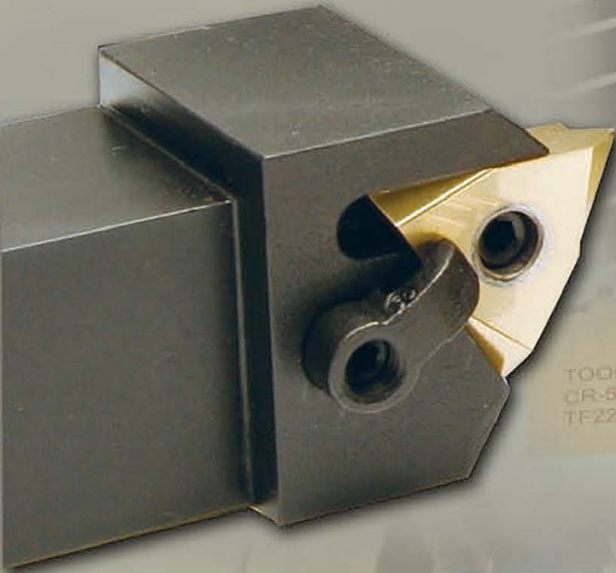
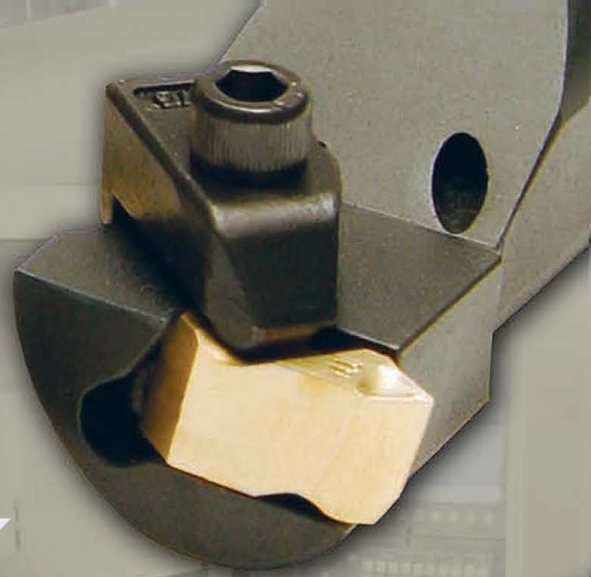




# TOOL-FLO



TOOL-FLO  
CR-5B75-4E  
TF22675 G50



## General Catalog

Cutting Tools and Tool Holders  
Catalog 60



# Providing the World with the Cutting Edge!

for  
**35 Years!**

## **Building 1 - Main Offices**

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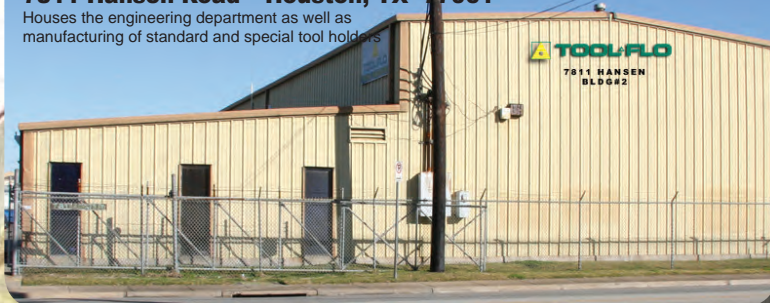
Houses the administration offices and the insert manufacturing facilities.



## **Building 2 - Engineering/Mill Department**

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

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



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# TOOL-FLO

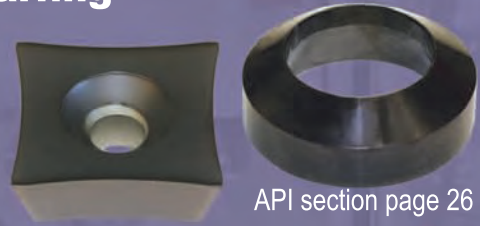
## Chipbreakers for chasers



API section page 7/Chaser section pages 67 & 68

**with coolant cavity and grooves**

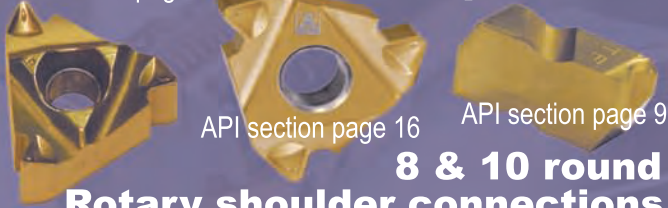
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Rotary shoulder connections**

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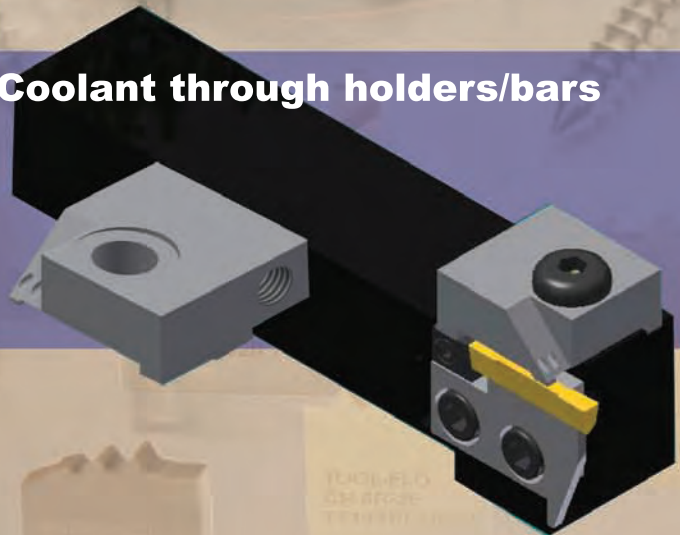
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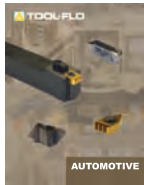
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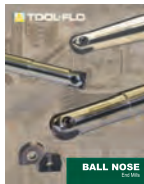
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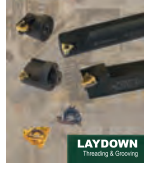
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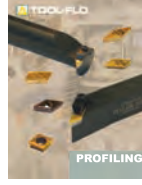
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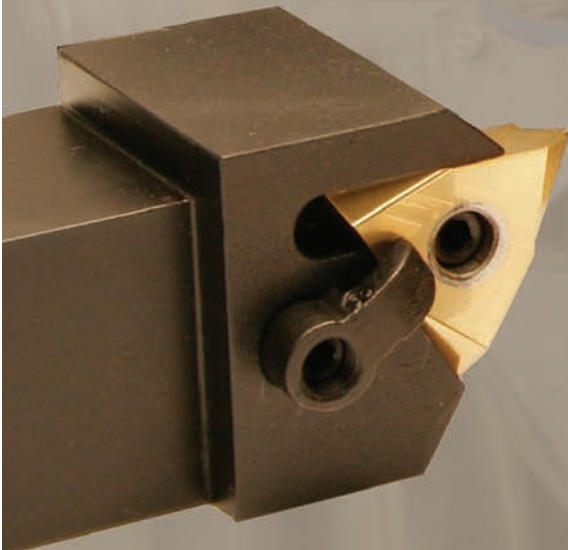
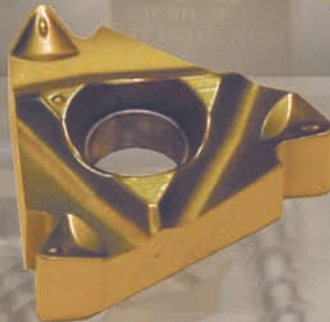
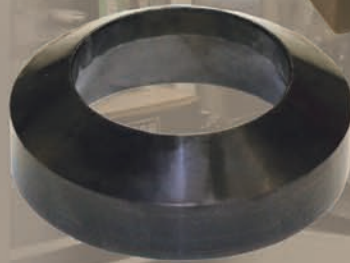
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# TOOL FLO



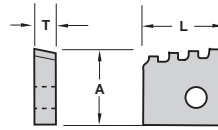
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Oil & Gas



# CHASERS

## External API Buttress

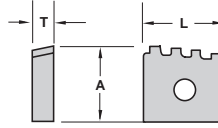
■ For holders see pg. 68



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth				
								G50	GP50	AC3	AC50
CR-5B75-3E #1	<a href="#">M16415188</a>	5	3/4	.670	.573	.205	3	●	●	●	●
CR-5B75-3E #2	<a href="#">M16415189</a>	5	3/4	.670	.582	.205	3	●	●	●	●
CR-5B75-3E #3	<a href="#">M16426149</a>	5	3/4	.670	.590	.205	3	●	●	●	●
CR-5B75-4E	<a href="#">M16422675</a>	5	3/4	.804	.625	.200	4	●	●	●	●
CR-5B1-4E	<a href="#">M1741130</a>	5	1	.800	.640	.200	4	●	●	●	●
CR-8B75-4E	<a href="#">M2145353</a>	8	3/4	.800	.605	.200	4	●	●	●	●

## Internal API Buttress

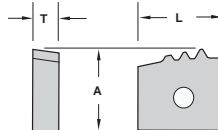
■ For bars see pg. 69



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

## External API Round

■ For holders see pg. 68

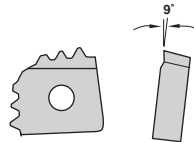


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth				
								G50	GP50	AC3	AC50
CR-8R-3E #1	<a href="#">M32416731</a>	8	3/4	.630	.577	.204	3	●	●	●	●
CR-8R-3E #2	<a href="#">M32416732</a>	8	3/4	.630	.586	.204	3	●	●	●	●
CR-8R-3E #3	<a href="#">M32416733</a>	8	3/4	.630	.591	.204	3	●	●	●	●
CR-8R-3E	<a href="#">M32419310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

## External API Round and Buttress Chaser Style

CNGA - Double Sided (2 cutting edges)

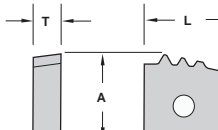
■ For holders see pg. 68



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

## Internal API Round

■ For bars see pg. 69



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

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

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

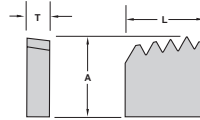
J-Series	▲	●
K-Series	▲	●
L-Series	▲	●
N-Series	●	▲
P-Series	●	▲
Q-Series	●	●



# CHASERS

## External LPT/NPT

■ For holders see pg. 68

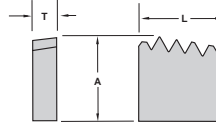


	CVD Coated	TiN Coated	AlTiN* Coated
	GP50	GP50	AC3
	GP50	GP50	AC50

Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth
CR-8NPT-4E	<a href="#">M3648996</a>	8	3/4	.625	.620	.203	4
CR-11.5NPT-4E	<a href="#">M3649668</a>	11.5	3/4	.625	.620	.1875	4

## Internal LPT/NPT

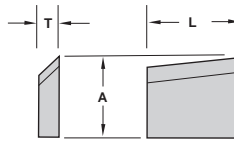
■ For bars see pg. 69



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth
CR-8NPT-4I	<a href="#">M3689804</a>	8	3/4	.625	.620	.2030	4
CR-11.5NPT-4I	<a href="#">M3689804</a>	11.5	3/4	.625	.620	.1875	4
CR-8NPT-7I	<a href="#">M3689804</a>	8	3/4	.625	.620	.1875	7

# CHIPBREAKERS

## External

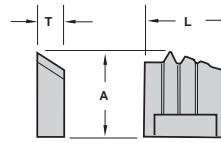


Description	EDP Code	L	A	T	Inserts
CR-5B75/5B1-4E-CB	<a href="#">IE2993</a>	.800	.500	.125	CR-5B75-4E/CR-5B1-4E
CR-8R/10R-3E/4E-CB	<a href="#">IE1353E</a>	.630	.460	.125	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8NPT-4E
#3 CB W/O COOLANT GROOVES .170	<a href="#">IE26424</a>	.618	.460	.170	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8NPT-4E

## External

with coolant grooves

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

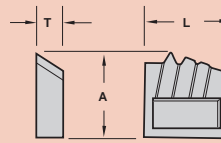


Description	EDP Code	L	A	T	Coolant Grooves	Inserts
TD4601 5B75-1-CB	<a href="#">IE16660</a>	.665	.550	.170	✓	CR-5B75-3E #1
TD4602 5B75-2-CB	<a href="#">IE16661</a>	.668	.550	.170	✓	CR-5B75-3E #2
TD4603 5B75-3-CB	<a href="#">IE16662</a>	.665	.560	.170	✓	CR-5B75-3E #3
TD3931 8R-1-CB	<a href="#">IE16657</a>	.628	.518	.165	✓	CR-8R-3E #1
TD3932 8R-2-CB	<a href="#">IE16658</a>	.635	.526	.165	✓	CR-8R-3E #2
TD3933 8R-3-CB	<a href="#">TF27129</a>	.628	.520	.165	✓	CR-8R-3E #3
TA2237 10R-1-CB	<a href="#">IE16760</a>	.628	.503	.175	✓	CR-10R-3E #1
TA2238 10R-2-CB	<a href="#">IE16761</a>	.628	.512	.175	✓	CR-10R-3E #2
TA2239 10R-3-CB	<a href="#">IE16762</a>	.628	.515	.175	✓	CR-10R-3E #3
#3 CB W/COOLANT GROOVES .170	<a href="#">IE26423</a>	.618	.460	.170	✓	CR-8R-3E

## External

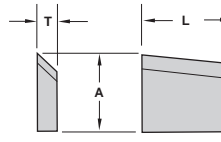
with coolant grooves and cavity

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



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

## Internal



Description	EDP Code	L	A	T	Coolant Grooves	Inserts
CR-5B75/5B1-4I-CB	<a href="#">IE16104</a>	.800	.500	.125		CR-5B75-4I/CR-5B1-4I
CR-8R/10R-3I/4I-CB	<a href="#">IE1353I</a>	.630	.488	.125		CR-8R-3I/CR-8R-4I/CR-10R-3I/CR-8LPT-4I
CR-5B75-5I-CB	<a href="#">IE28765</a>	1.000	.540	.125	✓	CR-5B75-5I
CR-8R-7I-CB	<a href="#">IE3435</a>	1.000	.520	.125		CR-8R-7I
CR-8R-7I-CB	<a href="#">IE18096</a>	1.000	.510	.125	✓	CR-8R-7I

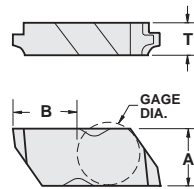




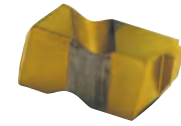
# FLO-LOCK

## API Buttress Threading

■ For holders and bars see pgs. 107-109



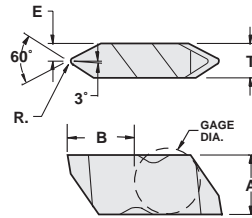
RH Shown



Description	EDP Code	TPI	TPF	T	A	B	Gage Dia.							
								C3	GP3	GP50	AC3	AC50		
FLDC-3-5B75E	<a href="#">553616E</a>	5	3/4	.250	.344	.4026	.3750							
FLDC-3-5B75I	<a href="#">553616I</a>	5	3/4	.250	.344	.4026	.3750			●				
FLDC-3-5B1E	<a href="#">553617E</a>	5	1	.250	.344	.4026	.3750			●				
FLDC-3-5B1I	<a href="#">553617I</a>	5	1	.250	.344	.4026	.3750			●				
FLDC-4-5B75E	<a href="#">554616E</a>	5	3/4	.255	.453	.6320	.3750			●				
FLDC-4-5B75I	<a href="#">554616I</a>	5	3/4	.255	.453	.6320	.3750			●				
FLDC-4-5B1E	<a href="#">554617E</a>	5	1	.255	.453	.6320	.3750			●				
FLDC-4-5B1I	<a href="#">554617I</a>	5	1	.255	.453	.6320	.3750			●				

## API Threading Non-Topping

■ For holders and bars see pgs. 107-109



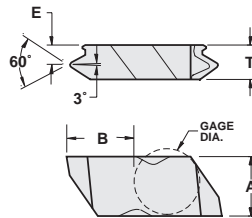
RH Shown



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

## API Rotary Shoulder Connexion Threading

■ For holders and bars see pgs. 107-109



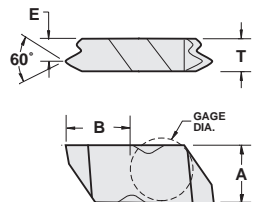
RH Shown



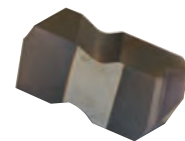
Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Conn. No. or Size					
										GP3	GP50	AC22	AC3	AC50
FLDC-3-530E	<a href="#">553613E</a>	5	3	.250	.147	.344	.4026	.3750	3-1/2 FH, 2-3/8-4-1/2 Reg.		●			
FLDC-3-530I	<a href="#">553613I</a>	5	3	.250	.147	.344	.4026	.3750	3-1/2 FH, 2-3/8-4-1/2 Reg.		●	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

## API Round Threading

■ For holders and bars see pgs. 107-109



RH Shown



Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.						
									C3	GP3	GP50	AC3	AC50	
FLDC-3-8RDR75	<a href="#">553632R</a>	8	3/4	.195	.125	.344	.4010	.3750			●	●	●	
FLDC-3-8RDL75	<a href="#">553632L</a>	8	3/4	.195	.125	.344	.4010	.3750			●	●	●	
FLDC-3-10RDR75	<a href="#">553634R</a>	10	3/4	.195	.125	.344	.4010	.3750			●	●	●	
FLDC-3-10RDL75	<a href="#">553634L</a>	10	3/4	.195	.125	.344	.4010	.3750			●	●	●	

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

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

Cast Iron					
Non-Ferrous					
Stainless/High Temp					
Steel			▲		



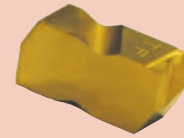
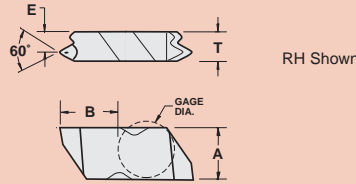


# FLO-LOCK

## API Round Threading with Chipbreaker

*Exclusive patented design!*

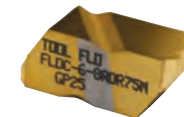
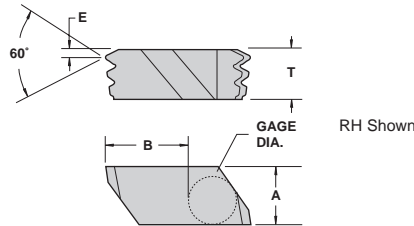
■ For holders and bars see pgs. 107-109



Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Coating				
									C3	GP3	GP50	AC3	AC50
FLDC-3-8RDR75-CB	<a href="#">553632PR</a>	8	3/4	.195	.125	.344	.4010	.3750			●	●	●
FLDC-3-8RDL75-CB	<a href="#">553632PL</a>	8	3/4	.195	.125	.344	.4010	.3750			●	●	●

# API Round Threading Multi-Tooth

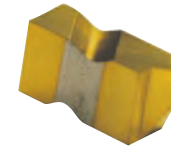
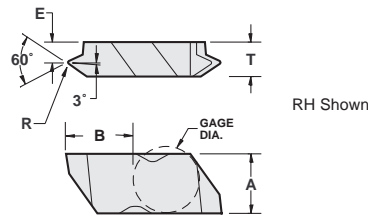
■ For holders and bars see pgs. 107-109



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

# NPT Threading

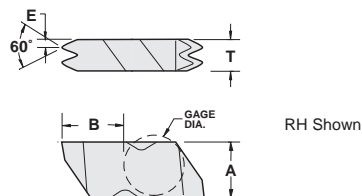
■ For holders and bars see pgs. 107-109



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

# NPT Threading Multi-Tooth

■ For holders and bars see pgs. 107-109



Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.	Coating				
									C3	GP3	GP50	AC3	AC50
FLDC-3-8 NPT-2E	<a href="#">553708E</a>	8	3/4	.250	.058	.344	.4050	.3750			●	●	●
FLDC-3-8 NPT-2I	<a href="#">553708I</a>	8	3/4	.250	.058	.344	.4050	.3750			●	●	●
FLDC-3-11.5 NPT-2E	<a href="#">553711E</a>	11.5	3/4	.250	.048	.344	.4050	.3750			●	●	●
FLDC-3-11.5 NPT-2I	<a href="#">553711I</a>	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	C3	GP3	GP50	AC3	AC50
Cast Iron		▲			●
Non-Ferrous		▲			●
Stainless/High Temp		▲			●
Steel			▲		

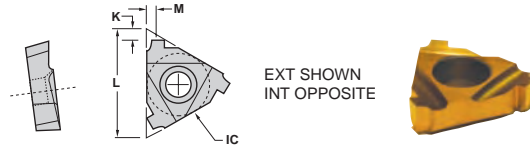




# LAYDOWN-LT

## API Buttress Threading

■ For holders and bars see pgs. 125-126

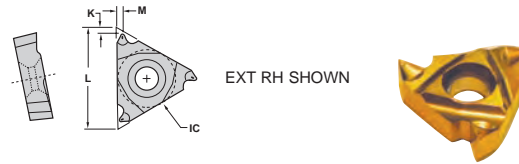


Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Coating					
									C22	GP22	GP50	AC22	AC50	
22ER 8B75	<a href="#">5102100</a>	8	3/4	1/2	.87	.102	.073	U.S. Improved Buttress		●	●	●	●	●
22ER 5B75	<a href="#">5101600</a>	5	3/4	1/2	.87	.087	.087	4-1/2 - 13-3/8		●	●	●	●	●
22ER 5B1	<a href="#">5101700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

## NPT Threading with Chipbreaker

*Exclusive patented design!*

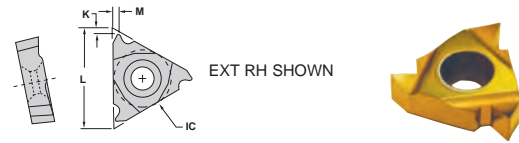
■ For holders and bars see pgs. 125-126



Description	EDP Code	TPI	IC	L	M	K	Coating					
							C22	GP22	GP50	AC22	AC50	
16ER 27NPT-CB	5003627P	27	3/8	.65	.03	.02		●	●	●	●	●
16ER 18NPT-CB	5003618P	18	3/8	.65	.03	.02		●	●	●	●	●
16ER 14NPT-CB	5003614P	14	3/8	.65	.06	.04		●	●	●	●	●
16ER 11.5NPT-CB	<a href="#">5003611P</a>	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	<a href="#">5023611P</a>	11.5	3/8	.65	.06	.04		●	●	●	●	●
16NR 8NPT-CB	5023608P	8	3/8	.65	.06	.04		●	●	●	●	●

## NPT Threading

■ For holders and bars see pgs. 125-126



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

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

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

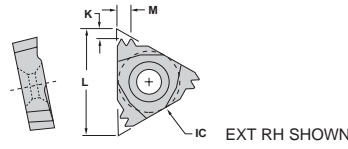




# LAYDOWN-LT

## NPT Threading Multi-Tooth

■ For holders and bars see pgs. 125-126



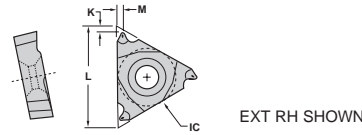
Description	EDP Code	No of Teeth	TPI	IC	L	M	K	TIN Coated		AITIN Coated	
								GP22	GP25	GP50	GP54
22ER 11.5NPT2M	<a href="#">5103811</a>	2	11.5	1/2	.87	.13	.09	●		●	●
27ER 11.5NPT3M	<a href="#">5203811</a>	3	11.5	5/8	1.08	.22	.14		●	●	
27ER 8NPT2M	<a href="#">5203808</a>	2	8	5/8	1.08	.19	.11		●	●	●
22NR 11.5NPT2M	<a href="#">5123811</a>	2	11.5	1/2	.87	.13	.09	●	●	●	●
27NR 11.5NPT3M	<a href="#">5223811</a>	3	11.5	5/8	1.08	.22	.14		●	●	
27NR 8NPT2M	<a href="#">5223808</a>	2	8	5/8	1.08	.19	.11		●	●	●

## NPTF Threading Chipbreaker

For Dry Seal listing see page

*Exclusive patented design!*

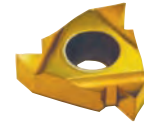
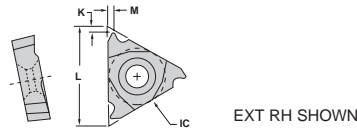
■ For holders and bars see pgs. 125-126



Description	EDP Code	TPI	IC	L	M	K	Uncoated		TIN Coated		AITIN Coated	
							C22	GP22	GP50	AC22	AC50	
16ER 27NPTF-CB	5004027P	27	3/8	.65	.03	.03		●				
16ER 18NPTF-CB	5004018P	18	3/8	.65	.04	.03		●				
16ER 14NPTF-CB	5004014P	14	3/8	.65	.05	.04		●				
16ER 11.5NPTF-CB	<a href="#">5004011P</a>	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	<a href="#">5024011P</a>	11.5	3/8	.65	.06	.04		●				
16NR 8NPTF-CB	5024008P	8	3/8	.65	.06	.04		●				

## NPTF Threading

■ For holders and bars see pgs. 125-126



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

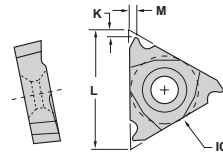
Cast Iron		▲	●
Non-Ferrous		▲	●
Stainless/High Temp		▲	●
Steel			●



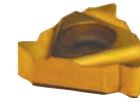
# LAYDOWN-LT

## API Rotary Shoulder Connection Threading

■ For holders and bars see pgs. 125-126



EXT SHOWN  
INT OPPOSITE

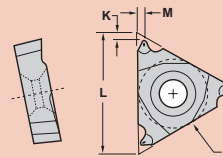


Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Coating				
									C22	GP22	GP50	AC22	AC50
22ER 530	<a href="#">5101300</a>	5	3	1/2	.87	.10	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.					
22ER 4PAC	<a href="#">5101500</a>	4	1-1/2	1/2	.87	.11	.08	American Open Hole					
22ER 438	<a href="#">5101200</a>	4	3	1/2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

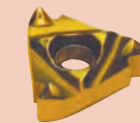
\* Obsolete thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

## API Round Threading Chipbreaker

■ For holders and bars see pgs. 125-126



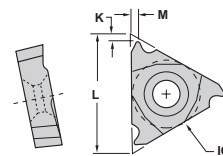
EXT SHOWN  
INT OPPOSITE



Description	EDP Code	TPI	IC	L	M	K	Coating				
							GP22	GP50	AC22	AC3	AC50
16ER 8RD-CB	<a href="#">5003200HC</a>	8	3/8	.65	.051	.059					
16ER 10RD-CB	<a href="#">5003400HC</a>	10	3/8	.65	.047	.059					
16NR 8RD-CB	<a href="#">5023200HC</a>	8	3/8	.65	.051	.059					
16NR 10RD-CB	<a href="#">5023400HC</a>	10	3/8	.65	.047	.059					

## API Round Threading

■ For holders and bars see pgs. 125-126



EXT SHOWN  
INT OPPOSITE



Description	EDP Code	TPI	TPF	IC	L	M	K	Coating				
								C22	GP22	GP50	AC22	AC50
16ER 8RD	<a href="#">5003200</a>	8	3/4	3/8	.65	.059	.056					
16ER 10RD	<a href="#">5003400</a>	10	3/4	3/8	.65	.059	.056					
22ER 8RD	<a href="#">5103200</a>	8	3/4	1/2	.87	.060	.056					
22ER 10RD	<a href="#">5103400</a>	10	3/4	1/2	.87	.046	.048					
16NR 8RD	<a href="#">5023200</a>	8	3/4	3/8	.65	.059	.056					
16NR 10RD	<a href="#">5023400</a>	10	3/4	3/8	.65	.059	.056					
22NR 8RD	<a href="#">5123200</a>	8	3/4	1/2	.87	.060	.056					
22NR 10RD	<a href="#">5123400</a>	10	3/4	1/2	.87	.046	.048					

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

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

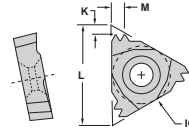




# LAYDOWN-LT

## API Round Threading Multi-Tooth

■ For holders and bars see pgs. 125-126



EXT SHOWN  
INT OPPOSITE

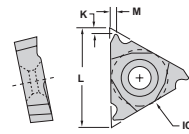


Description	EDP Code	TPI	IC	L	M	K	Coating							
							C22	GP22	GP50	AC22	AC50			
22ER 10RD2M	<a href="#">5103500</a>	10	1/2	.87	.146	.094								
27ER 8RD2M	<a href="#">5203300</a>	8	5/8	1.08	.177	.114								
22NR 10RD2M	<a href="#">5123500</a>	10	1/2	.87	.146	.094								
27NR 8RD2M	<a href="#">5223300</a>	8	5/8	1.08	.177	.114								

## API VO.055

### American MT, AMT & AMMT\*

■ For holders and bars see pgs. 125-126



EXT SHOWN  
INT OPPOSITE

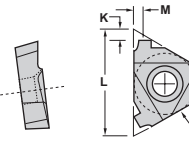


Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Coating					
									C22	GP22	GP50	AC22	AC50	
16ER 6P VO.055 MT	<a href="#">5004300</a>	6	1-1/2	3/8	.65	.059	.051	NC10-NC16, VO.055, 1, 1-1/2 REG						
22ER 6P VO.055 MT	<a href="#">5104300</a>	6	1-1/2	1/2	.87	.072	.060	NC10-NC16, VO.055, 1, 1-1/2 REG						
16NR 6P VO.055 MT	<a href="#">5024300</a>	6	1-1/2	3/8	.65	.059	.051	NC10-NC16, VO.055, 1, 1-1/2 REG						
22NR 6P VO.055 MT	<a href="#">5124300</a>	6	1-1/2	1/2	.87	.072	.060	NC10-NC16, VO.055, 1, 1-1/2 REG						

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

## API VAM Threading

■ For holders and bars see pgs. 125-126



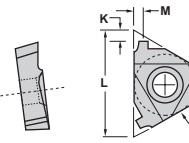
EXT SHOWN  
INT OPPOSITE



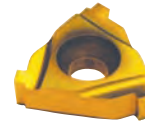
Description	EDP Code	TPI	IC	L	M	K	Coating						
							C22	GP22	GP50	AC22	AC50		
22ER 8VAM	5102500	8	1/2	.87	.059	.059							
22ER 6VAM	5102400	6	1/2	.87	.079	.079							
22ER 5VAM	5102300	5	1/2	.87	.079	.079							
22NR 8VAM	5122500	8	1/2	.87	.059	.059							
22NR 6VAM	5122400	6	1/2	.87	.079	.079		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

## API X-Line Threading

■ For holders and bars see pgs. 125-126



EXT RH SHOWN



Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Coating				
									C22	GP22	GP50	AC22	AC50
22ER 6XL75	5102000	6	3/4	1/2	.87	.075	.078						
22ER 6XL15	5101900	6	1-1/2	1/2	.87	.075	.086	5 - 7-5/8					
22ER 5XL12	5101800	5	1-1/4	1/2	.87	.087	.083	8-5/8 - 10-3/4					
22NR 6XL75	5122000	6	3/4	1/2	.87	.075	.078						
22NR 6XL15	5121900	6	1-1/2	1/2	.87	.075	.086	5 - 7-5/8					
22NR 5XL12	<a href="#">5121800</a>	5	1-1/4	1/2	.87	.087	.083	8-5/8 - 10-3/4					

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

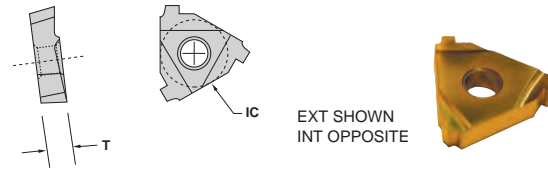
Cast Iron														
Non-Ferrous														
Stainless/High Temp														
Steel														



# LAYDOWN

## API Buttress Threading

■ For holders and bars see pgs. 136-138

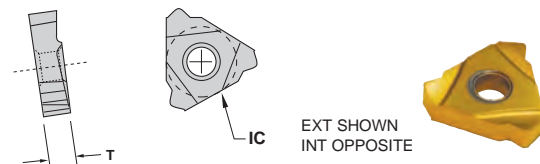


Description	EDP Code	TPI	TPF	IC	T	Connection	Coating				
							C6H	GP50	GP54	AC50	AC54
L43 5B75 EXT-FC	<a href="#">16154E</a>	5	3/4	.500	.189	4-1/2 - 13-3/8					
L43 5B1 EXT-FC	<a href="#">17514E</a>	5	1	.500	.189	16 and larger	●				
L43 8B75 EXT-FC	<a href="#">21154F</a>	8	3/4	.500	.189	US Improved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

FC designates 5° flank clearance

## API Hughes H90 Threading

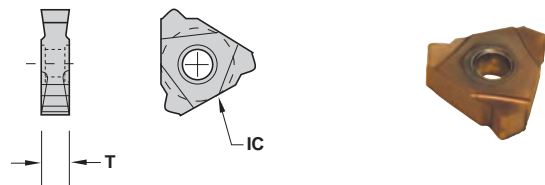
■ For holders and bars see pgs. 136-138



Description	EDP Code	TPI	TPF	IC	T	Connection	Coating				
							C6H	GP50	GP54	AC50	AC54
L53 H902 EXT	<a href="#">28474</a>	3-1/2	2	.625	.189	3-1/2 - 6-5/8 H90					
L53 H903 EXT	<a href="#">29474</a>	3-1/2	3	.625	.189	7 - 8-5/8 H90	●				
L53 H90S EXT	<a href="#">27474</a>	3	1-1/4	.625	.189	2-3/8 - 3-1/2 Slimline	●				
L53 H902 INT	<a href="#">28478</a>	3-1/2	2	.625	.189	3-1/2 - 6-5/8 H90	●				
L53 H903 INT	<a href="#">29478</a>	3-1/2	3	.625	.189	7 - 8-5/8 H90	●				
L53 H90S INT	<a href="#">27478</a>	3	1-1/4	.625	.189	2-3/8 - 3-1/2 Slimline	●				

## API Hughes H90 Threading LDS Double Sided Internal/External

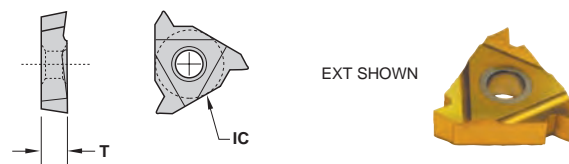
■ For holders and bars see pgs. 136-138



Description	EDP Code	TPI	TPF	IC	T	Connection	Coating				
							C6H	GP50	GP54	AC50	AC54
LDS 54 H902	<a href="#">28490</a>	3-1/2	2	.625	.252	3-1/2 - 6-5/8 H90					
LDS 54 H903	<a href="#">29490</a>	3-1/2	3	.625	.252	7 - 8-5/8 H90		●			
LDS 54 H90S	<a href="#">27490</a>	3	1-1/4	.625	.252	2-3/8 - 3-1/2 Slimline		●			

## NPT Threading

■ For holders and bars see pgs. 136-138



Description	EDP Code	TPI	TPF	IC	T	Coating				
						C22	GP22	GP50	AC22	AC50
L43 8NPT EXT	<a href="#">3615084</a>	8	3/4	.500	.189					
L43 11.5NPT EXT	<a href="#">3615114</a>	11.5	3/4	.500	.189			●		
L43 8NPT INT	<a href="#">3615088</a>	8	3/4	.500	.189			●		
L43 11.5NPT INT	<a href="#">3615118</a>	11.5	3/4	.500	.189			●		●

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

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

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





# LAYDOWN-LT

## NPT Threading Multi-Tooth

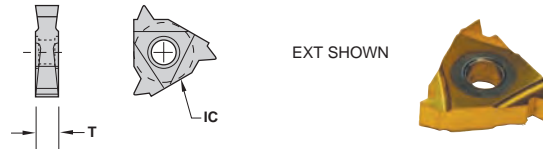
■ For holders and bars see pgs. 136-138



Description	EDP Code	TPI	TPF	IC	T	Coating				
						C22	GP22	GP50	AC22	AC50
L43 11.5NPT2M EXT	<a href="#">3615114T</a>	11.5	3/4	.500	.189				●	
L43 11.5NPT2M INT	<a href="#">3615118T</a>	11.5	3/4	.500	.189			●	●	●

## NPT Threading LDS Double Sided Internal/External

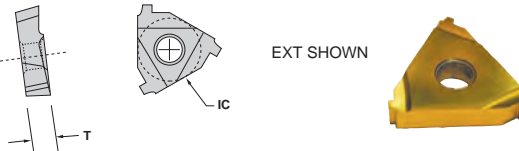
■ For holders and bars see pgs. 136-138



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

## Pittsburg Acme Threading

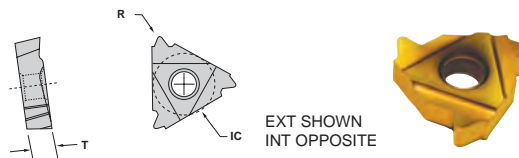
■ For holders and bars see pgs. 136-138



Description	EDP Code	TPI	TPF	IC	T	Coating				
						C22	GP22	GP50	GP54	AC22
L43 8PA75 EXT	<a href="#">22154</a>	8	3/4	.500	.189					
L53 8PA75 EXT	<a href="#">22474</a>	8	3/4	.625	.189				●	
L43 8PA75 INT	<a href="#">22158</a>	8	3/4	.500	.189				●	
L53 8PA75 INT	<a href="#">22478</a>	8	3/4	.625	.189				●	

## API Rotary Shoulder Connection Threading

■ For holders and bars see pgs. 136-138



Description	EDP Code	TPI	TPF	R	IC	T	Connection	Coating				
								GP50	GP54	AC22	AC50	AC54
L43 425 EXT	<a href="#">09154</a>	4	2	.025	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●				
L43 428 EXT	<a href="#">10154</a>	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	<a href="#">12154</a>	4	3	.038	.500	.189	NC56 - NC71	●				
L43 530 EXT	<a href="#">13154</a>	5	3	.020	.500	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●				
L43 4PAC EXT	<a href="#">15154</a>	4	1-1/2	---	.500	.189	American Open Hole	●				
L53 425 EXT	<a href="#">09474</a>	4	2	.025	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●				
L53 428 EXT	<a href="#">10474</a>	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	<a href="#">12474</a>	4	3	.038	.625	.189	NC56 - NC71	●				
L53 530 EXT	<a href="#">13474</a>	5	3	.020	.625	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●				
L53 4PAC EXT	<a href="#">15474</a>	4	1-1/2	---	.625	.189	American Open Hole	●				
L43 425 INT	<a href="#">09158</a>	4	2	.025	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●				
L43 428 INT	<a href="#">10158</a>	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	<a href="#">12158</a>	4	3	.038	.500	.189	NC56 - NC71	●				
L43 530 INT	<a href="#">13158</a>	5	3	.020	.500	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●				
L43 4PAC INT	<a href="#">15158</a>	4	1-1/2	---	.500	.189	American Open Hole	●				
L53 425 INT	<a href="#">09478</a>	4	2	.025	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●				
L53 428 INT	<a href="#">10478</a>	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	<a href="#">12478</a>	4	3	.038	.625	.189	NC56 - NC71	●				
L53 530 INT	<a href="#">13478</a>	5	3	.020	.625	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●				
L53 4PAC INT	<a href="#">15478</a>	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

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									▲	▲

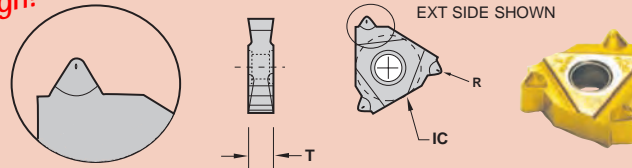


# LAYDOWN

## API Rotary Shoulder Connection Threading

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

*Exclusive patented design!*



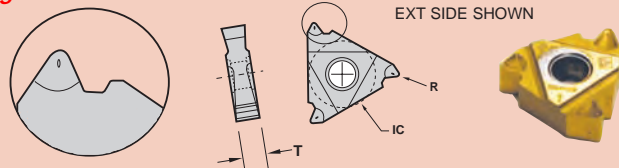
■ For holders and bars see pgs. 136-138

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

## API Rotary Shoulder Connection Threading

LDS Double Sided  
Follow Topping  
Internal/External  
with patented chipbreaker

*Exclusive patented design!*



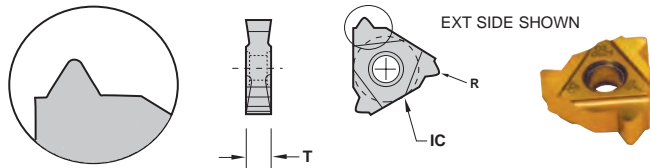
■ For holders and bars see pgs. 136-138

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

## API Rotary Shoulder Connection Threading

LDS Double Sided  
Lead Follow Topping  
Internal/External

■ For holders and bars see pgs. 136-138



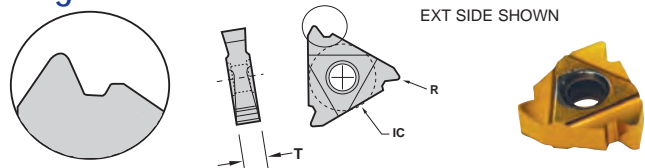
Description	EDP Code	TPI	TPF	R	IC	T	Connection	Coating						
								Uncoated	TIN Coated	AlTIN Coated	C6H	GP54	AC22	AC50
LDS 54 428 #1	<a href="#">10490</a>	4	2	.038	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF	●	●	●	●	●	●	●
LDS 54 438 #2	<a href="#">12490</a>	4	3	.038	.625	.252	NC56-NC71	●	●	●	●	●	●	●
LDS 54 425 #3	<a href="#">09490</a>	4	2	.025	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.	●	●	●	●	●	●	●
LDS 54 435 #4	<a href="#">11490</a>	4	3	.025	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.	●	●	●	●	●	●	●
LDS 54 530 #5	<a href="#">13490</a>	5	3	.020	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●	●	●	●	●	●	●
LDS 54 42F	<a href="#">14490</a>	4	2	---	.625	.252	V0.065*	●	●	●	●	●	●	●
LDS 54 4PAC	<a href="#">15490</a>	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 Rotary Shoulder Connection Threading

LDS Double Sided  
Follow Topping  
Internal/External

■ For holders and bars see pgs. 136-138



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

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

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

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

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





# LAYDOWN

## API Round Threading

■ For holders and bars see pgs. 136-138



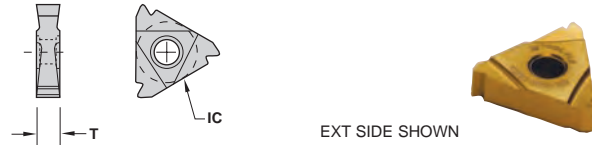
Description	EDP Code	TPI	TPF	IC	T	TIN Coated		A1TIN Coated		
						GP50	GP54	AC22	AC50	AC54
L43 8RD EXT	<a href="#">32154</a>	8	3/4	.500	.189	●	●	●	●	●
L43 10RD EXT	<a href="#">34154</a>	10	3/4	.500	.189	●	●	●	●	●
L53 8RD EXT	<a href="#">32474</a>	8	3/4	.625	.189	●	●	●	●	●
L43 8RD INT	<a href="#">32158</a>	8	3/4	.500	.189	●	●	●	●	●
L43 10RD INT	<a href="#">34158</a>	10	3/4	.500	.189	●	●	●	●	●
L53 8RD INT	<a href="#">32478</a>	8	3/4	.625	.189	●	●	●	●	●

## API Round Threading

### LDS Double Sided

### Internal/External

■ For holders and bars see pgs. 136-138



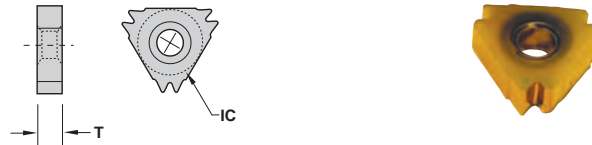
Description	EDP Code	TPI	TPF	IC	T	TIN Coated		A1TIN Coated		
						GP50	GP54	AC22	AC50	AC54
LDS 43 8RD	<a href="#">32180</a>	8	3/4	.500	.189	●	●	●	●	●
LDS 43 10RD	<a href="#">34180</a>	10	3/4	.500	.189	●	●	●	●	●
LDS 54 8RD	<a href="#">32490</a>	8	3/4	.625	.252	●	●	●	●	●
LDS 54 10RD	<a href="#">34490</a>	10	3/4	.625	.252	●	●	●	●	●

## API Round Threading

### Double Sided

### Internal/External

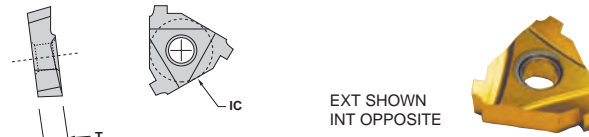
■ For holders and bars see pgs. 136-138



Description	EDP Code	TPI	TPF	IC	T	Uncoated		TIN Coated		A1TIN Coated	
						C6H	GP50	GP54	AC50	AC54	
TNFA 43 8RD	32N70	8	3/4	.500	.187	●	●	●	●	●	●

## API VAM Threading

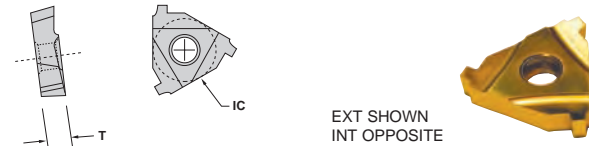
■ For holders and bars see pgs. 136-138



Description	EDP Code	TPI	TPF	IC	T	Uncoated		TIN Coated		A1TIN Coated	
						C6H	GP50	GP54	AC50	AC54	
L43 5VAM EXT	23154	5	3/4	.500	.189	●	●	●	●	●	●
L43 6VAM EXT	24154	6	3/4	.500	.189	●	●	●	●	●	●
L43 8VAM EXT	25154	8	3/4	.500	.189	●	●	●	●	●	●
L43 5VAM INT	23158	5	3/4	.500	.189	●	●	●	●	●	●
L43 6VAM INT	24158	6	3/4	.500	.189	●	●	●	●	●	●
L43 8VAM INT	25158	8	3/4	.500	.189	●	●	●	●	●	●

## API X-Line Threading

■ For holders and bars see pgs. 136-138



Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated		TIN Coated		A1TIN Coated	
							C6H	GP50	GP54	AC50	AC54	
L43 6XL15 EXT	19154	6	1-1/2	.500	.189	5 - 7-5/8	●	●	●	●	●	●
L43 6XL75 EXT	20154	6	3/4	.500	.189	-	●	●	●	●	●	●
L43 5XL12 EXT	18154	5	1-1/4	.500	.189	8-5/8 - 10-3/4	●	●	●	●	●	●
L53 6XL15 EXT	<a href="#">19474</a>	6	1-1/2	.625	.252	5 - 7-5/8	●	●	●	●	●	●
L53 6XL75 EXT	<a href="#">20474</a>	6	3/4	.625	.252	-	●	●	●	●	●	●
L53 5XL12 EXT	<a href="#">18474</a>	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	<a href="#">19478</a>	6	1-1/2	.625	.252	5 - 7-5/8	●	●	●	●	●	●
L53 6XL75 INT	<a href="#">20478</a>	6	3/4	.625	.252	-	●	●	●	●	●	●
L53 5XL12 INT	<a href="#">18478</a>	5	1-1/4	.625	.252	8-5/8 - 10-3/4	●	●	●	●	●	●

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

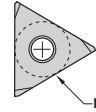
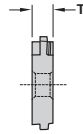
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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

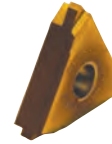
# ON-EDGE

## API Buttress Threading

Straight Hole



EXT SHOWN  
INT OPPOSITE



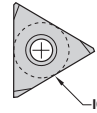
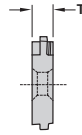
■ For holders and bars see pgs. 156-158

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

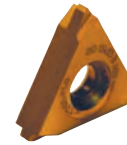
\*FC indicates 5° flank clearance

## API Buttress Threading

Countersink Hole



EXT SHOWN  
INT OPPOSITE



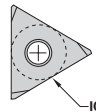
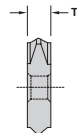
■ For holders and bars see pgs. 156-158

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

\*FC indicates 5° flank clearance

## API Hughes H90 Threading

Straight Hole



EXT SHOWN  
INT OPPOSITE

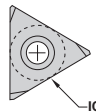
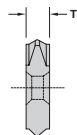


■ For holders and bars see pgs. 156-158

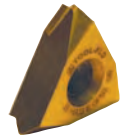
Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated		TIN Coated		A/TIN Coated	
							C3	C6H	GP3	GP50	AC3	AC50
TNMA 55 H902 EXT	<a href="#">28554</a>	3-1/2	2	.625	.314	3-1/2 - 6-5/8 H90						
TNMA 55 H903 EXT	<a href="#">29554</a>	3-1/2	3	.625	.314	7 - 8-5/8 H90						
TNMA 56 H90S EXT	<a href="#">27Q14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

## API Hughes H90 Threading

Countersink Hole



EXT SHOWN  
INT OPPOSITE



■ For holders and bars see pgs. 156-158

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

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

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

Cast Iron												
Non-Ferrous												
Stainless/High Temp												
Steel												▲





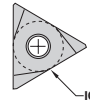
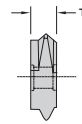
API

API

# ON-EDGE API Rotary Shoulder Connection Threading

## Straight Hole

■ For holders and bars see pgs. 156-158



EXT SHOWN  
INT OPPOSITE



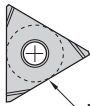
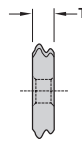
Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated		TIN Coated		AITIN Coated	
							C3	C6H	GP3	GP50	AC3	AC50
TNMA 54 530 EXT	<a href="#">13514</a>	5	3	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.					●	●
TNMA 55 425 EXT	<a href="#">09554</a>	4	2	.625	.314	5-1/2 FH 6-5/8 FH 6-5/8 Reg.					●	●
TNMA 55 428 EXT	<a href="#">10554</a>	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	<a href="#">12554</a>	4	3	.625	.314	NC56-NC71					●	●
TNMA 55 530 EXT	<a href="#">13554</a>	5	3	.625	.314	3-1/2 FH 2-3/8 - 4-1/2 Reg.					●	●
TNMA 55 4PAC EXT	<a href="#">15554</a>	4	1-1/2	.625	.314	American Open Hole					●	●
TNMA 54 530 INT	<a href="#">13518</a>	5	3	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.					●	●
TNMA 55 425 INT	<a href="#">09558</a>	4	2	.625	.314	5-1/2 FH 6-5/8 FH 6-5/8 Reg.					●	●
TNMA 55 428 INT	<a href="#">10558</a>	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	<a href="#">12558</a>	4	3	.625	.314	NC56-NC71					●	●
TNMA 55 530 INT	<a href="#">13558</a>	5	3	.625	.314	3-1/2 FH 2-3/8 - 4-1/2 Reg.					●	●
TNMA 55 4PAC INT	<a href="#">15558</a>	4	1-1/2	.625	.314	American Open Hole					●	●

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

# API Round Threading

## Straight Hole

■ For holders and bars see pgs. 156-158



INT SHOWN  
EXT OPPOSITE

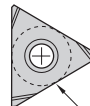
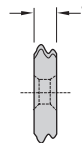


Description	EDP Code	TPI	TPF	IC	T	Uncoated		TIN Coated		AITIN Coated	
						C3	GP3	GP50	AC22	AC3	AC50
TNMA 43 8RD EXT	<a href="#">32394</a>	8	3/4	.500	.189					●	●
TNMA 43 10RD EXT	<a href="#">34394</a>	10	3/4	.500	.189					●	●
TNMA 54 8RD EXT	<a href="#">32514</a>	8	3/4	.625	.252					●	●
TNMA 43 8RD INT	<a href="#">32398</a>	8	3/4	.500	.189					●	●
TNMA 43 10RD INT	<a href="#">34398</a>	10	3/4	.500	.189					●	●
TNMA 54 8RD INT	<a href="#">32518</a>	8	3/4	.625	.252					●	●

# API Round Threading

## Countersink Hole

■ For holders and bars see pgs. 156-158



INT SHOWN  
EXT OPPOSITE

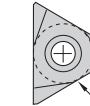
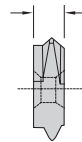


Description	EDP Code	TPI	TPF	IC	T	Uncoated		TIN Coated		AITIN Coated	
						C3	GP3	GP50	AC22	AC3	AC50
TNMC 43 8RD EXT	<a href="#">32414</a>	8	3/4	.500	.189					●	●
TNMC 43 10RD EXT	<a href="#">34414</a>	10	3/4	.500	.189					●	●
TNMC 54 8RD EXT	<a href="#">32534</a>	8	3/4	.625	.252					●	●
TNMC 43 8RD INT	<a href="#">32418</a>	8	3/4	.500	.189					●	●
TNMC 43 10RD INT	<a href="#">34418</a>	10	3/4	.500	.189					●	●
TNMC 54 8RD INT	<a href="#">32538</a>	8	3/4	.625	.252					●	●

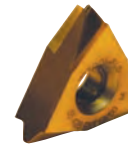
# API Rotary Shoulder Connection Threading

## Countersink Hole

■ For holders and bars see pgs. 156-158



EXT SHOWN  
INT OPPOSITE



Description	EDP Code	TPI	TPF	IC	T	Connection	Uncoated		TIN Coated		AITIN Coated	
							C3	C6H	GP3	GP50	AC3	AC50
TNMC 54 530 EXT	13534	5	3	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.					●	●
TNMC 55 425 EXT	<a href="#">09564</a>	4	2	.625	.312	5-1/2 FH 6-5/8 FH 6-5/8 Reg.					●	●
TNMC 55 428 EXT	<a href="#">10564</a>	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	<a href="#">12564</a>	4	3	.625	.312	NC56-NC71					●	●
TNMC 55 530 EXT	<a href="#">13564</a>	5	3	.625	.312	3-1/2 FH 2-3/8 - 4-1/2 Reg.					●	●
TNMC 55 4PAC EXT	<a href="#">15564</a>	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	<a href="#">09568</a>	4	2	.625	.312	5-1/2 FH 6-5/8 FH 6-5/8 Reg.					●	●
TNMC 55 428 INT	<a href="#">10568</a>	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	<a href="#">12568</a>	4	3	.625	.312	NC56-NC71					●	●
TNMC 55 530 INT	<a href="#">13568</a>	5	3	.625	.312	3-1/2 FH 2-3/8 - 4-1/2 Reg.					●	●
TNMC 55 4PAC INT	<a href="#">15568</a>	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.

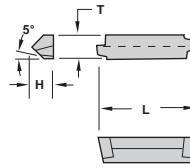
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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

# VEE-BOTTOM API Buttress Threading



■ For holders and bars see pgs. 215-218



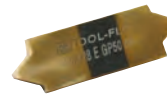
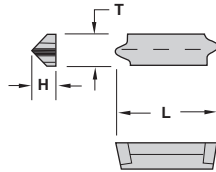
EXT SHOWN  
INT OPPOSITE

Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating						
								C3	C6H	GP3	GP50	AC3	AC50	
V84 5B75 EXT-FC*	<a href="#">16614E</a>	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8				●			
V84 5B1 EXT-FC	<a href="#">17614E</a>	5	1	.250	1.000	.250	16 AND LARGER				●			
V84 8B75 EXT-FC	<a href="#">21614F</a>	8	3/4	.250	1.000	.250	U.S. IMPROVED BUTTRESS				●			
V84 5B75 INT-FC	<a href="#">16618E</a>	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8				●			
V84 5B1 INT-FC	<a href="#">17618E</a>	5	1	.250	1.000	.250	16 AND LARGER				●			
V84 8B75 INT-FC	<a href="#">21618F</a>	8	3/4	.250	1.000	.250	U.S. IMPROVED BUTTRESS				●			

\*FC indicates 5° flank clearance

# API Rotary Shoulder Connection Threading

■ For holders and bars see pgs. 215-218



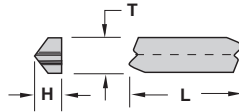
EXT SHOWN  
INT OPPOSITE

Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating					
								C3	C6H	GP3	GP50	AC3	AC50
V85 425 EXT	<a href="#">09634</a>	4	2	.312	1.000	.250	5-1/2 - 6-5/8 FH, 6-5/8 REG				●	●	●
V85 428 EXT	<a href="#">10634</a>	4	2	.312	1.000	.250	NC23 - 50, 2-3/8 - 5-1/2 IF				●	●	●
V85 42F EXT*	<a href="#">14634</a>	4	2	.312	1.000	.250	VO.065*				●	●	●
V85 435 EXT	<a href="#">11634</a>	4	3	.312	1.000	.250	5-1/2 REG, 7-5/8 REG, 8-5/8 REG				●	●	●
V85 438 EXT	<a href="#">12634</a>	4	3	.312	1.000	.250	NC56 - NC71				●	●	●
V85 530 EXT	<a href="#">13634</a>	5	3	.312	1.000	.250	3-1/2FH, 2-3/8 - 4-1/2 REG				●	●	●
V85 4PAC EXT	<a href="#">15634</a>	4	1-1/2	.312	1.000	.250	American Open Hole				●	●	●
V85 425 INT	<a href="#">09638</a>	4	2	.312	1.000	.250	5-1/2 - 6-5/8 FH, 6-5/8 REG				●	●	●
V85 428 INT	<a href="#">10638</a>	4	2	.312	1.000	.250	NC23 - 50, 2-3/8 - 5-1/2 IF				●	●	●
V85 42F INT*	<a href="#">14638</a>	4	2	.312	1.000	.250	VO.065*				●	●	●
V85 435 INT	<a href="#">11638</a>	4	3	.312	1.000	.250	5-1/2 REG, 7-5/8 REG, 8-5/8 REG				●	●	●
V85 438 INT	<a href="#">12638</a>	4	3	.312	1.000	.250	NC56 - NC71				●	●	●
V85 530 INT	<a href="#">13638</a>	5	3	.312	1.000	.250	3-1/2FH, 2-3/8 - 4-1/2 REG				●	●	●
V85 4PAC INT	<a href="#">15638</a>	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 and bars see pgs. 215-218

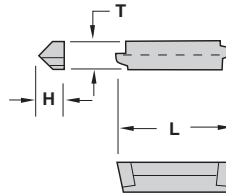


EXT SHOWN  
INT OPPOSITE

Description	EDP Code	TPI	TPF	T	L	H	Coating						
							C3	C6H	GP3	GP50	AC3	AC50	
V84 10RD EXT	<a href="#">34614</a>	10	3/4	.250	1.000	.250					●	●	●
V84 10RD INT	<a href="#">34618</a>	10	3/4	.250	1.000	.250					●	●	●
V84 8RD EXT	<a href="#">32614</a>	8	3/4	.250	1.000	.250					●	●	●
V84 8RD INT	<a href="#">32618</a>	8	3/4	.250	1.000	.250					●	●	●

# API VAM Threading

■ For holders and bars see pgs. 215-218



EXT SHOWN  
INT OPPOSITE

Description	EDP Code	TPI	TPF	T	L	H	Coating						
							C3	C6H	GP3	GP50	AC3	AC50	
V84 5 VAM EXT	<a href="#">23614</a>	5	3/4	.250	1.000	.250					●		
V84 5 VAM INT	<a href="#">23618</a>	5	3/4	.250	1.000	.250					●		
V84 6 VAM EXT	<a href="#">24614</a>	6	3/4	.250	1.000	.250					●		
V84 6 VAM INT	<a href="#">24618</a>	6	3/4	.250	1.000	.250					●		
V84 8 VAM EXT	<a href="#">25614</a>	8	3/4	.250	1.000	.250					●		
V84 8 VAM INT	<a href="#">25618</a>	8	3/4	.250	1.000	.250					●		

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

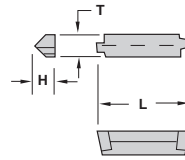
● High performance choice in optimal conditions.  
▲ Recommended grade under general conditions.

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

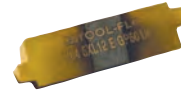


# VEE-BOTTOM API X-LINE THREADING

■ For holders and bars see pgs. 215-218



EXT SHOWN  
INT OPPOSITE

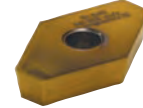
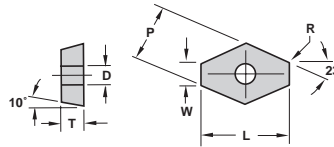


Description	EDP Code	TPI	TPF	T	L	H	Connection	C3	CGH	GP3	GP50	AC3	AC50
V84 5XL12 EXT	18614	5	1-1/4	.250	1.000	.250	8-5/8 - 10-3/4				●		●
V84 5XL12 INT	18618	5	1-1/4	.250	1.000	.250	8-5/8 - 10-3/4				●		●
V84 6XL15 EXT	19614	6	1-1/2	.250	1.000	.250	5 - 7-5/8				●		●
V84 6XL15 INT	19618	6	1-1/2	.250	1.000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

# API 46° RING GROOVERS

## APIP

■ For holders see pg. 22



Description	EDP Code	R	W	P	T	L	D	Style	Coating									
									CGH	GP25	GP6	AC25	AC6	Uncoated	TIN Coated	AITIN Coated		
APIP 086-3	<a href="#">754000</a>	.015	.079	.372	.187	3/4	-	Clamp										
APIP 131-3	<a href="#">754005</a>	.031	.125	.407	.187	3/4	-	Clamp	●									
APIP (PGN-1A)	<a href="#">754003</a>	.031	.131	.414	.187	3/4	-	Clamp	●									
APIP 162-3 (PGN-6A)	<a href="#">75403</a>	.031	.156	.437	.187	3/4	-	Clamp	●									
APIP (PGN-7A)	<a href="#">75887</a>	.031	.203	.484	.187	3/4	-	Clamp	●									
APIP 203-3 (PGN-2A)	<a href="#">75413</a>	.031	.197	.574	.187	1"	-	Clamp	●									
APIP 203-3H	<a href="#">75413H</a>	.031	.197	.574	.187	1"	.203	Lock Pin										
APIP 213-3	<a href="#">75423</a>	.062	.206	.574	.187	1"	.203	Lock Pin	●									
APIP 265-3	<a href="#">75433</a>	.031	.260	.633	.187	1"	.250	Lock Pin										
APIP 281-3	<a href="#">75443</a>	.031	.277	.645	.187	1"	.250	Lock Pin										
APIP 300-3	<a href="#">75463</a>	.031	.295	.662	.187	1"	.250	Lock Pin										
APIP 329-3	<a href="#">75473</a>	.031	.324	.683	.187	1"	.250	Lock Pin										
APIP 355-3	<a href="#">75476</a>	.031	.350	.712	.187	1"	.250	Lock Pin										
APIP 420-3	<a href="#">75490</a>	.031	.415	.772	.187	1"	.250	Lock Pin	●									

### HEAVY DUTY

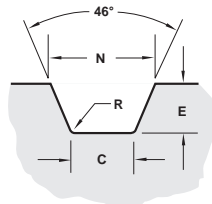
APIP 284-3	<a href="#">75753</a>	.062	.278	.713	.187	1-3/16	.250	Lock Pin										
APIP 162-4NL	<a href="#">75404NL</a>	.031	.156	.733	.250	1-1/2	.250	Lock Pin	●									
APIP 162-4 (Counter sink hole)	<a href="#">75404</a>	.031	.156	.733	.250	1-1/2	.250	Screw	●									
APIP 203-4NL	<a href="#">75414NL</a>	.031	.197	.773	.250	1-1/2	.250	Lock Pin	●									
APIP 203-4 (Counter sink hole)	<a href="#">75414</a>	.031	.197	.773	.250	1-1/2	.250	Screw	●									
APIP 213-4 (Counter sink hole)	<a href="#">75424</a>	.062	.206	.773	.250	1-1/2	.250	Screw	●									
APIP 265-4 (Counter sink hole)	<a href="#">75436</a>	.031	.260	.773	.250	1-3/8	.250	Screw										
APIP 281-4 (Counter sink hole)	<a href="#">75444</a>	.031	.277	.773	.250	1-5/16	.250	Screw										
APIP 300-4 (Counter sink hole)	<a href="#">75464</a>	.031	.295	.773	.250	1-9/32	.250	Screw										
APIP 329-4	<a href="#">75474</a>	.031	.324	.773	.250	1-7/32	.250	Lock Pin										
APIP 355-4	<a href="#">75484</a>	.031	.350	.773	.250	1-5/32	.250	Lock Pin										
APIP 420-4	<a href="#">75492</a>	.031	.415	.773	.250	1"	.250	Lock Pin	●									

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	CGH	GP25	GP6	AC25	AC6
Cast Iron					
Non-Ferrous					
Stainless/High Temp					
Steel			▲		●

# RING GROOVE SPECIFICATIONS



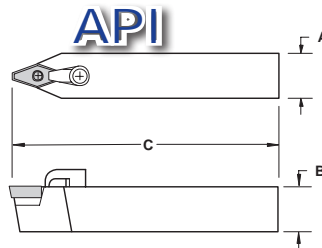
Groove Description	C	E	N	R	Insert Description
BX-150	.260	.220	.450	.031	APIP 265-3 or APIP 265-4
BX-151	.277	.220	.466	.031	APIP 281-3 or APIP 281-4
BX-152	.295	.230	.498	.031	APIP 300-3 or APIP 300-4
BX-153	.324	.270	.554	.031	APIP 329-3 or APIP 329-4
BX-154	.350	.300	.606	.031	APIP 355-3 or APIP 355-4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



# RING GROOVING HOLDERS

## FGNR

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



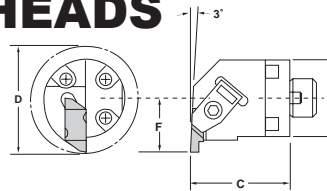
### PARTS

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

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

# INTERCHANGEABLE HEADS FLO-LOCK

## H-FLEL/R\*



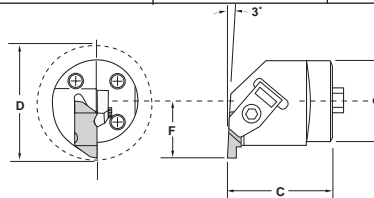
RH SHOWN

### PARTS

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

\*Left hand quoted on request.

## HS-FLEL/R\*



RH SHOWN

### PARTS

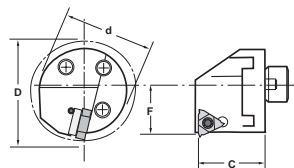
Description	EDP Code	Insert	d	C	F	Min. Bore (D)	Clamp	
							Clamp	Clamp Screw
HS32-FLER3W	<a href="#">91HS65032M16</a>	FL-3L	1.25	1.34	0.866	1.730	TF-73	S-412
HS40-FLER3W	<a href="#">91HS65040M16</a>	FL-3L	1.57	1.58	1.102	2.210	TF-73	S-412
HS50-FLER3W	<a href="#">91HS65050M16</a>	FL-3L	1.97	1.65	1.380	2.760	TF-73	S-412
HS60-FLER3W	<a href="#">91HS65060M16</a>	FL-3L	2.36	1.75	1.740	3.480	TF-73	S-412
HS50-FLER4W	<a href="#">91HS65050M20</a>	FL-4L	1.97	1.65	1.380	2.760	TF-73	S-412
HS60-FLER4W	<a href="#">91HS65060M20</a>	FL-4L	2.36	1.75	1.740	3.480	TF-73	S-412

\*Left hand quoted on request.

# LAYDOWN

## H-LNFR/L\*

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



RH SHOWN

### PARTS

Description	EDP Code	Insert	d	C	F	Min. Bore (D)	Clamp		Lock Pin	
							Seat	Clamp		
H20-LNFR-43	<a href="#">91H4206856</a>	L43	1.250	1.625	0.765	1.450	-	TC-190	STC-9	NL-44
H24-LNFR-43	<a href="#">91H4207256</a>	L43	1.500	1.625	0.890	1.760	-	TC-190	STC-9	NL-44
H32-LNFR-43	<a href="#">91H4208056</a>	L43	2.000	1.625	1.281	2.400	LS43	TC-190	STC-5	NL-46
H24-LNFR-53API	<a href="#">91H4407262</a>	L53	1.500	1.625	0.890	1.760	-	TC-250	STC-11	NL-56
H32-LNFR-53API	<a href="#">91H4408062</a>	L53	2.000	1.625	1.281	2.400	-	TC-250	STC-11	NL-56
H24-LNFR-54API	<a href="#">91H4407264</a>	LDS 54	1.500	1.625	0.890	1.760	-	TC-250	STC-11	<a href="#">H410-1</a>
H32-LNFR-54API	<a href="#">91H4408064</a>	LDS 54	2.000	1.625	1.281	2.400	-	TC-250	STC-11	NL-56

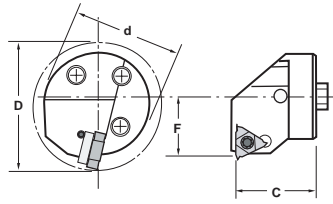
\*Non API heads only for 8RD, 10RD, 5B75, 5B1 threads. API heads required for rotary shoulder connections threads.



# INTERCHANGEABLE HEADS

## HS-LNFR/L\*

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



RH SHOWN

### PARTS

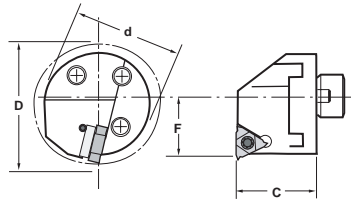
Description	EDP Code	Insert	d	C	F	Min. Bore (D)	PARTS		
							Clamp	Clamp Screw	Lock Pin
HS32-LNFR-43	<a href="#">9IHS42032M56</a>	L43	1.25	1.26	0.866	1.570	TC-190	STC-9	NL-44
HS40-LNFR-43	<a href="#">9IHS42040M56</a>	L43	1.57	1.26	1.063	1.970	TC-190	STC-9	NL-44
HS50-LNFR-43	<a href="#">9IHS42050M56</a>	L43	1.97	1.57	1.378	2.480	TC-190	STC-9	NL-44
HS40-LNFR-53API	<a href="#">9IHS44440M62</a>	L53	1.57	1.26	1.063	1.970	TC-250	STC-11	NL-56
HS50-LNFR-53API	<a href="#">9IHS44450M62</a>	L53	1.97	1.57	1.378	2.480	TC-250	STC-11	NL-56
HS40-LNFR-54API	<a href="#">9IHS44440M64</a>	LDS 54	1.57	1.26	1.063	1.970	TC-250	STC-11	<a href="#">H410-1</a>
HS50-LNFR-54API	<a href="#">9IHS44450M64</a>	LDS 54	1.97	1.57	1.378	2.480	TC-250	STC-11	NL-56

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

# LAYDOWN

## H-AVR/L\*

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



RH SHOWN

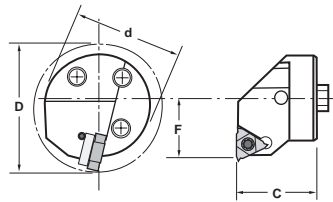
### PARTS

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

\*Left hand quoted on request.

# HS-AVR/L\*

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



RH SHOWN

### PARTS

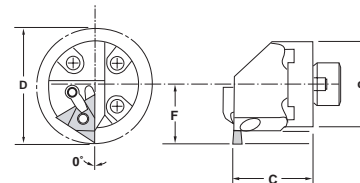
Description	EDP Code	Insert	D	C	F	Min. Bore	PARTS		
							Insert Screw	Seat Screw	Seat
HS25-AVR-3R	<a href="#">9IHS18025M361</a>	16NR	0.98	0.98	0.669	1.260	SA-3	SY-3	Y13
HS32-AVR-3R	<a href="#">9IHS18032M361</a>	16NR	1.26	1.26	0.866	1.570	SA-3	SY-3	Y13
HS40-AVR-3R	<a href="#">9IHS18040M361</a>	16NR	1.57	1.26	1.063	1.970	SA-3	SY-3	Y13
HS50-AVR-3R	<a href="#">9IHS18050M361</a>	16NR	1.97	1.57	1.378	2.480	SA-3	SY-3	Y13
HS40-AVR-4R	<a href="#">9IHS18040M401</a>	22NR	1.57	1.26	1.063	1.970	SA-4	SY-4	Y14
HS50-AVR-4R	<a href="#">9IHS18050M401</a>	22NR	1.97	1.57	1.378	2.480	SA-4	SY-4	Y14

\*Left hand quoted on request.

# ON-EDGE

## H-MTHOR/L\*

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



RH SHOWN

### PARTS

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

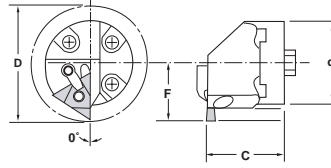
\*Left hand quoted on request.



# INTERCHANGEABLE HEADS

## ON-EDGE HS-MTHOR/L\*

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



RH SHOWN

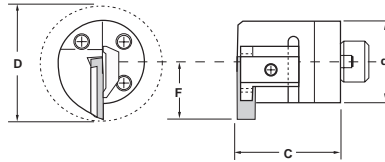
### PARTS

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

\*Left hand quoted on request.

## VEE BOTTOM H-CDHOR/L\*

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



RH SHOWN

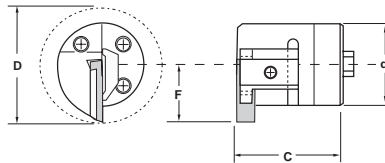
### PARTS

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

\*Left hand quoted on request.

## HS-CDHOR/L\*

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



RH SHOWN

### PARTS

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

\*Left hand quoted on request.



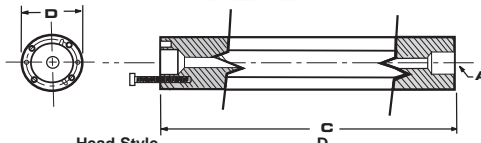


API

API

### S-4400W

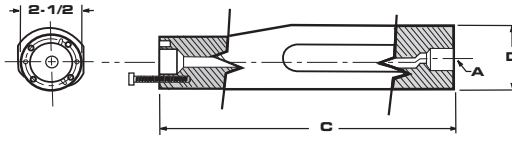
Steel Shank with Through Coolant



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

### S-4400W48

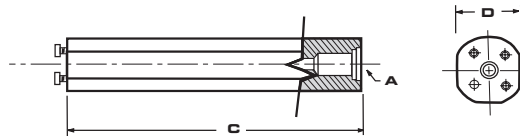
Steel Shank with Through Coolant



Description	EDP Code	Head Style	D	C	A	Screw (4 req/d)
S-4440W48	<a href="#">9IBS4440W48</a>	H40-	3.000	18.000	3/8 - 18NPT	SS89

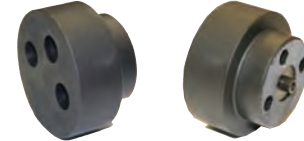
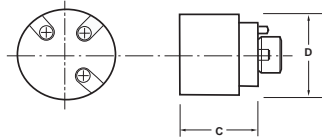
### S-570

Steel Shank with Through Coolant



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

### H/HS-BLANKS



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

\*Specify right or left hand when ordering.

## CROSSOVER CHART

INTERCHANGEABLE HEAD

TOOL-FLO DESCRIPTION

KENAMETAL®

SANDVIK®

Head Style	TOOL-FLO DESCRIPTION	KENAMETAL®	SANDVIK®
<b>H Style</b> 	H_-FLER_W	H_-FLER_W	
	H_-AVR_	H_-LSER-	
	H_-MTHOR_	H_-MTHOR_	
	H_-MCLNR_	H_-MCLNR_	
	H_-MDUNR_	H_-MDUNR_	
	H_-MSKNR_	H_-MSKNR_	
	H_-MTFNR_	H_-MTFNR_	
	H_-MVUNR_	H_-MVUNR_	
	H_-MWLNR_	H_-MWLNR_	
	<b>HS Style</b> 	HS_-FLER_W	
HS_-AVR_			R566-4KFC-_-_-
HS_-MTHOR_			
HS_-MCLNR_			R571.31C-_-_-
HS_-MDUNR_			R571.35C-_-_-
HS_-MSKNR_			
HS_-MTFNR_			

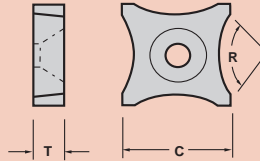


# EXTERNAL SCARFING INSERTS

## SPUB-63 - EXTERNAL

3/4" Square 4-sided - OD

■ Holders may be quoted upon request.

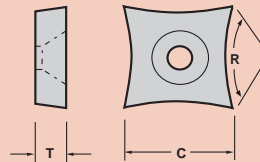


Description	EDP Code	Tube Diameter	T	C	R - Radius	TIN Coated		A11TIN Coated		
						GP50	GP54	AC22	AC50	ZA50
SPUB-63B-E	<a href="#">SI63EB</a>	up to 7/8"	3/16"	3/4"	.475	●			●	●
SPUB-63C-E	<a href="#">SI63EC</a>	7/8" - 1-1/8"	3/16"	3/4"	.590	●			●	●
SPUB-63D-E	<a href="#">SI63ED</a>	1-1/8" - 1-1/2"	3/16"	3/4"	.785	●			●	●
SPUB-63E-E	<a href="#">SI63EE</a>	1-1/2" - 1-7/8"	3/16"	3/4"	.985	●			●	●
SPUB-63F-E	<a href="#">SI63EF</a>	1-7/8" - 2-1/4"	3/16"	3/4"	1.180	●			●	●
SPUB-63G-E	<a href="#">SI63EG</a>	2-1/4" - 3-1/8"	3/16"	3/4"	1.575	●			●	●
SPUB-63H-E	<a href="#">SI63EH</a>	3-1/8" - 3-7/8"	3/16"	3/4"	1.970	●			●	●
SPUB-63I-E	<a href="#">SI63EI</a>	3-7/8" - 4-7/8"	3/16"	3/4"	2.470	●			●	●
SPUB-63J-E	<a href="#">SI63EJ</a>	4-7/8" - 5-7/8"	3/16"	3/4"	2.970	●			●	●
SPUB-63K-E	<a href="#">SI63EK</a>	5-7/8" - 6-7/8"	3/16"	3/4"	3.470	●			●	●
SPUB-63L-E	<a href="#">SI63EL</a>	6-7/8" - 7-7/8"	3/16"	3/4"	3.970	●			●	●
SPUB-63M-E	<a href="#">SI63EM</a>	7-7/8" and up	3/16"	3/4"	None	●			●	●
SPUB-63M-30-E	<a href="#">SI63EM30</a>	30° Relief	3/16"	3/4"	None	●			●	●

## SQ86 - EXTERNAL

1" Square 4-sided - OD

■ Holders may be quoted upon request.

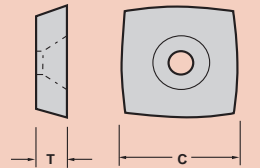


Description	EDP Code	Tube Diameter	T	C	R - Radius	TIN Coated		A11TIN Coated		
						GP50	GP54	AC22	AC50	ZA50
SQ86-14-0-E	<a href="#">SI86E0</a>	ANY	3/8"	1.000	0.000	●			●	●
SQ86-14-2.5-E	<a href="#">SI86E25</a>	3" - 4-3/4"	3/8"	1.000	2.500	●			●	●
SQ86-10-3.4-E	<a href="#">SI86E34</a>	4-3/4" - 6-3/4"	3/8"	1.000	3.400	●			●	●
SQ86-14-4.5-E	<a href="#">SI86E45</a>	6-3/4" - 8-3/4"	3/8"	1.000	4.500	●			●	●
SQ86-10-9.5-E	<a href="#">SI86E95</a>	8-3/4" - 18"	3/8"	1.000	9.500	●			●	●

## SQ86 - INTERNAL

1" Square 4-sided - ID

■ Holders may be quoted upon request.

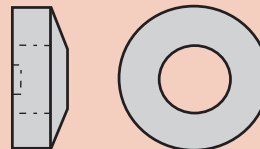


Description	EDP Code	Tube Diameter	T	C	R - Radius	TIN Coated		A11TIN Coated		
						GP50	GP54	AC22	AC50	ZA50
SQ86-14-0-I	<a href="#">SI86I0</a>	ANY	3/8"	1.000	0.750	●			●	●
SQ86-14-2.5-I	<a href="#">SI86I25</a>	3" - 4-3/4"	3/8"	1.000	1.000	●			●	●
SQ86-10-3.4-I	<a href="#">SI86I34</a>	4-3/4" - 6-3/4"	3/8"	1.000	1.250	●			●	●

# INTERNAL SCARFING INSERTS

## IDR

■ Holders may be quoted upon request.



Description	EDP Code	Int'l Tube Diameter	Description	TIN Coated		A11TIN Coated		
				GP50	GP54	AC22	AC50	ZA50
IDR-2010	<a href="#">IDSR2010</a>	9/16" - 11/16"	#1					
IDR-2020	<a href="#">IDSR2020</a>	11/16" - 13/16"	#2			●	●	●
IDR-2030	<a href="#">IDSR2030</a>	13/16" - 1-1/32"	#3			●	●	●
IDR-2040	<a href="#">IDSR2040</a>	1-1/32" - 1-3/8"	#4			●	●	●
IDR-2050	<a href="#">IDSR2050</a>	5/16" - 1-7/16"	#5			●	●	●
IDR-2060	<a href="#">IDSR2060</a>	1-1/32" - 1-1/8"	#6			●	●	●
IDR-2070	<a href="#">IDSR2070</a>	1-1/8" - 1-3/16"	#7			●	●	●
IDR-2080	<a href="#">IDSR2080</a>	1-3/16" - 1-3/8"	#8			●	●	●
IDR-2090	<a href="#">IDSR2090</a>	1-1/4" - 1-5/8"	#9			●	●	●
IDR-2100	<a href="#">IDSR2100</a>	1-5/8" - 2"	#10			●	●	●
IDR-2110	<a href="#">IDSR2110</a>	1-7/8" - 2-7/8"	#11			●	●	●
IDR-2120	<a href="#">IDSR2120</a>	2-3/4" - 3-3/8"	#12			●	●	●
IDR-2130	<a href="#">IDSR2130</a>	3-3/8" - 4"	#13			●	●	●
IDR-2140	<a href="#">IDSR2140</a>	4" - 5"	#14			●	●	●
IDR-2150	<a href="#">IDSR2150</a>	5" - 6-1/4"	#15			●	●	●
IDR-2160	<a href="#">IDSR2160</a>	6" - 10-1/4"	#16			●	●	●

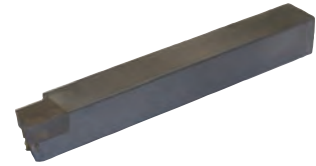
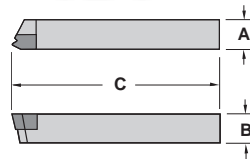


API

API

# BRAZED TOOLS

## API THREADING



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

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

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

Cast Iron
Non-Ferrous
Stainless/High Temp
Steel

## Cross Reference Chart

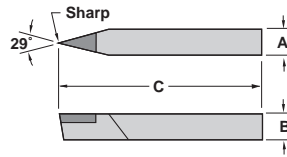
TOOL-FLO	VALENITE®	CARBOLOY®	VARDEX®	ISCAR®	TGI®	KENNAMETAL®
L43	TNEM 43					
LDS 43	TNEG 43					
L53						
LDS 54	TNEG 54					
LDS 54 - FT	TNEGX 54					
TNMC	TNEC/TNMC					
TNFA	TNFA					
16ER		16ER	3ER	16ER		
16NR		16NR	3IR	16IR		
22ER		22ER	4ER	22ER		
22NR		22NR	4IR	22IR		
27ER		27ER	5ER	27ER		
27NR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





# BRAZED TOOLS

## ACME THREADING NO PITCH

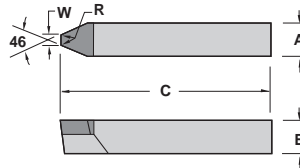


Description	EDP Code	TPI	A	B	C	C5H
B6 NT NO PITCH	77104A	6-16	3/8	3/8	2-1/2	●
B8 NT NO PITCH	77304A	4-16	1/2	1/2	3-1/2	●
B10 NT NO PITCH	77504A	2-16	5/8	5/8	4	●
B12 NT NO PITCH	77604A	2-16	3/4	3/4	4-1/2	●

Uncoated

C5H

## RING GROOVING NO PITCH



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

Uncoated

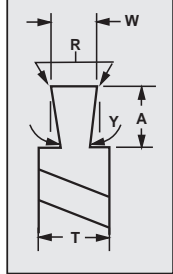
C5H

\* See page 21 for ring groove specs.

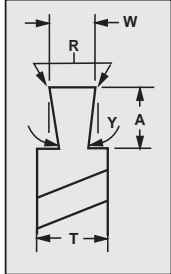
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

Cast Iron	
Non-Ferrous	
Stainless/High Temp	
Steel	

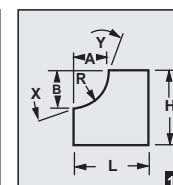
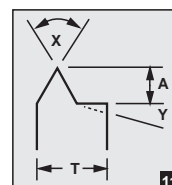
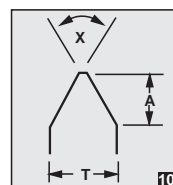
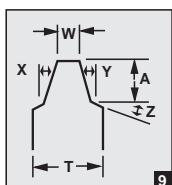
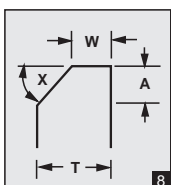
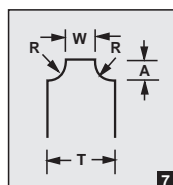
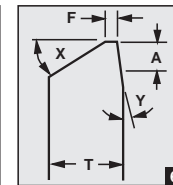
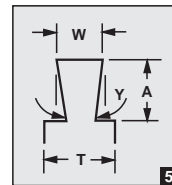
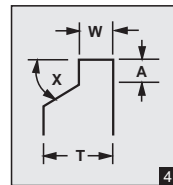
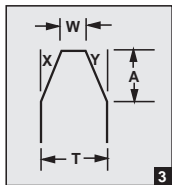
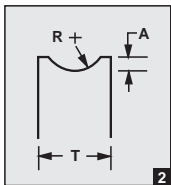
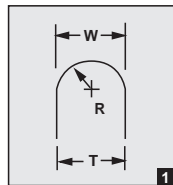
FLO-LOCK LEFT HAND



FLO-LOCK RIGHT HAND



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





**TECHNICAL INFORMATION**

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

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

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

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

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

API THREAD FORM SPECIFICATIONS					
Thread Form	TPI	TPF	Width or Flat Crest	Root 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

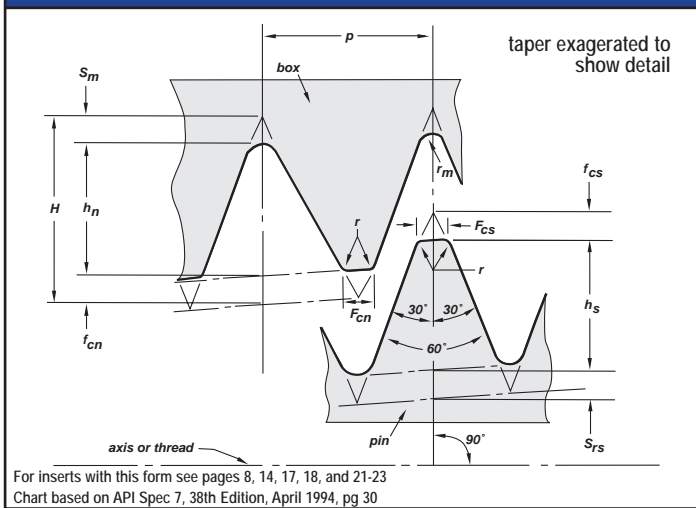
\*Obsolescent thread form - See API Spec 7, 35th Edition, May 1, 1985, Section 9.4



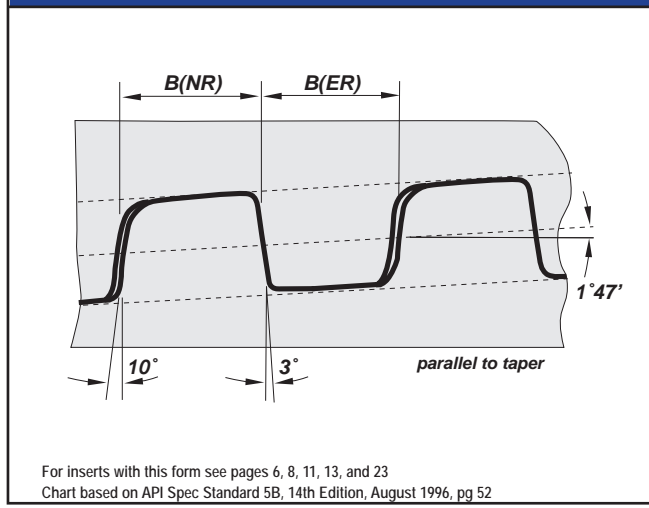
PRODUCT THREAD DIMENSIONS - ROTARY SHOULDER CONNECTIONS

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

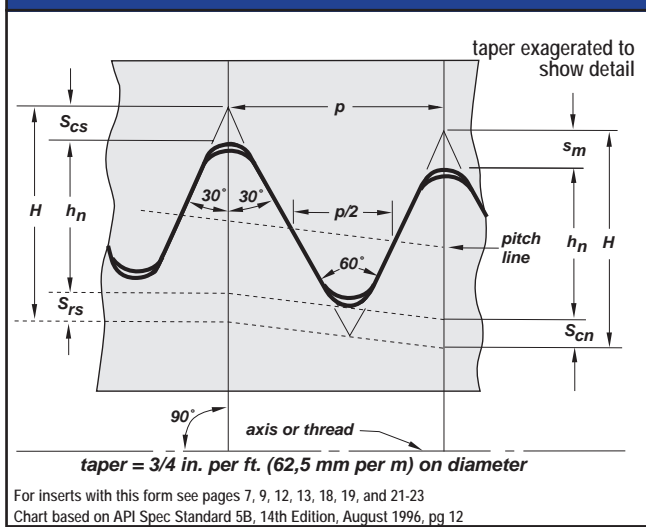
V-040 AND V-050 PRODUCT THREAD FORM



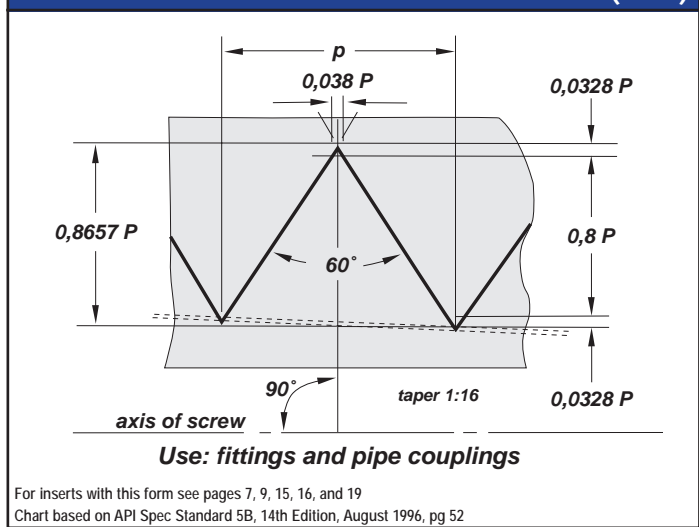
API BUTTRESS



API CASING AND TUBING ROUND THREAD FORM



AMERICAN NATIONAL PIPE THREAD (NPT)



CASING AND TUBING ROUND THREAD (Height Dimensions)

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

NPT PIPE SIZE CROSSOVER

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





# TOOL FLO



TOOL FLO  
TF17420  
C2

TOOL-FLO  
CR-5B75-4E  
TF22675 G50

TOOL-FLO  
CR-6R-71  
TF14928 AT50

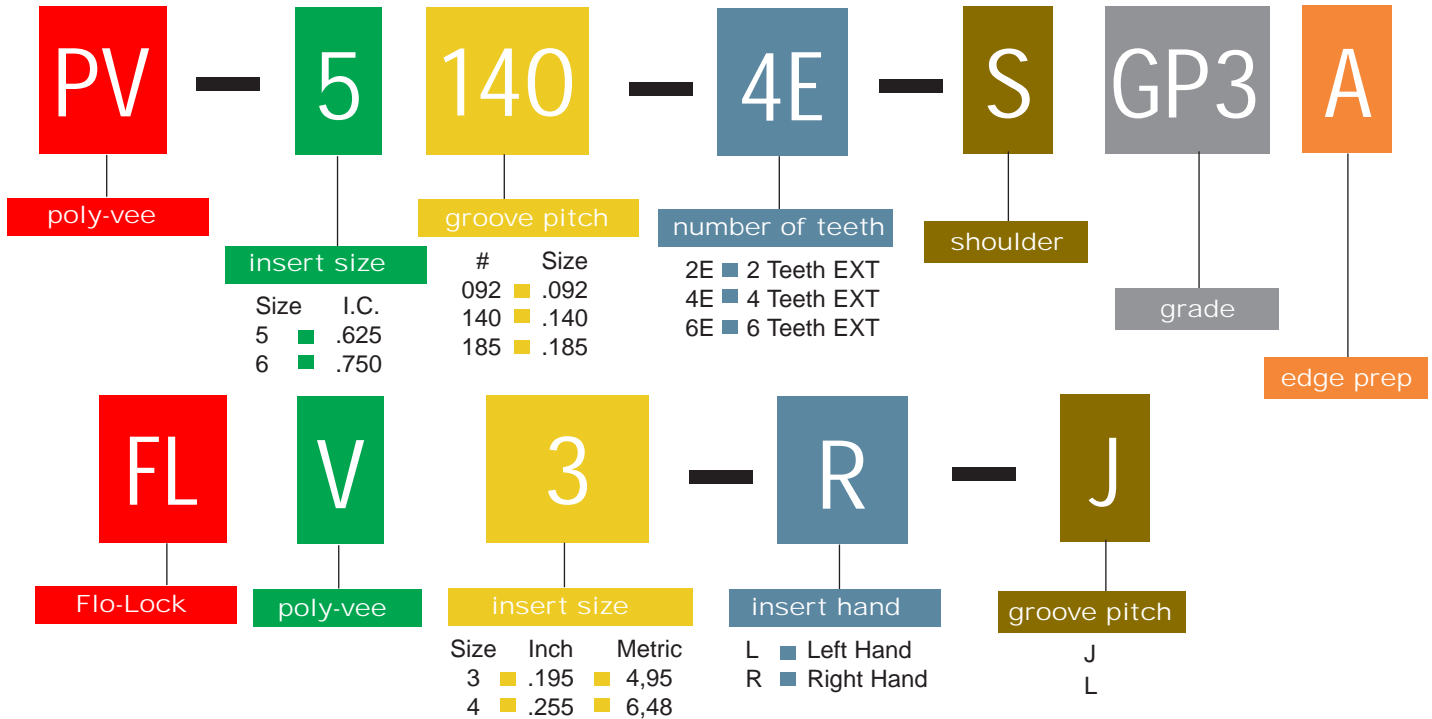
TOOL-FLO  
CR-6R-71  
TF14928 AT50

TOOL-FLO  
CR-6R-71  
TF14928 AT50

# AUTOMOTIVE



## Poly-Vee Insert Identification 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

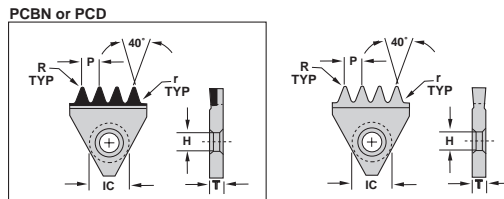
- FLV**
- Single-point insert for flexible programming
  - Inserts are precision ground for premium tolerance
  - Strong cutting edge able to withstand moderate interruption
  - Fits into industry standard holders

## POLY-VEE

### PV-S

Multi-Tooth w/ Shoulder

■ For holder STCNR see next page

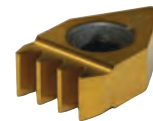
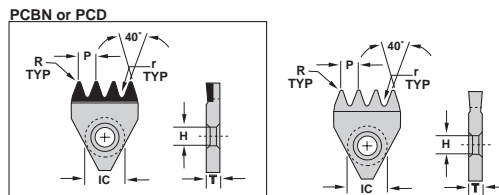


Insert Description	EDP Code	Cross Section*	IC	H	T	P	r	R	# of teeth	Coatings						
										C25	GP25	AC25	AC3	AC50	CB200	PC33
PV-5092-4E-S	<a href="#">PV50924ES</a>	J	.625	.203	.252	.092	.008	.012	4	●	●	●	●	●	●	●
PV-5092-6E-S	<a href="#">PV50926ES</a>	J	.625	.203	.252	.092	.008	.012	6	●	●	●	●	●	●	●
PV-5140-2E-S	<a href="#">PV51402ES</a>	K	.625	.203	.252	.140	.013	.016	2	●	●	●	●	●	●	●
PV-5140-4E-S	<a href="#">PV51404ES</a>	K	.625	.203	.252	.140	.013	.016	4	●	●	●	●	●	●	●
PV-6140-6E-S	<a href="#">PV61406ES</a>	K	.750	.203	.250	.140	.013	.016	6	●	●	●	●	●	●	●
PV-6185-4E-S	<a href="#">PV61854ES</a>	L	.750	.203	.250	.185	.021	.013	4	●	●	●	●	●	●	●

### PV

Multi-Tooth w/o Shoulder

■ For holder STCNR see next page



Insert Description	EDP Code	Cross Section*	IC	H	T	P	r	R	# of teeth	Coatings						
										C25	GP25	AC25	AC3	AC50	CB200	PC33
PV-5092-4E	<a href="#">PV50924E</a>	J	.625	.203	.252	.092	.008	.012	4	●	●	●	●	●	●	●
PV-5092-6E	<a href="#">PV50926E</a>	J	.625	.203	.252	.092	.008	.012	6	●	●	●	●	●	●	●
PV-5140-2E	<a href="#">PV51402E</a>	K	.625	.203	.252	.140	.013	.016	2	●	●	●	●	●	●	●
PV-5140-4E	<a href="#">PV51404E</a>	K	.625	.203	.252	.140	.013	.016	4	●	●	●	●	●	●	●
PV-6140-6E	<a href="#">PV61406E</a>	K	.750	.203	.250	.140	.013	.016	6	●	●	●	●	●	●	●
PV-6185-4E	<a href="#">PV61854E</a>	L	.750	.203	.250	.185	.021	.013	4	●	●	●	●	●	●	●

\*See table on page.

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

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

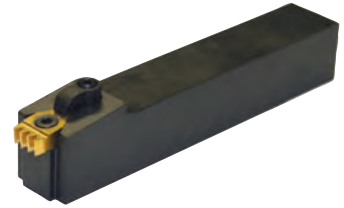
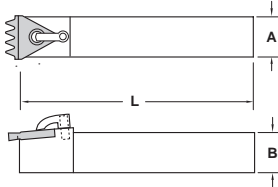
Material	C25	GP25	AC25	AC3	AC50	CB200	PC33
Cast Iron	●	●	●	●	●	●	●
Non-Ferrous	●	●	●	●	●	●	●
Stainless/High Temp	●	●	●	●	●	●	●
Steel	●	●	●	●	●	●	●



# AUTOMOTIVE

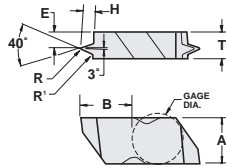
## POLY-VEE STCNR

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

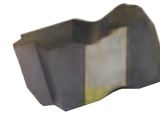


Description	EDP Code	A	B	L	Insert	Insert Screw	Clamp	Clamp Screw
STCNR-165	<a href="#">977064641</a>	1.000	1.000	6.000	PV-5	SD-2	TC-250	STC-11
STCNR-205	<a href="#">9770206641</a>	1.250	1.250	6.000	PV-5	SD-2	TC-250	STC-11
STCNR-206	<a href="#">9770206761</a>	1.250	1.250	6.000	PV-6	SD-2	TC-251	STC-11

## POLY-VEE FLO-LOCK FLV



RH Shown

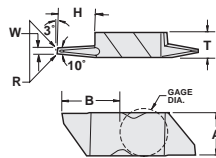


Insert Description	EDP Code	R	R1	T	E	H	A	B	Coatings				
									C25	GP3	GP50	AC3	AC50
FLV-3RJ	<a href="#">623800R</a>	.012	.008	.195	.125	.087	.344	.4013	●	●	●	●	●
FLV-3RK	<a href="#">623900R</a>	.016	.013	.195	.100	.136	.344	.4000	●	●	●	●	●
FLV-4RL	<a href="#">624800R</a>	.012	.015	.255	.118	.201	.453	.6288	●	●	●	●	●
FLV-3LJ	<a href="#">623800L</a>	.012	.008	.195	.125	.087	.344	.4013	●	●	●	●	●
FLV-3LK	<a href="#">623900L</a>	.016	.013	.195	.100	.136	.344	.4000	●	●	●	●	●
FLV-4LL	<a href="#">624800L</a>	.012	.015	.255	.118	.201	.453	.6288	●	●	●	●	●

## PISTON GROOVING KEYSTONE FLG

Chipbreaker

*Exclusive patented design!*



RH Shown



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

**Available in PCD!**  
Any width or configuration!  
Call us with your piston grooving needs!

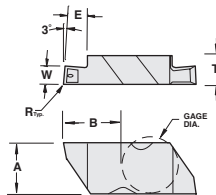
TNMA  
TNMC  
FLG

## GROOVING CHIP-FLO FLG-CB

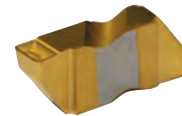
Chipbreaker

*Exclusive patented design!*  
See page 92 for a complete listing!

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



RH Shown



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

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

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

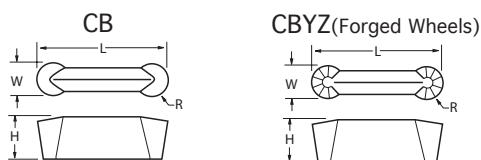
Cast Iron	▲	●	▲	▲
Non-Ferrous	●	●	●	●
Stainless/High Temp	▲	●	▲	▲
Steel	●	▲	●	▲





## WHEEL TURNING

DBV  
High Polish



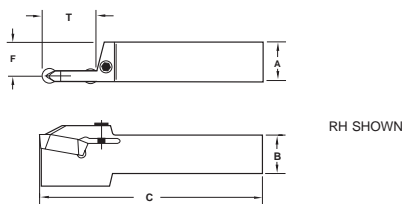
Insert Description	EDP Code	W	R	L	H	C2P	ALS2	AC3	AC50
DBV-315 FNR-CB	TF17420	.315	.157	1.180	.320	●	●		
DBV-315 FNR-CBYZ	TF22487	.315	.157	1.180	.320	●			

In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.	<ul style="list-style-type: none"> <li>● High performance choice in optimal conditions.</li> <li>▲ Recommended grade under general conditions.</li> </ul>	Aluminum	▲	●	
		Steel			●

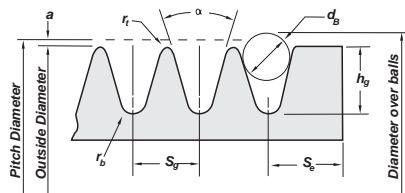
## WHEEL TURNING

TFHDR/L



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

### POLY-VEE TECHNICAL INFORMATION



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

Cross Section	Minimum Recommended Outside Diameter	Groove Angle ± 0.25 (deg)	$S_g^a$	$r_g$ + 0.005 - 0.000	$Z_g$	$r_b$	$h_g$ (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. For each additional inch of outside diameter over 8.0 in., add ± 0.025 in. add 0.0005 in.	Over 2.9 in. to and including 10.0 in. outside diameter ± 0.010 in. For each additional inch of outside diameter over 10.0 in.,	

All dimensions in inches.

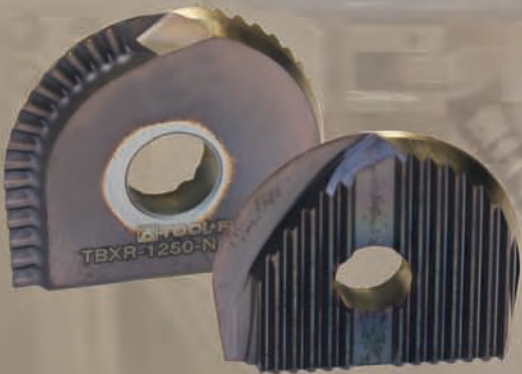
<sup>a</sup>Summation of the deviations from S for all groovers in any one sheave shall not exceed ± 0.010 in.

<sup>b</sup>Variations in pitch diameter between groovers in any one sheave must be within the following limits: Up through 2.9 in. outside diameter and up through 6 grooves, 0.002 in. (add 0.001 in. for each additional groove); over 2.9 in. to and including 19.9 in. and up through 10 grooves, 0.010 in. (add 0.0005 in. for each additional groove). This variation can be obtained by measuring the distance across two measuring balls or rods placed in the grooves diametrically opposite each other. Comparing this "diameter-over-balls or -rods" measurement between grooves will give the variation in pitch diameter.

<sup>c</sup>Total indicator reading.



# TOOL FLO



## BALL NOSE

End Mills

# BALLNOSE

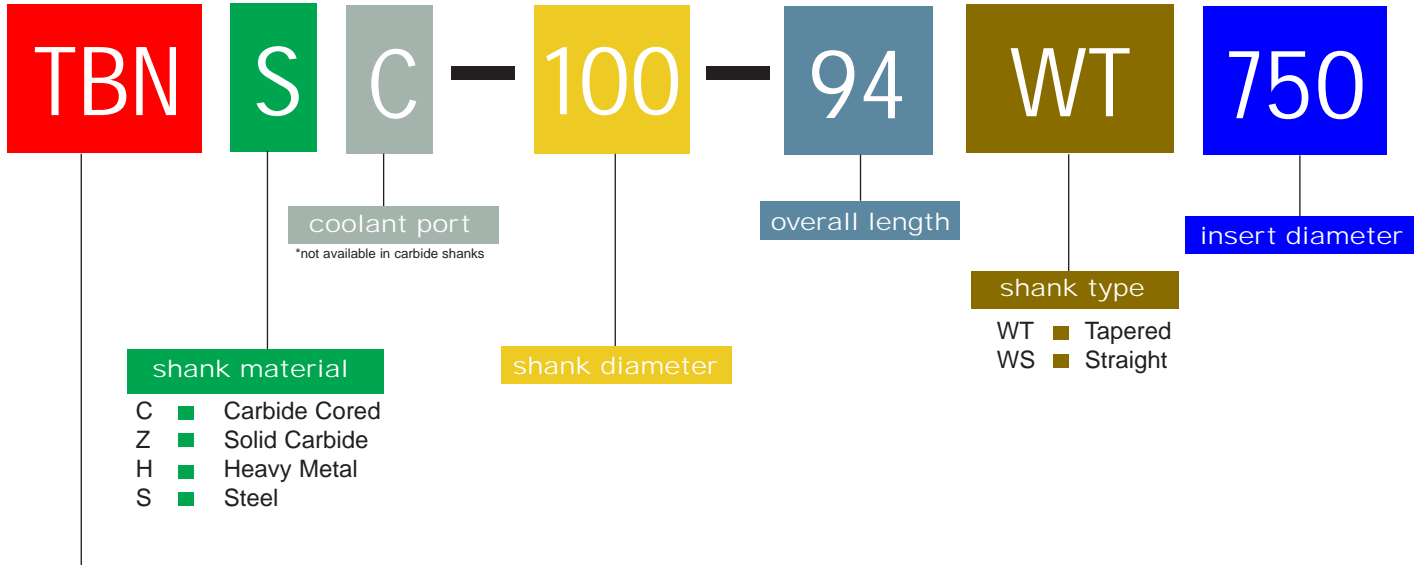


## Ball Nose End Mills



BALLNOSE

### Rigid-Lock Ball Nose Cutter Nomenclature Chart



#### end mill style

##### TBNS

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

##### TBDS

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

## TOOL-FLO GUARANTEE

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

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





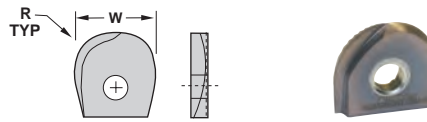
# BALLNOSE

## BALLNOSE

### TBNR-N

Neutral-Rake Finishing Inserts

■ For cutter bodies see pg. 38, 39



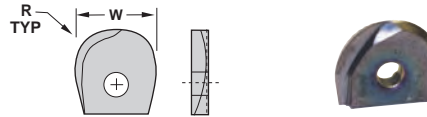
Insert Description	EDP Code	Dia	R	Coating						
				C26S	GP26	ZS26S	ZS26	AC3	DX200	CBN Tipped*
TBNR-250-N	<a href="#">TBNR250N</a>	.250	.125	●	●	●	●	●	●	●
TBNR-312-N	<a href="#">TBNR312N</a>	.312	.156	●	●	●	●	●	●	●
TBNR-375-N	<a href="#">TBNR375N</a>	.375	.187	●	●	●	●	●	●	●
TBNR-500-N	<a href="#">TBNR500N</a>	.500	.250	●	●	●	●	●	●	●
TBNR-625-N	<a href="#">TBNR625N</a>	.625	.312	●	●	●	●	●	●	●
TBNR-750-N	<a href="#">TBNR750N</a>	.750	.375	●	●	●	●	●	●	●
TBNR-1000-N	<a href="#">TBNR1000N</a>	1.000	.500	●	●	●	●	●	●	●
TBNR-1250-N	<a href="#">TBNR1250N</a>	1.250	.625	●	●	●	●	●	●	●

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

### TBNR-P

Positive-Rake Finishing Inserts

■ For cutter bodies see pg. 38, 39



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

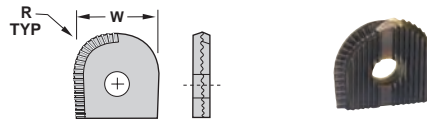
\*Use in cutter for TBNR-1000P

### TBXR-N

Neutral-Rake Roughing Inserts

■ For cutter bodies see pg. 38, 39

*Special Design for Roughing!*



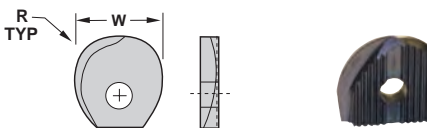
Insert Description	EDP Code	Dia	R	Coating						
				C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
TBXR-500-N	<a href="#">TBXR500N</a>	.500	.250	●	●	●	●	●	●	●
TBXR-625-N	<a href="#">TBXR625N</a>	.625	.312	●	●	●	●	●	●	●
TBXR-750-N	<a href="#">TBXR750N</a>	.750	.375	●	●	●	●	●	●	●
TBXR-875-N	<a href="#">TBXR875N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

## SPHEROID STYLE

### TBRR-P

Positive-Rake Finishing Inserts

■ For cutter bodies see pg. 38, 39



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

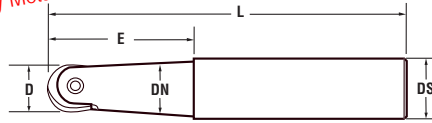
# BALLNOSE



## BALL NOSE TBNS-WT

Tapered neck holders (Inch) w/coolant port

Available in Steel, Carbide Cored & Heavy Metal.



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

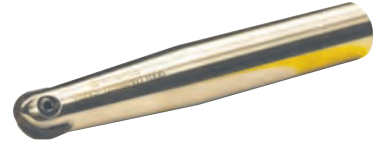
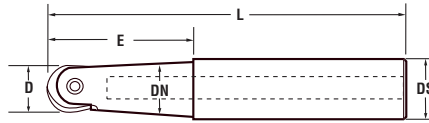
Tapered neck holders (Inch) without coolant port

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

## TBNC-WT

Carbide Cored Shank

Tapered neck holders (Inch) without coolant port

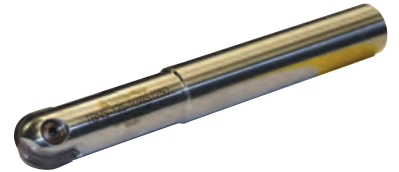
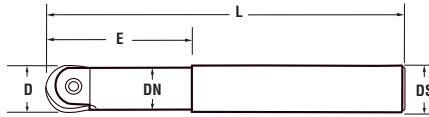


Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
5/8"	TBNC-750-68WT625	<a href="#">TBNC75068WT625</a>	.625	2.562	6.875	.750	3° Taper	TBNR/RR-625	STBN-5	K3
3/4"	TBNC-100-75WT750	<a href="#">TBNC10075WT750</a>	.750	3.000	7.500	1.000	3° Taper	TBNR/RR-750	STBN-6	K4
3/4"	TBNC-100-94WT750	<a href="#">TBNC10094WT750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

## TBNS-WS

Available in Steel, Carbide Cored & Heavy Metal.

Straight neck holders (Inch) w/coolant port



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

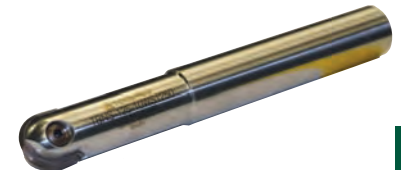
Straight neck holders (Inch) without coolant port

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



Carbide Cored Shank

# BALLNOSE



BALLNOSE

## TBNC-WS

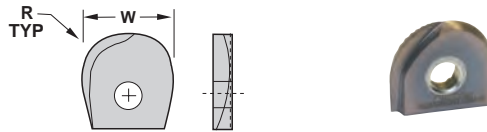
Straight neck holders (Inch) without coolant port

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

## TBNC-M-N

Neutral Rake - Finishing Insert (METRIC)

Cutter: TBNSC/TBNS/TBNC



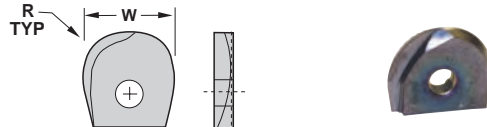
Insert Description	EDP Code	Dia	R	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
TBNC-10M-N	<a href="#">TBNC10MN</a>	10,0	5,0	●	●	●	●	●		
TBNC-12M-N	<a href="#">TBNC12MN</a>	12,0	6,0	●	●	●	●	●		
TBNC-16M-N	<a href="#">TBNC16MN</a>	16,0	8,0	●	●	●	●	●		
TBNC-20M-N	<a href="#">TBNC20MN</a>	20,0	10,0	●	●	●	●	●		
TBNC-25M-N	<a href="#">TBNC25MN</a>	25,0	12,5	●	●	●	●	●		
TBNC-30M-N	<a href="#">TBNC30MN</a>	30,0	15,0	●	●	●	●	●		
TBNC-32M-N	<a href="#">TBNC32MN</a>	32,0	16,0	●	●	●	●	●		

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

## TBNC-M-P

Positive Rake - Finishing Insert (METRIC)

Cutter: TBNSC/TBNS/TBNC



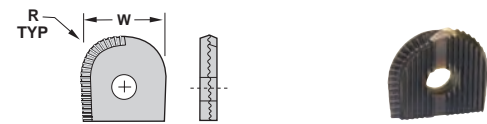
Insert Description	EDP Code	Dia	R	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
TBNC-8M-P	<a href="#">TBNC8MP</a>	8,0	4,0	●	●	●	●	●		
TBNC-10M-P	<a href="#">TBNC10MP</a>	10,0	5,0	●	●	●	●	●		
TBNC-12M-P	<a href="#">TBNC12MP</a>	12,0	6,0	●	●	●	●	●		
TBNC-16M-P	<a href="#">TBNC16MP</a>	16,0	8,0	●	●	●	●	●		
TBNC-20M-P	<a href="#">TBNC20MP</a>	20,0	10,0	●	●	●	●	●		
TBNC-25M-P	<a href="#">TBNC25MP</a>	25,0	12,5	●	●	●	●	●		
TBNC-30M-P	<a href="#">TBNC30MP</a>	30,0	15,0	●	●	●	●	●		
TBNC-32M-P	<a href="#">TBNC32MP</a>	32,0	16,0	●	●	●	●	●		
TBNC-40M-P	<a href="#">TBNC40MP</a>	40,0	20,0	●	●	●	●	●		
TBNC-50M-P	<a href="#">TBNC50MP</a>	50,0	25,0	●	●	●	●	●		
TBNC-65M-P	<a href="#">TBNC65MP</a>	65,0	32,5	●	●	●	●	●		

## TBNC-M-N

Neutral Rake - Roughing Insert (METRIC)

Cutter: TBNSC/TBNS/TBNC

Special Design for Roughing!



Insert Description	EDP Code	Dia	R	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
TBNC-16M-N	<a href="#">TBNC16MN</a>	16,0	8,0	●	●	●	●	●		
TBNC-20M-N	<a href="#">TBNC20MN</a>	20,0	10,0	●	●	●	●	●		
TBNC-25M-N	<a href="#">TBNC25MN</a>	25,0	12,5	●	●	●	●	●		
TBNC-30M-N	<a href="#">TBNC30MN</a>	30,0	15,0	●	●	●	●	●		
TBNC-32M-N	<a href="#">TBNC32MN</a>	32,0	16,0	●	●	●	●	●		
TBNC-40M-N	<a href="#">TBNC40MN</a>	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										

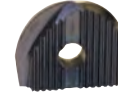
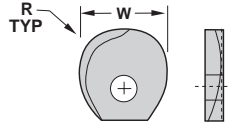




## SPHEROID STYLE TBRR-M-P

Positive-Rake Finishing Insert - **METRIC**

Cutter: TBNSC/TBNS/TBNC



Insert Description	EDP Code	Dia	R	Uncoated	TIN Coated	AlTiN Coated	PCD Coated	CBN Tipper*
				C26S	GP26	ZS26S	ZS26	AC3
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	●			●	

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

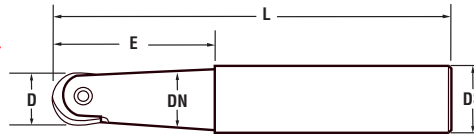
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up-to-date grade offering.

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

## TBNS-WT

Tapered Neck Holder (**METRIC**) w/coolant port

Available in Steel, Carbide Cored & Heavy Metal.



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

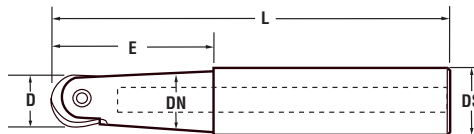
Tapered Neck Holder (**METRIC**) without coolant port

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

## TBNC-WT

Tapered Neck Holder (**METRIC**) without coolant port

Carbide Cored Shank



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

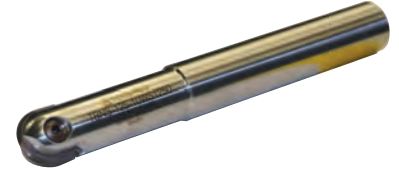
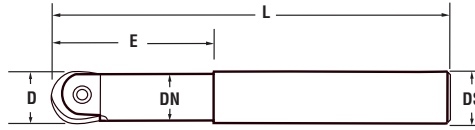


# BALLNOSE

## TBNS-WS

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

Available in Steel, Carbide Cored & Heavy Metal.



BALLNOSE

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

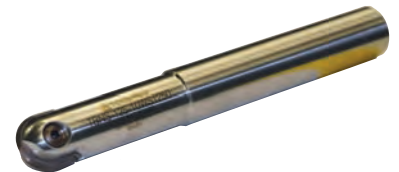
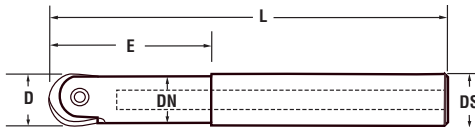
Straight Neck Holder (**METRIC**) without coolant port (RH only)

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

## TBNC-WS

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

Carbide Cored Shank



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

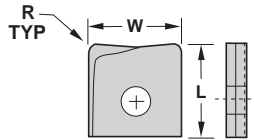
# BALLNOSE



## FLAT BOTTOM STYLE TBFI

Neutral Rake Finishing Insert - INCH

Cutter: TBDS & TBDC

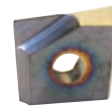
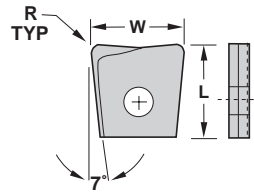


Size	Insert Description	EDP Code	W	R	L	C26S	Uncoated	TIN Coated	AlTiN Coated	PCD Coated	CBN Tipped*
						GP26	ZS26S	ZS26	AC3	DX200	CB200
1/2"	TBFI-500-02	TBDI50002	.500	.032	.500	●	●	●	●	●	●
1/2"	TBFI-500-04	TBFI50004	.500	.063	.500	●	●	●	●	●	●
5/8"	TBFI-625-02	TBFI62502	.625	.032	.580	●	●	●	●	●	●
5/8"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

## BACK DRAFT STYLE TBDI

Neutral Rake Finishing Insert - INCH

Cutter: TBDS & TBDC



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

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

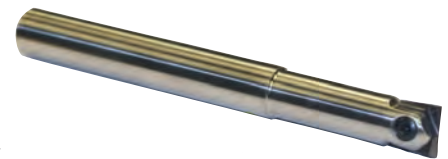
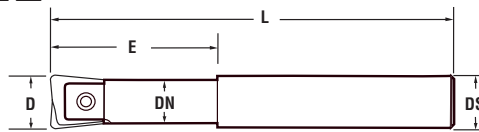
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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

## FLAT BOTTOM/ BACK DRAFT STYLE TBDS-WS

Straight Neck Holder (INCH)

Use TBFI & TBFI Inserts Only



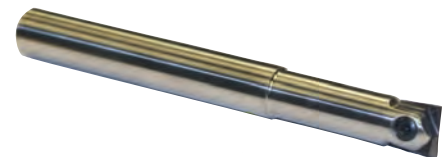
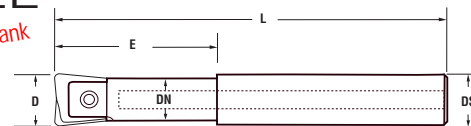
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
1/2"	TBDS-500-59WS500	TBDS50059WS500	.500	1.890	5.980	.500	.413	TBFI / FI-500	STBN-4	K3 / T-10
5/8"	TBDS-625-63WS625	TBDS62563WS625	.625	2.160	6.380	.625	.551	TBFI / FI-625	STBN-5	K3 / T-10
3/4"	TBDS-750-68WS750	TBDS75068WS750	.750	2.480	6.890	.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 Neck Holder (INCH)

Carbide Cored Shank

Use TBFI & TBFI Inserts Only



Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
1/2"	TBDC-500-59WS500	TBDC50059WS500	.500	1.890	5.980	.500	.413	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

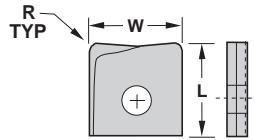


# BALLNOSE

## FLAT BOTTOM STYLE TBF1

Neutral Rake Finishing Insert - **METRIC**

Cutter: TBDS & TBDC



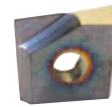
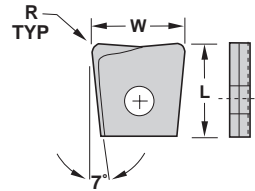
Size	Insert Description	EDP Code	W	R	L	C26S	Uncoated	TiN Coated	AlTiN Coated	PCD Coated	CBN Tipped*
8mm	TBF1-8M-02	TBDI8M02	8,0	(02) 0,81	12,7						
8mm	TBF1-8M-04	TBF18M04	8,0	(04) 1,60	12,7		●				●
16mm	TBF1-16M-02	TBF116M02	16,0	(02) 0,81	14,7		●				
16mm	TBF1-16M-04	TBF116M04	16,0	(04) 1,60	14,7		●				
20mm	TBF1-20M-02	TBF120M02	20,0	(02) 0,81	16,3		●				●
20mm	TBF1-20M-04	TBF120M04	20,0	(04) 1,60	16,3		●				●
25mm	TBF1-25M-02	TBF125M02	25,0	(02) 0,81	22,0		●				
25mm	TBF1-25M-04	TBF125M04	25,0	(04) 1,60	22,0		●				●
25mm	TBF1-25M-08	TBF125M08	25,0	(08) 3,18	22,0		●				●

**BALLNOSE**

## BACK DRAFT STYLE TBD1

Neutral Rake Finishing Insert - **METRIC**

Cutter: TBDS & TBDC



Size	Insert Description	EDP Code	W	R	L	C26S	GP26	ZS26S	ZS26	AC3	DX200	CB200
8mm	TBD1-8M-02	TBDI8M02	8,0	(02) 0,81	12,7		●			●		●
8mm	TBD1-8M-04	TBF18M04	8,0	(04) 1,60	12,7		●			●		●
16mm	TBD1-16M-02	TBF116M02	16,0	(02) 0,81	14,7		●			●		
16mm	TBD1-16M-04	TBF116M04	16,0	(04) 1,60	14,7		●			●		
20mm	TBD1-20M-02	TBF120M02	20,0	(02) 0,81	16,3		●			●		●
20mm	TBD1-20M-04	TBF120M04	20,0	(04) 1,60	16,3		●			●		●
25mm	TBD1-25M-02	TBF125M02	25,0	(02) 0,81	22,0		●			●		
25mm	TBD1-25M-04	TBF125M04	25,0	(04) 1,60	22,0		●			●		●
25mm	TBD1-25M-08	TBF125M08	25,0	(08) 3,18	22,0		●			●		●

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

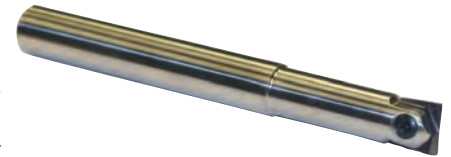
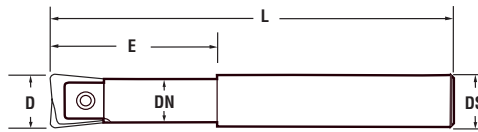
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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

## FLAT BOTTOM/ BACK DRAFT STYLE TBDS-WS

Straight Neck Holder (**METRIC**)

Use TBD1 & TBF1 Inserts Only



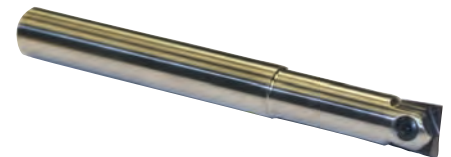
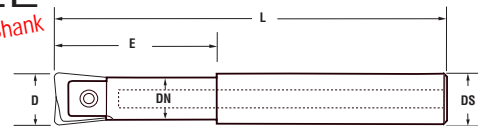
Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
8mm	TBDS-8M-59WS8	TBDS8M59WS8	8,0	48,0	151,9	8,0	10,5	TBD1 / FI-8M	STBN-4	K3 / T-10
16mm	TBDS-16M-63WS16	TBDS16M63WS16	16,0	54,9	162,1	16,0	13,9	TBD1 / FI-16M	STBN-5	K3 / T-10
20mm	TBDS-20M-68WS20	TBDS20M68WS20	20,0	62,9	175,0	20,0	18,0	TBD1 / FI-20M	STBN-6	K4 / T-20
25mm	TBDS-25M-74WS25	TBDS25M74WS25	25,0	71,8	189,9	25,0	17,3	TBD1 / FI-25M	STBN-7	K5 / T-25

## FLAT BOTTOM/ BACK DRAFT STYLE TBDC-WS

Straight Neck Holder (**METRIC**)

Use TBD1 & TBF1 Inserts Only

Carbide Cored Shank



Size	Description	EDP Code	D	E	L	DS	DN	Insert	Screw	Wrench
8mm	TBDS-8M-59WS8	TBDS8M59WS8	8,0	48,0	151,9	8,0	10,5	TBD1 / FI-8M	STBN-4	K3 / T-10
16mm	TBDS-16M-63WS16	TBDS16M63WS16	16,0	54,9	162,1	16,0	13,9	TBD1 / FI-16M	STBN-5	K3 / T-10
20mm	TBDS-20M-68WS20	TBDS20M68WS20	20,0	62,9	175,0	20,0	18,0	TBD1 / FI-20M	STBN-6	K4 / T-20
25mm	TBDS-25M-74WS25	TBDS25M74WS25	25,0	71,8	189,9	25,0	17,3	TBD1 / FI-25M	STBN-7	K5 / T-25





## RIGID-LOCK

## Trouble Shooting

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

## RIGID-LOCK

## Grade Description

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

Chart 1

## Feed, Speed and Diameter Information

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

## Effective Cutting Diameter Information

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

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

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

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

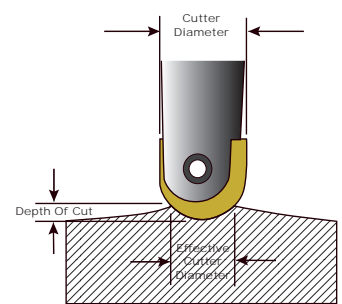


Chart 3 Feed - Multiply factor below times IPR in Chart 1 for adjusted IPR

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

### EXAMPLE

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

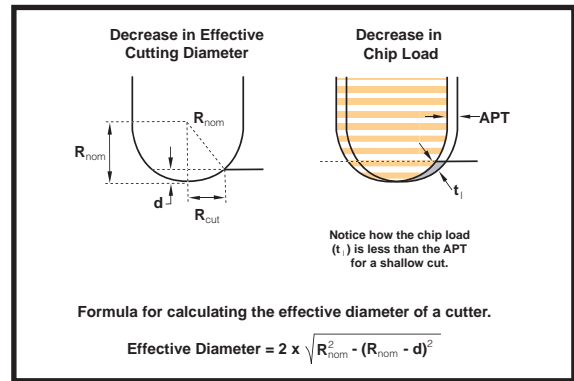
### EXAMPLE

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



# BALLNOSE

## Shallow Cutting with Rigid-Lock Ball Nose End Mill



BALLNOSE

### 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 TBF1 inserts if work piece has a draft angle on the walls. TBD1 inserts are for work pieces with straight walls.  
 Balance chipload, RPM, feed rate, tool extension, and material.  
 TBF1 and TBD1 inserts cannot plunge, ramp at 1° to 2° angle maximum.  
 1/4" and 5/16" endmills have a maximum feed rate of .006 to .008 per revolution and a .015 to .018 depth of cut.

### Recommended torque specifications for Rigid-Lock insert screws

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

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

Adjust to your own cutting conditions.

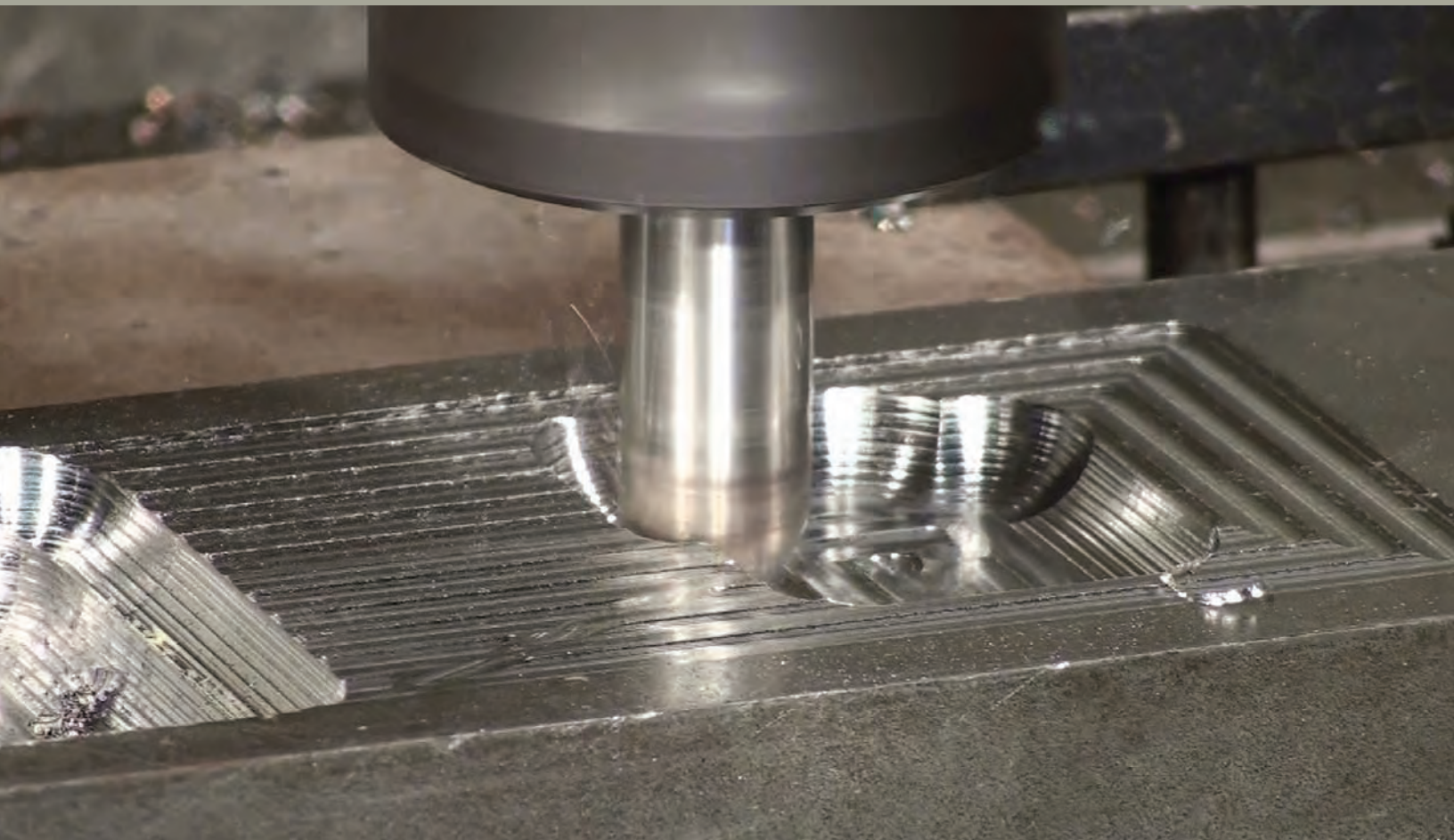
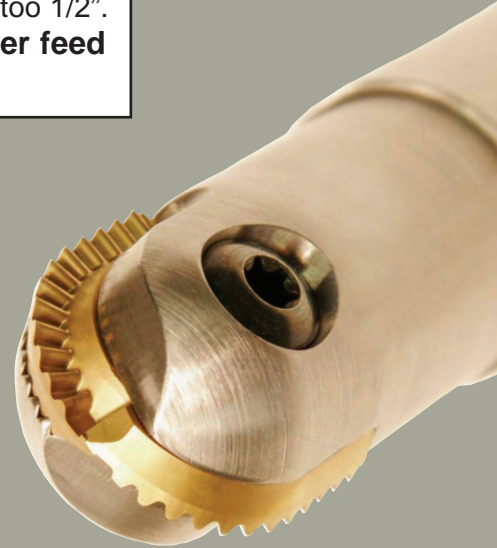
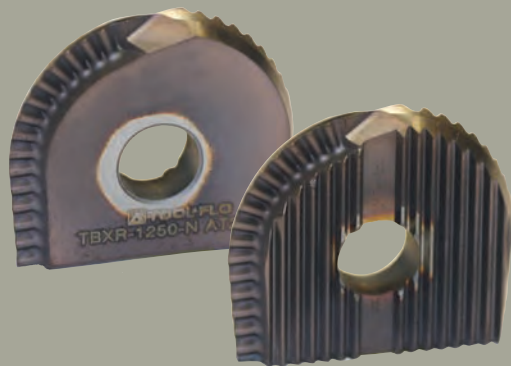
Ex: Cutting 4140 material, 3/4 diameter ball nose insert, .010 chip load and .375 D.O.C.

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

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

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

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







# TOOL FLO



TOOL FLO  
CR-8R-7F  
TF1482H AT50

TOOL FLO  
CR-8R-7F  
TF1482H AT50

TOOL FLO  
CR-8R-7F  
TF1482H AT50

TOOL FLO  
CR-8R-7F  
TF1482H AT50

TOOL FLO  
CR-8R-7F  
TF1482H AT50

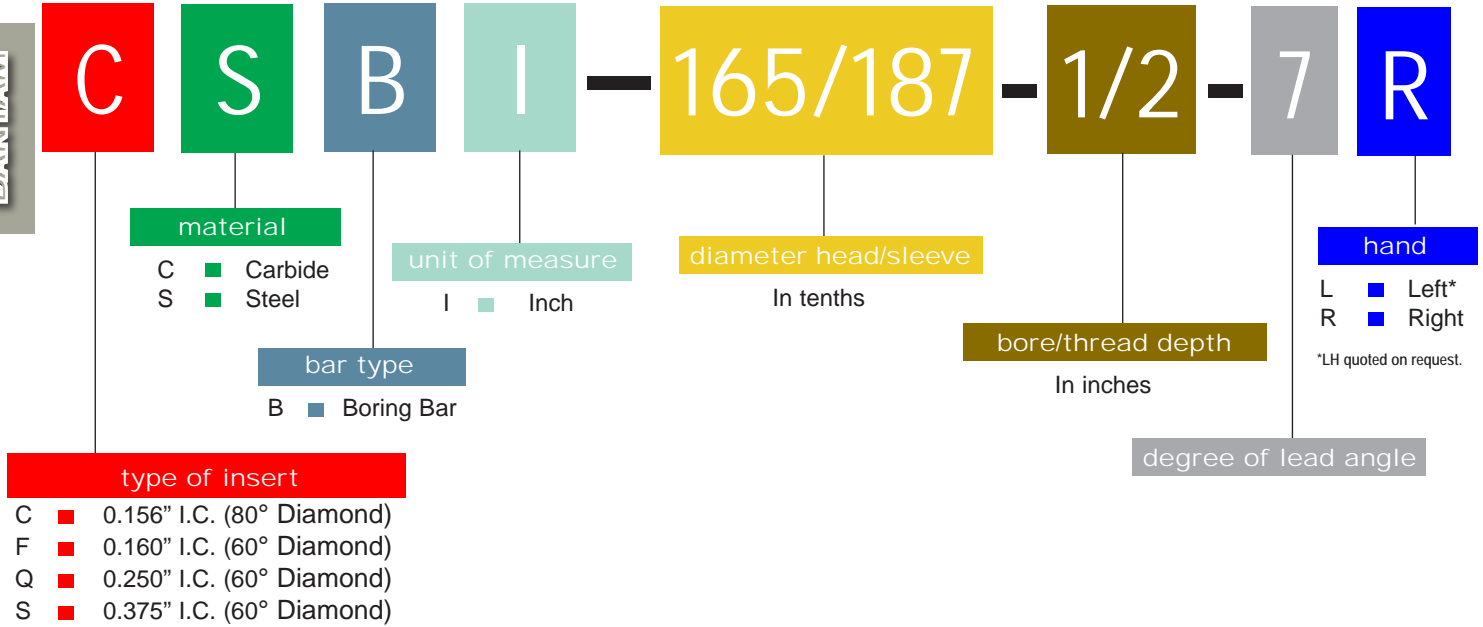
# BANTAM

Small diameter  
Threading • Boring • Grooving

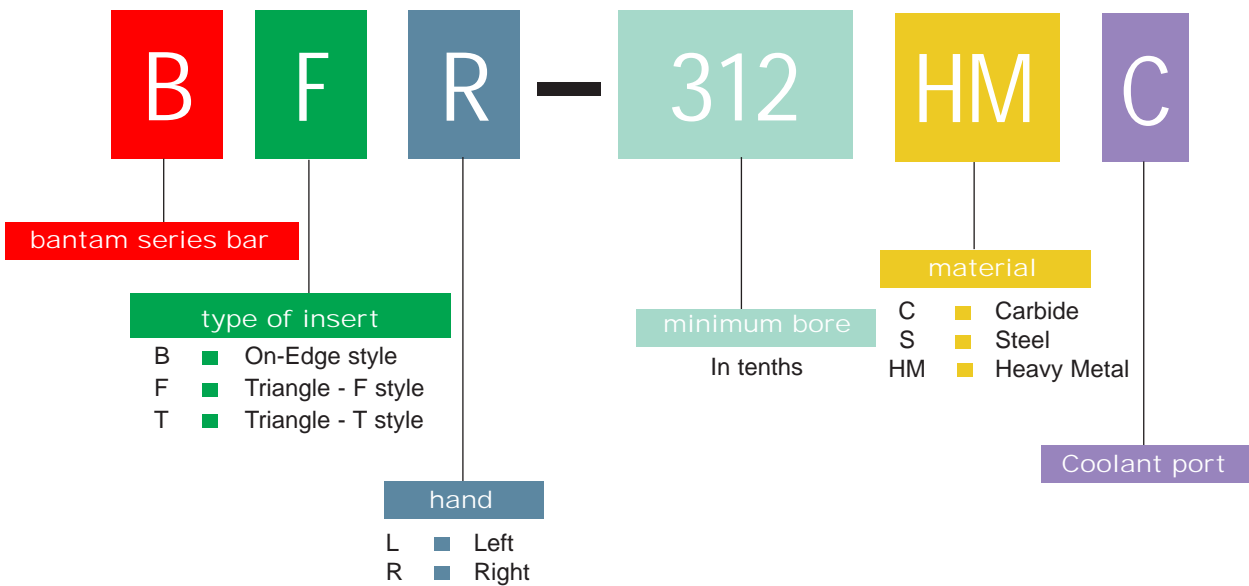




### Bantam Boring Bar Nomenclature Chart



### Bantam Grooving/Threading Bar Nomenclature Chart



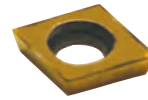
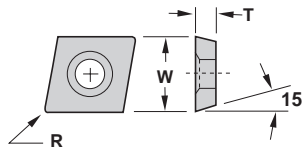
**SAVE!!!**  
 Ask about our refurbished heavy metal bars at a discount price!



# MINIMUM BORE .180

## BORING

### CDCD

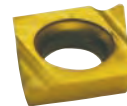
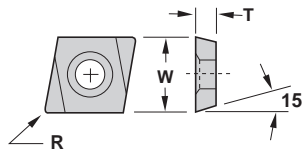


Description	EDP Code	T	W	R					
					C22	GP22	GP4	AC22	AC4
CDCD-500	<a href="#">9BCD500</a>	.040	.156	.002	●	●	●	●	●
CDCD-505	<a href="#">9BCD505</a>	.040	.156	.007	●	●	●	●	●
CDCD-51	<a href="#">9BCD51</a>	.040	.156	.015	●	●	●	●	●

Uncoated		TiN Coated		AlTiN Coated	
C22	GP22	GP4	AC22	AC4	
●	●	●	●	●	●

# BORING - Positive Rake

## CDCG



Description	EDP Code	T	W	R					
					C22	GP22	GP4	AC22	AC4
CDCG-500L	<a href="#">9BCG500L</a>	.040	.156	.002	●	●	●	●	●
CDCG-505L	<a href="#">9BCG505L</a>	.040	.156	.007	●	●	●	●	●
CDCG-51L	<a href="#">9BCG51L</a>	.040	.156	.015	●	●	●	●	●

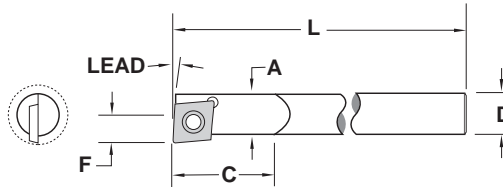
Uncoated		TiN Coated		AlTiN Coated	
C22	GP22	GP4	AC22	AC4	
●	●	●	●	●	●

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	●	▲			

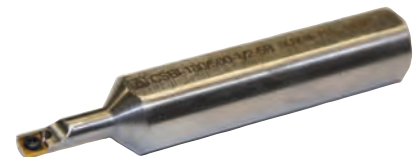
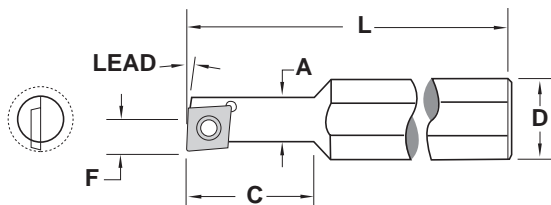
# CCBI/CSBI



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

\*TS1 screw uses K05 wrench

# CCBI/CSBI



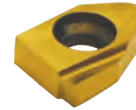
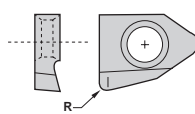
Description	EDP Code	Stk	Material	Insert	Lead	A	D	L	C	F	Min Bore	Screw*
CSBI-180/500-1/2-5R	<a href="#">9BCS18505R</a>	●	Steel	CDCD/G	5°	.180	.500	2.75	.500	.104	.208	TS1
CCBI-180/500-7/8-5R	<a href="#">9BCC18505R</a>	●	Carbide	CDCD/G	5°	.189	.500	2.37	.875	.104	.208	TS1
CSBI-250/500-3/4-5R	<a href="#">9BCS25505R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

\*TS1 screw uses K05 wrench



## MINIMUM BORE .250

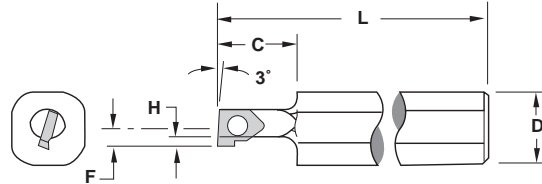
BORING  
BSBR



	Uncoated	TIN Coated	AlTiN Coated
C22	GP22	GP4	AC22
		●	AC4

Description	EDP Code	R
BSBR-005	9BSBR	.005

BSR

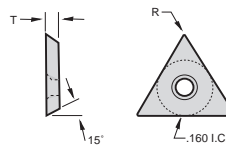


Description	EDP Code	Stk	Material	Insert	Coolant		L	D	C	H	F**	Min. Bore	Screw*
					Port								
BSR-250S	9B250S	●	Steel	BSBR			5.000	.500	.500	.050	.125	.250	TS1
BSR-250SC	9B250SC	●	Steel	BSBR	✓		5.000	.500	.500	.050	.125	.250	TS1

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

## MINIMUM BORE .275 - .360

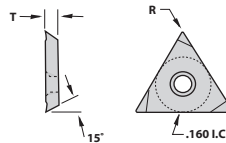
BORING  
TDAB



	Uncoated	TIN Coated	AlTiN Coated
C22	GP22	GP4	AC22
	●	●	AC4

Description	EDP Code	R	T
TDAB-50S	<a href="#">9BDB50S</a>	.007	.047
TDAB-51	<a href="#">9BDB51</a>	.015	.047

BORING - Positive Rake  
TDCG



	Uncoated	TIN Coated	AlTiN Coated
C22	GP22	GP4	AC22
	●	●	AC4
		●	▲
	●	▲	
	●	▲	
	●	▲	

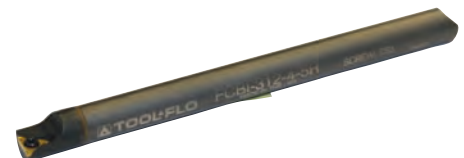
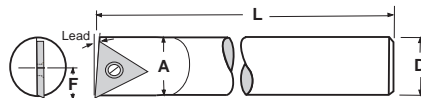
Description	EDP Code	R	T
TDCG-505L	<a href="#">9BDG505L</a>	.007	.047
TDCG-51L	<a href="#">9BDG51L</a>	.015	.047

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	●	▲			

FCBI/FSBI

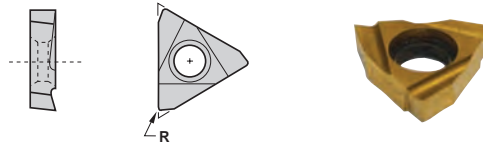


Description	EDP Code	Stk	Material	Insert	Lead	A	D	L	F	Min. Bore	Screw*
FCBI-187-4-5R	<a href="#">9BEC185R</a>	●	Carbide	TDAB/TDCG	5°	.203	.187	4.000	.126	.275	TS3
FCBI-250-4-5R	<a href="#">9BFC255R</a>	●	Carbide	TDAB/TDCG	5°	.250	.250	4.000	.156	.300	TS3
FSBI-250-4-5R	<a href="#">9BES255R</a>	●	Steel	TDAB/TDCG	5°	.260	.250	4.000	.156	.300	TS3
FCBI-312-4-5R	<a href="#">9BFC315R</a>	●	Carbide	TDAB/TDCG	5°	.312	.312	4.000	.187	.360	TS3

\*TS3 screw uses K1 wrench

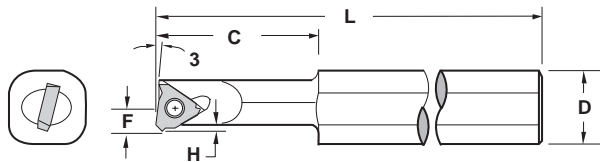


## MINIMUM BORE .312 BORING BFR3



Description	EDP Code	R	Coating				
BFR3-BR	9BFR3B	.005	C22	GP22	GP4	AC22	AC4
			Uncoated	TIN Coated	AITIN Coated		

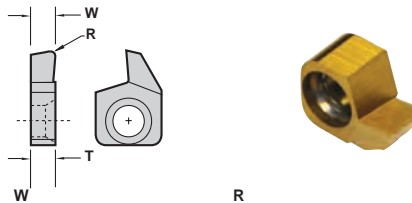
### BFR3



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

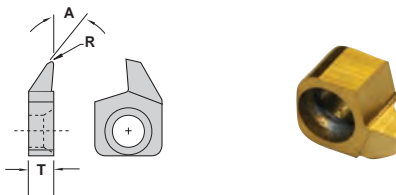
\*TS25 screw uses K2 wrench

## MINIMUM BORE .312 - .440 BORING BNBR/L



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

## Back Turning BNPR/L



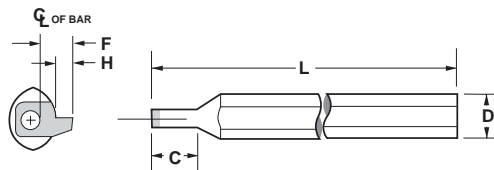
Description	EDP Code	A	R	T	Coating				
BNPR-015R	9BP015R	45°	.015	.137	C22	GP22	GP4	AC22	AC4
BNPL-015R	9BP015L	45°	.015	.137	Uncoated	TIN Coated	AITIN Coated		

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.

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

## BB



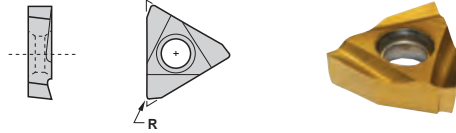
Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	Min. Bore	Screw*
BB-312S	9B312S	●	Steel	BNBR/L BNPR/L	5.000	.500	.750	.156	.070	.312	TS25
BB-344S	9B344S	●	Steel	BNBR/L BNPR/L	5.000	.500	.750	.152	.070	.344	TS25
BB-375S	9B375S	●	Steel	BNBR/L BNPR/L	5.000	.500	.750	.1625	.070	.375	TS25
BB-440S	9B440S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

\*TS25 screw uses K2 wrench





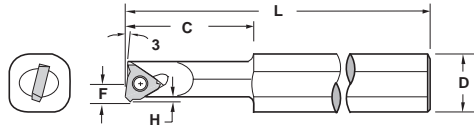
## MINIMUM BORE .400 BORING BFR4



	Uncoated	TIN Coated	AlTiN Coated
C22	GP22	GP4	AC22
	●	●	
			AC4

Description	EDP Code	R
BFR4-BR	9BFR4B	.005

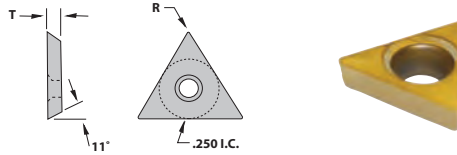
## BFR4



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	.237	.400	TS25
BFR-400SC	9BF400SC	●	Steel	BFR4	✓	5.000	.500	1.000	.050	.237	.400	TS25
BFR-400HM	9BF400HM	●	Heavy Metal	BFR4		5.000	.500	1.000	.050	.237	.400	TS25
BFR-400HMC	9BF400HMC	●	Heavy Metal	BFR4	✓	5.000	.500	1.000	.050	.237	.400	TS25

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

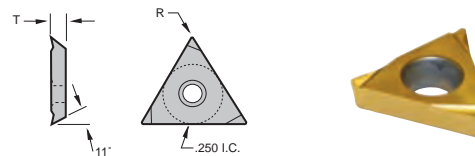
## MINIMUM BORE .438 BORING TPCB



	Uncoated	TIN Coated	AlTiN Coated
C22	GP22	GP4	AC22
	●	●	
			AC4

Description	EDP Code	R	T
TPCB-2205	<a href="#">9BPB2205</a>	.007	.096
TPCB-221	<a href="#">9BPB221</a>	.015	.096

## BORING - Positive Rake TPCG



	Uncoated	TIN Coated	AlTiN Coated
C22	GP22	GP4	AC22
	●	●	
			AC4

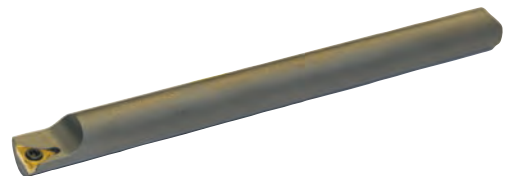
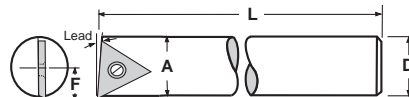
Description	EDP Code	R	T
TPCG-2205L	<a href="#">9BPG2205</a>	.007	.096
TPCG-221L	<a href="#">9BPG221L</a>	.015	.096

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- High performance choice in optimal conditions.
- ▲ 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	<a href="#">9BQS375R</a>	●	Steel	TPCB/G	5°	.385	.375	5.000	.221	.438	TS6
QCBI-375-6-5R	<a href="#">9BQC375R</a>	●	Carbide	TPCB/G	5°	.390	.375	6.000	.211	.438	TS6
QCBI-500-8-5R	<a href="#">9BQC505R</a>	●	Carbide	TPCB/G	5°	.510	.500	8.000	.296	.563	TS6

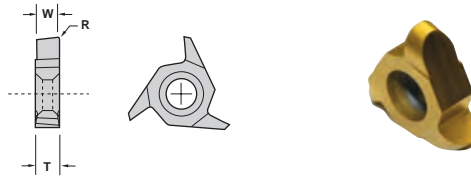
\*TS6 screw uses K3 wrench



**BANTAM**

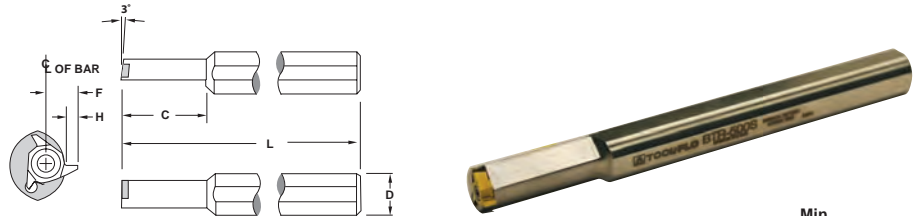
# MINIMUM BORE .500

BORING  
BTBR/L



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

BTR/L

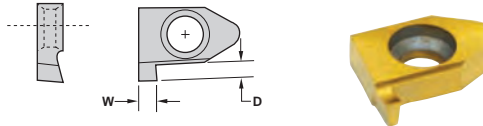


Description	EDP Code	Stk	Material	Insert	L	D	C	H	F	Min. Bore	Screw*
BTL-500S	9BTL500S	●	Steel	BTBL	5.000	.500	1.250	.075	.225	.500	TS25
BTR-500HM	9BTR500HM	●	Heavy Metal	BTBR	5.000	.500	1.500	.075	.225	.500	TS25
BTL-500HM	9BTL500HM	●	Heavy Metal	BTBL	5.000	.500	1.500	.075	.225	.500	TS25

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

# MINIMUM BORE .250

GROOVING  
BSGR



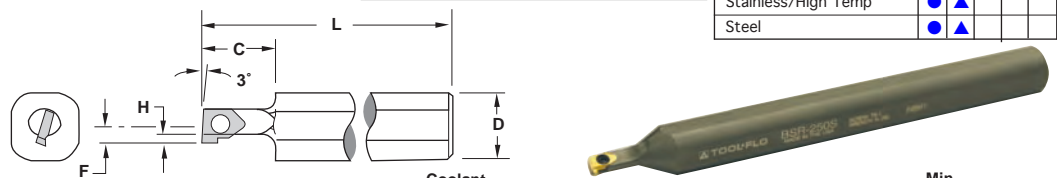
Description	EDP Code	W	D	Coating				
				C22	GP22	GP4	AC22	AC4
BSGR-015W	9BSG015R	.015	.030			●		
BSGR-020W	9BSG020R	.020	.050			●		
BSGR-031W	9BSG031R	.031	.050			●		
BSGR-047W	9BSG047R	.047	.050			●		

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

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

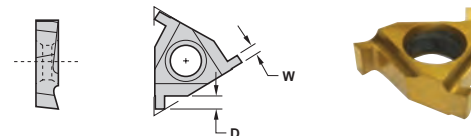
BSR



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

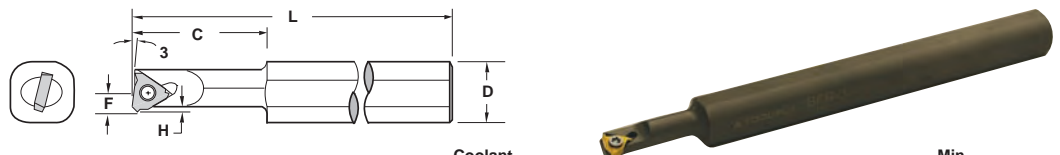
# MINIMUM BORE .312

GROOVING  
BFR3



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

BFR3



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

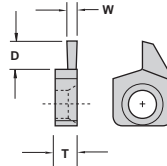
\*TS25 screw uses K2 wrench

**BANTAM**



## MINIMUM BORE .312 - .440

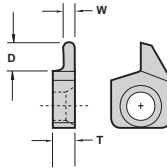
GROOVING  
BNGR/L



RH Shown

Description	EDP Code	W	D	T	Coating Options				
					C22	GP22	GP4	AC22	AC4
BNGR-031W	<a href="#">9BG031R</a>	.031	.050	.137	●	●	●	●	●
BNGL-031W	9BG031L	.031	.050	.137	●	●	●	●	●
BNGR-047W	<a href="#">9BG047R</a>	.047	.070	.137	●	●	●	●	●
BNGL-047W	9BG047L	.047	.070	.137	●	●	●	●	●
BNGR-062W	<a href="#">9BG062R</a>	.062	.070	.137	●	●	●	●	●
BNGL-062W	9BG062L	.062	.070	.137	●	●	●	●	●
BNGR-094W	<a href="#">9BG094R</a>	.094	.070	.137	●	●	●	●	●
BNGL-094W	9BG094L	.094	.070	.137	●	●	●	●	●
BNGR-125W	<a href="#">9BG125R</a>	.125	.070	.137	●	●	●	●	●
BNGL-125W	9BG125L	.125	.070	.137	●	●	●	●	●

GROOVING - Full Nose Radius  
BNRR/L



RH Shown

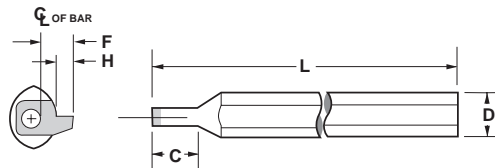
Description	EDP Code	W	R	D	T	Coating Options				
						C22	GP22	GP4	AC22	AC4
BNRR-031W	<a href="#">9BR031R</a>	.031	.0155	.050	.137	●	●	●	●	●
BNRL-031W	9BR031L	.031	.0155	.050	.137	●	●	●	●	●
BNRR-047W	<a href="#">9BR047R</a>	.047	.0235	.070	.137	●	●	●	●	●
BNRL-047W	9BR047L	.047	.0235	.070	.137	●	●	●	●	●
BNRR-062W	<a href="#">9BR062R</a>	.062	.0310	.070	.137	●	●	●	●	●
BNRL-062W	9BR062L	.062	.0310	.070	.137	●	●	●	●	●
BNRR-094W	<a href="#">9BR094R</a>	.094	.0470	.070	.137	●	●	●	●	●
BNRL-094W	9BR094L	.094	.0470	.070	.137	●	●	●	●	●
BNRR-125W	<a href="#">9BR125R</a>	.125	.0625	.070	.137	●	●	●	●	●
BNRL-125W	9BR125L	.125	.0625	.070	.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.

Material	C22	GP22	GP4	AC22	AC4
Cast Iron		●	▲		
Non-Ferrous	●	▲			
Stainless/High Temp	●	▲			
Steel	●	▲			

BB



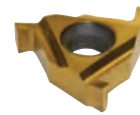
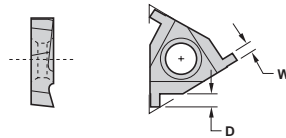
Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	Min. Bore	Screw*
BB-312S	<a href="#">9B312S</a>	●	Steel	BNGR/L BNRR/L	5.000	.500	.750	.156	.070	.312	TS25
BB-344S	<a href="#">9B344S</a>	●	Steel	BNGR/L BNRR/L	5.000	.500	.750	.152	.070	.344	TS25
BB-375S	<a href="#">9B375S</a>	●	Steel	BNGR/L BNRR/L	5.000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

\*TS25 screw uses K2 wrench



# BANTAM

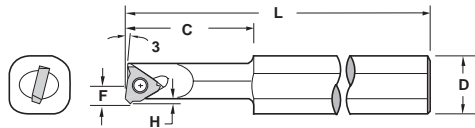
## MINIMUM BORE .400 GROOVING BFR4



Uncoated	TIN Coated	ATIN Coated
C22	GP22	AC22
	GP4	AC4

Description	EDP Code	W	D
BFR4-015W	9BFR4G015	.015	.035
BFR4-020W	9BFR4G020	.020	.035
BFR4-031W	9BFR4G031	.031	.035

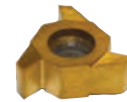
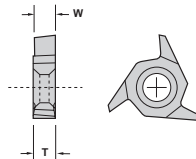
## BFR4



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

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

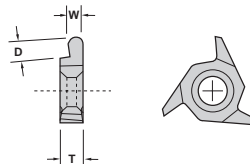
## MINIMUM BORE .500 GROOVING BTGR/L



Uncoated	TIN Coated	ATIN Coated
C22	GP22	AC22
	GP4	AC4

Description	EDP Code	W	D	T
BTGR-031W	9BTG031R	.031	.050	.130
BTGL-031W	9BTG031L	.031	.050	.130
BTGR-047W	9BTG047R	.047	.070	.130
BTGL-047W	9BTG047L	.047	.070	.130
BTGR-062W	9BTG062R	.062	.075	.130
BTGL-062W	9BTG062L	.062	.075	.130
BTGR-094W	9BTG094R	.094	.075	.130
BTGL-094W	9BTG094L	.094	.075	.130
BTGR-125W	9BTG125R	.125	.075	.130
BTGL-125W	9BTG125L	.125	.075	.130

## GROOVING - Full Nose Radius BTRR/L



Uncoated	TIN Coated	ATIN Coated
C22	GP22	AC22
	GP4	AC4

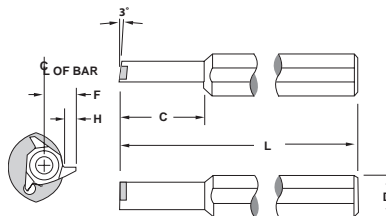
Description	EDP Code	W	R	D	T
BTRR-031W	9BTR031R	.031	.0155	.050	.130
BTRL-031W	9BTR031L	.031	.0155	.050	.130
BTRR-047W	9BTR047R	.047	.0235	.070	.130
BTRL-047W	9BTR047L	.047	.0235	.070	.130
BTRR-062W	9BTR062R	.062	.0310	.075	.130
BTRL-062W	9BTR062L	.062	.0310	.075	.130
BTRR-094W	9BTR094R	.094	.0470	.075	.130
BTRL-094W	9BTR094L	.094	.0470	.075	.130
BTRR-125W	9BTR125R	.125	.0625	.075	.130
BTRL-125W	9BTR125L	.125	.0625	.075	.130

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

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

## BTR/L



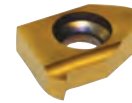
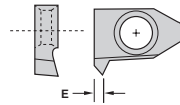
Description	EDP Code	Stk	Material	Insert	L	D	C	H	F	Min. Bore	Screw*
BTR-500S	9BTR500S	●	Steel	BTBR/BTRR	5.000	.500	1.250	.075	.225	.500	TS25
BTL-500S	9BTL500S	●	Steel	BTBL/BTRL	5.000	.500	1.250	.075	.225	.500	TS25
BTR-500HM	9BTR500HM	●	Heavy Metal	BTBR/BTRR	5.000	.500	1.500	.075	.225	.500	TS25
BTL-500HM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

\*TS25 screw uses K2 wrench



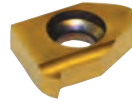
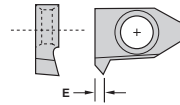


## MINIMUM BORE .250 THREADING - NPT BSVR



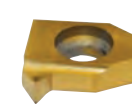
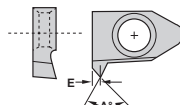
Description	EDP Code	TPI	E	Coating					
				C22	GP22	GP4	AC22	AC4	
BSVR-14NPT	9BSV14R	14	.045	Uncoated	TIN Coated	AITIN Coated			
BSVR-18NPT	9BSV18R	18	.033	●	●				
BSVR-27NPT	9BSV27R	27	.026	●	●				

## THREADING - UN BSVR



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

## THREADING - 55°/60° V BSVR



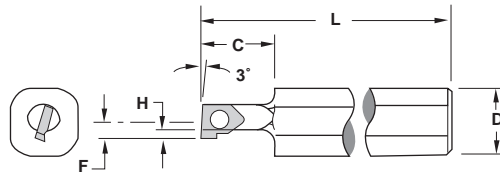
Description	EDP Code	TPI	R/F	E	A	Coating				
						C22	GP22	GP4	AC22	AC4
BSVR-55	9BSV55R	16-48	.003F	.039	55°			●		
BSVR-60	9BSV60R	16-48	.003R	.039	60°			●		

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

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

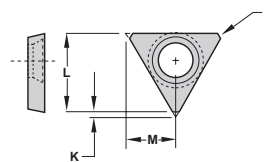
## BSR



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

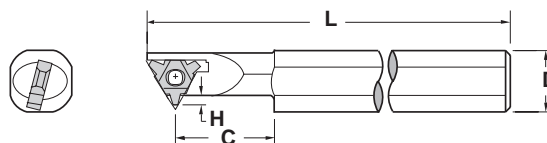
\*TS1 screw uses K05 wrench  
\*\* Dimension over sharp point

## MINIMUM BORE .312 THREADING - 60° V BHV



Description	EDP Code	TPI	F	Coating					
				C22	GP22	GP4	AC22	AC4	
BHV-002	9BHV002	16-48	.002	Uncoated	TIN Coated	AITIN Coated			

## BHR



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

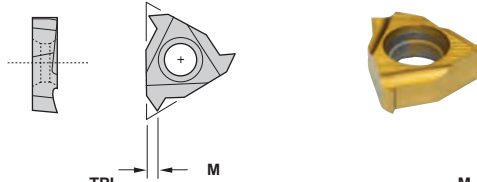
\*TS3 screw uses K1 wrench



# MINIMUM BORE .312

## THREADING - NPT

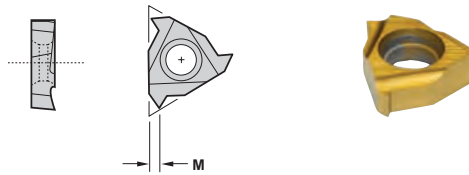
### BFR3



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

# THREADING - UN

### BFR3



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

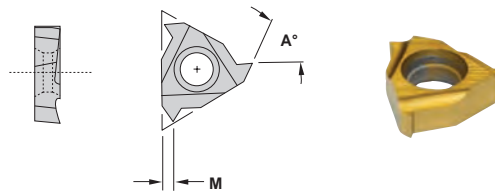
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

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

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

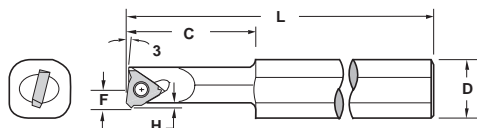
# THREADING - 55°/60° V

### BFR3



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

# BFR3



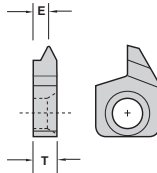
Description	EDP Code	Stk	Material	Insert	Coolant		L	D	C	H	F	Min. Bore	Screw*
					Port								
BFR-312S	9BF312S	●	Steel	BFR3			5.000	.500	.500	.050	.150	.312	TS25
BFR-312SC	9BF312SC	●	Steel	BFR3	✓		5.000	.500	.500	.050	.150	.312	TS25
BFR-312HM	9BF312HM	●	Heavy Metal	BFR3			5.000	.500	1.250	.050	.150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

\*TS25 screw uses K2 wrench



## MINIMUM BORE .312 - .440

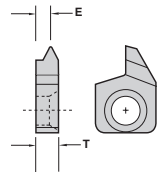
THREADING - NPT  
BNVR/L



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

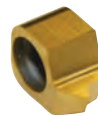
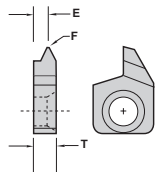
## MINIMUM BORE .312 - .440

THREADING - UN  
BNVR/L



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

THREADING - 60° V  
BNVR/L



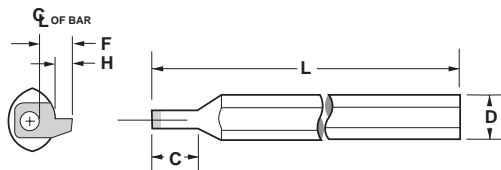
Description	EDP Code	TPI	F	E	T	Uncoated		TiN Coated		AlTiN Coated	
						GF1	C22	GP22	GP4	AC22	AC4
BNVR-60	9BNV60R	18-40	.003F	.095	.137	●	●	●	●		●
BNVL-60	9BNV60L	18-40	.003F	.095	.137	●	●	●	●		●

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

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

BB



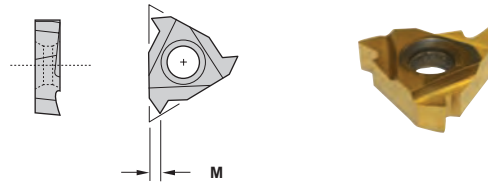
Description	EDP Code	Stk	Material	Insert	L	D	C	F	H	Min. Bore	Screw*
BB-312S	<a href="#">9B312S</a>	●	Steel	BNVR/L	5.000	.500	.750	.156	.070	.312	TS25
BB-344S	<a href="#">9B344S</a>	●	Steel	BNVR/L	5.000	.500	.750	.152	.070	.344	TS25
BB-375S	<a href="#">9B375S</a>	●	Steel	BNVR/L	5.000	.500	.750	.1625	.070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

\*TS25 screw uses K2 wrench



# BANTAM

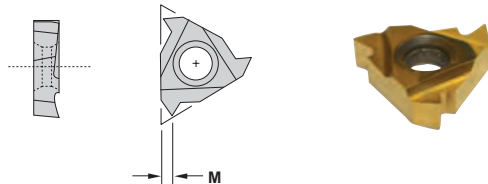
## MINIMUM BORE .400 THREADING - NPT BFR4



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

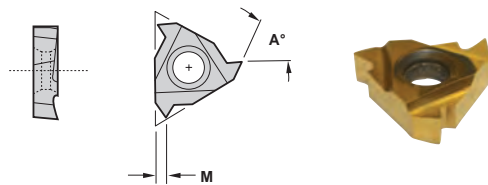
BANTAM

## THREADING - UN BFR4



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

## THREADING - 55°/60° V BFR4



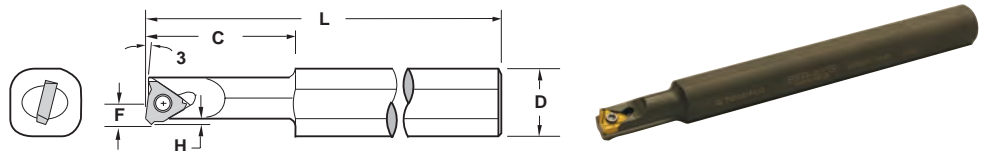
Description	EDP Code	TPI	M	A	Coating				
					C22	GP22	GP4	AC22	AC4
BFR4-55V	9BFR4V55	14-48	.043	55°		●	●		
BFR4-60V	9BFR4V60	14-48	.043	60°		●	●		

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

Material	●	▲			
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	L							
BFR-400S	9BF400S	●	Steel	BFR4			5.000	.500	1.000	.050	.237	.400	TS25
BFR-400SC	9BF400SC	●	Steel	BFR4	✓		5.000	.500	1.000	.050	.237	.400	TS25
BFR-400HM	9BF400HM	●	Heavy Metal	BFR4			5.000	.500	1.000	.050	.237	.400	TS25
BFR-400HMC	9BF400HMC	●	Heavy Metal	BFR4	✓		5.000	.500	1.000	.050	.237	.400	TS25

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





## MINIMUM BORE .450

### THREADING - ACME

#### BHR4



	Uncoated	TIN Coated	AlTiN Coated
C22	GP22	GP4	AC22
		●	●
		●	●
		●	●

Description	EDP Code	TPI	W
BHR4-8ACME	9BHA080R	8	.0411
BHR4-10ACME	9BHA100R	10	.0319
BHR4-12ACME	9BHA120R	12	.0283
BHR4-16ACME	9BHA160R	16	.0206

## THREADING - STUB ACME

#### BHR4

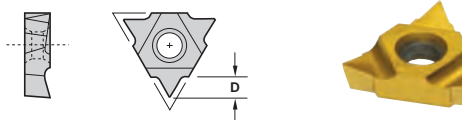


	C22	GP22	GP4	AC22	AC4
			●		
			●		
			●		

Description	EDP Code	TPI	W
BHR4-8STACME	9BHA081R	8	.0476
BHR4-10STACME	9BHA101R	10	.0370
BHR4-12STACME	9BHA121R	12	.0326
BHR4-16STACME	9BHA161R	16	.0238

## THREADING - 60° V

#### BHR4



	C22	GP22	GP4	AC22	AC4
			●	●	
			●		
			●		

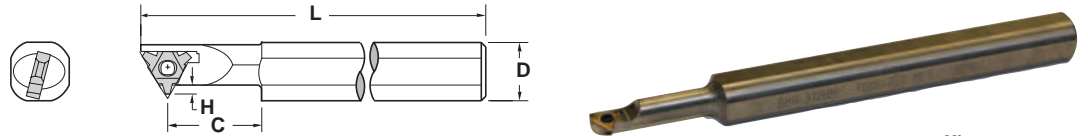
Description	EDP Code	TPI	D
BHR4-60V	9BH460R	16-48	.075

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

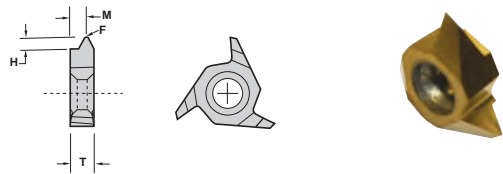


Description	EDP Code	Stk	Material	Insert	L	D	C	H	Min. Bore	Screw
BHR-450S	9BHR450S	●	Steel	BHR4	5.000	.500	1.000	.075	.450	TS25
BHR-450HM	9BHR450HM	●	Heavy Metal	BHR4	5.000	.500	1.000	.075	.450	TS25

## MINIMUM BORE .500

### THREADING - 60° V

#### BTVR/L



	Uncoated	TIN Coated	AlTiN Coated
C22	GP22	GP4	AC22
		●	●
		●	●

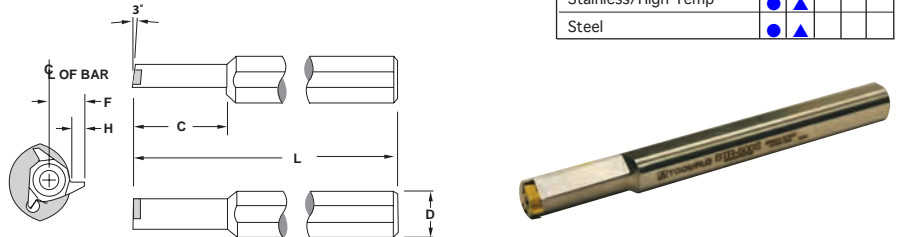
Description	EDP Code	TPI	M	H	T	F
BTVR-60	9BTV60R	8-40	.047	.075	.130	.004
BTVL-60	9BTV60L	8-40	.047	.075	.130	.004

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.

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

#### BTR/L



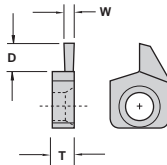
Description	EDP Code	Stk	Material	Insert	L	D	C	H	F	Min. Bore	Screw*
BTR-500S	9BTR500S	●	Steel	BTVR	5.000	.500	1.250	.075	.225	.500	TS25
BTL-500S	9BTL500S	●	Steel	BTVL	5.000	.500	1.250	.075	.225	.500	TS25
BTR-500HM	9BTR500HM	●	Heavy Metal	BTVR	5.000	.500	1.500	.075	.225	.500	TS25
BTL-500HM	9BTL500HM	●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

\*TS25 screw uses K2 wrench



## MINIMUM BORE .516

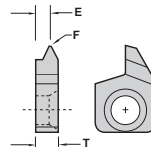
### CIRCULAR INTERPOLATING MILLGROOVING BNGR



Description	EDP Code	W	D	T						
					C22	GP22	GP4	AC22	AC4	
BNGR-031W	<a href="#">9BG031R</a>	.031	.050	.137		●	●			
BNGR-047W	<a href="#">9BG047R</a>	.047	.070	.137		●	●			
BNGR-062W	<a href="#">9BG062R</a>	.062	.070	.137		●	●			
BNGR-094W	<a href="#">9BG094R</a>	.094	.070	.137		●	●			
BNGR-125W	<a href="#">9BG125R</a>	.125	.070	.137		●	●			

Uncoated		TIN Coated		AlTiN Coated	
C22	GP22	GP4	AC22	AC4	
	●	●			
	●	●			
	●	●			
	●	●			
	●	●			

### THREADMILLING BNVR



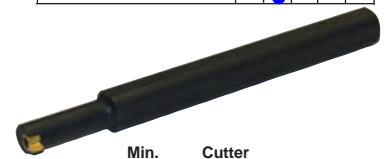
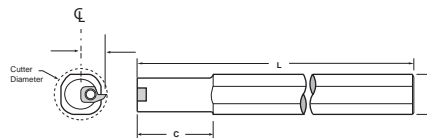
Description	EDP Code	TPI	F	E	T					
						GFI	GP22	GP4	AC22	AC4
BNVR-60	9BNV60R	18-40	.003F	.095	.137	●	●	●		●
BNVL-60	9BNV60L	18-40	.003F	.095	.137	●	●	●		●

Cast Iron		Non-Ferrous		Stainless/High Temp		Steel	
GFI	GP22	GP4	AC22	AC4			
			●				
		●					
		●					
		●					

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.

### CIRCULAR INTERPOLATING THREADMILLING & MILLGROOVING BBC



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

\*TS25 screw uses K2 wrench

## Bantam Series Kits

### THREADING KITS V-THREADING KIT #1

Kit Contents

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

### 18NPT-THREADING KIT #2

Kit Contents

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

### 27NPT-THREADING KIT #3

Kit Contents

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

### GROOVING KITS W.031 GROOVING KIT #4

Kit Contents

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

### W.047 GROOVING KIT #5

Kit Contents

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

### W.062 GROOVING KIT #6

Kit Contents

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

### BORING KITS .180 MIN BORE KIT #7

Kit Contents

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

### .285 MIN BORE KIT #8

Kit Contents

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





## Technical Information

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

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

### CUTTING DATA

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

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

### GRADE CROSSOVER CHART

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



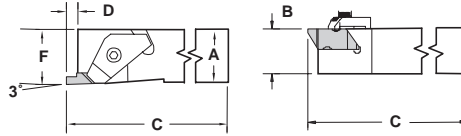
## EXTERNAL HOLDER (METRIC)

THREADING, GROOVING

FLASR/L

*Design for Swiss machines*

SEE FLO-LOCK SECTION FOR COMPLETE INSERT OFFERING



RH SHOWN

RH Holder uses RH Inserts

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

Description	EDP Code	Insert	A	B	C	D	F	Clamp Screw	
								Clamp	Screw
FLASR-1010M2	92711008	FL_-2R	10,0	10,0	150,0	3,51	10,0	TF-182	S-310
FLASL-1010M2	<a href="#">92661008</a>	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	<a href="#">92661208</a>	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	<a href="#">92661616</a>	FL_-3L	16,0	16,0	125,0	5,31	16,0	TF-185	S-412

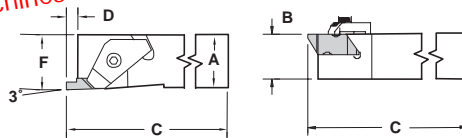
## EXTERNAL HOLDER (INCH)

THREADING, GROOVING

FLASR/L

*Design for Swiss machines*

SEE FLO-LOCK SECTION FOR COMPLETE INSERT OFFERING



RH SHOWN

RH Holder uses RH Inserts

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

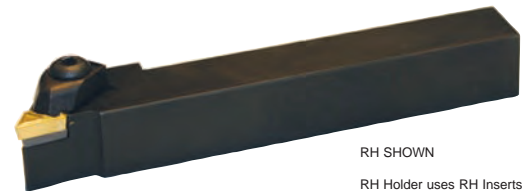
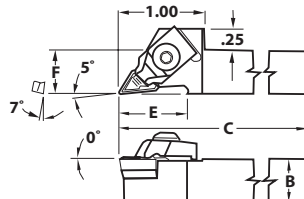
Description	EDP Code	Insert	A	B	C	F	D	Clamp Screw	
								Clamp	Screw
FLASR-062D	<a href="#">92900608D</a>	FL_-2R	3/8	3/8	6	.375	.138	TF-182	S-310
FLASL-062D	<a href="#">92650608D</a>	FL_-2L	3/8	3/8	6	.375	.138	TF-183	S-310
FLASR-082D	<a href="#">92900808D</a>	FL_-2R	1/2	1/2	6	.500	.138	TF-182	S-310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

## EXTERNAL HOLDER (INCH)

PROFILING

FLKL-F

SEE PROFILING SECTION FOR COMPLETE INSERT OFFERING



RH SHOWN

RH Holder uses RH Inserts

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

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





## EXTERNAL HOLDER (METRIC)

THREADING, GROOVING

AL

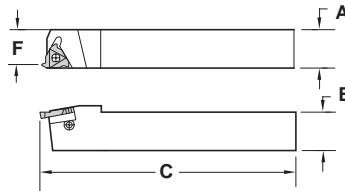
*Design for Swiss machines*



RH SHOWN

RH Holder uses RH Inserts

SEE LAYDOWN SECTION FOR COMPLETE INSERT OFFERING



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

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

## EXTERNAL HOLDER (INCH)

THREADING, GROOVING

AL

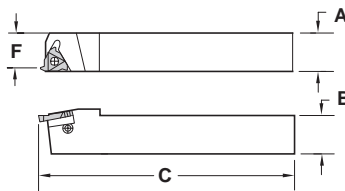
*Design for Swiss machines*



RH SHOWN

RH Holder uses RH Inserts

SEE LAYDOWN SECTION FOR COMPLETE INSERT OFFERING



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

Description	EDP Code	Insert	A	B	C	E	F	Insert Screw	Seat Screw	Wrench	Seat
AL0500-3R	916050361	16ER	1/2	1/2	5	1.15	.63	SA3	SY3	K3	YE3
AL0500-3L	<a href="#">916050362</a>	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	<a href="#">916056362</a>	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	<a href="#">916064401</a>	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	<a href="#">916068442</a>	27EL	1-1/4	1-1/4	7	1.57	1.250	SA5	SY5	K5	YI5



# TOOL FLO

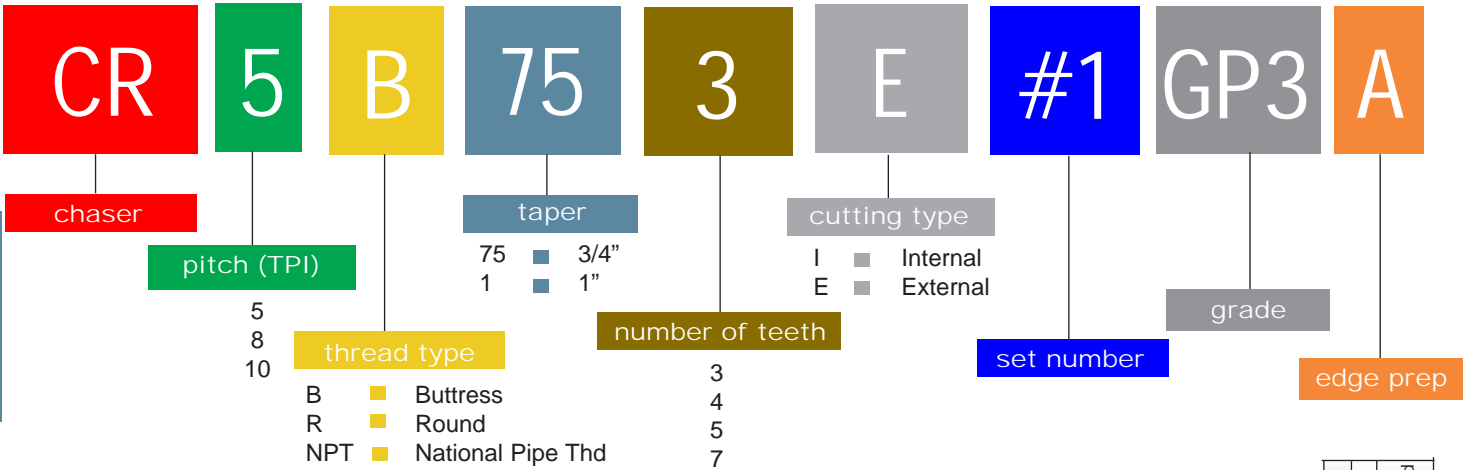


# CHASERS

Oil & Gas

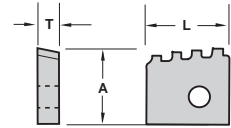


## Chaser Insert Nomenclature Chart



## API BUTTRESS External

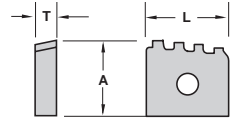
■ For holders see pg. 68



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	Coating			
								G50	GP50	AC3	AC50
CR-5B75-3E #1	<a href="#">M16415188</a>	5	3/4	.670	.573	.205	3	●	●	●	●
CR-5B75-3E #2	<a href="#">M16415189</a>	5	3/4	.670	.582	.205	3	●	●	●	●
CR-5B75-3E #3	<a href="#">M16426149</a>	5	3/4	.670	.590	.205	3	●	●	●	●
CR-5B75-4E	<a href="#">M16422675</a>	5	3/4	.804	.625	.200	4	●	●	●	●
CR-5B1-4E	<a href="#">M1741130</a>	5	1	.800	.640	.200	4	●	●	●	●
CR-8B75-4E	<a href="#">M2145353</a>	8	3/4	.800	.605	.200	4	●	●	●	●

## Internal

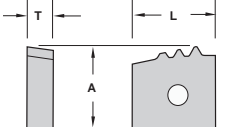
■ For bars see pg. 69



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

## API ROUND External

■ For holders see pg. 68

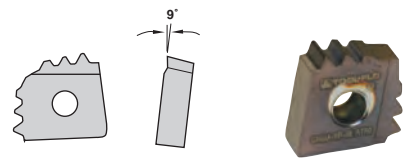


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth	Coating			
								G50	GP50	AC3	AC50
CR-8R-3E #1	<a href="#">M32416731</a>	8	3/4	.630	.577	.204	3	●	●	●	●
CR-8R-3E #2	<a href="#">M32416732</a>	8	3/4	.630	.586	.204	3	●	●	●	●
CR-8R-3E #3	<a href="#">M32416733</a>	8	3/4	.630	.591	.204	3	●	●	●	●
CR-8R-3E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

## API ROUND & BUTTRESS External

CNGA - Double Sided (2 cutting edges)

■ For holders see pg. 68



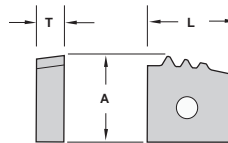
Description	EDP Code	TPI	TPF	No. of Teeth	Coating		
					GP50	AC3	AC50
CNGA-8R-3E	<a href="#">M32427407</a>	8	3/4	3	●	●	●
CNGA-10R-3E	<a href="#">M34427408</a>	10	3/4	3	●	●	●
CNGA-5B75-3E	<a href="#">M16427408</a>	5	3/4	3	●	●	●



# CHASERS

## API ROUND Internal

■ For bars see pg. 69

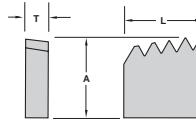


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth				
								G50	GP50	AC3	AC50
CR-8R-3I	<a href="#">M3287464</a>	8	3/4	.630	.592	.204	3	●	●	●	●
CR-8R-4I	<a href="#">M3281136</a>	8	3/4	.635	.625	.204	4	●	●	●	●
CR-8R-4I	<a href="#">M32825150</a>	8	3/4	.640	.625	.204	4	●	●	●	●
CR-8R-7I	<a href="#">M32814828</a>	8	3/4	1.000	.625	.204	7	●	●	●	●
CR-8R-7I	<a href="#">M32817968</a>	8	3/4	1.000	.625	.204	7	●	●	●	●
CR-10R-3I	<a href="#">M3481291</a>	10	3/4	.630	.625	.204	3	●	●	●	●

CVD Coated	TiN Coated	AlTiN Coated
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●

## LPT/NPT External

■ For holders see pg. 68

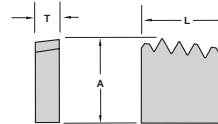


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth				
								G50	GP50	AC3	AC50
CR-8NPT-4E	<a href="#">M3648996</a>	8	3/4	.630	.620	.204	4	●	●	●	●
CR-11.5NPT-4E	<a href="#">M3649668</a>	11.5	3/4	.625	.620	.1875	4	●	●	●	●

G50	GP50	AC3	AC50
●	●	●	●
●	●	●	●

## Internal

■ For bars see pg. 69



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

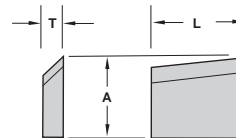
G50	GP50	AC3	AC50
●	●	●	●
●	●	●	●

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

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

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

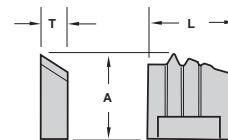
## CHIPBREAKERS External



Description	EDP Code	L	A	T	Coolant Grooves	
					Insets	
CR-5B75/5B1-4E-CB	<a href="#">IE2993</a>	.800	.500	.125	CR-5B75-4E/CR-5B1-4E	
CR-8R/10R-3E/4E-CB	<a href="#">IE1353E</a>	.625	.460	.120	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8NPT-4E	
#3 CB without COOLANT GROOVES .170	<a href="#">IE26424</a>	.618	.460	.170	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8NPT-4E	

## External with coolant grooves

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



Description	EDP Code	L	A	T	Coolant Grooves	
					Insets	
TD4601 5B75-1-CB	<a href="#">IE16660</a>	.665	.530	.170	✓	CR-5B75-3E #1
TD4602 5B75-2-CB	<a href="#">IE16661</a>	.668	.543	.170	✓	CR-5B75-3E #2
TD4603 5B75-3-CB	<a href="#">IE16662</a>	.665	.553	.170	✓	CR-5B75-3E #3
TD3931 8R-1-CB	<a href="#">IE16657</a>	.628	.518	.175	✓	CR-8R-3E #1
TD3932 8R-2-CB	<a href="#">IE16658</a>	.635	.526	.175	✓	CR-8R-3E #2
TD3933 8R-3-CB	<a href="#">TF27129</a>	.630	.540	.175	✓	CR-8R-3E #3
TA2237 10R-1-CB	<a href="#">IE16760</a>	.628	.503	.175	✓	CR-10R-3E #1
TA2238 10R-2-CB	<a href="#">IE16761</a>	.628	.512	.175	✓	CR-10R-3E #2
TA2239 10R-3-CB	<a href="#">IE16762</a>	.628	.515	.175	✓	CR-10R-3E #3
#3 CB W/COOLANT GROOVES .170	<a href="#">IE26423</a>	.618	.460	.170	✓	CR-8R-3E



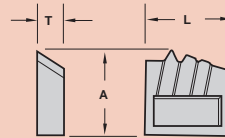


## CHIPBREAKER

External

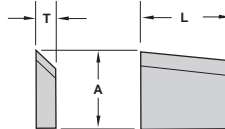
with coolant grooves and cavity

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



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

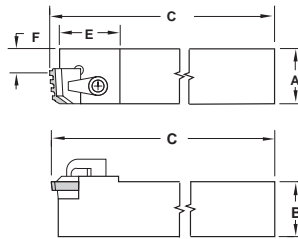
Internal



Description	EDP Code	L	A	T	Coolant Grooves	Inserts
CR-5B75/5B1-4I-CB	<a href="#">TF16104</a>	.800	.500	.125		CR-5B75-4I/CR-5B1-4I
CR-8R/10R-3I/4I-CB	<a href="#">TF13531</a>	.630	.488	.125		CR-8R-3I/CR-8R-4I/CR-10R-3I/CR-8LPT-4I
CR-5B75-5I-CB	<a href="#">TF28765</a>	1.000	.540	.125	✓	CR-5B75-5I
CR-8R-7I-CB	<a href="#">TF3435</a>	1.000	.520	.125		CR-8R-7I
CR-8R-7I-CB	<a href="#">TF18096</a>	1.010	.540	.125	✓	CR-8R-7I

## EXTERNAL HOLDER

Threading  
CLVOR



RH SHOWN

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

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw	Chip Breaker
CLVOR-166	<a href="#">92601694</a>	3 TOOTH*	1	1	8	1.25	.475	<a href="#">TF120Z</a>	SF80	TC311	STC-4	<a href="#">TF1353</a>
CLVOR-206	<a href="#">92602060</a>	3 TOOTH*	1-1/4	1-1/4	7	1.25	.725	<a href="#">TF120Z</a>	SF80	TC311	STC-4	<a href="#">TF1353</a>
CLVOR-168	<a href="#">92601696</a>	4 TOOTH**	1	1	6	1.25	.800	<a href="#">TF8132E</a>	SF80	TC311	STC-4	<a href="#">TF2993</a>
CLVOR-208	<a href="#">92602096</a>	4 TOOTH**	1-1/4	1-1/4	7	1.25	.800	<a href="#">TF8132E</a>	SF60	TC311	STC-4	<a href="#">TF2993</a>
CLVOR-248	<a href="#">92602496</a>	4 TOOTH**	1-1/2	1-1/2	7	1.25	.800	<a href="#">TF8132E</a>	SF60	TC311	STC-4	<a href="#">TF2993</a>

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

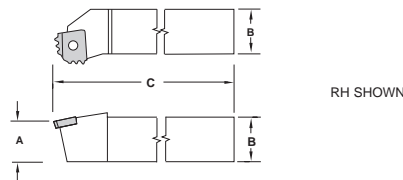
## METRIC

Description	EDP Code	Insert	A	B	C	E	F	Seat	Seat Screw	Clamp	Clamp Screw	Chip Breaker
CLVOR-25M6	<a href="#">9260M2560</a>	3 TOOTH*	25	25	177,8	32	16,1	<a href="#">TF120Z-S</a>	SF80	TC311	STC-4	<a href="#">TF1353</a>
CLVOR-32M6	<a href="#">9260M3260</a>	3 TOOTH*	32	32	177,8	32	16,1	<a href="#">TF120Z-S</a>	SF85	TC311	STC-4	<a href="#">TF1353</a>
CLVOR-40M6	<a href="#">9260M4094</a>	4 TOOTH**	40	40	179,1	32	29,8	<a href="#">TF8132E</a>	SF80	TC311	STC-4	<a href="#">TF2993</a>
CLVOR-40M8	<a href="#">9260M4096</a>	4 TOOTH**	40	40	179,1	32	29,8	<a href="#">TF8132E</a>	SF60	TC311	STC-4	<a href="#">TF2993</a>

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

## PCFNR

For double sided CNGA chaser style



RH SHOWN

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

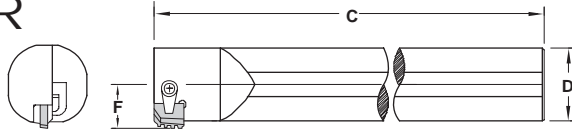
Description	EDP Code	Insert	A	B	C	Lock Pin	Clamp	Clamp Screw
PCFNR-165	<a href="#">96301664</a>	CNGA 8R/10R/5B75-3E	1	1	6	NL-44	TC311	STC-11
PCFNR-205	<a href="#">96302064</a>	CNGA 8R/10R/5B75-3E	1-1/4	1-1/4	6	NL-44	TC311	STC-11



# CHASERS

## INTERNAL BAR

Threading  
SI-CLHOR



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

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

## Threading - METRIC SI-CLHOR

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

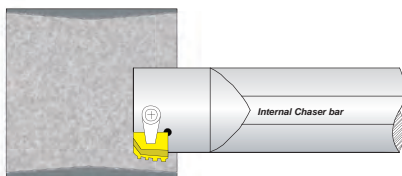
### Technical Information

API ROUND THREADING		<b>8 &amp; 10 PITCH</b>
application		surface feet/minute (SFPM)
External		500 - 800
Internal		500 - 700

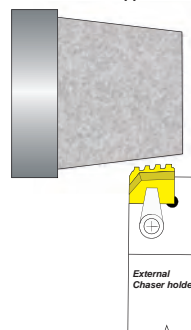
API BUTTRESS THREADING		<b>5 PITCH</b>
application		surface feet/minute (SFPM)
External		300 - 500
Internal		500 - 700

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

internal chaser application



external chaser application





### Recommended SFPM for Chasers

EXTERNAL 8 Round Sets	1st Choice AlTiN PVD Coated		2nd Choice AlTiN PVD Coated		General purpose TiN PVD Coated
	ZA3	AC3	AC50	G50	
Material					GP50
H	500	500	500	500	800
J	500	500	500	500	800
K	500	500	500	500	800
L	500	500	500	500	600
N	500	500	500	500	600
P	500	500	500	500	600

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

EXTERNAL 8 Round Stand Alone TF19310	1st Choice AlTiN PVD Coated		2nd Choice AlTiN PVD Coated		TiN PVD Coated	TiN CVD Coated
	ZA3	AC3	AC50	G50		
Material						
H	500	500	500	500		
J	500	500	500	500		
K	500	500	500	500		
L	500	500	500	500		
N	500	500	500	500		
P	500	500	500	500		

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

INTERNAL 8 Round Stand Alone TF19437 4 TOOTH	1st Choice AlTiN PVD Coated		AlTiN PVD Coated	
	ZA3	AC3	AC50	
Material				
H	700	700	700	
J	700	700	700	
K	700	700	700	
L	700	700	700	
N	700	700	700	
P	700	700	700	

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

INTERNAL 8 Round Stand Alone TF17968 7 TOOTH	1st Choice AlTiN PVD Coated		2nd Choice AlTiN PVD Coated		TiN PVD Coated
	ZA3	AC3	AC50		
Material					
H	500	500	700		
J	500	500	700		
K	500	500	700		
L	500	500	700		
N	500	500	700		
P	500	500	700		

**AC50** - All diameters  
 1-2 PASSES

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

**G50** - All diameters

EXTERNAL Buttress Stand Alone TF22675 3/4" TAPER	TiN CVD Coated	
	G50	
Material		
H	800	
J	800	
K	800	
L	600	
N	600	
P	600	

**G50** - All diameters  
 5 PASSES

EXTERNAL Buttress Stand Alone TF1130 1" TAPER	TiN CVD Coated	
	G50	
Material		
H	800	
J	800	
K	800	
L	600	
N	600	
P	600	

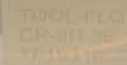
**G50** - All diameters  
 5 PASSES

INTERNAL Buttress Stand Alone TF22675 3/4" TAPER	TiN CVD Coated	
	G50	
Material		
H	800	
J	800	
K	800	
L	600	
N	600	
P	600	

**G50** - All diameters  
 5 PASSES



# TOOL-FLO



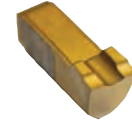
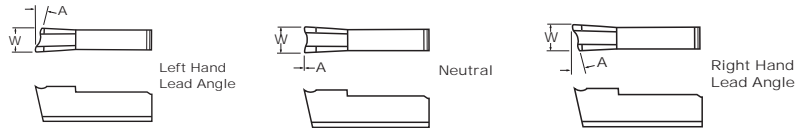
# CUT OFF



# FC SERIES CUT OFF



## INSERT FC



	Uncoated	TIN Coated	ALTiN Coated	
	C36	GP26	GP530	AC26
				AC3
				AC530

■ Toolholders listed below

Description	EDP Code	Competitor Nomenclature	Insert Width	A	Hand	COMPETITOR'S GRADES				
						M40	M50	M43		
FC-094-N	<a href="#">FC094N</a>	507-140	3/32 (.094)	0°	N					
FC-094-L-4	<a href="#">FC094L4</a>	507-144	3/32 (.094)	4°	L	●				
FC-094-L-12	<a href="#">FC094L12</a>	507-152	3/32 (.094)	12°	L	●				
FC-094-R-4	<a href="#">FC094R4</a>	507-143	3/32 (.094)	4°	R	●				
FC-094-R-12	<a href="#">FC094R12</a>	507-151	3/32 (.094)	12°	R	●				
FC-094-R-18	<a href="#">FC094R18</a>	507-161	3/32 (.094)	18°	R	●				
FC-125-N	<a href="#">FC125N</a>	507-117	1/8 (.125)	0°	N	●	●	●	●	●
FC-125-L-4	<a href="#">FC125L4</a>	507-129	1/8 (.125)	4°	L	●				
FC-125-L-12	<a href="#">FC125L12</a>	507-154	1/8 (.125)	12°	L	●				
FC-125-R-4	<a href="#">FC125R4</a>	507-128	1/8 (.125)	4°	R	●				
FC-125-R-12	<a href="#">FC125R12</a>	507-146	1/8 (.125)	12°	R	●				
FC-125-R-18	<a href="#">FC125R18</a>	507-155	1/8 (.125)	18°	R	●				
FC-187-N	<a href="#">FC187N</a>	507-116	3/16 (.187)	0°	N	●	●	●	●	●
FC-187-L-4	<a href="#">FC187L4</a>	507-125/507-127	3/16 (.187)	4°	L	●				
FC-187-R-4	<a href="#">FC187R4</a>	507-124/507-126	3/16 (.187)	4°	R	●				
FC-187-R-12	<a href="#">FC187R12</a>	507-176	3/16 (.187)	12°	R	●				

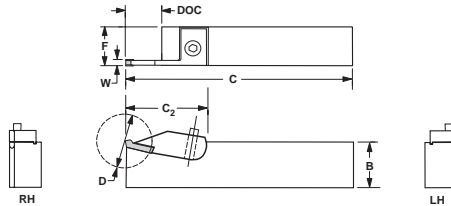
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up-to-date grade offering.

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

### COMPETITOR'S GRADES

Steel (Low to moderate speeds)	●			
Steel (Moderate to high speeds)		●		
Stainless (Low to moderate speeds)		●		
Stainless (Moderate to high speeds)			●	

## HOLDERS FCIVOR 1/2"

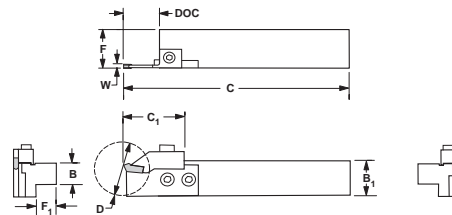


Most holders available with coolant port  
(ie: Add CP to end of description)

Description	EDP Code	Competitor Part No.	Max Dia. D	B	C	C2	F	Clamp Screw	CLAMP Description	D.O.C.	EDP Code	Competitor Part No.
FCIVOR-0500-094	<a href="#">9FCIR050094</a>	206-175	1.063	.500	6.00	1.00	.500	SS65	CHR-FCI094	.531	<a href="#">9HCHRFCI094</a>	435-152
FCIVOR-0500-125	<a href="#">9FCIR0500125</a>	206-145	1.063	.500	6.00	1.00	.500	SS65	CHR-FCI125	.531	<a href="#">9HCHRFCI125</a>	435-130

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

■ RH holders use RH components



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

Description	EDP Code	Competitor Nomenclature	D-Max	B	B1	C	C1	F	F1	Anvil Screw	Clamp Screw
FCVOR-080B	<a href="#">9FCR0800</a>	206-179	1.625	.500	.750	4.50	1.38	1.00	.460	<a href="#">SS84M</a>	SS91
FCVOL-080B	<a href="#">9ECL0800</a>	206-180	1.625	.500	.750	4.50	1.38	1.00	.460	<a href="#">SS84M</a>	SS91
FCVOR/L-1200B	<a href="#">9FCR/L1200</a>	206-178	1.625	.750	.750	4.50	1.38	1.00	.460	<a href="#">SS84M</a>	SS91

## COMPONENT PARTS AVR-FCS Anvils



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

## COMPONENT PARTS CHR-FCS Clamps



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



# FC SERIES CUT OFF

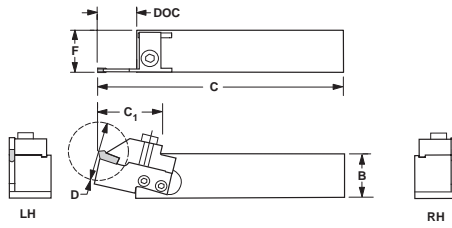
## HOLDERS

### FCVOR/L

1" & 1-1/4"

■ RH holders use RH components

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



Description	EDP Code	Competitor Nomenclature	D-Max	B	C	C <sub>1</sub>	F	Anvil Screw	Clamp Screw
FCVOR-1600D	<a href="#">9FCR1600D</a>	206-141	1.625	1.000	6.00	1.50	1.25	<a href="#">SS82M</a>	SS83
FCVOL-1600D	<a href="#">9FCL1600D</a>	206-142	1.625	1.000	6.00	1.50	1.25	<a href="#">SS82M</a>	SS83
FCVOR-2000D	<a href="#">9FCR2000D</a>	206-143	1.625	1.250	6.00	1.50	1.50	<a href="#">SS82M</a>	SS83
FCVOL-2000D	<a href="#">9FCL2000D</a>	206-144	1.625	1.250	6.00	1.50	1.50	<a href="#">SS82M</a>	SS83

## COMPONENT PARTS

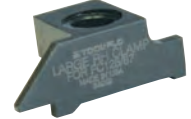
### AVR-FCL Anvils



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

## COMPONENT PARTS

### CHR-FCL Clamps



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

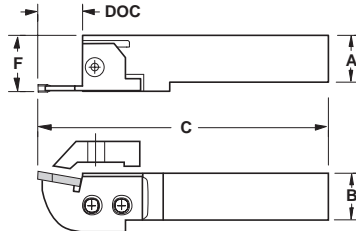
## HOLDERS

### CDVOR/L

1", 1-1/4", 1-1/2"

■ RH holders use RH components

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



Description	EDP Code	Insert Width	A	B	C	F	Clamp Screw	Anvil Screw
CDVOR-16	<a href="#">92401600</a>	1.063	1.00	1.00	*	1.236	SB90	SF95
CDVOL-16	<a href="#">92301600</a>	1.063	1.00	1.00	*	1.236	SB90	SF95
CDVOR-20	<a href="#">92402000</a>	1.063	1.25	1.25	*	1.744	SB90	SF95
CDVOL-24	<a href="#">92402400</a>	1.063	1.50	1.50	*	1.744	SB90	SF95

\*Determined by the anvil

## COMPONENT PARTS

### AHR-FC Anvils



Description	EDP Code	D.O.C.
AHR-FC094	<a href="#">9150FC094</a>	.500
AHR-FC125	<a href="#">9150FC125</a>	1.000
AHR-FC187	<a href="#">9150FC187</a>	1.000
AHL-FC094	<a href="#">9151FC094</a>	.500
AHL-FC125	<a href="#">9151FC125</a>	1.000
AHL-FC187	<a href="#">9151FC187</a>	1.000

## COMPONENT PARTS

### CHR-FC Clamps



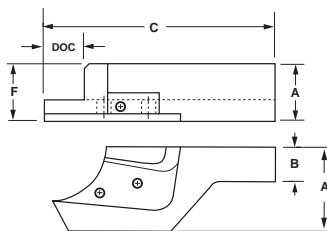
Description	EDP Code	D.O.C.
CHR-FC094	<a href="#">9HCHRFC094</a>	.500
CHR-FC125	<a href="#">9HCHRFC125</a>	1.000
CHR-FC187	<a href="#">9HCHRFC187</a>	1.000
CHL-FC094	<a href="#">9HCHLFC094</a>	.500
CHL-FC125	<a href="#">9HCHLFC125</a>	1.000
CHL-FC187	<a href="#">9HCHLFC187</a>	1.000

## HOLDERS

### FCEDVOR

1", 1-1/4"

■ RH holders use RH components listed on following page.



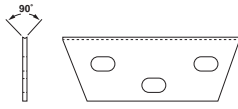
Description	EDP Code	Competitor Nomenclature	DOC	A	A <sub>1</sub>	B	F	C	Anvil Screw	Clamp Screw
FCEDVOR-1600D	<a href="#">9FCEDR1600D</a>	206-116	1.500	1.769	2.224	1.000	1.76	6.000	S-352	S-628
FCEDVOL-1600D	<a href="#">9FCEDL1600D</a>	206-119	1.500	1.769	2.224	1.000	1.76	6.000	S-352	S-628
FCEDVOR-2000D	<a href="#">9FCEDR2000D</a>	206-121	1.500	1.899	2.224	1.250	1.89	6.000	S-352	S-628
FCEDVOL-2000D	<a href="#">9FCEDL2000D</a>	206-124	1.500	1.899	2.224	1.250	1.89	6.000	S-352	S-628

# FC SERIES CUT OFF



## COMPONENT PARTS

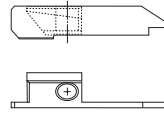
AVR/L-FCED Anvils



Description	EDP Code	D.O.C.
AVR/L-FCED125	<a href="#">902FCED125</a>	1.500
AVR/L-FCED187	<a href="#">902FCED187</a>	1.500

## COMPONENT PARTS

CHR/L-FCED Clamps

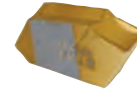
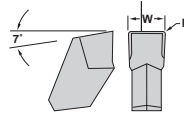


Description	EDP Code	D.O.C.
CHR-FCED125	<a href="#">9H2FCEDR187</a>	1.500
CHL-FCED125	<a href="#">9H2FCEDL094</a>	1.500
CHR-FCED187	<a href="#">9H2FCEDR125</a>	1.500
CHL-FCED187	<a href="#">9H2FCEDL187</a>	1.500

FC SERIES

## NEUTRAL

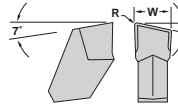
TFN



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

## LEFT HAND

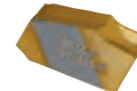
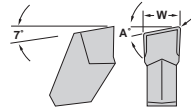
TFL



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

## RIGHT HAND

TFR



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

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

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

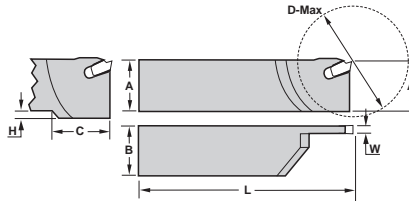
Cast Iron					
Non-Ferrous					
Stainless/High Temp					
Steel					●



# CUT OFF

## INTEGRAL SHANK TCOHR/L

■ Inserts: TFN, TFR, TFL

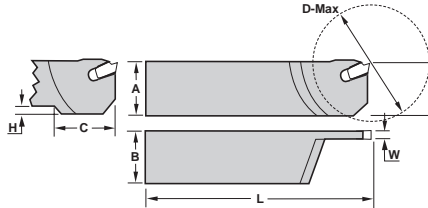


RH SHOWN

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

## INTEGRAL SHANK FOR AUTOMATICS TCOHR/L - (Metric)

■ Inserts: TFN, TFR, TFL

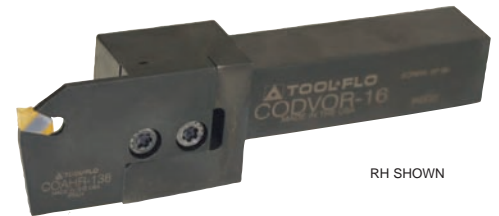
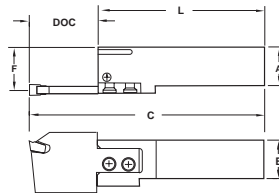


LH SHOWN

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

## COMPONENT HOLDER CODVOR/L

■ RH holders use RH components



RH SHOWN

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

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

## Metric

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

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

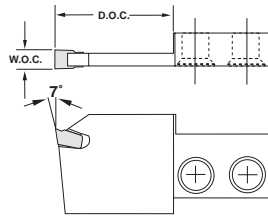
CUT OFF






# CUT OFF

## COMPONENTS CUT OFF ANVILS COAHR/L



RH SHOWN



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

### Recommended SFM & IPR for Parting Applications

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

CUT OFF



# TOOL-FLO

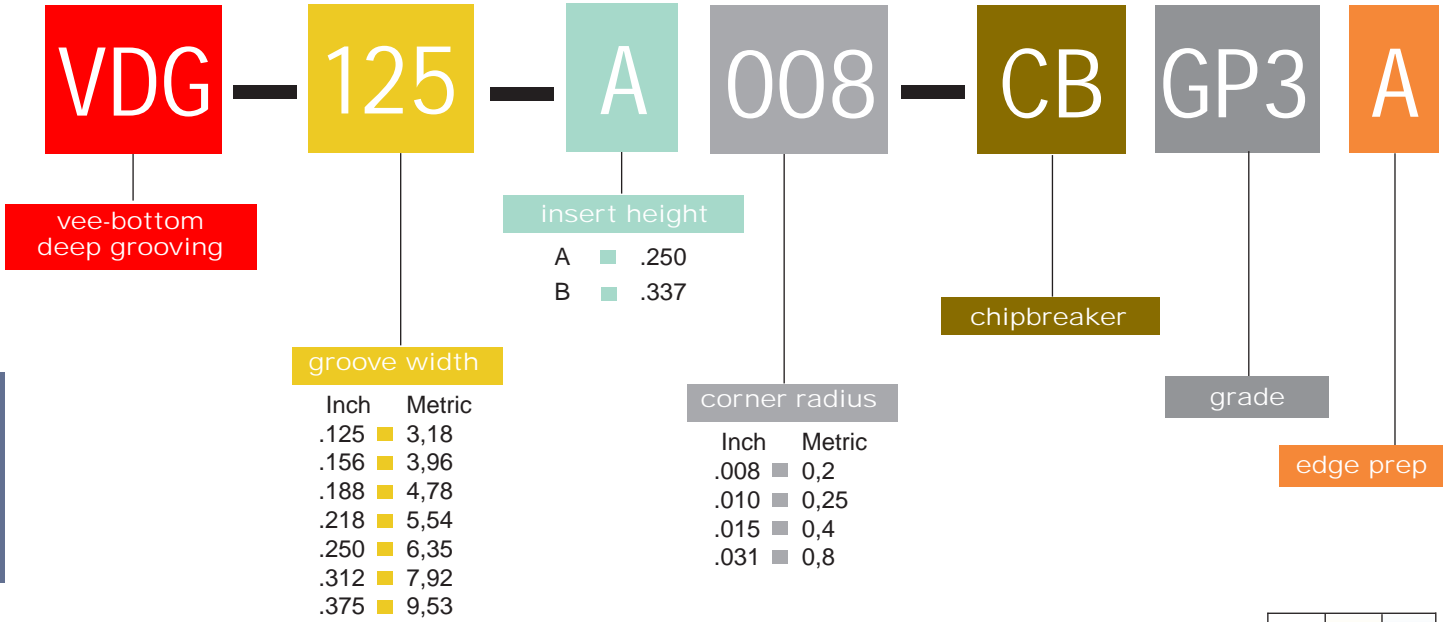


## DEEP GROOVING

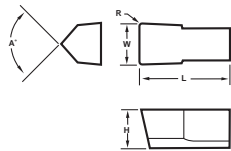
# DEEP GROOVING



## Deep Grooving Insert Nomenclature Chart



## DEEP GROOVING VDG

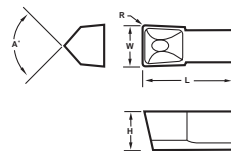


Description	EDP Code	W		R	L	H	A	Grade								
		Inch	Metric					C3	C6H	GP3	GP50	AC3	AC50			
VDG-125-A008	882125A08	.125	3,18	.008	.500	.250	90°									
VDG-125-A015	<a href="#">82125A</a>	.125	3,18	.015	.500	.250	90°									
VDG-156-A008	<a href="#">82156A08</a>	.156	3,96	.008	.500	.250	90°							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

## DEEP GROOVING VDG-CB

w/patented chipbreaker

Exclusive patented design!



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

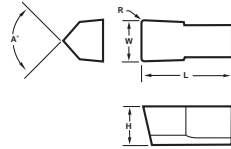
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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



# DEEP GROOVING

## DEEP GROOVING VDG METRIC

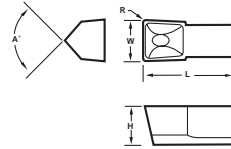


Description	EDP Code	W		R	L	H	A	Coatings						
		Metric	Inch					C3	C6H	GP3	GP50	AC3	AC50	
VDG-3M-A02	823M02	3,00	.118	0,2	12,7	6,35	90°							
VDG-3M-A04	823M04	3,00	.118	0,4	12,7	6,35	90°							
VDG-4M-A02	824M02	4,00	.157	0,2	12,7	6,35	90°							
VDG-4M-A04	824M04	4,00	.157	0,4	12,7	6,35	90°					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

## DEEP GROOVING VDG-CB

METRIC w/patented chipbreaker

Exclusive patented design!



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

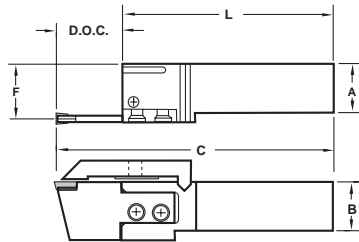
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up-to-date grade offering.

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

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

## EXTERNAL STRAIGHT HOLDER CEDVOR/L

RH holders use RH components



RH SHOWN



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

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

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

## METRIC

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

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

DEEP GROOVING



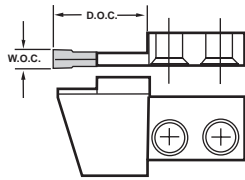
# DEEP GROOVING



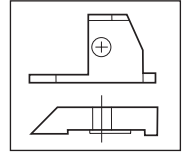
## COMPONENTS

### DGAHR/L

Anvils for CEDVOR/L



RH SHOWN

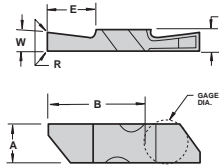


Description	EDP Code	Insert	DOC	WOC	Clamp
DGAHR-113	<a href="#">9263113</a>	VDG	1.250	.125	DGCHR-132
DGAHL-113	<a href="#">9262113</a>	VDG	1.250	.125	DGCHL-132
DGAHR-138	<a href="#">9263138</a>	VDG	1.375	.170-.188	DGCHR-382
DGAHL-138	<a href="#">9262138</a>	VDG	1.375	.170-.188	DGCHL-382
DGAHR-248	<a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

## DEEP GROOVING FLGT

Double ended

Exclusive TOOL-FLO design!



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

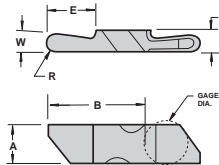
## METRIC

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

## FLRT

Full Nose Radius - Double ended

Exclusive TOOL-FLO design!



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

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



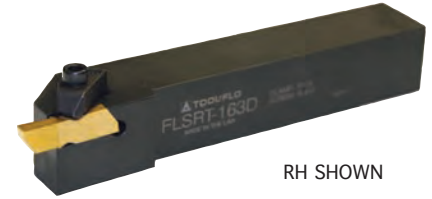
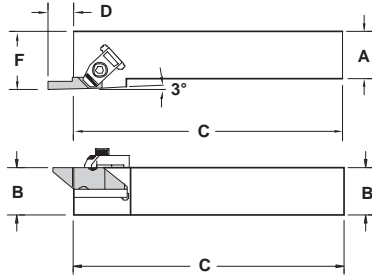
# DEEP GROOVING

## EXTERNAL HOLDER FLSR/LT

For double ended FLGT/FLRT inserts  
Inch

*Exclusive TOOL-FLO design!*

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



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

## METRIC

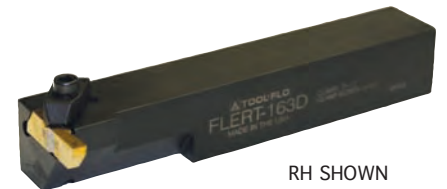
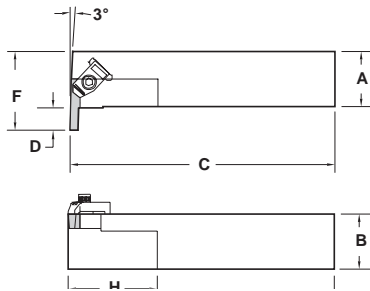
Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLSRT-2525M3	<a href="#">934325M16</a>	FLGT/RT-3R	25,0	25,0	152,4	11,2	32,0	TF-72	S-412
FLSLT-2525M3	<a href="#">934225M16</a>	FLGT/RT-3L	25,0	25,0	152,4	11,2	32,0	TF-73	S-412
FLSRT-3232M3	<a href="#">934332M16</a>	FLGT/RT-3R	32,0	32,0	152,4	11,2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

## FLER/LT

For double ended FLGT/FLRT inserts

*Exclusive TOOL-FLO design!*

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



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

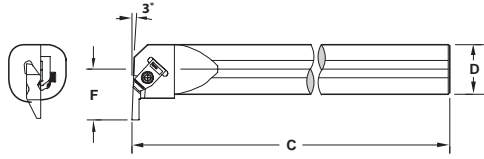
# DEEP GROOVING



## INTERNAL BAR A\_FLER/LT

For double ended FLGT/FLRT inserts  
Inch

Exclusive TOOL-FLO design!



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

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

## METRIC

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

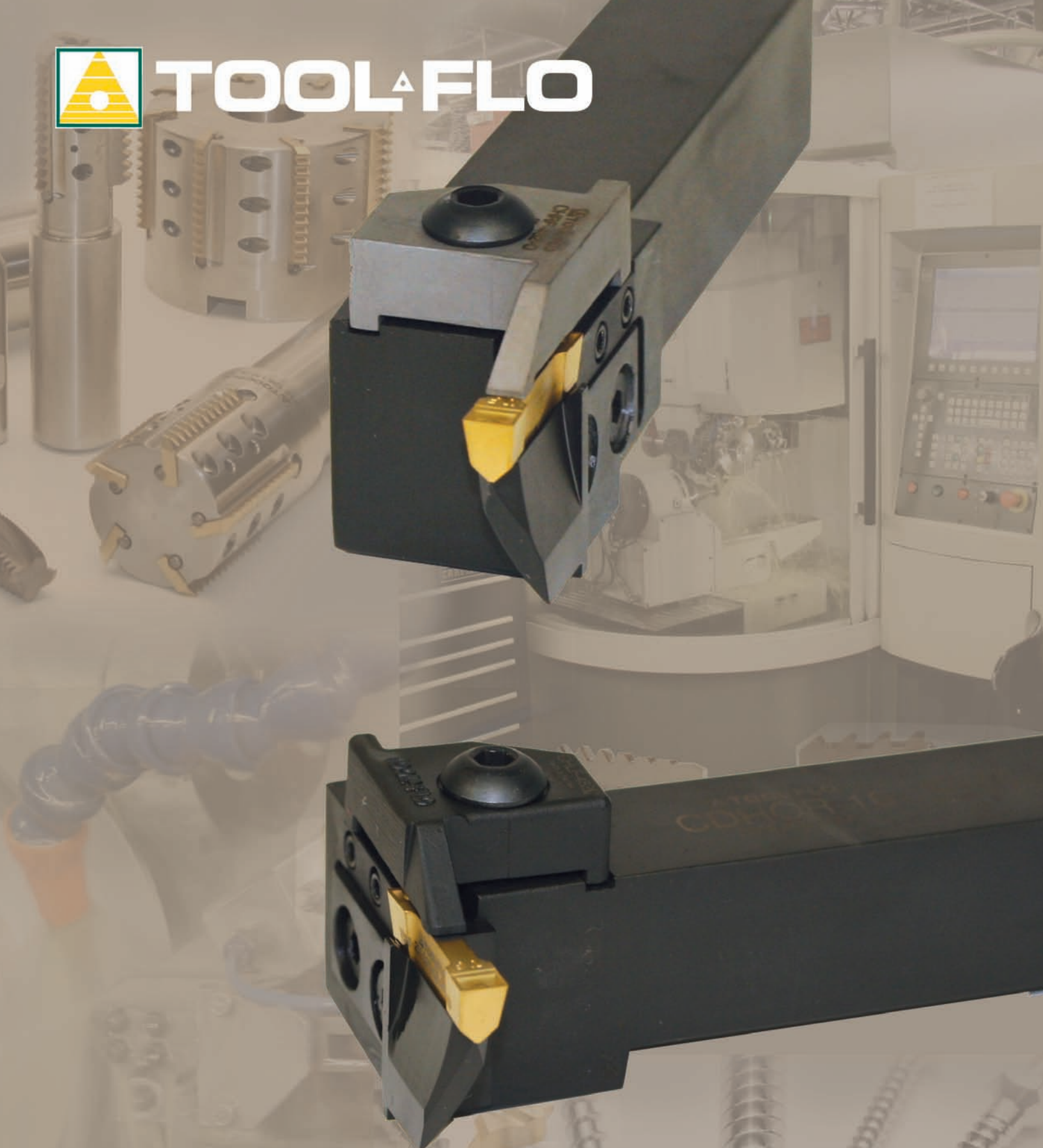
## Recommended SFM & IPR for Deep Grooving Applications

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

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



**TOOL FLO**



**FACE  
GROOVING**



# FACE GROOVING



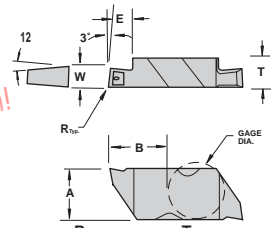
## FACE GROOVING

### FLF-CB

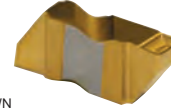
w/Patented chipbreaker

■ For holders see next page.

*Exclusive patented design!*



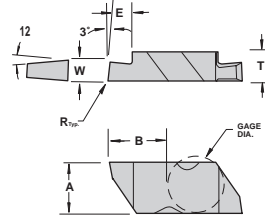
RH SHOWN



Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coating					
									C3	C6H	GP3	GP50	AC3	AC50
FLF-3125R-CB	<a href="#">563025PR</a>	.125	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3125L-CB	<a href="#">563025PL</a>	.125	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3156R-CB	<a href="#">563056PR</a>	.156	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3156L-CB	<a href="#">563056PL</a>	.156	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3188R-CB	<a href="#">563088PR</a>	.188	.020/.025	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3188L-CB	<a href="#">563088PL</a>	.188	.020/.025	.195	.180	.344	.4050	.3750			●	●	●	●

### FLF

■ For holders see next page.



RH SHOWN

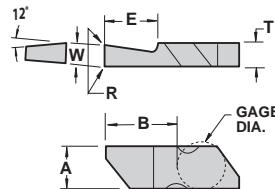


Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coating					
									C3	C6H	GP3	GP50	AC3	AC50
FLF-3125R	<a href="#">563025R</a>	.125	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3125L	<a href="#">563025L</a>	.125	.005/.010	.195	.180	.344	.4050	.3750			●	●	●	●
FLF-3156R	<a href="#">563056R</a>	.156	.005/.010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

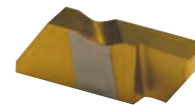
### FLFD

Single ended - Deep Grooving

■ For holders see next page.



RH SHOWN



Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coating					
									C3	C6H	GP3	GP50	AC3	AC50
FLFD-3125R	<a href="#">6338125R</a>	.125	.005/.010	.195	.270	.344	.4050	.3750			●	●	●	●
FLFD-3125L	<a href="#">6338125L</a>	.125	.005/.010	.195	.270	.344	.4050	.3750			●	●	●	●
FLFD-4189R	<a href="#">6348189R</a>	.189	.020/.025	.255	.390	.453	.7610	.3750			●	●	●	●
FLFD-4189L	<a href="#">6348189L</a>	.189	.020/.025	.255	.390	.453	.7610	.3750			●	●	●	●
FLFD-4250R	<a href="#">6348250R</a>	.250	.020/.025	.255	.520	.453	.8860	.3750			●	●	●	●
FLFD-4250L	<a href="#">6348250L</a>	.250	.020/.025	.255	.520	.453	.8860	.3750			●	●	●	●

### FLFD-CB

Single ended - Deep Grooving

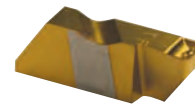
w/Patented chipbreaker

■ For holders see next page.

*Exclusive patented design!*



RH SHOWN



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

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



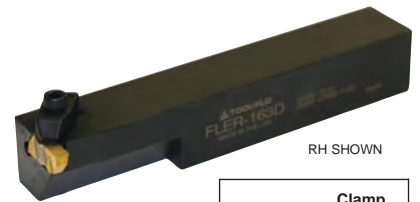
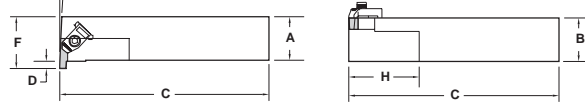
# FACE GROOVING

## EXTERNAL HOLDERS

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

FLER/L

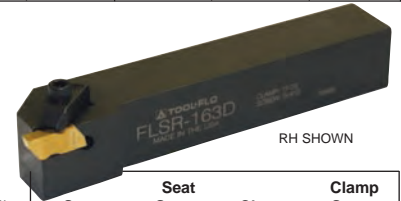
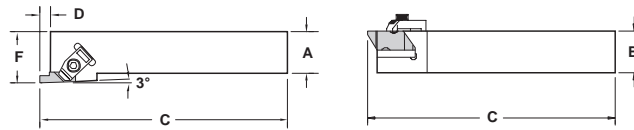
90° for FLF/FLFD inserts



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

FLSR/L

Straight for FLF/FLFD inserts



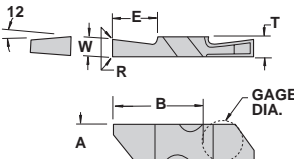
Most holders available with coolant port (ie: Add CP to end of description)

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

## FACE/DEEP GROOVING

FLFT

Double ended - Deep Face Grooving

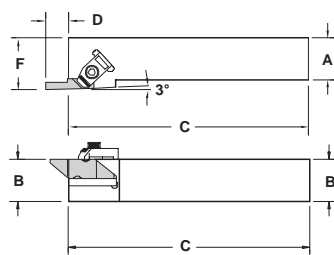


Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coating						
									C3	C6H	GP3	GP50	AC3	AC50	
FLFT-3125R	<a href="#">6339125R</a>	.125	.005/.010	.195	.375	.344	.855	.3750							
FLFT-3125L	<a href="#">6339125L</a>	.125	.005/.010	.195	.375	.344	.855	.3750							
FLFT-4189R	<a href="#">6349189R</a>	.189	.020/.025	.255	.550	.453	1.136	.3750							
FLFT-4189L	<a href="#">6349189L</a>	.189	.020/.025	.255	.550	.453	1.136	.3750							
FLFT-4250R	<a href="#">6349250R</a>	.250	.020/.025	.255	.550	.453	1.136	.3750							
FLFT-4250L	<a href="#">6349250L</a>	.250	.020/.025	.255	.550	.453	1.136	.3750							

## EXTERNAL HOLDERS

FLSRT/LT

Straight for FLFT inserts



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



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

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

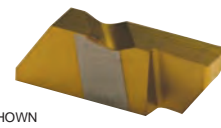
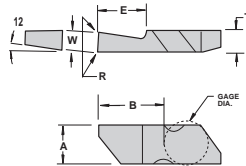
# FACE GROOVING



## INTERNAL FACE GROOVING

### FLFD-I

Single ended - Internal Deep/Face Grooving



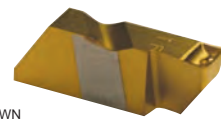
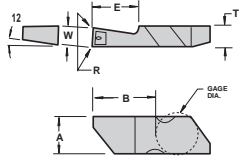
Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coatings						
									C3	C6H	GP3	GP50	AC3	AC50	
FLFD-3125RI	<a href="#">6338125RI</a>	.125	.005/.010	.195	.270	.344	.5050	.3750							
FLFD-3125LI	<a href="#">6338125LI</a>	.125	.005/.010	.195	.270	.344	.5050	.3750			●	●	●	●	
FLFD-3189RI	<a href="#">6338189RI</a>	.189	.020/.025	.195	.270	.344	.5050	.3750			●	●	●	●	
FLFD-3189LI	<a href="#">6338189LI</a>	.189	.020/.025	.195	.270	.344	.5050	.3750			●	●	●	●	

## INTERNAL FACE GROOVING

### FLFD-I-CB

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

Exclusive patented design!



Description	EDP Code	W	R	T	E	A	B	Gage Dia	Coatings						
									C3	C6H	GP3	GP50	AC3	AC50	
FLFD-3125RI-CB	<a href="#">6338125PRI</a>	.125	.005/.010	.195	.270	.344	.5050	.3750			●	●	●	●	
FLFD-3125LI-CB	<a href="#">6338125PLI</a>	.125	.005/.010	.195	.270	.344	.5050	.3750			●	●	●	●	
FLFD-3189RI-CB	<a href="#">6338189PRI</a>	.189	.020/.025	.195	.270	.344	.5050	.3750			●	●	●	●	
FLFD-3189LI-CB	<a href="#">6338189PLI</a>	.189	.020/.025	.195	.270	.344	.5050	.3750			●	●	●	●	

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

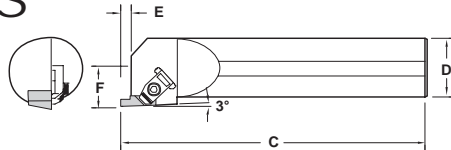
● High performance choice in optimal conditions.  
▲ Recommended grade under general conditions.

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

## INTERNAL BARS

### A-FLSR/L

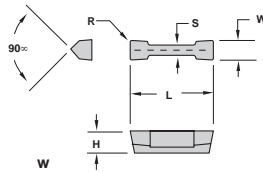
For FLFD-I inserts w/Coolant hole



Description	EDP Code	Insert	Min. Bore	E	D	C	F	Clamp	
								Clamp	Screw
A16-FLSR3	<a href="#">96521616</a>	FLFD-3RI	2.250	.290	1.000	12.000	.640	TF-72	S-412
A16-FLSL3	<a href="#">96421616</a>	FLFD-3LI	2.250	.290	1.000	12.000	.640	TF-73	S-412
A20-FLSR3	<a href="#">96522016</a>	FLFD-3RI	2.250	.290	1.250	14.000	.765	TF-72	S-412
A20-FLSL3	<a href="#">96422016</a>	FLFD-3LI	2.250	.290	1.250	14.000	.765	TF-73	S-412
A24-FLSR3	<a href="#">96522416</a>	FLFD-3RI	2.250	.290	1.500	14.000	.890	TF-72	S-412
A24-FLSL3	<a href="#">96422416</a>	FLFD-3LI	2.250	.290	1.500	14.000	.890	TF-73	S-412
A28-FLSR3	<a href="#">96522816</a>	FLFD-3RI	2.250	.290	1.750	14.000	1.015	TF-72	S-412
A28-FLSL3	<a href="#">96422816</a>	FLFD-3LI	2.250	.290	1.750	14.000	1.015	TF-73	S-412
A32-FLSR3	<a href="#">96523216</a>	FLFD-3RI	2.375	.290	2.000	16.000	1.281	TF-72	S-412
A32-FLSL3	<a href="#">96423216</a>	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	Coatings						
								C25	C3	GP3	GP50	AC3	AC50	
VDB 125 A008	<a href="#">79125A08</a>	.125	3,18	.008	1.125	.250	.106							
VDB 125 A015	<a href="#">79125A</a>	.125	3,18	.015	1.125	.250	.106	●		●	●	●	●	●
VDB 156 A008	<a href="#">79156A08</a>	.156	3,96	.008	1.125	.250	.106			●	●	●	●	●
VDB 156 A015	<a href="#">79156A</a>	.156	3,96	.015	1.125	.250	.106			●	●	●	●	●
VDB 188 A008	<a href="#">79188A08</a>	.188	4,78	.008	1.125	.250	.144	●		●	●	●	●	●
VDB 188 A015	<a href="#">79188A</a>	.188	4,78	.015	1.125	.250	.144	●		●	●	●	●	●
VDB 188 A031	<a href="#">79188A031</a>	.188	4,78	.031	1.125	.250	.144			●	●	●	●	●
VDB 218-A015	<a href="#">79218A</a>	.218	5,54	.015	1.125	.250	.144			●	●	●	●	●
VDB 250 A015	<a href="#">79250A</a>	.250	6,35	.015	1.125	.250	.144	●		●	●	●	●	●
VDB 250 B015	<a href="#">79250B</a>	.250	6,35	.015	1.125	.337	.144	●		●	●	●	●	●
VDB 250 B031	<a href="#">79250B031</a>	.250	6,35	.031	1.125	.337	.144			●	●	●	●	●
VDB 281 B015	<a href="#">79281B</a>	.281	7,14	.015	1.125	.337	.202			●	●	●	●	●
VDB 312 B015	<a href="#">79312B</a>	.312	7,92	.015	1.125	.337	.202			●	●	●	●	●
VDB 312 B031	<a href="#">79312B031</a>	.312	7,92	.031	1.125	.337	.202			●	●	●	●	●
VDB 344 B015	<a href="#">79344B</a>	.344	8,74	.015	1.125	.337	.276			●	●	●	●	●
VDB 344 B031	<a href="#">79344B031</a>	.344	8,74	.031	1.125	.337	.276			●	●	●	●	●
VDB 375 B015	<a href="#">79375B</a>	.375	9,53	.015	1.125	.337	.276			●	●	●	●	●
VDB 375 B031	<a href="#">79375B031</a>	.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	C25	C3	GP3	GP50	AC3	AC50
Cast Iron			▲			●
Non-Ferrous		●		▲		
Stainless/High Temp			▲	●		
Steel				▲		●

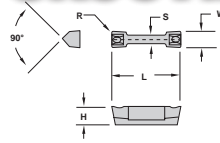


# FACE GROOVING

## FACE GROOVING VDB-CB

w/Patented chipbreaker

Exclusive patented design!



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

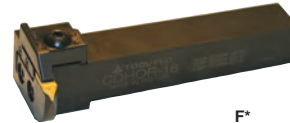
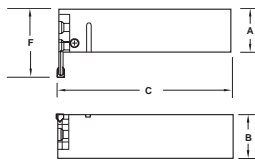
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

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

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

## EXTERNAL 90° HOLDER

CDHOR/L (RH HOLDERS USE LH COMPONENTS)



RH SHOWN

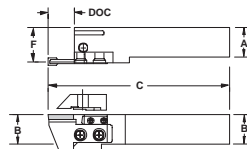
Metric holders on page 216.

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

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

## EXTERNAL STRAIGHT HOLDER

CDVOR/L (RH HOLDERS USE RH COMPONENTS)



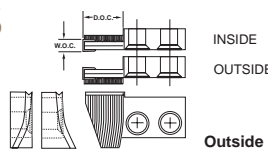
RH SHOWN

Metric holders on page 216.

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



RH SHOWN

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



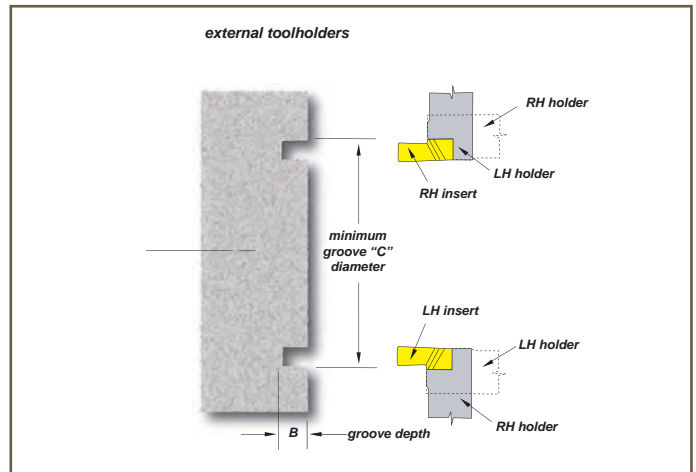


## Guidelines for Face Grooving Operations

### EXTERNAL

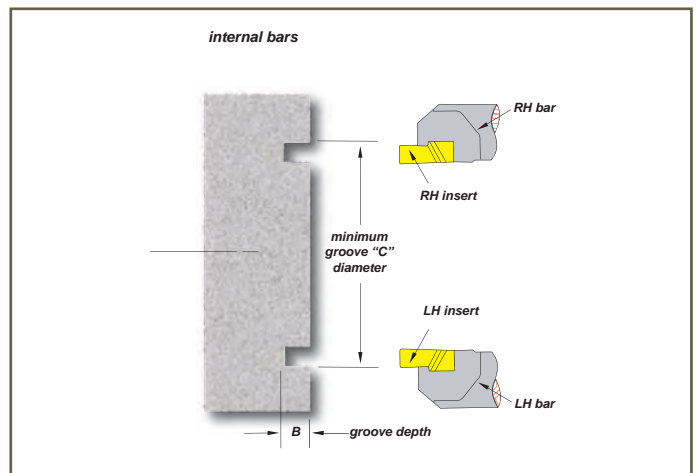
#### STANDARD FLF/FLFD INSERTS

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



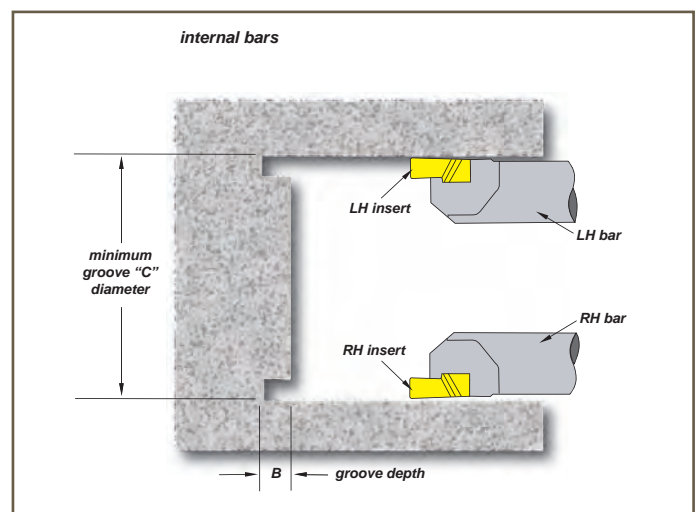
#### STANDARD FLG/FLGD INSERTS

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



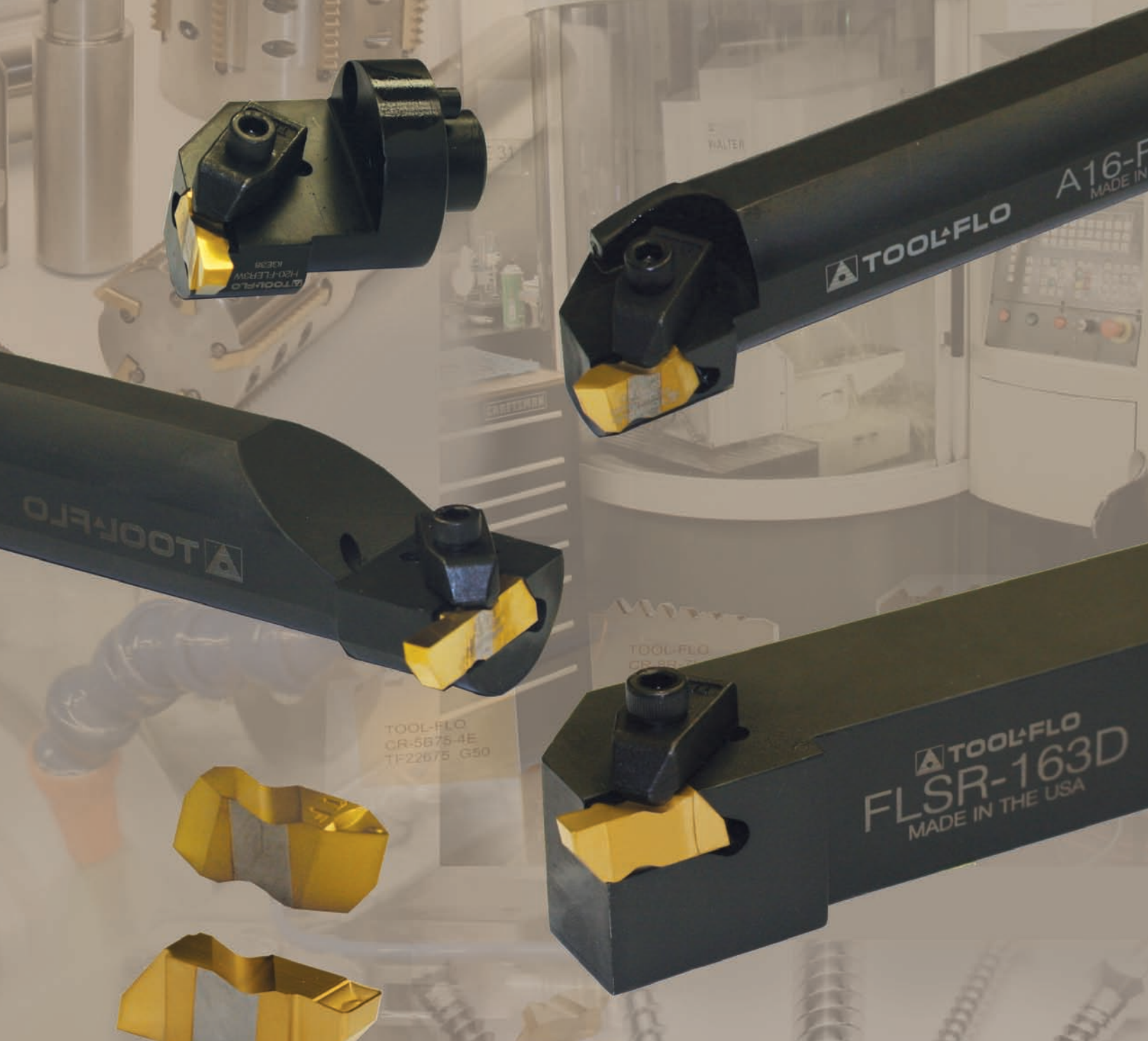
### INTERNAL

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





# TOOL-FLO

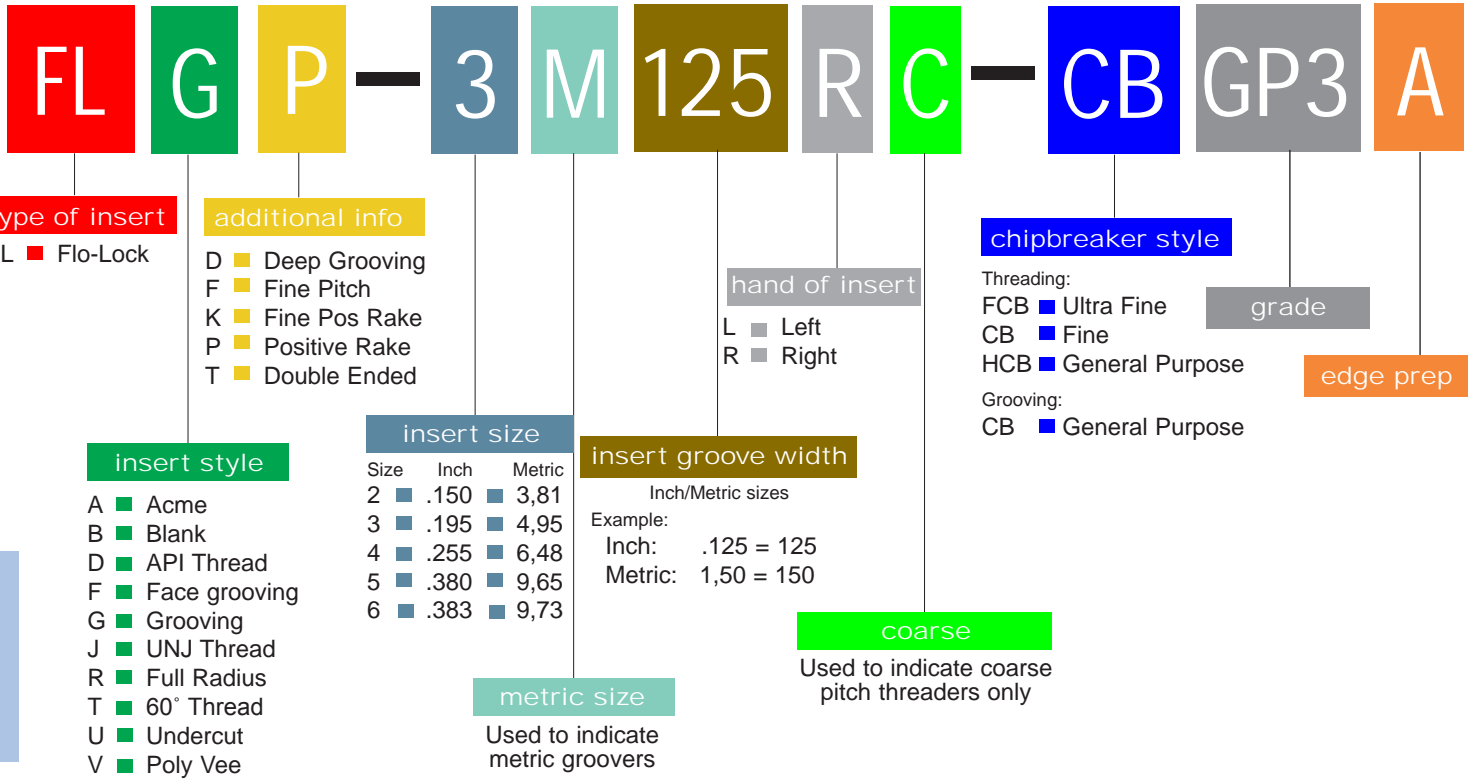


## FLO-LOCK

Threading & Grooving



## Flo-Lock Grooving/Threading Insert Identification Chart



## Flo-Lock Cross Reference Chart

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

\*Top Clamp change is required when converting from SANDVIK®



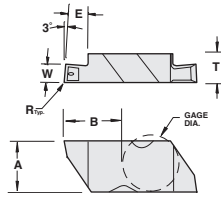
## GROOVING-CHIP-FLO

### FLG-CB

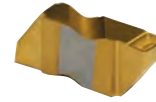
w/patented chipbreaker *Exclusive patented design!*

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

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

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

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



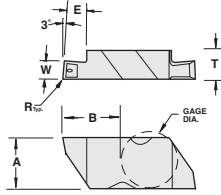


## GROOVING-CHIP-FLO

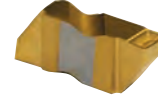
### FLG-CB - METRIC

w/patented chipbreaker

Exclusive patented design!



RH Shown



**Features:**

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

FLO-LOCK

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

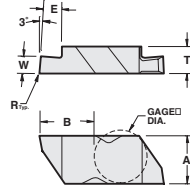
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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



# FLO-LOCK

## GROOVING FLG



RH Shown

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

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

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

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

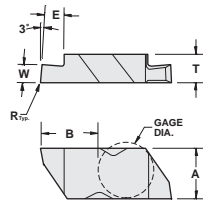
FLO-LOCK

# FLO-LOCK



## GROOVING

FLG



RH Shown



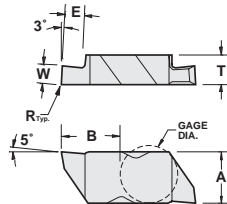
Description	EDP Code	W		R	E		T	A	B	Gage Dia.	Coating							
		Inch	Metric		Inch	Metric					Uncoated	GP3	GP5	GF50	AC3	AC50		
FLG-4125R	<a href="#">564825R</a>	.125	3,18	.005/.010	.250	6,35	.255	.453	.6360	.3750								
FLG-4125L	<a href="#">564825L</a>	.125	3,18	.005/.010	.250	6,35	.255	.453	.6360	.3750								
FLG-4189R	<a href="#">564889R</a>	.189	4,80	.020/.025	.250	6,35	.255	.453	.6360	.3750								
FLG-4189L	<a href="#">564889L</a>	.189	4,80	.020/.025	.250	6,35	.255	.453	.6360	.3750								
FLG-4213R	<a href="#">574013R</a>	.213	5,41	.005/.010	.250	6,35	.255	.453	.6360	.3750								
FLG-4213L	<a href="#">574013L</a>	.213	5,41	.005/.010	.250	6,35	.255	.453	.6360	.3750								
FLG-4219R	<a href="#">574019R</a>	.219	5,56	.020/.025	.250	6,35	.255	.453	.6360	.3750								
FLG-4219L	<a href="#">574019L</a>	.219	5,56	.020/.025	.250	6,35	.255	.453	.6360	.3750								
FLG-4250R	<a href="#">574050R</a>	.250	6,35	.020/.025	.250	6,35	.255	.453	.6360	.3750								
FLG-4250L	<a href="#">574050L</a>	.250	6,35	.020/.025	.250	6,35	.255	.453	.6360	.3750								
FLG-4312R	<a href="#">574212R</a>	.312	7,92	.030/.035	.250	6,35	.312	.453	.6360	.3750								
FLG-4312L	<a href="#">574212L</a>	.312	7,92	.030/.035	.250	6,35	.312	.453	.6360	.3750								
FLG-5250R	<a href="#">575050R</a>	.250	6,35	.020/.025	.375	9,53	.380	.688	.9520	.5000								
FLG-5250L	<a href="#">575050L</a>	.250	6,35	.020/.025	.375	9,53	.380	.688	.9520	.5000								
FLG-5281R	<a href="#">575081R</a>	.281	7,14	.030/.035	.375	9,53	.380	.688	.9520	.5000								
FLG-5281L	<a href="#">575081L</a>	.281	7,14	.030/.035	.375	9,53	.380	.688	.9520	.5000								
FLG-5312R	<a href="#">575212R</a>	.312	7,92	.030/.035	.375	9,53	.380	.688	.9520	.5000								
FLG-5312L	<a href="#">575212L</a>	.312	7,92	.030/.035	.375	9,53	.380	.688	.9520	.5000								
FLG-5344R	<a href="#">575244R</a>	.344	8,74	.030/.035	.375	9,53	.380	.688	.9520	.5000								
FLG-5344L	<a href="#">575244L</a>	.344	8,74	.030/.035	.375	9,53	.380	.688	.9520	.5000								
FLG-5375R	<a href="#">575275R</a>	.375	9,53	.030/.035	.375	9,53	.380	.688	.9520	.5000								
FLG-5375L	<a href="#">575275L</a>	.375	9,53	.030/.035	.375	9,53	.380	.688	.9520	.5000								
FLG-6281R	<a href="#">576081R</a>	.281	7,14	.030/.035	.250	6,35	.383	.453	.6360	.3750								
FLG-6281L	<a href="#">576081L</a>	.281	7,14	.030/.035	.250	6,35	.383	.453	.6360	.3750								
FLG-6312R	<a href="#">576212R</a>	.312	7,92	.030/.035	.250	6,35	.383	.453	.6360	.3750								
FLG-6312L	<a href="#">576212L</a>	.312	7,92	.030/.035	.250	6,35	.383	.453	.6360	.3750								
FLG-6375R	<a href="#">576275R</a>	.375	9,53	.030/.035	.250	6,35	.383	.453	.6360	.3750								
FLG-6375L	<a href="#">576275L</a>	.375	9,53	.030/.035	.250	6,35	.383	.453	.6360	.3750								

FLO-LOCK

## GROOVING

FLGP

w/positive rake



RH Shown



Description	EDP Code	W		R	E		T	A	B	Gage Dia.	Coating							
		Inch	Metric		Inch	Metric					Uncoated	GP3	GP50	AC3	AC50	GP16		
FLGP-2031R	<a href="#">572431R</a>	.031	0,79	.002/.005	.050	1,27	.150	.219	.2700	.1875								
FLGP-2031L	<a href="#">572431L</a>	.031	0,79	.002/.005	.050	1,27	.150	.219	.2700	.1875								
FLGP-2062R	<a href="#">572462R</a>	.062	1,57	.005/.010	.110	2,79	.150	.219	.2700	.1875								
FLGP-2062L	<a href="#">572462L</a>	.062	1,57	.005/.010	.110	2,79	.150	.219	.2700	.1875								
FLGP-2125R	<a href="#">572625R</a>	.125	3,18	.005/.010	.110	2,79	.150	.219	.2700	.1875								
FLGP-2125L	<a href="#">572625L</a>	.125	3,18	.005/.010	.110	2,79	.150	.219	.2700	.1875								
FLGP-3047R	<a href="#">573447R</a>	.047	1,19	.005/.010	.075	1,90	.195	.344	.4050	.3750								
FLGP-3047L	<a href="#">573447L</a>	.047	1,19	.005/.010	.075	1,05	.195	.344	.4050	.3750								
FLGP-3062R	<a href="#">573462R</a>	.062	1,57	.005/.010	.120	3,05	.195	.344	.4050	.3750								
FLGP-3062L	<a href="#">573462L</a>	.062	1,57	.005/.010	.120	3,05	.195	.344	.4050	.3750								
FLGP-3088R	<a href="#">573488R</a>	.088	2,24	.005/.010	.180	4,57	.195	.344	.4050	.3750								
FLGP-3088L	<a href="#">573488L</a>	.088	2,24	.005/.010	.180	4,57	.195	.344	.4050	.3750								
FLGP-3094R	<a href="#">573494R</a>	.094	2,39	.005/.010	.180	4,57	.195	.344	.4050	.3750								
FLGP-3094L	<a href="#">573494L</a>	.094	2,39	.005/.010	.180	4,57	.195	.344	.4050	.3750								
FLGP-3125R	<a href="#">573625R</a>	.125	3,18	.005/.010	.180	4,57	.195	.344	.4050	.3750								
FLGP-3125L	<a href="#">573625L</a>	.125	3,18	.005/.010	.180	4,57	.195	.344	.4050	.3750								
FLGP-3156R	<a href="#">573656R</a>	.156	3,96	.005/.010	.180	4,57	.195	.344	.4050	.3750								
FLGP-3156L	<a href="#">573656L</a>	.156	3,96	.005/.010	.180	4,57	.195	.344	.4050	.3750								
FLGP-3189R	<a href="#">573689R</a>	.189	4,80	.020/.025	.180	4,57	.195	.344	.4050	.3750								
FLGP-3189L	<a href="#">573689L</a>	.189	4,80	.020/.025	.180	4,57	.195	.344	.4050	.3750								
FLGP-4125R	<a href="#">574625R</a>	.125	3,18	.005/.010	.250	6,35	.255	.453	.6360	.3750								
FLGP-4125L	<a href="#">574625L</a>	.125	3,18	.005/.010	.250	6,35	.255	.453	.6360	.3750								
FLGP-4189R	<a href="#">574689R</a>	.189	4,80	.020/.025	.250	6,35	.255	.453	.6360	.3750								
FLGP-4189L	<a href="#">574689L</a>	.189	4,80	.020/.025	.250	6,35	.255	.453	.6360	.3750								
FLGP-4250R	<a href="#">574850R</a>	.250	6,35	.020/.025	.250	6,35	.255	.453	.6360	.3750								
FLGP-4250L	<a href="#">574850L</a>	.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.

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



# FLO-LOCK

## GROOVING - CHIP-FLO

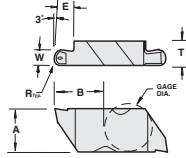
### FLR-CB

w/full nose radius

*Exclusive patented design!*

Features:

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



RH Shown

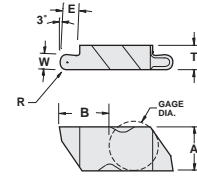


Description	EDP Code	W		R		E		T	A	B	Gage Dia.	Coating						
		Inch	Metric	Inch	Metric	Inch	Metric					Uncoated	TIN Coated	AlTiN Coated	C3	GP3	GP50	AC3
FLR-3031R-CB	<a href="#">593031PR</a>	.062	1,57	.031	0,78	.125	3,18	.195	.344	.4033	.3750	●	●	●	●	●	●	●
FLR-3031L-CB	<a href="#">593031PL</a>	.062	1,57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

## GROOVING

### FLR

w/full nose radius



RH Shown

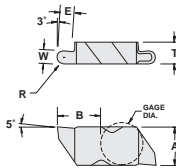


Description	EDP Code	W		R		E		T	A	B	Gage Dia.	Coating						
		Inch	Metric	Inch	Metric	Inch	Metric					Uncoated	TIN Coated	AlTiN Coated	C3	GP3	GP50	AC3
FLR-2031R	<a href="#">592031R</a>	.062	1,57	.031	0,78	.110	2,79	.150	.219	.2683	.1875	●	●	●	●	●	●	●
FLR-2031L	<a href="#">592031L</a>	.062	1,57	.031	0,78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

## GROOVING

### FLRP

w/full nose radius and positive rake



RH Shown



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

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

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

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





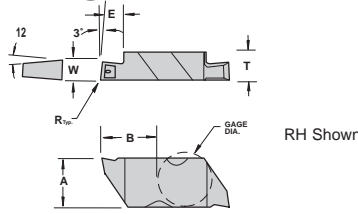
## FACE GROOVING - CHIP-FLO

### FLF-CB

*Exclusive patented design!*

Features:

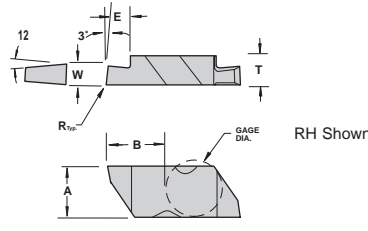
- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Industry standard widths



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

## FACE GROOVING

### FLF



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

## DEEP GROOVING - CHIP-FLO

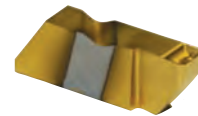
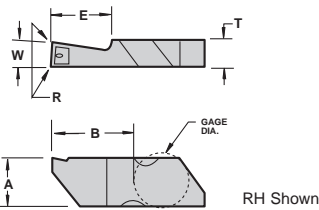
### FLGD-CB

Single ended

*Exclusive patented design!*

Features:

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



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

\*Inserts are double ended.

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

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

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

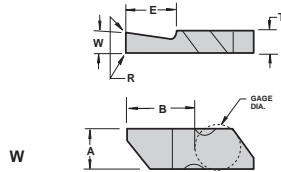


# FLO-LOCK

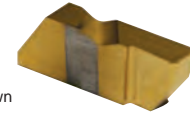
## DEEP GROOVING

### FLGD

Single ended



RH Shown



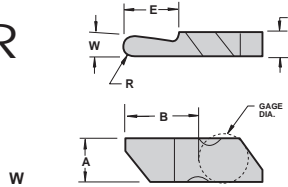
Description	EDP Code	Inch	Metric	R	E	T	A	B	Dia.	Gage				
										C3	GP3	GP50	AC3	AC50
FLGD-3062R (FLG-3062R)	<a href="#">563662R</a>	.062	1,57	.005/.010	.120	.195	.344	.5050	.3750	●	●	●	●	●
FLGD-3062L (FLG-3062L)	<a href="#">563662L</a>	.062	1,57	.005/.010	.120	.195	.344	.5050	.3750	●	●	●	●	●
FLGD-3094R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

\*Inserts are double ended.

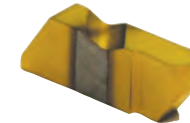
## DEEP GROOVING - FNR

### FLRD

Full nose radius - Single ended



RH Shown



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

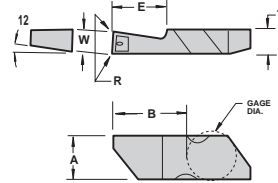
## INTERNAL DEEP FACE GROOVING - CHIP-FLO

### FLFD-I-CB

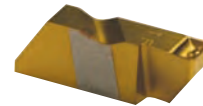
Single ended

Features:

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



RH Shown



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

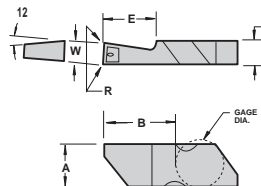
## DEEP FACE GROOVING CHIP-FLO

### FLFD-CB

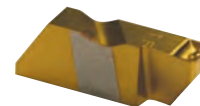
Single ended

Features:

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



RH Shown



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

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

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

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



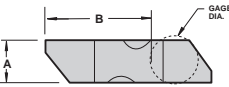
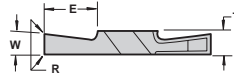
## DEEP GROOVING

### FLGT

Double ended

Exclusive 2 edge design!

Fits FLSLT/RT Holders. See page 110



RH Shown



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

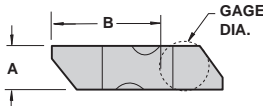
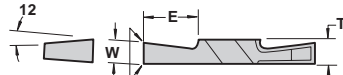
## DEEP FACE GROOVING

### FLFT

Double ended

Exclusive 2 edge design!

Fits FLSLT/RT Holders. See page 110



RH Shown



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

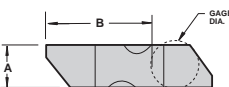
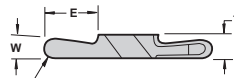
## DEEP GROOVING - FNR

### FLRT

Double ended

Exclusive 2 edge design!

Fits FLSLT/RT Holders. See page 110



RH Shown



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

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



# FLO-LOCK

## 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

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

V-THREADING  
KIT #1B

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

### GROOVING KITS

W.125 GROOVING  
KIT #2A

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

W.125 GROOVING  
KIT #2B

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

W.094 GROOVING  
KIT #3A

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

W.094 GROOVING  
KIT #3B

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

W.062 GROOVING  
KIT #4A

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

W.062 GROOVING  
KIT #4B

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

W.047 GROOVING  
KIT #5A

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

W.047 GROOVING  
KIT #5B

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

### DEEP GROOVING KITS

W.125 GROOVING  
KIT #6

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

W.094 GROOVING  
KIT #7

1	FLSR-163D
4	FLGD-3094R-CB AC3
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	AC22	AC3	AC50	GP6	CB200	CB400	PC33
Free Machining Carbon Steels	---	150-300	200-400	60-175	<b>200-600</b>	200-400	250-450	<b>400-800</b>	<b>600-1500</b>	---	---	---
Plain Carbon Steels	---	150-300	200-400	60-175	<b>200-600</b>	200-400	250-450	<b>450-800</b>	<b>600-1200</b>	---	---	---
Alloy Steels 190-330 HB	---	150-300	200-400	60-150	<b>200-500</b>	200-350	250-400	<b>400-800</b>	<b>500-1100</b>	---	---	---
Alloy Steels 330-450 HB	---	150-300	200-350	60-150	<b>200-450</b>	200-350	250-400	<b>400-750</b>	<b>600-800</b>	---	---	---
Martensitic/Ferritic Stainless Steel 400 Series	---	150-300	200-400	60-150	<b>200-500</b>	200-400	250-450	<b>350-700</b>	<b>500-800</b>	---	---	---
Austenitic Stainless 300 Series	200-400	150-400	<b>200-500</b>	60-150	---	300-600	<b>250-700</b>	---	<b>500-1000</b>	---	---	---
Gray Cast Iron 190-330 HB	100-375	150-400	<b>200-600</b>	60-150	---	300-600	<b>250-700</b>	---	<b>400-1100</b>	<b>1400-2500</b>	---	---
Gray Cast Iron 330-450 HB	100-350	150-350	<b>200-500</b>	60-150	---	200-550	<b>250-600</b>	---	<b>350-950</b>	<b>1200-1800</b>	---	---
Alloy / Ductile Irons	100-350	150-300	200-400	60-150	<b>200-500</b>	250-450	200-450	<b>300-700</b>	<b>350-950</b>	---	---	---
Free Machining Aluminum Alloys	500-2000	150-2000	<b>300-2000</b>	60-150	---	600-2200	<b>600-2500</b>	---	---	---	---	<b>1000-8000</b>
High-Silicon Aluminum Alloys	---	---	---	---	---	---	---	---	---	---	---	<b>1000-5000</b>
Copper / Zinc / Brass	200-700	150-700	<b>200-900</b>	---	---	300-900	<b>400-1000</b>	---	---	---	---	<b>1000-4000</b>
Non-Metallics	400-1400	150-1500	<b>300-1500</b>	---	---	350-1200	400-1500	---	---	---	---	<b>1000-4500</b>
High Temperature Alloys 200-260 HB	80-130	100-175	100-200	50-80	---	80-200	100-250	---	---	<b>300-600</b>	---	---
High Temperature Alloys 260-450 HB	50-100	80-150	100-175	50-80	---	80-175	<b>100-200</b>	---	---	<b>250-450</b>	---	---
Titanium Alloys (Ti 6Al-4V)	100-200	100-250	150-300	50-80	---	80-300	<b>100-300</b>	---	---	---	---	---
Hardened Materials 48-65 HRC	---	---	---	---	---	---	<b>80-150</b>	---	---	<b>150-350</b>	<b>200-550</b>	---

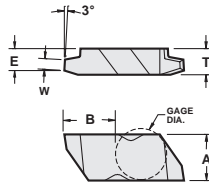
Bold print items denote the top choices for the materials listed, provided it can be machined within the SFM stated under the appropriate machining conditions. For the best performance in optimal machining conditions, select the grade that will provide you with the highest allowable SFM.



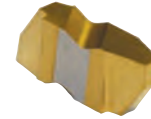


## ACME THREADING FLA

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



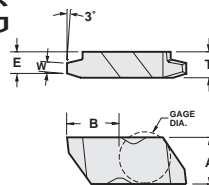
RH Shown



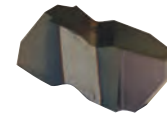
Description	EDP Code	TPI	W	T	E	A	B	Gage Dia.	Coating					
									C3	GP3	GP50	AC3	AC50	
FLA-3R16	<a href="#">553016R</a>	16	.0206	.195	.149	.344	.4026	.3750						
FLA-3L16	<a href="#">553016L</a>	16	.0206	.195	.149	.344	.4026	.3750						
FLA-3R14	<a href="#">553014R</a>	14	.0239	.195	.149	.344	.4026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

FLO-LOCK

## ACME STUB THREADING FLAS



RH Shown



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

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

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

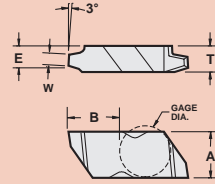
Material	▲	●
Cast Iron		
Non-Ferrous		
Stainless/High Temp		
Steel		



# FLO-LOCK

## PARTIAL TOPPING ACME THREADING FLA-PT (with corner radii)

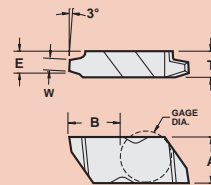
For Flo-Lock acme thread limits see pg. 111,112.



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

FLO-LOCK

## PARTIAL TOPPING ACME STUB THREADING FLAS-PT (with corner radii)



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

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

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

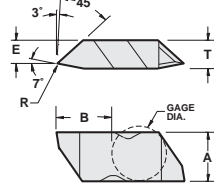
Cast Iron														
Non-Ferrous														
Stainless/High Temp														
Steel														



## AMERICAN STANDARD BUTTRESS

### 7° LEAD

FLTB



RH Shown

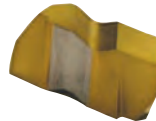
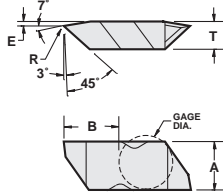
For ASB specifications and application see pg. 111.

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

## AMERICAN STANDARD BUTTRESS

### 45° LEAD

FLTB



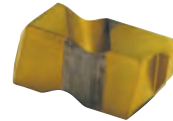
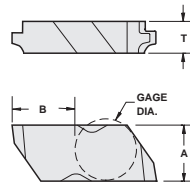
RH Shown

For ASB specifications and application see pg. 111.

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

## API BUTTRESS THREADING

FLDC



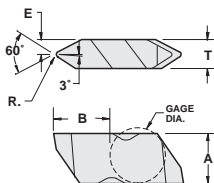
RH EXT Shown

Gage

Description	EDP Code	TPI	TPF	T	A	B	Gage Dia.	Coating				
								C3	GP3	GP50	AC3	AC50
FLDC-3-5B75E	<a href="#">553616E</a>	5	3/4	.250	.344	.4026	.3750	●	●	●	●	●
FLDC-3-5B75I	<a href="#">553616I</a>	5	3/4	.250	.344	.4026	.3750	●	●	●	●	●
FLDC-3-5B1E	<a href="#">553617E</a>	5	1	.250	.344	.4026	.3750	●	●	●	●	●
FLDC-3-5B1I	<a href="#">553617I</a>	5	1	.250	.344	.4026	.3750	●	●	●	●	●
FLDC-4-5B75E	<a href="#">554616E</a>	5	3/4	.255	.453	.6320	.3750	●	●	●	●	●
FLDC-4-5B75I	<a href="#">554616I</a>	5	3/4	.255	.453	.6320	.3750	●	●	●	●	●
FLDC-4-5B1E	<a href="#">554617E</a>	5	1	.255	.453	.6320	.3750	●	●	●	●	●
FLDC-4-5B1I	<a href="#">554617I</a>	5	1	.255	.453	.6320	.3750	●	●	●	●	●

## API THREADING NON TOPPING

FLD



RH Shown

Gage

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

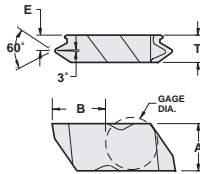
● High performance choice in optimal conditions.  
▲ Recommended grade under general conditions.

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



# FLO-LOCK

## API ROTARY SHOULDER CONNECTION THREADING FLDC

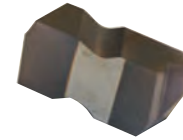
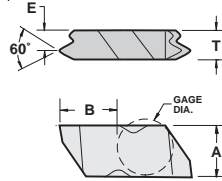


RH EXT Shown

Gage Conn. No.  
Dia. or Size

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

## API ROUND THREADING FLDC



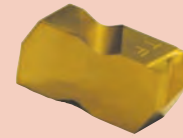
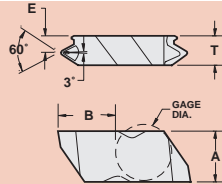
RH Shown

Gage

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Coating					
									C3	GP3	GP50	AC3	AC50	
FLDC-3-8RDR75	<a href="#">553632R</a>	8	3/4	.195	.125	.344	.4010	.3750			●			
FLDC-3-8RDL75	<a href="#">553632L</a>	8	3/4	.195	.125	.344	.4010	.3750						
FLDC-3-10RDR75	<a href="#">553634R</a>	10	3/4	.195	.125	.344	.4010	.3750			●			
FLDC-3-10RDL75	<a href="#">553634L</a>	10	3/4	.195	.125	.344	.4010	.3750						

## FLDC with chipbreaker

Exclusive patented design!

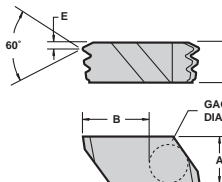


RH Shown

Gage

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Coating					
									C3	GP3	GP50	AC3	AC50	
FLDC-3-8RDR75-CB	<a href="#">553632PR</a>	8	3/4	.195	.125	.344	.4010	.3750			●			
FLDC-3-8RDL75-CB	<a href="#">553632PL</a>	8	3/4	.195	.125	.344	.4010	.3750						

## FLDC Multi-tooth

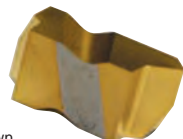
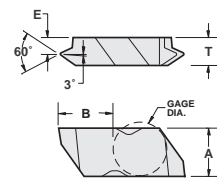


RH Shown

Gage

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	Coating					
									C3	GP3	GP50	AC3	AC50	
FLDC-6-8RDR75M	<a href="#">556633R</a>	8	3/4	.070	.383	.453	.6360	.3750						
FLDC-6-10RDR75M	<a href="#">556635R</a>	10	3/4	.134	.383	.453	.6360	.3750						

## NPT THREADING FLDC



RH Shown

Gage

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

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

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



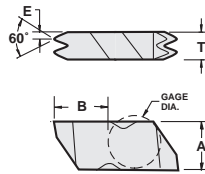
# FLO-LOCK



## NPT THREADING

### FLDC

Multi-tooth



RH Shown

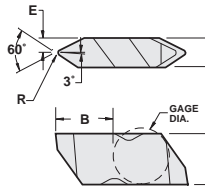


Gage Dia.	Coating				
	Uncoated	TIN Coated	GP50	AC3	AITIN Coated
C3	●	●	●	●	●
GP3	●	●	●	●	●
GP50	●	●	●	●	●
AC3	●	●	●	●	●
AC50	●	●	●	●	●

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.	C3	GP3	GP50	AC3	AC50
FLDC-3-8 NPT-2E	<a href="#">553708E</a>	8	3/4	.058	.250	.344	.4050	.3750	●	●	●	●	●
FLDC -3-8 NPT-2I	<a href="#">553708I</a>	8	3/4	.058	.250	.344	.4050	.3750	●	●	●	●	●
FLDC-3-11.5 NPT-2E	<a href="#">553711E</a>	11.5	3/4	.048	.250	.344	.4050	.3750	●	●	●	●	●
FLDC-3-11.5 NPT-2I	<a href="#">553711I</a>	11.5	3/4	.048	.250	.344	.4050	.3750	●	●	●	●	●

## UNJ THREADING

### FLJ



RH Shown



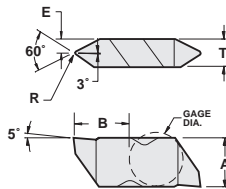
Gage Dia.	Coating				
	Uncoated	TIN Coated	GP50	AC3	AITIN Coated
C3	●	●	●	●	●
GP3	●	●	●	●	●
GP50	●	●	●	●	●
AC3	●	●	●	●	●
AC50	●	●	●	●	●

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

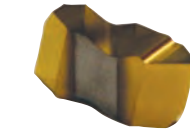
## UNJ THREADING

### FLJP

Positive rake



RH Shown



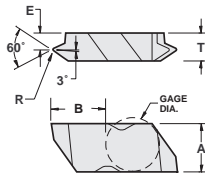
Gage Dia.	Coating				
	Uncoated	TIN Coated	GP50	AC3	AITIN Coated
C3	●	●	●	●	●
GP3	●	●	●	●	●
GP50	●	●	●	●	●
AC3	●	●	●	●	●
AC50	●	●	●	●	●

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

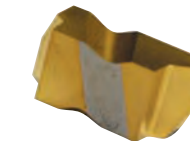
## UNJ FINE PITCH THREADING

### FLJF

For cutting close to shoulder



RH Shown



Gage Dia.	Coating				
	Uncoated	TIN Coated	GP50	AC3	AITIN Coated
C3	●	●	●	●	●
GP3	●	●	●	●	●
GP50	●	●	●	●	●
AC3	●	●	●	●	●
AC50	●	●	●	●	●

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

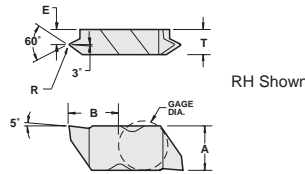


# FLO-LOCK

## UNJ FINE PITCH THREADING

### FLJK

Positive rake

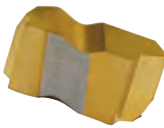
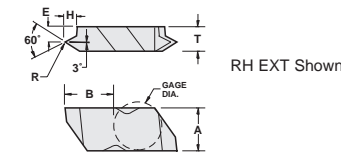


Description	EDP Code	TPI	R	E	T	A	B	Gage Dia.	Gage				
									C3	GP3	GP50	AC3	AC50
FLJK-3005R32	<a href="#">583632R</a>	32	.0047/.0057	.141	.195	.344	.4022	.3750					
FLJK-3005L32	<a href="#">583632L</a>	32	.0047/.0057	.141	.195	.344	.4022	.3750					
FLJK-3006R28	<a href="#">583628R</a>	28	.0054/.0064	.141	.195	.344	.4022	.3750					
FLJK-3006L28	<a href="#">583628L</a>	28	.0054/.0064	.141	.195	.344	.4022	.3750					
FLJK-3007R24	<a href="#">583624R</a>	24	.0063/.0073	.141	.195	.344	.4022	.3750					
FLJK-3007L24	<a href="#">583624L</a>	24	.0063/.0073	.141	.195	.344	.4022	.3750					
FLJK-3008R20	<a href="#">583620R</a>	20	.0075/.0085	.141	.195	.344	.4022	.3750					
FLJK-3008L20	<a href="#">583620L</a>	20	.0075/.0085	.141	.195	.344	.4022	.3750					
FLJK-3009R18	<a href="#">583618R</a>	18	.0083/.0093	.141	.195	.344	.4022	.3750					
FLJK-3009L18	<a href="#">583618L</a>	18	.0083/.0093	.141	.195	.344	.4022	.3750					
FLJK-3010R16	<a href="#">583616R</a>	16	.0094/.0104	.141	.195	.344	.4022	.3750					
FLJK-3010L16	<a href="#">583616L</a>	16	.0094/.0104	.141	.195	.344	.4022	.3750					
FLJK-3012R14	<a href="#">583614R</a>	14	.0107/.0117	.141	.195	.344	.4022	.3750					
FLJK-3012L14	<a href="#">583614L</a>	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	AC3	AC50
FLTC-3R7E	<a href="#">613007R</a>	7	.017	.107	.108	.195	.344	.4004	.3750					
FLTC-3L7E	<a href="#">613007L</a>	7	.017	.107	.108	.195	.344	.4004	.3750					
FLTC-3R7I	<a href="#">613207R</a>	7	.009	.107	.092	.195	.344	.4004	.3750					
FLTC-3L7I	<a href="#">613207L</a>	7	.009	.107	.092	.195	.344	.4004	.3750					
FLTC-3R8E	<a href="#">613008R</a>	8	.015	.107	.094	.195	.344	.4004	.3750					
FLTC-3L8E	<a href="#">613008L</a>	8	.015	.107	.094	.195	.344	.4004	.3750					
FLTC-3R8I	<a href="#">613208R</a>	8	.007	.107	.081	.195	.344	.4004	.3750					
FLTC-3L8I	<a href="#">613208L</a>	8	.007	.107	.081	.195	.344	.4004	.3750					
FLTC-3R9E	<a href="#">613009R</a>	9	.013	.107	.084	.195	.344	.4004	.3750					
FLTC-3L9E	<a href="#">613009L</a>	9	.013	.107	.084	.195	.344	.4004	.3750					
FLTC-3R9I	<a href="#">613209R</a>	9	.006	.107	.072	.195	.344	.4004	.3750					
FLTC-3L9I	<a href="#">613209L</a>	9	.006	.107	.072	.195	.344	.4004	.3750					
FLTC-3R10E	<a href="#">613010R</a>	10	.012	.107	.076	.195	.344	.4004	.3750					
FLTC-3L10E	<a href="#">613010L</a>	10	.012	.107	.076	.195	.344	.4004	.3750					
FLTC-3R10I	<a href="#">613210R</a>	10	.005	.107	.065	.195	.344	.4004	.3750					
FLTC-3L10I	<a href="#">613210L</a>	10	.005	.107	.065	.195	.344	.4004	.3750					
FLTC-3R11E	<a href="#">613011R</a>	11	.011	.107	.069	.195	.344	.4004	.3750					
FLTC-3L11E	<a href="#">613011L</a>	11	.011	.107	.069	.195	.344	.4004	.3750					
FLTC-3R11I	<a href="#">613211R</a>	11	.005	.107	.059	.195	.344	.4004	.3750					
FLTC-3L11I	<a href="#">613211L</a>	11	.005	.107	.059	.195	.344	.4004	.3750					
FLTC-3R12E	<a href="#">613012R</a>	12	.010	.148	.051	.195	.344	.4025	.3750					
FLTC-3L12E	<a href="#">613012L</a>	12	.010	.148	.051	.195	.344	.4025	.3750					
FLTC-3R12I	<a href="#">613212R</a>	12	.004	.148	.048	.195	.344	.4025	.3750					
FLTC-3L12I	<a href="#">613212L</a>	12	.004	.148	.048	.195	.344	.4025	.3750					
FLTC-3R14E	<a href="#">613014R</a>	14	.009	.148	.054	.195	.344	.4025	.3750					
FLTC-3L14E	<a href="#">613014L</a>	14	.009	.148	.054	.195	.344	.4025	.3750					
FLTC-3R14I	<a href="#">613214R</a>	14	.003	.148	.044	.195	.344	.4025	.3750					
FLTC-3L14I	<a href="#">613214L</a>	14	.003	.148	.044	.195	.344	.4025	.3750					
FLTC-3R16E	<a href="#">613016R</a>	16	.008	.148	.046	.195	.344	.4025	.3750					
FLTC-3L16E	<a href="#">613016L</a>	16	.008	.148	.046	.195	.344	.4025	.3750					
FLTC-3R16I	<a href="#">613216R</a>	16	.003	.148	.040	.195	.344	.4025	.3750					
FLTC-3L16I	<a href="#">613216L</a>	16	.003	.148	.040	.195	.344	.4025	.3750					
FLTC-3R18E	<a href="#">613018R</a>	18	.007	.148	.041	.195	.344	.4025	.3750					
FLTC-3L18E	<a href="#">613018L</a>	18	.007	.148	.041	.195	.344	.4025	.3750					
FLTC-3R18I	<a href="#">613218R</a>	18	.003	.148	.036	.195	.344	.4025	.3750					
FLTC-3L18I	<a href="#">613218L</a>	18	.003	.148	.036	.195	.344	.4025	.3750					
FLTC-3R20E	<a href="#">613020R</a>	20	.006	.148	.037	.195	.344	.4025	.3750					
FLTC-3L20E	<a href="#">613020L</a>	20	.006	.148	.037	.195	.344	.4025	.3750					
FLTC-3R20I	<a href="#">613220R</a>	20	.003	.148	.031	.195	.344	.4025	.3750					
FLTC-3L20I	<a href="#">613220L</a>	20	.003	.148	.031	.195	.344	.4025	.3750					
FLTC-3R24E	<a href="#">613024R</a>	24	.005	.148	.031	.195	.344	.4025	.3750					
FLTC-3L24E	<a href="#">613024L</a>	24	.005	.148	.031	.195	.344	.4025	.3750					
FLTC-3R24I	<a href="#">613224R</a>	24	.003	.148	.026	.195	.344	.4025	.3750					
FLTC-3L24I	<a href="#">613224L</a>	24	.003	.148	.026	.195	.344	.4025	.3750					
FLTC-3R28*	<a href="#">613028R</a>	28	.003	.148	.023	.195	.344	.4025	.3750					
FLTC-3L28*	<a href="#">613028L</a>	28	.003	.148	.023	.195	.344	.4025	.3750					
FLTC-3R32*	<a href="#">613228R</a>	32	.003	.148	.021	.195	.344	.4025	.3750					
FLTC-3L32*	<a href="#">613228L</a>	32	.003	.148	.021	.195	.344	.4025	.3750					

\*Will work for either internal or external.

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

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

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

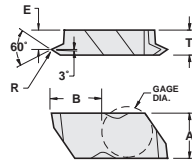


## 60° V-THREADING

FLTF

Fine pitch

For 60° V-thread limits see pg. 112.



RH Shown

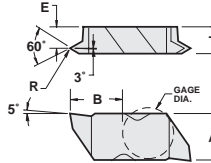


Description	EDP Code	TPI		R	E	T	A	B	Gage Dia.	Gage						
		Int	Ext							C25	GP3	GP4	GP50	GP520	AC3	AC50
FLTF-2R	<a href="#">612400R</a>	12-24	14-44	.002/.004	.110	.150	.219	.2679	.1875	●	●	●	●	●	●	●
FLTF-2L	<a href="#">612400L</a>	12-24	14-44	.002/.004	.110	.150	.219	.2679	.1875	●	●	●	●	●	●	●
FLTF-3R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

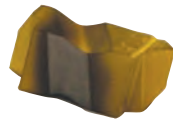
## 60° V-THREADING

FLTK

Positive rake



RH Shown



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

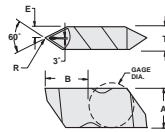
## 60° V-THREADING - CHIP-FLO

FLT-CB

Features:

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

*Exclusive patented design!*



RH Shown

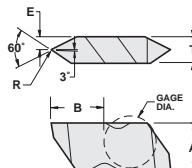


Description	EDP Code	TPI		R	E	T	A	B	Gage Dia.	Gage						
		Int	Ext							C25	C3	GP22	GP4	GP50	GP520	AC22
FLT-3R-HCB	<a href="#">603600HCR</a>	5-12	6-20	.005/.008	.098	.195	.344	.3999	.3750	●	●	●	●	●	●	●
FLT-3L-HCB	<a href="#">603600HCL</a>	5-12	6-20	.005/.008	.098	.195	.344	.3999	.3750	●	●	●	●	●	●	●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

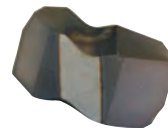
## 60° V-THREADING

FLT

For 60° V-thread limits see pg. 112.



RH Shown



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

Material	C25	GP3	GP4	GP50	GP520	AC22	AC3	AC50
Cast Iron	▲							●
Non-Ferrous								●
Stainless/High Temp	▲							●
Steel			▲	▲				●



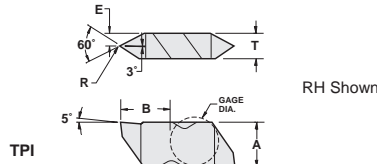
# FLO-LOCK

## 60° V-THREADING

FLTP

Positive rake

For 60° V-thread limits see pg. 112.

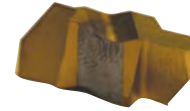
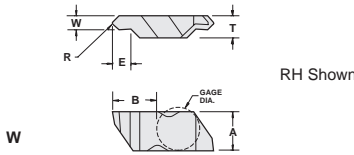


Description	EDP Code	Int	Ext	R	E	T	A	B	Dia.	Gage					
										Uncoated	TIN Coated	AITIN Coated	GP3	GP50	AC3
FLTP-2R	<a href="#">612800R</a>	7-20	8-36	.003/.005	.075	.150	.219	.2661	.1875	●	●	●	●	●	●
FLTP-2L	<a href="#">612800L</a>	7-20	8-36	.003/.005	.075	.150	.219	.2661	.1875	●	●	●	●	●	●
FLTP-3R	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

## UNDERCUTTING

FLU

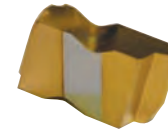
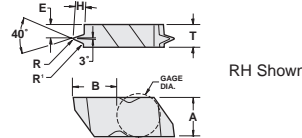
For use in FLRR/L holders



Description	EDP Code	Inch	Metric	R	E	T	A	B	Dia.	Gage				
										Uncoated	TIN Coated	AITIN Coated	C3	GP3
FLU-3094R	<a href="#">623094R</a>	.094	2,39	.020	.125	.195	.344	.4050	.3750	●	●	●	●	●
FLU-3094L	<a href="#">623094L</a>	.094	2,39	.020	.125	.195	.344	.4050	.3750	●	●	●	●	●
FLU-3125R	<a href="#">623125R</a>	.125	3,18	.047	.188	.195	.344	.4050	.3750	●	●	●	●	●
FLU-3125L	<a href="#">623125L</a>	.125	3,18	.047	.188	.195	.344	.4050	.3750	●	●	●	●	●
FLU-3156R	<a href="#">623156R</a>	.156	3,96	.047	.188	.195	.344	.4050	.3750	●	●	●	●	●
FLU-3156L	<a href="#">623156L</a>	.156	3,96	.047	.188	.195	.344	.4050	.3750	●	●	●	●	●

## POLY-V

FLV



Description	EDP Code	R	R1	E	T	H	A	B	Dia.	Gage				
										Uncoated	TIN Coated	AITIN Coated	C25	GP3
FLV-3RJ	<a href="#">623800R</a>	.012	.008	.125	.195	.087	.344	.4013	.3750	●	●	●	●	●
FLV-3LJ	<a href="#">623800L</a>	.012	.008	.125	.195	.087	.344	.4013	.3750	●	●	●	●	●
FLV-4RL	<a href="#">624800R</a>	.012	.015	.118	.255	.201	.453	.6288	.3750	●	●	●	●	●
FLV-4LL	<a href="#">624800L</a>	.012	.015	.118	.255	.201	.453	.6288	.3750	●	●	●	●	●

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

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

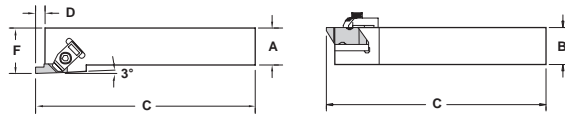
Material	Uncoated	TIN Coated	AITIN Coated
Cast Iron	●	▲	●
Non-Ferrous	●	▲	●
Stainless/High Temp	●	▲	●
Steel	●	▲	●

## EXTERNAL HOLDER (INCH)

FLSR/L

Threading and Grooving

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



RH SHOWN

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

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

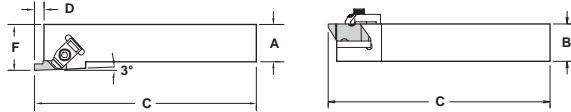




## EXTERNAL HOLDER (METRIC)

FLSR/L

Threading and Grooving



RH SHOWN

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

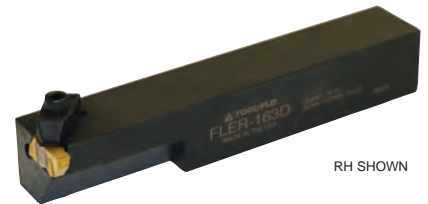
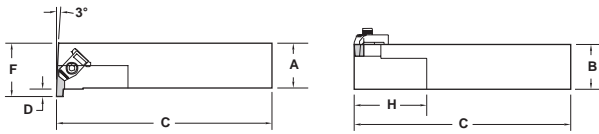
Description	EDP Code	Insert	A	B	C	D	F*	Seat	Seat Screw	Clamp	Clamp Screw
FLSR-2020M2	<a href="#">93412008</a>	FL_-2R	20,0	20,0	125,0	3,0	25,0	-	-	TF-74	S-310
FLSL-2020M2	<a href="#">93312008</a>	FL_-2L	20,0	20,0	125,0	3,0	25,0	-	-	TF-75	S-310
FLSR-2525M2	<a href="#">93412508</a>	FL_-2R	25,0	25,0	150,0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

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

## EXTERNAL HOLDER (INCH)

FLER/L

Threading and Grooving



RH SHOWN

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

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

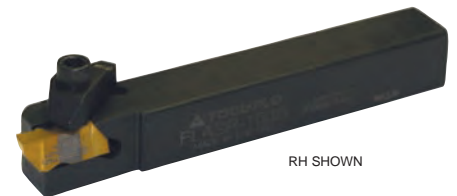
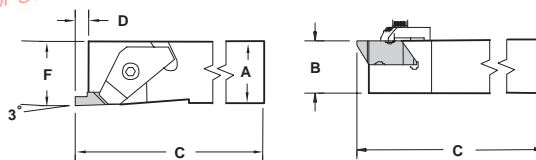
\* C&F measured over sharp point of grooving insert

## EXTERNAL HOLDER (INCH)

FLASR/L

Threading and Grooving

Design for Swiss machines



RH SHOWN

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

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

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



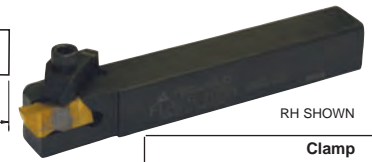
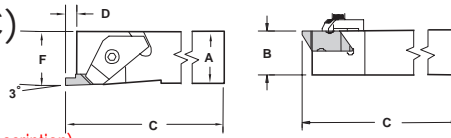
# FLO-LOCK

## EXTERNAL HOLDER (METRIC)

FLASR/L

Threading and Grooving

*Design for Swiss machines*



RH SHOWN

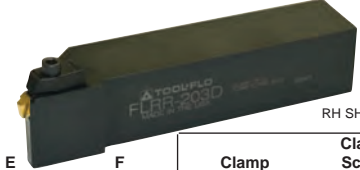
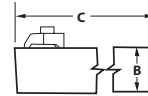
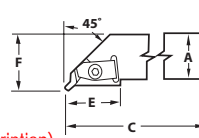
Most holders available with coolant port (ie: Add CP to end of description)

Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLASR-1010M2	92711008	FL_-2R	10,0	10,0	150,0	3,51	10,0	TF-182	S-310
FLASL-1010M2	<a href="#">92661008</a>	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	<a href="#">92661208</a>	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	<a href="#">92661616</a>	FL_-3L	16,0	16,0	125,0	5,31	16,0	TF-185	S-412

## EXTERNAL HOLDER (INCH)

FLRR/L

Undercutting



RH SHOWN

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

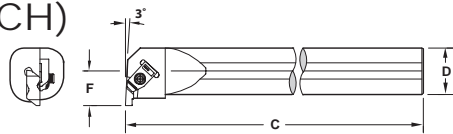
Description	EDP Code	Insert	A	B	C	E	F	Clamp	Clamp Screw
FLRR-123B	<a href="#">93201216B</a>	FLU-3L	3/4	3/4	4-1/2	1-1/4	1.000	TF-73	S-412
FLRL-123B	93181216B	FLU-3R	3/4	3/4	4-1/2	1-1/4	1.000	TF-72	S-412
FLRR-163D	<a href="#">93201616D</a>	FLU-3L	1	1	6	1-1/4	1.250	TF-73	S-412
FLRL-163D	<a href="#">93181616D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

## INTERNAL HOLDER (INCH)

A-FLER/L

Threading and Grooving

Coolant hole



RH SHOWN

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

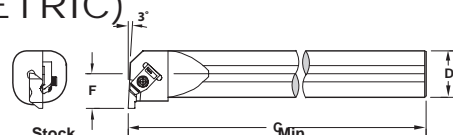
"F" and "C" Dim. over sharp point of grooving insert.

## INTERNAL HOLDER (METRIC)

A\_M-FLER/L

Threading and Grooving

Coolant hole



RH SHOWN

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

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

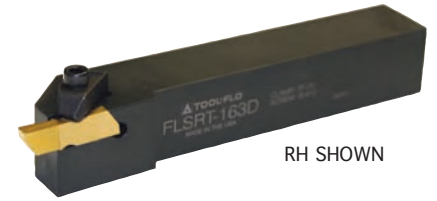
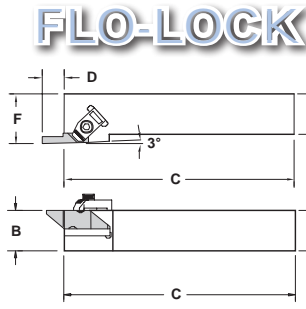


# EXTERNAL HOLDER FLSRLT

For double ended FLGT/FLRT inserts  
Inch

*Exclusive TOOL-FLO design!*

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



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

## METRIC

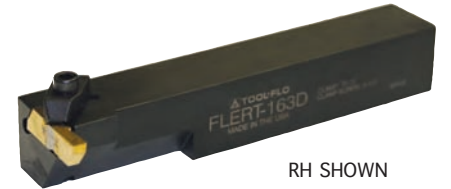
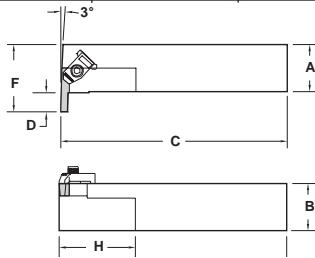
Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLSRT-2525M3	<a href="#">934325M16</a>	FLGT/RT-3R	25,0	25,0	152,4	11,2	32,0	TF-72	S-412
FLSLT-2525M3	<a href="#">934225M16</a>	FLGT/RT-3L	25,0	25,0	152,4	11,2	32,0	TF-73	S-412
FLSRT-3232M3	<a href="#">934332M16</a>	FLGT/RT-3R	32,0	32,0	152,4	11,2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

# FLER/LT

For double ended FLGT/FLRT inserts  
Inch

*Exclusive TOOL-FLO design!*

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



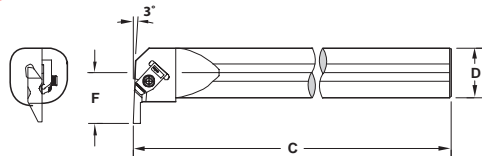
Description	EDP Code	Insert	A	B	C	D	F	Clamp	Clamp Screw
FLERT-163D	<a href="#">93111616D</a>	FLGT-3L	1.000	1.000	6.000	.440	1.582	TF-72	S-412
FLELT-163D	<a href="#">93011616D</a>	FLGT-3R	1.000	1.000	6.000	.440	1.582	TF-73	S-412
FLERT-203D	<a href="#">93112016D</a>	FLGT-3L	1.250	1.250	6.000	.440	1.832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

# INTERNAL BAR A\_FLER/LT

For double ended FLGT/FLRT inserts  
Inch

*Exclusive TOOL-FLO design!*

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



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

## METRIC

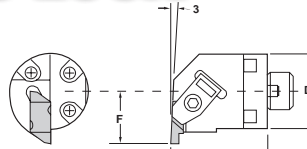
Description	EDP Code	Insert	D	C	F	Min. Bore	Clamp	Clamp Screw
A32M-FLERT3	96442016	FLGT/RT-3L	32,0	152,4	27,48	46,0	TF-72	S-412
A32M-FLELT3	96432016	FLGT/RT-3R	32,0	152,4	27,48	46,0	TF-73	S-412
A40M-FLERT3	96442416	FLGT/RT-3L	40,0	152,4	31,60	54,15	TF-72	S-412
A40M-FLELT3	96432416	FLGT/RT-3R	40,0	152,4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



# FLO-LOCK

## INTERCHANGEABLE HEADS H-FLER

Threading and Grooving



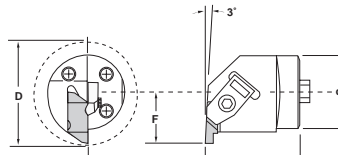
RH SHOWN

### PARTS

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

\*Left hand quoted on request

## HS-FLEL/R\*



RH SHOWN

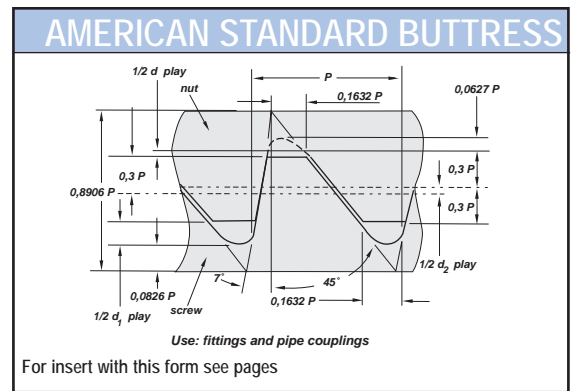
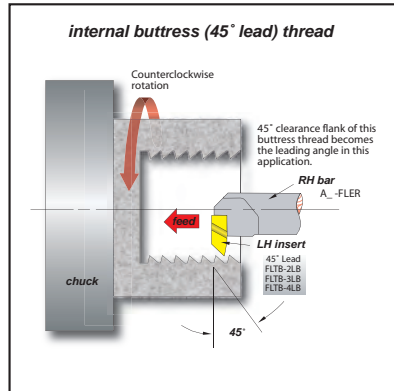
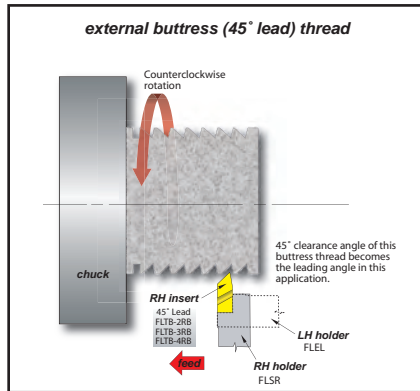
### PARTS

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

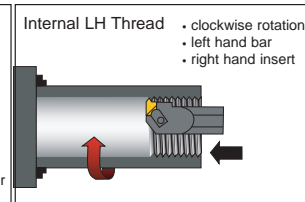
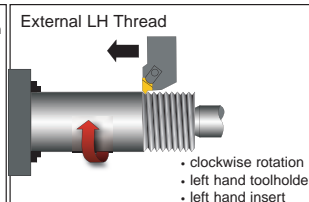
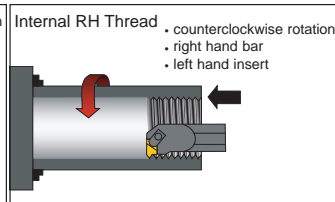
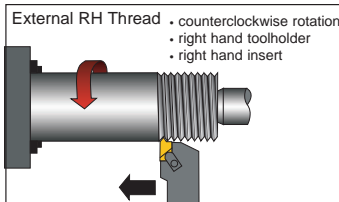
\*Left hand quoted on request.

## American Standard Buttress Thread Designations

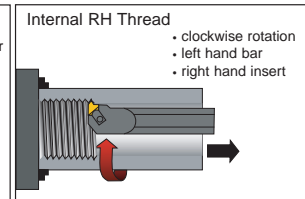
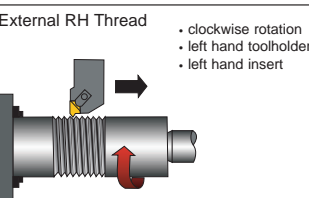
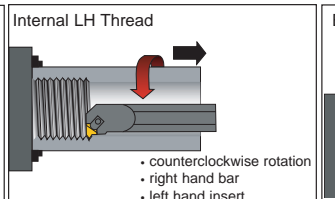
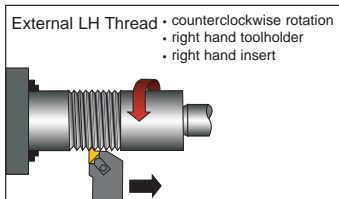
- When only the designation BUTT is used, the thread is a "pull" type buttress (external thread pulls) with the clearance flank (45°) leading and the pressure flank (7°) following.
- When the designation PUSH-BUTT is used, the thread is a push type buttress (external thread pushes) with the load flank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



### Feed direction towards the chuck



### Feed direction towards the tailstock



FLO-LOCK





## Threading Limits with Standard Flo-Lock Inserts

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

### 60° V-Threading Limits

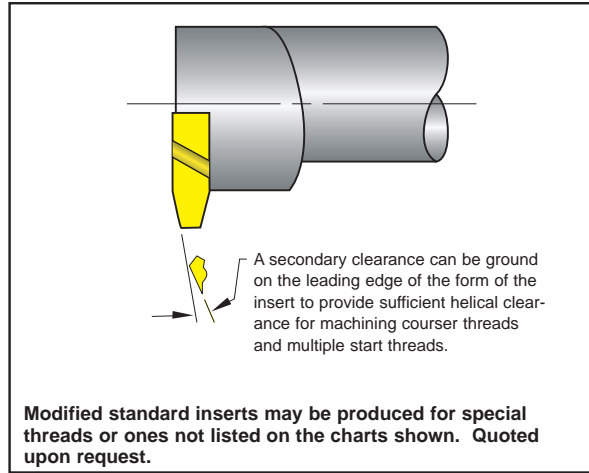
FLT-2 Inserts internal threading limitations		
threads per inch	nominal thread size	minimum minor diameter
6	1-7/8	1.695
7	1-3/4	1.595
8	1-5/8	1.490
9	1-9/16	1.442
10	1-1/2	1.392
11	1-7/16	1.339
12	1-3/8	1.285
13	1-5/16	1.229
14	1-1/4	1.173
16	1-1/4	1.182
18	1-1/8	1.065
20	1-1/8	1.071
24	1-1/16	1.017

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

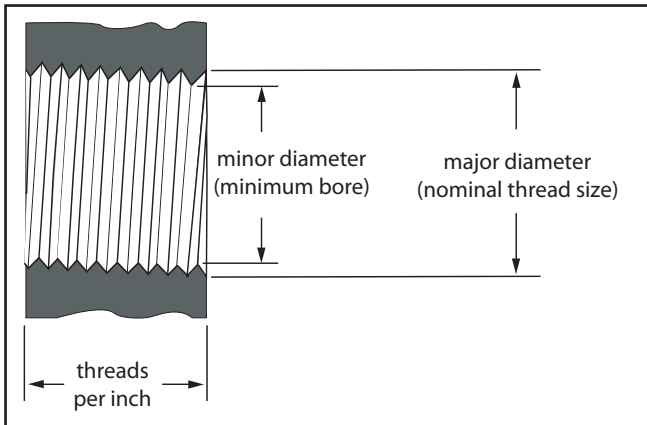
### Acme Threading Limits

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

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



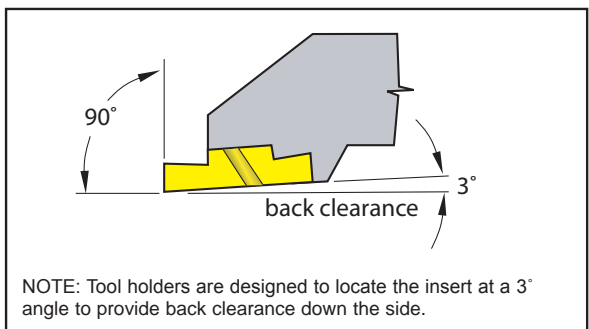
FLO-LOCK



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

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

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



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

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

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

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

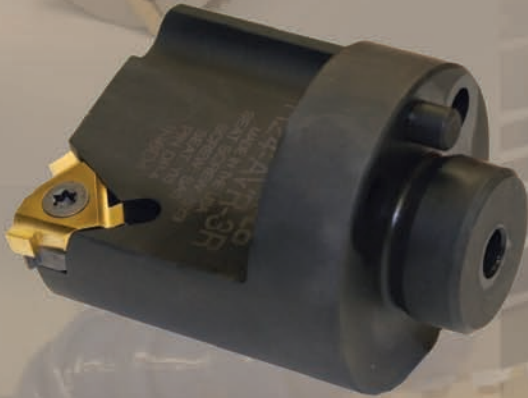
\* FLT-4A insert only  
\*\* Sixteen or 20 threads per inch can be cut providing minor diameter is 1.375 or larger.

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

\* FLT-4B insert only



# TOOL-FLO



TOOL-FLO  
CR-SB75-4E  
TF22675 G50

TOOL-FLO  
CR-SB75-4E  
TF22675 G50

TOOL-FLO  
CR-SB75-4E  
TF22675 G50



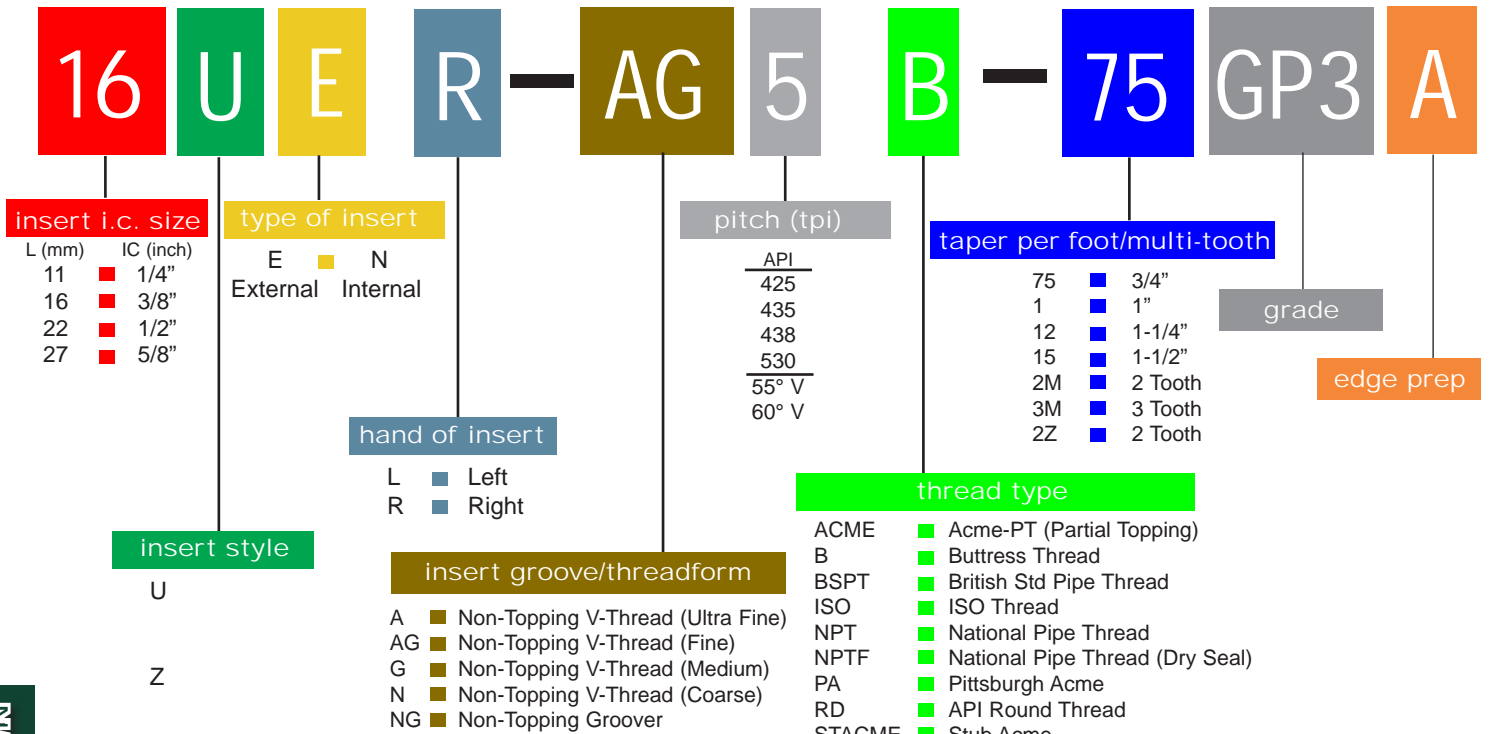
## LAYDOWN

Threading & Grooving

# LAYDOWN

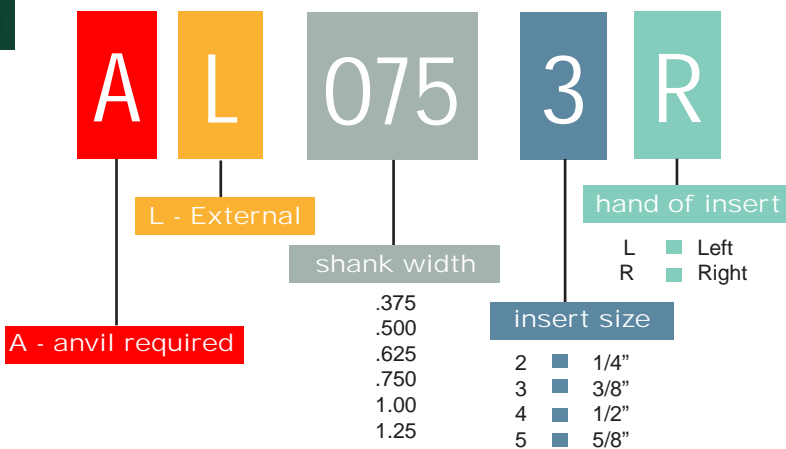


## LT Style Laydown Insert Nomenclature Chart

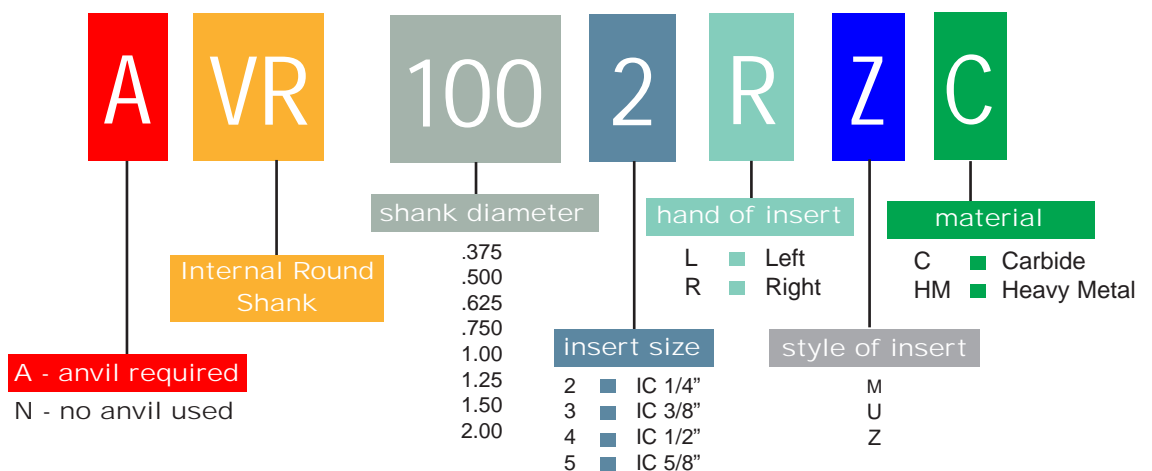


LAYDOWN

## External Toolholder Nomenclature Chart



## Internal Bar Nomenclature Chart

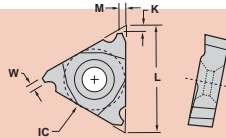




# LAYDOWN

## ACME

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



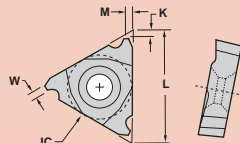
EXT RH SHOWN  
INT OPPOSITE



Description	EDP Code	TPI	W	IC	L	M	K	TIN Coated		A11N Coated		
								GP22	GP50	AC22	AC3	AC50
16ER 16ACME-PT	5006216PT	16	.0206	3/8	.63	.04	.04	●	●	●	●	●
16EL 16ACME-PT	5046216PT	16	.0206	3/8	.63	.04	.04	●	●	●	●	●
16ER 14ACME-PT	5006214PT	14	.0239	3/8	.63	.05	.04	●	●	●	●	●
16EL 14ACME-PT	5046214PT	14	.0239	3/8	.63	.05	.04	●	●	●	●	●
16ER 12ACME-PT	5006212PT	12	.0283	3/8	.63	.05	.04	●	●	●	●	●
16EL 12ACME-PT	<a href="#">5046212PT</a>	12	.0283	3/8	.63	.05	.04	●	●	●	●	●
16ER 10ACME-PT	5006210PT	10	.0319	3/8	.63	.06	.05	●	●	●	●	●
16EL 10ACME-PT	<a href="#">5046210PT</a>	10	.0319	3/8	.63	.06	.05	●	●	●	●	●
16ER 8ACME-PT	5006208PT	8	.0411	3/8	.63	.06	.06	●	●	●	●	●
16EL 8ACME-PT	5046208PT	8	.0411	3/8	.63	.06	.06	●	●	●	●	●
22ER 6ACME-PT	5106206PT	6	.0566	1/2	.87	.08	.07	●	●	●	●	●
22EL 6ACME-PT	5146206PT	6	.0566	1/2	.87	.08	.07	●	●	●	●	●
22ER 5ACME-PT	5106205PT	5	.0689	1/2	.87	.09	.08	●	●	●	●	●
22EL 5ACME-PT	5146205PT	5	.0689	1/2	.87	.09	.08	●	●	●	●	●
27ER 4ACME-PT	5206204PT	4	.0875	5/8	1.06	.11	.09	●	●	●	●	●
27EL 4ACME-PT	5246204PT	4	.0875	5/8	1.06	.11	.09	●	●	●	●	●
16NR 16ACME-PT	5026216PT	16	.0206	3/8	.63	.04	.04	●	●	●	●	●
16NL 16ACME-PT	5066216PT	16	.0206	3/8	.63	.04	.04	●	●	●	●	●
16NR 14ACME-PT	<a href="#">5026214PT</a>	14	.0239	3/8	.63	.05	.04	●	●	●	●	●
16NL 14ACME-PT	5066214PT	14	.0239	3/8	.63	.05	.04	●	●	●	●	●
16NR 12ACME-PT	5026212PT	12	.0283	3/8	.63	.05	.05	●	●	●	●	●
16NL 12ACME-PT	5066212PT	12	.0283	3/8	.63	.05	.05	●	●	●	●	●
16NR 10ACME-PT	5026210PT	10	.0319	3/8	.63	.05	.05	●	●	●	●	●
16NL 10ACME-PT	5066210PT	10	.0319	3/8	.63	.05	.05	●	●	●	●	●
16NR 8ACME-PT	5026208PT	8	.0411	3/8	.63	.06	.06	●	●	●	●	●
16NL 8ACME-PT	5066208PT	8	.0411	3/8	.63	.06	.06	●	●	●	●	●
22NR 6ACME-PT	<a href="#">5126206PT</a>	6	.0566	1/2	.87	.08	.07	●	●	●	●	●
22NL 6ACME-PT	5166206PT	6	.0566	1/2	.87	.08	.07	●	●	●	●	●
22NR 5ACME-PT	5126205PT	5	.0689	1/2	.87	.09	.08	●	●	●	●	●
22NL 5ACME-PT	5166205PT	5	.0689	1/2	.87	.09	.08	●	●	●	●	●
27NR 4ACME-PT	5226204PT	4	.0875	5/8	1.06	.10	.09	●	●	●	●	●
27NL 4ACME-PT	5266204PT	4	.0875	5/8	1.06	.10	.09	●	●	●	●	●

## ACME STUB

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



EXT RH SHOWN  
INT OPPOSITE



Description	EDP Code	TPI	W	IC	L	M	K	TIN Coated		A11N Coated		
								GP22	GP50	AC22	AC3	AC50
16ER 16STACME-PT	5006416PT	16	.0238	3/8	.63	.04	.04	●	●	●	●	●
16EL 16STACME-PT	5046416PT	16	.0238	3/8	.63	.04	.04	●	●	●	●	●
16ER 14STACME-PT	5006414PT	14	.0276	3/8	.63	.04	.04	●	●	●	●	●
16EL 14STACME-PT	5046414PT	14	.0276	3/8	.63	.04	.04	●	●	●	●	●
16ER 12STACME-PT	5006412PT	12	.0326	3/8	.63	.05	.05	●	●	●	●	●
16EL 12STACME-PT	5046412PT	12	.0326	3/8	.63	.05	.05	●	●	●	●	●
16ER 10STACME-PT	5006410PT	10	.0370	3/8	.63	.05	.05	●	●	●	●	●
16EL 10STACME-PT	<a href="#">5046410PT</a>	10	.0370	3/8	.63	.05	.05	●	●	●	●	●
16ER 8STACME-PT	5006408PT	8	.0476	3/8	.63	.06	.06	●	●	●	●	●
16EL 8STACME-PT	5046408PT	8	.0476	3/8	.63	.06	.06	●	●	●	●	●
22ER 6STACME-PT	5106406PT	6	.0652	1/2	.87	.07	.07	●	●	●	●	●
22EL 6STACME-PT	<a href="#">5146406PT</a>	6	.0652	1/2	.87	.07	.07	●	●	●	●	●
22ER 5STACME-PT	5106405PT	5	.0793	1/2	.87	.08	.08	●	●	●	●	●
22EL 5STACME-PT	<a href="#">5146405PT</a>	5	.0793	1/2	.87	.08	.08	●	●	●	●	●
27ER 4STACME-PT	5206404PT	4	.1004	5/8	1.06	.09	.11	●	●	●	●	●
27EL 4STACME-PT	<a href="#">5246404PT</a>	4	.1004	5/8	1.06	.09	.11	●	●	●	●	●
16NR 16STACME-PT	<a href="#">5026416PT</a>	16	.0238	3/8	.63	.04	.04	●	●	●	●	●
16NL 16STACME-PT	5066416PT	16	.0238	3/8	.63	.04	.04	●	●	●	●	●
16NR 14STACME-PT	<a href="#">5026414PT</a>	14	.0276	3/8	.63	.04	.04	●	●	●	●	●
16NL 14STACME-PT	5066414PT	14	.0276	3/8	.63	.04	.04	●	●	●	●	●
16NR 12STACME-PT	5026412PT	12	.0326	3/8	.63	.05	.04	●	●	●	●	●
16NL 12STACME-PT	5066412PT	12	.0326	3/8	.63	.05	.04	●	●	●	●	●
16NR 10STACME-PT	5026410PT	10	.0370	3/8	.63	.05	.05	●	●	●	●	●
16NL 10STACME-PT	5066410PT	10	.0370	3/8	.63	.05	.05	●	●	●	●	●
16NR 8STACME-PT	5026408PT	8	.0476	3/8	.63	.06	.06	●	●	●	●	●
16NL 8STACME-PT	5066408PT	8	.0476	3/8	.63	.06	.06	●	●	●	●	●
22NR 6STACME-PT	<a href="#">5126406PT</a>	6	.0652	1/2	.87	.07	.07	●	●	●	●	●
22NL 6STACME-PT	<a href="#">5166406PT</a>	6	.0652	1/2	.87	.07	.07	●	●	●	●	●
22NR 5STACME-PT	5126405PT	5	.0793	1/2	.87	.09	.08	●	●	●	●	●
22NL 5STACME-PT	<a href="#">5166405PT</a>	5	.0793	1/2	.87	.09	.08	●	●	●	●	●
27NR 4STACME-PT	5226404PT	4	.1004	5/8	1.06	.09	.09	●	●	●	●	●
27NL 4STACME-PT	<a href="#">5266404PT</a>	4	.1004	5/8	1.06	.09	.09	●	●	●	●	●

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

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

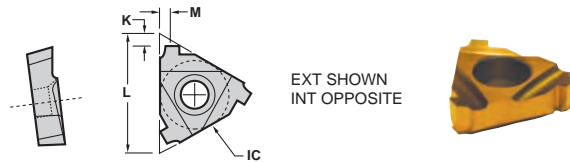
Cast Iron	▲	●	●
Non-Ferrous	▲	●	●
Stainless/High Temp	▲	●	●
Steel	▲	●	●



# LAYDOWN



## API BUTTRESS 22NR/ER - 1/2" I.C.



Description	EDP Code	TPI	TPF	IC	L	M	K	Conn. No.	TIN Coated		A1TIN Coated		
									GP22	GP50	AC22	AC3	AC50
22ER 8B75	<a href="#">5102100</a>	8	3/4	1/2	.87	.102	.073	U.S. Improved Buttress	●	●	●	●	●
22ER 5B75	<a href="#">5101600</a>	5	3/4	1/2	.87	.087	.087	4-1/2 - 13-3/8	●	●	●	●	●
22ER 5B1	<a href="#">5101700</a>	5	1	1/2	.87	.095	.087	16 and larger	●	●	●	●	●
22NR 8B75	<a href="#">5122100</a>	8	3/4	1/2	.87	.102	.073	U.S. Improved Buttress	●	●	●	●	●
22NR 5B75	<a href="#">5121600</a>	5	3/4	1/2	.87	.081	.087	4-1/2 - 13-3/8	●	●	●	●	●
22NR 5B1	<a href="#">5121700</a>	5	1	1/2	.87	.081	.090	16 and larger	●	●	●	●	●

## API ROTARY SHOULDER CONNECTION 22 & 27NR/ER - 1/2" & 5/8" I.C.



Description	EDP Code	TPI	TPF	IC	L	M	K	Conn. No.	TIN Coated		A1TIN Coated		
									GP22	GP50	AC22	AC3	AC50
22ER 530	<a href="#">5101300</a>	5	3	1/2	.87	.10	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.	●	●	●	●	●
22ER 4PAC	<a href="#">5101500</a>	4	1-1/2	1/2	.87	.11	.08	American Open Hole	●	●	●	●	●
22ER 438	<a href="#">5101200</a>	4	3	1/2	.87	.11	.11	NC56 - NC71	●	●	●	●	●
22ER 435	<a href="#">5101100</a>	4	3	1/2	.87	.11	.08	5-1/2, 7-5/8, 8-5/8 Reg.	●	●	●	●	●
22ER 42F*	<a href="#">5101400</a>	4	2	1/2	.87	.11	.08	VO.065*	●	●	●	●	●
22ER 428	<a href="#">5101000</a>	4	2	1/2	.87	.10	.08	NC23-NC50, 2-3/8 - 5-1/2IF	●	●	●	●	●
22ER 425	<a href="#">5100900</a>	4	2	1/2	.87	.10	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.	●	●	●	●	●
22NR 530	<a href="#">5121300</a>	5	3	1/2	.87	.10	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.	●	●	●	●	●
22NR 4PAC	<a href="#">5121500</a>	4	1-1/2	1/2	.87	.11	.08	American Open Hole	●	●	●	●	●
22NR 438	<a href="#">5121200</a>	4	3	1/2	.87	.11	.11	NC56 - NC71	●	●	●	●	●
22NR 435	<a href="#">5121100</a>	4	3	1/2	.87	.11	.08	5-1/2, 7-5/8, 8-5/8 Reg.	●	●	●	●	●
22NR 42F*	<a href="#">5121400</a>	4	2	1/2	.87	.11	.08	VO.065*	●	●	●	●	●
22NR 428	<a href="#">5121000</a>	4	2	1/2	.87	.10	.08	NC23-NC50, 2-3/8 - 5-1/2IF	●	●	●	●	●
22NR 425	<a href="#">5120900</a>	4	2	1/2	.87	.10	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.	●	●	●	●	●
27ER 530	<a href="#">5201300</a>	5	3	5/8	.126	.11	.07	3-1/2FH, 2-3/8, 4-1/2 Reg.	●	●	●	●	●
27ER 438	<a href="#">5201200</a>	4	3	5/8	.126	.11	.08	NC56 - NC71	●	●	●	●	●
27ER 435	<a href="#">5201100</a>	4	3	5/8	.126	.12	.08	5-1/2, 7-5/8, 8-5/8 Reg.	●	●	●	●	●
27ER 428	<a href="#">5201000</a>	4	2	5/8	.126	.11	.08	NC23-NC50, 2-3/8 - 5-1/2IF	●	●	●	●	●
27ER 425	<a href="#">5200900</a>	4	2	5/8	.126	.12	.08	5-1/2, 6-5/8FH, 6-5/8 Reg.	●	●	●	●	●
27NR 530	<a href="#">5221300</a>	5	3	5/8	.126	.11	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.	●	●	●	●	●
27NR 438	<a href="#">5221200</a>	4	3	5/8	.126	.11	.08	NC56 - NC71	●	●	●	●	●
27NR 435	<a href="#">5221100</a>	4	3	5/8	.126	.12	.08	5-1/2, 7-5/8, 8-5/8 Reg.	●	●	●	●	●
27NR 428	<a href="#">5221000</a>	4	2	5/8	.126	.11	.08	NC23-NC50, 2-3/8 - 5-1/2IF	●	●	●	●	●
27NR 425	<a href="#">5220900</a>	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 16NR/ER - 3/8" I.C. w/patented chipbreaker

Exclusive patented chipbreaker!



Description	EDP Code	TPI	IC	L	M	K	Uncoated		TIN Coated		A1TIN Coated		
							C22	GP22	GP50	AC22	AC3	AC50	
16ER 8RD-CB	<a href="#">5003200HC</a>	8	3/8	.63	.051	.059	●	●	●	●	●	●	●
16ER 10RD-CB	<a href="#">5003400HC</a>	10	3/8	.63	.047	.059	●	●	●	●	●	●	●
16NR 8RD-CB	<a href="#">5023200HC</a>	8	3/8	.63	.051	.059	●	●	●	●	●	●	●
16NR 10RD-CB	<a href="#">5023400HC</a>	10	3/8	.63	.047	.059	●	●	●	●	●	●	●

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



Description	EDP Code	TPI	IC	L	M	K	TIN Coated		A1TIN Coated		
							GP22	GP50	AC22	AC3	AC50
16ER 8RD	<a href="#">5003200</a>	8	3/8	.65	.059	.056	●	●	●	●	●
16ER 10RD	<a href="#">5003400</a>	10	3/8	.65	.059	.056	●	●	●	●	●
22ER 8RD	<a href="#">5103200</a>	8	1/2	.87	.060	.056	●	●	●	●	●
22ER 10RD	<a href="#">5103400</a>	10	1/2	.87	.046	.048	●	●	●	●	●
16NR 8RD	<a href="#">5023200</a>	8	3/8	.65	.059	.056	●	●	●	●	●
16NR 10RD	<a href="#">5023400</a>	10	3/8	.65	.059	.056	●	●	●	●	●
22NR 8RD	<a href="#">5123200</a>	8	1/2	.87	.060	.056	●	●	●	●	●
22NR 10RD	<a href="#">5123400</a>	10	1/2	.87	.046	.048	●	●	●	●	●

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

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

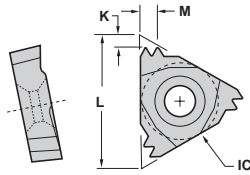


# LAYDOWN

## API ROUND

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

Multi-tooth



EXT RH SHOWN  
INT OPPOSITE

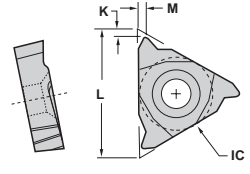


Description	EDP Code	TPI	IC	L	M	K	Coating					
							GP22	GP50	AC22	AC3	AC50	
27ER 8RD2M	<a href="#">5203300</a>	8	5/8	1.08	.177	.114		●	●	●	●	●
22ER 10RD2M	<a href="#">5103500</a>	10	1/2	0.87	.146	.094		●	●	●	●	●
27NR 8RD2M	<a href="#">5223300</a>	8	5/8	1.08	.177	.114		●	●	●	●	●
22NR 10RD2M	<a href="#">5123500</a>	10	1/2	0.87	.146	.094		●	●	●	●	●

## API VO.055

American MT, AMT, AMMT\*

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



EXT RH SHOWN  
INT OPPOSITE

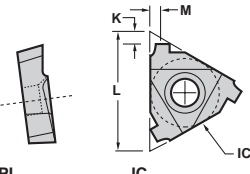


Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Coating				
									GP22	GP50	AC22	AC3	AC50
16ER 6P VO.055 MT	<a href="#">5004300</a>	6	1-1/2	3/8	.65	.059	.051	NC10-NC16, VO.055, 1, 1-1/2 REG	●	●	●	●	●
22ER 6P VO.055 MT	<a href="#">5104300</a>	6	1-1/2	1/2	.87	.072	.060	NC10-NC16, VO.055, 1, 1-1/2 REG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

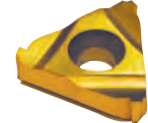
\* MT is Macaroni Tubing, AMT is American Macaroni Tubing and AMMT is American Mining Macaroni Tubing.

## API VAM

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



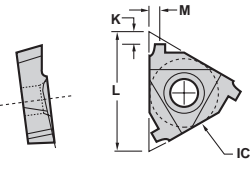
EXT RH SHOWN  
INT OPPOSITE



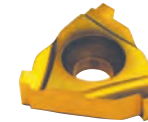
Description	EDP Code	TPI	IC	L	M	K	Coating					
							GP22	GP50	AC22	AC3	AC50	
22ER 8VAM	5102500	8	1/2	.87	.059	.059		●	●	●	●	●
22ER 6VAM	5102400	6	1/2	.87	.079	.079		●	●	●	●	●
22ER 5VAM	5102300	5	1/2	.87	.079	.079		●	●	●	●	●
22NR 8VAM	5122500	8	1/2	.87	.059	.059		●	●	●	●	●
22NR 6VAM	5122400	6	1/2	.87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

## API X-LINE

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



EXT RH SHOWN



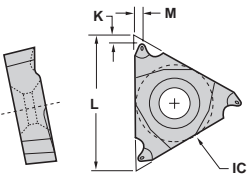
Description	EDP Code	TPI	TPF	IC	L	M	K	Conn. No.	Coating				
									GP22	GP50	AC22	AC3	AC50
22ER 6XL75	5102000	6	3/4	1/2	.87	.075	.078		●	●	●	●	●
22ER 6XL15	5101900	6	1-1/2	1/2	.87	.075	.086	5 - 7-5/8	●	●	●	●	●
22ER 5XL12	5101800	5	1-1/4	1/2	.87	.087	.083	8-5/8 - 10-3/4	●	●	●	●	●
22NR 6XL75	5122000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

## BSPT

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

55° w/patented chipbreaker

Exclusive patented chipbreaker!



EXT RH SHOWN



Description	EDP Code	TPI	IC	L	M	K	Coating					
							GP22	GP50	AC22	AC3	AC50	
16ER 28BSPT-CB	5004428HC	28	3/8	.63	.031	.028	●	●	●	●	●	●
16ER 19BSPT-CB	5004419HC	19	3/8	.63	.031	.028	●	●	●	●	●	●
16ER 14BSPT-CB	5004414HC	14	3/8	.63	.059	.059	●	●	●	●	●	●
16ER <u>11BSPT-CB</u>	<a href="#">5004411HC</a>	11	3/8	.63	.059	.059	●	●	●	●	●	●
16NR 28BSPT-CB	5024428HC	28	3/8	.63	.031	.031	●	●	●	●	●	●
16NR 19BSPT-CB	5024419HC	19	3/8	.63	.031	.031	●	●	●	●	●	●
16NR 14BSPT-CB	5024428HC	14	3/8	.63	.031	.031	●	●	●	●	●	●
16NR <u>11BSPT-CB</u>	5024419HC	11	3/8	.63	.031	.031	●	●	●	●	●	●

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

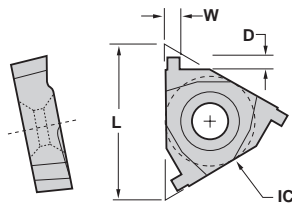
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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

# LAYDOWN



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



EXT RH SHOWN

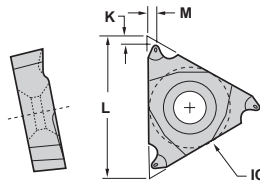


Description	EDP Code	IC	W	D	L	TIN Coated		AlTiN Coated		
						GP22	GP50	AC22	AC3	AC50
16ER NG W.031	5007431	3/8	.031	.050	.63	●	●			●
16EL NG W.031	5047431	3/8	.031	.050	.63	●				
16ER NG W.047	5007447	3/8	.047	.070	.63	●	●			●
16EL NG W.047	5047447	3/8	.047	.070	.63	●				
16ER NG W.062	5007462	3/8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

LAYDOWN

## ISO 16NR/ER - 3/8" I.C. w/patented chipbreaker

Exclusive patented chipbreaker!



EXT RH SHOWN



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

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.

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- ▲ Recommended grade under general conditions.

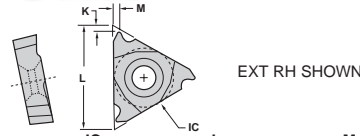
Cast Iron					●
Non-Ferrous					
Stainless/High Temp					●
Steel	▲				●



# LAYDOWN

## ISO

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

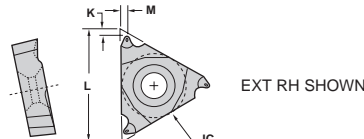


Description	EDP Code	Pitch	IC	L	M	K	TIN Coated		AlTiN Coated		
							GP22	GP50	AC22	AC3	AC50
11NR 0.5ISO	<a href="#">4924205</a>	0,50	1/4	.43	.02	.015	●	●	●		
11NR 0.75ISO	<a href="#">49242075</a>	0,75	1/4	.43	.02	.02	●	●	●		
11NR 1.0ISO	<a href="#">4924210</a>	1,0	1/4	.43	.03	.03	●	●	●		
16NR 1.0ISO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

## NPT

16NR/ER - 3/8" I.C.  
w/patented chipbreaker

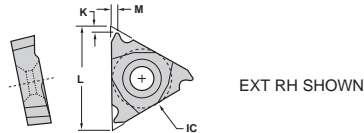
Exclusive patented chipbreaker!



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

## NPT

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



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

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- ▲ Recommended grade under general conditions.

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



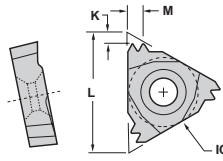
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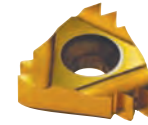
## NPT

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

Multi-tooth



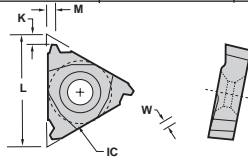
EXT RH SHOWN



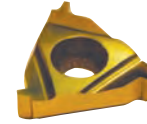
Description	EDP Code	TPI	IC	L	M	K	TIN Coated		A1TIN Coated		
							GP22	GP50	AC22	AC3	AC50
22ER 11.5NPT2M	<a href="#">5103811</a>	11.5	1/2	0.87	.13	.09	●	●	●	●	●
27ER 11.5NPT3M	<a href="#">5203811</a>	11.5	5/8	1.06	.22	.14	●	●	●	●	●
27ER 8NPT2M	<a href="#">5203808</a>	8	5/8	1.06	.19	.11	●	●	●	●	●
22NR 11.5NPT2M	<a href="#">5123811</a>	11.5	1/2	0.87	.13	.09	●	●	●	●	●
27NR 11.5NPT3M	<a href="#">5223811</a>	11.5	5/8	1.06	.22	.14	●	●	●	●	●
27NR 8NPT2M	<a href="#">5223808</a>	8	5/8	1.06	.19	.11	●	●	●	●	●

## TRAPEZOIDAL

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



EXT RH SHOWN



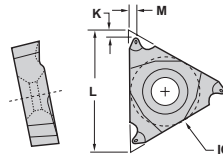
Description	EDP Code	Pitch	IC	L	M	K	TIN Coated		A1TIN Coated		
							GP22	GP50	AC22	AC3	AC50
16ER 1.5TR	5007015	1.5	3/8	.63	.04	.04	●	●	●	●	●
16ER 2.0TR	5007020	2.0	3/8	.63	.05	.04	●	●	●	●	●
16ER 3.0TR	5007030	3.0	3/8	.63	.06	.05	●	●	●	●	●
16NR 1.5TR	5027015	1.5	3/8	.63	.04	.04	●	●	●	●	●
16NR 2.0TR	5027020	2.0	3/8	.63	.05	.04	●	●	●	●	●
16NR 3.0TR	5027030	3.0	3/8	.63	.06	.05	●	●	●	●	●

## NPTF DRY SEAL

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

w/ patented chipbreaker

*Exclusive patented chipbreaker!*



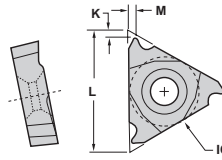
EXT RH SHOWN



Description	EDP Code	TPI	IC	L	M	K	TIN Coated		A1TIN Coated		
							GP22	GP50	AC22	AC3	AC50
16ER 27NPTF-CB	5004027HC	27	3/8	.63	.03	.03	●	●	●	●	●
16ER 18NPTF-CB	<a href="#">5004018HC</a>	18	3/8	.63	.04	.03	●	●	●	●	●
16ER 14NPTF-CB	5004014HC	14	3/8	.63	.05	.04	●	●	●	●	●
16ER 11.5NPTF-CB	<a href="#">5004011HC</a>	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	<a href="#">5024011HC</a>	11.5	3/8	.63	.06	.04	●	●	●	●	●
16NR 8NPTF-CB	5024008HC	8	3/8	.63	.06	.04	●	●	●	●	●

## NPTF DRY SEAL

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



EXT RH SHOWN



Description	EDP Code	TPI	IC	L	M	K	TIN Coated		A1TIN Coated		
							GP22	GP50	AC22	AC3	AC50
16ER 27NPTF	5004027	27	3/8	.63	.03	.03	●	●	●	●	●
16EL 27NPTF	5043827	27	3/8	.63	.03	.03	●	●	●	●	●
16ER 18NPTF	<a href="#">5004018</a>	18	3/8	.63	.04	.03	●	●	●	●	●
16EL 18NPTF	5043818	18	3/8	.63	.04	.03	●	●	●	●	●
16ER 14NPTF	<a href="#">5004014</a>	14	3/8	.63	.05	.04	●	●	●	●	●
16EL 14NPTF	5043814	14	3/8	.63	.05	.04	●	●	●	●	●
16ER 11.5NPTF	<a href="#">5004011</a>	11.5	3/8	.63	.06	.04	●	●	●	●	●
16EL 11.5NPTF	5043811	11.5	3/8	.63	.06	.04	●	●	●	●	●
16ER 8NPTF	<a href="#">5004008</a>	8	3/8	.63	.07	.05	●	●	●	●	●
16EL 8NPTF	5043808	8	3/8	.63	.07	.05	●	●	●	●	●
11NR 27NPTF	4923827	27	1/4	.43	.03	.03	●	●	●	●	●
11NR 18NPTF	4924018	18	1/4	.43	.04	.03	●	●	●	●	●
16NR 27NPTF	5024027	27	3/8	.63	.03	.03	●	●	●	●	●
16NL 27NPTF	5063827	27	3/8	.63	.03	.03	●	●	●	●	●
16NR 18NPTF	<a href="#">5024018</a>	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	<a href="#">5024011</a>	11.5	3/8	.63	.06	.04	●	●	●	●	●
16NL 11.5NPTF	5063811	11.5	3/8	.63	.06	.04	●	●	●	●	●
16NR 8NPTF	<a href="#">5024008</a>	8	3/8	.63	.07	.05	●	●	●	●	●
16NL 8NPTF	5063808	8	3/8	.63	.07	.05	●	●	●	●	●

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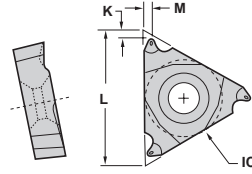
Material	GP22	GP50	AC22	AC3	AC50
Cast Iron	▲	●	●	●	●
Non-Ferrous	▲	●	●	●	●
Stainless/High Temp	▲	●	●	●	●
Steel	▲	●	●	●	●



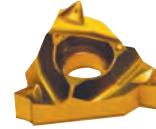
# LAYDOWN

**UN**  
**16ER - 3/8" I.C.**  
 w/ patented chipbreaker

*Exclusive patented chipbreaker!*

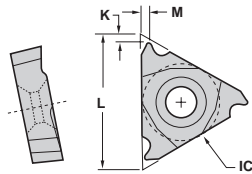


EXT RH SHOWN



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

**UN**  
**16 & 22ER/EL - 3/8" & 1/2" I.C.**



EXT RH SHOWN



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

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

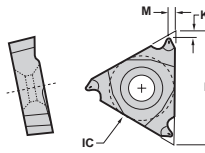
LAYDOWN

# LAYDOWN

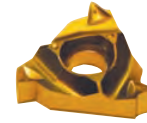


**UN**  
**16NR - 3/8" I.C.**  
 w/ patented chipbreaker

*Exclusive patented chipbreaker!*

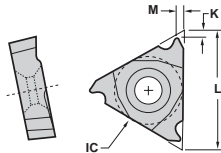


INT RH SHOWN



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

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



INT RH SHOWN



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

LAYDOWN



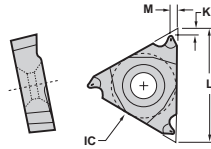
# LAYDOWN

## UNJ

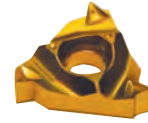
16NR - 3/8" I.C.

w/ patented chipbreaker

*Exclusive patented chipbreaker!*



INT RH SHOWN



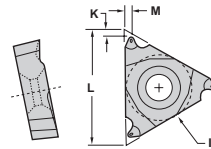
Description	EDP Code	TPI	IC	L	M	K	TIN Coated		AlTiN Coated		
							GP22	GP50	AC22	AC3	AC50
16NR 32UNJ-CB	5026832HC	32	3/8	.63	.02	.04	●	●	●	●	●
16NR 28UNJ-CB	5026828HC	28	3/8	.63	.03	.02	●	●	●	●	●
16NR 24UNJ-CB	5026824HC	24	3/8	.63	.03	.02	●	●	●	●	●
16NR 20UNJ-CB	5026820HC	20	3/8	.63	.03	.02	●	●	●	●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

## UNJ

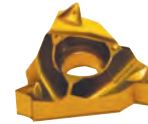
16ER - 3/8" I.C.

w/ patented chipbreaker

*Exclusive patented chipbreaker!*



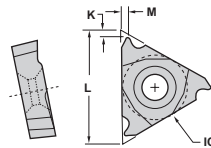
EXT RH SHOWN



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

## UNJ

16ER - 3/8" I.C.



EXT RH SHOWN



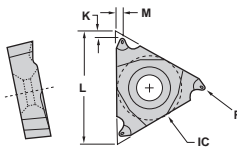
Description	EDP Code	TPI	IC	L	M	K	TIN Coated		AlTiN Coated		
							GP22	GP50	AC22	AC3	AC50
16ER 32UNJ	<a href="#">5006832</a>	32	3/8	.63	.03	.02	●	●	●	●	●
16ER 28UNJ	<a href="#">5006828</a>	28	3/8	.63	.03	.03	●	●	●	●	●
16ER 24UNJ	<a href="#">5006824</a>	24	3/8	.63	.03	.03	●	●	●	●	●
16ER 20UNJ	<a href="#">5006820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

## V THREADING - 60°

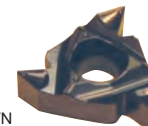
16ER/NR - 3/8" I.C.

w/ patented chipbreaker

*Exclusive patented chipbreaker!*



EXT RH SHOWN



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

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



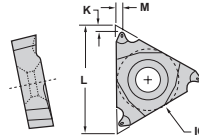


## V THREADING - 55°

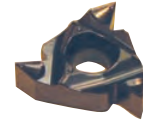
16ER/NR - 3/8" I.C.

w/ patented chipbreaker

*Exclusive patented chipbreaker!*



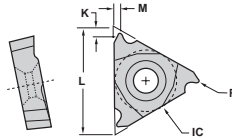
EXT RH SHOWN



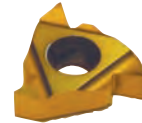
Description	EDP Code	TPI	IC	L	M	K	R	TIN Coated		AlTiN Coated		
								GP22	GP50	AC22	AC3	AC50
16ER A55-CB	5005400HC	16-48	3/8	.63	.03	.02	.002	●	●	●	●	●
16ER AG55-CB	5005600HC	8-48	3/8	.63	.06	.04	.003	●	●	●	●	●
16ER G55-CB	5005800HC	8-14	3/8	.63	.06	.04	.008	●	●	●	●	●
16NR A55-CB	5025400HC	16-48	3/8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

## V THREADING - 55° & 60°

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



EXT RH SHOWN



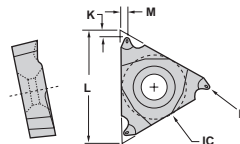
Description	EDP Code	TPI	IC	L	M	K	R	TIN Coated		AlTiN Coated		
								GP22	GP50	AC22	AC3	AC50
16ER A60	<a href="#">5004600</a>	16-48	3/8	.63	.04	.03	.003	●	●	●	●	●
16EL A60	<a href="#">5044600</a>	16-48	3/8	.63	.04	.03	.003	●	●	●	●	●
16ER AG60	<a href="#">5004800</a>	8-48	3/8	.63	.07	.05	.003	●	●	●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

## WHITWORTH

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

w/ patented chipbreaker

*Exclusive patented chipbreaker!*



EXT RH SHOWN



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

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

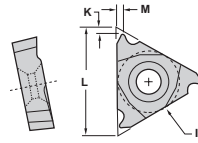
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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

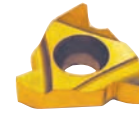


# LAYDOWN

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



EXT RH SHOWN



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

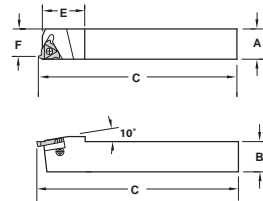
Cast Iron	▲	●
Non-Ferrous	▲	●
Stainless/High Temp	▲	●
Steel	▲	●

## EXTERNAL HOLDER AL

For Threading and Grooving

Inch **Most holders available with coolant port**

(ie: Add CP to end of description)



RH Holder uses RH Inserts



RH SHOWN

Description	EDP Code	Insert	A	B	C	E	F*	Insert Screw	Seat Screw	Wrench	Seat
AL0500-3L	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	<a href="#">916056362</a>	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	<a href="#">916064401</a>	22ER	1	1	6	1.42	1.0	SA4	SY4	K4	YE4
AL100-4L	916064402	22EL	1	1	6	1.42	1.0	SA4	SY4	K4	YI4
AL125-4R	916068401	22ER	1-1/4	1-1/4	7	1.42	1.125	SA4	SY4	K4	YE4
AL125-5R	916068441	27ER	1-1/4	1-1/4	7	1.57	1.125	SA5	SY5	K5	YE5
AL125-5L	<a href="#">916068442</a>	27EL	1-1/4	1-1/4	7	1.57	1.125	SA5	SY5	K5	YI5
AL150-5R	916070441	27ER	1-1/2	1-1/2	8	1.57	1.500	SA5	SY5	K5	YE5

## METRIC

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

LAYDOWN



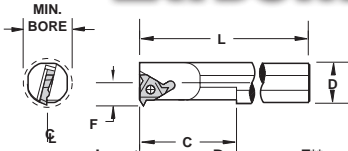
# LAYDOWN

## INTERNAL BAR

### AVR/NVR

Inch

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



RH SHOWN

Description	EDP Code	Insert	D	F**	L	C	Min. Bore	Insert Screw	Seat Screw & Washer	Wrench	Seat
NVR 375-2R*	<a href="#">962048351</a>	11NR	.750	.280	7	1.00	.500	SA3	-	K3	-
NVR 500-2R*	<a href="#">962008551</a>	11NR	.750	.370	7	1.25	.625	SA3	-	K3	-
NVR 500-3R*	<a href="#">962008361</a>	16NR	.750	.400	7	1.25	.670	SA3	-	K3	-
NVR 625-3R*	<a href="#">962052361</a>	16NR	.625	.312	7	2.50	.700	SA3	-	K3	-
NVR 625-3L*	<a href="#">962052362</a>	16NL	.625	.312	7	2.50	.700	SA3	-	K3	-
AVR 750-3R	<a href="#">918056361</a>	16NR	.750	.510	7	2.75	.950	SA3	SY3	K3	Y13
AVR 750-3L	<a href="#">918056362</a>	16NL	.750	.510	7	2.75	.950	SA3	SY3	K3	YE3
AVR 100-3R	<a href="#">918064361</a>	16NR	1.000	.640	10	3.00	1.150	SA3	SY3	K3	Y13
AVR 100-3L	<a href="#">918064362</a>	16NL	1.000	.640	10	3.00	1.150	SA3	SY3	K3	YE3
AVR 125-3R	<a href="#">918068361</a>	16NR	1.250	.770	10	3.00	1.400	SA3	SY3	K3	Y13
AVR 125-3L	<a href="#">918068362</a>	16NL	1.250	.770	10	3.00	1.400	SA3	SY3	K3	YE3
AVR 150-3R	<a href="#">918072361</a>	16NR	1.500	.900	12	3.00	1.700	SA3	SY3	K3	Y13
AVR 150-3L	<a href="#">918072362</a>	16NL	1.500	.900	12	3.00	1.700	SA3	SY3	K3	YE3
NVR 750-4R	<a href="#">962056401</a>	22NR	.750	.610	7	2.75	1.100	SA4	-	K4	-
NVR 750-4L	<a href="#">962056402</a>	22NL	.750	.610	7	2.75	1.100	SA4	-	K4	-
AVR 100-4R	<a href="#">918064401</a>	22NR	1.000	.710	10	3.00	1.200	SA4	SY4	K4	Y14
AVR 100-4L	<a href="#">918064402</a>	22NL	1.000	.710	10	3.00	1.200	SA4	SY4	K4	YE4
AVR 125-4R	<a href="#">918068401</a>	22NR	1.250	.840	10	3.00	1.500	SA4	SY4	K4	Y14
AVR 125-4L	<a href="#">918068402</a>	22NL	1.250	.840	10	3.00	1.500	SA4	SY4	K4	YE4
AVR 150-4R	<a href="#">918072401</a>	22NR	1.500	.980	12	3.00	1.800	SA4	SY4	K4	Y14
AVR 150-4L	<a href="#">918072402</a>	22NL	1.500	.980	12	3.00	1.800	SA4	SY4	K4	YE4
AVR 125-5R	<a href="#">918068441</a>	27NR	1.250	.880	10	3.00	1.800	SA5	SY5	K4	Y15
AVR 125-5L	<a href="#">918068442</a>	27NL	1.250	.880	10	3.00	1.800	SA5	SY5	K4	YE5
AVR 150-5R	<a href="#">918072441</a>	27NR	1.500	1.000	12	3.00	1.900	SA5	SY5	K4	Y15
AVR 150-5L	<a href="#">918072442</a>	27NL	1.500	1.000	12	3.00	1.900	SA5	SY5	K4	YE5
AVR 200-5R	<a href="#">918080441</a>	27NR	2.000	1.125	12	3.00	2.400	SA5	SY5	K4	Y15
AVR 200-5L	<a href="#">918080442</a>	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.

### METRIC

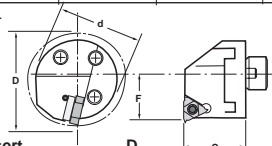
Description	EDP Code	Insert	D	F**	L	C	Min. Bore	Insert Screw	Seat Screw & Washer	Wrench	Seat
AVR 20M-3R	<a href="#">918020M361</a>	16NR	20,0	13,4	180,0	20,0	26,8	SA3	SY3	K3	Y13
AVR 20M-3L	<a href="#">918020M362</a>	16NL	20,0	13,4	180,0	20,0	26,8	SA3	SY3	K3	YE3
AVR 25M-3R	<a href="#">918025M361</a>	16NR	25,0	16,3	250,0	20,0	32,6	SA3	SY3	K3	Y13
AVR 25M-3L	<a href="#">918025M362</a>	16NL	25,0	16,3	250,0	20,0	32,6	SA3	SY3	K3	YE3
AVR 32M-3R	<a href="#">918032M361</a>	16NR	32,0	19,5	254,0	76,2	39,1	SA3	SY3	K3	Y13
AVR 32M-3L	<a href="#">918032M362</a>	16NL	32,0	19,5	254,0	76,2	39,1	SA3	SY3	K3	YE3
AVR 40M-3R	<a href="#">918040M361</a>	16NR	40,0	22,8	304,8	76,2	45,7	SA3	SY3	K3	Y13
AVR 40M-3L	<a href="#">918040M362</a>	16NL	40,0	22,8	304,8	76,2	45,7	SA3	SY3	K3	YE3
AVR 25M-4R	<a href="#">918025M401</a>	22NR	25,0	17,4	250,0	20,0	34,8	SA4	SY4	K4	Y14
AVR 25M-4L	<a href="#">918025M402</a>	22NL	25,0	17,4	250,0	20,0	34,8	SA4	SY4	K4	YE4
AVR 32M-4R	<a href="#">918032M401</a>	22NR	32,0	21,3	254,0	20,0	42,6	SA4	SY4	K4	Y14
AVR 32M-4L	<a href="#">918032M402</a>	22NL	32,0	21,3	254,0	20,0	42,6	SA4	SY4	K4	YE4
AVR 40M-4R	<a href="#">918040M401</a>	22NR	40,0	25,7	300,0	22,2	51,5	SA4	SY4	K4	Y14
AVR 40M-4L	<a href="#">918040M402</a>	22NL	40,0	25,7	300,0	22,2	51,5	SA4	SY4	K4	YE4
AVR 50M-4R	<a href="#">918050M401</a>	22NR	50,0	30,8	350,0	25,4	61,6	SA5	SY4	K4	Y14
AVR 50M-4L	<a href="#">918050M402</a>	22NL	50,0	30,8	350,0	25,4	61,6	SA5	SY4	K4	YE4
AVR 50M-5R	<a href="#">918050M41</a>	27NR	50,0	31,7	350,0	25,4	63,5	SA5	SY5	K4	Y15
AVR 50M-5L	<a href="#">918050M42</a>	27NL	50,0	31,7	350,0	25,4	63,5	SA5	SY5	K4	YE5

\*Over NV Insert

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

### H-AVR/L\*

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



RH SHOWN

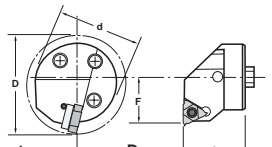
#### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Insert Screw	Seat Screw	Seat
H16-AVR-3R	<a href="#">9IH18064361</a>	16NR	1.000	1.625	0.650	1.200	SA-3	SY-3	Y13
H20-AVR-3R	<a href="#">9IH18068361</a>	16NR	1.250	1.625	0.765	1.450	SA-3	SY-3	Y13
H24-AVR-3R	<a href="#">9IH18072361</a>	16NR	1.500	1.625	0.890	1.760	SA-3	SY-3	Y13
H32-AVR-3R	<a href="#">9IH18080361</a>	16NR	2.000	1.625	1.281	2.400	SA-3	SY-3	Y13
H24-AVR-4R	<a href="#">9IH18072401</a>	22NR	1.500	1.625	0.978	1.760	SA-4	SY-4	Y14
H32-AVR-4R	<a href="#">9IH18080401</a>	22NR	2.000	1.625	1.281	2.400	SA-4	SY-4	Y14

\*Left Hand quoted on request.

### HS-AVR/L\*

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



RH SHOWN

#### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Insert Screw	Seat Screw	Seat
HS25-AVR-3R	<a href="#">9IHS18025M361</a>	16NR	0.98	0.98	0.669	1.260	SA-3	SY-3	Y13
HS32-AVR-3R	<a href="#">9IHS18032M361</a>	16NR	1.26	1.26	0.866	1.570	SA-3	SY-3	Y13
HS40-AVR-3R	<a href="#">9IHS18040M361</a>	16NR	1.57	1.26	1.063	1.970	SA-3	SY-3	Y13
HS50-AVR-3R	<a href="#">9IHS18050M361</a>	16NR	1.97	1.57	1.378	2.480	SA-3	SY-3	Y13
HS40-AVR-4R	<a href="#">9IHS18040M401</a>	22NR	1.57	1.26	1.063	1.970	SA-4	SY-4	Y14
HS50-AVR-4R	<a href="#">9IHS18050M401</a>	22NR	1.97	1.57	1.378	2.480	SA-4	SY-4	Y14

\*Left Hand quoted on request.



# LAYDOWN

## ANVILS

Resultant Helix Angle	4.5°	3.5°	2.5°	1.5°	0.5°	0°	-0.5°	-1.5°
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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"	.63	KTY3 YE3-2P, 1P, 1N, 2N, 3N YI3-2P, 1P, 1N, 2N, 3N
		.63	
	1/2"	.87	KTY4 YE4-2P, 1P, 1N, 2N, 3N YI4-2P, 1P, 1N, 2N, 3N
		.87	
	1/2"U	.87	KTY4U YE4U-2P, 1P, 1N, 2N, 3N YI4U-2P, 1P, 1N, 2N, 3N
		.87	
5/8"	1.06	KTYE5 YE5-2P, 1P, 1N, 2N, 3N	
	1.06		KTYI5 YI5-2P, 1P, 1N, 2N, 3N
5/8"U	1.06	KTYE5U YE5U-2P, 1P, 1N, 2N, 3N	
	1.06		KTYI5U YI5U-2P, 1P, 1N, 2N, 3N

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

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

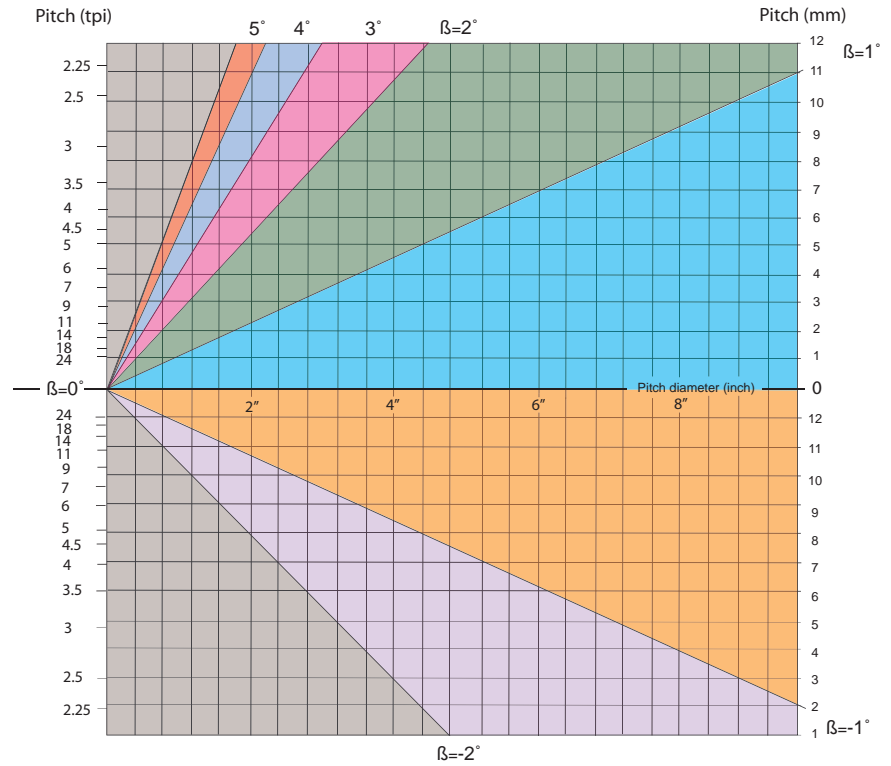
### Helix Angle Table (For Given Pitch and Diameter)

resultant helical angle	4.5°	3.5°	2.5°	1.5°	0.5°	0°	-0.5°	-1.5°
threads per inch	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 - 0.81	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 - 0.95	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

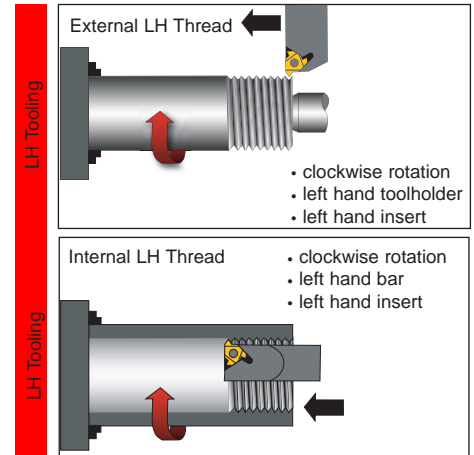
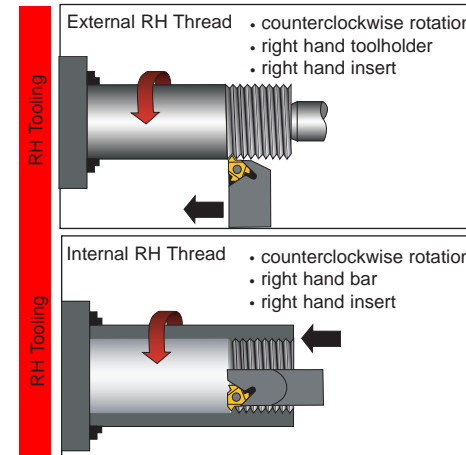
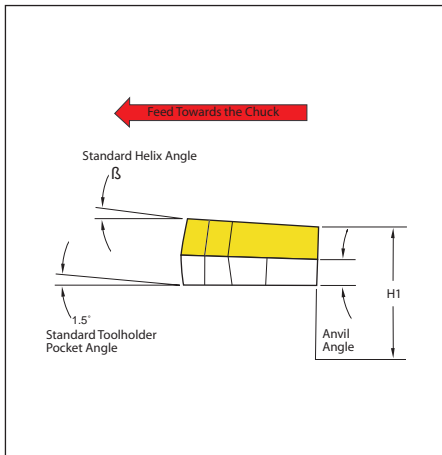




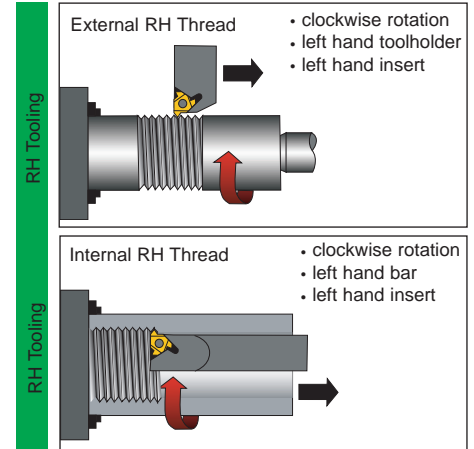
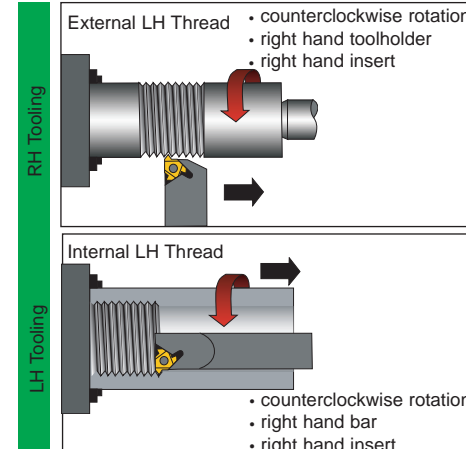
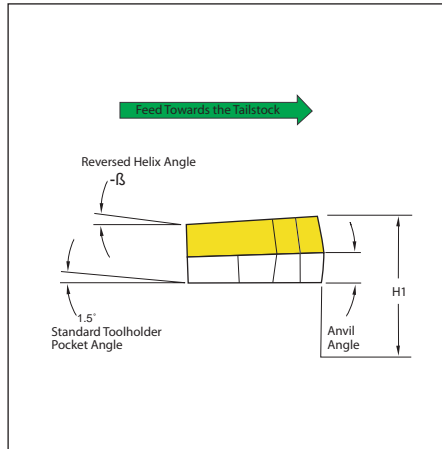
## Helix Angle Diagram



## Feed direction towards the chuck



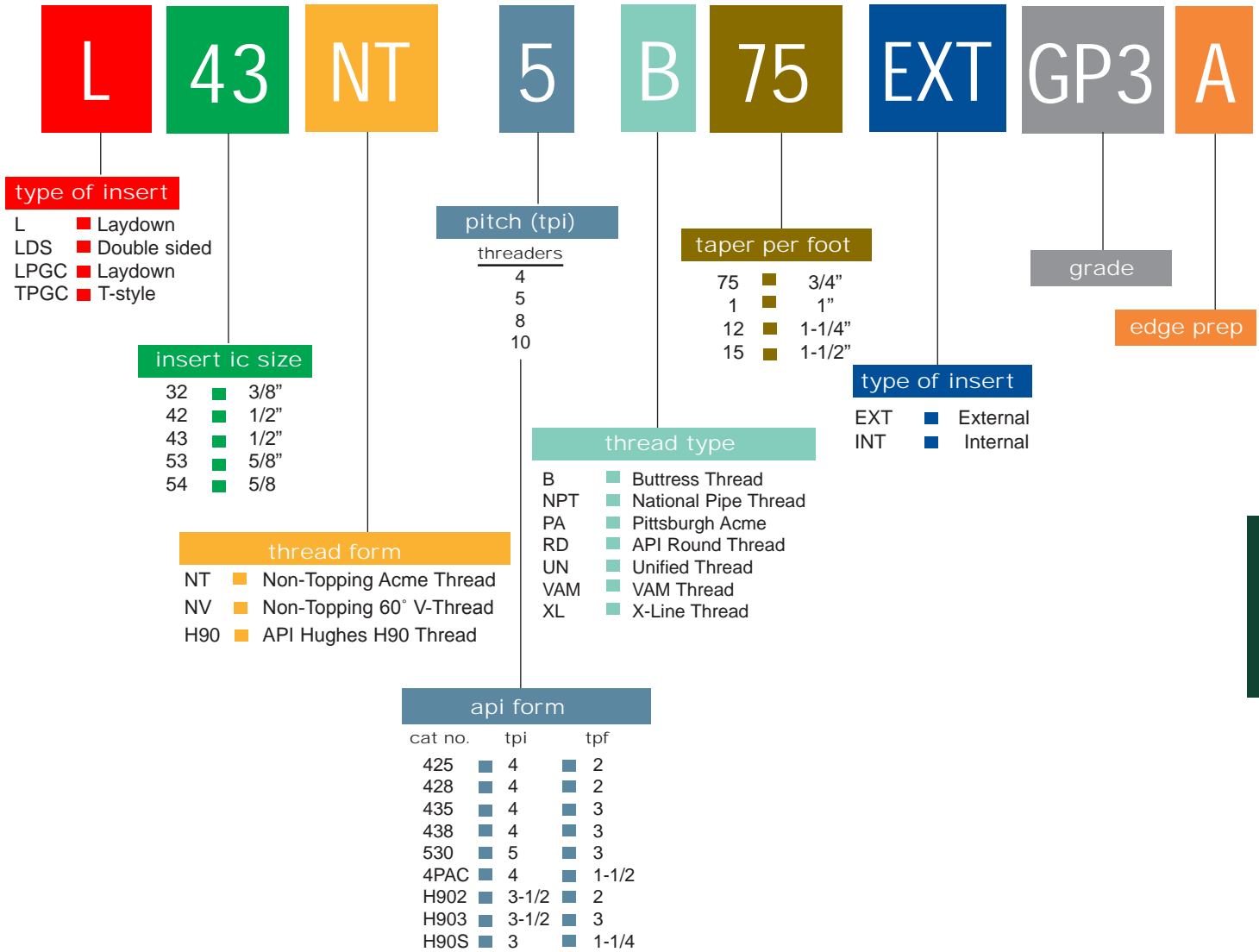
## Feed direction towards the tailstock



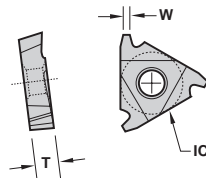


# LAYDOWN

## L-Style Laydown Insert Nomenclature Chart



## ACME L43/L53 - 1/2" & 5/8" I.C.



EXT SHOWN  
INT OPPOSITE



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

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

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

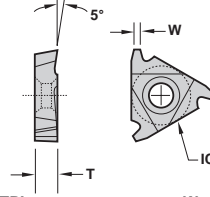
Cast Iron		▲				●
Non-Ferrous		▲				●
Stainless/High Temp		▲				●
Steel		▲				●

# LAYDOWN



## ACME

### LPGC 32, 42 & 43 - 3/8" & 1/2 I.C.



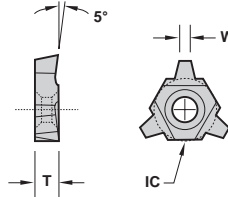
EXT SHOWN  
INT OPPOSITE



Description	EDP Code	TPI	W	IC	T	TIN Coated			AlTiN Coated		
						GP22	GP50	GP5	AC22	AC3	AC50
LPGC 32 NT 12P INT RH	0204A120	12	.0283	.375	.127			●			
LPGC 32 NT 10P INT RH	0204A100	10	.0319	.375	.127			●			
LPGC 32 NT 8P INT RH	0204A080	8	.0411	.375	.127			●			
LPGC 42 NT 8P INT RH	0213A080	8	.0411	.500	.127			●			
LPGC 42 NT 6P INT RH	0213A060	6	.0566	.500	.127			●			
LPGC 42 NT 5P INT RH	0213A050	5	.0689	.500	.127			●			
LPGC 42 NT 4P INT RH*	0213A040	4	.0875	.500	.127			●			
LPGC 43 NT 8P INT RH	0227A080	8	.0411	.500	.189			●			
LPGC 43 NT 6P INT RH	0227A060	6	.0566	.500	.189			●			
LPGC 43 NT 5P INT RH	0227A050	5	.0689	.500	.189			●			
LPGC 43 NT 4P INT RH*	0227A040	4	.0875	.500	.189			●			

\*Bar must be modified to clear depth.

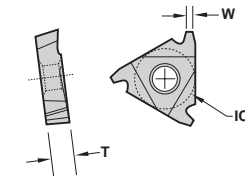
### TPGC 32, 42 & 43 - 3/8" & 1/2 I.C.



Description	EDP Code	TPI	W	IC	T	TIN Coated			AlTiN Coated		
						GP22	GP50	GP5	AC22	AC3	AC50
TPGC 32 NT 10P	<a href="#">0207100</a>	10	.0319	.375	.127			●			
TPGC 32 NT 8P	<a href="#">0207080</a>	8	.0411	.375	.127			●			
TPGC 32 NT 6P	<a href="#">0207060</a>	6	.0566	.375	.127			●			
TPGC 32 NT 5P	<a href="#">0207050</a>	5	.0689	.375	.127			●			
TPGC 42 NT 8P	<a href="#">0214080</a>	8	.0411	.500	.127			●			
TPGC 42 NT 6P	<a href="#">0214060</a>	6	.0566	.500	.127			●			
TPGC 42 NT 5P	<a href="#">0214050</a>	5	.0689	.500	.127			●			
TPGC 42 NT 4P	<a href="#">0214040</a>	4	.0875	.500	.127			●			
TPGC 43 NT 5P	<a href="#">0238050</a>	5	.0689	.500	.189			●			
TPGC 43 NT 4P	<a href="#">0238040</a>	4	.0875	.500	.189			●			

## ACME STUB

### L43/L53 - 1/2" & 5/8" I.C.

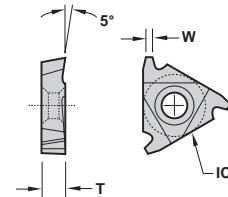


INT SHOWN  
EXT OPPOSITE

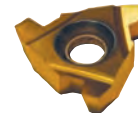


Description	EDP Code	TPI	W	IC	T	TIN Coated			AlTiN Coated		
						GP22	GP50	GP54	AC22	AC3	AC50
L43 NT 8P STUB EXT	<a href="#">0215C081</a>	8	.0476	.500	.189		●				
L43 NT 6P STUB EXT	<a href="#">0215C061</a>	6	.0652	.500	.189		●				
L43 NT 5P STUB EXT	<a href="#">0215C051</a>	5	.0793	.500	.189		●				
L53 NT 4P STUB EXT	<a href="#">0247C041</a>	4	.1004	.625	.189		●				
L43 NT 8P STUB INT	<a href="#">0215A081</a>	8	.0476	.500	.189		●				
L43 NT 6P STUB INT	<a href="#">0215A061</a>	6	.0652	.500	.189		●				
L43 NT 5P STUB INT	<a href="#">0215A051</a>	5	.0793	.500	.189		●				
L53 NT 4P STUB INT	<a href="#">0247A041</a>	4	.1004	.625	.189		●				

### LPGC 32, 42 & 43 - 3/8" & 1/2 I.C.



EXT SHOWN  
INT OPPOSITE



Description	EDP Code	TPI	W	IC	T	TIN Coated			AlTiN Coated		
						GP22	GP5	GP50	AC25	AC3	AC50
LPGC 32 NT 8P STUB INT	0204A081	8	.0476	.375	.127						
LPGC 42 NT 8P STUB INT	0213A081	8	.0476	.500	.127		●	●			
LPGC 42 NT 6P STUB INT	0213A061	6	.0652	.500	.127		●	●			
LPGC 42 NT 5P STUB INT	0213A051	5	.0793	.500	.127		●	●			
LPGC 42 NT 4P STUB INT	0213A041	4	.1004	.500	.127		●	●			
LPGC 43 NT 8P STUB INT	0227A081	8	.0476	.500	.189		●	●			
LPGC 43 NT 6P STUB INT	0227A061	6	.0652	.500	.189		●	●			
LPGC 43 NT 5P STUB INT	0227A051	5	.0793	.500	.189		●	●	●		
LPGC 43 NT 4P STUB INT	0227A041	4	.1004	.500	.189		●	●			

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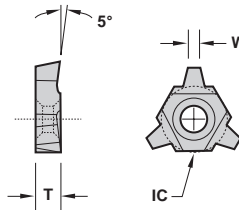
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Cast Iron  
Non-Ferrous  
Stainless/High Temp  
Steel



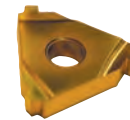
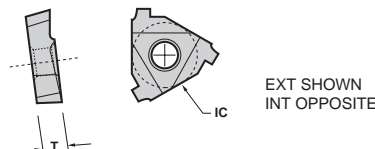
# LAYDOWN

## ACME STUB TPGC 32, 42 & 43 - 3/8" & 1/2 I.C.



Description	EDP Code	TPI	W	IC	T	TIN Coated			A1TIN Coated		
						GP22	GP5	GP50	AC22	AC3	AC50
TPGC 32 NT 8P STUB	<a href="#">0207081</a>	8	.0476	.375	.127		●	●			
TPGC 32 NT 6P STUB	<a href="#">0207061</a>	6	.0652	.375	.127		●	●			
TPGC 32 NT 5P STUB	<a href="#">0207051</a>	5	.0793	.375	.127		●	●			
TPGC 42 NT 8P STUB	<a href="#">0214081</a>	8	.0476	.500	.127		●	●			
TPGC 42 NT 6P STUB	<a href="#">0214061</a>	6	.0652	.500	.127		●	●			
TPGC 42 NT 5P STUB	<a href="#">0214051</a>	5	.0793	.500	.127		●	●			
TPGC 42 NT 4P STUB	<a href="#">0214041</a>	4	.1004	.500	.127		●	●			
TPGC 43 NT 5P STUB	<a href="#">0238051</a>	5	.0793	.500	.189		●	●			
TPGC 43 NT 4P STUB	<a href="#">0238041</a>	4	.1004	.500	.189		●	●			

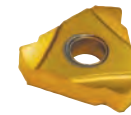
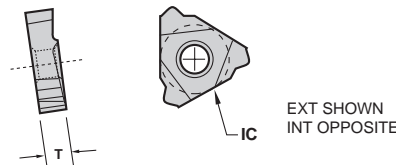
## API BUTTRESS L43/L53 - 1/2" & 5/8" I.C.



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated			A1TIN Coated		
							GP22	GP50	GP54	AC22	AC3	AC50
L43 5B75 EXT-FC	<a href="#">16154F</a>	5	3/4	.500	.189	4-1/2 - 13-3/8		●				●
L43 5B1 EXT -FC	<a href="#">17154F</a>	5	1	.500	.189	16 and larger		●				●
L43 8B75 EXT-FC	<a href="#">21154F</a>	8	3/4	.500	.189	US Improved Buttress		●				●
L53 5B75 EXT-FC	<a href="#">16474F</a>	5	3/4	.625	.189	4-1/2 - 13-3/8		●				●
L53 5B1 EXT-FC	<a href="#">17474F</a>	5	1	.625	.189	16 and larger		●				●
L53 8B75 EXT-FC	<a href="#">21474F</a>	8	3/4	.625	.189	US Improved Buttress		●				●
L43 5B75 INT-FC	<a href="#">16158F</a>	5	3/4	.500	.189	4-1/2 - 13-3/8		●				●
L43 5B1 INT-FC	<a href="#">17158F</a>	5	1	.500	.189	16 and larger		●				●
L43 8B75 INT-FC	<a href="#">21158F</a>	8	3/4	.500	.189	US Improved Buttress		●				●
L53 5B75 INT-FC	<a href="#">16478F</a>	5	3/4	.625	.189	4-1/2 - 13-3/8		●				●
L53 5B1 INT-FC	<a href="#">17478F</a>	5	1	.625	.189	16 and larger		●				●
L53 8B75 INT-FC	<a href="#">21478F</a>	8	3/4	.625	.189	US Improved Buttress		●				●

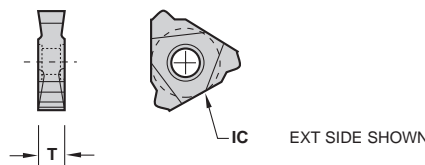
FC designates 5° flank clearance

## API HUGHES H90 L53 - 5/8" I.C.



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated			A1TIN Coated		
							GP22	GP50	GP54	AC22	AC3	AC50
L53 H902 EXT	<a href="#">28474</a>	3-1/2	2	.625	.189	3-1/2 - 6-5/8 H90		●				
L53 H903 EXT	<a href="#">29474</a>	3-1/2	3	.625	.189	7 - 8-5/8 H90		●				
L53 H90S EXT	<a href="#">27474</a>	3	1-1/4	.625	.189	2-3/8 - 3-1/2 Slimline		●				
L53 H902 INT	<a href="#">28478</a>	3-1/2	2	.625	.189	3-1/2 - 6-5/8 H90		●				
L53 H903 INT	<a href="#">29478</a>	3-1/2	3	.625	.189	7 - 8-5/8 H90		●				
L53 H90S INT	<a href="#">27478</a>	3	1-1/4	.625	.189	2-3/8 - 3-1/2 Slimline		●				

## LDS 54 - 5/8 I.C. Double Sided



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated			A1TIN Coated		
							GP22	GP50	GP54	AC22	AC3	AC50
LDS 54 H902	<a href="#">28490</a>	3-1/2	2	.625	.252	3-1/2 - 6-5/8 H90			●			
LDS 54 H903	<a href="#">29490</a>	3-1/2	3	.625	.252	7 - 8-5/8 H90			●			
LDS 54 H90S	<a href="#">27490</a>	3	1-1/4	.625	.252	2-3/8 - 3-1/2 Slimline			●			

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

Cast Iron												
Non-Ferrous												
Stainless/High Temp												
Steel										▲		



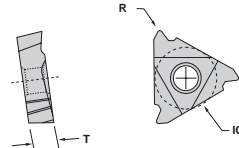
# LAYDOWN



## API ROTARY SHOULDER CONNECTION

L43/53 - 1/2" & 5/8" I.C.

■ Must be used with API bars.



EXT SHOWN  
INT OPPOSITE



Description	EDP Code	TPI	TPF	R	IC	T	Connection	TiN Coated		AlTiN Coated		
								GP50	GP54	AC22	AC3	AC50
L43 425 EXT	<a href="#">09154</a>	4	2	.025	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	●
L43 428 EXT	<a href="#">10154</a>	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	<a href="#">12154</a>	4	3	.038	.500	.189	NC56 - NC71	●		●	●	●
L43 530 EXT	<a href="#">13154</a>	5	3	.020	.500	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●		●	●	●
L43 4PAC EXT	<a href="#">15154</a>	4	1-1/2	---	.500	.189	American Open Hole	●				
L53 425 EXT	<a href="#">09474</a>	4	2	.025	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	●
L53 428 EXT	<a href="#">10474</a>	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	<a href="#">12474</a>	4	3	.038	.625	.189	NC56 - NC71	●		●	●	●
L53 530 EXT	<a href="#">13474</a>	5	3	.020	.625	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●		●	●	●
L53 4PAC EXT	<a href="#">15474</a>	4	1-1/2	---	.625	.189	American Open Hole	●				
L43 425 INT	<a href="#">09158</a>	4	2	.025	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	●
L43 428 INT	<a href="#">10158</a>	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	<a href="#">12158</a>	4	3	.038	.500	.189	NC56 - NC71	●		●	●	●
L43 530 INT	<a href="#">13158</a>	5	3	.020	.500	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●		●	●	●
L43 4PAC INT	<a href="#">15158</a>	4	1-1/2	---	.500	.189	American Open Hole	●				
L53 425 INT	<a href="#">09478</a>	4	2	.025	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●		●	●	●
L53 428 INT	<a href="#">10478</a>	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	<a href="#">12478</a>	4	3	.038	.625	.189	NC56 - NC71	●		●	●	●
L53 530 INT	<a href="#">13478</a>	5	3	.020	.625	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●		●	●	●
L53 4PAC INT	<a href="#">15478</a>	4	1-1/2	---	.625	.189	American Open Hole	●				

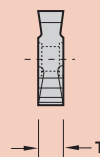
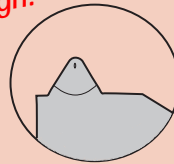
\* Obsolete thread form, See A.P.I. Spec 7, 35th Edition, May 1, 1995, Section 9.4

LAYDOWN

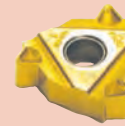
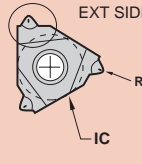
## LDS 54 Double Sided Lead Follow Topping Internal/External with patented chipbreaker

*Exclusive patented design!*

■ For holders see pg. 136, 138



EXT SIDE SHOWN

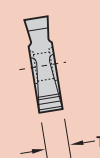
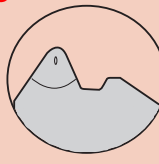


Description	EDP Code	TPI	TPF	R	IC	T	Connection	TiN Coated		AlTiN Coated		
								GP54	AC22	AC3	AC50	AC54
LDS 54 428-CB #1	<a href="#">10490HC</a>	4	2	.038	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF	●		●	●	●
LDS 54 438-CB #2	<a href="#">12490HC</a>	4	3	.038	.625	.252	NC56-NC71	●		●	●	●
LDS 54 425-CB #3	<a href="#">09490HC</a>	4	2	.025	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.	●		●	●	●
LDS 54 435-CB #4	<a href="#">11490HC</a>	4	3	.025	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.	●		●	●	●
LDS 54 530-CB #5	<a href="#">13490HC</a>	5	3	.020	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●		●	●	●

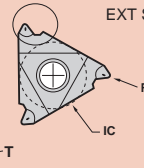
## LDS 54 Double Sided Follow Topping Internal/External with patented chipbreaker

*Exclusive patented design!*

■ For holders see pg. 136, 138



EXT SIDE SHOWN



Description	EDP Code	TPI	TPF	R	IC	T	Connection	TiN Coated		AlTiN Coated		
								GP54	AC22	AC3	AC50	AC54
LDS 54 428 FT-CB #1	<a href="#">10495HC</a>	4	2	.038	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF	●		●	●	●
LDS 54 438 FT-CB #2	<a href="#">12495HC</a>	4	3	.038	.625	.252	NC56-NC71	●		●	●	●
LDS 54 425 FT-CB #3	<a href="#">09495HC</a>	4	2	.025	.625	.252	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.	●		●	●	●
LDS 54 435 FT-CB #4	<a href="#">11495HC</a>	4	3	.025	.625	.252	5-1/2 Reg. 7-5/8 Reg 8-5/8 Reg.	●		●	●	●
LDS 54 530 FT-CB #5	<a href="#">13495HC</a>	5	3	.020	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●		●	●	●

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

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

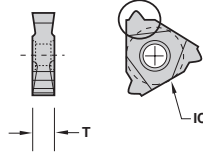
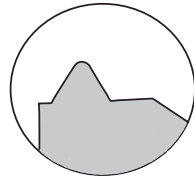
Material	GP54	AC22	AC3	AC50	AC54
Cast Iron				●	
Non-Ferrous				●	
Stainless/High Temp				●	
Steel	▲	●	●		



# LAYDOWN

## API ROTARY SHOULDER CONNECTION

LDS 54 - 5/8" I.C.  
Double Sided  
Full Topping



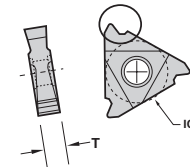
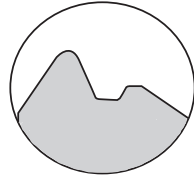
EXT SIDE SHOWN



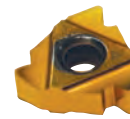
Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated		A1TIN Coated			
							GP22	GP54	AC22	AC3	AC50	AC54
LDS 54 428 #1	<a href="#">10490</a>	4	2	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF		●	●	●	●	●
LDS 54 438 #2	<a href="#">12490</a>	4	3	.625	.252	NC56-NC71		●	●	●	●	●
LDS 54 425 #3	<a href="#">09490</a>	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	<a href="#">13490</a>	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	<a href="#">15490</a>	4	1-1/2	.625	.252	American Open Hole	●	●				

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

LDS 54 - 5/8" I.C.  
Double Sided  
Follow Topping



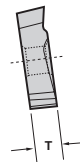
EXT SIDE SHOWN



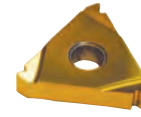
Description	EDP Code	TPI	TPF	IC	T	Conn. No.	TIN Coated		A1TIN Coated		
							GP22	GP54	AC22	AC3	AC50
LDS 54 428 #1 FT	<a href="#">10495</a>	4	2	.625	.252	NC23-NC50, 2-3/8-5-1/2 IF		●	●	●	●
LDS 54 438 #2 FT	<a href="#">12495</a>	4	3	.625	.252	NC56-NC71		●	●	●	●
LDS 54 425 #3 FT	<a href="#">09495</a>	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	<a href="#">13495</a>	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	<a href="#">15495</a>	4	1-1/2	.625	.252	American Open Hole	●	●			

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

API ROUND  
L43/L53 - 1/2" & 5/8" I.C.

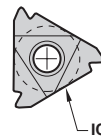
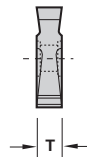


EXT SIDE SHOWN



Description	EDP Code	TPI	TPF	IC	T	TIN Coated		A1TIN Coated		
						GP22	GP50	GP54	AC22	AC3
L43 10RD EXT	<a href="#">34154</a>	10	3/4	.500	.189		●		●	●
L43 8RD EXT	<a href="#">32154</a>	8	3/4	.500	.189		●		●	●
L53 8RD EXT	<a href="#">32474</a>	8	3/4	.625	.189		●		●	●
L43 8RD INT	<a href="#">34158</a>	8	3/4	.500	.189		●		●	●
L43 10RD INT	<a href="#">32158</a>	10	3/4	.500	.189		●		●	●
L53 8RD INT	<a href="#">32478</a>	8	3/4	.625	.189		●		●	●

LDS 43 & 54 - 1/2" & 5/8" I.C.  
Double Sided



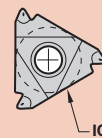
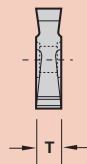
EXT SIDE SHOWN



Description	EDP Code	TPI	TPF	IC	T	TIN Coated		A1TIN Coated		
						GP22	GP50	GP54	AC22	AC3
LDS 43 10RD	<a href="#">34180</a>	10	3/4	.500	.189			●	●	●
LDS 43 8RD	<a href="#">32180</a>	8	3/4	.500	.189			●	●	●
LDS 54 10RD	<a href="#">34490</a>	10	3/4	.625	.252			●	●	●
LDS 54 8RD	<a href="#">32490</a>	8	3/4	.625	.252			●	●	●

LDS 54 - 5/8" I.C.  
Double Sided  
Internal/External  
with patented chipbreaker

*Exclusive patented design!*



EXT SIDE SHOWN

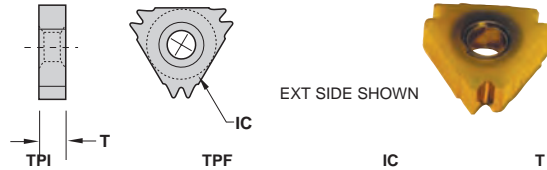


Description	EDP Code	TPI	TPF	IC	T	TIN Coated		A1TIN Coated		
						GP22	GP50	GP54	AC22	AC3
LDS 54 10RD-CB	<a href="#">34490</a>	10	3/4	.625	.252			●	●	●
LDS 54 8RD-CB	<a href="#">32490</a>	8	3/4	.625	.252			●	●	●

# LAYDOWN

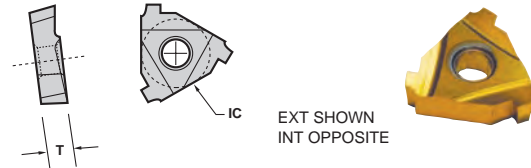


## API ROUND TNFA 43 - 1/2" I.C.



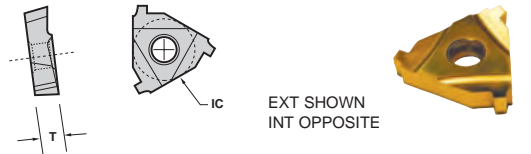
Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AC22	AC3	AC50
TNFA 43 8RD	32N70	8	3/4	.500	.187	●	●	●	●	●	●

## API VAM L43 - 1/2" I.C.



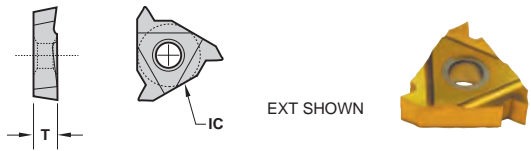
Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AC22	AC3	AC50
L43 5VAM EXT	23154	5	3/4	.500	.189	●	●	●	●	●	●
L43 6VAM EXT	24154	6	3/4	.500	.189	●	●	●	●	●	●
L43 8VAM EXT	25154	8	3/4	.500	.189	●	●	●	●	●	●
L43 5VAM INT	23158	5	3/4	.500	.189	●	●	●	●	●	●
L43 6VAM INT	24158	6	3/4	.500	.189	●	●	●	●	●	●
L43 8VAM INT	25158	8	3/4	.500	.189	●	●	●	●	●	●

## API X-LINE L43/L53 - 1/2" & 5/8" I.C.



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	GP22	GP50	GP54	AC22	AC3	AC50
L43 6XL15 EXT	19154	6	1-1/2	.500	.189	5 - 7-5/8	●	●	●	●	●	●
L43 6XL75 EXT	20154	6	3/4	.500	.189	-	●	●	●	●	●	●
L43 5XL12 EXT	18154	5	1-1/4	.500	.189	8-5/8 - 10-3/4	●	●	●	●	●	●
L53 6XL15 EXT	<a href="#">19474</a>	6	1-1/2	.625	.189	5 - 7-5/8	●	●	●	●	●	●
L53 6XL75 EXT	<a href="#">20474</a>	6	3/4	.625	.189	-	●	●	●	●	●	●
L53 5XL12 EXT	<a href="#">18474</a>	5	1-1/4	.625	.189	8-5/8 - 10-3/4	●	●	●	●	●	●
L43 6XL15 INT	19158	6	1-1/2	.500	.189	5 - 7-5/8	●	●	●	●	●	●
L43 6XL75 INT	20158	6	3/4	.500	.189	-	●	●	●	●	●	●
L43 5XL12 INT	18158	5	1-1/4	.500	.189	8-5/8 - 10-3/4	●	●	●	●	●	●
L53 6XL15 INT	<a href="#">19478</a>	6	1-1/2	.625	.189	5 - 7-5/8	●	●	●	●	●	●
L53 6XL75 INT	<a href="#">20478</a>	6	3/4	.625	.189	-	●	●	●	●	●	●
L53 5XL12 INT	<a href="#">18478</a>	5	1-1/4	.625	.189	8-5/8 - 10-3/4	●	●	●	●	●	●

## NPT L43 - 1/2" I.C.



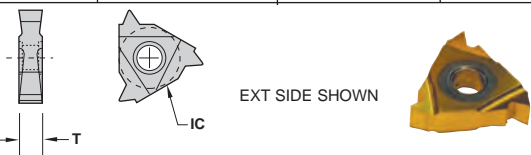
Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AC22	AC3	AC50
L43 11.5NPT EXT	<a href="#">3615114</a>	11.5	3/4	.500	.189	●	●	●	●	●	●
L43 8NPT EXT	<a href="#">3615084</a>	8	3/4	.500	.189	●	●	●	●	●	●
L43 11.5NPT INT	<a href="#">3615118</a>	11.5	3/4	.500	.189	●	●	●	●	●	●
L43 8NPT INT	<a href="#">3615088</a>	8	3/4	.500	.189	●	●	●	●	●	●

## L43 - 1/2" I.C. Multi-Tooth



Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AC22	AC3	AC50
L43 11.5NPT2M EXT	<a href="#">3615114T</a>	11.5	3/4	.500	.189	●	●	●	●	●	●
L43 11.5NPT2M INT	<a href="#">3615118T</a>	11.5	3/4	.500	.189	●	●	●	●	●	●

## LDS 43 - 1/2" I.C. Double Sided



Description	EDP Code	TPI	TPF	IC	T	GP22	GP50	GP54	AC22	AC3	AC50
LDS 43 14NPT	3618140	14	3/4	.500	.189	●	●	●	●	●	●
LDS 43 11.5NPT	3618110	11.5	3/4	.500	.189	●	●	●	●	●	●
LDS 43 8NPT	3618080	8	3/4	.500	.189	●	●	●	●	●	●

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

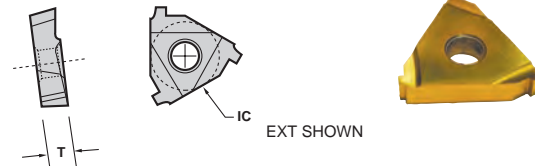
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Cast Iron	
Non-Ferrous	
Stainless/High Temp	
Steel	



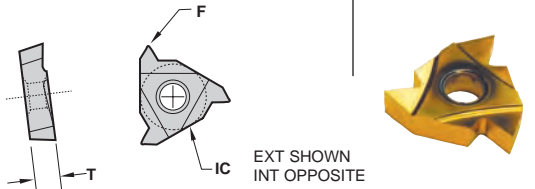
# LAYDOWN

## PITTSBURGH ACME L43/L53 - 1/2" & 5/8" I.C.



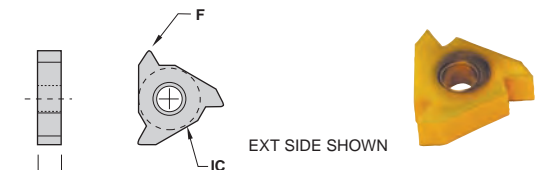
Description	EDP Code	TPI	TPF	IC	T	TIN Coated			A1TIN Coated		
						GP22	GP50	GP54	AC22	AC3	AC50
L43 8PA75 EXT	<a href="#">22154</a>	8	3/4	.500	.189	●	●				
L53 8PA75 EXT	<a href="#">22474</a>	8	3/4	.625	.189	●	●				
L43 8PA75 INT	<a href="#">22158</a>	8	3/4	.500	.189	●	●				
L53 8PA75 INT	<a href="#">22478</a>	8	3/4	.625	.189	●	●				

## V THREADING - 60° L43 & 53- 1/2" & 5/8" I.C.



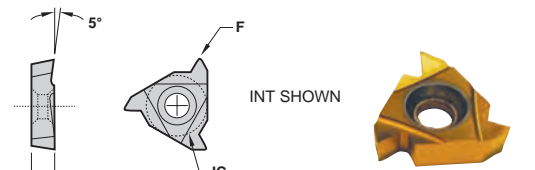
Description	EDP Code	TPI	F	IC	T	TIN Coated			A1TIN Coated		
						GP22	GP50	GP54	AC22	AC3	AC50
L43 NV EXT	<a href="#">0115040</a>	8-48	.006/.008	.500	.189	●	●			●	●
L53 NV EXT	<a href="#">0147040</a>	5-32	.006/.008	.625	.189	●	●			●	●
L43 NV INT	<a href="#">0115080</a>	8-48	.006/.008	.500	.189	●	●			●	●
L53 NV INT	<a href="#">0147080</a>	5-32	.006/.008	.625	.189	●	●			●	●

## LN 43 - 1/2" I.C. Double Sided



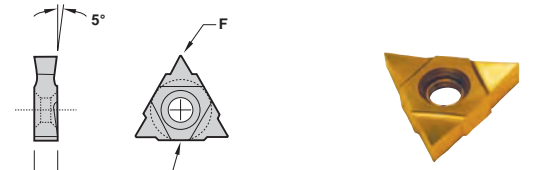
Description	EDP Code	TPI	F	IC	T	TIN Coated			A1TIN Coated		
						GP22	GP50	GP54	AC22	AC3	AC50
LN 43 NV	0120000	8-48	.006/.008	.500	.189	●	●			●	●

## V THREADING - 60° LPGC 32, 42 & 43 - 3/8" & 1/2" I.C.



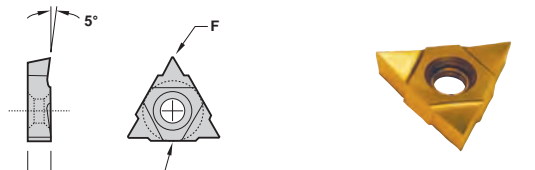
Description	EDP Code	TPI	F	IC	T	TIN Coated			A1TIN Coated		
						GP22	GP5	GP54	AC25	AC3	AC50
LPGC 32 NV INT RH	0104R80	8-48	.004/.006	.375	.127	●	●				
LPGC 32 NV INT LH	0104L80	8-48	.004/.006	.375	.127	●	●				
LPGC 42 NV INT RH	0113R80	8-20	.006/.008	.500	.127	●	●				
LPGC 42 NV INT LH	0113L80	8-20	.006/.008	.500	.127	●	●				
LPGC 43 NV INT RH	0127R80	5-16	.006/.008	.500	.189	●	●				
LPGC 43 NV INT LH	0127L80	5-16	.006/.008	.500	.189	●	●				

## TNPGC 43 - 1/2" I.C. Double Sided



Description	EDP Code	TPI	F	IC	T	TIN Coated			A1TIN Coated		
						GP22	GP50	GP54	AC22	AC3	AC50
TNPGC 43 NV	0137000	8-48	.005/.007	.500	.189	●	●				

## TPGC 32, 42 & 43 - 3/8" & 1/2" I.C.



Description	EDP Code	TPI	F	IC	T	TIN Coated			A1TIN Coated		
						GP22	GP5	GP54	AC22	AC3	AC50
TPGC 32 NV	<a href="#">0107000</a>	8-48	.005/.007	.375	.127	●	●		●		
TPGC 42 NV	<a href="#">0114000</a>	5-32	.005/.007	.500	.127	●	●				
TPGC 43 NV	<a href="#">0138000</a>	4-16	.005/.007	.500	.189	●	●				

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

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

Cast Iron  
Non-Ferrous  
Stainless/High Temp  
Steel

					●	●					
										●	●
					▲						

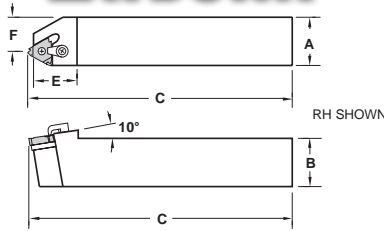
LAYDOWN





# LAYDOWN

## EXTERNAL HOLDER MTENR/L Threading

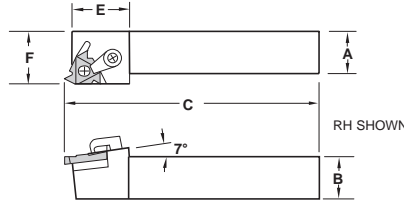


### PARTS

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

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

## MTVNR/L Threading & Grooving Inch



### PARTS

Description	EDP Code	Insert	A	B	C	E	F*	Seat	Lock Pin	Clamp	Clamp Screw
MTVNR-164	<a href="#">95801656</a>	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNL-164	<a href="#">95701656</a>	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNR-204	<a href="#">95802056</a>	L43	1-1/4	1-1/4	7	1.27	1.500	LS43*	NL46	TC-190	STC5
MTVNR-165	<a href="#">95801662</a>	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNL-165	<a href="#">95701662</a>	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNR-205	<a href="#">95802062</a>	L53	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11
MTVNR-2054	<a href="#">95802064</a>	LDS 54	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11

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

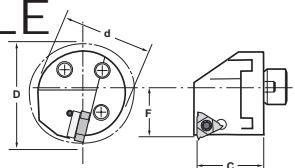
## METRIC

### PARTS

Description	EDP Code	Insert	A	B	C	E	F*	Seat	Lock Pin	Clamp	Clamp Screw
MTVNR-2525M4	<a href="#">9580M2556</a>	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNL-2525M4	<a href="#">9570M2556</a>	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNR-3232M4	<a href="#">9580M3256</a>	L43	1-1/4	1-1/4	7	1.27	1.500	LS43*	NL46	TC-190	STC5
MTVNR-2525M5	<a href="#">9580M2562</a>	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNL-2525M5	<a href="#">9570M2562</a>	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNR-3232M5	<a href="#">9580M3262</a>	L53	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11
MTVNR-3232M54	<a href="#">9580M3264</a>	LDS 54	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11

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

## INTERCHANGEABLE HEADS H-LNFR/L\*



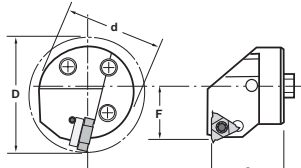
RH SHOWN

### PARTS

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

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

## HS-LNFR/L\*



RH SHOWN

### PARTS

Description	EDP Code	Insert	d	C	F	Min. Bore (D)	Clamp	Clamp Screw	Lock Pin
HS32-LNFR-43	<a href="#">9IHS42032M56</a>	L43	1.25	1.26	0.866	1.570	TC-190	STC-9	NL-44
HS40-LNFR-43	<a href="#">9IHS42040M56</a>	L43	1.57	1.26	1.063	1.970	TC-190	STC-9	NL-44
HS50-LNFR-43	<a href="#">9IHS42050M56</a>	L43	1.97	1.57	1.378	2.480	TC-190	STC-9	NL-44
HS40-LNFR-53API	<a href="#">9IHS4440M62</a>	L53	1.57	1.26	1.063	1.970	TC-250	STC-11	NL-56
HS50-LNFR-53API	<a href="#">9IHS44450M62</a>	L53	1.97	1.57	1.378	2.480	TC-250	STC-11	NL-56
HS40-LNFR-54API	<a href="#">9IHS4440M64</a>	LDS 54	1.57	1.26	1.063	1.970	TC-250	STC-11	<a href="#">H410-1</a>
HS50-LNFR-54API	<a href="#">9IHS44450M64</a>	LDS 54	1.97	1.57	1.378	2.480	TC-250	STC-11	NL-56

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

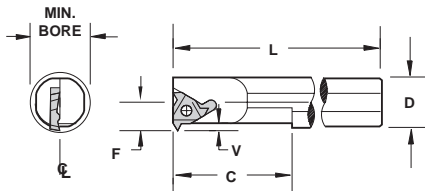


# LAYDOWN

## INTERNAL BAR LFR/L

Threading & Grooving

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



RH SHOWN

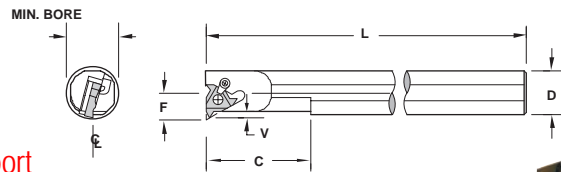
Description	EDP Code	Insert	Min. Bore	L	D	C	F	V	Torx Screw
LFR 625-32	93905248	LPGC 32	.625	8	.625	2-1/2	.312	.100	SF30
LFL 625-32	93805248	LPGC 32	.625	8	.625	2-1/2	.312	.100	SF30
LFR 750-32	93905648	LPGC 32	.750	8	.750	2-3/4	.375	.100	SF30
LFL 750-32	93805648	LPGC 32	.750	8	.750	2-3/4	.375	.100	SF30
LFR 100-32	93906448	LPGC 32	1.000	10	1.000	2-3/4	.500	.100	SF30
LFL 100-32	93806448	LPGC 32	1.000	10	1.000	2-3/4	.500	.100	SF40
LFR 750-42	93905654	LPGC 42	.750	8	.750	2-3/4	.375	.100	SF50
LFL 750-42	93805654	LPGC 42	.750	8	.750	2-3/4	.375	.100	SF60
LFR 100-43	93906456	LPGC 43	1.000	10	1.000	2-3/4	.500	.125	SF60
LFL 100-43	93806456	LPGC 43	1.000	10	1.000	2-3/4	.500	.125	SF60
LFR 125-43	93906856	LPGC 43	1.250	12	1.250	2-3/4	.625	.125	SF60
LFL 125-43	93806856	LPGC 43	1.250	12	1.250	2-3/4	.625	.125	SF60
LFR 150-43	93907256	LPGC 43	1.500	14	1.500	3-3/4	.750	.125	SF60
LFL 150-43	93807256	LPGC 43	1.500	14	1.500	3-3/4	.750	.125	SF60
LFR 200-43	93908056	LPGC 43	2.000	14	2.000	3-3/4	1.000	.125	SF60
LFL 200-43	93808056	LPGC 43	2.000	14	2.000	3-3/4	1.000	.125	SF60
LFR 150-53	93907262	LPGC 53	1.500	14	1.500	3-3/4	.750	.150	SF67
LFL 150-53	93807262	LPGC 53	1.500	14	1.500	3-3/4	.750	.150	SF67
LFR 200-53	93908062	LPGC 53	2.000	14	2.000	3-3/4	1.000	.150	SF85

\*Over NV Insert

## LNFR/L

Threading & Grooving  
Inch

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



RH SHOWN

### PARTS

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Seat	Screw/ Lock Pin	Clamp	Clamp Screw
LNFR 100-43	94206456	L43	1.031	10	1	2-3/4	.564	.125	-	TS65	-	-
LNFL 100-43	94106456	L43	1.031	10	1	2-3/4	.564	.125	-	TS65	-	-
LNFR 125-43	94206856	L43	1.250	12	1-1/4	2-3/4	.625	.125	-	NL44	TC190	STC-5
LNFL 125-43	94106856	L43	1.250	12	1-1/4	2-3/4	.625	.125	-	NL44	TC190	STC-5
LNFR 150-43	94207256	L43	1.500	14	1-1/2	3-3/4	.750	.125	-	NL44	TC190	STC-9
LNFL 150-43	94107256	L43	1.500	14	1-1/2	3-3/4	.750	.125	-	NL44	TC190	STC-9
LNFR 200-43	94208056	L43	2.000	14	2	3-3/4	1.000	.125	LS43*	NL46	TC190	STC-9
LNFL 200-43	94108056	L43	2.000	14	2	3-3/4	1.000	.125	LS43*	NL46	TC190	STC-9
LNFR 150-53	94207262	L53	1.500	14	1-1/2	3-3/4	.750	.150	-	NL56	TC250	STC-11
LNFL 150-53	94107262	L53	1.500	14	1-1/2	3-3/4	.750	.150	-	NL56	TC250	STC-11
LNFR 200-53	94208062	L53	2.000	14	2	3-3/4	1.000	.150	LS53*	NL58	TC250	STC-11
LNFL 200-53	94108062	L53	2.000	14	2	3-3/4	1.000	.150	LS53*	NL58	TC250	STC-11
LNFR 150-54	94207264	LDS54	1.500	14	1-1/2	3-3/4	.750	.150	-	NL56	TC250	STC-11
LNFL 150-54	94107264	LDS54	1.500	14	1-1/2	3-3/4	.750	.150	-	NL56	TC250	STC-11
LNFR 200-54	94208064	LDS54	2.000	14	2	3-3/4	1.000	.150	-	NL56	TC250	STC-11
LNFL 200-54	94108064	LDS54	2.000	14	2	3-3/4	1.000	.150	-	NL56	TC250	STC-11

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

\*\*Non API bars will work for 8/10RD and 5B75/5B1 threadforms. API bars required for rotary shoulder connection threadforms.

## METRIC

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Seat	Screw/ Lock Pin	Clamp	Clamp Screw
LNFR 32M-43	942M3256	L43	35,0	304,8	32,0	69,5	17,5	3,2	-	NL44	TC190	STC-5
LNFL 32M-43	941M3256	L43	35,0	304,8	32,0	69,5	17,5	3,2	-	NL44	TC190	STC-5
LNFR 40M-43	942M4056	L43	43,2	355,6	40,0	95,2	21,6	3,2	-	NL44	TC190	STC-9
LNFL 40M-43	941M4056	L43	43,2	355,6	40,0	95,2	21,6	3,2	-	NL44	TC190	STC-9
LNFR 50M-43	942M5056	L43	54,1	355,6	50,0	101,6	27,0	3,2	LS43*	NL46	TC190	STC-5
LNFL 50M-43	941M5056	L43	54,1	355,6	50,0	101,6	27,0	3,2	LS43*	NL46	TC190	STC-5
LNFR 40M-53	942M4062	L53	44,1	355,6	40,0	101,6	22,0	3,8	-	NL56	TC250	STC-11
LNFL 40M-53	941M4062	L53	44,1	355,6	40,0	101,6	22,0	3,8	-	NL56	TC250	STC-11
LNFR 50M-53	942M5062	L53	54,1	355,6	50,0	101,6	27,4	3,8	LS53*	NL58	TC250	STC-11
LNFL 50M-53	941M5062	L53	54,1	355,6	50,0	101,6	27,4	3,8	LS53*	NL58	TC250	STC-11
LNFR 40M-54	942M4064	LDS54	44,1	355,6	40,0	101,6	22,0	3,8	-	NL56	TC250	STC-11
LNFL 40M-54	941M4064	LDS54	44,1	355,6	40,0	101,6	22,0	3,8	-	NL56	TC250	STC-11
LNFR 50M-54	942M5064	LDS54	54,1	355,6	50,0	101,6	27,4	3,8	-	NL56	TC250	STC-11
LNFL 50M-54	941M5064	LDS54	54,1	355,6	50,0	101,6	27,4	3,8	-	NL56	TC250	STC-11

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

\*\*Non API bars will work for 8/10RD and 5B75/5B1 threadforms. API bars required for rotary shoulder connection threadforms.

### PARTS

# LAYDOWN

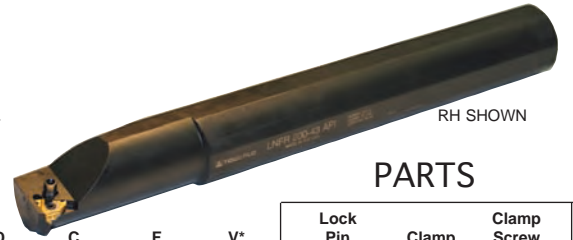
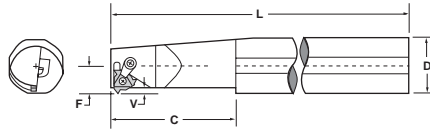


## INTERNAL BAR

### LNFR/L-API

Threading  
Inch

Tapered Head for  
API Forms



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

### PARTS

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Lock Pin	Clamp	Clamp Screw
LNFR 150-43API	<a href="#">94407256</a>	L43	1.500	14	1-1/2	4-1/2	.750	.167	NL44	<a href="#">TC190</a>	XNS-36
LNFR 200-43API	<a href="#">94408056</a>	L43	2.000	14	2	4-1/2	1.000	.167	NL44	<a href="#">TC190</a>	XNS-36
LNFR 150-53API	<a href="#">94407262</a>	L53	1.500	16	1-1/2	4-1/2	.750	.200	NL56	<a href="#">TC250</a>	STC-11
LNFR 200-53API	<a href="#">94408062</a>	L53	2.000	16	2	4-1/2	1.000	.200	NL56	<a href="#">TC250</a>	STC-11
LNFR 200-54API	<a href="#">94408064</a>	LDS 54	2.000	16	2	4-1/2	1.000	.200	NL56	<a href="#">TC250</a>	STC-11

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

\*\*Required for rotary shoulder connection threading inserts.

### METRIC

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Lock Pin	Clamp	Clamp Screw
LNFR 40M-43API	<a href="#">944M4056</a>	L43	41,9	355,6	40,0	114,3	20,9	4,2	NL44	<a href="#">TC190</a>	XNS-36
LNFR 50M-43API	<a href="#">944M5056</a>	L43	55,0	355,6	50,0	114,3	27,4	4,2	NL44	<a href="#">TC190</a>	XNS-36
LNFR 40M-53API	<a href="#">944M4062</a>	L53	42,1	355,6	40,0	114,3	20,9	5,8	NL56	<a href="#">TC250</a>	STC-11
LNFR 50M-53API	<a href="#">944M5062</a>	L53	55,2	406,4	50,0	114,3	27,6	5,8	NL56	<a href="#">TC250</a>	STC-11
LNFR 50M-54API	<a href="#">944M5064</a>	LDS 54	55,2	406,4	50,0	114,3	27,6	5,8	NL56	<a href="#">TC250</a>	STC-11

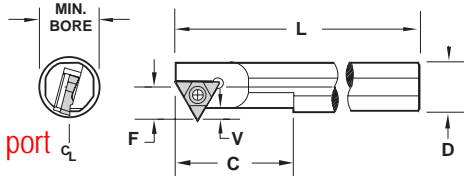
\*Seat can be ordered as NO FORM or a FORM can be specified. EX: LS 43 API INT SEAT if required.

\*\*Required for rotary shoulder connection threading inserts.

### PARTS

## LNTR/L

Threading



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

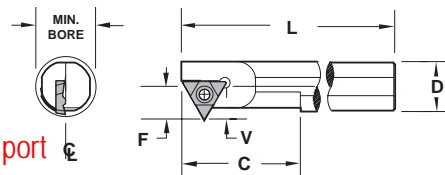


Description	EDP Code	Insert	Min. Bore	L	D	C	F*	V	Torx Screw
LNTR 880-43	<a href="#">94706056</a>	TNPGC 43	.880	8	1.000	2.750	.440	.199	SF60
LNTR 880-43	<a href="#">94606056</a>	TNPGC 43	.880	8	1.000	2.750	.440	.199	SF60
LNTR 100-43	<a href="#">94706456</a>	TNPGC 43	1.000	10	1.000	2.750	.490	.213	SF60
LNTR 100-43	<a href="#">94606456</a>	TNPGC 43	1.000	10	1.000	2.750	.490	.213	SF60
LNTR 125-43	<a href="#">94706856</a>	TNPGC 43	1.250	12	1.250	2.750	.640	.213	SF60
LNTR 125-43	<a href="#">94606856</a>	TNPGC 43	1.250	12	1.250	2.750	.640	.213	SF60
LNTR 150-43	<a href="#">94707256</a>	TNPGC 43	1.500	14	1.500	3.750	.740	.213	SF60
LNTR 150-43	<a href="#">94607256</a>	TNPGC 43	1.500	14	1.500	3.750	.740	.213	SF60
LNTR 200-43	<a href="#">94708056</a>	TNPGC 43	2.000	14	2.000	3.750	.990	.213	SF60
LNTR 200-43	<a href="#">94608056</a>	TNPGC 43	2.000	14	2.000	3.750	.990	.213	SF60

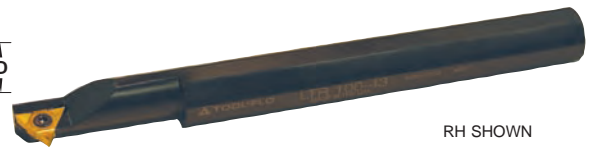
\*Over NV Insert

## LTR/L

Threading & Grooving



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



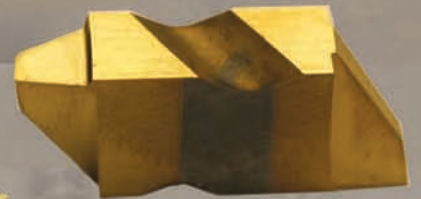
Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Torx Screw
LTR 625-32	<a href="#">95005248</a>	TPGC 32	.625	8	.625	2.500	.375	.150	SF40
LTR 625-32	<a href="#">94905248</a>	TPGC 32	.625	8	.625	2.500	.375	.150	SF40
LTR 750-32	<a href="#">95005648</a>	TPGC 32	.750	8	.750	2.750	.375	.150	SF40
LTR 750-32	<a href="#">94905648</a>	TPGC 32	.750	8	.750	2.750	.375	.150	SF40
LTR 100-32	<a href="#">95006448</a>	TPGC 32	1.000	10	1.000	2.750	.500	.150	SF40
LTR 100-32	<a href="#">94906448</a>	TPGC 32	1.000	10	1.000	2.750	.500	.150	SF40
LTR 750-42	<a href="#">95005654</a>	TPGC 42	.750	8	.750	2.750	.390	.125	SF60
LTR 750-42	<a href="#">94905654</a>	TPGC 42	.750	8	.750	2.750	.390	.125	SF60
LTR 100-43	<a href="#">95006456</a>	TPGC 43	1.000	10	1.000	2.750	.500	.213	SF60
LTR 100-43	<a href="#">94906456</a>	TPGC 43	1.000	10	1.000	2.750	.500	.213	SF60
LTR 125-43	<a href="#">95006856</a>	TPGC 43	1.250	12	1.250	2.750	.625	.213	SF60
LTR 125-43	<a href="#">94906856</a>	TPGC 43	1.250	12	1.250	2.750	.625	.213	SF60
LTR 150-43	<a href="#">95007256</a>	TPGC 43	1.500	14	1.500	3.750	.750	.213	SF60
LTR 150-43	<a href="#">94907256</a>	TPGC 43	1.500	14	1.500	3.750	.750	.213	SF60
LTR 200-43	<a href="#">95008056</a>	TPGC 43	2.000	14	2.000	3.750	1.000	.213	SF60
LTR 200-43	<a href="#">94908056</a>	TPGC 43	2.000	14	2.000	3.750	1.000	.213	SF60
LTR 150-53	<a href="#">95007262</a>	TPGC 53	1.500	14	1.500	3.750	.750	.300	SF85
LTR 150-53	<a href="#">94907262</a>	TPGC 53	1.500	14	1.500	3.750	.750	.300	SF85
LTR 200-53	<a href="#">95008062</a>	TPGC 53	2.000	14	2.000	3.750	1.000	.300	SF85
LTR 200-53	<a href="#">94908062</a>	TPGC 53	2.000	14	2.000	3.750	1.000	.300	SF85

\*Over NV Insert





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TF22675

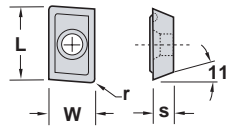
TOOL-FLO  
LINE 322-02  
098.17

TOOL-FLO  
LNCX 1806AZ-R11  
ACS T7

# MILLING

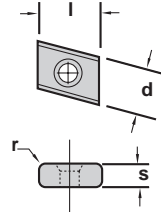


## MILLING INSERTS APKT



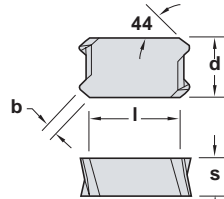
Description	EDP Code	L	W	s	r	GP201	AC202	AG6M	P56M	G55M	P5M	GP5	AC5
APKT 1003PDER-SCM	MAPKT1003SCM	0.413	0.263	0.137	0.019	●	●		●		●		

## CDE



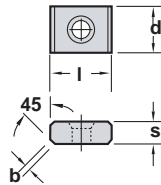
Description	EDP Code	l	d	s	r	C56	AC202	AG6M	P56M	G55M	P5M	GP5	AC5
CDE 313-R01	MC31301R	0.375	0.437	0.187	.020 x 45°							●	
CDE 313-R15	MC31305R	0.375	0.437	0.187	0.125							●	
CDE 313-R64	MC31364R	0.375	0.437	0.187	0.060							●	
CDE 322-L02	MC32202L	0.500	0.375	0.150	0.060							●	
CDE 322-L03	MC32203L	0.500	0.375	0.150	0.090							●	●
CDE 322-L04	MC32204L	0.500	0.375	0.150	0.125							●	
CDE 322-L05	MC32205L	0.500	0.375	0.150	0.031	●						●	
CDE 322-R02	MC32202R	0.500	0.375	0.150	0.060							●	
CDE 322-R03	MC32203R	0.500	0.375	0.150	0.090							●	●
CDE 322-R04	MC32204R	0.500	0.375	0.150	0.125							●	
CDE 322-R05	MC32205R	0.500	0.375	0.150	0.031	●						●	
CDE 322-R10	MC32210R	0.500	0.375	0.150	0.015							●	
CDE 323-L05	MC32305L	0.500	0.375	0.187	0.031	●						●	
CDE 323-R01	MC32301R	0.500	0.375	0.187	.020 x 45°							●	
CDE 323-R05	MC32305R	0.500	0.375	0.187	0.031	●						●	
CDE 334-R04	MC33404R	0.750	0.375	0.250	0.030							●	
CDE 334-R09	MC33409R	0.750	0.375	0.250	0.030							●	
CDE 424-R01	MC42401R	0.500	0.562	0.250	.020 x 45°							●	
CDE 424-R22	MC42422R	0.500	0.562	0.250	0.060							●	
CDE 424-R24	MC42424R	0.500	0.562	0.250	0.125							●	

## LNCX



Description	EDP Code	l	d	s	b	GP201	AC202	AG6M	P56M	G55M	P5M	GP5	AC5
LNCX 1806AZ-L11	<a href="#">MLNCXL</a>	0.739	0.394	0.250	0.085							●	●
LNCX 1806AZ-R11	<a href="#">MLNCXR</a>	0.739	0.394	0.250	0.085							●	●

## LNE



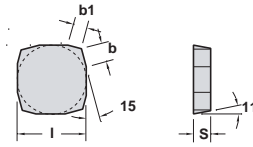
Description	EDP Code	l	d	s	b	C56	AC202	AG6M	P56M	G55M	P5M	GP5	AC5
LNE 323-02	ML323	0.625	0.375	0.187	.030 x 45°							●	
LNE 323-04	ML32304	0.625	0.375	0.187	0.060							●	
LNE 323-88	ML32388	0.625	0.375	0.187	.060 x 45°							●	
LNE 324-01	ML32401	0.625	0.375	0.250	0.060							●	
LNE 324-05	ML32405	0.625	0.375	0.250	.030 x 45°							●	
LNE 324-11	ML32411	0.625	0.375	0.250	0.125							●	
LNE 324-47	ML32447	0.625	0.375	0.250	.060 x 45°							●	
LNE 434-02	ML43402	0.750	0.562	0.250	.030 x 45°	●						●	
LNE 443-01	ML44301	1.000	0.562	0.250	0.093							●	





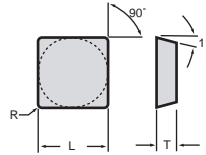
SEKN

# MILLING



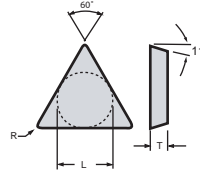
Description	EDP Code	I	s	b	b1	AG450	A460	AG501	P56M	G55M	P5M	GP5	AT5
SEKN 42AFSN	MSEKN425N	0.500	0.125	-	-							●	
SEKN 42AFSN-11	MSEKN425N11	0.500	0.125	-	-							●	
SEKN 42AFSN-HCM	MSEKN425NHCM	0.500	0.125	-	-							●	
SEKN 42AFSN-SCM	MSEKN425NSCM	0.500	0.125	-	-							●	
SEKN 53AFSN	MSEKN535N	0.625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

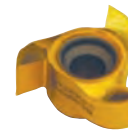
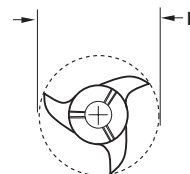
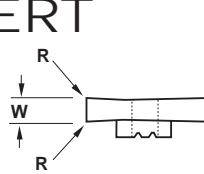
TPG



Description	EDP Code	I	T	R	C3	C56	AG6M	P56M	G55M	P5M	GP5	AT5
TPG 321	MTG321	0.620	0.125	0.015		●					●	
TPG 322	MTG322	0.620	0.125	0.031	●	●					●	
TPG 431	MTG431	0.866	0.187	0.015		●					●	
TPG 432	MTG432	0.866	0.187	0.031		●					●	
TPG 433	MTG433	0.866	0.187	0.047		●					●	

## MILL GROOVING INSERT

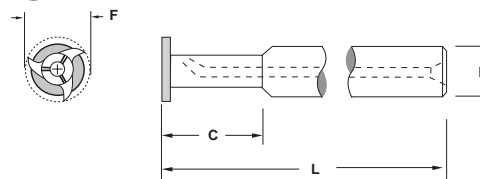
TFMG  
Grooving



Description	EDP Code	W	D.O.C.	R	F	GP22
TFMG-039W	<a href="#">9MG039Q3</a>	0.039	.177	-	0.854	●
TFMG-056W	<a href="#">9MG056Q3</a>	0.056	.177	-	0.854	●
TFMG-062W	<a href="#">9MG062Q3</a>	0.062	.177	0.008	0.854	●
TFMG-078W	<a href="#">9MG078Q3</a>	0.078	.177	0.008	0.854	●
TFMG-094W	<a href="#">9MG094Q3</a>	0.094	.177	0.008	0.854	●
TFMG-125W	<a href="#">9MG125Q3</a>	0.125	.177	0.008	0.854	●
TFMG-187W	<a href="#">9MG187Q3</a>	0.187	.177	0.008	0.854	●
TFMG-250W	<a href="#">9MG250Q3</a>	0.250	.177	0.008	0.854	●

## MILL GROOVING HOLDER

TFM

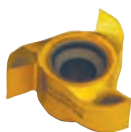


Description	EDP Code	C	L	D	F	Insert Screw
TFM-7-12M-100C	<a href="#">9CMI712M100</a>	Straight shank	100mm	12mm	0.854	SD25
TFM-7-12M-130C	<a href="#">9CMI712M130</a>	Straight shank	130mm	12mm	0.854	SD25
TFM-7-16M-42C	<a href="#">9CMI716M42</a>	42mm	100mm	16mm	0.854	SD25
TFM-7-16M-60C	<a href="#">9CMI716M60</a>	60mm	130mm	16mm	0.854	SD25
TFM-7-16M-85C	<a href="#">9CMI716M85</a>	85mm	160mm	16mm	0.854	SD25
TFM-7-500-394C	<a href="#">9CMI7500394</a>	Straight shank	3.94	0.500	0.854	SD25
TFM-7-500-512C	<a href="#">9CMI7500512</a>	Straight shank	5.12	0.500	0.854	SD25
TFM-7-625-165C	<a href="#">9CMI7625165</a>	1.650	3.94	0.625	0.854	SD25
TFM-7-625-236C	<a href="#">9CMI7625236</a>	2.630	5.12	0.625	0.854	SD25
TFM-7-625-335C	<a href="#">9CMI7625335</a>	3.350	6.30	0.625	0.854	SD25





## Mill Grooving - TFMG



Workpiece Group	Recommended Speed & Feed rate - inch/rev (mm/rev)	
	Cutting Speed (sfpm)	Feed Rate (fpt)
Free Machining Carbon Steels	600 - 700	.010 - .016
Plain Carbon Steels	600 - 700	.010 - .016
Alloy Steels 190-330 HB	350 - 450	.010 - .016
Alloy Steels 330-450 HB	350 - 450	.010 - .016
Martensitic/Ferritic Stainless Steel 400 Series	200 - 400	.010 - .016
Austenitic Stainless 300 Series	350 - 550	.010 - .016
Gray Cast Iron 190-330 HB	300 - 350	.012 - .020
Gray Cast Iron 330-450 HB	300	.012 - .020
Alloy / Ductile Irons	200 - 300	.012 - .020
Free Machining Aluminum Alloys	500 - 2300	.012 - .020
High-Silicon Aluminum Alloys	450 - 900	.012 - .020
Copper / Zinc / Brass	120 - 450	.012 - .020
Non-Metallics	120 - 300	.012 - .020
High Temperature Alloys 200-260 HB	100 - 250	.004 - .010
High Temperature Alloys 260-450 HB	80 - 130	.003 - .008
Titanium Alloys (Ti 6Al-4V)	80 - 130	.003 - .008
Hardened Materials 48-65 HRC	---	---

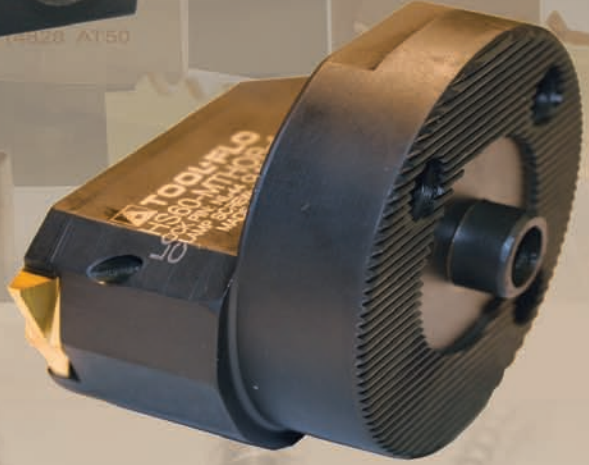
Rigid ▶ Very Rigid\*

\* For not rigid set ups start at .0005 fpt





# TOOL FLO



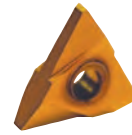
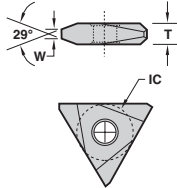
TOOL-FLO  
CR-5B75-4E  
TF22575 G50

TOOL-FLO  
CR-5B75-4E  
TF22575 G50

## ON EDGE



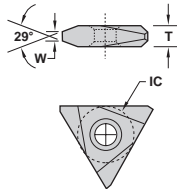
## ACME TNMA Straight hole



Description	EDP Code	TPI	W	IC	T	Uncoated		TIN Coated		AITIN Coated	
						C3	C6H	GP3	GP50	AC3	AC50
TNMA 32 NT 6P	<a href="#">0208060</a>	6	.0566	.375	.127	●	●				●
TNMA 32 NT 8P	<a href="#">0208080</a>	8	.0411	.375	.127	●	●				●
TNMA 32 NT 10P	<a href="#">0208100</a>	10	.0319	.375	.127			●			●
TNMA 32 NT 12P	<a href="#">0208120</a>	12	.0283	.375	.127			●			●
TNMA 32 NT 14P	<a href="#">0208140</a>	14	.0239	.375	.127			●			●
TNMA 32 NT 16P	<a href="#">0208160</a>	16	.0206	.375	.127			●			●
TNMA 43 NT 4P	<a href="#">0239040</a>	4	.0875	.500	.189			●			●
TNMA 43 NT 5P	<a href="#">0239050</a>	5	.0689	.500	.189			●			●
TNMA 43 NT 6P	<a href="#">0239060</a>	6	.0566	.500	.189			●			●
TNMA 43 NT 8P	<a href="#">0239080</a>	8	.0411	.500	.189			●			●
TNMA 43 NT 10P	<a href="#">0239100</a>	10	.0319	.500	.189			●			●
TNMA 43 NT 12P	<a href="#">0239120</a>	12	.0283	.500	.189			●			●
TNMA 43 NT 14P	<a href="#">0239140</a>	14	.0239	.500	.189			●			●
TNMA 43 NT 16P	<a href="#">0239160</a>	16	.0206	.500	.189			●			●
TNMA 54 NT 3P	<a href="#">0251030</a>	3	.1184	.625	.252			●			●
TNMA 54 NT 4P	<a href="#">0251040</a>	4	.0875	.625	.252			●			●
TNMA 54 NT 5P	<a href="#">0251050</a>	5	.0689	.625	.252			●			●
TNMA 55 NT 2.5P	<a href="#">02550250</a>	2.5	.1431	.625	.312			●			●
TNMA 66 NT 2P	<a href="#">0279020</a>	2	.1802	.750	.375			●			●

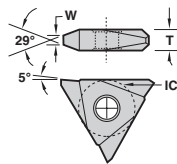
\*Acme threads provided with sharp corners - radius available on a quotation basis.

## TNMC Countersink hole



Description	EDP Code	TPI	W	IC	T	Uncoated		TIN Coated		AITIN Coated	
						C3	C6H	GP3	GP50	AC3	AC50
TNMC 32 NT 6P	<a href="#">0209060</a>	6	.0566	.375	.127			●	●	●	●
TNMC 32 NT 8P	<a href="#">0209080</a>	8	.0411	.375	.127			●	●	●	●
TNMC 32 NT 10P	<a href="#">0209100</a>	10	.0319	.375	.127			●	●	●	●
TNMC 32 NT 12P	<a href="#">0209120</a>	12	.0283	.375	.127			●	●	●	●
TNMC 32 NT 14P	<a href="#">0209140</a>	14	.0239	.375	.127			●	●	●	●
TNMC 32 NT 16P	<a href="#">0209160</a>	16	.0206	.375	.127			●	●	●	●
TNMC 43 NT 4P	<a href="#">0241040</a>	4	.0875	.500	.189			●	●	●	●
TNMC 43 NT 5P	<a href="#">0241050</a>	5	.0689	.500	.189			●	●	●	●
TNMC 43 NT 6P	<a href="#">0241060</a>	6	.0566	.500	.189			●	●	●	●
TNMC 43 NT 8P	<a href="#">0241080</a>	8	.0411	.500	.189			●	●	●	●
TNMC 43 NT 10P	<a href="#">0241100</a>	10	.0319	.500	.189			●	●	●	●
TNMC 43 NT 12P	<a href="#">0241120</a>	12	.0283	.500	.189			●	●	●	●
TNMC 43 NT 14P	<a href="#">0241140</a>	14	.0239	.500	.189			●	●	●	●
TNMC 43 NT 16P	<a href="#">0241160</a>	16	.0206	.500	.189			●	●	●	●
TNMC 54 NT 3P	<a href="#">0253030</a>	3	.1184	.625	.252			●	●	●	●
TNMC 54 NT 4P	<a href="#">0253040</a>	4	.0875	.625	.252			●	●	●	●
TNMC 54 NT 5P	<a href="#">0253050</a>	5	.0689	.625	.252			●	●	●	●
TNMC 55 NT 2.5P	<a href="#">02560250</a>	2.5	.1431	.625	.312			●	●	●	●
TNMC 66 NT 2P	<a href="#">0280020</a>	2	.1802	.750	.375	●		●	●	●	●

## TPMA Straight hole - Positive Rake



Description	EDP Code	TPI	W	IC	T	Uncoated		TIN Coated		AITIN Coated	
						C3	C6H	GP3	GP50	AC3	AC50
TPMA 32 NT 6P	<a href="#">0210060</a>	6	.0566	.375	.127					●	
TPMA 32 NT 8P	<a href="#">0210080</a>	8	.0411	.375	.127					●	
TPMA 32 NT 10P	<a href="#">0210100</a>	10	.0319	.375	.127					●	
TPMA 32 NT 12P	<a href="#">0210120</a>	12	.0283	.375	.127					●	
TPMA 43 NT 4P	<a href="#">0240040</a>	4	.0875	.500	.189					●	
TPMA 43 NT 5P	<a href="#">0240050</a>	5	.0689	.500	.189					●	
TPMA 43 NT 6P	<a href="#">0240060</a>	6	.0566	.500	.189					●	
TPMA 43 NT 8P	<a href="#">0240080</a>	8	.0411	.500	.189					●	

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

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

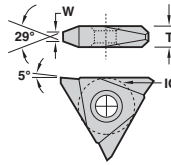
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

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



## ACME TPMC

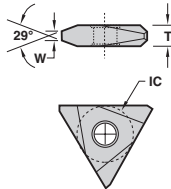
Countersink hole - Positive Rake



Description	EDP Code	TPI	W	IC	T	Coating								
						C3	C6H	GP3	GP50	AC3	AC50			
TPMC 32 NT 6P	0211060	6	.0566	.375	.127									
TPMC 32 NT 8P	0211080	8	.0411	.375	.127									
TPMC 32 NT 10P	0211100	10	.0319	.375	.127									
TPMC 32 NT 12P	0211120	12	.0283	.375	.127									
TPMC 43 NT 4P	<a href="#">0242040</a>	4	.0875	.500	.189									
TPMC 43 NT 5P	<a href="#">0242050</a>	5	.0689	.500	.189									
TPMC 43 NT 6P	<a href="#">0242060</a>	6	.0566	.500	.189									
TPMC 43 NT 8P	<a href="#">0242080</a>	8	.0411	.500	.189									

## STUB ACME TNMA

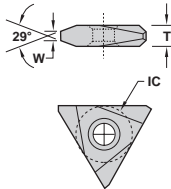
Straight hole



Description	EDP Code	TPI	W	IC	T	Coating								
						C3	C6H	GP3	GP50	AC3	AC50			
TNMA 32 NT 6P STUB	<a href="#">0208061</a>	6	.0652	.375	.127									
TNMA 32 NT 8P STUB	<a href="#">0208081</a>	8	.0476	.375	.127									
TNMA 32 NT 10P STUB	<a href="#">0208101</a>	10	.0370	.375	.127									
TNMA 32 NT 12P STUB	<a href="#">0208121</a>	12	.0326	.375	.127									
TNMA 32 NT 14P STUB	<a href="#">0208141</a>	14	.0276	.375	.127									
TNMA 32 NT 16P STUB	<a href="#">0208161</a>	16	.0238	.375	.127									
TNMA 43 NT 4P STUB	<a href="#">0239041</a>	4	.1004	.500	.189									
TNMA 43 NT 5P STUB	<a href="#">0239051</a>	5	.0793	.500	.189									
TNMA 43 NT 6P STUB	<a href="#">0239061</a>	6	.0652	.500	.189									
TNMA 43 NT 8P STUB	<a href="#">0239081</a>	8	.0476	.500	.189									
TNMA 43 NT 10P STUB	<a href="#">0239101</a>	10	.0370	.500	.189									
TNMA 43 NT 12P STUB	<a href="#">0239121</a>	12	.0326	.500	.189									
TNMA 43 NT 14P STUB	<a href="#">0239141</a>	14	.0276	.500	.189									
TNMA 43 NT 16P STUB	<a href="#">0239161</a>	16	.0238	.500	.189									
TNMA 54 NT 3P STUB	<a href="#">0251031</a>	3	.1356	.625	.252									
TNMA 54 NT 4P STUB	<a href="#">0251041</a>	4	.1004	.625	.252									
TNMA 54 NT 5P STUB	<a href="#">0251051</a>	5	.0793	.625	.252									
TNMA 55 NT 2.5P STUB	<a href="#">02550251</a>	2.5	.1638	.625	.312									
TNMA 66 NT 2P STUB	<a href="#">0279021</a>	2	.2060	.750	.375									

## TNMC

Countersink hole



Description	EDP Code	TPI	W	IC	T	Coating								
						C3	C6H	GP3	GP50	AC3	AC50			
TNMC 32 NT 6P STUB	<a href="#">0209061</a>	6	.0652	.375	.127									
TNMC 32 NT 8P STUB	<a href="#">0209081</a>	8	.0476	.375	.127									
TNMC 32 NT 10P STUB	<a href="#">0209101</a>	10	.0370	.375	.127									
TNMC 32 NT 12P STUB	<a href="#">0209121</a>	12	.0326	.375	.127									
TNMC 32 NT 14P STUB	<a href="#">0209141</a>	14	.0276	.375	.127									
TNMC 32 NT 16P STUB	<a href="#">0209161</a>	16	.0238	.375	.127									
TNMC 43 NT 4P STUB	<a href="#">0241041</a>	4	.1004	.500	.189									
TNMC 43 NT 5P STUB	<a href="#">0241051</a>	5	.0793	.500	.189									
TNMC 43 NT 6P STUB	<a href="#">0241061</a>	6	.0652	.500	.189									
TNMC 43 NT 8P STUB	<a href="#">0241081</a>	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	<a href="#">0253031</a>	3	.1356	.625	.252									
TNMC 54 NT 4P STUB	<a href="#">0253041</a>	4	.1004	.625	.252									
TNMC 54 NT 5P STUB	<a href="#">0253051</a>	5	.0793	.625	.252									
TNMC 66 NT 2P STUB	<a href="#">0280021</a>	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	AC3	AC50
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel						▲

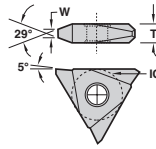




## STUB ACME

### TPMA

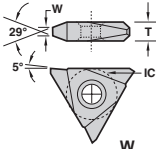
Straight hole - Positive Rake



Description	EDP Code	TPI	W	IC	T	Uncoated		TiN Coated		AlTiN Coated	
						C3	C6H	GP3	GP50	AC3	AC50
TPMA 32 NT 6P STUB	0210061	6	.0652	.375	.127					●	
TPMA 32 NT 8P STUB	0210081	8	.0476	.375	.127					●	
TPMA 32 NT 10P STUB	0210101	10	.0370	.375	.127					●	
TPMA 32 NT 12P STUB	0210121	12	.0326	.375	.127					●	
TPMA 43 NT 4P STUB	<a href="#">0240041</a>	4	.1004	.500	.189					●	
TPMA 43 NT 5P STUB	<a href="#">0240051</a>	5	.0793	.500	.189					●	
TPMA 43 NT 6P STUB	<a href="#">0240061</a>	6	.0652	.500	.189					●	
TPMA 43 NT 8P STUB	<a href="#">0240081</a>	8	.0476	.500	.189					●	

### TPMC

Countersink hole - Positive Rake

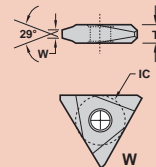


Description	EDP Code	TPI	W	IC	T	Uncoated		TiN Coated		AlTiN Coated	
						C3	C6H	GP3	GP50	AC3	AC50
TPMC 32 NT 6P STUB	0211061	6	.0652	.375	.127					●	
TPMC 32 NT 8P STUB	0211081	8	.0476	.375	.127					●	
TPMC 32 NT 10P STUB	0211101	10	.0370	.375	.127					●	
TPMC 32 NT 12P STUB	0211121	12	.0326	.375	.127					●	
TPMC 43 NT 4P STUB	<a href="#">0242041</a>	4	.1004	.500	.189					●	
TPMC 43 NT 5P STUB	<a href="#">0242051</a>	5	.0793	.500	.189					●	
TPMC 43 NT 6P STUB	<a href="#">0242061</a>	6	.0652	.500	.189					●	
TPMC 43 NT 8P STUB	<a href="#">0242081</a>	8	.0476	.500	.189					●	

## PARTIAL TOPPING ACME

### TNMA (with corner radii)

Straight hole

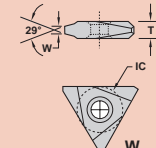


Description	EDP Code	TPI	W	IC	T	Uncoated		TiN Coated		AlTiN Coated	
						C3	C6H	GP3	GP50	AC3	AC50
TNMA 32 NT 6P-PT	0208060PT	6	.0566	.375	.127	●				●	
TNMA 32 NT 8P-PT	<a href="#">0208080PT</a>	8	.0411	.375	.127	●				●	
TNMA 32 NT 10P-PT	<a href="#">0208100PT</a>	10	.0319	.375	.127			●		●	
TNMA 32 NT 12P-PT	<a href="#">0208120PT</a>	12	.0283	.375	.127			●		●	
TNMA 32 NT 14P-PT	<a href="#">0208140PT</a>	14	.0239	.375	.127			●		●	
TNMA 32 NT 16P-PT	<a href="#">0208160PT</a>	16	.0206	.375	.127			●		●	
TNMA 43 NT 4P-PT	0239040PT	4	.0875	.500	.189			●		●	
TNMA 43 NT 5P-PT	<a href="#">0239050PT</a>	5	.0689	.500	.189			●		●	
TNMA 43 NT 6P-PT	<a href="#">0239060PT</a>	6	.0566	.500	.189			●		●	
TNMA 43 NT 8P-PT	<a href="#">0239080PT</a>	8	.0411	.500	.189			●		●	
TNMA 43 NT 10P-PT	<a href="#">0239100PT</a>	10	.0319	.500	.189			●		●	
TNMA 43 NT 12P-PT	<a href="#">0239120PT</a>	12	.0283	.500	.189			●		●	
TNMA 43 NT 14P-PT	<a href="#">0239140PT</a>	14	.0239	.500	.189			●		●	
TNMA 43 NT 16P-PT	<a href="#">0239160PT</a>	16	.0206	.500	.189			●		●	
TNMA 54 NT 3P-PT	<a href="#">0251030PT</a>	3	.1184	.625	.252			●		●	
TNMA 54 NT 4P-PT	<a href="#">0251040PT</a>	4	.0875	.625	.252			●		●	
TNMA 54 NT 5P-PT	<a href="#">0251050PT</a>	5	.0689	.625	.252			●		●	
TNMA 55 NT 2.5P-PT	02550250PT	2.5	.1431	.625	.312			●		●	
TNMA 66 NT 2P-PT	<a href="#">0279020PT</a>	2	.1802	.750	.375			●		●	

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

### TNMC (with corner radii)

Countersink hole



Description	EDP Code	TPI	W	IC	T	Uncoated		TiN Coated		AlTiN Coated	
						C3	C6H	GP3	GP50	AC3	AC50
TNMC 32 NT 6P-PT	0209060PT	6	.0566	.375	.127			●		●	
TNMC 32 NT 8P-PT	<a href="#">0209080PT</a>	8	.0411	.375	.127			●		●	
TNMC 32 NT 10P-PT	<a href="#">0209100PT</a>	10	.0319	.375	.127			●		●	
TNMC 32 NT 12P-PT	<a href="#">0209120PT</a>	12	.0283	.375	.127			●		●	
TNMC 32 NT 14P-PT	<a href="#">0209140PT</a>	14	.0239	.375	.127			●		●	
TNMC 32 NT 16P-PT	0209160PT	16	.0206	.375	.127			●		●	
TNMC 43 NT 4P-PT	0241040PT	4	.0875	.500	.189			●		●	
TNMC 43 NT 5P-PT	<a href="#">0241050PT</a>	5	.0689	.500	.189			●		●	
TNMC 43 NT 6P-PT	<a href="#">0241060PT</a>	6	.0566	.500	.189			●		●	
TNMC 43 NT 8P-PT	<a href="#">0241080PT</a>	8	.0411	.500	.189			●		●	
TNMC 43 NT 10P-PT	<a href="#">0241100PT</a>	10	.0319	.500	.189			●		●	
TNMC 43 NT 12P-PT	<a href="#">0241120PT</a>	12	.0283	.500	.189			●		●	
TNMC 43 NT 14P-PT	<a href="#">0241140PT</a>	14	.0239	.500	.189			●		●	
TNMC 43 NT 16P-PT	<a href="#">0241160PT</a>	16	.0206	.500	.189			●		●	
TNMC 54 NT 3P-PT	<a href="#">0253030PT</a>	3	.1184	.625	.252			●		●	
TNMC 54 NT 4P-PT	<a href="#">0253040PT</a>	4	.0875	.625	.252			●		●	
TNMC 54 NT 5P-PT	<a href="#">0253050PT</a>	5	.0689	.625	.252			●		●	
TNMC 55 NT 2.5P-PT	02560250PT	2.5	.1431	.625	.312			●		●	
TNMC 66 NT 2P-PT	<a href="#">0280020PT</a>	2	.1802	.750	.375			●		●	

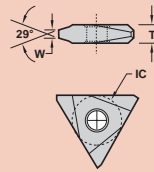


# ON-EDGE

## PARTIAL TOPPING STUB ACME

TNMA (with corner radii)

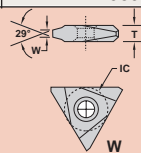
Straight hole



Description	EDP Code	TPI	W	IC	T	Coating					
						C3	C6H	GP3	GP50	AC3	AC50
TNMA 32 NT 6P STUB-PT	<a href="#">0208061PT</a>	6	.0652	.375	.127						
TNMA 32 NT 8P STUB-PT	<a href="#">0208081PT</a>	8	.0476	.375	.127						
TNMA 32 NT 10P STUB-PT	<a href="#">0208101PT</a>	10	.0370	.375	.127						
TNMA 32 NT 12P STUB-PT	<a href="#">0208121PT</a>	12	.0326	.375	.127						
TNMA 32 NT 14P STUB-PT	<a href="#">0208141PT</a>	14	.0276	.375	.127						
TNMA 32 NT 16P STUB-PT	<a href="#">0208161PT</a>	16	.0238	.375	.127						
TNMA 43 NT 4P STUB-PT	<a href="#">0239041PT</a>	4	.1004	.500	.189						
TNMA 43 NT 5P STUB-PT	<a href="#">0239051PT</a>	5	.0793	.500	.189						
TNMA 43 NT 6P STUB-PT	<a href="#">0239061PT</a>	6	.0652	.500	.189						
TNMA 43 NT 8P STUB-PT	<a href="#">0239081PT</a>	8	.0476	.500	.189						
TNMA 43 NT 10P STUB-PT	<a href="#">0239101PT</a>	10	.0370	.500	.189						
TNMA 43 NT 12P STUB-PT	<a href="#">0239121PT</a>	12	.0326	.500	.189						
TNMA 43 NT 14P STUB-PT	<a href="#">0239141PT</a>	14	.0276	.500	.189						
TNMA 43 NT 16P STUB-PT	<a href="#">0239161PT</a>	16	.0238	.500	.189						
TNMA 54 NT 3P STUB-PT	<a href="#">0251031PT</a>	3	.1356	.625	.252						
TNMA 54 NT 4P STUB-PT	<a href="#">0251041PT</a>	4	.1004	.625	.252						
TNMA 54 NT 5P STUB-PT	<a href="#">0251051PT</a>	5	.0793	.625	.252						
TNMA 55 NT 2.5P STUB-PT	<a href="#">02550251PT</a>	2.5	.1638	.625	.312						
TNMA 66 NT 2P STUB-PT	<a href="#">0279021PT</a>	2	.2060	.750	.375						

TNMC (with corner radii)

Countersink hole

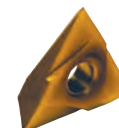
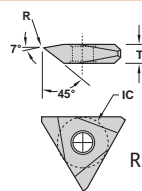
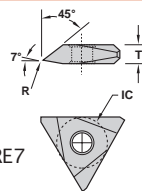


Description	EDP Code	TPI	W	IC	T	Coating					
						C3	C6H	GP3	GP50	AC3	AC50
TNMC 32 NT 6P STUB-PT	<a href="#">0209061PT</a>	6	.0652	.375	.127						
TNMC 32 NT 8P STUB-PT	<a href="#">0209081PT</a>	8	.0476	.375	.127						
TNMC 32 NT 10P STUB-PT	<a href="#">0209101PT</a>	10	.0370	.375	.127						
TNMC 32 NT 12P STUB-PT	<a href="#">0209121PT</a>	12	.0326	.375	.127						
TNMC 32 NT 14P STUB-PT	<a href="#">0209141PT</a>	14	.0276	.375	.127						
TNMC 32 NT 16P STUB-PT	<a href="#">0209161PT</a>	16	.0238	.375	.127						
TNMC 43 NT 4P STUB-PT	<a href="#">0241041PT</a>	4	.1004	.500	.189						
TNMC 43 NT 5P STUB-PT	<a href="#">0241051PT</a>	5	.0793	.500	.189						
TNMC 43 NT 6P STUB-PT	<a href="#">0241061PT</a>	6	.0652	.500	.189						
TNMC 43 NT 8P STUB-PT	<a href="#">0241081PT</a>	8	.0476	.500	.189						
TNMC 43 NT 10P STUB-PT	<a href="#">0241101PT</a>	10	.0370	.500	.189						
TNMC 43 NT 12P STUB-PT	<a href="#">0241121PT</a>	12	.0326	.500	.189						
TNMC 43 NT 14P STUB-PT	<a href="#">0241141PT</a>	14	.0276	.500	.189						
TNMC 43 NT 16P STUB-PT	<a href="#">0241161PT</a>	16	.0238	.500	.189						
TNMC 54 NT 3P STUB-PT	<a href="#">0253031PT</a>	3	.1356	.625	.252						
TNMC 54 NT 4P STUB-PT	<a href="#">0253041PT</a>	4	.1004	.625	.252						
TNMC 54 NT 5P STUB-PT	<a href="#">0253051PT</a>	5	.0793	.625	.252						
TNMC 66 NT 2P STUB-PT	<a href="#">0280021PT</a>	2	.2060	.750	.375						

## AMERICAN STANDARD BUTTRESS

TNMA & TNMC

For thread specifications & applications see page

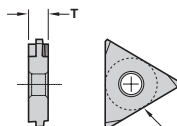


Description	EDP Code	TPI	R	IC	T	Lead Angle	Coating					
							C3	C6H	GP3	GP50	AC3	AC50
TNMA 43 ASB RI45/RE7	<a href="#">403900R008</a>	8-16	.007-.009	.500	.189	45° Internal/7° External						
TNMA 43 ASB RI7/RE45	<a href="#">393900R008</a>	8-16	.007-.009	.500	.189	7° Internal/45° External						
TNMA 54 ASB RI45/RE7	<a href="#">405100R010</a>	4-6	.009-.011	.625	.252	45° Internal/7° External						
TNMA 54 ASB RI7/RE45	<a href="#">395100R010</a>	4-6	.009-.011	.625	.252	7° Internal/45° External						
TNMC 43 ASB RI45/RE7	<a href="#">404100R008</a>	8-16	.007-.009	.500	.189	45° Internal/7° External						
TNMC 43 ASB RI7/RE45	<a href="#">394100R008</a>	8-16	.007-.009	.500	.189	7° Internal/45° External						
TNMC 54 ASB RI45/RE7	<a href="#">405300R010</a>	4-6	.009-.011	.625	.252	45° Internal/7° External						
TNMC 54 ASB RI7/RE45	<a href="#">395300R010</a>	4-6	.009-.011	.625	.252	7° Internal/45° External						

## API BUTTRESS

TNMA

Straight hole



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Coating					
							C3	C6H	GP3	GP50	AC3	AC50
TNMA 43 8B75 EXT-FC*	<a href="#">21394F</a>	8	.750	.500	.189	U.S. Improved Buttress						
TNMA 44 5B75 EXT-FC	<a href="#">16434F</a>	5	.750	.500	.252	4-1/2 - 13-3/8						
TNMA 54 5B1 EXT-FC	<a href="#">17514F</a>	5	1.000	.625	.252	16 and larger						
TNMA 54 5B75 EXT-FC	<a href="#">16514F</a>	5	.750	.625	.252	4-1/2 - 13-3/8						
TNMA 43 8B75 INT-FC	<a href="#">21398F</a>	8	.750	.500	.189	U.S. Improved Buttress						
TNMA 44 5B75 INT-FC	<a href="#">16438F</a>	5	.750	.500	.252	4-1/2 - 13-3/8						
TNMA 54 5B1 INT-FC	<a href="#">17518F</a>	5	1.000	.625	.252	16 and larger						
TNMA 54 5B75 INT-FC	<a href="#">16518F</a>	5	.750	.625	.252	4-1/2 - 13-3/8						

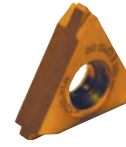
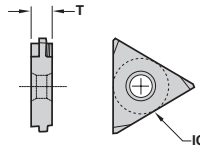
\*FC designates flank clearance.



## API BUTTRESS

### TNMC

Countersink hole



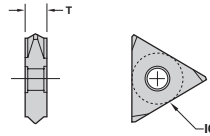
Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated		TIN Coated		AlTiN Coated	
							C3	C6H	GP3	GP50	AC3	AC50
TNMC 43 8B75 EXT-FC*	21414F	8	.750	.500	.189	U.S. Improved Buttress						
TNMC 54 5B1 EXT-FC	17534E	5	1.000	.625	.252	16 and larger						
TNMC 54 5B75 EXT-FC	16534E	5	.750	.625	.252	4-1/2 - 13-3/8						
TNMC 43 8B75 INT-FC	21418F	8	.750	.500	.189	U.S. Improved Buttress						
TNMC 54 5B1 INT-FC	17538E	5	1.000	.625	.252	16 and larger						
TNMC 54 5B75 INT-FC	16538E	5	.750	.625	.252	4-1/2 - 13-3/8						

\*FC designates flank clearance.

## API HUGHES H90

### TNMA

Straight hole

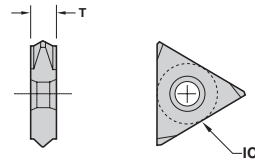


Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated		TIN Coated		AlTiN Coated	
							C3	C6H	GP3	GP50	AC3	AC50
TNMA 55 H902 EXT	28554	3.5	2.000	.625	.312	3-1/2 - 6-5/8 H90						
TNMA 55 H903 EXT	29554	3.5	3.000	.625	.312	7 - 8-5/8 H90						
TNMA 56 H90S EXT	27Q14	3	1.250	.625	.375	2-3/8 - 3-1/2 Slimline						
TNMA 55 H902 INT	28558	3.5	2.000	.625	.312	3-1/2 - 6-5/8 H90						
TNMA 55 H903 INT	29558	3.5	3.000	.625	.312	7 - 8-5/8 H90						
TNMA 56 H90S INT	27Q18	3	1.250	.625	.375	2-3/8 - 3-1/2 Slimline						

## API HUGHES H90

### TNMC

Countersink hole

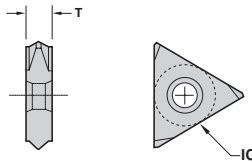


Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated		TIN Coated		AlTiN Coated	
							C3	C6H	GP3	GP50	AC3	AC50
TNMC 55 H902 EXT	28564	3.5	2.000	.625	.312	3-1/2 - 6-5/8 H90						
TNMC 55 H903 EXT	29564	3.5	3.000	.625	.312	7 - 8-5/8 H90						
TNMC 56 H90S EXT	27Q34	3	1.250	.625	.375	2-3/8 - 3-1/2 Slimline						
TNMC 55 H902 INT	28568	3.5	2.000	.625	.312	3-1/2 - 6-5/8 H90						
TNMC 55 H903 INT	29568	3.5	3.000	.625	.312	7 - 8-5/8 H90						
TNMC 56 H90S INT	27Q38	3	1.250	.625	.375	2-3/8 - 3-1/2 Slimline						

## API ROTARY SHOULDER CONNECTION

### TNMA

Straight hole



Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Uncoated		TIN Coated		AlTiN Coated	
							C3	C6H	GP3	GP50	AC3	AC50
TNMA 54 530 EXT	13514	5	3	.625	.252	3-1/2 FH, 2-3/8 - 4-1/2 Reg.						
TNMA 55 425 EXT	09554	4	2	.625	.312	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.						
TNMA 55 428 EXT	10554	4	2	.625	.312	NC23 - NC50, 2-3/8 - 5-1/2						
TNMA 55 42F EXT*	14554	4	2	.625	.312	VO.065*						
TNMA 55 435 EXT	11554	4	3	.625	.312	5-1/2, 7-5/8, 8-5/8 Reg.						
TNMA 55 438 EXT	12554	4	3	.625	.312	NC56 - NC71						
TNMA 55 530 EXT	13554	5	3	.625	.312	3-1/2 FH, 2-3/8 - 4-1/2 Reg.						
TNMA 55 4PAC EXT	15554	4	1.5	.625	.312	American Open Hole						
TNMA 54 530 INT	13518	5	3	.625	.252	3-1/2 FH, 2-3/8 - 4-1/2 Reg.						
TNMA 55 425 INT	09558	4	2	.625	.312	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.						
TNMA 55 428 INT	10558	4	2	.625	.312	NC23 - NC50, 2-3/8 - 5-1/2						
TNMA 55 42F INT*	14558	4	2	.625	.312	VO.065*						
TNMA 55 435 INT	11558	4	3	.625	.312	5-1/2, 7-5/8, 8-5/8 Reg.						
TNMA 55 438 INT	12558	4	3	.625	.312	NC56 - NC71						
TNMA 55 530 INT	13558	5	3	.625	.312	3-1/2 FH, 2-3/8 - 4-1/2 Reg.						
TNMA 55 4PAC INT	15558	4	1.5	.625	.312	American Open Hole						

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

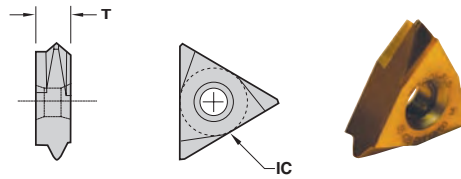


# ON-EDGE

## API ROTARY SHOULDER CONNECTION

TNMC

Countersink hole



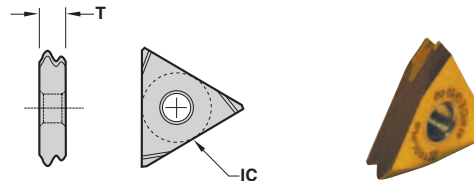
Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Coating						
							C3	C6H	GP3	GP50	AC3	AC50	
TNMC 54 530 EXT	13534	5	3	.625	.252	3-1/2 FH, 2-3/8 - 4-1/2 Reg.							
TNMC 55 425 EXT	<a href="#">09564</a>	4	2	.625	.312	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.				●			
TNMC 55 428 EXT	<a href="#">10564</a>	4	2	.625	.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	<a href="#">12564</a>	4	3	.625	.312	NC56 - NC71				●			
TNMC 55 530 EXT	<a href="#">13564</a>	5	3	.625	.312	3-1/2 FH, 2-3/8 - 4-1/2 Reg.				●			
TNMC 55 4PAC EXT	<a href="#">15564</a>	4	1.5	.625	.312	American Open Hole				●			
TNMC 54 530 INT	13538	5	3	.625	.252	3-1/2 FH, 2-3/8 - 4-1/2 Reg.							
TNMC 55 425 INT	<a href="#">09568</a>	4	2	.625	.312	5-1/2 FH, 6-5/8 FH, 6-5/8 Reg.				●			
TNMC 55 428 INT	<a href="#">10568</a>	4	2	.625	.312	NC23 - NC50, 2-3/8 - 5-1/2				●			
TNMC 55 42F INT*	14568	4	2	.625	.312	VO.065*							
TNMC 55 435 INT	11568	4	3	.625	.312	5-1/2, 7-5/8, 8-5/8 Reg.				●			
TNMC 55 438 INT	<a href="#">12568</a>	4	3	.625	.312	NC56 - NC71				●			
TNMC 55 530 INT	<a href="#">13568</a>	5	3	.625	.312	3-1/2 FH, 2-3/8 - 4-1/2 Reg.				●			
TNMC 55 4PAC INT	<a href="#">15568</a>	4	1.5	.625	.312	American Open Hole				●			

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

## API ROUND

TNMA

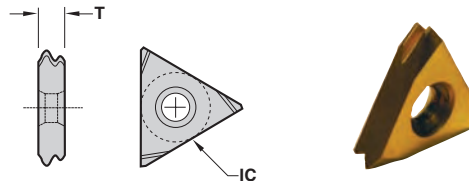
Straight hole



Description	EDP Code	TPI	TPF	IC	T	Coating							
						C3	C6H	GP3	GP50	AC3	AC50		
TNMA 43 8RD EXT	<a href="#">32394</a>	8	.750	.500	.189								
TNMA 43 10RD EXT	<a href="#">34394</a>	10	.750	.500	.189								
TNMA 54 8RD EXT	<a href="#">32514</a>	8	.750	.625	.252								
TNMA 43 8RD INT	<a href="#">32398</a>	8	.750	.500	.189								
TNMA 43 10RD INT	<a href="#">34398</a>	10	.750	.500	.189								
TNMA 54 8RD INT	<a href="#">32518</a>	8	.750	.625	.252								

TNMC

Countersink hole

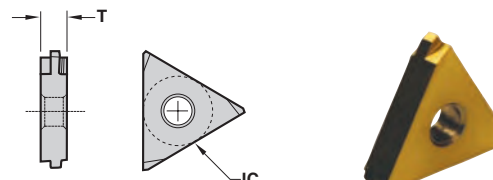


Description	EDP Code	TPI	TPF	IC	T	Coating							
						C3	C6H	GP3	GP50	AC3	AC50		
TNMC 43 8RD EXT	<a href="#">32414</a>	8	.750	.500	.189								
TNMC 43 10RD EXT	<a href="#">34414</a>	10	.750	.500	.189								
TNMC 54 8RD EXT	<a href="#">32534</a>	8	.750	.625	.252								
TNMC 43 8RD INT	<a href="#">32418</a>	8	.750	.500	.189								
TNMC 43 10RD INT	<a href="#">34418</a>	10	.750	.500	.189								
TNMC 54 8RD INT	<a href="#">32538</a>	8	.750	.625	.252								

## API VAM

TNMA

Straight hole



Description	EDP Code	TPI	TPF	IC	T	Coating							
						C3	C6H	GP3	GP50	AC3	AC50		
TNMA 43 6VAM EXT	24394	6	.750	.500	.189								
TNMA 43 8VAM EXT	25394	8	.750	.500	.189								
TNMA 54 5VAM EXT	23514	5	.750	.625	.252								
TNMA 43 6VAM INT	24398	6	.750	.500	.189								
TNMA 43 8VAM INT	25398	8	.750	.500	.189								
TNMA 54 5VAM INT	23518	5	.750	.625	.252								

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- ▲ Recommended grade under general conditions.

Cast Iron  
Non-Ferrous  
Stainless/High Temp  
Steel

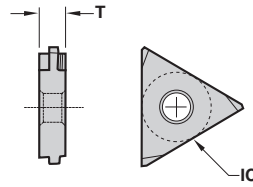




## API X-LINE

### TNMA

Straight hole

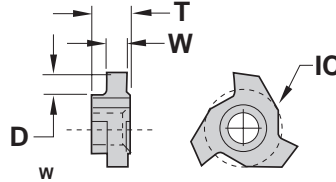


Description	EDP Code	TPI	TPF	IC	T	Conn. No.	Coatings							
							C3	C6H	GP3	GP50	AC3	AC50		
TNMA 54 5XL12 EXT	18514	5	1.250	.625	.252	8-5/8 - 10-3/4								
TNMA 54 6XL15 EXT	19514	6	1.500	.625	.252	5 - 7-5/8				●				
TNMA 54 6XL75 EXT	20514	6	.750	.625	.252	-				●				
TNMA 54 5XL12 INT	18518	5	1.250	.625	.252	8-5/8 - 10-3/4								
TNMA 54 6XL15 INT	19518	6	1.500	.625	.252	5 - 7-5/8				●				
TNMA 54 6XL75 INT	20518	6	.750	.625	.252	-				●				

## GROOVING

### TNEB

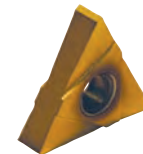
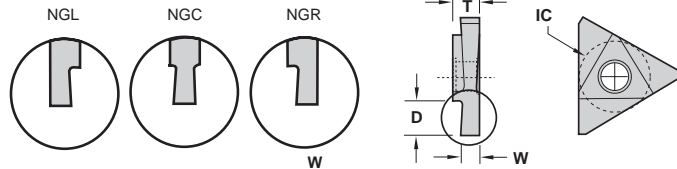
Small Diameter



Description	EDP Code	Inch	Metric	D	IC	T	Coatings							
							C3	C6H	GP3	GP5	AC3	AC50		
TNEB 2.52 NGL-40 W.125	<a href="#">LD512500</a>	.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	<a href="#">L1212500</a>	.125	3,18	.120	.375	.187				●				
TNEB 33 NGL-40 W.187	<a href="#">L1218700</a>	.187	4,75	.120	.375	.187				●				

### TNMA

Straight hole



Description	EDP Code	Inch	Metric	D	IC	T	Coatings						
							C25	C6H	GP3	GP50	AC3	AC50	
TNMA 32 NGC W.062	C0806200	.062	1,57	.150	.375	.127			●	●		●	
TNMA 32 NGC W.094	C0809400	.094	2,39	.150	.375	.127			●	●		●	
TNMA 32 NG W.125	<a href="#">C0912500</a>	.125	3,18	.150	.375	.127			●	●		●	
TNMA 33 NG W.187	CK318700	.187	4,75	.150	.375	.189				●			
TNMA 43 NGC W.062	<a href="#">C3906200</a>	.062	1,57	.156	.500	.189			●	●		●	
TNMA 43 NGC W.094	<a href="#">C3909400</a>	.094	2,39	.215	.500	.189			●	●		●	
TNMA 43 NGC W.125	<a href="#">C3912500</a>	.125	3,18	.215	.500	.189			●	●		●	
TNMA 43 NGC W.156	<a href="#">C3915600</a>	.156	3,96	.215	.500	.189			●	●		●	
TNMA 43 NG W.187	<a href="#">C3918700</a>	.187	4,75	.215	.500	.189			●	●		●	
TNMA 44 NG W.250	C4325000	.250	6,35	.215	.500	.250		●		●			
TNMA 54 NGC W.125	<a href="#">C5112500</a>	.125	3,18	.275	.625	.252			●	●		●	
TNMA 54 NGC W.187	<a href="#">C5118700</a>	.187	4,75	.275	.625	.252			●	●		●	
TNMA 54 NG W.250	<a href="#">C5125000</a>	.250	6,35	.275	.625	.252			●	●		●	
TNMA 55 NG W.312	C5531200	.312	7,92	.275	.625	.312							
TNMA 64 NG W.250	C7425000	.250	6,35	.335	.750	.250				●			
TNMA 66 NG W.375	C7937500	.375	9,53	.335	.750	.375				●			
TNMA 67 NG W.437	C8343700	.437	11,10	.335	.750	.437				●			
TNMA 69 NG W.562	C8856200	.562	14,27	.335	.750	.562				●			
TNMA 32 NGL W.062	L0806200	.062	1,57	.150	.375	.127				●			
TNMA 32 NGL W.094	L0809400	.094	2,39	.150	.375	.127				●			
TNMA 43 NGL W.062	<a href="#">L3906200</a>	.062	1,57	.156	.500	.189				●			
TNMA 43 NGL W.094	<a href="#">L3909400</a>	.094	2,39	.215	.500	.189				●			
TNMA 43 NGL W.125	<a href="#">L3912500</a>	.125	3,18	.215	.500	.189				●			
TNMA 43 NGL W.156	L3915600	.156	3,96	.215	.500	.189				●			
TNMA 54 NGL W.125	<a href="#">L5112500</a>	.125	3,18	.275	.625	.252				●			
TNMA 54 NGL W.187	<a href="#">L5118700</a>	.187	4,75	.275	.625	.252				●			●
TNMA 32 NGR W.062	<a href="#">R0806200</a>	.062	1,57	.150	.375	.127			●	●		●	
TNMA 32 NGR W.094	<a href="#">R0809400</a>	.094	2,39	.150	.375	.127			●	●		●	
TNMA 43 NGR W.062	<a href="#">R3906200</a>	.062	1,57	.156	.500	.189			●	●		●	
TNMA 43 NGR W.094	<a href="#">R3909400</a>	.094	2,39	.215	.500	.189			●	●		●	
TNMA 43 NGR W.125	<a href="#">R3912500</a>	.125	3,18	.215	.500	.189			●	●		●	
TNMA 43 NGR W.156	<a href="#">R3915600</a>	.156	3,96	.215	.500	.189			●	●		●	
TNMA 54 NGR W.125	<a href="#">R5112500</a>	.125	3,18	.275	.625	.252				●			●
TNMA 54 NGR W.187	<a href="#">R5118700</a>	.187	4,75	.275	.625	.252				●			●

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▲ Recommended grade under general conditions.

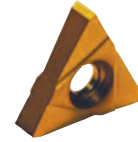
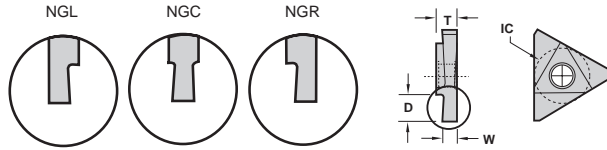
Material	C3	C6H	GP3	GP50	AC3	AC50
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel					▲	●



## GROOVING

### TNMC

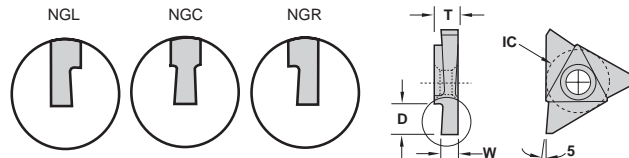
Countersink hole



Description	EDP Code	Inch	Metric	D	IC	T	Coating					
							C3	C6H	GP3	GP50	AC3	AC50
TNMC 32 NGC W.062	<a href="#">C0906200</a>	.062	1,57	.150	.375	.127						
TNMC 32 NGC W.094	<a href="#">C0909400</a>	.094	2,39	.150	.375	.127			●	●	●	●
TNMC 32 NG W.125	<a href="#">C0912500</a>	.125	3,18	.150	.375	.127			●	●	●	●
TNMC 33 NG W.187	<a href="#">CK818700</a>	.187	4,75	.150	.375	.189				●	●	●
TNMC 43 NGC W.062	<a href="#">C4106200</a>	.062	1,57	.156	.500	.189			●	●	●	●
TNMC 43 NGC W.094	<a href="#">C4109400</a>	.094	2,39	.215	.500	.189			●	●	●	●
TNMC 43 NGC W.125	<a href="#">C4112500</a>	.125	3,18	.215	.500	.189			●	●	●	●
TNMC 43 NGC W.156	<a href="#">C4115600</a>	.156	3,96	.215	.500	.189			●	●	●	●
TNMC 43 NG W.187	<a href="#">C4118700</a>	.187	4,75	.215	.500	.189			●	●	●	●
TNMC 44 NG W.250	<a href="#">C4425000</a>	.250	6,35	.215	.500	.250				●	●	●
TNMC 54 NGC W.125	<a href="#">C5312500</a>	.125	3,18	.275	.625	.252			●	●	●	●
TNMC 54 NGC W.187	<a href="#">C5318700</a>	.187	4,75	.275	.625	.252			●	●	●	●
TNMC 54 NG W.250	<a href="#">C5325000</a>	.250	6,35	.275	.625	.252	●		●	●	●	●
TNMC 55 NG W.312	<a href="#">C5631200</a>	.312	7,92	.275	.625	.312				●	●	●
TNMC 64 NG W.250	<a href="#">C7525000</a>	.250	6,35	.335	.750	.250				●	●	●
TNMC 66 NG W.375	<a href="#">C8037500</a>	.375	9,53	.335	.750	.375				●	●	●
TNMC 67 NG W.437	<a href="#">C8443700</a>	.437	11,10	.335	.750	.437				●	●	●
TNMC 69 NG W.562	<a href="#">C8956200</a>	.562	14,27	.335	.750	.562				●	●	●
TNMC 32 NGL W.062	<a href="#">L0906200</a>	.062	1,57	.150	.375	.127				●	●	●
TNMC 32 NGL W.094	<a href="#">L0909400</a>	.094	2,39	.150	.375	.127				●	●	●
TNMC 43 NGL W.062	<a href="#">L4106200</a>	.062	1,57	.156	.500	.189				●	●	●
TNMC 43 NGL W.094	<a href="#">L4109400</a>	.094	2,39	.215	.500	.189				●	●	●
TNMC 43 NGL W.125	<a href="#">L4112500</a>	.125	3,18	.215	.500	.189				●	●	●
TNMC 43 NGL W.156	<a href="#">L4115600</a>	.156	3,96	.215	.500	.189				●	●	●
TNMC 54 NGL W.125	<a href="#">L5312500</a>	.125	3,18	.275	.625	.252				●	●	●
TNMC 54 NGL W.187	<a href="#">L5318700</a>	.187	4,75	.275	.625	.252				●	●	●
TNMC 32 NGR W.062	<a href="#">R0906200</a>	.062	1,57	.150	.375	.127			●	●	●	●
TNMC 32 NGR W.094	<a href="#">R0909400</a>	.094	2,39	.150	.375	.127			●	●	●	●
TNMC 43 NGR W.062	<a href="#">R4106200</a>	.062	1,57	.156	.500	.189			●	●	●	●
TNMC 43 NGR W.094	<a href="#">R4109400</a>	.094	2,39	.215	.500	.189			●	●	●	●
TNMC 43 NGR W.125	<a href="#">R4112500</a>	.125	3,18	.215	.500	.189			●	●	●	●
TNMC 43 NGR W.156	<a href="#">R4115600</a>	.156	3,96	.215	.500	.189			●	●	●	●
TNMC 54 NGR W.125	<a href="#">R5312500</a>	.125	3,18	.275	.625	.252			●	●	●	●
TNMC 54 NGR W.187	<a href="#">R5318700</a>	.187	4,75	.275	.625	.252			●	●	●	●

### TPMA

Straight hole - Positive Rake



Description	EDP Code	Inch	Metric	D	IC	T	Coating					
							C3	C6H	GP3	GP50	AC3	AC50
TPMA 32 NGC W.062	<a href="#">C1006200</a>	.062	1,57	.150	.375	.127						
TPMA 32 NGC W.094	<a href="#">C1009400</a>	.094	2,39	.150	.375	.127				●	●	●
TPMA 32 NG W.125	<a href="#">C1012500</a>	.125	3,18	.150	.375	.127				●	●	●
TPMA 33 NG W.187	<a href="#">CL318700</a>	.187	4,75	.150	.375	.189				●	●	●
TPMA 43 NGC W.062	<a href="#">C4006200</a>	.062	1,57	.156	.500	.189				●	●	●
TPMA 43 NGC W.094	<a href="#">C4009400</a>	.094	2,39	.215	.500	.189				●	●	●
TPMA 43 NGC W.125	<a href="#">C4012500</a>	.125	3,18	.215	.500	.189				●	●	●
TPMA 43 NG W.187	<a href="#">C4018700</a>	.187	4,75	.215	.500	.189				●	●	●
TPMA 44 NG W.250	<a href="#">C4525000</a>	.250	6,35	.215	.500	.250				●	●	●
TPMA 54 NG W.250	<a href="#">C5225000</a>	.250	6,35	.275	.625	.252				●	●	●
TPMA 55 NG W.312	<a href="#">C5631200</a>	.312	7,92	.275	.625	.312				●	●	●
TPMA 32 NGR W.062	<a href="#">R1006200</a>	.062	1,57	.150	.375	.127				●	●	●
TPMA 32 NGR W.094	<a href="#">R1009400</a>	.094	2,39	.150	.375	.127				●	●	●
TPMA 43 NGR W.062	<a href="#">R4006200</a>	.062	1,57	.156	.500	.189				●	●	●
TPMA 43 NGR W.094	<a href="#">R4009400</a>	.094	2,39	.215	.500	.189				●	●	●
TPMA 43 NGR W.125	<a href="#">R4012500</a>	.125	3,18	.215	.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	C3	C6H	GP3	GP50	AC3	AC50
Cast Iron			●			
Non-Ferrous			●			
Stainless/High Temp			●			
Steel			▲			●

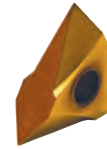
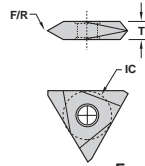




# 60° V-THREADING

## TNMA

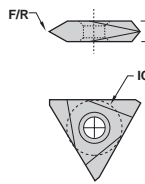
Straight hole



Description	EDP Code	TPI	F or R	IC	T	Coating									
						Uncoated	TIN Coated	AITIN Coated	C25	GP4	GP3	GP50	AC3	AC50	
TNMA 32 NV	<a href="#">0108000</a>	8-36	.003/.005 Flat	.375	.127										
TNMA 43 NV	<a href="#">0139000</a>	5-24	.005/.007 Flat	.500	.189	●									
TNMA 43 NV .010R	<a href="#">0139R10</a>	4-20	.010 Radius	.500	.189										
TNMA 44 NV	<a href="#">0143000</a>	4-24	.005/.009 Flat	.500	.250										
TNMA 54 NV	<a href="#">0151000</a>	4-20	.008/.010 Flat	.625	.252	●	●								
TNMA 54 NV .010R	<a href="#">0151R10</a>	4-20	.010 Radius	.625	.252										
TNMA 54 NV .020R	<a href="#">0151R20</a>	4-12	.020 Radius	.625	.252										
TNMA 54 NV .025R	<a href="#">0151R25</a>	4-8	.025 Radius	.625	.252										
TNMA 54 NV .038R	<a href="#">0151R38</a>	4-6	.038 Radius	.625	.252										
TNMA 64 NV	<a href="#">0174000</a>	4-20	.008/.010 Flat	.750	.252										
TNMA 66 NV	<a href="#">0179000</a>	3-12	.008/.010 Flat	.750	.375										

## TNMC

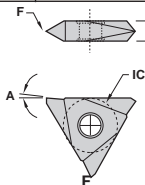
Countersink hole



Description	EDP Code	TPI	F or R	IC	T	Coating									
						Uncoated	TIN Coated	AITIN Coated	C25	GP4	GP3	GP50	AC3	AC50	
TNMC 32 NV	<a href="#">0109000</a>	8-36	.003/.005 Flat	.375	.127	●									
TNMC 43 NV	<a href="#">0141000</a>	5-24	.005/.007 Flat	.500	.189	●									
TNMC 43 NV .010R	<a href="#">0141R10</a>	4-20	.010 Radius	.500	.189										
TNMC 44 NV	<a href="#">0144000</a>	4-24	.003/.005 Flat	.500	.250										
TNMC 54 NV	<a href="#">0153000</a>	4-20	.008/.010 Flat	.625	.252	●	●								
TNMC 54 NV .010R	<a href="#">0153R10</a>	4-20	.010 Radius	.625	.252										
TNMC 54 NV .020R	<a href="#">0153R20</a>	4-12	.020 Radius	.625	.252										
TNMC 54 NV .025R	<a href="#">0153R25</a>	4-8	.025 Radius	.625	.252										
TNMC 54 NV .038R	<a href="#">0153R38</a>	4-6	.038 Radius	.625	.252										
TNMC 64 NV	<a href="#">0175000</a>	4-20	.008/.010 Flat	.750	.252										
TNMC 66 NV	<a href="#">0180000</a>	3-12	.008/.010 Flat	.750	.375										

## TPMA

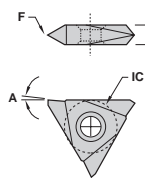
Straight hole - Positive Rake



Description	EDP Code	TPI	F	A°	IC	T	Coating								
							Uncoated	TIN Coated	AITIN Coated	C25	C6H	GP3	GP50	AC3	AC50
TPMA 32 NV	<a href="#">0110000</a>	8-36	.003/.005	5	.375	.127									
TPMA 32 NV-10	<a href="#">0110100</a>	8-36	.003/.005	10	.375	.127									
TPMA 43 NV	<a href="#">0140000</a>	5-24	.005/.007	5	.500	.189	●								
TPMA 43 NV-10	<a href="#">0140100</a>	5-24	.005/.007	10	.500	.189									
TPMA 54 NV	<a href="#">0152000</a>	4-20	.008/.010	5	.500	.252									
TPMA 66 NV	<a href="#">0181000</a>	3-12	.008/.010	5	.750	.375									

## TPMC

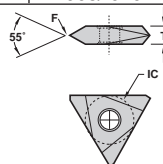
Countersink hole - Positive Rake



Description	EDP Code	TPI	F	A°	IC	T	Coating								
							Uncoated	TIN Coated	AITIN Coated	C3	C6H	GP3	GP50	AC3	AC50
TPMC 32 NV	<a href="#">0111000</a>	8-36	.003/.005	5	.375	.127									
TPMC 32 NV-10	<a href="#">0111100</a>	8-36	.003/.005	10	.375	.127									
TPMC 43 NV	<a href="#">0142000</a>	5-24	.005/.007	5	.500	.189									
TPMC 43 NV-10	<a href="#">0142100</a>	5-24	.003/.005	10	.500	.189									
TPMC 54 NV	<a href="#">0154000</a>	4-20	.008/.010	5	.500	.252									
TPMC 66 NV	<a href="#">0182000</a>	3-12	.008/.010	5	.750	.375									

# 55° WHITWORTH

## TNMA/C



Description	EDP Code	TPI	F	IC	T	Coating									
						Uncoated	TIN Coated	AITIN Coated	C3	C6H	GP3	GP50	AC3	AC50	
TNMA 43 NV-55	<a href="#">0139055</a>	5-24	.005/.007	.500	.189										
TNMC 43 NV-55	<a href="#">0141055</a>	5-24	.005/.007	.500	.189										

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

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

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



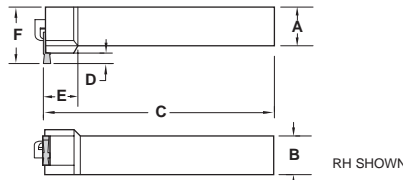


## EXTERNAL HOLDER

### MTHOR/L

Threading/Grooving

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



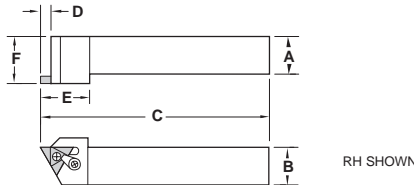
Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Lock Pin	Clamp	Clamp Screw
MTHOR-164	<a href="#">95501656</a>	T_MA/C 43	1	1	6	.19	.74	1.5	NL44	TC-250	STC11
MTHOL-164	<a href="#">95401656</a>	T_MA/C 43	1	1	6	.19	.74	1.5	NL44	TC-250	STC11
MTHOR-204	<a href="#">95502056</a>	T_MA/C 43	1-1/4	1-1/4	7	.19	.99	1.75	NL44	TC-250	STC11
MTHOR-165	<a href="#">95501664</a>	T_MA/C 54	1	1	6	.24	.99	1.5	NL56	TC-250	STC11
MTHOL-165	<a href="#">95401664</a>	T_MA/C 54	1	1	6	.24	.99	1.5	NL56	TC-250	STC11
MTHOR-205	<a href="#">95502064</a>	T_MA/C 54	1-1/4	1-1/4	7	.24	.99	1.75	NL56	TC-250	STC11

### MTVOR/L

Threading/Grooving

Inch

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



Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Lock Pin	Clamp	Clamp Screw
MTVOR-123	<a href="#">96001248</a>	T_MA/C 32	3/4	3/4	4-1/2	.15	1.08	1.00	NL33	TC-190	STC5
MTVOL-123	<a href="#">95901248</a>	T_MA/C 32	3/4	3/4	4-1/2	.15	1.08	1.00	NL33	TC-190	STC5
MTVOR-163	<a href="#">96001648</a>	T_MA/C 32	1	1	6	.15	1.08	1.25	NL33	TC-190	STC9
MTVOL-163	<a href="#">95901648</a>	T_MA/C 32	1	1	6	.15	1.08	1.25	NL33	TC-190	STC9
MTVOR-124	<a href="#">96001256</a>	T_MA/C 43	3/4	3/4	4-1/2	.23	1.23	1.00	NL44	TC-190	STC5
MTVOL-124	<a href="#">95901256</a>	T_MA/C 43	3/4	3/4	4-1/2	.23	1.23	1.00	NL44	TC-190	STC5
MTVOR-164	<a href="#">96001656</a>	T_MA/C 43	1	1	6	.23	1.23	1.25	NL44	TC-190	STC5
MTVOL-164	<a href="#">95901656</a>	T_MA/C 43	1	1	6	.23	1.23	1.25	NL44	TC-190	STC5
MTVOR-204	<a href="#">96002056</a>	T_MA/C 43	1-1/4	1-1/4	7	.23	1.23	1.50	NL44	TC-190	STC5
MTVOR-165	<a href="#">96001664</a>	T_MA/C 54	1	1	6	.29	1.43	1.25	NL56	TC-250	STC11
MTVOL-165	<a href="#">95901664</a>	T_MA/C 54	1	1	6	.29	1.43	1.25	NL56	TC-250	STC11
MTVOR-205	<a href="#">96002064</a>	T_MA/C 54	1-1/4	1-1/4	7	.29	1.43	1.50	NL56	TC-250	STC11
MTVOR-2055	<a href="#">96002066</a>	T_MA/C 55	1-1/4	1-1/4	7	.37	1.43	1.50	NL56	TC-250	STC11
MTVOR-2064	<a href="#">96002072</a>	T_MA/C 64	1-1/4	1-1/4	7	.37	1.62	1.50	NL66	TC-310	STC4
MTVOR-206	<a href="#">96002076</a>	T_MA/C 66	1-1/4	1-1/4	7	.37	1.62	1.50	<a href="#">NL66L</a>	TC-310	STC4
MTVOL-206	<a href="#">95902076</a>	T_MA/C 66	1-1/4	1-1/4	7	.37	1.62	1.50	<a href="#">NL66L</a>	TC-310	STC4
MTVOR-246	<a href="#">96002476</a>	T_MA/C 66	1-1/2	1-1/2	7	.37	1.62	2.00	<a href="#">NL66L</a>	TC-310	STC4
MTVOR-2067	<a href="#">96002078</a>	T_MA/C 67	1-1/4	1-1/4	7	.37	1.62	1.50	NL56L	TC-310	STC8

### METRIC

### PARTS

Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Lock Pin	Clamp	Clamp Screw
MTVOR-2525M3	<a href="#">960025M3</a>	T_MA/C 32	25,0	25,0	150,0	3,8	27,4	31,7	NL33	TC-190	STC9
MTVOL-2525M3	<a href="#">959025M48</a>	T_MA/C 32	25,0	25,0	150,0	3,8	27,4	31,7	NL33	TC-190	STC9
MTVOR-2525M4	<a href="#">960025M56</a>	T_MA/C 43	25,0	25,0	150,0	5,8	31,2	31,7	NL44	TC-190	STC5
MTVOL-2525M4	<a href="#">959025M56</a>	T_MA/C 43	25,0	25,0	150,0	5,8	31,2	31,7	NL44	TC-190	STC5
MTVOR-3232M4	<a href="#">960032M56</a>	T_MA/C 43	32,0	32,0	177,8	5,8	31,2	38,1	NL44	TC-190	STC5
MTVOR-2525M5	<a href="#">960025M64</a>	T_MA/C 54	25,0	25,0	150,0	7,3	35,8	31,7	NL56	TC-250	STC11
MTVOL-2525M5	<a href="#">959025M64</a>	T_MA/C 54	25,0	25,0	150,0	7,3	35,8	31,7	NL56	TC-250	STC11
MTVOR-3232M5	<a href="#">960032M64</a>	T_MA/C 54	32,0	32,0	177,8	7,3	35,8	38,1	NL56	TC-250	STC11
MTVOR-2525M55	<a href="#">960025M66</a>	T_MA/C 55	25,0	25,0	177,8	7,9	35,8	38,1	NL56	TC-250	STC11
MTVOR-3232M6	<a href="#">960032M76</a>	T_MA/C 66	32,0	32,0	177,8	9,6	41,1	38,1	<a href="#">NL66L</a>	TC-310	STC8
MTVOL-3232M6	<a href="#">960032M76</a>	T_MA/C 66	32,0	32,0	177,8	9,6	41,1	38,1	<a href="#">NL66L</a>	TC-310	STC4

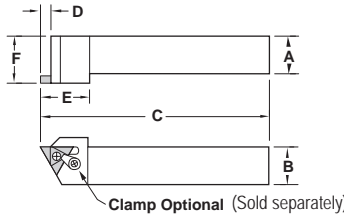
## EXTERNAL HOLDER

### STVOR/L

Threading/Grooving

Inch

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



Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Screw	Clamp	Clamp Screw
STVOR-123	<a href="#">98001248</a>	T_MC 32	3/4	3/4	4-1/2	.15	1.08	1.00	SD-1	TC-190	STC9
STVOL-123	<a href="#">97801248</a>	T_MC 32	3/4	3/4	4-1/2	.15	1.08	1.00	SD-1	TC-190	STC5
STVOR-163	<a href="#">98001648</a>	T_MC 32	1	1	6	.15	1.08	1.25	SD-1	TC-190	STC5
STVOL-163	<a href="#">97801648</a>	T_MC 32	1	1	6	.15	1.08	1.25	SD-1	TC-190	STC5
STVOR-124	<a href="#">98001256</a>	T_MC 43	3/4	3/4	4-1/2	.23	1.23	1.00	SD-2	TC-190	STC9
STVOR-164	<a href="#">98001656</a>	T_MC 43	1	1	6	.23	1.23	1.25	SD-2	TC-190	STC9
STVOL-164	<a href="#">97801656</a>	T_MC 43	1	1	6	.23	1.23	1.25	SD-2	TC-190	STC9
STVOR-204	<a href="#">98002056</a>	T_MC 43	1-1/4	1-1/4	7	.23	1.23	1.50	SD-2	TC-190	STC9
STVOR-165	<a href="#">98001664</a>	T_MC 54	1	1	6	.29	1.43	1.25	SD-3	TC-250	STC11
STVOL-165	<a href="#">97801664</a>	T_MC 54	1	1	6	.29	1.43	1.25	SD-3	TC-250	STC11
STVOR-205	<a href="#">98002064</a>	T_MC 54	1-1/4	1-1/4	7	.29	1.43	1.50	SD-3	TC-250	STC11
STVOR-2055	<a href="#">98002066</a>	T_MC 55	1-1/4	1-1/4	7	.37	1.43	1.50	SD-3	TC-250	STC11
STVOR-206	<a href="#">98002076</a>	T_MC 66	1-1/4	1-1/4	7	.37	1.62	1.50	SD-4	TC-310	STC8
STVOR-246	<a href="#">98002476</a>	T_MC 66	1-1/2	1-1/2	7	.37	1.62	2.00	SD-4	TC-310	STC8



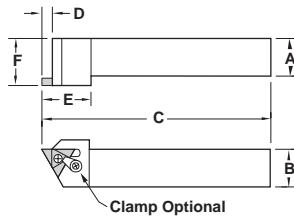
# EXTERNAL HOLDER

## STVOR/L

Threading/Grooving

METRIC

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



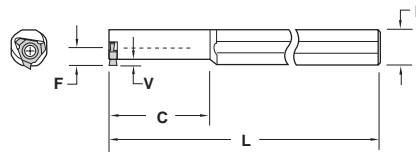
### PARTS

Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Screw	Clamp	Clamp Screw
STVOR-2525M4	<a href="#">980125M56</a>	T_MC 43	25,0	25,0	152,4	5,8	31,2	31,7	SD-2	TC-190	STC9
STVOL-2525M4	<a href="#">978025M56</a>	T_MC 43	25,0	25,0	152,4	5,8	31,2	31,7	SD-2	TC-190	STC9
STVOR-3232M4	<a href="#">980132M56</a>	T_MC 43	32,0	32,0	177,8	5,8	31,2	38,1	SD-2	TC-190	STC9
STVOR-2525M5	<a href="#">980125M64</a>	T_MC 54	25,0	25,0	152,4	7,4	36,3	31,7	SD-3	TC-250	STC11
STVOL-2525M5	<a href="#">978025M64</a>	T_MC 54	25,0	25,0	152,4	7,4	36,3	31,7	SD-3	TC-250	STC11
STVOR-3232M5	<a href="#">980132M64</a>	T_MC 54	32,0	32,0	177,8	7,4	36,3	38,1	SD-3	TC-250	STC11
STVOR-323255	<a href="#">980132M66</a>	T_MC 55	32,0	32,0	177,8	9,4	36,3	38,1	SD-3	TC-250	STC11
STVOR-3232M6	<a href="#">980132M76</a>	T_MC 66	32,0	32,0	177,8	9,4	41,1	38,1	SD-4	TC-310	STC8

## GTB

Threading/Grooving

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



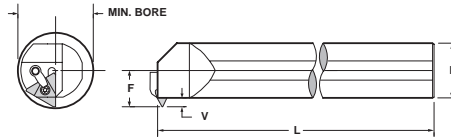
Description	EDP Code	Insert	Min. Bore	F	V	L	C	D	Torx Screw
GTB-062	<a href="#">93605000</a>	TNEB 2.52	.862	.312	.070	6.00	2.00	.625	PT-324
GTB-075	<a href="#">93605200</a>	TNEB 33	1.097	.375	.120	6.00	2.00	.750	PT-324

# INTERNAL BAR

## SI-MTHOR/L

Threading/Grooving

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



### PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	PARTS		
								Lock Pin	Clamp	Clamp Screw
SI-MTHOR-163	<a href="#">97301648</a>	T_MA 32	1.383	1.000	14	.687	.120	NL-33	TC-190	STC-5
SI-MTHOL-163	<a href="#">97201648</a>	T_MA 32	1.383	1.000	14	.687	.120	NL-33	TC-190	STC-5
SI-MTHOR-204	<a href="#">97302056</a>	T_MA 43	1.815	1.250	14	.875	.190	NL-44	TC-190	STC-9
SI-MTHOL-204	<a href="#">97202056</a>	T_MA 43	1.815	1.250	14	.875	.190	NL-44	TC-190	STC-9
SI-MTHOR-244	<a href="#">97302456</a>	T_MA 43	1.892	1.500	14	1.000	.190	NL-44	TC-190	STC-5
SI-MTHOL-244	<a href="#">97202456</a>	T_MA 43	1.892	1.500	14	1.000	.190	NL-44	TC-190	STC-5
SI-MTHOR-245	<a href="#">97302464</a>	T_MA 54	2.125	1.500	14	1.073	.220	NL-56	TC-250	STC-11
SI-MTHOL-245	<a href="#">97202464</a>	T_MA 54	2.125	1.500	14	1.073	.220	NL-56	TC-250	STC-11
SI-MTHOR-325	<a href="#">97303264</a>	T_MA 54	2.750	2.000	16	1.323	.220	NL-56	TC-250	STC-11
SI-MTHOR-406	<a href="#">97304076</a>	T_MA 66	3.250	2.500	16	1.625	.320	NL-66L	TC-380	STC-19

METRIC

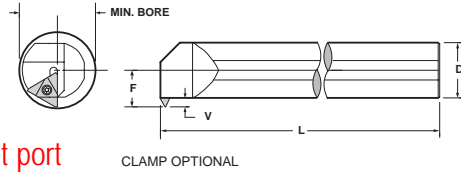
### PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	PARTS		
								Lock Pin	Clamp	Clamp Screw
SI-MTHOR-32M4	<a href="#">973032M56</a>	T_MA 43	46,1	32,0	355,6	22,5	4,8	NL-44	TC-190	STC-9
SI-MTHOL-32M4	<a href="#">972032M56</a>	T_MA 43	46,1	32,0	355,6	22,5	4,8	NL-44	TC-190	STC-9
SI-MTHOR-40M4	<a href="#">973040M56</a>	T_MA 43	48,1	40,0	355,6	25,9	4,8	NL-44	TC-190	STC-5
SI-MTHOL-40M4	<a href="#">972040M56</a>	T_MA 43	48,1	40,0	355,6	25,9	4,8	NL-44	TC-190	STC-5
SI-MTHOR-50M4	<a href="#">973050M56</a>	T_MA 43	69,9	50,0	406,4	32,9	4,8	NL-44	TC-190	STC-5
SI-MTHOR-60M4	<a href="#">973060M56</a>	T_MA 43	82,6	60,0	406,4	36,8	4,8	NL-44	TC-190	STC-5
SI-MTHOR-63M4	<a href="#">973063M56</a>	T_MA 43	89,0	63,0	406,4	40,0	4,8	NL-44	TC-190	STC-5
SI-MTHOR-40M5	<a href="#">973040M64</a>	T_MA 54	48,1	40,0	355,6	25,9	5,6	NL-56	TC-250	STC-11
SI-MTHOL-40M5	<a href="#">972040M64</a>	T_MA 54	48,1	40,0	355,6	25,9	5,6	NL-56	TC-250	STC-11
SI-MTHOR-50M5	<a href="#">973050M64</a>	T_MA 54	69,9	50,0	406,4	32,9	5,6	NL-56	TC-250	STC-11
SI-MTHOR-60M5	<a href="#">973060M64</a>	T_MA 54	82,6	60,0	406,4	36,8	5,6	NL-56	TC-250	STC-11
SI-MTHOR-63M5	<a href="#">973063M64</a>	T_MA 54	89,0	63,0	406,4	40,0	5,6	NL-56	TC-250	STC-11
SI-MTHOR-50M6	<a href="#">973050M76</a>	T_MA 66	69,9	50,0	406,4	32,9	8,1	NL-66L	TC-380	STC-19
SI-MTHOR-63M6	<a href="#">973063M76</a>	T_MA 66	89,0	63,0	406,4	40,0	8,1	NL-66L	TC-380	STC-19



## SI-STHOR/L

Threading/Grooving



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

### PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	Screw	Clamp	Clamp Screw
SI-STHOR-163	<a href="#">97601648</a>	T_MC 32	1.383	1.000	14	.687	.120	SD-1	TC-190	STC-9
SI-STHOL-163	<a href="#">97501648</a>	T_MC 32	1.383	1.000	14	.687	.120	SD-1	TC-190	STC-9
SI-STHOR-204	<a href="#">97602056</a>	T_MC 43	1.815	1.250	14	.875	.190	SD-2	TC-190	STC-9
SI-STHOL-204	<a href="#">97502056</a>	T_MC 43	1.815	1.250	14	.875	.190	SD-2	TC-190	STC-9
SI-STHOR-244	<a href="#">97602456</a>	T_MC 43	1.892	1.500	14	1.000	.190	SD-2	TC-190	STC-9
SI-STHOL-244	<a href="#">97502456</a>	T_MC 43	1.892	1.500	14	1.000	.190	SD-2	TC-190	STC-9
SI-STHOR-245	<a href="#">97602464</a>	T_MC 54	2.240	1.500	14	1.073	.220	SD-3	TC-250	STC-11
SI-STHOL-245	<a href="#">97502464</a>	T_MC 54	2.240	1.500	16	1.323	.220	SD-3	TC-250	STC-11
SI-STHOR-325	<a href="#">97603264</a>	T_MC 54	2.750	2.000	16	1.323	.220	SD-3	TC-250	STC-11
SI-STHOR-406	<a href="#">97604076</a>	T_MC 66	3.250	2.500	16	1.625	.320	SD-4	TC-380	STC-19

## METRIC

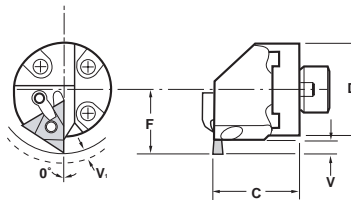
### PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	Screw	Clamp	Clamp Screw
SI-STHOR-25M3	<a href="#">976025M48</a>	T_MC 32	35,1	25,0	355,6	17,4	3,1	SD-1	TC-190	STC-9
SI-STHOL-25M3	<a href="#">975025M48</a>	T_MC 32	35,1	25,0	355,6	17,4	3,1	SD-1	TC-190	STC-9
SI-STHOR-32M4	<a href="#">976032M56</a>	T_MC 43	46,1	32,0	355,6	22,5	4,8	SD-2	TC-190	STC-9
SI-STHOL-32M4	<a href="#">975032M56</a>	T_MC 43	46,1	32,0	355,6	22,5	4,8	SD-2	TC-190	STC-9
SI-STHOR-40M4	<a href="#">976040M56</a>	T_MC 43	48,1	40,0	355,6	25,9	4,8	SD-2	TC-190	STC-9
SI-STHOL-40M4	<a href="#">975040M56</a>	T_MC 43	48,1	40,0	355,6	25,9	4,8	SD-2	TC-190	STC-9
SI-STHOR-40M5	<a href="#">976040M64</a>	T_MC 54	48,1	40,0	355,6	26,8	5,6	SD-3	TC-250	STC-11
SI-STHOL-40M5	<a href="#">975040M64</a>	T_MC 54	56,9	40,0	406,4	33,6	5,6	SD-3	TC-250	STC-11
SI-STHOR-50M5	<a href="#">976050M64</a>	T_MC 54	69,9	50,0	406,4	33,6	5,6	SD-3	TC-250	STC-11
SI-STHOR-60M6	<a href="#">976060M76</a>	T_MC 66	82,6	60,0	406,4	40,6	8,1	SD-4	TC-380	STC-19

## INTERCHANGEABLE HEADS

### H-MTHOR/L\*

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



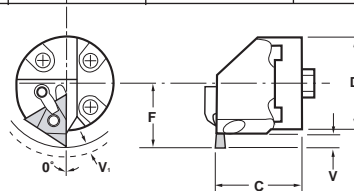
### PARTS

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

\*Left hand quoted on request.

### HS-MTHOR/L\*

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



RH SHOWN

### PARTS

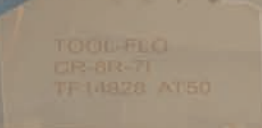
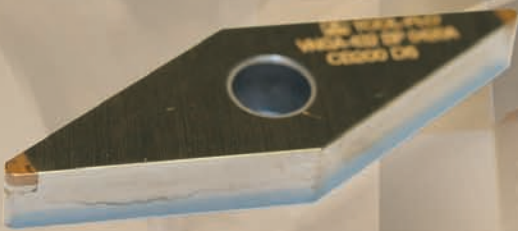
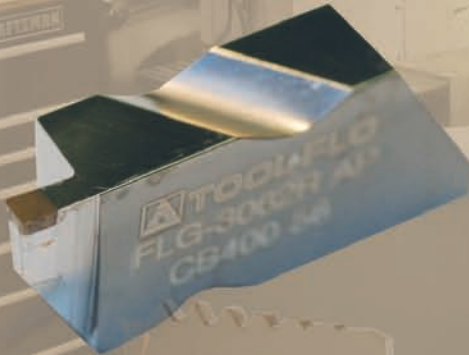
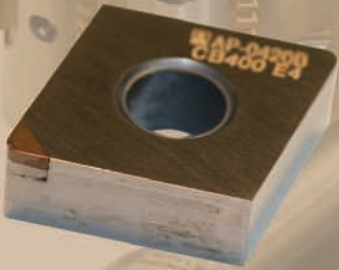
Description	EDP Code	Insert	D	C	F	Min. Bore	Clamp	Clamp Screw	Lock Pin
HS25-MTHOR-3	<a href="#">9IHS73025M48</a>	TNMA/C 32	0.98	0.98	0.678	1.690	TC-190	STC-5	NL-33
HS32-MTHOR-3	<a href="#">9IHS73032M48</a>	TNMA/C 32	1.26	1.26	0.800	1.788	TC-190	STC-5	NL-33
HS40-MTHOR-3	<a href="#">9IHS73040M48</a>	TNMA/C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

\*Left hand quoted on request.





# TOOL-FLO

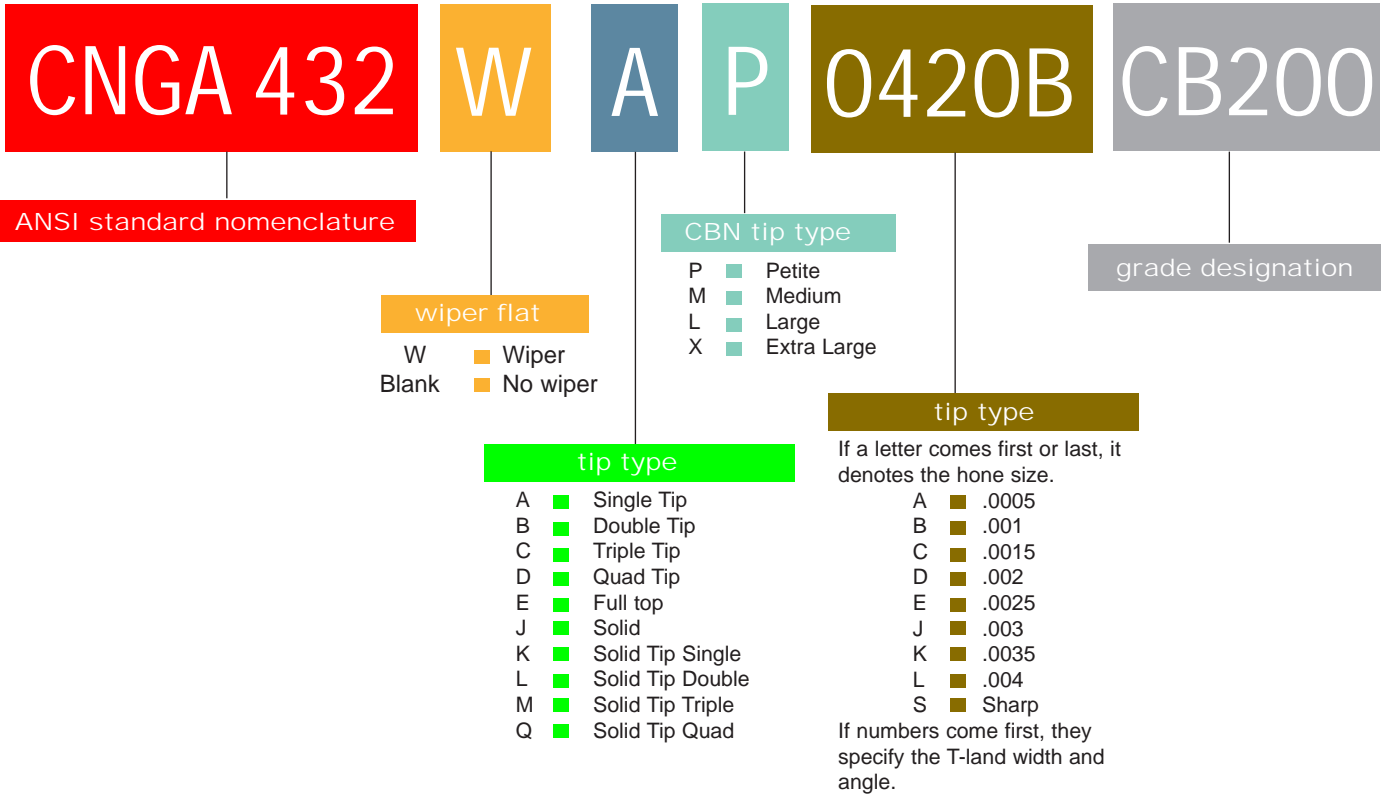


# PCBN





## PCBN - Polycrystalline Cubic Boron Nitride Insert Nomenclature Chart



PCBN

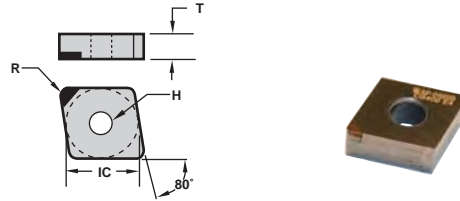
## PCBN Grade Descriptions

Grades	Descriptions
CB200	A high CBN content, PCBN tip brazed onto a carbide insert. Superior impact resistance. Ideally suited for machining cast iron and powder metal alloys, fully pearlitic gray cast iron, chilled irons; excellent results in high temperature alloys such as Inconel with an up sharp edge. Apply to tool steels and hard steels 45 HRC and higher; high chrome alloy steels. Application ranges from continuous to highly interrupted cuts.
CB400	A low CBN content, PCBN tip brazed onto a carbide insert. Ideally suited for roughing to finishing of hardened steels 45 HRC and higher. Use on bearing steel, hot and cold work steels, die steels, case hardened steels, carburized and nitrided irons.
CB410	PCBN tip brazed onto a carbide insert. Ideally suited for roughing to finishing of hardened steels 45 HRC and higher. Use on bearing steel, hot and cold work steels, die steels, case hardened steels, carburized and nitrided irons.



# SINGLE TIP PCBN

## CNGA

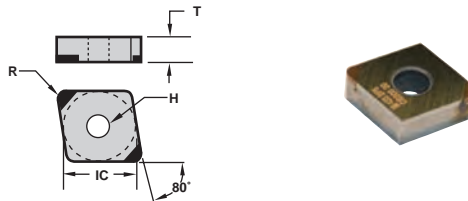


For Holders see pg. 187-206.

Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
CNGA-431 APS	CBGAM1APS	.500	.015	.187	.203	Sharp	●	●
CNGA-432 APS	CBGAM2APS	.500	.031	.187	.203	Sharp	●	●
CNGA-433 APS	CBGAM3APS	.500	.047	.187	.203	Sharp	●	●
CNGA-431 AP 0420A	CBGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
CNGA-432 AP 0420A	CBGAM2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
CNGA-433 AP 0420A	CBGAM3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●
CNGA-431 AL 0420A	CBGAM1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
CNGA-432 AL 0420A	CBGAM2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
CNGA-433 AL 0420A	CBGAM3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●

# DOUBLE TIP PCBN

## CNGA

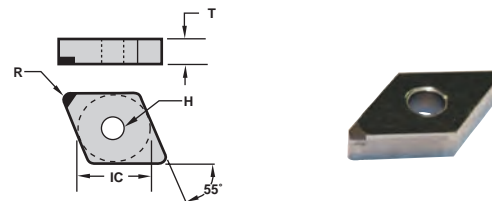


For Holders see pg. 187-206.

Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400
CNGA-431 BPS	CBGAM1BPS	.500	.015	.187	.203		Sharp	●	●
CNGA-432 BPS	CBGAM2BPS	.500	.031	.187	.203		Sharp	●	●
CNGA-433 BPS	CBGAM3BPS	.500	.047	.187	.203		Sharp	●	●
CNGA-431 BP 0420A	CBGAM1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20°	●	●
CNGA-432 BP 0420A	CBGAM2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20°	●	●
CNGA-433 BP 0420A	CBGAM3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20°	●	●
CNGA-431 WBP 0420A	CBGAM1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20°	●	●
CNGA-432 WBP 0420A	CBGAM2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20°	●	●
CNGA-433 WBP 0420A	CBGAM3WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20°	●	●

# SINGLE TIP PCBN

## DNGA



For Holders see pg. 187-206.

Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
DNGA-431 APS	CEGAM1APS	.500	.015	.187	.203	Sharp	●	●
DNGA-432 APS	CEGAM2APS	.500	.031	.187	.203	Sharp	●	●
DNGA-433 APS	CEGAM3APS	.500	.047	.187	.203	Sharp	●	●
DNGA-431 AP 0420A	CEGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
DNGA-432 AP 0420A	CEGAM2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
DNGA-433 AP 0420A	CEGAM3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●
DNGA-431 AL 0420A	CEGAM1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
DNGA-432 AL 0420A	CEGAM2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
DNGA-433 AL 0420A	CEGAM3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●

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

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

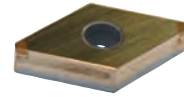
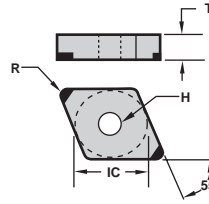
Cast Irons	●
Hardened & Bearing Steel	●
Powdered Metals	●
Super Alloys	●



# DOUBLE TIP PCBN

## DNGA

For Holders see pg. 187-206.

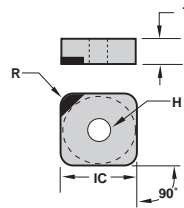


Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400
DNGA-431 BPS	CEGAM1BPS	.500	.015	.187	.203		Sharp	●	●
DNGA-432 BPS	CEGAM2BPS	.500	.031	.187	.203		Sharp	●	●
DNGA-433 BPS	CEGAM3BPS	.500	.047	.187	.203		Sharp	●	●
DNGA-431 BP 0420A	CEGAM1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20°	●	●
DNGA-432 BP 0420A	CEGAM2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20°	●	●
DNGA-433 BP 0420A	CEGAM3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20°	●	●
DNGA-431 WBP 0420A	CEGAM1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20°	●	●
DNGA-432 WBP 0420A	CEGAM2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20°	●	●
DNGA-433 WBP 0420A	CEGAM3WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20°	●	●

# SINGLE TIP PCBN

## SNGA

For Holders see pg. 187-206.

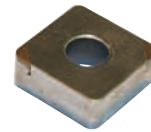
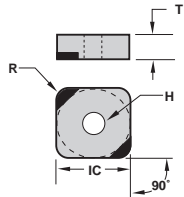


Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
SNGA-431 APS	CNGAM1APS	.500	.015	.187	.203	Sharp	●	●
SNGA-432 APS	CNGAM2APS	.500	.031	.187	.203	Sharp	●	●
SNGA-433 APS	CNGAM3APS	.500	.047	.187	.203	Sharp	●	●
SNGA-431 AP 0420A	CNGAM1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
SNGA-432 AP 0420A	CNGAM2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
SNGA-433 AP 0420A	CNGAM3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●
SNGA-431 AL 0420A	CNGAM1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
SNGA-432 AL 0420A	CNGAM2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
SNGA-433 AL 0420A	CNGAM3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●

# DOUBLE TIP PCBN

## SNGA

For Holders see pg. 187-206.



Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400
SNGA-431 BPS	CNGAM1BPS	.500	.015	.187	.203		Sharp	●	●
SNGA-432 BPS	CNGAM2BPS	.500	.031	.187	.203		Sharp	●	●
SNGA-433 BPS	CNGAM3BPS	.500	.047	.187	.203		Sharp	●	●
SNGA-431 BP 0420A	CNGAM1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20°	●	●
SNGA-432 BP 0420A	CNGAM2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20°	●	●
SNGA-433 BP 0420A	CNGAM3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20°	●	●
SNGA-431 WBP 0420A	CNGAM1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20°	●	●
SNGA-432 WBP 0420A	CNGAM2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20°	●	●
SNGA-433 WBP 0420A	CNGAM3WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20°	●	●

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

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

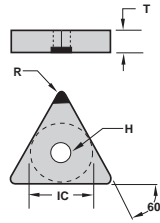
Cast Irons	●
Hardened & Bearing Steel	●
Powdered Metals	●
Super Alloys	●



# SINGLE TIP PCBN

## TNGA

For Holders see pg. 187-206.

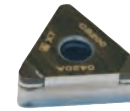
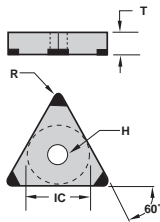


Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
TNGA-331 APS	CTGAH1APS	.375	.015	.187	.150	Sharp	●	●
TNGA-332 APS	CTGAH2APS	.375	.031	.187	.150	Sharp	●	●
TNGA-333 APS	CTGAH3APS	.375	.047	.187	.150	Sharp	●	●
TNGA-331 AP 0420A	CTGAH1AP0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20°	●	●
TNGA-332 AP 0420A	CTGAH2AP0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20°	●	●
TNGA-333 AP 0420A	CTGAH3AP0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20°	●	●
TNGA-331 AL 0420A	CTGAH1AL0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20°	●	●
TNGA-332 AL 0420A	CTGAH2AL0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20°	●	●
TNGA-333 AL 0420A	CTGAH3AL0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20°	●	●
TNGA-431 APS	CTGAJ1APS	.500	.015	.187	.203	Sharp	●	●
TNGA-432 APS	CTGAJ2APS	.500	.031	.187	.203	Sharp	●	●
TNGA-433 APS	CTGAJ3APS	.500	.047	.187	.203	Sharp	●	●
TNGA-431 AP 0420A	CTGAJ1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
TNGA-432 AP 0420A	CTGAJ2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
TNGA-433 AP 0420A	CTGAJ3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●
TNGA-431 AL 0420A	CTGAJ1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
TNGA-432 AL 0420A	CTGAJ2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
TNGA-433 AL 0420A	CTGAJ3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●

# TRIPLE TIP PCBN

## TNGA

For Holders see pg. 187-206.



Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400
TNGA-331 CPS	CTGAH1CPS	.375	.015	.187	.150		Sharp	●	●
TNGA-332 CPS	CTGAH2CPS	.375	.031	.187	.150		Sharp	●	●
TNGA-333 CPS	CTGAH3CPS	.375	.047	.187	.150		Sharp	●	●
TNGA-331 CP 0420A	CTGAH1CP0420A	.375	.015	.187	.150		T-Land W=.004, Angle 20°	●	●
TNGA-332 CP 0420A	CTGAH2CP0420A	.375	.031	.187	.150		T-Land W=.004, Angle 20°	●	●
TNGA-333 CP 0420A	CTGAH3CP0420A	.375	.047	.187	.150		T-Land W=.004, Angle 20°	●	●
TNGA-331 WCP 0420A	CTGAH1WCP0420A	.375	.015	.187	.150	✓	T-Land W=.004, Angle 20°	●	●
TNGA-332 WCP 0420A	CTGAH2WCP0420A	.375	.031	.187	.150	✓	T-Land W=.004, Angle 20°	●	●
TNGA-333 WCP 0420A	CTGAH3WCP0420A	.375	.047	.187	.150	✓	T-Land W=.004, Angle 20°	●	●
TNGA-431 CPS	CTGAJ1CPS	.500	.015	.187	.203		Sharp	●	●
TNGA-432 CPS	CTGAJ2CPS	.500	.031	.187	.203		Sharp	●	●
TNGA-433 CPS	CTGAJ3CPS	.500	.047	.187	.203		Sharp	●	●
TNGA-431 CP 0420A	CTGAJ1CP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20°	●	●
TNGA-432 CP 0420A	CTGAJ2CP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20°	●	●
TNGA-433 CP 0420A	CTGAJ3CP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20°	●	●
TNGA-431 WCP 0420A	CTGAJ1WCP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20°	●	●
TNGA-432 WCP 0420A	CTGAJ2WCP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20°	●	●
TNGA-433 WCP 0420A	CTGAJ3WCP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20°	●	●

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

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

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



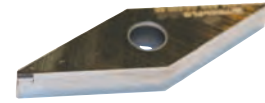
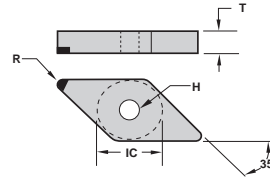




# SINGLE TIP PCBN

## VNGA

For Holders see pg. 187-206.

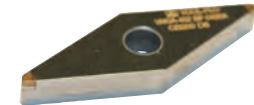
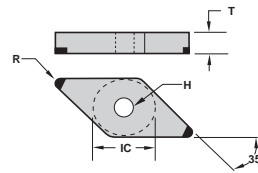


Description	EDP Code	IC	R	T	H	Edge Prep	CB200	CB400
VNGA-331 APS	CXGAH1APS	.375	.015	.187	.150	Sharp	●	●
VNGA-332 APS	CXGAH2APS	.375	.031	.187	.150	Sharp	●	●
VNGA-333 APS	CXGAH3APS	.375	.047	.187	.150	Sharp	●	●
VNGA-331 AP 0420A	CXGAH1AP0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20°	●	●
VNGA-332 AP 0420A	CXGAH2AP0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20°	●	●
VNGA-333 AP 0420A	CXGAH3AP0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20°	●	●
VNGA-331 AL 0420A	CXGAH1AL0420A	.375	.015	.187	.150	T-Land W=.004, Angle 20°	●	●
VNGA-332 AL 0420A	CXGAH2AL0420A	.375	.031	.187	.150	T-Land W=.004, Angle 20°	●	●
VNGA-333 AL 0420A	CXGAH3AL0420A	.375	.047	.187	.150	T-Land W=.004, Angle 20°	●	●
VNGA-431 APS	CXGAJ1APS	.500	.015	.187	.203	Sharp	●	●
VNGA-432 APS	CXGAJ2APS	.500	.031	.187	.203	Sharp	●	●
VNGA-433 APS	CXGAJ3APS	.500	.047	.187	.203	Sharp	●	●
VNGA-431 AP 0420A	CXGAJ1AP0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
VNGA-432 AP 0420A	CXGAJ2AP0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
VNGA-433 AP 0420A	CXGAJ3AP0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●
VNGA-431 AL 0420A	CXGAJ1AL0420A	.500	.015	.187	.203	T-Land W=.004, Angle 20°	●	●
VNGA-432 AL 0420A	CXGAJ2AL0420A	.500	.031	.187	.203	T-Land W=.004, Angle 20°	●	●
VNGA-433 AL 0420A	CXGAJ3AL0420A	.500	.047	.187	.203	T-Land W=.004, Angle 20°	●	●

# DOUBLE TIP PCBN

## VNGA

For Holders see pg. 187-206.



Description	EDP Code	IC	R	T	H	Wiper	Edge Prep	CB200	CB400
VNGA-331 BPS	CXGAH1BPS	.375	.015	.187	.150		Sharp	●	●
VNGA-332 BPS	CXGAH2BPS	.375	.031	.187	.150		Sharp	●	●
VNGA-331 BP 0420A	CXGAH1BP0420A	.375	.015	.187	.150		T-Land W=.004, Angle 20°	●	●
VNGA-332 BP 0420A	CXGAH2BP0420A	.375	.031	.187	.150		T-Land W=.004, Angle 20°	●	●
VNGA-333 BP 0420A	CXGAH3BP0420A	.375	.047	.187	.150		T-Land W=.004, Angle 20°	●	●
VNGA-331 WBP 0420A	CXGAH1WBP0420A	.375	.015	.187	.150	✓	T-Land W=.004, Angle 20°	●	●
VNGA-332 WBP 0420A	CXGAH2WBP0420A	.375	.031	.187	.150	✓	T-Land W=.004, Angle 20°	●	●
VNGA-333 WBP 0420A	CXGAH3WBP0420A	.375	.047	.187	.150	✓	T-Land W=.004, Angle 20°	●	●
VNGA-431 BPS	CXGAJ1BPS	.500	.015	.187	.203		Sharp	●	●
VNGA-432 BPS	CXGAJ2BPS	.500	.031	.187	.203		Sharp	●	●
VNGA-433 BPS	CXGAJ3BPS	.500	.047	.187	.203		Sharp	●	●
VNGA-431 BP 0420A	CXGAJ1BP0420A	.500	.015	.187	.203		T-Land W=.004, Angle 20°	●	●
VNGA-432 BP 0420A	CXGAJ2BP0420A	.500	.031	.187	.203		T-Land W=.004, Angle 20°	●	●
VNGA-433 BP 0420A	CXGAJ3BP0420A	.500	.047	.187	.203		T-Land W=.004, Angle 20°	●	●
VNGA-431 WBP 0420A	CXGAJ1WBP0420A	.500	.015	.187	.203	✓	T-Land W=.004, Angle 20°	●	●
VNGA-432 WBP 0420A	CXGAJ2WBP0420A	.500	.031	.187	.203	✓	T-Land W=.004, Angle 20°	●	●
VNGA-433 WBP 0420A	CXGAJ3WBP0420A	.500	.047	.187	.203	✓	T-Land W=.004, Angle 20°	●	●

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

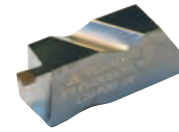
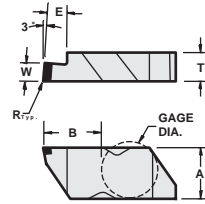
Cast Irons	●
Hardened & Bearing Steel	●
Powdered Metals	●
Super Alloys	●



# SINGLE TIP PCBN GROOVING

## FLG

For Holders see pg. 107-109.



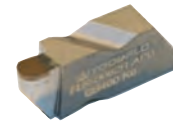
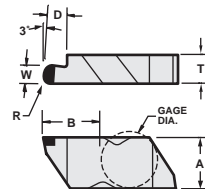
Description	EDP Code	W	R	T	H	E	Edge Prep	CB200	CB400
								●	●
FLG-3047L APB	CB563647LAPB	.047	.005/.010	.195	.219	.075	.001 Hone	●	●
FLG-3047R APB	CB563647RAPB	.047	.005/.010	.195	.219	.075	.001 Hone	●	●
FLG-3062L APB	CB563662LAPB	.062	.005/.010	.195	.219	.120	.001 Hone	●	●
FLG-3062R APB	CB563662RAPB	.062	.005/.010	.195	.219	.120	.001 Hone	●	●
FLG-3094L AMB	CB563694LAMB	.094	.005/.010	.195	.219	.180	.001 Hone	●	●
FLG-3094R AMB	CB563694RAMB	.094	.005/.010	.195	.219	.180	.001 Hone	●	●
FLG-3125L AMB	CB563825LAMB	.125	.005/.010	.195	.219	.180	.001 Hone	●	●
FLG-3125R AMB	CB563825RAMB	.125	.005/.010	.195	.219	.180	.001 Hone	●	●
FLG-3189L ALB	CB563889LALB	.189	.020/.025	.195	.219	.180	.001 Hone	●	●
FLG-3189R ALB	CB563889RALB	.189	.020/.025	.195	.219	.180	.001 Hone	●	●
FLG-4250L ALB	CB574050LALB	.250	.020/.025	.255	.453	.250	.001 Hone	●	●
FLG-4250R ALB	CB574050RALB	.250	.020/.025	.255	.453	.250	.001 Hone	●	●

# SINGLE TIP PCBN GROOVING

## FLR

Full Nose Radius

For Holders see pg.107-109.

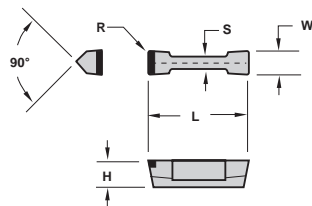


Description	EDP Code	W	R	T	H	E	Edge Prep	CB200	CB400
								●	●
FLR-3031L APB	CB593031LAPB	.062	.031	.195	.219	.125	.001 Hone	●	●
FLR-3031R APB	CB593031RAPB	.062	.031	.195	.219	.125	.001 Hone	●	●
FLR-3062L APB	CB593062LAPB	.125	.062	.195	.219	.180	.001 Hone	●	●
FLR-3062R APB	CB593062RAPB	.125	.062	.195	.219	.180	.001 Hone	●	●

# SINGLE TIP PCBN GROOVING

## VDB

For Holders see pg. 215-218



Description	EDP Code	W	R	L	H	S	Edge Prep	CB200	CB400
								●	●
VDB 125 A015 AMB	CB79125AMB	.125	.015	1.125	.250	.106	.001 Hone	●	●
VDB 188 A015 ALB	CB79188ALB	.188	.015	1.125	.250	.144	.001 Hone	●	●
VDB 250 A015 ALB	CB79250ALB	.250	.015	1.125	.250	.144	.001 Hone	●	●

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- 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
<b>CB200</b> <i>high content 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)	
<b>CB400</b> <i>low content 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		bearing steels
<b>CB200</b> <i>high content 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)	
<b>CB400</b> <i>low content CBN for roughing</i>	400 - 500 (122 - 152)					375 - 500 (114 - 152)

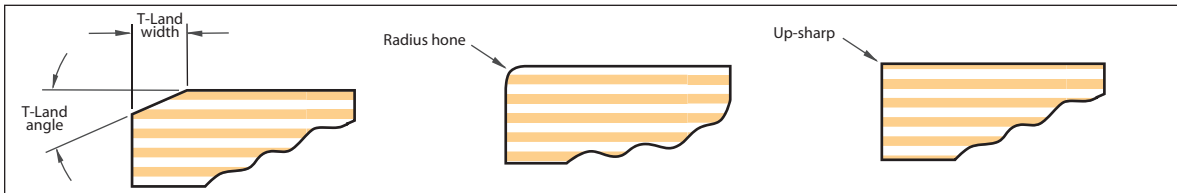
**Recommended Edge Preparation**

The following are suggestions for standard edge preparations.

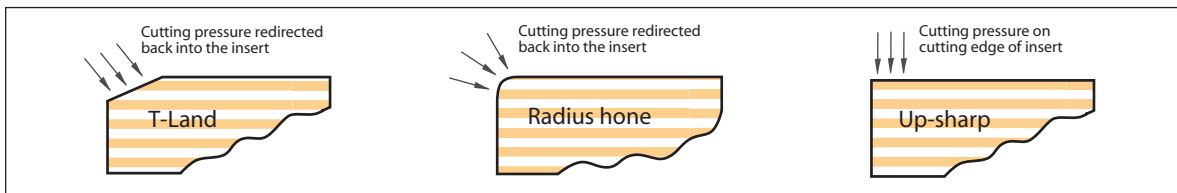
Turning	CB200	.008 x 20° and/or .001 hone
Grooving (Flo-Lock and Vee-Bottom)	CB400	.004 x 20° and/or .001 hone

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



TOOL-FLO  
CR-5B75-4E  
TF22675 G50

TOOL FLO  
FLVLCR-163D  
MADE IN THE USA

# PROFILING

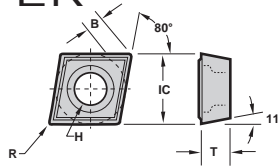


# PROFILING



## BORING SMALL DIAMETER

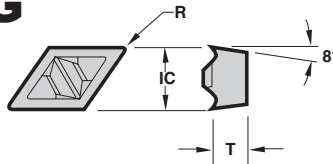
CPGM



Description	EDP Code	IC	R	T	B	H	TIN Coated		AITIN Coated	
							GP25	GP50	AC25	AC50
CPGM-21.50	SA20	.250	.004	.094	.0672	.110	●	●	●	●
CPGM-21.505	<a href="#">SA205</a>	.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	<a href="#">SA305</a>	.375	.008	.156	.0998	.173	●	●	●	●
CPGM-32.51	SA31	.375	.015	.156	.0855	.173	●	●	●	●
CPGM-32.52	SA32	.375	.031	.156	.0868	.173	●	●	●	●

## 55° DIAMOND PROFILING

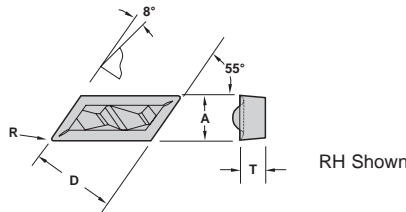
DPGR



Description	EDP Code	D	T	R	TIN Coated		AITIN Coated	
					GP25	GP50	AC25	AC50
DPGR-432	<a href="#">643432</a>	.500	.187	.031	●	●	●	●

## 55° PARALLELOGRAM PROFILING

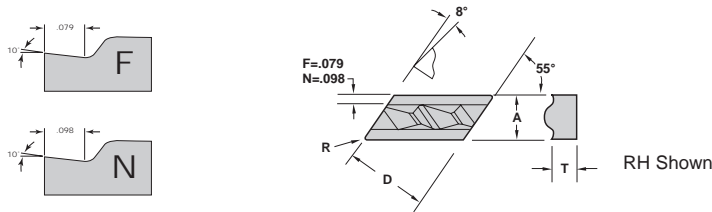
FLPGL/R



Description	EDP Code	D	T	A	R	TIN Coated		AITIN Coated	
						GP25	GP50	AC25	AC50
FLPGL-51	<a href="#">641G51</a>	.375	.125	.250	.015	●	●	●	●
FLPGR-51	<a href="#">642G51</a>	.375	.125	.250	.015	●	●	●	●
FLPGL-52	<a href="#">641G52</a>	.375	.125	.250	.031	●	●	●	●
FLPGR-52	<a href="#">642G52</a>	.375	.125	.250	.031	●	●	●	●

PROFILING

FLPL/R



Description	EDP Code	R	T	D	A	TIN Coated		AITIN Coated	
						GP25	GP50	AC25	AC50
FLPR-50.5	<a href="#">642505</a>	.005	.125	.375	.250	●	●	●	●
FLPL-50.5	<a href="#">641505</a>	.005	.125	.375	.250	●	●	●	●
FLPR-51	<a href="#">64251</a>	.015	.125	.375	.250	●	●	●	●
FLPL-51	<a href="#">64151</a>	.015	.125	.375	.250	●	●	●	●
FLPR-52	<a href="#">64252</a>	.031	.125	.375	.250	●	●	●	●
FLPL-52	<a href="#">64152</a>	.031	.125	.375	.250	●	●	●	●
FLPR-130.5	<a href="#">6421305</a>	.005	.187	.500	.375	●	●	●	●
FLPL-130.5	<a href="#">6411305</a>	.005	.187	.500	.375	●	●	●	●
FLPR-131F	<a href="#">642131E</a>	.015	.187	.500	.375	●	●	●	●
FLPL-131F	<a href="#">641131F</a>	.015	.187	.500	.375	●	●	●	●
FLPR-132F	<a href="#">642132E</a>	.031	.187	.500	.375	●	●	●	●
FLPL-132F	<a href="#">641132F</a>	.031	.187	.500	.375	●	●	●	●
FLPR-132N	<a href="#">642132N</a>	.031	.187	.500	.375	●	●	●	●
FLPL-132N	<a href="#">641132N</a>	.031	.187	.500	.375	●	●	●	●
FLPR-331N	<a href="#">642331N</a>	.015	.187	.734	.375	●	●	●	●
FLPL-331N	<a href="#">641331N</a>	.015	.187	.734	.375	●	●	●	●
FLPR-332F	<a href="#">642332E</a>	.031	.187	.734	.375	●	●	●	●
FLPL-332F	<a href="#">641332E</a>	.031	.187	.734	.375	●	●	●	●
FLPR-332N	<a href="#">642332N</a>	.031	.187	.734	.375	●	●	●	●
FLPL-332N	<a href="#">641332N</a>	.031	.187	.734	.375	●	●	●	●

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

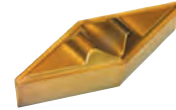
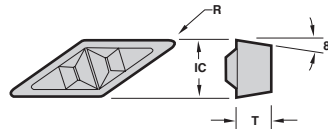
	GP25	GP50	AC25	AC50
Cast Iron	▲	●	●	●
Non-Ferrous	●	●	●	●
Stainless/High Temp	▲	●	●	●
Steel	●	▲	●	●



# PROFILING

## 35° DIAMOND PROFILING

VPGR



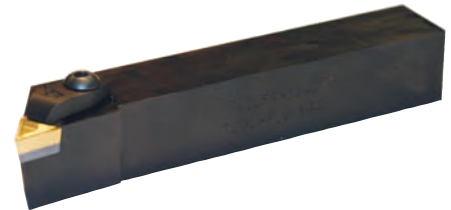
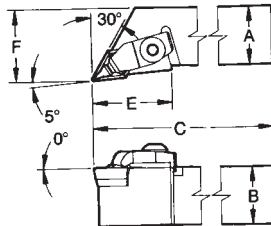
Description	EDP Code	IC	T	R	TIN Coated		AlTiN Coated	
					GP25	GP50	AC25	AC50
VPGR-330.5	<a href="#">6443305</a>	.375	.187	.008	●	●	●	●
VPGR-331	<a href="#">644331</a>	.375	.187	.015	●	●	●	●
VPGR-332	<a href="#">644332</a>	.375	.187	.031	●	●	●	●

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.	<ul style="list-style-type: none"> <li>● High performance choice in optimal conditions.</li> <li>▲ Recommended grade under general conditions.</li> </ul>	<table border="1"> <tr><td>Cast Iron</td><td>▲</td><td>●</td></tr> <tr><td>Non-Ferrous</td><td>▲</td><td>●</td></tr> <tr><td>Stainless/High Temp</td><td>▲</td><td>●</td></tr> <tr><td>Steel</td><td>▲</td><td>●</td></tr> </table>	Cast Iron	▲	●	Non-Ferrous	▲	●	Stainless/High Temp	▲	●	Steel	▲	●
Cast Iron	▲	●												
Non-Ferrous	▲	●												
Stainless/High Temp	▲	●												
Steel	▲	●												

## EXTERNAL HOLDERS

FLDLPR/L  
Profiling



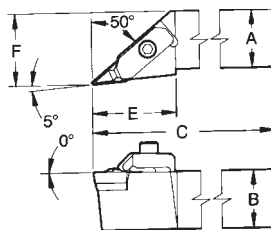
RH SHOWN

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

### PARTS

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

FLVLCR/L  
Profiling



RH SHOWN

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

### PARTS

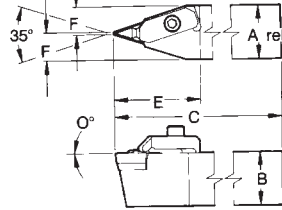
Description	EDP Code	Insert	A	B	C	E	F	Seat		Clamp	
								Seat	Screw	Clamp	Screw
FLVLCR-123B	<a href="#">93531226</a>	VPGR-33_	3/4	3/4	4-1/2	1.44	1.000	SM-412	S-959	CM113	S-412
FLVLCL-123B	<a href="#">93521226</a>	VPGR-33_	3/4	3/4	4-1/2	1.44	1.000	SM-412	S-959	CM114	S-412
FLVLCR-163D	<a href="#">93531626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

PROFILING



## EXTERNAL HOLDERS

### FLVVCN Profiling

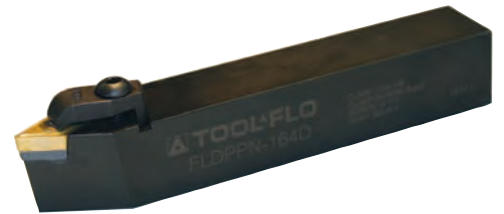
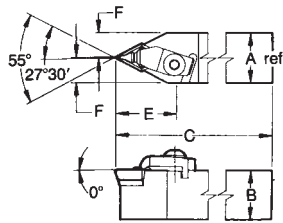


Most holders available with coolant port  
(ie: Add CP to end of description)

#### PARTS

Description	EDP Code	Insert	A	B	C	E	F	PARTS			
								Seat	Seat Screw	Clamp	Clamp Screw
FLVVCN-163D	<a href="#">93541626</a>	VPGR-33	1	1	6	1.62	0.522	SM-412	S-959	CM113	S-412
FLVVCN-203D	<a href="#">93542026</a>	VPGR-33	1-1/4	1-1/4	6	1.62	0.647	SM-412	S-959	CM113	S-412

### FLDPPN Profiling



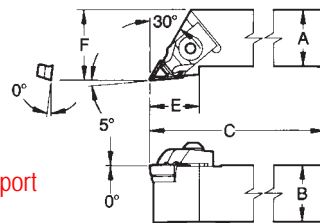
Most holders available with coolant port  
(ie: Add CP to end of description)

#### PARTS

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

PROFILING

### FLKL Profiling



RH SHOWN

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

#### PARTS

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

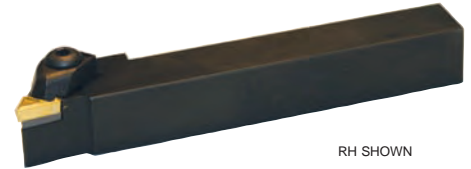
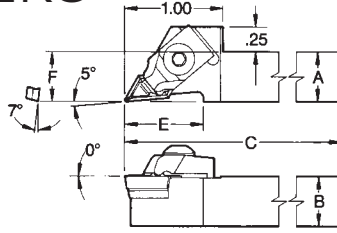
\*Also used with inserts FLPR/FLPL.



# PROFILING

## EXTERNAL HOLDERS

FLKL-F  
Profiling



RH SHOWN

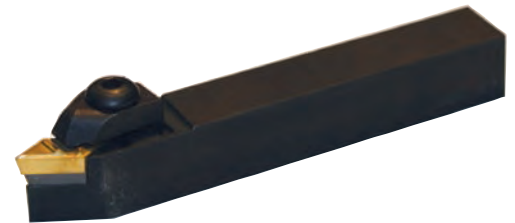
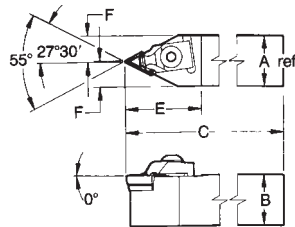
Most holders available with coolant port  
(ie: Add CP to end of description)

### PARTS

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

\*Also used with inserts FLPGR/FLPGL.

FLKPCN  
Profiling



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

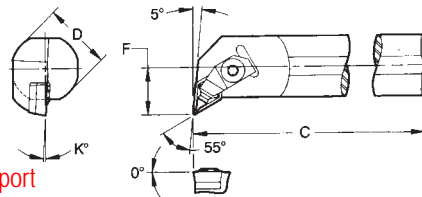
### PARTS

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

\*Also used with inserts FLPGR/FLPGL.

## INTERNAL BARS

A-FLDL  
Profiling



RH SHOWN

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

### PARTS

Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat Clamp			
								Seat	Screw	Clamp	Screw
A20-FLDLPR4	<a href="#">90522025</a>	DPGR-432	1.250	14	.875	3°	1.585	SM-414	S-111	CM118	S-532
A20-FLDLPL4	<a href="#">90502025</a>	DPGR-432	1.250	14	.875	3°	1.585	SM-414	S-111	CM119	S-532
A24-FLDLPR4	<a href="#">90522425</a>	DPGR-432	1.500	14	1.000	2°	1.835	SM-414	S-111	CM118	S-532
A24-FLDLPL4	<a href="#">90502425</a>	DPGR-432	1.500	14	1.000	2°	1.835	SM-414	S-111	CM119	S-532
A28-FLDLPR4	<a href="#">90522825</a>	DPGR-432	1.750	14	1.125	2°	2.120	SM-414	S-111	CM118	S-532
A28-FLDLPL4	<a href="#">90502825</a>	DPGR-432	1.750	14	1.125	2°	2.120	SM-414	S-111	CM119	S-532
A32-FLDLPR4	<a href="#">90523225</a>	DPGR-432	2.000	16	1.250	2°	2.400	SM-414	S-111	CM118	S-532
A32-FLDLPL4	<a href="#">90503225</a>	DPGR-432	2.000	16	1.250	2°	2.400	SM-414	S-111	CM119	S-532

PROFILING

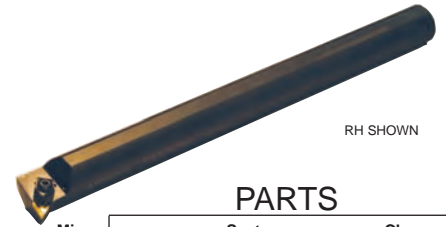
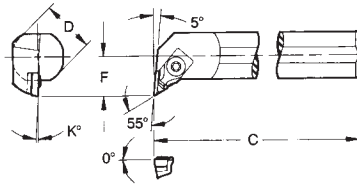




## INTERNAL BARS

### A-FLKL Profiling

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



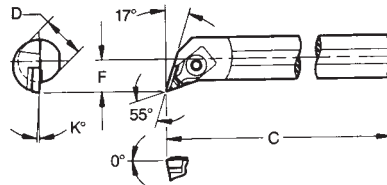
#### PARTS

Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat			
								Seat	Screw	Clamp	Clamp Screw
A10-FLKLCR05	<a href="#">90561029</a>	FLPL-5_*	.625	10	.500	5°	.900	SM-286	S-959	CM79	S-524
A10-FLKLCL05	<a href="#">90541029</a>	FLPR-5_*	.625	10	.500	5°	.900	SM-285	S-959	CM71	S-524
A12-FLKLCR05	<a href="#">90561229</a>	FLPL-5_*	.750	10	.562	5°	.980	SM-286	S-959	CM79	S-524
A12-FLKLCL05	<a href="#">90541229</a>	FLPR-5_*	.750	10	.562	5°	.980	SM-285	S-959	CM71	S-524
A16-FLKLCR05	<a href="#">90561629</a>	FLPL-5_*	1.000	12	.750	3°	1.300	SM-286	S-959	CM68	S-524
A16-FLKLCL05	<a href="#">90541629</a>	FLPR-5_*	1.000	12	.750	3°	1.300	SM-285	S-959	CM68	S-524
A20-FLKLCR05	<a href="#">90562029</a>	FLPL-5_*	1.250	14	.875	3°	1.585	SM-286	S-959	CM68	S-524
A20-FLKLCL05	<a href="#">90542029</a>	FLPR-5_*	1.250	14	.875	3°	1.585	SM-285	S-959	CM68	S-524
A24-FLKLCR05	<a href="#">90562429</a>	FLPL-5_*	1.500	14	1.000	2°	1.835	SM-286	S-959	CM68	S-524
A24-FLKLCL05	<a href="#">90542429</a>	FLPR-5_*	1.500	14	1.000	2°	1.835	SM-285	S-959	CM68	S-524
A32-FLKLCR05	<a href="#">90563229</a>	FLPL-5_*	2.000	16	1.250	2°	2.400	SM-286	S-959	CM68	S-524
A32-FLKLCL05	<a href="#">90543229</a>	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

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



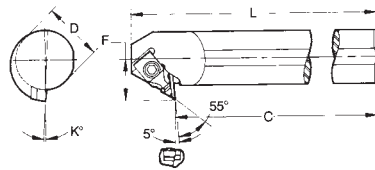
#### PARTS

Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat			
								Seat	Screw	Clamp	Clamp Screw
A08-FLKQCR05	<a href="#">90600829</a>	FLPL-5_*	.500	8	.375	6°	.670	-	-	CM112	S-518
A08-FLKQCL05	<a href="#">90580829</a>	FLPR-5_*	.500	8	.375	6°	.670	-	-	CM111	S-518
A12-FLKQCR05	<a href="#">90601229</a>	FLPL-5_*	.750	10	.562	6°	.980	SM-286	S-959	CM68	S-524
A12-FLKQCL05	<a href="#">90581229</a>	FLPR-5_*	.750	10	.562	6°	.980	SM-285	S-959	CM68	S-524
A16-FLKQCR05	<a href="#">90601629</a>	FLPL-5_*	1.000	12	.750	3°	1.300	SM-286	S-959	CM68	S-524
A16-FLKQCL05	<a href="#">90581629</a>	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

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



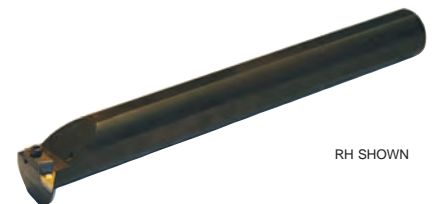
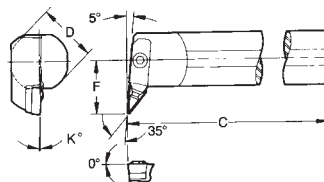
#### PARTS

Description	EDP Code	Insert	D	C	L	F	K°	Min. Bore	Seat			
									Seat	Screw	Clamp	Clamp Screw
A12-FLKXCR05	<a href="#">90641229</a>	FLPR-5_*	.750	10	10.00	.625	5°	1.060	SM-285	S-959	CM79	S-524
A12-FLKXCL05	<a href="#">90621229</a>	FLPL-5_*	.750	10	10.00	.625	5°	1.060	SM-286	S-959	CM71	S-524
A16-FLKXCR05	<a href="#">90641629</a>	FLPR-5_*	1.000	12	12.00	.750	5°	1.300	SM-285	S-959	CM79	S-524
A16-FLKXCL05	<a href="#">90621629</a>	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

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



#### PARTS

Description	EDP Code	Insert	D	C	F	K°	Min. Bore	Seat			
								Seat	Screw	Clamp	Clamp Screw
A20-FLVLCR3	<a href="#">90682026</a>	VPGR-33	1.250	14	1.125	2°	1.830	SM-412	S-959	CM113	S-412
A20-FLVLCL3	<a href="#">90662026</a>	VPGR-33	1.250	14	1.125	2°	1.830	SM-412	S-959	CM114	S-412
A24-FLVLCR3	<a href="#">90682426</a>	VPGR-33	1.500	14	1.250	2°	2.120	SM-412	S-959	CM113	S-412
A24-FLVLCL3	<a href="#">90662426</a>	VPGR-33	1.500	14	1.250	2°	2.120	SM-412	S-959	CM114	S-412
A32-FLVLCR3	<a href="#">90683226</a>	VPGR-33	2.000	16	1.500	2°	2.620	SM-412	S-959	CM113	S-412
A32-FLVLCL3	<a href="#">90663226</a>	VPGR-33	2.000	16	1.500	2°	2.620	SM-412	S-959	CM114	S-412



# TOOL FLO

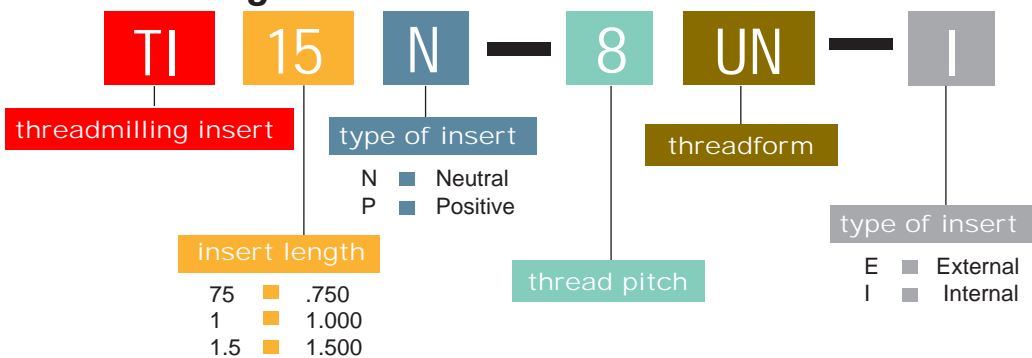


# THREAD MILLING

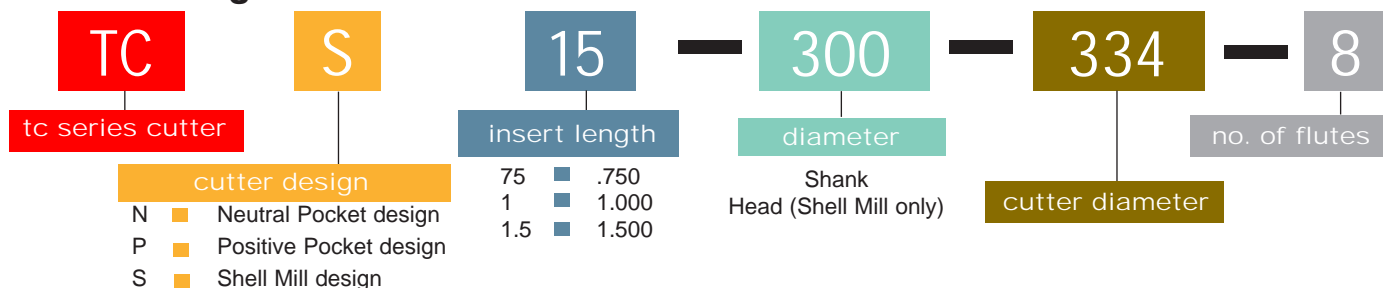
# TC SERIES THREADMILLING



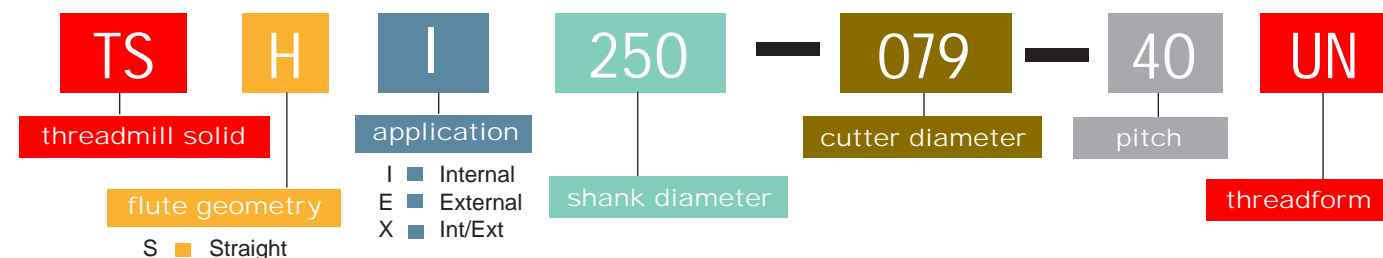
## Threadmilling Insert Nomenclature Chart



## 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%

### TSSI/X

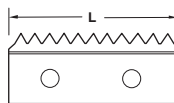
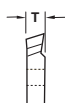
- Produce better quality threads than tapping
- Excels in materials that are difficult to cut

## BSPT THREADING

### TI\_P

Positive Rake

■ Internal/External



Description	EDP Code	Pitch	L	T	C3	GP3	ZS3
TI75P-19BSPT-I/E	<a href="#">TMIA4419I/E</a>	19	.750	.080		●	●
TI1P-19BSPT-I/E	<a href="#">TMIB4419I/E</a>	19	1.000	.140		●	●
TI1P-14BSPT-I/E	<a href="#">TMIB4414I/E</a>	14	1.000	.140		●	●
TI1N-11BSPT-I/E - Neutral Rake	<a href="#">TMIC4411I/E</a>	11	1.000	.140		●	●

	Uncoated	TIN Coated	AlTiN Coated
C3			
GP3	●	●	●
ZS3	●	●	●





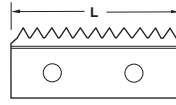
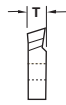
# TC SERIES THREADMILLING

## BSPB THREADING

TI\_P

Positive Rake

Internal/External



	Uncoated	TiN Coated	AlTiN Coated
C3	GP3	ZS3	

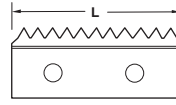
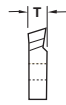
Description	EDP Code	TPI	L	T	C3	GP3	ZS3
TI75P-19BSPB-I/E	<a href="#">TMIA4419I/E</a>	19	.750	.080		●	●
TI1P-19BSPB-I/E	<a href="#">TMIB4419I/E</a>	19	1.000	.140		●	●
TI1P-14BSPB-I/E	<a href="#">TMIB4414I/E</a>	14	1.000	.140		●	●

## NPT/NPTF THREADING

TI\_P

Positive Rake

Internal/External



	C3	GP3	ZS3
--	----	-----	-----

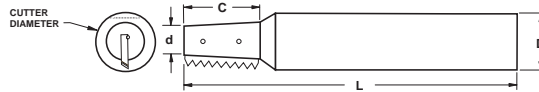
Description	EDP Code	TPI	L	T	C3	GP3	ZS3
TI75P-18NPT-I/E	<a href="#">TMIA3618I/E</a>	18	.750	.080		●	●
TI75P-18NPTF-I/E	<a href="#">TMIA4618I/E</a>	18	.750	.080		●	●
TI1P-14NPT-I/E	<a href="#">TMIB3614I/E</a>	14	1.000	.140		●	●
TI1P-14NPTF-I/E	<a href="#">TMIB4614I/E</a>	14	1.000	.140		●	●

## NPT/NPTF THREADING

TCT\_

Cutter Bodies

Internal/External



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

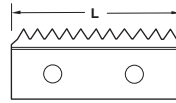
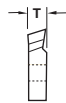
\*TS250 uses K-2 wrench, TS45 uses K-3 wrench

## UN THREADING

TI\_P

Positive Rake

Internal



	C3	GP3	ZS3
--	----	-----	-----

Description	EDP Code	Pitch	L	T	C3	GP3	ZS3
TI75P-32UN-I	<a href="#">TMIA6632I</a>	32	.750	.080		●	●
TI75P-24UN-I	<a href="#">TMIA6624I</a>	24	.750	.080		●	●
TI75P-20UN-I	<a href="#">TMIA6620I</a>	20	.750	.080		●	●
TI75P-18UN-I	<a href="#">TMIA6618I</a>	18	.750	.080		●	●
TI75P-16UN-I	<a href="#">TMIA6616I</a>	16	.750	.080		●	●
TI1P-32UN-I	<a href="#">TMIB6632I</a>	32	1.000	.140		●	●
TI1P-24UN-I	<a href="#">TMIB6624I</a>	24	1.000	.140		●	●
TI1P-20UN-I	<a href="#">TMIB6620I</a>	20	1.000	.140		●	●
TI1P-18UN-I	<a href="#">TMIB6618I</a>	18	1.000	.140		●	●
TI1P-16UN-I	<a href="#">TMIB6616I</a>	16	1.000	.140		●	●
TI1P-14UN-I	<a href="#">TMIB6614I</a>	14	1.000	.140		●	●
TI1P-12UN-I	<a href="#">TMIB6612I</a>	12	1.000	.140		●	●
TI1P-10UN-I*	<a href="#">TMIB6610I</a>	10	1.000	.140		●	●

\*To be used in TCN1 750-611-1 cutter only.

THREAD MILLING



# TC SERIES THREADMILLING

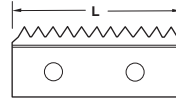
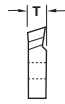


## UNJ THREADING

TI\_P

Positive Rake

Internal



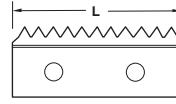
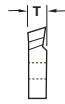
Description	EDP Code	TPI	L	T	Coating		
					C3	GP3	ZS3
T175P-32UNJ-I	<a href="#">TMIA6832I</a>	32	.750	.080	●	●	●
T175P-24UNJ-I	<a href="#">TMIA6824I</a>	24	.750	.080	●	●	●
T175P-20UNJ-I	<a href="#">TMIA6820I</a>	20	.750	.080	●	●	●
T175P-18UNJ-I	<a href="#">TMIA6818I</a>	18	.750	.080	●	●	●
T175P-16UNJ-I	<a href="#">TMIA6816I</a>	16	.750	.080	●	●	●
T11P-32UNJ-I	<a href="#">TMIB6832I</a>	32	1.000	.140	●	●	●
T11P-24UNJ-I	<a href="#">TMIB6824I</a>	24	1.000	.140	●	●	●
T11P-20UNJ-I	<a href="#">TMIB6820I</a>	20	1.000	.140	●	●	●
T11P-18UNJ-I	<a href="#">TMIB6818I</a>	18	1.000	.140	●	●	●
T11P-16UNJ-I	<a href="#">TMIB6816I</a>	16	1.000	.140	●	●	●
T11P-14UNJ-I	<a href="#">TMIB6814I</a>	14	1.000	.140	●	●	●
T11P-12UNJ-I	<a href="#">TMIB6812I</a>	12	1.000	.140	●	●	●
T11P-10UNJ-I	<a href="#">TMIB6810I</a>	10	1.000	.140	●	●	●

## ISO THREADING

TI\_P

Positive Rake

Internal



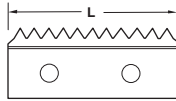
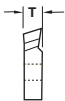
Description	EDP Code	Pitch	L	T	Coating		
					C3	GP3	ZS3
T175P-1.5 ISO-I	<a href="#">TMIA7015I</a>	1,5	.750	.080	●	●	●
T175P-1.25 ISO-I	<a href="#">TMIA70125I</a>	1,25	.750	.080	●	●	●
T175P-1.0 ISO-I	<a href="#">TMIA7010I</a>	1,0	.750	.080	●	●	●
T175P-0.5 ISO-I	<a href="#">TMIA7005I</a>	0,5	.750	.080	●	●	●
T11P-2.0 ISO-I	<a href="#">TMIB7020I</a>	2,0	1.000	.140	●	●	●
T11P-1.5 ISO-I	<a href="#">TMIB7015I</a>	1,5	1.000	.140	●	●	●
T11P-1.0 ISO-I	<a href="#">TMIB7010I</a>	1,0	1.000	.140	●	●	●

## UN THREADING

TI\_P

Positive Rake

External



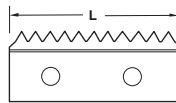
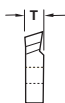
Description	EDP Code	TPI	L	T	Coating		
					C3	GP3	ZS3
T175P-32UN-E	<a href="#">TMIA6632E</a>	32	.750	.080	●	●	●
T175P-24UN-E	<a href="#">TMIA6624E</a>	24	.750	.080	●	●	●
T175P-20UN-E	<a href="#">TMIA6620E</a>	20	.750	.080	●	●	●
T175P-18UN-E	<a href="#">TMIA6618E</a>	18	.750	.080	●	●	●
T175P-16UN-E	<a href="#">TMIA6616E</a>	16	.750	.080	●	●	●
T11P-32UN-E	<a href="#">TMIB6632E</a>	32	1.000	.140	●	●	●
T11P-24UN-E	<a href="#">TMIB6624E</a>	24	1.000	.140	●	●	●
T11P-20UN-E	<a href="#">TMIB6620E</a>	20	1.000	.140	●	●	●
T11P-18UN-E	<a href="#">TMIB6618E</a>	18	1.000	.140	●	●	●
T11P-16UN-E	<a href="#">TMIB6616E</a>	16	1.000	.140	●	●	●
T11P-12UN-E	<a href="#">TMIB6612E</a>	12	1.000	.140	●	●	●

## UNJ THREADING

TI\_P

Positive Rake

External



Description	EDP Code	TPI	L	T	Coating		
					C3	GP3	ZS3
T175P-32UNJ-E	<a href="#">TMIA6832E</a>	32	.750	.080	●	●	●
T175P-24UNJ-E	<a href="#">TMIA6824E</a>	24	.750	.080	●	●	●
T175P-20UNJ-E	<a href="#">TMIA6820E</a>	20	.750	.080	●	●	●
T175P-18UNJ-E	<a href="#">TMIA6818E</a>	18	.750	.080	●	●	●
T175P-16UNJ-E	<a href="#">TMIA6816E</a>	16	.750	.080	●	●	●
T11P-32UNJ-E	<a href="#">TMIB6832E</a>	32	1.000	.140	●	●	●
T11P-24UNJ-E	<a href="#">TMIB6824E</a>	24	1.000	.140	●	●	●
T11P-20UNJ-E	<a href="#">TMIB6820E</a>	20	1.000	.140	●	●	●
T11P-18UNJ-E	<a href="#">TMIB6818E</a>	18	1.000	.140	●	●	●
T11P-16UNJ-E	<a href="#">TMIB6816E</a>	16	1.000	.140	●	●	●
T11P-12UNJ-E	<a href="#">TMIB6812E</a>	12	1.000	.140	●	●	●

THREAD MILLING



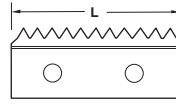
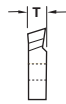
# TC SERIES THREADMILLING

## ISO THREADING

**TI1P**

Positive Rake

■ External



	Uncoated	TIN Coated	AlTiN Coated
C3	●	●	●
GP3	●	●	●
ZS3	●	●	●

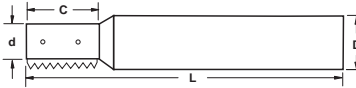
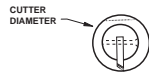
Description	EDP Code	Pitch	L	T
TI1P-2.0 ISO-E	<a href="#">TMIB7020E</a>	2,0	1.000	.140
TI1P-1.5 ISO-E	<a href="#">TMIB7015E</a>	1,5	1.000	.140
TI1P-1.0 ISO-E	<a href="#">TMIB7010E</a>	1,0	1.000	.140

## UN THREADING

**TCN\_**

Cutter Bodies

■ Internal/External



Description	EDP Code	Insert	D	d	L	Cutter Dia	C	Flutes	Screw*
TCN75-500-394-1	<a href="#">TMNA083941</a>	TI75P-UN/ISO/BSPP/NGT/SGT/UNJ	.500	.250	3.000	.394	.750	1	<a href="#">TS250</a>
TCN75-500-468-1	<a href="#">TMNA084681</a>	TI75P-UN/ISO/BSPP/NGT/SGT/UNJ	.500	.330	3.500	.468	.750	1	TS25
TCN1-750-625-1	<a href="#">TMNB126251</a>	TI1P-UN/ISO/BSPP/NGT/SGT/UNJ	.750	.454	3.500	.625	1.000	1	TS40
TCN1-750-611-1	<a href="#">TMNB126111</a>	TI1P-10UN	.750	.383	3.500	.611	1.000	1	TS40

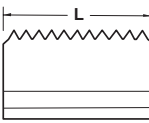
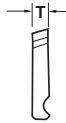
\*TS250 and TS25 uses K-2 wrench, TS40 uses K-3 wrench

## NGT/SGT THREADING

**TI\_N**

Neutral Rake

■ Internal/External



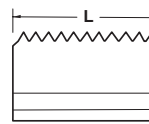
Description	EDP Code	TPI	L	T
TI15N-14NGT-I/E	<a href="#">TMID4714I/E</a>	14	1.500	.140
TI15N-14SGT-I/E	<a href="#">TMID4914I/E</a>	14	1.500	.140

## NPT/NPTF THREADING

**TI\_N**

Neutral Rake

■ Internal/External



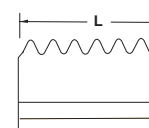
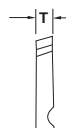
Description	EDP Code	TPI	L	T
TI15N-11.5NPT-I/E	<a href="#">TMID3611I/E</a>	11.5	1.500	.140
TI15N-11.5NPTF-I/E	<a href="#">TMID4611I/E</a>	11.5	1.500	.140
TI15N-8NPT-I/E	<a href="#">TMID3608I/E</a>	8	1.500	.140
TI15N-8NPTF-I/E	<a href="#">TMID4608I/E</a>	8	1.500	.140

## API ROUND THREADING

**TI15N**

Neutral Rake

■ Internal/External



Description	EDP Code	TPI	L	T
TI15N-10RD-I/E	<a href="#">TMID3410I/E</a>	10	1.500	.140
TI15N-8RD-I/E	<a href="#">TMID3200I/E</a>	8	1.500	.140

THREAD MILLING

# TC SERIES THREADMILLING

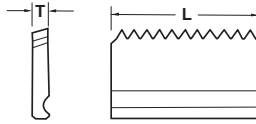


## UN THREADING

TI\_N

Neutral Rake

Internal



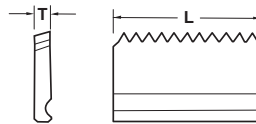
Description	EDP Code	TPI	L	T	Coating		
					C3	GP3	ZS3
TI1N-32UN-I	<a href="#">TMIC6632I</a>	32	1.000	.140	●	●	●
TI1N-24UN-I	<a href="#">TMIC6624I</a>	24	1.000	.140	●	●	●
TI1N-20UN-I	<a href="#">TMIC6620I</a>	20	1.000	.140	●	●	●
TI1N-18UN-I	<a href="#">TMIC6618I</a>	18	1.000	.140	●	●	●
TI1N-16UN-I	<a href="#">TMIC6616I</a>	16	1.000	.140	●	●	●
TI1N-12UN-I	<a href="#">TMIC6612I</a>	12	1.000	.140	●	●	●
TI1N-10UN-I	<a href="#">TMIC6610I</a>	10	1.000	.140	●	●	●
TI15N-24UN-I	<a href="#">TMID6624I</a>	24	1.500	.140	●	●	●
TI15N-20UN-I	<a href="#">TMID6620I</a>	20	1.500	.140	●	●	●
TI15N-18UN-I	<a href="#">TMID6618I</a>	18	1.500	.140	●	●	●
TI15N-16UN-I	<a href="#">TMID6616I</a>	16	1.500	.140	●	●	●
TI15N-14UN-I	<a href="#">TMID6614I</a>	14	1.500	.140	●	●	●
TI15N-12UN-I	<a href="#">TMID6612I</a>	12	1.500	.140	●	●	●
TI15N-10UN-I	<a href="#">TMID6610I</a>	10	1.500	.140	●	●	●
TI15N-8UN-I	<a href="#">TMID6608I</a>	8	1.500	.140	●	●	●
TI15N-7UN-I	<a href="#">TMID6607I</a>	7	1.500	.140	●	●	●
TI15N-6UN-I	<a href="#">TMID6606I</a>	6	1.500	.140	●	●	●

## UNJ THREADING

TI\_N

Neutral Rake

Internal



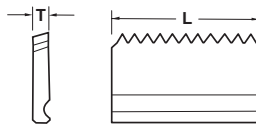
Description	EDP Code	TPI	L	T	Coating		
					C3	GP3	ZS3
TI1N-32UNJ-I	<a href="#">TMIC6832I</a>	32	1.000	.140	●	●	●
TI1N-24UNJ-I	<a href="#">TMIC6824I</a>	24	1.000	.140	●	●	●
TI1N-20UNJ-I	<a href="#">TMIC6820I</a>	20	1.000	.140	●	●	●
TI1N-18UNJ-I	<a href="#">TMIC6818I</a>	18	1.000	.140	●	●	●
TI1N-16UNJ-I	<a href="#">TMIC6816I</a>	16	1.000	.140	●	●	●
TI1N-12UNJ-I	<a href="#">TMIC6812I</a>	12	1.000	.140	●	●	●
TI1N-10UNJ-I	<a href="#">TMIC6810I</a>	10	1.000	.140	●	●	●
TI15N-24UNJ-I	<a href="#">TMID6824I</a>	24	1.500	.140	●	●	●
TI15N-20UNJ-I	<a href="#">TMID6820I</a>	20	1.500	.140	●	●	●
TI15N-18UNJ-I	<a href="#">TMID6818I</a>	18	1.500	.140	●	●	●
TI15N-16UNJ-I	<a href="#">TMID6816I</a>	16	1.500	.140	●	●	●
TI15N-12UNJ-I	<a href="#">TMID6812I</a>	12	1.500	.140	●	●	●
TI15N-10UNJ-I	<a href="#">TMID6810I</a>	10	1.500	.140	●	●	●
TI15N-8UNJ-I	<a href="#">TMID6808I</a>	8	1.500	.140	●	●	●

## ISO THREADING

TI15N

Neutral Rake

Internal



Description	EDP Code	TPI	L	T	Coating		
					C3	GP3	ZS3
TI15N-6.0 ISO-I	<a href="#">TMID7060I</a>	6.0	1.500	.140	●	●	●
TI15N-5.0 ISO-I	<a href="#">TMID7050I</a>	5.0	1.500	.140	●	●	●
TI15N-4.5 ISO-I	<a href="#">TMID7045I</a>	4.5	1.500	.140	●	●	●
TI15N-4.0 ISO-I	<a href="#">TMID7040I</a>	4.0	1.500	.140	●	●	●
TI15N-3.5 ISO-I	<a href="#">TMID7035I</a>	3.5	1.500	.140	●	●	●
TI15N-3.0 ISO-I	<a href="#">TMID7030I</a>	3.0	1.500	.140	●	●	●
TI15N-2.5 ISO-I	<a href="#">TMID7025I</a>	2.5	1.500	.140	●	●	●
TI15N-2.0 ISO-I	<a href="#">TMID7020I</a>	2.0	1.500	.140	●	●	●
TI15N-1.5 ISO-I	<a href="#">TMID7015I</a>	1.5	1.500	.140	●	●	●



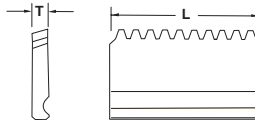
# TC SERIES THREADMILLING

## ACME THREADING

TI\_N

Neutral Rake - Full Profile

Internal/External



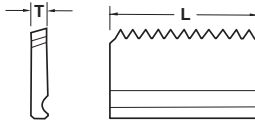
Description	EDP Code	TPI	L	T	C3	GP3	ZS3
T11N-12ACME-I/E	TMIC0212I/E	12	1.000	.140	●	●	●
T11N-10ACME-I/E	TMIC0210I/E	10	1.000	.140	●	●	●
T11N-8ACME-I/E	TMIC0208I/E	8	1.000	.140	●	●	●
T115N-12ACME-I/E	TMID0212I/E	12	1.500	.140	●	●	●
T115N-10ACME-I/E	TMID0210I/E	10	1.500	.140	●	●	●
T115N-8ACME-I/E	TMID0208I/E	8	1.500	.140	●	●	●
T115N-6ACME-I/E	TMID0206I/E	6	1.500	.140	●	●	●
T115N-5ACME-I/E	TMID0205I/E	5	1.500	.140	●	●	●
T115N-4ACME-I/E	TMID0204I/E	4	1.500	.140	●	●	●

## UN THREADING

TI\_N

Neutral Rake

External



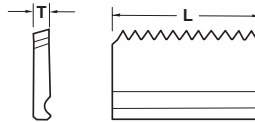
Description	EDP Code	TPI	L	T	Coating		
					Uncoated	TIN Coated	AlTiN Coated
					C3	GP3	ZS3
T11N-32UN-E	TMIC6632E	32	1.000	.140	●	●	●
T11N-24UN-E	TMIC6624E	24	1.000	.140	●	●	●
T11N-20UN-E	TMIC6620E	20	1.000	.140	●	●	●
T11N-18UN-E	TMIC6618E	18	1.000	.140	●	●	●
T11N-16UN-E	TMIC6616E	16	1.000	.140	●	●	●
T11N-12UN-E	TMIC6612E	12	1.000	.140	●	●	●
T11N-10UN-E	TMIC6610E	10	1.000	.140	●	●	●
T115N-24UN-E	TMID6624E	24	1.500	.140	●	●	●
T115N-20UN-E	TMID6620E	20	1.500	.140	●	●	●
T115N-18UN-E	TMID6618E	18	1.500	.140	●	●	●
T115N-16UN-E	TMID6616E	16	1.500	.140	●	●	●
T115N-12UN-E	TMID6612E	12	1.500	.140	●	●	●
T115N-10UN-E	TMID6610E	10	1.500	.140	●	●	●
T115N-8UN-E	TMID6608E	8	1.500	.140	●	●	●
T115N-6UN-E	TMID6606E	6	1.500	.140	●	●	●

## UNJ THREADING

TI\_N

Neutral Rake

External



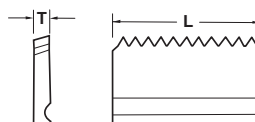
Description	EDP Code	TPI	L	T	Coating		
					Uncoated	TIN Coated	AlTiN Coated
					C3	GP3	ZS3
T11N-32UNJ-E	TMIC6832E	32	1.000	.140	●	●	●
T11N-24UNJ-E	TMIC6824E	24	1.000	.140	●	●	●
T11N-20UNJ-E	TMIC6820E	20	1.000	.140	●	●	●
T11N-18UNJ-E	TMIC6818E	18	1.000	.140	●	●	●
T11N-16UNJ-E	TMIC6816E	16	1.000	.140	●	●	●
T11N-12UNJ-E	TMIC6812E	12	1.000	.140	●	●	●
T11N-10UNJ-E	TMIC6810E	10	1.000	.140	●	●	●
T115N-24UNJ-E	TMID6824E	24	1.500	.140	●	●	●
T115N-20UNJ-E	TMID6820E	20	1.500	.140	●	●	●
T115N-18UNJ-E	TMID6818E	18	1.500	.140	●	●	●
T115N-16UNJ-E	TMID6816E	16	1.500	.140	●	●	●
T115N-12UNJ-E	TMID6812E	12	1.500	.140	●	●	●
T115N-10UNJ-E	TMID6810E	10	1.500	.140	●	●	●
T115N-8UNJ-E	TMID6808E	8	1.500	.140	●	●	●

## ISO THREADING

TI15N

Neutral Rake

External



Description	EDP Code	TPI	L	T	Coating		
					Uncoated	TIN Coated	AlTiN Coated
					C3	GP3	ZS3
T115N-6.0 ISO-E	TMID7060E	6.0	1.500	.140	●	●	●
T115N-5.0 ISO-E	TMID7050E	5.0	1.500	.140	●	●	●
T115N-4.5 ISO-E	TMID7045E	4.5	1.500	.140	●	●	●
T115N-4.0 ISO-E	TMID7040E	4.0	1.500	.140	●	●	●
T115N-2.0 ISO-E	TMID7020E	2.0	1.500	.140	●	●	●

THREAD MILLING



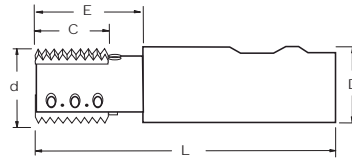
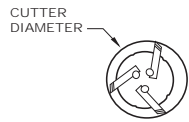
# TC SERIES THREADMILLING



## UN/NPT/ISO/ACME/API THREADING

### TCP\_ Cutter Bodies

Internal/External

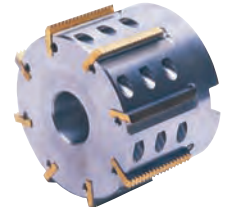
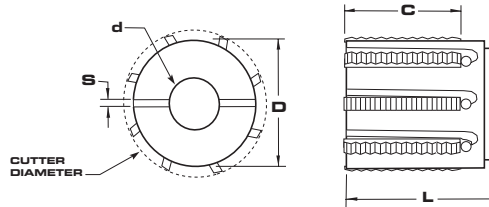


Description	EDP Code	Insert	Coolant Port	D	d	E	L	Cutter Dia. (UN/115NPT)	Cutter Dia. (8NPT)	C	Flutes	Screw	Pin
TCP1 100-969-2	<a href="#">IMPB169692</a>	TI1N		1.000	.750	1.500	4.500	.969	.969	1.000	2	TSS-3	DP1
TCP1 125-175-5	<a href="#">IMPB201755</a>	TI1N	✓	1.250	1.500	1.750	4.000	1.755	1.755	1.000	5	TSS-2	DP1
TCP15 100-932-1	<a href="#">IMPC169321</a>	TI15N		1.000	.722	1.900	4.500	.932	1.065	1.500	1	TSS-2	<a href="#">DP135</a>
TCP15 100-111-3	<a href="#">IMPC161113</a>	TI15N	✓	1.000	.812	2.000	4.500	1.116	1.247	1.500	3	TSS-3	<a href="#">DP135</a>
TCP15 125-175-5	<a href="#">IMPC201755</a>	TI15N	✓	1.250	1.500	2.550	4.500	1.755	1.888	1.500	5	TSS-2	<a href="#">DP135</a>
TCP15 125-175-5L	<a href="#">IMPC201755L</a>	TI15N	✓	1.250	1.500	2.750	8.750	1.755	1.888	1.500	5	TSS-2	<a href="#">DP135</a>

## UN/NPT/ISO/ACME THREADING

### TCS\_ Shell Mill Cutter Bodies

Internal/External

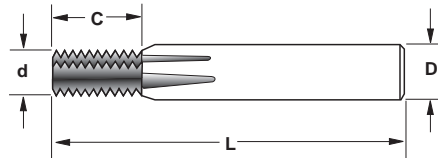


Description	EDP Code	Insert	D	d	S	L	Cutter Dia.	C	Flutes	Pin	Screw
TCS15 200-234-6	<a href="#">TMSC322346</a>	TI15N	2.000	.750	.250	2.250	2.349	1.500	6	<a href="#">DP135</a>	TSS-2
TCS15 250-274-7	<a href="#">TMSC402747</a>	TI15N	2.500	1.000	.375	2.250	2.846	1.500	7	<a href="#">DP135</a>	TSS-2
TCS15 300-334-8	<a href="#">TMSC483348</a>	TI15N	3.000	1.250	.500	2.250	3.341	1.500	8	<a href="#">DP135</a>	TSS-2

## UN THREADING

### TSSI Solid Threadmills

Internal

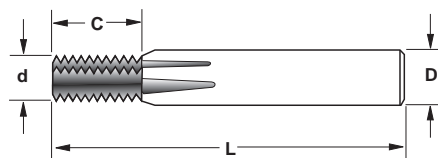


Min. I.D. Thread/Pitch	Description	EDP Code	d	C	Flutes	D	L	AC22
8-32	TSSI 125-120-32UN	TMCS0012032U	.120	.250	3	.125	1.500	●
12-24	TSSI 187-140-24UN	TMCS0114024U	.140	.417	3	.187	1.650	●
12-28	TSSI 187-145-28UN	TMCS0114528U	.145	.321	3	.187	1.650	●
10-32	TSSI 187-140-32UN	TMCS0114032U	.140	.343	3	.187	1.650	●
1/4-20	TSSI 187-160-20UN	TMCS0116020U	.160	.400	3	.187	1.650	●
5/16-18	TSSI 250-200-18UN	TMCS0220018U	.200	.500	3	.250	2.250	●
5/16-24	TSSI 250-200-24UN	TMCS0220024U	.200	.500	3	.250	2.250	●
3/8-16	TSSI 250-240-16UN	TMCS0224016U	.240	.563	5	.250	2.250	●
3/8-24	TSSI 250-240-24UN	TMCS0224024U	.240	.583	5	.250	2.250	●
7/16-14	TSSI 312-310-14UN	TMCS0431014U	.310	.625	5	.312	2.480	●
7/16-20	TSSI 312-310-20UN	TMCS0431020U	.310	.750	5	.312	2.480	●
1/2-13	TSSI 312-310-13UN	TMCS0431013U	.310	.769	5	.312	2.480	●
9/16-12	TSSI 375-375-12UN	TMCS0637512U	.375	.917	5	.375	2.840	●
9/16-18	TSSI 375-375-18UN	TMCS0637518U	.370	.944	5	.375	2.840	●
5/8-11	TSSI 500-437-11UN	TMCS0843711U	.437	1.090	5	.500	3.270	●
3/4-10	TSSI 500-470-10UN	TMCS0847010U	.470	1.100	5	.500	3.270	●
3/4-12	TSSI 500-470-12UN	TMCS0847012U	.470	1.167	5	.500	3.270	●
7/8-14	TSSI 500-470-14UN	TMCS0847014U	.470	1.142	5	.500	3.270	●
1-8	TSSI 625-620-8UN	TMCS1062008U	.620	1.500	6	.625	3.620	●

## NPT THREADING

### TSSX Solid Threadmills

Internal/External



Min. I.D. Thread/Pitch	Description	EDP Code	d	C	Flutes	D	L	AC22
1/16&1/8-27	TSSX 250-240-27NPT	TMCS0224027N	.240	.370	5	.250	2.250	●
1/4&3/8-18	TSSX 312-310-18NPT	TMCS0431018N	.310	.556	5	.312	2.480	●
1/2&3/4-14	TSSX 500-470-14NPT	TMCS0847014N	.470	.786	5	.500	3.270	●

THREAD MILLING

AITN Coated

AITN Coated



# TC SERIES THREADMILLING

## Threadmilling Kits



### NPT THREADING KITS

1 8NPT-THREADING

#### KIT #101

Kit Contents

1	TCT75 500-400-1
4	TI75-18NPT AC3
1	T8 WRENCH
1	TS252 INSERT SCREW

1 4NPT-THREADING

#### KIT #102

Kit Contents

1	TCT1 500-659-1
4	TI1P-14NPT AC3
1	T8 WRENCH
1	TS252 INSERT SCREW

### UN THREADING KITS

1 6UN-THREADING

#### KIT #201

Kit Contents

1	TCN75 500-394-1
4	TI75P-16UN AC3
1	T8 WRENCH
1	TS252 INSERT SCREW

1 8UN-THREADING

#### KIT #202

Kit Contents

1	TCN75 500-394-1
4	TI75P-18UN AC3
1	T8 WRENCH
1	TS252 INSERT SCREW

2 0UN-THREADING

#### KIT #203

Kit Contents

1	TCN75 500-394-1
4	TI75P-20UN AC3
1	T8 WRENCH
1	TS252 INSERT SCREW

2 4UN-THREADING

#### KIT #204

Kit Contents

1	TCN75 500-394-1
4	TI75P-24UN AC3
1	T6 WRENCH
1	TS252 INSERT SCREW

3 2UN-THREADING

#### KIT #205

Kit Contents

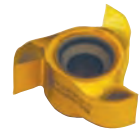
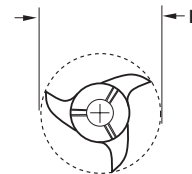
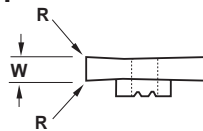
1	TCN75 500-394-1
4	TI75P-32UN AC3
1	T6 WRENCH
1	TS252 INSERT SCREW

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

## MILL GROOVING INSERT

TFMG

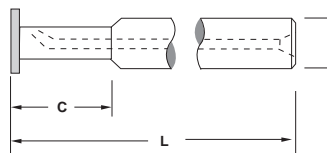
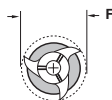
Grooving



Description	EDP Code	W	D.O.C.	R	F	GP22
TFMG-039W	<a href="#">9MG039</a>	0.039	.177	-	0.854	●
TFMG-056W	<a href="#">9MG056</a>	0.056	.177	-	0.854	●
TFMG-062W	<a href="#">9MG062</a>	0.062	.177	0.008	0.854	●
TFMG-078W	<a href="#">9MG078</a>	0.078	.177	0.008	0.854	●
TFMG-094W	<a href="#">9MG094</a>	0.094	.177	0.008	0.854	●
TFMG-125W	<a href="#">9MG125</a>	0.125	.177	0.008	0.854	●
TFMG-187W	<a href="#">9MG187</a>	0.187	.177	0.008	0.854	●
TFMG-250W	<a href="#">9MG250</a>	0.250	.177	0.008	0.854	●

## MILL GROOVING HOLDER

TFM



Description	EDP Code	C	L	D	F	Insert Screw
TFM-7-12M-100C	<a href="#">9CMI712M100</a>	Straight shank	100mm	12mm	0.854	SD25
TFM-7-12M-130C	<a href="#">9CMI712M130</a>	Straight shank	130mm	12mm	0.854	SD25
TFM-7-16M-42C	<a href="#">9CMI716M42</a>	42mm	100mm	16mm	0.854	SD25
TFM-7-16M-60C	<a href="#">9CMI716M60</a>	60mm	130mm	16mm	0.854	SD25
TFM-7-16M-85C	<a href="#">9CMI716M85</a>	85mm	160mm	16mm	0.854	SD25
TFM-7-500-394C	<a href="#">9CMI7500394</a>	Straight shank	3.94	0.500	0.854	SD25
TFM-7-500-512C	<a href="#">9CMI7500512</a>	Straight shank	5.12	0.500	0.854	SD25
TFM-7-625-165C	<a href="#">9CMI7625165</a>	1.650	3.94	0.625	0.854	SD25
TFM-7-625-236C	<a href="#">9CMI7625236</a>	2.630	5.12	0.625	0.854	SD25
TFM-7-625-335C	<a href="#">9CMI7625335</a>	3.350	6.30	0.625	0.854	SD25

THREAD MILLING



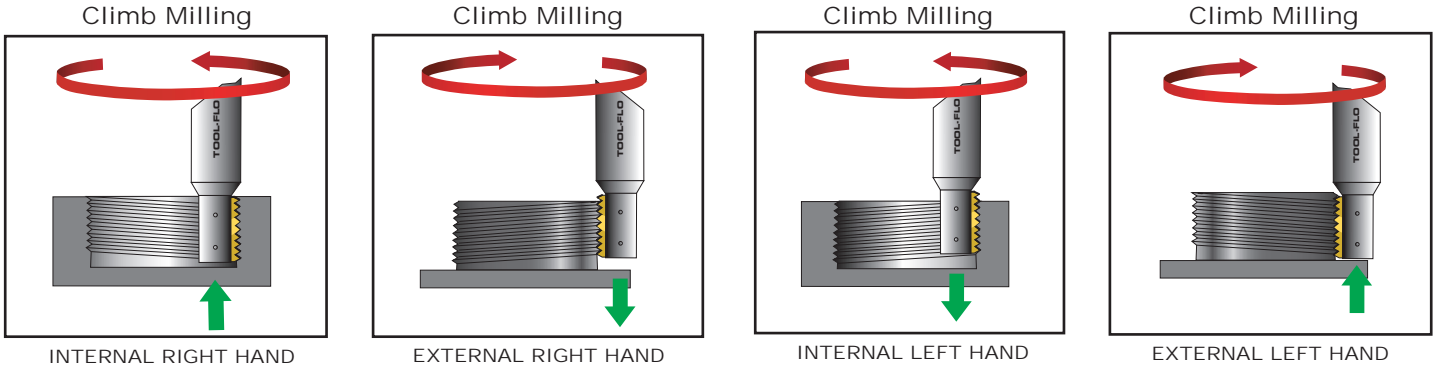
## Technical Information

### NPT & NPTF

When programming an NPT or NPTF thread form, a correction factor to compensate for the tapered thread form may need to be made. This is achieved by dividing the circular move into quarters or eighths, and moving the cutter out as the arc is generated so that the taper is included in the movement. The amount of taper for a given form is determined by the following formula:

$$\text{Taper per pitch} = \frac{.0625''}{\text{pitch}}$$

This amount of taper per pitch is then divided by number of programmed quadrants. This determines the amount that the cutter forms of the thread.



NPT SELECTION CHART		
SIZE	CUTTER	INSERT
1/4", 3/8"	TCT75 500-400-1	TI75P-18NPT
1/2", 3/4"	TCT1 500-659-1	TI1P-14NPT
1"	TCP15 100-932-1	TI15N-11.5NPT
1-1/4", 1-1/2"	TCP15 100-111-3	TI15N-11.5NPT
2"	TCP15 125-175-5	TI15N-11.5NPT
3"	TCP15 125-175-5	TI15N-8NPT

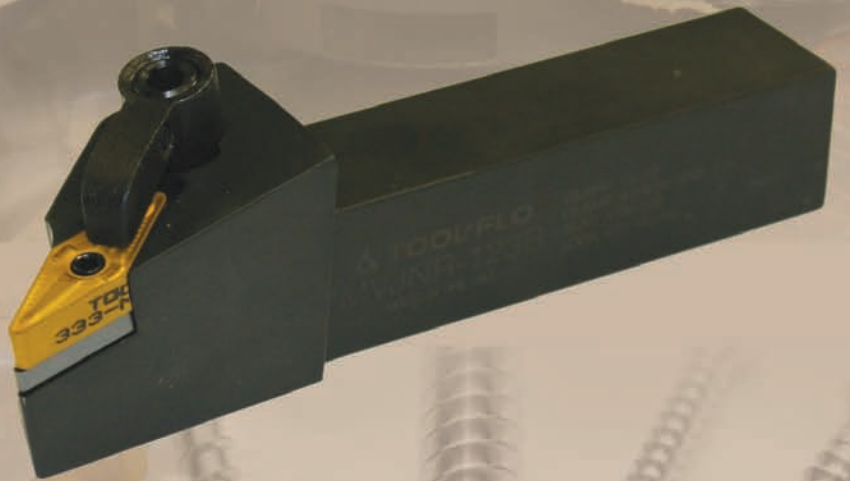
RECOMMENDED SPEED AND FEED RATES		
MATERIAL	CHIP LOAD	SPEED (SFPM)
1018 Steel	.0008 - .002	250 - 500
Standard steel (4140)	.0005 - .002	175 - 350
300 Series Stainless	.0005 - .0035	250 - 500
400 Series Stainless	.0002 - .0015	125 - 300
Gray Iron	.0005 - .003	400 - 800
Ductile iron	.001 - .005	600 - 1000
Aluminum	.0015 - .006	800 - 1200
Brass	.002 - .0065	400 - 700

### Minimum internal thread size vs pitch for given cutter body for UN threads

cutter body description	pitch	32	24	20	18	16	14	12	10	8
TCN75 500-394-1		1/2"	1/2"	1/2"	9/16"	9/16"	9/16"	9/16"		
TCN75 500-468-1		5/8"	5/8"	5/8"	5/8"	5/8"	11/16"	11/16"		
TCN1 750-625-1		3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"		
TCP1 100-969-2		1-1/8"	1-1/8"	1-1/8"	1-3/16"	1-3/16"	1-3/16"	1-3/16"		
TCP1 125-175-5		1-15/16"	1-15/16"	1-15/16"	1-15/16"	1-15/16"	1-15/16"	1-15/16"		
TCP15 100-932-1				1-1/8"	1-1/8"	1-1/8"	1-1/8"	1-1/8"	1-1/8"	1-1/8"
TCP15 100-111-3				1-5/16"	1-5/16"	1-5/16"	1-5/16"	1-5/16"	1-3/8"	1-3/8"
TCP15 125-175-5				1-15/16"	1-15/16"	1-15/16"	2"	2"	2"	2"



# TOOL FLO



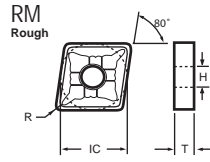
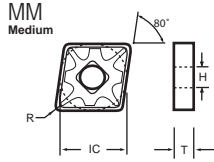
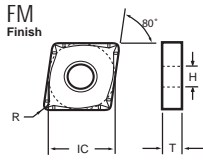
# TURNING



# TURNING

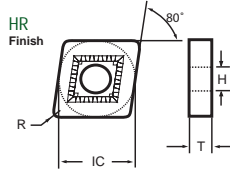


## CNMG 80° General Purpose



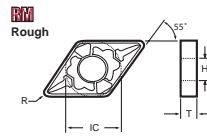
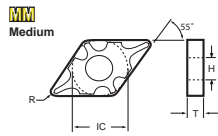
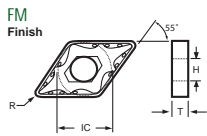
ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
CNMG-322 MM	CNMG-090308 MM	JBMGG2MM	.375	.031	.125	.150	●	●		
CNMG-431 FM	CNMG-120404 FM	JBMGJ1FM	.500	.016	.187	.203	●	●		●
CNMG-431 MM	CNMG-120404 MM	JBMGJ1MM	.500	.016	.187	.203	●	●		
CNMG-432 FM	CNMG-120408 FM	JBMGJ2FM	.500	.031	.187	.203	●	●		●
CNMG-432 MM	CNMG-120408 MM	JBMGJ2MM	.500	.031	.187	.203	●	●		
CNMG-432 RM	CNMG-120408 RM	JBMGJ2RM	.500	.031	.187	.203	●	●	●	
CNMG-433 MM	CNMG-120412 MM	JBMGJ3MM	.500	.047	.187	.203	●	●		
CNMG-433 RM	CNMG-120412 RM	JBMGJ3RM	.500	.047	.187	.203	●	●	●	
CNMG-543 RM	CNMG-160612 RM	JBMG3RM	.625	.047	.250	.253	●	●		
CNMG-643 RM	CNMG-190612 RM	JBMGR3RM	.750	.047	.250	.313	●	●		
CNMG-644 RM	CNMG-190616 RM	JBMGR4RM	.750	.063	.250	.313	●	●		

## CNMM 80° Roughing



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
CNMM-432 HR	CNMM-120408 HR	JBMMJ2HR	.500	.031	.187	.203	●	●		
CNMM-433 HR	CNMM-120412 HR	JBMMJ3HR	.500	.047	.187	.203	●	●		
CNMM-543 HR	CNMM-160612 HR	JBMMO3HR	.625	.047	.250	.253	●	●		
CNMM-644 HR	CNMM-090616 HR	JBMMR4HR	.750	.063	.250	.313	●	●		

## DNMG 55° General Purpose



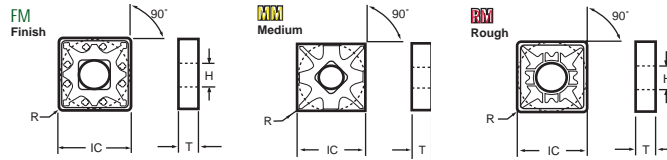
ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
DNMG-331 MM	DNMG-110404 MM	JEMGG1MM	.375	.016	.187	.150				
DNMG-332 MM	DNMG-110408 MNS	JEMGG2MM	.375	.031	.187	.150				
DNMG-431 FM	DNMG-150404 FM	JEMGJ1FM	.500	.016	.187	.203	●	●		
DNMG-431 MM	DNMG-150404 MM	JEMGJ1MM	.500	.016	.187	.203	●	●		
DNMG-432 FM	DNMG-150408 FM	JEMGJ2FM	.500	.031	.187	.203	●	●		
DNMG-432 MM	DNMG-150408 MM	JEMGJ2MM	.500	.031	.187	.203	●	●		
DNMG-432 RM	DNMG-150408 RM	JEMGJ2RM	.500	.031	.187	.203	●	●	●	
DNMG-433 MM	DNMG-150412 MM	JEMGJ3MM	.500	.047	.187	.203	●	●		
DNMG-433 RM	DNMG-150412 RM	JEMGJ3RM	.500	.047	.187	.203	●	●	●	
DNMG-441 FM	DNMG-150604 FM	JEMGN1FM	.500	.016	.250	.203	●	●		
DNMG-442 FM	DNMG-150608 FM	JEMGN2FM	.500	.031	.250	.203	●	●		
DNMG-442 MM	DNMG-150608 MM	JEMGN2MM	.500	.031	.250	.203	●	●		
DNMG-442 RM	DNMG-150608 RM	JEMGN2RM	.500	.031	.250	.203	●	●		
DNMG-443 MM	DNMG-150612 MM	JEMGN2MM	.500	.047	.250	.203				
DNMG-443 RM	DNMG-150612 RM	JEMGN3RM	.500	.047	.250	.203				
DNMG-444 RM	DNMG-150616 RM	JEMGN3RM	.500	.063	.250	.203				

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.



# TURNING

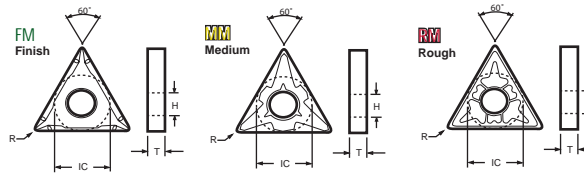
## SNMG 90° General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
SNMG-431 FM	SNMG-120404 FM	JNMGJ1FM	.500	.016	.187	.203				
SNMG-432 FM	SNMG-120408 FM	JNMGJ2FM	.500	.031	.187	.203	●	●		
SNMG-432 MM	SNMG-120408 MM	JNMGJ2MM	.500	.031	.187	.203	●	●		
SNMG-432 RM	SNMG-120408 RM	JNMGJ2RM	.500	.031	.187	.203	●	●		●
SNMG-433 RM	SNMG-120412 RM	JNMGJ3RM	.500	.047	.187	.203	●	●		●

Steel grades	Steel grades
Cast iron grades	Cast iron grades
Stainless/Exotic	Stainless/Exotic

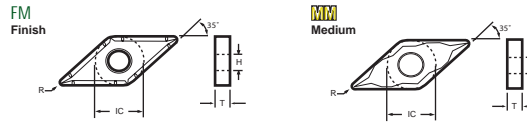
## TNMG 60° General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
TNMG-331 FM	TNMG-160404 MNS	JTMGH1MNS	.375	.016	.187	.150				
TNMG-331 MM	TNMG-160408 FNC	JTMGH2FNC	.375	.031	.187	.150	●			
TNMG-332 FM	TNMG-160408 FNS	JTMGH2FNS	.375	.031	.187	.150		●	●	
TNMG-332 MM	TNMG-160408 MNS	JTMGH2MNS	.375	.031	.187	.150				
TNMG-332 RM	TNMG-160408 RNS	JTMGH2RNS	.375	.031	.187	.150	●			
TNMG-333 MM	TNMG-160412 MNS	JTMGH3MNS	.375	.047	.187	.150				
TNMG-333 RM	TNMG-160412 RNS	JTMGH3RNS	.375	.047	.187	.150	●			

Steel grades	Steel grades
Cast iron grades	Cast iron grades
Stainless/Exotic	Stainless/Exotic

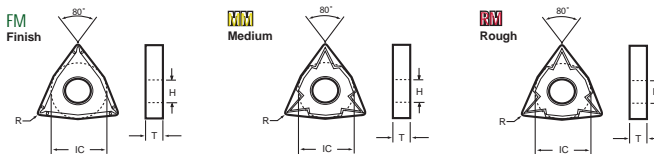
## VNMG 35° General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
VNMG-331 FM	VNMG-160404 FM	JXMGH1FM	.375	.016	.187	.150				
VNMG-331 MM	VNMG-160404 MM	JXMGH1MM	.375	.016	.187	.150	●			

Steel grades	Steel grades
Cast iron grades	Cast iron grades
Stainless/Exotic	Stainless/Exotic

## WNMG 80° General Purpose



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
WNMG-332 MM	WNMG-060408 MM	JZMAH2MM	.375	.031	.187	.150				
WNMG-431 FM	WNMG-080404 FM	JZMAJ1FM	.500	.016	.187	.203	●			
WNMG-431 MM	WNMG-080404 MM	JZMAJ1MM	.500	.016	.187	.203				
WNMG-432 FM	WNMG-080408 FM	JZMAJ2FM	.500	.031	.187	.203	●			
WNMG-432 MM	WNMG-080408 MM	JZMAJ2MM	.500	.031	.187	.203	●			
WNMG-432 RM	WNMG-080408 RM	JZMAJ2RM	.500	.031	.187	.203	●			
WNMG-433 MM	WNMG-080412 MM	JZMAJ3MM	.500	.047	.187	.203				
WNMG-433 RM	WNMG-080412 RM	JZMAJ2RM	.500	.047	.187	.203	●			

Steel grades	Steel grades
Cast iron grades	Cast iron grades
Stainless/Exotic	Stainless/Exotic

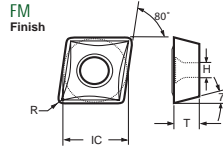
TURNING

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.

# TURNING



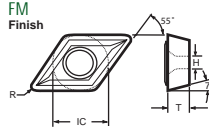
## CCMT 80° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
CCMT-21.51 FM	CCMT-060204 FM	JAMTD1FM	.250	.016	.094	.114				●
CCMT-32.51 FM	CCMT-09T304 FM	JAMTG1FM	.375	.016	.156	.177				●
CCMT-32.52 FM	CCMT-09T308 FM	JAMTG2FM	.375	.031	.156	.177				●
CCMT-431 FM	CCMT-120404 FM	JAMTJ1FM	.500	.016	.187	.203				●
CCMT-432 FM	CCMT-120408 FM	JAMTJ2FM	.500	.031	.187	.203				●

Steel grades	Steel grades	Cast iron grades	Stainless/Exotic
AGS50	AGS54	AS20	APS35

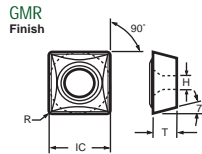
## DCMT 55° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
DCMT-21.51 FM	DCMT-070204 FM	JDMTD1FM	.250	.016	.094	.114		●	●	
DCMT-21.52 FM	DCMT-070208 FM	JDMTD2FM	.250	.031	.094	.114		●	●	
DCMT-32.51 FM	DCMT-11T302 FM	JDMTG0FM	.375	.016	.156	.177		●	●	
DCMT-32.52 FM	DCMT-11T304 FM	JDMTG2FM	.375	.031	.156	.177		●	●	

Steel grades	Steel grades	Cast iron grades	Stainless/Exotic
AGS50	AGS54	AS20	APS35

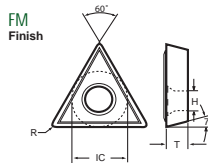
## SCMT 90° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
SCMT-32.51 GMR	SCMT-09T304 GMR	JLMTG1GMR	.375	.016	.156	.117	●			

Steel grades	Steel grades	Cast iron grades	Stainless/Exotic
AGS50	AGS54	AS20	APS35

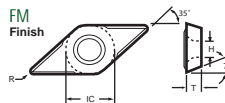
## TCMT 60° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
TCMT-21.51 FM	TCMT-110204 FM	JQMTD1FM	.250	.016	.094	.114	●		●	
TCMT-21.52 FM	TCMT-110208 FM	JQMTD2FM	.250	.031	.094	.114				
TCMT-32.51 FM	TCMT-16T304 FM	JQMTG1FM	.375	.016	.156	.177	●			
TCMT-32.52 FM	TCMT-16T308 FM	JQMTG2FM	.375	.031	.156	.177	●			

Steel grades	Steel grades	Cast iron grades	Stainless/Exotic
AGS50	AGS54	AS20	APS35

## VCMT 35° Screwdown



ANSI Description	ISO Description	EDP Code	IC	R	T	H	AGS50	AGS54	AS20	APS35
VCMT-331 FM	VCMT-160404 FM	JWMT1FM	.375	.016	.187	.173	●	●		
VCMT-332 FM	VCMT-160408 FM	JWMT2FM	.375	.031	.187	.173	●	●		

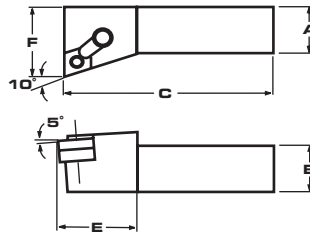
Steel grades	Steel grades	Cast iron grades	Stainless/Exotic
AGS50	AGS54	AS20	APS35

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# TURNING

## MCFNL/R 10° Holder for 80° Diamond



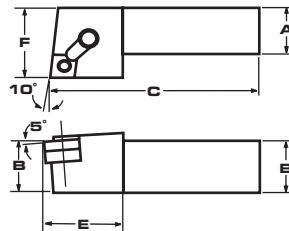
RH SHOWN

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

### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock			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



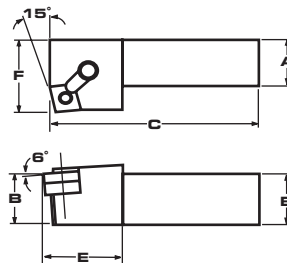
RH SHOWN

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

### 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

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

### 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	

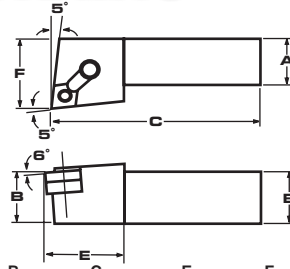


# TURNING



## MCLNL/R 5° Holder for 80° Diamond

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



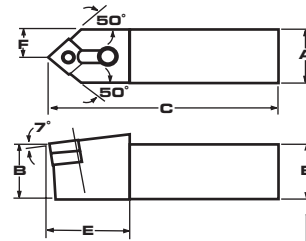
RH SHOWN

### PARTS

Description	EDP Code	Insert	A	B	C	E	F	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

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

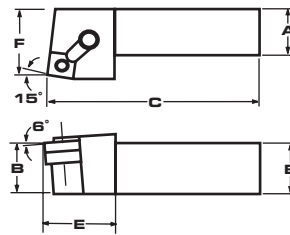


### PARTS

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

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



RH SHOWN

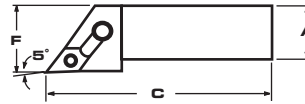
### PARTS

Description	EDP Code	Insert	A	B	C	E	F	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



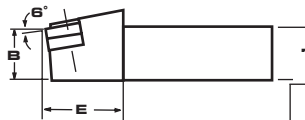
# TURNING

## MDJNL/R 5° Holder for 55° Diamond



RH SHOWN

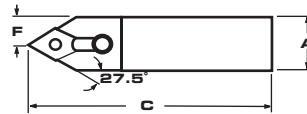
Most holders available with coolant port  
(ie: Add CP to end of description)



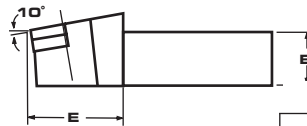
### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
MDJNR-124B	9T2921256B	DN_-43	0.750	0.750	4.500	1.380	1.000	IDSN-433	NL-46	TC-250	STC-11	S-46
MDJNL-124B	9T2901256B	DN_-43	0.750	0.750	4.500	1.380	1.000	IDSN-433	NL-46	TC-250	STC-11	S-46
MDJNR-164D	9T2921656D	DN_-43	1.000	1.000	6.000	1.240	1.250	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNL-164D	9T2901656D	DN_-43	1.000	1.000	6.000	1.240	1.250	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNR-204D	9T2922056D	DN_-43	1.250	1.250	6.000	1.240	1.500	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNL-204D	9T2902056D	DN_-43	1.250	1.250	6.000	1.240	1.500	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNR-854D	9T2924456D	DN_-43	1.000	1.250	6.000	1.240	1.250	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNL-854D	9T2904456D	DN_-43	1.000	1.250	6.000	1.240	1.250	IDSN-433	NL-46	CL-20	XNS-48	S-46
MDJNR-165D	9T2921664D	DN_-54	1.000	1.000	6.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNL-165D	9T2901664D	DN_-54	1.000	1.000	6.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNR-205D	9T2922064D	DN_-54	1.250	1.250	6.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNL-205D	9T2902064D	DN_-54	1.250	1.250	6.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNR-855D	9T2924464D	DN_-54	1.000	1.250	6.000	1.470	1.500	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNL-855D	9T2904464D	DN_-54	1.000	1.250	6.000	1.470	1.500	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNR-865E	9T2924664E	DN_-54	1.000	1.500	7.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58
MDJNL-865E	9T2904664E	DN_-54	1.000	1.500	7.000	1.470	1.250	IDSN-533	NL-58	CL-12	XNS-510	S-58

## MDPNN 27.5° Holder for 55° Diamond



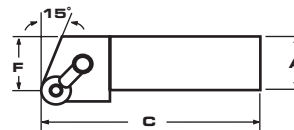
Most holders available with coolant port  
(ie: Add CP to end of description)



### PARTS

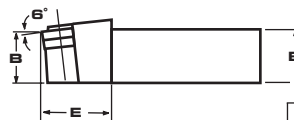
Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
MDPNN-164D	9T2961656D	DN_-43	1.000	1.000	6.000	1.630	0.519	IDSN-433	NL-46	CL-12	XNS-510	S-46
MDPNN-204D	9T2962056D	RN_-43	1.250	1.250	6.000	1.630	0.750	IDSN-433	NL-46	CL-12	XNS-510	S-46
MDPNN-165D	9T2961664D	DN_-54	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

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



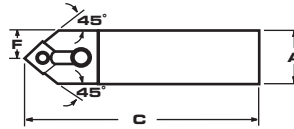
### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
MRGNR-164D	9T3141656D	RN_-43	1.000	1.000	6.000	1.250	1.250	IRSN-433	NL-46	CL-20	XNS-48	S-46
MRGNL-164D	9T3121656D	RN_-43	1.000	1.000	6.000	1.250	1.250	IRSN-433	NL-46	CL-20	XNS-48	S-46
MRGNR-165D	9T3141664D	RN_-54	1.000	1.000	6.000	1.380	1.250	IRSN-533	NL-58	CL-12	XNS-510	S-58
MRGNL-165D	9T3121664D	RN_-54	1.000	1.000	6.000	1.380	1.250	IRSN-533	NL-58	CL-12	XNS-510	S-58
MRGNR-205D	9T3142064D	RN_-54	1.250	1.250	6.000	1.380	1.500	IRSN-533	NL-58	CL-12	XNS-510	S-58
MRGNL-205D	9T3122064D	RN_-54	1.250	1.250	6.000	1.380	1.500	IRSN-533	NL-58	CL-12	XNS-510	S-58
MRGNR-166D	9T3141672D	RN_-64	1.000	1.000	6.000	1.500	1.250	IRSN-633	NL-68	CL-9	XNS-510	S-68
MRGNL-166D	9T3121672D	RN_-64	1.000	1.000	6.000	1.500	1.250	IRSN-633	NL-68	CL-9	XNS-510	S-68
MRGNR-206D	9T3142072D	RN_-64	1.250	1.250	6.000	1.500	1.500	IRSN-633	NL-68	CL-9	XNS-510	S-68
MRGNL-206D	9T3122072D	RN_-64	1.250	1.250	6.000	1.500	1.500	IRSN-633	NL-68	CL-9	XNS-510	S-68

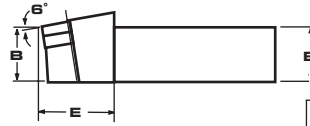
# TURNING



## MSDNN 45° Holder for 90° Square



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



### PARTS

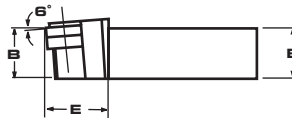
Description	EDP Code	Insert	A	B	C	E	F	Lock			Clamp	Seat
								Seat	Pin	Clamp	Screw	Screw
MSDNN-103B	9T3301048B	SN_-32	0.625	0.625	4.500	1.140	0.312	ISSN-322	NL-34	CL-6	XNS-36	S-34
MSDNN-123B	9T3301248B	SN_-32	0.750	0.750	4.500	1.140	0.375	ISSN-322	NL-34	CL-6	XNS-36	S-34
MSDNN-124B	9T3301256B	SN_-43	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

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



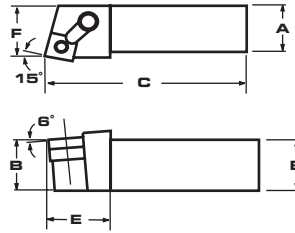
### PARTS

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



# TURNING

## MSRNL/R 15° Holder for 90° Square



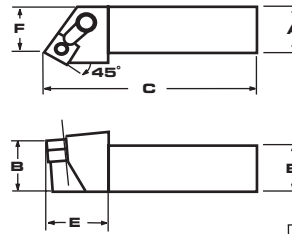
RH SHOWN

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

### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock			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

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

### 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	

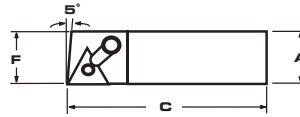
TURNING



# TURNING



## MTANL/R 5° Holder for 60° Triangle



RH SHOWN

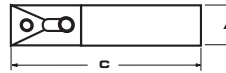
Most holders available with coolant port  
(ie: Add CP to end of description)



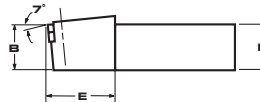
### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		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



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



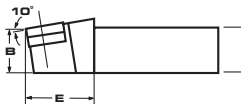
### PARTS

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	1.000	8.000	1.430	N/A	ITSN-433	NL-46	CL-12	XNS-59	S-46

## MTENNS 60° Holder for 60° Triangle



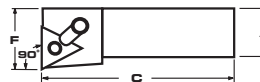
Most holders available with coolant port  
(ie: Add CP to end of description)



### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
MTENNS-103B	9T3681049B	TN_-33	0.625	0.625	4.500	1.160	0.312	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTENNS-123B	9T3681249B	TN_-33	0.750	0.750	4.500	1.160	0.375	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTENNS-853D	9T3684449D	TN_-33	1.000	1.250	6.000	1.160	0.500	ITSN-323	NL-34L	CL-6	XNS-36	N/A
MTENNS-104B	9T3681056B	TN_-43	0.625	0.625	4.500	1.140	0.312	ITSN-433	NL-46	CL-9	XNS-59	N/A
MTENNS-124B	9T3681256B	TN_-43	0.750	0.750	4.500	1.500	0.375	ITSN-433	NL-46	CL-9	XNS-59	N/A
MTENNS-164D	9T3681656B	TN_-43	1.000	1.000	6.000	1.500	0.500	ITSN-433	NL-46	CL-9	XNS-59	N/A
MTENNS-854D	9T3684456D	TN_-43	1.000	1.250	6.000	1.500	0.500	ITSN-433	NL-46	CL-9	XNS-59	N/A
MTENNS-864E	9T3684656E	TN_-43	1.000	1.500	7.000	1.500	0.500	ITSN-433	NL-46	CL-9	XNS-59	N/A
MTENNS-205D	9T3682064D	TN_-54	1.250	1.250	6.000	1.640	0.625	ITSN-533	NL-58	CL-9	XNS-510	N/A
MTENNS-246E	9T3682476E	TN_-64	1.500	1.500	7.000	1.950	0.750	ITSN-637	NL-68L	CL-12	XNS-510	N/A

## MTFNL/R 90° Holder for 60° Triangle



RH SHOWN

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



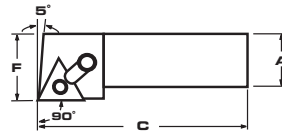
### PARTS

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
MTFNR-164D	9T3741656D	TN_-43	1.000	1.000	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNL-164D	9T3721656D	TN_-43	1.000	1.000	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNR-204D	9T3742056D	TN_-43	1.250	1.250	6.000	1.220	1.500	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNL-204D	9T3722056D	TN_-43	1.250	1.250	6.000	1.220	1.500	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNR-854D	9T3744456D	TN_-43	1.000	1.250	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNL-854D	9T3724456D	TN_-43	1.000	1.250	6.000	1.220	1.250	ITSN-433	NL-46	CL-9	XNS-510	S-46
MTFNR-165D	9T3741664D	TN_-54	1.000	1.000	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNL-165D	9T3721664D	TN_-54	1.000	1.000	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNR-205D	9T3742064D	TN_-54	1.250	1.250	6.000	1.430	1.500	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNL-205D	9T3722064D	TN_-54	1.250	1.250	6.000	1.430	1.500	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNR-855D	9T3744464D	TN_-54	1.000	1.250	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNL-855D	9T3724464D	TN_-54	1.000	1.250	6.000	1.430	1.250	ITSN-533	NL-58	CL-12	XNS-510	S-58
MTFNR-246E	9T3742476E	TN_-66	1.500	1.500	7.000	1.490	1.250	ITSN-633	NL-68L	CL-12	XNS-510	S-68
MTFNL-246E	9T3722476E	TN_-66	1.500	1.500	7.000	1.490	2.000	ITSN-633	NL-68L	CL-12	XNS-510	S-68



# TURNING

## MTGNL/R 90° Holder for 60° Triangle



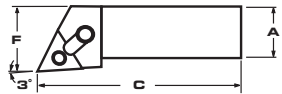
RH SHOWN

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

### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock			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



RH SHOWN

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

### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock			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



RH SHOWN

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

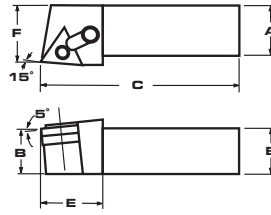
### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock			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	



## MTRNL/R 15° Holder for 60° Triangle

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



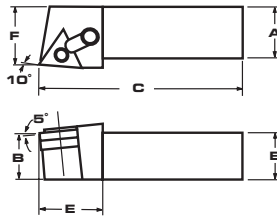
RH SHOWN

### PARTS

Description	EDP Code	Insert	A	B	C	E	F	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

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



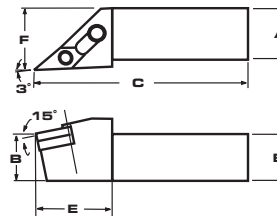
RH SHOWN

### PARTS

Description	EDP Code	Insert	A	B	C	E	F	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

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



RH SHOWN

### PARTS

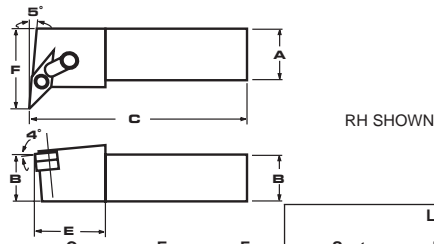
Description	EDP Code	Insert	A	B	C	E	F	Lock			Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw	
MVJNR-123B	9T4221249B	VN_-33	0.750	0.750	4.500	1.660	1.000	IVSN-324	NL-34L	CL-30	XNS-36	S-34	
MVJNL-123B	9T4181249B	VN_-33	0.750	0.750	4.500	1.660	1.000	IVSN-324	NL-34L	CL-30	XNS-36	S-34	
MVJNR-163C	9T4221649C	VN_-33	1.000	1.000	5.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-36	S-34	
MVJNL-163C	9T4181649C	VN_-33	1.000	1.000	5.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-36	S-34	
MVJNR-203D	9T4222049D	VN_-33	1.250	1.250	6.000	1.660	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVJNL-203D	9T4182049D	VN_-33	1.250	1.250	6.000	1.660	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVJNR-853D	9T4224449D	VN_-33	1.000	1.250	6.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVJNL-853D	9T4184449D	VN_-33	1.000	1.250	6.000	1.660	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVJNR-164D	9T4221656D	VN_-43	1.000	1.000	6.000	2.000	1.250	IVSN-433	NL-46	CL-30	XNS-510	S-46	
MVJNL-164D	9T4181656D	VN_-43	1.000	1.000	6.000	2.000	1.250	IVSN-433	NL-46	CL-30	XNS-510	S-46	
MVJNR-204D	9T4222056D	VN_-43	1.250	1.250	6.000	2.000	1.500	IVSN-433	NL-46	CL-30	XNS-510	S-46	
MVJNL-204D	9T4182056D	VN_-43	1.250	1.250	6.000	2.000	1.500	IVSN-433	NL-46	CL-30	XNS-510	S-46	
MVJNR-864E	9T4224656E	VN_-43	1.000	1.500	8.000	2.000	1.250	IVSN-433	NL-46	CL-30	XNS-510	S-46	
MVJNL-864E	9T4184656E	VN_-43	1.000	1.500	8.000	2.000	1.250	IVSN-433	NL-46	CL-30	XNS-510	S-46	



# TURNING

## MVLNL/R 5° Holder for 35° Diamond

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

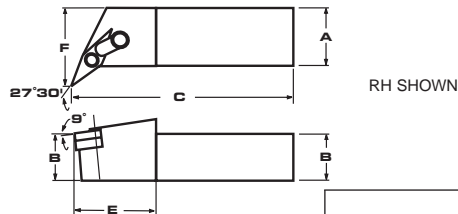


### PARTS

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

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

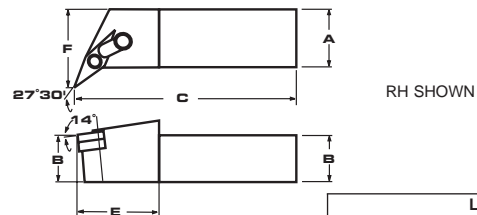


### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock			Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw	
MVNNR-123B	9T4341249B	VN_-33	0.750	0.750	4.500	0.940	1.000	IVSN-323	NL-34L	CL-6	XNS-36	S-34	
MVNNL-123B	9T4321249B	VN_-33	0.750	0.750	4.500	0.940	1.000	IVSN-323	NL-34L	CL-6	XNS-36	S-34	
MVNNR-163D	9T4341649D	VN_-33	1.000	1.000	6.000	1.220	1.250	IVSN-323	NL-34L	CL-6	XNS-36	S-34	
MVNNL-163D	9T4321649D	VN_-33	1.000	1.000	6.000	1.220	1.250	IVSN-323	NL-34L	CL-6	XNS-36	S-34	
MVNNR-203D	9T4342049D	VN_-33	1.250	1.250	6.000	1.220	1.500	IVSN-323	NL-34L	CL-6	XNS-36	S-34	
MVNNL-203D	9T4322049D	VN_-33	1.250	1.250	6.000	1.220	1.500	IVSN-323	NL-34L	CL-6	XNS-36	S-34	

## MVTNL/R 27.5° Holder for 35° Diamond

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

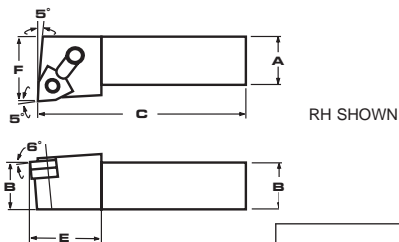


### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock			Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw	
MVTNR-123B	9T4461249B	VN_-33	0.750	0.750	4.500	1.710	1.000	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVTNL-123B	9T4441249B	VN_-33	0.750	0.750	4.500	1.710	1.000	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVTNR-163D	9T4461649D	VN_-33	1.000	1.000	6.000	1.710	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVTNL-163D	9T4441649D	VN_-33	1.000	1.000	6.000	1.710	1.250	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVTNR-203D	9T4462049D	VN_-33	1.250	1.250	6.000	1.710	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVTNL-203D	9T4442049D	VN_-33	1.250	1.250	6.000	1.710	1.500	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVTNR-243E	9T4462449E	VN_-33	1.500	1.500	7.000	1.710	1.750	IVSN-324	NL-34L	CL-30	XNS-510	S-34	
MVTNL-243E	9T4442449E	VN_-33	1.500	1.500	7.000	1.710	1.750	IVSN-324	NL-34L	CL-30	XNS-510	S-34	

## MWLNL/R 5° Holder for 80° Trigon

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



### PARTS

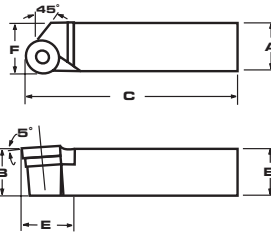
Description	EDP Code	Insert	A	B	C	E	F	Lock			Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw	
MWLNR-123B	9T4561249B	WN_-33	0.750	0.750	4.500	1.200	1.000	IWSN-323	NL-34L	CL-6	XNS-36	N/A	
MWLNL-123B	9T4541249B	WN_-33	0.750	0.750	4.500	1.200	1.000	IWSN-323	NL-34L	CL-6	XNS-36	N/A	
MWLNR-163D	9T4561649D	WN_-33	1.000	1.000	6.000	1.200	1.250	IWSN-323	NL-34L	CL-6	XNS-36	N/A	
MWLNL-163D	9T4541649D	WN_-33	1.000	1.000	6.000	1.200	1.250	IWSN-323	NL-34L	CL-6	XNS-36	N/A	
MWLNR-203D	9T4562049D	WN_-33	1.250	1.250	6.000	1.200	1.500	IWSN-323	NL-34L	CL-6	XNS-36	N/A	
MWLNL-203D	9T4542049D	WN_-33	1.250	1.250	6.000	1.200	1.500	IWSN-323	NL-34L	CL-6	XNS-36	N/A	
MWLNR-124B	9T4561256B	WN_-43	0.750	0.750	4.500	1.200	1.000	IWSN-433	NL-46	CL-20	XNS-47	N/A	
MWLNL-124B	9T4541256B	WN_-43	0.750	0.750	4.500	1.200	1.000	IWSN-433	NL-46	CL-20	XNS-47	N/A	
MWLNR-164D	9T4561656D	WN_-43	1.000	1.000	6.000	1.200	1.250	IWSN-433	NL-46	CL-20	XNS-47	N/A	
MWLNL-164D	9T4541656D	WN_-43	1.000	1.000	6.000	1.200	1.250	IWSN-433	NL-46	CL-20	XNS-47	N/A	
MWLNR-204D	9T4562056D	WN_-43	1.250	1.250	6.000	1.200	1.500	IWSN-433	NL-46	CL-20	XNS-47	N/A	
MWLNL-204D	9T4542056D	WN_-43	1.250	1.250	6.000	1.200	1.500	IWSN-433	NL-46	CL-20	XNS-47	N/A	



# TURNING



## RAL/R 45° Holder for Round Insert



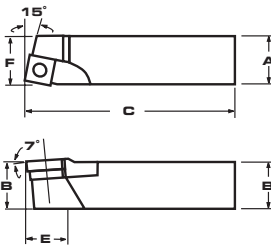
RH SHOWN

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

### PARTS

Description	EDP Code	Insert	A	B	C	E	F	Lock		Seat
								Seat	Pin	Screw
RAR-164	9T5121656	RN_-43	1.000	1.000	6.000	0.690	1.000	IRSN-43	CLP-38	N/A
RAL-164	9T5111656	RN_-43	1.000	1.000	6.000	0.690	1.000	IRSN-43	CLP-38	N/A
RAR-854	9T5124456	RN_-43	1.000	1.250	6.000	0.690	1.000	IRSN-43	CLP-310	N/A
RAL-854	9T5114456	RN_-43	1.000	1.250	6.000	0.690	1.000	IRSN-43	CLP-310	N/A
RAR-864	9T5124656	RN_-43	1.000	1.500	7.000	0.690	1.000	IRSN-43	CLP-312	N/A
RAL-864	9T5114656	RN_-43	1.000	1.500	7.000	0.690	1.000	IRSN-43	CLP-312	N/A
RAR-166	9T5121672	RN_-64	1.000	1.000	6.000	0.950	1.000	IRSN-63	CLP-58	N/A
RAL-166	9T5111672	RN_-64	1.000	1.000	6.000	0.950	1.000	IRSN-63	CLP-58	N/A
RAR-856	9T5124472	RN_-64	1.000	1.250	6.000	0.950	1.000	IRSN-63	CLP-510	N/A
RAL-856	9T5114472	RN_-64	1.000	1.250	6.000	0.950	1.000	IRSN-63	CLP-510	N/A
RAR-248	9T5122483	RN_-86	1.500	1.500	7.000	1.200	1.500	IRSN-84	CLP-612	N/A
RAL-248	9T5112483	RN_-86	1.500	1.500	7.000	1.200	1.500	IRSN-84	CLP-612	N/A

## SBL/R 15° Holder for 90° Square



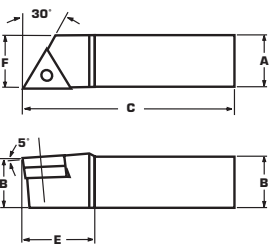
RH SHOWN

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

### PARTS

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

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

### PARTS

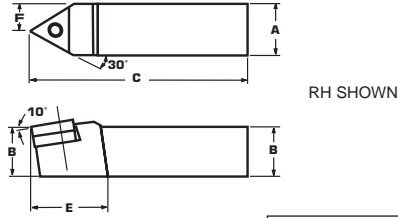
Description	EDP Code	Insert	A	B	C	E	F	Lock		Seat
								Seat	Pin	Screw
TAR-103	9T8521048	TN_-32	0.625	0.625	4.500	0.780	0.640	ITSN-324	CLP-25	N/A
TAL-103	9T8501048	TN_-32	0.625	0.625	4.500	0.780	0.640	ITSN-324	CLP-25	N/A
TAR-123	9T8521248	TN_-32	0.750	0.750	4.500	0.780	0.770	ITSN-324	CLP-25	N/A
TAL-123	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



# TURNING

## TE 30° Holder for 60° Triangle

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



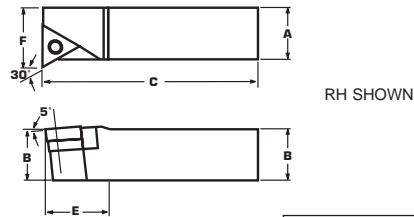
RH SHOWN

### PARTS

Description	EDP Code	Insert	A	B	C	E	F	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

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



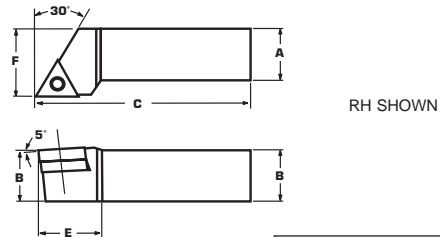
RH SHOWN

### PARTS

Description	EDP Code	Insert	A	B	C	E	F	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

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



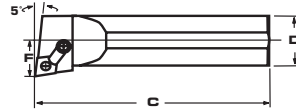
RH SHOWN

### PARTS

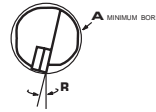
Description	EDP Code	Insert	A	B	C	E	F	Lock		Seat
								Seat	Pin	Screw
TGR-123	9T8741248	TN_-32	0.750	0.750	4.500	0.900	1.020	ITSN-324	CLP-25	N/A
TGL-123	9T8721248	TN_-32	0.750	0.750	4.500	0.900	1.020	ITSN-324	CLP-25	N/A
TGR-164	9T8741656	TN_-43	1.000	1.000	6.000	1.140	1.280	ITSN-435	CLP-38	N/A
TGL-164	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

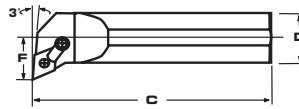


Most bars available with coolant port  
(ie: Add CP to end of description)

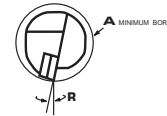
### PARTS

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

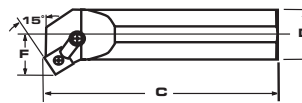


Most bars available with coolant port  
(ie: Add CP to end of description)

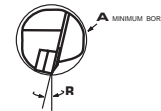
### PARTS

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



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

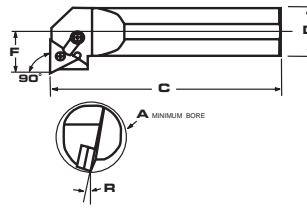
### PARTS

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	



# TURNING

## SI-MTFNL/R 90° Bar for 60° Triangle



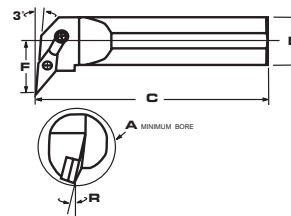
RH SHOWN

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

### PARTS

Description	EDP Code	Insert	A	C	D	F	R	Lock		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



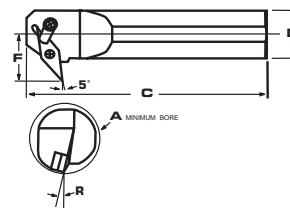
RH SHOWN

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

### 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

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

### PARTS

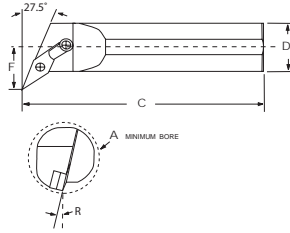
Description	EDP Code	Insert	A	C	D	F	R	Lock		Clamp		Seat
								Seat	Pin	Clamp	Screw	Screw
SI-MVLNR-243	9T7162449	VN_-33	2.250	14.000	1.500	1.250	12°	IVSN-324	NL-34L	CL-20	XNS-47	S-34
SI-MVLNL-243	9T7142449	VN_-33	2.250	14.000	1.500	1.250	12°	IVSN-324	NL-34L	CL-20	XNS-47	S-34
SI-MVLNR-283	9T7162849	VN_-33	2.500	14.000	1.750	1.375	12°	IVSN-324	NL-34L	CL-12	XNS-47	S-34
SI-MVLNL-283	9T7142849	VN_-33	2.500	14.000	1.750	1.250	12°	IVSN-324	NL-34L	CL-12	XNS-47	S-34
SI-MVLNR-324	9T7163256	VN_-43	3.000	16.000	2.000	1.375	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVLNL-324	9T7143256	VN_-43	3.000	16.000	2.000	1.500	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVLNR-364	9T7163656	VN_-43	3.250	16.000	2.250	1.500	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46
SI-MVLNL-364	9T7143656	VN_-43	3.250	16.000	2.250	1.500	12°	IVSN-433	NL-46	CL-12	XNS-510	S-46



# TURNING



## SI-MVPNL/R 27.5° Bar for 35° Diamond



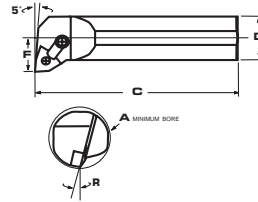
RH SHOWN

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

### PARTS

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



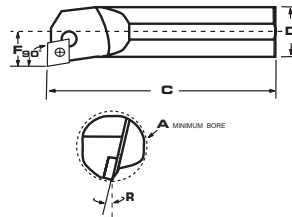
RH SHOWN

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

### 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

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

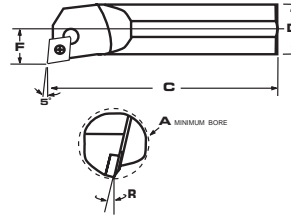
### PARTS

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



# TURNING

## S<sub>-</sub>-SCLCL/R 5° Bar for 80° Diamond



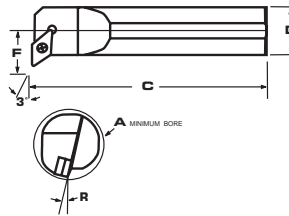
RH SHOWN

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

### PARTS

Description	EDP Code	Insert	A	C	D	F	R	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<sub>-</sub>-SDUCL/R 3° Bar for 55° Diamond



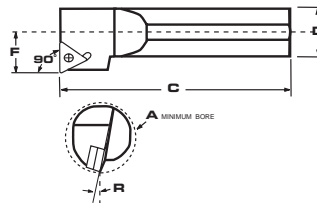
RH SHOWN

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

### PARTS

Description	EDP Code	Insert	A	C	D	F	R	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<sub>-</sub>-STFCL/R 90° Bar for 60° Triangle



RH SHOWN

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

### PARTS

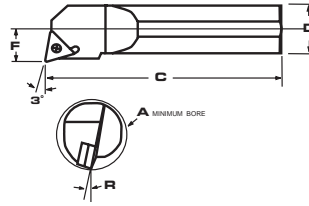
Description	EDP Code	Insert	A	C	D	F	R	Insert Screw
S06-STFCR-2	9T5400640	TC_-21.5	0.500	6.000	0.375	0.250	11°	C02506
S06-STFCL-2	9T5390640	TC_-21.5	0.500	6.000	0.375	0.250	11°	C02506
S08-STFCR-2	9T5400840	TC_-21.5	0.625	8.000	0.500	0.313	9°	C02506
S08-STFCL-2	9T5390840	TC_-21.5	0.625	8.000	0.500	0.313	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



## S<sub>-</sub>STUCL/R 3° Bar for 60° Triangle

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

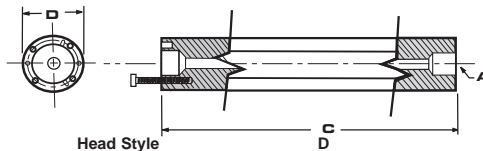


RH SHOWN

### PARTS

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

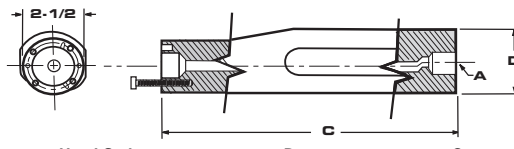
## S-4400W Steel Shank with Through Coolant



### PARTS

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

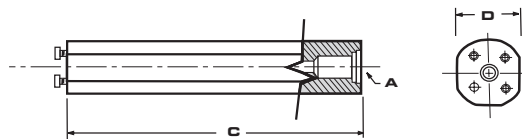
## S-4400W48 Steel Shank with Through Coolant



### PARTS

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

## S-570 Steel Shank with Through Coolant



### PARTS

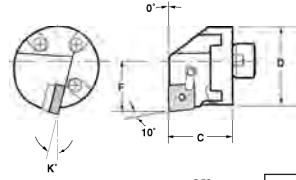
Description	EDP Code	Head Style	D	C	A	Screw (4 req/d)
S-570-10-16	9IBS5701016	HS16-	0.625	4.210	1/8 - 27NPT	SS62
S-570-12-20	9IBS5701220	HS20-	0.750	5.200	1/4 - 18NPT	SS63
S-570-16-25	9IBS5701625	HS25-	1.000	7.200	1/4 - 18NPT	SS64
S-570-20-32	9IBS5702032	HS32-	1.250	8.740	3/8 - 18NPT	SS81
S-570-24-40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



# TURNING

## H-MCLNL/R\* 5° Head for 80° Diamond

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



RH SHOWN

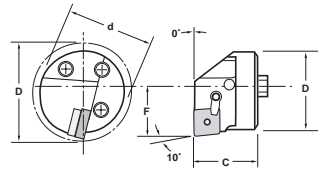
### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	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)

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



RH SHOWN

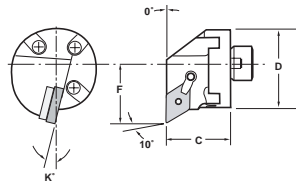
### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	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

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



RH SHOWN

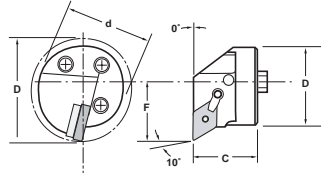
### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	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

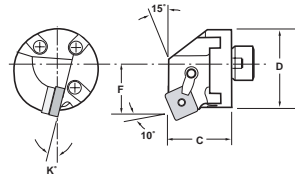
Most heads available with coolant port  
(ie: Add CP to end of description)

### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat	
							Seat	Pin	Clamp	Screw	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	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	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	S-46

\*Left hand quoted on request.

## H-MSKNL/R\* 15° Head for 90° Square



RH SHOWN

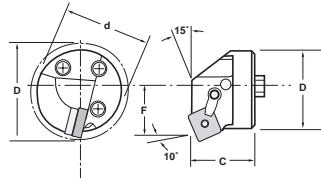
Most heads available with coolant port  
(ie: Add CP to end of description)

### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat	
							Seat	Pin	Clamp	Screw	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	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	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	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	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	S-68

\*Left hand quoted on request.

## HS-MSKNL/R\* 15° Head for 90° Square (570 Type)



RH SHOWN

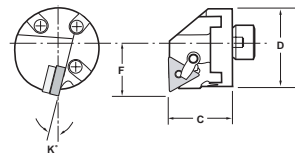
Most heads available with coolant port  
(ie: Add CP to end of description)

### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat	
							Seat	Pin	Clamp	Screw	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	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	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	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	S-68

\*Left hand quoted on request.

## H-MTFNL/R\* 90° Head for 60° Triangle



RH SHOWN

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

### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat	
							Seat	Pin	Clamp	Screw	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	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	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	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	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	S-46

\*Left hand quoted on request.

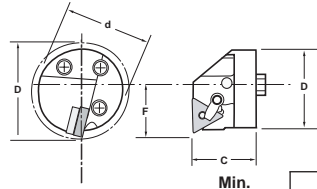




# TURNING

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

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



RH SHOWN

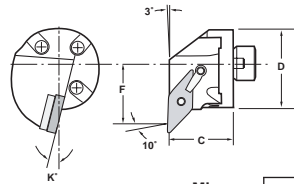
### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							Seat	Pin	Clamp	Screw	Screw
HS25-MTFNR-3	9IHST70625M48	TN_-33	0.984	1.260	0.866	1.570	N/A	NL-33L	CL-7	XNS-47	N/A
HS40-MTFNR-3	9IHST70640M48	TN_-33	1.575	1.260	1.062	1.970	ITSN-323	NL-34L	CL-7	XNS-47	S-34
HS50-MTFNR-4	9IHST70650M56	TN_-43	1.969	1.570	1.380	2.480	ITSN-433	NL-46	CL-9	XNS-59	S-46
HS60-MTFNR-4	9IHST70660M56	TN_-43	2.362	1.570	1.693	3.150	ITSN-433	NL-46	CL-9	XNS-59	S-46

\*Left hand quoted on request.

## H-MVUNL/R\* 3° Head for 35° Diamond

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



RH SHOWN

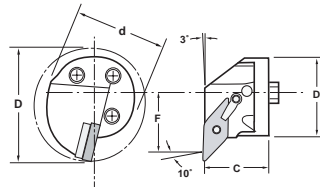
### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							Seat	Pin	Clamp	Screw	Screw
H20-MVUNR-3	9IHT7122049	VN_-33	1.000	1.625	1.000	1.705	IVSN-322	NL-34L	CL-30	XNS-510	S-34
H24-MVUNR-3	9IHT7122449	VN_-33	1.500	1.625	1.125	2.000	IVSN-322	NL-34L	CL-30	XNS-510	S-34
H32-MVUNR-3	9IHT7123249	VN_-33	2.000	1.625	1.325	2.500	IVSN-322	NL-34L	CL-30	XNS-510	S-34
H40-MVUNR-3	9IHT7124049	VN_-43	2.500	1.625	1.750	3.250	IVSN-322	NL-34L	CL-30	XNS-510	S-34
H32-MVUNR-4	9IHT7123256	VN_-43	2.000	1.625	1.375	2.500	IVSN-433	NL-46	CL-12	XNS-510	S-46
H40-MVUNR-4	9IHT7124056	VN_-43	2.500	1.625	1.750	3.250	IVSN-433	NL-46	CL-12	XNS-510	S-46

\*Left hand quoted on request.

## HS-MVUNL/R\* 3° Head for 35° Diamond (570 Type)

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



RH SHOWN

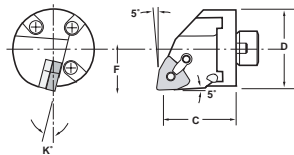
### PARTS

Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							Seat	Pin	Clamp	Screw	Screw
HS32-MVUNR-3	9IHST71232M49	VN_-33	1.259	1.260	1.000	1.705	IVSN-322	NL-34L	CL-30	XNS-510	S-34
HS40-MVUNR-3	9IHST71240M49	VN_-33	1.575	1.260	1.125	2.000	IVSN-322	NL-34L	CL-30	XNS-510	S-34
HS50-MVUNR-3	9IHST71250M49	VN_-33	1.969	1.570	1.750	3.250	IVSN-322	NL-34L	CL-30	XNS-510	S-34
HS60-MVUNR-3	9IHST71260M49	VN_-33	2.362	1.570	1.375	2.500	IVSN-322	NL-34L	CL-30	XNS-510	S-34
HS50-MVUNR-4	9IHST71250M56	VN_-43	1.969	1.570	1.750	3.250	IVSN-433	NL-46	CL-12	XNS-510	S-46
HS60-MVUNR-4	9IHST71260M56	VN_-43	2.362	1.570	1.375	2.500	IVSN-433	NL-46	CL-12	XNS-510	S-46

\*Left hand quoted on request.

## H-MWLNL/R\* 5° Head for 80° Trigon

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



RH SHOWN

### PARTS

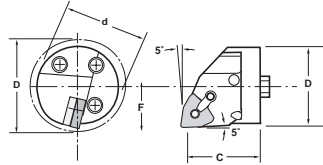
Description	EDP Code	Insert	D	C	F	Min. Bore	Lock		Clamp		Seat
							Seat	Pin	Clamp	Screw	Screw
H16-MWLNR-3	9IHT7301649	WN_-33	1.000	1.625	0.640	1.200	IWSN-322	NL-33L	CL-6	XNS-36	N/A
H20-MWLNR-3	9IHT7302049	WN_-33	1.250	1.625	0.765	1.470	IWSN-322	NL-34L	CL-6	XNS-36	N/A
H24-MWLNR-3	9IHT7302449	WN_-33	1.500	1.625	0.890	1.760	IWSN-322	NL-34L	CL-6	XNS-36	N/A
H32-MWLNR-3	9IHT7303249	WN_-33	2.000	1.625	1.281	2.400	IWSN-322	NL-34L	CL-6	XNS-36	N/A
H20-MWLNR-4	9IHT7302056	WN_-43	1.250	1.625	0.765	1.470	IWSN-433	NL-46	CL-20	XNS-47	N/A
H24-MWLNR-4	9IHT7302456	WN_-43	1.500	1.625	0.890	1.760	IWSN-433	NL-46	CL-20	XNS-47	N/A
H28-MWLNR-4	9IHT7302856	WN_-43	1.750	1.625	1.015	2.010	IWSN-433	NL-46	CL-20	XNS-47	N/A
H32-MWLNR-4	9IHT7303256	WN_-43	2.000	1.625	1.281	2.400	IWSN-433	NL-46	CL-20	XNS-47	N/A

\*Left hand quoted on request.

# TURNING



## HS-MWLNL/R\* 5° Head for 80° Trigon (570 Type)



RH SHOWN

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

### PARTS

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



# TURNING

Material			Chipbreaker	Depth of Cut	Feed Rate
Low Carbon Steels BHN 100-225	<b>STEEL</b>	<b>NEGATIVE</b> ROUGH ← FINISH →	FM	.020 - .080	.004 - .008
Carbon Steels BHN 200-300			MM	.040 - .160	.008 - .016
Alloy Steels BHN 225-275			RM	.080 - .200	.012 - .020
Alloy Steels BHN 275-400			HR	.120 - .260	.014 - .024
Alloy Steels BHN Over 400		<b>POSITIVE</b> ROUGH ← FINISH →	FM	.020 - .060	.004 - .008
Tool Steels Hot & Cold Worked			MM	.040 - .140	.004 - .010
Martensitic Stainless Steel 400 Series			RM	.040 - .160	.008 - .014
Austenitic Stainless Steel 300 Series	<b>STAINLESS STEEL</b>	<b>NEGATIVE</b> ROUGH ← FINISH →	FM	.040 - .120	.006 - .012
			MM	.040 - .140	.008 - .016
			RM	.060 - .160	.010 - .018
PH Duplex		<b>POSITIVE</b> ROUGH ← FINISH →	FM	.020 - .080	.002 - .006
			MM	.020 - .120	.002 - .008
			RM	.040 - .140	.004 - .010
Gray Iron	<b>CAST IRON</b>	<b>NEGATIVE</b> ROUGH ← FINISH →	FM	.040 - .140	.008 - .014
Ductile Iron BHN 140-180			RM	.060 - .160	.010 - .016
Ductile Iron BHN 190-250			FLAT TOP	.040 - .200	.008 - .020
Spheroidal Iron BHN 190-250	<b>NON-FERROUS</b>	<b>NEG</b>	FM	.020 - .100	.004 - .010
Aluminum > 5% Silicon			RM	.060 - .140	.010 - .016
Aluminum < 5% Silicon		<b>POSITIVE</b> ROUGH ← FINISH →	FM	.020 - .080	.002 - .006
			MM	.060 - .280	.008 - .022
Copper / Zinc / Brass			RM	.080 - .300	.012 - .022

# TURNING



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

			AGS50		AGS54	
			F	R	F	R
STEEL	Free Machining Carbon Steels	m/min	500	250	250	150
		sfm	1600	640	800	480
	Plain Carbon Steels	m/min	400	200	180	50
		sfm	1280	640	576	160
	Alloy Steels 190-330 HB	m/min	300	140		
		sfm	960	400		
	Alloy Steels 330-450 HB	m/min	180	120		
		sfm	576	384		

			APS35	
			F	R
STAINLESS STEEL	Martensitic 400 Series	m/min	165	80
		sfm	540	260
	300 Series	m/min	165	80
		sfm	540	260

			AS20	
			F	R
CAST IRON	Grey Cast 190-330 HB	m/min	500	250
		sfm	1600	640
	Grey Cast 330-450 HB	m/min	300	140
		sfm	876	448
	Alloy/Ductile	m/min	250	120
		sfm	800	384

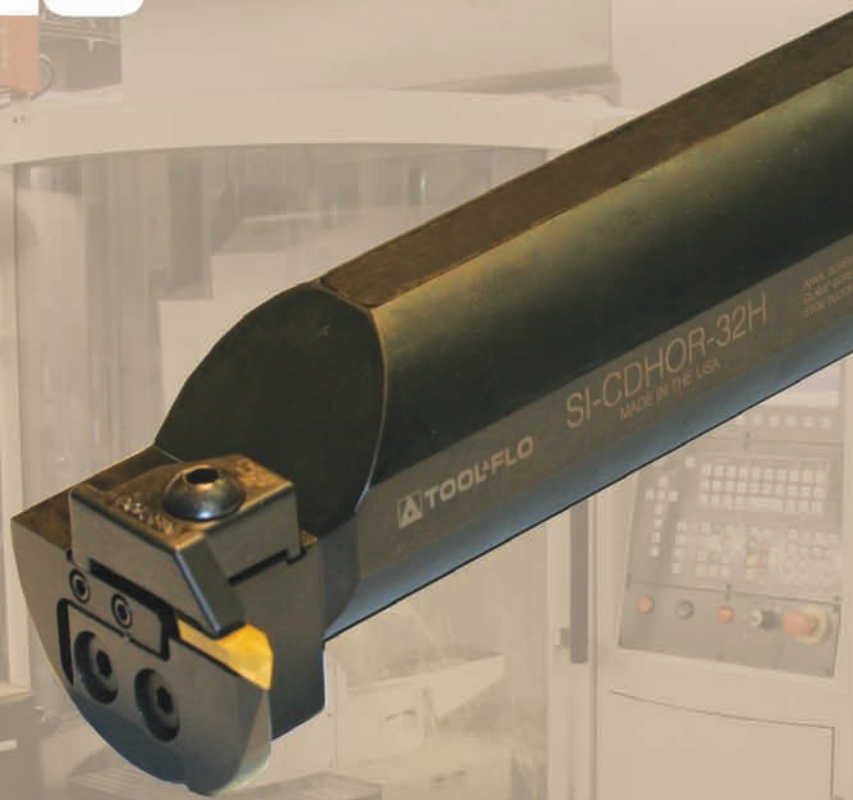
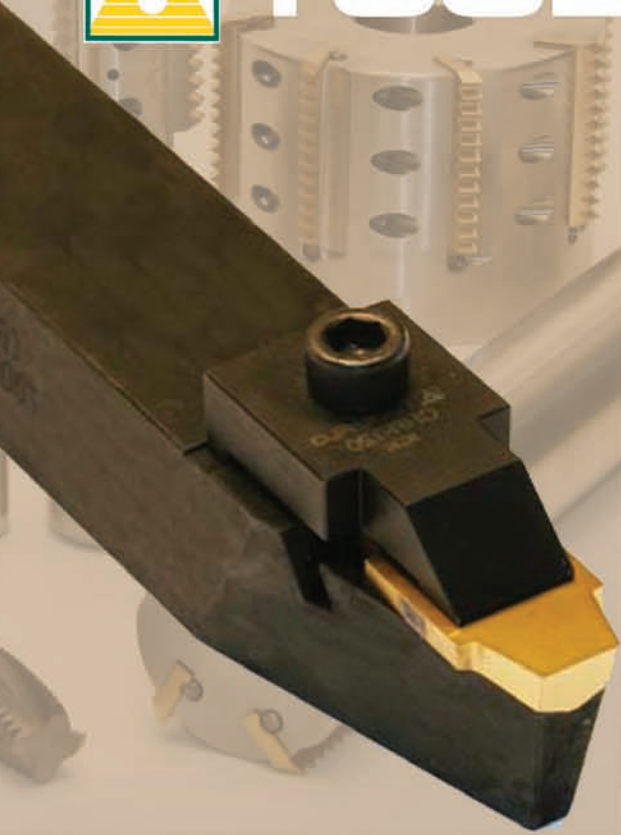
			APS35	
			F	R
NON-FERROUS	Free Machining Aluminum	m/min	180	100
		sfm	540	260
	High Silicon Aluminum Alloys	m/min	95	50
		sfm	304	160
	Copper Zinc Brass	m/min	180	100
		sfm	576	330
	Non-Metallics	m/min	180	100
		sfm	576	330

			APS35	
			F	R
HIGH TEMP ALLOYS	High Temp Alloys 200-260 HB	m/min	200	60
		sfm	650	200
	High Temp Alloys 260-450 HB	m/min	65	35
		sfm	215	115
	Titanium Alloys (Ti 6Al-4V)	m/min	180	110
		sfm	525	345

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



# TOOL-FLO



## VEE BOTTOM

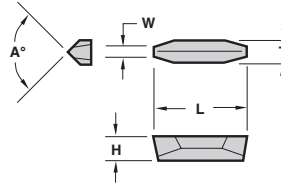


# VEE BOTTOM



## ACME THREADING

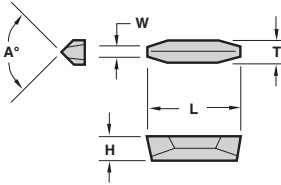
V84/V85/V120



Description	EDP Code	TPI	W	T	L	H	A°	Coating							
								C3	GP3	GP5	GP50	AC3	AC50		
V84 NT 3P	<a href="#">0261030</a>	3	.1184	.250	1.000	.250	90°								
V84 NT 4P	<a href="#">0261040</a>	4	.0875	.250	1.000	.250	90°	●							
V84 NT 5P	<a href="#">0261050</a>	5	.0689	.250	1.000	.250	90°	●							
V84 NT 6P	<a href="#">0261060</a>	6	.0566	.250	1.000	.250	90°	●							
V84 NT 8P	<a href="#">0261080</a>	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	<a href="#">0263020</a>	2	.1802	.312	1.000	.250	90°	●							
V85 NT 3P	<a href="#">0263030</a>	3	.1184	.312	1.000	.250	90°	●							
V120 NT 1P	<a href="#">0270010</a>	1	.3655	.750	1.500	.375	120°		●						
V120 NT 1.5P	<a href="#">0270015</a>	1.5	.2419	.750	1.500	.375	120°		●						

## ACME STUB THREADING

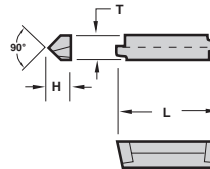
V84/V85/V120



Description	EDP Code	TPI	W	T	L	H	A°	Coating							
								C3	GP3	GP5	GP50	AC3	AC50		
V84 NT 3P STUB	<a href="#">0261031</a>	3	.1356	.250	1.000	.250	90°		●						
V84 NT 4P STUB	<a href="#">0261041</a>	4	.1004	.250	1.000	.250	90°		●						
V84 NT 5P STUB	<a href="#">0261051</a>	5	.0793	.250	1.000	.250	90°		●						
V84 NT 6P STUB	<a href="#">0261061</a>	6	.0652	.250	1.000	.250	90°		●						
V84 NT 8P STUB	<a href="#">0261081</a>	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	<a href="#">0263021</a>	2	.2060	.312	1.000	.250	90°		●						
V120 NT 1P STUB	<a href="#">0270011</a>	1	.4172	.750	1.500	.375	120°		●						

## API BUTTRESS THREADING

V84

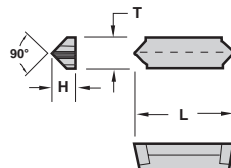


Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating							
								C3	GP3	GP5	GP50	AC3	AC50		
V84 5B75 EXT-FC*	<a href="#">16614E</a>	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8								
V84 5B1 EXT-FC	<a href="#">17614E</a>	5	1	.250	1.000	.250	16 and larger								
V84 8B75 EXT-FC	21614F	8	3/4	.250	1.000	.250	US Improved Buttress								
V84 5B75 INT-FC	<a href="#">16618E</a>	5	3/4	.250	1.000	.250	4-1/2 - 13-3/8								
V84 5B1 INT-FC	<a href="#">17618E</a>	5	1	.250	1.000	.250	16 and larger								
V84 8B75 INT-FC	21618F	8	3/4	.250	1.000	.250	US Improved Buttress								

\*FC indicates 5° flank clearance

## API HUGHES THREADING

V85/V96



Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating							
								C3	GP3	GP5	GP50	AC3	AC50		
V85 H902 EXT	<a href="#">28634</a>	3-1/2	2	.250	1.000	.250	3-1/2 - 6-5/8 H90								
V85 H902 INT	<a href="#">28638</a>	3-1/2	2	.250	1.000	.250	3-1/2 - 6-5/8 H90								
V85 H903 EXT	<a href="#">29634</a>	3-1/2	3	.250	1.000	.250	7 - 8-5/8								
V85 H903 INT	<a href="#">29638</a>	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

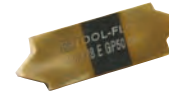
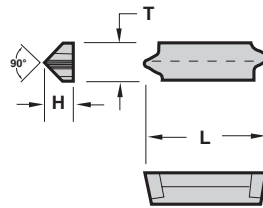
VEE BOTTOM



# VEE BOTTOM

## API ROTARY SHOULDER THREADING

V85

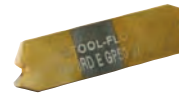
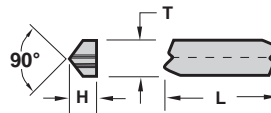


Description	EDP Code	TPI	TPF	T	L	H	Connection	Coating							
								C3	GP3	GP5	GP50	AC3	AC50		
V85 425 EXT	<a href="#">09634</a>	4	2	.312	1.000	.250	5-1/2 - 6-5/8 FH, 6-5/8 REG								
V85 428 EXT	<a href="#">10634</a>	4	2	.312	1.000	.250	NC23 - 50, 2-3/8 - 5-1/2 IF					●	●	●	●
V85 42F EXT*	14634	4	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	<a href="#">12634</a>	4	3	.312	1.000	.250	NC56 - NC71					●	●	●	●
V85 530 EXT	<a href="#">13634</a>	5	3	.312	1.000	.250	3-1/2FH, 2-3/8 - 4-1/2 REG					●	●	●	●
V85 4PAC EXT	<a href="#">15634</a>	4	1-1/2	.312	1.000	.250	2-3/8 - 4-1/2 AMERICAN/PAC					●	●	●	●
V85 425 INT	<a href="#">09638</a>	4	2	.312	1.000	.250	5-1/2 - 6-5/8 FH, 6-5/8 REG					●	●	●	●
V85 428 INT	<a href="#">10638</a>	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	<a href="#">12638</a>	4	3	.312	1.000	.250	NC56 - NC71					●	●	●	●
V85 530 INT	<a href="#">13638</a>	5	3	.312	1.000	.250	3-1/2FH, 2-3/8 - 4-1/2 REG					●	●	●	●
V85 4PAC INT	<a href="#">15638</a>	4	1-1/2	.312	1.000	.250	2-3/8 - 4-1/2 AMERICAN/PAC					●	●	●	●

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

## API ROUND THREADING

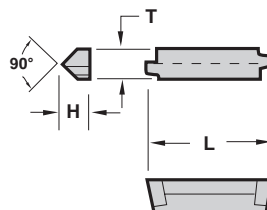
V84



Description	EDP Code	TPI	TPF	T	L	H	Coating								
							C3	GP3	GP5	GP50	AC3	AC50			
V84 10RD EXT	<a href="#">34614</a>	10	3/4	.250	1.000	.250						●	●	●	●
V84 10RD INT	<a href="#">34618</a>	10	3/4	.250	1.000	.250						●	●	●	●
V84 8RD EXT	<a href="#">32614</a>	8	3/4	.250	1.000	.250						●	●	●	●
V84 8RD INT	<a href="#">32618</a>	8	3/4	.250	1.000	.250						●	●	●	●

## API VAM THREADING

V84



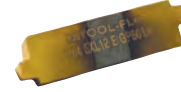
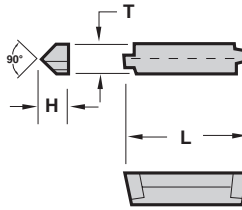
Description	EDP Code	TPI	TPF	T	L	H	Coating								
							C3	GP3	GP5	GP50	AC3	AC50			
V84 5 VAM EXT	<a href="#">23614</a>	5	3/4	.250	1.000	.250						●	●	●	●
V84 5 VAM INT	<a href="#">23618</a>	5	3/4	.250	1.000	.250						●	●	●	●
V84 6 VAM EXT	24614	6	3/4	.250	1.000	.250						●	●	●	●
V84 6 VAM INT	24618	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

# VEE BOTTOM

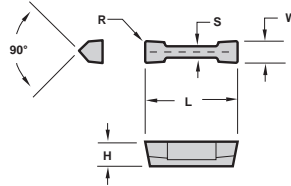


## API X-LINE THREADING V84



Description	EDP Code	TPI	TPF	T	L	H	Connection	Coatings						
								C3	GP3	GP5	GP50	AC3	AC50	
V84 5XL12 EXT	18614	5	1-1/4	.250	1.000	.250	8-5/8 - 10-3/4					●		
V84 5XL12 INT	18618	5	1-1/4	.250	1.000	.250	8-5/8 - 10-3/4					●		
V84 6XL15 EXT	19614	6	1-1/2	.250	1.000	.250	5 - 7-5/8					●		
V84 6XL15 INT	19618	6	1-1/2	.250	1.000	.250	5 - 7-5/8					●		
V84 6XL75 EXT	20614	6	3/4	.250	1.000	.250	-					●		
V84 6XL75 INT	20618	6	3/4	.250	1.000	.250	-					●		

## DEEP GROOVING DBP (SAME AS VDB)



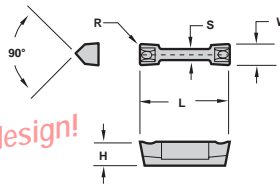
Description	EDP Code	W	R	L	H	S	Coatings						
							C3	GP3	GP5	GP50	AC3	AC50	
DBP 24 R15	802415	.125	.015	1.125	.250	.106		●			●	●	●
DBP 24 R30	802430	.125	.030	1.125	.250	.106		●			●	●	●
DBP 34 R15	803415	.188	.015	1.125	.250	.106		●			●	●	●
DBP 34 R30	803430	.188	.030	1.125	.250	.106		●			●	●	●
DBP 45 R15	804515	.250	.015	1.125	.337	.144		●			●	●	●
DBP 45 R30	804530	.250	.030	1.125	.337	.144		●			●	●	●
DBP 55 R15	805515	.312	.015	1.125	.337	.202		●			●	●	●
DBP 55 R30	805530	.312	.030	1.125	.337	.202		●			●	●	●
DBP 65 R15	806515	.375	.015	1.125	.337	.276		●			●	●	●
DBP 65 R30	806530	.375	.030	1.125	.337	.276		●			●	●	●

## DEEP GROOVING DBP-CB (SAME AS VDB)

Features:

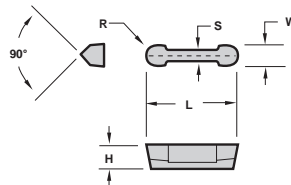
- Patented chipbreaker - Patent No. 6,146,064
- Maximum chip control
- Industry standard widths

*Exclusive patented design!*



Description	EDP Code	W	R	L	H	S	Coatings						
							C3	GP3	GP5	GP50	AC3	AC50	
DBP 24 R15-CB	802415C	.125	.015	1.125	.250	.106		●			●	●	●
DBP 34-R15-CB	803415C	.188	.015	1.125	.250	.106		●			●	●	●
DBP 45 R15-CB	804515C	.250	.015	1.125	.337	.144		●			●	●	●
DBP 45 R30-CB	804530C	.250	.030	1.125	.337	.144		●			●	●	●
DBP 55 R15-CB	805515C	.312	.015	1.125	.337	.202		●			●	●	●
DBP 55 R30-CB	805530C	.312	.030	1.125	.337	.202		●			●	●	●

## DEEP GROOVING DBP-Full Nose Radius (SAME AS VDB)



Description	EDP Code	W	R	L	H	S	Coatings						
							C3	GP3	GP5	GP50	AC3	AC50	
DBP 24 FNR	8024FR	.125	.0625	1.125	.250	.106		●			●	●	●
DBP 34 FNR	8034FR	.188	.094	1.125	.250	.106		●			●	●	●
DBP 45 FNR	8045FR	.250	.125	1.125	.337	.144		●			●	●	●
DBP 55 FNR	8055FR	.312	.156	1.125	.337	.202		●			●	●	●
DBP 65 FNR	8065FR	.375	.1875	1.125	.337	.276		●			●	●	●

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

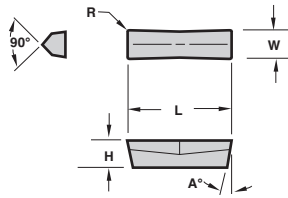
- High performance choice in optimal conditions.
- ▲ Recommended grade under general conditions.

Material	C3	GP3	GP5	GP50	AC3	AC50
Cast Iron		▲				●
Non-Ferrous		▲				●
Stainless/High Temp		▲				●
Steel			▲			●



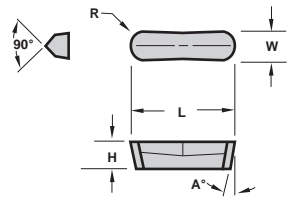
# VEE BOTTOM

## DEEP GROOVING GC



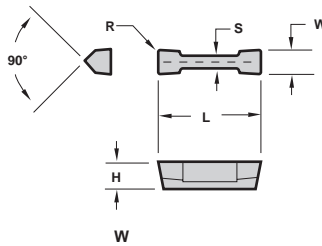
Description	EDP Code	Inch	Metric	R	L	H	A°	Coating								
								C3	GP3	GP5	AC3	AC50	Uncoated	TIN Coated	AITIN Coated	
GC-4125	<a href="#">GC4125</a>	.125	3,18	.010/.015	1.000	.188	4°	●	●	●	●	●	●	●	●	●
GC-4187	<a href="#">GC4187</a>	.187	4,75	.010/.015	1.000	.328	5°	●	●	●	●	●	●	●	●	●
GC-4250	<a href="#">GC4250</a>	.250	6,35	.010/.015	1.000	.328	5°	●	●	●	●	●	●	●	●	●
GC-4312	<a href="#">GC4312</a>	.312	7,92	.010/.015	1.000	.328	5°	●	●	●	●	●	●	●	●	●
GC-4375	<a href="#">GC4375</a>	.375	9,52	.010/.015	1.000	.328	5°	●	●	●	●	●	●	●	●	●
GC-6187	<a href="#">GC6187</a>	.187	4,75	.010/.015	1.500	.328	5°	●	●	●	●	●	●	●	●	●
GC-6250	<a href="#">GC6250</a>	.250	6,35	.010/.015	1.500	.328	5°	●	●	●	●	●	●	●	●	●
GC-6312	<a href="#">GC6312</a>	.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	AC3	AC50	Uncoated	TIN Coated	AITIN Coated	
GR-4125	<a href="#">GR4125</a>	.125	3,18	.062	1.000	.188	4°	●	●	●	●	●	●	●	●	●
GR-4187	<a href="#">GR4187</a>	.187	4,75	.094	1.000	.328	5°	●	●	●	●	●	●	●	●	●
GR-4250	<a href="#">GR4250</a>	.250	6,35	.125	1.000	.328	5°	●	●	●	●	●	●	●	●	●

## DEEP GROOVING VDB (SAME AS DBP)



Description	EDP Code	Inch	Metric	R	L	H	S	Coating								
								C25	GP25	GP3	GP50	AC3	AC50	Uncoated	TIN Coated	AITIN Coated
VDB 125 A008	<a href="#">79125A08</a>	.125	3,18	.008	1.125	.250	.106	●	●	●	●	●	●	●	●	●
VDB 125 A015	<a href="#">79125A</a>	.125	3,18	.015	1.125	.250	.106	●	●	●	●	●	●	●	●	●
VDB 156 A008	<a href="#">79156A08</a>	.156	3,96	.008	1.125	.250	.106	●	●	●	●	●	●	●	●	●
VDB 156 A015	<a href="#">79156A</a>	.156	3,96	.015	1.125	.250	.106	●	●	●	●	●	●	●	●	●
VDB 188 A008	<a href="#">79188A08</a>	.188	4,78	.008	1.125	.250	.106	●	●	●	●	●	●	●	●	●
VDB 188 A015	<a href="#">79188A</a>	.188	4,78	.015	1.125	.250	.106	●	●	●	●	●	●	●	●	●
VDB 188 A030	<a href="#">79188A030</a>	.188	4,78	.030	1.125	.250	.106	●	●	●	●	●	●	●	●	●
VDB 218-A015	<a href="#">79218A</a>	.218	5,54	.015	1.125	.250	.144	●	●	●	●	●	●	●	●	●
VDB 250 A015	<a href="#">79250A</a>	.250	6,35	.015	1.125	.250	.144	●	●	●	●	●	●	●	●	●
VDB 250 B015	<a href="#">79250B</a>	.250	6,35	.015	1.125	.337	.144	●	●	●	●	●	●	●	●	●
VDB 250 B030	<a href="#">79250B030</a>	.250	6,35	.030	1.125	.337	.144	●	●	●	●	●	●	●	●	●
VDB 281 B015	<a href="#">79281B</a>	.281	7,14	.015	1.125	.337	.202	●	●	●	●	●	●	●	●	●
VDB 312 B015	<a href="#">79312B</a>	.312	7,92	.015	1.125	.337	.202	●	●	●	●	●	●	●	●	●
VDB 312 B030	<a href="#">79312B030</a>	.312	7,92	.030	1.125	.337	.202	●	●	●	●	●	●	●	●	●
VDB 344 B015	<a href="#">79344B</a>	.344	8,74	.015	1.125	.337	.276	●	●	●	●	●	●	●	●	●
VDB 344 B030	<a href="#">79344B030</a>	.344	8,74	.030	1.125	.337	.276	●	●	●	●	●	●	●	●	●
VDB 375 B015	<a href="#">79375B</a>	.375	9,53	.015	1.125	.337	.276	●	●	●	●	●	●	●	●	●
VDB 375 B030	<a href="#">79375B030</a>	.375	9,53	.030	1.125	.337	.276	●	●	●	●	●	●	●	●	●

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

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

Material	C25	GP25	GP3	GP50	AC3	AC50
Cast Iron	▲	▲	▲	▲	▲	▲
Non-Ferrous	▲	▲	▲	▲	▲	▲
Stainless/High Temp	▲	▲	▲	▲	▲	▲
Steel	▲	▲	▲	▲	▲	▲

VEE BOTTOM

# VEE BOTTOM



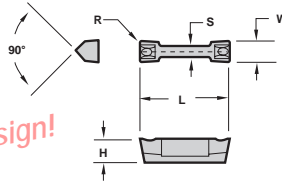
## DEEP GROOVING

### VDB-CB (SAME AS DBP)

Features:

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

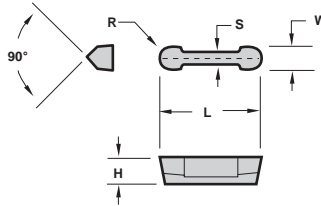
*Exclusive patented design!*



Description	EDP Code	Inch	Metric	R	L	H	S	Coatings					
								Uncoated	GP3	GP5	GP50	AC3	AC50
VDB 125 A008-CB	<a href="#">79125A08P</a>	.125	3,18	.008	1.125	.250	.106	●	●	●	●	●	●
VDB 125 A015-CB	<a href="#">79125AP</a>	.125	3,18	.015	1.125	.250	.106	●	●	●	●	●	●
VDB 156 A008-CB	<a href="#">79156A08P</a>	.156	3,96	.008	1.125	.250	.106	●	●	●	●	●	●
VDB 156 A015-CB	<a href="#">79156AP</a>	.156	3,96	.015	1.125	.250	.106	●	●	●	●	●	●
VDB 188 A008-CB	<a href="#">79188A08P</a>	.188	4,78	.008	1.125	.250	.144	●	●	●	●	●	●
VDB 188 A015-CB	<a href="#">79188AP</a>	.188	4,78	.015	1.125	.250	.144	●	●	●	●	●	●
VDB 188 A030-CB	<a href="#">79188A030P</a>	.188	4,78	.030	1.125	.250	.144	●	●	●	●	●	●
VDB 218 A015-CB	<a href="#">79218AP</a>	.218	5,54	.015	1.125	.250	.144	●	●	●	●	●	●
VDB 250 B015-CB	<a href="#">79250BP</a>	.250	6,35	.015	1.125	.337	.144	●	●	●	●	●	●
VDB 250 B030-CB	<a href="#">79250B030P</a>	.250	6,35	.030	1.125	.337	.144	●	●	●	●	●	●
VDB 312 B015-CB	<a href="#">79312BP</a>	.312	7,92	.015	1.125	.337	.202	●	●	●	●	●	●
VDB 312 B030-CB	<a href="#">79312B030P</a>	.312	7,92	.030	1.125	.337	.202	●	●	●	●	●	●
VDB 375 B015-CB	<a href="#">79375BP</a>	.375	9,53	.015	1.125	.337	.276	●	●	●	●	●	●
VDB 375 B030-CB	<a href="#">79375B030P</a>	.375	9,53	.030	1.125	.337	.276	●	●	●	●	●	●

## DEEP GROOVING

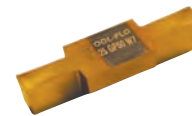
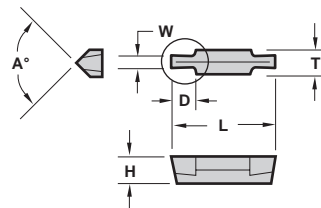
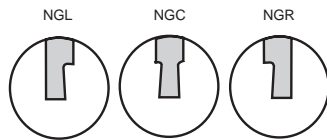
### VDB - Full Nose Radius (SAME AS DBP)



Description	EDP Code	Inch	Metric	R	L	H	S	Coatings					
								Uncoated	GP3	GP5	GP50	AC3	AC50
VDB 125 RA	<a href="#">79125RA</a>	.125	3,18	.062	1.125	.250	.106	●	●	●	●	●	●
VDB 156 RA	<a href="#">79156RA</a>	.156	3,96	.078	1.125	.250	.106	●	●	●	●	●	●
VDB 188 RA	<a href="#">79188RA</a>	.188	4,78	.094	1.125	.250	.144	●	●	●	●	●	●
VDB 218 RA	<a href="#">79218RA</a>	.218	5,54	.109	1.125	.250	.144	●	●	●	●	●	●
VDB 250 RA	<a href="#">79250RA</a>	.250	6,35	.125	1.125	.250	.144	●	●	●	●	●	●
VDB 250 RB	<a href="#">79250RB</a>	.250	6,35	.125	1.125	.337	.144	●	●	●	●	●	●
VDB 281 RB	<a href="#">79281RB</a>	.281	7,14	.140	1.125	.337	.202	●	●	●	●	●	●
VDB 312 RB	<a href="#">79312RB</a>	.312	7,92	.156	1.125	.337	.202	●	●	●	●	●	●
VDB 344 RB	<a href="#">79344RB</a>	.344	8,74	.172	1.125	.337	.276	●	●	●	●	●	●
VDB 375 RB	<a href="#">79375RB</a>	.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					
									Uncoated	GP3	GP5	GP50	AC3	AC50
V84 NGC W.062	<a href="#">C6106200</a>	.062	1,57	.156	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NGC W.094	<a href="#">C6109400</a>	.094	2,39	.250	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NGC W.125	<a href="#">C6112500</a>	.125	3,18	.250	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NGC W.187	<a href="#">C6118700</a>	.187	4,75	.250	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NGC W.250	<a href="#">C6125000</a>	.250	6,35	.250	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NGL W.125	<a href="#">L6112500</a>	.125	3,18	.250	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NGL W.187	<a href="#">L6118700</a>	.187	4,75	.250	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NGR W.125	<a href="#">R6112500</a>	.125	3,18	.250	.250	1.000	.250	90°	●	●	●	●	●	●
V84 NGR W.187	<a href="#">R6118700</a>	.187	4,75	.250	.250	1.000	.250	90°	●	●	●	●	●	●
V85 NGC W.312	<a href="#">C6331200</a>	.312	7,92	.325	.312	1.000	.250	90°	●	●	●	●	●	●
V96 NGC W.375	<a href="#">C6637500</a>	.375	9,53	.450	.375	1.125	.375	90°	●	●	●	●	●	●
V98 NGC W.500	<a href="#">C6850000</a>	.500	12,70	.450	.500	1.125	.375	90°	●	●	●	●	●	●
V120 NGC W.625	<a href="#">C7625000</a>	.625	15,88	.625	.750	1.500	.375	120°	●	●	●	●	●	●
V120 NGC W.750	<a href="#">C7075000</a>	.750	19,05	.625	.750	1.500	.375	120°	●	●	●	●	●	●

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

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

Material	Uncoated	GP3	GP5	GP50	AC3	AC50
Cast Iron		▲				●
Non-Ferrous		▲				●
Stainless/High Temp		▲				●
Steel				▲		●

VEE BOTTOM

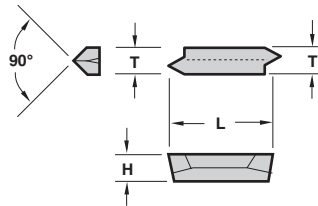




# VEE BOTTOM

## NPT THREADING

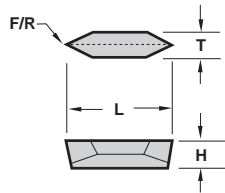
V84



Description	EDP Code	Pipe Size	TPI	TPF	T	L	H	Coatings						
								C3	GP3	GP5	GP50	AC3	AC50	
V84 8NPT EXT	<a href="#">3661084</a>	2-1/2" - up	8	3/4	.250	1.000	.250					●		
V84 8NPT INT	<a href="#">3661088</a>	2-1/2" - up	8	3/4	.250	1.000	.250					●		
V84 11.5NPT EXT	<a href="#">3661114</a>	1" - 2"	11.5	3/4	.250	1.000	.250					●		
V84 11.5NPT INT	<a href="#">3661118</a>	1" - 2"	11.5	3/4	.250	1.000	.250					●		
V84 14NPT EXT	<a href="#">3661144</a>	1/2" - 3/4"	14	3/4	.250	1.000	.250					●		
V84 14NPT INT	<a href="#">3661148</a>	1/2" - 3/4"	14	3/4	.250	1.000	.250					●		

## 60° V-THREADING

V84/V85



Description	EDP Code	TPI	F	T	L	H	Coatings					
							C25	GP3	GP5	GP50	AC3	AC50
V84 NV	<a href="#">0161000</a>	5-20	.006/.008	.250	1.000	.250	●	●	●	●		●
V84 NV .010R	<a href="#">0161R10</a>	4-20	.010R	.250	1.000	.250		●		●		●
V84 NV .020R	<a href="#">0161R20</a>	4-12	.020R	.250	1.000	.250				●		
V84 NV .025R	<a href="#">0161R25</a>	4-8	.025R	.250	1.000	.250				●		
V84 NV .038R	<a href="#">0161R38</a>	4-6	.038R	.250	1.000	.250				●		
V85 NV	<a href="#">0163000</a>	5-20	.006/.008	.312	1.000	.250				●		●

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

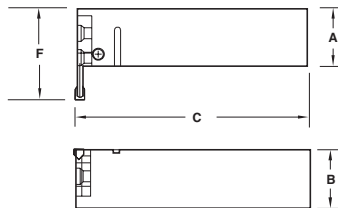
● High performance choice in optimal conditions.  
▲ Recommended grade under general conditions.

Cast Iron  
Non-Ferrous  
Stainless/High Temp  
Steel

## EXTERNAL 90° HOLDER

CDHOR/L

■ RH Holders use LH components - See pages 216.



RH SHOWN

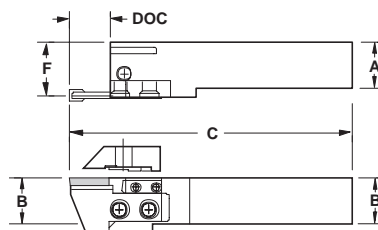
Description	EDP Code	A	B	C	F*		Clamp Screw	Stop Screw	Anvil Screw
					.312(1)	.812(1)			
CDHOR-16	<a href="#">92101600</a>	1	1	6	1.312	1.812	SB90	SS20	SF95
CDHOL-16	<a href="#">92001600</a>	1	1	6	1.312	1.812	SB90	SS20	SF95
CDHOR-20	<a href="#">92102000</a>	1-1/4	1-1/4	6	1.562	2.062	SB90	SS20	SF95
CDHOL-20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

\*The "F" dimension is determined by the D.O.C. of the anvil. (1) Anvil D.O.C.

## EXTERNAL STRAIGHT HOLDER

CDVOR/L

■ RH Holders use RH components - See pages 216.



RH SHOWN

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

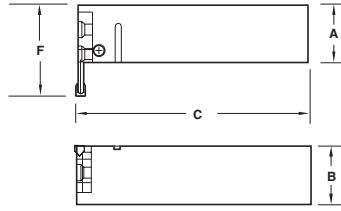
\*The "C" dimension is determined by the D.O.C. of the anvil. If the D.O.C. is .312, C=5.500. If the D.O.C. is .812, C=6.000.



## EXTERNAL 90° HOLDER

CDHOR

Metric



### PARTS

■ RH Holders use LH components - See below.

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

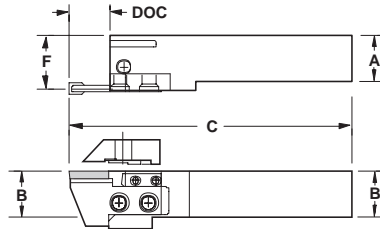
Description	EDP Code	A	B	C	7,0(1)	F*	20,0(1)	Clamp Screw	Stop Screw	Anvil Screw
CDHOR-25MM	92112500	25,0	25,0	150,0	33,3	46,0		SB90	SS20	SF95
CDHOR-32MM	92113200	32,0	32,0	150,0	39,7	52,4		SB90	SS20	SF95
CDHOR-40MM	92114000	40,0	40,0	150,0	46,0	58,7		SB90	SS20	SF95

\*The "F" dimension is determined by the D.O.C. of the anvil. (1) Anvil D.O.C.

## EXTERNAL STRAIGHT HOLDER

CDVOR/L

Metric



### PARTS

■ RH Holders use RH components - See below.

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

Description	EDP Code	A	B	C	F	Clamp Screw	Stop Screw	Anvil Screw
CDVOR-25MM	92412500	25,0	25,0	*	28,8	SB90	SS20	SF95
CDVOL-25MM	92312500	25,0	25,0	*	28,8	SB90	SS20	SF95
CDVOR-32MM	92413200	32,0	32,0	*	35,8	SB90	SS20	SF95
CDVOR-40MM	92414000	40,0	40,0	*	43,8	SB90	SS20	SF95
CDVOL-40MM	92314000	40,0	40,0	*	43,8	SB90	SS20	SF95

\*The "C" dimension is determined by the D.O.C. of the anvil. If the D.O.C. is .312 (7.9mm), C=5.500 (139,7mm). If the D.O.C. is .812 (20.6mm), C=6.000 (152.5mm).

## COMPONENTS

For CDHOR/L and CDVOR/L

■ For face grooving anvils - See page

**ANVIL**

**CLAMP**

**STOP BLOCK**

Anvil	EDP Code	Insert	DOC	WOC	Clamp	Stop Block
AHR-118	9140118	VDB125	.812	.105-.125	CHR-182	SBH-1
AHL-118	9130118	VDB125	.812	.105-.125	CHL-182	SBH-1
AHR-148	9140148	V84/V85	.812	.220-.250	CHR-482	SBH-1
AHL-148	9130148	V84/V85	.812	.220-.250	CHL-482	SBH-1
AHR-173	9140173	V84/V85	.312	V-THREAD	CHR-431	SBH-1
AHL-173	9130173	V84/V85	.312	V-THREAD	CHL-431	SBH-1
AHR-113	9140113	DBP24/VDB125	.312	.105-.125	CHR-132	SBH-1
AHL-113	9130113	DBP24/VDB125	.312	.105-.125	CHL-132	SBH-1
AHR-138	9140138	DBP34/VDB188	.812	.170-.188	CHR-382	SBH-2
AHL-138	9130138	DBP34/VDB188	.812	.170-.188	CHL-382	SBH-2
AHR-148	9140148	VDB250A	.812	.220-.250	CHR-482	SBH-2
AHL-148	9130148	VDB250A	.812	.220-.250	CHL-482	SBH-2
AHR-248	9140248	DBP45/VDB250B	.812	.250-.312	CHR-482	SBH-2
AHL-248	9130248	DBP45/VDB250B	.812	.250-.312	CHL-482	SBH-2
AHR-268	9140268	DBP65/VDB375	.812	.350-.375	CHR-582	SBH-2
AHL-268	9130268	DBP65/VDB375	.812	.350-.375	CHL-582	SBH-2

VEE BOTTOM



# VEE BOTTOM

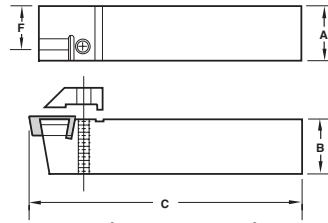
## EXTERNAL STRAIGHT HOLDER

CDVOR/L/C

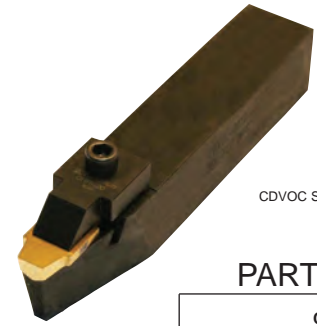
One piece design

■ RH Holders use RH clamps

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



CDVOR Shown



CDVOC Shown

### PARTS

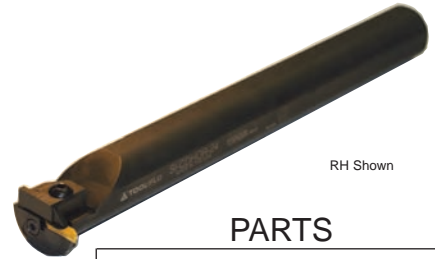
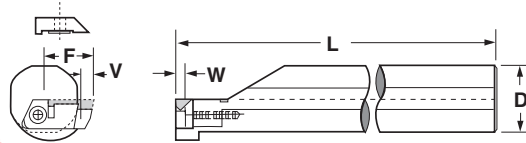
Description	EDP Code	Insert	A	B	C	F	Clamp	Clamp Screw
CDVOR-168	<a href="#">92401682</a>	V84/V85	1	1	6	0.875	CHR-431	SB90
CDVOL-168	<a href="#">92301682</a>	V84/V85	1	1	6	0.875	CHL-431	SB90
CDVOR-208	<a href="#">92402082</a>	V84/V85	1-1/4	1-1/4	6	1.125	CHR-431	SB90
CDVOL-208	<a href="#">92302082</a>	V84/V85	1-1/4	1-1/4	6	1.125	CHL-431	SB90
CDVOR-209	<a href="#">92402086</a>	V96/V98	1-1/4	1-1/4	7	1.000	CHR-98	<a href="#">SS100</a>
CDVOC-2012	<a href="#">92202090</a>	V120	1-1/4	1-1/4	7	0.625	CHR-120	SS90

## INTERNAL BAR

SI-CDHOR

■ RH Holders use LH components

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



RH Shown

### PARTS

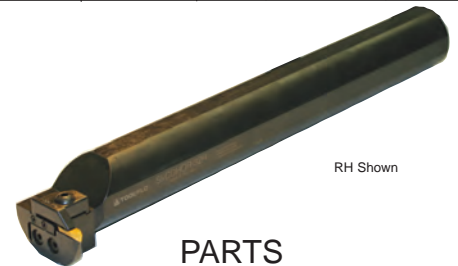
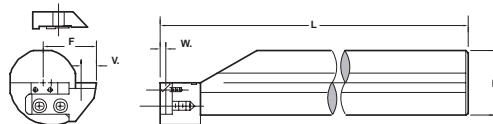
Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Anvil Screw	Clamp	Clamp Screw
SI-CDHOR-24	<a href="#">96802400</a>	V84/V85	1-1/2	14	.188-.250	.180	1.062	1.880	.080	ABL/R-131	SF69	CBL/R-411	SB90
SI-CDHOL-24	96702400	V84/V85			60°V	.180	1.062	1.880	.080	ABL/R-171	SF69	CBL/R-411	SB90
		V85			.295.312	.312	1.062	1.880	.080	ABL/R-143	SF69	CBL/R-531	SB90
		DBP24/VDB125			.105-.125	.312	1.062	1.880	.240	ABL/R-113	SF69	CBL/R-132	SB90
		DBP34/VDB188			.170-.188	.530	1.280	2.098	.240	ABL/R-135	SF69	CBL/R-352	SB90
		VDB250A			.220-.250	.530	1.280	2.098	.240	ABL/R-145	SF69	CBL/R-452	SB90
		DBP45/VDB250B			.220-.250	.530	1.280	2.098	.240	ABL/R-245	SF69	CBL/R-452	SB90

## INTERNAL BAR

SI-CDHOR

■ RH Holders use LH components

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



RH Shown

### PARTS

Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Anvil Screw	Clamp	Stop Block	SBH Screw
SI-CDHOR-32H	<a href="#">96803200H</a>	V84/V85	2	16	.220-.250	.312	1.584	3.000	.150	AHL/R-148	SF95	CHL/R-482	SB90	SBH-1 SS-20
SI-CDHOL-32H	<a href="#">96703200H</a>	V84/V85			60°V	.312	1.584	3.000	.150	AHL/R-173	SF95	CHL/R-431	SB90	SBH-1 SS-20
		DBP34/VDB188			.170-.188	.625	1.592	3.000	.270	AHL/R-138	SF95	CHL/R-382	SB90	SBH-2 SS-20
		VDB250A			.220-.250	.625	1.592	3.000	.270	AHL/R-148	SF95	CHL/R-482	SB90	SBH-2 SS-20
		DBP45/VDB250B			.220-.250	.625	1.592	3.000	.270	AHL/R-248	SF95	CHL/R-482	SB90	SBH-2 SS-20

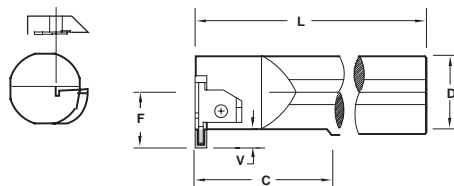
## INTERNAL BAR

SI-CDHOR/L

One piece design

■ RH Holders use LH components

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



RH Shown

### PARTS

Description	EDP Code	Insert	Min. Bore	D	L	C	F	V	D.O.C. at Min. Bore	Clamp Screw	Clamp
SI-CDHOR-168	<a href="#">96801682</a>	V84/V85	2.500	1	10	3	.687	.270	.200	S526	CBL-84
SI-CDHOL-168	<a href="#">96701682</a>	V84/V85	2.500	1	10	3	.687	.270	.200	S526	CBR-84
SI-CDHOR-208	<a href="#">96802082</a>	V84/V85	2.500	1-1/4	12	-	.875	.285	.250	S526	CBL-84
SI-CDHOL-208	<a href="#">96702082</a>	V84/V85	2.500	1-1/4	12	-	.875	.285	.250	S526	CBR-84
SI-CDHOR-329	<a href="#">96803286</a>	V96/V98	3.100	2	16	-	1.530	.325	.312	SS110	CBL-98
SI-CDHOL-329	<a href="#">96703286</a>	V96/V98	3.100	2	16	-	1.530	.325	.312	SS110	CBR-98
SI-CDHOR-409	<a href="#">96804086</a>	V96/V98	4.000	2-1/2	16	-	1.575	.365	.312	SS110	CBL-98
SI-CDHOR-4012	<a href="#">96804092</a>	V120	4.000	2-1/2	16	8.062	1.575	.570	.500	<a href="#">SB100</a>	CBL-120

# VEE BOTTOM



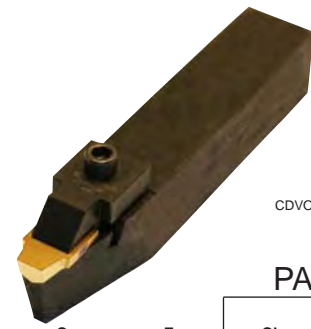
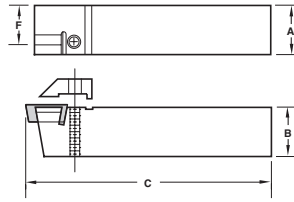
## EXTERNAL STRAIGHT HOLDER

CDVOR/L/C

One piece design

Metric

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



CDVOC Shown

### PARTS

Description	EDP Code	Insert	A	B	C	F	Clamp	Clamp Screw
CDVOR-25M8	<a href="#">92412582</a>	V84/V85	25,0	25,0	150,0	21,8	CHR-431	SB90
CDVOL-25M8	<a href="#">92312582</a>	V84/V85	25,0	25,0	150,0	21,8	CHL-431	SB90
CDVOR-32M8	<a href="#">92413282</a>	V84/V85	32,0	32,0	150,0	28,8	CHR-431	SB90
CDVOL-32M8	<a href="#">92313282</a>	V84/V85	32,0	32,0	150,0	28,8	CHL-431	SB90
CDVOR-32M9	<a href="#">92413286</a>	V98	32,0	32,0	180,0	25,5	CHR-98	<a href="#">SS100</a>
CDVOC-32M12	<a href="#">92413290</a>	V120	32,0	32,0	180,0	22,5	CHR-120	SS90

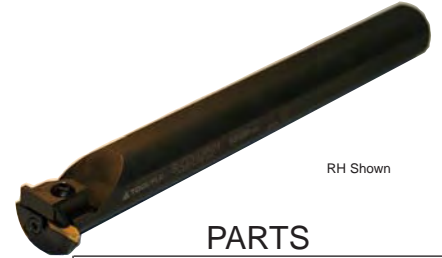
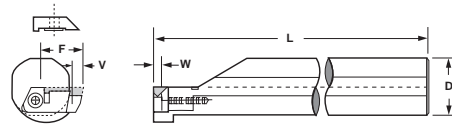
## INTERNAL BAR

SI-CDHOR

Metric

■ RH Bars use LH components

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



RH Shown

### PARTS

Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Anvil Screw	Clamp	Clamp Screw
SI-CDHOR-40MM	96814000	V84	40,0	360,0	5,5-6,5	4,5	28,9	48,0	2,0	ABL/R-131	SF69	CBL/R-411	SB90
		V84			60°V	4,5	28,9	48,0	2,0	ABL/R-171	SF69	CBL/R-411	SB90
		V85			7,5-8,0	7,9	28,9	48,0	2,0	ABL/R-143	SF69	CBL/R-531	SB90
		DBP24/VDB125			2,6-3,2	7,9	28,9	53,5	6,0	ABL/R-113	SF69	CBL/R-132	SB90
		DBP34/VDB188			4,3-4,8	13,6	34,3	53,5	6,0	ABL/R-135	SF69	CBL/R-352	SB90
		VDB250A			5,5-6,5	13,6	34,3	53,5	6,0	ABL/R-145	SF69	CBL/R-452	SB90
		DBP45/VDB250B			5,5-6,5	13,6	34,3	53,5	6,0	ABL/R-245	SF69	CBL/R-452	SB90

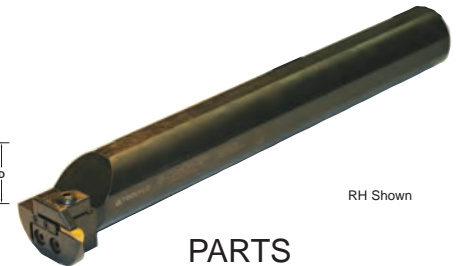
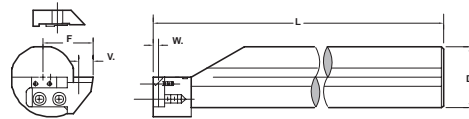
## INTERNAL BAR

SI-CDHOR

Metric

■ RH Bars use LH components

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



RH Shown

### PARTS

Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Anvil Screw	Clamp	Clamp Screw	Stop Block	SBH Screw
SI-CDHOR-50MM	96815000	V84/V85	50,0	400,0	5,5-6,5	7,9	39,5	76,2	2,0	AHL/R-148	SF95	CHL/R-482	SB90	SBH-1	SS-20
		V84/V85			60°V	7,9	39,5	76,2	2,0	AHL/R-173	SF95	CHL/R-431	SB90	SBH-1	SS-20
		DBP34/VDB188			4,3-4,8	20,6	40,0	76,2	6,0	AHL/R-138	SF95	CHL/R-382	SB90	SBH-2	SS-20
		VDB250A			5,5-6,5	20,6	40,0	76,2	6,0	AHL/R-148	SF95	CHL/R-482	SB90	SBH-2	SS-20
		DBP45/VDB250B			5,5-6,5	20,6	40,0	76,2	6,0	AHL/R-248	SF95	CHL/R-482	SB90	SBH-2	SS-20

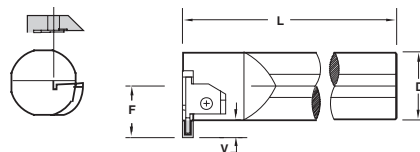
## INTERNAL BAR

SI-CDHOR/L

One piece design

Metric

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



RH Shown

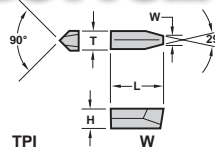
### PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	D.O.C. at Min. Bore	Clamp Screw	Clamp
SI-CDHOR-25M8	96812582	V84/V85	30,15	25,0	250,0	17,4	6,4	4,8	S526	CBL-84
SI-CDHOL-25M8	96712582	V84/V85	30,15	25,0	250,0	17,4	6,4	4,8	S526	CBR-84
SI-CDHOR-32M8	96813282	V84/V85	38,1	32,0	300,0	18,5	6,4	4,8	S526	CBL-84
SI-CDHOL-32M8	96713282	V84/V85	38,1	32,0	300,0	18,5	6,4	4,8	S526	CBR-84
SI-CDHOR-50M9	96815086	V98	63,5	50,0	400,0	38,8	9,2	7,9	SS110	CBL-98
SI-CDHOL-50M9	96715086	V98	63,5	50,0	400,0	38,8	9,2	7,9	SS110	CBR-98
SI-CDHOR-65M9	96816586	V98	76,2	65,0	400,0	40,0	9,2	9,5	SS110	CBL-98
SI-CDHOL-65M12	96816590	V120	76,2	65,0	400,0	40,0	14,0	12,7	<a href="#">SB100</a>	CBL-120



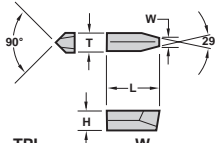
# VEE BOTTOM

## ACME THREADING MLPE



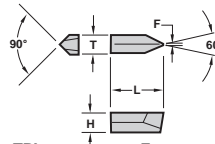
Description	EDP Code	TPI	W	T	L	H	GP22	TIN Coated	AC22	AITIN Coated
MLPE 2532 NT 4P	<a href="#">0271040</a>	4	.0875	.188	.500	.150	●	●	●	●
MLPE 3425 NT 4P	<a href="#">0273040</a>	4	.0875	.250	.625	.188	●	●	●	●
MLPE 2532 NT 5P	<a href="#">0271050</a>	5	.0689	.188	.500	.150	●	●	●	●
MLPE 3425 NT 5P	<a href="#">0273050</a>	5	.0689	.250	.625	.188	●	●	●	●
MLPE 2532 NT 6P	<a href="#">0271060</a>	6	.0566	.188	.500	.150	●	●	●	●
MLPE 3425 NT 6P	<a href="#">0273060</a>	6	.0566	.250	.625	.188	●	●	●	●
MLPE 2532 NT 8P	<a href="#">0271080</a>	8	.0411	.188	.500	.150	●	●	●	●
MLPE 3425 NT 8P	<a href="#">0273080</a>	8	.0411	.250	.625	.188	●	●	●	●
MLPE 2532 NT 10P	0271100	10	.0319	.188	.500	.150	●	●	●	●
MLPE 3425 NT 10P	0273100	10	.0319	.250	.625	.188	●	●	●	●
MLPE 2532 NT 12P	0271120	12	.0283	.188	.500	.150	●	●	●	●
MLPE 3425 NT 12P	0273120	12	.0283	.250	.625	.188	●	●	●	●

## ACME STUB THREADING MLPE



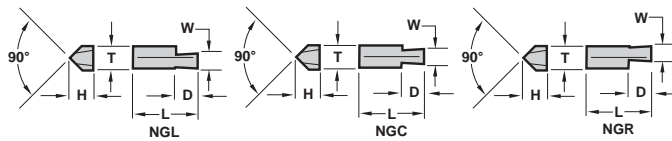
Description	EDP Code	TPI	W	T	L	H	GP22	AC22
MLPE 2532 NT 4P STUB	<a href="#">0271041</a>	4	.1004	.188	.500	.150	●	●
MLPE 3425 NT 4P STUB	<a href="#">0273041</a>	4	.1004	.250	.625	.188	●	●
MLPE 2532 NT 5P STUB	<a href="#">0271051</a>	5	.0793	.188	.500	.150	●	●
MLPE 3425 NT 5P STUB	<a href="#">0273051</a>	5	.0793	.250	.625	.188	●	●
MLPE 2532 NT 6P STUB	<a href="#">0271061</a>	6	.0652	.188	.500	.150	●	●
MLPE 3425 NT 6P STUB	<a href="#">0273061</a>	6	.0652	.250	.625	.188	●	●
MLPE 2532 NT 8P STUB	<a href="#">0271081</a>	8	.0476	.188	.500	.150	●	●
MLPE 3425 NT 8P STUB	<a href="#">0273081</a>	8	.0476	.250	.625	.188	●	●
MLPE 2532 NT 10P STUB	0271101	10	.0370	.188	.500	.150	●	●
MLPE 3425 NT 10P STUB	0273101	10	.0370	.250	.625	.188	●	●
MLPE 2532 NT 12P STUB	0271121	12	.0326	.188	.500	.150	●	●
MLPE 3425 NT 12P STUB	0273121	12	.0326	.250	.625	.188	●	●

## V-THREADING - 60° MLPE



Description	EDP Code	TPI	F	T	L	H	GP22	GP4
MLPE 1251 NV	01720000	10-20	.002-.004	.160	.340	.115	●	●
MLPE 2532 NV	01710000	6-20	.002-.004	.188	.500	.150	●	●
MLPE 3425 NV	01730000	5-20	.003-.006	.250	.625	.188	●	●

## GROOVING MLPE



Description	EDP Code	W	D	T	L	H	Coating							
							C3	C6H	GP22	GP6	AC22	AC6		
MLPE 1251 NGC W.062	<a href="#">C7206200</a>	.062	.085	.160	.340	.115			●		●			
MLPE 1251 NGC W.094	<a href="#">C7209400</a>	.094	.085	.160	.340	.115			●		●			
MLPE 1251 NGC W.125	<a href="#">C7212500</a>	.125	.085	.160	.340	.115			●		●			
MLPE 1251 NGC W.156	<a href="#">C7215600</a>	.156	.085	.160	.340	.115			●		●			
MLPE 2532 NGC W.062	<a href="#">C7106200</a>	.062	.120	.188	.500	.150			●		●			
MLPE 2532 NGC W.094	<a href="#">C7109400</a>	.094	.150	.188	.500	.150			●		●			
MLPE 2532 NGC W.125	<a href="#">C7112500</a>	.125	.150	.188	.500	.150			●		●			
MLPE 2532 NGC W.156	<a href="#">C7115600</a>	.156	.150	.188	.500	.150			●		●			
MLPE 2532 NGC W.188	<a href="#">C7118800</a>	.188	.150	.188	.500	.150			●		●			
MLPE 3425 NGC W.062	<a href="#">C7306200</a>	.062	.120	.250	.625	.188			●		●			
MLPE 3425 NGC W.094	<a href="#">C7309400</a>	.094	.150	.250	.625	.188			●		●			
MLPE 3425 NGC W.125	<a href="#">C7312500</a>	.125	.150	.250	.625	.188			●		●			
MLPE 3425 NGC W.156	<a href="#">C7315600</a>	.156	.150	.250	.625	.188			●		●			
MLPE 3425 NGC W.188	<a href="#">C7318800</a>	.188	.150	.250	.625	.188			●		●			
MLPE 3425 NGC W.250	<a href="#">C7325000</a>	.250	.150	.250	.625	.188			●		●			
MLPE 1251 NGL W.125	<a href="#">L7212500</a>	.125	.085	.160	.340	.115			●		●			
MLPE 1251 NGL W.156	<a href="#">L7215600</a>	.156	.085	.160	.340	.115			●		●			
MLPE 2532 NGL W.125	<a href="#">L7112500</a>	.125	.150	.188	.500	.150			●		●			
MLPE 2532 NGL W.156	<a href="#">L7115600</a>	.156	.150	.188	.500	.150			●		●			
MLPE 3425 NGL W.188	<a href="#">L7318800</a>	.188	.150	.250	.625	.188			●		●			
MLPE 1251 NGR W.125	<a href="#">R7212500</a>	.125	.085	.160	.340	.115			●		●			
MLPE 1251 NGR W.156	<a href="#">R7215600</a>	.156	.085	.160	.340	.115			●		●			
MLPE 2532 NGR W.125	<a href="#">R7112500</a>	.125	.150	.188	.500	.150			●		●			
MLPE 2532 NGR W.156	<a href="#">R7115600</a>	.156	.150	.188	.500	.150			●		●			
MLPE 3425 NGR W.188	<a href="#">R7318800</a>	.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.

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

VEE BOTTOM



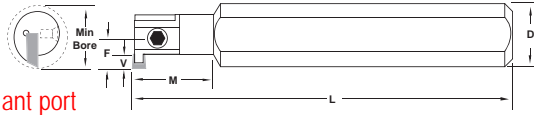


## INTERNAL BAR

### MS-CDHOR/L

One piece design

■ RH Bars use RH clamps



RH Shown

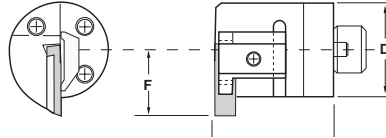
Most bars available with coolant port  
(ie: Add CP to end of description)

### PARTS

Description	EDP Code	Insert	Min. Bore	D	M	L	F	V	Clamp Screw	Clamp
MS-CLHOR-46254	<a href="#">951546254</a>	MLPE 1251	.500	.500	.930	6.000	.265	.079	SF20	MCR-30
MS-CLHOL-46254	<a href="#">951346254</a>	MLPE 1251	.500	.500	.930	6.000	.265	.079	SF20	MCL-30
MS-CLHOR-6845	<a href="#">95156845</a>	MLPE 2532	.700	.750	1.250	8.000	.400	.150	SF47	MCR-40
MS-CLHOL-6845	<a href="#">95256845</a>	MLPE 2532	.700	.750	1.250	8.000	.400	.150	SF47	MCL-40
MS-CLHOR-6856	<a href="#">95156856</a>	MLPE 3425	.830	.750	1.500	8.000	.462	.150	SA4	MCR-50
MS-CLHOL-6856	<a href="#">95256856</a>	MLPE 3425	.830	.750	1.500	8.000	.462	.150	SA4	MCL-50
MS-CLHOR-8856	<a href="#">95158856</a>	MLPE 3425	.830	1.000	1.500	8.000	.462	.150	SA4	MCR-50
MS-CLHOL-8856	<a href="#">95258856</a>	MLPE 3425	.830	1.000	1.500	8.000	.462	.150	SA4	MCL-50

## INTERCHANGEABLE HEADS

### H-CDHOR/L\*



RH SHOWN

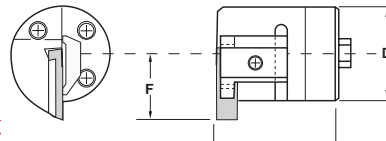
Most holders available with coolant port  
(ie: Add CP to end of description)

### PARTS

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

\*Left hand quoted on request.

### HS-CDHOR/L\*



RH SHOWN

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

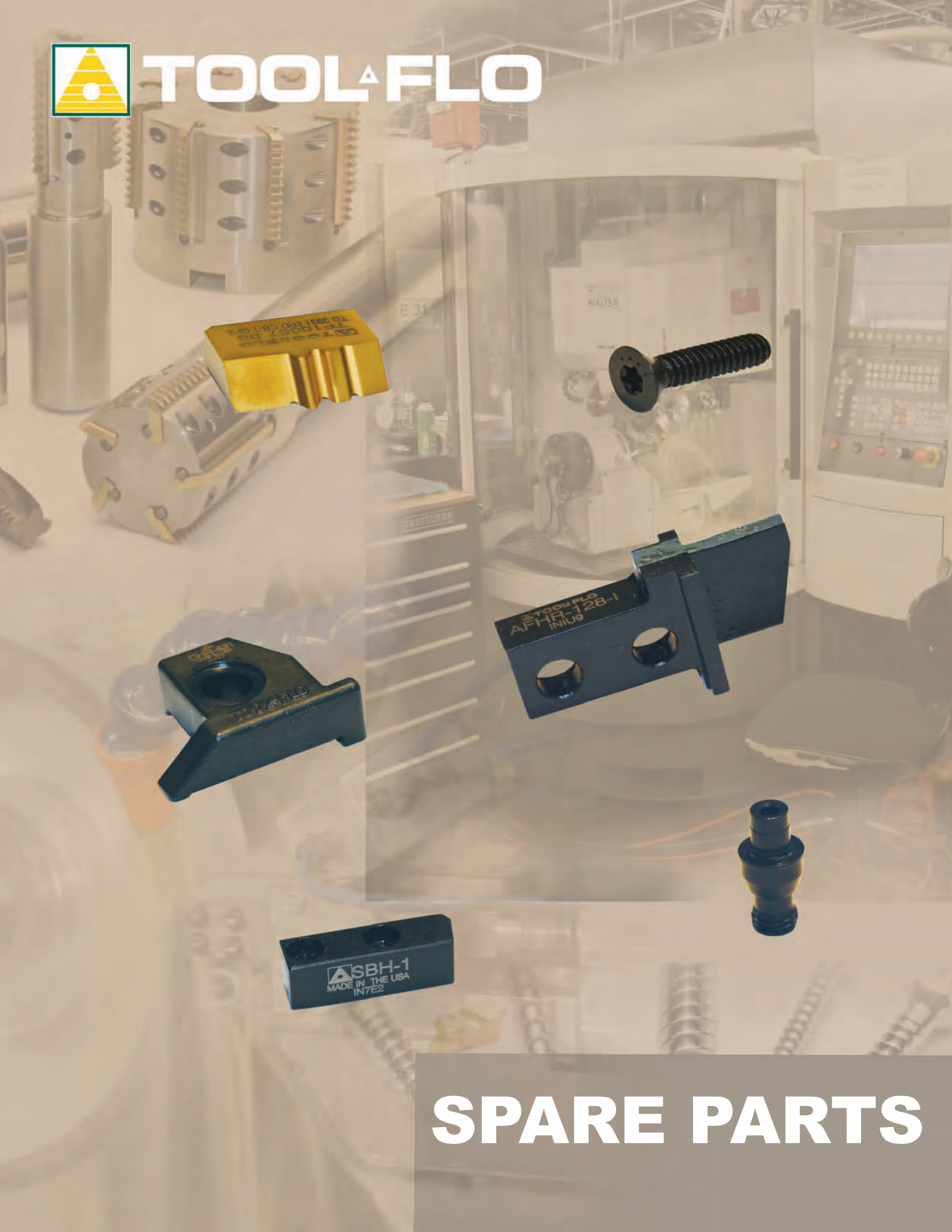
### PARTS

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

\*Left hand quoted on request.



# TOOL FLO



## SPARE PARTS

# SPARE PARTS



	Description	D.O.C.	W.O.C.	Insert		Description	D.O.C.	W.O.C.	Insert		
<b>ANVILS</b> <b>Deep Grooving</b> 	DGAHL-113	1.250	.105-.125	VDG	<b>CLAMPS</b> <b>Internal</b>  	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		
<b>Face Grooving</b>  	AFHL-113-I	.312	.105-.125	DBP/VDB	<b>External</b>  	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		
	<b>Grooving/Threading</b> <b>Internal</b>  	ABL-113	.312	.105-.125		DBP/VDB		CHL-FC1094	.531	.094	FC-094
		ABR-113	.312	.105-.125		DBP/VDB		CHR-FC125	.531	.125	FC-125
ABL-131		.180	.188-.250	V84	CHL-FCS094	.812		.094	FC-094		
ABR-131		.180	.188-.250	V84	CHL-FCS125	.812		.125	FC-125		
ABL-135		.530	.170-.188	DBP/VDB	CHR-FCS094	.812		.094	FC-094		
ABR-135		.530	.170-.188	DBP/VDB	CHR-FCS125	.812		.125	FC-125		
ABL-143		.312	.295-.312	V85							
ABR-143		.312	.295-.312	V85							
ABL-145		.530	.220-.250	VDB 250A							
ABR-145		.530	.220-.250	VDB 250A							
ABL-171		.180	60P V	V84							
ABR-171		.180	60P V	V84							
ABL-245		.530	.220-.250	DBP/VDB							
ABR-245		.530	.220-.250	DBP/VDB							
ABL-345		.530	.220-.250	VDB250A							
ABR-345		.530	.220-.250	VDB250A							
<b>External</b>  		AHL-113	.312	.105-.125	VDB	<b>Face Grooving</b>  		CHLF-132I	.312	.105-.125	DBP/VDB
		AHR-113	.312	.105-.125	VDB			CHLF-132O	.312	.105-.125	DBP/VDB
	AHL-138	.812	.170-.188	VDB	CHRF-132I		.312	.105-.125	DBP/VDB		
	AHR-138	.812	.170-.188	VDB	CHRF-132O		.312	.105-.125	DBP/VDB		
	AHL-148	.812	.220-.250	VDB	CHLF-282I		.812	.105-.125	DBP/VDB		
	AHR-148	.812	.220-.250	VDB	CHLF-282O		.812	.105-.125	DBP/VDB		
	AHL-173	.812	V-THD	V84/V85	CHRF-282I		.812	.105-.125	DBP/VDB		
	AHR-173	.812	V-THD	V84/V85	CHRF-282O		.812	.105-.125	DBP/VDB		
	AHL-248	.812	.250-.312	VDB250B	CHLF-382I		.812	.170-.188	DBP/VDB		
	AHR-248	.812	.250-.312	VDB250B	CHLF-382O		.812	.170-.188	DBP/VDB		
	AHL-268	.812	.350-.375	VDB375	CHRF-382I		.812	.170-.188	DBP/VDB		
	AHR-268	.812	.350-.375	VDB375	CHRF-382O		.812	.170-.188	DBP/VDB		
	AVR-FC094	.500	.094	FC-094	CHLF-482I		.812	.220-.312	DBP/VDB		
	AVR-FC125	.800	.125	FC-125	CHLF-482O		.812	.220-.312	DBP/VDB		
	AVR-FC187	.800	.187	FC-187	CHRF-482I		.812	.220-.312	DBP/VDB		
	AVL-FC094	.500	.094	FC-094	CHRF-482O		.812	.220-.312	DBP/VDB		
	AVL-FC125	.800	.125	FC-125	CHLF-582I		.812	.350-.375	DBP/VDB		
	AVL-FC187	.800	.187	FC-187	CHLF-582O		.812	.350-.375	DBP/VDB		
<b>CHIPBREAKERS</b> <b>External</b>  	Description		Insert			Description		Length			
	CR 5B75-4E CB <a href="#">IE2993</a>		CR-5B75-4E			CK-21			.73		
	CR 8R-4E CB <a href="#">IE3083E</a>		CR-8RD-4E			CL-6			.58		
	CR 8R-3E CB 1353E		CR-8RD-3E			CL-7			.64		
	#3 CB w/o Coolant <a href="#">IE26424</a>		CR-8R/10R-3E			CL-9			.75		
						CL-12			.88		
						CL-20			.73		
						CL-22			.85		
						CL-24			1.000		
						CL-30			1.000		
<b>Internal</b>  	Description		Insert			Description		Insert			
	CR 5B75-4I CB <a href="#">IE16104</a>		CR-5B75-4I			CM-65	FLPL/R-33				
	CR 8R-7I CB TF3435		CR-8RD-7I			CM-66	FLPL/R-33				
	CR 8R-4I CB <a href="#">IE3083I</a>		CR-8RD-4I			CM-68	FLPR-5				
	CR 8R-3I CB 1353I		CR-8RD-3I			CM-71	FLPL-5				
	TD4601 5B75-1 CB		CR-5B75-3E			CM-79	FLPR-5				
	TD4602 5B75-2 CB		CR-5B75-3E			CM-81	FL-5L				
	TD4603 5B75-3 CB		CR-5B75-3E			CM-111	FLPR-5				
	TD3931 8RD-1 CB		CR-8R-3E			CM-112	FLPL-5				
	TD3932 8RD-2 CB		CR-8R-3E			CM-113	VPGR (RH HOLDER)				
	TD3933 8RD-3 CB		CR-8R-3E			CM-114	VPGR (LH HOLDER)				
	TA2237 10RD-1 CB		CR-10R-3E			CM-116	DPGR (RH HOLDER)				
	TA2238 10RD-2 CB		CR-10R-3E			CM-117	DPGR (LH HOLDER)				
	TA2239 10RD-3 CB		CR-10R-3E			CM-118	DPGR (RH BAR)				
	#3 CB w/Coolant Grooves		CR-8R/10R-3E			CM-119	DPGR (LH BAR)				
						CM-121	Replaced with TF-121				
						CM-143					
						CM-180	FLPR-5				
				CM-181	FLPL-5						





# SPARE PARTS








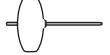


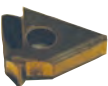


CLAMPS (cont.)					Flat Head Cap Screw						
Description	D.O.C.	W.O.C.	Insert		Description	Threads	Length	Wrench			
	DGCHL-132	1.250	.105-.125	VDG	S-111 (SF-20)	4-40	3/8	T-9 TORX			
	DGCHR-132	1.250	.105-.125	VDG	SA3	5-40	1/2	T-10 TORX			
	DGCHL-382	1.375	.170-.188	VDG	SA4	8-32	5/8	T-20 TORX			
	DGCHR-382	1.375	.170-.188	VDG	SA5	10-32	5/8	T-25 TORX			
	DGCHL-482	1.500	.218-.250	VDG	SF10	4-40	1/4	T-9 TORX			
	DGCHR-482	1.500	.218-.250	VDG	SF20 (S-111)	4-40	3/8	T-10 TORX			
	DGCHL-500	1.500	.250-.312	VDG	SF25	4-40	1/2	T-9 TORX			
	DGCHR-500	1.500	.250-.312	VDG	SF30	5-40	3/8	T-10 TORX			
	DGCHL-582	1.750	.350-.375	VDG	SF40	5-40	1/2	T-10 TORX			
	DGCHR-582	1.750	.350-.375	VDG	SF42	5-40	5/8	T-10 TORX			
	Description			Insert		SF45	5-40	3/4	T-9 TORX		
	MCL-30			MLPE-1251		SF50	8-32	3/8	T-20 TORX		
	MCR-30			MLPE-1251		SF60	8-32	1/2	T-20 TORX		
	MCL-40			MLPE-2532		SF65	10-32	1/2	T-25 TORX		
	MCR-40			MLPE-2532		SF70	10-24	3/8	T-25 TORX		
	MCL-50			MLPE-3425		SF80	10-24	1/2	T-25 TORX		
MCR-50			MLPE-3425	SF85		10-24	5/8	T-25 TORX			
	Description			Length		SF87	10-24	3/4	T-25 TORX		
	TC-190			.530		SF90	5/16-18	1	T-40 TORX		
	TC-191			.640		SF95	1/4-20	3/4	T-30 TORX		
	TC-250			.730	SE100	1/4-20	1	T-30 TORX			
	TC-251			.850	SN-2						
	TC-310			.750	PT-324	5-40	3/8	1/16 HEX			
	TC-311			.880							
	TC-380			1.000							
	Description			Insert	SCREWS (cont.)						
	TF-72			FL-3R/4R	SD Torx Flat Head						
	TF-73			FL-3L/4L	SD1	6-40	1/2	T-10 TORX			
	TF-74			FL-2R	SD2	10-32	3/4	T-20 TORX			
	TF-75			FL-2L	SD3	10-32	3/4	T-20 TORX			
	TF-77*			FL-4L*	SD4	1/4-20	1-1/4	1/8 HEX			
	TF-78*			FL-4R*	SD-25						
	TF-80			FL-5R	Socket Head Cap Screw						
	TF-81			FL-5L	S-310	6-32	1/2	7/64 HEX			
	TF-120			FL-6R	S-312	6-32	3/4	7/64 HEX			
	TF-121			FL-6L	S-352 (SS90)	5/16-18	1	1/4 HEX			
		Description			DIA	L	S-412	10-32	3/4	5/32 HEX	
DP-1				1/8	1	S-532					
DP-2				1/8	1-1/2	SS10	4-40	1/4	3/32 HEX		
DP-3				1/4	3/8	SS20	4-40	3/8	3/32 HEX		
DP-4				3/16	3/8	SS25	5-40	1/4	3/32 HEX		
DP-5				3/32	3/16	SS30	5-40	3/8	3/32 HEX		
DP-6				1/4	1	SS40	5-40	1/2	3/32 HEX		
DP-7				4,0	10,0	SS45	5-40	3/4	3/32 HEX		
DP-8				4,0	8,0	SS50	8-32	3/8	9/64 HEX		
DP-9				1/4	1/2	SS60	8-32	1/2	9/64 HEX		
DP-10				1/4	3/4	SS65	8-32	5/8	9/64 HEX		
DP-11				3/16	5/8	SS70	10-24	3/8	5/32 HEX		
DP-135				1/8	1-3/8	SS80	10-24	1/2	5/32 HEX		
		Description			Threads	Length	Wrench	Socket Head Torx Screw			
	NL-33			1/4-20	.340	5-64 HEX	SY-3	5-40	1/4	T-10 TORX	
	NL-33L			1/4-20	.410	5-64 HEX	SY-4	8-32	3/8	T-20 TORX	
	NL-34			1/4-20	.450	5-64 HEX	SY-5	M5 x 0.8	1/4	T-25 TORX	
	NL-34L			1/4-20	.510	5-64 HEX	Special Flat Head Screw				
	NL-44			1/4-28	.510	3/32 HEX	SL-111				
	NL-46			1/4-28	.680	3/32 HEX	SL-344	4-40	5/16	-	
	NL-46L			1/4-28	.730	3/32 HEX	S-959	2-56	1/4	-	
	NL-56			5/16-24	.690	1/8 HEX	TS Torx Head Screw				
	NL-57			5/16-24	.810	1/8 HEX	TS1	1-72	3/32	T-6 TORX	
	NL-58			5/16-24	.860	1/8 HEX	TS20	1-72	3/32	T-6 TORX	
	NL-66			3/8-24	.690	9/64 HEX	TS25	M2.5 x 0.45	5.5MM	T-8 TORX	
	NL-66L			3/8-24	.830	9/64 HEX	TS25	M2.5 x 0.45	4.8MM	T-8 TORX	
	NL-68			3/8-24	.860	9/64 HEX	TS252 (SF05)	M2.5 x 0.45	8.0MM	T-8 TORX	
NL-68L			3/8-24	.950	9/64 HEX	TS3	2-56	1/8	T-7 TORX		
NL-810			7/16-20	1.170	5/32 HEX	TS40	5-40	3/8	T-10 TORX		
	Description			Wrench	Button Head						
	STBN-1A			K2	SB10	4-40	1/4	1/16 HEX			
	STBN-2			K3	SB90	5/16-18	3/4	3/16 HEX			
	STBN-3			K3	SB100	5/16-18	1	3/16 HEX			
	STBN-4			K3	S-518	8-32	3/8	3/32 HEX			
	STBN-5			K3	S-524	10-24	1/2	1/8 HEX			
	STBN-6			K4	S-532	1/4-20	3/4	5/32 HEX			
	STBN-7			K5	S-625	1/4-28	7/8	5/32 HEX			
	STBN-8			K6	Clamp Screw						
	STBN-9			K7	STC-4	5-16-24	1.160	5/32 HEX			
STBN-10			K8	STC-5	10-32	.840	3/32 HEX				
	Description			Insert	SEATS						
	TE1207			CR-8R-3E/4E	Chaser Style						
	TE1780			CR-8R-3I/4I							
	TE3218			CR-8R-7I							
	TF8132-E			CR-5B75-4E							
	TF8132-I			CR-5B75-4I							

\*Designed for Sandvik® Toolholders & Bars.

SPARE PARTS

# SPARE PARTS



	Description	Length	Description																																																																																																																																																																																																																																	
<b>SEATS (cont.)</b> <b>Flo-Lock Style</b>  	SM-267	FLPL-33	<b>STOP BLOCKS</b>    SBH-1 SBH-2 SBH-4																																																																																																																																																																																																																																	
	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																																																																																																																																																																																																																																		
<b>Laydown L Style</b>  	LS 43 NO FORM EXT	L43 EXT	<b>WRENCHES</b> <b>Flag Style Torx</b>   Description Wrench K05 T-6 TORX K1 T-7 TORX K2 T-8 TORX K3 T-10 TORX K4 T-20 TORX K5 T-25TORX																																																																																																																																																																																																																																	
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2N	-0.5°	22ER/22NL	YE5 3N	-1.5°	27ER/27NL	YE5 2N	-0.5°	27ER/27NL	YE5 1.5N	0°	27ER/27NL	YE5 1N	0.5°	27ER/27NL	YE5	1.5°	27ER/27NL	YE5 1P	2.5°	27ER/27NL	YE5 2P	3.5°	27ER/27NL	YE5 3P	4.5°	27ER/27NL	YE5 8NPT 2M	1.5°	27ER/NL 8NPT 2M	YE5 8RD 2M	1.5°	27ER/NL 8RD 2M	YE5M NO FORM	1.5°	27ER/27NL	YE5M 1N	0.5°	27ER/27NL	YE5M 1.5N	0°	27ER/27NL	YI3 3N	-1.5°	16NR/16EL	YI3 2N	-0.5°	16NR/16EL	YI3 1.5N	0°	16NR/16EL	YI3 1N	0.5°	16NR/16EL	YI3	1.5°	16NR/16EL	YI3 1P	2.5°	16NR/16EL	YI3 2P	3.5°	16NR/16EL	YI3 3P	4.5°	16NR/16EL	YI3M NO FORM	1.5°	16NR/16EL	YI3M 1N	0.5°	16NR/16EL	YI3M 1.5N	0°	16NR/16EL	YI3M 2N	-0.5°	16NR/16EL	YI4 3N	-1.5°	22NR/22EL	YI4 2N	-0.5°	22NR/22EL	YI4 1.5N	0°	22NR/22EL	YI4 1N	0.5°	22NR/22EL	YI4	1.5°	22NR/22EL	YI4 1P	2.5°	22NR/22EL	YI4 2P	3.5°	22NR/22EL	YI4 3P	4.5°	22NR/22EL	YI4M NO FORM	1.5°	22NR/22EL	YI4M 1N	0.5°	22NR/22EL	YI4M 1.5N	0°	22NR/22EL	YI4M 2N	-0.5°	22NR/22EL	YI5 3N	-1.5°	27NR/27EL	YI5 2N	-0.5°	27NR/27EL	YI5 1.5N	0°	27NR/27EL	YI5 1N	0.5°	27NR/27EL	YI5	1.5°	27NR/27EL	YI5 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	YI4M 2N	-0.5°	22NR/22EL																																																																																																																																																																																																																																	
	YI5 3N	-1.5°	27NR/27EL																																																																																																																																																																																																																																	
	YI5 2N	-0.5°	27NR/27EL																																																																																																																																																																																																																																	
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	YI5 1P	2.5°	27NR/27EL																																																																																																																																																																																																																																	
	YI5 2P	3.5°	27NR/27EL																																																																																																																																																																																																																																	
	YI5 3P	4.5°	27NR/27EL																																																																																																																																																																																																																																	
	YI5 8NPT 2M	1.5°	27NR/EL 8NPT 2M																																																																																																																																																																																																																																	
	YI5 8RD 2M	1.5°	27NR/EL 8RD 2M																																																																																																																																																																																																																																	
	YI5M NO FORM	1.5°	27NR/27EL																																																																																																																																																																																																																																	
	YI5M 1N	0.5°	27NR/27EL																																																																																																																																																																																																																																	
	YI5M 1.5N	0°	27NR/27EL																																																																																																																																																																																																																																	

\*Angle effective in the holder/bar.





## 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
<b>THREAD DEPTH</b>	.1578	.1262	.1052	.0902	.0789	.0701	.0631	.0574	.0526	.0485	.0451	.0394	.0350	.0315	.0263	.0225	.0197	.0175	.0157	.0143	.0131
<b># OF PASSES</b>																					
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

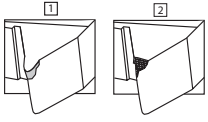
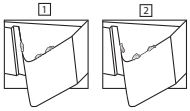
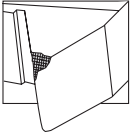
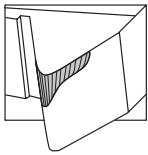
Internal UN Threads --- Recommendations for Steel Workpieces (<300BHN)

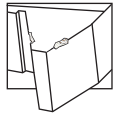
TPI	4	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32	36	40	44	48
<b>THREAD DEPTH</b>	.1353	.1082	.0902	.0773	.0676	.0601	.0541	.0492	.0451	.0416	.0386	.0338	.0300	.0270	.0225	.0193	.0169	.0150	.0135	.0123	.0112
<b># OF PASSES</b>																					
1	.0303	.0255	.0213	.0183	.0169	.0150	.0145	.0132	.0131	.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.

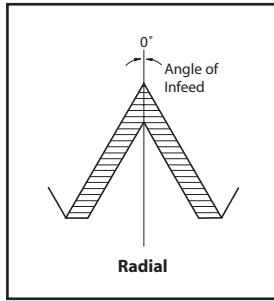
Problem	Cause	Solution
<b>Plastic Deformation</b>  <p>Starts as plastic deformation (1) which leads to plastic break (2)</p>	Excessive temperature in the cutting area Unsuitable grade Inadequate coolant supply	Reduce cutting speed Increase number of infeeds Reduce the largest infeed depth Check diameter before threading Improve coolant supply Choose grade with better resistance to plastic deformation
<b>Built-up Edge/ Edge Spalling</b>  <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
<b>Insert Breakage</b> 	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
<b>Rapid Flank Wear</b> 	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
<b>Abnormal Flank Wear Poor Finish on One Flank of Thread</b>	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
<b>Vibration</b>	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.
<b>Poor Surface Quality on Thread</b>	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
<b>Poor Chip Control</b>	Incorrect method of infeed Wrong geometry	Modified Flank infeed 3P-5P "CB" or "HCB" geometry with modified flank infeed 1P
<b>Shallow Profile</b>	Wrong center height Insert breakage Excessive wear	Adjust the center height Change cutting edge
<b>Incorrect Thread Profile</b>	Unsuitable thread profile angle of thread and nose radius; external inserts used for internal operation and vice versa Wrong center height Holder not 90° to center line Pitch error in machine	Correct tool / insert combination Adjust the center height Adjust to 90° Correct in machine
<b>Excessive Edge Pressure</b> 	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



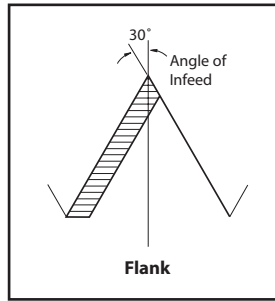
**Advantage-**  
Cutting on both sides of the thread form places all of the cutting edge in the cut and protects edge from chipping.

**Disadvantage-**  
Tool develops a channel chip which may be difficult to handle.

Tip chipping occurs when cutting high-tensile materials.

Burr condition is increased.

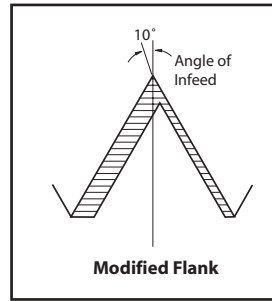
Entire cutting edge is engaged at finish of thread, causing increased tendency to chatter.



**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.

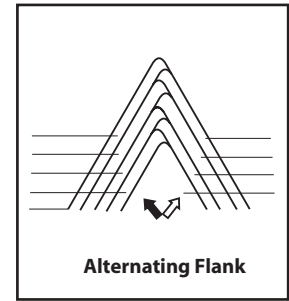
**Disadvantage-**  
Trailing edge of threading insert may drag or rub, and tends to chip.

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.

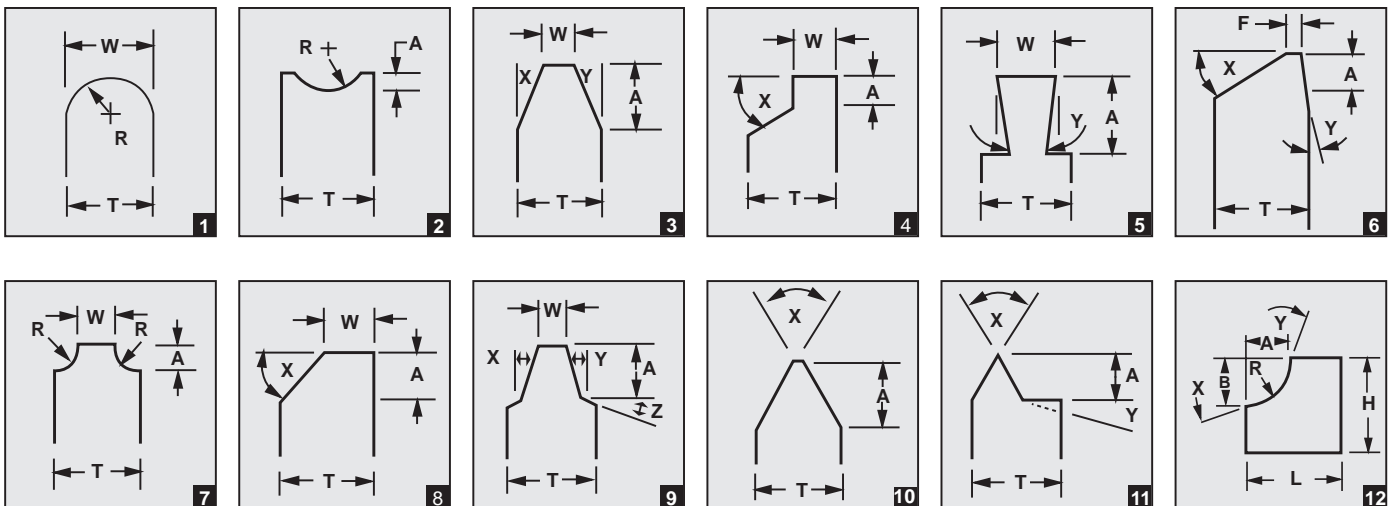
**Disadvantage-**  
Similar disadvantages as with 0P infeed, although slightly reduced in magnitude as the cutting forces are better equalized and chip flow is much less of a problem.



**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.





## Recommended SFM for Grooving Applications

	Free Machining Carbon Steels	Plain Carbon Steels	Alloy Steels 190-330 HB	Alloy Steels 330-450 HB	Martensitic/Ferritic Stainless Steel 400 Series	Austenitic Stainless 300 Series	Gray Cast Iron 190-330 HB	Gray Cast Iron 330-450 HB	Alloy / Ductile Irons	Free Machining Aluminum Alloys	High-Silicon Aluminum Alloys	Copper / Zinc / Brass	Non-Metallics	High Temperature Alloys 200-260 HB	High Temperature Alloys 260-450 HB	Titanium Alloys (Ti 6Al-4V)	Hardened Materials 48-65 HRC
<b>C22</b>	---	---	---	---	---	150-300	100-350	100-300	---	100-1500	---	100-500	100-1000	80-130	50-100	100-200	---
<b>C25</b>	---	---	---	---	---	200-350	100-375	100-350	---	200-1700	---	200-600	400-1200	80-130	50-100	100-200	---
<b>C26S</b>	---	---	---	---	---	---	---	---	---	1500-3K	---	400-800	400-1200	---	---	---	---
<b>C3</b>	---	---	---	---	---	200-400	100-375	100-350	---	200-2K	---	200-700	400-1400	80-130	50-100	100-200	---
<b>G50</b>	300-700	300-700	300-700	300-600	300-600	---	---	---	300-600	---	---	---	---	---	---	---	---
<b>GP22</b>	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	---
<b>GP25</b>	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	---
<b>GP26</b>	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	---
<b>GP3</b>	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	---
<b>GP4</b>	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	---
<b>GP5</b>	200-500	200-500	200-400	200-400	200-400	---	---	---	200-400	---	---	---	---	---	---	---	---
<b>GP54</b>	200-500	200-500	200-400	200-400	200-400	---	---	---	200-400	---	---	---	---	---	---	---	---
<b>GP50</b>	200-600	200-600	200-500	200-450	200-500	---	---	---	200-500	---	---	---	---	---	---	---	---
<b>AC22</b>	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	---
<b>AC26</b>	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	---
<b>AC3</b>	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
<b>AC54</b>	350-500	350-500	350-500	300-500	300-500	---	---	---	300-500	---	---	---	---	---	---	---	---
<b>AC50</b>	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
<b>ZA22</b>	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	---
<b>ZA26</b>	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	---
<b>ZA3</b>	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
<b>ZA50</b>	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
<b>ZL22</b>	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	---
<b>ZL26</b>	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	---
<b>ZL3</b>	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
<b>ZR22</b>	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	---
<b>ZR26</b>	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	---
<b>ZR3</b>	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
<b>ZR50</b>	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
<b>ZS22</b>	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	---
<b>ZS26</b>	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	---
<b>ZS3</b>	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
<b>ZS50</b>	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
<b>ZU22</b>	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	---
<b>ZU26</b>	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	---
<b>ZU3</b>	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
<b>ZU50</b>	400-800	450-800	400-800	400-750	350-700	---	---	---	300-700	---	---	---	---	---	---	---	---
<b>GPM6</b>	600-1500	600-1200	500-1100	600-800	500-800	500-1K	400-1100	350-950	350-950	---	---	---	---	---	---	---	---
<b>CB200</b>	---	---	---	---	---	---	400-2500	1K-1800	---	---	---	---	---	300-600	250-450	---	150-350
<b>CB400</b>	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	200-500
<b>PC33</b>	---	---	---	---	---	---	---	---	---	1K-8K	1K-5K	1K-4K	1K-4500	---	---	---	---
<b>DX200</b>	---	---	---	---	---	---	---	---	---	1K-7K	1K-3K	1K-3500	1K-4K	---	---	---	---



# Zenith

TOOL-FLO's  
New Premium Coatings

## Grade Description Chart

G50	CVD TiN/TiC/TiN grade. API chaser grade for Q-Series material.
GP22	PVD TiN grade with a tough, micro-grain substrate. Good for threading at low to medium speeds, while 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. <b>First choice</b> at low SFM (50-150) applications and heavy interruptions. Used in all applications where tool breakage is an issue.
GP54	PVD TiN grade with a tough substrate.
GP5	PVD TiN grade with a medium tough substrate. Good general purpose grade for steel applications. Primary grade in LPGC and TPGC style inserts.
GP50	PVD TiN grade with a medium tough substrate and excellent wear properties. Great general purpose grade for steel applications.
AC22	PVD TiAlN grade with a tough, micro-grain substrate. <b>First choice</b> in <b>Laydown Threading</b> in all materials. Dry machining capable.
AC26	PVD TiAlN grade with a tough, fine grain, unalloyed substrate with excellent wear properties. <b>First choice</b> in <b>Rigid-Lok</b> inserts for steels, stainless, high-temp alloys, and non-ferrous materials. Performs very well at low to high SFM and will handle interruptions and high feed rates. Coating provides highest resistance to oxidation, physical abrasion, and chip welding. Dry machining capable.
AC3	PVD TiAlN grade. <b>First choice</b> for grooving and threading in stainless steel, high-temperature alloys, aerospace materials, and non-ferrous materials. Excellent in standard steels at medium SFM. Dry machining capable.
AC50	PVD TiAlN grade. <b>First choice</b> for grooving and threading in all standard steels and 400 series stainless. Application range is medium to high SFM. Dry machining capable.
ZA22	PVD TiAlN grade with a tough, micro-grain substrate. Dry machining capable.
ZA26	PVD TiAlN grade with a tough, fine grain, unalloyed substrate with excellent wear properties. <b>First choice</b> in <b>Rigid-Lok</b> inserts for steels, stainless, high-temp alloys, and non-ferrous materials. Performs very well at low to high SFM and will handle interruptions and high feed rates. Coating provides highest resistance to oxidation, physical abrasion, and chip welding. Dry machining capable.
ZA3	PVD TiAlN grade. <b>First choice</b> for grooving in stainless steel, high-temperature alloys, aerospace materials, and non-ferrous materials. Excellent in standard steels at medium SFM. Dry machining capable.
ZA50	PVD TiAlN grade. <b>First choice</b> for grooving and threading in all standard steels and 400 series stainless. Application range is medium to high SFM. Dry machining capable.
ZS22	PVD AlTiN grade with a tough, micro-grain substrate. Good in <b>Laydown Threading</b> in all materials. Dry machining capable.
ZS26	PVD AlTiN grade with extra lubricity, a tough, fine grain, unalloyed substrate with excellent wear properties. <b>First choice</b> in <b>Rigid-Lok</b> inserts for steels, stainless, high-temp alloys, and non-ferrous materials. Performs very well at low to high SFM and will handle interruptions and high feed rates. Coating provides highest resistance to oxidation, physical abrasion, and chip welding. Dry machining capable.
ZS3	PVD AlTiN grade for grooving and threading in stainless steel, high-temperature alloys, aerospace materials, and non-ferrous materials. Excellent in standard steels at medium SFM. Dry machining capable.
ZS50	PVD AlTiN grade for grooving and threading in all standard steels and 400 series stainless. Application range is medium to high SFM. Dry machining capable.
ZL22	PVD grade with a tough, micro-grain, unalloyed substrate. Good for turning at low to medium speeds, while capable of handling interruptions. Works well in high-temperature alloys and aluminum.
ZL26	PVD grade with a tough, micro-grain, unalloyed substrate. Rigid-Lok endmill grade. Good choice for aluminum, high-temperature alloys, and non-ferrous materials. Good in low to high SFM, will handle interruptions and high feed rates.
ZL3	PVD grade with a wear resistant micro-grain substrate. Excellent choice in high-temperature alloys, aerospace materials, and non-ferrous materials.





ZR22	PVD AlTiN 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.
ZR26	PVD AlTiN grade with a tough, micro-grain, unalloyed substrate. Rigid-Lok endmill grade. Good choice for steels, stainless, high-temperature alloys, and non-ferrous materials. Good in low to high SFM, will handle interruptions and high feed rates
ZR3	PVD AlTiN grade with a wear resistant micro-grain substrate. Excellent choice in stainless steels, high-temperature alloys, aerospace materials, and non-ferrous materials. Good in standard steels at low to medium SFM.
ZR50	PVD AlTiN grade with a medium tough substrate and excellent wear properties. Great general purpose grade for steel applications.
ZU22	PVD AlTiN grade with a tough, micro-grain, unalloyed substrate. Good for threading at low to medium speeds, while capable of handling interruptions. Works well in stainless steel, high-temperature alloys, and standard steels at low to medium SFM.
ZU26	PVD AlTiN grade with a tough, micro-grain, unalloyed substrate. Rigid-Lok endmill grade. Good choice for steels, stainless, high-temperature alloys, and non-ferrous materials. Good in low to high SFM, will handle interruptions and high feed rates.
ZU3	PVD AlTiN grade with a wear resistant micro-grain substrate. Excellent choice in stainless steels, high-temperature alloys, aerospace materials, and non-ferrous materials. Good in standard steels at low to medium SFM.
ZU50	PVD AlTiN grade with a medium tough substrate and excellent wear properties. Great general purpose grade for steel applications.
C22	Uncoated grade with a tough, micro-grain, unalloyed substrate. Good for threading at low to medium speeds, while 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.
GPM6	PVD TiN coated cermet grade. <b>First choice</b> 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. <b>First choice</b> 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. <b>First choice</b> for roughing to finishing of hardened steels 45 HRC and higher. Use on bearing steel, hot and cold work steels, die steels, case hardened steels, carburized and nitrided irons.
CB410	PCBN tip brazed onto a carbide insert. Low content CBN. <b>First choice</b> 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. <b>First choice</b> 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. <b>First choice</b> at high SFM in non-metallic materials such as graphite, epoxy based resins, plastics, and aluminum.

\*For premium performance based upon optimal machining conditions, select the grade that will provide you with the highest allowable SFM for the material that is being machined. Optimum grades are in bold print. Grades are specific to certain insert styles. The grades listed below in bold print are stock within the style listed, see appropriate catalog page for precise stocking status.

Bantam: <b>C22</b> <b>GP22</b> <b>GP4</b> AC22	Flo-Lock: <b>C25</b> <b>GP4</b> <b>GP3</b> <b>GP4</b> <b>GP5</b> <b>GP50</b> <b>AC22</b> <b>AC3</b> <b>AC50</b> <b>GPM6</b> <b>CB200</b> <b>CB400</b> <b>PC33</b> C22 C3	Laydown: <b>GP22</b> <b>GP3</b> <b>GP5</b> <b>GP50</b> <b>AC22</b> <b>AC50</b> C22	Threadmill: <b>C3</b> <b>GP3</b> GP22
Ballnose: <b>C26</b> <b>ZS26</b> <b>CB400</b> <b>DX200</b>	<b>AC50</b> <b>GPM6</b> <b>CB200</b> <b>CB400</b> <b>PC33</b> C22 C3	Milling: <b>GP5</b> C5H	Turning: <b>G525</b> (Negative) <b>AG525</b> <b>AG535</b> <b>AG615</b>
Chasers: <b>G50</b> <b>GP50</b> <b>AC50</b> <b>ZA50</b>	Laydown: <b>GP22</b> (LT style) <b>GP4</b> <b>GP50</b> <b>AC22</b> <b>AC50</b> C22	On Edge: <b>GP22</b> <b>GP3</b> <b>GP54</b> <b>GP50</b> <b>GPM6</b> <b>AC22</b> <b>AC3</b> <b>AC50</b> AC54 C22 C25 C3	Turning: <b>AC3</b> (Positive) <b>AC50</b> C3
Cutoff: <b>GP22</b> <b>AC22</b> <b>AC50</b> C22			V-Bottom: <b>GP3</b> (V84/V85) <b>GP50</b> <b>AC50</b> C3
			V-Bottom: <b>C3</b> (VDB/VDG) <b>GP3</b> <b>AC3</b> <b>AC50</b> <b>CB200</b> <b>CB400</b> <b>PC33</b>



## ORDERING INFORMATION

### CONDITION OF SALE

Sales are made in accordance with our standard Conditions of Sale current at the time orders are accepted. Specifications and prices subject to change without notice.

### QUOTATIONS

Will be subject to acceptance 60 days from the date of quotation unless otherwise agreed. **In order to receive special quoted pricing, a quote number must be referenced at the time the order is placed.**

### TERMS OF PAYMENT

Net 30 Days

### DELIVERY TERMS

F.O.B. Shipping point; Charges will be added to invoice.

### WARRANTY

We will replace any material which is proven defective within 90 days from date of shipment to the customer. No claim for labor or damage will be allowed. Claims for error must be made upon receipt of material.

### PRICING

So far as the resale of items in this price list is concerned, the prices referred to are to be regarded as suggested only. The distributor, in its sole discretion, determines the actual resale price. These suggested resale prices are based on quantities of identical items released by purchaser on one order for shipment at one time to one destination. The reseller should determine whether savings in cost can justify the suggested quantity price differential, as may be required by the Robinson-Patman Act or other applicable law.

### OVER AND UNDER SHIPMENTS

For Non-Stock or Special items, unless otherwise specified or agreed, the following over and under allowances may be made:

Lots of	10-19	20-49	50-99	100+
Over/Under	1 piece	2 pieces	3 pieces	5%

### MINIMUM ORDER

\$50 Net per order. For Extended Discount Program - \$100 Net per order.

### RETURNS

Each Distributor will be allowed at a certain time of year to exchange 1% of their Net Sales for the previous year up to a maximum of \$1,000. These exchanges will be limited to Stock Standard items only and will be replaced by such. The exchange schedule is as follows:

Group A Distributors:	January - March
Group B Distributors:	July - September
Group C Distributors:	April - June
Group D Distributors:	October - December

All Non-Stock and Specials are non-returnable and/or non-exchangeable.

A Returned Material Authorization (RMA) number must be assigned by Tool-Flo prior to any material being returned. Purchase Order numbers and original invoice numbers must be supplied before an RMA number can be issued.

### RELEASE ORDER POLICY

A. Prices are to be based on total quantity of each item. Prices will be firm for six (6) months from the date of purchase. In the event of a price increase during the term of the order, one of the following conditions will apply:

1. If the increase becomes effective during the first six (6) months of the order, the balance of the order can be released within six (6) months from the date of purchase at existing prices. Any subsequent releases will be invoiced at the new price.
2. If the increase becomes effective after the first six (6) months of the order, the balance can be released immediately upon notification of the price increase at existing prices. All items not released immediately will be invoiced at the new price.

B. Minimum release order is 400 pieces. Releases must be made every 30 days. Initial release must be made within 30 days of order date. Minimum release is 50 pieces every 30 days. Releases not to exceed twelve (12) months. At the end of the twelve (12) month period from the date of the order, any remaining pieces will be shipped.

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	Carboloy®	Iscar®	Kennametal®	Sandvik®	Teledyne	Valenite®	Vardex®
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GP4						V1N	
AC4							
C22							
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AC222							
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PC33			KD100			VC727	

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