

50

General Catalog

Cutting Tools and Tool holders



TOOL-FLO

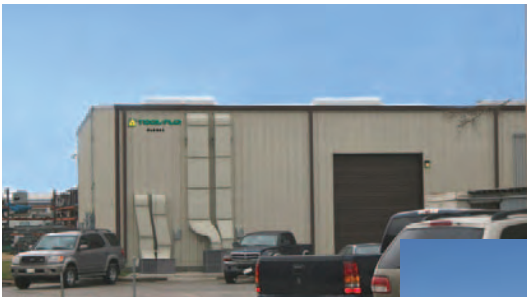
Providing the World with the Cutting Edge for 30 Years!



Main Office located at 7803 Hansen Road • Houston, TX 77061

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 insert cutting tools that bring our customers and unparalleled level of satisfaction. Tool-Flo's ongoing commitment in pursuit of that goal is to produce "ultimate quality" insert cutting tools that exceed customer's expectations through meticulous manufacturing and innovative use of the latest state of the art CNC machine tools.



Training Center

Technical training for End Users, Distributors and Representatives



Sales Offices/ Shipping

Newest building aquired for the Sales Department Shipping Department and Material preparation.

Mill Department/Coating Facility

Houses the Mill Department for standard and special Toolholders and Bars.

In House Coating facility for better control of quality and delivery.





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TOOL-FLO



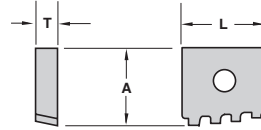
API

CHASERS

EXTERNAL API BUTTRESS

For Holders see pg. 70

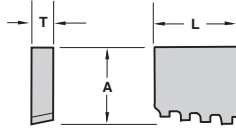
API Oilfield Threading



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	Coating			
								G50	GP50	AT50	AC50
CR-5B75-3E #1	M16415188	5	3/4	.670	.573	.205	3	●	●	●	●
CR-5B75-3E #2	M16415189	5	3/4	.670	.582	.205	3	●	●	●	●
CR-5B75-3E #3	M16415190	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

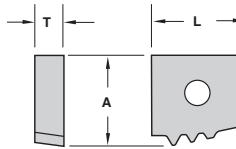
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Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	Coating			
								G50	GP50	AT50	AC50
CR-5B75-3I	M1681847	5	3/4	.630	.577	.204	3	●	●	●	●
CR-5B75-4I	M1681347	5	3/4	.800	.582	.205	4	●	●	●	●
CR-5B75-5I	M16815688	5	3/4	1.000	.590	.205	5	●	●	●	●
CR-5B1-3I	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. 70

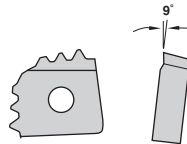


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	Coating			
								G50	GP50	AT50	AC50
CR-8R-3E #1	M32416731	8	3/4	.630	.577	.204	3	●	●	●	●
CR-8R-3E #2	M32416732	8	3/4	.630	.586	.204	3	●	●	●	●
CR-8R-3E #3	M32416733	8	3/4	.630	.591	.204	3	●	●	●	●
CR-8R-3E	M32419310	8	3/4	.630	.592	.204	3	●	●	●	●
CR-8R-4E 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	M34416729	10	3/4	.628	.572	.204	3	●	●	●	●
CR-10R-3E #3	M34416730	10	3/4	.628	.575	.204	3	●	●	●	●

EXTERNAL API ROUND AND BUTTRESS Chaser Style

CNGA - Double Sided (2 cutting edges)

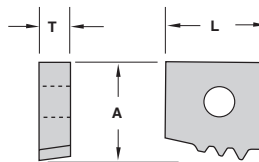
For Holders see pg. 70



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	Coating			
								G50	GP50	AT50	AC50
CNGA-8R-3E	M32416731	8	3/4				3	●	●	●	●
CNGA-10R-3E	M32416732	10	3/4				3	●	●	●	●
CNGA-5B75-3E	M32416733	5	3/4				3	●	●	●	●

INTERNAL API ROUND

For Holders see pg. 70



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	Coating			
								G50	GP50	AT50	AC50
CR-8R-3I	M3287464	8	3/4	.640	.592	.200	3	●	●	●	●
CR-8R-4I	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	M32817968HH	8	3/4	1.000	.625	.200	7	●	●	●	●
CR-10R-3I	M3481291	10	3/4	.640	.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.

Series	G50	GP50	AT50	AC50
J-Series			▲	●
K-Series	▲			●
L-Series	▲	●		
N-Series	▲	●		
P-Series	▲	●		
Q-Series	●	▲		

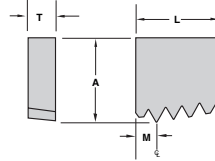


CHASERS

EXTERNAL LPT/NPT

For Holders see pg. 70

API Oilfield Threading

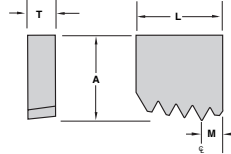


	CVD Coated	TiN Coated	AlTiN Coated	AlTiN* Coated
	G50	GP50	AT50	AC50

Insert Description	EDP Code	TPI	TPF	L	A	T	M	No. of Teeth	G50	GP50	AT50	AC50
CR-8NPT-4E	M3648996	8	3/4	.625	.620	.203	.156	4	●	●	●	●
CR-11.5NPT-4E	M3649668	11.5	3/4	.625	.620	.1875	.294	4	●	●	●	●

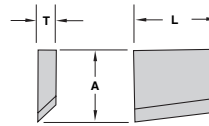
INTERNAL LPT/NPT

For Holders see pg. 70



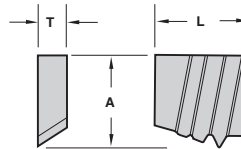
Description	EDP Code	TPI	TPF	L	A	T	M	No. of Teeth	G50	GP50	AT50	AC50
CR-8NPT-4I	M3689804	8	3/4	.625	.620	.203	.156	4				

CHIPBREAKER EXTERNAL



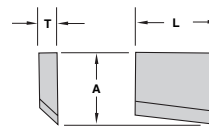
Description	EDP Code	L	A	T	Inserts
CR-5B75/5B1-4E-CB	TF2993	.800	.500	.125	CR-5B75-4E/CR-5B1-4E
CR-8R/10R-3E/4E-CB	TF1353E	.630	.460	.125	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8LPT-4E

CHIPBREAKER EXTERNAL



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	TF16659	.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
#3 CB W/O COOLANT GROOVES .170	TF26424	.618	.460	.170		CR-8R-3E

CHIPBREAKER INTERNAL CB

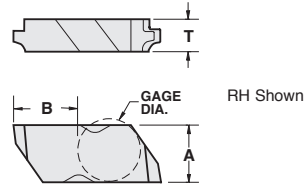


Description	EDP Code	L	A	T	Inserts
CR-5B75/5B1-4I-CB	TF16104	.800	.500	.125	CR-5B75-4I/CR-5B1-4I
CR-8R/10R-3I/4I-CB	TF1353I	.630	.460	.125	CR-8R-3I/CR-8R-4I/CR-10R-3I/CR-8LPT-4I
CR-8R-7I-CB	TF18096	1.000	.510	.125	CR-8R-7I



FLO-LOCK API BUTTRESS THREADING

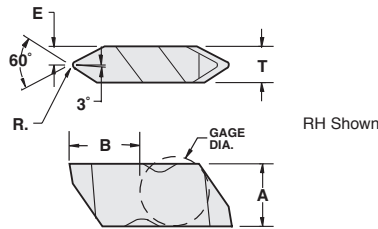
For Holders see pgs. 111-114



Description	EDP Code	TPI	TPF	T	A	B	Gage Dia.	Coating						
								C3	GP3	GP50	AT3	AT50		
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

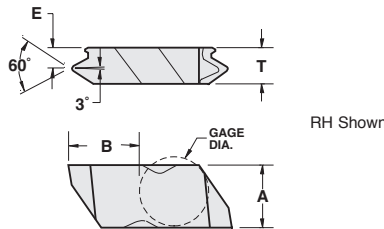
For Holders see pgs. 111-114



Description	EDP Code	TPI	R	T	E	A	B	Gage Dia.	Coating					
									C3	GP3	GP50	AT3	AT50	
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 CONNECTION THREADING

For Holders see pgs. 111-114



Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Conn. No. or Size	Coating				
										C3	GP3	GP50	AT3	AT50
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					

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

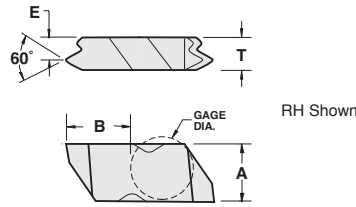
Cast Iron					
Non-Ferrous					
Stainless/High Temp					
Steel				▲	



API Oilfield Threading

FLO-LOCK API ROUND THREADING

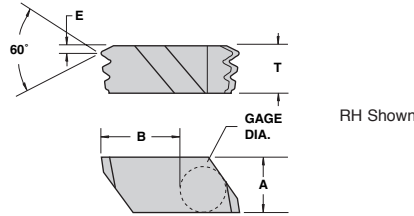
For Holders see pgs. 111-114



Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Coating				
									C3	GP3	GP50	AT3	AT50
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			●	●	●

MULTI TOOTH

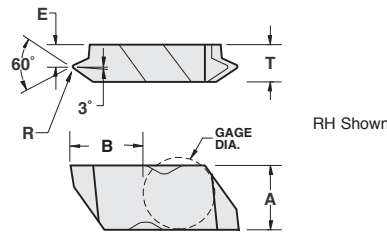
For Holders see pgs. 111-114



Description	EDP Code	TPI	TPF	T	A	B	Gage Dia.	Coating				
								C3	GP3	GP50	AT3	AT50
FLDC-3-8RDR-75M	553633R	8	3/4	.427	.453	.6110	.3750			●	●	●
FLDC-3-10RDR-75M	553635R	10	3/4	.427	.453	.6282	.3750			●	●	●

NPT THREADING

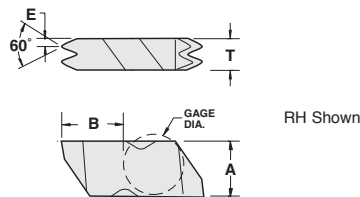
For Holders see pgs. 111-114



Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Coating				
									C3	GP3	GP50	AT3	AT50
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			●	●	●

MULTI TOOTH

For Holders see pgs. 111-114



Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Coating				
									C3	GP3	GP50	AT3	AT50
FLDC-3-8P NPT-2E	553708E	8	3/4	.250	.058	.344	.4050	.3750			●	●	●
FLDC-3-8P NPT-2I	553708I	8	3/4	.250	.058	.344	.4050	.3750			●	●	●
FLDC-3-11.5P NPT-2E	553711E	11.5	3/4	.250	.048	.344	.4050	.3750			●	●	●
FLDC-3-11.5P 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.

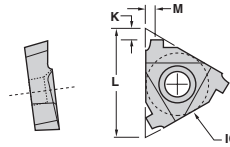
Material	Cast Iron	Non-Ferrous	Stainless/High Temp	Steel
	▲	▲	▲	●
	▲	▲	▲	●
	▲	▲	▲	●



LAYDOWN - LT

API BUTTRESS THREADING

For Holders see pg. 132



EXT SHOWN
INT OPPOSITE

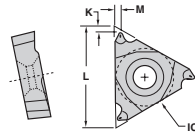
Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Coating				
									C22	GP22	GP50	AT22	AT50
22ER 8B75	5102100	8	3/4	1/2	.87	.102	.073	U.S. Improved Buttress					
22ER 5B75	5101600	5	3/4	1/2	.87	.087	.087	4-1/2 - 13-3/8			●		
22ER 5B1	5101700	5	1	1/2	.87	.095	.087	16 and larger				●	
22NR 8B75	5122100	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

CHIPBREAKER

Exclusive patented design!

For Holders see pg. 132

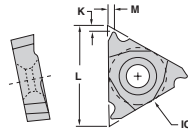


EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
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 see pg. 132



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating				
							C22	GP22	GP50	AT22	AT50
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					

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.

Material	Cast Iron	Non-Ferrous	Stainless/High Temp	Steel
Coating	▲	▲	▲	▲
Coating		▲	▲	▲
Coating		▲	▲	▲

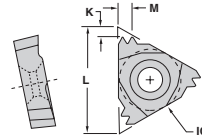


LAYDOWN - LT

NPT THREADING

MULTI-TOOTH

For Holders see pg. 132



EXT RH SHOWN

Description	EDP Code	No of Teeth	TPI	IC	L	M	K	Coatings					
								C22	GP22	GP50	AT22	AT50	
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				●	●	●

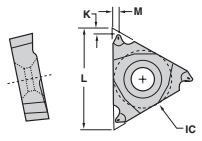
NPTF THREADING

CHIPBREAKER

Exclusive patented design!

For Dry Seal listing see pg.

For Holders see pg. 132

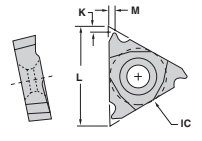


EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coatings					
							C22	GP22	GP50	AT22	AT50	
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 see pg. 132



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coatings					
							C22	GP22	GP50	AT22	AT50	
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		●				
11NL 18NPTF	4963818	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.

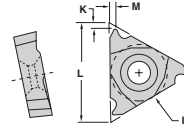
Material	Cast Iron	Non-Ferrous	Stainless/High Temp	Steel
	▲	●	●	●
	▲	●	●	●
	▲	●	●	●



LAYDOWN - LT

API ROTARY SHOULDER CONNECTION THREADING

For Holders see pg. 132



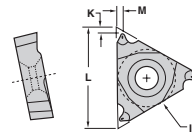
EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Coating				
									C22	GP22	GP50	AT22	AT50
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.			●	●	●

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

API ROUND THREADING CHIPBREAKER

For Holders see pg. 132

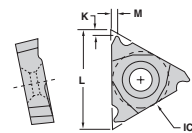


EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
16ER 8RD-CB	5003200P	8	3/8	.65	.051	.059			●	●	●	●
16ER 10RD-CB	5003400P	10	3/8	.65	.047	.059			●	●	●	●

API ROUND THREADING

For Holders see pg. 132



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
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.

Material	C22	GP22	GP50	AT22	AT50
Cast Iron					●
Non-Ferrous					●
Stainless/High Temp				▲	●
Steel					●

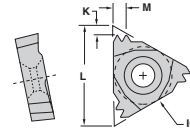


LAYDOWN - LT

API ROUND THREADING

MULTI-TOOTH

For Holders see pg. 132



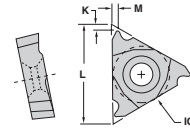
EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K							
							C22	GP22	GP50	AT22	AT50		
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 see pg. 132



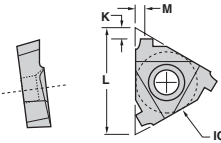
EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	L	M	K	Connection					
									C22	GP22	GP50	AT22	AT50
16ER 6P VO.055 MT	5004300	6	1-1/2	3/8	.65	.059	.051	NC10-NC16, VO.055					
22ER 6P VO.055 MT	5104300	6	1-1/2	1/2	.87	.072	.060	NC10-NC16, VO.055				●	●
16NR 6P VO.055 MT	5024300	6	1-1/2	3/8	.65	.059	.051	NC10-NC16, VO.055				●	●
22NR 6P VO.055 MT	5124300	6	1-1/2	1/2	.87	.072	.060	NC10-NC16, VO.055				●	●

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

API VAM THREADING

For Holders see pg. 132

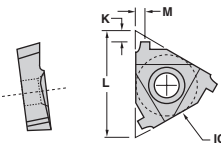


EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K						
							C22	GP22	GP50	AT22	AT50	
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

For Holders see pg. 132



EXT RH SHOWN

Description	EDP Code	TPI	TPF	IC	L	M	K	Connection					
									C22	GP22	GP50	AT22	AT50
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				●	●

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.

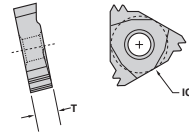
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Cast Iron													
Non-Ferrous													
Stainless/High Temp													
Steel													



LAYDOWN NPT THREADING MULTI-TOOTH

For Holders see pgs. 144-145

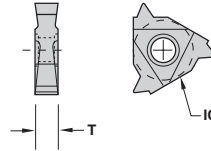


EXT SHOWN

Description	EDP Code	TPI	TPF	IC	T	Coating				
						C22	GP22	GP50	GP54	AT22
L43 11.5NPT2M EXT	3615114T	11.5	3/4	.500	.189					
L43 11.5NPT2M INT	3615118T	11.5	3/4	.500	.189					

LDS DOUBLE SIDED INT/EXT

For Holders see pgs. 144-145

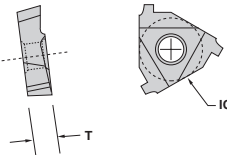


EXT SHOWN

Description	EDP Code	TPI	TPF	IC	T	Coating				
						C22	GP22	GP50	GP54	AT22
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

For Holders see pgs. 144-145

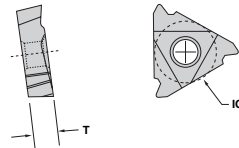


EXT SHOWN

Description	EDP Code	TPI	TPF	IC	T	Coating				
						C22	GP22	GP50	GP54	AT22
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 see pgs. 144-145



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	R	IC	T	Connection	Coating				
								GP50	GP54	AT22	AT50	AT54
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	●				

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

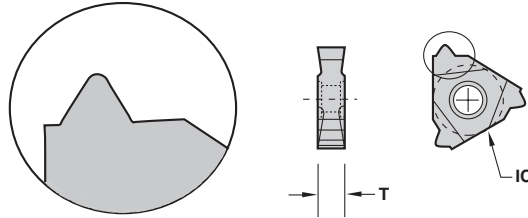
Cast Iron	●
Non-Ferrous	●
Stainless/High Temp	●
Steel	▲



LAYDOWN

API ROTARY SHOULDER CONNECTION THREADING

LDS DOUBLE SIDED LEAD FOLLOW TOPPING INT/EXT



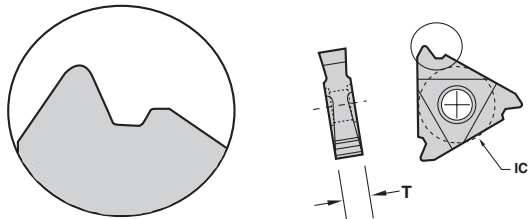
EXT SIDE SHOWN

For Holders see pgs. 144-145

Description	EDP Code	TPI	TPF	R	IC	T	Connection	Coating					
								CGH	GP54	AT22	AT50	AT54	
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	●					

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

LDS DOUBLE SIDED INT/EXT FOLLOW TOPPING



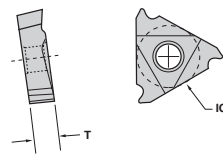
EXT SIDE SHOWN

For Holders see pgs. 144-145

Description	EDP Code	TPI	TPF	R	IC	T	Connection	Coating					
								GP50	GP54	AT22	AT50	AT54	
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	●					

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

API ROUND THREADING

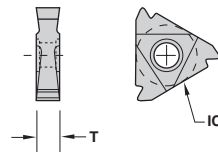


EXT SHOWN

For Holders see pgs. 144-145

Description	EDP Code	TPI	TPF	IC	T	Coating					
						GP50	GP54	AT22	AT50	AT54	
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		●				

LDS DOUBLE SIDED INT/EXT



EXT SIDE SHOWN

For Holders see pgs. 144-145

Description	EDP Code	TPI	TPF	IC	T	Coating					
						GP50	GP54	AT22	AT50	AT54	
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		●	●			

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	AT22	AT50	AT54
Cast Iron			●	●	●
Non-Ferrous			●	●	●
Stainless/High Temp			●	●	●
Steel	▲	▲			

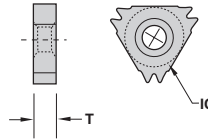


LAYDOWN

API ROUND THREADING

Double Sided for EXT & INT

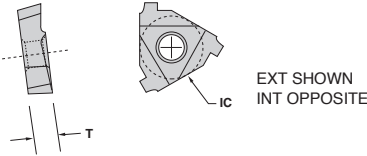
For Holders see pgs. 144-145



Description	EDP Code	TPI	TPF	IC	T						
TNFA 43 8RD	32N70	8	3/4	.500	.187	C6H	Uncoated	GP50	GP54	AT50	AT54

API VAM THREADING

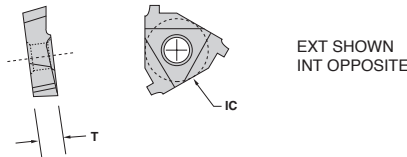
For Holders see pgs. 144-145



Description	EDP Code	TPI	TPF	IC	T						
L43 5VAM EXT	23154	5	3/4	.500	.189	C6H	Uncoated	GP50	GP54	AT50	AT54
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 see pgs. 144-145



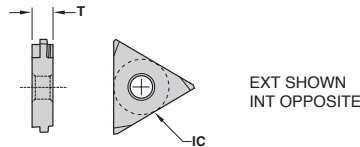
Description	EDP Code	TPI	TPF	IC	T	Connection						
L43 6XL15 EXT	19154	6	1-1/2	.500	.189	5 - 7-5/8	C6H	Uncoated	GP50	GP54	AT50	AT54
L43 6XL75 EXT	20154	6	3/4	.500	.189	-						
L43 5XL12 EXT	18154	5	1-1/4	.500	.189	8-5/8 - 10-3/4						
L53 6XL15 EXT	19474	6	1-1/2	.625	.252	5 - 7-5/8						
L53 6XL75 EXT	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						

ON-EDGE

API BUTTRESS THREADING

STRAIGHT HOLE

For Holders see pgs. 164-165



Description	EDP Code	TPI	TPF	IC	T	Connection						
TNMA 43 8B75 EXT	23194	8	3/4	.500	.189	U.S. Improved Buttress	C3	Uncoated	GP3	GP50	AT3	AT50
TNMA 44 5B75 EXT	16434	5	3/4	.500	.252	4-1/2 - 13-3/8						
TNMA 54 5B1 EXT	17514	5	1	.625	.252	16 and larger						
TNMA 54 5B75 EXT	16514	5	3/4	.625	.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	23198	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	17518	5	1	.625	.252	16 and larger						
TNMA 54 5B75 INT	16518	5	3/4	.625	.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 5P flank clearance

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.

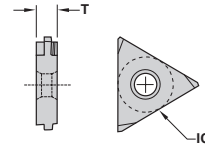
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron
Non-Ferrous
Stainless/High Temp
Steel

ON-EDGE API BUTTRESS THREADING COUNTERSINK HOLE

For Holders see pgs. 164-165

API Oilfield Threading



EXT SHOWN
INT OPPOSITE

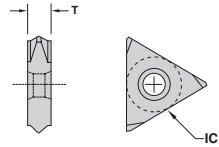


Description	EDP Code	TPI	TPF	IC	T	Connection	Coating					
							C3	C6H	GP3	GP50	AT3	AT50
TNMC 43 8B75 EXT	21414	8	3/4	.500	.189	U.S. Improved Buttress				●		
TNMC 54 5B75 EXT	16534	5	3/4	.625	.252	4-1/2 - 13-3/8				●		●
TNMC 54 5B75 EXT-FC	16534F	5	3/4	.625	.252	4-1/2 - 13-3/8				●		●
TNMC 54 5B1 EXT	17534	5	1	.625	.252	16 and larger				●		●
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	16538	5	3/4	.625	.252	4-1/2 - 13-3/8				●		●
TNMC 54 5B75 INT-FC	16538F	5	3/4	.625	.252	4-1/2 - 13-3/8				●		●
TNMC 54 5B1 INT	17538	5	1	.625	.252	16 and larger				●		●
TNMC 54 5B1 INT-FC	17538F	5	1	.625	.252	16 and larger				●		●

FC indicates 5P flank clearance

API HUGHES H90 THREADING STRAIGHT HOLE

For Holders see pgs. 164-165

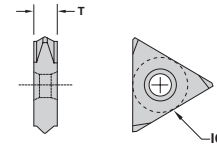


EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Connection	Coating					
							C3	C6H	GP3	GP50	AT3	AT50
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

For Holders see pgs. 164-165

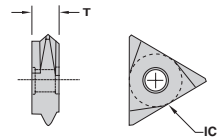


EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Connection	Coating					
							C3	C6H	GP3	GP50	AT3	AT50
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				●		

API ROTARY SHOULDER CONNECTED THREADING STRAIGHT HOLE

For Holders see pgs. 164-165



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Connection	Coating					
							C3	C6H	GP3	GP50	AT3	AT50
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				●		●

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

TOOL FLO

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.

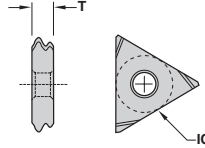
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron						
Non-Ferrous						
Stainless/High Temp						
Steel				▲		●



ON-EDGE API ROUND THREADING TNMA STRAIGHT HOLE

For Holders see pgs. 164-165

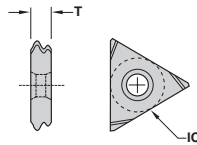


INT SHOWN
EXT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Coating							
						C3	C6H	GP3	GP50	AT3	AT50		
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 TNMC COUNTERSINK HOLE

For Holders see pgs. 164-165

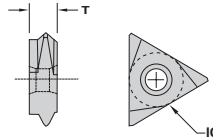


INT SHOWN
EXT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Coating							
						C3	C6H	GP3	GP50	AT3	AT50		
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 CONNECTED THREADING COUNTERSINK HOLE

For Holders see pgs. 164-165



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Connection	Coating						
							C3	C6H	GP3	GP50	AT3	AT50	
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							

*Obsolescent 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.

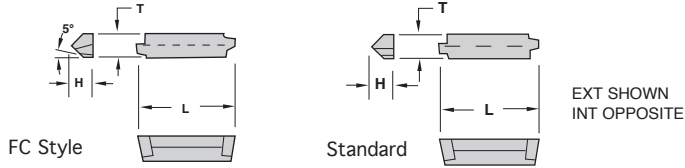
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel				▲		●



VEE-BOTTOM API BUTTRESS THREADING

API Oilfield Threading



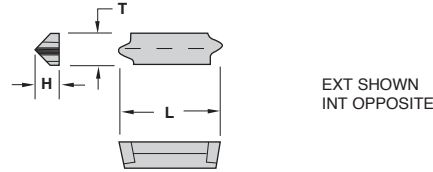
For Holders see pgs. 227-230

Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating						
								C3	C6H	GP3	GP50	AT3	AT50	
V84 5B75 EXT	16614	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8							
V84 5B75 EXT-FC	16614F	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8				●			
V84 5B1 EXT	17614	5	1	.250	1.000	.250	16 AND LARGER				●			
V84 5B1 EXT-FC	17614F	5	1	.250	1.000	.250	16 AND LARGER				●			
V84 8B75 EXT	21614	8	3/4	.250	1.000	.250	U.S. IMPROVED BUTTRESS				●			
V84 5B75 INT	16618	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8				●			
V84 5B75 INT-FC	16618F	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8				●			
V84 5B1 INT	17618	5	1	.250	1.000	.250	16 AND LARGER				●			
V84 5B1 INT-FC	17618F	5	1	.250	1.000	.250	16 AND LARGER				●			
V84 8B75 INT	21618	8	3/4	.250	1.000	.250	U.S. IMPROVED BUTTRESS				●			

FC indicates 5° flank clearance

API ROTARY SHOULDER

For Holders see pgs. 227-230

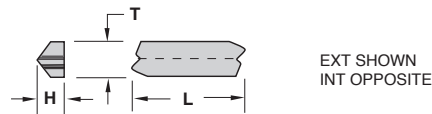


Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating						
								C3	C6H	GP3	GP50	AT3	AT50	
V85 425 EXT	09634	4	2	.312	1.000	.250	5-1/2 - 6-5/8 FH, 6-5/8 REG							
V85 428 EXT	10634	4	2	.312	1.000	.250	NC23 - 50, 2-3/8 - 5-1/2 IF				●	●	●	●
V85 42F EXT*	14634	4	2	.312	1.000	.250	VO.065*				●	●	●	●
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				●	●	●	●

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

API ROUND THREADING

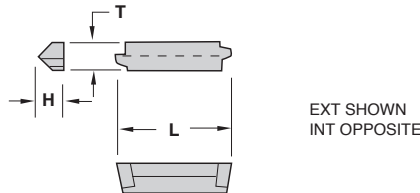
For Holders see pgs. 227-230



Description	EDP Code	TPI	TPF	T	L	H	Coating							
							C3	C6H	GP3	GP50	AT3	AT50		
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 see pgs. 227-230



Description	EDP Code	TPI	TPF	T	L	H	Coating							
							C3	C6H	GP3	GP50	AT3	AT50		
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					●	●	●	●

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

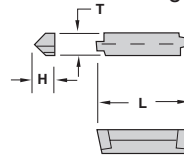
Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel				▲		●



API Oilfield Threading

VEE-BOTTOM API X-LINE THREADING

For Holders see pgs. 227-230

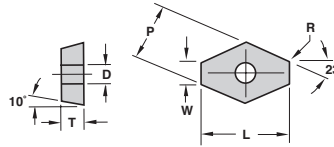


EXT SHOWN INT OPPOSITE

Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating							
								C3	C6H	GP3	GP50	AT3	AT50		
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 pgs. 227-230



Description	EDP Code	R	W	P	T	L	D	Style	Coating						
									C6H	GP25	GP6	AT25	AT6		
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

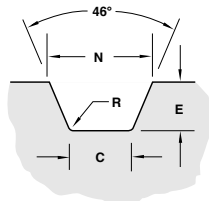
APIP 284-3	75753	.062	.278	.713	.187	1-3/16	.250	Lock Pin							
APIP 162-4NL	75404NL	.031	.156	.733	.250	1-1/2	.250	Lock Pin							
APIP 162-4 (Counter sink hole)	75404	.031	.156	.733	.250	1-1/2	.250	Screw							
APIP 203-4NL	75414NL	.031	.197	.773	.250	1-1/2	.250	Lock Pin							
APIP 203-4 (Counter 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)	75434	.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.

Material	C6H	GP25	GP6	AT25	AT6
Cast Iron					
Non-Ferrous					
Stainless/High Temp					
Steel			▲		●

RING GROOVE SPECIFICATIONS

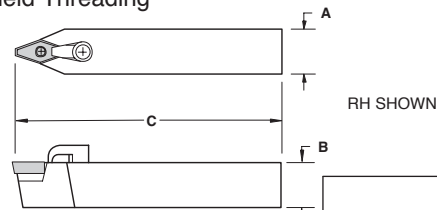


Groove Description	C	E	N	R	Insert Description
BX-150	.260	.220	.450	.031	APIP 265-3 or APIP 265-4
BX-151	.277	.220	.466	.031	APIP 281-3 or APIP 281-4
BX-152	.295	.230	.498	.031	APIP 300-3 or APIP 300-4
BX-153	.324	.270	.554	.031	APIP 329-3 or APIP 329-4
BX-154	.350	.300	.606	.031	APIP 355-3 or APIP 355-4
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, 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	
R38, 50, 54, 62, 66, 77, 86 & 87	.278	.440	.656	.062	
R42, 47, 70, 74, 83, 88, 89 & 93	.350	.500	.781	.062	
R51, 58 & 90	.422	.560	.906	.062	
RX-201 & 205	.079	.160	.219	.015	
RX-210	.156	.250	.375	.031	



RING GROOVING HOLDERS

FGNR



PARTS

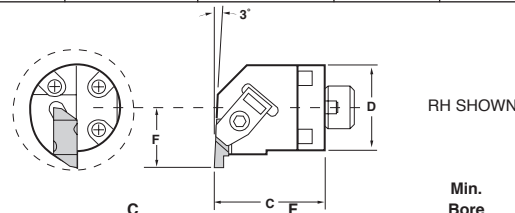
Description	EDP Code	Insert	A	B	C	PARTS			
						Seat	Seat Screw	Clamp	Clamp Screw
FGNR 16-0863	92801600	APIP 086-3	1	1	6	-	-	TC-311	STC-8
FGNR-16-1A/1313	92801602	PGN 1A/131/3	1	1	6	FGS1A	SF20	CL-30	STC-4
FGNR-16-2A*	92801612	PGN 2A	1	1	6	FGS2ANL	SF46	CL-30	STC-4
FGNR-20-2A*	92802012	PGN 2A	1-1/4	1-1/4	7	FGS2ANL	SF46	CL-30	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	STC-4
FGNR-24-1624	92802413	APIP 162-4	1-1/2	1-1/2	7	-	SD-3	CL-30	STC-4
FGNR-20-2034	92802014	APIP 203-4	1-1/4	1-1/4	7	-	SD-3	CL-30	STC-4
FGNR-24-2034	92802414	APIP 203-4	1-1/2	1-1/2	7	-	SD-3	CL-30	STC-4
FGNR-20-2134	92802015	APIP 213-4	1-1/4	1-1/4	7	-	SD-3	CL-30	STC-4
FGNR-20-2654	92802016	APIP 265-4	1-1/4	1-1/4	7	-	SD-3	CL-30	STC-4
FGNR-20-2814	92802011	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

* Holder can be used with APIP 203-3H (w/whole) insert. Order NL-46 lock pin to replace the SF46 seat screw.

INTERCHANGEABLE HEADS

FLO-LOCK

H-FLEL/R*

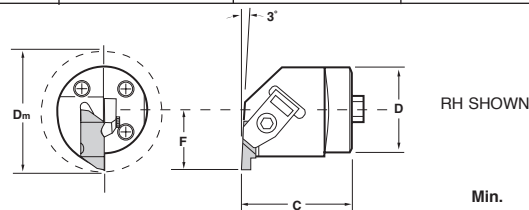


PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	PARTS	
							Clamp	Clamp Screw
H20-FLER3W	9IH6502016	FL-3L	1.250	1.625	0.875	1.750	TF-73	S-412
H24-FLER3W	9IH6502416	FL-3L	1.500	1.625	1.000	2.000	TF-73	S-412
H28-FLER3W	9IH6502816	FL-3L	1.750	1.625	1.125	2.250	TF-73	S-412
H32-FLER3W	9IH6503216	FL-3L	2.000	1.625	1.250	2.500	TF-73	S-412
H40-FLER3W	9IH6504016	FL-3L	2.500	1.625	1.500	3.000	TF-73	S-412
H28-FLER4W	9IH6502820	FL-4L	1.750	1.625	1.250	2.250	TF-73	S-412
H32-FLER4W	9IH6503220	FL-4L	2.000	1.625	1.375	2.500	TF-73	S-412
H36-FLER4W	9IH6503620	FL-4L	2.250	1.625	1.500	2.500	TF-73	S-412
H40-FLER4W	9IH6504020	FL-4L	2.500	1.625	1.625	3.000	TF-73	S-412
H28-FLER6W	9IH6502828	FL-6L	1.750	1.625	1.250	2.500	TF-121	S-412
H32-FLER6W	9IH6503228	FL-6L	2.000	1.625	1.375	2.750	TF-121	S-412
H40-FLER6W	9IH6504028	FL-6L	2.500	1.625	1.625	3.250	TF-121	S-412

*Left hand quoted on request.

HS-FLEL/R*



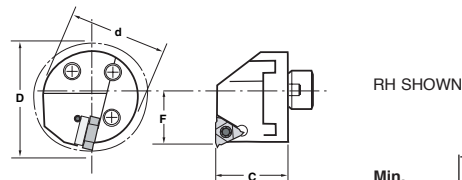
PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	PARTS	
							Clamp	Clamp Screw
HS32-FLER3W	9IHS65032M32	FL-3L	1.25	1.34	0.866	1.730	TF-73	S-412
HS40-FLER3W	9IHS65040M40	FL-3L	1.57	1.58	1.102	2.210	TF-73	S-412
HS50-FLER3W	9IHS65050M50	FL-3L	1.97	1.65	1.380	2.760	TF-73	S-412
HS60-FLER3W	9IHS65060M60	FL-3L	2.36	1.75	1.740	3.480	TF-73	S-412
HS50-FLER4W	9IHS65050M50	FL-4L	1.97	1.65	1.380	2.760	TF-73	S-412
HS60-FLER4W	9IHS65060M60	FL-4L	2.36	1.75	1.740	3.480	TF-73	S-412

*Left hand quoted on request.

LAYDOWN

H-LNFR/L*



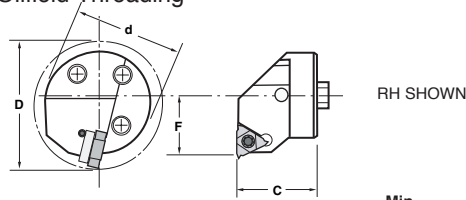
PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	PARTS		
							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	TC-190	STC-9	NL-44
H24-LNFR-53	9IH4207262	L53	1.500	1.625	0.890	1.760	TC-250	STC-11	NL-56
H32-LNFR-53	9IH4208062	L53	2.000	1.625	1.281	2.400	TC-250	STC-11	NL-56
H24-LNFR-54	9IH4207264	LDS 54	1.500	1.625	0.890	1.760	TC-250	STC-11	NL-56
H32-LNFR-54	9IH4208064	LDS 54	2.000	1.625	1.281	2.400	TC-250	STC-11	NL-56



INTERCHANGEABLE HEADS

HS-LNFR/L*

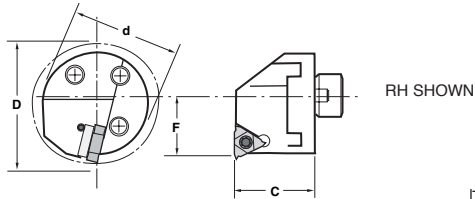


Description	EDP Code	Insert	d	C	F	Min. Bore (D)	PARTS		
							Clamp	Clamp Screw	Lock Pin
HS32-LNFR-43	9IHS42032M56	L43	1.25	1.26	0.866	1.570	TC-190	STC-9	NL-44
HS40-LNFR-43	9IHS42040M56	L43	1.57	1.26	1.063	1.970	TC-190	STC-9	NL-44
HS50-LNFR-43	9IHS42050M56	L43	1.97	1.57	1.378	2.480	TC-190	STC-9	NL-44
HS40-LNFR-53	9IHS42040M62	L53	1.57	1.26	1.063	1.970	TC-250	STC-11	NL-56
HS50-LNFR-53	9IHS42050M62	L53	1.97	1.57	1.378	2.480	TC-250	STC-11	NL-56
HS40-LNFR-54	9IHS42040M64	LDS 54	1.57	1.26	1.063	1.970	TC-250	STC-11	NL-56
HS50-LNFR-54	9IHS42050M64	LDS 54	1.97	1.57	1.378	2.480	TC-250	STC-11	NL-56

*Left hand quoted on request.

LAYDOWN

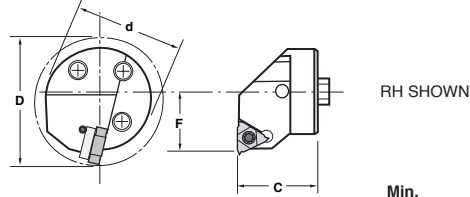
H-AVR/L*



Description	EDP Code	Insert	d	C	F	Min. Bore (D)	PARTS		
							Insert Screw	Seat Screw	Seat
H16-AVR-16	9IH18064361	16NR	1.000	1.625	0.650	1.200	SA-3	SY-3	Y13
H20-AVR-16	9IH18068361	16NR	1.250	1.625	0.765	1.450	SA-3	SY-3	Y13
H24-AVR-16	9IH18072361	16NR	1.500	1.625	0.890	1.760	SA-3	SY-3	Y13
H32-AVR-16	9IH18080361	16NR	2.000	1.625	1.281	2.400	SA-3	SY-3	Y13
H24-AVR-22	9IH18072401	22NR	1.500	1.625	0.978	1.760	SA-4	SY-4	Y14
H32-AVR-22	9IH18080401	22NR	2.000	1.625	1.281	2.400	SA-4	SY-4	Y14

*Left hand quoted on request.

HS-AVR/L*

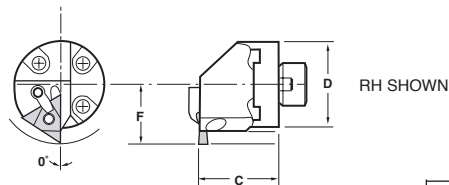


Description	EDP Code	Insert	d	C	F	Min. Bore (D)	PARTS		
							Insert Screw	Seat Screw	Seat
HS25-AVR-16	9IHS18025M361	16NR	0.98	0.98	0.669	1.260	SA-3	SY-3	Y13
HS32-AVR-16	9IHS18032M361	16NR	1.26	1.26	0.866	1.570	SA-3	SY-3	Y13
HS40-AVR-16	9IHS18040M361	16NR	1.57	1.26	1.063	1.970	SA-3	SY-3	Y13
HS50-AVR-16	9IHS18050M361	16NR	1.97	1.57	1.378	2.480	SA-3	SY-3	Y13
HS40-AVR-22	9IHS18040M401	22NR	1.57	1.26	1.063	1.970	SA-4	SY-4	Y14
HS50-AVR-22	9IHS18050M401	22NR	1.97	1.57	1.378	2.480	SA-4	SY-4	Y14

*Left hand quoted on request.

ON-EDGE

H-MTHOR/L*

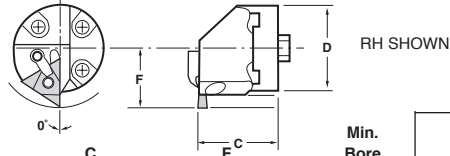


Description	EDP Code	Insert	d	C	F	Min. Bore (D)	PARTS		
							Clamp	Clamp Screw	Lock Pin
H16-MTHOR-3	9IH7301648	TNMA/C 32	1.000	1.625	0.688	1.690	TC-190	STC-5	NL-33
H20-MTHOR-3	9IH7302048	TNMA/C 32	1.250	1.625	0.798	1.788	TC-190	STC-5	NL-33
H24-MTHOR-3	9IH7302448	TNMA/C 32	1.500	1.625	0.923	1.875	TC-190	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.



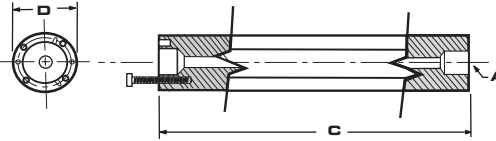
HS-MTHOR/L*



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

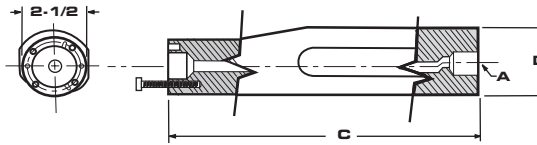
*Left hand quoted on request.

S-4400W
Steel Shank with Through Coolant



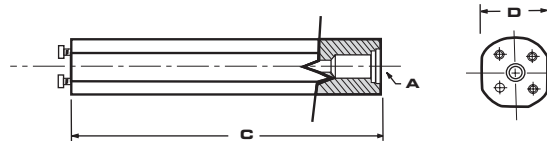
Description	EDP Code	Head Style	D	C	A	PARTS	
						Screw (3 req/d)	Screw
S-4416W	9IBS4416W	H16-	1.000	9.000	1/4 - 18NPT	S-319	S-322
S-4420W	9IBS4420W	H20-	1.250	9.000	3/8 - 18NPT	S-327	S-330
S-4424W	9IBS4424W	H24-	1.500	10.000	3/8 - 18NPT	S-327	S-330
S-4428W	9IBS4428W	H28-	1.750	12.000	3/8 - 18NPT	S-337	S-340
S-4432W	9IBS4432W	H32-	2.000	13.000	3/8 - 18NPT	S-337	S-340
S-4436W	9IBS4436W	H36-	2.250	15.000	3/8 - 18NPT	S-337	S-340
S-4440W	9IBS4440W	H40-	2.500	17.000	3/8 - 18NPT	S-350	S-353

S-4400W48
Steel Shank with Through Coolant



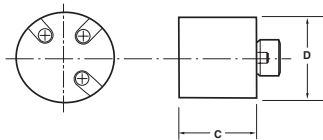
Description	EDP Code	Head Style	D	C	A	Screw (3 req/d)	Screw
S-4440W48	9IBS4440W48	H40-	3.000	18.000	3/8 - 18NPT	S-350	S-353

S-570
Steel Shank with Through Coolant



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

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.



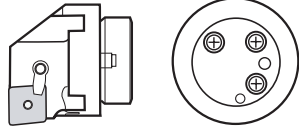
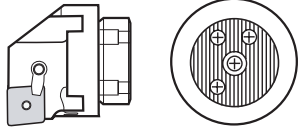
CROSSOVER CHART

INTERCHANGEABLE HEAD

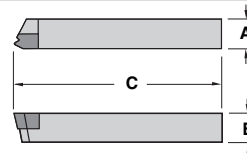
TOOL-FLO DESCRIPTION

KENNAMETAL®

SANDVIK®

INTERCHANGEABLE HEAD	TOOL-FLO DESCRIPTION	KENNAMETAL®	SANDVIK®
H Style 	H_-FLER_W	H_-FLER_W	
	H_-AVR_	H_-AVR_	
	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_		

API THREADING Brazen Tools



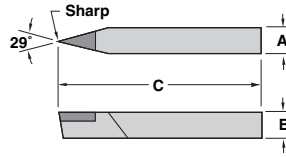
Description	TPI	TPF	A	B	C	Conn No orSize	C5H
B8 8RD EXT	8	3/4	1/2	1/2	3-1/2	-	●
B8 8RD INT	8	3/4	1/2	1/2	3-1/2	-	●
B8 10RD EXT	10	3/4	1/2	1/2	3-1/2	-	●
B8 10RD INT	10	3/4	1/2	1/2	3-1/2	-	●
B8 425 EXT	4	2	1/2	1/2	3-1/2	5-1/2 - 6-5/8 FH, 6-5/8 REG	
B8 425 INT	4	2	1/2	1/2	3-1/2	5-1/2 - 6-5/8 FH, 6-5/8 REG	
B8 428 EXT	4	2	1/2	1/2	3-1/2	NC23 - 50, 2-3/8 - 5-1/2 IF	
B8 428 INT	4	2	1/2	1/2	3-1/2	NC23 - 50, 2-3/8 - 5-1/2 IF	
B8 435 EXT	4	3	1/2	1/2	3-1/2	5-1/2 REG, 7-5/8 REG, 8-5/8 REG	
B8 435 INT	4	3	1/2	1/2	3-1/2	5-1/2 REG, 7-5/8 REG, 8-5/8 REG	
B8 438 EXT	4	3	1/2	1/2	3-1/2	NC56 - NC71	
B8 438 INT	4	3	1/2	1/2	3-1/2	NC56 - NC71	
B8 42F EXT*	4	2	1/2	1/2	3-1/2	VO.065*	
B8 42F INT*	4	2	1/2	1/2	3-1/2	VO.065*	
B8 530 EXT	5	3	1/2	1/2	3-1/2	3-1/2FH, 2-3/8 - 4-1/2 REG	
B8 530 INT	5	3	1/2	1/2	3-1/2	3-1/2FH, 2-3/8 - 4-1/2 REG	
B8 5B75 EXT	5	3/4	1/2	1/2	3-1/2	4-1/2 - 13-3/8	
B8 5B75 INT	5	3/4	1/2	1/2	3-1/2	4-1/2 - 13-3/8	
B8 5B1 EXT	5	1	1/2	1/2	3-1/2	16 AND LARGER	
B8 5B1 INT	5	1	1/2	1/2	3-1/2	16 AND LARGER	
B8 8B75 EXT	8	3/4	1/2	1/2	3-1/2	U.S. IMPROVED BUTTRESS	
B8 8B75 INT	8	3/4	1/2	1/2	3-1/2	U.S. IMPROVED BUTTRESS	
B10 8RD EXT	8	3/4	5/8	5/8	3-1/2	-	●
B10 8RD INT	8	3/4	5/8	5/8	3-1/2	-	●
B10 10RD EXT	10	3/4	5/8	5/8	3-1/2	-	●
B10 10RD INT	10	3/4	5/8	5/8	3-1/2	-	●
B10 425 EXT	4	2	5/8	5/8	3-1/2	5-1/2 - 6-5/8 FH, 6-5/8 REG	
B10 425 INT	4	2	5/8	5/8	3-1/2	5-1/2 - 6-5/8 FH, 6-5/8 REG	
B10 428 EXT	4	2	5/8	5/8	3-1/2	NC23 - 50, 2-3/8 - 5-1/2 IF	
B10 428 INT	4	2	5/8	5/8	3-1/2	NC23 - 50, 2-3/8 - 5-1/2 IF	
B10 435 EXT	4	3	5/8	5/8	3-1/2	5-1/2 REG, 7-5/8 REG, 8-5/8 REG	
B10 435 INT	4	3	5/8	5/8	3-1/2	5-1/2 REG, 7-5/8 REG, 8-5/8 REG	
B10 438 EXT	4	3	5/8	5/8	3-1/2	NC56 - NC71	
B10 438 INT	4	3	5/8	5/8	3-1/2	NC56 - NC71	
B10 42F EXT*	4	2	5/8	5/8	3-1/2	VO.065*	
B10 42F INT*	4	2	5/8	5/8	3-1/2	VO.065*	
B10 530 EXT	5	3	5/8	5/8	3-1/2	3-1/2FH, 2-3/8 - 4-1/2 REG	
B10 530 INT	5	3	5/8	5/8	3-1/2	3-1/2FH, 2-3/8 - 4-1/2 REG	
B10 5B75 EXT	5	3/4	5/8	5/8	3-1/2	4-1/2 - 13-3/8	
B10 5B75 INT	5	3/4	5/8	5/8	3-1/2	4-1/2 - 13-3/8	
B10 5B1 EXT	5	1	5/8	5/8	3-1/2	16 AND LARGER	
B8 5B1 INT	5	1	1/2	1/2	3-1/2	16 AND LARGER	
B8 8B75 EXT	8	3/4	1/2	1/2	3-1/2	U.S. IMPROVED BUTTRESS	
B8 8B75 INT	8	3/4	1/2	1/2	3-1/2	U.S. IMPROVED BUTTRESS	

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

Cast Iron	
Non-Ferrous	
Stainless/High Temp	
Steel	

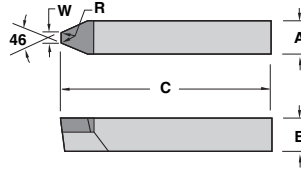


BRAZED TOOLS ACME THREADING NO PITCH



Description	TPF	A	B	C	C5H
B6 NT NO PITCH	6-16	3/8	3/8	2-1/2	●
B8 NT NO PITCH	4-16	1/2	1/2	3-1/2	●
B10 NT NO PITCH	2-16	5/8	5/8	4	●
B12 NT NO PITCH	2-16	3/4	3/4	4-1/2	●

BRAZED TOOLS RING GROOVING NO PITCH

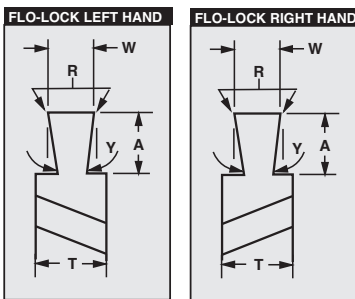


Description	W	R	A	B	C	Conn No or Size	C5H
B10 RG125	.125	1/32	5/8	5/8	4	R19, 20, 22, 25, 29, 33, 36, 40, 43, 48, 52, 56, 59, 64, 68, 72 & 76	●
B12 RG156	.156	1/32	3/4	3/4	5	RX210	●
B64 RG197	.197	1/32	3/4	1	6	R21, 23, 24, 27, 30, 31, 34, 35, 37, 39, 41, 44, 45, 49, 53, 57, 61, 65, 69, 84, 92, 99 & RX-215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

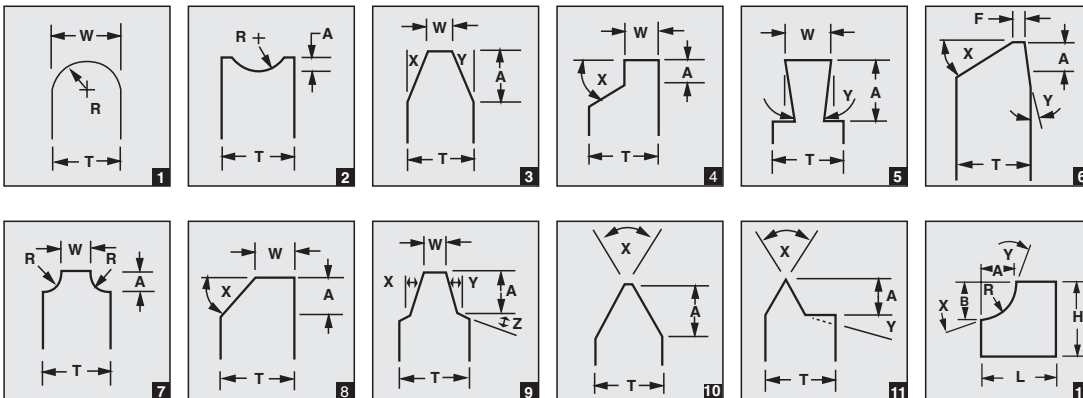
* See page 77 for acme width specs.

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.*





TECHNICAL INFORMATION

thread form	Tool-Flo insert		tool joint application	minimum box size
	topping	non-topping		
V-.038R 2" tpf 4 tpi	TNMA 55 428 FLDC-4-428 E/I 22ER/NR 428 27ER/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 22ER/NR 438	FLD-3038R/L	NC56 NC61 NC70 NC77	NC56
V-.050 2" tpf 4 tpi	FLDC-4-425 E/I 27ER/NR 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 22ER/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 22ER/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.
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 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 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 THREAD FORM SPECIFICATIONS					
Thread Form	TPI	TPF	Width or Flat Crest	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

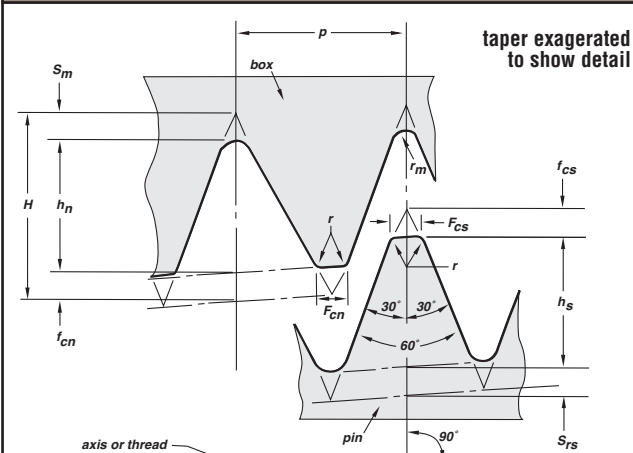
*Obsolescent thread form - See API Spec 7, 35th Edition, May 1, 1985, Section 9.4



PRODUCT THREAD DIMENSIONS - ROTARY SHOULDER CONNECTIONS

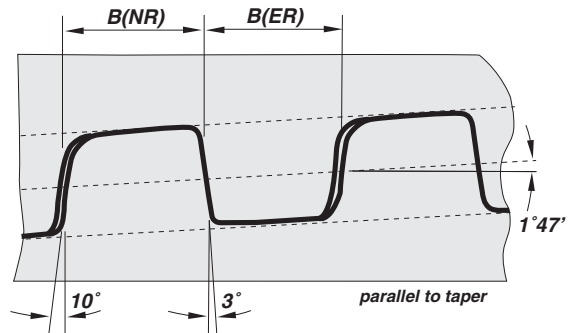
thread form	taper in. per ft.	thread height not truncated H	thread height truncated $h_n = h_s$	root truncation $S_m = S_{rs}$ $f_m = f_{rs}$	crest truncation $f_{cn} = f_{cs}$	width of flat		root radius $r_m = r_{rs}$	radius at thread corners r	pitch p
						crest $f_{cn} = f_{cs}$	crest $f_m = f_{rs}$			
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



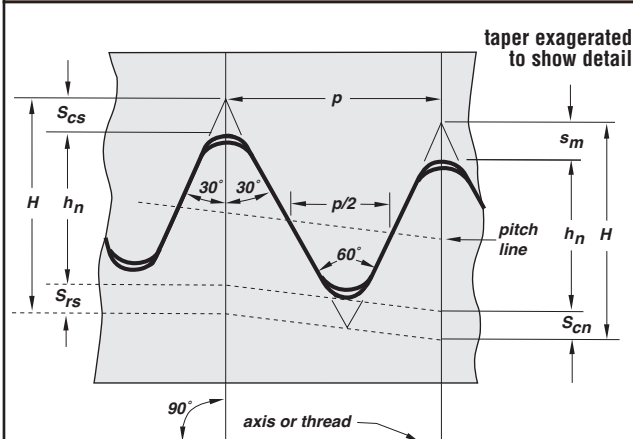
For inserts with this form see pages 8, 14, 17, 18, and 21-23
Chart based on API Spec 7, 38th Edition, April 1994, pg 30

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

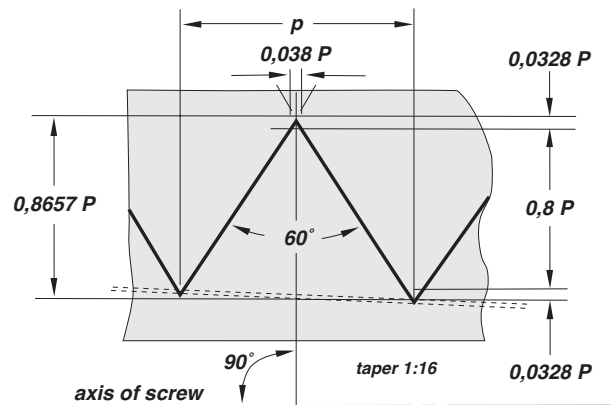
API CASING AND TUBING ROUND THREAD FORM



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	.10825
$H_s = h_n$	=	.626p - .007	.07125
$S_{rs} = S_m$	=	.120p + .002	.01700
$S_{cs} = S_{cn}$	=	.120p + .005	.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



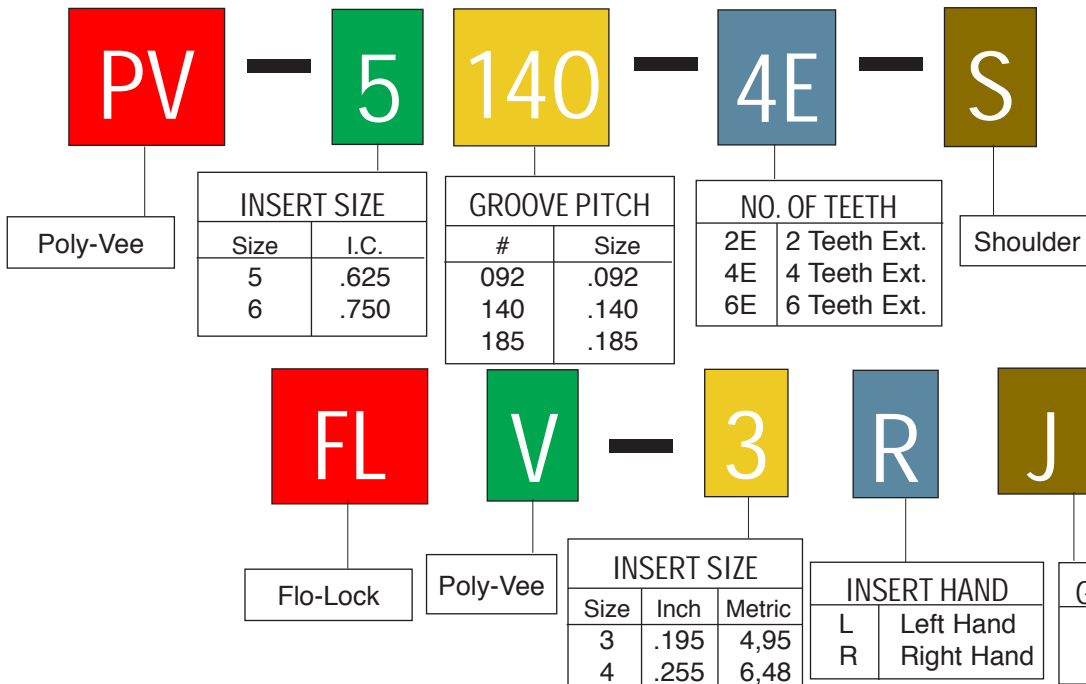
TOOL FLO

ADVANTAGE
EFFECTIVE
OPTIMATIVE





Insert Nomenclature Chart



- 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

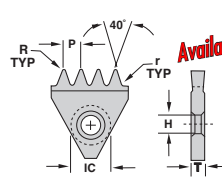
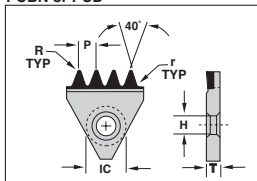
- FLV**
- Single-point insert for flexible programming
 - Inserts are precision ground for premium tolerance
 - Strong cutting edge able to withstand moderate interruption
 - Fits into industry standard holders

POLY-VEE

PV-S MULTI-TOOTH W/SHOULDER

HOLDER: STCNR (see next page)

PCBN or PCD



Available in Ceramic for Cast Iron!

Insert Description	EDP Code	Cross Section*	IC	H	T	P	r	R	# of teeth	Coatings				
										C25	GP25	AT50	CB200	PC33
PV-5092-4E-S	PV50924ES	J	.625	.203	.252	.092	.009	.012	4	●	●	●	●	●
PV-5092-6E-S	PV50926ES	J	.625	.203	.252	.092	.009	.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	.252	.140	.013	.016	6	●	●	●	●	●
PV-6185-4E-S	PV61854ES	L	.750	.203	.252	.185	.021	.013	4	●	●	●	●	●

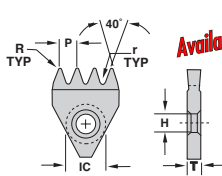
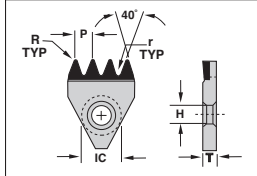
*See table on page 34.

POLY-VEE

PV MULTI-TOOTH W/O SHOULDER

HOLDER: STCNR (see next page)

PCBN or PCD



Available in Ceramic for Cast Iron!

Insert Description	EDP Code	Cross Section*	IC	H	T	P	r	R	# of teeth	Coatings				
										C25	GP25	AT50	CB200	PC33
PV-5092-4E	PV50924E	J	.625	.203	.252	.092	.009	.012	4	●	●	●	●	●
PV-5092-6E	PV50926E	J	.625	.203	.252	.092	.009	.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 34.

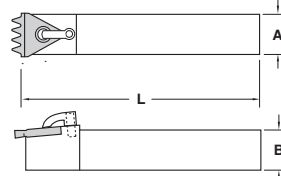
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up-to-date grade offering.

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

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



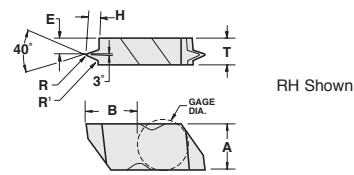
POLY-VEE STCNR



Description	EDP Code	A	B	L	Insert	Insert Screw	Clamp	Clamp Screw
STCNR-165	977064641	1.000	1.000	6.000	PV-5	SF67	TC-250	STC-11
STCNR-205	9770206641	1.250	1.250	6.000	PV-5	SF67	TC-250	STC-11
STCNR-206	9770206761	1.250	1.250	6.000	PV-6	SD2	TC-250	STC-11

POLY-VEE FLV FLO-LOCK STYLE

For holders see page

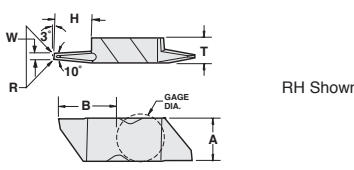


Insert Description	EDP Code	R	R1	T	E	H	A	B	C25	GP3	GP50	AT3	AT50
FLV-3RJ	623800R	.012	.008	.195	.125	.087	.344	.4013		●			●
FLV-3RK	623900R	.016	.013	.195	.100	.140	.344	.4000		●			●
FLV-4RL	624800R	.012	.015	.255	.118	.201	.453	.6288		●			●
FLV-3LJ	623800L	.012	.008	.195	.125	.087	.344	.4013		●			●
FLV-3LK	623900L	.016	.013	.195	.100	.140	.344	.4000		●			●
FLV-4LL	624800L	.012	.015	.255	.118	.201	.453	.6288		●			●

PISTON GROOVING FLG KEYSTONE RING GROOVE CHIPBREAKER

Exclusive patented design!

For holders see page



Insert Description	EDP Code	W	R	H	T	A	B	C25	GP3	GP50	AT3	AT50
FLG-4R W.059 TF19908	TF19908	.059	.012	.275	.255	.453	.6288		●			●

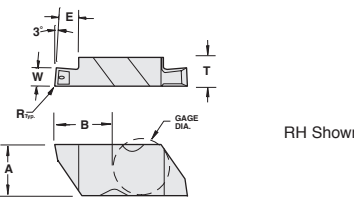
GROOVING - CHIP-FLO FLG-CB

Exclusive patented design!

For holders see page

See page 93 for a complete listing!

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



Insert Description	EDP Code	W		R	E	T	A	B	Gage Dia.	Coatings					
		Inch	Metric							Uncoated	TIN Coated	AITIN Coated	C3	GP3	GP50
FLG-3062R-CB	563662PR	.062	1,57	.005/.010	.120	.195	.344	.4050	.3750		●				
FLG-3062L-CB	563662PL	.062	1,57	.005/.010	.120	.195	.344	.4050	.3750		●				
FLG-3072R-CB	563672PR	.072	1,83	.005/.010	.120	.195	.344	.4050	.3750		●				
FLG-3072L-CB	563672PL	.072	1,83	.005/.010	.120	.195	.344	.4050	.3750		●				
FLG-3078R-CB	563678PR	.078	1,98	.005/.010	.120	.195	.344	.4050	.3750		●				
FLG-3078L-CB	563678PL	.078	1,98	.005/.010	.120	.195	.344	.4050	.3750		●				
FLG-3088R-CB	563688PR	.088	2,24	.005/.010	.180	.195	.344	.4050	.3750		●				
FLG-3088L-CB	563688PL	.088	2,24	.005/.010	.180	.195	.344	.4050	.3750		●				
FLG-3094R-CB	563694PR	.094	2,39	.005/.010	.180	.195	.344	.4050	.3750		●				
FLG-3094L-CB	563694PL	.094	2,39	.005/.010	.180	.195	.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.

Material	Uncoated	TIN Coated	AITIN Coated
Cast Iron	▲	●	▲
Non-Ferrous		●	
Stainless/High Temp	▲	●	▲
Steel	▲	●	▲



WHEEL TURNING DBV HIGH POLISH



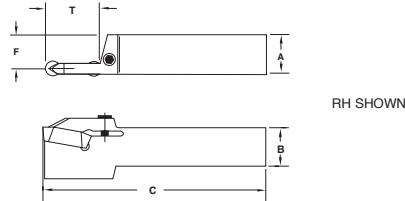
Insert Description	EDP Code	W	R	L	H		
DBV-315 FNR-CB	TF17420	.315	.157	1.180	.320	●	
DBV-315 FNR-CBYZ	TF22487	.315	.157	1.180	.320	●	

	C2P	GP2	GP50	AT3	AT50	Uncoated	TiN Coated	AlTiN Coated
●	●							
●	●							

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.

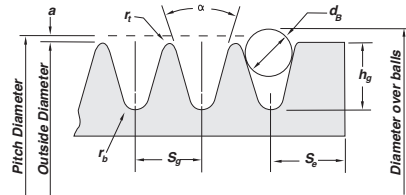
 ● High performance choice in optimal conditions.
 ▲ Recommended grade under general conditions.

WHEEL TURNING TFHDR/L



Description	EDP Code	Insert	A	B	C	F	Screw
TFHDR-25.4-8A	9828168A	DBV	1.000	1.000	6.000	.884	S-412
TFHDL-25.4-8A	9827168A	DBV	1.000	1.000	6.000	.884	S-412
TFHDR-31.7-8A	9828208A	DBV	1.250	1.250	6.700	1.133	S-412
TFHDL-31.7-8A	9827208A	DBV	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.	Up through 2.9 in. outside diameter ± 0.005 in.	0.001 in. per inch of outside diameter
Over 2.9 in. to and including 8.0 in. outside diameter ± 0.020 in.	Over 2.9 in. to and including 10.0 in. outside diameter ± 0.010 in.	
For each additional inch of outside diameter over 8.0 in., add ± 0.025 in. add 0.0005 in.	For each additional inch of outside diameter over 10.0 in.,	

All dimensions in inches.

^aSummation of the deviations from S for all groovers in any one sheave shall not exceed ± 0.010 in.

^bVariations 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.

^cTotal indicator reading.



RIGID LOCK
SERRATED LOCKING SYSTEM



RIGID-LOCK

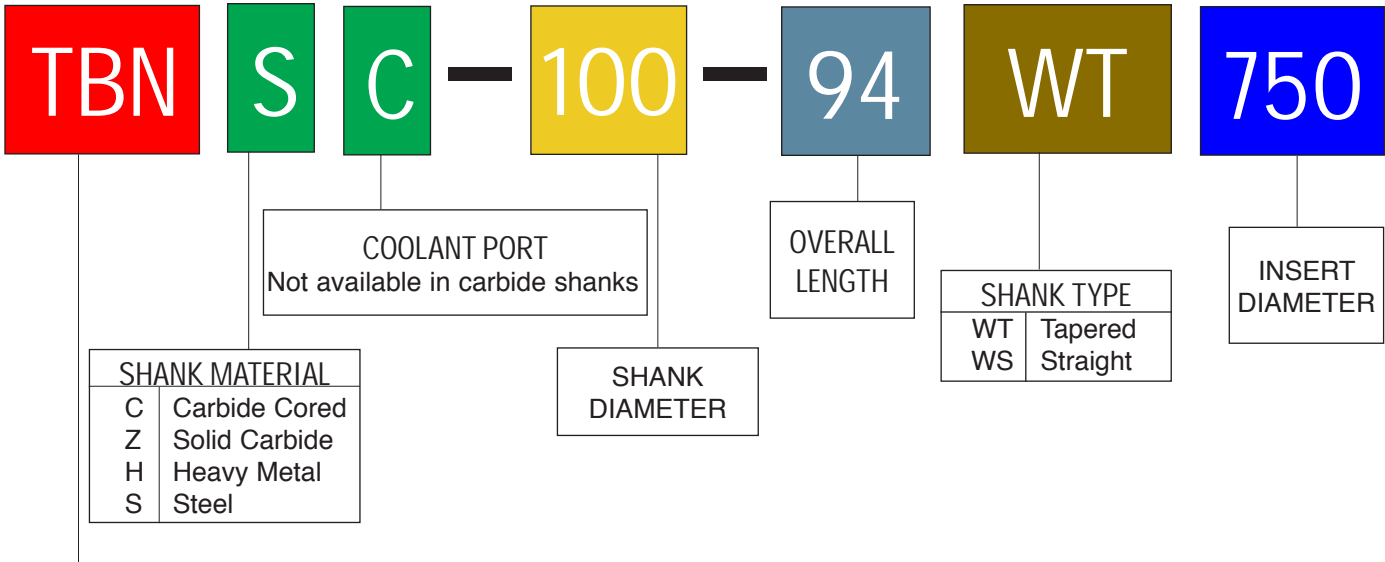
SERRATED LOCKING SYSTEM

Ball Nose End Mills



BALLNOSE

Rigid-Lock Ball Nose Cutter Nomenclature Chart



END MILL STYLE

TBNS Style End Mills

- Finishing style ball nose end mill for precision milling applications
- Inserts are CNC ground to tolerance of +/- .0005 effective in the cutter

TBDS Style End Mills

- 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%

TOOL-FLO GUARANTEE

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

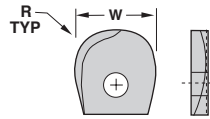


RIGID-LOCK

Ball Nose End Mills

BALL NOSE

TBNR-N (Neutral-Rake Finishing Inserts)

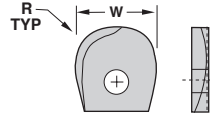


CUTTER: TBNSC/TBNS/TBNC

Insert Description	EDP Code	Dia	R	C26S	GP26	AT26S	AT26	DX200	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)

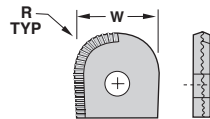


CUTTER: TBNSC/TBNS/TBNC

Insert Description	EDP Code	Dia	R	C26S	GP26	AT26S	AT26	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 (Roughing Inserts)



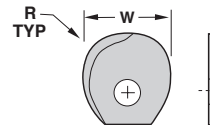
New Design for Roughing!

CUTTER: TBNSC/TBNS/TBNC

Insert Description	EDP Code	Dia	R	C26S	GP26	AT26S	AT26	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)



CUTTER: TBNSC/TBNS/TBNC

Insert Description	EDP Code	Dia	R	C26S	GP26	AT26S	AT26	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.

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



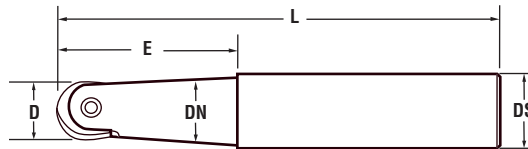
RIGID-LOCK

Ball Nose End Mills

BALL NOSE

Available in Steel, Carbide & Heavy Metal.

TBNS-WT (Tapered Holders-Inches)



Tapered Neck with 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-750	STBN-6	K4
3/4"	TBNSC-100-94WT750	TBNSC10094WT750	.750	3.000	9.437	1.000	3° Taper	TBNR-750	STBN-6	K4
1"	TBNSC-125-82WT1000	TBNSC12582WT1000	1.000	3.875	8.250	1.250	3° Taper	TBNR-1000	STBN-7	K5
1"	TBNSC-125-94WT1000	TBNSC12594WT1000	1.000	3.875	9.437	1.250	3° Taper	TBNR-1000	STBN-7	K5
1-1/4"	TBNSC-150-94WT1250	TBNSC15094WT1250	1.250	4.750	9.437	1.500	3° Taper	TBNR-1250	STBN-8	K6

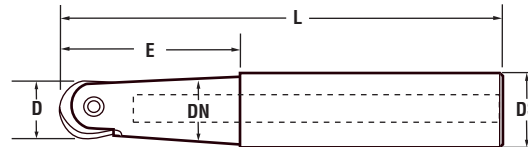
Tapered Neck without Coolant Port

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-250	STBN-1A	K2
5/16"	TBNS-500-50WT312	TBNS50050WT312	.312	1.906	5.000	.500	3° Taper	TBNR-312	STBN-2	K3
3/8"	TBNS-500-50WT375	TBNS50050WT375	.375	1.375	5.000	.500	3° Taper	TBNR-375	STBN-3	K3
1/2"	TBNS-625-60WT500	TBNS62560WT500	.500	2.312	6.000	.625	3° Taper	TBNR-500	STBN-4	K3
5/8"	TBNS-750-68WT625	TBNS75068WT625	.625	2.562	6.875	.750	3° Taper	TBNR-625	STBN-5	K3
3/4"	TBNS-100-75WT750	TBNS10075WT750	.750	3.000	7.500	1.000	3° Taper	TBNR-750	STBN-6	K4
3/4"	TBNS-100-94WT750	TBNS10094WT750	.750	3.000	9.437	1.000	3° Taper	TBNR-750	STBN-6	K4
1"	TBNS-125-82WT1000	TBNS12582WT1000	1.000	3.875	8.250	1.250	3° Taper	TBNR-1000	STBN-7	K5
1"	TBNS-125-94WT1000	TBNS12594WT1000	1.000	3.875	9.437	1.250	3° Taper	TBNR-1000	STBN-7	K5
1-1/4"	TBNS-150-94WT1250	TBNS15094WT1250	1.250	4.750	9.437	1.500	3° Taper	TBNR-1250	STBN-8	K6

TBNC-WT

(Tapered Holders-Inches)

Carbide Cored Shank



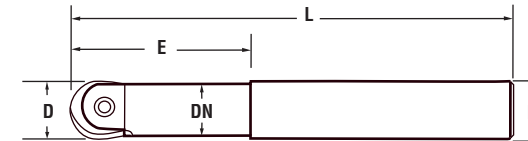
Straight Neck without Coolant Port

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-625	STBN-5	K3
3/4"	TBNC-100-75WT750	TBNC10075WT750	.750	3.000	7.500	1.000	3° Taper	TBNR-750	STBN-6	K4
3/4"	TBNC-100-94WT750	TBNC10094WT750	.750	3.000	9.437	1.000	3° Taper	TBNR-750	STBN-6	K4
1"	TBNC-125-82WT1000	TBNC12582WT1000	1.000	3.875	8.250	1.250	3° Taper	TBNR-1000	STBN-7	K5
1"	TBNC-125-94WT1000	TBNC12594WT1000	1.000	3.875	9.437	1.250	3° Taper	TBNR-1000	STBN-7	K5
1-1/4"	TBNC-150-94WT1250	TBNC15094WT1250	1.250	4.750	9.437	1.500	3° Taper	TBNR-1250	STBN-8	K6

BALL NOSE

Available in Steel, Carbide & Heavy Metal.

TBNS-WS (Straight Holders-Inches)



Straight Neck with Coolant Port

Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
3/4"	TBNSC-750-67WS750	TBNSC75097WS750	.750	2.375	6.750	.750	.709	TBNR-750	STBN-6	K4
1"	TBNSC-100-75WS1000	TBNSC10075WS1000	1.000	2.750	7.500	1.000	.906	TBNR-1000	STBN-7	K5

Straight Neck 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-250	STBN-1A	K2
5/16"	TBNS-375-40WS312	TBNS37540WS312	.312	.750	4.000	.375	.281	TBNR-312	STBN-2	K3
3/8"	TBNS-500-35WS375	TBNS50035WS375	.375	1.344	3.562	.500	.335	TBNR-375	STBN-3	K3
1/2"	TBNS-500-35WS500	TBNS50035WS500	.500	1.250	3.562	.500	.413	TBNR-500	STBN-4	K3
1/2"	TBNS-500-50WS500	TBNS50050WS500	.500	1.250	5.000	.500	.413	TBNR-500	STBN-4	K3
5/8"	TBNS-625-55WS625	TBNS62555WS625	.625	1.375	5.500	.625	.551	TBNR-625	STBN-5	K3
5/8"	TBNS-625-62WS625	TBNS62562WS625	.625	2.000	6.281	.625	.551	TBNR-625	STBN-5	K3
3/4"	TBNS-750-45WS750	TBNS75045WS750	.750	1.750	4.500	.750	.709	TBNR-750	STBN-6	K4
3/4"	TBNS-750-62WS750	TBNS75062WS750	.750	1.750	6.281	.750	.709	TBNR-750	STBN-6	K4
3/4"	TBNS-750-67WS750	TBNS75067WS750	.750	2.375	6.750	.750	.709	TBNR-750	STBN-6	K4
3/4"	TBNS-750-82WS750	TBNS75082WS750	.750	2.375	8.250	.750	.709	TBNR-750	STBN-6	K4
7/8"	TBNS-100-62WS875	TBNS10062WS875	.875	2.375	6.281	1.000	.910	TBNR-875	STBN-7	K5
1"	TBNS-100-62WS1000	TBNS10062WS1000	1.000	1.750	6.281	1.000	.906	TBNR-1000	STBN-7	K5
1"	TBNS-100-75WS1000	TBNS10075WS1000	1.000	2.750	7.500	1.000	.906	TBNR-1000	STBN-7	K5
1"	TBNS-100-90WS1000	TBNS10090WS1000	1.000	3.125	9.062	1.000	.906	TBNR-1000	STBN-7	K5
1-1/4"	TBNS-125-10WS1250	TBNS12510WS1250	1.250	3.875	10.000	1.250	1.125	TBNR-1250	STBN-8	K6
1-1/2"	TBNS-150-12WS1500	TBNS15012WS1500	1.500	4.000	12.000	1.500	1.375	TBNR-1500	STBN-8	K6
1-5/8"	TBNS-162-12WS1625	TBNS16212WS1625	1.625	4.000	12.000	1.625	1.375	TBNR-1625	STBN-9	K7
1-3/4"	TBNS-175-14WS1750	TBNS17514WS1750	1.750	5.000	12.000	1.750	1.500	TBNR-1750	STBN-9	K7
2"	TBNS-200-16WS2000	TBNS20016WS2000	2.000	6.000	12.000	2.000	1.625	TBNR-2000	STBN-10	K8
2-1/2"	TBNS-250-16WS2500	TBNS25016WS2500	2.500	6.000	12.000	2.500	2.125	TBNR-2500	STBN-10	K8



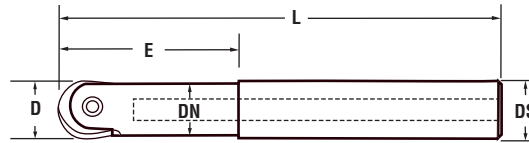
RIGID-LOCK

Ball Nose End Mills

TBNC-WS

(Straight Holders-Inches)

Carbide Cored Shank



Straight Neck without Coolant Port

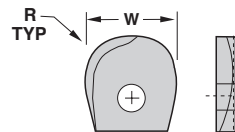
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
1/2"	TBNC-500-35WS500*	TBNC50035WS500	.500	1.250	3.562	.500	.413	TBNC-500	STBN-4	K3
1/2"	TBNC-500-50WS500*	TBNC50050WS500	.500	1.250	5.000	.500	.413	TBNC-500	STBN-4	K3
5/8"	TBNC-625-55WS625	TBNC62555WS625	.625	1.375	5.500	.625	.551	TBNC-625	STBN-5	K3
5/8"	TBNC-625-62WS625	TBNC62562WS625	.625	2.000	6.281	.625	.551	TBNC-625	STBN-5	K3
3/4"	TBNC-750-45WS750	TBNC75045WS750	.750	1.750	4.500	.750	.709	TBNC-750	STBN-6	K4
3/4"	TBNC-750-62WS750	TBNC75062WS750	.750	1.750	6.281	.750	.709	TBNC-750	STBN-6	K4
3/4"	TBNC-750-67WS750	TBNC75067WS750	.750	2.375	6.750	.750	.709	TBNC-750	STBN-6	K4
3/4"	TBNC-750-82WS750	TBNC75082WS750	.750	2.375	8.250	.750	.709	TBNC-750	STBN-6	K4
7/8"	TBNC-100-62WS875	TBNC10062WS875	.875	2.375	6.281	1.000	.810	TBNC-875	STBN-7	K5
1"	TBNC-100-62WS1000	TBNC10062WS1000	1.000	1.750	6.281	1.000	.906	TBNC-1000	STBN-7	K5
1"	TBNC-100-75WS1000	TBNC10075WS1000	1.000	2.750	7.500	1.000	.906	TBNC-1000	STBN-7	K5
1"	TBNC-100-90WS1000	TBNC10090WS1000	1.000	3.125	9.062	1.000	.906	TBNC-1000	STBN-7	K5
1-1/4"	TBNC-125-10WS1250	TBNC125-0WS1250	1.250	3.875	10.000	1.250	1.125	TBNC-1250	STBN-8	K6
1-1/2"	TBNC-150-12WS1500	TBNC15012WS1500	1.500	4.000	12.000	1.500	1.375	TBNC-1500	STBN-8	K6
1-5/8"	TBNC-162-12WS1625	TBNC16212WS1625	1.625	4.000	12.000	1.625	1.375	TBNC-1625	STBN-9	K7
1-3/4"	TBNC-175-14WS1750	TBNC17514WS1750	1.750	5.000	14.000	1.750	1.500	TBNC-1750	STBN-9	K7
2"	TBNC-200-16WS2000	TBNC20016WS2000	2.000	6.000	16.000	2.000	1.625	TBNC-2000	STBN-10	K8
2-1/2"	TBNC-250-16WS2500	TBNC25016WS2500	2.500	6.000	16.000	2.500	2.125	TBNC-2500	STBN-10	K8

*Solid carbide shank

TBNC-M-N

(Neutral-Rake Finishing Inserts-Metric)

CUTTER: TBNSC/TBNS/TBNC



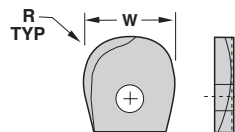
Insert Description	EDP Code	Dia	R	C26S	GP26	AT26S	AT26	DX200	CB200
TBNC-10M-N	TBNC10MN	10,0	5,0	●					
TBNC-12M-N	TBNC12MN	12,0	6,0	●					
TBNC-16M-N	TBNC16MN	16,0	8,0	●					
TBNC-20M-N	TBNC20MN	20,0	10,0	●					
TBNC-25M-N	TBNC25MN	25,0	12,5	●					
TBNC-30M-N	TBNC30MN	30,0	15,0	●					
TBNC-32M-N	TBNC32MN	32,0	16,0	●					

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

TBNC-M-P

(Positive-Rake Finishing Inserts-Metric)

CUTTER: TBNSC/TBNS/TBNC



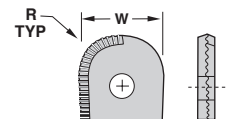
Insert Description	EDP Code	Dia	R	C26S	GP26	AT26S	AT26	DX200	CB200
TBNC-8M-P	TBNC8MP	8,0	4,0	●					
TBNC-10M-P	TBNC10MP	10,0	5,0	●					
TBNC-12M-P	TBNC12MP	12,0	6,0	●					
TBNC-16M-P	TBNC16MP	16,0	8,0	●					
TBNC-20M-P	TBNC20MP	20,0	10,0	●					
TBNC-25M-P	TBNC25MP	25,0	12,5	●					
TBNC-30M-P	TBNC30MP	30,0	15,0	●					
TBNC-32M-P	TBNC32MP	32,0	16,0	●					
TBNC-40M-P	TBNC40MP	40,0	20,0	●					
TBNC-50M-P	TBNC50MP	50,0	25,0	●					
TBNC-65M-P	TBNC65MP	65,0	32,5	●					

TBNC-M-N

(Roughing Inserts-Metric)

CUTTER: TBNSC/TBNS/TBNC

New Design for Roughing!



Insert Description	EDP Code	Dia	R	C26S	GP26	AT26S	AT26	DX200	CB200
TBNC-16M-P	TBNC16MP	16,0	8,0	●					
TBNC-20M-P	TBNC20MP	20,0	10,0	●					
TBNC-25M-P	TBNC25MP	25,0	12,5	●					
TBNC-30M-P	TBNC30MP	30,0	15,0	●					
TBNC-32M-P	TBNC32MP	32,0	16,0	●					
TBNC-40M-P	TBNC40MP	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.

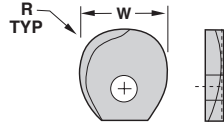
Cast Iron				●					
Non-Ferrous	▲			●					
Stainless/High Temp				●					
Steel				●					
Hardened Material				▲					
Composite									



Spheroid Style

TBRR-M-P (Positive-Rake Inserts-Metric)

CUTTER: TBNSC/TBNS/TBNC



BALLNOSE

Insert Description	EDP Code	Dia	R	Coating						
				Uncoated	TIN Coated	AlTiN Coated	PCD Coated	CBN Tipped*	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.

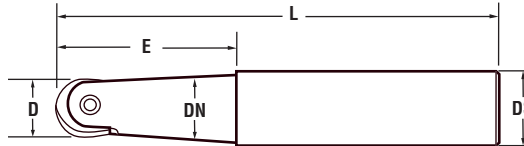
Cast Iron				●						
Non-Ferrous	▲			●						
Stainless/High Temp				●						
Steel				●						
Hardened Material				▲						●
Composite				▲	●					

TBNS-WT

(Tapered Holders-Metric)

Available in Steel, Carbide & Heavy Metal.

Tapered Neck with Coolant Port



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

Tapered Neck without Coolant Port

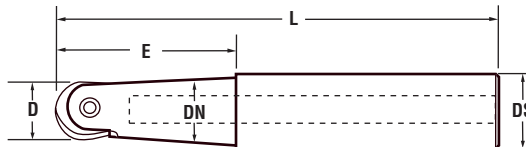
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
8mm	TBNS-10M-125WT8	TBNS10M125WT8	8,0	35,0	125,0	10,0	3° Taper	TBNR-8M	STBN-2	K3
10mm	TBNS-12M-125WT10	TBNS12M125WT10	10,0	35,0	125,0	12,0	3° Taper	TBNR-10M	STBN-3	K3
12mm	TBNS-16M-160WT12	TBNS16M160WT12	12,0	60,0	160,0	16,0	3° Taper	TBNR-12M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

TBNC-WT

(Tapered Holders-Metric)

Carbide Cored Shank

Tapered Neck without Coolant Port



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-16M	STBN-5	K3
20mm	TBNC-25M-190WT20	TBNC25M190WT20	20,0	80,0	190,0	25,0	3° Taper	TBNR-20M	STBN-6	K4
20mm	TBNC-25M-230WT20	TBNC25M230WT20	20,0	80,0	230,0	25,0	3° Taper	TBNR-20M	STBN-6	K4
25mm	TBNC-32M-210WT25	TBNC32M210WT25	25,0	100,0	210,0	32,0	3° Taper	TBNR-25M	STBN-7	K5
25mm	TBNC-32M-240WT25	TBNC32M240WT25	25,0	100,0	240,0	32,0	3° Taper	TBNR-25M	STBN-7	K5
30mm	TBNC-40M-250WT30	TBNC40M250WT30	30,0	120,0	250,0	40,0	3° Taper	TBNR-30M	STBN-7	K5
32mm	TBNC-40M-250WT32	TBNC40M250WT32	32,0	120,0	250,0	40,0	3° Taper	TBNR-32M	STBN-8	K6



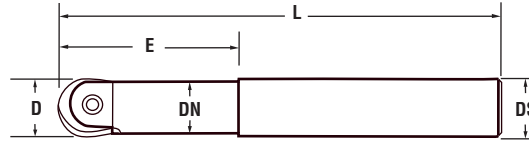
RIGID-LOCK

Ball Nose End Mills

TBNS-WS

(Straight Holders-Metric)

Available in Steel, Carbide & Heavy Metal.



Straight Neck with Coolant Port (RH Only)

Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
25mm	TBNSC-25M-190WS25	TBNSC25M190WS25	25,0	70,0	190,0	25,0	23,0	TBNR-25M	STBN-7	K5
32mm	TBNSC-32M-210WS32	TBNSC32M210WS32	32,0	80,0	210,0	32,0	27,2	TBNR-32M	STBN-8	K6

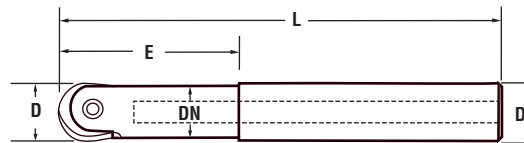
Straight Neck without Coolant Port (RH Only)

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

TBNC-WS

(Straight Holders-Metric)

Carbide Cored Shank



Straight Neck without Coolant Port (RH Only)

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-12M	STBN-4	K3
12mm	TBNC-12M-150WS12*	TBNC12M150WS12	12,0	46,0	150,0	12,0	10,5	TBNR-12M	STBN-4	K3
16mm	TBNC-16M-140WS16	TBNC16M140WS16	16,0	36,0	140,0	16,0	14,0	TBNR-16M	STBN-5	K3
16mm	TBNC-16M-160WS16	TBNC16M160WS16	16,0	36,0	160,0	16,0	14,0	TBNR-16M	STBN-5	K3
20mm	TBNC-20M-160WS20	TBNC20M160WS20	20,0	45,0	160,0	20,0	18,0	TBNR-20M	STBN-6	K4
20mm	TBNC-20M-175WS20	TBNC20M175WS20	20,0	45,0	175,0	20,0	18,0	TBNR-20M	STBN-6	K4
25mm	TBNC-25M-160WS25	TBNC25M160WS25	25,0	45,0	160,0	25,0	23,0	TBNR-25M	STBN-7	K5
25mm	TBNC-25M-190WS25	TBNC25M190WS25	25,0	70,0	190,0	25,0	23,0	TBNR-25M	STBN-7	K5
30mm	TBNC-30M-175WS30	TBNC30M175WS30	30,0	56,0	175,0	30,0	27,2	TBNR-30M	STBN-7	K5
30mm	TBNC-30M-210WS30	TBNC30M210WS30	30,0	80,0	210,0	30,0	27,2	TBNR-30M	STBN-7	K5
32mm	TBNC-32M-175WS32	TBNC32M175WS32	32,0	56,0	175,0	32,0	27,2	TBNR-32M	STBN-8	K6
32mm	TBNC-32M-210WS32	TBNC32M210WS32	32,0	80,0	210,0	32,0	27,2	TBNR-32M	STBN-8	K6

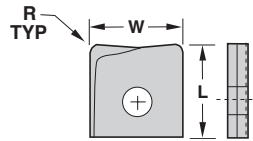
*Solid carbide shank



FLAT BOTTOM Style

TBFI Neutral-Rake Inserts

CUTTER: TBDS/TBDC



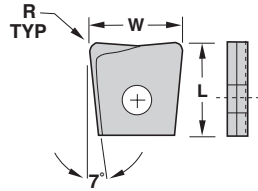
Size	Insert Description	EDP Code	W	R	L	C26S	GP26	AT26S	AT26	DX200	CB200
1/2"	TBFI-500-02	TBDI50002	.500	.032	.500	●					●
1/2"	TBFI-500-04	TBFI50004	.500	.063	.500	●					●
5/8"	TBFI-625-02	TBFI62502	.625	.032	.580	●					●
5/8"	TBFI-625-04	TBFI62504	.625	.063	.580	●					●
3/4"	TBFI-750-02	TBFI75002	.750	.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	●					●

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

BACK DRAFT Style

TBDI Neutral-Rake Inserts

CUTTER: TBDS/TBDC



Size	Insert Description	EDP Code	W	R	L	C26S	GP26	AT26S	AT26	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	●					●

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

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.

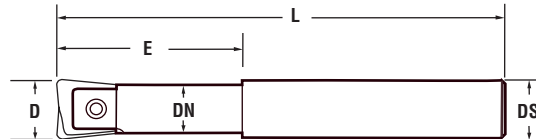
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Material	C26S	GP26	AT26S	AT26	DX200	CB200
Cast Iron					●	
Non-Ferrous	▲					
Stainless/High Temp				●		
Steel				●		
Hardened Material						●
Composite			▲			●

FLAT BOTTOM/BACK DRAFT Style

TBDS-WS Straight Holders-Inches

Use TBDI & TBFI Inserts Only

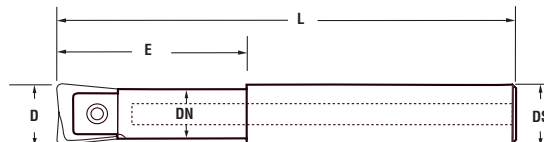


Size	Description	EDP Code	D	E	L	DS	d	Insert	Screw	Wrench
1/2"	TBDS-500-59WS500	TBDS50059WS500	.500	1.890	5.980	.500	.413	TBFI / FI-500	STBN-4	K3 / T-10
5/8"	TBDS-625-63WS625	TBDS62563WS625	.625	2.160	6.380	.625	.551	TBFI / FI-625	STBN-5	K3 / T-10
3/4"	TBDS-750-68WS750	TBDS75068WS750	.750	2.480	6.890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

FLAT BOTTOM/BACK DRAFT Style

TBDC-WS Straight Holders-Inches

Use TBDI & TBFI Inserts Only



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

*Solid carbide shank



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 AT26 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	Reduce feed Decrease tool extension Reduce DOC

RIGID-LOCK Grade Descriptions

Grades	Descriptions
C26S	Uncoated, tough, fine grain substrate with sharp edge. Ideal for plastics and soft materials that produce little or no heat.
AT26	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.
AT26S	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 nonmetallic materials such as graphite, epoxy based resins and plastics. FIRST CHOICE in aluminum and composites at high SFM.

Feed, Speed and Diameter Information

Materials	Cast Iron		Steels				Stainless Steels		Nickel Based Alloys	Titanium	Aluminum
	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	AT26	AT26	AT26	AT26	AT26	AT26	AT26	AT26	AT26	AT26	AT26S/C26S
Speed (SFM)	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

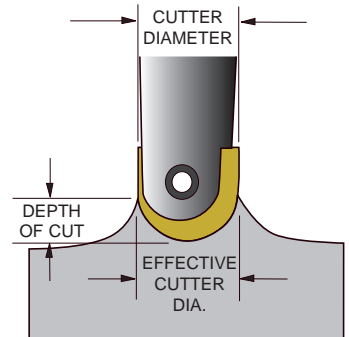
The charts listed below are applicable when the depth of cut is less than the radius of the tool. The IPR can be increased as the DOC is reduced.

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								1.250

Effective diameters for standard inserts at various DOC's

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

$$RPM = SFM \times 3.82 / \text{Effective cutting diameter}$$

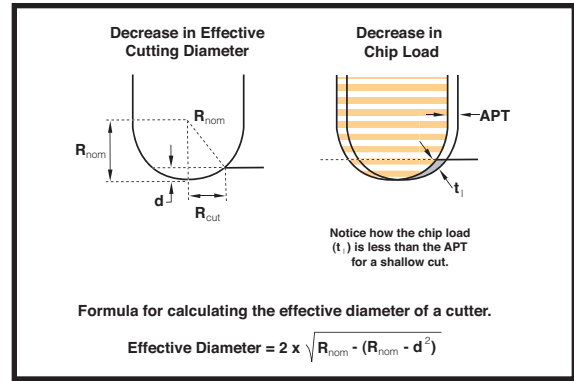


EXAMPLE

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



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		wrench	TORQUE	
	inch	metric		Nm/inch lbs.	anti-seize
STBN-1A	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	K3/T-10	6.0/53	Yes
STBN-5	5/8"	16mm	K3/T-10	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

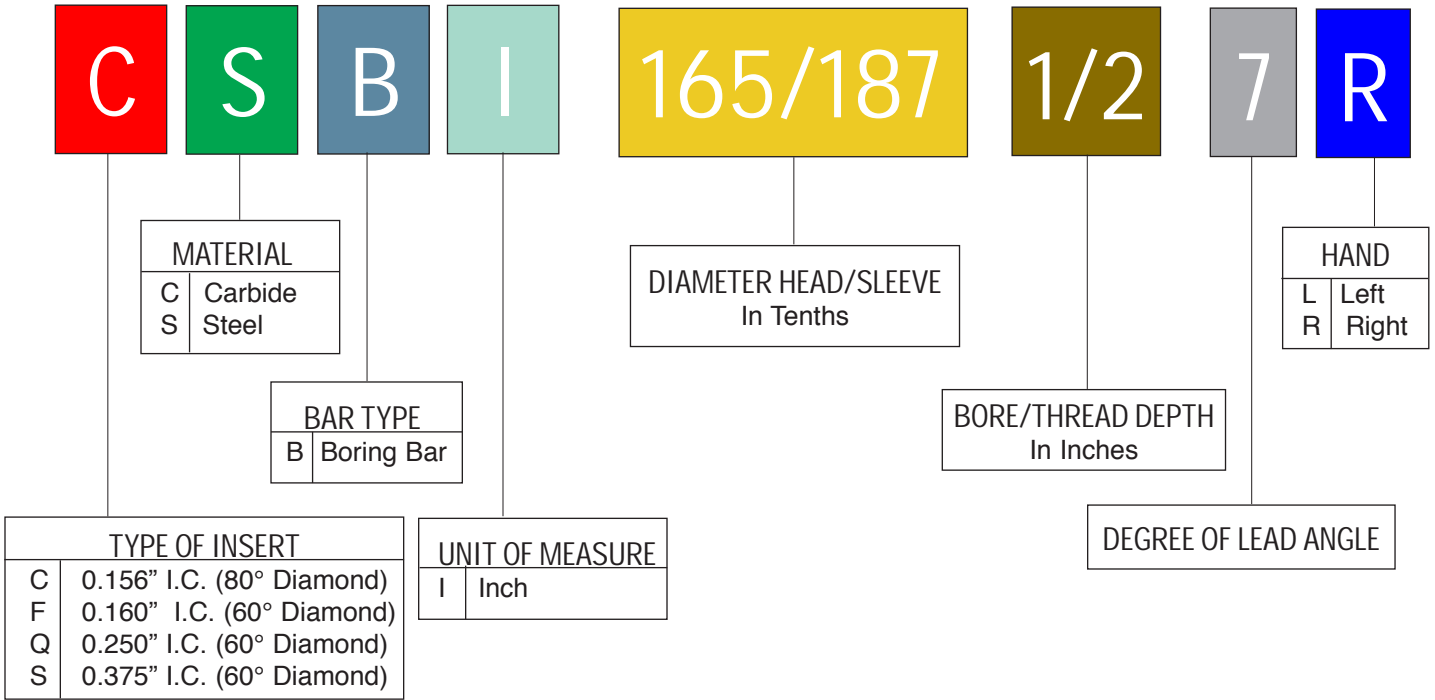


TOOL FLO

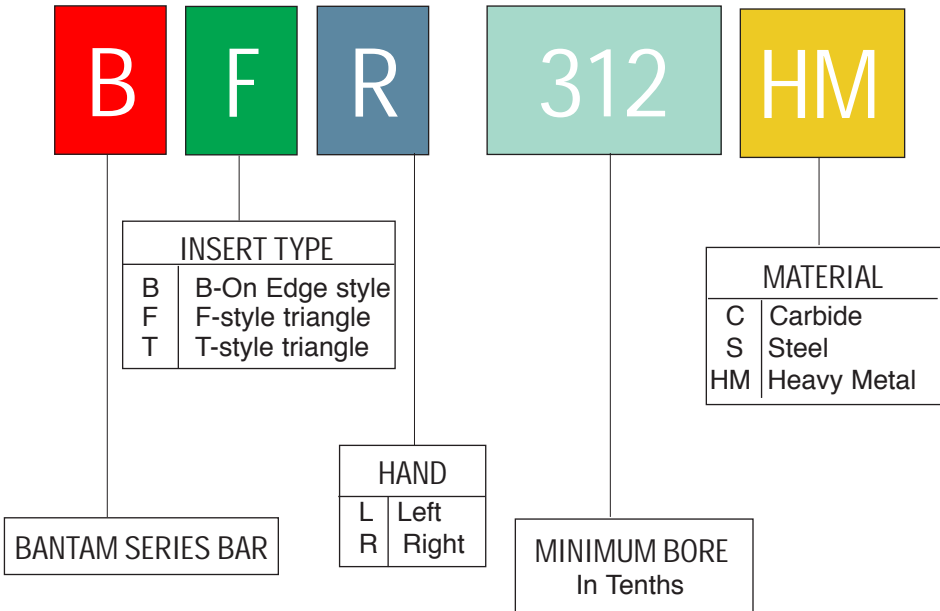




Bantam Boring Bar Nomenclature Chart



Bantam Grooving/Threading Bar Nomenclature Chart

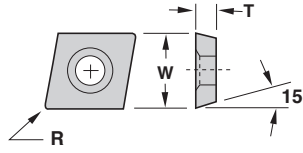




BANTAM SERIES Boring

MINIMUM BORE .180

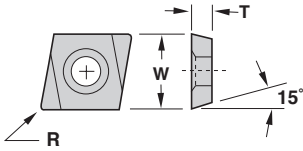
BORING CDCD



Description	EDP Code	T	W	R						
					C22	GP22	GP4	AT22	AT4	
CDCD-500	9BCD500	.040	.156	.002		●	●			
CDCD-505	9BCD505	.040	.156	.007		●	●			
CDCD-51	9BCD51	.040	.156	.015		●	●			

Uncoated		TIN Coated		AlTiN Coated	
C22	GP22	GP4	AT22	AT4	
	●	●			
	●	●			
	●	●			

POSITIVE RAKE BORING CDCG



Description	EDP Code	T	W	R						
					C22	GP22	GP4	AT22	AT4	
CDCG-500L	9BCG500L	.040	.156	.002		●	●			
CDCG-505L	9BCG505L	.040	.156	.007		●	●			
CDCG-51L	9BCG51L	.040	.156	.015		●	●			

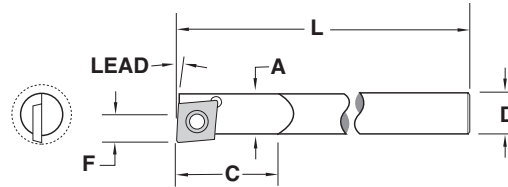
Uncoated		TIN Coated		AlTiN Coated	
C22	GP22	GP4	AT22	AT4	
	●	●			
	●	●			
	●	●			

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

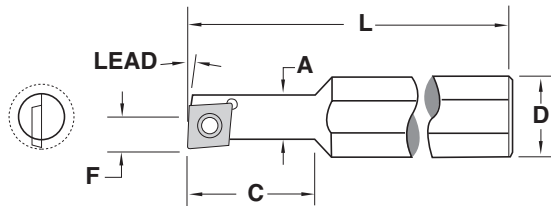
Cast Iron		●	▲		
Non-Ferrous	●	▲			
Stainless/High Temp	●	▲			
Steel	●	▲			

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

CCBI/CSBI

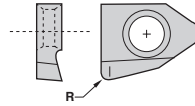


Description	EDP Code	Stk	Material	Insert	Lead	A	D	L	C	F	Min Bore	Screw
CSBI-180/500-1/2-5R	9BCS18505R	●	Steel	CDCD/G	5°	.180	.500	2.75	.500	.104	.208	TS1
CCBI-180/500-7/8-5R	9BCC18505R	●	Carbide	CDCD/G	5°	.189	.500	2.37	.875	.104	.208	TS1
CSBI-250/500-3/4-5R	9BCS25505R	●	Steel	CDCD/G	5°	.260	.500	2.75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



MINIMUM BORE .250

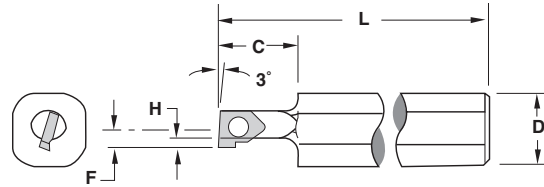
BORING BSBR



Uncoated	TIN Coated	AITIN Coated
C22	GP22	GP4
	●	AT22
		AT4

Description	EDP Code	R
BSBR-005	9BSBR	.005

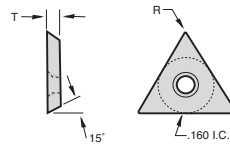
BSR



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	TS20
BSR-250SC	9B250SC	●	Steel	BSBR	✓	5.000	.500	.500	.050	.125	.250	TS20

MINIMUM BORE .275 - .360

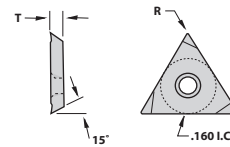
BORING TDAB



Uncoated	TIN Coated	AITIN Coated
C22	GP22	GP4
	●	●
	●	AT22
		AT4

Description	EDP Code	R	T
TDAB-505	9BDB505	.007	.047
TDAB-51	9BDB51	.015	.047

POSITIVE RAKE BORING TDCG



Uncoated	TIN Coated	AITIN Coated
C22	GP22	GP4
	●	●
	●	AT22
		AT4

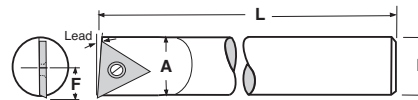
Description	EDP Code	R	T
TDCG-505L	9BDG505L	.007	.047
TDCG-51L	9BDG51L	.015	.047

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

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

FCBI/FSBI



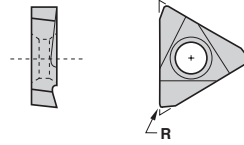
Description	EDP Code	Stk	Material	Insert	Lead	A	D	L	Min. F	Bore	Screw
FCBI-187-4-5R	9BFC185R	●	Carbide	TDAB/G	5°	.203	.187	4.000	.126	.275	TS3
FCBI-250-4-5R	9BFC255R	●	Carbide	TDAB/G	5°	.250	.250	4.000	.156	.300	TS3
FSBI-250-4-5R	9BFS255R	●	Steel	TDAB/G	5°	.260	.250	4.000	.156	.300	TS3
FCBI-312-4-5R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



BANTAM SERIES Boring

MINIMUM BORE .312

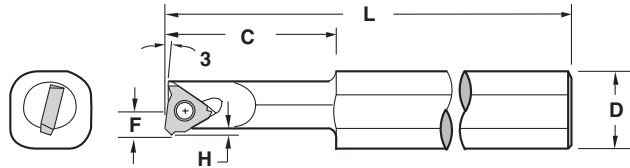
BORING BFR3



Uncoated	TIN Coated	AITIN Coated
C22	GP22	AT22
	GP4	AT4
	●	

Description	EDP Code	R
BFR3-BR	9BFR3B	.005

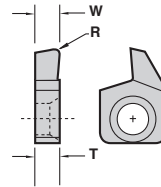
BFR3



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

MINIMUM BORE .312 - .440

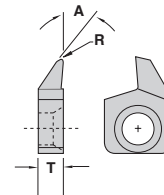
BORING BNBR/L



Uncoated	TIN Coated	AITIN Coated
C22	GP22	AT22
	GP4	AT4
	●	
	●	

Description	EDP Code	W	R	T
BNBR-125W	9BB125R	.125	.005/.010	.137
BNBL-125W	9BB125L	.125	.005/.010	.137

BACK TURNING BNPR/L



Uncoated	TIN Coated	AITIN Coated
C22	GP22	AT22
	GP4	AT4
	●	
	●	

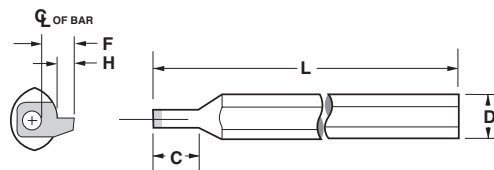
Description	EDP Code	A	R	T
BNPR-015R	9BP015R	45°	.015	.137
BNPL-015R	9BP015L	45°	.015	.137

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- ▲ Recommended grade under general conditions.

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

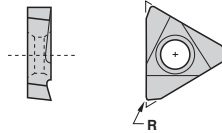
BB



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



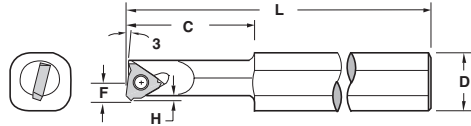
MINIMUM BORE .400 BORING BFR4



Uncoated	TIN Coated	AITN Coated
C22	GP22	GP4
		AT22
		AT4

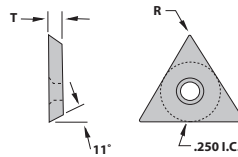
Description	EDP Code	R
BFR4-BR	9BFR4B	.005

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	.050	.400	TS25
BFR-400SC	9BF400SC	●	Steel	BFR4	✓	5.000	.500	1.000	.050	.050	.400	TS25
BFR-400HM	9BF400HM	●	Heavy Metal	BFR4		5.000	.500	1.250	.050	.050	.400	TS25
BFR-400HMC	9BF400HMC	●	Heavy Metal	BFR4	✓	5.000	.500	1.250	.050	.050	.400	TS25

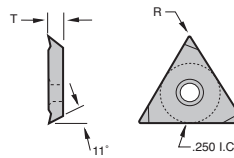
MINIMUM BORE .438 BORING TPCB



Uncoated	TIN Coated	AITN Coated
C22	GP22	GP4
		AT22
		AT4

Description	EDP Code	R	T
TPCB-2205	9BPB2205	.007	.096
TPCB-221	9BPB221	.015	.096

POSITIVE RAKE BORING TPCG



Uncoated	TIN Coated	AITN Coated
C22	GP22	GP4
		AT22
		AT4

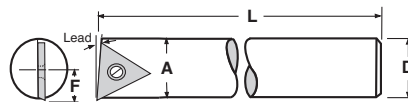
Description	EDP Code	R	T
TPCG-2205L	9BPG2205	.007	.096
TPCG-221L	9BPG221L	.015	.096

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- ▲ Recommended grade under general conditions.

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	9BQC5085R	●	Carbide	TPCB/G	5°	.510	.500	8.000	.296	.563	TS6

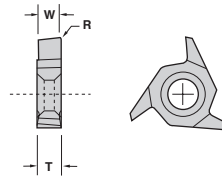


BANTAM SERIES

Grooving

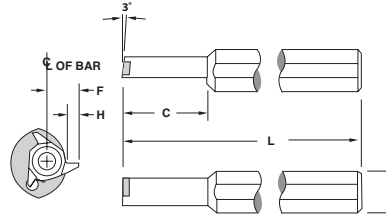
MINIMUM BORE .500

BORING
BTBR/L



Description	EDP Code	W	R	T	C22	GP22	GP4	AT22	AT4	Uncoated	TIN Coated	ATTIN Coated
BTBR-125	9BTB125R	.125	.005/.010	.130			●					
BTBL-125	9BTB125L	.125	.005/.010	.130			●					

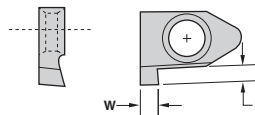
BTR/L



Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	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

MINIMUM BORE .250

GROOVING
BSGR



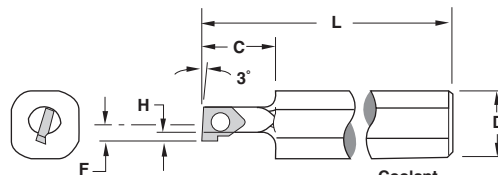
Description	EDP Code	W	D	C22	GP22	GP4	AT22	AT4
BSGR-015W	9BSG015R	.015	.030			●		
BSGR-020W	9BSG020R	.020	.050			●		
BSGR-031W	9BSG031R	.031	.050			●		
BSGR-047W	9BSG047R	.047	.050			●		

BSR

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- ▲ Recommended grade under general conditions.

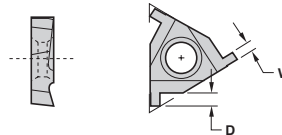
Material	C22	GP22	GP4	AT22	AT4
Cast Iron		●	▲		
Non-Ferrous	●	▲			
Stainless/High Temp	●	▲			
Steel	●	▲			



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

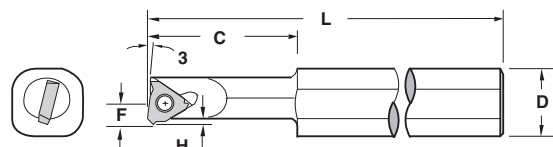
MINIMUM BORE .312

GROOVING
BFR3



Description	EDP Code	W	D	C22	GP22	GP4	AT22	AT4
BFR3-015W	9BFR3G015	.015	.020			●		
BFR3-020W	9BFR3G020	.020	.030			●		
BFR3-031W	9BFR3G031	.031	.035			●		

BFR3

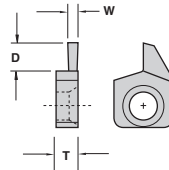


Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F	Min. Bore	Screw
BFR-312S	9BF312S	●	Steel	BFR3		5.000	.500	1.000	.050	.150	.312	TS25
BFR-312SC	9BF312SC	●	Steel	BFR3	✓	5.000	.500	1.000	.050	.150	.312	TS25
BFR-312HM	9BF312HM	●	Heavy Metal	BFR3		5.000	.500	1.000	.050	.150	.312	TS25
BFR-312HMC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



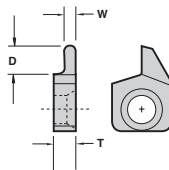
BANTAM SERIES Grooving

MINIMUM BORE .312 - .440 GROOVING BNGR/L



Description	EDP Code	W	D	T	Coating				
					C22	GP22	GP4	AT22	AT4
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-FNR BNRR/L



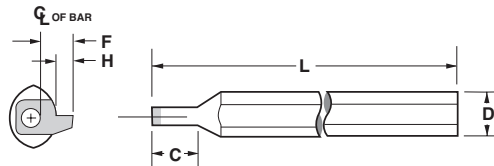
Description	EDP Code	W	R	D	T	Coating				
						C22	GP22	GP4	AT22	AT4
BNRR-031W	9BR031R	.031	.0155	.050	.137		●	●		
BNRL-031W	9BR031L	.031	.0155	.050	.137		●	●		
BNRR-047W	9BR047R	.047	.0235	.070	.137		●	●		
BNRL-047W	9BR047L	.047	.0235	.070	.137		●	●		
BNRR-062W	9BR062R	.062	.0310	.070	.137		●	●		
BNRL-062W	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.

Material	C22	GP22	GP4	AT22	AT4
Cast Iron		●	▲		
Non-Ferrous	●	▲			
Stainless/High Temp	●	▲			
Steel	●	▲			

BB



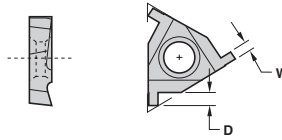
Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	Min. Bore	Screw
BB-312S	9B312S	●	Steel	BNBR/L	5.000	.500	.750	.156	.070	.312	TS25
BB-344S	9B344S	●	Steel	BNBR/L	5.000	.500	.750	.152	.070	.344	TS25
BB-375S	9B375S	●	Steel	BNBR/L	5.000	.500	.750	.1625	.070	.375	TS25
BB-440S	9B440S	●	Steel	BNBR/L	5.000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



BANTAM SERIES

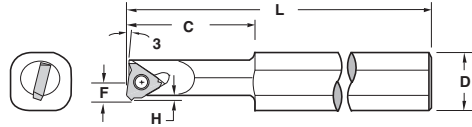
Grooving

MINIMUM BORE .400 GROOVING BFR4



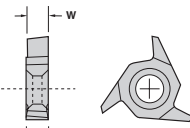
Description	EDP Code	W	D	Coating			
				GP22	GP4	AT22	AT4
BFR4-015W	9BFR4G015	.015	.035		●		
BFR4-020W	9BFR4G020	.020	.035		●		
BFR4-031W	9BFR4G031	.031	.035		●		

BFR4



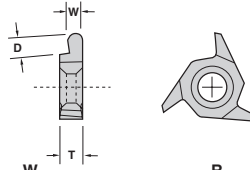
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	F	Min. Bore	Screw
BFR-400SC	9BF400SC	●	Steel	BFR4	✓	5.000	.500	1.000	.050	.050	.400	TS25
BFR-400HM	9BF400HM	●	Heavy Metal	BFR4		5.000	.500	1.250	.050	.050	.400	TS25
BFR-400HMC	9BF400HMC	●	Heavy Metal	BFR4	✓	5.000	.500	1.250	.050	.050	.400	TS25

MINIMUM BORE .500 GROOVING BTGR/L



Description	EDP Code	W	D	T	Coating			
					GP22	GP4	AT22	AT4
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-FNR BTRR/L



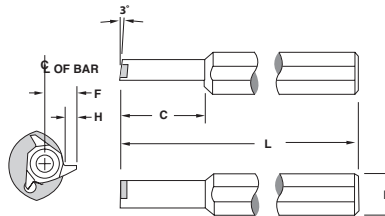
Description	EDP Code	W	R	D	T	Coating			
						GP22	GP4	AT22	AT4
BTRR-031W	9BTR031R	.031	.0155	.050	.130		●		
BTRL-031W	9BTR031L	.031	.0155	.050	.130		●		
BTRR-047W	9BTR047R	.047	.0235	.070	.130		●		
BTRL-047W	9BTR047L	.047	.0235	.070	.130		●		
BTRR-062W	9BTR062R	.062	.0310	.075	.130		●		
BTRL-062W	9BTR062L	.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		●		

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.

Material	GP22	GP4	AT22	AT4
Cast Iron			●	
Non-Ferrous		●		
Stainless/High Temp		●		
Steel		●		

BTR/L



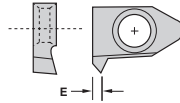
Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	Min. Bore	Screw
BTL-500S	9BTL500S	●	Steel	BTBL	5.000	.500	1.250	.075	.225	.500	TS25
BTR-500HM	9BTR500HM	●	Heavy Metal	BTBR	5.000	.500	1.500	.075	.225	.500	TS25
BTL-500HM	9BTL500HM	●	Heavy Metal	BTBL	5.000	.500	1.500	.075	.225	.500	TS25



BANTAM SERIES

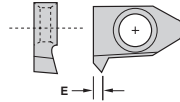
Grooving

MINIMUM BORE .250 THREADING-NPT BSVR



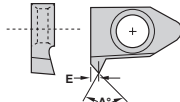
Description	EDP Code	TPI	E	C22	GP22	GP4	AT22	AT4	Uncoated	TIN Coated	AITIN Coated
BSVR-14NPT	9BSV14R	14	.045								
BSVR-18NPT	9BSV18R	18	.033		●						
BSVR-27NPT	9BSV27R	27	.026		●						

THREADING-UN BSVR



Description	EDP Code	TPI	E	C22	GP22	GP4	AT22	AT4	Uncoated	TIN Coated	AITIN Coated
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		●						

V-THREADING 55°/60° BSVR



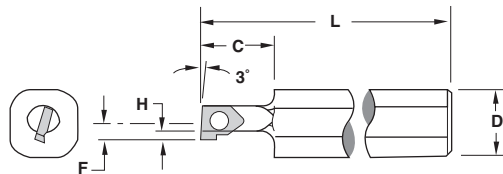
Description	EDP Code	TPI	R/F	E	A	C22	GP22	GP4	AT22	AT4	Uncoated	TIN Coated	AITIN Coated
BSVR-55	9BSV55R	16-48	.003F	.039	55°								
BSVR-60	9BSV60R	16-48	.003R	.039	60°			●					

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

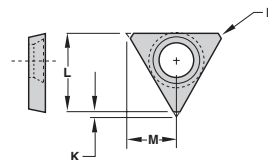
Material	C22	GP22	GP4	AT22	AT4
Cast Iron				●	
Non-Ferrous		●			
Stainless/High Temp		●			
Steel		●			

BSR



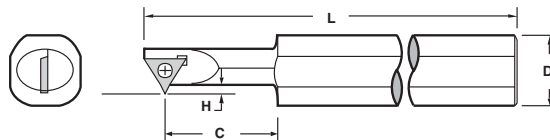
Description	EDP Code	Stk	Material	Insert	Coolant Port	L	D	C	H	Min. Bore	Screw
BSR-250S	9B250S	●	Steel	BSGR		5.000	.500	.500	.050	.250	TS20
BSR-250SC	9B250SC	●	Steel	BSGR	✓	5.000	.500	.500	.050	.250	TS20

MINIMUM BORE .312 V-THREADING 60° BHV



Description	EDP Code	TPI	F	C22	GP22	GP4	AT22	AT4	Uncoated	TIN Coated	AITIN Coated
BHV-002	9BHV002	16-48	.002			●					

BHR

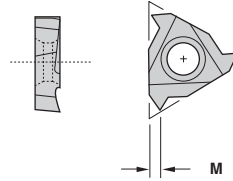


Description	EDP Code	Stk	Material	Insert	L	D	C	H	Min. Bore	Screw
BHR-312S	9BHR312S	●	Steel	BHV	4.000	.500	.750	.060	.312	TS3
BHR-312HM	9BHR312HM	●	Heavy Metal	BHV	4.000	.500	1.000	.060	.312	TS3



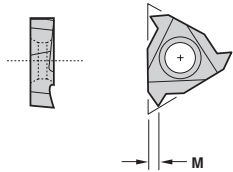
BANTAM SERIES Grooving

MINIMUM BORE .312 THREADING - NPT BFR3



Description	EDP Code	TPI	M	Coating					
				C22	GP22	GP4	AT22	AT4	
BFR3-18NPT	9BFR3V18	18	.033	Uncoated	TIN Coated	AITIN Coated			
BFR3-27NPT	9BFR3V27	27	.026						

THREADING - UN BFR3



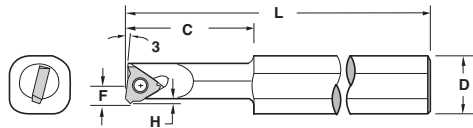
Description	EDP Code	TPI	M	Coating				
				C22	GP22	GP4	AT22	AT4
BFR3-20UN	9BFR3U20	20	.026					
BFR3-24UN	9BFR3U24	24	.026					
BFR3-28UN	9BFR3U28	28	.021					
BFR3-32UN	9BFR3U32	32	.019					

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

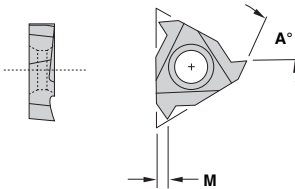
Cast Iron									
Non-Ferrous									
Stainless/High Temp									
Steel									

BFR3



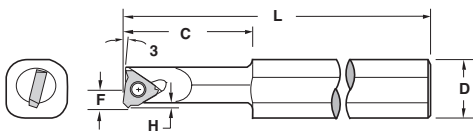
Description	EDP Code	Stk	Material	Insert	Coolant		L	D	C	H	F	Min. Bore	Screw
					Port								
BFR-312S	9BF312S	●	Steel	BFR3			5.000	.500	1.000	.050	.150	.312	TS25
BFR-312SC	9BF312SC	●	Steel	BFR3	✓		5.000	.500	1.000	.050	.150	.312	TS25
BFR-312HM	9BF312HM	●	Heavy Metal	BFR3			5.000	.500	1.000	.050	.150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

V-THREADING 55°/60° BFR3



Description	EDP Code	TPI	M	A	Coating				
					C22	GP22	GP4	AT22	AT4
BFR3-55V	9BFR3V55	20-48	.028	55°					
BFR3-60V	9BFR3V60	27-48	.031	60°					

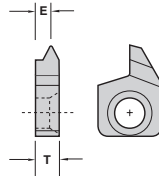
BFR3



Description	EDP Code	Stk	Material	Insert	Coolant		L	D	C	H	F	Min. Bore	Screw
					Port								
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

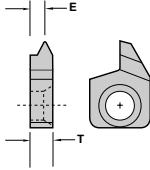


MINIMUM BORE .312 - .440 THREADING - NPT BNVR/L



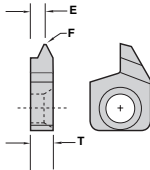
Description	EDP Code	TPI	E	T	Uncoated		TIN Coated		AlTiN Coated	
					C22	GP22	GP4	AT22	AT4	
BNVR-14NPT	9BNP14R	14	.040	.137		●	●			
BNVL-14NPT	9BNP14L	14	.040	.137		●	●			
BNVR-18NPT	9BNP18R	18	.030	.137		●	●			
BNVL-18NPT	9BNP18L	18	.030	.137		●	●			
BNVR-27NPT	9BNP27R	27	.030	.137		●	●			
BNVL-27NPT	9BNP27L	27	.030	.137		●	●			

MINIMUM BORE .312 - .440 THREADING - UN BNVR/L



Description	EDP Code	TPI	E	T	Uncoated		TIN Coated		AlTiN Coated	
					C22	GP22	GP4	AT22	AT4	
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		●	●			

V-THREADING 60° BNVR/L



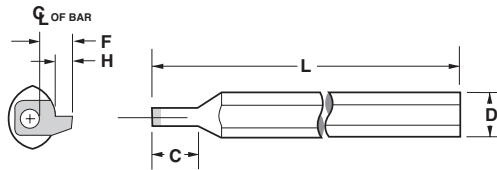
Description	EDP Code	TPI	F	E	H	T	Uncoated		TIN Coated		AlTiN Coated	
							C22	GP22	GP4	AT22	AT4	
BNVR-60	9BNV60R	18-40	.003F	.095	.060	.137		●	●			
BNVL-60	9BNV60L	18-40	.003F	.095	.060	.137		●	●			

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		●				

BB

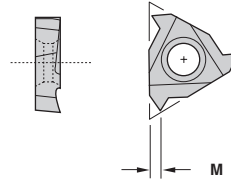


Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	Min. Bore	Screw
BB-312S	9B312S	●	Steel	BNBR/L	5.000	.500	.750	.156	.070	.312	TS25
BB-344S	9B344S	●	Steel	BNBR/L	5.000	.500	.750	.152	.070	.344	TS25
BB-375S	9B375S	●	Steel	BNBR/L	5.000	.500	.750	.1625	.070	.375	TS25
BB-440S	9B440S	●	Steel	BNBR/L	5.000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



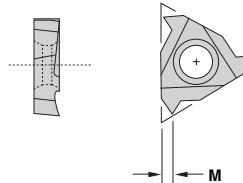
BANTAM SERIES Threading

MINIMUM BORE .400 THREADING - NPT BFR4



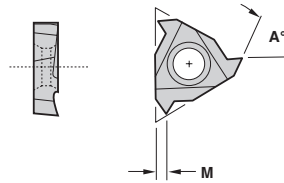
Description	EDP Code	TPI	M	Coating				
				C22	GP22	GP4	AT22	AT4
BFR4-18NPT	9BFR4V18	18	.033		●			
BFR4-27NPT	9BFR4V27	27	.026		●			

THREADING - UN BFR4



Description	EDP Code	TPI	M	Coating				
				C22	GP22	GP4	AT22	AT4
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		●			

V-THREADING 55°/60° BFR4



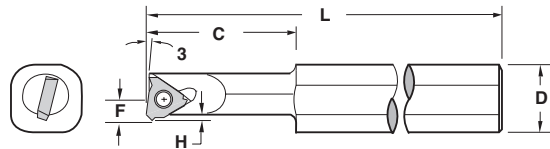
Description	EDP Code	TPI	M	A	Coating				
					C22	GP22	GP4	AT22	AT4
BFR4-55V	9BFR4V55	14-48	.043	55°		●	▲		
BFR4-60V	9BFR4V60	14-48	.043	60°		●	▲		

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

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

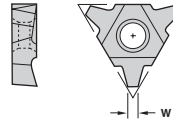
BFR4



Description	EDP Code	Stk	Material	Insert	Coolant		L	D	C	H	F	Min. Bore	Screw
					Port								
BFR-400S	9BF400S	●	Steel	BFR4			5.000	.500	1.000	.050	.050	.400	TS25
BFR-400SC	9BF400SC	●	Steel	BFR4	✓		5.000	.500	1.000	.050	.050	.400	TS25
BFR-400HM	9BF400HM	●	Heavy Metal	BFR4			5.000	.500	1.250	.050	.050	.400	TS25
BFR-400HMC	9BF400HMC	●	Heavy Metal	BFR4	✓		5.000	.500	1.250	.050	.050	.400	TS25

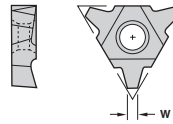


MINIMUM BORE .450 THREADING - ACME BHR4



Description	EDP Code	TPI	W	Coating				
				C22	GP22	GP4	AT22	AT4
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	Coating				
				C22	GP22	GP4	AT22	AT4
BHR4-8STACME	9BHA081R	8	.0476			●		
BHR4-10STACME	9BHA101R	10	.0370			●		
BHR4-12STACME	9BHA121R	12	.0326			●		
BHR4-16STACME	9BHA161R	16	.0238			●		

V-THREADING BHR4

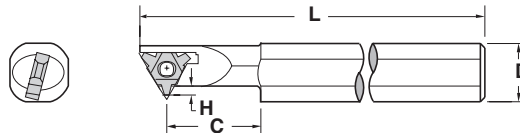


Description	EDP Code	TPI	D	Coating				
				C22	GP22	GP4	AT22	AT4
BHR4-60V	9BH460R	16-48	.075			●	●	

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	●	▲

BHR4

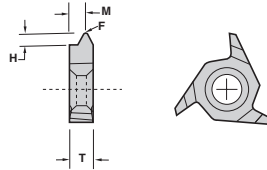


Description	EDP Code	Stk	Material	Insert	L	D	C	H	Min. Bore	Screw
BHR-450S	9BHR450S	●	Steel	BHR4	5.000	.500	1.000	.075	.450	TS25
BHR-450HM	9BHR450HM	●	Heavy Metal	BHR4	5.000	.500	1.000	.075	.450	TS25



BANTAM SERIES Threading

MINIMUM BORE .500 V-THREADING BTVR/L



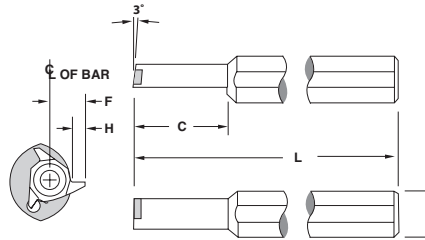
Description	EDP Code	TPI	M	H	T	F	Coating					
							C22	GP22	GP4	AT22	AT4	
BTVR-60	9BTV60R	8-40	.047	.075	.130	.004		●				
BTVL-60	9BTV60L	8-40	.047	.075	.130	.004		●				

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

BTR/L



Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	Min. Bore	Screw
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

Bantam Series Kits



THREADING KITS

V-THREADING KIT #1

Kit Contents

1	BFR-312S
10	BFR3-60V 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

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

18NPT-THREADING KIT #2

Kit Contents

1	BFR-312S
10	BFR3-18NPT GP22
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

.285 MIN BORE KIT #8

Kit Contents

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

27NPT-THREADING KIT #3

Kit Contents

1	BFR-312S
10	BFR3-27NPT GP22
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



Technical Information

BANTAM

SURFACE FOOTAGE PER MINUTE (SFPM)							
Tool-Flo grade	uncoated		TiN coated		AlTiN coated		
	GFI	C22	GP4	GP22	AT4	AT22	
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
AT22	CG6	CA2
AT4	C70	CC-7

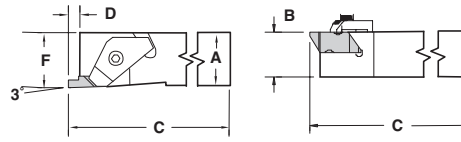


EXTERNAL HOLDER (METRIC)

FLASR/L Threading, Grooving

Design for Swiss machines

SEE FLO-LOCK SECTION FOR COMPLETE INSERT OFFERING



RH SHOWN
RH Holder uses RH Inserts

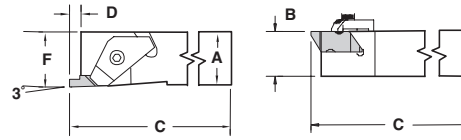
Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLASR-1010M2	92711008	FL_-2R	10,0	10,0	150,0	3,51	10,0	TF-182	S-310
FLASL-1010M2	92661008	FL_-2L	10,0	10,0	150,0	3,51	10,0	TF-183	S-310
FLASR-1212M2	92711208	FL_-2R	12,0	12,0	150,0	3,51	12,0	TF-182	S-310
FLASL-1212M2	92661208	FL_-2L	12,0	12,0	150,0	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)

FLASR/L Threading, Grooving

Design for Swiss machines

SEE FLO-LOCK SECTION FOR COMPLETE INSERT OFFERING



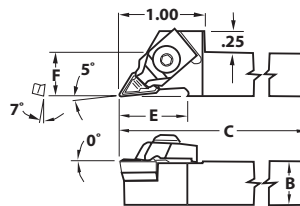
RH SHOWN
RH Holder uses RH Inserts

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLASR-062D	92900608D	FL_-2R	3/8	3/8	6	.75	.375	TF-182	S-310
FLASL-062D	92650608D	FL_-2L	3/8	3/8	6	.75	.375	TF-183	S-310
FLASR-082D	92900808D	FL_-2R	1/2	1/2	6	.75	.500	TF-182	S-310
FLASL-082D	92650808D	FL_-2L	1/2	1/2	6	.75	.500	TF-183	S-310
FLASR-102B	92901008B	FL_-2R	5/8	5/8	4-1/2	1.25	.625	TF-184	S-412
FLASR-103B	92901016B	FL_-3R	5/8	5/8	4-1/2	1.25	.625	TF-184	S-412
FLASL-103B	92651016B	FL_-3L	5/8	5/8	4-1/2	1.25	.625	TF-185	S-412

EXTERNAL HOLDER (INCH)

FLKL-F Profiling

SEE PROFILING SECTION FOR COMPLETE INSERT OFFERING



RH SHOWN
RH Holder uses RH Inserts

PARTS

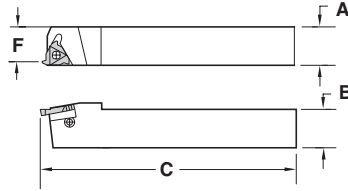
Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw
FLKLCRF-0805D	93150829D	FLPR-5_	1/2	1/2	6	.750	.500	SM-285	S-959	CM180	S-524
FLKLCLF-0805D	93140829D	FLPL-5_	1/2	1/2	6	.750	.500	SM-286	S-959	CM181	S-524
FLKLCRF-1005B	93151029B	FLPR-5_	5/8	5/8	4-1/2	.750	.625	SM-285	S-959	CM180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

AL Threading, Grooving *Design for Swiss machines*

SEE LAYDOWN SECTION FOR COMPLETE INSERT OFFERING



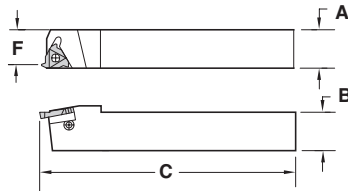
RH SHOWN
RH Holder uses RH Inserts

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	150,0	16,0	SA3	SY3	K3	YE3
AL1616M3L	916116362	16EL	16,0	16,0	150,0	16,0	SA3	SY3	K3	YI3
AL2020M3R	916120361	16ER	20,0	20,0	150,0	20,0	SA3	SY3	K3	YE3
AL2020M3L	916120362	16EL	20,0	20,0	150,0	20,0	SA3	SY3	K3	YI3
AL2525M3R	916125361	16ER	25,0	25,0	150,0	25,0	SA3	SY3	K3	YE3
AL2525M3L	916125362	16EL	25,0	25,0	150,0	25,0	SA3	SY3	K3	YI3

EXTERNAL HOLDER (INCH)

AL Threading, Grooving *Design for Swiss machines*

SEE LAYDOWN SECTION FOR COMPLETE INSERT OFFERING



RH SHOWN
RH Holder uses RH Inserts

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

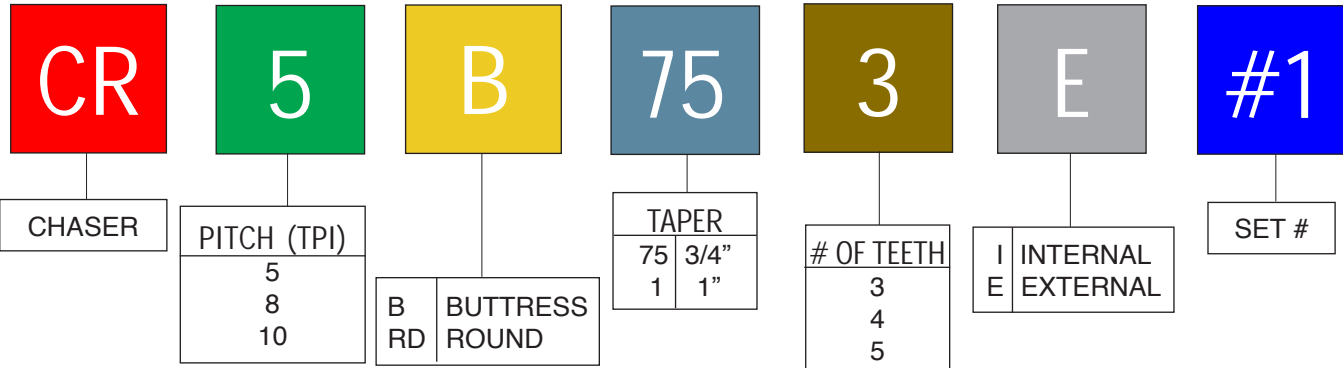


CHAMBERS

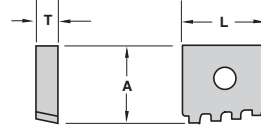




Chaser Insert Identification Chart

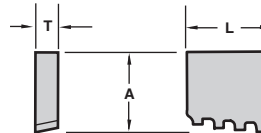


EXTERNAL API BUTTRESS



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	Coating			
								G50	GP50	AT50	AC50
CR-5B75-3E #1	M16415188	5	3/4	.670	.573	.205	3	●	●	●	●
CR-5B75-3E #2	M16415189	5	3/4	.670	.582	.205	3	●	●	●	●
CR-5B75-3E #3	M16415190	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	●	●	●	●

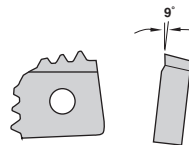
INTERNAL API BUTTRESS



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	Coating			
								G50	GP50	AT50	AC50
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	.670	.573	.205	3	●	●	●	●
CR-5B1-4I	M1782051	5	1	.800	.582	.205	4	●	●	●	●
CR-8B75-4I	M2185353	8	3/4	.800	.590	.205	4	●	●	●	●

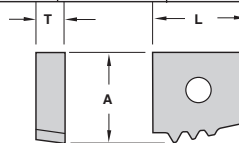
EXTERNAL API ROUND AND BUTTRESS Chaser Style

CNGA - Double Sided (2 cutting edges)



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	Coating			
								G50	GP50	AT50	AC50
CNGA-8R-3E	M32416731	8	3/4				3	●	●	●	●
CNGA-10R-3E	M32416732	10	3/4				3	●	●	●	●
CNGA-5B75-3E	M32416733	5	3/4				3	●	●	●	●

EXTERNAL API ROUND



Description	EDP Code	TPI	TPF	L	A	T	M	No. of Teeth	Coating			
									G50	GP50	AT50	AC50
CR-8R-3E #1	M32416731	8	3/4	.630	.577	.204	.304	3	●	●	●	●
CR-8R-3E #2	M32416732	8	3/4	.630	.586	.204	.262	3	●	●	●	●
CR-8R-3E #3	M32416733	8	3/4	.630	.591	.204	.220	3	●	●	●	●
CR-8R-3E	M32419310	8	3/4	.630	.592	.204	.222	3	●	●	●	●
CR-8R-4E 6°	M3241136	8	3/4	.640	.625	.200	.100	4	●	●	●	●
CR-8R-4E 12°	M3241163	8	3/4	.635	.625	.200	.150	4	●	●	●	●
CR-10R-3E #1	M34416728	10	3/4	.628	.563	.204	.287	3	●	●	●	●
CR-10R-3E #2	M34416729	10	3/4	.628	.572	.204	.253	3	●	●	●	●
CR-10R-3E #3	M34416730	10	3/4	.628	.575	.204	.222	3	●	●	●	●

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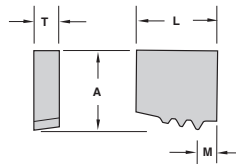
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Series	G50	GP50	AT50	AC50
J-Series	▲	●	●	●
K-Series	▲	●	●	●
L-Series	▲	●	●	●
N-Series	▲	●	●	●
P-Series	▲	●	●	●
Q-Series	●	▲	●	●



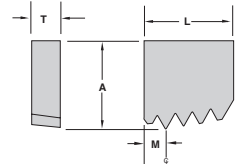
CHASERS Inserts

INTERNAL API ROUND



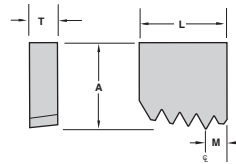
Description	EDP Code	TPI	TPF	L	A	T	M	No. of Teeth	Coatings			
									G50	GP50	AT50	AC50
CR-8R-3I	M3287464	8	3/4	.640	.592	.200	.222	3	●	●	●	●
CR-8R-4I	M3281136	8	3/4	.640	.625	.200	.100	4	●	●	●	●
CR-8R-4I	M32819437	8	3/4	.640	.625	.200	.150	4	●	●	●	●
CR-8R-7I	M32814828	8	3/4	1.000	.625	.200	.145	7	●	●	●	●
CR-8R-7I	M32817968	8	3/4	1.000	.625	.200	.145	7	●	●	●	●
CR-10R-3I	M3481291	10	3/4	.640	.625	.200	.220	3	●	●	●	●

EXTERNAL LPT/NPT



Description	EDP Code	TPI	TPF	L	A	T	M	No. of Teeth	Coatings			
									G50	GP50	AT50	AC50
CR-8NPT-4E	M3648996	8	3/4	.625	.620	.203	.156	4	●	●	●	●
CR-11.5NPT-4E	M3649668	11.5	3/4	.625	.620	.1875	.294	4	●	●	●	●

INTERNAL LPT/NPT



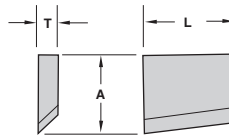
Description	EDP Code	TPI	TPF	L	A	T	M	No. of Teeth	Coatings			
									G50	GP50	AT50	AC50
CR-8NPT-4I	M3689804	8	3/4	.625	.620	.203	.156	4	●	●	●	●

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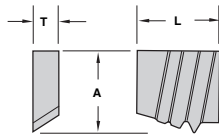
J-Series		▲	●	
K-Series		▲	●	
L-Series		▲	●	
N-Series		▲	●	
P-Series		▲	●	
Q-Series	●	▲		

CHIPBREAKER 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-8LPT-4E
#3 CR W/COOLANT GROOVES	170 TF26423				
#3 CR W/COOLANT GROOVES	170 TF26424				

CHIPBREAKER EXTERNAL



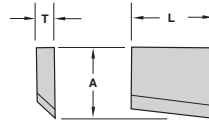
Description	EDP Code	L	A	T	Coolant Grooves	Inserts
TD4601 5B75-1-CB	TF16660	.665	.550	.170	✓	CR-5B75-3E #1
TD4602 5B75-2-CB	TF16661	.668	.550	.170	✓	CR-5B75-3E #2
TD4603 5B75-3-CB	TF16662	.665	.560	.170	✓	CR-5B75-3E #3
TD3931 8R-1-CB	TF16657	.628	.518	.165	✓	CR-8R-3E #1
TD3932 8R-2-CB	TF16658	.635	.526	.165	✓	CR-8R-3E #2
TD3933 8R-3-CB	TF16659	.628	.520	.165	✓	CR-8R-3E #3



CHASERS

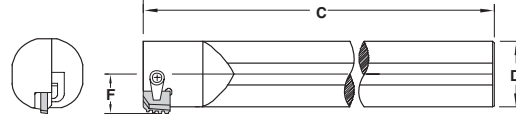
Inserts & Holders

CHIPBREAKER INTERNAL CB



Description	EDP Code	TOOL-FLO Drwg #	L	A	T	Inserts
CR-5B75/5B1-4I-CB	TF16104	TF16104	.800	.500	.125	CR-5B75-4I/CR-5B1-4I
CR-8R/10R-3I/4I-CB	TF1353I	TF1353I	.630	.460	.125	CR-8R-3I/CR-8R-4I/CR-10R-3I/CR-8LPT-4I
CR-8R-7I-CB	TF3445	TF3445	1.000	.510	.125	CR-8R-7I

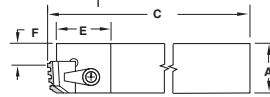
INTERNAL BAR SI-CLHOR Threading



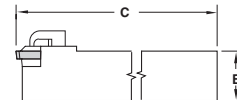
RH SHOWN

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	SF80	TC311	STC-8
		CR-5B1-4I	2	1.125	14	2.250	TF8132I	SF60	TC311	STC-8
SI-CLHOR-328	97003296	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
		CR-5B75-4I	2-1/2	1.375	14	2.250	TF8132I	SF60	TC311	STC-8
SI-CLHOR-408	97004096	CR-5B75-4I	2-1/2	1.375	14	2.250	TF8132I	SF60	TC311	STC-8
		CR-8B75-4I	2-1/2	1.375	14	2.250	TF8132I	SF60	TC311	STC-8
		CR-5B75-4I	2-1/2	1.375	14	2.250	TF8132I	SF60	TC311	STC-8

EXTERNAL HOLDER CLVOR Threading



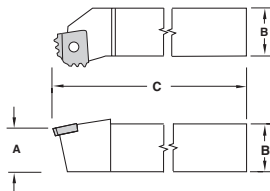
RH SHOWN



Description	EDP Code	Insert	A	B	C	E	F	Seat Seat	Screw	Clamp Clamp	Chip Screw	Chip Breaker
CLVOR-166	92601694	3 TOOTH*	1	1	8	1.25	.475	TF1207	SF80	TC311	STC-4	TF1353
CLVOR-206	92602094	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	TF1207	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

EXTERNAL HOLDER PCFNR For Double sided chaser style insert



RH SHOWN

Description	EDP Code	Insert	A	B	C	E	F	Seat Seat	Screw	Clamp Clamp	Chip Screw	Chip Breaker
PCFNR-164	92601694	CNGA			1		1			6		NL44
PCFNR-204	92601694	CNGA			1-1/4		1-1/4			6		NL44
PCFNR-244	92601694	CNGA			1-1/2		1-1/2			6		NL44

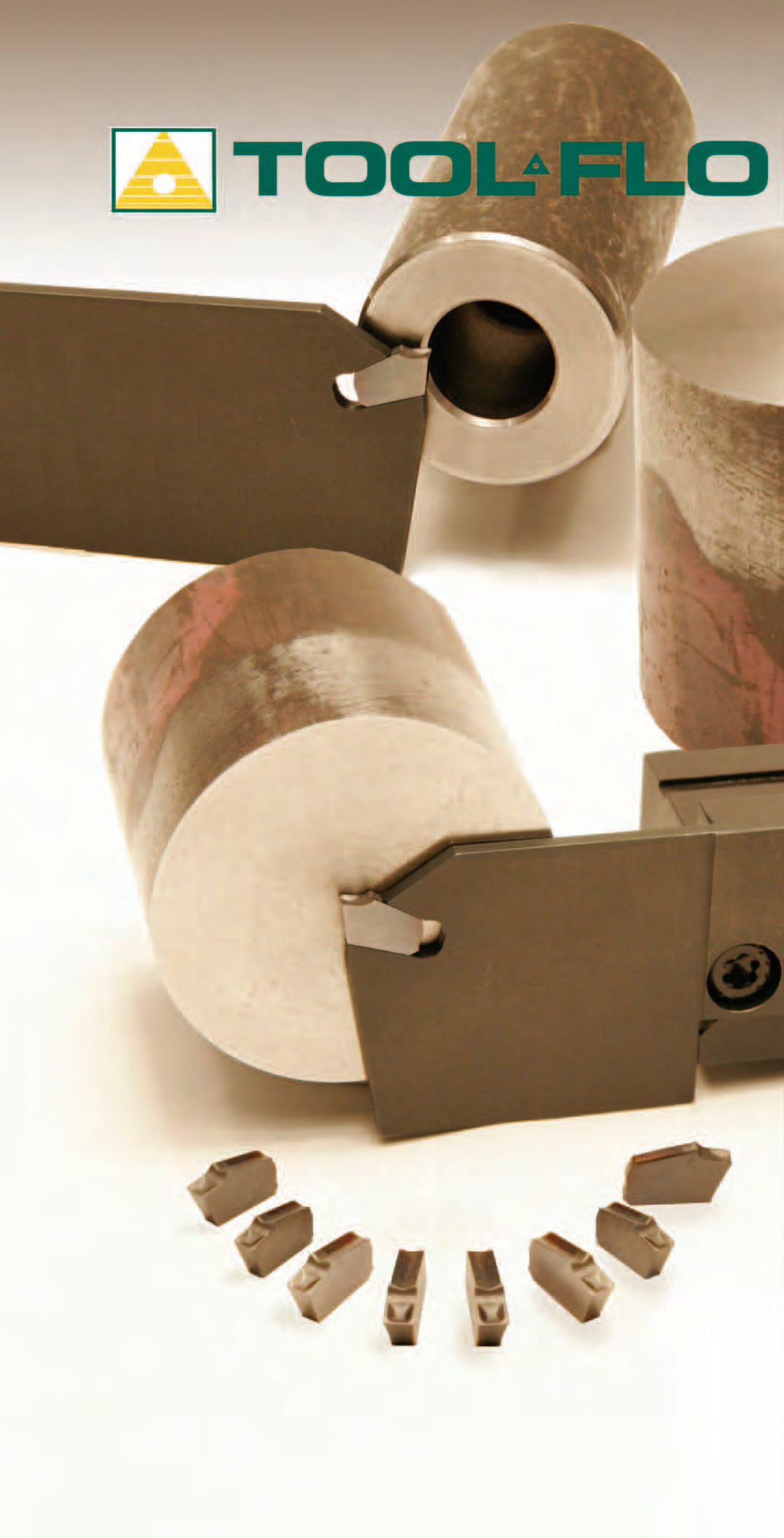
Technical Information

API ROUND THREADING		8 & 10 PITCH		API BUTTRESS THREADING		5 PITCH	
application		surface feet/minute (SFPM)		application		surface feet/minute (SFPM)	
External		500 - 800		External		300 - 500	
Internal		500 - 700		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 additional passes may be required for heat treated materials.



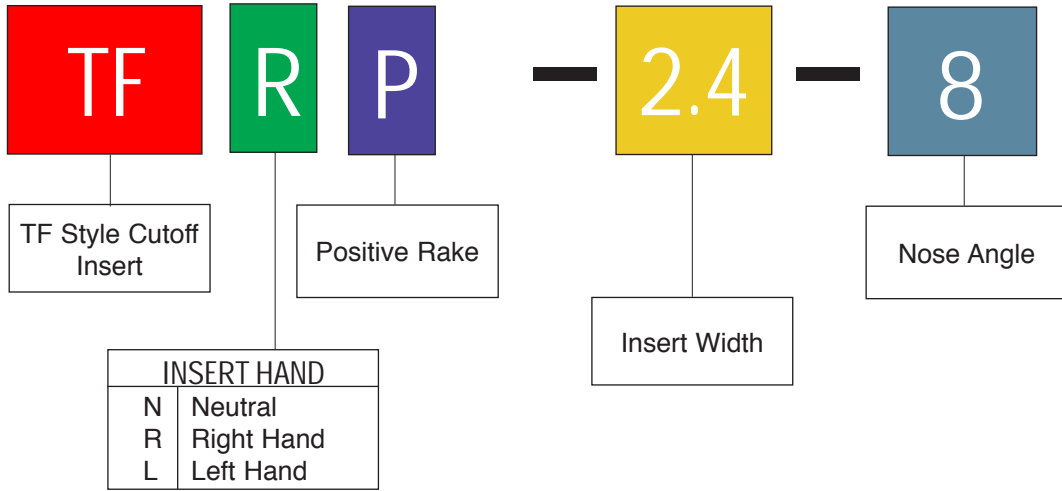
TOOL FLO



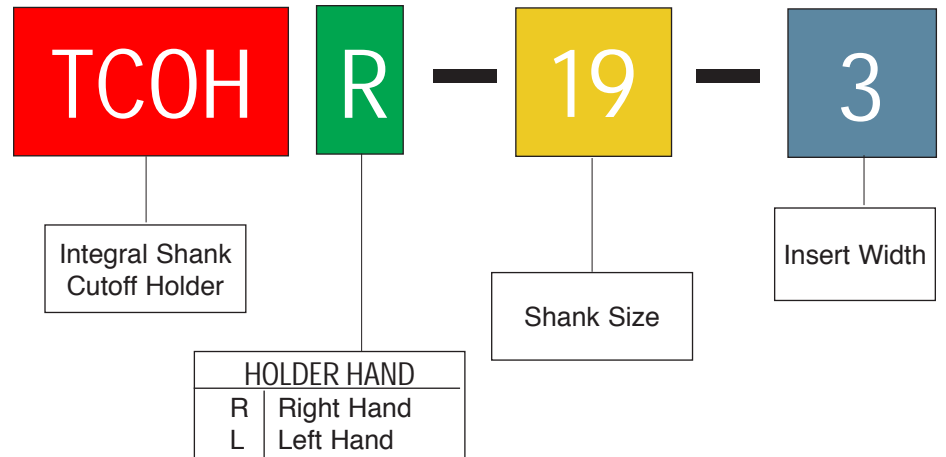
OFF TO OFF



Cutoff Insert Identification Chart

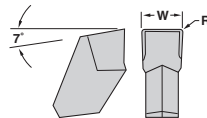


Cutoff Holder Identification Chart



TFN

Neutral Inserts



Description	EDP Code	Insert Width	A	R	Coating				
					C22	GP22	GP50	AT22	AT50
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)					●
TFN-5	COTN500	5,0 (.197)	0°	0,3 (.012)					●
TFN-6	COTN600	6,0 (.236)	0°	0,3 (.012)					●
TFN-8	COTN800	8,0 (.315)	0°	0,4 (.016)					●
TFN-9	COTN900	9,0 (.354)	0°	0,4 (.016)					●

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.

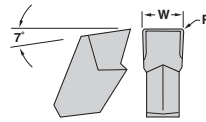
Cast Iron					
Non-Ferrous					
Stainless/High Temp					
Steel					●



CUTOFF / PARTING Inserts

TFNP Positive Rake

Neutral Inserts

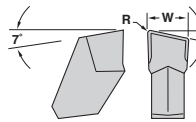


Description	EDP Code	Insert Width	A	R					
					C22	GP22	GP50	AT22	AT50
TFNP-2	COTNP200	2,0 (.078)	0°	0,2 (.008)					
TFNP-2.4	COTNP240	2,4 (.094)	0°	0,2 (.008)					
TFNP-3	COTNP300	3,0 (.118)	0°	0,2 (.008)					
TFNP-4	COTNP400	4,0 (.157)	0°	0,2 (.008)					
TFNP-4.8	COTNP480	4,8 (.187)	0°	0,3 (.012)					
TFNP-5	COTNP500	5,0 (.197)	0°	0,3 (.012)					
TFNP-6	COTNP600	6,0 (.236)	0°	0,3 (.012)					
TFNP-8	COTNP800	8,0 (.315)	0°	0,4 (.016)					
TFNP-9	COTNP900	9,0 (.354)	0°	0,4 (.016)					

Uncoated	TIN Coated	AITIN Coated
C22	GP22	GP50
AT22	AT50	

TFL

Left Hand Inserts

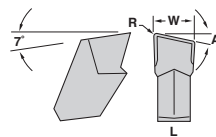


Description	EDP Code	Insert Width	A	R					
					C22	GP22	GP50	AT22	AT50
TFL-2-4	COTL240	2,0 (.078)	4°	0,2 (.008)					●
TFL-2-8	COTL280	2,0 (.078)	8°	0,2 (.008)					●
TFL-2-15	COTL215	2,0 (.078)	15°	0,2 (.008)					●
TFL-2.4-4	COTL244	2,4 (.094)	4°	0,2 (.008)					●
TFL-2.4-8	COTL248	2,4 (.094)	8°	0,2 (.008)					●
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)					●
TFL-5-4	COTL540	5,0 (.197)	4°	0,3 (.012)					●
TFL-5-8	COTL580	5,0 (.197)	8°	0,3 (.012)					●
TFL-6-4	COTL640	6,0 (.236)	4°	0,3 (.012)					●
TFL-6-8	COTL680	6,0 (.236)	8°	0,3 (.012)					●
TFL-8-4	COTL840	8,0 (.315)	8°	0,4 (.016)					●
TFL-9-4	COTL940	9,0 (.354)	9°	0,4 (.016)					●

Uncoated	TIN Coated	AITIN Coated
C22	GP22	GP50
AT22	AT50	

TFLP Positive Rake

Left Hand Inserts



Description	EDP Code	Insert Width	A	R					
					C22	GP22	GP50	AT22	AT50
TFLP-2-4	COTLP240	2,0 (.078)	4°	0,2 (.008)					
TFLP-2-8	COTLP280	2,0 (.078)	8°	0,2 (.008)					
TFLP-2-15	COTLP215	2,0 (.078)	15°	0,2 (.008)					
TFLP-2.4-4	COTLP244	2,4 (.094)	4°	0,2 (.008)					
TFLP-2.4-8	COTLP248	2,4 (.094)	8°	0,2 (.008)					
TFLP-2.4-15	COTLP2415	2,4 (.078)	15°	0,2 (.008)					
TFLP-3-4	COTLP340	3,0 (.118)	4°	0,2 (.008)					
TFLP-3-8	COTLP380	3,0 (.118)	8°	0,2 (.008)					
TFLP-3-15	COTLP315	3,0 (.118)	15°	0,2 (.008)					
TFLP-4-4	COTLP440	4,0 (.157)	4°	0,2 (.008)					
TFLP-4-8	COTLP480	4,0 (.157)	8°	0,2 (.008)					
TFLP-4-15	COTLP415	4,0 (.157)	15°	0,2 (.008)					
TFLP-4.8-4	COTLP484	4,8 (.187)	4°	0,3 (.012)					
TFLP-4.8-8	COTLP488	4,8 (.187)	8°	0,3 (.012)					
TFLP-5-4	COTLP540	5,0 (.197)	4°	0,3 (.012)					
TFLP-5-8	COTLP580	5,0 (.197)	8°	0,3 (.012)					
TFLP-6-4	COTLP640	6,0 (.236)	4°	0,3 (.012)					
TFLP-6-8	COTLP680	6,0 (.236)	8°	0,3 (.012)					
TFLP-8-4	COTLP840	8,0 (.315)	8°	0,4 (.016)					
TFLP-9-4	COTLP940	9,0 (.354)	9°	0,4 (.016)					

Uncoated	TIN Coated	AITIN Coated
C22	GP22	GP50
AT22	AT50	

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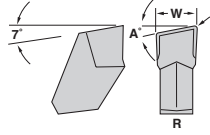
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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



TFR

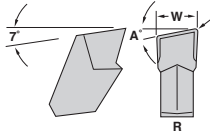
Right Hand Inserts



Description	EDP Code	Insert Width	A	R	Coating				
					C22	GP22	GP50	AT22	AT50
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)					●
TFR-5-4	COTR540	5,0 (.197)	4°	0,3 (.012)					●
TFR-5-8	COTR580	5,0 (.197)	8°	0,3 (.012)					●
TFR-6-4	COTR640	6,0 (.236)	4°	0,3 (.012)					●
TFR-6-8	COTR680	6,0 (.236)	8°	0,3 (.012)					●
TFR-8-4	COTR840	8,0 (.315)	8°	0,4 (.016)					●
TFR-9-4	COTR940	9,0 (.354)	9°	0,4 (.016)					●

TFRP Positive Rake

Right Hand Inserts



Description	EDP Code	Insert Width	A	R	Coating				
					C22	GP22	GP50	AT22	AT50
TFRP-2-4	COTRP240	2,0 (.078)	4°	0,2 (.008)					
TFRP-2-8	COTRP280	2,0 (.078)	8°	0,2 (.008)					
TFRP-2-15	COTRP215	2,0 (.078)	15°	0,2 (.008)					
TFRP-2.4-4	COTRP244	2,4 (.094)	4°	0,2 (.008)					
TFRP-2.4-8	COTRP248	2,4 (.094)	8°	0,2 (.008)					
TFRP-2.4-15	COTRP2415	2,4 (.078)	15°	0,2 (.008)					
TFRP-3-4	COTRP340	3,0 (.118)	4°	0,2 (.008)					
TFRP-3-8	COTRP380	3,0 (.118)	8°	0,2 (.008)					
TFRP-3-15	COTRP315	3,0 (.118)	15°	0,2 (.008)					
TFRP-4-4	COTRP440	4,0 (.157)	4°	0,2 (.008)					
TFRP-4-8	COTRP480	4,0 (.157)	8°	0,2 (.008)					
TFRP-4-15	COTRP415	4,0 (.157)	15°	0,2 (.008)					
TFRP-4.8-4	COTRP484	4,8 (.187)	4°	0,3 (.012)					
TFRP-4.8-8	COTRP488	4,8 (.187)	8°	0,3 (.012)					
TFRP-5-4	COTRP540	5,0 (.197)	4°	0,3 (.012)					
TFRP-5-8	COTRP580	5,0 (.197)	8°	0,3 (.012)					
TFRP-6-4	COTRP640	6,0 (.236)	4°	0,3 (.012)					
TFRP-6-8	COTRP680	6,0 (.236)	8°	0,3 (.012)					
TFRP-8-4	COTRP840	8,0 (.315)	8°	0,4 (.016)					
TFRP-9-4	COTRP940	9,0 (.354)	9°	0,4 (.016)					

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

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

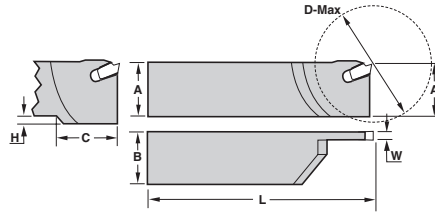


CUTOFF / PARTING

Inserts and Cutters

TCOHR/L INTEGRAL SHANK

Inserts= TFN, TFR, TFL

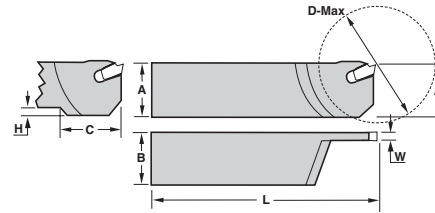


RH SHOWN

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 16-4	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	----	----
TCOHR 19-5	9824195	.178-.217	2.000	.750	.750	4.500	----	----
TCOHL 19-5	9823195	.178-.217	2.000	.750	.750	4.500	----	----

TCOHAR/L (METRIC) INTEGRAL SHANK FOR AUTOMATICS

Inserts= TFN, TFR, TFL

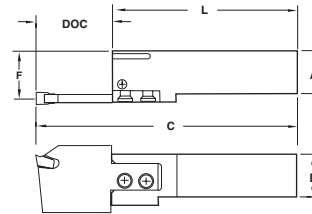


RH SHOWN

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

CEDVOR/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.

CEDVOR/L-METRIC (RH HOLDERS USE RH COMPONENTS)

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

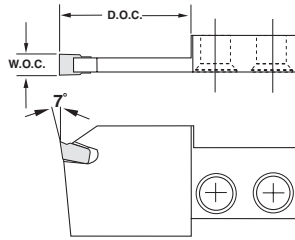
*The "C" dimension is determined by the D.O.C. of the anvil.



CUTOFF / PARTING

COMPONENTS

COAHR/L CUTOFF ANVILS



RH SHOWN

Description	EDP Code	Insert	DOC	WOC
COAHR-113	9246113	TFN/R/L	1.250	.071-.106
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
COAHR-268	9246268	TFN/R/L	1.750	.217-.250
COAHL-268	9245268	TFN/R/L	1.750	.217-.250
COAHR-298	9246298	TFN/R/L	1.750	.375
COAHL-298	9245298	TFN/R/L	1.750	.375

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	
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.



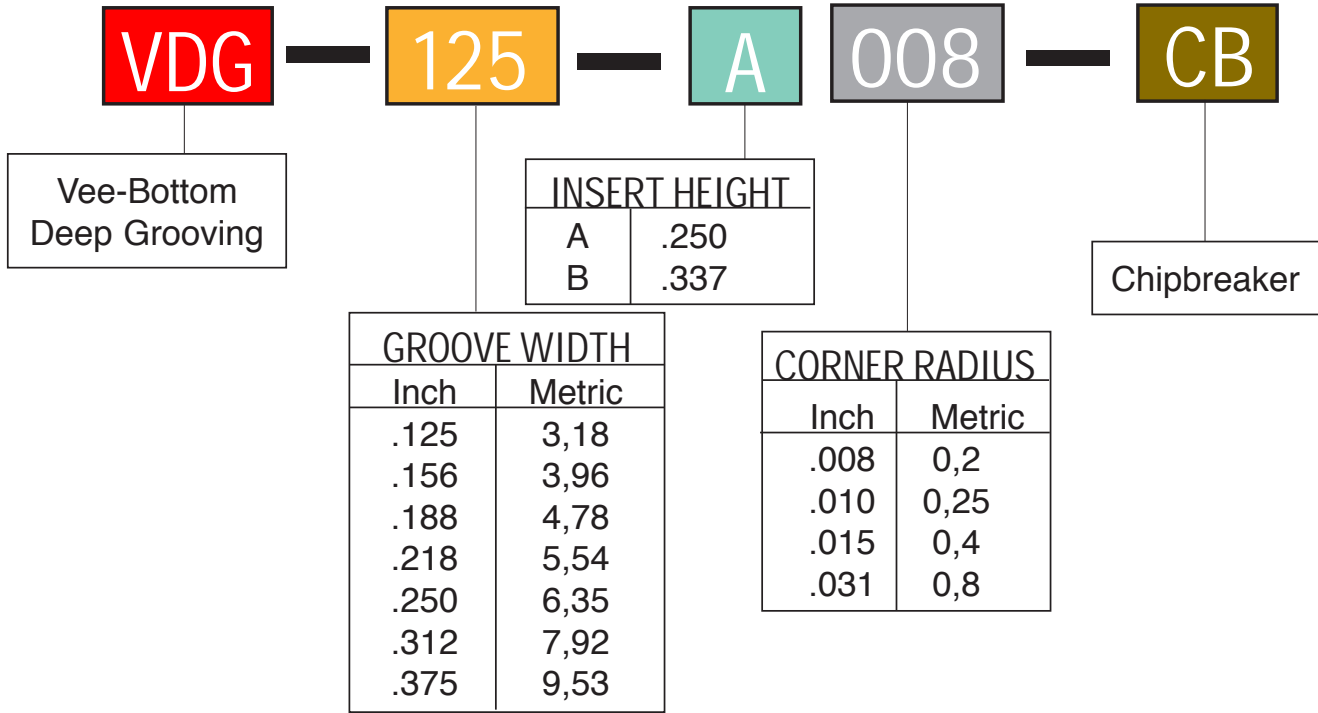
TOOL-FLO



DEEP GROOVING

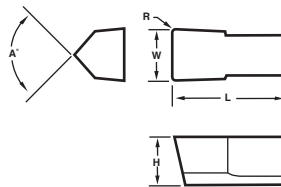


Deep Grooving Insert Nomenclature Chart



DEEP GROOVING

DEEP GROOVING VDG



Description	EDP Code	W		R	L	H	A	Coating							
		Inch	Metric					C3	C6H	GP3	GP50	AT3	AT50		
VDG-125-A008	82125A08	.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°								

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.

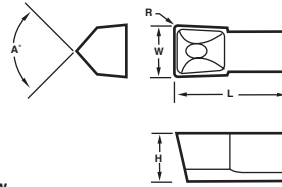
Cast Iron			▲		●		
Non-Ferrous		●		▲			
Stainless/High Temp		▲		●			
Steel				▲	●		



DEEP GROOVING Inserts

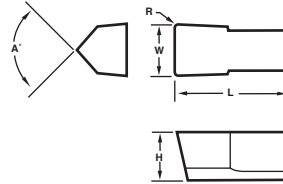
DEEP GROOVING VDG-CB W/PATENTED CHIP BREAKER

Exclusive patented design!



Description	EDP Code	W		R	L	H	A	Coatings						
		Inch	Metric					C3	C6H	GP3	GP50	AT3	AT50	
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°							

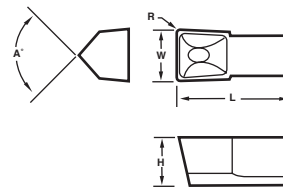
DEEP GROOVING VDG-METRIC



Description	EDP Code	W		R	L	H	A	Coatings						
		Metric	Inch					C3	C6H	GP3	GP50	AT3	AT50	
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 CHIP BREAKER

Exclusive patented design!



Description	EDP Code	W		R	L	H	A	Coatings						
		Metric	Inch					C3	C6H	GP3	GP50	AT3	AT50	
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-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.

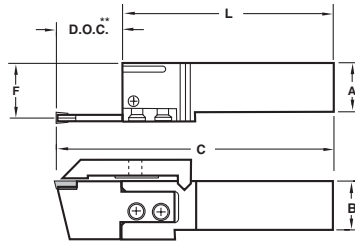
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron			▲		●	
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel				▲	●	



EXTERNAL STRAIGHT HOLDER

CEDVOR/L (RH HOLDERS USE RH COMPONENTS)



RH SHOWN

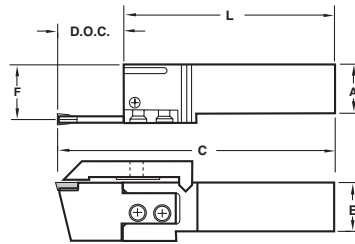
Description	EDP Code	A	B	L	F	Clamp Screw	Anvil Screw
CEDVOR-16	91951600	1	1	5.190	1.150	SB90	SF95
CEDVOL-16	91901600	1	1	5.190	1.150	SB90	SF95
CEDVOR-20	91952000	1-1/4	1-1/4	5.190	1.150	SB90	SF95
CEDVOL-20	91902000	1-1/4	1-1/4	5.190	1.150	SB90	SF95
CEDVOR-24	91952400	1-1/2	1-1/2	5.190	1.400	SB90	SF95
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.
 ** D.O.C. is shown below on anvils.

DEEP GROOVING

EXTERNAL STRAIGHT HOLDER

CEDVOR/L-METRIC (RH HOLDERS USE RH COMPONENTS)



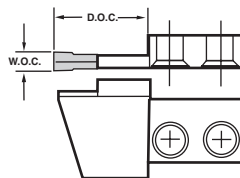
RH SHOWN

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

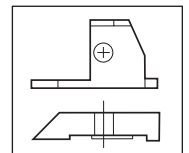
*The "C" dimension is determined by the D.O.C. of the anvil.
 ** D.O.C. is shown below on anvils.

COMPONENTS

DGAHR/L ANVILS FOR CEDVOR/L



RH SHOWN

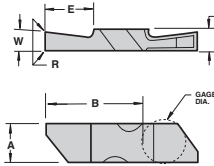


Description	EDP Code	Insert	DOC	WOC	Clamp
DGAHR-113	9263113	VDG	1.250	.125	DGCHR-132
DGAHL-113	9262113	VDG	1.250	.125	DGCHL-132
DGAHR-138	9263138	VDG	1.375	.170-.188	DGCHR-382
DGAHL-138	9262138	VDG	1.375	.170-.188	DGCHL-382
DGAHR-248	9263248	VDG	1.500	.218	DGCHR-482
DGAHL-248	9262248	VDG	1.500	.218	DGCHL-482
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



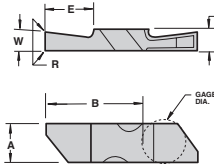
DEEP GROOVING Inserts

DEEP GROOVING FLGT



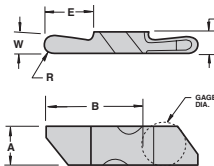
Description	EDP Code	W		R	T	E	A	B	Gage Dia	Uncoated		TIN Coated		AITIN Coated	
		Inch	Metric							C3	C6H	GP3	GP50	AT3	AT50
FLGT-3094R	6332094R	.094	2,39	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-3094L	6332094L	.094	2,39	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-3125R	6332125R	.125	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			●	●	●	●

DEEP GROOVING FLGT-METRIC



Description	EDP Code	W		R	T	E	A	B	Gage Dia	Uncoated		TIN Coated		AITIN Coated	
		Metric	Inch							C3	C6H	GP3	GP50	AT3	AT50
FLGT-330R	633430R	3,00	.118	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-330L	633430L	3,00	.118	.005/.010	.195	.275	.344	.855	.3750			●	●	●	●
FLGT-340R	633440R	4,00	.157	.005/.010	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-340L	633440L	4,00	.157	.005/.010	.195	.437	.344	.855	.3750			●	●	●	●
FLGT-450R	6344450R	5,00	.197	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-450L	6344450L	5,00	.197	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-460R	6344460R	6,00	.236	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●
FLGT-460L	6344460L	6,00	.236	.020/.025	.255	.550	.453	1.136	.3750			●	●	●	●

DEEP GROOVING FLRT-FULL RADIUS



Description	EDP Code	W		R	T	E	A	B	Gage Dia	Uncoated		TIN Coated		AITIN Coated	
		Inch	Metric							C3	C6H	GP3	GP50	AT3	AT50
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.

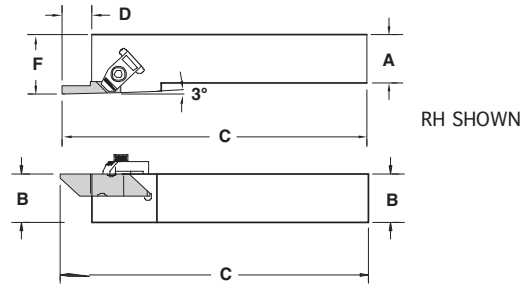
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

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



DEEP GROOVING

FLSR/LT HOLDERS FOR FLGT INSERTS



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

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



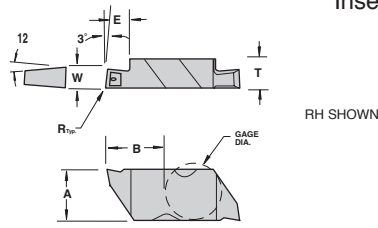
FACE GEARING



FACE GROOVING Inserts

FACE GROOVING

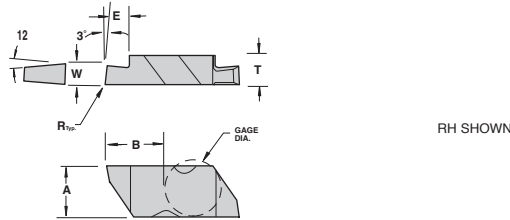
FLF-CB-W/PATENTED CHIPBREAKER



Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coatings						
									C3	C6H	GP3	GP50	AT3	AT50	
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							

FACE GROOVING

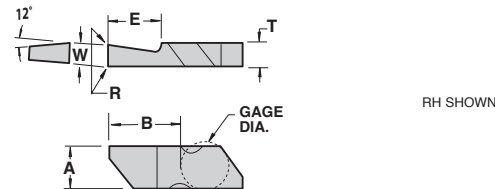
FLF



Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coatings						
									C3	C6H	GP3	GP50	AT3	AT50	
FLF-3125R	553025R	.125	.005/.010	.195	.180	.344	.4050	.3750							
FLF-3125L	553025L	.125	.005/.010	.195	.180	.344	.4050	.3750							
FLF-3156R	553056R	.156	.005/.010	.195	.180	.344	.4050	.3750							
FLF-3156L	553056L	.156	.005/.010	.195	.180	.344	.4050	.3750							
FLF-3188R	553088R	.188	.020/.025	.195	.180	.344	.4050	.3750							
FLF-3188L	553088L	.188	.020/.025	.195	.180	.344	.4050	.3750							
FLF-4250R	564250R	.250	.020/.025	.255	.250	.453	.6360	.3750							
FLF-4250L	564250L	.250	.020/.025	.255	.250	.453	.6360	.3750							
FLF-6218R	566218R	.218	.030/.035	.383	.250	.453	.6360	.3750							
FLF-6218L	566218L	.218	.030/.035	.383	.250	.453	.6360	.3750							
FLF-6250R	566250R	.250	.030/.035	.383	.250	.453	.6360	.3750							
FLF-6250L	566250L	.250	.030/.035	.383	.250	.453	.6360	.3750							
FLF-6375R	566375R	.375	.030/.035	.383	.250	.453	.6360	.3750							
FLF-6375L	566375L	.375	.030/.035	.383	.250	.453	.6360	.3750							

FACE GROOVING

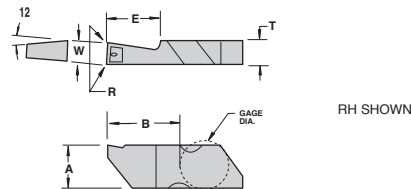
FLFD-SINGLE-ENDED DEEP GROOVING



Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coatings						
									C3	C6H	GP3	GP50	AT3	AT50	
FLFD-3125R	6338125R	.125	.005/.010	.195	.250	.344	.4050	.3750							
FLFD-3125L	6338125L	.125	.005/.010	.195	.250	.344	.4050	.3750							
FLFD-4189R	6348189R	.189	.020/.025	.255	.375	.453	.7610	.3750							
FLFD-4189L	6348189L	.189	.020/.025	.255	.375	.453	.7610	.3750							
FLFD-4250R	6348250R	.250	.020/.025	.255	.500	.453	.8860	.3750							
FLFD-4250L	6348250L	.250	.020/.025	.255	.500	.453	.8860	.3750							

FACE GROOVING

FLFD-CB-SINGLE-ENDED DEEP GROOVING -W/PATENTED CHIPBREAKER



Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coatings						
									C3	C6H	GP3	GP50	AT3	AT50	
FLFD-3125R-CB	6338125PR	.125	.005/.010	.195	.250	.344	.4050	.3750							
FLFD-3125L-CB	6338125PL	.125	.005/.010	.195	.250	.344	.4050	.3750							
FLFD-4189R-CB	6348189PR	.189	.020/.025	.255	.375	.453	.7610	.3750							
FLFD-4189L-CB	6348189PL	.189	.020/.025	.255	.375	.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.

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

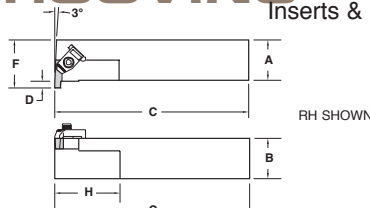


FACE GROOVING

Inserts & Holders

EXTERNAL HOLDERS

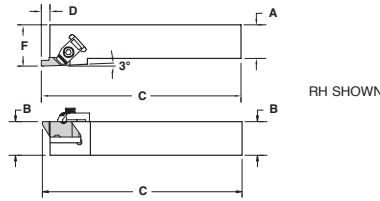
FLER/L 90° HOLDERS FOR FLF/FLFD INSERTS



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	2.000	TF-73	S-412
FLER-123B	93001216B	FL-3R	.750	.750	4.500	.210	1.125	2.000	TF-72	S-412
FLER-163D	93101616D	FL-3L	1.000	1.000	6.000	.210	1.250	2.000	TF-73	S-412
FLER-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
FLER-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
FLER-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
FLER-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
FLER-206D	93002028D	FL-6R	1.250	1.250	6.000	.290	1.625	2.000	TF-120	S-412

EXTERNAL HOLDERS

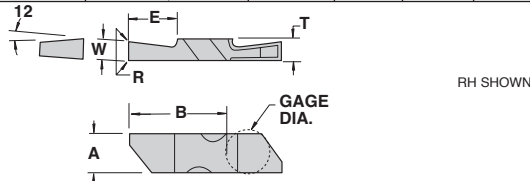
FLSR/L STRAIGHT HOLDERS FOR FLF/FLFD INSERTS



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 GROOVING

FLFT -DOUBLE-ENDED DEEP GROOVING



Description	EDP Code	W	R	T	E	A	B	Gage Dia	C3	CoH	GP3	GP50	AT3	AT50
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			●	●	●	

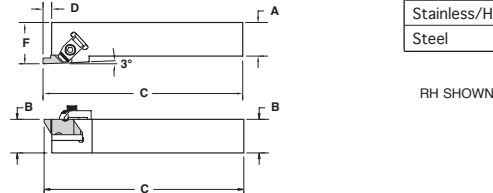
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

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

Material	C3	CoH	GP3	GP50	AT3	AT50
Cast Iron			▲		●	
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel			▲		●	

DEEP GROOVING

FLSRT/LT HOLDERS FOR FLFT INSERTS



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



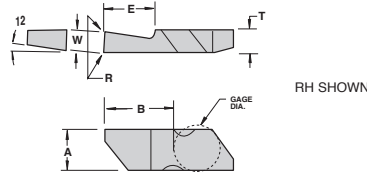
FACE GROOVING

Inserts & Holders

INTERNAL FACE GROOVING

FLFD-I - SINGLE-ENDED INTERNAL DEEP GROOVING

Exclusive patented design!

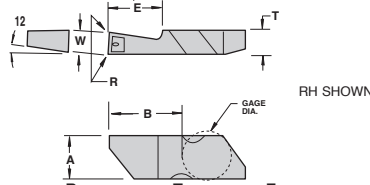


Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coating					
									C3	C6H	GP3	GP50	AT3	AT50
FLFD-3125RI	6338125RI	.125	.005/.010	.195	.250	.344	.5050	.3750			●	●	●	
FLFD-3125LI	6338125LI	.125	.005/.010	.195	.250	.344	.5050	.3750			●	●	●	
FLFD-3189RI	6338189RI	.189	.020/.025	.195	.250	.344	.5050	.3750			●	●	●	
FLFD-3189LI	6338189LI	.189	.020/.025	.195	.250	.344	.5050	.3750			●	●	●	

INTERNAL FACE GROOVING

FLFD-I-CB - SINGLE-ENDED INTERNAL DEEP GROOVING -W/PATENTED CHIPBREAKER

Exclusive patented design!



Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coating					
									C3	C6H	GP3	GP50	AT3	AT50
FLFD-3125RI-CB	6338125PRI	.125	.005/.010	.195	.250	.344	.5050	.3750			●	●	●	
FLFD-3125LI-CB	6338125PLI	.125	.005/.010	.195	.250	.344	.5050	.3750			●	●	●	
FLFD-3189RI-CB	6338189PRI	.189	.020/.025	.195	.250	.344	.5050	.3750			●	●	●	
FLFD-3189LI-CB	6338189PLI	.189	.020/.025	.195	.250	.344	.5050	.3750			●	●	●	

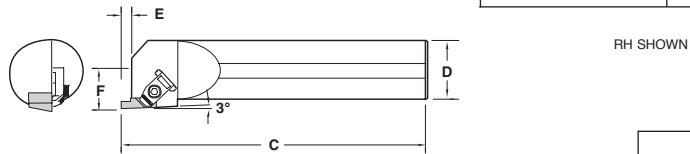
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- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron			▲			●
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel			▲			●

INTERNAL BARS

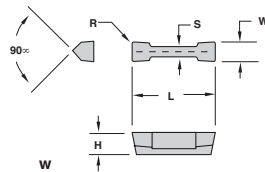
A-FLSR/L - INTERNAL BARS FOR FLFD-I INSERTS -WITH COOLANT HOLE



Description	EDP Code	Insert	Min. Bore	E	D	C	F	Clamp	
								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	Coating					
								C3	C6H	GP3	GP50	AT3	AT50
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 A031	79188A031	.188	4,78	.031	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 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			●	●	●	●

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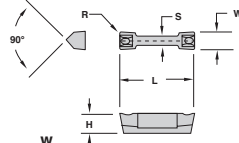
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron			▲			●
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel			▲			●



FACE GROOVING

Inserts & Bars



FACE GROOVING VDB-CB

W/PATENTED CHIP BREAKER

Description	EDP Code	Inch	Metric	R	L	H	S	C3	C6H	GP3	GP50	AT3	AT50
VDB 125 A008-CB	79125A08C	.125	3.18	.008	1.125	.250	.106						
VDB 125 A015-CB	79125AC	.125	3.18	.015	1.125	.250	.106			●	●	●	●
VDB 156 A008-CB	79156A08C	.156	3.96	.008	1.125	.250	.106			●	●	●	●
VDB 156 A015-CB	79156AC	.156	3.96	.015	1.125	.250	.106			●	●	●	●
VDB 188 A008-CB	79188A08C	.188	4.78	.008	1.125	.250	.106			●	●	●	●
VDB 188 A015-CB	79188AC	.188	4.78	.015	1.125	.250	.106			●	●	●	●
VDB 188 A031-CB	79188A031C	.188	4.78	.031	1.125	.250	.106			●	●	●	●
VDB 218-A015-CB	79218AC	.218	5.54	.015	1.125	.250	.144			●	●	●	●
VDB 250 B015-CB	79250BC	.250	6.35	.015	1.125	.337	.144			●	●	●	●
VDB 250 B031-CB	79250B031C	.250	6.35	.031	1.125	.337	.144			●	●	●	●
VDB 312 B015-CB	79312BC	.312	7.92	.015	1.125	.337	.202			●	●	●	●
VDB 312 B031-CB	79312B031C	.312	7.92	.031	1.125	.337	.202			●	●	●	●
VDB 375 B015-CB	79375BC	.375	8.74	.015	1.125	.337	.276			●	●	●	●
VDB 375 B031-CB	79375B031C	.375	8.74	.031	1.125	.337	.276			●	●	●	●

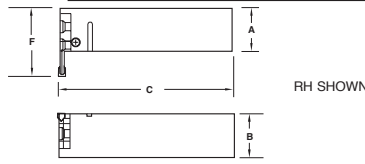
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● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron			▲			●
Non-Ferrous		●		▲		
Stainless/High Temp		▲		●		
Steel			▲			●

EXTERNAL 90° HOLDER

CDHOR/L (RH HOLDERS USE LH PARTS)

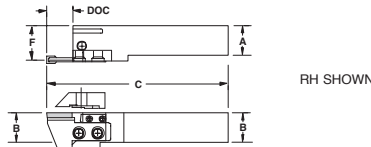


Description	EDP Code	A	B	C	.312(1)	F*	.812(1)	Clamp Screw	Stop Screw	Anvil Screw
CDHOR-16	92101600	1	1	6	1.312	1.812	1.812	SB90	SS20	SF95
CDHOL-16	92001600	1	1	6	1.312	1.812	1.812	SB90	SS20	SF95
CDHOR-20	92102000	1-1/4	1-1/4	6	1.562	2.062	2.062	SB90	SS20	SF95
CDHOL-20	92002000	1-1/4	1-1/4	6	1.562	2.062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

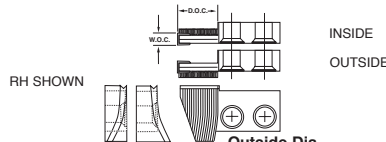


Description	EDP Code	A	B	C	F	Clamp Screw	Stop Screw	Anvil Screw
CDVOR-16	92401600	1	1	*	1.150	SB90	SS20	SF95
CDVOL-16	92301600	1	1	*	1.150	SB90	SS20	SF95
CDVOR-20	92402000	1-1/4	1-1/4	*	1.400	SB90	SS20	SF95
CDVOL-20	92302000	1-1/4	1-1/4	*	1.400	SB90	SS20	SF95
CDVOR-24	92402400	1-1/2	1-1/2	*	1.650	SB90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

FACE GROOVING COMPONENTS

FOR CDHOR/L AND CDVOR/L



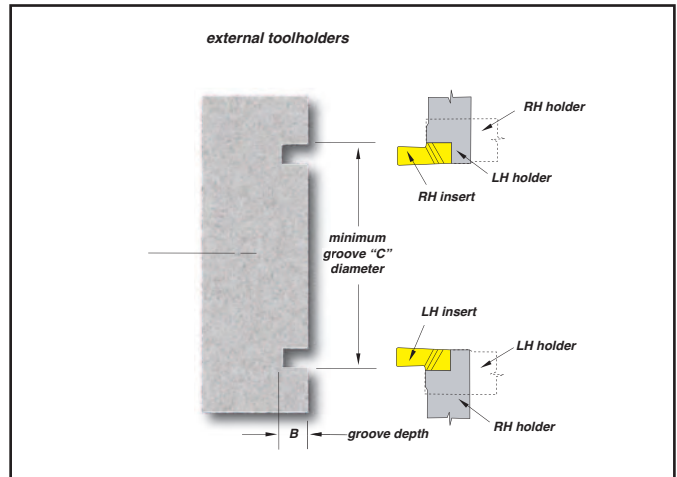
Description	EDP Code	Insert	Outside Dia. Range	DOC	WOC	Clamp	Stop Block
AFHR-113-I	91211131	DBP24/VDB125	2.000-2.250	.312	.105-.125	CHRF-132I	SBH-4
AFHR-113-O	91211130	DBP24/VDB125	2.000-2.250	.312	.105-.125	CHRF-132O	SBH-4
AFHL-113-I	91201131	DBP24/VDB125	2.000-2.250	.312	.105-.125	CHLF-132I	SBH-4
AFHL-113-O	91201130	DBP24/VDB125	2.000-2.250	.312	.105-.125	CHLF-132O	SBH-4
AFHR-128-I	91211281	DBP24/VDB125	2.000-2.250	.812	.105-.125	CHRF-282I	SBH-2
AFHR-128-O	91211280	DBP24/VDB125	2.000-2.250	.812	.105-.125	CHRF-282O	SBH-2
AFHL-128-I	91201281	DBP24/VDB125	2.000-2.250	.812	.105-.125	CHLF-282I	SBH-2
AFHL-128-O	91201280	DBP24/VDB125	2.000-2.250	.812	.105-.125	CHLF-282O	SBH-2
AFHR-138-I	91211381	DBP34/VDB188	3.000-4.000	.812	.170-.188	CHRF-382I	SBH-2
AFHR-138-O	91211380	DBP34/VDB188	3.000-4.000	.812	.170-.188	CHRF-382O	SBH-2
AFHL-138-I	91201381	DBP34/VDB188	3.000-4.000	.812	.170-.188	CHLF-382I	SBH-2
AFHL-138-O	91201380	DBP34/VDB188	3.000-4.000	.812	.170-.188	CHLF-382O	SBH-2
AFHR-148-I	91211481	VDB250A	3.000-4.000	.812	.220-.250	CHRF-482I	SBH-2
AFHR-148-O	91211480	VDB250A	3.000-4.000	.812	.220-.250	CHRF-482O	SBH-2
AFHL-148-I	91201481	VDB250A	3.000-4.000	.812	.220-.250	CHLF-482I	SBH-2
AFHL-148-O	91201480	VDB250A	3.000-4.000	.812	.220-.250	CHLF-482O	SBH-2
AFHR-248-I	91212481	DBP45/VDB250B	4.000-6.000	.812	.250-.312	CHRF-482I	SBH-2
AFHR-248-O	91212480	DBP45/VDB250B	4.000-6.000	.812	.250-.312	CHRF-482O	SBH-2
AFHL-248-I	91202481	DBP45/VDB250B	4.000-6.000	.812	.250-.312	CHLF-482I	SBH-2
AFHL-248-O	91202480	DBP45/VDB250B	4.000-6.000	.812	.250-.312	CHLF-482O	SBH-2
AFHR-268-I	91212681	DBP65/VDB375	6.000-12.000	.812	.350-.375	CHRF-582I	SBH-2
AFHR-268-O	91212680	DBP65/VDB375	6.000-12.000	.812	.350-.375	CHRF-582O	SBH-2
AFHL-268-I	91212681	DBP65/VDB375	6.000-12.000	.812	.350-.375	CHLF-582I	SBH-2
AFHL-268-O	91212680	DBP65/VDB375	6.000-12.000	.812	.350-.375	CHLF-582O	SBH-2



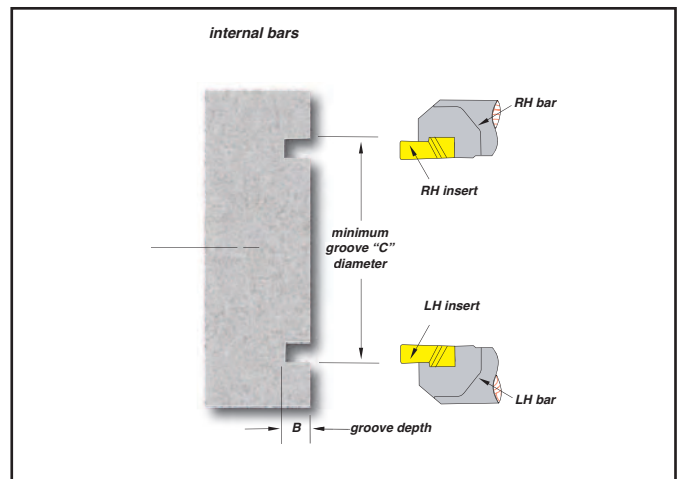
Guidelines for Face Grooving Operations

EXTERNAL

STANDARD FLF/FLD 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



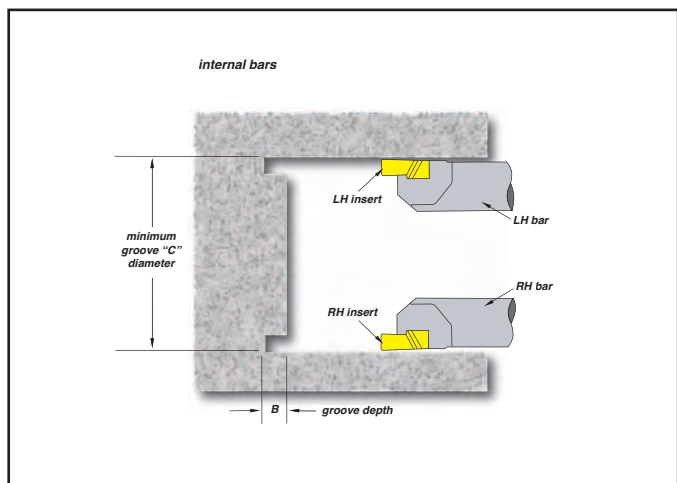
STANDARD FLG/FLGD INSERTS		
insert type	maximum groove depth "B"	minimum groove diameter "C"
FLG-2	.060	2.125
FLG-2	.094	3.500
FLG-3	.094	4.000
FLG-3	.125	5.000
FLG-3	.150	5.500
FLGD-3	.250	6.875
FLG-4	.150	6.000
FLG-4	.250	8.250
FLGD-4	.375	8.750
FLGD-4	.500	8.750
FLG-5	.375	13.000



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.





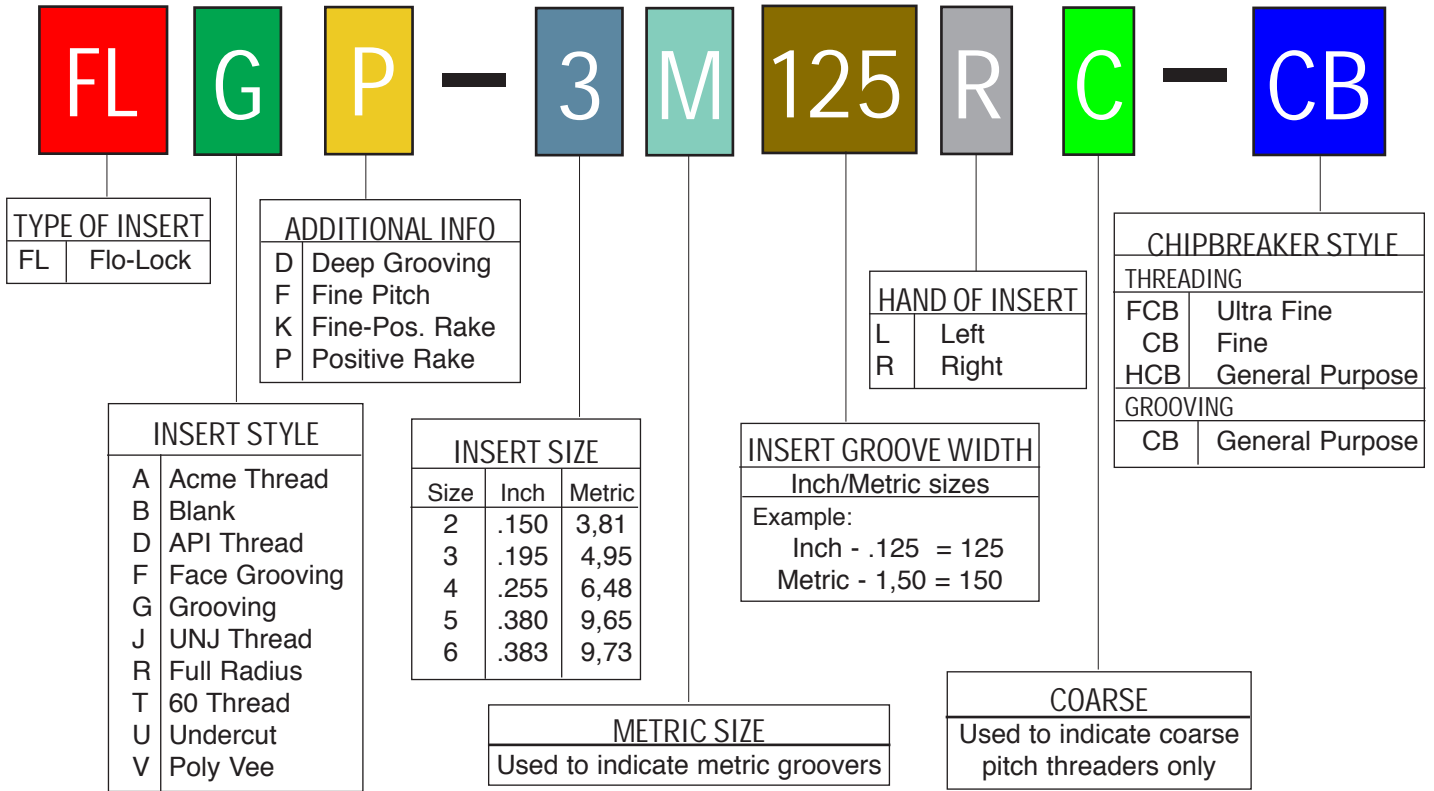
TOOL FLO

FLO-LOCK





Flo-Lock Grooving/Threading Insert Identification Chart



Flo-Lock Cross Reference Chart

STYLE	TOOL-FLO	KENAMETAL®	SANDVIK®*	VALENITE®	MITSUBISHI®
ACME	FLA	NA	TLA	VLA	#
ACME STUB	FLAS	NAS	TLAS	VLAS	#
API-NON TOPPING	FLD	ND	TLD	#	#
API-TOPPING	FLDC	NDC	TLDC	#	#
DEEP GROOVING	FLGD	NGD	#	#	EDG
FACE GROOVING	FLF	NF	TLF	#	EF/efd
GROOVING	FLG	NG	TLG	VLG	EG
GROOVING-POSITIVE	FLGP	NGP	TLGP	VLGD	#
UNJ	FLJ	NJ	TLJ	#	#
UNJ-FINE PITCH	FLJF	NJF	TLJF	#	#
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	ER
GROOVING - FNR POS.	FLRP	NRP	TLRP	VLRD	#
60° V	FLT	NT	TLT	VLRT	ET
AM. STD. BUTTRESS	FLTB	NTB	TLTB	#	#
UN - UNIFIED	FLTC	NTC	TLTC	VLTC	#
60° V - FINE PITCH	FLTF	NTF	TLTF	VLTF	#
60° V - FINE PITCH POSITIVE	FLTK	NTK	TLTK	VLTK	#
60° V - POSITIVE	FLTP	NTP	TLTP	VLTP	#
POLY-V GROOVING	FLV	NV	TLV	#	#

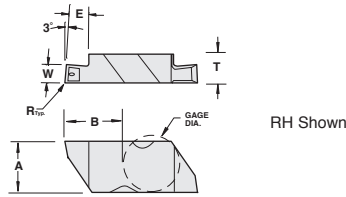
*Top Clamp change is required when converting from SANDVIK®
TOOL-FLO inserts will fit in all other brands.

Threadforms not available in other brands are available with TOOL-FLO.



GROOVING - CHIP-FLO FLG-CB

Exclusive patented design!



Features:

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

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

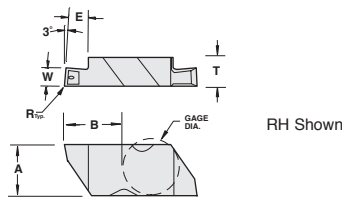
FLO-LOCK



FLO-LOCK Grooving

GROOVING - CHIP-FLO METRIC FLG-CB

Exclusive patented design!



Features:

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

Description	EDP Code	W		R	E		T	A	B	Gage Dia.	Coating					
		Metric	Inch		Metric	Inch					Uncoated	TiN Coated		AlTiN Coated		
											C3	GP3	GP50	AT22	AT3	AT50
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		●	●	●	●	●
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.

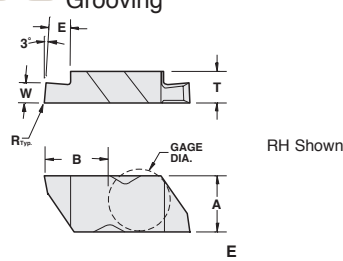
Cast Iron	▲	●	●	●	●	●
Non-Ferrous	▲	●	●	●	●	●
Stainless/High Temp	▲	●	●	●	●	●
Steel	▲	●	●	●	●	●

FLO-LOCK



FLO-LOCK Grooving

GROOVING FLG



Description	EDP Code	Metric	Inch	R		T	A	B	Gage Dia.	Gage					
				Metric	Inch					C3	GP3	GP50	AT3	AT50	
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	.005/.010	.180	4,57	.195	.344	.4050	.3750					
FLG-3097L	563697L	.097	2,46	.005/.010	.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					

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- ▲ Recommended grade under general conditions.

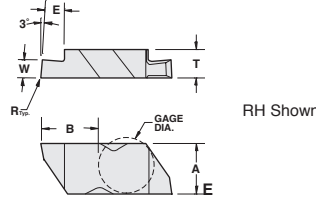
Cast Iron	▲	●
Non-Ferrous	▲	●
Stainless/High Temp	▲	●
Steel	▲	●

FLO-LOCK



FLO-LOCK Grooving

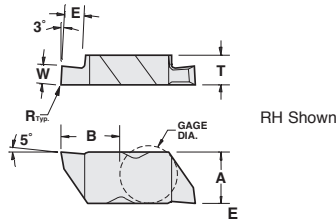
GROOVING FLG



Description	EDP Code	Metric	Inch	R	Metric	Inch	T	A	B	Gage Dia.	Gage				
											GP3	GP5	GP50	AT3	AT50
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	●	●	●	●	●

FLO-LOCK

GROOVING FLGP Positive Rake



Description	EDP Code	Metric	Inch	R	Metric	Inch	T	A	B	Gage Dia.	Gage				
											C3	GP3	GP50	AT3	AT50
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.

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

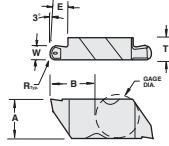


GROOVING - CHIP-FLO

Exclusive patented design!

FLR-CB

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



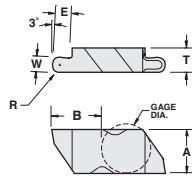
RH Shown

Description	EDP Code	W		R		E		T	A	B	Gage Dia.	Gage				
		Metric	Inch	Metric	Inch	C3	GP3					GP50	AT3	AT50		
FLR-3062R-CB	593062PR	.125	3,18	.062	.180	4,57	.150	.219	.2667	.1875	●	●	●	●	●	
FLR-3062L-CB	593062PL	.125	3,18	.062	.180	4,57	.150	.219	.2667	.1875	●	●	●	●	●	

GROOVING

FLR

Full Nose Radius



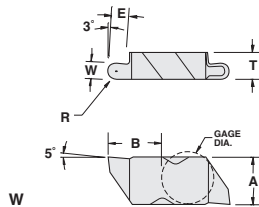
RH Shown

Description	EDP Code	W		R		E		T	A	B	Gage Dia.	Gage				
		Metric	Inch	Metric	Inch	C3	GP3					GP50	AT3	AT50		
FLR-2031R	592031R	.062	1,57	.031	.110	2,79	.150	.219	.2683	.1875	●	●	●	●	●	
FLR-2031L	592031L	.062	1,57	.031	.110	2,79	.150	.219	.2683	.1875	●	●	●	●	●	
FLR-2047R	592047R	.094	2,39	.047	.110	2,79	.150	.219	.2675	.1875	●	●	●	●	●	
FLR-2047L	592047L	.094	2,39	.047	.110	2,79	.150	.219	.2675	.1875	●	●	●	●	●	
FLR-2062R	592062R	.125	3,18	.062	.110	2,79	.150	.219	.2667	.1875	●	●	●	●	●	
FLR-2062L	592062L	.125	3,18	.062	.110	2,79	.150	.219	.2667	.1875	●	●	●	●	●	
FLR-3031R	593031R	.062	1,57	.031	.125	3,18	.195	.344	.4033	.3750	●	●	●	●	●	
FLR-3031L	593031L	.062	1,57	.031	.125	3,18	.195	.344	.4033	.3750	●	●	●	●	●	
FLR-3047R	593047R	.094	2,39	.047	.180	4,57	.195	.344	.4025	.3750	●	●	●	●	●	
FLR-3047L	593047L	.094	2,39	.047	.180	4,57	.195	.344	.4025	.3750	●	●	●	●	●	
FLR-3062R	593062R	.125	3,18	.062	.180	4,57	.195	.344	.4017	.3750	●	●	●	●	●	
FLR-3062L	593062L	.125	3,18	.062	.180	4,57	.195	.344	.4017	.3750	●	●	●	●	●	
FLR-3078R	593078R	.156	3,96	.078	.180	4,57	.195	.344	.4008	.3750	●	●	●	●	●	
FLR-3078L	593078L	.156	3,96	.078	.180	4,57	.195	.344	.4008	.3750	●	●	●	●	●	
FLR-3094R	593094R	.189	4,80	.094	.180	4,57	.195	.344	.4000	.3750	●	●	●	●	●	
FLR-3094L	593094L	.189	4,80	.094	.180	4,57	.195	.344	.4000	.3750	●	●	●	●	●	
FLR-4062R	594062R	.125	3,18	.062	.250	6,35	.255	.453	.6327	.3750	●	●	●	●	●	
FLR-4062L	594062L	.125	3,18	.062	.250	6,35	.255	.453	.6327	.3750	●	●	●	●	●	
FLR-4094R	594094R	.189	4,80	.094	.250	6,35	.255	.453	.6310	.3750	●	●	●	●	●	
FLR-4094L	594094L	.189	4,80	.094	.250	6,35	.255	.453	.6310	.3750	●	●	●	●	●	
FLR-4125R	594225R	.250	6,35	.125	.250	6,35	.255	.453	.6293	.3750	●	●	●	●	●	
FLR-4125L	594225L	.250	6,35	.125	.250	6,35	.255	.453	.6293	.3750	●	●	●	●	●	

GROOVING

FLRP

Full Nose Radius-Positive Rake



RH Shown

Description	EDP Code	W		R		E		T	A	B	Gage Dia.	Gage				
		Metric	Inch	Metric	Inch	C3	GP3					GP50	AT3	AT50		
FLRP-3031R	593831R	.062	1,57	.031	0,79	.125	.195	.344	.4033	.3750	●	●	●	●	●	
FLRP-3031L	593831L	.062	1,57	.031	0,79	.125	.195	.344	.4033	.3750	●	●	●	●	●	
FLRP-3047R	593847R	.094	2,39	.047	.180	4,57	.195	.344	.4025	.3750	●	●	●	●	●	
FLRP-3047L	593847L	.094	2,39	.047	.180	4,57	.195	.344	.4025	.3750	●	●	●	●	●	
FLRP-3062R	593862R	.125	3,18	.062	.180	4,57	.195	.344	.4017	.3750	●	●	●	●	●	
FLRP-3062L	593862L	.125	3,18	.062	.180	4,57	.195	.344	.4017	.3750	●	●	●	●	●	
FLRP-3078R	593878R	.156	3,96	.078	.180	4,57	.195	.344	.4008	.3750	●	●	●	●	●	
FLRP-3078L	593878L	.156	3,96	.078	.180	4,57	.195	.344	.4008	.3750	●	●	●	●	●	
FLRP-3094R	593894R	.189	4,80	.094	.180	4,57	.195	.344	.4000	.3750	●	●	●	●	●	
FLRP-3094L	593894L	.189	4,80	.094	.180	4,57	.195	.344	.4000	.3750	●	●	●	●	●	
FLRP-4062R	594862R	.125	3,18	.062	.250	6,35	.255	.453	.6327	.3750	●	●	●	●	●	
FLRP-4062L	594862L	.125	3,18	.062	.250	6,35	.255	.453	.6327	.3750	●	●	●	●	●	
FLRP-4094R	594894R	.189	4,80	.094	.250	6,35	.255	.453	.6310	.3750	●	●	●	●	●	
FLRP-4094L	594894L	.189	4,80	.094	.250	6,35	.255	.453	.6310	.3750	●	●	●	●	●	
FLRP-4125R	604025R	.250	6,35	.125	.250	6,35	.255	.453	.6293	.3750	●	●	●	●	●	
FLRP-4125L	604025L	.250	6,35	.125	.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.

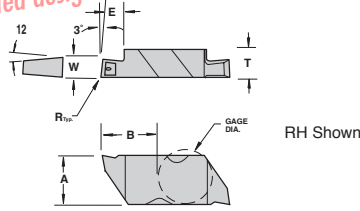
	Cast Iron	Non-Ferrous	Stainless/High Temp	Steel
●	▲	●	●	●
▲	▲	●	●	●
▲	▲	●	●	●



FLO-LOCK Grooving

FACE GROOVING - CHIP-FLO FLF-CB

Exclusive patented design!

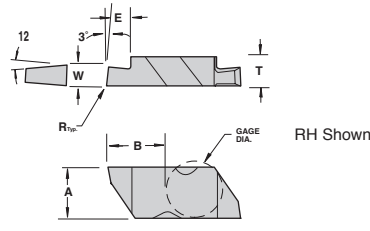


Features:

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

Description	EDP Code	Metric	Inch	R	E	T	A	B	Dia.	Gage				
										C3	GP3	GP50	AT3	AT50
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	.255	.344	.4050	.3750					
FLF-3188L-CB	563088PL	.188	4,77	.020/.025	.180	.255	.344	.4050	.3750					

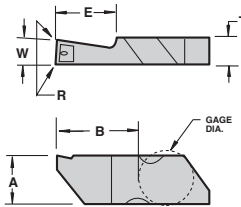
FACE GROOVING FLF



Description	EDP Code	Metric	Inch	R	E	T	A	B	Dia.	Gage				
										C3	GP3	GP50	AT3	AT50
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	.383	.250	.453	.6360	.3750					
FLF-6218L	566218L	.218	5,54	.030/.035	.383	.250	.453	.6360	.3750					
FLF-6250R	566250R	.250	6,35	.030/.035	.383	.250	.453	.6360	.3750					
FLF-6250L	566250L	.250	6,35	.030/.035	.383	.250	.453	.6360	.3750					
FLF-6375R	566475R	.375	9,53	.030/.035	.383	.250	.453	.6360	.3750					
FLF-6375L	566475L	.375	9,53	.030/.035	.383	.250	.453	.6360	.3750					

DEEP GROOVING - CHIP-FLO FLGD-CB

Exclusive patented design!



Features:

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

Description	EDP Code	Metric	Inch	R	E	T	A	B	Dia.	Gage				
										C3	GP3	GP50	AT3	AT50
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					

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.

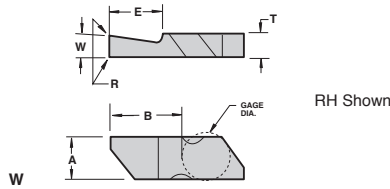
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

	Uncoated	TIN Coated	AITIN Coated
Cast Iron		▲	●
Non-Ferrous		▲	●
Stainless/High Temp		▲	●
Steel		▲	●



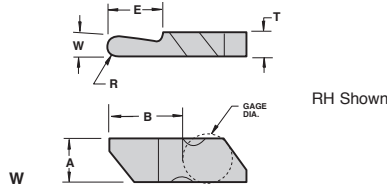
FLO-LOCK Grooving

DEEP GROOVING FLGD - SINGLE ENDED



Description	EDP Code	Metric	Inch	R	E	T	A	B	Dia.	Gage				
										C3	GP3	GP50	AT3	AT50
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	.250	.255	.453	.6360	.3750		●	●		
FLGD-4125L	6344125L	.125	3,18	.005/.010	.250	.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		●	●		

FLRD - SINGLE ENDED FULL NOSE RADIUS



Description	EDP Code	Metric	Inch	R	E	T	A	B	Dia.	Gage				
										C3	GP3	GP50	AT3	AT50
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		●	●	●	●

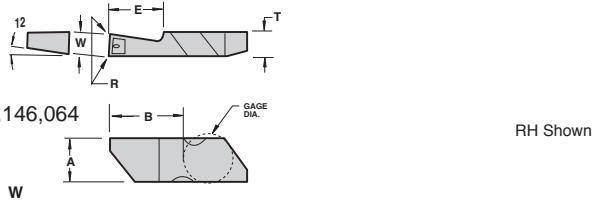
INTERNAL DEEP FACE GROOVING - CHIP-FLO

SINGLE ENDED DEEP GROOVING FLFD-I-CB

Exclusive patented design!

Features:

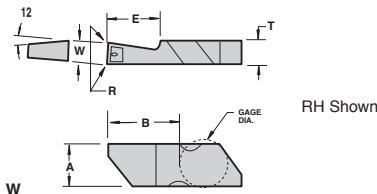
- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Industry standard widths



Description	EDP Code	Metric	Inch	R	E	T	A	B	Dia.	Gage				
										C3	GP3	GP50	AT3	AT50
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

SINGLE ENDED DEEP GROOVING FLFD-CB



Description	EDP Code	Metric	Inch	R	E	T	A	B	Dia.	Gage				
										C3	GP3	GP50	AT3	AT50
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		●	●		

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

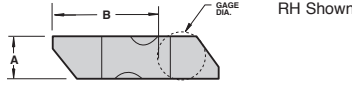
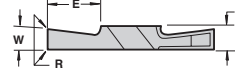
	Cast Iron	Non-Ferrous	Stainless/High Temp	Steel
▲	▲	▲	▲	●
●	●	●	●	●



FLO-LOCK Grooving

DEEP GROOVING FLGT - DOUBLE ENDED

Exclusive 2 edge design!

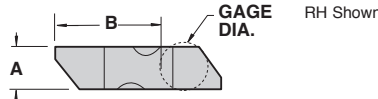
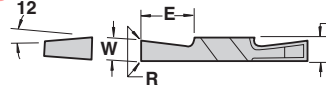


Fits FLSLT/RT Holders.

Description	EDP Code	Metric	Inch	R	E	T	A	B	Gage Dia.	Gage			
										C3	Uncoated	TIN Coated	ATTIN Coated
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.

Description	EDP Code	Metric	Inch	R	E	T	A	B	Gage Dia.	Gage			
										C3	Uncoated	TIN Coated	ATTIN Coated
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	●	●	●	●

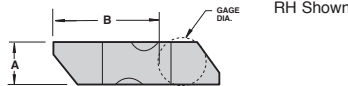
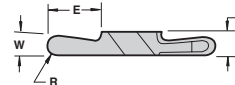
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

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

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

DEEP GROOVING FLRT - DOUBLE ENDED FULL NOSE RADIUS

Exclusive 2 edge design!



Fits FLSLT/RT Holders.

Description	EDP Code	Metric	Inch	R	E	T	A	B	Gage Dia.	Gage			
										C3	Uncoated	TIN Coated	ATTIN Coated
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.

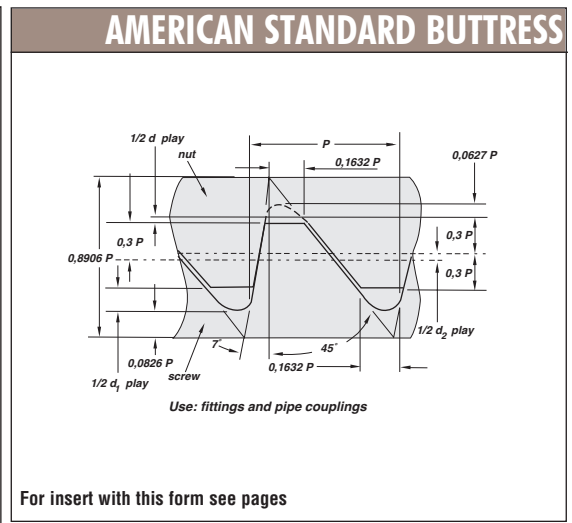
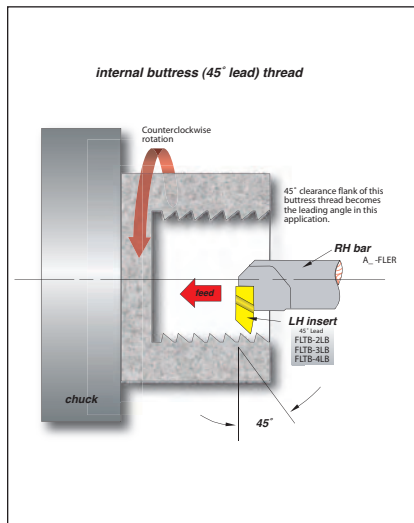
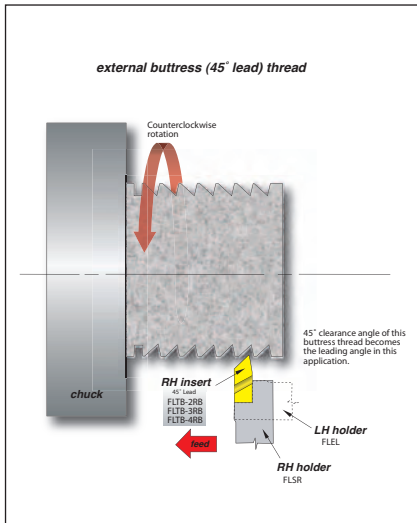
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

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



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.



FLTB-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-3B & 4B	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

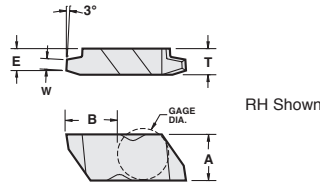
* FLT-4B insert only

** Sixteen or 20 threads per inch can be cut providing minor diameter is 1.375 or larger.



FLO-LOCK Grooving

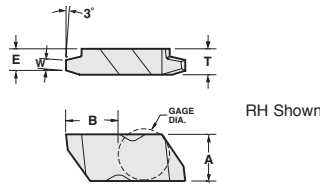
ACME THREADING FLA



Description	EDP Code	TPI	W	T	E	A	B	Gage Dia.	Coating					
									C3	GP3	GP50	AT3	AT50	
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	556025R	2.5	.1431	.383	.283	.453	.6308	.3750	●		●			
FLA-6L2.5	556025L	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	●		●			

FLO-LOCK

ACME STUB THREADING FLAS



Description	EDP Code	TPI	W	T	E	A	B	Gage Dia.	Coating					
									C3	GP3	GP50	AT3	AT50	
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	●		●			

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

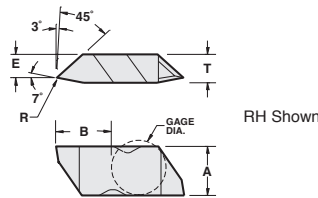
Material	Coating	GP3	GP50	AT3	AT50
Cast Iron	Uncoated				
Non-Ferrous	TIN Coated	▲			●
Stainless/High Temp	TIN Coated	▲			●
Steel	Uncoated			▲	●



FLO-LOCK Threading

AMERICAN STANDARD BUTTRESS 7° LEAD FLT B

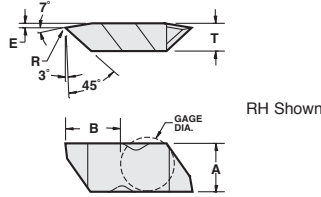
For ASB specifications and application see pg. 102



Description	EDP Code	TPI	R	T	E	A	B	Gage Dia.	Gage					
									C3	GP3	GP50	AT3	AT50	
FLT B-2RA	602801R	16-20	.002/.004	.150	.126	.219	.2688	.1875						
FLT B-2LA	602801L	16-20	.002/.004	.150	.126	.219	.2688	.1875	●	●	●	●	●	
FLT B-3RA	603801R	8-16	.005/.008	.195	.164	.344	.4034	.3750	●	●	●	●	●	
FLT B-3LA	603801L	8-16	.005/.008	.195	.164	.344	.4034	.3750	●	●	●	●	●	
FLT B-4RA	604801R	4-6	.008/.012	.255	.206	.453	.6334	.3750	●	●	●	●	●	
FLT B-4LA	604801L	4-6	.008/.012	.255	.206	.453	.6334	.3750	●	●	●	●	●	

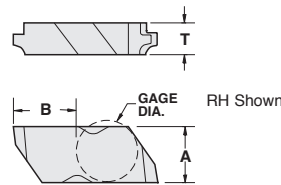
AMERICAN STANDARD BUTTRESS 45° LEAD FLT B

For ASB specifications and application see pg. 102



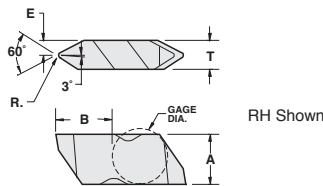
Description	EDP Code	TPI	R	T	E	A	B	Gage Dia.	Gage				
									C3	GP3	GP50	AT3	AT50
FLT B-2RB	602802R	16-20	.002/.004	.150	.010	.219	.2627	.1875					
FLT B-2LB	602802L	16-20	.002/.004	.150	.010	.219	.2627	.1875	●	●	●	●	●
FLT B-3RB	603802R	8-16	.005/.008	.195	.012	.344	.3954	.3750	●	●	●	●	●
FLT B-3LB	603802L	8-16	.005/.008	.195	.012	.344	.3954	.3750	●	●	●	●	●
FLT B-4RB	604802R	4-6	.008/.012	.255	.016	.453	.6235	.3750	●	●	●	●	●
FLT B-4LB	604802L	4-6	.008/.012	.255	.016	.453	.6235	.3750	●	●	●	●	●

API BUTTRESS THREADING FLDC



Description	EDP Code	TPI	TPF	T	A	B	Gage Dia.	Gage				
								C3	GP3	GP50	AT3	AT50
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



Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Gage				
									C3	GP3	GP50	AT3	AT50
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	●	●	●	●	●

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.

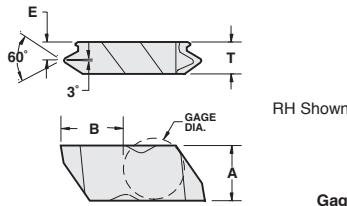
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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

FLO-LOCK Grooving

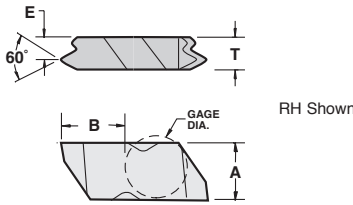


API ROTARY SHOULDER CONNECTION THREADING FLDC



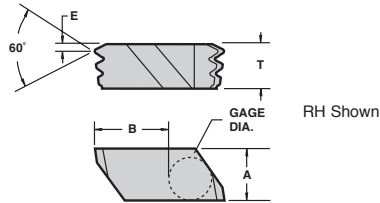
Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Conn. No. or Size	Coating				
										C3	GP3	GP50	AT3	AT50
FLDC-3-530E	553613E	5	3	.147	.250	.344	.4026	.3750	3-1/2 FH, 2-3/8-4-1/2 Reg.			●		
FLDC-3-530I	553613I	5	3	.147	.250	.344	.4026	.3750	3-1/2 FH, 2-3/8-4-1/2 Reg.			●		
FLDC-4-425E	554609E	4	2	.183	.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



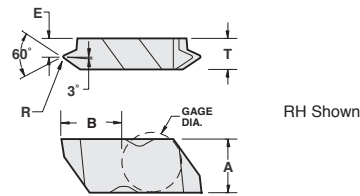
Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Coating					
									C3	GP3	GP50	AT3	AT50	
FLDC-3-8RDR75	553632R	8	3/4	.195	.125	.344	.4010	.3750			●			
FLDC-3-8RDL75	553632L	8	3/4	.195	.125	.344	.4010	.3750			●			
FLDC-3-10RDR75	553634R	10	3/4	.195	.125	.344	.4010	.3750			●			
FLDC-3-10RDL75	553634L	10	3/4	.195	.125	.344	.4010	.3750			●			

FLDC MULTI TOOTH



Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Coating					
									C3	GP3	GP50	AT3	AT50	
FLDC-6-8RDR-75M	556633R	8	3/4	.070	.383	.453	.6360	.3750			●			
FLDC-6-10RDR-75M	556635R	10	3/4	.134	.383	.453	.6360	.3750			●			

NPT THREADING FLDC



Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Coating					
									C3	GP3	GP50	AT3	AT50	
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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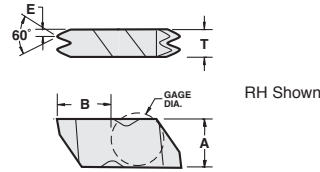
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	GP3	GP50	AT3	AT50
Cast Iron					●
Non-Ferrous					●
Stainless/High Temp				▲	●
Steel					●



FLO-LOCK Grooving

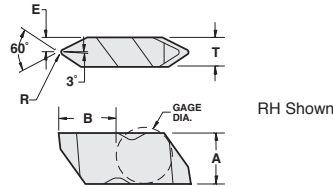
FLDC -MULTI-TOOTH



Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Gage					
									C3	GP3	GP50	AT3	AT50	
FLDC-3-8P NPT-2E	553708E	8	3/4	.058	.250	.344	.4050	.3750						
FLDC -3-8P NPT-2I	553708I	8	3/4	.058	.250	.344	.4050	.3750						
FLDC-3-11.5P NPT-2E	553711E	11.5	3/4	.048	.250	.344	.4050	.3750						
FLDC-3-11.5P NPT-2I	553711I	11.5	3/4	.048	.250	.344	.4050	.3750						

UNJ THREADING

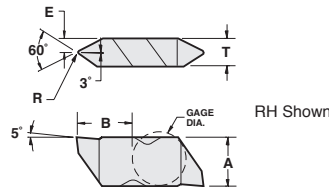
FLJ



Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Gage					
									C3	GP3	GP50	AT3	AT50	
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						

FLJP

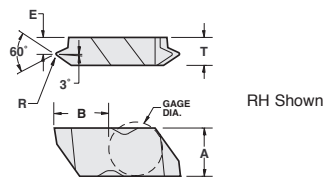
Positive Rake



Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Gage					
									C3	GP3	GP50	AT3	AT50	
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-3008R8	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 - Cut to shoulder



Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Gage					
									C3	GP3	GP50	AT3	AT50	
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.

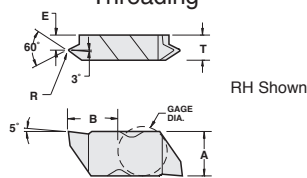
	Cast Iron	Non-Ferrous	Stainless/High Temp	Steel
▲	●	●	●	●
▲	●	●	●	●
▲	●	●	●	●
▲	●	●	●	●



FLO-LOCK Threading

UNJ FINE PITCH THREADING

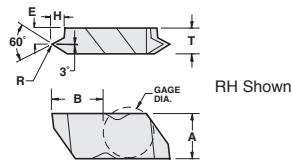
FLJK Positive Rake



Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Gage				
									C3	GP3	GP50	AT3	AT50
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



Description	EDP Code	TPI	R	E	H	T	A	B	Gage Dia.	Gage				
										C3	GP3	GP50	AT3	AT50
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.

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- ▲ Recommended grade under general conditions.

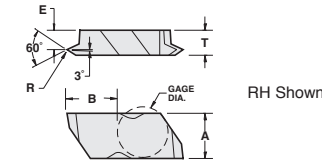
Cast Iron														
Non-Ferrous														
Stainless/High Temp														
Steel														



FLO-LOCK Threading

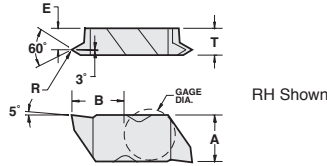
60° V- THREADING

FLTF
Fine Pitch



Description	EDP Code	TPI		R	E	T	A	B	Gage Dia.	Gage					
		Int	Ext							C22	GP3	GP4	GP50	GP520	AT3
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	●	●	●	●	●	●

FLTK
POSITIVE RAKE



Description	EDP Code	TPI		R	E	T	A	B	Gage Dia.	Gage					
		Int	Ext							C22	GP3	GP4	GP50	GP520	AT3
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	●	●	●	●	●	●

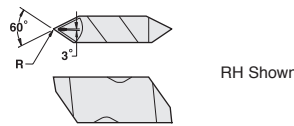
60° V- THREADING - CHIP-FLO

FLT-CB

Exclusive patented design!

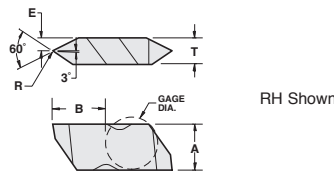
Features:

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



Description	EDP Code	TPI		R	E	T	A	B	Gage Dia.	Gage					
		Int	Ext							C22	GP22	GP4	GP50	GP520	AT22
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



Description	EDP Code	TPI		R	E	T	A	B	Gage Dia.	Gage					
		Int	Ext							C22	GP3	GP4	GP50	GP520	AT3
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.

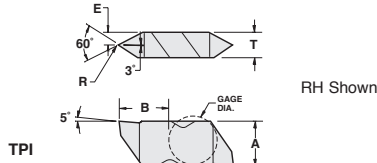
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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



60° V- THREADING

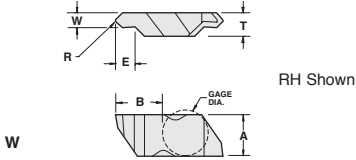
FLTP POSITIVE RAKE



Description	EDP Code	Int	Ext	R	E	T	A	B	Dia.	Gage				
										C25	GP3	GP50	AT3	AT50
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

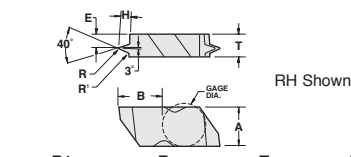
FLU



Description	EDP Code	Inch	Metric	R	E	T	A	B	Dia.	Gage				
										C3	GP3	GP50	AT3	AT50
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



Description	EDP Code	R	R1	E	T	H	A	B	Dia.	Gage				
										C3	GP3	GP50	AT3	AT50
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	●	●	●	●	●

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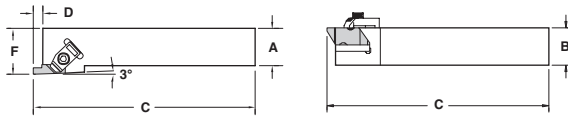
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	GP3	GP50	AT3	AT50
Cast Iron	▲	●	●	●
Non-Ferrous	▲	●	●	●
Stainless/High Temp	▲	●	●	●
Steel	▲	●	●	●

EXTERNAL HOLDER (INCH)

FLSR/L Threading, Grooving

RH SHOWN



Description	EDP Code	Insert	A	B	C	D	F*	Seat		Clamp	Clamp Screw
								Seat	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	1.000	1.000	5	.14	1.250	-	-	TF-74	S-310
FLSL-162C	93301608C	FL_-2L	1.000	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

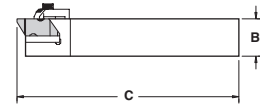
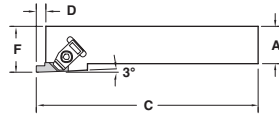
* "F" Dim. over sharp point of grooving insert.



EXTERNAL HOLDER (METRIC)

FLSR/L
Threading, Grooving

RH SHOWN



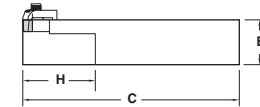
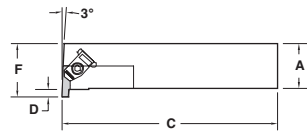
RH SHOWN

Description	EDP Code	Insert	A	B	C	D	F*	Seat		Clamp	Clamp Screw
								Seat	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, Grooving



RH SHOWN

Description	EDP Code	Insert	A	B	C	D	F*	H	Clamp	
									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

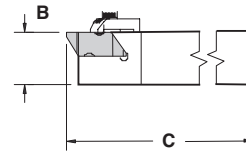
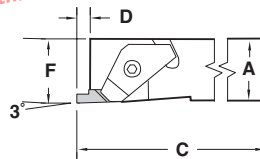
* C&F measured over sharp point of grooving insert

EXTERNAL HOLDER (INCH)

FLASR/L
Threading, Grooving

Design for Swiss machines

RH SHOWN



Description	EDP Code	Insert	A	B	C	D	F	Clamp	
								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.



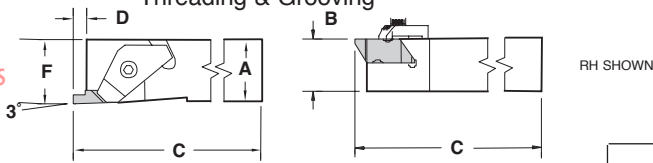
FLO-LOCK Threading & Grooving

EXTERNAL HOLDER (METRIC)

FLASR/L

Threading, Grooving

Design for Swiss machines

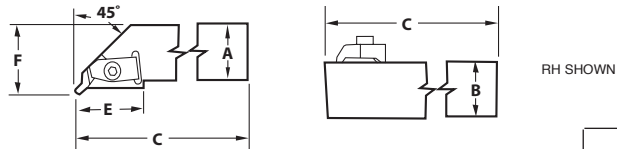


Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLASR-1010M2	92711008	FL_-2R	10,0	10,0	150,0	3,51	10,0	TF-182	S-310
FLASL-1010M2	92661008	FL_-2L	10,0	10,0	150,0	3,51	10,0	TF-183	S-310
FLASR-1212M2	92711208	FL_-2R	12,0	12,0	150,0	3,51	12,0	TF-182	S-310
FLASL-1212M2	92661208	FL_-2L	12,0	12,0	150,0	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

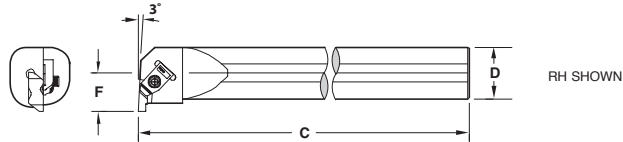


Description	EDP Code	Insert	A	B	C	E	F	Clamp	Clamp Screw
FLRR-123B	93201216B	FLU-3L	3/4	3/4	4-1/2	1-1/4	1.000	TF-73	S-412
FLRL-123B	93181216B	FLU-3R	3/4	3/4	4-1/2	1-1/4	1.000	TF-72	S-412
FLRR-163D	93201616D	FLU-3L	1	1	6	1-1/4	1.250	TF-73	S-412
FLRL-163D	93181616D	FLU-3R	1	1	6	1-1/4	1.250	TF-72	S-412
FLRR-203D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

A-FLER/L - with coolant hole

Threading, Grooving



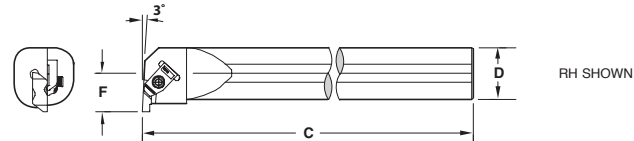
Description	EDP Code	Stock Status	Insert	Min. Bore	D	C	F	Clamp	Clamp Screw
A08-FLER2	96500808	●	FL-2L	.730	.500	8	.437	TF-75	S-310
A08-FLEL2	96400808	●	FL-2R	.730	.500	8	.437	TF-74	S-310
A10-FLER2	96501008	●	FL-2L	1.000	.625	10	.500	TF-75	S-310
A12-FLER2	96501208	●	FL-2L	1.125	.750	10	.562	TF-75	S-310
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 BAR (METRIC)

A_M-FLER/L - with coolant hole

Threading, Grooving



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.

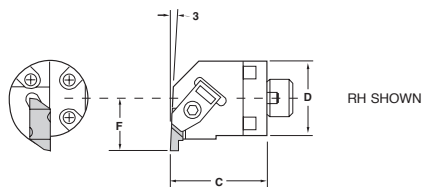


FLO-LOCK Holders

INTERCHANGEABLE HEADS

H-FLER

Threading, Grooving



Description	EDP Code	Insert	D	C	F	Min. Bore	Clamp	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	CM-121	S-412
H32-FLER6W	93503228W	FL-6L	2	1.625	1.375	2.750	CM-121	S-412
H40-FLER6W	93504028W	FL-6L	2-1/2	1.625	1.625	3.250	CM-121	S-412

*Left hand quoted on request

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



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 AT3
1	S-412 SCREW

W.094 GROOVING

KIT #7

Kit Contents

1	FLSR-163D
4	FLGD-3094R-CB AT3
1	S-412 SCREW



FLO-LOCK

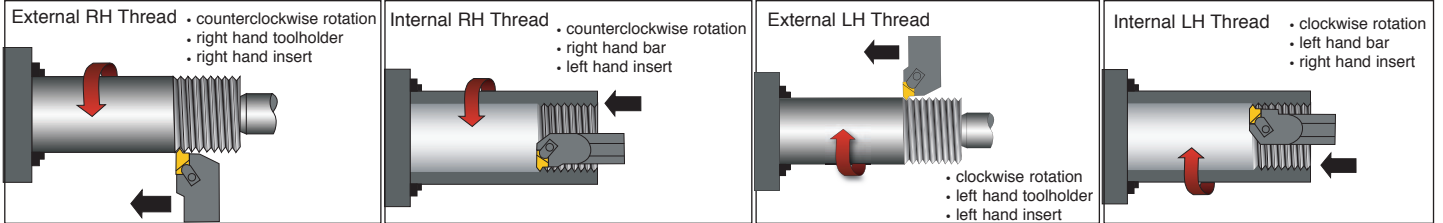


Recommended SFM for Grooving Applications

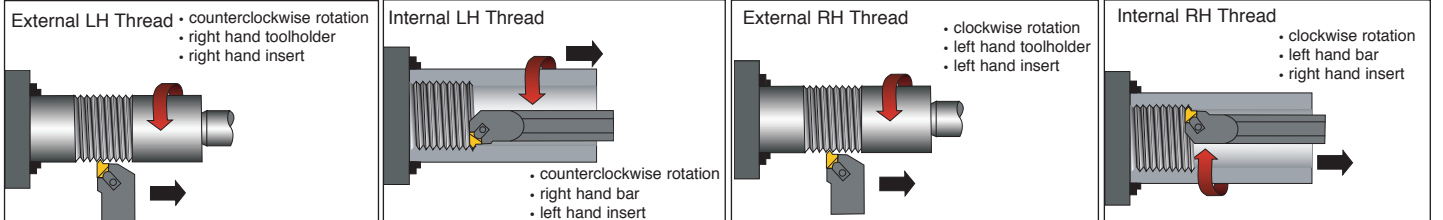
Workpiece Group	Uncoated	TiN PVD Coated				AlTiN PVD Coated			TiN Cermet	CBN		PCD
	C3	GP22	GP3	GP4	GP50	AT22	AT3	AT50	GPM6	CB200	CB400	PC33
Free Machining Carbon Steels	---	150-300	200-400	60-175	200-600	200-400	250-450	400-800	600-1500	---	---	---
Plain Carbon Steels	---	150-300	200-400	60-175	200-600	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	---

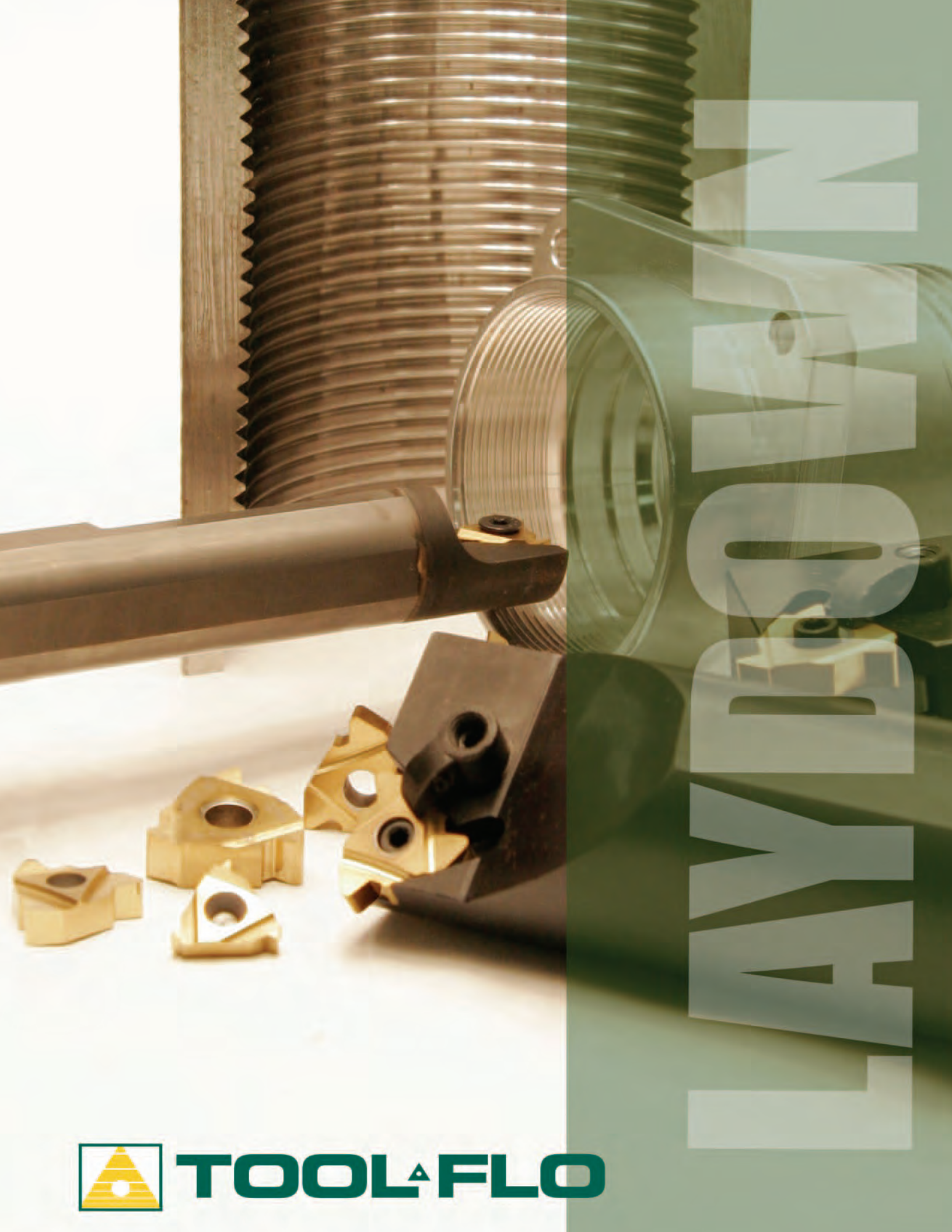
Bold print items denote the top choices for the materials listed, provided it can be machined within the SFM stated under the appropriate machining conditions. For the best performance in optimal machining conditions, select the grade that will provide you with the highest allowable SFM.

Feed direction towards the chuck



Feed direction towards the tailstock





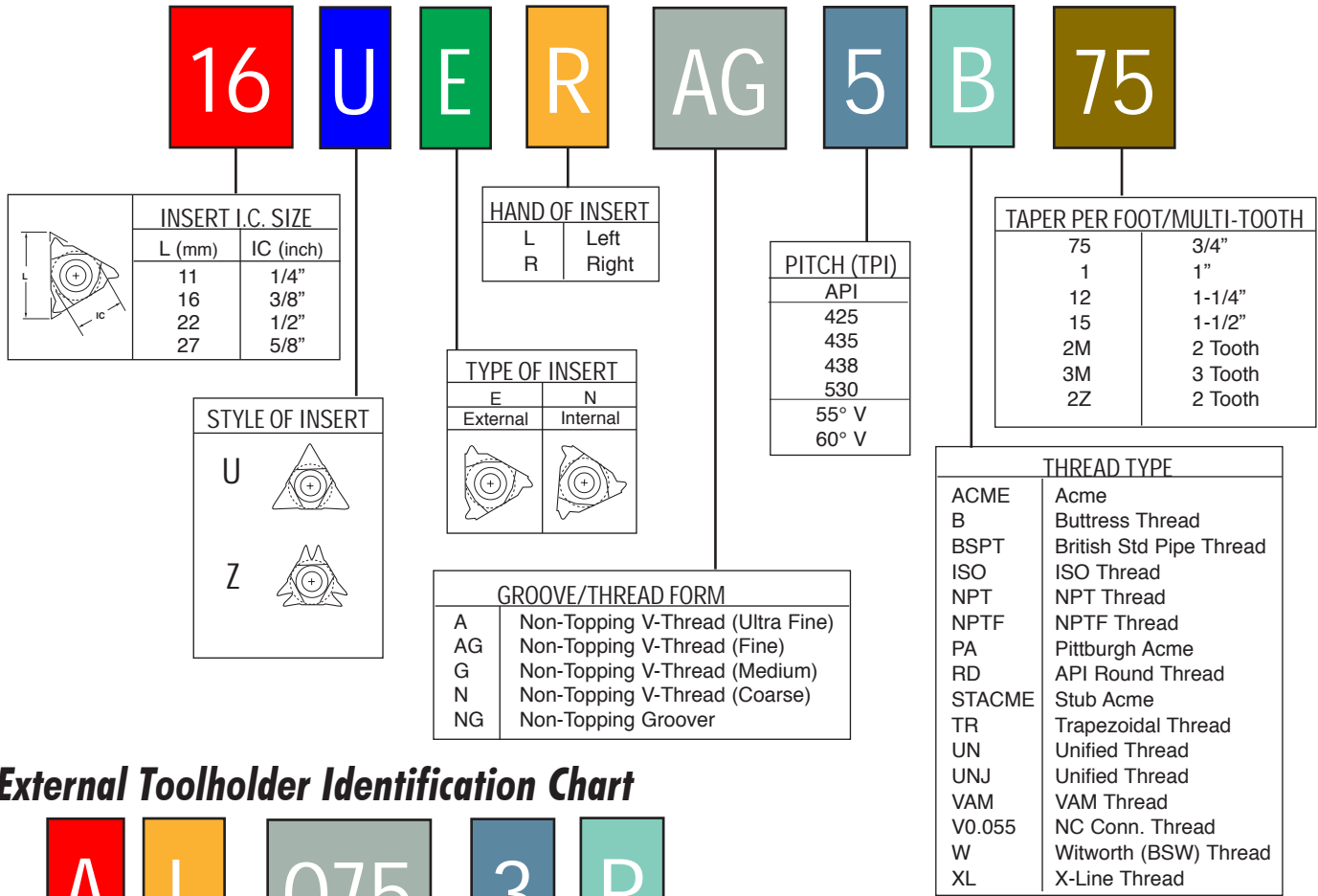
LAYFLO



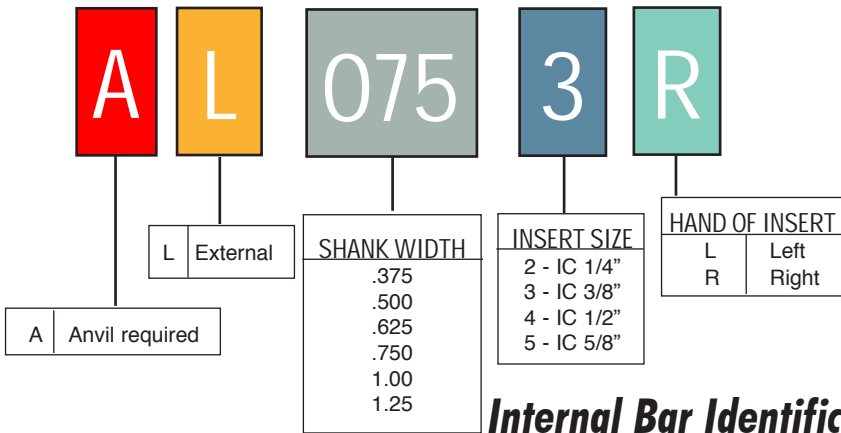
TOOLFLO



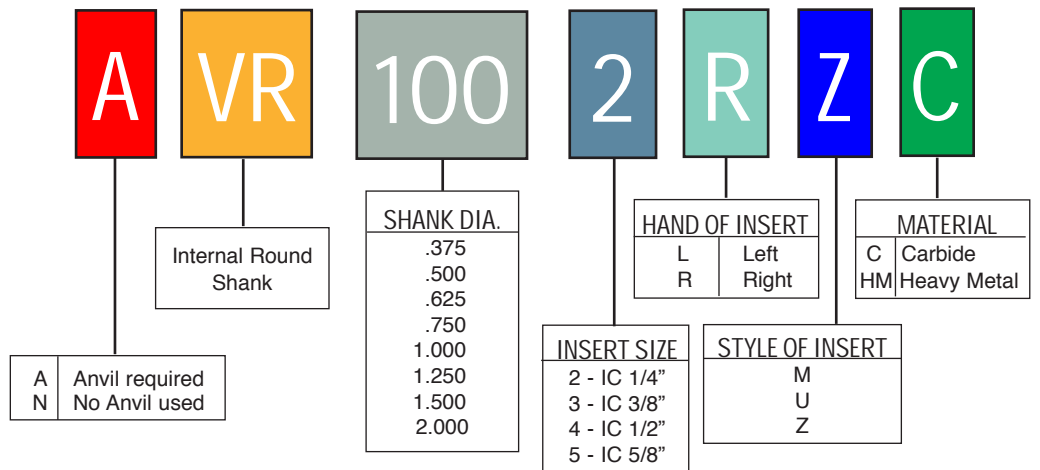
LT Style Laydown Insert Nomenclature Chart



External Toolholder Identification Chart



Internal Bar Identification Chart

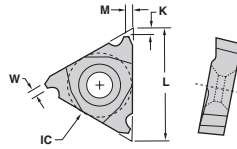




LAYDOWN LT-Style Inserts

ACME THREADING

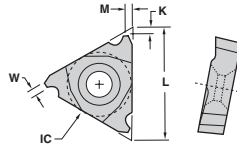
16/22/27



EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	W	IC	L	M	K	Coating					
								C22	GP22	GP50	AT22	AT50	
16ER 16ACME	5006216	16	.0206	3/8	.63	.04	.04						
16EL 16ACME	5046216	16	.0206	3/8	.63	.04	.04	●	●				
16ER 14ACME	5006214	14	.0239	3/8	.63	.05	.04	●	●				
16EL 14ACME	5046214	14	.0239	3/8	.63	.05	.04	●	●				
16ER 12ACME	5006212	12	.0283	3/8	.63	.05	.04	●	●				
16EL 12ACME	5046212	12	.0283	3/8	.63	.05	.04	●	●				
16ER 10ACME	5006210	10	.0319	3/8	.63	.06	.05	●	●				
16EL 10ACME	5046210	10	.0319	3/8	.63	.06	.05	●	●				
16ER 8ACME	5006208	8	.0411	3/8	.63	.06	.06	●	●				
16EL 8ACME	5046208	8	.0411	3/8	.63	.06	.06	●	●				
22ER 6ACME	5106206	6	.0566	1/2	.87	.08	.07	●	●				
22EL 6ACME	5146206	6	.0566	1/2	.87	.08	.07	●	●				
22ER 5ACME	5106205	5	.0689	1/2	.87	.09	.08	●	●				
22EL 5ACME	5146205	5	.0689	1/2	.87	.09	.08	●	●				
27ER 4ACME	5206204	4	.0875	5/8	1.06	.11	.09	●	●				
27EL 4ACME	5246204	4	.0875	5/8	1.06	.11	.09	●	●				
16NR 16ACME	5026216	16	.0206	3/8	.63	.04	.04	●	●				
16NL 16ACME	5066216	16	.0206	3/8	.63	.04	.04	●	●				
16NR 14ACME	5026214	14	.0239	3/8	.63	.05	.04	●	●				
16NL 14ACME	5066214	14	.0239	3/8	.63	.05	.04	●	●				
16NR 12ACME	5026212	12	.0283	3/8	.63	.05	.05	●	●				
16NL 12ACME	5066212	12	.0283	3/8	.63	.05	.05	●	●				
16NR 10ACME	5026210	10	.0319	3/8	.63	.05	.05	●	●				
16NL 10ACME	5066210	10	.0319	3/8	.63	.05	.05	●	●				
16NR 8ACME	5026208	8	.0411	3/8	.63	.06	.06	●	●				
16NL 8ACME	5066208	8	.0411	3/8	.63	.06	.06	●	●				
22NR 6ACME	5126206	6	.0566	1/2	.87	.08	.07	●	●				
22NL 6ACME	5166206	6	.0566	1/2	.87	.08	.07	●	●				
22NR 5ACME	5126205	5	.0689	1/2	.87	.09	.08	●	●				
22NL 5ACME	5166205	5	.0689	1/2	.87	.09	.08	●	●				
27NR 4ACME	5226204	4	.0875	5/8	1.06	.10	.09	●	●				
27NL 4ACME	5266204	4	.0875	5/8	1.06	.10	.09	●	●				

ACME STUB THREADING



EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	W	IC	L	M	K	Coating					
								C22	GP22	GP50	AT22	AT50	
16ER 16STACME	5006416	16	.0238	3/8	.63	.04	.04						
16EL 16STACME	5046416	16	.0238	3/8	.63	.04	.04	●	●				
16ER 14STACME	5006414	14	.0276	3/8	.63	.04	.04	●	●				
16EL 14STACME	5046414	14	.0276	3/8	.63	.04	.04	●	●				
16ER 12STACME	5006412	12	.0326	3/8	.63	.05	.05	●	●				
16EL 12STACME	5046412	12	.0326	3/8	.63	.05	.05	●	●				
16ER 10STACME	5006410	10	.0370	3/8	.63	.05	.05	●	●				
16EL 10STACME	5046410	10	.0370	3/8	.63	.05	.05	●	●				
16ER 8STACME	5006408	8	.0476	3/8	.63	.06	.06	●	●				
16EL 8STACME	5046408	8	.0476	3/8	.63	.06	.06	●	●				
22ER 6STACME	5106406	6	.0652	1/2	.87	.07	.07	●	●				
22EL 6STACME	5146406	6	.0652	1/2	.87	.07	.07	●	●				
22ER 5STACME	5106405	5	.0793	1/2	.87	.08	.08	●	●				
22EL 5STACME	5146405	5	.0793	1/2	.87	.08	.08	●	●				
27ER 4STACME	5206404	4	.1004	5/8	1.06	.09	.11	●	●				
27EL 4STACME	5246404	4	.1004	5/8	1.06	.09	.11	●	●				
16NR 16STACME	5026416	16	.0238	3/8	.63	.04	.04	●	●				
16NL 16STACME	5066416	16	.0238	3/8	.63	.04	.04	●	●				
16NR 14STACME	5026414	14	.0276	3/8	.63	.04	.04	●	●				
16NL 14STACME	5066414	14	.0276	3/8	.63	.04	.04	●	●				
16NR 12STACME	5026412	12	.0326	3/8	.63	.05	.04	●	●				
16NL 12STACME	5066412	12	.0326	3/8	.63	.05	.04	●	●				
16NR 10STACME	5026410	10	.0370	3/8	.63	.05	.05	●	●				
16NL 10STACME	5066410	10	.0370	3/8	.63	.05	.05	●	●				
16NR 8STACME	5026408	8	.0476	3/8	.63	.06	.06	●	●				
16NL 8STACME	5066408	8	.0476	3/8	.63	.06	.06	●	●				
22NR 6STACME	5126406	6	.0652	1/2	.87	.07	.07	●	●				
22NL 6STACME	5166406	6	.0652	1/2	.87	.07	.07	●	●				
22NR 5STACME	5126405	5	.0793	1/2	.87	.09	.08	●	●				
22NL 5STACME	5166405	5	.0793	1/2	.87	.09	.08	●	●				
27NR 4STACME	5226404	4	.1004	5/8	1.06	.09	.09	●	●				
27NL 4STACME	5266404	4	.1004	5/8	1.06	.09	.09	●	●				



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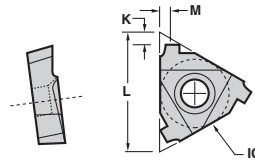
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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



LAYDOWN

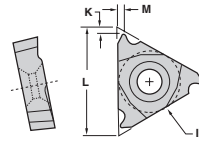
API BUTTRESS THREADING



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	L	M	K	Conn. No.	Coating				
									C22	GP22	GP50	AT22	AT50
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 THREADING



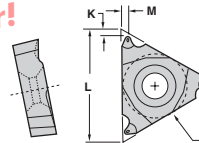
EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	L	M	K	Conn. No.	Coating				
									C22	GP22	GP50	AT22	AT50
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.			●	●	●

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

API ROUND THREADING CHIPBREAKER

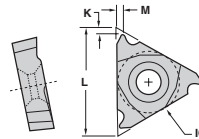
Exclusive patented chipbreaker!



EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
16ER 8RD-CB	5003200HC	8	3/8	.63	.051	.059			●	●	●	
16ER 10RD-CB	5003400HC	10	3/8	.63	.047	.059			●	●	●	

API ROUND THREADING



EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
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			●	●	●	

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

Cast Iron
Non-Ferrous
Stainless/High Temp
Steel

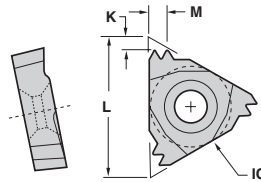


LAYDOWN

LT-Style Inserts

API ROUND THREADING

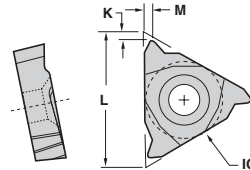
MULTI-TOOTH



EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	Coating							
							C22	GP22	GP50	AT22	AT50			
27ER 8RD2M	5203300	8	5/8	1.08	.177	.114								
22ER 10RD2M	5103500	10	1/2	.87	.146	.094								
27NR 8RD2M	5223300	8	5/8	1.08	.177	.114								
22NR 10RD2M	5123500	10	1/2	.87	.146	.094								

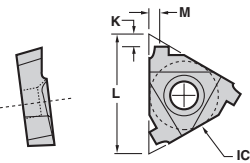
API VO.055



EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	L	M	K	Coating						
								C22	GP22	GP50	AT22	AT50		
16ER VO.055	5004300	6	1-1/2	3/8	.65	.059	.051							
22ER VO.055	5104300	6	1-1/2	1/2	.87	.072	.060							
16NR VO.055	5024300	6	1-1/2	3/8	.65	.059	.051							
22NR VO.055	5124300	6	1-1/2	1/2	.87	.072	.060							

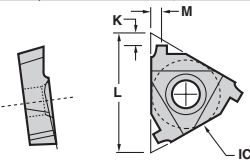
API VAM THREADING



EXT RH SHOWN
INT OPPOSITE

Description	EDP Code	TPI	IC	L	M	K	Coating							
							C22	GP22	GP50	AT22	AT50			
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



EXT RH SHOWN

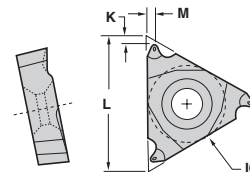
Description	EDP Code	TPI	TPF	IC	L	M	K	Conn. No.	Coating					
									C22	GP22	GP50	AT22	AT50	
22ER 6XL75	5102000	6	3/4	1/2	.87	.075	.078							
22ER 6XL15	5101900	6	1-1/2	1/2	.87	.075	.086	5 - 7-5/8						
22ER 5XL12	5101800	5	1-1/4	1/2	.87	.087	.083	8-5/8 - 10-3/4						
22NR 6XL75	5122000	6	3/4	1/2	.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 THREADING

55°

CHIPBREAKER

Exclusive patented chipbreaker!



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating							
							C22	GP22	GP50	AT22	AT50			
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								

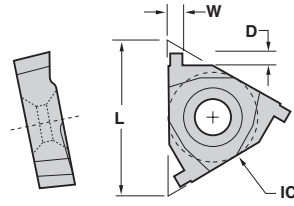
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● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Material	C22	GP22	GP50	AT22	AT50
Cast Iron					
Non-Ferrous					
Stainless/High Temp					
Steel					



GROOVING

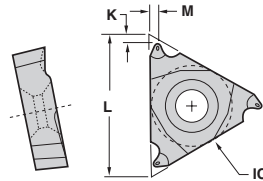


EXT RH SHOWN

Description	EDP Code	IC	W	D	L	Coating				
						C22	GP22	GP50	AT22	AT50
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 THREADING CHIPBREAKER

Exclusive patented chipbreaker!



EXT RH SHOWN

Description	EDP Code	Pitch	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
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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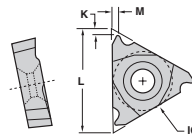
Cast Iron	●				
Non-Ferrous	●				
Stainless/High Temp	●				
Steel					●



ISO THREADING

LAYDOWN

LT-Style Inserts

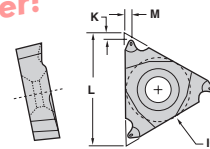


EXT RH SHOWN

Description	EDP Code	Pitch	IC	L	M	K	Coating Options					
							C22	GP22	GP50	AT22	AT50	
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 THREADING CHIPBREAKER

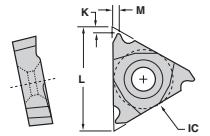
Exclusive patented chipbreaker!



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating Options					
							C22	GP22	GP50	AT22	AT50	
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 THREADING



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating Options					
							C22	GP22	GP50	AT22	AT50	
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		●	●	●	●	

TOOL FLO

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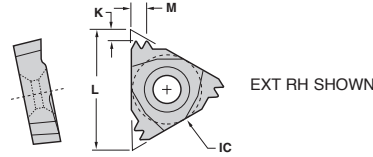
Cast Iron	▲	●	●	●	●
Non-Ferrous	▲	●	●	●	●
Stainless/High Temp	▲	●	●	●	●
Steel	▲	●	●	●	●



LAYDOWN

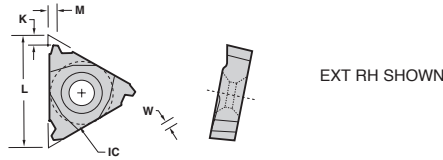
LT-Style Inserts

NPT THREADING MULTI-TOOTH



Description	EDP Code	TPI	IC	L	M	K	Coating							
							C22	GP22	GP50	AT22	AT50			
22ER 11.5NPT2M	5103811	11.5	1/2	.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	.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								

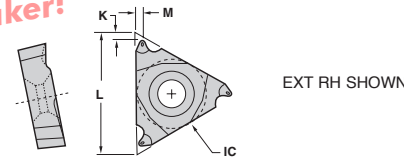
TRAPEZOIDAL THREADING



Description	EDP Code	Pitch	IC	L	M	K	Coating							
							C22	GP22	GP50	AT22	AT50			
16ER 1.5TR	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 1.5TR	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								

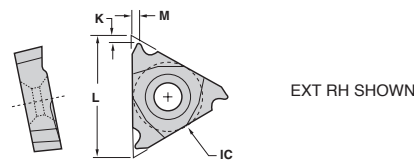
NPTF DRY SEAL THREADING CHIPBREAKER

Exclusive patented chipbreaker!



Description	EDP Code	TPI	IC	L	M	K	Coating							
							C22	GP22	GP50	AT22	AT50			
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 THREADING



Description	EDP Code	TPI	IC	L	M	K	Coating							
							C22	GP22	GP50	AT22	AT50			
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								
11NL 18NPTF	4963818	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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Material	C22	GP22	GP50	AT22	AT50
Cast Iron		▲			●
Non-Ferrous		▲			●
Stainless/High Temp		▲			●
Steel			▲		●

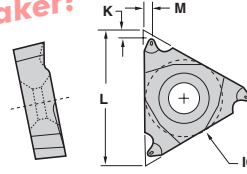


LAYDOWN

LT-Style Inserts

UN THREADING - EXTERNAL CHIPBREAKER

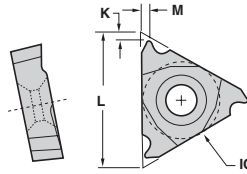
Exclusive patented chipbreaker!



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
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 THREADING - EXTERNAL



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
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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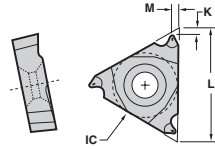
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Material	C22	GP22	GP50	AT22	AT50
Cast Iron		▲			●
Non-Ferrous		▲			●
Stainless/High Temp		▲			●
Steel			▲		●



UN THREADING - INTERNAL CHIPBREAKER

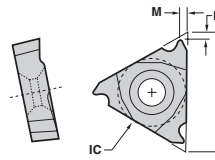
Exclusive patented design!



INT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating				
							C22	GP22	GP50	AT22	AT50
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 THREADING - INTERNAL



INT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating				
							C22	GP22	GP50	AT22	AT50
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.

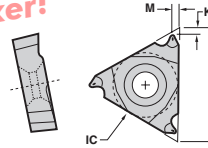
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Material	Cast Iron	Non-Ferrous	Stainless/High Temp	Steel
Coating	▲	▲	▲	▲
Material	▲	▲	▲	▲
Material	▲	▲	▲	▲



**UNJ THREADING - INTERNAL
CHIPBREAKER**

Exclusive patented chipbreaker!

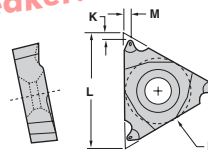


INT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
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 THREADING - EXTERNAL
CHIPBREAKER**

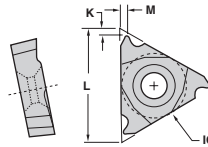
Exclusive patented chipbreaker!



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
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 THREADING - EXTERNAL

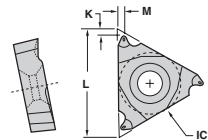


EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
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°
CHIPBREAKER**

Exclusive patented chipbreaker!



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	R	Coating					
								C22	GP22	GP50	AT22	AT50	
16ER A60-CB	5004600HC	16-48	3/8	.63	.03	.02	.002		●	●	●	●	●
16ER AG60-CB	5004800HC	8-48	3/8	.63	.06	.04	.003		●	●	●	●	●
16ER G60-CB	5005000HC	8-14	3/8	.63	.06	.04	.011		●	●	●	●	●
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	.004		●	●	●	●	●

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

Material	Uncoated	TIN Coated	AlTiN Coated
Cast Iron		▲	●
Non-Ferrous		▲	●
Stainless/High Temp		▲	●
Steel		▲	●

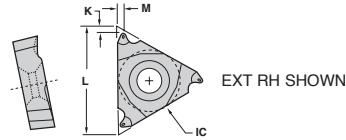


LAYDOWN

LT-Style Inserts

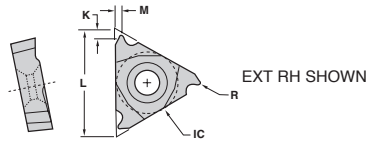
V-THREADING 55° CHIPBREAKER

Exclusive patented chipbreaker!



Description	EDP Code	TPI	IC	L	M	K	R	Coating					
								C22	GP22	GP50	AT22	AT50	
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° AND 60°



Description	EDP Code	TPI	IC	L	M	K	R	Coating					
								C22	GP22	GP50	AT22	AT50	
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		●				

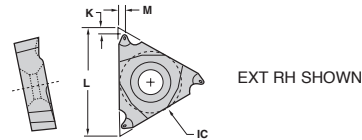
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- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C22	GP22	GP50	AT22	AT50
Cast Iron		▲		●	●
Non-Ferrous		▲		●	●
Stainless/High Temp		▲		●	●
Steel		▲		●	●

WHITWORTH THREADING CHIPBREAKER

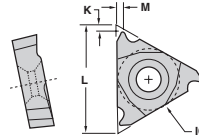
Exclusive patented chipbreaker!



Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AT22	AT50	
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		●				



WHITWORTH THREADING



EXT RH SHOWN

Description	EDP Code	TPI	IC	L	M	K	Coating								
							Uncoated	TIN Coated	AlTIN Coated	C22	GP22	GP50	AT22	AT50	
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		●							

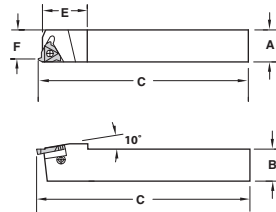
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

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

Material	GP22	GP50	AT22	AT50
Cast Iron	▲			
Non-Ferrous	▲			
Stainless/High Temp	▲			
Steel	▲			

EXTERNAL HOLDER

AL
Threading, Grooving



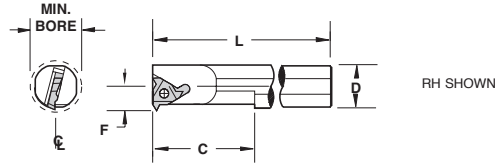
RH SHOWN

RH Holder uses RH Inserts

Description	EDP Code	Insert	A	B	C	E	F*	Tools			
								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	816068441	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



INTERNAL BAR AVR/NVR Threading, Grooving



Description	EDP Code	Insert	D	F**	L	C	Min. Bore	Insert Screw	Seat Screw & Washer	Wrench	Seat
NVR 375-2R*	962048351	11NR	.750	.280	7	1.00	.500	SA3	-	K3	-
NVR 500-2R*	962008551	11NR	.750	.370	7	1.25	.625	SA3	-	K3	-
NVR 500-3R*	962008361	16NR	.750	.400	7	1.25	.670	SA3	-	K3	-
NVR 625-3R*	962052361	16NR	.750	.312	7	2.50	.700	SA3	-	K3	-
NVR 625-3L*	962052362	16NL	.750	.312	7	2.50	.700	SA3	-	K3	-
AVR 750-3R	918056361	16NR	.750	.510	7	2.75	.950	SA3	SY3	K3	YI3
AVR 750-3L	918056362	16NL	.750	.510	7	2.75	.950	SA3	SY3	K3	YE3
AVR 100-3R	918064361	16NR	1.000	.640	10	3.00	1.150	SA3	SY3	K3	YI3
AVR 100-3L	918064362	16NL	1.000	.640	10	3.00	1.150	SA3	SY3	K3	YE3
AVR 125-3R	918068361	16NR	1.250	.770	10	3.00	1.400	SA3	SY3	K3	YI3
AVR 125-3L	918068362	16NL	1.250	.770	10	3.00	1.400	SA3	SY3	K3	YE3
AVR 150-3R	918072361	16NR	1.500	.900	12	3.00	1.700	SA3	SY3	K3	YI3
AVR 150-3L	918072362	16NL	1.500	.900	12	3.00	1.700	SA3	SY3	K3	YE3
NVR 750-4R	962056401	22NR	.750	.610	7	2.75	1.100	SA4	-	K4	-
NVR 750-4L	962056402	22NL	.750	.610	7	2.75	1.100	SA4	-	K4	-
AVR 100-4R	918064401	22NR	1.000	.710	10	3.00	1.200	SA4	SY4	K4	YI4
AVR 100-4L	918064402	22NL	1.000	.710	10	3.00	1.200	SA4	SY4	K4	YE4
AVR 125-4R	918068401	22NR	1.250	.840	10	3.00	1.500	SA4	SY4	K4	YI4
AVR 125-4L	918068402	22NL	1.250	.840	10	3.00	1.500	SA4	SY4	K4	YE4
AVR 150-4R	918072401	22NR	1.500	.980	12	3.00	1.800	SA4	SY4	K4	YI4
AVR 150-4L	918072402	22NL	1.500	.980	12	3.00	1.800	SA4	SY4	K4	YE4
AVR 125-5R	918068441	27NR	1.250	.880	10	3.00	1.800	SA5	SY5	K4	YI5
AVR 125-5L	918068442	27NL	1.250	.880	10	3.00	1.800	SA5	SY5	K4	YE5
AVR 150-5R	918072441	27NR	1.500	1.000	12	3.00	1.900	SA5	SY5	K4	YI5
AVR 150-5L	918072442	27NL	1.500	1.000	12	3.00	1.900	SA5	SY5	K4	YE5
AVR 200-5R	918080441	27NR	2.000	1.125	12	3.00	2.400	SA5	SY5	K4	YI5
AVR 200-5L	918080442	27NL	2.000	1.125	12	3.00	2.400	SA5	SY5	K4	YE5

*Over NV Insert

**Support must be slightly modified if used for grooving.

LAYDOWN

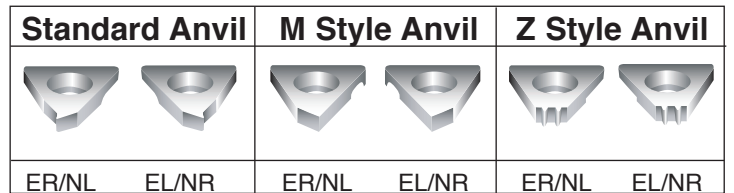


ANVILS

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

IC	L	TF #	Included Anvils
ANVIL KITS	3/8"	KTY3	YE3-2P, 1P, 1N, 2N, 3N YI3-2P, 1P, 1N, 2N, 3N
		KTY4	YE4-2P, 1P, 1N, 2N, 3N YI4-2P, 1P, 1N, 2N, 3N
	1/2"U	KTY4U	YE4U-2P, 1P, 1N, 2N, 3N YI4U-2P, 1P, 1N, 2N, 3N
		KTYE5	YE5-2P, 1P, 1N, 2N, 3N
	5/8"	KTYI5	YI5-2P, 1P, 1N, 2N, 3N
		KTYE5U	YE5U-2P, 1P, 1N, 2N, 3N
	5/8"U	KTYI5U	YI5U-2P, 1P, 1N, 2N, 3N
		KTYE5U	YE5U-2P, 1P, 1N, 2N, 3N

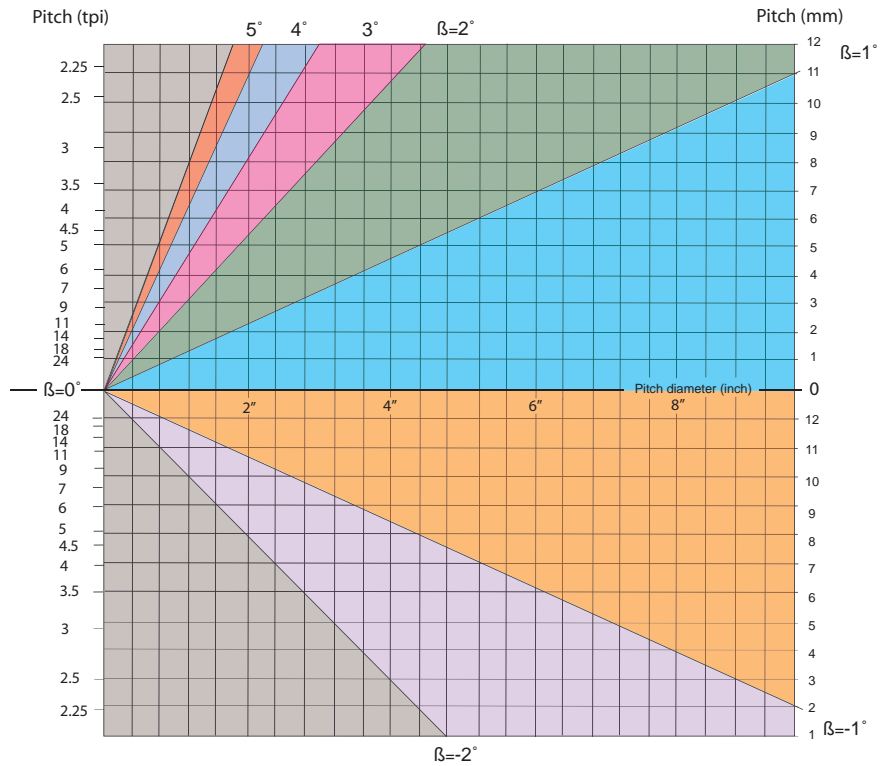


ANVIL FORMS	
1/2"	YE4-11.5NPT-2M YI4-11.5NPT-2M
5/8"	YE5-8NPT-2M, YE5-8RD-2M YI5-8NPT-2M, YI5-8RD-2M

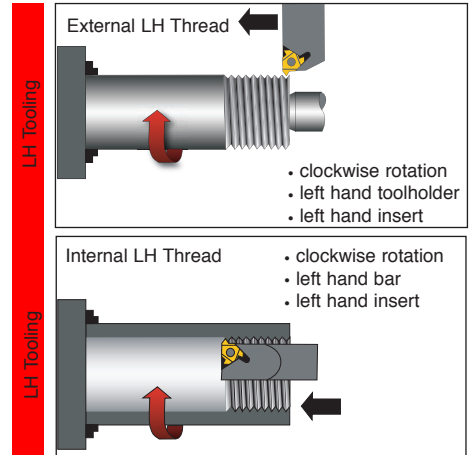
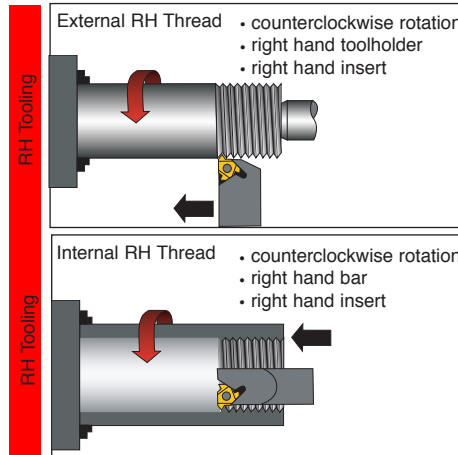
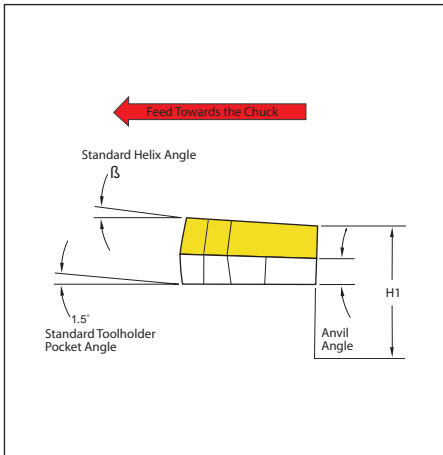
HELIX ANGLE TABLE (FOR GIVEN PITCH AND DIAMETER)								
resultant helical angle	4.5°	3.5°	2.5°	1.5°	0.5°	0°	-0.5°	-1.5°
threads per inch	D I A M E T E R							
48			0.12 - 0.18	0.18 - 0.48	0.48 - 1.28	> 1.28	1.28 - 0.48	0.48 - 0.18
44			0.13 - 0.20	0.20 - 0.52	0.52 - 1.40	> 1.40	1.40 - 0.52	0.52 - 0.20
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 - 0.84	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	> 6.08	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



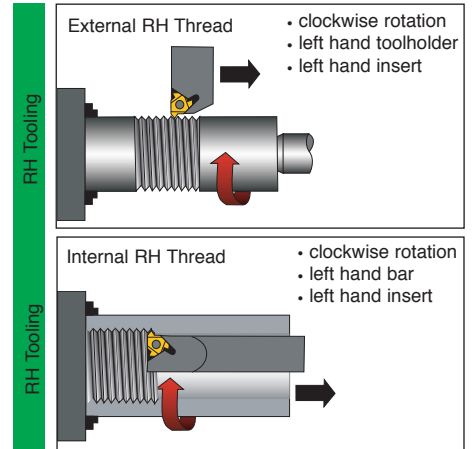
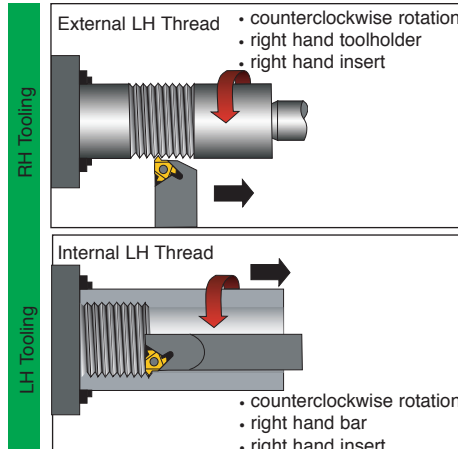
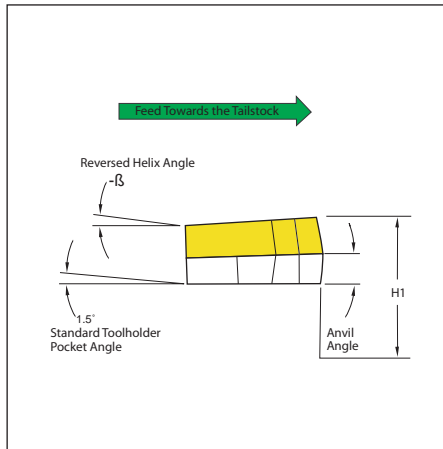
Helix Angle Diagram



Feed direction towards the chuck

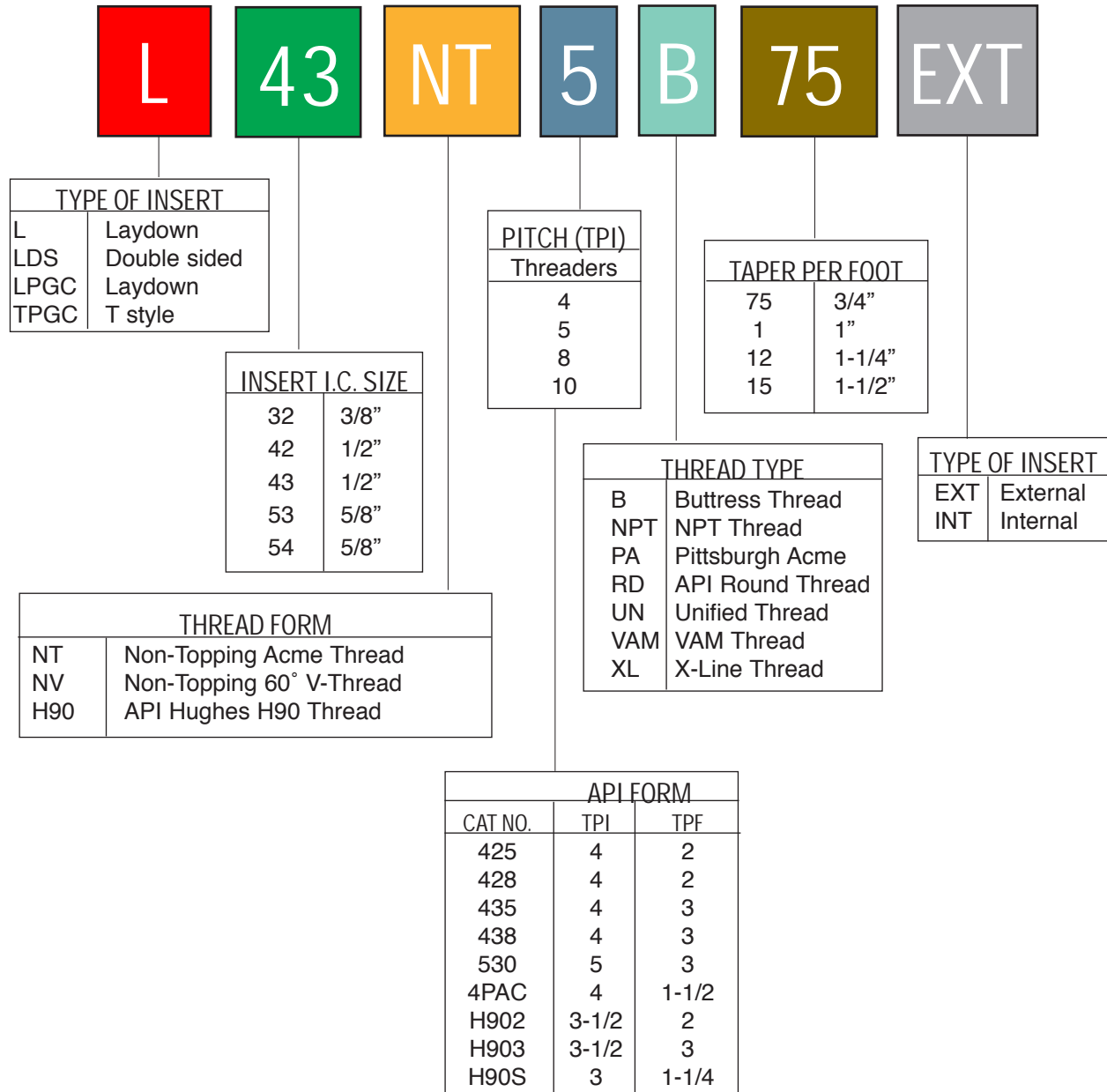


Feed direction towards the tailstock



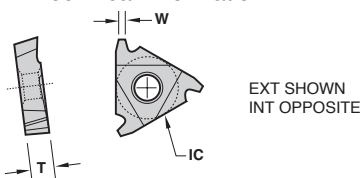


L-Style Laydown Insert Nomenclature Chart



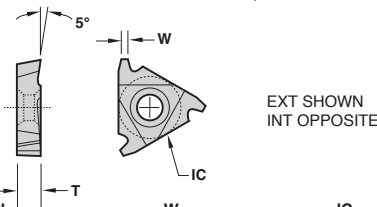


ACME THREADING L43/L53



Description	EDP Code	TPI	W	IC	T	TIN Coated			AITIN Coated		
						GP22	GP50	GP5	AT22	AT50	AT5
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		●				

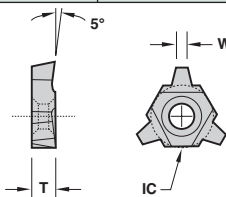
LPGC



Description	EDP Code	TPI	W	IC	T	TIN Coated			AITIN Coated		
						GP22	GP50	GP5	AT22	AT50	AT5
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			●			

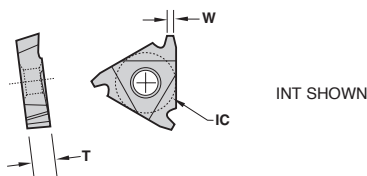
*Bar must be modified to clear depth.

TPGC



Description	EDP Code	TPI	W	IC	T	TIN Coated			AITIN Coated		
						GP22	GP50	GP5	AT22	AT50	AT5
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 THREADING L43/L53



Description	EDP Code	TPI	W	IC	T	TIN Coated			AITIN Coated		
						GP22	GP50	GP54	AT22	AT50	AT54
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		●				

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.

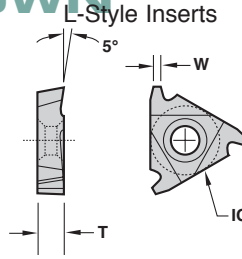
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Cast Iron
Non-Ferrous
Stainless/High Temp
Steel



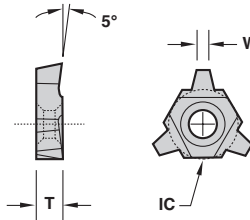
LAYDOWN

LPGC



Description	EDP Code	TPI	W	IC	T	TIN Coated			AITTIN Coated			
						GP22	GP50	GP54	AT22	AT50	AT54	
LPGC 32 NT 8P STUB INT	020408181	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		●					

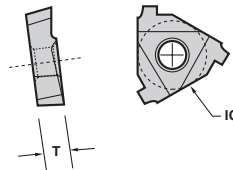
TPGC



Description	EDP Code	TPI	W	IC	T	TIN Coated			AITTIN Coated			
						GP22	GP50	GP54	AT22	AT50	AT54	
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 THREADING

L43/L53



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated			AITTIN Coated		
							GP22	GP50	GP54	AT22	AT50	AT54
L43 5B75 EXT	16514	5	3/4	.500	.189	4-1/2 - 13-3/8		●				
L43 5B1 EXT	17514	5	1	.500	.189	16 and larger		●			●	
L43 8B75 EXT	21154	8	3/4	.500	.189	US Improved Buttress		●				
L43 5B75 EXT-FC	16514F	5	3/4	.500	.189	4-1/2 - 13-3/8		●				
L43 5B1 EXT-FC	17514F	5	1	.500	.189	16 and larger		●				
L53 5B75 EXT	16474	5	3/4	.625	.189	4-1/2 - 13-3/8		●			●	
L53 5B1 EXT	17474	5	1	.625	.189	16 and larger		●				●
L53 8B75 EXT	21474	8	3/4	.625	.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		●				
L43 5B75 INT	16518	5	3/4	.500	.189	4-1/2 - 13-3/8		●			●	
L43 5B1 INT	17518	5	1	.500	.189	16 and larger		●				●
L43 8B75 INT	21158	8	3/4	.500	.189	US Improved Buttress		●				
L43 5B75 INT-FC	16518F	5	3/4	.500	.189	4-1/2 - 13-3/8		●				
L43 5B1 INT-FC	17518F	5	1	.500	.189	16 and larger		●				
L53 5B75 INT	16478	5	3/4	.625	.189	4-1/2 - 13-3/8		●			●	
L53 5B1 INT	17478	5	1	.625	.189	16 and larger		●				●
L53 8B75 INT	21478	8	3/4	.625	.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		●				

FC designates 5° flank clearance

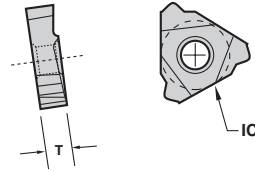
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- ▲ Recommended grade under general conditions.

Cast Iron
Non-Ferrous
Stainless/High Temp
Steel



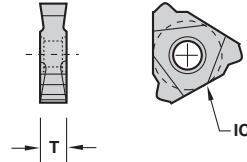
API HUGHES H90 THREADING L53



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated			AlTiN Coated		
							GP22	GP50	GP54	AT22	AT50	AT54
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		●				

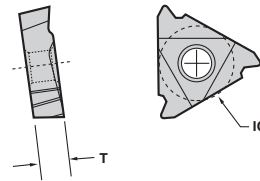
LDS DOUBLE SIDED



EXT SIDE SHOWN

Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated			AlTiN Coated		
							GP22	GP50	GP54	AT22	AT50	AT54
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			●			

API ROTARY SHOULDER CONNECTION THREADING L43/L53



EXT SHOWN
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated			AlTiN Coated		
							GP22	GP50	GP54	AT22	AT50	AT54
L43 425 EXT	09154	4	2	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.		●		●	●	
L43 428 EXT	10154	4	2	.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	.500	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.		●			●	
L43 438 EXT	12154	4	3	.500	.189	NC56 - NC71		●			●	
L43 530 EXT	13154	5	3	.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	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.		●		●	●	
L53 428 EXT	10474	4	2	.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	.625	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.		●			●	
L53 438 EXT	12474	4	3	.625	.189	NC56 - NC71		●			●	
L53 530 EXT	13474	5	3	.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	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.		●		●	●	
L43 428 INT	10158	4	2	.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	.500	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.		●			●	
L43 438 INT	12158	4	3	.500	.189	NC56 - NC71		●			●	
L43 530 INT	13158	5	3	.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	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.		●		●	●	
L53 428 INT	10478	4	2	.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	.625	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.		●			●	
L53 438 INT	12478	4	3	.625	.189	NC56 - NC71		●			●	
L53 530 INT	13478	5	3	.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		●				

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

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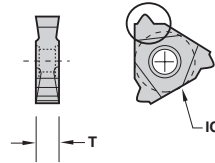
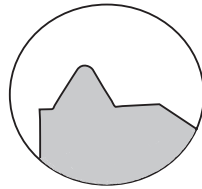
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

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



LAYDOWN L-Style Inserts

LDS DOUBLE SIDED FULL TOPPING

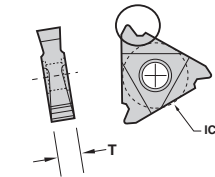
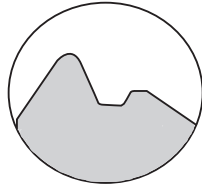


EXT SIDE SHOWN

Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated			AITIN Coated		
							GP22	GP50	GP54	AT22	AT50	AT54
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			●			

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

LDS DOUBLE SIDED FOLLOW TOPPING

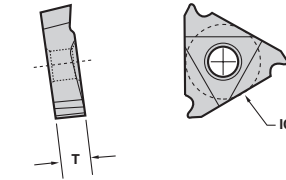


EXT SIDE SHOWN

Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated			AITIN Coated		
							GP22	GP50	GP54	AT22	AT50	AT54
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			●			

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

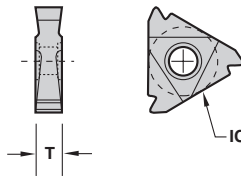
API ROUND THREADING L43/L53



EXT SIDE SHOWN

Description	EDP Code	TPI	TPF	IC	T	TIN Coated			AITIN Coated		
						GP22	GP50	GP54	AT22	AT50	AT54
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 DOUBLE SIDED



EXT SIDE SHOWN

Description	EDP Code	TPI	TPF	IC	T	TIN Coated			AITIN Coated		
						GP22	GP50	GP54	AT22	AT50	AT54
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				●	●	

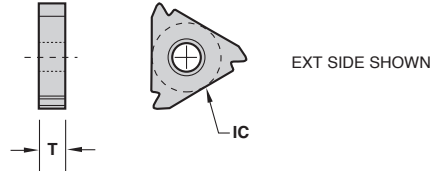
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- ▲ Recommended grade under general conditions.

	GP22	GP50	GP54	AT22	AT50	AT54
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel	▲	▲			●	●



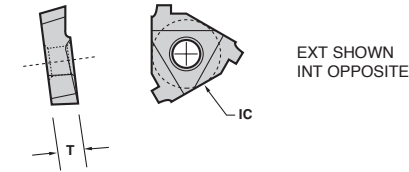
API ROUND THREADING TFNA



Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AT22	AT50	AT54
TNFA 43 8RD	32N70	8	3/4	.500	.187		●				

TIN Coated			AITIN Coated		
GP22	GP50	GP54	AT22	AT50	AT54
	●				

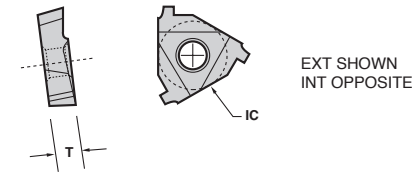
API VAM THREADING L43



Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AT22	AT50	AT54
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	●					

TIN Coated			AITIN Coated		
GP22	GP50	GP54	AT22	AT50	AT54
	●				

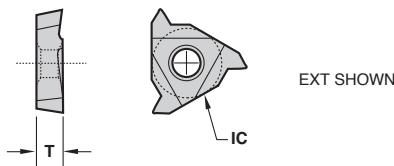
API X-LINE THREADING L43/L53



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	GP22	GP50	GP54	AT22	AT50	AT54
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	●					

TIN Coated			AITIN Coated		
GP22	GP50	GP54	AT22	AT50	AT54
	●				

NPT THREADING L43



Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AT22	AT50	AT54
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		●				

TIN Coated			AITIN Coated		
GP22	GP50	GP54	AT22	AT50	AT54
	●				

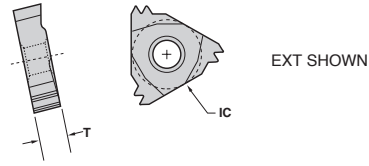
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Cast Iron					
Non-Ferrous					
Stainless/High Temp					
Steel	▲				

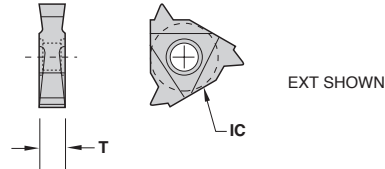


L43 MULTI-TOOTH



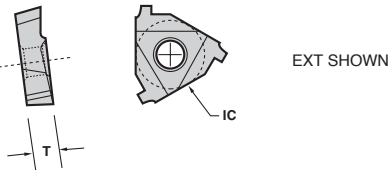
Description	EDP Code	TPI	TPF	IC	T	TIN Coated			AlTiN Coated		
						GP22	GP50	GP54	AT22	AT50	AT54
L43 11.5NPT2M EXT	3615114T	11.5	3/4	.500	.189				●		
L43 11.5NPT2M INT	3615118T	11.5	3/4	.500	.189				●		

LDS DOUBLE SIDED



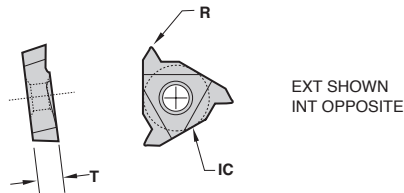
Description	EDP Code	TPI	TPF	IC	T	TIN Coated			AlTiN Coated		
						GP22	GP50	GP54	AT22	AT50	AT54
LDS 43 14NPT	3618140	14	3/4	.500	.189			●			
LDS 43 11.5NPT	3618110	11.5	3/4	.500	.189			●			
LDS 43 8NPT	3618080	8	3/4	.500	.189			●			

PITTSBURG ACME L43/L53



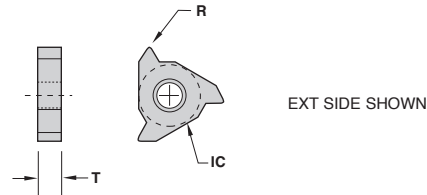
Description	EDP Code	TPI	TPF	IC	T	TIN Coated			AlTiN Coated		
						GP22	GP50	GP54	AT22	AT50	AT54
L43 8PA75 EXT	22154	8	3/4	.500	.189		●				
L53 8PA75 EXT	22474	8	3/4	.625	.189		●				
L43 8PA75 INT	22158	8	3/4	.500	.189		●				
L53 8PA75 INT	22478	8	3/4	.625	.189		●				

V-THREAD - 60° L43



Description	EDP Code	TPI	R	IC	T	TIN Coated			AlTiN Coated		
						GP22	GP50	GP54	AT22	AT50	AT54
L43 NV EXT	0115040	8-48	.006/.005	.500	.189		●			●	
L53 NV EXT	0147004	5-32	.006/.005	.625	.189		●			●	
L43 NV INT	0115080	8-48	.006/.005	.500	.189		●			●	
L53 NV INT	0147008	5-32	.006/.005	.625	.189		●			●	

LN DOUBLE SIDED



Description	EDP Code	TPI	R	IC	T	TIN Coated			AlTiN Coated		
						GP22	GP50	GP54	AT22	AT50	AT54
LN 43 NV	0120000	8-48	.006/.005	.500	.189		●				

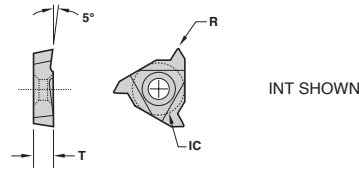
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- ▲ Recommended grade under general conditions.

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

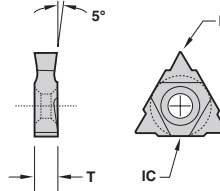


LPGC



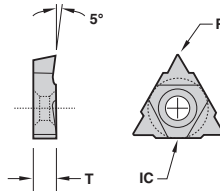
Description	EDP Code	TPI	R	IC	T	TIN Coated			AITTIN Coated			
						GP22	GP5	GP54	AT22	AT50	AT54	
LPGC 32 NV INT RH	0104R80	8-48	.004/.006	.375	.127		●					
LPGC 32 NV INT LH	0104L80	8-48	.004/.006	.375	.127		●					
LPGC 42 NV INT RH	0113R80	8-20	.006/.008	.500	.127		●					
LPGC 42 NV INT LH	0113L80	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 DOUBLE SIDED



Description	EDP Code	TPI	R	IC	T	TIN Coated			AITTIN Coated			
						GP22	GP5	GP54	AT22	AT50	AT54	
TNPGC 43 NV		8-48	.006/.005	.500	.189		●					

TPGC



Description	EDP Code	TPI	R	IC	T	TIN Coated			AITTIN Coated			
						GP22	GP5	GP54	AT22	AT50	AT54	
TPGC 32 NV		8-48	.006/.005	.375	.127		●					
TPGC 42 NV	0114000	5-32	.006/.005	.500	.127		●					
TPGC 43 NV	0138000	4-16	.006/.005	.500	.189		●					

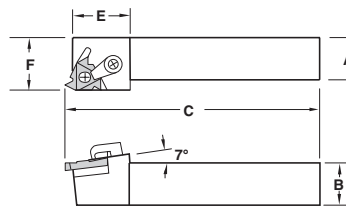
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

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

Material	GP22	GP5	GP54	AT22	AT50	AT54
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel				▲		

EXTERNAL HOLDER

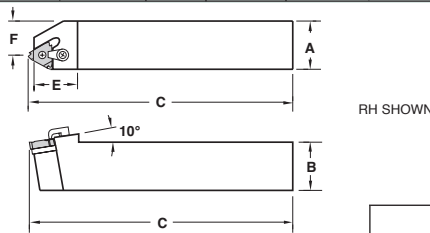
MTVNR/L Threading, Grooving



Description	EDP Code	Insert	A	B	C	E	F*	PARTS			
								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.

MTENR/L Threading



Description	EDP Code	Insert	A	B	C	E	F*	PARTS			
								Seat	Lock Pin	Clamp	Clamp Screw
MTENR-164	95201656	TNPGC 43	1	1	6	1.47	.63	TS43*	NL46	TC-190	STC5
MTENR-204	95202056	TNPGC 43	1-1/4	1-1/4	7	1.47	.88	TS43*	NL46	TC-190	STC5

*Seats can be ordered as NO FORM or a FORM can be specified. Ex: TS 43 API EXT. Seat.

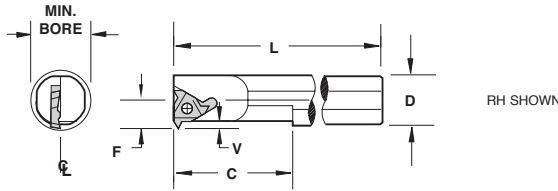


LAYDOWN L-Style Inserts

INTERNAL BAR

LFL/R

Threading, Grooving

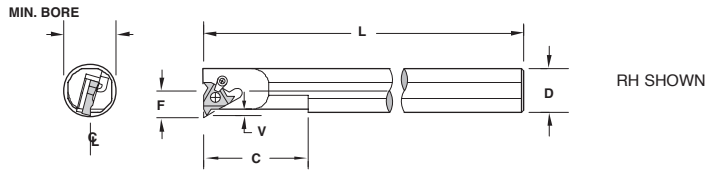


Description	EDP Code	Insert	Min. Bore	L	D	C	F	V	Torx Screw
LFR 625-32	93905248	LPGC 32	.625	8	.625	2-1/2	.312	.100	SF40
LFL 625-32	93805248	LPGC 32	.625	8	.625	2-1/2	.312	.100	SF40
LFR 750-32	93905648	LPGC 32	.750	8	.750	2-3/4	.375	.100	SF40
LFL 750-32	93805648	LPGC 32	.750	8	.750	2-3/4	.375	.100	SF40
LFR 100-32	93906448	LPGC 32	1.000	10	1.000	2-3/4	.500	.100	SF40
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	SF60
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	SF85
LFL 150-53	93807262	LPGC 53	1.500	14	1.500	3-3/4	.750	.150	SF85
LFR 200-53	93908062	LPGC 53	2.000	14	2.000	3-3/4	1.000	.150	SF85

*Over NV Insert

LNFL/R

Threading, Grooving



PARTS

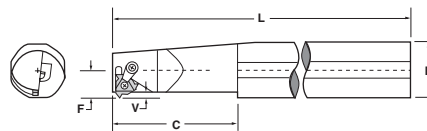
Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	PARTS			
									Seat	Screw/ Lock Pin	Clamp	Clamp Screw
LNFR 100-43	94206456	L43	1.031	10	1	2-3/4	.564	.125	-	TS60	-	-
LNFL 100-43	94106456	L43	1.031	10	1	2-3/4	.564	.125	-	TS60	-	-
LNFR 125-43	94206856	L43	1.250	12	1-1/4	2-3/4	.625	.125	-	NL44	TC190	STC-9
LNFL 125-43	94106856	L43	1.250	12	1-1/4	2-3/4	.625	.125	-	NL44	TC190	STC-9
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

LNFL/R-API

Threading

Tapered Head for API Forms



RH SHOWN RH Bars use RH inserts

PARTS

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	PARTS		
									Lock Pin	Clamp	Clamp Screw
LNFR 150-43API	94407256	L43	1.500	14	1-1/2	4-1/2	.750	.167	NL44	TC190	STC-9
LNFR 200-43API	94408056	L43	2.000	14	2	4-1/2	1.000	.167	NL44	TC190	STC-9
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	94408062	LDS 54	2.000	16	2	4-1/2	1.000	.200	NL56	TC250	STC-11

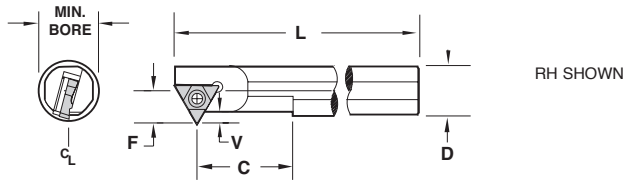
*Seat can be ordered as NO FORM or a FORM can be specified. EX: LS 43 API INT SEAT



INTERNAL BAR

LTNL/R

Threading

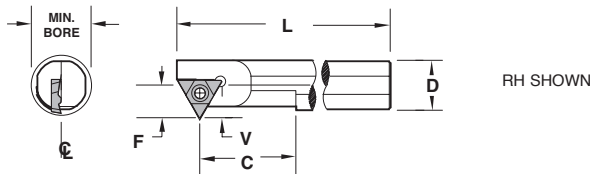


Description	EDP Code	Insert	Min. Bore	L	D	C	F*	V	Torx Screw
LNTR 880-43	94706056	TNPGC 43	.880	8	1.000	2.750	.440	.199	SF60
LNTL 880-43	94606056	TNPGC 43	.880	8	1.000	2.750	.440	.199	SF60
LNTR 100-43	94706456	TNPGC 43	1.000	10	1.000	2.750	.490	.213	SF60
LNTL 100-43	94606456	TNPGC 43	1.000	10	1.000	2.750	.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

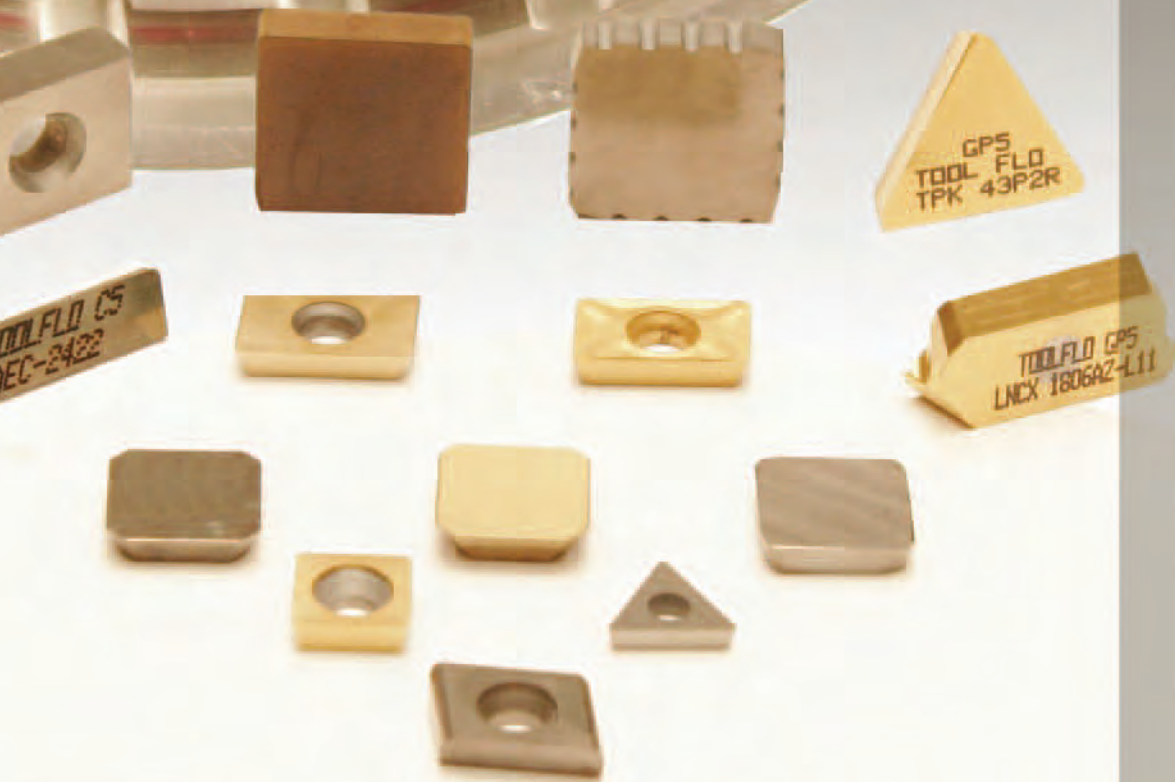
LTL/R

Threading, Grooving



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



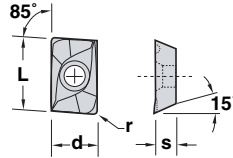
WILLIAMS



TOOL FLO

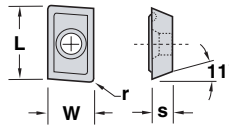


ADKT



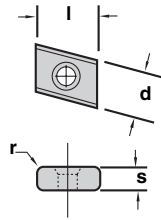
Description	EDP Code	L	d	s	r	GP201	AT202	AG6M	P56M	G55M	P5M	GP5	AT5
ADFT 1505PDER-HCM	MADFT1505HCM	0.635	0.380	0.230	0.031	●		●	●		●		
ADFT 1505PDER-SCM	MADFT1505SCM	0.635	0.380	0.230	0.031	●	●		●		●		
ADFT 150516-RCM	MADFT150516RCM	0.635	0.380	0.230	0.062	●			●				
ADFT 150532-RCM	MADFT150532RCM	0.607	0.380	0.230	0.125	●			●				

APKT



Description	EDP Code	L	W	s	r	GP201	AT202	AG6M	P56M	G55M	P5M	GP5	AT5
APKT 1003PDER-HCM	MAPKT1003HCM	0.413	0.263	0.137	0.019	●		●	●		●		
APKT 1003PDER-SCM	MAPKT1003SCM	0.413	0.263	0.137	0.019	●	●		●		●		
APKT 100316-RCM	MAPKT100316RCM	0.413	0.263	0.137	0.062	●			●				
APKT 1604PDER-HCM	MAPKT1604HCM	0.687	0.394	0.195	0.039			●	●		●		
APKT 1604PDER-SCM	MAPKT1604SCM	0.687	0.394	0.195	0.039	●	●		●		●		
APKT 160416-RCM	MAPKT160416RCM	0.687	0.394	0.195	0.063			●	●				
APKT 160424-RCM	MAPKT160424RCM	0.687	0.394	0.195	0.094	●		●	●				
APKT 160432-RCM	MAPKT160432RCM	0.687	0.394	0.195	0.125								

CDE

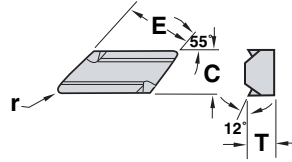


Description	EDP Code	l	d	s	r	GP201	AT202	AG6M	P56M	G55M	P5M	GP5	AT5
CDE 313-R01	MC31301R	0.375	0.437	0.187	.020 x 45°							●	
CDE 313-R15	MC31305R	0.375	0.437	0.187	0.125							●	
CDE 313-R64	MC31364R	0.375	0.437	0.187	0.060							●	
CDE 322-L02	MC32202L	0.500	0.375	0.150	0.060							●	
CDE 322-L03	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							●	



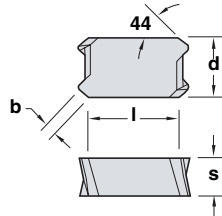
MILLING Inserts

KNUX



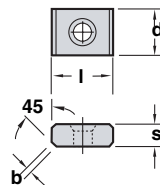
Description	EDP Code	C	r	T	E	AG450	A460	AG501	P56M	G55M	P5M	GP5	AT5
KNUX 160405EL-111	MKX05EL11	0.375	0.020	0.187	0.625	●	●						
KNUX 160405EL-N11	MKX05ELN11	0.375	0.020	0.187	0.625	●	●	●					
KNUX 160405ER-111	MKX05ER11	0.375	0.020	0.187	0.625	●	●						
KNUX 160405ER-N11	MKX05ERN11	0.375	0.020	0.187	0.625	●	●	●					
KNUX 160410EL-N11	MKX10ELN11	0.375	0.039	0.187	0.625	●	●	●					
KNUX 160410ER-N11	MKX10ERN11	0.375	0.039	0.187	0.625	●	●	●					

LNCX



Description	EDP Code	L	W	s	r	GP201	AT202	AG6M	P56M	G55M	P5M	GP5	AT5
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



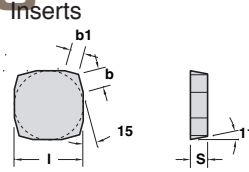
Description	EDP Code	l	d	s	b	GP201	AT202	AG6M	P56M	G55M	P5M	GP5	AT5
LNE 323-02	ML323	0.625	0.375	0.187	.030 x 45°							●	
LNE 323-04	ML32304	0.625	0.375	0.187	0.060							●	
LNE 323-88	ML32388	0.625	0.375	0.187	.060 x 45°							●	
LNE 324-01	ML32401	0.625	0.375	0.250	0.060							●	
LNE 324-05	ML32405	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	0.187	.030 x 45°							●	
LNE 443-01	ML44301	1.000	0.562	0.187	0.093							●	

MILLING



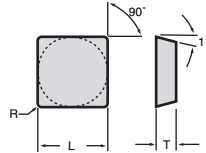
MILLING

SEKN



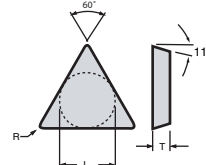
Description	EDP Code	l	s	b	b1	AG450	A460	AG501	P56M	G55M	P5M	GP5	AT5
SEKN 42AFSN	MSEKN425N	0.500	0.125	-	-							●	
SEKN 42AFSN-11	MSEKN425N11	0.500	0.125	-	-							●	
SEKN 42AFSN-HCM	MSEKN425NHCM	0.500	0.125	-	-							●	
SEKN 42AFSN-SCM	MSEKN425NSCM	0.500	0.125	-	-							●	
SEKN 53AFSN	MSEKN535N	0.625	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							●	

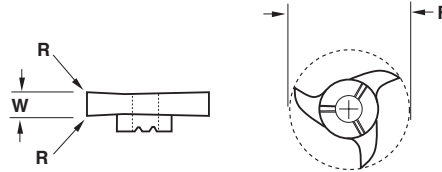
TPG



Description	EDP Code	l	T	R	GP201	AT202	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

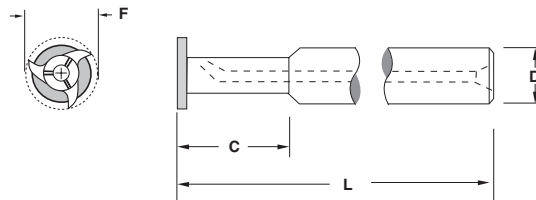
TFMG Grooving



Description	EDP Code	W	R	F	GP22
TFMG-039W	9MG039O3	0.039	-	0.854	●
TFMG-056W	9MG056O3	0.056	-	0.854	●
TFMG-062W	9MG062O3	0.062	0.008	0.854	●
TFMG-078W	9MG078O3	0.078	0.008	0.854	●
TFMG-094W	9MG094O3	0.094	0.008	0.854	●
TFMG-125W	9MG125O3	0.125	0.008	0.854	●
TFMG-187W	9MG187O3	0.187	0.008	0.854	●
TFMG-250W	9MG250O3	0.250	0.008	0.854	●

MILL GROOVING HOLDER

PCFNR



Description	EDP Code	C	L	D	F	Insert Screw
PCFNR-7-12M-100C	9CMI712M100		100mm	12mm	0.854	
PCFNR-7-12M-130C	9CMI712M130		130mm	12mm	0.854	
PCFNR-7-16M-42C	9CMI716M42	42mm	130mm	16mm	0.854	
PCFNR-7-16M-60C	9CMI716M60	60mm		16mm	0.854	
PCFNR-7-500-394C	9CMI7500394	3.940		0.500	0.854	
PCFNR-7-500-512C	9CMI7500512	5.120		0.500	0.854	
PCFNR-7-625-165C	9CMI7625165	1.650		0.625	0.854	
PCFNR-7-625-236C	9CMI7625236	2.630		0.625	0.854	
PCFNR-7-625-335C	9CMI7625335	3.350		0.625	0.854	



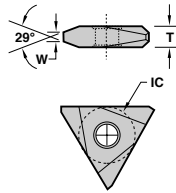
TOOL-FLO

COMMON EDGE





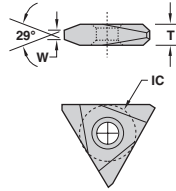
ACME THREADING
TNMA STRAIGHT HOLE



Description	EDP Code	TPI	W	IC	T	Coating							
						C3	C6H	GP3	GP50	AT3	AT50		
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								

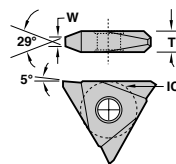
*Acme threads provided with sharp corners - radius available on a quotation basis.

TNMC COUNTERSINK HOLE



Description	EDP Code	TPI	W	IC	T	Coating							
						C3	C6H	GP3	GP50	AT3	AT50		
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								

ACME THREADING
TPMA STRAIGHT HOLE
Positive Rake



Description	EDP Code	TPI	W	IC	T	Coating							
						C3	C6H	GP3	GP50	AT3	AT50		
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.

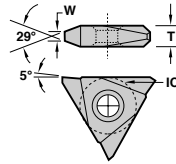
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel			▲			●



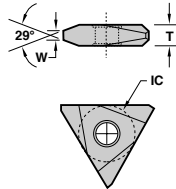
ON-EDGE Threading

TPMC COUNTERSINK HOLE Positive Rake



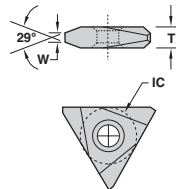
Description	EDP Code	TPI	W	IC	T	Coating									
						C3	C6H	GP3	GP50	AT3	AT50				
TPMC 32 NT 6P	0211060	6	.0566	.375	.127										
TPMC 32 NT 8P	0211080	8	.0411	.375	.127										
TPMC 32 NT 10P	0211100	10	.0319	.375	.127										
TPMC 32 NT 12P	0211120	12	.0283	.375	.127										
TPMC 43 NT 4P	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 THREADING TNMA STRAIGHT HOLE



Description	EDP Code	TPI	W	IC	T	Coating									
						C3	C6H	GP3	GP50	AT3	AT50				
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	Coating									
						C3	C6H	GP3	GP50	AT3	AT50				
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.

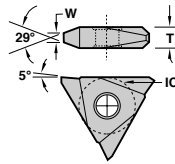
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel			▲			●



ON-EDGE

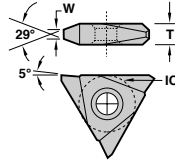
Threading



STUB ACME THREADING TPMA STRAIGHT HOLE Positive Rake

Description	EDP Code	TPI	W	IC	T	Coatings							
						C3	C6H	GP3	GP50	AT3	AT50		
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								

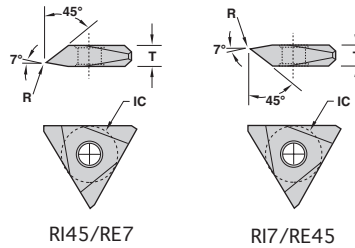
TPMC COUNTERSINK HOLE Positive Rake



Description	EDP Code	TPI	W	IC	T	Coatings							
						C3	C6H	GP3	GP50	AT3	AT50		
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								

AMERICAN STANDARD BUTTRESS THREADING TNMA & TNMC

For thread specifications & applications see page 102.

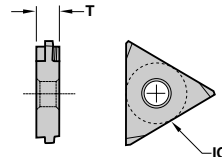


RI45/RE7

RI7/RE45

Description	EDP Code	TPI	R	IC	T	Lead Angle	Coatings						
							C3	C6H	GP3	GP50	AT3	AT50	
TNMA 43 RI45/RE7	403900R008	8-16	.005-.008	.500	.189	45° Internal/7° External							
TNMA 43 RI7/RE45	393900R008	8-16	.005-.008	.500	.189	7° Internal/45° External							
TNMA 54 RI45/RE7	405100R010	4-6	.008-.012	.625	.252	45° Internal/7° External							
TNMA 54 RI7/RE45	395100R010	4-6	.008-.012	.625	.252	7° Internal/45° External							
TNMC 43 RI45/RE7	404100R008	8-16	.005-.008	.500	.189	45° Internal/7° External							
TNMC 43 RI7/RE45	394100R008	8-16	.005-.008	.500	.189	7° Internal/45° External							
TNMC 54 RI45/RE7	405300R010	4-6	.008-.012	.625	.252	45° Internal/7° External							
TNMC 54 RI7/RE45	395300R010	4-6	.008-.012	.625	.252	7° Internal/45° External							

API BUTTRESS THREADING TNMA STRAIGHT HOLE



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Coatings						
							C3	C6H	GP3	GP50	AT3	AT50	
TNMA 43 8B75 EXT	21394	8	.750	.500	.189	U.S. Improved Buttress							
TNMA 44 5B75 EXT	16434	5	.750	.500	.252	4-1/2 - 13-3/8							
TNMA 54 5B1 EXT	17514	5	1.000	.625	.252	16 and larger							
TNMA 54 5B75 EXT	16514	5	.750	.625	.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	21398	8	.750	.500	.189	U.S. Improved Buttress							
TNMA 44 5B75 INT	16438	5	.750	.500	.252	4-1/2 - 13-3/8							
TNMA 54 5B1 INT	17518	5	1.000	.625	.252	16 and larger							
TNMA 54 5B75 INT	16518	5	.750	.625	.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.

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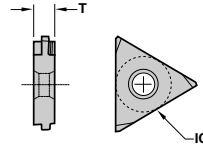
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel						▲



ON-EDGE Threading

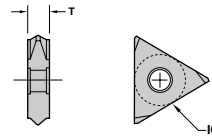
API BUTTRESS THREADING TNMC COUNTERSINK HOLE



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Coating								
							C3	C6H	GP3	GP50	AT3	AT50			
TNMC 43 8B75 EXT	21414	8	.750	.500	.189	U.S. Improved Buttress									
TNMC 54 5B1 EXT	17534	5	1.000	.625	.252	16 and larger					●				●
TNMC 54 5B75 EXT	16534	5	.750	.625	.252	4-1/2 - 13-3/8					●				●
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	21418	8	.750	.500	.189	U.S. Improved Buttress					●				
TNMC 54 5B1 INT	17538	5	1.000	.625	.252	16 and larger					●				●
TNMC 54 5B75 INT	16538	5	.750	.625	.252	4-1/2 - 13-3/8					●				●
TNMC 54 5B1 INT-FC*	17538F	5	1.000	.625	.252	16 and larger					●				●
TNMC 54 5B75 INT-FC*	16538F	5	1.000	.625	.252	4-1/2 - 13-3/8					●				●

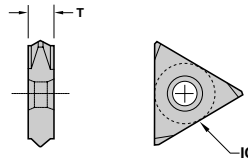
*FC designates flank clearance.

API HUGHES H90 THREADING TNMA STRAIGHT HOLE



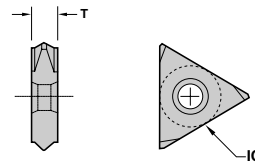
Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Coating								
							C3	C6H	GP3	GP50	AT3	AT50			
TNMA 55 H902 EXT	28554	3.5	2.000	.625	.312	3-1/2 - 6-5/8 H90									
TNMA 55 H903 EXT	29554	3.5	3.000	.625	.312	7 - 8-5/8 H90					●				
TNMA 56 H90S EXT	27Q14	3	1.250	.625	.375	2-3/8 - 3-1/2 Slimline					●				
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 THREADING TNMC COUNTERSINK HOLE



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Coating								
							C3	C6H	GP3	GP50	AT3	AT50			
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 CONNECTED THREADING TNMA STRAIGHT HOLE



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Coating								
							C3	C6H	GP3	GP50	AT3	AT50			
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 EXT	13518	5	3	.625	.252	3-1/2 FH, 2-3/8 - 4-1/2 Reg.					●				●
TNMA 55 425 EXT	09558	4	2	.625	.312	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.					●				●
TNMA 55 428 EXT	10558	4	2	.625	.312	NC23 - NC50, 2-3/8 - 5-1/2					●				●
TNMA 55 42F EXT*	14558	4	2	.625	.312	VO.065*					●				●
TNMA 55 435 EXT	11558	4	3	.625	.312	5-1/2, 7-5/8, 8-5/8 Reg.					●				●
TNMA 55 438 EXT	12558	4	3	.625	.312	NC56 - NC71					●				●
TNMA 55 530 EXT	13558	5	3	.625	.312	3-1/2 FH, 2-3/8 - 4-1/2 Reg.					●				●
TNMA 55 4PAC EXT	15558	4	1.5	.625	.312	American Open Hole					●				●

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

TOOL FLO

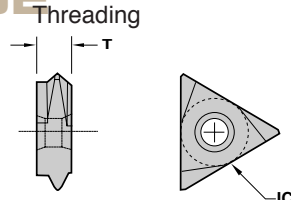
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

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

Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron						
Non-Ferrous						
Stainless/High Temp						
Steel				▲		●



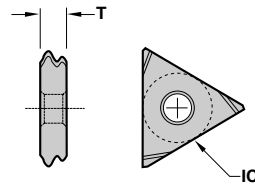
TNMC COUNTERSINK HOLE



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated		TIN Coated		AlTiN Coated	
							C3	C6H	GP3	GP50	AT3	AT50
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 EXT	13538	5	3	.625	.252	3-1/2 FH, 2-3/8 - 4-1/2 Reg.			●	●	●	●
TNMC 55 425 EXT	09568	4	2	.625	.312	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.			●	●	●	●
TNMC 55 428 EXT	10568	4	2	.625	.312	NC23 - NC50, 2-3/8 - 5-1/2			●	●	●	●
TNMC 55 42F EXT*	14568	4	2	.625	.312	VO.065*			●	●	●	●
TNMC 55 435 EXT	11568	4	3	.625	.312	5-1/2, 7-5/8, 8-5/8 Reg.			●	●	●	●
TNMC 55 438 EXT	12568	4	3	.625	.312	NC56 - NC71			●	●	●	●
TNMC 55 530 EXT	13568	5	3	.625	.312	3-1/2 FH, 2-3/8 - 4-1/2 Reg.			●	●	●	●
TNMC 55 4PAC EXT	15568	4	1.5	.625	.312	American Open Hole			●	●	●	●

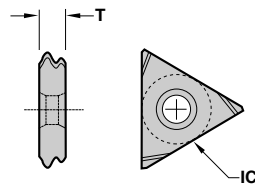
*Obsolete thread form - see API Spec 7, 35th Edition, May 1, 1985 Section 9.4.

API ROUND THREADING
TNMA STRAIGHT HOLE



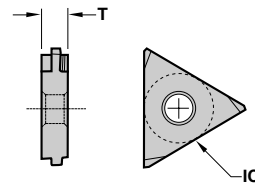
Description	EDP Code	TPI	TPF	IC	T	Uncoated		TIN Coated		AlTiN Coated	
						C3	C6H	GP3	GP50	AT22	AT50
TNMA 43 8RD EXT	32394	8	.750	.500	.189			●	●	●	●
TNMA 43 10RD EXT	34394	10	.750	.500	.189			●	●	●	●
TNMA 54 8RD EXT	32514	8	.750	.625	.252			●	●	●	●
TNMA 43 8RD INT	32398	8	.750	.500	.189			●	●	●	●
TNMA 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		TIN Coated		AlTiN Coated	
						C3	C6H	GP3	GP50	AT22	AT50
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 THREADING
TNMA STRAIGHT HOLE



Description	EDP Code	TPI	TPF	IC	T	Uncoated		TIN Coated		AlTiN Coated	
						C3	C6H	GP3	GP50	AT3	AT50
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			●	●		

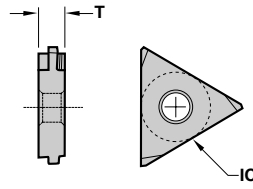
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

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

Cast Iron	Non-Ferrous	Stainless/High Temp	Steel
			●

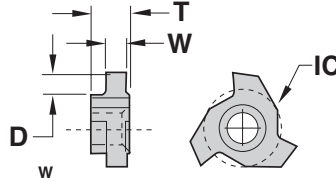


API X-LINE THREADING TNMA STRAIGHT HOLE



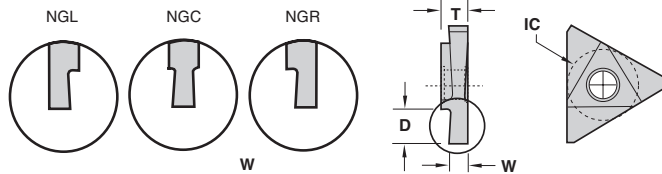
Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Coating								
							C3	C6H	GP3	GP50	AT3	AT50			
TNMA 54 5XL12 EXT	18514	5	1.250	.625	.252	8-5/8 - 10-3/4									
TNMA 54 6XL15 EXT	19514	6	1.500	.625	.252	5 - 7-5/8									
TNMA 54 6XL75 EXT	20514	6	.750	.625	.252	-									
TNMA 54 5XL12 INT	18518	5	1.250	.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	Coating								
							C3	C6H	GP3	GP50	AT3	AT50			
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	Coating								
							C3	C6H	GP3	GP50	AT3	AT50			
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	C55531200	.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									

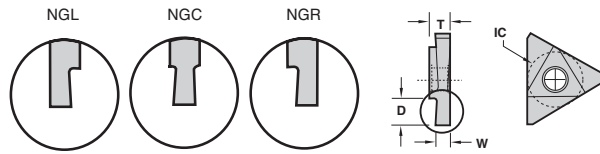
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- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	C6H	GP3	GP50	AT3	AT50
Cast Iron				●		
Non-Ferrous				●		
Stainless/High Temp				●		
Steel				●		▲

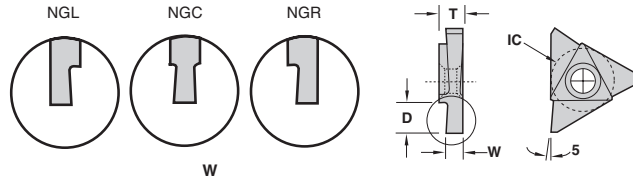


GROOVING TNMC COUNTERSINK HOLE



Description	EDP Code	Inch	Metric	D	IC	T	Coating						
							C3	C6H	GP3	GP50	AT3	AT150	
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					●		

GROOVING TPMA STRAIGHT HOLE Positive Rake



Description	EDP Code	Inch	Metric	D	IC	T	Coating						
							C3	C6H	GP3	GP50	AT3	AT150	
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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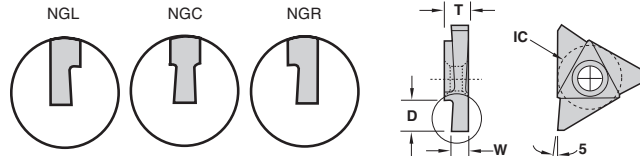
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	C6H	GP3	GP50	AT3	AT150
Cast Iron				●		
Non-Ferrous				●		
Stainless/High Temp				●		
Steel					▲	●



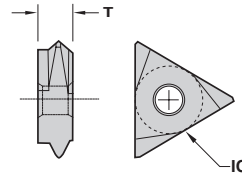
ON-EDGE Threading

TPMC COUNTERSINK HOLE Positive Rake



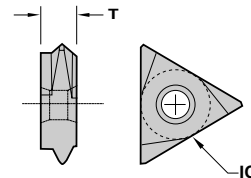
Description	EDP Code	Inch	Metric	D	IC	T								
							C3	C6H	GP3	GP50	AT3	AT50		
TPMC 32 NGC W.062	C1106200	.062	1,57	.150	.375	.127								
TPMC 32 NGC W.094	C1109400	.094	2,39	.150	.375	.127								
TPMC 32 NG W.125	C1112500	.125	3,18	.150	.375	.127								
TPMC 33 NG W.187	CL818700	.187	4,75	.150	.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 THREADING TNMA STRAIGHT HOLE



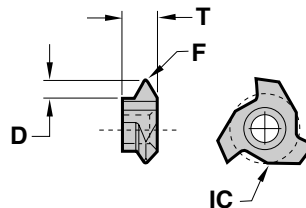
Description	EDP Code	Pipe Size	TPI	TPF	IC	T								
							C3	C6H	GP3	GP50	AT3	AT50		
TNMA 43 8NPT EXT	3639084	2.5" and up	8	.750	.500	.189								
TNMA 43 11.5NPT EXT	3639114	1" - 2"	11.5	.750	.500	.189								
TNMA 43 8NPT INT	3639088	2.5" and up	8	.750	.500	.189								
TNMA 43 11.5NPT INT	3639118	1" - 2"	11.5	.750	.500	.189								

TNMC COUNTERSINK HOLE



Description	EDP Code	Pipe Size	TPI	TPF	IC	T								
							C3	C6H	GP3	GP50	AT3	AT50		
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	R	IC	T								
						C3	C6H	GP3	GP5	AT3	AT50		
TNEB 2.52 NVL-40	01D5000	7-32	.003/.005	.312	.125								
TNEB 33 NVL-40	0112000	5-16	.003/.005	.375	.187								

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.

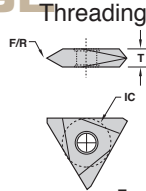
● High performance choice in optimal conditions.
▲ Recommended grade under general conditions.

Cast Iron													
Non-Ferrous													
Stainless/High Temp													
Steel													●



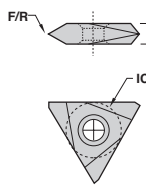
ON-EDGE

60° V-THREADING TNMA STRAIGHT HOLE



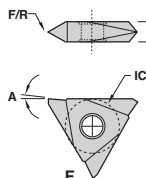
Description	EDP Code	TPI	F	IC	T	Coating						
						C3	GP4	GP3	GP50	AT3	AT50	
TNMA 32 NV	0108000	8-36	.003/.005	.375	.127		●	●	●	●	●	●
TNMA 43 NV	0139000	5-24	.003/.005	.500	.189	●		●	●	●	●	●
TNMA 43 NV .010R	0139R10	4-20	.010	.500	.189			●	●	●	●	●
TNMA 44 NV	0143000	4-24	.003/.005	.500	.250			●	●	●	●	●
TNMA 54 NV	0151000	4-20	.008/.010	.625	.252		●	●	●	●	●	●
TNMA 54 NV .010R	0151R10	4-20	.010	.625	.252			●	●	●	●	●
TNMA 54 NV .020R	0151R20	4-12	.020	.625	.252			●	●	●	●	●
TNMA 54 NV .025R	0151R25	4-8	.025	.625	.252			●	●	●	●	●
TNMA 54 NV .038R	0151R38	4-6	.038	.625	.252			●	●	●	●	●
TNMA 64 NV	0174000	4-20	.008/.010	.750	.252			●	●	●	●	●
TNMA 66 NV	0179000	3-12	.008/.010	.750	.375			●	●	●	●	●

TNMC COUNTERSINK HOLE



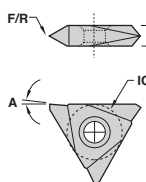
Description	EDP Code	TPI	F	IC	T	Coating						
						C3	GP4	GP3	GP50	AT3	AT50	
TNMC 32 NV	0109000	8-36	.003/.005	.375	.127		●	●	●	●	●	●
TNMC 43 NV	0141000	5-24	.003/.005	.500	.189	●		●	●	●	●	●
TNMC 43 NV .010R	0141R10	4-20	.010	.500	.189			●	●	●	●	●
TNMC 44 NV	0144000	4-24	.003/.005	.500	.250			●	●	●	●	●
TNMC 54 NV	0153000	4-20	.008/.010	.625	.252		●	●	●	●	●	●
TNMC 54 NV .010R	0153R10	4-20	.010	.625	.252			●	●	●	●	●
TNMC 54 NV .020R	0153R20	4-12	.020	.625	.252			●	●	●	●	●
TNMC 54 NV .025R	0153R25	4-8	.025	.625	.252			●	●	●	●	●
TNMC 54 NV .038R	0153R38	4-6	.038	.625	.252			●	●	●	●	●
TNMC 64 NV	0175000	4-20	.008/.010	.750	.252			●	●	●	●	●
TNMC 66 NV	0180000	3-12	.008/.010	.750	.375			●	●	●	●	●

TPMA STRAIGHT HOLE POSITIVE RAKE



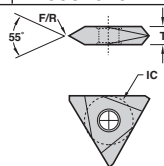
Description	EDP Code	TPI	F	A°	IC	T	Coating						
							C3	C6H	GP3	GP50	AT3	AT50	
TPMA 32 NV	0110000	8-36	.003/.005	5	.375	.127			●	●	●	●	●
TPMA 32 NV-10	0110100	8-36	.003/.005	10	.375	.127			●	●	●	●	●
TPMA 43 NV	0140000	5-24	.003/.005	5	.500	.189	●		●	●	●	●	●
TPMA 43 NV-10	0140100	5-24	.003/.005	10	.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	Coating						
							C3	C6H	GP3	GP50	AT3	AT50	
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	.003/.005	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 THREADING TNMA/C



Description	EDP Code	TPI	F	IC	T	Coating						
						C3	C6H	GP3	GP50	AT3	AT50	
TNMA 43 NV-55	01395500	5-24	.003/.005	.500	.189			●	●	●	●	●
TNMC 43 NV-55	0141055	5-24	.003/.005	.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.

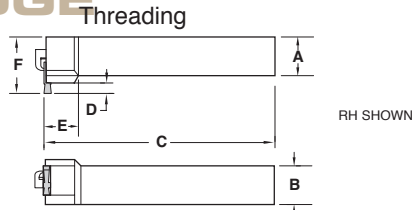
Coating	Cast Iron	Non-Ferrous	Stainless/High Temp	Steel
GP3	▲	▲	▲	▲
GP50	▲	▲	▲	▲
AT3	▲	▲	▲	▲
AT50	▲	▲	▲	▲



ON-EDGE

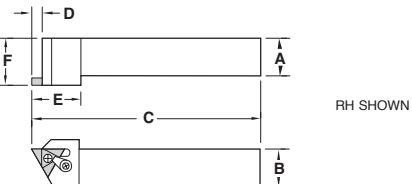
EXTERNAL HOLDER

MTHOR/L Threading, Grooving



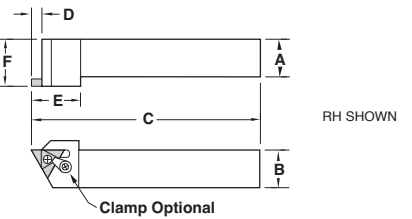
Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Lock Pin	Clamp	Clamp Screw
MTHOR-164	95501656	T_MA/C 43	1	1	6	.19	.74	1.5	NL44	TC-250	STC11
MTHOL-164	95401656	T_MA/C 43	1	1	6	.19	.74	1.5	NL44	TC-250	STC11
MTHOR-204	95502056	T_MA/C 43	1-1/4	1-1/4	7	.19	.99	1.75	NL44	TC-250	STC11
MTHOR-165	95501664	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



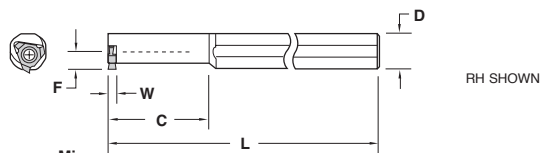
Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Lock Pin	Clamp	Clamp Screw
MTVOR-123	96001248	T_MA/C 32	3/4	3/4	4-1/2	.15	1.08	1.00	NL33	TC-190	STC5
MTVOL-123	95901248	T_MA/C 32	3/4	3/4	4-1/2	.15	1.08	1.00	NL33	TC-190	STC5
MTVOR-163	96001648	T_MA/C 32	1	1	6	.15	1.08	1.25	NL33	TC-190	STC5
MTVOL-163	95901648	T_MA/C 32	1	1	6	.15	1.08	1.25	NL33	TC-190	STC5
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	STC8
MTVOR-206	96002076	T_MA/C 66	1-1/4	1-1/4	7	.37	1.62	1.50	NL66L	TC-310	STC8
MTVOL-206	95902076	T_MA/C 66	1-1/4	1-1/4	7	.37	1.62	1.50	NL66L	TC-310	STC8
MTVOR-246	96002476	T_MA/C 66	1-1/2	1-1/2	7	.37	1.62	2.00	NL66L	TC-310	STC8
MTVOR-2067	96002078	T_MA/C 67	1-1/4	1-1/4	7	.37	1.62	1.50	NL56L	TC-310	STC8

STVOR/L Threading, Grooving



Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Screw	Clamp	Clamp Screw
STVOR-123	98001248	T_MC 32	3/4	3/4	4-1/2	.15	1.08	1.00	SD-1	TC-190	STC5
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	STC5
STVOR-164	98001656	T_MC 43	1	1	6	.23	1.23	1.25	SD-2	TC-190	STC5
STVOL-164	97801656	T_MC 43	1	1	6	.23	1.23	1.25	SD-2	TC-190	STC5
STVOR-204	98002056	T_MC 43	1-1/4	1-1/4	7	.23	1.23	1.50	SD-2	TC-190	STC5
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

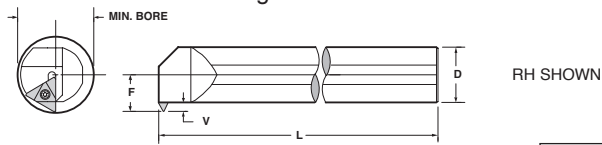
GTB Threading, Grooving



Description	EDP Code	Insert	Min. Bore	F	H	L	V	C	D	Torx Screw
GTB-062	93605000	TNEB 2.52	.862	.312	.070	6.00	.050	2.00	.625	PT-324
GTB-075	93605200	TNEB 33	.862	.375	.120	6.00	.080	2.00	.750	PT-324



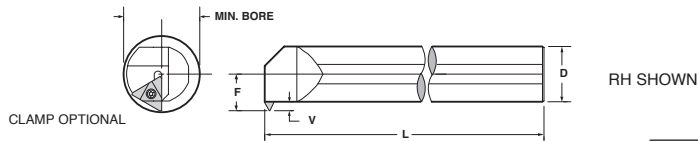
SI-MTHOL/R
Threading, Grooving



PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	Lock	Clamp	Clamp
								Pin		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-5
SI-MTHOL-204	97202056	T_MA 43	1.815	1.250	14	.875	.190	NL-44	TC-190	STC-5
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-66	TC-380	STC-19

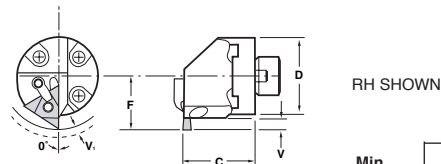
SI-STHOL/R
Threading, Grooving



PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	Screw	Clamp	Clamp
										Screw
SI-STHOR-163	97601648	T_MC 32	1.383	1.000	14	.687	.120	SD-1	TC-190	STC-5
SI-STHOL-163	97501648	T_MC 32	1.383	1.000	14	.687	.120	SD-1	TC-190	STC-5
SI-STHOR-204	97602056	T_MC 43	1.815	1.250	14	.875	.190	SD-2	TC-190	STC-5
SI-STHOL-204	97502056	T_MC 43	1.815	1.250	14	.875	.190	SD-2	TC-190	STC-5
SI-STHOR-244	97602456	T_MC 43	1.892	1.500	14	1.000	.190	SD-2	TC-190	STC-5
SI-STHOL-244	97502456	T_MC 54	1.892	1.500	14	1.073	.220	SD-3	TC-250	STC-11
SI-STHOR-245	97602464	T_MC 54	2.125	1.500	14	1.073	.220	SD-3	TC-250	STC-11
SI-STHOL-245	97502464	T_MC 54	2.125	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-25	STC-11
SI-STHOR-406	97604076	T_MC 66	3.250	2.500	16	1.625	.320	SD-4	TC-380	STC-19

INTERCHANGEABLE HEADS
H-MTHOR/L*

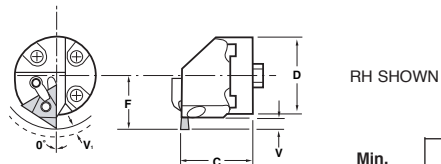


PARTS

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

*Left hand quoted on request.

HS-MTHOR/L*



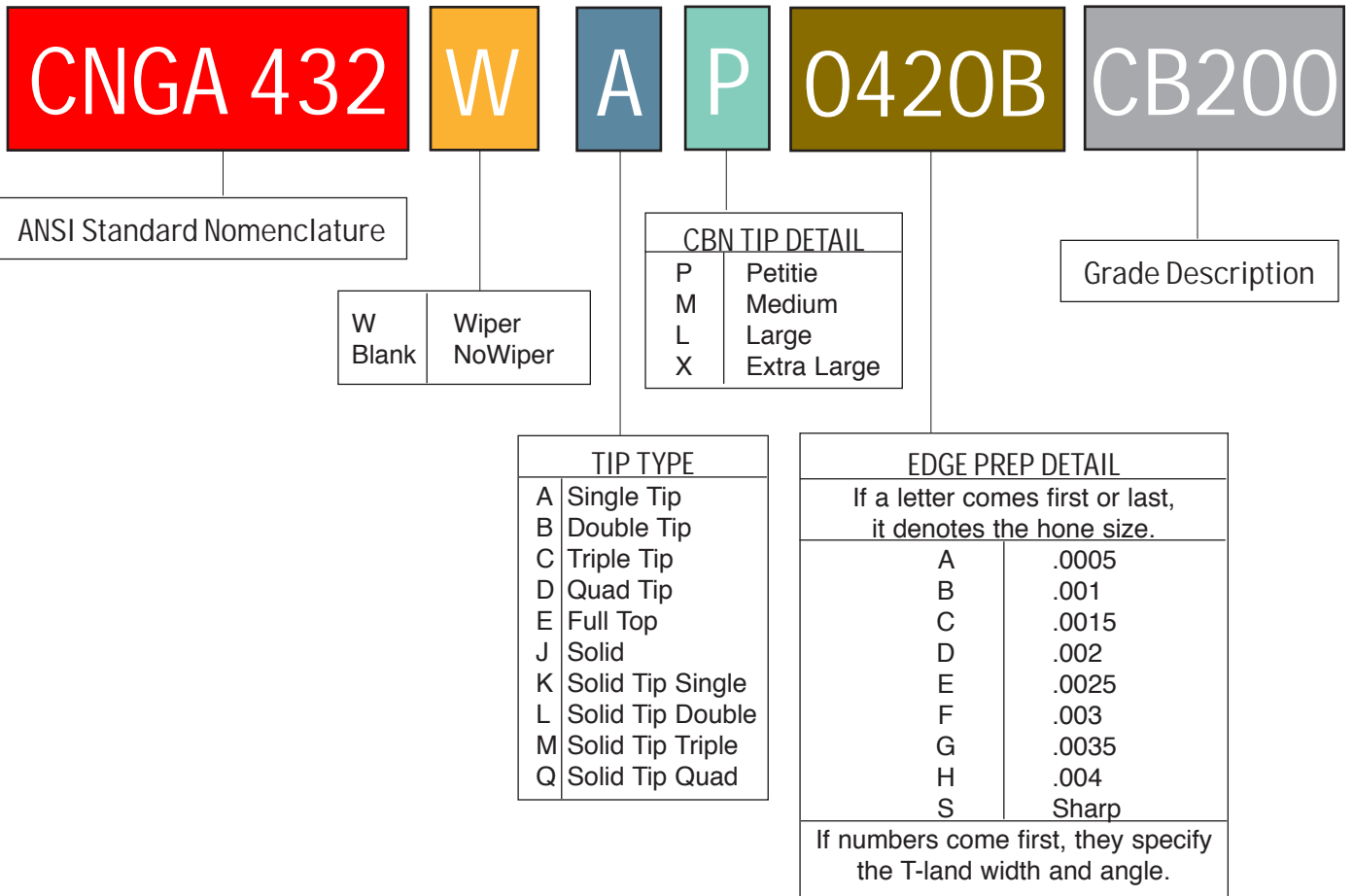
PARTS

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

*Left hand quoted on request.



PCBN - Polycrystalline Cubic Boron Nitride Insert Nomenclature Chart



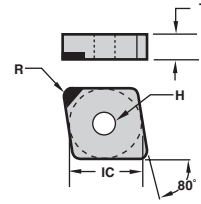
PCBN Grade Descriptions

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.



SINGLE TIP PCBN CNGA

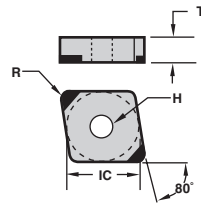
For Holders see pg. 202-203



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

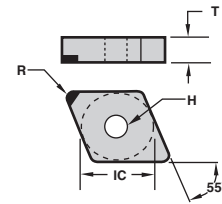
For Holders see pg. 202-203



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 DNKA

For Holders see pg. 204



Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
DNKA-431 APS	CEGAM1APS	.500	.015	.187	.203	Sharp	●	●
DNKA-432 APS	CEGAM2APS	.500	.031	.187	.203	Sharp	●	●
DNKA-433 APS	CEGAM3APS	.500	.047	.187	.203	Sharp	●	●
DNKA-431 AP 0420A	CEGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
DNKA-432 AP 0420A	CEGAM2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
DNKA-433 AP 0420A	CEGAM3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●
DNKA-431 AL 0420A	CEGAM1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
DNKA-432 AL 0420A	CEGAM2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
DNKA-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.

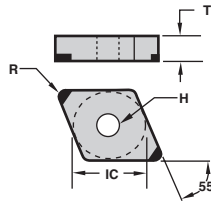
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Cast Irons	●	
Hardened & Bearing Steel		●
Powdered Metals	●	
Super Alloys	●	



DOUBLE TIP PCBN DNGA

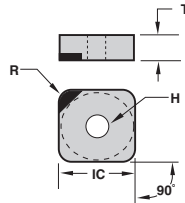
For Holders see pg. 204



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. 205-206

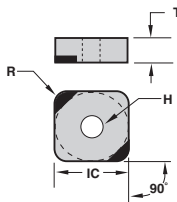


Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
SNGA-431 APS	CNGAM1APS	.500	.015	.187	.203	Sharp	●	●
SNGA-432 APS	CNGAM2APS	.500	.031	.187	.203	Sharp	●	●
SNGA-433 APS	CNGAM3APS	.500	.047	.187	.203	Sharp	●	●
SNGA-431 AP 0420A	CNGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
SNGA-432 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°	●	●

PCBN

DOUBLE TIP PCBN SNGA

For Holders see pg. 205-206



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.

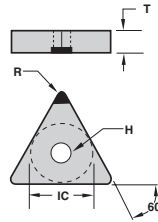
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Cast Irons	●
Hardened & Bearing Steel	●
Powdered Metals	●
Super Alloys	●



SINGLE TIP PCBN TNGA

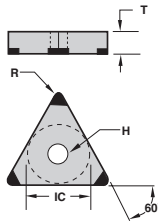
For Holders see pg. 206-209



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. 206-209



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.

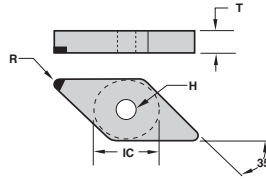
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Cast Irons	●
Hardened & Bearing Steel	●
Powdered Metals	●
Super Alloys	●



SINGLE TIP PCBN VNGA

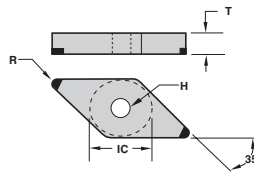
For Holders see pg. 209-210



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. 209-210



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.

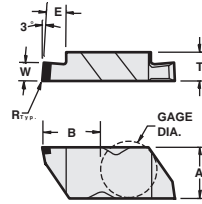
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Cast Irons	●	●
Hardened & Bearing Steel	●	●
Powdered Metals	●	●
Super Alloys	●	●



SINGLE TIP PCBN GROOVING FLG

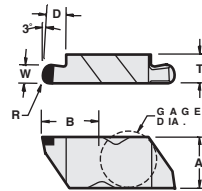
For Holders see pg. 211-213



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

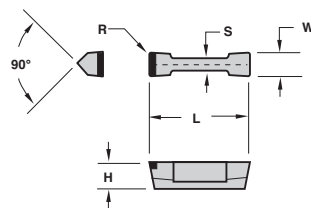
For Holders see pg. 211-213



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. 227-228



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.

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 <i>high content</i> <i>CBN for finishing</i>		.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 <i>low content</i> <i>CBN for roughing</i>	.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	powder metal	bearing steels
CB200 <i>high content</i> <i>CBN for finishing</i>		< 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 <i>low content</i> <i>CBN for roughing</i>	400 - 500 (122 - 152)					375 - 500 (114 - 152)

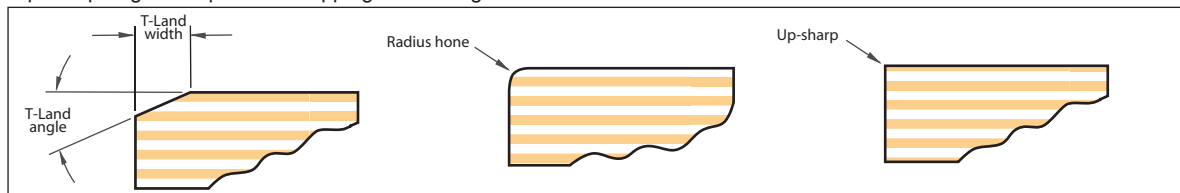
Recommended Edge Preparation

The following are suggestions for standard edge preparations.

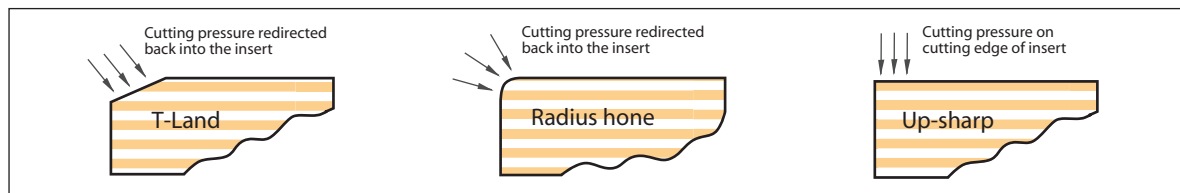
Turning	CB200	.008 x 20° and/or .001 hone
Grooving (Flo-Lock and Vee-Bottom)	CB400	.004 x 20° and/or .001 hone

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

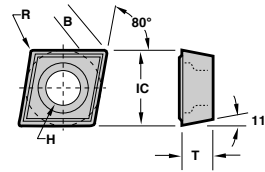


**PRO
FINISHING**



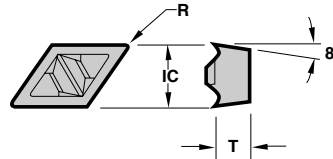
PROFILING Inserts

BORNING SMALL DIAMETER CPGM



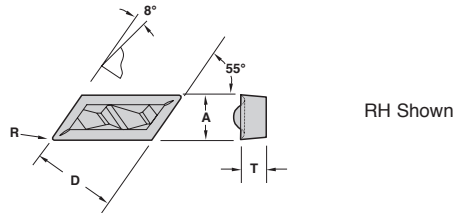
Description	EDP Code	IC	R	T	B	H	GP25	GP50	AT25	AT50
CPGM-21.50	SA20	.250	.004	.094	.0672	.110	●	●	●	●
CPGM-21.505	SA205	.250	.008	.094	.0650	.110	●	●	●	●
CPGM-21.51	SA21	.250	.015	.094	.0607	.110	●	●	●	●
CPGM-21.52	SA22	.250	.031	.094	.0521	.110	●	●	●	●
CPGM-32.50	SA30	.375	.004	.156	.1020	.173	●	●	●	●
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



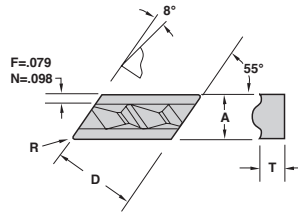
Description	EDP Code	D	T	R	GP25	GP50	AT25	AT50
DPGR-432	643432	.500	.187	.031	●	●	●	●

55° PARALLELOGRAM PROFILING FLPGL/R



Description	EDP Code	D	T	A	R	GP25	GP50	AT25	AT50
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	●	●	●	●

55° PARALLELOGRAM PROFILING FLPL/R



Description	EDP Code	R	T	D	A	GP25	GP50	AT25	AT50
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.

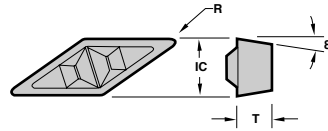
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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

PROFILING



35° DIAMOND PROFILING VPGR



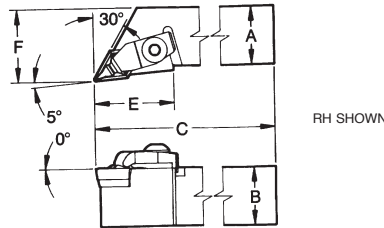
Description	EDP Code	D	T	R	TIN Coated		ALTiN Coated	
					GP25	GP50	AT25	AT50
VPGR-330.5	6443305	.375	.187	.008	●	●	●	●
VPGR- 331	644331	.375	.187	.015	●	●	●	●
VPGR-332	644332	.375	.187	.031	●	●	●	●

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	▲	●	●	●

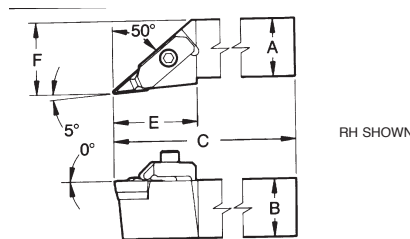
EXTERNAL HOLDER FLDLPR/L Profiling



PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat		Clamp	
								Seat	Screw	Clamp	Screw
FLDLPR-164D	92831625D	DPGR-432	1	1	5	1.38	1.250	SM-414	S-111	CM116	S-532
FLDLPL-164D	92821625D	DPGR-432	1	1	5	1.38	1.250	SM-414	S-111	CM117	S-532
FLDLPR-204D	92832025D	DPGR-432	1-1/4	1-1/4	6	1.38	1.500	SM-414	S-111	CM116	S-532
FLDLPL-204D	92822025D	DPGR-432	1-1/4	1-1/4	6	1.38	1.500	SM-414	S-111	CM117	S-532

FLVL Profiling



PARTS

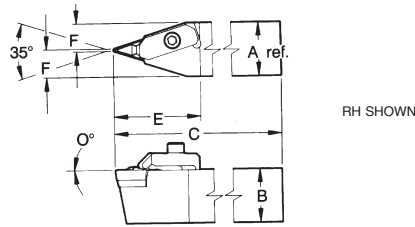
Description	EDP Code	Insert	A	B	C	E	F	Seat		Clamp	
								Seat	Screw	Clamp	Screw
FLVLCR-123B	93531226B	VPGR-33	3/4	3/4	4-1/2	1.44	1.000	SM-412	S-959	CM113	S-412
FLVLCL-123B	93521226B	VPGR-33	3/4	3/4	4-1/2	1.44	1.000	SM-412	S-959	CM114	S-412
FLVLCR-163D	93531626D	VPGR-33	1	1	6	1.44	1.250	SM-412	S-959	CM113	S-412
FLVLCL-163D	93521626D	VPGR-33	1	1	6	1.44	1.250	SM-412	S-959	CM114	S-412
FLVLCR-203D	93532026D	VPGR-33	1-1/4	1-1/4	6	1.44	1.500	SM-412	S-959	CM113	S-412
FLVLCL-203D	93522026D	VPGR-33	1-1/4	1-1/4	6	1.44	1.500	SM-412	S-959	CM114	S-412



PROFILING

EXTERNAL HOLDER

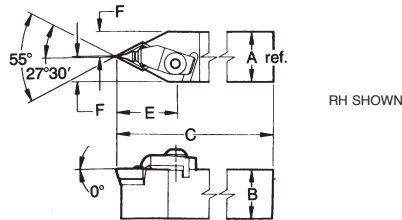
FLVV Profiling



PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat			Clamp
								Seat	Screw	Clamp	Screw
FLVVCN-163D	93541626D	VPGR-33_	1	1	6	1.62	0.522	SM-412	S-959	CM113	S-412
FLVVCN-203D	93542026D	VPGR-33_	1-1/4	1-1/4	6	1.62	0.647	SM-412	S-959	CM113	S-412

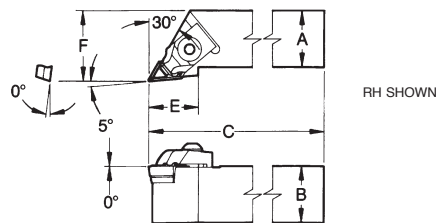
FLDP Profiling



PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat			Clamp
								Seat	Screw	Clamp	Screw
FLDPPN-164D	92841625D	DPGR-432	1	1	6	1.59	.519	SM-414	S-111	CM116	S-532
FLDPPN-204D	92842025D	DPGR-432	1-1/4	1-1/4	6	1.59	.644	SM-414	S-111	CM116	S-532

FLKL Profiling



PARTS

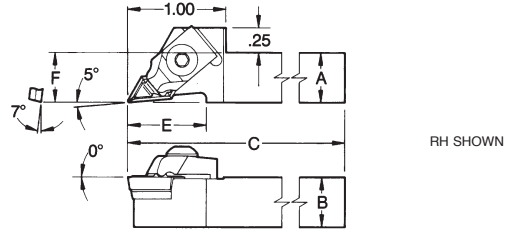
Description	EDP Code	Insert	A	B	C	F	E	Seat			Clamp
								Seat	Screw	Clamp	Screw
FLKLCR-0805V	93130829V	FLPR-5_*	1/2	1/2	3-1/2	.750	.875	SM-285	S-959	CM79	S-524
FLKLCL-0805V	93120829V	FLPL-5_*	1/2	1/2	3-1/2	.750	.875	SM-286	S-959	CM71	S-524
FLKLCR-1205B	93131229B	FLPR-5_*	3/4	3/4	4-1/2	1.000	.875	SM-285	S-959	CM68	S-524
FLKLCL-1205B	93121229B	FLPL-5_*	3/4	3/4	4-1/2	1.000	.875	SM-286	S-959	CM68	S-524
FLKLN-121B	93131230B	FLPR-13_	3/4	3/4	4-1/2	1.000	1.250	SM-272	SL-344	CM66	S-625
FLKLNL-121B	93121230B	FLPL-13_	3/4	3/4	4-1/2	1.000	1.250	SM-271	SL-344	CM66	S-625
FLKLN-161C	93131630C	FLPR-13_	1	1	5	.750	.875	SM-272	SL-344	CM66	S-625
FLKLNL-161C	93121630C	FLPL-13_	1	1	5	.750	.875	SM-271	SL-344	CM66	S-625
FLKLN-163D	93131631D	FLPR-33_	1	1	6	1.500	.875	SM-268	SL-344	CM65	S-625
FLKLNL-163D	93121631D	FLPL-33_	1	1	6	1.500	.875	SM-267	SL-344	CM65	S-625
FLKLN-203D	93132031D	FLPR-33_	1-1/4	1-1/4	6	1.500	1.438	SM-268	SL-344	CM65	S-625
FLKLNL-203D	93122031D	FLPL-33_	1-1/4	1-1/4	6	1.500	1.438	SM-267	SL-344	CM65	S-625

*Also used with inserts FLPR/FLPL.



PROFILING Bars

FLKL-F Profiling

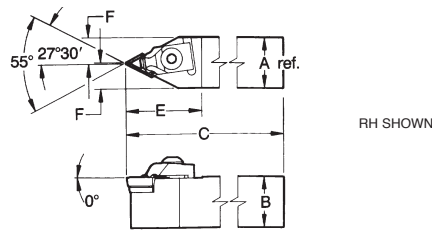


PARTS

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

*Also used with inserts FLPR-5/FLPL-5.

FLKP Profiling

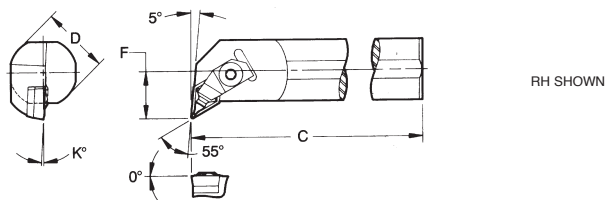


PARTS

Description	EDP Code	Insert	A	B	C	E	F	Seat			Clamp
								Seat	Screw	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-1205B	93161229B	FLPR-5_	3/4	3/4	4-1/2	1.125	.385	SM-285	S-959	CM68	S-524
FLKPCN-0805D	93160829D	FLPR-5_	1/2	1/2	6	1.125	.260	SM-285	S-959	CM79	S-524

INTERNAL BAR

A-FLDL Profiling



PARTS

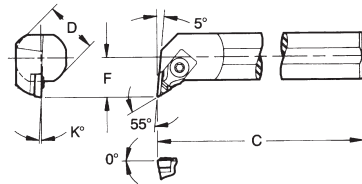
Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat			Clamp
								Seat	Screw	Clamp	Screw
A20-FLDLPR4	90522025	DPGR-432	1.250	14	.875	3°	1.585	SM-414	S-111	CM118	S-532
A20-FLDLPL4	90502025	DPGR-432	1.250	14	.875	3°	1.585	SM-414	S-111	CM119	S-532
A24-FLDLPR4	90522425	DPGR-432	1.500	14	1.000	2°	1.835	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



PROFILING Bars

INTERNAL BAR

A-FLKL Profiling



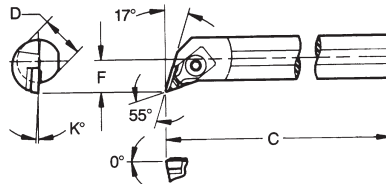
RH SHOWN

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-FLKLCLO5	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	CM68	S-524
A12-FLKLCLO5	90541229	FLPR-5_*	.750	10	.562	5°	.980	SM-285	S-959	CM68	S-524
A16-FLKLCR05	90561629	FLPL-5_*	1.000	12	.750	3°	1.300	SM-286	S-959	CM68	S-524
A16-FLKLCLO5	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-FLKLCLO5	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-FLKLCLO5	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-FLKLCLO5	90543229	FLPR-5_*	2.000	16	1.250	2°	2.400	SM-285	S-959	CM68	S-524

*Also used with inserts FLPR/FLPGL.

A-FLKQ Profiling



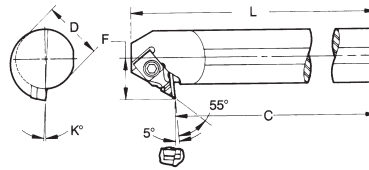
RH SHOWN

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 FLPR/FLPGL.

A-FLKX Profiling



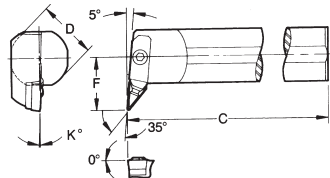
RH SHOWN

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 FLPR/FLPGL.

A-FLVL Profiling



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-FLVLCLO3	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-FLVLCLO3	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-FLVLCLO3	90663226	VPGR-33_	2.000	16	1.500	2°	2.620	SM-412	S-959	CM114	S-412

THREADMILLING



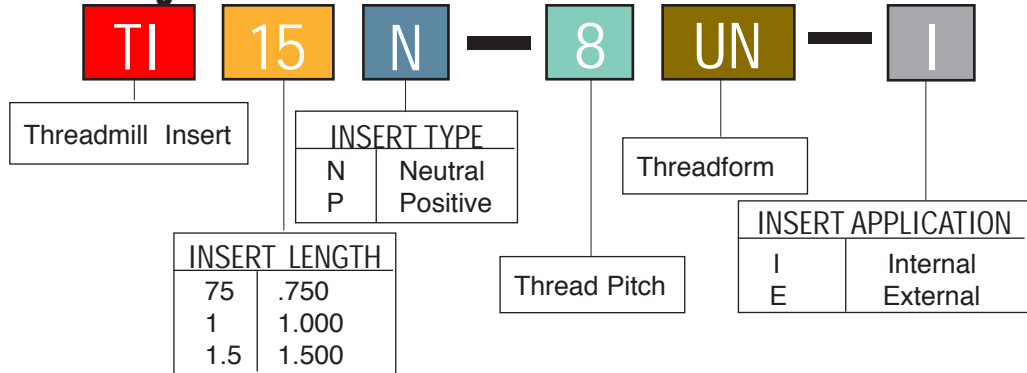
TOOL FLO



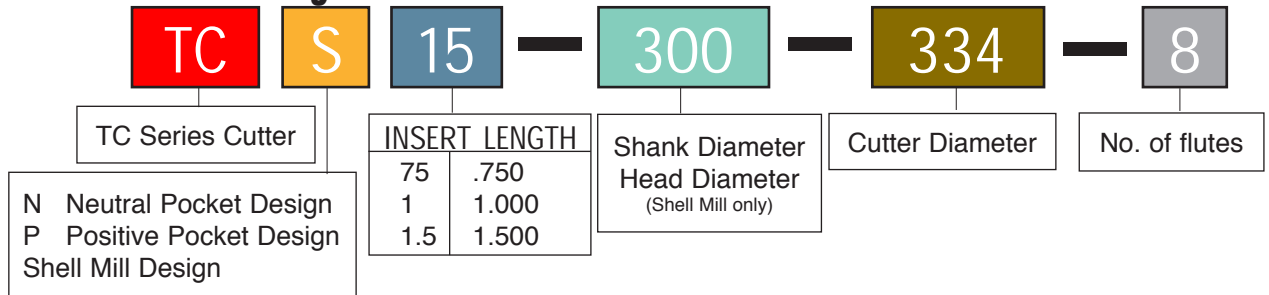
TC SERIES THREADMILLS



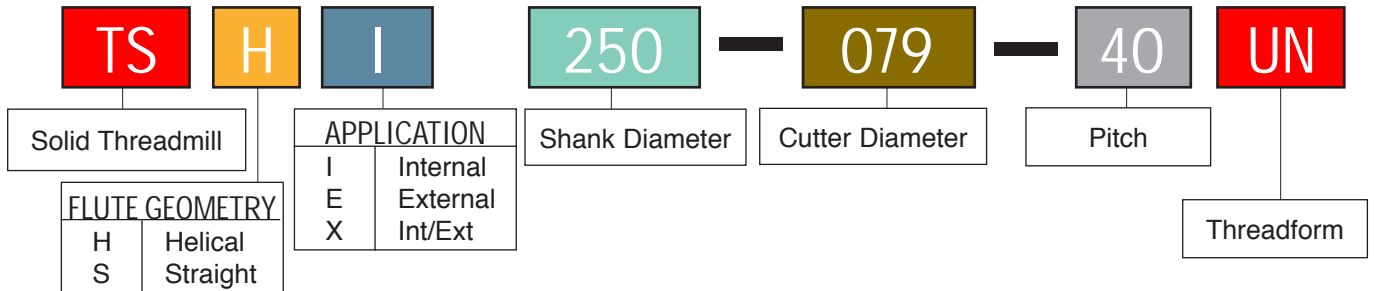
Threadmilling Insert Nomenclature Chart



Threadmilling Cutter Nomenclature Chart



Solid Threadmill Nomenclature Chart



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%

TSHI/X

- Helical flutes provide low cutting pressure
- Produce better quality threads than tapping
- Excels in materials that are difficult to cut

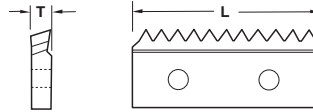


TC SERIES THREADMILLS

Inserts and Cutters

NPT/NPTF POSITIVE-RAKE INSERTS

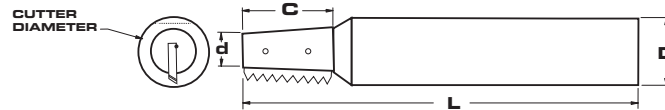
Internal / External



Description	EDP Code	TPI	L	T	C3	GP3	AT3	Uncoated	TiN Coated	AlTiN Coated
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 CUTTER BODIES

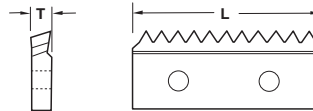
Internal / External



Description	EDP Code	Insert	D	d	L	Cutter Dia	C	Flutes	Screw
TCT75-500-400-1	TMTA084001	TI75P-18NPT/NPTF	.500	.229	3.000	.400	.750	1	TS250
TCT1-500-659-1	TMTB086591	TI1P-14NPT/NPTF	.500	.379	3.000	.659	1.000	1	TS45

UN POSITIVE-RAKE INSERTS

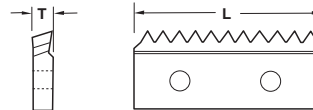
Internal



Description	EDP Code	TPI	L	T	C3	GP3	AT3	Uncoated	TiN Coated	AlTiN Coated
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		●				

UNJ POSITIVE-RAKE INSERTS

Internal

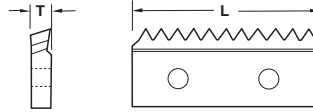


Description	EDP Code	TPI	L	T	C3	GP3	AT3	Uncoated	TiN Coated	AlTiN Coated
TI75P-32UNJ-I	TMIA6832I	32	.750	.080		●				
TI75P-24UNJ-I	TMIA6824I	24	.750	.080		●				
TI75P-20UNJ-I	TMIA6820I	20	.750	.080		●				
TI75P-18UNJ-I	TMIA6818I	18	.750	.080		●				
TI75P-16UNJ-I	TMIA6816I	16	.750	.080		●				
TI1P-32UNJ-I	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		●				



ISO POSITIVE-RAKE INSERTS

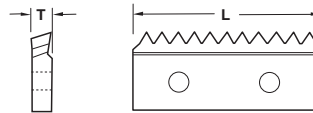
Internal



Description	EDP Code	Pitch	L	T	C3	GP3	AT3	Uncoated	TiN Coated	AlTiN Coated
TI75P-1.5 ISO-I	TMIA7015I	1,5	.750	.080		●			●	
TI75P-1.0 ISO-I	TMIA7010I	1,0	.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		●			●	

UN POSITIVE-RAKE INSERTS

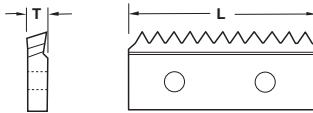
External



Description	EDP Code	TPI	L	T	C3	GP3	AT3	Uncoated	TiN Coated	AlTiN Coated
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		●			●	

UNJ POSITIVE-RAKE INSERTS

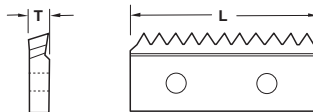
External



Description	EDP Code	TPI	L	T	C3	GP3	AT3	Uncoated	TiN Coated	AlTiN Coated
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		●			●	

ISO POSITIVE-RAKE INSERTS

External



Description	EDP Code	Pitch	L	T	C3	GP3	AT3	Uncoated	TiN Coated	AlTiN Coated
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		●			●	

THREADMILLING

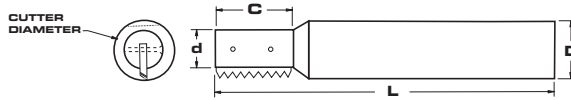


TC SERIES THREADMILLS

Inserts and Cutters

UN/ISO CUTTER BODIES

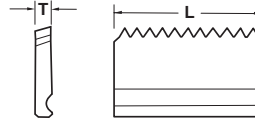
Internal / External



Description	EDP Code	Insert	D	d	L	Cutter Dia	C	Flutes	Screw
TCN75-500-394-1	TMNA083941	TI75P-UN/ISO	.500	.250	3.000	.394	.750	1	TS250
TCN75-500-468-1	TMNA084681	TI75P-UN/ISO	.500	.330	3.500	.468	.750	1	TS25
TCN1-750-625-1	TMNB126251	TI1P-UN/ISO	.750	.454	3.500	.625	1.000	1	TS40

NPT/NPTF NEUTRAL RAKE INSERTS

Internal / External

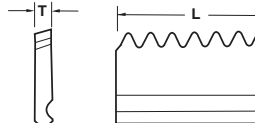


Description	EDP Code	TPI	L	T	C3	GP3	AT3
TI15N-11.5NPT-I/E	TMID3611I/E	11.5	1.500	.140		●	
TI15N-11.5NPTF-I/E	TMID4611I/E	11.5	1.500	.140		●	
TI15N-8NPT-I/E	TMID3608I/E	8	1.500	.140		●	
TI15N-8NPTF-I/E	TMID4608I/E	8	1.500	.140		●	

Uncoated	TiN Coated	AlTiN Coated
●	●	●
●	●	●

API-ROUND NEUTRAL RAKE INSERTS

Internal / External

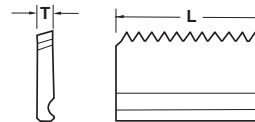


Description	EDP Code	TPI	L	T	C3	GP3	AT3
TI15N-10RD-I/E	TMID3410I/E	10	1.500	.140		●	
TI15N-8RD-I/E	TMID3208I/E	8	1.500	.140		●	

Uncoated	TiN Coated	AlTiN Coated
●	●	●
●	●	●

UN NEUTRAL RAKE INSERTS

Internal



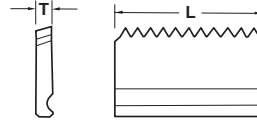
Description	EDP Code	TPI	L	T	C3	GP3	AT3
TI1N-32UN-I	TMIC6632I	32	1.000	.140		●	
TI1N-24UN-I	TMIC6624I	24	1.000	.140		●	
TI1N-20UN-I	TMIC6620I	20	1.000	.140		●	
TI1N-18UN-I	TMIC6618I	18	1.000	.140		●	
TI1N-16UN-I	TMIC6616I	16	1.000	.140		●	
TI1N-12UN-I	TMIC6612I	12	1.000	.140		●	
TI1N-10UN-I	TMIC6610I	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		●	

Uncoated	TiN Coated	AlTiN Coated
●	●	●
●	●	●



UNJ NEUTRAL RAKE INSERTS

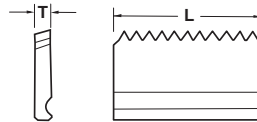
Internal



Description	EDP Code	TPI	L	T	Coating		
					C3	GP3	AT3
T11N-32UNJ-I	TMIC6832I	32	1.000	.140		●	
T11N-24UNJ-I	TMIC6824I	24	1.000	.140		●	
T11N-20UNJ-I	TMIC6820I	20	1.000	.140		●	
T11N-18UNJ-I	TMIC6818I	18	1.000	.140		●	
T11N-16UNJ-I	TMIC6816I	16	1.000	.140		●	
T11N-12UNJ-I	TMIC6812I	12	1.000	.140		●	
T11N-10UNJ-I	TMIC6810I	10	1.000	.140		●	
T115N-24UNJ-I	TMID6824I	24	1.500	.140		●	
T115N-20UNJ-I	TMID6820I	20	1.500	.140		●	
T115N-18UNJ-I	TMID6818I	18	1.500	.140		●	
T115N-16UNJ-I	TMID6816I	16	1.500	.140		●	
T115N-12UNJ-I	TMID6812I	12	1.500	.140		●	
T115N-10UNJ-I	TMID6810I	10	1.500	.140		●	
T115N-8UNJ-I	TMID6808I	8	1.500	.140		●	

ISO NEUTRAL RAKE INSERTS

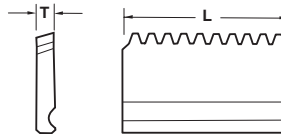
Internal



Description	EDP Code	TPI	L	T	Coating		
					C3	GP3	AT3
T115N-2.0 ISO-I	TMID7020I	2.0	1.500	.140		●	

ACME NEUTRAL RAKE INSERTS - Full Profile

Internal / External



Description	EDP Code	TPI	L	T	Coating		
					C3	GP3	AT3
T11N-12ACME-I/E	TMIC0212I/E	12	1.000	.140		●	
T11N-10ACME-I/E	TMIC0210I/E	10	1.000	.140		●	
T11N-8ACME-I/E	TMIC0208I/E	8	1.000	.140		●	
T115N-12ACME-I/E	TMID0212I/E	12	1.500	.140		●	
T115N-10ACME-I/E	TMID0210I/E	10	1.500	.140		●	
T115N-8ACME-I/E	TMID0208I/E	8	1.500	.140		●	
T115N-6ACME-I/E	TMID0206I/E	6	1.500	.140		●	
T115N-5ACME-I/E	TMID0205I/E	5	1.500	.140		●	

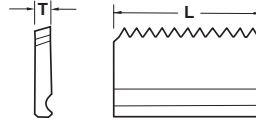


TC SERIES THREADMILLS

Inserts and Cutters

UN NEUTRAL RAKE INSERTS

External

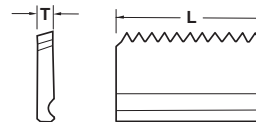


Description	EDP Code	TPI	L	T	C3	GP3	AT3
TI1N-32UN-E	TMIC6632E	32	1.000	.140		●	
TI1N-24UN-E	TMIC6624E	24	1.000	.140		●	
TI1N-20UN-E	TMIC6620E	20	1.000	.140		●	
TI1N-18UN-E	TMIC6618E	18	1.000	.140		●	
TI1N-16UN-E	TMIC6616E	16	1.000	.140		●	
TI1N-12UN-E	TMIC6612E	12	1.000	.140		●	
TI1N-10UN-E	TMIC6610E	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		●	

Uncoated	TIN Coated	AlTiN Coated
●	●	●

UNJ NEUTRAL RAKE INSERTS

External

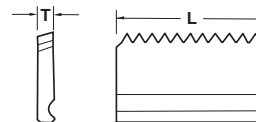


Description	EDP Code	TPI	L	T	C3	GP3	AT3
TI1N-32UNJ-E	TMIC6832E	32	1.000	.140		●	
TI1N-24UNJ-E	TMIC6824E	24	1.000	.140		●	
TI1N-20UNJ-E	TMIC6820E	20	1.000	.140		●	
TI1N-18UNJ-E	TMIC6818E	18	1.000	.140		●	
TI1N-16UNJ-E	TMIC6816E	16	1.000	.140		●	
TI1N-12UNJ-E	TMIC6812E	12	1.000	.140		●	
TI1N-10UNJ-E	TMIC6810E	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		●	

Uncoated	TIN Coated	AlTiN Coated
●	●	●

ISO NEUTRAL RAKE INSERTS

External

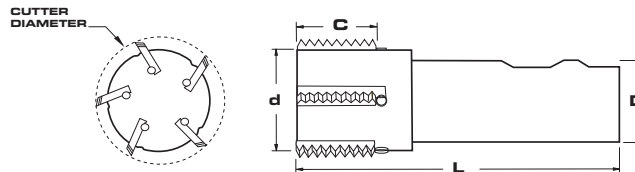


Description	EDP Code	TPI	L	T	C3	GP3	AT3
TI15N-2.0 ISO-E	TMID7020E	2.0	1.500	.140		●	

Uncoated	TIN Coated	AlTiN Coated
●	●	●

UN/NPT/ISO/ACME/API CUTTER BODIES

Internal / External

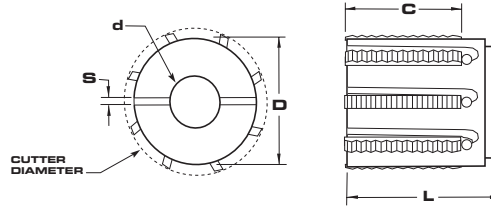


Description	EDP Code	Insert	Coolant Port	D	d	L	Cutter Dia. (UN/115NPT)	Cutter Dia. (8NPT)	C	Flutes	Screw	Pin
TCP1 100-969-2	TMPB169692	TI1N		1.000	.750	4.500	.969		1.000	2	TSS-3	DP1
TCP1 125-175-5	TMPB201755	TI1N	✓	1.250	1.500	4.000	1.755		1.000	5	TSS-2	DP1
TCP15 100-932-1	TMPC169321	TI15N		1.000	.722	4.500	.932	1.065	1.500	1	TSS-2	DP2
TCP15 100-111-3	TMPC161113	TI15N	✓	1.000	.812	4.500	1.116	1.247	1.500	3	TSS-3	DP135
TCP15 125-175-5	TMPC201755	TI15N	✓	1.250	1.500	4.500	1.755	1.888	1.500	5	TSS-2	DP2
TCP15 125-175-5L	TMPC201755L	TI15N	✓	1.250	1.500	6.000	1.755	1.888	1.500	5	TSS-2	DP2



UN/NPT/ISO/ACME SHELL-MILL CUTTER BODIES

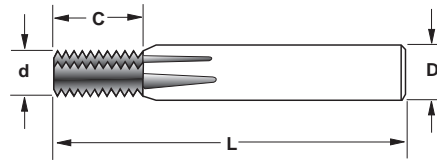
Internal / External



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	DP2	TSS-2
TCS15 250-274-7	TMSC402747	TI15N	2.500	1.000	.375	2.250	2.846	1.500	7	DP2	TSS-2
TCS15 300-334-8	TMSC483348	TI15N	3.000	1.250	.500	2.250	3.341	1.500	8	DP2	TSS-2

UN SOLID THREADMILLS

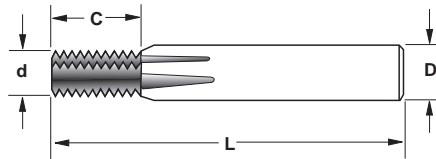
Internal



Min. I.D. Thread/Pitch	Description	EDP Code	d	C	Flutes	D	L	AT22	Coating
8-32	TSSI 125-120-32UN	TMCS0012032UAT22	.120	.250	3	.125	1.500	●	AlTiN Coated
12-24	TSSI 187-140-24UN	TMCS0114024UAT22	.140	.417	3	.187	1.650	●	AlTiN Coated
12-28	TSSI 187-145-28UN	TMCS0114528UAT22	.145	.321	3	.187	1.650	●	AlTiN Coated
10-32	TSSI 187-140-32UN	TMCS0114032UAT22	.140	.343	3	.187	1.650	●	AlTiN Coated
1/4-20	TSSI 187-160-20UN	TMCS0116020UAT22	.160	.400	3	.187	1.650	●	AlTiN Coated
5/16-18	TSSI 250-200-18UN	TMCS0220018UAT22	.200	.500	3	.250	2.250	●	AlTiN Coated
5/16-24	TSSI 250-200-24UN	TMCS0220024UAT22	.200	.500	3	.250	2.250	●	AlTiN Coated
3/8-16	TSSI 250-240-16UN	TMCS0224016UAT22	.240	.563	5	.250	2.250	●	AlTiN Coated
3/8-24	TSSI 250-240-24UN	TMCS0224024UAT22	.240	.583	5	.250	2.250	●	AlTiN Coated
7/16-14	TSSI 312-310-14UN	TMCS0431014UAT22	.310	.625	5	.312	2.480	●	AlTiN Coated
7/16-20	TSSI 312-310-20UN	TMCS0431020UAT22	.310	.750	5	.312	2.480	●	AlTiN Coated
1/2-13	TSSI 312-310-13UN	TMCS0431013UAT22	.310	.769	5	.312	2.480	●	AlTiN Coated
9/16-12	TSSI 375-375-12UN	TMCS0637512UAT22	.375	.917	5	.375	2.840	●	AlTiN Coated
9/16-18	TSSI 375-370-18UN	TMCS0637518UAT22	.370	.944	5	.375	2.840	●	AlTiN Coated
5/8-11	TSSI 500-437-11UN	TMCS0843711UAT22	.437	1.090	5	.500	3.270	●	AlTiN Coated
3/4-10	TSSI 500-470-10UN	TMCS0847010UAT22	.470	1.100	5	.500	3.270	●	AlTiN Coated
3/4-12	TSSI 500-470-12UN	TMCS0847012UAT22	.470	1.167	5	.500	3.270	●	AlTiN Coated
7/8-14	TSSI 500-470-14UN	TMCS0847014UAT22	.470	1.142	5	.500	3.270	●	AlTiN Coated
1-8	TSSI 625-620-8UN	TMCS1062008UAT22	.620	1.500	6	.625	3.620	●	AlTiN Coated

NPT SOLID THREADMILLS

Internal / External



Min. I.D. Thread/Pitch	Description	EDP Code	d	C	Flutes	D	L	AT22	Coating
1/16&1/8-27	TSSX 250-240-27NPT	TMXS0222227NAT22	.240	.370	5	.250	2.250	●	AlTiN Coated
1/4&3/8-18	TSSX 312-310-18NPT	TMXS0427018NAT22	.310	.556	5	.312	2.480	●	AlTiN Coated
1/2&3/4-14	TSSX 500-470-14NPT	TMXS0844014NAT22	.470	.786	5	.500	3.270	●	AlTiN Coated
1 to 2-11.5	TSSX 625-620-11.5NPT	TMXS1055011NAT22	.620	1.040	5	.625	3.620	●	AlTiN Coated



Threadmilling Kits



NPT THREADING KITS

18NPT-THREADING

KIT #101

Kit Contents

1	TCT75 500-400-1
4	TI75-18NPT GP3
1	T8 WRENCH
1	TS252 INSERT SCREW

14NPT-THREADING

KIT #102

Kit Contents

1	TCT1 500-659-1
4	TI1P-14NPT GP3
1	T8 WRENCH
1	TS252 INSERT SCREW

20UN-THREADING

KIT #203

Kit Contents

1	TCN75 500-394-1
4	TI75P-20UN GP3
1	T8 WRENCH
1	TS252 INSERT SCREW

UN THREADING KITS

16UN-THREADING

KIT #201

Kit Contents

1	TCN75 500-394-1
4	TI75P-16UN GP3
1	T8 WRENCH
1	TS252 INSERT SCREW

18UN-THREADING

KIT #202

Kit Contents

1	TCN75 500-394-1
4	TI75P-18UN GP3
1	T8 WRENCH
1	TS252 INSERT SCREW

24UN-THREADING

KIT #204

Kit Contents

1	TCN75 500-394-1
4	TI75P-24UN GP3
1	T6 WRENCH
1	TS252 INSERT SCREW

32UN-THREADING

KIT #205

Kit Contents

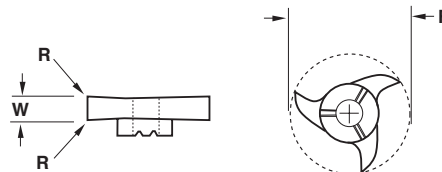
1	TCN75 500-394-1
4	TI75P-32UN GP3
1	T6 WRENCH
1	TS252 INSERT SCREW

*We welcome specials!
Please call us with your specs.*

MILL GROOVING INSERT

TFMG

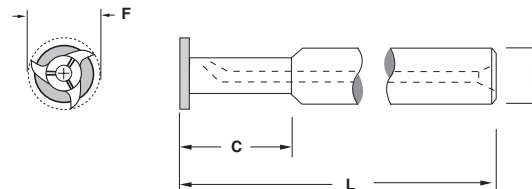
Grooving



Description	EDP Code	W	R	F	GP22
TFMG-039W	9MG039O3	0.039	-	0.854	●
TFMG-056W	9MG056O3	0.056	-	0.854	●
TFMG-062W	9MG062O3	0.062	0.008	0.854	●
TFMG-078W	9MG078O3	0.078	0.008	0.854	●
TFMG-094W	9MG094O3	0.094	0.008	0.854	●
TFMG-125W	9MG125O3	0.125	0.008	0.854	●
TFMG-187W	9MG187O3	0.187	0.008	0.854	●
TFMG-250W	9MG250O3	0.250	0.008	0.854	●

MILL GROOVING HOLDER

PCFNR



Description	EDP Code	C	L	D	F	Insert Screw
PCFNR-7-12M-100C	9CMI712M100		100mm	12mm	0.854	
PCFNR-7-12M-130C	9CMI712M130		130mm	12mm	0.854	
PCFNR-7-16M-42C	9CMI716M42		130mm	16mm	0.854	
PCFNR-7-16M-60C	9CMI716M60	60mm		16mm	0.854	
PCFNR-7-500-394C	9CMI7500394	3.940		0.500	0.854	
PCFNR-7-500-512C	9CMI7500512	5.120		0.500	0.854	
PCFNR-7-625-165C	9CMI7625165	1.650		0.625	0.854	
PCFNR-7-625-236C	9CMI7625236	2.360		0.625	0.854	
PCFNR-7-625-335C	9CMI7625335	3.350		0.625	0.854	



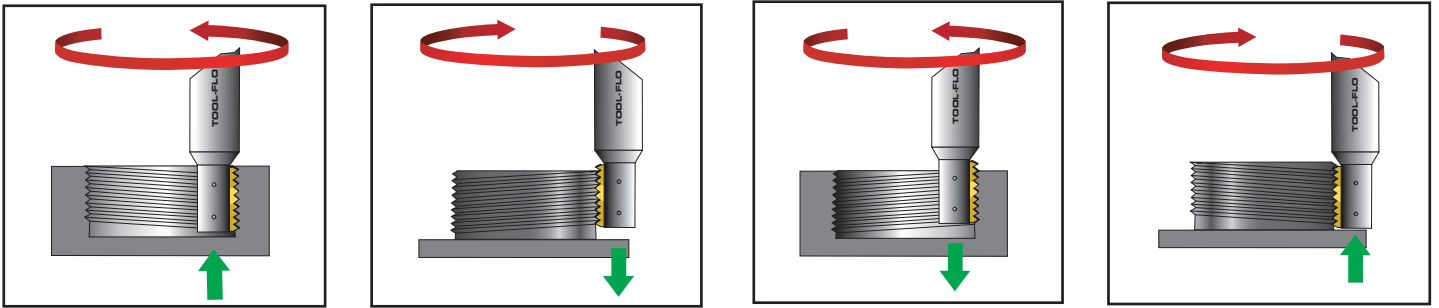
TECHNICAL INFORMATION

NPT & NPTF

When programming 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.



INTERNAL RIGHT HAND

EXTERNAL RIGHT HAND

INTERNAL LEFT HAND

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

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"		
TCPN1 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

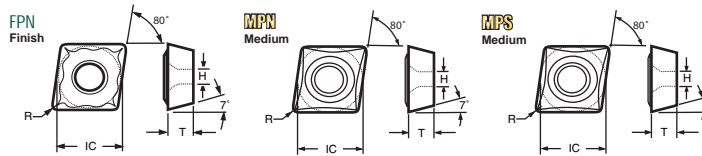


TURNING

Screwdown Style Inserts

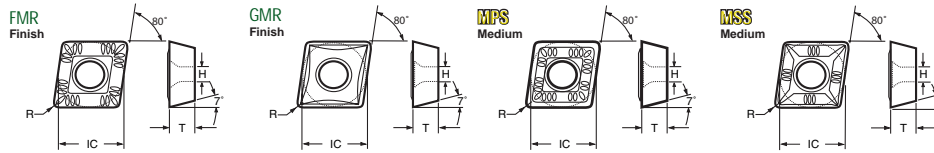


CCGT 80° Screwdown



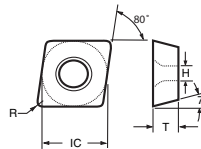
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		AITIN Coated
							C201	C203	GB503	AG250	GB5031	AG2501	
CCGT-21.50 FPN	CCGT-060201 FPN	JAGTD0FPN	.250	.008	.094	.114		●					●
CCGT-21.50 MPN	CCGT-060201 MPN	JAGTD0MPN	.250	.008	.094	.114		●					
CCGT-21.51 MPN	CCGT-060204 MPN	JAGTD1MPN	.250	.016	.094	.114		●					
CCGT-32.50 FPN	CCGT-09T302 FPN	J1DG0FPN	.375	.008	.156	.177		●					
CCGT-32.50 MPN	CCGT-09T302 MPN	J1DG0MPN	.375	.008	.156	.177		●					
CCGT-32.51 MPN	CCGT-09T304 MPN	J1DG1MPN	.375	.016	.156	.177		●					
CCGT-32.52 MPN	CCGT-09T308 MPN	J1DG2MPN	.375	.031	.156	.177		●					
CCGT-430 MPN	CCGT-120402 MPN	J1DJ0MPN	.500	.008	.187	.203		●					
CCGT-431 MPS	CCGT-120404 MPS	J1DJ1MPS	.500	.016	.187	.203		●					
CCGT-432 MPN	CCGT-120408 MPN	J1DJ2MPN	.500	.031	.187	.203		●					

CCMT 80° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		AITIN Coated
							C201	C203	GB503	AG250	GB5031	AG2501	
CCMT-21.50 MPS	CCMT-060202 MPS	JAMTD0MPS	.250	.008	.094	.114				●			
CCMT-21.50 MSS	CCMT-060202 MSS	JAMTD0MSS	.250	.008	.094	.114				●			
CCMT-21.51 FMR	CCMT-060204 FMR	JAMTD1FMR	.250	.016	.094	.114			●	●			
CCMT-21.51 GMR	CCMT-060204 GMR	JAMTD1GMR	.250	.016	.094	.114			●	●			
CCMT-21.51 MPS	CCMT-060204 MPS	JAMTD1MPS	.250	.016	.094	.114			●	●			
CCMT-21.51 MSS	CCMT-060204 MSS	JAMTD1MSS	.250	.016	.094	.114			●	●			
CCMT-21.52 FMR	CCMT-060208 FMR	JAMTD2FMR	.250	.031	.094	.114			●	●			
CCMT-21.52 GMR	CCMT-060208 GMR	JAMTD2GMR	.250	.031	.094	.114			●	●			
CCMT-32.50 MPS	CCMT-09T302 MPS	JAMTG0MPS	.375	.008	.156	.177			●	●			
CCMT-32.50 MSS	CCMT-09T302 MSS	JAMTG0MSS	.375	.008	.156	.177			●	●			
CCMT-32.51 FMR	CCMT-09T304 FMR	JAMTG1FMR	.375	.016	.156	.177			●	●			
CCMT-32.51 GMR	CCMT-09T304 GMR	JAMTG1GMR	.375	.016	.156	.177			●	●			
CCMT-32.51 MPS	CCMT-09T304 MPS	JAMTG1MPS	.375	.016	.156	.177			●	●			
CCMT-32.51 MSS	CCMT-09T304 MSS	JAMTG1MSS	.375	.016	.156	.177			●	●			
CCMT-32.52 FMR	CCMT-09T308 FMR	JAMTG2FMR	.375	.031	.156	.177			●	●			
CCMT-32.52 GMR	CCMT-09T308 GMR	JAMTG2GMR	.375	.031	.156	.177			●	●			
CCMT-32.52 MSS	CCMT-09T308 MSS	JAMTG2MSS	.375	.031	.156	.177			●	●			
CCMT-431 FMR	CCMT-120404 FMR	JAMTJ1FMR	.500	.016	.187	.203			●	●			
CCMT-431 GMR	CCMT-120404 GMR	JAMTJ1GMR	.500	.016	.187	.203			●	●			
CCMT-432 FMR	CCMT-120408 FMR	JAMTJ2FMR	.500	.031	.187	.203			●	●			
CCMT-432 GMR	CCMT-120408 GMR	JAMTJ2GMR	.500	.031	.187	.203			●	●			
CCMT-433 FMR	CCMT-120412 FMR	JAMTJ3FMR	.500	.047	.187	.203			●	●			

CCMW 80° Screwdown



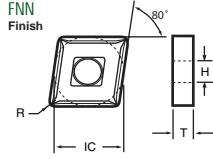
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		AITIN Coated
							C201	C203	C301	AG250	GB5031	AG2501	
CCMW-21.51	CCMW-060404	JAMWD1	.250	.016	.094	.114		●					
CCMW-32.51	CCMW-09T304	JAMWG1	.375	.016	.156	.177	●						
CCMW-32.52	CCMW-09T308	JAMWG2	.375	.031	.156	.177			●				
CCMW-431	CCMW-120404	JAMWJ1	.500	.016	.187	.203			●				
CCMW-432	CCMW-120408	JAMWJ2	.500	.031	.187	.203			●				



TURNING

Lock Pin Style Inserts

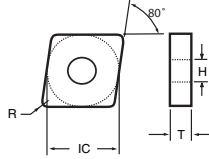
CNGP 80° High Positive



ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	C203	C301	AG250	GB5031	AG2501	AT203
CNGP-430 FNN	CNGP-120402 FNN	JBGPJ0FNN	.500	.008	.187	.203				●			
CNGP-431 FNN	CNGP-120404 FNN	JBGPJ1FNN	.500	.016	.187	.203			●				●
CNGP-432 FNN	CNGP-120408 FNN	JBGPJ2FNN	.500	.031	.187	.203			●				●

Uncoated		CVD Coated		High Performance		AlTiN Coated	
C201	C203	C301	AG250	GB5031	AG2501	AT203	

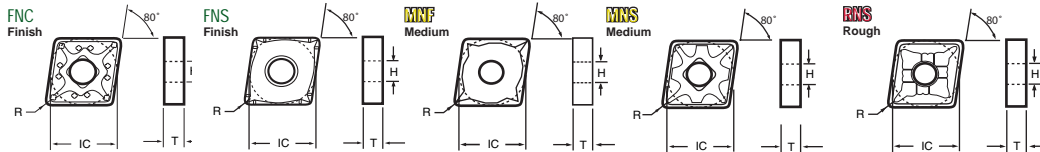
CNMA 80° Flat Top



ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	C203	C301	AB301	AB3011	AG2501	AT203
CNMA-431	CNMA-120404	JBMAJ1	.500	.016	.187	.203							
CNMA-432	CNMA-120408	JBMAJ2	.500	.031	.187	.203				●			
CNMA-433	CNMA-120412	JBMAJ3	.500	.047	.187	.203				●			
CNMA-644	CNMA-190616	JBMAR4	.750	.063	.250	.313				●			

Uncoated		CVD Coated		High Performance		AlTiN Coated	
C201	C203	C301	AB301	AB3011	AG2501	AT203	

CNMG 80° General Purpose

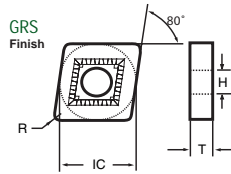


ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	AB301	GB503	AG501	AB3011	GB5031	AG5011
CNMG-321 FNC	CNMG-090304 FNC	JBMGG1FNC	.375	.016	.125	.150							
CNMG-322 FNC	CNMG-090308 FNC	JBMGG2FNC	.375	.031	.125	.150			●				
CNMG-431 FNC	CNMG-120404 FNC	JBMGJ1FNC	.500	.016	.187	.203			●				
CNMG-431 FNS	CNMG-120404 FNS	JBMGJ1FNS	.500	.016	.187	.203							
CNMG-431 MNF	CNMG-120404 MNF	JBMGJ1MNF	.500	.016	.187	.203							
CNMG-432 FNC	CNMG-120408 FNC	JBMGJ2FNC	.500	.031	.187	.203				●	●		
CNMG-432 FNS	CNMG-120408 FNS	JBMGJ2FNS	.500	.031	.187	.203				●			
CNMG-432 MNF	CNMG-120408 MNF	JBMGJ2MNF	.500	.031	.187	.203					●		
CNMG-432 MNS	CNMG-120408 MNS	JBMGJ2MNS	.500	.031	.187	.203					●		
CNMG-432 RNS	CNMG-120408 RNS	JBMGJ2RNS	.500	.031	.187	.203		●					
CNMG-433 FNC	CNMG-120412 FNC	JBMGJ3FNC	.500	.047	.187	.203		●					
CNMG-433 FNS	CNMG-120412 FNS	JBMGJ3FNS	.500	.047	.187	.203			●				
CNMG-433 RNS	CNMG-120412 RNS	JBMGJ3RNS	.500	.047	.187	.203				●			
CNMG-542 RNS	CNMG-160608 RNS	JBMGO2RNS	.625	.031	.250	.253		●	●				
CNMG-543 FNC	CNMG-160612 FNC	JBMGO3FNC	.625	.047	.250	.253							
CNMG-543 RNS	CNMG-160612 RNS	JBMGO3RNS	.625	.047	.250	.253							
CNMG-544 RNS	CNMG-160616 RNS	JBMGO4RNS	.625	.063	.250	.253							
CNMG-642 RNS	CNMG-190608 RNS	JBMGR2RNS	.750	.031	.250	.313							
CNMG-643 RNS	CNMG-190612 RNS	JBMGR3RNS	.750	.047	.250	.313							
CNMG-644 RNS	CNMG-190616 RNS	JBMGR4RNS	.750	.063	.250	.313							
CNMG-866 RNS	CNMG-250924 RNS	JBMGW6RNS	1.000	.094	.375	.313							

Uncoated		CVD Coated		High Performance		
C201	AB301	GB503	AG501	AB3011	GB5031	AG5011

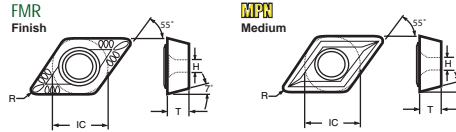


CNMM 80° Roughing



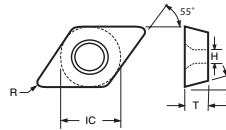
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		AITIN Coated
							C201	C203	GB503	AG501	GB5031	AG5011	
CNMM-432 GRS	CNMM-120408 GRS	JBMMJ2GRS	.500	.031	.187	.203			●	●			
CNMM-433 GRS	CNMM-120412 GRS	JBMMJ3GRS	.500	.047	.187	.203			●	●			
CNMM-543 GRS	CNMM-160612 GRS	JBMMO3GRS	.625	.047	.250	.253			●	●			
CNMM-544 GRS	CNMM-160616 GRS	JBMMO4GRS	.625	.063	.250	.253			●	●			
CNMM-643 GRS	CNMM-190612 GRS	JBMMR3GRS	.750	.047	.250	.313			●	●			
CNMM-644 GRS	CNMM-090616 GRS	JBMMR4GRS	.750	.063	.250	.313			●	●			

DCGT 55° Screwdown



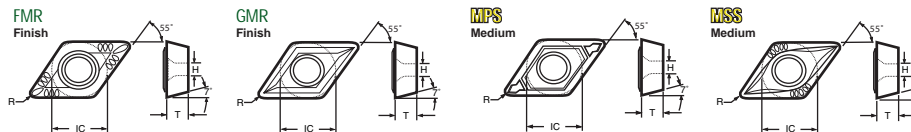
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		AITIN Coated
							C201	C203	GB503	AG501	GB5031	AG5011	
DCGT-21.50 MPN	DCGT-070202 MPN	JDGTD0MPN	.250	.008	.094	.150		●					
DCGT-21.51 MPN	DCGT-070204 MPN	JDGTD1MPN	.250	.016	.094	.150		●					
DCGT-32.50 FPN	DCGT-11T302 FPN	JDGTG0FPN	.375	.008	.156	.203		●					
DCGT-32.50 MPN	DCGT-11T302 MPN	JDGTG0MPN	.375	.008	.156	.203		●					
DCGT-32.51 MPN	DCGT-11T304 MPN	JDGTG1MPN	.375	.016	.156	.203		●					
DCGT-32.52 MPN	DCGT-11T308 MPN	JDGTG2MPN	.375	.031	.156	.203		●					

DCGW 55° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		AITIN Coated
							C201	C301	GB503	AG501	GB5031	AG5011	
DCGW-21.50	DCGW-070202	JDGWD0	.250	.008	.094	.150	●						
DCGW-21.51	DCGW-070204	JDGWD1	.250	.016	.094	.150	●						
DCGW-32.50	DCGW-11T302	JDGWG0	.375	.008	.156	.203		●					
DCGW-32.51	DCGW-11T304	JDGWG1	.375	.016	.156	.203	●						

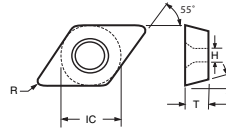
DCMT 55° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance	
							C201	GB503	AG250	AG501	GB5031	AG2501
DCMT-21.50 MPS	DCMT-070202 MPS	JDMTD0MPS	.250	.008	.094	.114		●				
DCMT-21.50 MSS	DCMT-070202 MSS	JDMTD0MSS	.250	.008	.094	.114		●				
DCMT-21.51 FMR	DCMT-070204 FMR	JDMTD1FMR	.250	.016	.094	.114		●				
DCMT-21.51 GMR	DCMT-070204 GMR	JDMTD1GMR	.250	.016	.094	.114		●		●		
DCMT-21.51 MPS	DCMT-070204 MPS	JDMTD1MPS	.250	.016	.094	.114		●				
DCMT-21.51 MSS	DCMT-070204 MSS	JDMTD1MSS	.250	.016	.094	.114		●				
DCMT-21.52 FMR	DCMT-070208 FMR	JDMTD2FMR	.250	.031	.094	.114		●				
DCMT-32.50 MPS	DCMT-11T302 MPS	JDMTG0MPS	.375	.008	.156	.177		●				
DCMT-32.50 MSS	DCMT-11T302 MSS	JDMTG0MSS	.375	.008	.156	.177		●				
DCMT-32.51 FMR	DCMT-11T302 FMR	JDMTG0FMR	.375	.016	.156	.177		●				
DCMT-32.51 GMR	DCMT-11T302 GMR	JDMTG1FMR	.375	.016	.156	.177		●				
DCMT-32.51 MPS	DCMT-11T302 MPS	JDMTG1MPS	.375	.016	.156	.177		●				
DCMT-32.51 MSS	DCMT-11T302 MSS	JDMTG1MSS	.375	.016	.156	.177		●				
DCMT-32.52 FMR	DCMT-11T304 FMR	JDMTG2FMR	.375	.031	.156	.177		●				
DCMT-32.52 GMR	DCMT-11T304 GMR	JDMTG2GMR	.375	.031	.156	.177		●				
DCMT-32.52 MSS	DCMT-11T304 MSS	JDMTG2MSS	.375	.031	.156	.177		●				
DCMT-431 GMR	DCMT-150404 GMR	JDMTJ1GMR	.500	.016	.187	.203		●		●		
DCMT-432 GMR	DCMT-150408 GMR	JDMTJ2GMR	.500	.031	.187	.203		●				



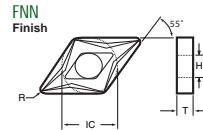
DCMW
55° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	C301	GB503	AG501	GB5031	AG5011	AT203
DCMW-32.51	DCMW-11T304	JDMWG1	.375	.016	.156	.177	●						
DCMW-32.52	DCMW-11T308	JDMWG2	.375	.031	.156	.177	●						

Uncoated	CVD Coated	High Performance	AlTiN Coated
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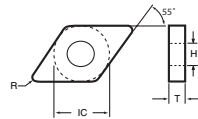
DNGP
55° High Positive



ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	C301	GB503	AG250	GB5031	AG2501	AT203
DNGP-430 FNN	DNGP-150402 FNN	JDGPJ0FNN	.500	.008	.187	.203			●				●
DNGP-431 FNN	DNGP-150404 FNN	JDGPJ1FNN	.500	.016	.187	.203			●				●
DNGP-432 FNN	DNGP-150408 FNN	JDGPJ2FNN	.500	.031	.187	.203			●				●
DNGP-440 FNN	DNGP-150602 FNN	JDGPN0FNN	.500	.008	.250	.203			●				●
DNGP-441 FNN	DNGP-150604 FNN	JDGPN1FNN	.500	.016	.250	.203			●				●
DNGP-442 FNN	DNGP-150608 FNN	JDGPN2FNN	.500	.031	.250	.203			●				●

Uncoated	CVD Coated	High Performance	AlTiN Coated
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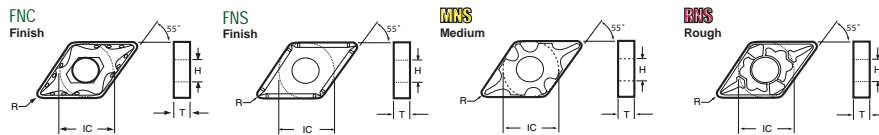
DNMA
55° Flat Top



ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	C203	C301	AB301	AB3011	AG2501	AT203
DNMA-442	DNMA-150608	JDMAN2	.500	.031	.250	.203				●			

Uncoated	CVD Coated	High Performance	AlTiN Coated
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DNMG
55° General Purpose



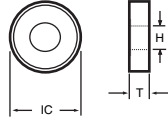
ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	AB301	GB503	AG501	AB3011	GB5031	AG5011
DNMG-331 FNC	DNMG-110404 FNC	JEMGG1FNC	.375	.016	.187	.150			●				
DNMG-331 FNS	DNMG-110404 FNS	JEMGG1FNS	.375	.016	.187	.150							
DNMG-332 FNC	DNMG-110408 FNC	JEMGG2FNC	.375	.031	.187	.150			●				
DNMG-332 MNS	DNMG-110408 MNS	JEMGG2MNS	.375	.031	.187	.150							
DNMG-333 FNC	DNMG-110412 FNC	JEMGG3FNC	.375	.047	.187	.150			●				
DNMG-431 FNC	DNMG-150404 FNC	JEMGJ1FNC	.500	.016	.187	.203			●				
DNMG-431 FNS	DNMG-150404 FNS	JEMGJ1FNS	.500	.016	.187	.203							
DNMG-431 RNS	DNMG-150404 RNS	JEMGJ1RNS	.500	.016	.187	.203			●				
DNMG-432 FNC	DNMG-150408 FNC	JEMGJ2FNC	.500	.031	.187	.203							
DNMG-432 FSS	DNMG-150408 FSS	JEMGJ2FSS	.500	.031	.187	.203							
DNMG-432 MNS	DNMG-150408 MNS	JEMGJ2MNS	.500	.031	.187	.203							
DNMG-432 RNS	DNMG-150408 RNS	JEMGJ2RNS	.500	.031	.187	.203							
DNMG-432 RSS	DNMG-150408 RSS	JEMGJ2RSS	.500	.031	.187	.203			●				
DNMG-433 RNS	DNMG-150412 RNS	JEMGJ3RNS	.500	.047	.187	.203							
DNMG-441 FNC	DNMG-150604 FNC	JEMGN1FNC	.500	.016	.250	.203							
DNMG-441 FNS	DNMG-150604 FNS	JEMGN1FNS	.500	.016	.250	.203							
DNMG-441 MNS	DNMG-150604 MNS	JEMGN1MNS	.500	.016	.250	.203							
DNMG-442 FNC	DNMG-150608 FNC	JEMGN2FNC	.500	.031	.250	.203							
DNMG-442 FNS	DNMG-150608 FNS	JEMGN2FNS	.500	.031	.250	.203							
DNMG-442 FSS	DNMG-150608 FSS	JEMGN2FSS	.500	.031	.250	.203							
DNMG-442 MNS	DNMG-150608 MNS	JEMGN2MNS	.500	.031	.250	.203							
DNMG-442 RNS	DNMG-150608 RNS	JEMGN2RNS	.500	.031	.250	.203							
DNMG-442 RSS	DNMG-150608 RSS	JEMGN2RSS	.500	.031	.250	.203							
DNMG-443 FNC	DNMG-150612 FNC	JEMGN3FNC	.500	.047	.250	.203							
DNMG-443 RNS	DNMG-150612 RNS	JEMGN3RNS	.500	.047	.250	.203							

Uncoated	CVD Coated	High Performance
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RNMG

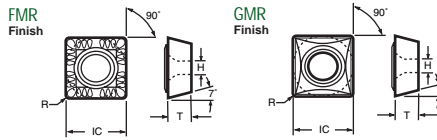
Round General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		
							C201	AB301	GB503	AG601	AB3011	GB5031	AG6011
RNMG-64	RNMG-190600	JJMGRA	.750	.375	.250	.313				●			

SCMT

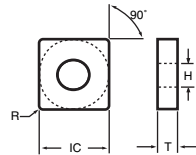
90° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		
							C201	GB503	AG250	AG501	GB5031	AG2501	AG5011
SCMT-32.51 FMR	SCMT-09T304 FMR	JLMTG1FMR	.375	.016	.156	.117		●	●				
SCMT-32.51 GMR	SCMT-09T304 GMR	JLMTG1GMR	.375	.016	.156	.117							
SCMT-32.52 FMR	SCMT-09T308 FMR	JLMTG2FMR	.375	.031	.156	.117		●					
SCMT-32.52 GMR	SCMT-09T308 GMR	JLMTG2GMR	.375	.031	.156	.117				●			
SCMT-431 FMR	SCMT-120404 FMR	JLMTJ1FMR	.500	.016	.187	.203			●	●			
SCMT-432 FMR	SCMT-120408 FMR	JLMTJ2FMR	.500	.031	.187	.203		●					
SCMT-432 GMR	SCMT-120408 GMR	JLMTJ2GMR	.500	.031	.187	.203		●					
SCMT-433 FMR	SCMT-120412 FMR	JLMTJ3FMR	.500	.047	.187	.203				●			

SNMA

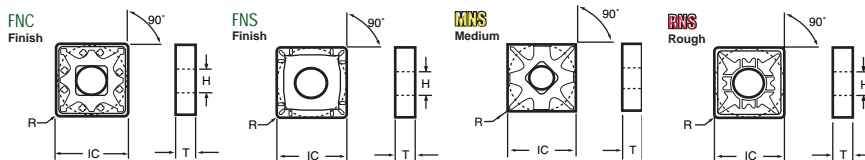
90° Flat Top



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		
							C201	GB503	AG250	AB301	GB5031	AG2501	AB3011
SNMA-432	SNMA-120408	JNMAJ2	.500	.031	.187	.203							
SNMA-433	SNMA-120412	JNMAJ3	.500	.047	.187	.203				●			
SNMA-644	SNMA-190616	JNMAR4	.750	.063	.250	.313				●			
SNMA-866T	SNMA-250924T	JNMAW6	1.000	.094	.375	.363				●			

SNMG

90° General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		
							C201	AB301	GB503	AG501	AB3011	GB5031	AG5011
SNMG-431 FNC	SNMG-120404 FNC	JNMGJ1FNC	.500	.016	.187	.203			●	●			
SNMG-431 FNS	SNMG-120404 FNS	JNMGJ1FNS	.500	.016	.187	.203			●	●			
SNMG-432 FNC	SNMG-120408 FNC	JNMGJ2FNC	.500	.031	.187	.203			●			●	
SNMG-432 FNS	SNMG-120408 FNS	JNMGJ2FNS	.500	.031	.187	.203			●			●	
SNMG-432 MNS	SNMG-120408 MNS	JNMGJ2MNS	.500	.031	.187	.203			●			●	
SNMG-432 RNS	SNMG-120408 RNS	JNMGJ2RNS	.500	.031	.187	.203			●			●	
SNMG-432 RSS	SNMG-120408 RSS	JNMGJ2RSS	.500	.031	.187	.203			●			●	
SNMG-433 FNC	SNMG-120412 FNC	JNMGJ3FNC	.500	.047	.187	.203			●			●	
SNMG-433 FNS	SNMG-120412 FNS	JNMGJ3FNS	.500	.047	.187	.203			●			●	
SNMG-433 RNS	SNMG-120412 RNS	JNMGJ3RNS	.500	.047	.187	.203			●			●	
SNMG-543 FNC	SNMG-150612 FNC	JNMG03FNC	.625	.047	.250	.253				●			●
SNMG-543 RNS	SNMG-150612 RNS	JNMG03RNS	.625	.047	.250	.253			●	●		●	
SNMG-544 RNS	SNMG-150616 RNS	JNMG04RNS	.625	.063	.250	.253						●	
SNMG-643 RNS	SNMG-190612 RNS	JNMG3RNS	.750	.047	.250	.313				●		●	
SNMG-644 RNS	SNMG-190616 RNS	JNMG4RNS	.750	.063	.250	.313			●			●	

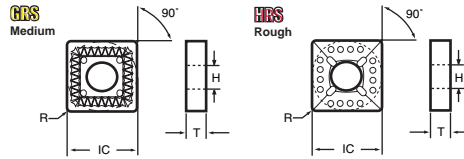
TURNING



TURNING

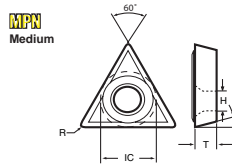
Screwdown/Lock Pin Style Inserts

SNMM 90° Roughing



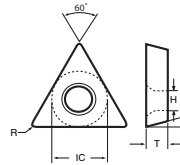
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		AITIN Coated
							C201	C203	GB503	AG501	GB5031	AG5011	AT203
SNMM-432 GRS	SNMM-120408 GRS	JNMMJ2GRS	.500	.031	.187	.203			●				
SNMM-543 GRS	SNMM-150612 GRS	JNMMO3GRS	.625	.047	.250	.253			●				
SNMM-544 HRS	SNMM-150616 HRS	JNMMO4HRS	.625	.063	.250	.253			●				
SNMM-643 GRS	SNMM-190612 GRS	JNMMR3GRS	.750	.047	.250	.313			●				
SNMM-644 GRS	SNMM-190616 GRS	JNMMR4GRS	.750	.063	.250	.313			●				
SNMM-644 HRS	SNMM-190616 HRS	JNMMR4HRS	.750	.063	.250	.313			●				
SNMM-866 HRS	SNMM-250924-HRS	JNMMW6HRS	1.000	.094	.375	.363			●				

TCGT 60° Screwdown



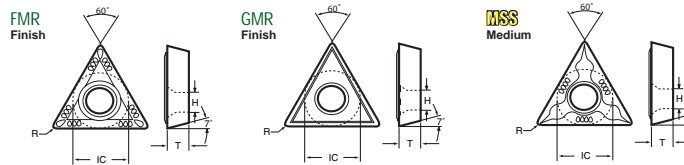
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		AITIN Coated
							C201	C203	GB503	AG501	GB5031	AG5011	AT203
TCGT-21.50 MPN	TCGT-110202 MPN	JQGTD0MPN	.250	.008	.094	.114		●					
TCGT-21.51 MPN	TCGT-110204 MPN	JQGTD1MPN	.250	.016	.094	.114		●					
TCGT-32.51 MPN	TCGT-16T304 MPN	JQGTG1MPN	.375	.016	.156	.177		●					
TCGT-32.52 MPN	TCGT-16T308 MPN	JQGTG2MPN	.375	.031	.156	.177		●					

TCGW 60° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		AITIN Coated
							C201	C301	GB503	AG501	GB5031	AG5011	AT203
TCGW-21.50	TCGW-110202	JQGWD0	.250	.008	.094	.114	●	●					
TCGW-21.51	TCGW-110204	JQGWD1	.250	.016	.094	.114	●	●					
TCGW-21.52	TCGW-110208	JQGWD2	.250	.031	.094	.114	●	●					

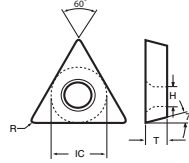
TCMT 60° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance		
							C201	GB503	AG250	AG501	GB5031	AG2501	AG5011
TCMT-21.50 MSS	TCMT-110202 MSS	JQMTD0MSS	.250	.008	.094	.114			●				
TCMT-21.51 FMR	TCMT-110204 FMR	JQMTD1FMR	.250	.016	.094	.114		●	●				
TCMT-21.51 GMR	TCMT-110204 GMR	JQMTD1GMR	.250	.016	.094	.114		●	●				
TCMT-21.51 MSS	TCMT-110204 MSS	JQMTD1MSS	.250	.016	.094	.114		●	●				
TCMT-21.52 FMR	TCMT-110208 FMR	JQMTD2FMR	.250	.031	.094	.114		●	●				
TCMT-32.51 FMR	TCMT-16T304 FMR	JQMTG1FMR	.375	.016	.156	.177		●	●				
TCMT-32.51 GMR	TCMT-16T304 GMR	JQMTG1GMR	.375	.016	.156	.177		●	●				
TCMT-32.51 MSS	TCMT-16T304 MSS	JQMTG1MSS	.375	.016	.156	.177		●	●				
TCMT-32.52 FMR	TCMT-16T308 FMR	JQMTG2FMR	.375	.031	.156	.177		●	●				
TCMT-32.52 GMR	TCMT-16T308 GMR	JQMTG2GMR	.375	.031	.156	.177		●	●				
TCMT-32.52 MSS	TCMT-16T308 MSS	JQMTG2MSS	.375	.031	.156	.177		●	●				



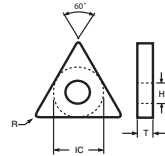
TCMW 60° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	C301	GB503	AG501	GB5031	AG5011	AT203
TCMW-21.51	TCMW-110204	JQMWD1	.250	.016	.094	.110	●	●					
TCMW-32.51	TCMW-16T304	JQMWG1	.375	.016	.156	.173	●	●					
TCMW-32.52	TCMW-16T308	JQMWG2	.375	.031	.156	.173	●	●					

Uncoated		CVD Coated		High Performance		AlTiN Coated	
C201	C301	GB503	AG501	GB5031	AG5011	AT203	

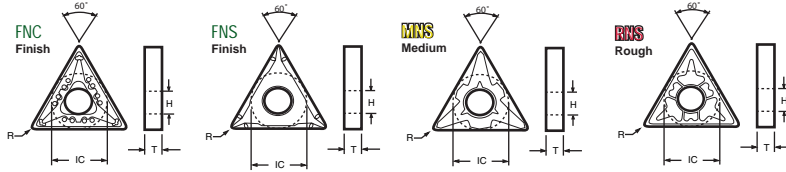
TNMA 60° Flat Top



ANSI Description	ISO Description	EDP Code	IC	R	T	H
TNMA-332	TNMA-160408	JTMAH2	.375	.031	.187	.150

Uncoated		CVD Coated		High Performance		
C201	GB503	AG250	AB301	GB5031	AG2501	AB3011

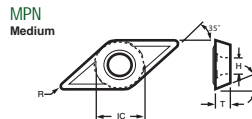
TNMG 60° General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AG250	GB503	AG501	AG701	AG2501	GB5031	AG5011
TNMG-331 FNC	TNMG-160404 FNC	JTMGH1FNC	.375	.016	.187	.150		●	●				
TNMG-331 FNS	TNMG-160404 FNS	JTMGH1FNS	.375	.016	.187	.150				●			
TNMG-331 MNS	TNMG-160404 MNS	JTMGH1MNS	.375	.016	.187	.150	●						
TNMG-332 FNC	TNMG-160408 FNC	JTMGH2FNC	.375	.031	.187	.150		●					
TNMG-332 FNS	TNMG-160408 FNS	JTMGH2FNS	.375	.031	.187	.150			●	●			
TNMG-332 MNS	TNMG-160408 MNS	JTMGH2MNS	.375	.031	.187	.150	●						
TNMG-332 RNS	TNMG-160408 RNS	JTMGH2RNS	.375	.031	.187	.150		●					
TNMG-333 FNC	TNMG-160412 FNC	JTMGH3FNC	.375	.047	.187	.150		●					
TNMG-333 MNS	TNMG-160412 MNS	JTMGH3MNS	.375	.047	.187	.150	●						
TNMG-333 RNS	TNMG-160412 RNS	JTMGH3RNS	.375	.047	.187	.150		●					
TNMG-431 FNC	TNMG-220404 FNC	JTMGJ1FNC	.500	.016	.187	.203		●	●				
TNMG-431 FNS	TNMG-220404 FNS	JTMGJ1FNS	.500	.016	.187	.203				●			
TNMG-432 FNC	TNMG-220408 FNC	JTMGJ2FNC	.500	.031	.187	.203		●					
TNMG-432 FSS	TNMG-220408 FSS	JTMGJ2FSS	.500	.031	.187	.203							
TNMG-432 MNS	TNMG-220408 MNS	JTMGJ2MNS	.500	.031	.187	.203	●						
TNMG-432 RNS	TNMG-220408 RNS	JTMGJ2RNS	.500	.031	.187	.203		●					
TNMG-433 MNS	TNMG-220412 MNS	JTMGJ3MNS	.500	.047	.187	.203	●						
TNMG-433 RNS	TNMG-220412 RNS	JTMGJ3RNS	.500	.047	.187	.203		●					
TNMG-434 RNS	TNMG-220416 RNS	JTMGJ4RNS	.500	.063	.187	.203		●					

CVD Coated		High Performance				
AG250	GB503	AG501	AG701	AG2501	GB5031	AG5011

VCGT 35° Screwdown

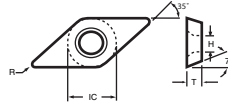


ANSI Description	ISO Description	EDP Code	IC	R	T	H
VCGT-330 MPN	VCGT-160402 MPN	JWGTH0MPN	.375	.008	.187	.203
VCGT-331 MPN	VCGT-160404 MPN	JWGTH1MPN	.375	.016	.187	.203
VCGT-332 MPN	VCGT-160408 MPN	JWGTH2MPN	.375	.031	.187	.203
VCGT-333 MPN	VCGT-160412 MPN	JWGTH3MPN	.375	.047	.187	.203

Uncoated		CVD Coated		High Performance		AlTiN Coated	
C201	C203	GB503	AG501	GB5031	AG5011	AT203	



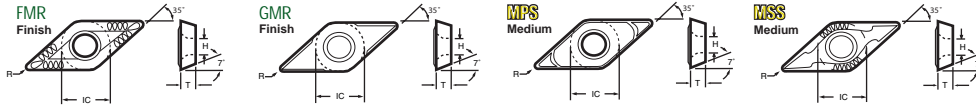
VCGW
35° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	C301	GB503	AG501	GB5031	AG5011	AT203
VCGW-330	VCGW-160402	JWGWH0	.375	.008	.187	.203	●						

Uncoated	CVD Coated	High Performance	AlTiN Coated
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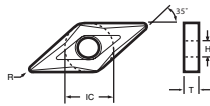
VCMT
35° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	GB503	AG250	AG501	GB5031	AG2501	AG5011
VCMT-331 FMR	VCMT-160404 FMR	JWMTH1FMR	.375	.016	.187	.173	●	●					
VCMT-331 GMR	VCMT-160404 GMR	JWMTH1GMR	.375	.016	.187	.173	●						
VCMT-331 MPS	VCMT-160404 MPS	JWMTH1MPS	.375	.016	.187	.173	●						
VCMT-331 MSS	VCMT-160404 MSS	JWMTH1MSS	.375	.016	.187	.173	●						
VCMT-332 FMR	VCMT-160408 FMR	JWMTH2FMR	.375	.031	.187	.173	●						
VCMT-332 GMR	VCMT-160408 GMR	JWMTH2GMR	.375	.031	.187	.173	●						
VCMT-332 MSS	VCMT-160408 MSS	JWMTH2MSS	.375	.031	.187	.173	●						
VCMT-333 FMR	VCMT-160412 FMR	JWMTH3FMR	.375	.047	.187	.173	●						

Uncoated	CVD Coated	High Performance
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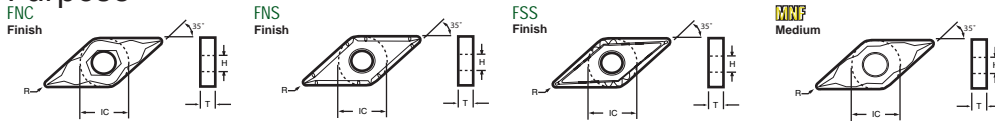
VNGP
35° High Positive



ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	C203	C301	AG250	GB5031	AG2501	AT203
VNGP-330	VNGP-160402	JXGPH0	.375	.008	.187	.150	●						
VNGP-331	VNGP-160404	JXGPH1	.375	.016	.187	.150	●						
VNGP-332	VCGP-160408	JXGPH2	.375	.031	.187	.150	●						

Uncoated	CVD Coated	High Performance	AlTiN Coated
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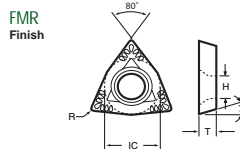
VNMG
35° General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AG250	AB301	GB503	AG501	AB3011	GB5031	AT203
VNMG-331 FNC	VNMG-160404 FNC	JXMGH1FNC	.375	.016	.187	.150			●				
VNMG-331 FNS	VNMG-160404 FNS	JXMGH1FNS	.375	.016	.187	.150			●				
VNMG-331 FSS	VNMG-160404 FSS	JXMGH1FSS	.375	.016	.187	.150	●						
VNMG-331 MNF	VNMG-160404 MNF	JXMGH1MNF	.375	.016	.187	.150			●				
VNMG-332 FNC	VNMG-160408 FNC	JXMGH2FNC	.375	.031	.187	.150			●				
VNMG-332 FNS	VNMG-160408 FNS	JXMGH2FNS	.375	.031	.187	.150			●				
VNMG-332 FSS	VNMG-160408 FSS	JXMGH2FSS	.375	.031	.187	.150	●						
VNMG-332 MNF	VNMG-160408 MNF	JXMGH2MNF	.375	.031	.187	.150			●				

CVD Coated	High Performance	AlTiN Coated
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WCMT
80° Screwdown

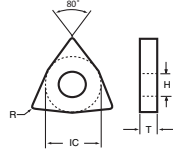


ANSI Description	ISO Description	EDP Code	IC	R	T	H	C201	GB503	AG250	AG501	GB5031	AG2501	AG5011
WCMT-32.51 FMR	WCMT-06T304 FMR	JYMTG1FMR	.375	.016	.156	.150	●						
WCMT-32.52 FMR	WCMT-06T308 FMR	JYMTG2FMR	.375	.031	.156	.150	●						
WCMT-431 FMR	WCMT-080404 FMR	JYMTJ1FMR	.500	.016	.187	.150	●						
WCMT-432 FMR	WCMT-080408 FMR	JYMTJ2FMR	.500	.031	.187	.150	●						

Uncoated	CVD Coated	High Performance
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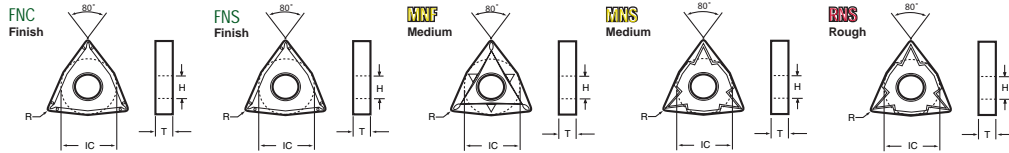


WNMA 80° Flat Top



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Uncoated		CVD Coated		High Performance	
							CZ01	GB503	AG250	AB301	GB5031	AG2501
WNMA-432	WNMA-080408	JZMAJ2	.500	.016	.187	.250						
WNMA-433	WNMA-080412	JZMAJ3	.500	.031	.187	.250						

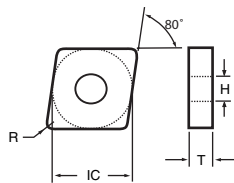
WNMG 80° General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	CVD Coated			High Performance		AITIN Coated
							AG250	GB503	AG501	AG701	AG2501	
WNMG-331 FNC	WNMG-060404 FNC	JZMAH1FNC	.375	.016	.187	.150						
WNMG-332 FNC	WNMG-060408 FNS	JZMAJ2FNS	.375	.031	.187	.150						
WNMG-332 MNS	WNMG-060408 MNS	JZMAH2MNS	.375	.031	.187	.150						
WNMG-332 RNS	WNMG-060408 RNS	JZMAH2RNS	.375	.031	.187	.150						
WNMG-333 FNC	WNMG-060412 FNC	JZMAH3FNC	.375	.047	.187	.150						
WNMG-431 FNC	WNMG-080404 FNC	JZMAJ1FNC	.500	.016	.187	.203						
WNMG-431 FNS	WNMG-080404 FNS	JZMAJ1FNS	.500	.016	.187	.203						
WNMG-431 FSS	WNMG-080404 FSS	JZMAJ1FSS	.500	.016	.187	.203						
WNMG-431 MNS	WNMG-080404 MNS	JZMAJ1MNS	.500	.016	.187	.203						
WNMG-432 FNC	WNMG-080408 FNC	JZMAJ2FNC	.500	.031	.187	.203						
WNMG-432 FNS	WNMG-080408 FNS	JZMAJ2FNS	.500	.031	.187	.203						
WNMG-432 FSS	WNMG-080408 FSS	JZMAJ2FSS	.500	.031	.187	.203						
WNMG-432 MNF	WNMG-080408 MNF	JZMAJ2MNF	.500	.031	.187	.203						
WNMG-432 MNS	WNMG-080408 MNS	JZMAJ2MNS	.500	.031	.187	.203						
WNMG-432 RNS	WNMG-080408 RNS	JZMAJ2RNS	.500	.031	.187	.203						
WNMG-432 RSS	WNMG-080408 RSS	JZMAJ2RSS	.500	.031	.187	.203						
WNMG-433 FNC	WNMG-080412 FNC	JZMAJ3FNC	.500	.047	.187	.203						
WNMG-433 FNS	WNMG-080412 FNS	JZMAJ3FNS	.500	.047	.187	.203						
WNMG-433 MNS	WNMG-080412 MNS	JZMAJ3MNS	.500	.047	.187	.203						
WNMG-433 RNS	WNMG-080412 RNS	JZMAJ2RNS	.500	.047	.187	.203						
WNMG-434 RNS	WNMG-080416 RNS	JZMAJ4RNS	.500	.063	.187	.203						

CERAMIC

CNGA 80° Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series				Si3N4 Series				
							FT100	FT300	FT500	FD200	FZ200	FN26	FN300	FN400	FN500
CNGA-431	CNGA-120404	JBG AJ1	.500	.016	.187	.203									
CNGA-432	CNGA-120408	JBG AJ2	.500	.031	.187	.203									
CNGA-433	CNGA-120412	JBG AJ3	.500	.047	.187	.203									
CNGA-434	CNGA-120416	JBG AJ4	.500	.063	.187	.203									
CNGA-451	CNGA-120704	JBG AL1	.500	.016	.312	.203									
CNGA-452	CNGA-120708	JBG AL2	.500	.031	.312	.203									
CNGA-453	CNGA-120712	JBG AL3	.500	.047	.312	.203									
CNGA-454	CNGA-120716	JBG AL4	.500	.063	.312	.203									
CNGA-542	CNGA-160608	JBG AO2	.625	.031	.250	.253									
CNGA-543	CNGA-160612	JBG AO3	.625	.047	.250	.253									
CNGA-544	CNGA-160616	JBG AO4	.625	.063	.250	.253									
CNGA-552	CNGA-160708	JBG AP2	.625	.031	.312	.253									
CNGA-553	CNGA-160712	JBG AP3	.625	.047	.312	.253									
CNGA-554	CNGA-160716	JBG AP4	.625	.063	.312	.253									
CNGA-642	CNGA-190608	JBG AR2	.750	.031	.250	.313									
CNGA-643	CNGA-190612	JBG AR3	.750	.047	.250	.313									
CNGA-644	CNGA-190616	JBG AR4	.750	.063	.250	.313									
CNGA-653	CNGA-190712	JBG AS3	.750	.047	.312	.313									
CNGA-654	CNGA-190716	JBG AS4	.750	.063	.312	.313									

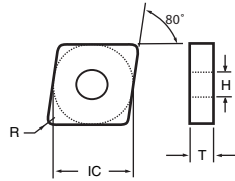
TURNING



CNMA 80° Insert

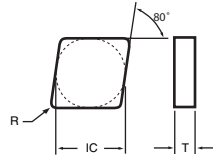
TURNING

Screwdown/Lock Pin Style Inserts



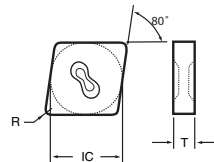
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2o3 Series						Si3N4 Series							
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800			
CNMA-432	CNMA-120408	JBMAJ2	.500	.031	.187	.203														
CNMA-433	CNMA-120412	JBMAJ3	.500	.047	.187	.203														
CNMA-434	CNMA-120416	JBMAJ4	.500	.063	.187	.203														
CNMA-543	CNMA-160612	JBMAO3	.625	.047	.250	.253														
CNMA-544	CNMA-160616	JBMAO4	.625	.063	.250	.253														

CNGN 80° Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2o3 Series						Si3N4 Series							
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800			
CNGN-321	CNGN-090304	JBGNG1	.375	.016	.125	N/A														
CNGN-322	CNGN-090308	JBGNG2	.375	.031	.125	N/A														
CNGN-323	CNGN-090312	JBGNG3	.375	.047	.125	N/A														
CNGN-421	CNGN-120304	JBGNI1	.500	.016	.125	N/A														
CNGN-422	CNGN-120308	JBGNI2	.500	.031	.125	N/A														
CNGN-423	CNGN-120312	JBGNI3	.500	.047	.125	N/A														
CNGN-431	CNGN-120404	JBGNJ1	.500	.016	.187	N/A														
CNGN-432	CNGN-120408	JBGNJ2	.500	.031	.187	N/A														
CNGN-433	CNGN-120412	JBGNJ3	.500	.047	.187	N/A														
CNGN-434	CNGN-120416	JBGNJ4	.500	.063	.187	N/A														
CNGN-451	CNGN-120704	JBGNL1	.500	.016	.312	N/A														
CNGN-452	CNGN-120708	JBGNL2	.500	.031	.312	N/A														
CNGN-453	CNGN-120712	JBGNL3	.500	.047	.312	N/A														
CNGN-454	CNGN-120716	JBGNL4	.500	.063	.312	N/A														
CNGN-542	CNGN-160608	JBGNO2	.625	.031	.250	N/A														
CNGN-543	CNGN-160612	JBGNO3	.625	.047	.250	N/A														
CNGN-544	CNGN-160616	JBGNO4	.625	.063	.250	N/A														
CNGN-552	CNGN-160708	JBGNP2	.625	.031	.312	N/A														
CNGN-553	CNGN-160712	JBGNP3	.625	.047	.312	N/A														
CNGN-554	CNGN-160716	JBGNP4	.625	.063	.312	N/A														
CNGN-555	CNGN-160720	JBGNP5	.625	.078	.312	N/A														
CNGN-643	CNGN-190612	JBGNR3	.750	.047	.250	N/A														
CNGN-644	CNGN-190616	JBGNR4	.750	.063	.250	N/A														
CNGN-653	CNGN-190712	JBGNS3	.750	.047	.312	N/A														
CNGN-654	CNGN-190716	JBGNS4	.750	.063	.312	N/A														
CNGN-655	CNGN-190720	JBGNS4	.750	.078	.312	N/A														
CNGN-856	CNGN-250724	JBGNV6	1.000	.094	.312	N/A														
CNGN-866	CNGN-250924	JBGNW6	1.000	.094	.375	N/A														

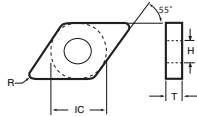
CNVX 80° Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2o3 Series						Si3N4 Series							
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800			
CNVX-433	CNVX-120412	JBVXJ3	.500	.047	.187	N/A														
CNVX-434	CNVX-120416	JBVXJ4	.500	.063	.187	N/A														
CNVX-452	CNVX-120708	JBVXL2	.500	.031	.312	N/A														
CNVX-453	CNVX-120712	JBVXL3	.500	.047	.312	N/A														
CNVX-454	CNVX-120716	JBVXL4	.500	.063	.312	N/A														
CNVX-552	CNVX-160708	JBVXP2	.625	.031	.312	N/A														
CNVX-553	CNVX-160712	JBVXP3	.625	.047	.312	N/A														
CNVX-554	CNVX-160716	JBVXP4	.625	.063	.312	N/A														

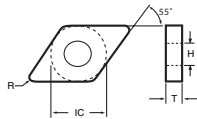


DNGA 55° Insert



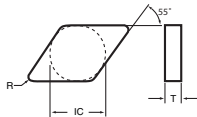
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series				
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800
DNGA-431	DNGA-150404	JEGAJ1	.500	.016	.187	.203	●	●									
DNGA-432	DNGA-150408	JEGAJ2	.500	.031	.187	.203	●	●						●	●	●	
DNGA-433	DNGA-150412	JEGAJ3	.500	.047	.187	.203	●	●						●	●	●	●
DNGA-434	DNGA-150416	JEGAJ4	.500	.063	.187	.203	●	●						●	●	●	●
DNGA-441	DNGA-150604	JEGAK1	.500	.016	.250	.203	●	●		●							
DNGA-442	DNGA-150608	JEGAK2	.500	.031	.250	.203	●	●		●				●	●	●	
DNGA-443	DNGA-150612	JEGAK3	.500	.047	.250	.203	●	●		●				●	●	●	●
DNGA-444	DNGA-150616	JEGAK4	.500	.063	.250	.203	●	●		●				●	●	●	●
DNGA-451	DNGA-150704	JEGAL1	.500	.016	.312	.203	●	●									
DNGA-452	DNGA-150708	JEGAL2	.500	.031	.312	.203	●	●				●		●	●	●	
DNGA-453	DNGA-150712	JEGAL3	.500	.047	.312	.203	●	●				●		●	●	●	●
DNGA-454	DNGA-150716	JEGAL4	.500	.063	.312	.203	●	●				●		●	●	●	●
DNGA-542	DNGA-190608	JEGAO2	.625	.031	.250	.250	●	●									
DNGA-543	DNGA-190612	JEGAO3	.625	.047	.250	.250	●	●				●		●	●	●	●
DNGA-544	DNGA-190616	JEGAO4	.625	.063	.250	.250	●	●				●		●	●	●	●

DNMA 55° Insert



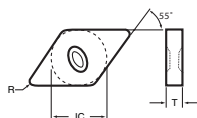
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series				
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DNMA-443	DNMA-150612	JEMAK3	.500	.047	.250	.203									●	●	
DNMA-444	DNMA-150616	JEMAK4	.500	.063	.250	.203									●	●	

DNGN 55° Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series				
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800
DNGN-431	DNGN-150404	JEGNJ1	.500	.016	.187	N/A											
DNGN-432	DNGN-150408	JEGNJ2	.500	.031	.187	N/A											
DNGN-433	DNGN-150412	JEGNJ3	.500	.047	.187	N/A	●			●							
DNGN-434	DNGN-150416	JEGNJ4	.500	.063	.187	N/A	●			●							
DNGN-441	DNGN-150604	JEGNK1	.500	.016	.250	N/A											
DNGN-442	DNGN-150608	JEGNK2	.500	.031	.250	N/A	●								●	●	
DNGN-443	DNGN-150612	JEGNK3	.500	.047	.250	N/A	●	●							●	●	
DNGN-444	DNGN-150616	JEGNK4	.500	.063	.250	N/A	●	●							●	●	●
DNGN-451	DNGN-150704	JEGNL1	.500	.016	.312	N/A	●	●									
DNGN-452	DNGN-150708	JEGNL2	.500	.031	.312	N/A	●	●				●			●	●	
DNGN-453	DNGN-150712	JEGNL3	.500	.047	.312	N/A	●	●				●			●	●	●
DNGN-454	DNGN-150716	JEGNL4	.500	.063	.312	N/A	●	●				●			●	●	●

DNGX 55° Insert

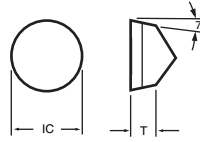


ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series				
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800
DNGX-352	DNGX-120708	JEGXH2	.375	.031	.312	N/A											
DNGX-353	DNGX-120712	JEGXH3	.375	.047	.312	N/A				●					●	●	●
DNGX-354	DNGX-120716	JEGXH4	.375	.063	.312	N/A				●					●	●	●
DNGX-452	DNGX-150708	JEGXL2	.500	.031	.312	N/A											
DNGX-453	DNGX-150712	JEGXL3	.500	.047	.312	N/A				●					●	●	
DNGX-454	DNGX-150716	JEGXL4	.500	.063	.312	N/A									●	●	●

TURNING

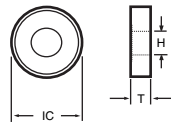


RCGX Round Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
RCGX-102	RCGX-060400	JHGX102	.250	.125	.180	120°	●	●										
RCGX-102B	RCGX-060600	JHGX102B	.250	.125	.244	120°	●	●										
RCGX-102C	RCGX-060700	JHGX102C	.250	.125	.303	120°	●	●										
RCGX-103	RCGX-090400	JHGX103	.375	.1875	.303	120°	●	●					●					
RCGX-104	RCGX-120700	JHGX104	.500	.250	.303	120°	●	●					●					
RCGX-105	RCGX-151000	JHGX105	.625	.3125	.385	120°	●	●					●					
RCGX-106	RCGX-191000	JHGX106	.750	.375	.385	120°	●	●					●					
RCGX-108	RCGX-251200	JHGX108	1.000	.500	.467	140°	●	●					●					

RNGA Round Insert



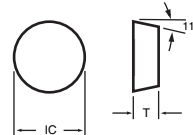
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
RCGX-430	RNGA-120400	JJGAJ	.500	.250	.187	.203	●	●										
RCGX-450	RNGA-120700	JJGAL	.500	.250	.312	.203	●	●										

RNGN Round Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
RNGN-210	RNGN-060200	JJGND	.250	.125	.094	N/A							●					
RNGN-220	RNGN-060300	JJGNE	.250	.125	.125	N/A												
RNGN-230	RNGN-060400	JJGNF	.250	.125	.187	N/A												
RNGN-320	RNGN-090300	JJGNG	.375	.1875	.125	N/A	●						●	●				
RNGN-330	RNGN-090400	JJGNH	.375	.1875	.187	N/A	●	●					●					
RNGN-420	RNGN-120300	JJGNI	.500	.250	.125	N/A							●	●				
RNGN-430	RNGN-120400	JJGNJ	.500	.250	.187	N/A		●	●				●	●				
RNGN-440	RNGN-120600	JJGNK	.500	.250	.250	N/A		●	●				●	●				
RNGN-450	RNGN-120700	JJGNL	.500	.250	.312	N/A		●	●				●	●				
RNGN-550	RNGN-150700	JJGNP	.625	.3125	.312	N/A		●	●				●	●				
RNGN-640	RNGN-190600	JJGNR	.750	.375	.250	N/A		●	●				●	●				
RNGN-650	RNGN-190700	JJGNS	.750	.375	.312	N/A		●	●				●	●				
RNGN-850	RNGN-250700	JJGNV	1.000	.500	.312	N/A		●	●				●	●				
RNGN-860	RNGN-250900	JJGNW	1.000	.500	.375	N/A		●	●				●	●				
RNGN-106	RNGN-320900	JJGNY	1.250	.625	.375	N/A		●	●				●	●				

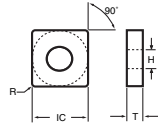
RPGN Round Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
RPGN-320	RPGN-090300	JKGNB	.375	.1875	.125	N/A	●	●										
RPGN-330	RPGN-090400	JKGNH	.375	.1875	.187	N/A	●	●										
RPGN-420	RPGN-120300	JKGNJ	.500	.250	.125	N/A												
RPGN-430	RPGN-120400	JKGNJ	.500	.250	.187	N/A		●	●									
RPGN-450	RPGN-120700	JKGNL	.500	.250	.312	N/A		●	●									
RPGN-550	RPGN-150700	JKGNP	.625	.3125	.312	N/A		●	●									
RPGN-650	RPGN-190700	JKGNP	.750	.375	.312	N/A		●	●									

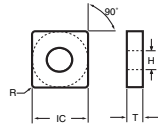


SNGA 90° Insert



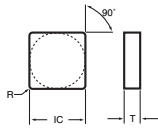
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series					Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800
SNGA-321	SNGA-090304	JNGAG1	.375	.016	.125	.203	●	●									
SNGA-322	SNGA-090308	JNGAG2	.375	.031	.125	.203	●	●									
SNGA-323	SNGA-090312	JNGAG3	.375	.047	.125	.203	●	●									
SNGA-331	SNGA-090404	JNGAH1	.375	.016	.187	.203											
SNGA-332	SNGA-090408	JNGAH2	.375	.031	.187	.203											
SNGA-333	SNGA-090412	JNGAH3	.375	.047	.187	.203											
SNGA-334	SNGA-090416	JNGAH4	.375	.063	.187	.203											
SNGA-431	SNGA-120404	JNGAJ1	.500	.016	.187	.203	●			●		●					
SNGA-432	SNGA-120408	JNGAJ2	.500	.031	.187	.203	●			●		●				●	●
SNGA-433	SNGA-120412	JNGAJ3	.500	.047	.187	.203	●	●		●	●	●	●	●			●
SNGA-434	SNGA-120416	JNGAJ4	.500	.063	.187	.203	●			●		●					●
SNGA-452	SNGA-120708	JNGAL2	.500	.031	.312	.203	●					●					
SNGA-453	SNGA-120712	JNGAL3	.500	.047	.312	.203	●					●					
SNGA-454	SNGA-120716	JNGAL4	.500	.063	.312	.203	●			●		●	●				●
SNGA-542	SNGA-150608	JNGAO2	.625	.031	.250	.253		●									
SNGA-543	SNGA-150612	JNGAO3	.625	.047	.250	.253		●						●			
SNGA-544	SNGA-150616	JNGAO4	.625	.063	.250	.253		●	●								
SNGA-643	SNGA-190612	JNGAR3	.750	.047	.250	.313	●						●				
SNGA-644	SNGA-190616	JNGAR4	.750	.063	.250	.313											

SNMA 90° Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series					Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800
SNMA-432	SNMA-120408	JNMAJ2	.500	.031	.187	.203											
SNMA-433	SNMA-120412	JNMAJ3	.500	.047	.187	.203								●	●		
SNMA-434	SNMA-120416	JNMAJ4	.500	.063	.187	.203								●	●		
SNMA-544	SNMA-150616	JNMAO4	.625	.063	.250	.253								●	●		

SNGN 90° Insert

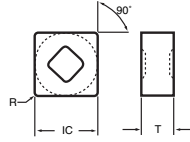


ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series					Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800
SNGN-321	SNGN-090304	JNGNG1	.375	.016	.125	N/A	●	●									
SNGN-322	SNGN-090308	JNGNG2	.375	.031	.125	N/A	●	●		●	●		●		●		
SNGN-323	SNGN-090312	JNGNG3	.375	.047	.125	N/A	●	●									
SNGN-331	SNGN-090404	JNGNH1	.375	.016	.125	N/A				●							
SNGN-332	SNGN-090408	JNGNH2	.375	.031	.125	N/A	●								●		
SNGN-333	SNGN-090412	JNGNH3	.375	.047	.125	N/A				●	●			●			
SNGN-431	SNGN-120404	JNGNJ1	.500	.016	.187	N/A	●						●				
SNGN-432	SNGN-120408	JNGNJ2	.500	.031	.187	N/A	●	●		●	●		●	●	●	●	●
SNGN-433	SNGN-120412	JNGNJ3	.500	.047	.187	N/A	●	●		●	●		●	●	●	●	●
SNGN-434	SNGN-120416	JNGNJ4	.500	.063	.187	N/A	●	●					●	●	●	●	●
SNGN-435	SNGN-120420	JNGNJ5	.500	.078	.312	N/A	●			●	●		●	●	●	●	●
SNGN-441	SNGN-120604	JNGNK1	.500	.016	.312	N/A				●							
SNGN-442	SNGN-120608	JNGNK2	.500	.031	.312	N/A	●			●	●		●	●	●	●	●
SNGN-443	SNGN-120612	JNGNK3	.500	.047	.312	N/A	●			●	●		●	●	●	●	●
SNGN-444	SNGN-120616	JNGNK4	.500	.063	.250	N/A	●			●	●		●	●	●	●	●
SNGN-451	SNGN-120704	JNGNL1	.500	.016	.250	N/A		●		●					●		
SNGN-452	SNGN-120708	JNGNL2	.500	.031	.250	N/A	●	●					●	●	●	●	●
SNGN-453	SNGN-120712	JNGNL3	.500	.047	.312	N/A	●	●			●	●		●	●	●	●
SNGN-454	SNGN-120716	JNGNL4	.500	.063	.312	N/A	●	●			●	●		●	●	●	●
SNGN-455	SNGN-120720	JNGNL5	.500	.078	.312	N/A	●	●			●	●		●	●	●	●
SNGN-531	SNGN-150404	JNGNN1	.625	.016	.312	N/A		●									
SNGN-532	SNGN-150408	JNGNN2	.625	.031	.250	N/A		●									
SNGN-533	SNGN-150412	JNGNN3	.625	.047	.250	N/A	●					●		●	●		
SNGN-534	SNGN-150416	JNGNN4	.625	.063	.312	N/A	●					●		●	●		
SNGN-552	SNGN-150708	JNGNP2	.625	.031	.312	N/A	●	●									
SNGN-553	SNGN-150712	JNGNP3	.625	.047	.312	N/A	●	●			●	●		●	●	●	●
SNGN-554	SNGN-150716	JNGNP4	.625	.063	.375	N/A	●	●			●	●		●	●	●	●
SNGN-642	SNGN-190608	JNGNR2	.750	.031	.312	N/A											
SNGN-643	SNGN-190612	JNGNR3	.750	.047	.250	N/A	●							●	●		●
SNGN-644	SNGN-190616	JNGNR4	.750	.063	.250	N/A	●							●	●		●
SNGN-653	SNGN-190712	JNGNS3	.750	.047	.312	N/A	●										
SNGN-654	SNGN-190716	JNGNS4	.750	.063	.312	N/A	●	●						●	●		●
SNGN-655	SNGN-190720	JNGNS5	.750	.078	.312	N/A	●							●	●		●
SNGN-854	SNGN-250720	JNGNV4	1.000	.063	.312	N/A	●							●	●		●
SNGN-856	SNGN-250724	JNGNV6	1.000	.094	.375	N/A	●	●						●	●		●
SNGN-866	SNGN-250924	JNGNV6	1.000	.094	.312	N/A	●							●	●		●

TURNING

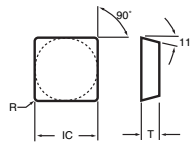


SNGX 90° Insert



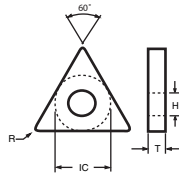
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series						
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800		
SNGX-432	SNGX-120408	JNGXJ2	.500	.031	.187	N/A													
SNGX-433	SNGX-120412	JNGXJ3	.500	.047	.187	N/A													
SNGX-434	SNGX-120416	JNGXJ4	.500	.063	.187	N/A													
SNGX-452	SNGX-120708	JNGXL2	.500	.031	.312	N/A	●							●	●	●	●	●	●
SNGX-453	SNGX-120712	JNGXL3	.500	.047	.312	N/A	●	●						●	●	●	●	●	●
SNGX-454	SNGX-120716	JNGXL4	.500	.063	.312	N/A								●	●	●	●	●	●
SNGX-552	SNGX-150708	JNGXP2	.625	.031	.312	N/A	●	●						●	●	●	●	●	●
SNGX-553	SNGX-150712	JNGXP3	.625	.047	.312	N/A	●	●						●	●	●	●	●	●
SNGX-554	SNGX-150716	JNGXP4	.625	.063	.312	N/A								●	●	●	●	●	●

SPGN 90° Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series						
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800		
SPGN-321	SPGN-090304	JMGNG1	.375	.016	.125	N/A	●	●					●						
SPGN-322	SPGN-090308	JMGNG2	.375	.031	.125	N/A	●	●		●				●	●	●			
SPGN-323	SPGN-090312	JMGNG3	.375	.047	.125	N/A	●	●											
SPGN-421	SPGN-120304	JMGNI1	.500	.016	.125	N/A	●	●											
SPGN-422	SPGN-120308	JMGNI2	.500	.031	.125	N/A	●	●			●		●						
SPGN-423	SPGN-120312	JMGNI3	.500	.047	.125	N/A	●	●					●						
SPGN-431	SPGN-120404	JMGNJ1	.500	.016	.187	N/A	●	●											
SPGN-432	SPGN-120408	JMGNJ2	.500	.031	.187	N/A	●	●						●	●	●			
SPGN-433	SPGN-120412	JMGNJ3	.500	.047	.187	N/A	●	●		●				●	●	●	●	●	●
SPGN-434	SPGN-120416	JMGNJ4	.500	.063	.187	N/A	●	●						●	●	●	●	●	●
SPGN-532	SPGN-150408	JMGNN2	.625	.031	.187	N/A													
SPGN-533	SPGN-150412	JMGNN3	.625	.047	.187	N/A		●						●					
SPGN-633	SPGN-190612	JMGNQ3	.750	.047	.187	N/A	●												
SPGN-634	SPGN-190616	JMGNQ4	.750	.063	.187	N/A	●	●											

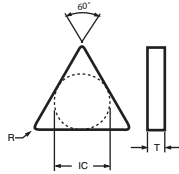
TNGA 60° Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series						
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800		
TNGA-221	TNGA-110304	JTGAD1	.250	.016	.125	.089	●	●											
TNGA-222	TNGA-110308	JTGAD2	.250	.031	.125	.089	●	●											
TNGA-321	TNGA-160304	JTGAG1	.375	.016	.125	.150	●	●											
TNGA-322	TNGA-160308	JTGAG2	.375	.031	.125	.150	●	●											
TNGA-323	TNGA-160312	JTGAG3	.375	.047	.125	.150	●	●											
TNGA-331	TNGA-160404	JTGAH1	.375	.016	.187	.150	●	●						●	●	●		●	●
TNGA-332	TNGA-160408	JTGAH2	.375	.031	.187	.150	●	●						●	●	●		●	●
TNGA-333	TNGA-160412	JTGAH3	.375	.047	.187	.150	●	●						●	●	●		●	●
TNGA-334	TNGA-160416	JTGAH4	.375	.063	.187	.150	●	●						●	●	●		●	●
TNGA-431	TNGA-220404	JTGAJ1	.500	.016	.187	.203	●	●						●	●	●		●	●
TNGA-432	TNGA-220408	JTGAJ2	.500	.031	.187	.203	●	●						●	●	●		●	●
TNGA-433	TNGA-220412	JTGAJ3	.500	.047	.187	.203	●	●						●	●	●		●	●
TNGA-434	TNGA-220416	JTGAJ4	.500	.063	.187	.203	●	●						●	●	●		●	●
TNGA-452	TNGA-220708	JTGAL2	.500	.031	.312	.203	●	●											
TNGA-453	TNGA-220712	JTGAL3	.500	.047	.312	.203	●	●											
TNGA-542	TNGA-270608	JTGAO2	.625	.031	.250	.250		●											
TNGA-543	TNGA-270612	JTGAO3	.625	.047	.250	.250		●											
TNGA-666	TNGA-330924	JTGAT6	.750	.094	.375	.313		●											

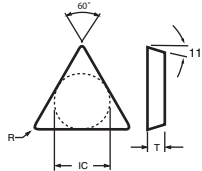


TNGN 60° Insert



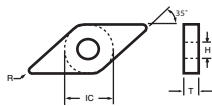
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
TNGN-221	TNGN-110304	JTGND1	.250	.016	.125	N/A	●	●										
TNGN-222	TNGN-110308	JTGND2	.250	.031	.125	N/A	●	●			●		●	●				
TNGN-331	TNGN-160404	JTGNG1	.375	.016	.187	N/A	●	●			●		●	●				
TNGN-332	TNGN-160408	JTGNG2	.375	.031	.187	N/A	●	●			●		●	●				
TNGN-333	TNGN-160412	JTGNG3	.375	.047	.187	N/A	●	●			●		●	●				
TNGN-334	TNGN-160416	JTGNG4	.375	.063	.187	N/A	●	●			●		●	●				
TNGN-351	TNGN-160704	JTGNH1	.375	.016	.312	N/A	●	●					●	●				
TNGN-352	TNGN-160708	JTGNH2	.375	.031	.312	N/A	●	●			●		●	●				
TNGN-353	TNGN-160712	JTGNH3	.375	.047	.312	N/A	●	●			●		●	●				
TNGN-354	TNGN-160716	JTGNH4	.375	.063	.312	N/A	●	●					●	●				
TNGN-431	TNGN-220404	JTGNJ1	.500	.016	.187	N/A	●	●										
TNGN-432	TNGN-220408	JTGNJ2	.500	.031	.187	N/A	●	●					●	●				●
TNGN-433	TNGN-220412	JTGNJ3	.500	.047	.187	N/A	●	●					●	●				●
TNGN-434	TNGN-220416	JTGNJ4	.500	.063	.187	N/A	●	●					●	●				●
TNGN-452	TNGN-220708	JTGNL2	.500	.031	.312	N/A	●	●										
TNGN-453	TNGN-220712	JTGNL3	.500	.047	.312	N/A	●	●										
TNGN-454	TNGN-220716	JTGNL4	.500	.063	.312	N/A	●	●										
TNGN-542	TNGN-270608	JTGNO2	.625	.031	.250	N/A	●	●										
TNGN-543	TNGN-270612	JTGNO3	.625	.047	.250	N/A	●	●										
TNGN-544	TNGN-270616	JTGNO4	.625	.063	.250	N/A	●	●										●
TNGN-666	TNGN-330924	JTGNT6	.750	.094	.375	N/A	●	●	●									
TNGN-868	TNGN-440932	JTGNW6	1.000	.125	.375	N/A	●	●						●				

TPGN 60° Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
TPGN-731	TPGN-090204	JTPGNB1	.219	.016	.094	N/A		●										
TPGN-732	TPGN-090208	JTPGNB2	.219	.031	.094	N/A		●										
TPGN-221	TPGN-110304	JTPGND1	.250	.016	.125	N/A	●	●					●	●				
TPGN-222	TPGN-110308	JTPGND2	.250	.031	.125	N/A	●	●			●		●	●				●
TPGN-321	TPGN-160304	JTPGNG1	.375	.016	.125	N/A	●	●			●		●	●				
TPGN-322	TPGN-160308	JTPGNG2	.375	.031	.125	N/A	●	●			●		●	●				
TPGN-323	TPGN-160312	JTPGNG3	.375	.047	.125	N/A	●	●			●		●	●				
TPGN-331	TPGN-160404	JTPGNH1	.375	.016	.187	N/A	●	●					●	●				
TPGN-332	TPGN-160408	JTPGNH2	.375	.031	.187	N/A	●	●					●	●				
TPGN-333	TPGN-160412	JTPGNH3	.375	.047	.187	N/A	●	●					●	●				
TPGN-334	TPGN-160416	JTPGNH4	.375	.063	.187	N/A	●	●					●	●				
TPGN-431	TPGN-220404	JTPGNJ1	.500	.016	.187	N/A	●	●										
TPGN-432	TPGN-220408	JTPGNJ2	.500	.031	.187	N/A	●	●					●	●				
TPGN-433	TPGN-220412	JTPGNJ3	.500	.047	.187	N/A	●	●					●	●				
TPGN-434	TPGN-220416	JTPGNJ4	.500	.063	.187	N/A	●	●					●	●				
TPGN-453	TPGN-220712	JTPGNL3	.500	.047	.312	N/A	●	●										
TPGN-454	TPGN-220716	JTPGNL4	.500	.063	.312	N/A	●	●										
TPGN-588	TPGN-271232	JTPGNP8	.625	.125	.500	N/A	●	●										

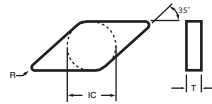
VNGA 35° Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
VNGA-331	VNGA-160404	JXGAG1	.375	.016	.187	.150	●	●					●	●				
VNGA-332	VNGA-160408	JXGAG2	.375	.031	.187	.150	●	●					●	●				
VNGA-333	VNGA-160412	JXGAG3	.375	.047	.187	.150	●	●					●	●				
VNGA-341	VNGA-160604	JXGAH1	.375	.016	.250	.150	●	●					●	●				
VNGA-342	VNGA-160608	JXGAH2	.375	.031	.250	.150	●	●					●	●				
VNGA-343	VNGA-160612	JXGAH3	.375	.047	.250	.150	●	●					●	●				
VNGA-431	VNGA-220404	JXGAJ1	.500	.016	.187	.203	●	●										
VNGA-432	VNGA-220408	JXGAJ2	.500	.031	.187	.203	●	●										
VNGA-433	VNGA-220412	JXGAJ3	.500	.047	.187	.203	●	●										

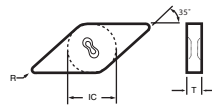


VNGN
35° Insert



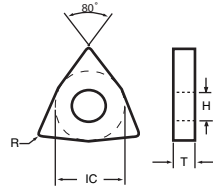
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
VNGN-351	VNGN-160704	JXGNH1	.375	.016	.312	N/A	●	●										
VNGN-352	VNGN-160708	JXGNH2	.375	.031	.312	N/A	●	●										
VNGN-353	VNGN-160712	JXGNH3	.375	.047	.312	N/A	●	●										
VNGN-354	VNGN-160716	JXGNH4	.375	.063	.312	N/A	●	●										

VNGX
35° Insert



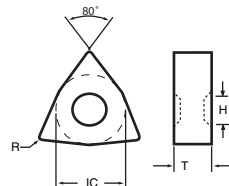
ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
VNGX-352	VNGX-160708	JXGXH2	.375	.031	.312	N/A												●
VNGX-353	VNGX-160712	JXGXH3	.375	.047	.312	N/A												●
VNGX-354	VNGX-160716	JXGXH4	.375	.063	.312	N/A												●

WNGA
80° Insert



ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
WNGA-431	WNGA-080404	JZGAJ1	.500	.016	.187	.203	●	●										
WNGA-432	WNGA-080408	JZGAJ2	.500	.031	.187	.203	●	●					●	●	●	●	●	●
WNGA-433	WNGA-080412	JZGAJ3	.500	.047	.187	.203	●	●					●	●	●	●	●	●

WNGX
80° Insert

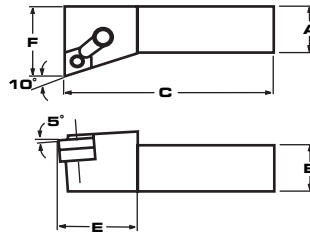


ANSI Description	ISO Description	EDP Code	IC	R	T	H	Al2O3 Series						Si3N4 Series					
							FT100	FT300	FT500	FD200	FZ200	FZ300	FN26	FN300	FN400	FN500	FN800	
WNGX-452	WNGX-080708	JZGXL2	.500	.031	.312	N/A												●
WNGX-453	WNGX-080712	JZGXL3	.500	.047	.312	N/A												●
WNGX-454	WNGX-080716	JZGXL4	.500	.063	.312	N/A												●



MCFNL/R

10° Holder for 80° Diamond



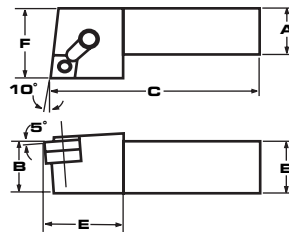
RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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



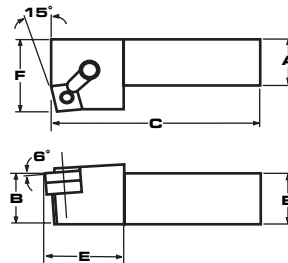
RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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

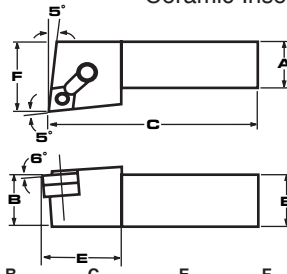


TURNING

Ceramic Inserts

MCLNL/R

5° Holder for 80° Diamond



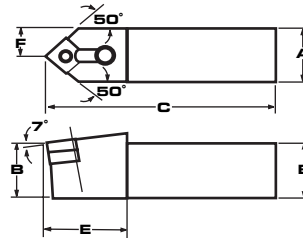
RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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

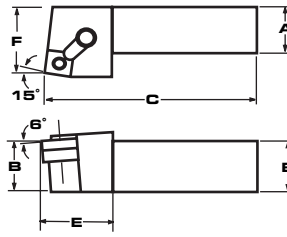


PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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



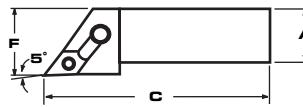
RH SHOWN

PARTS

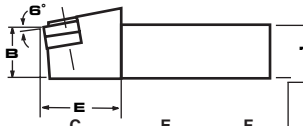
Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
MCRNR-124B	9T2521256B	CN_-43	0.750	0.750	4.500	1.240	0.750	ICSN-433	NL-46	CL-9	XNS-58	S-46
MCRNL-124B	9T2501256B	CN_-43	0.750	0.750	4.500	1.240	0.755	ICSN-433	NL-46	CL-9	XNS-58	S-46
MCRNR-164D	9T2521656D	CN_-43	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



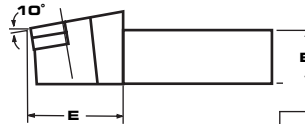
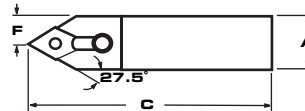
RH SHOWN



PARTS

Description	EDP Code	Insert	A	B	C	E	F	PARTS				
								Seat	Lock Pin	Clamp	Clamp Screw	Seat 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

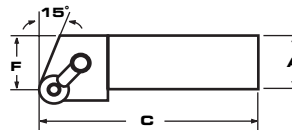
MDPNN 27.5° Holder for 55° Diamond



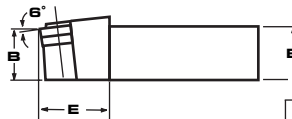
PARTS

Description	EDP Code	Insert	A	B	C	E	F	PARTS				
								Seat	Lock Pin	Clamp	Clamp Screw	Seat 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



RH SHOWN



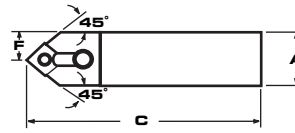
PARTS

Description	EDP Code	Insert	A	B	C	E	F	PARTS				
								Seat	Lock Pin	Clamp	Clamp Screw	Seat 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



TURNING Holders

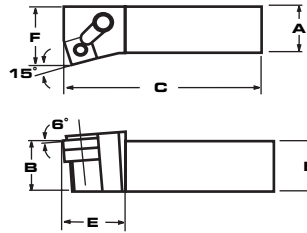
MSDNN 45° Holder for 90° Square



PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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



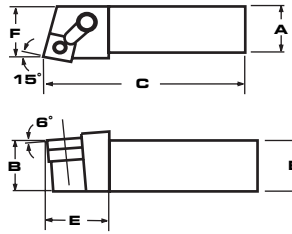
RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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

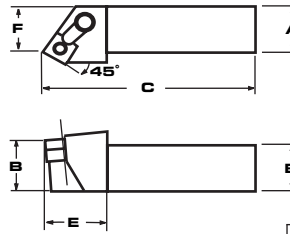


RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock			Clamp		Seat
								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

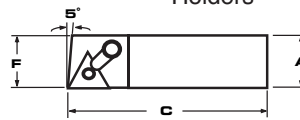
PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock			Clamp		Seat
								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	

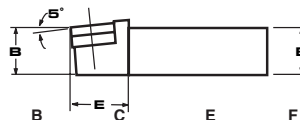


TURNING Holders

MTANL/R 5° Holder for 60° Triangle



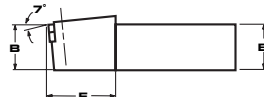
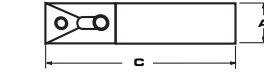
RH SHOWN



PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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

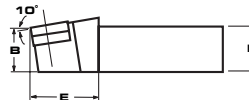
MTCNN 0° Holder for 60° Triangle



PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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	0.750	8.000	1.430	N/A	ITSN-433	NL-46	CL-12	XNS-59	S-46

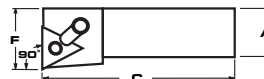
MTENNS 60° Holder for 60° Triangle



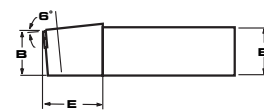
PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
MTENNS-103B	9T3681048B	TN_-33	0.625	0.625	4.500	1.160	0.312	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTENNS-123B	9T3681248B	TN_-33	0.750	0.750	4.500	1.160	0.375	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTENNS-853D	9T3684448D	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	9T3682464E	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

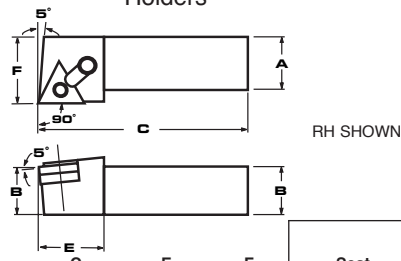


PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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
MTFNL-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	9T3742472E	TN_-66	1.500	1.500	7.000	1.490	1.250	ITSN-633	NL-68L	CL-12	XNS-510	S-68
MTFNL-246E	9T3722472E	TN_-66	1.500	1.500	7.000	1.490	2.000	ITSN-633	NL-68L	CL-12	XNS-510	S-68



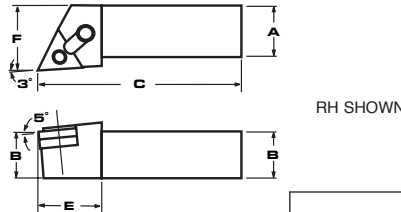
MTGNL/R 90° Holder for 60° Triangle



PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								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

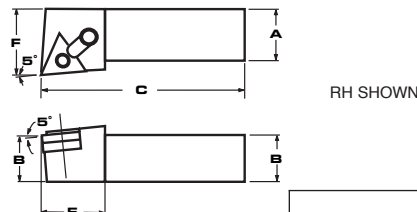
MTJNLS/RS 3° Holder for 60° Triangle



PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								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



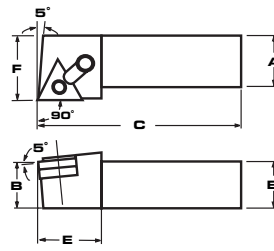
PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								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



TURNING Holders

MTRNL/R 15° Holder for 60° Triangle

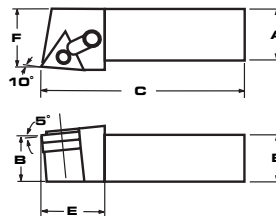


RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								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

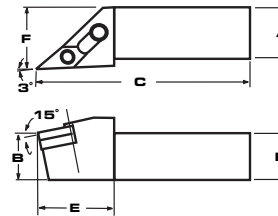


RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								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



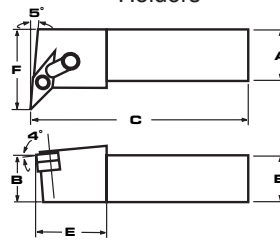
RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
MVJNR-123B	9T4221248B	VN_-33	0.750	0.750	4.500	1.660	1.000	IVSN-324	NL-34L	CL-30	XNS-36	S-34
MVJNL-123B	9T4181248B	VN_-33	0.750	0.750	4.500	1.660	1.000	IVSN-324	NL-34L	CL-30	XNS-36	S-34
MVJNR-163C	9T4221648C	VN_-33	1.000	1.000	5.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-36	S-34
MVJNL-163C	9T4181648C	VN_-33	1.000	1.000	5.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-36	S-34
MVJNR-203D	9T4222048D	VN_-33	1.250	1.250	6.000	1.660	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVJNL-203D	9T4182048D	VN_-33	1.250	1.250	6.000	1.660	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVJNR-853D	9T4224448D	VN_-33	1.000	1.250	6.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVJNL-853D	9T4184448D	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

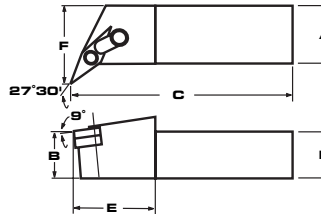


RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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

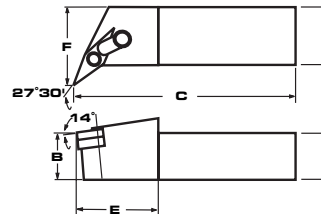


RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
MVNNR-123B	9T4341248B	VN_-33	0.750	0.750	4.500	0.940	1.000	IVSN-323	NL-34L	CL-6	XNS-36	S-34
MVNNL-123B	9T4321248B	VN_-33	0.750	0.750	4.500	0.940	1.000	IVSN-323	NL-34L	CL-6	XNS-36	S-34
MVNNR-163D	9T4341648D	VN_-33	1.000	1.000	6.000	1.220	1.250	IVSN-323	NL-34L	CL-6	XNS-36	S-34
MVNNL-163D	9T4321648D	VN_-33	1.000	1.000	6.000	1.220	1.250	IVSN-323	NL-34L	CL-6	XNS-36	S-34
MVNNR-203D	9T4342048D	VN_-33	1.250	1.250	6.000	1.220	1.500	IVSN-323	NL-34L	CL-6	XNS-36	S-34
MVNNL-203D	9T4322048D	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

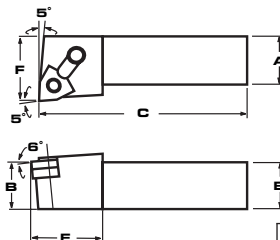


RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
MVTNR-123B	9T4461248B	VN_-33	0.750	0.750	4.500	1.710	1.000	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNL-123B	9T4441248B	VN_-33	0.750	0.750	4.500	1.710	1.000	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNR-163D	9T4461648D	VN_-33	1.000	1.000	6.000	1.710	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNL-163D	9T4441648D	VN_-33	1.000	1.000	6.000	1.710	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNR-203D	9T4462048D	VN_-33	1.250	1.250	6.000	1.710	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNL-203D	9T4442048D	VN_-33	1.250	1.250	6.000	1.710	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNR-243E	9T4462448E	VN_-33	1.500	1.500	7.000	1.710	1.750	IVSN-324	NL-34L	CL-30	XNS-510	S-34
MVTNL-243E	9T4442448E	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

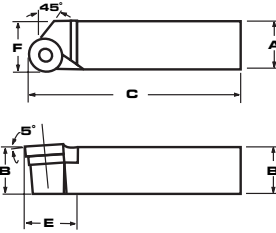
PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
MWLNR-123B	9T4561248B	WN_-33	0.750	0.750	4.500	1.200	1.000	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNL-123B	9T4541248B	WN_-33	0.750	0.750	4.500	1.200	1.000	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNR-163D	9T4561648D	WN_-33	1.000	1.000	6.000	1.200	1.250	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNL-163D	9T4541648D	WN_-33	1.000	1.000	6.000	1.200	1.250	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNR-203D	9T4562048D	WN_-33	1.250	1.250	6.000	1.200	1.500	IWSN-323	NL-34L	CL-6	XNS-36	N/A
MWLNL-203D	9T4542048D	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



TURNING Holders

RAL/R 45° Holder for Round Insert

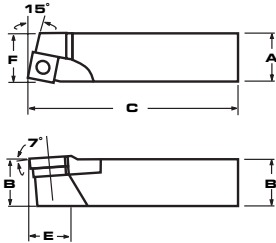


RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Seat
								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

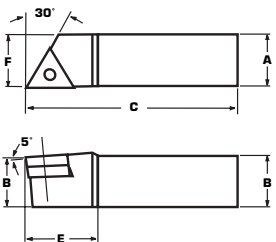


RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Seat
								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



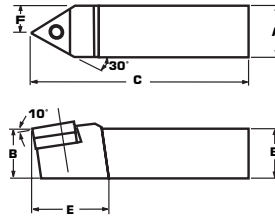
RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Seat
								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

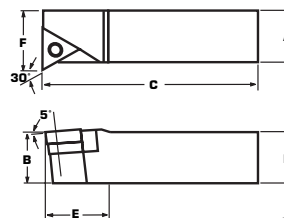


RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Seat
								Seat	Pin	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

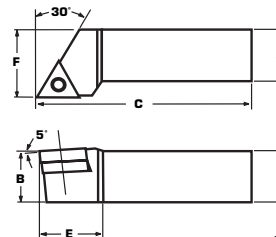


RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Seat
								Seat	Pin	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



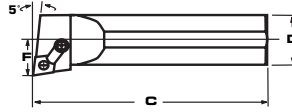
RH SHOWN

PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Seat
								Seat	Pin	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

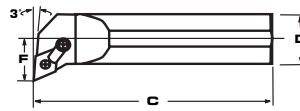


RH SHOWN

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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

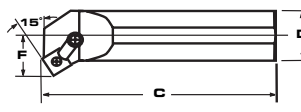


RH SHOWN

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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



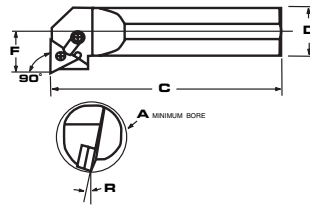
RH SHOWN

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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

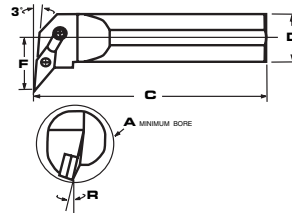


RH SHOWN

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock		Clamp		Seat
								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

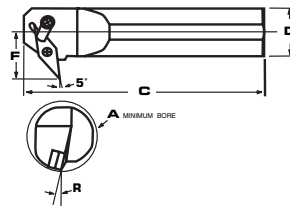


RH SHOWN

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock		Clamp		Seat
								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



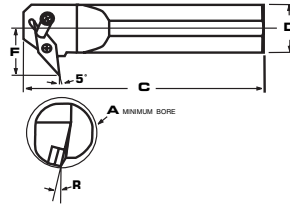
RH SHOWN

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock		Clamp		Seat
								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	1.250	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	1.500	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

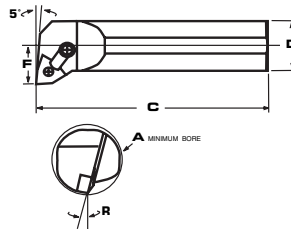


RH SHOWN

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock		Clamp		Seat
								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

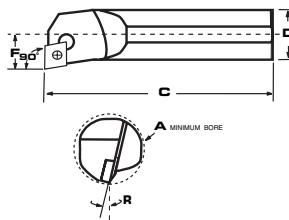


RH SHOWN

PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	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

PARTS

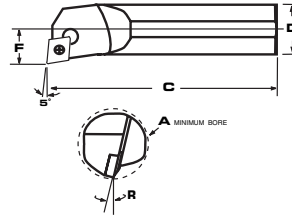
Description	EDP Code	Insert	A	C	D	F	R	Insert	
								Screw	Screw
S06-SCFCR-2	9T5220640	CC_-21.5	0.510	6.000	0.375	0.250	11°	C02506	C02506
S06-SCFCL-2	9T5230640	CC_-21.5	0.510	6.000	0.375	0.250	11°	C02506	C02506
S08-SCFCR-3	9T5220848	CC_-32.5	0.625	8.000	0.500	0.313	9°	C04008	C04008
S08-SCFCL-3	9T5230848	CC_-32.5	0.625	8.000	0.500	0.313	9°	C04008	C04008

TURNING



TURNING Holders

S_{__}-SCLCL/R 5° Bar for 80° Diamond

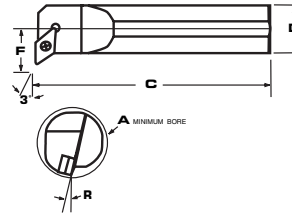


RH SHOWN

PARTS

Description	EDP Code	Insert	A	C	D	F	R	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

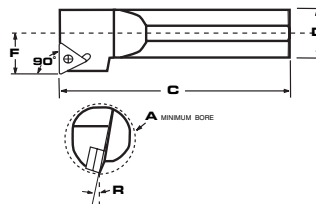


RH SHOWN

PARTS

Description	EDP Code	Insert	A	C	D	F	R	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

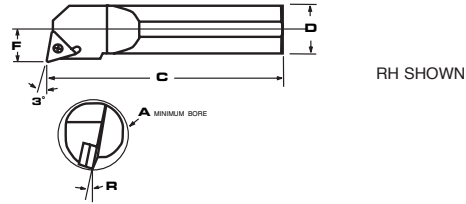
PARTS

Description	EDP Code	Insert	A	C	D	F	R	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



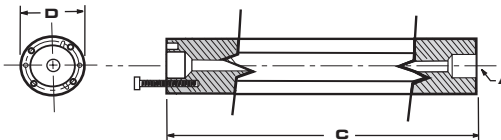
TURNING Bars

S₋-STUCL/R 3° Bar for 60° Triangle



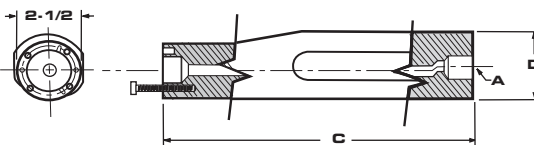
Description	EDP Code	Insert	A	C	D	F	R	PARTS	
								Insert	Screw
S06-STUCR-2	9T5430640	TC_-21.5	0.500	6.000	0.375	0.250	11°	C02506	C02506
S06-STUCL-2	9T5420640	TC_-21.5	0.500	6.000	0.375	0.250	11°	C02506	C02506
S08-STUCR-2	9T5430840	TC_-21.5	0.625	8.000	0.500	0.313	9°	C02506	C02506
S08-STUCL-2	9T5420840	TC_-21.5	0.625	8.000	0.500	0.313	9°	C02506	C02506
S10-STUCR-2	9T5431040	TC_-21.5	0.812	10.000	0.625	0.406	7°	C02506	C02506
S10-STUCL-2	9T5421040	TC_-21.5	0.812	10.000	0.625	0.406	7°	C02506	C02506
S12-STUCR-3	9T5431248	TC_-32.5	1.000	10.000	0.750	0.500	6°	C04008	C04008
S12-STUCL-3	9T5421248	TC_-32.5	1.000	10.000	0.750	0.500	6°	C04008	C04008
S16-STUCR-3	9T5431648	TC_-32.5	1.280	12.000	1.000	0.640	4°	C04008	C04008
S16-STUCL-3	9T5421648	TC_-32.5	1.280	12.000	1.000	0.640	4°	C04008	C04008

S-4400W Steel Shank with Through Coolant



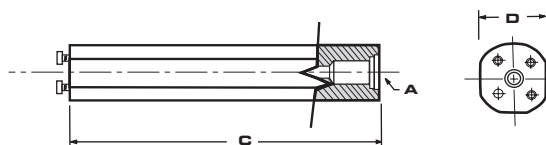
Description	EDP Code	Head Style	D	C	A	PARTS	
						Screw (3 req/d)	Screw
S-4416W	9IBS4416W	H16-_____	1.000	9.000	1/4 - 18NPT	S-319	S-322
S-4420W	9IBS4420W	H20-_____	1.250	9.000	3/8 - 18NPT	S-327	S-330
S-4424W	9IBS4424W	H24-_____	1.500	10.000	3/8 - 18NPT	S-327	S-330
S-4428W	9IBS4428W	H28-_____	1.750	12.000	3/8 - 18NPT	S-337	S-340
S-4432W	9IBS4432W	H32-_____	2.000	13.000	3/8 - 18NPT	S-337	S-340
S-4436W	9IBS4436W	H36-_____	2.250	15.000	3/8 - 18NPT	S-337	S-340
S-4440W	9IBS4440W	H40-_____	2.500	17.000	3/8 - 18NPT	S-350	S-353

S-4400W48 Steel Shank with Through Coolant



Description	EDP Code	Head Style	D	C	A	PARTS	
						Screw (3 req/d)	Screw
S-4440W48	9IBS4440W48	H40-_____	3.000	18.000	3/8 - 18NPT	S-350	S-353

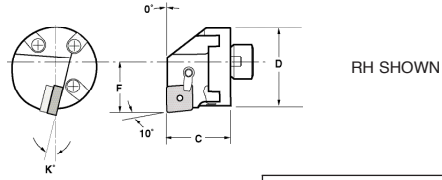
S-570 Steel Shank with Through Coolant



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



H-MCLNL/R*
5° Head for 80° Diamond

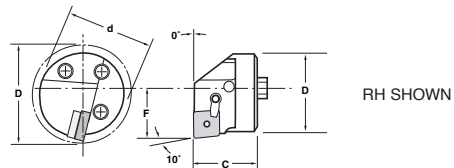


PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							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)

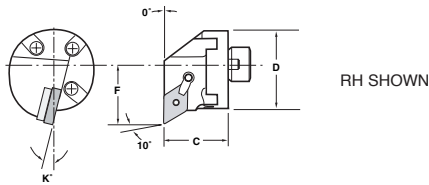


PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							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



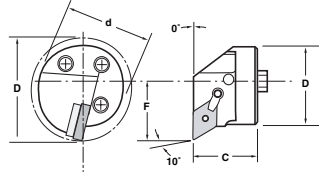
PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							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)



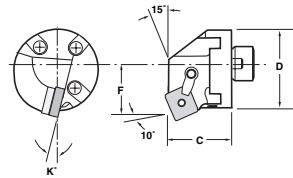
RH SHOWN

PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							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



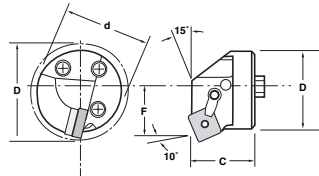
RH SHOWN

PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							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)



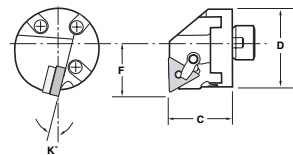
RH SHOWN

PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							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

PARTS

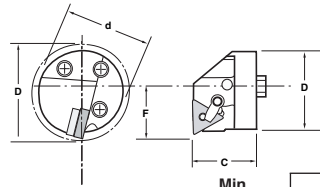
Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							Seat	Pin	Clamp	Screw	Screw
H16-MTFNR-3	9IHT7062048	TN_-33	1.000	1.625	0.640	1.220	N/A	NL-33L	CL-7	XNS-47	N/A
H24-MTFNR-3	9IHT7062448	TN_-33	1.500	1.625	0.890	1.760	ITSN-323	NL-34L	CL-7	XNS-47	S-34
H28-MTFNR-3	9IHT7062848	TN_-33	1.750	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.



TURNING Heads

HS-MTFNL/R* 90° Head for 60° Triangle (570 Type)



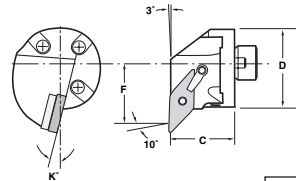
RH SHOWN

PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock			Clamp		Seat
							Seat	Pin	Clamp	Screw	Screw	Seat
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



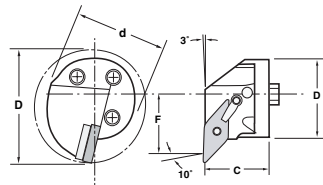
RH SHOWN

PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock			Clamp		Seat
							Seat	Pin	Clamp	Screw	Screw	Seat
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)



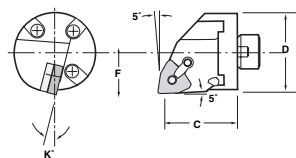
RH SHOWN

PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock			Clamp		Seat
							Seat	Pin	Clamp	Screw	Screw	Seat
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

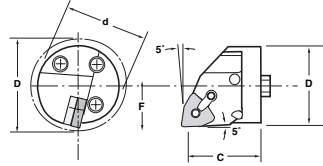
PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock			Clamp		Seat
							Seat	Pin	Clamp	Screw	Screw	Seat
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

PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							Seat	Pin	Clamp	Screw	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.

Recommended Cutting Conditions

Application	Grade	Workpiece	Machining Type	Speed (V) (m/min)	Feed (f) (mm/rev)	Depth (DOC) (mm)	
TURNING	FT100 FT300 FT500	Gray Cast Iron	Gray Cast Iron (FC) Malleable (FCMB)	Rough Finish	150 - 800 200 - 1200	0.2 - 0.5 0.3 - 0.5	3 - 6 0.1 - 0.5
			Chilled Cast Iron	Rough Finish	30 - 100 50 - 200	0.1 - 0.2 0.05 - 0.15	0.5 - 1.5 0.1 - 0.5
		Steel	Carbon Steel Alloy Steel Bearing Steel	Rough Finish	150 - 400 200 - 800	0.2 - 0.5 0.05 - 0.2	2 - 5 0.1 - 0.5
			Hard Steel (H _R C 45>)	Rough Finish	20 - 100 40 - 200	0.1 - 0.2 0.05 - 0.5	0.5 - 1.5 0.1 - 0.5
	FD200	Ductile Cast Iron Nodular Cast Iron	Rough Finish	100 - 400 200 - 800	0.1 - 0.2 0.05 - 0.25	1 - 2 0.1 - 0.5	
	FZ200 FZ300	Gray Cast Iron (FC) Steel (H _R C 45<)	Rough Finish	200 - 700 300 - 1200	0.2 - 0.4 0.05 - 0.3	2 - 5 0.1 - 0.5	
	FN26 FN300 FN400 FN500	Gray Cast Iron	Gray Cast Iron (FC) Malleable (FCMB)	Rough Finish	150 - 1100 250 - 1200	0.3 - 0.8 0.15 - 0.4	< 5 < 1
			Chilled Cast Iron	Rough Finish	20 - 100 60 - 200	1.0 - 2.0 0.5 - 0.1	< 5 < 1
	FN800	Ni-Based Alloy Non-Ferrous Metal Inconel	Rough Finish	150 - 250 150 - 450	0.2 - 0.4 0.1 - 0.2	< 5 < 1	
	MILLING	FN26 FN300 FN400	Gray Cast Iron (FC)	Rough Finish	100 - 1200 150 - 1500	0.3 - 0.5 0.3 - 0.7	< 5 < 3
FN500 FN800		Ductile Cast Iron Alloy Steel	Rough Finish	100 - 700 200 - 1500	0.1 - 0.4 0.1 - 0.5	< 5 < 3	



Al ₂ O ₃ SERIES	FT100	Tougher alternative to FT300 High thermal shock resistance Al ₂ O ₃ + TiC	Universal grade for machining cast iron and hardened steel	<p>Tougher</p> <p>Harder</p>
	FT300	Excellent wear resistance Al ₂ O ₃ + TiCN	A basic choice for machining hardened steel and alloy steel	
	FT500	Alternative to CBN Finer microstructure Al ₂ O ₃ + TiCN	Fine-finishing for hardened steel and cast iron	
	FD200	High thermal shock resistance Usable with coolant TiC + Al ₂ O ₃	Machining ductile cast iron Finishing for ductile cast iron and hard materials	Finishing for ductile cast iron
	FZ200	Toughened by zirconia High chemical stability Al ₂ O ₃ + ZrO ₂	Finishing, semi-finishing of cast iron and steel	<p>Tougher</p> <p>Harder</p>
	FZ300	Harder alternative to FZ200 Al ₂ O ₃ + ZrO ₂ + Cr ₂ O ₃	Finishing, semi-finishing of cast iron and steel	
Si ₃ N ₄ SERIES	FN26	Good toughness and thermal shock resistance Well balanced wear resistance and toughness Si ₃ N ₄	First choice for roughing with interrupted cuts Roll turning and milling of cast iron and steel	Roughing with lower speed
	FN300	Tougher alternative to FN400 Thermal shock resistance and good toughness Si ₃ N ₄	Roughing and high speed cutting with interruption	<p>Tougher</p> <p>Roughing with higher speed</p>
	FN400	Excellent wear resistance in high speed cutting Si ₃ N ₄	First choice for roughing of cast iron High speed machining with interrupted cuts	
	FN500	Harder alternative to FN400 Improved wear resistance at high cutting speed Si ₃ N ₄	High speed roughing for cast iron	Harder
	FN800	Advanced grade with SiAlON contained superior edge strength Si ₃ N ₄	Great performance against notch wear High speed roughing of high temperature alloys and inconel	Machining of inconel



Material		Chipbreaker	Depth of Cut	Feed Rate	
STEEL 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	NEGATIVE FINISH ROUGH	FNS	.020 - .080	.004 - .008	
		MNS	.040 - .160	.008 - .016	
		FNC	.060 - .180	.010 - .018	
		RNS	.080 - .200	.012 - .020	
		GRS	.120 - .260	.014 - .024	
		POSITIVE FINISH ROUGH	MPS	.020 - .060	.004 - .008
			MSS	.040 - .140	.004 - .010
			GMR	.040 - .160	.008 - .014
FMR	.040 - .160		.008 - .016		
STAINLESS STEEL Austenitic Stainless Steel 300 Series PH Duplex	NEGATIVE FINISH ROUGH	FNN	.020 - .100	.004 - .010	
		FSS	.040 - .120	.006 - .012	
		MNS	.040 - .140	.008 - .016	
		RSS	.060 - .160	.010 - .018	
	POSITIVE FINISH ROUGH	FPN	.020 - .080	.002 - .006	
		RPN	.020 - .120	.002 - .008	
		MSS	.040 - .140	.004 - .010	
		FMR	.040 - .160	.010 - .016	
CAST IRON Gray Iron Ductile Iron BHN 140-180 Ductile Iron BHN 190-250 Spheroidal Iron BHN 190-250	NEGATIVE FINISH ROUGH	FNC	.040 - .140	.008 - .014	
		RNS	.060 - .160	.010 - .016	
		FLAT TOP	.040 - .200	.008 - .020	
		GMR	.040 - .160	.008 - .014	
NON-FERROUS Aluminum > 5% Silicon Aluminum < 5% Silicon Copper / Zinc / Brass	NEG FINISH	FNN	.020 - .100	.004 - .010	
		RNS	.060 - .140	.010 - .016	
	POSITIVE FINISH ROUGH	FPN	.020 - .080	.002 - .006	
		MPN	.060 - .280	.008 - .022	
		RPN	.080 - .300	.012 - .022	

TURNING



Cutting Data - Surface feet per minute (meters per minute)

			AG701		AG601		AG501		GB503		AB502		AG301		AG250		AT203	
			F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R
STEEL	Free Machining Carbon Steels	m/min					250	150	500	250	500	250						
		sfm					800	480	1600	640	1600	640						
	Plain Carbon Steels	m/min	250	120	268	160	180	50	400	200	300	140						
		sfm	700	395	880	330	576	160	1280	640	896	448						
	Alloy Steels 190-330 HB	m/min							300	140	250	120						
		sfm							960	400	800	384						
Alloy Steels 330-450 HB	m/min									180	120							
	sfm									576	384							

			AG701		AG601		AG501		GB503		AB502		AG301		AG250		AT203	
			F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R
STAINLESS STEEL	Martensitic 400 Series	m/min							180	100					165	80	220	80
		sfm							590	300					540	260	720	260
	300 Series	m/min							180	100			95	50	165	80		
		sfm							590	300			304	160	540	260		

			AG701		AG601		AG501		GB503		AB502		AG301		AG250		AT203	
			F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R
CAST IRON	Grey Cast 190-330 HB	m/min					35	20					500	250				
		sfm					115	65					1600	640				
	Grey Cast 330-450 HB	m/min	270	100	116	60							300	140				
		sfm	385	330	380	195							896	448				
	Alloy/Ductile	m/min					120	76					250	120				
		sfm					375	250					800	384				

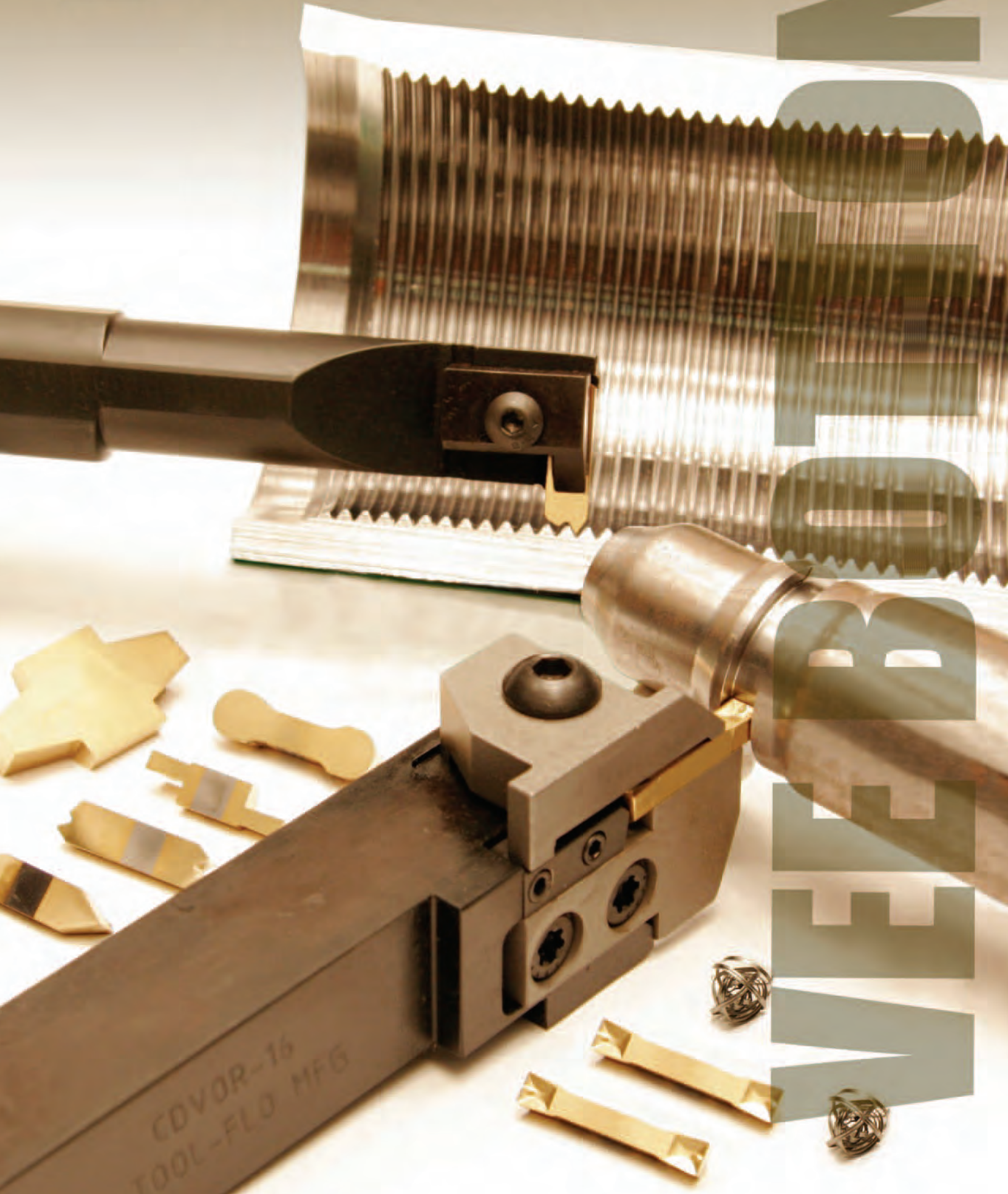
			AG701		AG601		AG501		GB503		AB502		AG301		AG250		AT203	
			F	R	F	R	F	R	F	R	F	R	F	R	F	R	F	R
NON-FERROUS	Free Machining Aluminum	m/min											180	100			220	80
		sfm											540	260			720	260
	High Silicon Aluminum Alloys	m/min											95	50			165	80
		sfm											304	160			540	260
	Copper Zinc Brass	m/min											180	100			180	100
		sfm											180	100			180	100
	Non-Metallics	m/min											180	100			180	100
		sfm											180	100			180	100

			AG701		AG601		AG501		GB503		AB502		AG301		AG250		AT203	
			F	R	F	R	F	R	F	R	F	R	F	R	F	R	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	230	60											65	35	65	35
		sfm	750	200											215	115	215	115
	Titanium Alloys (Ti 6Al-4V)	m/min											80	40	180	110	180	110
		sfm											256	128	525	345	525	345

NOTE: Decrease Vc if interrupted cut, roughing, unstable conditions and/or uncoated grade



TOOL-FLO



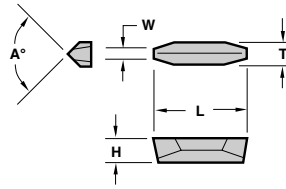
**CON
FID
BR
VE
N**

CDVOR-16
TOOL-FLO MFG



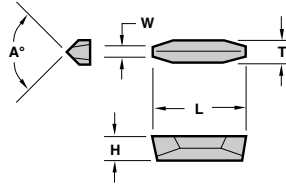
VEE-BOTTOM Inserts

ACME THREADING V84/V85/V120



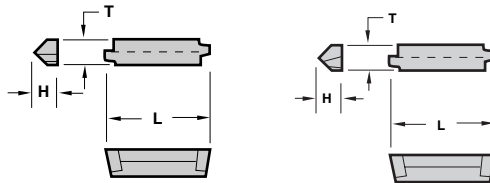
Description	EDP Code	TPI	W	T	L	H	A°	Coating Options					
								C3	GP3	GP5	GP50	AT3	AT50
V84 NT 3P	0261030	3	.1184	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NT 4P	0261040	4	.0875	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NT 5P	0261050	5	.0689	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NT 6P	0261060	6	.0566	.250	1.000	.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°	Coating Options					
								C3	GP3	GP5	GP50	AT3	AT50
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°	●	●	●	●	●	●

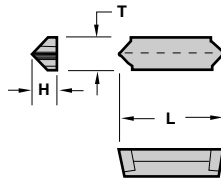
API BUTTRESS THREADING V84



Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating Options					
								C3	GP3	GP5	GP50	AT3	AT50
V84 5B75 EXT	16614	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8	●	●	●	●	●	●
V84 5B75 EXT-FC	16614F	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8	●	●	●	●	●	●
V84 5B1 EXT	17614	5	1	.250	1.000	.250	16 and larger	●	●	●	●	●	●
V84 5B1 EXT-FC	17614F	5	1	.250	1.000	.250	16 and larger	●	●	●	●	●	●
V84 8B75 EXT	21614	8	3/4	.250	1.000	.250	US Improved Buttress	●	●	●	●	●	●
V84 5B75 INT	16618	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8	●	●	●	●	●	●
V84 5B75 INT-FC	16618F	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8	●	●	●	●	●	●
V84 5B1 INT	17618	5	1	.250	1.000	.250	16 and larger	●	●	●	●	●	●
V84 5B1 INT-FC	17618F	5	1	.250	1.000	.250	16 and larger	●	●	●	●	●	●
V84 8B75 INT	21618	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	Coating Options					
								C3	GP3	GP5	GP50	AT3	AT50
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.

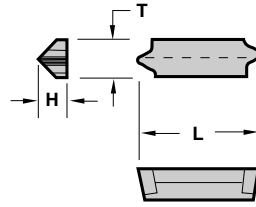
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Cast Iron
Non-Ferrous
Stainless/High Temp
Steel



VEE-BOTTOM Inserts

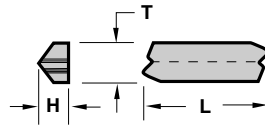
API ROTARY SHOULDER V85



Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating						
								C3	GP3	GP5	GP50	AT3	AT50	
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								
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								

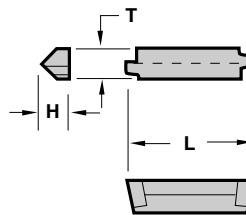
* Obsolescent thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

API ROUND THREADING V84



Description	EDP Code	TPI	TPF	T	L	H	Coating						
							C3	GP3	GP5	GP50	AT3	AT50	
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

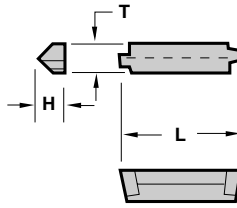


Description	EDP Code	TPI	TPF	T	L	H	Coating						
							C3	GP3	GP5	GP50	AT3	AT50	
V84 5 VAM EXT	23614	5	3/4	.250	1.000	.250							
V84 5 VAM INT	23618	5	3/4	.250	1.000	.250							
V84 6 VAM EXT	24614	6	3/4	.250	1.000	.250							
V84 6 VAM INT	24618	6	3/4	.250	1.000	.250							
V84 8 VAM EXT	25614	8	3/4	.250	1.000	.250							
V84 8 VAM INT	25618	8	3/4	.250	1.000	.250							



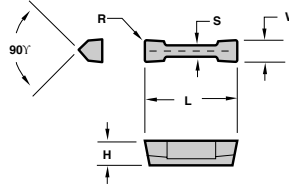
VEE-BOTTOM Inserts

API X-LINE THREADING V84



Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating Options						
								C3	GP3	GP5	GP50	AT3	AT50	
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



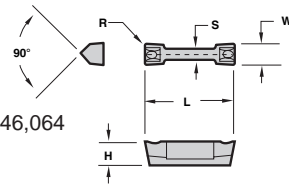
Description	EDP Code	W	R	L	H	S	Coating Options						
							C3	GP3	GP5	GP50	AT3	AT50	
DBP 24 R15	802415	.125	.015	1.125	.250	.106		●			●	●	●
DBP 24 R30	802430	.125	.030	1.125	.250	.106		●			●	●	●
DBP 34 R15	803415	.188	.015	1.125	.250	.106		●			●	●	●
DBP 34 R30	803430	.188	.030	1.125	.250	.106		●			●	●	●
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

Exclusive patented design!

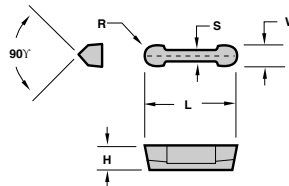
Features:

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



Description	EDP Code	W	R	L	H	S	Coating Options						
							C3	GP3	GP5	GP50	AT3	AT50	
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-FNR



Description	EDP Code	W	R	L	H	S	Coating Options						
							C3	GP3	GP5	GP50	AT3	AT50	
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		●			●	●	●

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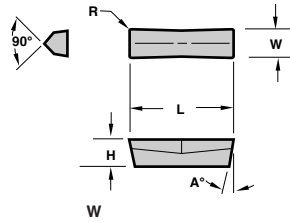
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	GP3	GP5	GP50	AT3	AT50
Cast Iron		▲				●
Non-Ferrous		▲				●
Stainless/High Temp				▲		●
Steel					▲	●



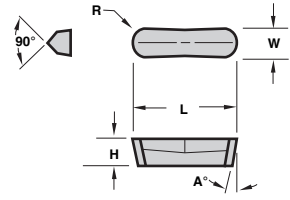
VEE-BOTTOM Inserts

DEEP GROOVING GC



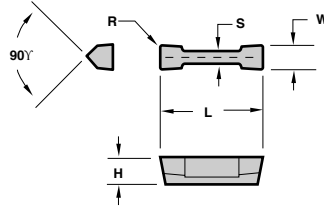
Description	EDP Code	Inch	Metric	R	L	H	A°	Coating						
								C3	GP3	GP5	GP50	AT3	AT50	
GC-4125	GC4125	.125	3,18	.010/.015	1.000	.188	4°		●					
GC-4187	GC4187	.187	4,75	.010/.015	1.000	.328	5°		●					
GC-4250	GC4250	.250	6,35	.010/.015	1.000	.328	5°		●					
GC-4312	GC4312	.312	7,92	.010/.015	1.000	.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°	Coating					
								C3	GP3	GP5	GP50	AT3	AT50
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



Description	EDP Code	Inch	Metric	R	L	H	S	Coating						
								C3	GP3	GP5	GP50	AT3	AT50	
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 A031	79188A031	.188	4,78	.031	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 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.

Material	GP3	GP5	GP50	AT3	AT50
Cast Iron	▲				●
Non-Ferrous	▲				
Stainless/High Temp	▲			●	
Steel			▲		

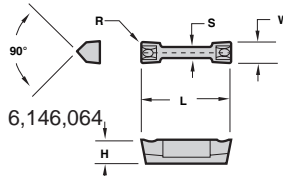


VEE-BOTTOM Inserts

DEEP GROOVING

VDB-CB

Exclusive patented design!



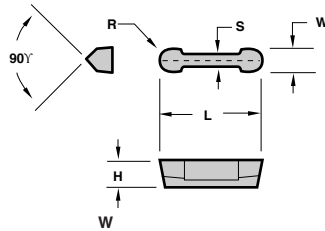
Features:

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

Description	EDP Code	Inch	Metric	R	L	H	S	Coatings							
								C3	GP3	GP5	GP50	AT3	AT50		
VDB 125 A008-CB	79125A08C	.125	3,18	.008	1.125	.250	.106								
VDB 125 A015-CB	79125AC	.125	3,18	.015	1.125	.250	.106		●		●	●	●		
VDB 156 A008-CB	79156A08C	.156	3,96	.008	1.125	.250	.106								
VDB 156 A015-CB	79156AC	.156	3,96	.015	1.125	.250	.106		●		●	●	●		
VDB 188 A008-CB	79188A08C	.188	4,78	.008	1.125	.250	.106								
VDB 188 A015-CB	79188AC	.188	4,78	.015	1.125	.250	.106		●		●	●	●		
VDB 188 A031-CB	79188A031C	.188	4,78	.031	1.125	.250	.106								
VDB 218 A015-CB	79218AC	.218	5,54	.015	1.125	.250	.144		●		●	●	●		
VDB 250 B015-CB	79250BC	.250	6,35	.015	1.125	.337	.144		●		●	●	●		
VDB 250 B031-CB	79250B031C	.250	6,35	.031	1.125	.337	.144								
VDB 312 B015-CB	79312BC	.312	7,92	.015	1.125	.337	.202		●		●	●	●		
VDB 312 B031-CB	79312B031C	.312	7,92	.031	1.125	.337	.202								
VDB 375 B015-CB	79375BC	.375	9,53	.015	1.125	.337	.276		●		●	●	●		
VDB 375 B031-CB	79375B031C	.375	9,53	.031	1.125	.337	.276								

DEEP GROOVING

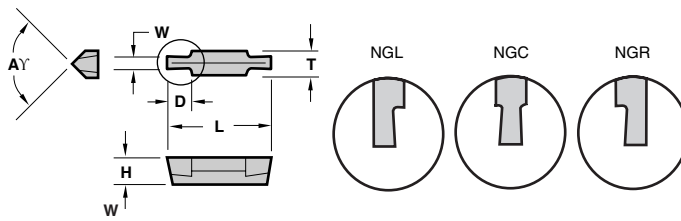
VDB-FNR



Description	EDP Code	Inch	Metric	R	L	H	S	Coatings							
								C3	GP3	GP5	GP50	AT3	AT50		
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	.106		●		●	●	●		
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	Inch	Metric	D	T	L	H	A°	Coatings						
									C3	GP3	GP5	GP50	AT3	AT50	
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°			●				

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- ▲ Recommended grade under general conditions.

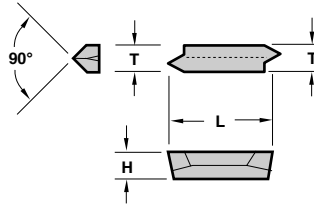
Material	C3	GP3	GP5	GP50	AT3	AT50
Cast Iron		▲				●
Non-Ferrous		▲				●
Stainless/High Temp		▲				●
Steel				▲		●

VEE-BOTTOM



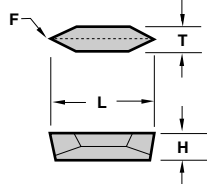
VEE-BOTTOM Inserts

NPT THREADING V84



Description	EDP Code	Pipe Size	TPI	TPF	T	L	H	Coating						
								C3	GP3	GP5	GP250	AT3	AT50	
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	Coating						
							C3	GP3	GP5	GP250	AT3	AT50	
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							

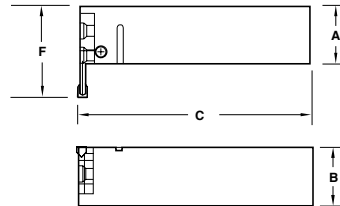
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

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

Material	C3	GP3	GP5	GP250	AT3	AT50
Cast Iron		●				
Non-Ferrous		●				
Stainless/High Temp		●				
Steel			▲	▲	▲	●

EXTERNAL 90° HOLDER CDHOR/L

(RH HOLDERS USE LH COMPONENTS-SEE PG. 229-234)



RH SHOWN

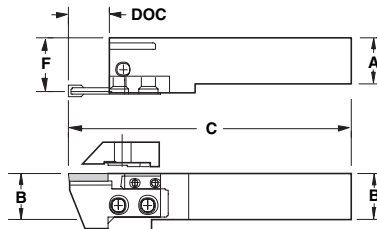
PARTS

Description	EDP Code	A	B	C	F*		Clamp Screw	Stop Screw	Anvil Screw
					.312(1)	.812(1)			
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
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 page 229-234)



RH SHOWN

PARTS

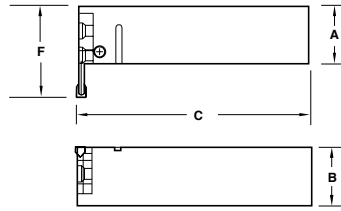
Description	EDP Code	A	B	C	F	Clamp Screw	Stop Screw	Anvil Screw
CDVOL-16	92301600	1	1	*	1.150	SB90	SS20	SF95
CDVOR-20	92402000	1-1/4	1-1/4	*	1.400	SB90	SS20	SF95
CDVOR-24	92402400	1-1/2	1-1/2	*	1.650	SB90	SS20	SF95

*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 page 229-234)



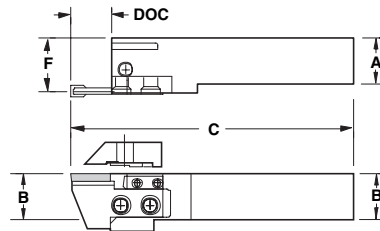
PARTS

Description	EDP Code	A	B	C	F*		Clamp Screw	Stop Screw	Anvil Screw
					7,0(1)	20,0(1)			
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)



PARTS

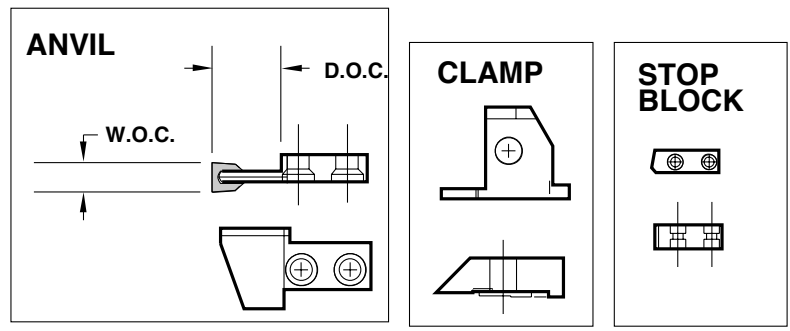
Description	EDP Code	A	B	C	F	Clamp Screw	Stop Screw	Anvil Screw
CDVOL-25MM	92312500	25,0	25,0	*	28,8	SB90	SS20	SF95
CDVOR-32MM	92413200	32,0	32,0	*	35,8	SB90	SS20	SF95
CDVOR-40MM	92414000	40,0	40,0	*	43,8	SB90	SS20	SF95

*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 pg. 89



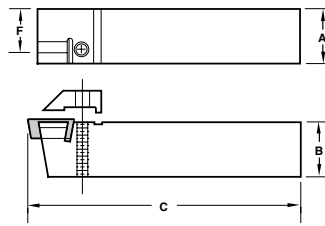
Description	EDP Code	Insert	DOC	WOC	Clamp	Stop Block
AHL-133	9130133	V84	.312	.220-.250	CHL-431	SBH-1
AHR-143	9140143	V84/V85	.312	.295-.312	CHR-431	SBH-1
AHL-143	9130143	V84/V85	.312	.295-.312	CHL-431	SBH-1
AHR-173	9140173	V84/V85	.312	V-THREAD	CHR-431	SBH-1
AHL-173	9130173	V84/V85	.312	V-THREAD	CHL-431	SBH-1
AHR-113	9140113	DBP24/VDB125	.312	.105-.125	CHR-132	SBH-4
AHL-113	9130113	DBP24/VDB125	.312	.105-.125	CHL-132	SBH-4
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



VEE-BOTTOM Inserts

EXTERNAL STRAIGHT HOLDER CDVOR/L/C

(ONE PIECE DESIGN) RH HOLDERS USE RH CLAMPS



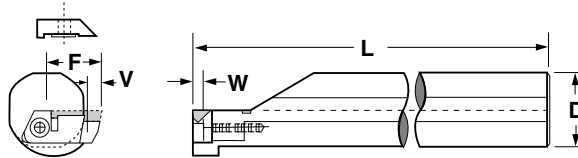
RH Shown

PARTS

Description	EDP Code	Insert	A	B	C	F	Clamp	Clamp Screw
CDVOR-168	92401682	V84/V85	1	1	6	.875	CHR-431	SB90
CDVOL-168	92301682	V84/V85	1	1	6	.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	V98	1-1/4	1-1/4	7	1.000	CHR-98	SS100
CDVOC-2012	92202090	V120	1-1/4	1-1/4	7	.875	CHR-120	SS90

INTERNAL BAR

SI-CDHOR (RH BARS USE LH COMPONENTS)



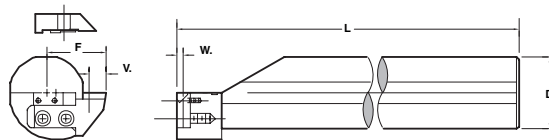
RH Shown

PARTS

Description	EDP Code	D	L	Insert	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Clamp
SI-CDHOR-24	96802400	1-1/2	14	V84	.188-.250	.180	1.062	1.880	.080	ABL/R-131	CBL/R-411
SI-CDHOL-24	96702400			V84	60°V	.180	1.062	1.880	.080	ABL/R-171	CBL/R-411
				V85	.295-.312	.312	1.062	1.880	.080	ABL/R-143	CBL/R-531
				DBP24/VDB125	.105-.125	.312	1.062	1.880	.240	ABL/R-113	CBL/R-132
				DBP34/VDB188	.170-.188	.530	1.280	2.098	.240	ABL/R-135	CBL/R-352
				VDB250A	.220-.250	.530	1.280	2.098	.240	ABL/R-145	CBL/R-452
				DBP45/VDB250B	.220-.250	.530	1.280	2.098	.240	ABL/R-245	CBL/R-452

INTERNAL BAR

SI-CDHOR (RH BARS USE LH COMPONENTS)



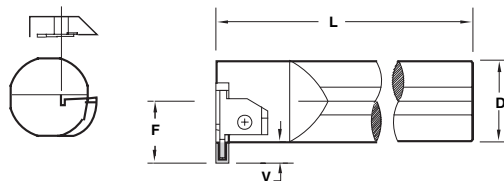
RH Shown

PARTS

Description	EDP Code	D	L	Insert	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Clamp	Stop Block
SI-CDHOR-32H	96803200H	2	16	V84	.220-.250	.312	1.584	3.000	.150	AHL/R-133	CHL/R-431	SBH-1
SI-CDHOL-32H	96703200H			V85	.295-.312	.312	1.584	3.000	.150	AHL/R-143	CHL/R-431	SBH-1
				V84/V85	60°V	.312	1.584	3.000	.150	AHL/R-173	CHL/R-431	SBH-1
				DBP34/VDB188	.170-.188	.625	1.592	3.000	.270	AHL/R-138	CHL/R-382	SBH-2
				VDB250A	.220-.250	.625	1.592	3.000	.270	AHL/R-148	CHL/R-482	SBH-2
				DBP45/VDB250B	.220-.250	.625	1.592	3.000	.270	AHL/R-248	CHL/R-482	SBH-2

INTERNAL BAR

SI-CDHOR/L (ONE PIECE DESIGN)



RH Shown

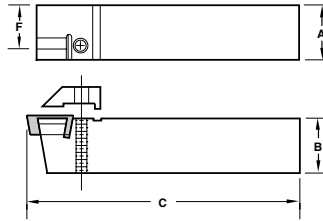
PARTS

Description	EDP Code	Insert	Bore	D	L	F	V	D.O.C. at Min. Bore	Clamp Screw	Clamp
SI-CDHOR-168	96801682	V84/V85	1.187	1	10	.687	.250	.190	S526	CBL-84
SI-CDHOL-168	96701682	V84/V85	1.187	1	10	.687	.250	.190	S526	CBR-84
SI-CDHOR-208	96802082	V84/V85	1.500	1-1/4	12	.875	.250	.190	S526	CBL-84
SI-CDHOL-208	96702082	V84/V85	1.500	1-1/4	12	.875	.250	.190	S526	CBR-84
SI-CDHOR-329	96803286	V98	2.500	2	16	1.530	.365	.312	SS110	CBL-98
SI-CDHOL-329	96703286	V98	2.500	2	16	1.530	.365	.312	SS110	CBR-98
SI-CDHOR-409	96804086	V98	3.000	2-1/2	16	1.575	.365	.375	SS110	CBL-98
SI-CDHOR-4012	96804092	V120	3.000	2-1/2	16	1.575	.550	.500	SB100	CBL-120



EXTERNAL STRAIGHT HOLDER

CDVOR/L/C (ONE PIECE DESIGN)-METRIC

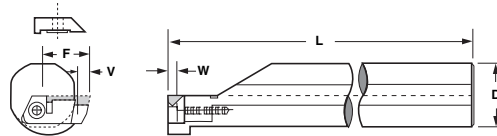


PARTS

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

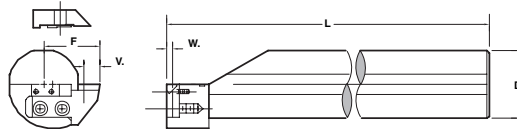


PARTS

Description	EDP Code	D	L	Insert	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Clamp
SI-CDHOR-40MM	96814000	40,0	360,0	V84	5,5-6,5	4,5	28,9	48,0	2,0	ABL-131	CBL-411
				V84	60°V	4,5	28,9	48,0	2,0	ABL-171	CBL-411
				V85	7,5-8,0	7,9	28,9	48,0	2,0	ABL-143	CBL-531
				DBP24/VDB125	2,6-3,2	7,9	28,9	53,5	6,0	ABL-113	CBL-132
				DBP34/VDB188	4,3-4,8	13,6	34,3	53,5	6,0	ABL-135	CBL-352
				VDB250A	5,5-6,5	13,6	34,3	53,5	6,0	ABL-145	CBL-452
				DBP45/VDB250B	5,5-6,5	13,6	34,3	53,5	6,0	ABL-245	CBL-452

INTERNAL BAR

SI-CDHOR-METRIC

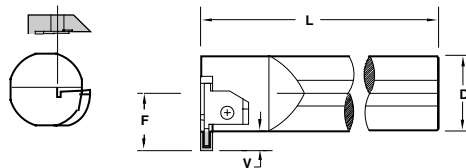


PARTS

Description	EDP Code	D	L	Insert	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Clamp	Stop Block
SI-CDHOR-50MM	96815000	50,0	400,0	V84	5,5-6,5	7,9	39,5	76,2	2,0	AHL-133	CHL-431	SBH-1
				V85	7,5-8,0	7,9	39,5	76,2	2,0	AHL-143	CHL-431	SBH-1
				V84/V85	60°V	7,9	39,5	76,2	2,0	AHL-173	CHL-431	SBH-1
				DBP34/VDB188	4,3-4,8	20,6	40,0	76,2	6,0	AHL-138	CHL-382	SBH-2
				VDB250A	5,5-6,5	20,6	40,0	76,2	6,0	AHL-148	CHL-482	SBH-2
				DBP45/VDB250B	5,5-6,5	20,6	40,0	76,2	6,0	AHL-248	CHL-482	SBH-2

INTERNAL BAR

SI-CDHOR/L-METRIC (ONE PIECE DESIGN)



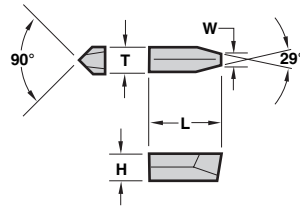
PARTS

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



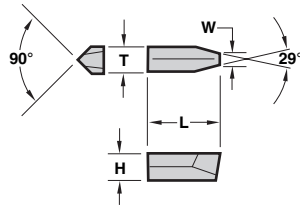
VEE-BOTTOM Holders

ACME THREADING MLPE



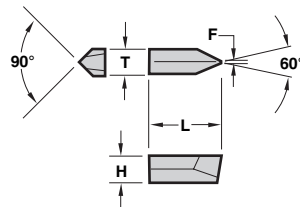
Description	EDP Code	TPI	W	T	L	H	GP22	GP4	TiN Coated
MLPE 2532 NT 4P	0271040	4	.0875	.188	.500	.150	●		●
MLPE 3425 NT 4P	0273040	4	.0875	.250	.625	.188	●		●
MLPE 2532 NT 5P	0271050	5	.0689	.188	.500	.150	●		●
MLPE 3425 NT 5P	0273050	5	.0689	.250	.625	.188	●		●
MLPE 2532 NT 6P	0271060	6	.0566	.188	.500	.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	GP4	TiN Coated
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	W	T	L	H	GP22	GP4	TiN Coated
MLPE 1251 NV	01720000	10-20	.002-.004	.188	.500	.150	●	●	●
MLPE 2532 NV	01710000	6-20	.002-.004	.250	.625	.188	●	●	●
MLPE 3425 NV	01730000	5-20	.002-.004	.188	.500	.150	●	●	●

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.

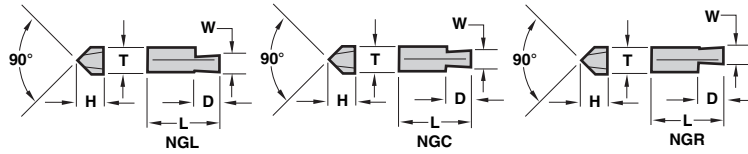
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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



VEE-BOTTOM Holders

GROOVING MLPE



Description	EDP Code	W	D	T	L	H	Coating						
							C3	C6H	GP22	GP6	AT22	AT6	
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			●				

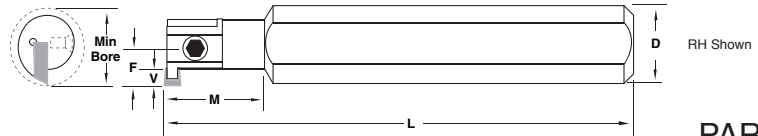
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

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

Material	C3	C6H	GP22	GP6	AT22	AT6
Cast Iron		●				
Non-Ferrous		●				
Stainless/High Temp		●				
Steel			▲	▲		●

INTERNAL BAR

MS-CLHOR/L (ONE PIECE DESIGN)



PARTS

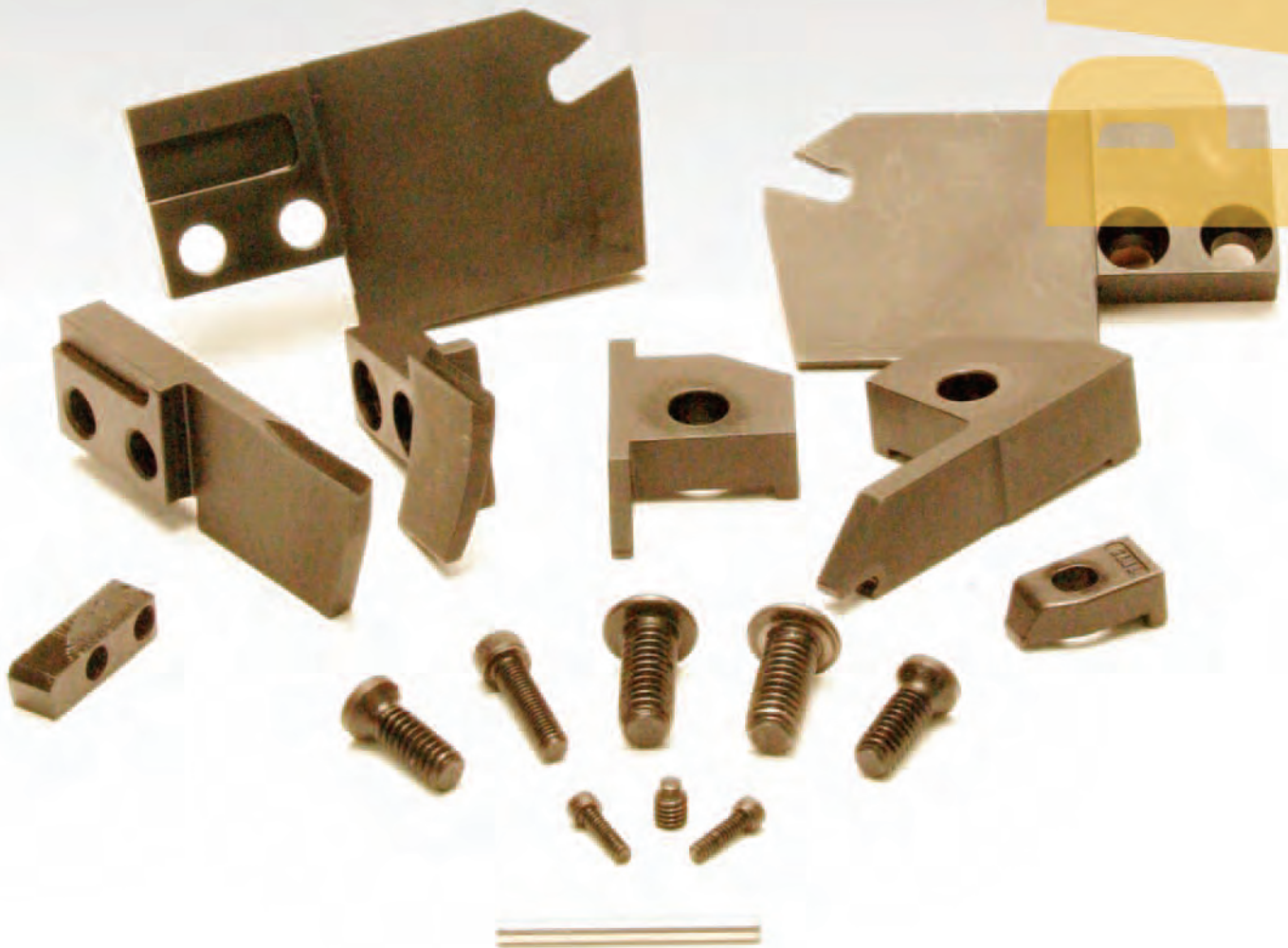
Description	EDP Code	Insert	Min. Bore	D	M	L	F	V	Clamp Screw	Clamp
MS-CLHOR-46254	951546254	MLPE 1251	.500	.500	.930	6.000	.265	.079	SF20	MCL-30
MS-CLHOL-46254	951346254	MLPE 1251	.500	.500	.930	6.000	.265	.079	SF20	MCR-30
MS-CLHOR-6845	95155600	MLPE 2532	.700	.750	1.250	8.000	.400	.150	SF47	MCL-40
MS-CLHOL-6845	95156600	MLPE 2532	.700	.750	1.250	8.000	.400	.150	SF47	MCR-40
MS-CLHOR-6856	95156856	MLPE 3425	.830	.750	1.500	8.000	.462	.150	SA4	MCL-50
MS-CLHOL-6856	95256856	MLPE 3425	.830	.750	1.500	8.000	.462	.150	SA4	MCR-50
MS-CLHOR-8856	95158856	MLPE 3425	.830	1.000	1.500	8.000	.462	.150	SA4	MCL-50
MS-CLHOL-8856	95258856	MLPE 3425	.830	1.000	1.500	8.000	.462	.150	SA4	MCR-50

VEE-BOTTOM



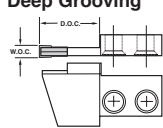
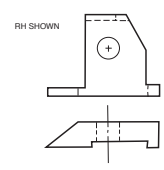
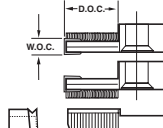
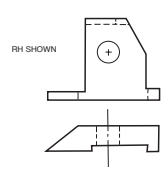

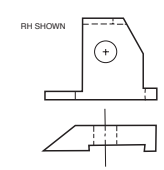
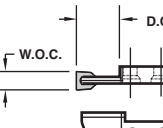

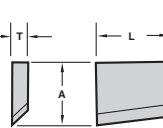
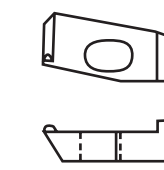
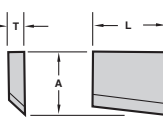
TOOL-FLO

PARTS





SPARE PARTS

	Description	D.O.C.	W.O.C.	Insert		Description	D.O.C.	W.O.C.	Insert
ANVILS Deep Grooving 	DGAHL-113	1.250	.105-.125	VDG	CLAMPS Internal 	CBL-84			V84/V85
	DGAHR-113	1.250	.105-.125	VDG		CBR-84			V84/V85
	DGAHL-138	1.375	.170-.188	VDG		CBL-98			V98
	DGAHR-138	1.375	.170-.188	VDG		CBR-98			V98
	DGAHL-248	1.500	.218-.250	VDG		CBL-120			V120
	DGAHR-248	1.500	.218-.250	VDG		CBR-120			V120
	DGAHL-258	1.500	.250-.312	VDG		CBL-132	.312	.105-.125	DBP/VDB
	DGAHR-258	1.500	.250-.312	VDG		CBR-132	.312	.105-.125	DBP/VDB
	DGAHL-268	1.750	.350-.375	VDG		CBL-411	.180	.188-.250	V84
	DGAHR-268	1.750	.350-.375	VDG		CBR-411	.180	.188-.250	V84
Face Grooving  RH Inside RH Outside	AFHL-113-I	.312	.105-.125	DBP/VDB	External 	CHL-98			V98
	AFHL-113-O	.312	.105-.125	DBP/VDB		CHR-98			V98
	AFHR-113-I	.312	.105-.125	DBP/VDB		CHL-120			V120
	AFHR-113-O	.312	.105-.125	DBP/VDB		CHR-120			V120
	AFHL-128-I	.812	.105-.125	DBP/VDB		CHL-132	.312	.105-.125	DBP/VDB
	AFHL-128-O	.812	.105-.125	DBP/VDB		CHR-132	.312	.105-.125	DBP/VDB
	AFHR-128-I	.812	.105-.125	DBP/VDB		CHL-382	.812	.170-.188	DBP/VDB
	AFHR-128-O	.812	.105-.125	DBP/VDB		CHR-382	.812	.170-.188	DBP/VDB
	AFHL-138-I	.812	.170-.188	DBP/VDB		CHL-431	.312	.220-.312	V84/V85
	AFHL-138-O	.812	.170-.188	DBP/VDB		CHR-431	.312	.220-.312	V84/V85
	AFHR-138-I	.812	.170-.188	DBP/VDB		CHL-452			
	AFHR-138-O	.812	.170-.188	DBP/VDB		CHR-452			
	AFHL-148-I	.812	.220-.250	DBP/VDB		CHL-482	.812	.220-.312	DBP/VDB
	AFHL-148-O	.812	.220-.250	DBP/VDB		CHR-482	.812	.220-.312	DBP/VDB
	AFHR-148-I	.812	.220-.250	DBP/VDB		CHL-582	.812	.350-.375	DBP/VDB
	AFHR-148-O	.812	.220-.250	DBP/VDB		CHR-582	.812	.350-.375	DBP/VDB
	AFHL-248-I	.812	.250-.312	DBP/VDB		CHL-698			
	AFHL-248-O	.812	.250-.312	DBP/VDB		CHR-698			
Grooving/Threading Internal  RH Shown	ABL-113	.312	.105-.125	DBP/VDB	Face Grooving 	CHLF-132I	.312	.105-.125	DBP/VDB
	ABR-113	.312	.105-.125	DBP/VDB		CHLF-132O	.312	.105-.125	DBP/VDB
	ABL-131	.180	.188-.250	V84		CHRF-132I	.312	.105-.125	DBP/VDB
	ABR-131	.180	.188-.250	V84		CHRF-132O	.312	.105-.125	DBP/VDB
	ABL-135	.530	.170-.188	DBP/VDB		CHLF-282I	.812	.105-.125	DBP/VDB
	ABR-135	.530	.170-.188	DBP/VDB		CHRF-282I	.812	.105-.125	DBP/VDB
	ABL-143	.312	.295-.312	V85		CHRF-282O	.812	.105-.125	DBP/VDB
	ABR-143	.312	.295-.312	V85		CHLF-382I	.812	.170-.188	DBP/VDB
	ABL-145	.530	.220-.250	VDB 250A		CHLF-382O	.812	.170-.188	DBP/VDB
	ABR-145	.530	.220-.250	VDB 250A		CHRF-382I	.812	.170-.188	DBP/VDB
	ABL-171	.180	60P V	V84		CHRF-382O	.812	.170-.188	DBP/VDB
	ABR-171	.180	60P V	V84		CHLF-482I	.812	.220-.312	DBP/VDB
	ABL-245	.530	.220-.250	DBP/VDB		CHLF-482O	.812	.220-.312	DBP/VDB
	ABR-245	.530	.220-.250	DBP/VDB		CHRF-482I	.812	.220-.312	DBP/VDB
ABL-345				CHRF-482O	.812	.220-.312	DBP/VDB		
ABR-345				CHLF-582I	.812	.350-.375	DBP/VDB		
External  RH Shown	AHL-113					Description		Length	
	AHR-113					CK-21		.73	
	AHL-133					CL-6		.58	
	AHR-133					CL-7		.64	
	AHL-138					CL-9		.75	
	AHR-138					CL-12		.88	
	AHL-143					CL-20		.73	
	AHR-143					CL-22		.85	
	AHL-148					CL-24		1.000	
	AHR-148					CL-30		1.000	
	AHL-173					Description		Insert	
	AHR-173					CM-65	FLPL/R-33		
	AHL-248					CM-66	FLPL/R-13		
	AHR-248					CM-68	FLPR-5		
AHL-268				CM-71	FLPL-5				
AHR-268				CM-79	FLPR-5				
AHL-298				CM-111					
AHR-298				CM-112					
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							
	CM-113	VPGR (RH HOLDER)							
	CM-114	VPGR (LH HOLDER)							
Internal 	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							
	CM-116	DPGR (RH HOLDER)							
CM-117	DPGR (LH HOLDER)								
CM-118	DPGR (RH BAR)								
CM-119	DPGR (LH BAR)								
CM-121									
CM-143									
CM-180	FLPR-5								
CM-181	FLPL-5								



SPARE PARTS

CLAMPS (cont.)					Description									
					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												
										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							
										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											
					Description	Threads	Length	Wrench						
					STBN-1			K2						
					STBN-2			K3						
					STBN-3			K3						
					STBN-4			K3						
					STBN-5			K3						
					STBN-6			K4						
					STBN-7			K5						
STBN-8			K6											
					Description	Threads	Length	Wrench						
					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						
					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											
					Description	Threads	Length	Wrench						
					S-111 (SF-20)	4-40	3/8	T-9 TORX						
					SA3 (SF40)	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-9 TORX						
					SF25	4-40	1/2	T-9 TORX						
					SF30	5-40	3/8	T-10 TORX						
					SF40 (SA3)	5-40	1/2	T-10 TORX						
SF42	5-40	5/8	T-10 TORX											
SF45	5-40	3/4	T-10 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											
PT-324	5-40	3/8	1/16 HEX											
					SD1	6-40	1/2	T-10 TORX						
					SD2	10-32	3/4	T-20TORX						
					SD3	10-32	3/4	T-20TORX						
					SD4	1/4-20	1-1/4	1/8 HEX						
										Description	Threads	Length	Wrench	
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											
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											
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											
SY-3	5-40	1/4	T-10 TORX											
SY-4	8-32	3/8	T-20 TORX											
SY-5	10-32	1/4	T-25 TORX											
					Description	Threads	Length	Wrench						
					SL-344	4-40	5/16	-						
S-959	2-56	1/4	-											
					Description	Threads	Length	Wrench						
					TS1	1-72		T-6 TORX						
					TS20	1-72	3/32	T-6 TORX						
					TS25	M2.5 X0,45	5.5MM	T-8 TORX						
					TS250									
					TS252 (SF05)	M2.5 X0,45	8,0MM	T-8 TORX						
					TS3	2-56	1/8	T-7 TORX						
TS40	5-40	3/8												
TS45	4-40	3/8												
TS6														
TS60	8-32	1/2	T-20 TORX											
					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												

*Designed for Sandvik® Toolholders & Bars.

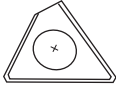


SPARE PARTS

	Description	Length
SEATS (cont.) Flo-Lock Style	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



	Description	Length
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	



	Description	Angle	Insert
Laydown LT Style	YE3 3N	-1.5P	16ER/16NL
	YE3 2N	-0.5P	16ER/16NL
	YE3 1.5N	0P	16ER/16NL
	YE3 1N	0.5P	16ER/16NL
	YE3	1.5P	16ER/16NL
	YE3 1P	2.5P	16ER/16NL
	YE3 2P	3.5P	16ER/16NL
	YE3 3P	4.5P	16ER/16NL
	YE3M NO FORM	1.5P	16ER/16NL
	YE3M 1N	0.5P	16ER/16NL
	YE3M 1.5N	0P	16ER/16NL
	YE3M 2N	-0.5P	16ER/16NL
	YE4 3N	-1.5P	22ER/22NL
	YE4 2N	-0.5P	22ER/22NL
	YE4 1.5N	0P	22ER/22NL
	YE4 1N	0.5P	22ER/22NL
	YE4	1.5P	22ER/22NL
	YE4 1P	2.5P	22ER/22NL
	YE4 2P	3.5P	22ER/22NL
	YE4 3P	4.5P	22ER/22NL
	YE4M NO FORM	1.5P	22ER/22NL
	YE4M 1N	0.5P	22ER/22NL
	YE4M 1.5N	0P	22ER/22NL
	YE4M 2N	-0.5P	22ER/22NL
	YE5 3N	-1.5P	27ER/27NL
	YE5 2N	-0.5P	27ER/27NL
	YE5 1.5N	0P	27ER/27NL
	YE5 1N	0.5P	27ER/27NL
	YE5	1.5P	27ER/27NL
	YE5 1P	2.5P	27ER/27NL
	YE5 2P	3.5P	27ER/27NL
	YE5 3P	4.5P	27ER/27NL
	YE5 8NPT 2M	1.5P	27ER/NL 8NPT 2M
	YE5 8RD 2M	1.5P	27ER/NL 8RD 2M
	YE5M NO FORM	1.5P	27ER/27NL
	YE5M 1N	0.5P	27ER/27NL
	YE5M 1.5N	0P	27ER/27NL
	YI3 3N	-1.5P	16NR/16EL
	YI3 2N	-0.5P	16NR/16EL
	YI3 1.5N	0P	16NR/16EL
	YI3 1N	0.5P	16NR/16EL
	YI3	1.5P	16NR/16EL
	YI3 1P	2.5P	16NR/16EL
	YI3 2P	3.5P	16NR/16EL
	YI3 3P	4.5P	16NR/16EL
	YI3M NO FORM	1.5P	16NR/16EL
	YI3M 1N	0.5P	16NR/16EL
	YI3M 1.5N	0P	16NR/16EL
	YI3M 2N	-0.5P	16NR/16EL
	YI4 3N	-1.5P	22NR/22EL
	YI4 2N	-0.5P	22NR/22EL
	YI4 1.5N	0P	22NR/22EL
	YI4 1N	0.5P	22NR/22EL
	YI4	1.5P	22NR/22EL
YI4 1P	2.5P	22NR/22EL	
YI4 2P	3.5P	22NR/22EL	
YI4 3P	4.5P	22NR/22EL	
YI4M NO FORM	1.5P	22NR/22EL	
YI4M 1N	0.5P	22NR/22EL	
YI4M 1.5N	0P	22NR/22EL	
YI4M 2N	-0.5P	22NR/22EL	
YI5 3N	-1.5P	27NR/27EL	
YI5 2N	-0.5P	27NR/27EL	
YI5 1.5N	0P	27NR/27EL	
YI5 1N	0.5P	27NR/27EL	
YI5	1.5P	27NR/27EL	
YI5 1P	2.5P	27NR/27EL	
YI5 2P	3.5P	27NR/27EL	
YI5 3P	4.5P	27NR/27EL	
YI5 8NPT 2M	1.5P	27NR/EL 8NPT 2M	
YI5 8RD 2M	1.5P	27NR/EL 8RD 2M	
YI5M NO FORM	1.5P	27NR/27EL	
YI5M 1N	0.5P	27NR/27EL	
YI5M 1.5N	0P	27NR/27EL	



	Description
STOP BLOCKS	SBH-1
	SBH-2
	SBH-4



	Description	Wrench
WRENCHES Flag Style Torx	K05	T-6 TORX
	K1	T-7 TORX
	K2	T-8 TORX
	K3	T-10 TORX
	K4	T-20 TORX
	K5	T-25TORX



	Description	Wrench
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



*Angle effective in the holder/bar.



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																				

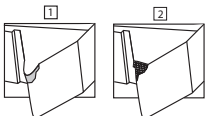
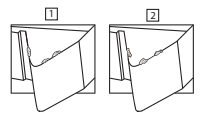
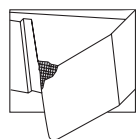
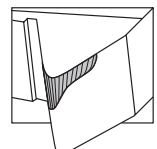
Infeed Values for Threading Operations
Internal UN Threads --- Recommendations for Steel Workpieces (<300BHN)

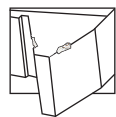
TPI	4	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32	36	40	44	48
THREAD DEPTH	.1353	.1082	.0902	.0773	.0676	.0601	.0541	.0492	.0451	.0416	.0386	.0338	.0300	.0270	.0225	.0193	.0169	.0150	.0135	.0123	.0112
# OF PASSES																					
1	.0303	.0255	.0213	.0183	.0169	.0150	.0145	.0132	.0131	.0120	.0117	.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.

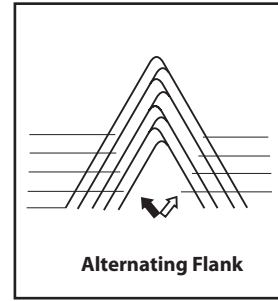
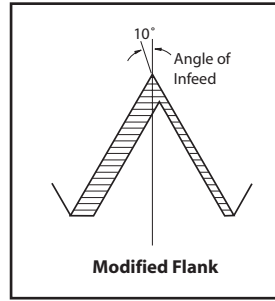
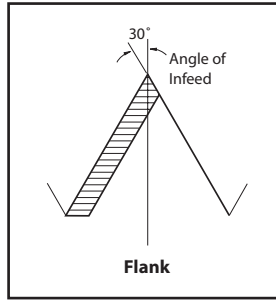
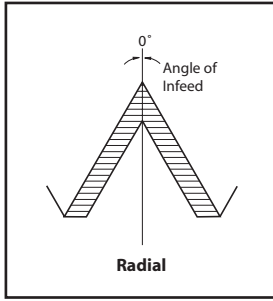
Problem	Cause	Solution
Plastic Deformation  <p>Starts as plastic deformation (1) which leads to plastic break (2)</p>	Excessive temperature in the cutting area Unsuitable grade Inadequate coolant supply	Reduce cutting speed Increase number of infeeds Reduce the largest infeed depth Check diameter before threading Improve coolant supply Choose grade with better resistance to plastic deformation
Built-up Edge/ Edge Spalling  <p>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</p>	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 before threading--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 3P-5P "CB" or "HCB" geometry with modified flank infeed 1P
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 90P to center line Pitch error in machine	Correct tool / insert combination Adjust the center height Adjust to 90P 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		STUB	
	WIDTH	DEPTH	WIDTH	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 definite flow out of the 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 3P to 5P smaller than 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.

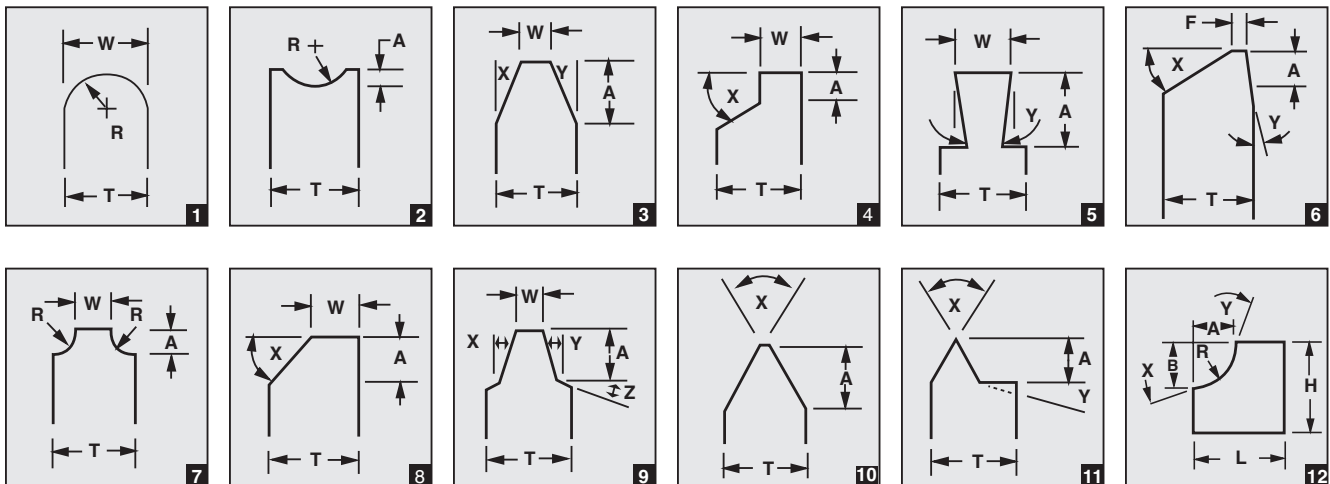
Advantage-
Tool cuts both sides of thread form and, therefore, is protected from chipping similar to 0P infeed. Channel-type chip develops but uneven chip thickness helps remove the chip similar to flank infeed.

Disadvantage-
Similar disadvantages as with 0P 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.





TECHNICAL

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-Metals	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	---
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	---	---	---	---	---	---	---	---
AT22	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	---
AT26	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	---
AT3	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
AT54	350-500	350-500	350-500	300-500	300-500	---	---	---	300-500	---	---	---	---	---	---	---	---
AT50	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
AC50	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	---	---	---	---

*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 AT22	Flo-Lock:	C25 GP4 GP3 GP4 GP5 GP50 AT22 AT3 AT50 GPM6 CB200 CB400 PC33 C22 C3	Laydown:	GP22 GP3 GP5 GP50 AT22 AT50 C22	Threadmill:	C3 GP3 GP22
Ballnose:	C26 AT26 CB400 DX200			Milling:	GP5 C5H	Turning:	G525 (Negative) AG525 AG535 AG615
Chasers:	G50 GP50 AC50 AT50			On Edge:	GP22 GP3 GP54 GP50 GPM6 AT22 AT3 AT50 AT54 C25 C3	Turning:	AT3 (Positive) AT50 C3
Cutoff:	GP22 AT22 AT50 C22	Laydown:	GP22 GP4 GP50 AT22 AT50 C22			V-Bottom:	GP3 (V84/V85) GP50 AT50 C3
						V-Bottom:	C3 (VDB/VDG) GP3 AT3 AT50 CB200 CB400 PC33



Grade Description Chart

C22	Uncoated grade with a tough, micro-grain, unalloyed substrate. Good for threading at low to medium speeds, while capable 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.
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 capable 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. Excels in API LDS style inserts.
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.
AC50	PVD AlTiN grade with a medium tough substrate and excellent wear properties. API chaser grade for J and K Series materials.
AT22	PVD AlTiN grade with a tough, micro-grain substrate. First choice in Laydown Threading in all materials. Dry machining capable.
AT26	PVD AlTiN 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.
AT26S	PVD AlTiN grade with a tough, fine grain, unalloyed substrate. Rigid-Lok insert grade with up-sharp edge designed for non-ferrous and composite applications. 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.
AT3	PVD AlTiN 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.
AT54	PVD AlTiN grade with a tough substrate. First choice in API LDS style inserts.
AT50	PVD AlTiN 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.
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.
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.



ALPHABETICAL INDEX

11	8,9,109	DBP	212	LTL/R	128	TBNR	33,35
16	8-11,105-107,109	DBV	30	MCFNL/R	186	TBRR	33,36
22	8-11,105-107	DCGT	172	MCGNL/R	186	TBNC	34-37
27	11,105-107,109	DCGW	172	MCKNL/R	186	TBNS	34,36,37
A-FLDLPL	157	DCMT	172	MCL/R	222	TBXR	33,35
A-FLDLPR	157	DCMW	173	MCLNL/R	187	TC	223
A-FLEL	100	DGAHL/R	72,222	MCMNN	187	TCGT	175
A-FLER	100	DGCHL/R	223	MCRNL/R	187	TCOHAL/R	67
A-FLKLCL	158	DNGA	147,148,180	MDJNL/R	188	TCOHL/R	67
A-FLKLCR	158	DNMG	173	MDPNN	188	TCGT	175
A-FLKQCL	158	DP	223	MLPE	219,220	TCGW	175
A-FLKQCR	158	DPGR	154	MRGNL/R	188	TCMT	175
A-FLKXCL	158	FCBI	44	MS-CLHOL/R	220	TCMW	176
A-FLKXCR	158	FGNR	20	MSDNN	189	TCN	163
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A-FLVLCL	158	FLAS	92	MSRNL/R	190	TCS	166
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AVR	116	FLF	76,88	MTJNL/R	192	TFLP	65,66
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B6	24	FLFD-CB	76,89	MTVNL/R	126	TGL/R	196
B64	24	FLFD-I	78	MTVOL/R	143	THN	163-165
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B85	24	FLFT	77,90	MVJNL/R	193	TI15N	163-165
B86	24	FLG	29,85,86	MVLNL/R	194	TI75P	161,162
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BFR (3)	45,47,51	FLGD	88	MVJNL/R	194	TNFA	15,124
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BHV	50	FLJK	96	QSBI	46	TNPGC	175
BNBR	50	FLJP	95	RAL/R	195	TPCB	46
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BNPR/L	45	FLKLCLF/RF	57,157	RNGA	181	TPGC	120,121,126
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BTBL	47	FLRL	100	S-4400W	22,201	V120	210,218
BTBR	47	FLRP	86	S-4400W48	22,201	V84	18,19,210-215
BTGL	49	FLRR	100	S-570	22,201	V85	18,210-215
BTGR	49	FLRT	73,90	SI-CDHOR	217,218	V96	210,214
BTL	47,49	FLSL	77,98,99	SI-CLHOR	62	V98	214
BTR	47,49	FLSLT	74,77	SI-MCLNL/R	197	VCGT	176
BTRL	49	FLSR	77,98,99	SI-MDJNL/R	197	VCGN	177
BTRR	49	FLSRT	74,77	SI-MSKNL/R	197	VDB	78,151,213
BTVL	55	FLT	97	SI-MTFNL/R	198	VDB-CB	78,79,213
BTVR	55	FLT-CB	97	SI-MTHOL/R	144	VDG	70,71
CBL/R	222	FLTB	93	SI-MVJNL/R	198	VNGA	150,184
CCBI	43	FLTC	96	SI-MVLNL/R	198	VNGN	185
CCGT	170	FLTF	97	SI-MVPNL/R	199	VNGP	185
CCMT	170	FLTK	97	SI-MWLNL/R	199	VNGX	185
CCMW	170	FLTP	98	SI-SCFCL/R	199	VNMG	177
CDCD	43	FLU	98	SI-SCLCL/R	200	VPGR	155
CDCG	43	FLV	29,98	SI-SDUCL/R	200	WCGT	177
CDE	130	FLVLCL/R	155	SI-STFCL/R	200	WNGA	185
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CNMG	171	LDS	12-14,122,123,125	STC	223		
CNMM	172	LFL/R	127	STCNR	29		
CNVX	179	LN	125	STVOL/R	143		
COAHL/R	68	LNXC	131	TAL/R	195		
CODVOR/L	67	LNE	131	TBDC	38		
CPGM	154	LNFL/R	127	TBDI	38		
CR	4,5,60-62,222	LNTL/R	128	TBDS	38		
CSBI	43	LPGC	120,121,126	TBFI	38		



Grade Crossover Chart

	Carboloy®	Iscar®	Kennametal®	Sandvik®	Teledyne	Valenite®	Vardex®
GFI			K1				
GP4						V1N	
AT4							
C22							
GP22	CP50	IC908	KC722	GC1020		VC927	VKX
AT22	CP500		KC5025				VTX
GP222							
AT222							
C25	HX	IC20	K68		HTA		VK2
GP25			KC730		TP21		VKX
AT25							VTX
C26S							
GP26							
AT26			KC5025				
C2	883	IC20					
GP2							
AT2							
C3			K313			VC29	
GP3			KC730		TP21	VC929	VKX
AT3			KC5010				
C54H		IC54			S6	VC56	
GP54		IC635					
AT54							
GP50	CP30	IC250	KC810/KC850	225G		VN8	
AT50	CP300			225G			VSX
AG50	560		KC950				
G50							
C5H	P30		K420	S4			
GP5			KC710/KC810	GC135		VN5	
AT5							
C6H	S10M	IC50M		SM			V30
GP6	550	IC656				VN8	
AT6							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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