0.500	0.313	9°	C02506
S10-STUCR-2	9T5431040	TC__-21.5	0.812	10.000	0.625	0.406	7°	C02506
S10-STUCL-2	9T5421040	TC__-21.5	0.812	10.000	0.625	0.406	7°	C02506
S12-STUCR-3	9T5431248	TC__-32.5	1.000	10.000	0.750	0.500	6°	C04008
S12-STUCL-3	9T5421248	TC__-32.5	1.000	10.000	0.750	0.500	6°	C04008
S16-STUCR-3	9T5431648	TC__-32.5	1.280	12.000	1.000	0.640	4°	C04008
S16-STUCL-3	9T5421648	TC__-32.5	1.280	12.000	1.000	0.640	4°	C04008

S-4400W
Steel Shank with Through Coolant



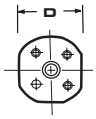
Description	EDP Code	Head Style	D	C	A	PARTS Screw (4 req/d)
S-4416W	9IBS4416W	H16-_____	1.000	9.000	1/4 - 18NPT	SS61
S-4420W	9IBS4420W	H20-_____	1.250	9.000	3/8 - 18NPT	SS81
S-4424W	9IBS4424W	H24-_____	1.500	10.000	3/8 - 18NPT	SS85
S-4428W	9IBS4428W	H28-_____	1.750	12.000	3/8 - 18NPT	SS100
S-4432W	9IBS4432W	H32-_____	2.000	13.000	3/8 - 18NPT	SS100
S-4436W	9IBS4436W	H36-_____	2.250	15.000	3/8 - 18NPT	SS100
S-4440W	9IBS4440W	H40-_____	2.500	17.000	3/8 - 18NPT	SS83

S-4400W48
Steel Shank with Through Coolant



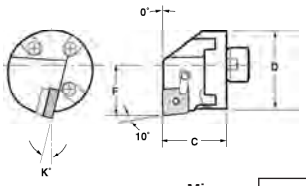
Description	EDP Code	Head Style	D	C	A	PARTS Screw (4 req/d)
S-4440W48	9IBS4440W48	H40-_____	3.000	18.000	3/8 - 18NPT	SS89

S-570
Steel Shank with Through Coolant



Description	EDP Code	Head Style	D	C	A	PARTS Screw (4 req/d)
S-570-10-16	9IBS5701016	HS16-_____	0.625	4.210	1/8 - 27NPT	SS62
S-570-12-20	9IBS5701220	HS20-_____	0.750	5.200	1/4 - 18NPT	SS63
S-570-16-25	9IBS5701625	HS25-_____	1.000	7.200	1/4 - 18NPT	SS64
S-570-20-32	9IBS5702032	HS32-_____	1.250	8.740	3/8 - 18NPT	SS81
S-570-24-40	9IBS5702440	HS40-_____	1.500	10.750	1/2 - 14NPT	SS100
S-570-32-50	9IBS5703250	HS50-_____	2.000	14.410	1/2 - 14NPT	SS94
S-570-40-60	9IBS5704060	HS60-_____	2.500	18.430	1/2 - 14NPT	SS95

H-MCLNL/R*
5° Head for 80° Diamond



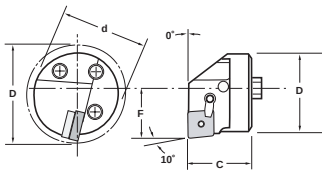
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
H16-MCLNR-4	9IHT2801656	CN__-43	1.000	1.625	0.640	1.200	N/A	NL-44	CL-20	XNS-47	N/A
H20-MCLNR-4	9IHT2802056	CN__-43	1.250	1.625	0.765	1.470	ICSN-433	NL-46	CL-20	XNS-47	S-46
H24-MCLNR-4	9IHT2802456	CN__-43	1.500	1.625	0.890	1.760	ICSN-433	NL-46	CL-20	XNS-47	S-46
H28-MCLNR-4	9IHT2802856	CN__-43	1.750	1.625	1.015	2.010	ICSN-433	NL-46	CL-20	XNS-47	S-46
H32-MCLNR-5	9IHT2803264	CN__-54	2.000	1.625	1.281	2.400	ICSN-533	NL-58	CL-12	XNS-510	S-58
H32-MCLNR-6	9IHT2803272	CN__-64	2.000	1.625	1.281	2.400	ICSN-633	NL-68	CL-12	XNS-510	S-68
H40-MCLNR-6	9IHT2804072	CN__-64	2.500	1.625	1.531	3.030	ICSN-633	NL-68	CL-12	XNS-510	S-68

*Left hand quoted on request.

HS-MCLNL/R*
5° Head for 80° Diamond (570 Type)



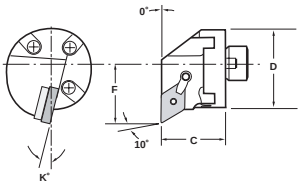
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
HS32-MCLNR-4	9IHST28032M56	CN__-43	1.260	1.260	0.866	1.570	ICSN-433	NL-46	CL-20	XNS-47	S-46
HS40-MCLNR-4	9IHST28040M56	CN__-43	1.575	1.260	1.063	1.970	ICSN-433	NL-46	CL-20	XNS-47	S-46
HS50-MCLNR-5	9IHST28050M64	CN__-54	1.969	1.570	1.378	2.480	ICSN-533	NL-58	CL-12	XNS-510	S-58
HS50-MCLNR-6	9IHST28050M72	CN__-64	1.969	1.570	1.378	2.480	ICSN-633	NL-68	CL-12	XNS-510	S-68
HS60-MCLNR-6	9IHST28060M72	CN__-64	2.362	1.570	1.693	3.150	ICSN-633	NL-68	CL-12	XNS-510	S-68

*Left hand quoted on request.

H-MDUNL/R*
3° Head for 55° Diamond



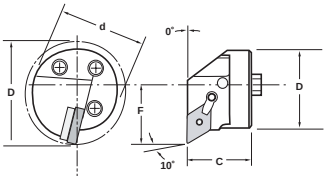
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
H16-MDUNR-3	9IHT6821648	DN__-33	1.000	1.625	0.750	1.300	N/A	NL-33L	CL-7	XNS-47	N/A
H24-MDUNR-3	9IHT6822448	DN__-33	1.500	1.625	1.125	2.000	IDSN-322	NL-34L	CL-7	XNS-47	S-34
H32-MDUNR-3	9IHT6823248	DN__-33	2.000	1.625	1.320	2.500	IDSN-322	NL-34L	CL-7	XNS-47	S-34
H40-MDUNR-3	9IHT6824048	DN__-33	2.500	1.625	1.750	3.250	IDSN-322	NL-34L	CL-7	XNS-47	S-34
H20-MDUNR-4	9IHT6822056	DN__-43	1.250	1.625	1.000	1.705	IDSN-443	NL-46L	CL-20	XNS-59	S-46
H24-MDUNR-4	9IHT6822456	DN__-43	1.500	1.625	1.125	2.000	IDSN-443	NL-46L	CL-12	XNS-59	S-46
H28-MDUNR-4	9IHT6822856	DN__-43	1.750	1.625	1.250	2.250	IDSN-443	NL-46L	CL-12	XNS-59	S-46
H32-MDUNR-4	9IHT6823256	DN__-43	2.000	1.625	1.370	2.500	IDSN-443	NL-46L	CL-12	XNS-59	S-46
H36-MDUNR-4	9IHT6823656	DN__-43	2.250	1.625	1.495	2.870	IDSN-443	NL-46L	CL-12	XNS-59	S-46
H40-MDUNR-4	9IHT6824056	DN__-43	2.500	1.625	1.750	3.250	IDSN-443	NL-46L	CL-12	XNS-59	S-46

*Left hand quoted on request.

HS-MDUNL/R*
3° Head for 55° Diamond (570 Type)



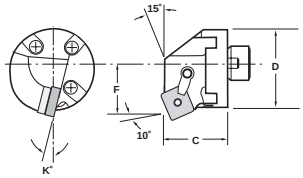
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
HS40-MDUNR-4	9IHST68240M56	DN__-44	1.575	1.260	1.063	1.970	IDSN-433	NL-46	CL-12	XNS-59	S-46
HS50-MDUNR-4	9IHST68240M56	DN__-44	1.969	1.570	1.378	2.480	IDSN-433	NL-46	CL-12	XNS-59	S-46
HS60-MDUNR-4	9IHST68240M56	DN__-44	2.362	1.570	1.683	2.480	IDSN-433	NL-46	CL-12	XNS-59	S-46

*Left hand quoted on request.

H-MSKNL/R*
15° Head for 90° Square



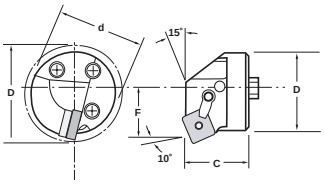
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
H20-MSKNR-4	9IHT7002056	SN__-43	1.250	1.625	0.765	1.470	N/A	NL-44	CL-9	XNS-59	N/A
H24-MSKNR-4	9IHT7002456	SN__-43	1.500	1.625	0.890	1.760	ISSN-433	NL-46	CL-9	XNS-59	S-46
H28-MSKNR-4	9IHT7002856	SN__-43	1.750	1.625	1.015	2.010	ISSN-433	NL-46	CL-9	XNS-59	S-46
H32-MSKNR-4	9IHT7003256	SN__-43	2.000	1.625	1.281	2.400	ISSN-433	NL-46	CL-9	XNS-59	S-46
H40-MSKNR-6	9IHT7004064	SN__-64	2.500	1.625	1.625	3.030	ISSN-633	NL-68	CL-12	XNS-510	S-68

*Left hand quoted on request.

HS-MSKNL/R*
15° Head for 90° Square (570 Type)



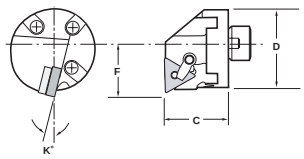
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
HS32-MSKNR-4	9IHST70032M56	SN__-43	1.260	1.260	0.669	1.470	N/A	NL-44	CL-9	XNS-59	N/A
HS40-MSKNR-4	9IHST70040M56	SN__-43	1.575	1.260	0.866	1.760	ISSN-433	NL-46	CL-9	XNS-59	S-46
HS50-MSKNR-4	9IHST70050M56	SN__-43	1.969	1.570	1.063	2.400	ISSN-433	NL-46	CL-9	XNS-59	S-46
HS60-MSKNR-6	9IHST70060M64	SN__-64	2.362	1.570	1.378	3.030	ISSN-633	NL-68	CL-12	XNS-510	S-68

*Left hand quoted on request.

H-MTFNL/R*
90° Head for 60° Triangle



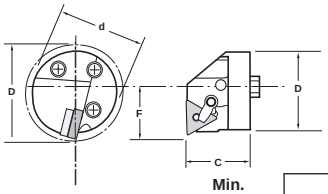
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
H16-MTFNR-3	9IHT7062048	TN__-33	1.000	1.625	0.640	1.220	N/A	NL-33L	CL-7	XNS-47	N/A
H24-MTFNR-3	9IHT7062448	TN__-33	1.500	1.625	0.890	1.760	ITSN-323	NL-34L	CL-7	XNS-47	S-34
H28-MTFNR-3	9IHT7062848	TN__-33	1.750	1.625	1.015	2.010	ITSN-323	NL-34L	CL-7	XNS-47	S-34
H32-MTFNR-4	9IHT7063256	TN__-43	2.000	1.625	1.281	2.400	ITSN-433	NL-46	CL-9	XNS-59	S-46
H40-MTFNR-4	9IHT7064056	TN__-43	2.500	1.625	1.531	3.030	ITSN-433	NL-46	CL-9	XNS-59	S-46

*Left hand quoted on request.

HS-MTFNL/R*
90° Head for 60° Triangle (570 Type)



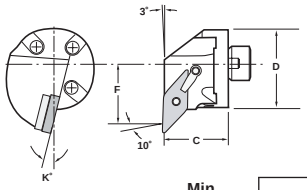
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
HS25-MTFNR-3	9IHST70625M48	TN__-33	0.984	1.260	0.866	1.570	N/A	NL-33L	CL-7	XNS-47	N/A
HS40-MTFNR-3	9IHST70640M48	TN__-33	1.575	1.260	1.062	1.970	ITSN-323	NL-34L	CL-7	XNS-47	S-34
HS50-MTFNR-4	9IHST70650M56	TN__-43	1.969	1.570	1.380	2.480	ITSN-433	NL-46	CL-9	XNS-59	S-46
HS60-MTFNR-4	9IHST70660M56	TN__-43	2.362	1.570	1.693	3.150	ITSN-433	NL-46	CL-9	XNS-59	S-46

*Left hand quoted on request.

H-MVUNL/R*
3° Head for 35° Diamond



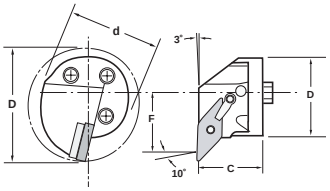
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
H20-MVUNR-3	9IHT7122049	VN__-33	1.000	1.625	1.000	1.705	IVSN-322	NL-34L	CL-30	XNS-510	S-34
H24-MVUNR-3	9IHT7122449	VN__-33	1.500	1.625	1.125	2.000	IVSN-322	NL-34L	CL-30	XNS-510	S-34
H32-MVUNR-3	9IHT7123249	VN__-33	2.000	1.625	1.325	2.500	IVSN-322	NL-34L	CL-30	XNS-510	S-34
H40-MVUNR-3	9IHT7124049	VN__-43	2.500	1.625	1.750	3.250	IVSN-322	NL-34L	CL-30	XNS-510	S-34
H32-MVUNR-4	9IHT7123256	VN__-43	2.000	1.625	1.375	2.500	IVSN-433	NL-46	CL-12	XNS-510	S-46
H40-MVUNR-4	9IHT7124056	VN__-43	2.500	1.625	1.750	3.250	IVSN-433	NL-46	CL-12	XNS-510	S-46

*Left hand quoted on request.

HS-MVUNL/R*
3° Head for 35° Diamond (570 Type)



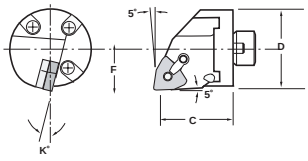
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
HS32-MVUNR-3	9IHST71232M49	VN__-33	1.259	1.260	1.000	1.705	IVSN-322	NL-34L	CL-30	XNS-510	S-34
HS40-MVUNR-3	9IHST71240M49	VN__-33	1.575	1.260	1.125	2.000	IVSN-322	NL-34L	CL-30	XNS-510	S-34
HS50-MVUNR-3	9IHST71250M49	VN__-33	1.969	1.570	1.750	3.250	IVSN-322	NL-34L	CL-30	XNS-510	S-34
HS60-MVUNR-3	9IHST71260M49	VN__-33	2.362	1.570	1.375	2.500	IVSN-322	NL-34L	CL-30	XNS-510	S-34
HS50-MVUNR-4	9IHST71250M56	VN__-43	1.969	1.570	1.750	3.250	IVSN-433	NL-46	CL-12	XNS-510	S-46
HS60-MVUNR-4	9IHST71260M56	VN__-43	2.362	1.570	1.375	2.500	IVSN-433	NL-46	CL-12	XNS-510	S-46

*Left hand quoted on request.

H-MWLNL/R*
5° Head for 80° Trigon



RH SHOWN

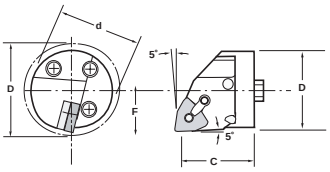
Most heads available with coolant port
(ie: Add CP to end of description)

							PARTS				
						Min.		Lock		Clamp	Seat
Description	EDP Code	Insert	D	C	F	Bore	Seat	Pin	Clamp	Screw	Screw
H16-MWLNR-3	9IHT7301649	WN__-33	1.000	1.625	0.640	1.200	IWSN-322	NL-33L	CL-6	XNS-36	N/A
H20-MWLNR-3	9IHT7302049	WN__-33	1.250	1.625	0.765	1.470	IWSN-322	NL-34L	CL-6	XNS-36	N/A
H24-MWLNR-3	9IHT7302449	WN__-33	1.500	1.625	0.890	1.760	IWSN-322	NL-34L	CL-6	XNS-36	N/A
H32-MWLNR-3	9IHT7303249	WN__-33	2.000	1.625	1.281	2.400	IWSN-322	NL-34L	CL-6	XNS-36	N/A
H20-MWLNR-4	9IHT7302056	WN__-43	1.250	1.625	0.765	1.470	IWSN-433	NL-46	CL-20	XNS-47	N/A
H24-MWLNR-4	9IHT7302456	WN__-43	1.500	1.625	0.890	1.760	IWSN-433	NL-46	CL-20	XNS-47	N/A
H28-MWLNR-4	9IHT7302856	WN__-43	1.750	1.625	1.015	2.010	IWSN-433	NL-46	CL-20	XNS-47	N/A
H32-MWLNR-4	9IHT7303256	WN__-43	2.000	1.625	1.281	2.400	IWSN-433	NL-46	CL-20	XNS-47	N/A

*Left hand quoted on request.

HS-MWLNL/R*

5° Head for 80° Trigon (570 Type)



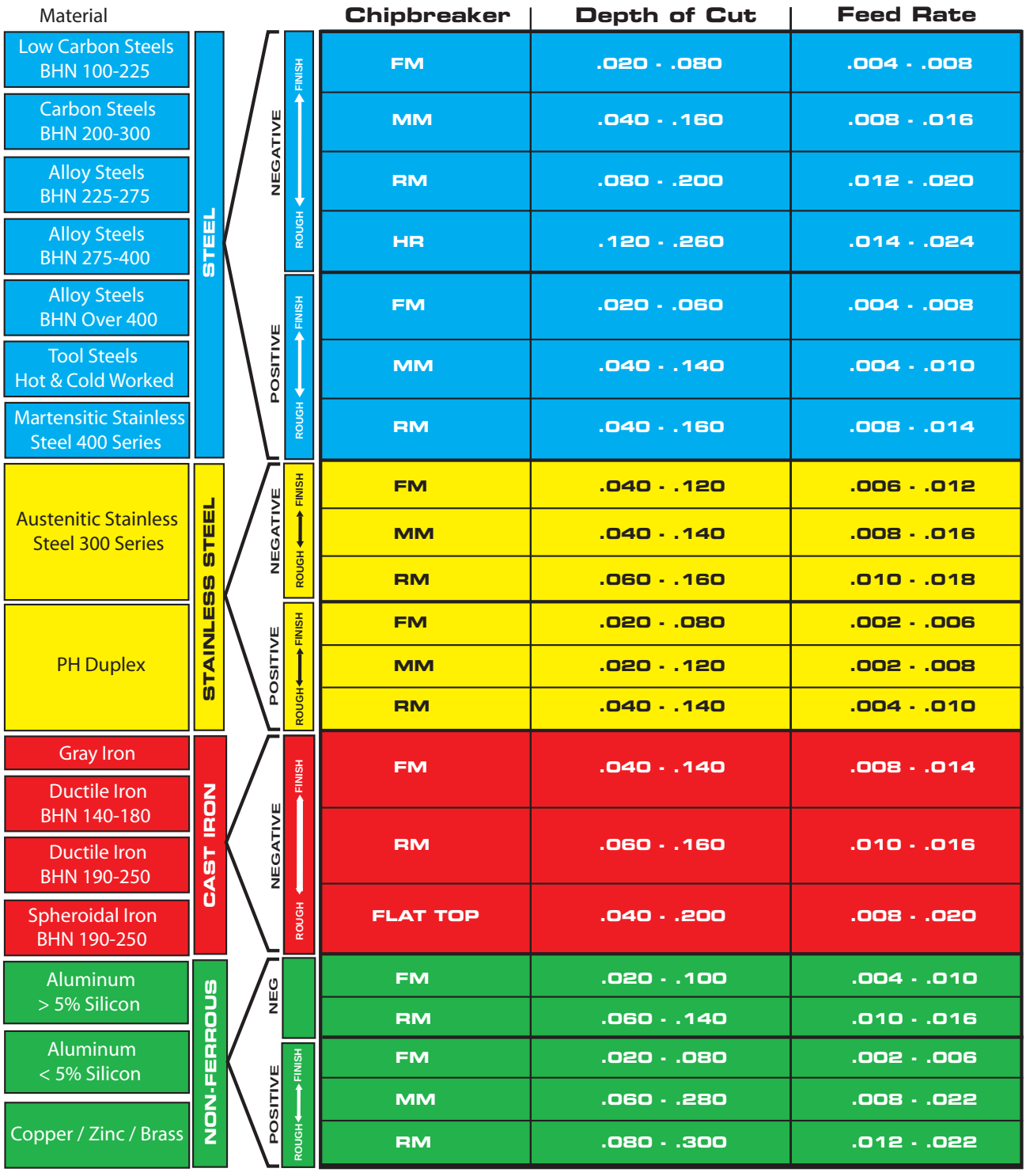
RH SHOWN

Most heads available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock Seat	Lock Pin	Clamp	Clamp Screw	Seat Screw
HS25-MWLNR-3	9IHST73025M49	WN__-33	.984	1.260	0.640	1.200	IWSN-322	NL-33L	CL-6	XNS-36	N/A
HS32-MWLNR-3	9IHST73032M49	WN__-33	1.259	1.260	0.765	1.470	IWSN-322	NL-34L	CL-6	XNS-36	N/A
HS40-MWLNR-3	9IHST73040M49	WN__-33	1.575	1.260	0.890	1.760	IWSN-322	NL-34L	CL-6	XNS-36	N/A
HS50-MWLNR-3	9IHST73050M49	WN__-33	1.969	1.570	1.281	2.400	IWSN-322	NL-34L	CL-6	XNS-36	N/A
HS32-MWLNR-4	9IHST73032M56	WN__-43	1.259	1.260	0.765	1.470	IWSN-433	NL-46	CL-20	XNS-47	N/A
HS40-MWLNR-4	9IHST73040M56	WN__-43	1.575	1.260	0.890	1.760	IWSN-433	NL-46	CL-20	XNS-47	N/A
HS50-MWLNR-4	9IHST73050M56	WN__-43	1.969	1.570	1.281	2.400	IWSN-433	NL-46	CL-20	XNS-47	N/A

*Left hand quoted on request.


Material
Chipbreaker
Depth of Cut
Feed Rate
Low Carbon Steels BHN 100-225
Carbon Steels BHN 200-300
Alloy Steels BHN 225-275
Alloy Steels BHN 275-400
Alloy Steels BHN Over 400
Tool Steels Hot & Cold Worked
Martensitic Stainless Steel 400 Series
STEEL
NEGATIVE
POSITIVE
ROUGH
FINISH
FM .020 - .080 .004 - .008
MM .040 - .160 .008 - .016
RM .080 - .200 .012 - .020
HR .120 - .260 .014 - .024
FM .020 - .060 .004 - .008
MM .040 - .140 .004 - .010
RM .040 - .160 .008 - .014
Austenitic Stainless Steel 300 Series
PH Duplex
STAINLESS STEEL
FM .040 - .120 .006 - .012
MM .040 - .140 .008 - .016
RM .060 - .160 .010 - .018
FM .020 - .080 .002 - .006
MM .020 - .120 .002 - .008
RM .040 - .140 .004 - .010
Gray Iron
Ductile Iron BHN 140-180
Ductile Iron BHN 190-250
Spheroidal Iron BHN 190-250
CAST IRON
FM .040 - .140 .008 - .014
RM .060 - .160 .010 - .016
FLAT TOP .040 - .200 .008 - .020
Aluminum > 5% Silicon
Aluminum < 5% Silicon
Copper / Zinc / Brass
NON-FERROUS
NEG
FM .020 - .100 .004 - .010
RM .060 - .140 .010 - .016
FM .020 - .080 .002 - .006
MM .060 - .280 .008 - .022
RM .080 - .300 .012 - .022

Cutting Data - Surface feet per minute (meters per minute)

			AGS50		AGS54	
			F	R	F	R
STEEL	Free Machining Carbon Steels	m/min	500	250	250	150
		sfm	1600	640	800	480
	Plain Carbon Steels	m/min	400	200	180	50
		sfm	1280	640	576	160
	Alloy Steels 190-330 HB	m/min	300	140		
		sfm	960	400		
	Alloy Steels 330-450 HB	m/min	180	120		
		sfm	576	384		

			APS35	
			F	R
STAINLESS STEEL	Martensitic 400 Series	m/min	165	80
		sfm	540	260
	300 Series	m/min	165	80
		sfm	540	260

			AS20	
			F	R
CAST IRON	Grey Cast 190-330 HB	m/min	500	250
		sfm	1600	640
	Grey Cast 330-450 HB	m/min	300	140
		sfm	876	448
	Alloy/Ductile	m/min	250	120
		sfm	800	384

			APS35	
			F	R
NON-FERROUS	Free Machining Aluminum	m/min	180	100
		sfm	540	260
	High Silicon Aluminum Alloys	m/min	95	50
		sfm	304	160
	Copper Zinc Brass	m/min	180	100
		sfm	576	330
	Non-Metallics	m/min	180	100
		sfm	576	330

			APS35	
			F	R
HIGH TEMP ALLOYS	High Temp Alloys 200-260 HB	m/min	200	60
		sfm	650	200
	High Temp Alloys 260-450 HB	m/min	65	35
		sfm	215	115
	Titanium Alloys (Ti 6Al-4V)	m/min	180	110
		sfm	525	345

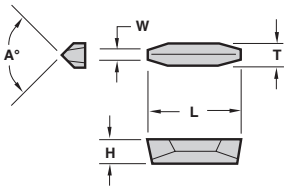
NOTE: Decrease Vc if interrupted cut, roughing, unstable conditions and/or uncoated grade

TOOL-FLO

VEE BOTTOM

ACME THREADING

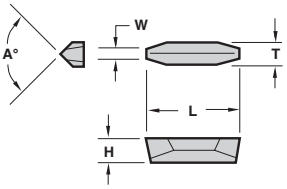
V84/V85/V120



Description	EDP Code	TPI	W	T	L	H	A°	Uncoated C3	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 NT 3P	0261030	3	.1184	.250	1.000	.250	90°		●		●		●
V84 NT 4P	0261040	4	.0875	.250	1.000	.250	90°		●		●		●
V84 NT 5P	0261050	5	.0689	.250	1.000	.250	90°		●		●		●
V84 NT 6P	0261060	6	.0566	.250	1.000	.250	90°		●		●		●
V84 NT 8P	0261080	8	.0411	.250	1.000	.250	90°		●		●		●
V84 NT 10P	0261100	10	.0319	.250	1.000	.250	90°		●		●		
V84 NT 12P	0261120	12	.0283	.250	1.000	.250	90°		●		●		
V85 NT 2P	0263020	2	.1802	.312	1.000	.250	90°		●		●		
V85 NT 3P	0263030	3	.1184	.312	1.000	.250	90°		●		●		
V120 NT 1P	0270010	1	.3655	.750	1.500	.375	120°			●			
V120 NT 1.5P	0270015	1.5	.2419	.750	1.500	.375	120°			●			

ACME STUB THREADING

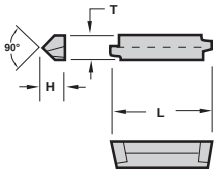
V84/V85/V120



Description	EDP Code	TPI	W	T	L	H	A°	Uncoated C3	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 NT 3P STUB	0261031	3	.1356	.250	1.000	.250	90°		●		●		
V84 NT 4P STUB	0261041	4	.1004	.250	1.000	.250	90°		●		●		
V84 NT 5P STUB	0261051	5	.0793	.250	1.000	.250	90°		●		●		
V84 NT 6P STUB	0261061	6	.0652	.250	1.000	.250	90°		●		●		
V84 NT 8P STUB	0261081	8	.0476	.250	1.000	.250	90°		●		●		
V84 NT 10P STUB	0261101	10	.0370	.250	1.000	.250	90°		●		●		
V84 NT 12P STUB	0261121	12	.0326	.250	1.000	.250	90°		●		●		
V85 NT 2P STUB	0263021	2	.2060	.312	1.000	.250	90°		●		●		
V120 NT 1P STUB	0270011	1	.4172	.750	1.500	.375	120°			●			

API BUTTRESS THREADING

V84

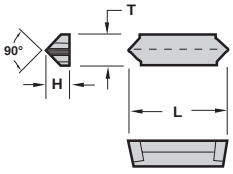


Description	EDP Code	TPI	TPF	T	L	H	Connection	Uncoated C3	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 5B75 EXT-FC*	16614F	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8				●		
V84 5B1 EXT-FC	17614F	5	1	.250	1.000	.250	16 and larger				●		
V84 8B75 EXT-FC	21614F	8	3/4	.250	1.000	.250	US Improved Buttress				●		
V84 5B75 INT-FC	16618F	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8				●		
V84 5B1 INT-FC	17618F	5	1	.250	1.000	.250	16 and larger				●		
V84 8B75 INT-FC	21618F	8	3/4	.250	1.000	.250	US Improved Buttress				●		

*FC indicates 5° flank clearance

API HUGHES THREADING

V85/V96



Description	EDP Code	TPI	TPF	T	L	H	Connection	Uncoated C3	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V85 H902 EXT	28634	3-1/2	2	.250	1.000	.250	3-1/2 - 6-5/8 H90				●		
V85 H902 INT	28638	3-1/2	2	.250	1.000	.250	3-1/2 - 6-5/8 H90				●		
V85 H903 EXT	29634	3-1/2	3	.250	1.000	.250	7 - 8-5/8				●		
V85 H903 INT	29638	3-1/2	3	.250	1.000	.250	7 - 8-5/8				●		
V96 H90S EXT	27664	3	1-1/4	.375	1.125	.375	2-3/8 - 3-1/2 Slimline			●	●		
V96 H90S INT	27668	3	1-1/4	.375	1.125	.375	2-3/8 - 3-1/2 Slimline			●	●		

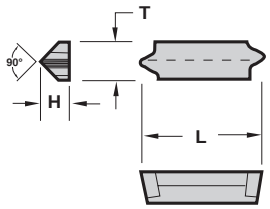
In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

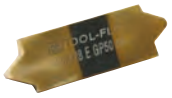
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	C3	GP3	GP5	GP50	AC3	AC50
Cast Iron		●				
Non-Ferrous		●				
Stainless/High Temp		●				
Steel			●	●		

API ROTARY SHOULDER THREADING

V85



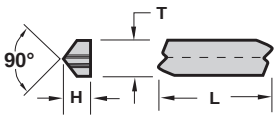


Description	EDP Code	TPI	TPF	T	L	H	Connection	Uncoated C3	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V85 425 EXT	09634	4	2	.312	1.000	.250	5-1/2 - 6-5/8 FH, 6-5/8 REG				●	●	●
V85 428 EXT	10634	4	2	.312	1.000	.250	NC23 - 50, 2-3/8 - 5-1/2 IF				●	●	●
V85 42F EXT*	14634	4	2	.312	1.000	.250	VO.065*				●		
V85 435 EXT	11634	4	3	.312	1.000	.250	5-1/2 REG, 7-5/8 REG, 8-5/8 REG				●		●
V85 438 EXT	12634	4	3	.312	1.000	.250	NC56 - NC71				●		●
V85 530 EXT	13634	5	3	.312	1.000	.250	3-1/2FH, 2-3/8 - 4-1/2 REG				●		●
V85 4PAC EXT	15634	4	1-1/2	.312	1.000	.250	2-3/8 - 4-1/2 AMERICAN/PAC				●		
V85 425 INT	09638	4	2	.312	1.000	.250	5-1/2 - 6-5/8 FH, 6-5/8 REG				●	●	●
V85 428 INT	10638	4	2	.312	1.000	.250	NC23 - 50, 2-3/8 - 5-1/2 IF				●	●	●
V85 42F INT*	14638	4	2	.312	1.000	.250	VO.065*				●		
V85 435 INT	11638	4	3	.312	1.000	.250	5-1/2 REG, 7-5/8 REG, 8-5/8 REG				●		●
V85 438 INT	12638	4	3	.312	1.000	.250	NC56 - NC71				●		●
V85 530 INT	13638	5	3	.312	1.000	.250	3-1/2FH, 2-3/8 - 4-1/2 REG				●		●
V85 4PAC INT	15638	4	1-1/2	.312	1.000	.250	2-3/8 - 4-1/2 AMERICAN/PAC				●		

* Obsolescent thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

API ROUND THREADING

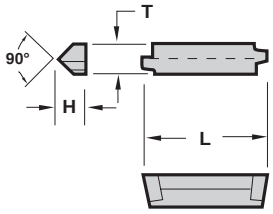
V84



Description	EDP Code	TPI	TPF	T	L	H	Uncoated C3	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 10RD EXT	34614	10	3/4	.250	1.000	.250				●	●	●
V84 10RD INT	34618	10	3/4	.250	1.000	.250				●	●	●
V84 8RD EXT	32614	8	3/4	.250	1.000	.250				●	●	●
V84 8RD INT	32618	8	3/4	.250	1.000	.250				●	●	●

API VAM THREADING

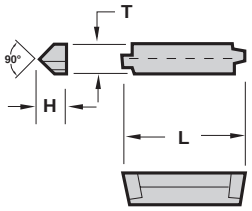
V84

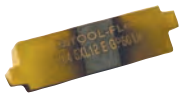


Description	EDP Code	TPI	TPF	T	L	H	Uncoated C3	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 5 VAM EXT	23614	5	3/4	.250	1.000	.250				●		
V84 5 VAM INT	23618	5	3/4	.250	1.000	.250				●		
V84 6 VAM EXT	24614	6	3/4	.250	1.000	.250				●		
V84 6 VAM INT	24618	6	3/4	.250	1.000	.250				●		
V84 8 VAM EXT	25614	8	3/4	.250	1.000	.250				●		
V84 8 VAM INT	25618	8	3/4	.250	1.000	.250				●		

API X-LINE THREADING

V84

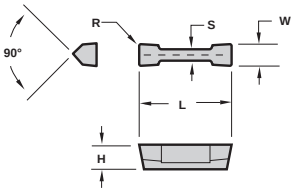




Description	EDP Code	TPI	TPF	T	L	H	Connection	Uncoated	TiN Coated			AlTiN Coated	
								C3	GP3	GP5	GP50	AC3	AC50
V84 5XL12 EXT	18614	5	1-1/4	.250	1.000	.250	8-5/8 - 10-3/4				●		
V84 5XL12 INT	18618	5	1-1/4	.250	1.000	.250	8-5/8 - 10-3/4				●		
V84 6XL15 EXT	19614	6	1-1/2	.250	1.000	.250	5 - 7-5/8				●		
V84 6XL15 INT	19618	6	1-1/2	.250	1.000	.250	5 - 7-5/8				●		
V84 6XL75 EXT	20614	6	3/4	.250	1.000	.250	-				●		
V84 6XL75 INT	20618	6	3/4	.250	1.000	.250	-				●		

DEEP GROOVING

DBP *(SAME AS VDB)*



Description	EDP Code	W	R	L	H	S	Uncoated	TiN Coated			AlTiN Coated	
							C3	GP3	GP5	GP50	AC3	AC50
DBP 24 R15	802415	.125	.015	1.125	.250	.106		●		●	●	●
DBP 24 R30	802430	.125	.030	1.125	.250	.106				●		
DBP 34 R15	803415	.188	.015	1.125	.250	.106		●		●	●	●
DBP 34 R30	803430	.188	.030	1.125	.250	.106				●		
DBP 45 R15	804515	.250	.015	1.125	.337	.144		●		●	●	●
DBP 45 R30	804530	.250	.030	1.125	.337	.144				●		
DBP 55 R15	805515	.312	.015	1.125	.337	.202		●		●	●	●
DBP 55 R30	805530	.312	.030	1.125	.337	.202				●		
DBP 65 R15	806515	.375	.015	1.125	.337	.276		●		●	●	●
DBP 65 R30	806530	.375	.030	1.125	.337	.276				●		

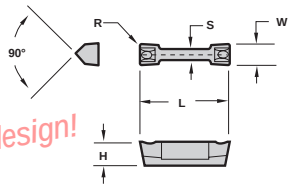
DEEP GROOVING

DBP-CB *(SAME AS VDB)*

Features:

- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Industry standard widths

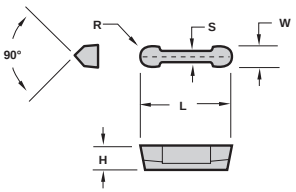
Exclusive patented design!



Description	EDP Code	W	R	L	H	S	Uncoated	TiN Coated			AlTiN Coated	
							C3	GP3	GP5	GP50	AC3	AC50
DBP 24 R15-CB	802415C	.125	.015	1.125	.250	.106		●		●	●	●
DBP-34-R15-CB	803415C	.188	.015	1.125	.250	.106		●		●	●	●
DBP 45 R15-CB	804515C	.250	.015	1.125	.337	.144		●		●	●	●
DBP 45 R30-CB	804530C	.250	.030	1.125	.337	.144				●		
DBP 55 R15-CB	805515C	.312	.015	1.125	.337	.202		●		●	●	●
DBP 55 R30-CB	805530C	.312	.030	1.125	.337	.202				●		

DEEP GROOVING

DBP-Full Nose Radius *(SAME AS VDB)*



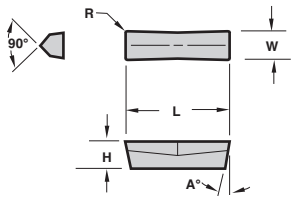
Description	EDP Code	W	R	L	H	S	Uncoated	TiN Coated			AlTiN Coated	
							C3	GP3	GP5	GP50	AC3	AC50
DBP 24 FNR	8024FR	.125	.0625	1.125	.250	.106		●		●	●	●
DBP 34 FNR	8034FR	.188	.094	1.125	.250	.106		●		●	●	●
DBP 45 FNR	8045FR	.250	.125	1.125	.337	.144		●		●	●	●
DBP 55 FNR	8055FR	.312	.156	1.125	.337	.202		●		●	●	●
DBP 65 FNR	8065FR	.375	.1875	1.125	.337	.276		●		●	●	●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

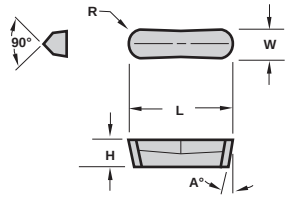
	C3	GP3	GP5	GP50	AC3	AC50
Cast Iron		▲			●	
Non-Ferrous		▲			●	
Stainless/High Temp		▲			●	
Steel				▲		●

DEEP GROOVING
GC



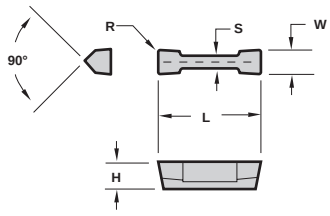
Description	EDP Code	Inch	Metric	R	L	H	A°	Uncoated	TiN Coated			AlTiN Coated	
		W						C3	GP3	GP5	GP50	AC3	AC50
GC-4125	GC4125	.125	3,18	.010/.015	1.000	.188	4°		●		●	●	●
GC-4187	GC4187	.187	4,75	.010/.015	1.000	.328	5°		●		●	●	●
GC-4250	GC4250	.250	6,35	.010/.015	1.000	.328	5°		●		●	●	●
GC-4312	GC4312	.312	7,92	.010/.015	1.000	.328	5°		●		●	●	●
GC-4375	GC4375	.375	9,52	.010/.015	1.000	.328	5°		●		●	●	●
GC-6187	GC6187	.187	4,75	.010/.015	1.500	.328	5°		●		●	●	●
GC-6250	GC6250	.250	6,35	.010/.015	1.500	.328	5°		●		●	●	●
GC-6312	GC6312	.312	7,92	.010/.015	1.500	.328	5°		●		●	●	●

DEEP GROOVING
GR - Full Nose Radius



Description	EDP Code	Inch	Metric	R	L	H	A°	Uncoated	TiN Coated			AlTiN Coated	
		W						C3	GP3	GP5	GP50	AC3	AC50
GR-4125	GR4125	.125	3,18	.062	1.000	.188	4°				●	●	
GR-4187	GR4187	.187	4,75	.094	1.000	.328	5°				●	●	
GR-4250	GR4250	.250	6,35	.125	1.000	.328	5°				●	●	

DEEP GROOVING
VDB *(SAME AS DBP)*



Description	EDP Code	Inch	Metric	R	L	H	S	Uncoated	TiN Coated			AlTiN Coated	
		W						C25	GP25	GP3	GP50	AC3	AC50
VDB 125 A008	79125A08	.125	3,18	.008	1.125	.250	.106				●		
VDB 125 A015	79125A	.125	3,18	.015	1.125	.250	.106	●		●	●	●	●
VDB 156 A008	79156A08	.156	3,96	.008	1.125	.250	.106				●		
VDB 156 A015	79156A	.156	3,96	.015	1.125	.250	.106			●	●	●	●
VDB 188 A008	79188A08	.188	4,78	.008	1.125	.250	.106	●	●				
VDB 188 A015	79188A	.188	4,78	.015	1.125	.250	.106	●		●	●	●	●
VDB 188 A030	79188A030	.188	4,78	.030	1.125	.250	.106			●		●	●
VDB 218-A015	79218A	.218	5,54	.015	1.125	.250	.144			●	●	●	●
VDB 250 A015	79250A	.250	6,35	.015	1.125	.250	.144	●		●	●	●	●
VDB 250 B015	79250B	.250	6,35	.015	1.125	.337	.144			●	●	●	●
VDB 250 B030	79250B030	.250	6,35	.030	1.125	.337	.144			●	●	●	●
VDB 281 B015	79281B	.281	7,14	.015	1.125	.337	.202				●	●	
VDB 312 B015	79312B	.312	7,92	.015	1.125	.337	.202			●	●	●	●
VDB 312 B030	79312B030	.312	7,92	.030	1.125	.337	.202			●	●	●	●
VDB 344 B015	79344B	.344	8,74	.015	1.125	.337	.276				●		
VDB 344 B030	79344B030	.344	8,74	.030	1.125	.337	.276				●		
VDB 375 B015	79375B	.375	9,53	.015	1.125	.337	.276			●	●	●	●
VDB 375 B030	79375B030	.375	9,53	.030	1.125	.337	.276				●	●	

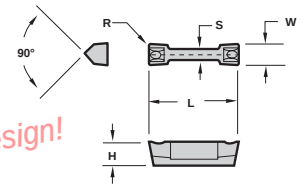
In an effort to improve our stock standard grade offering, there are periodic changes.
Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		▲			●	
Non-Ferrous		▲			●	
Stainless/High Temp		▲			●	
Steel				▲		●

DEEP GROOVING

VDB-CB *(SAME AS DBP)*



Features:

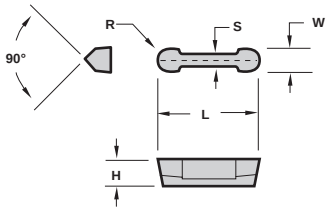
- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Industry standard widths

Exclusive patented design!

Description	EDP Code	W Inch	W Metric	R	L	H	S	Uncoated C25	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
VDB 125 A008-CB	79125A08P	.125	3,18	.008	1.125	.250	.106				●		
VDB 125 A015-CB	79125AP	.125	3,18	.015	1.125	.250	.106	●	●		●	●	●
VDB 156 A008-CB	79156A08P	.156	3,96	.008	1.125	.250	.106				●		
VDB 156 A015-CB	79156AP	.156	3,96	.015	1.125	.250	.106		●		●	●	●
VDB 188 A008-CB	79188A08P	.188	4,78	.008	1.125	.250	.144	●					●
VDB 188 A015-CB	79188AP	.188	4,78	.015	1.125	.250	.144	●	●		●	●	●
VDB 188 A030-CB	79188A030P	.188	4,78	.030	1.125	.250	.144				●	●	●
VDB 218 A015-CB	79218AP	.218	5,54	.015	1.125	.250	.144		●		●	●	●
VDB 250 B015-CB	79250BP	.250	6,35	.015	1.125	.337	.144	●	●		●	●	●
VDB 250 B030-CB	79250B030P	.250	6,35	.030	1.125	.337	.144				●	●	●
VDB 312 B015-CB	79312BP	.312	7,92	.015	1.125	.337	.202		●		●	●	●
VDB 312 B030-CB	79312B030P	.312	7,92	.030	1.125	.337	.202				●	●	●
VDB 375 B015-CB	79375BP	.375	9,53	.015	1.125	.337	.276		●		●	●	●
VDB 375 B030-CB	79375B030P	.375	9,53	.030	1.125	.337	.276				●	●	

DEEP GROOVING

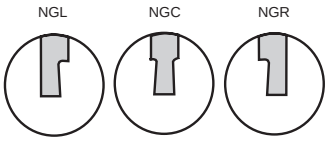
VDB - Full Nose Radius *(SAME AS DBP)*

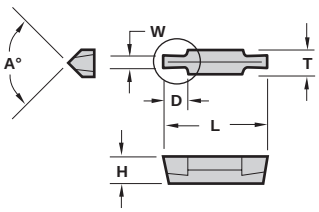


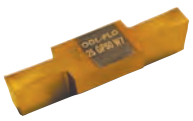
Description	EDP Code	W Inch	W Metric	R	L	H	S	Uncoated C25	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
VDB 125 RA	79125RA	.125	3,18	.062	1.125	.250	.106	●	●		●	●	●
VDB 156 RA	79156RA	.156	3,96	.078	1.125	.250	.106		●		●	●	●
VDB 188 RA	79188RA	.188	4,78	.094	1.125	.250	.144	●	●		●	●	●
VDB 218 RA	79218RA	.218	5,54	.109	1.125	.250	.144		●		●		●
VDB 250 RA	79250RA	.250	6,35	.125	1.125	.250	.144	●	●		●	●	●
VDB 250 RB	79250RB	.250	6,35	.125	1.125	.337	.144	●	●		●	●	●
VDB 281 RB	79281RB	.281	7,14	.140	1.125	.337	.202		●		●		
VDB 312 RB	79312RB	.312	7,92	.156	1.125	.337	.202		●		●	●	●
VDB 344 RB	79344RB	.344	8,74	.172	1.125	.337	.276		●		●		
VDB 375 RB	79375RB	.375	9,53	.187	1.125	.337	.276		●		●	●	●

GROOVING

V84/V85/V96/V98/V120







Description	EDP Code	W Inch	W Metric	D	T	L	H	A°	Uncoated C3	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 NGC W.062	C6106200	.062	1,57	.156	.250	1.000	.250	90°				●		
V84 NGC W.094	C6109400	.094	2,39	.250	.250	1.000	.250	90°				●		
V84 NGC W.125	C6112500	.125	3,18	.250	.250	1.000	.250	90°		●		●		●
V84 NGC W.187	C6118700	.187	4,75	.250	.250	1.000	.250	90°		●		●		●
V84 NGC W.250	C6125000	.250	6,35	.250	.250	1.000	.250	90°		●		●		●
V84 NGL W.125	L6112500	.125	3,18	.250	.250	1.000	.250	90°				●		
V84 NGL W.187	L6118700	.187	4,75	.250	.250	1.000	.250	90°				●		
V84 NGR W.125	R6112500	.125	3,18	.250	.250	1.000	.250	90°		●		●		●
V84 NGR W.187	R6118700	.187	4,75	.250	.250	1.000	.250	90°		●		●		●
V85 NGC W.312	C6331200	.312	7,92	.325	.312	1.000	.250	90°			●	●		
V96 NGC W.375	C6637500	.375	9,53	.450	.375	1.125	.375	90°						
V98 NGC W.500	C6850000	.500	12,70	.450	.500	1.125	.375	90°			●			
V120 NGC W.625	C7625000	.625	15,88	.625	.750	1.500	.375	120°						
V120 NGC W.750	C7075000	.750	19,05	.625	.750	1.500	.375	120°			●			

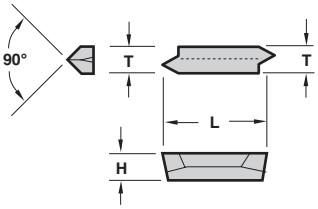
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

	C3	GP3	GP5	GP50	AC3	AC50
Cast Iron		▲			●	
Non-Ferrous		▲			●	
Stainless/High Temp		▲			●	
Steel				▲		●

NPT THREADING

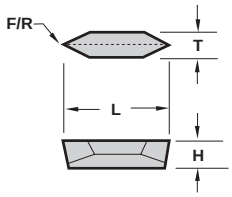
V84



Description	EDP Code	Pipe Size	TPI	TPF	T	L	H	Uncoated C3	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 8NPT EXT	3661084	2-1/2" - up	8	3/4	.250	1.000	.250				●		
V84 8NPT INT	3661088	2-1/2" - up	8	3/4	.250	1.000	.250				●		
V84 11.5NPT EXT	3661114	1" - 2"	11.5	3/4	.250	1.000	.250				●		
V84 11.5NPT INT	3661118	1" - 2"	11.5	3/4	.250	1.000	.250				●		
V84 14NPT EXT	3661144	1/2" - 3/4"	14	3/4	.250	1.000	.250				●		
V84 14NPT INT	3661148	1/2" - 3/4"	14	3/4	.250	1.000	.250				●		

60° V-THREADING

V84/V85



Description	EDP Code	TPI	F	T	L	H	Uncoated C25	TiN Coated GP3	TiN Coated GP5	TiN Coated GP50	AlTiN Coated AC3	AlTiN Coated AC50
V84 NV	0161000	5-20	.006/.008	.250	1.000	.250	●	●		●		●
V84 NV .010R	0161R10	4-20	.010R	.250	1.000	.250		●		●		●
V84 NV .020R	0161R20	4-12	.020R	.250	1.000	.250				●		
V84 NV .025R	0161R25	4-8	.025R	.250	1.000	.250				●		
V84 NV .038R	0161R38	4-6	.038R	.250	1.000	.250				●		
V85 NV	0163000	5-20	.006/.008	.312	1.000	.250		●		●		●

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

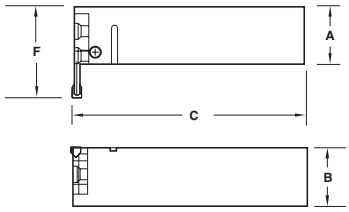
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron		●				
Non-Ferrous		●				
Stainless/High Temp		●				
Steel			▲	▲		●

EXTERNAL 90° HOLDER

CDHOR/L

■ RH Holders use LH components - See pages 216.



RH SHOWN

PARTS

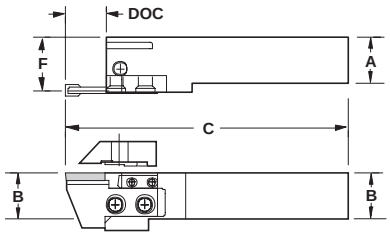
Description	EDP Code	A	B	C	F* .312(1)	F* .812(1)	Clamp Screw	Stop Screw	Anvil Screw
CDHOR-16	92101600	1	1	6	1.312	1.812	SB90	SS20	SF95
CDHOL-16	92001600	1	1	6	1.312	1.812	SB90	SS20	SF95
CDHOR-20	92102000	1-1/4	1-1/4	6	1.562	2.062	SB90	SS20	SF95
CDHOL-20	92002000	1-1/4	1-1/4	6	1.562	2.062	SB90	SS20	SF95
CDHOR-24	92102400	1-1/2	1-1/2	6	1.812	2.312	SB90	SS20	SF95
CDHOL-24	92002400	1-1/2	1-1/2	6	1.812	2.312	SB90	SS20	SF95

*The "f" dimension is determined by the D.O.C. of the anvil. (1) Anvil D.O.C.

EXTERNAL STRAIGHT HOLDER

CDVOR/L

■ RH Holders use RH components - See pages 216.



RH SHOWN

PARTS

Description	EDP Code	A	B	C	F	Clamp Screw	Stop Screw	Anvil Screw
CDVOR-16	92401600	1	1	*	1.150	SB90	SS20	SF95
CDVOL-16	92301600	1	1	*	1.150	SB90	SS20	SF95
CDVOR-20	92402000	1-1/4	1-1/4	*	1.400	SB90	SS20	SF95
CDVOL-20	92302000	1-1/4	1-1/4	*	1.400	SB90	SS20	SF95
CDVOR-24	92402400	1-1/2	1-1/2	*	1.650	SB90	SS20	SF95
CDVOL-24	92302400	1-1/2	1-1/2	*	1.650	SB90	SS20	SF95

*The "C" dimension is determined by the D.O.C. of the anvil. If the D.O.C. is .312, C=5.500. If the D.O.C. is .812, C=6.000.

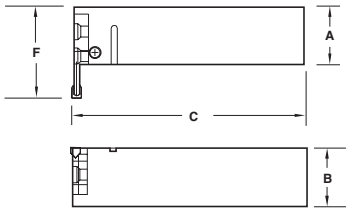
EXTERNAL 90° HOLDER

CDHOR

Metric

■ RH Holders use LH components - See below.

Most holders available with coolant port
(ie: Add CP to end of description)



PARTS

Description	EDP Code	A	B	C	F* 7,0(1)	F* 20,0(1)	Clamp Screw	Stop Screw	Anvil Screw
CDHOR-25MM	92112500	25,0	25,0	150,0	33,3	46,0	SB90	SS20	SF95
CDHOR-32MM	92113200	32,0	32,0	150,0	39,7	52,4	SB90	SS20	SF95
CDHOR-40MM	92114000	40,0	40,0	150,0	46,0	58,7	SB90	SS20	SF95

*The "f" dimension is determined by the D.O.C. of the anvil. (1) Anvil D.O.C.

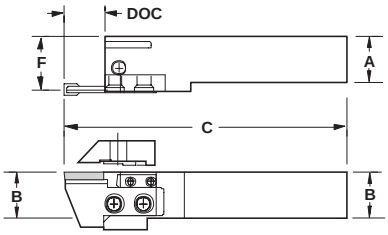
EXTERNAL STRAIGHT HOLDER

CDVOR/L

Metric

■ RH Holders use RH components - See below.

Most holders available with coolant port
(ie: Add CP to end of description)



PARTS

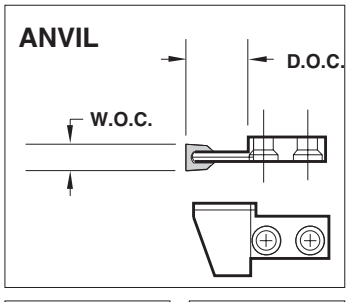
Description	EDP Code	A	B	C	F	Clamp Screw	Stop Screw	Anvil Screw
CDVOR-25MM	92412500	25,0	25,0	*	28,8	SB90	SS20	SF95
CDVOL-25MM	92312500	25,0	25,0	*	28,8	SB90	SS20	SF95
CDVOR-32MM	92413200	32,0	32,0	*	35,8	SB90	SS20	SF95
CDVOR-40MM	92414000	40,0	40,0	*	43,8	SB90	SS20	SF95
CDVOL-40MM	92314000	40,0	40,0	*	43,8	SB90	SS20	SF95

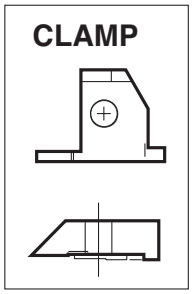
*The "C" dimension is determined by the D.O.C. of the anvil. If the D.O.C. is .312 (7.9mm), C=5.500 (139,7mm). If the D.O.C. is .812 (20.6mm), C=6.000 (152.5mm).

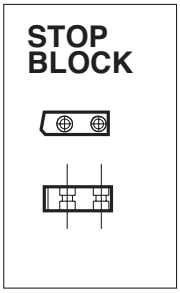
COMPONENTS

For CDHOR/L and CDVOR/L

■ For face grooving anvils - See page







Anvil	EDP Code	Insert	DOC	WOC	Clamp	Stop Block
AHR-118	9140118	VDB125	.812	.105-.125	CHR-182	SBH-1
AHL-118	9130118	VDB125	.812	.105-.125	CHL-182	SBH-1
AHR-148	9140148	V84/V85	.812	.220-.250	CHR-482	SBH-1
AHL-148	9130148	V84/V85	.812	.220-.250	CHL-482	SBH-1
AHR-173	9140173	V84/V85	.312	V-THREAD	CHR-431	SBH-1
AHL-173	9130173	V84/V85	.312	V-THREAD	CHL-431	SBH-1
AHR-113	9140113	DBP24/VDB125	.312	.105-.125	CHR-132	SBH-1
AHL-113	9130113	DBP24/VDB125	.312	.105-.125	CHL-132	SBH-1
AHR-138	9140138	DBP34/VDB188	.812	.170-.188	CHR-382	SBH-2
AHL-138	9130138	DBP34/VDB188	.812	.170-.188	CHL-382	SBH-2
AHR-148	9140148	VDB250A	.812	.220-.250	CHR-482	SBH-2
AHL-148	9130148	VDB250A	.812	.220-.250	CHL-482	SBH-2
AHR-248	9140248	DBP45/VDB250B	.812	.250-.312	CHR-482	SBH-2
AHL-248	9130248	DBP45/VDB250B	.812	.250-.312	CHL-482	SBH-2
AHR-268	9140268	DBP65/VDB375	.812	.350-.375	CHR-582	SBH-2
AHL-268	9130268	DBP65/VDB375	.812	.350-.375	CHL-582	SBH-2

EXTERNAL STRAIGHT HOLDER

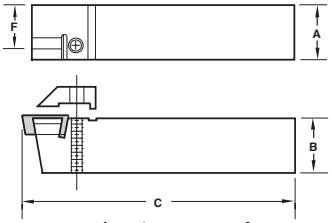
CDVOR/L/C

One piece design

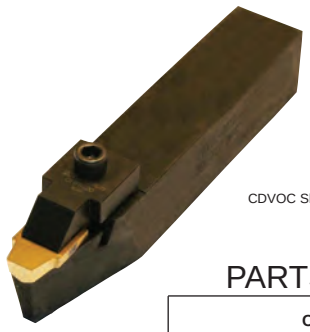
- RH Holders use RH clamps

Most holders available with coolant port

(ie: Add CP to end of description)



CDVOR Shown



CDVOC Shown

PARTS

Description	EDP Code	Insert	A	B	C	F	Clamp	Clamp Screw
CDVOR-168	92401682	V84/V85	1	1	6	0.875	CHR-431	SB90
CDVOL-168	92301682	V84/V85	1	1	6	0.875	CHL-431	SB90
CDVOR-208	92402082	V84/V85	1-1/4	1-1/4	6	1.125	CHR-431	SB90
CDVOL-208	92302082	V84/V85	1-1/4	1-1/4	6	1.125	CHL-431	SB90
CDVOR-209	92402086	V96/V98	1-1/4	1-1/4	7	1.000	CHR-98	SS100
CDVOC-2012	92202090	V120	1-1/4	1-1/4	7	0.625	CHR-120	SS90

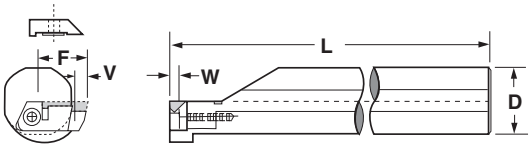
INTERNAL BAR

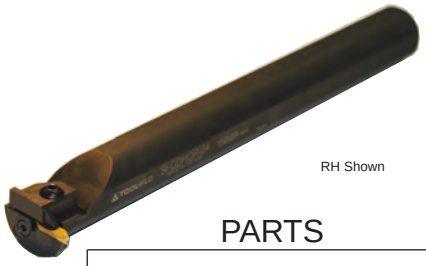
SI-CDHOR

- RH Holders use LH components

Most bars available with coolant port

(ie: Add CP to end of description)





RH Shown

PARTS

Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Anvil Screw	Clamp	Clamp Screw
SI-CDHOR-24	96802400	V84/V85	1-1/2	14	.188-.250	.180	1.062	1.880	.080	ABL/R-131	SF69	CBL/R-411	SB90
SI-CDHOL-24	96702400	V84/V85			60°V	.180	1.062	1.880	.080	ABL/R-171	SF69	CBL/R-411	SB90
		V85			.295.312	.312	1.062	1.880	.080	ABL/R-143	SF69	CBL/R-531	SB90
		DBP24/VDB125			.105-.125	.312	1.062	1.880	.240	ABL/R-113	SF69	CBL.R-132	SB90
		DBP34/VDB188			.170-.188	.530	1.280	2.098	.240	ABL/R-135	SF69	CBL/R-352	SB90
		VDB250A			.220-.250	.530	1.280	2.098	.240	ABL/R-145	SF69	CBL/R-452	SB90
		DBP45/VDB250B			.220-.250	.530	1.280	2.098	.240	ABL/R-245	SF69	CBL/R-452	SB90

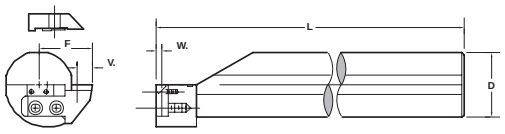
INTERNAL BAR

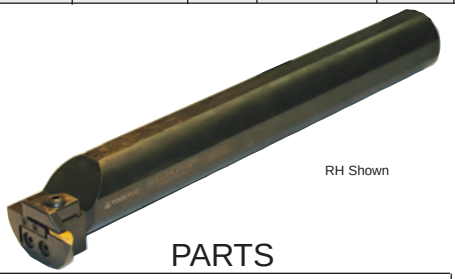
SI-CDHOR

- RH Holders use LH components

Most bars available with coolant port

(ie: Add CP to end of description)





RH Shown

PARTS

Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Anvil Screw	Clamp	Clamp Screw	Stop Block	SBH Screw
SI-CDHOR-32H	96803200H	V84/V85	2	16	.220-.250	.312	1.584	3.000	.150	AHL/R-148	SF95	CHL/R-482	SB90	SBH-1	SS-20
SI-CDHOL-32H	96703200H	V84/V85			60°V	.312	1.584	3.000	.150	AHL/R-173	SF95	CHL/R-431	SB90	SBH-1	SS-20
		DBP34/VDB188			.170-.188	.625	1.592	3.000	.270	AHL/R-138	SF95	CHL/R-382	SB90	SBH-2	SS-20
		VDB250A			.220-.250	.625	1.592	3.000	.270	AHL/R-148	SF95	CHL/R-482	SB90	SBH-2	SS-20
		DBP45/VDB250B			.220-.250	.625	1.592	3.000	.270	AHL/R-248	SF95	CHL/R-482	SB90	SBH-2	SS-20

INTERNAL BAR

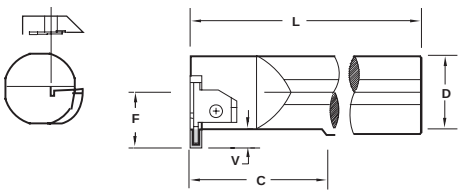
SI-CDHOR/L

One piece design

- RH Holders use LH components

Most bars available with coolant port

(ie: Add CP to end of description)



RH Shown

PARTS

Description	EDP Code	Insert	Min. Bore	D	L	C	F	V	D.O.C. at Min. Bore	Clamp Screw	Clamp
SI-CDHOR-168	96801682	V84/V85	2.500	1	10	3	.687	.270	.200	S526	CBL-84
SI-CDHOL-168	96701682	V84/V85	2.500	1	10	3	.687	.270	.200	S526	CBR-84
SI-CDHOR-208	96802082	V84/V85	2.500	1-1/4	12	-	.875	.285	.250	S526	CBL-84
SI-CDHOL-208	96702082	V84/V85	2.500	1-1/4	12	-	.875	.285	.250	S526	CBR-84
SI-CDHOR-329	96803286	V96/V98	3.100	2	16	-	1.530	.325	.312	SS110	CBL-98
SI-CDHOL-329	96703286	V96/V98	3.100	2	16	-	1.530	.325	.312	SS110	CBR-98
SI-CDHOR-409	96804086	V96/V98	4.000	2-1/2	16	-	1.575	.365	.312	SS110	CBL-98
SI-CDHOR-4012	96804092	V120	4.000	2-1/2	16	8.062	1.575	.570	.500	SB100	CBL-120

EXTERNAL STRAIGHT HOLDER

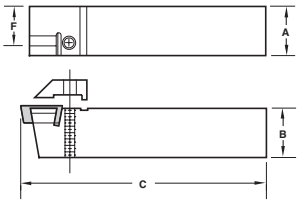
CDVOR/L/C

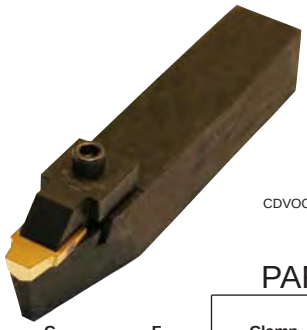
One piece design

Metric

Most holders available with coolant port

(ie: Add CP to end of description)





CDVOC Shown

PARTS

Description	EDP Code	Insert	A	B	C	F	Clamp	Clamp Screw
CDVOR-25M8	92412582	V84/V85	25,0	25,0	150,0	21,8	CHR-431	SB90
CDVOL-25M8	92312582	V84/V85	25,0	25,0	150,0	21,8	CHL-431	SB90
CDVOR-32M8	92413282	V84/V85	32,0	32,0	150,0	28,8	CHR-431	SB90
CDVOL-32M8	92313282	V84/V85	32,0	32,0	150,0	28,8	CHL-431	SB90
CDVOR-32M9	92413286	V98	32,0	32,0	180,0	25,5	CHR-98	SS100
CDVOC-32M12	92413290	V120	32,0	32,0	180,0	22,5	CHR-120	SS90

INTERNAL BAR

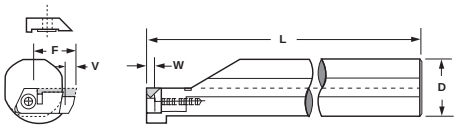
SI-CDHOR

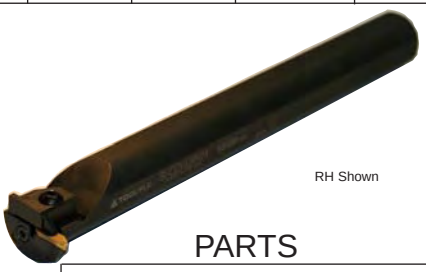
Metric

RH Bars use LH components

Most bars available with coolant port

(ie: Add CP to end of description)





RH Shown

PARTS

Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Anvil Screw	Clamp	Clamp Screw
SI-CDHOR-40MM	96814000	V84	40,0	360,0	5,5-6,5	4,5	28,9	48,0	2,0	ABL/R-131	SF69	CBL/R-411	SB90
		V84			60°V	4,5	28,9	48,0	2,0	ABL/R-171	SF69	CBL/R-411	SB90
		V85			7,5-8,0	7,9	28,9	48,0	2,0	ABL/R-143	SF69	CBL/R-531	SB90
		DBP24/VDB125			2,6-3,2	7,9	28,9	53,5	6,0	ABL/R-113	SF69	CBL.R-132	SB90
		DBP34/VDB188			4,3-4,8	13,6	34,3	53,5	6,0	ABL/R-135	SF69	CBL/R-352	SB90
		VDB250A			5,5-6,5	13,6	34,3	53,5	6,0	ABL/R-145	SF69	CBL/R-452	SB90
		DBP45/VDB250B			5,5-6,5	13,6	34,3	53,5	6,0	ABL/R-245	SF69	CBL/R-452	SB90

INTERNAL BAR

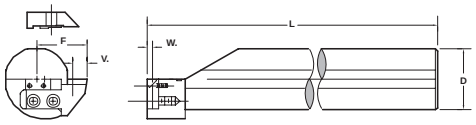
SI-CDHOR

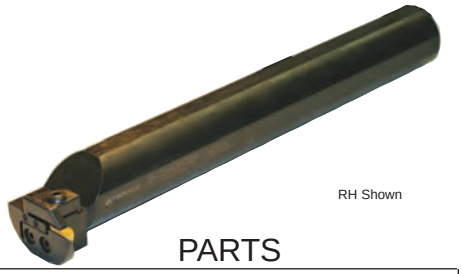
Metric

RH Bars use LH components

Most bars available with coolant port

(ie: Add CP to end of description)





RH Shown

PARTS

Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Anvil Screw	Clamp	Clamp Screw	Stop Block	SBH Screw
SI-CDHOR-50MM	96815000	V84/V85	50,0	400,0	5,5-6,5	7,9	39,5	76,2	2,0	AHL/R-148	SF95	CHL/R-482	SB90	SBH-1	SS-20
		V84/V85			60°V	7,9	39,5	76,2	2,0	AHL/R-173	SF95	CHL/R-431	SB90	SBH-1	SS-20
		DBP34/VDB188			4,3-4,8	20,6	40,0	76,2	6,0	AHL/R-138	SF95	CHL/R-382	SB90	SBH-2	SS-20
		VDB250A			5,5-6,5	20,6	40,0	76,2	6,0	AHL/R-148	SF95	CHL/R-482	SB90	SBH-2	SS-20
		DBP45/VDB250B			5,5-6,5	20,6	40,0	76,2	6,0	AHL/R-248	SF95	CHL/R-482	SB90	SBH-2	SS-20

INTERNAL BAR

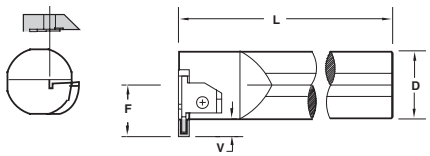
SI-CDHOR/L

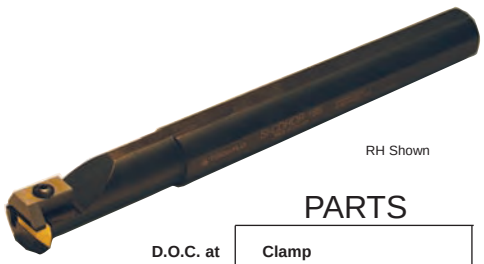
One piece design

Metric

Most bars available with coolant port

(ie: Add CP to end of description)





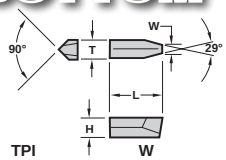
RH Shown

PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	D.O.C. at Min. Bore	Clamp Screw	Clamp
SI-CDHOR-25M8	96812582	V84/V85	30,15	25,0	250,0	17,4	6,4	4,8	S526	CBL-84
SI-CDHOL-25M8	96712582	V84/V85	30,15	25,0	250,0	17,4	6,4	4,8	S526	CBR-84
SI-CDHOR-32M8	96813282	V84/V85	38,1	32,0	300,0	18,5	6,4	4,8	S526	CBL-84
SI-CDHOL-32M8	96713282	V84/V85	38,1	32,0	300,0	18,5	6,4	4,8	S526	CBR-84
SI-CDHOR-50M9	96815086	V98	63,5	50,0	400,0	38,8	9,2	7,9	SS110	CBL-98
SI-CDHOL-50M9	96715086	V98	63,5	50,0	400,0	38,8	9,2	7,9	SS110	CBR-98
SI-CDHOR-65M9	96816586	V98	76,2	65,0	400,0	40,0	9,2	9,5	SS110	CBL-98
SI-CDHOR-65M12	96816590	V120	76,2	65,0	400,0	40,0	14,0	12,7	SB100	CBL-120

ACME THREADING

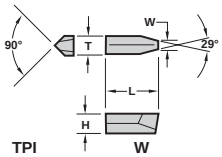
MLPE



Description	EDP Code	TPI	W	T	L	H	TiN Coated GP22	AlTiN Coated AC22
MLPE 2532 NT 4P	0271040	4	.0875	.188	.500	.150	●	●
MLPE 3425 NT 4P	0273040	4	.0875	.250	.625	.188	●	●
MLPE 2532 NT 5P	0271050	5	.0689	.188	.500	.150	●	●
MLPE 3425 NT 5P	0273050	5	.0689	.250	.625	.188	●	●
MLPE 2532 NT 6P	0271060	6	.0566	.188	.500	.150	●	●
MLPE 3425 NT 6P	0273060	6	.0566	.250	.625	.188	●	●
MLPE 2532 NT 8P	0271080	8	.0411	.188	.500	.150	●	●
MLPE 3425 NT 8P	0273080	8	.0411	.250	.625	.188	●	●
MLPE 2532 NT 10P	0271100	10	.0319	.188	.500	.150	●	●
MLPE 3425 NT 10P	0273100	10	.0319	.250	.625	.188	●	●
MLPE 2532 NT 12P	0271120	12	.0283	.188	.500	.150	●	●
MLPE 3425 NT 12P	0273120	12	.0283	.250	.625	.188	●	●

ACME STUB THREADING

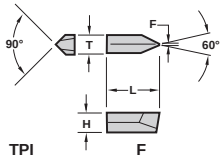
MLPE



Description	EDP Code	TPI	W	T	L	H	GP22	AC22
MLPE 2532 NT 4P STUB	0271041	4	.1004	.188	.500	.150	●	●
MLPE 3425 NT 4P STUB	0273041	4	.1004	.250	.625	.188	●	●
MLPE 2532 NT 5P STUB	0271051	5	.0793	.188	.500	.150	●	●
MLPE 3425 NT 5P STUB	0273051	5	.0793	.250	.625	.188	●	●
MLPE 2532 NT 6P STUB	0271061	6	.0652	.188	.500	.150	●	●
MLPE 3425 NT 6P STUB	0273061	6	.0652	.250	.625	.188	●	●
MLPE 2532 NT 8P STUB	0271081	8	.0476	.188	.500	.150	●	●
MLPE 3425 NT 8P STUB	0273081	8	.0476	.250	.625	.188	●	●
MLPE 2532 NT 10P STUB	0271101	10	.0370	.188	.500	.150	●	●
MLPE 3425 NT 10P STUB	0273101	10	.0370	.250	.625	.188	●	●
MLPE 2532 NT 12P STUB	0271121	12	.0326	.188	.500	.150	●	●
MLPE 3425 NT 12P STUB	0273121	12	.0326	.250	.625	.188	●	●

V-THREADING - 60°

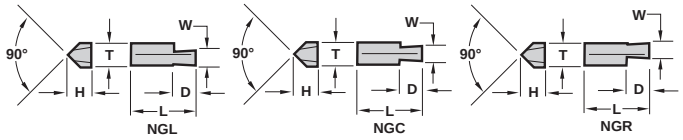
MLPE



Description	EDP Code	TPI	F	T	L	H	GP22	GP4
MLPE 1251 NV	01720000	10-20	.002-.004	.160	.340	.115	●	●
MLPE 2532 NV	01710000	6-20	.002-.004	.188	.500	.150	●	●
MLPE 3425 NV	01730000	5-20	.003-.006	.250	.625	.188	●	●

GROOVING

MLPE



NGL Shown

Description	EDP Code	W	D	T	L	H	Uncoated C3	Uncoated C6H	TiN Coated GP22	TiN Coated GP6	AlTiN Coated AC22	AlTiN Coated AC6
MLPE 1251 NGC W.062	C7206200	.062	.085	.160	.340	.115			●		●	
MLPE 1251 NGC W.094	C7209400	.094	.085	.160	.340	.115			●		●	
MLPE 1251 NGC W.125	C7212500	.125	.085	.160	.340	.115			●		●	
MLPE 1251 NGC W.156	C7215600	.156	.085	.160	.340	.115			●		●	
MLPE 2532 NGC W.062	C7106200	.062	.120	.188	.500	.150			●		●	
MLPE 2532 NGC W.094	C7109400	.094	.150	.188	.500	.150			●		●	
MLPE 2532 NGC W.125	C7112500	.125	.150	.188	.500	.150			●		●	
MLPE 2532 NGC W.156	C7115600	.156	.150	.188	.500	.150			●		●	
MLPE 2532 NGC W.188	C7118800	.188	.150	.188	.500	.150			●		●	
MLPE 3425 NGC W.062	C7306200	.062	.120	.250	.625	.188			●		●	
MLPE 3425 NGC W.094	C7309400	.094	.150	.250	.625	.188			●		●	
MLPE 3425 NGC W.125	C7312500	.125	.150	.250	.625	.188			●		●	
MLPE 3425 NGC W.156	C7315600	.156	.150	.250	.625	.188			●		●	
MLPE 3425 NGC W.188	C7318800	.188	.150	.250	.625	.188			●		●	
MLPE 3425 NGC W.250	C7325000	.250	.150	.250	.625	.188			●		●	
MLPE 1251 NGL W.125	L7212500	.125	.085	.160	.340	.115			●		●	
MLPE 1251 NGL W.156	L7215600	.156	.085	.160	.340	.115					●	
MLPE 2532 NGL W.125	L7112500	.125	.150	.188	.500	.150			●		●	
MLPE 2532 NGL W.156	L7115600	.156	.150	.188	.500	.150					●	
MLPE 3425 NGL W.188	L7318800	.188	.150	.250	.625	.188			●		●	
MLPE 1251 NGR W.125	R7212500	.125	.085	.160	.340	.115			●		●	
MLPE 1251 NGR W.156	R7215600	.156	.085	.160	.340	.115			●		●	
MLPE 2532 NGR W.125	R7112500	.125	.150	.188	.500	.150			●		●	
MLPE 2532 NGR W.156	R7115600	.156	.150	.188	.500	.150			●		●	
MLPE 3425 NGR W.188	R7318800	.188	.150	.250	.625	.188			●		●	

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

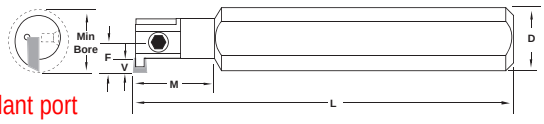
	C3	C6H	GP22	GP6	AC22	AC6
Cast Iron		●				
Non-Ferrous		●				
Stainless/High Temp		●				
Steel			▲	▲		●

INTERNAL BAR

MS-CDHOR/L

One piece design

■ RH Bars use RH clamps



RH Shown

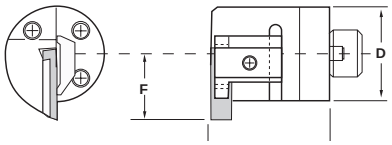
Most bars available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	Min. Bore	D	M	L	F	V	Clamp Screw	Clamp
MS-CLHOR-46254	951546254	MLPE 1251	.500	.500	.930	6.000	.265	.079	SF20	MCR-30
MS-CLHOL-46254	951346254	MLPE 1251	.500	.500	.930	6.000	.265	.079	SF20	MCL-30
MS-CLHOR-6845	95156845	MLPE 2532	.700	.750	1.250	8.000	.400	.150	SF47	MCR-40
MS-CLHOL-6845	95256845	MLPE 2532	.700	.750	1.250	8.000	.400	.150	SF47	MCL-40
MS-CLHOR-6856	95156856	MLPE 3425	.830	.750	1.500	8.000	.462	.150	SA4	MCR-50
MS-CLHOL-6856	95256856	MLPE 3425	.830	.750	1.500	8.000	.462	.150	SA4	MCL-50
MS-CLHOR-8856	95158856	MLPE 3425	.830	1.000	1.500	8.000	.462	.150	SA4	MCR-50
MS-CLHOL-8856	95258856	MLPE 3425	.830	1.000	1.500	8.000	.462	.150	SA4	MCL-50

INTERCHANGEABLE HEADS

H-CDHOR/L*



RH SHOWN

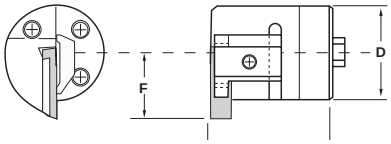
Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	d	C	F	Min. Bore	Clamp	Clamp Screw
H16-CDHOR-8	9IH6801682	V84/V85	1.000	1.625	0.925	1.525	CBL-84	S-526
H20-CDHOR-8	9IH6802082	V84/V85	1.250	1.625	0.875	1.600	CBL-84	S-526
H24-CDHOR-8	9IH6802482	V84/V85	1.500	1.625	1.000	1.850	CBL-84	S-526
H32-CDHOR-8	9IH6803282	V84/V85	2.000	1.625	1.285	2.385	CBL-84	S-526
H40-CDHOR-8	9IH6804082	V84/V85	2.500	1.625	1.500	2.850	CBL-84	S-526
H32-CDHOR-9	9IH6803286	V96/V98	2.000	1.625	1.410	2.510	CBL-98	SS110
H40-CDHOR-9	9IH6804086	V96/V98	2.500	1.625	1.584	2.935	CBL-98	SS110
H40-CDHOR-12	9IH6804092	V120	2.500	1.625	1.820	3.170	CBL-120	SB100

*Left hand quoted on request.

HS-CDHOR/L*



RH SHOWN

Most holders available with coolant port
(ie: Add CP to end of description)

PARTS

Description	EDP Code	Insert	d	C	F	Min. Bore	Clamp	Clamp Screw
HS25-CDHOR-8	9IHS68025M82	V84/V85	0.984	1.355	0.925	1.517	CBL-84	S-526
HS32-CDHOR-8	9IHS68032M82	V84/V85	1.260	1.625	0.875	1.600	CBL-84	S-526
HS40-CDHOR-8	9IHS68040M82	V84/V85	1.575	1.625	1.084	1.971	CBL-84	S-526
HS50-CDHOR-8	9IHS68050M82	V84/V85	1.970	1.625	1.281	2.366	CBL-84	S-526
HS60-CDHOR-8	9IHS68060M82	V84/V85	2.360	1.625	1.476	2.756	CBL-84	S-526
HS50-CDHOR-9	9IHS68050M86	V96/V98	1.970	1.625	1.362	2.447	CBL-98	SS110
HS60-CDHOR-9	9IHS68060M86	V96/V98	2.360	1.625	1.558	2.838	CBL-98	SS110
HS60-CDHOR-12	9IHS68060M92	V120	2.360	1.625	1.750	3.030	CBL-120	SB100

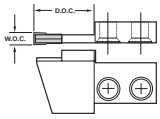
*Left hand quoted on request.

TOOL-FLO

SPARE PARTS

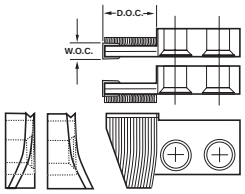
ANVILS

Deep Grooving



Description	D.O.C.	W.O.C.	Insert
DGAHL-113	1.250	.105-.125	VDG
DGAHR-113	1.250	.105-.125	VDG
DGAHL-138	1.375	.170-.188	VDG
DGAHR-138	1.375	.170-.188	VDG
DGAHL-248	1.500	.218-.250	VDG
DGAHR-248	1.500	.218-.250	VDG
DGAHL-258	1.500	.250-.312	VDG
DGAHR-258	1.500	.250-.312	VDG
DGAHL-268	1.750	.350-.375	VDG
DGAHR-268	1.750	.350-.375	VDG

Face Grooving



RH Inside RH Outside

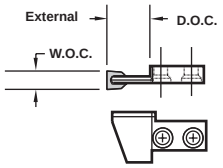
Description	D.O.C.	W.O.C.	Insert
AFHL-113-I	.312	.105-.125	DBP/VDB
AFHL-113-O	.312	.105-.125	DBP/VDB
AFHR-113-I	.312	.105-.125	DBP/VDB
AFHR-113-O	.312	.105-.125	DBP/VDB
AFHL-128-I	.812	.105-.125	DBP/VDB
AFHL-128-O	.812	.105-.125	DBP/VDB
AFHR-128-I	.812	.105-.125	DBP/VDB
AFHR-128-O	.812	.105-.125	DBP/VDB
AFHL-138-I	.812	.170-.188	DBP/VDB
AFHL-138-O	.812	.170-.188	DBP/VDB
AFHR-138-I	.812	.170-.188	DBP/VDB
AFHR-138-O	.812	.170-.188	DBP/VDB
AFHL-148-I	.812	.220-.250	DBP/VDB
AFHL-148-O	.812	.220-.250	DBP/VDB
AFHR-148-I	.812	.220-.250	DBP/VDB
AFHR-148-O	.812	.220-.250	DBP/VDB
AFHL-248-I	.812	.250-.312	DBP/VDB
AFHL-248-O	.812	.250-.312	DBP/VDB
AFHR-248-I	.812	.250-.312	DBP/VDB
AFHR-248-O	.812	.250-.312	DBP/VDB
AFHL-268-I	.812	.350-.375	DBP/VDB
AFHL-268-O	.812	.350-.375	DBP/VDB
AFHR-268-I	.812	.350-.375	DBP/VDB
AFHR-268-O	.812	.350-.375	DBP/VDB

Grooving/Threading

Internal

RH Shown

Description	D.O.C.	W.O.C.	Insert
ABL-113	.312	.105-.125	DBP/VDB
ABR-113	.312	.105-.125	DBP/VDB
ABL-131	.180	.188-.250	V84
ABR-131	.180	.188-.250	V84
ABL-135	.530	.170-.188	DBP/VDB
ABR-135	.530	.170-.188	DBP/VDB
ABL-143	.312	.295-.312	V85
ABR-143	.312	.295-.312	V85
ABL-145	.530	.220-.250	VDB 250A
ABR-145	.530	.220-.250	VDB 250A
ABL-171	.180	60Þ V	V84
ABR-171	.180	60Þ V	V84
ABL-245	.530	.220-.250	DBP/VDB
ABR-245	.530	.220-.250	DBP/VDB
ABL-345	.530	.220-.250	VDB250A
ABR-345	.530	.220-.250	VDB250A

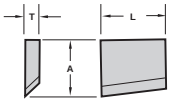


RH Shown

Description	D.O.C.	W.O.C.	Insert
AHL-113	.312	.105-.125	VDB
AHR-113	.312	.105-.125	VDB
AHL-138	.812	.170-.188	VDB
AHR-138	.812	.170-.188	VDB
AHL-148	.812	.220-.250	VDB
AHR-148	.812	.220-.250	VDB
AHL-173	.812	V-THD	V84/V85
AHR-173	.812	V-THD	V84/V85
AHL-248	.812	.250-.312	VDB250B
AHR-248	.812	.250-.312	VDB250B
AHL-268	.812	.350-.375	VDB375
AHR-268	.812	.350-.375	VDB375
AVR-FC094	.500	.094	FC-094
AVR-FC125	.800	.125	FC-125
AVR-FC187	.800	.187	FC-187
AVL-FC094	.500	.094	FC-094
AVL-FC125	.800	.125	FC-125
AVL-FC187	.800	.187	FC-187

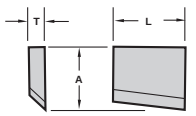
CHIPBREAKERS

External



Description	Insert
CR 5B75-4E CB TF2993	CR-5B75-4E
CR 8R-4E CB TF3083E	CR-8RD-4E
CR 8R-3E CB 1353E	CR-8RD-3E
#3 CB w/o Coolant TF26424	CR-8R/10R-3E

Internal

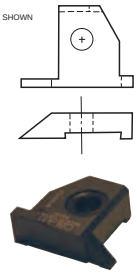


Description	Insert
CR 5B75-4I CB TF16104	CR-5B75-4I
CR-8R-7I CB TF3435	CR-8RD-7I
CR 8R-4I CB TF3083I	CR-8RD-4I
CR 8R-3I CB 1353I	CR-8RD-3I
TD4601 5B75-1 CB	CR-5B75-3E
TD4602 5B75-2 CB	CR-5B75-3E
TD4603 5B75-3 CB	CR-5B75-3E
TD3931 8RD-1 CB	CR-8R-3E
TD3932 8RD-2 CB	CR-8R-3E
TD3933 8RD-3 CB	CR-8R-3E
TA2237 10RD-1 CB	CR-10R-3E
TA2238 10RD-2 CB	CR-10R-3E
TA2239 10RD-3 CB	CR-10R-3E
#3 CB w/Coolant Grooves	CR-8R/10R-3E

CLAMPS

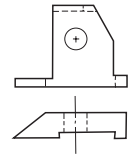
Internal

RH SHOWN



Description	D.O.C.	W.O.C.	Insert
CBL-84			V84/V85
CBR-84			V84/V85
CBL-98			V98
CBR-98			V98
CBL-120			V120
CBR-120			V120
CBL-132	.312	.105-.125	DBP/VDB
CBR-132	.312	.105-.125	DBP/VDB
CBL-411	.180	.188-.250	V84
CBR-411	.180	.188-.250	V84
CBL-452	.530	.220-.250	DBP/VDB
CBR-452	.530	.220-.250	DBP/VDB
CBL-531	.312	.295-.312	V85
CBL-531	.312	.295-.312	V85

External

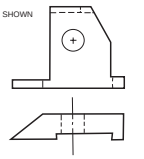


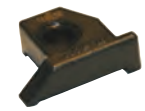
RH SHOWN

Description	D.O.C.	W.O.C.	Insert
CHL-98			V98
CHR-98			V98
CHL-120			V120
CHR-120			V120
CHL-132	.312	.105-.125	DBP/VDB
CHR-132	.312	.105-.125	DBP/VDB
CHL-382	.812	.170-.188	DBP/VDB
CHR-382	.812	.170-.188	DBP/VDB
CHL-431	.312	.220-.312	V84/V85
CHR-431	.312	.220-.312	V84/V85
CHL-452			
CHR-452			
CHL-482	.812	.220-.312	DBP/VDB
CHR-482	.812	.220-.312	DBP/VDB
CHL-582	.812	.350-.375	DBP/VDB
CHR-582	.812	.350-.375	DBP/VDB
CHL-698			
CHR-698			
CHR-FCI094	.531	.094	FC-094
CHR-FCI125	.531	.125	FC-125
CHL-FCS094	.812	.094	FC-094
CHL-FCS125	.812	.125	FC-125
CHR-FCS094	.812	.094	FC-094
CHR-FCS125	.812	.125	FC-125

Face Grooving

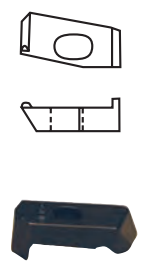
RH SHOWN





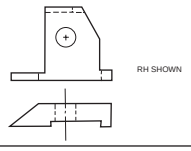
Description	D.O.C.	W.O.C.	Insert
CHLF-132I	.312	.105-.125	DBP/VDB
CHLF-132O	.312	.105-.125	DBP/VDB
CHRF-132I	.312	.105-.125	DBP/VDB
CHRF-132O	.312	.105-.125	DBP/VDB]
CHLF-282I	.812	.105-.125	DBP/VDB
CHLF-282O	.812	.105-.125	DBP/VDB
CHRF-282I	.812	.105-.125	DBP/VDB
CHRF-282O	.812	.105-.125	DBP/VDB
CHLF-382I	.812	.170-.188	DBP/VDB
CHLF-382O	.812	.170-.188	DBP/VDB
CHRF-382I	.812	.170-.188	DBP/VDB
CHRF-382O	.812	.170-.188	DBP/VDB
CHLF-482I	.812	.220-.312	DBP/VDB
CHLF-482O	.812	.220-.312	DBP/VDB
CHRF-482I	.812	.220-.312	DBP/VDB
CHRF-482O	.812	.220-.312	DBP/VDB
CHLF-582I	.812	.350-.375	DBP/VDB
CHLF-582O	.812	.350-.375	DBP/VDB
CHRF-582I	.812	.350-.375	DBP/VDB
CHRF-582O	.812	.350-.375	DBP/VDB

Description	Length
CK-21	.73
CL-6	.58
CL-7	.64
CL-9	.75
CL-12	.88
CL-20	.73
CL-22	.85
CL-24	1.000
CL-30	1.000

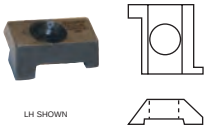


Description	Insert
CM-65	FLPL/R-33
CM-66	FLPL/R-33
CM-68	FLPR-5
CM-71	FLPL-5
CM-79	FLPR-5
CM-81	FL_-5L
CM-111	FLPR-5
CM-112	FLPL-5
CM-113	VPGR (RH HOLDER)
CM-114	VPGR (LH HOLDER)
CM-116	DPGR (RH HOLDER)
CM-117	DPGR (LH HOLDER)
CM-118	DPGR (RH BAR)
CM-119	DPGR (LH BAR)
CM-121	Replaced with TF-121
CM-143	
CM-180	FLPR-5
CM-181	FLPL-5

CLAMPS (cont.)

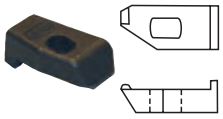


Description	D.O.C.	W.O.C.	Insert
DGCHL-132	1.250	.105-.125	VDG
DGCHR-132	1.250	.105-.125	VDG
DGCHL-382	1.375	.170-.188	VDG
DGCHR-382	1.375	.170-.188	VDG
DGCHL-482	1.500	.218-.250	VDG
DGCHR-482	1.500	.218-.250	VDG
DGCHL-500	1.500	.250-.312	VDG
DGCHR-500	1.500	.250-.312	VDG
DGCHL-582	1.750	.350-.375	VDG
DGCHR-582	1.750	.350-.375	VDG



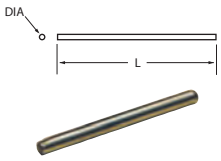
Description	Insert
MCL-30	MLPE-1251
MCR-30	MLPE-1251
MCL-40	MLPE-2532
MCR-40	MLPE-2532
MCL-50	MLPE-3425
MCR-50	MLPE-3425

Description	Length
TC-190	.530
TC-191	.640
TC-250	.730
TC-251	.850
TC-310	.750
TC-311	.880
TC-380	1.000



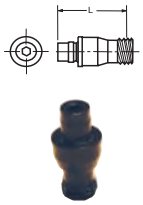
Description	Insert
TF-72	FL-3R/4R
TF-73	FL-3L/4L
TF-74	FL-2R
TF-75	FL-2L
TF-77*	FL-4L*
TF-78*	FL-4R*
TF-80	FL-5R
TF-81	FL-5L
TF-120	FL-6R
TF-121	FL-6L

DOWEL PINS



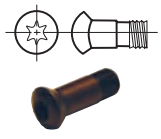
Description	DIA	L
DP-1	1/8	1
DP-2	1/8	1-1/2
DP-3	1/4	3/8
DP-4	3/16	3/8
DP-5	3/32	3/16
DP-6	1/4	1
DP-7	4,0	10,0
DP-8	4,0	8,0
DP-9	1/4	1/2
DP-10	1/4	3/4
DP-11	3/16	5/8
DP-135	1/8	1-3/8

LOCK PINS



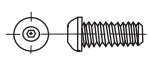
Description	Threads	Length	Wrench
NL-33	1/4-20	.340	5-64 HEX
NL-33L	1/4-20	.410	5-64 HEX
NL-34	1/4-20	.450	5-64 HEX
NL-34L	1/4-20	.510	5-64 HEX
NL-44	1/4-28	.510	3/32 HEX
NL-46	1/4-28	.680	3/32 HEX
NL-46L	1/4-28	.730	3/32 HEX
NL-56	5/16-24	.690	1/8 HEX
NL-57	5/16-24	.810	1/8 HEX
NL-58	5/16-24	.860	1/8 HEX
NL-66	3/8-24	.690	9/64 HEX
NL-66L	3/8-24	.830	9/64 HEX
NL-68	3/8-24	.860	9/64 HEX
NL-68L	3/8-24	.950	9/64 HEX
NL-810	7/16-20	1.170	5/32 HEX

SCREWS
Ballnose (Rigid-Lock)



Description	Wrench
STBN-1A	K2
STBN-2	K3
STBN-3	K3
STBN-4	K3
STBN-5	K3
STBN-6	K4
STBN-7	K5
STBN-8	K6
STBN-9	K7
STBN-10	K8

Button Head



SB10	4-40	1/4	1/16 HEX
SB90	5/16-18	3/4	3/16 HEX
SB100	5/16-18	1	3/16 HEX
S-518	8-32	3/8	3/32 HEX
S-524	10-24	1/2	1/8 HEX
S-532	1/4-20	3/4	5/32 HEX
S-625	1/4-28	7/8	5/32 HEX

Clamp Screw

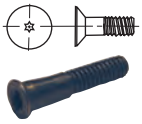
STC-4	5-16-24	1.160	5/32HEX
STC-5	10-32	.840	3/32 HEX
STC-8	5/16-24	1.000	5/32HEX
STC-9	10-32	.590	3/32 HEX
STC-11	1/4-28	.810	1/8HEX

*Designed for Sandvik® Toolholders & Bars.

Flat Head Cap Screw

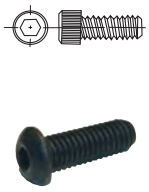
Description	Threads	Length	Wrench
S-111 (SF-20)	4-40	3/8	T-9 TORX
SA3	5-40	1/2	T-10 TORX
SA4	8-32	5/8	T-20 TORX
SA5	10-32	5/8	T-25 TORX
SF10	4-40	1/4	T-9 TORX
SF20 (S-111)	4-40	3/8	T-10 TORX
SF25	4-40	1/2	T-9 TORX
SF30	5-40	3/8	T-10 TORX
SF40	5-40	1/2	T-10 TORX
SF42	5-40	5/8	T-10 TORX
SF45	5-40	3/4	T-9 TORX
SF50	8-32	3/8	T-20 TORX
SF60	8-32	1/2	T-20 TORX
SF65	10-32	1/2	T-25 TORX
SF70	10-24	3/8	T-25 TORX
SF80	10-24	1/2	T-25 TORX
SF85	10-24	5/8	T-25 TORX
SF87	10-24	3/4	T-25 TORX
SF90	5/16-18	1	T-40 TORX
SF95	1/4-20	3/4	T-30 TORX
SF100	1/4-20	1	T-30 TORX
SN-2			
PT-324	5-40	3/8	1/16 HEX

SCREWS (cont.)
SD Torx Flat Head



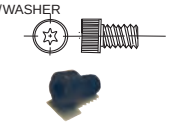
SD1	6-40	1/2	T-10 TORX
SD2	10-32	3/4	T-20 TORX
SD3	10-32	3/4	T-20 TORX
SD4	1/4-20	1-1/4	1/8 HEX
SD-25			

Socket Head Cap Screw



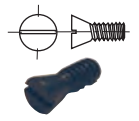
S-310	6-32	1/2	7/64 HEX
S-312	6-32	3/4	7/64 HEX
S-352 (SS90)	5/16-18	1	1/4 HEX
S-412	10-32	3/4	5/32 HEX
S-532			
SS10	4-40	1/4	3/32 HEX
SS20	4-40	3/8	3/32 HEX
SS25	5-40	1/4	3/32HEX
SS30	5-40	3/8	3/32HEX
SS40	5-40	1/2	3/32HEX
SS45	5-40	3/4	3/32HEX
SS50	8-32	3/8	9/64 HEX
SS60	8-32	1/2	9/64 HEX
SS65	8-32	5/8	9/64 HEX
SS70	10-24	3/8	5/32 HEX
SS80	10-24	1/2	5/32 HEX
SS-84M			
SS85	10-24	5/8	5/32 HEX
SS87	10-24	7/8	5/32 HEX
SS90 (S-352)	5/16-18	1	1/4 HEX
SS-91			
SS100	1/4-20	3/4	5/32 HEX

Socket Head Torx Screw
W/WASHER



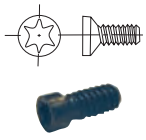
SY-3	5-40	1/4	T-10 TORX
SY-4	8-32	3/8	T-20 TORX
SY-5	M5 x 0.8	1/4	T-25 TORX

Special Flat Head Screw



SL-111			
SL-344	4-40	5/16	-
S-959	2-56	1/4	-

TS Torx Head Screw



TS1	1-72	3/32	T-6 TORX
TS20	1-72	3/32	T-6 TORX
TS25	M2.5x 0,45	5.5MM	T-8 TORX
TS250	M2.5x 0,45	4,8MM	T-8 TORX
TS252 (SF05)	M2.5x 0,45	8,0MM	T-8 TORX
TS3	2-56	1/8	T-7 TORX
TS40	5-40	3/8	T-10 TORX
TS45	4-40	5/16	T-9 TORX
TS6	4-40	13/64	T-10 TORX
TS60	8-32	1/2	T-20 TORX
TS65	10-32	1/2	T-20 TORX

SEATS
Chaser Style

Description	Insert
TF1207	CR-8R-3E/4E
TF1780	CR-8R-3I/4I
TF3218	CR-8R-7I
TF8132-E	CR-5B75-4E
TF8132-I	CR-5B75-4I

SEATS (cont.)

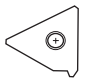
Flo-Lock Style

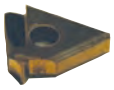
Description	Length
SM-267	FLPL-33
SM-268	FLPR-33
SM-271	FLPL-13
SM-272	FLPR-13
SM-285	FLPR-5
SM-286	FLPL-5
SM-412	VPGR
SM-414	DPGR
SM-416	FL-6
SM-420	FL-4

Laydown L Style

LS 43 NO FORM EXT	L43 EXT
LS 43 NO FORM INT	L43 INT
LS 53 NO FORM EXT	L53 EXT
LS 53 NO FORM INT	L53 INT
LS 43 API EXT	L43 API EXT
LS 43 API INT	L43 API INT
LS 53 API EXT	L53 API EXT
LS 53 API INT	L53 API INT

Laydown LT Style

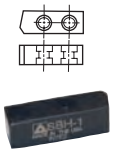




Description	Angle*	Insert
YE3 3N	-1.5°	16ER/16NL
YE3 2N	-0.5°	16ER/16NL
YE3 1.5N	0°	16ER/16NL
YE3 1N	0.5°	16ER/16NL
YE3	1.5°	16ER/16NL
YE3 1P	2.5°	16ER/16NL
YE3 2P	3.5°	16ER/16NL
YE3 3P	4.5°	16ER/16NL
YE3M NO FORM	1.5°	16ER/16NL
YE3M 1N	0.5°	16ER/16NL
YE3M 1.5N	0°	16ER/16NL
YE3M 2N	-0.5°	16ER/16NL
YE4 3N	-1.5°	22ER/22NL
YE4 2N	-0.5°	22ER/22NL
YE4 1.5N	0°	22ER/22NL
YE4 1N	0.5°	22ER/22NL
YE4	1.5°	22ER/22NL
YE4 1P	2.5°	22ER/22NL
YE4 2P	3.5°	22ER/22NL
YE4 3P	4.5°	22ER/22NL
YE4M NO FORM	1.5°	22ER/22NL
YE4M 1N	0.5°	22ER/22NL
YE4M 1.5N	0°	22ER/22NL
YE4M 2N	-0.5°	22ER/22NL
YE5 3N	-1.5°	27ER/27NL
YE5 2N	-0.5°	27ER/27NL
YE5 1.5N	0°	27ER/27NL
YE5 1N	0.5°	27ER/27NL
YE5	1.5°	27ER/27NL
YE5 1P	2.5°	27ER/27NL
YE5 2P	3.5°	27ER/27NL
YE5 3P	4.5°	27ER/27NL
YE5 8NPT 2M	1.5°	27ER/NL 8NPT 2M
YE5 8RD 2M	1.5°	27ER/NL 8RD 2M
YE5M NO FORM	1.5°	27ER/27NL
YE5M 1N	0.5°	27ER/27NL
YE5M 1.5N	0°	27ER/27NL
YI3 3N	-1.5°	16NR/16EL
YI3 2N	-0.5°	16NR/16EL
YI3 1.5N	0°	16NR/16EL
YI3 1N	0.5°	16NR/16EL
YI3	1.5°	16NR/16EL
YI3 1P	2.5°	16NR/16EL
YI3 2P	3.5°	16NR/16EL
YI3 3P	4.5°	16NR/16EL
YI3M NO FORM	1.5°	16NR/16EL
YI3M 1N	0.5°	16NR/16EL
YI3M 1.5N	0°	16NR/16EL
YI3M 2N	-0.5°	16NR/16EL
YI4 3N	-1.5°	22NR/22EL
YI4 2N	-0.5°	22NR/22EL
YI4 1.5N	0°	22NR/22EL
YI4 1N	0.5°	22NR/22EL
YI4	1.5°	22NR/22EL
YI4 1P	2.5°	22NR/22EL
YI4 2P	3.5°	22NR/22EL
YI4 3P	4.5°	22NR/22EL
YI4M NO FORM	1.5°	22NR/22EL
YI4M 1N	0.5°	22NR/22EL
YI4M 1.5N	0°	22NR/22EL
YI4M 2N	-0.5°	22NR/22EL
YI5 3N	-1.5°	27NR/27EL
YI5 2N	-0.5°	27NR/27EL
YI5 1.5N	0°	27NR/27EL
YI5 1N	0.5°	27NR/27EL
YI5	1.5°	27NR/27EL
YI5 1P	2.5°	27NR/27EL
YI5 2P	3.5°	27NR/27EL
YI5 3P	4.5°	27NR/27EL
YI5 8NPT 2M	1.5°	27NR/EL 8NPT 2M
YI5 8RD 2M	1.5°	27NR/EL 8RD 2M
YI5M NO FORM	1.5°	27NR/27EL
YI5M 1N	0.5°	27NR/27EL
YI5M 1.5N	0°	27NR/27EL

*Angle effective in the holder/bar.

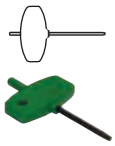
STOP BLOCKS



Description
SBH-1
SBH-2
SBH-4

WRENCHES

Flag Style Torx



Description	Wrench
K05	T-6 TORX
K1	T-7 TORX
K2	T-8 TORX
K3	T-10 TORX
K4	T-20 TORX
K5	T-25TORX

L-Style Torx

K05L	T-6 TORX
K2L	T-8 TORX
K3L	T-10 TORX
K35L	T-15TORX
K4L	T-20 TORX
K5L	T-25TORX

Infeed Values for Threading Operations

External UN Threads --- Recommendations for Steel Workpieces (<300BHN)

TPI	4	5	6	7	8*	9	10	11	12	13	14	16	18	20	24	28	32	36	40	44	48
THREAD DEPTH	.1578	.1262	.1052	.0902	.0789	.0701	.0631	.0574	.0526	.0485	.0451	.0394	.0350	.0315	.0263	.0225	.0197	.0175	.0157	.0143	.0131
# OF PASSES																					
1	.0353	.0298	.0248	.0213	.0197	.0175	.0169	.0157	.0152	.0142	.0136	.0125	.0124	.0119	.0118	.0112	.0098	.0087	.0078	.0073	.0065
2	.0146	.0122	.0105	.0088	.0082	.0073	.0070	.0066	.0064	.0057	.0059	.0054	.0053	.0049	.0048	.0046	.0042	.0036	.0032	.0028	.0027
3	.0113	.0094	.0078	.0077	.0063	.0056	.0053	.0048	.0048	.0044	.0043	.0039	.0039	.0039	.0039	.0036	.0031	.0028	.0028	.0022	.0020
4	.0095	.0079	.0067	.0059	.0053	.0047	.0045	.0041	.0042	.0037	.0036	.0034	.0033	.0032	.0031	.0031	.0026	.0024	.0020	.0020	.0019
5	.0084	.0070	.0058	.0050	.0047	.0042	.0039	.0036	.0036	.0033	.0032	.0029	.0029	.0028	.0027						
6	.0076	.0063	.0052	.0045	.0043	.0037	.0036	.0031	.0032	.0030	.0029	.0026	.0026	.0025							
7	.0070	.0058	.0048	.0041	.0039	.0034	.0031	.0028	.0029	.0027	.0026	.0024	.0024	.0023							
8	.0065	.0054	.0045	.0038	.0036	.0032	.0030	.0026	.0027	.0025	.0024	.0022	.0022								
9	.0061	.0051	.0042	.0036	.0034	.0030	.0029	.0025	.0026	.0024	.0023	.0021									
10	.0057	.0048	.0040	.0034	.0032	.0028	.0028	.0024	.0025	.0023	.0022	.0020									
11	.0054	.0045	.0038	.0032	.0031	.0027	.0027	.0023	.0023	.0022	.0021										
12	.0052	.0043	.0036	.0031	.0029	.0026	.0026	.0022	.0022	.0021											
13	.0049	.0042	.0035	.0030	.0027	.0025	.0025	.0021													
14	.0048	.0041	.0034	.0029	.0026	.0024	.0024	.0020													
15	.0046	.0040	.0033	.0028	.0025	.0023															
16	.0044	.0039	.0032	.0027	.0025	.0022															
17	.0043	.0038	.0031	.0026																	
18	.0042	.0037	.0030	.0025																	
19	.0041																				
20	.0039																				

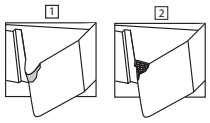
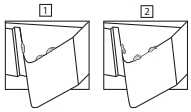
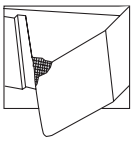
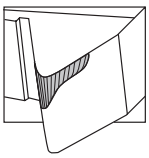
Infeed Values for Threading Operations

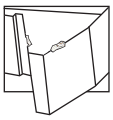
Internal UN Threads --- Recommendations for Steel Workpieces (<300BHN)

TPI	4	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32	36	40	44	48
THREAD DEPTH	.1353	.1082	.0902	.0773	.0676	.0601	.0541	.0492	.0451	.0416	.0386	.0338	.0300	.0270	.0225	.0193	.0169	.0150	..0135	.0123	.0112
# OF PASSES																					
1	.0303	.0255	.0213	.0183	.0169	.0150	.0145	.0132	.0131	.0120	.0117	.0107	.0106	.0102	.0101	.0096	.0084	.0075	.0067	.0061	.0056
2	.0125	.0105	.0090	.0076	.0073	.0062	.0064	.0055	.0054	.0050	.0048	.0043	.0044	.0042	.0042	.0039	.0035	.0031	.0029	.0025	.0023
3	.0096	.0083	.0069	.0058	.0053	.0047	.0046	.0044	.0041	.0038	.0037	.0034	.0033	.0032	.0032	.0033	.0027	.0023	.0021	.0019	.0017
4	.0081	.0068	.0057	.0049	.0047	.0040	.0038	.0035	.0035	.0032	.0031	.0028	.0028	.0027	.0027	.0025	.0023	.0021	.0018	.0018	.0011
5	.0071	.0060	.0050	.0043	.0041	.0035	.0034	.0031	.0031	.0028	.0027	.0025	.0025	.0024	.0023						
6	.0064	.0054	.0045	.0039	.0036	.0032	.0031	.0028	.0028	.0025	.0025	.0029	.0023	.0022							
7	.0059	.0050	.0041	.0036	.0033	.0029	.0028	.0026	.0026	.0023	.0023	.0021	.0021	.0021							
8	.055	.0046	.0038	.0033	.0030	.0027	.0026	.0024	.0024	.0022	.0021	.0020	.0029								
9	.0052	.0043	.0036	.0031	.0028	.0025	.0024	.0022	.0022	.0021	.0020	.0019									
10	.0049	.0041	.0034	.0029	.0027	.0024	.0023	.0021	.0021	.0020	.0019	.0018									
11	.0046	.0039	.0032	.0028	.0026	.0023	.0022	.0020	.0020	.0019	.0018										
12	.0044	.0037	.0031	.0027	.0025	.0022	.0021	.0019	.0019	.0018											
13	.0042	.0036	.0030	.0026	.0024	.0021	.0020	.0018													
14	.0041	.0035	.0029	.0025	.0023	.0020	.0019	.0017													
15	.0040	.0034	.0028	.0024	.0022	.0019															
16	.0039	.0033	.0027	.0023	.0021	.0019															
17	.0038	.0032	.0026	.0022																	
18	.0037	.0031	.0025	.0021																	
19	.0036																				
20	.0035																				

Trouble Shooting & Optimizing Tool Life/ Threading Economy

Modern PVD grades and insert geometries have done much to improve the productivity and reliability of thread turning. They have also helped to eliminate or minimize problems in threading. The following chart lists problems, in order of severity, which may still occur in modern threading.

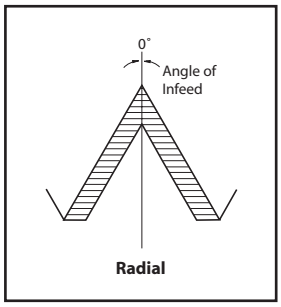
Problem	Cause	Solution
Plastic Deformation  Starts as plastic deformation (1) which leads to plastic break (2)	Excessive temperature in the cutting area Unsuitable grade Inadequate coolant supply	Reduce cutting speed Increase number of infeeds Reduce the largest infeed depth Check diameter before threading Improve coolant supply Choose grade with better resistance to plastic deformation
Built-up Edge/ Edge Spalling  Built-up edge (1) and edge spalling (2) often occur in combination. Built-up edge accumulates and is then ripped away taking insert material with it	Cutting edge temperature too low Stainless material; CMC codes 05.2, 05.51, and 05.52 Low carbon steel Unsuitable grade	Increase cutting speed Choose an insert with good toughness, preferably PVD coated
Insert Breakage 	Wrong Diameter prior to threading operation Infeed series too tough Unsuitable grade Poor chip control Center height incorrect	Turn to correct diameter beforethreading--0.0012-0.0028 radially larger than maximum diameter for thread Increase number of infeeds Reduce size of the large infeeds Choose a tougher grade Change to “CB” geometry and use modified flank infeed Correct center height
Rapid Flank Wear 	Highly abrasive material Cutting speed too high Infeed depths too shallow Insert is above centerline	Choose a more wear resistant grade Reduce cutting speed Reduce number of infeeds Correct center height
Abnormal Flank Wear Poor Finish on One Flank of Thread	Incorrect method for flank infeed Insert’s inclination angle does not agree with thread’s lead angle	Change method of infeed Change shim to obtain correct angle of inclination
Vibration	Incorrect clamping work piece Incorrect set-up of the tool Incorrect cutting data Incorrect center height	Use softer jaws Minimize overhang of tool Check that the clamping sleeve for bars is not worn Increase cutting speed; if this does not help lower speed dramatically Use constant infeed series Try “CB” or “HCB” geometry Adjust the center height Use heavy metal, solid carbide or carbide cored bar.
Poor Surface Quality on Thread	Cutting speed too low The insert is above center Uncontrolled chips	Increase cutting speed Adjust center height Use “CB” or “HCB” geometry and modified flank infeed

Problem	Cause	Solution
Poor Chip Control	Incorrect method of infeed Wrong geometry	Modified Flank infeed 3Þ-5Þ “CB” or “HCB” geometry with modified flank infeed 1Þ
Shallow Profile	Wrong center height Insert breakage Excessive wear	Adjust the center height Change cutting edge
Incorrect Thread Profile	Unsuitable thread profile angle of thread and nose radius; external inserts used for internal operation and vice versa Wrong center height Holder not 90Þ to center line Pitch error in machine	Correct tool / insert combination Adjust the center height Adjust to 90Þ Correct in machine
Excessive Edge Pressure 	Work hardening material in combination with infeed depths which are too shallow Excessive pressure on cutting edge Profile with too small thread profile angle	Reduce the number of infeeds Change to “CB” or “HCB” geometry Use a tougher grade Use incremental flank infeed

ACME TABLE

PITCH	REGULAR WIDTH	REGULAR DEPTH	STUB WIDTH	STUB DEPTH
16	.0206	.0362	.0238	.0238
14	.0239	.0407	.0276	.0264
12	.0283	.0467	.0326	.0300
10	.0319	.0600	.0370	.0400
9	.0360	.0656	.0417	.0433
8	.0411	.0725	.0476	.0475
7	.0478	.0814	.0551	.0529
6	.0566	.0933	.0652	.0600
5	.0689	.1100	.0793	.0700
4	.0875	.1350	.1004	.0850
3-1/2	.1007	.1529	.1155	.0957
3	.1184	.1767	.1356	.1100
2-1/2	.1431	.2100	.1638	.1300
2	.1802	.2600	.2060	.1600
1-1/2	.2419	.3433	.2764	.2100
1-1/3	.2728	.3850	.3116	.2350
1	.3655	.5100	.4172	.3100

Optional Infeed Angles for Threading Applications



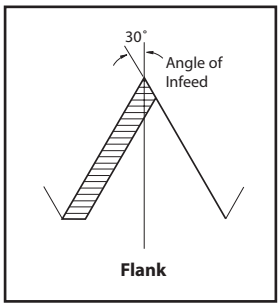
Advantage-
Cutting on both sides of the thread form places all of the cutting edge in the cut and protects edge from chipping.

Disadvantage-
Tool develops a channel chip which may be difficult to handle.

Tip chipping occurs when cutting high-tensile materials.

Burr condition is increased.

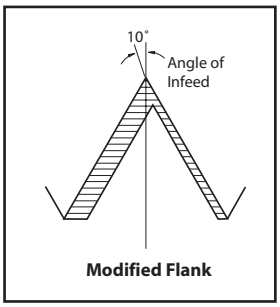
Entire cutting edge is engaged at finish of thread, causing increased tendency to chatter.



Advantage-
Cutting with the leading edge of the threading tool gives the chip a definate flow out of te thread form area. This reduces the burr problem on the trailing edge of the tool. To avoid bad surface finish, chipping, or excessive flank wear due to rubbing of the trailing edge, the infeed angle should be 3Þ to 5Þ smaller that the angle of the thread. This is a type of modified flank.

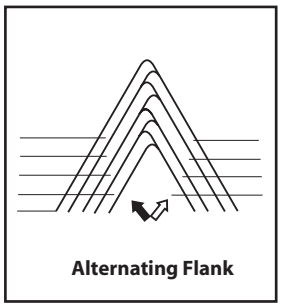
Disadvantage-
Trailing edge of threading insert may drag or rub, and tends to chip.

Torn or poor surface finish threads result when cutting soft, gummy materials such as low carbon steels, aluminum, and stainless steels.



Advantage-
Tool cuts both sides of tread form and, therefore, is protected from chipping similar to 0Þ infeed. Channel-type chip develops but uneven chip thickness helps remove the chip similar to flank infeed.

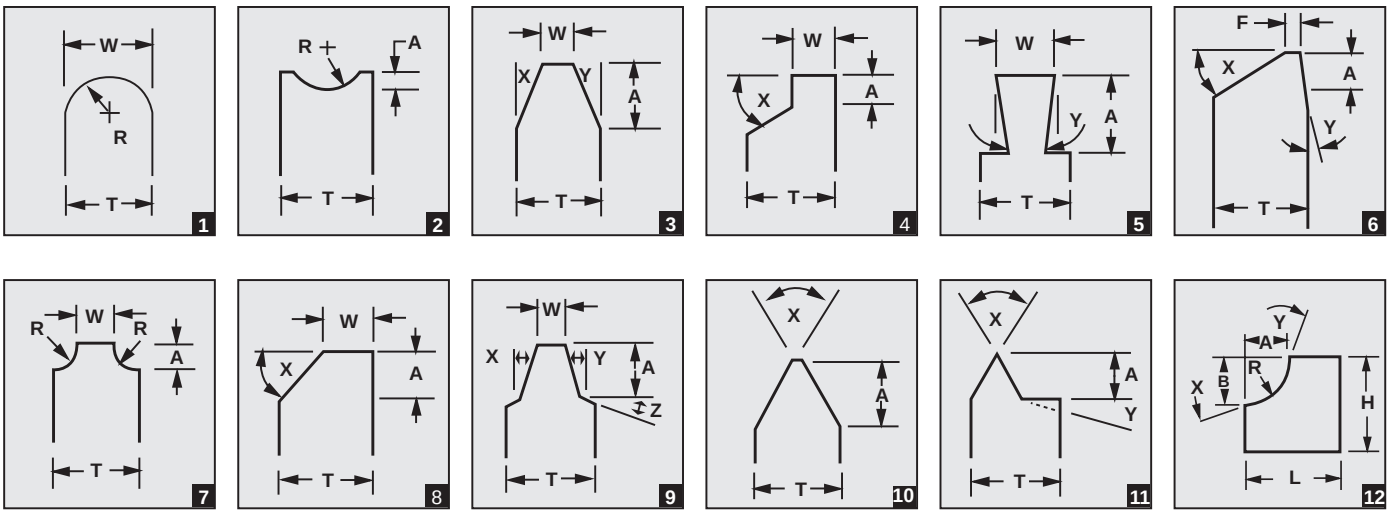
Disadvantage-
Similar disadvantages as with 0Þ infeed, although slightly reduced in magnitude as the cutting forces are better equalized and chip flow is much less of a problem.



Advantage-
Increased tool life because both edges are used equally.
NOTE: Some machine tools may require special programming techniques to achieve this method.

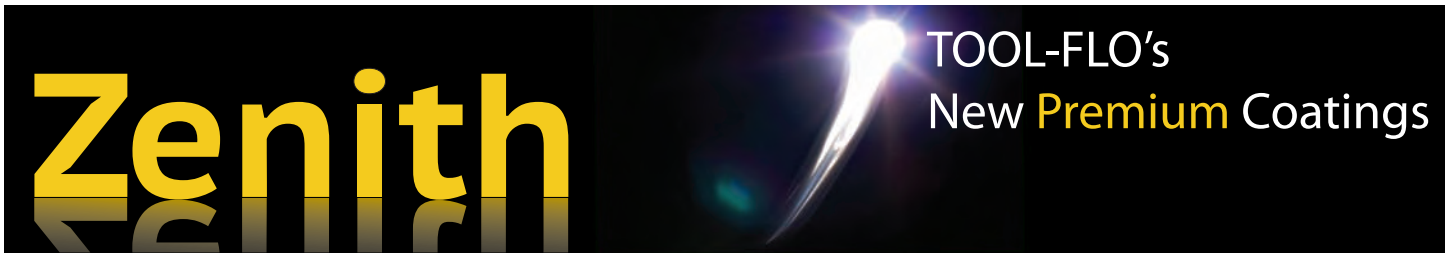
Disadvantage-
Difficult to cut on conventional machinery.

We welcome specials! Please call us with your specs.



Recommended SFM for Grooving Applications

	Free Machining Carbon Steels	Plain Carbon Steels	Alloy Steels 190-330 HB	Alloy Steels 330-450 HB	Martensitic/Ferritic Stainless Steel 400 Series	Austenitic Stainless 300 Series	Gray Cast Iron 190-330 HB	Gray Cast Iron 330-450 HB	Alloy / Ductile Irons	Free Machining Aluminum Alloys	High-Silicon Aluminum Alloys	Copper / Zinc / Brass	Non-Metallics	High Temperature Alloys 200-260 HB	High Temperature Alloys 260-450 HB	Titanium Alloys (Ti 6Al-4V)	Hardened Materials 48-65 HRC
C22	---	---	---	---	---	150-300	100-350	100-300	---	100-1500	---	100-500	100-1000	80-130	50-100	100-200	---
C25	----	---	---	---	---	200-350	100-375	100-350	---	200-1700	---	200-600	400-1200	80-130	50-100	100-200	---
C26S	---	---	---	---	---	---	---	---	---	1500-3K	---	400-800	400-1200	---	---	---	---
C3	---	---	---	---	---	200-400	100-375	100-350	---	200-2K	---	200-700	400-1400	80-130	50-100	100-200	---
G50	300-700	300-700	300-700	300-600	300-600	---	---	---	300-600	---	---	---	---	---	---	---	---
GP22	150-300	150-300	150-300	150-300	150-300	150-400	150-400	150-350	150-300	150-2K	---	150-700	500-1500	100-175	80-150	100-250	---
GP25	150-300	150-300	150-300	150-300	150-300	150-400	150-400	150-350	150-300	150-2K	---	150-700	500-1500	100-175	80-150	100-250	---
GP26	400-800	400-800	300-600	200-500	300-600	200-500	400-800	300-600	300-600	1200-3500	---	300-8K	300-1200	100-200	100-200	100-250	---
GP3	200-400	200-400	200-400	200-350	200-400	200-500	200-600	200-500	200-100	300-2K	---	200-900	300-1500	100-200	100-175	150-300	---
GP4	60-175	60-175	60-150	60-150	60-150	60-150	60-150	60-150	60-150	60-150	---	---	---	50-80	50-80	50-80	---
GP5	200-500	200-500	200-400	200-400	200-400	---	---	---	200-400	---	---	---	---	---	---	---	---
GP54	200-500	200-500	200-400	200-400	200-400	---	---	---	200-400	---	---	---	---	---	---	---	---
GP50	200-600	200-600	200-500	200-450	200-500	---	---	---	200-500	---	---	---	---	---	---	---	---
AC22	250-500	250-500	250-450	250-400	200-450	300-600	300-600	200-550	250-450	600-2200	---	300-900	350-1200	80-200	80-175	80-300	---
AC26	500-1K	500-1K	400-800	300-600	400-800	300-700	500-1000	400-800	400-800	1500-5K	---	400-1K	400-1500	100-200	100-200	200-300	---
AC3	250-450	250-450	250-400	250-400	250-450	250-700	300-700	300-600	200-450	600-2500	---	400-1K	400-1500	100-250	100-200	100-300	80-150
AC54	350-500	350-500	350-500	300-500	300-500	---	---	---	300-500	---	---	---	---	---	---	---	---
AC50	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
ZA22	250-500	250-500	250-450	250-400	200-450	300-600	300-600	200-550	250-450	600-2200	---	300-900	350-1200	80-200	80-175	80-300	---
ZA26	500-1K	500-1K	400-800	300-600	400-800	300-700	500-1000	400-800	400-800	1500-5K	---	400-1K	400-1500	100-200	100-200	200-300	---
ZA3	250-450	250-450	250-400	250-400	250-450	250-700	300-700	300-600	200-450	600-2500	---	400-1K	400-1500	100-250	100-200	100-300	80-150
ZA50	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
ZL22	250-500	250-500	250-450	250-400	200-450	300-600	300-600	200-550	250-450	600-2200	---	300-900	350-1200	80-200	80-175	80-300	---
ZL26	500-1K	500-1K	400-800	300-600	400-800	300-700	500-1000	400-800	400-800	1500-5K	---	400-1K	400-1500	100-200	100-200	200-300	---
ZL3	250-450	250-450	250-400	250-400	250-450	250-700	300-700	300-600	200-450	600-2500	---	400-1K	400-1500	100-250	100-200	100-300	80-150
ZR22	250-500	250-500	250-450	250-400	200-450	300-600	300-600	200-550	250-450	600-2200	---	300-900	350-1200	80-200	80-175	80-300	---
ZR26	500-1K	500-1K	400-800	300-600	400-800	300-700	500-1000	400-800	400-800	1500-5K	---	400-1K	400-1500	100-200	100-200	200-300	---
ZR3	250-450	250-450	250-400	250-400	250-450	250-700	300-700	300-600	200-450	600-2500	---	400-1K	400-1500	100-250	100-200	100-300	80-150
ZR50	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
ZS22	250-500	250-500	250-450	250-400	200-450	300-600	300-600	200-550	250-450	600-2200	---	300-900	350-1200	80-200	80-175	80-300	---
ZS26	500-1K	500-1K	400-800	300-600	400-800	300-700	500-1000	400-800	400-800	1500-5K	---	400-1K	400-1500	100-200	100-200	200-300	---
ZS3	250-450	250-450	250-400	250-400	250-450	250-700	300-700	300-600	200-450	600-2500	---	400-1K	400-1500	100-250	100-200	100-300	80-150
ZS50	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
ZU22	250-500	250-500	250-450	250-400	200-450	300-600	300-600	200-550	250-450	600-2200	---	300-900	350-1200	80-200	80-175	80-300	---
ZU26	500-1K	500-1K	400-800	300-600	400-800	300-700	500-1000	400-800	400-800	1500-5K	---	400-1K	400-1500	100-200	100-200	200-300	---
ZU3	250-450	250-450	250-400	250-400	250-450	250-700	300-700	300-600	200-450	600-2500	---	400-1K	400-1500	100-250	100-200	100-300	80-150
ZU50	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
GPM6	600-1500	600-1200	500-1100	600-800	500-800	500-1K	400-1100	350-950	350-950	---	---	---	---	---	---	---	---
CB200	---	---	---	---	---	---	400-2500	1K-1800	---	---	---	---	---	300-600	250-450	---	150-350
CB400	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	200-500
PC33	---	---	---	---	---	---	---	---	---	1K-8K	1K-5K	1K-4K	1K-4500	---	---	---	---
DX200	---	---	---	---	---	---	---	---	---	1K-7K	1K-3K	1K-3500	1K-4K	---	---	---	---



Grade Description Chart

G50	CVD TiN/TiC/TiN grade. API chaser grade for Q-Series material.
GP22	PVD TiN grade with a tough, micro-grain substrate. Good for threading at low to medium speeds, while capabale of handling interruptions. Works well in stainless steel, high-temperature alloys, and standard steels at low to medium SFM.
GP25	PVD TiN grade for non-ferrous materials.
GP26	PVD TiN grade with a tough, micro-grain, unalloyed substrate. Rigid-Lok endmill grade. Good choice for steels, stainless, high-temperature alloys, and non-ferrous materials. Good in low to high SFM, will handle interruptions and high feed rates.
GP3	PVD TiN grade with a wear resistant micro-grain substrate. Excellent choice in stainless steels, high-temperature alloys, aerospace materials, and non-ferrous materials. Good in standard steels at low to medium SFM.
GP4	PVD TiN grade with our toughest substrate. **First choice** at low SFM (50-150) applications and heavy interruptions. Used in all applications where tool breakage is an issue.
GP54	PVD TiN grade with a tough substrate.
GP5	PVD TiN grade with a medium tough substrate. Good general purpose grade for steel applications. Primary grade in LPGC and TPGC style inserts.
GP50	PVD TiN grade with a medium tough substrate and excellent wear properties. Great general purpose grade for steel applications.
AC22	PVD TiAlN grade with a tough, micro-grain substrate. **First choice** in **Laydown Threading** in all materials. Dry machining capable.
AC26	PVD TiAlN grade with a tough, fine grain, unalloyed substrate with excellent wear properties. **First choice** in **Rigid-Lok** inserts for steels, stainless, high-temp alloys, and non-ferrous materials. Performs very well at low to high SFM and will handle interruptions and high feed rates. Coating provides highest resistance to oxidation, physical abrasion, and chip welding. Dry machining capable.
AC3	PVD TiAlN grade. **First choice** for grooving and threading in stainless steel, high-temperature alloys, aerospace materials, and non-ferrous materials. Excellent in standard steels at medium SFM. Dry machining capable.
AC50	PVD TiAlN grade. **First choice** for grooving and threading in all standard steels and 400 series stainless. Application range is medium to high SFM. Dry machining capable.
ZA22	PVD TiAlN grade with a tough, micro-grain substrate. Dry machining capable.
ZA26	PVD TiAlN grade with a tough, fine grain, unalloyed substrate with excellent wear properties. **First choice** in **Rigid-Lok** inserts for steels, stainless, high-temp alloys, and non-ferrous materials. Performs very well at low to high SFM and will handle interruptions and high feed rates. Coating provides highest resistance to oxidation, physical abrasion, and chip welding. Dry machining capable.
ZA3	PVD TiAlN grade. **First choice** for grooving in stainless steel, high-temperature alloys, aerospace materials, and non-ferrous materials. Excellent in standard steels at medium SFM. Dry machining capable.
ZA50	PVD TiAlN grade. **First choice** for grooving and threading in all standard steels and 400 series stainless. Application range is medium to high SFM. Dry machining capable.
ZS22	PVD AlTiN grade with a tough, micro-grain substrate. Good in **Laydown Threading** in all materials. Dry machining capable.
ZS26	PVD AlTiN grade with extra lubricity, a tough, fine grain, unalloyed substrate with excellent wear properties. **First choice** in **Rigid-Lok** inserts for steels, stainless, high-temp alloys, and non-ferrous materials. Performs very well at low to high SFM and will handle interruptions and high feed rates. Coating provides highest resistance to oxidation, physical abrasion, and chip welding. Dry machining capable.
ZS3	PVD AlTiN grade for grooving and threading in stainless steel, high-temperature alloys, aerospace materials, and non-ferrous materials. Excellent in standard steels at medium SFM. Dry machining capable.
ZS50	PVD AlTiN grade for grooving and threading in all standard steels and 400 series stainless. Application range is medium to high SFM. Dry machining capable.
ZL22	PVD grade with a tough, micro-grain, unalloyed substrate. Good for turning at low to medium speeds, while capabale of handling interruptions. Works well in high-temperature alloys and aluminum.
ZL26	PVD grade with a tough, micro-grain, unalloyed substrate. Rigid-Lok endmill grade. Good choice for aluminum, high-temperature alloys, and non-ferrous materials. Good in low to high SFM, will handle interruptions and high feed rates.
ZL3	PVD grade with a wear resistant micro-grain substrate. Excellent choice in high-temperature alloys, aerospace materials, and non-ferrous materials.

COATINGS

ZR22	PVD AlTiN grade with a tough, micro-grain, unalloyed substrate. Good for threading at low to medium speeds, while capabale of handling interruptions. Works well in stainless steel, high-temperature alloys, and standard steels at low to medium SFM.
ZR26	PVD AlTiN grade with a tough, micro-grain, unalloyed substrate. Rigid-Lok endmill grade. Good choice for steels, stainless, high-temperature alloys, and non-ferrous materials. Good in low to high SFM, will handle interruptions and high feed rates
ZR3	PVD AlTiN grade with a wear resistant micro-grain substrate. Excellent choice in stainless steels, high-temperature alloys, aerospace materials, and non-ferrous materials. Good in standard steels at low to medium SFM.
ZR50	PVD AlTiN grade with a medium tough substrate and excellent wear properties. Great general purpose grade for steel applications.
ZU22	PVD AlTiN grade with a tough, micro-grain, unalloyed substrate. Good for threading at low to medium speeds, while capabale of handling interruptions. Works well in stainless steel, high-temperature alloys, and standard steels at low to medium SFM.
ZU26	PVD AlTiN grade with a tough, micro-grain, unalloyed substrate. Rigid-Lok endmill grade. Good choice for steels, stainless, high-temperature alloys, and non-ferrous materials. Good in low to high SFM, will handle interruptions and high feed rates.
ZU3	PVD AlTiN grade with a wear resistant micro-grain substrate. Excellent choice in stainless steels, high-temperature alloys, aerospace materials, and non-ferrous materials. Good in standard steels at low to medium SFM.
ZU50	PVD AlTiN grade with a medium tough substrate and excellent wear properties. Great general purpose grade for steel applications.
C22	Uncoated grade with a tough, micro-grain, unalloyed substrate. Good for threading at low to medium speeds, while capabale of handling interruptions. Works well in stainless steel, high-temperature alloys, and standard steels at low to medium SFM.
C25	Uncoated general purpose C2 grade. Good for all non-ferrous materials.
C26S	Uncoated grade with a tough, fine grain, unalloyed substrate. Main uncoated grade for Rigid-lock endmill inserts. Edge is up-sharp for use in non-ferrous and composite applications.
C3	Uncoated micro-grain C3 grade. Good for all non-ferrous, stainless steel, and nickel-based alloys.
GPM6	PVD TiN coated cermet grade. **First choice** for grooving in high-speed finishing of most carbon, alloy, and stainless steels. Performs very well in cast and ductile irons. Provides excellent workpiece finishes.
CB200	PCBN tip brazed onto a carbide insert. High content CBN. **First choice** for cast iron and high-temperature alloys. Suited for roughing to finishing in hardened steels greater than 45 HRC, such as bearing steel, hot and cold work tool steels, high-speed steels, die steels, case hardened steels, nitrided irons, and some hard coatings.
CB400	PCBN tip brazed onto a carbide insert. Low content CBN. **First choice** for roughing to finishing of hardened steels 45 HRC and higher. Use on bearing steel, hot and cold work steels, die steels, case hardened steels, carburized and nitrided irons.
CB410	PCBN tip brazed onto a carbide insert. Low content CBN. **First choice** for roughing to finishing of hardened steels 45 HRC and higher. Use on bearing steel, hot and cold work steels, die steels, case hardened steels, carburized and nitrided irons.
PC33	PCD tip brazed onto a carbide insert. **First choice** for high silicone aluminum applications at high SFM. Use on all types of highly abrasive materials including non-ferrous metals and non-metallics. High SFM only!
DX200	PCD CVD coated grade. Rigid-Lok insert grade. **First choice** at high SFM in non-metallic materials such as graphite, epoxy based resins, plastics, and aluminum.

*For premium performance based upon optimal machining conditions, select the grade that will provide you with the highest allowable SFM for the material that is being machined. Optimum grades are in bold print. Grades are specific to certain insert styles. The grades listed below in bold print are stock within the style listed, see appropriate catalog page for precise stocking status.

Bantam:	**C22** **GP22** **GP4** AC22
Ballnose:	**C26** **ZS26** **CB400** **DX200**
Chasers:	**G50** **GP50** **AC50** **ZA50**
Cutoff:	**GP22** **AC22** **AC50** C22
Flo-Lock:	**C25** **GP4** **GP3** **GP4** **GP5** **GP50** **AC22** **AC3** **AC50** **GPM6** **CB200** **CB400** **PC33** C22 C3
Laydown: (LT style)	**GP22** **GP4** **GP50** **AC22** **AC50** C22
Laydown:	**GP22** **GP3** **GP5** **GP50** **AC22** **AC50** C22
Milling:	**GP5** C5H
On Edge:	**GP22** **GP3** **GP54** **GP50** **GPM6** **AC22** **AC3** **AC50** AC54 C22 C25 C3
Threadmill:	**C3** **GP3** GP22
Turning: (Negative)	**G525** **AG525** **AG535** **AG615**
Turning: (Positive)	**AC3** **AC50** C3
V-Bottom: (V84/V85)	**GP3** **GP50** **AC50** C3
V-Bottom: (VDB/VDG)	**C3** **GP3** **AC3** **AC50** **CB200** **CB400** **PC33**

ORDERING INFORMATION

CONDITION OF SALE
Sales are made in accordance with our standard Conditions of Sale current at the time orders are accepted. Specifications and prices subject to change without notice.

QUOTATIONS
Will be subject to acceptance 60 days from the date of quotation unless otherwise agreed. **In order to receive special quoted pricing, a quote number must be referenced at the time the order is placed.**

TERMS OF PAYMENT
Net 30 Days

DELIVERY TERMS
F.O.B. Shipping point; Charges will be added to invoice.

WARRANTY
We will replace any material which is proven defective within 90 days from date of shipment to the customer. No claim for labor or damage will be allowed. Claims for error must be made upon receipt of material.

PRICING
So far as the resale of items in this price list is concerned, the prices referred to are to be regarded as suggested only. The distributor, in its sole discretion, determines the actual resale price. These suggested resale prices are based on quantities of identical items released by purchaser on one order for shipment at one time to one destination. The reseller should determine whether savings in cost can justify the suggested quantity price differential, as may be required by the Robinson-Patman Act or other applicable law.

OVER AND UNDER SHIPMENTS
For Non-Stock or Special items, unless otherwise specified or agreed, the following over and under allowances may be made:

Lots of	10-19	20-49	50-99	100+
Over/Under	1 piece	2 pieces	3 pieces	5%

MINIMUM ORDER
$50 Net per order. For Extended Discount Program - $100 Net per order.

RETURNS
Each Distributor will be allowed at a certain time of year to exchange 1% of their Net Sales for the previous year up to a maximum of $1,000. These exchanges will be limited to Stock Standard items only and will be replaced by such. The exchange schedule is as follows:

Group A Distributors:	January - March
Group B Distributors:	July - September
Group C Distributors:	April - June
Group D Distributors:	October - December

All Non-Stock and Specials are non-returnable and/or non-exchangeable.

A Returned Material Authorization (RMA) number must be assigned by Tool-Flo prior to any material being returned. Purchase Order numbers and original invoice numbers must be supplied before an RMA number can be issued.

RELEASE ORDER POLICY
A. Prices are to be based on total quantity of each item. Prices will be firm for six (6) months from the date of purchase. In the event of a price increase during the term of the order, one of the following conditions will apply:

1. If the increase becomes effective during the first six (6) months of the order, the balance of the order can be released within six (6) months from the date of purchase at existing prices. Any subsequent releases will be invoiced at the new price.

2. If the increase becomes effective after the first six (6) months of the order, the balance can be released immediately upon notification of the price increase at existing prices. All items not released immediately will be invoiced at the new price.

B. Minimum release order is 400 pieces. Releases must be made ever 30 days. Initial release must be made within 30 days of order date. Minimum release is 50 pieces every 30 days. Releases not to exceed twelve (12) months. At the end of the twelve (12) month period from the date of the order, any remaining pieces will be shipped.

INDEX

TOOL-FLO

Grade Crossover Chart

	Carboloy®	Iscar®	Kennametal®	Sandvik®	Teledyne	Valenite®	Vardex®
GFI			K1				
GP4						V1N	
AC4							
C22							
GP22	CP50	IC908	KC722	GC1020		VC927	
AC22	CP500						
GP222							
AC222							
C25	HX	IC20	K68		HTA		VK2
GP25					TP21		
AC25							
C26S							
GP26							
AC26							
C2	883	IC20					
GP2							
AC2							
C3			K313	H13A			
GP3			KC730				VKX
AC3			KC5025				VTX
GP50	CP30	IC250	KC810/KC850	225G		VN8	
AC50	CP300		KC5025	225G			VSX
AG50	560		KC950				
G50							
C5H	P30		K420	S4			
GP5			KC710/KC810	GC135		VN5	
AC5							
C6H	S10M	IC50M		SM			V30
GP6	550	IC656				VN8	
AC6							VSX
M6		IC20N	KT175		SD5	VC671	VX5
GPM6			KT315				
M3							
CB200			KD120			VC722	
CB400			KD050	CB20		VC734	
DX200							
PC33			KD100			VC727	

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