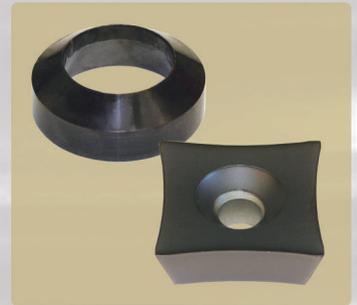




# API

Oil & Gas



# INDEX

## Threadform

<b>GRADE CHART</b> . . . . .	41-43	On Edge . . . . .	23	LT-Series Laydown . . . . .	18, 19
<b>INSERTS</b>		Vee Bottom . . . . .	27	L-Series Laydown . . . . .	19
<b>API BUTTRESS THREADING</b>		<b>API VAM THREADING</b>		On-Edge . . . . .	24-26
Chasers		LT-Series Laydown . . . . .	13	Ring Grooving . . . . .	32
CNGA (2 sided) . . . . .	2	L-Series Laydown . . . . .	17	Steel Shanks . . . . .	33
CR . . . . .	2	Vee Bottom . . . . .	27	Vee Bottom . . . . .	28-30
Flo Lock . . . . .	7	<b>API V0.055 (MT) THREADING</b>			
LT-Series Laydown . . . . .	10	LT-Series Laydown . . . . .	13	<b>COMBINATION BARS</b> . . . . .	<b>5, 36</b>
L-Series Laydown . . . . .	14	<b>API X-LINE THREADING</b>		<b>INTERCHANGABLE HEADS</b>	
On Edge . . . . .	22	LT-Series Laydown . . . . .	13	Blank Heads . . . . .	33
Vee Bottom . . . . .	27	L-Series Laydown . . . . .	17	Flo-Lock . . . . .	9
<b>API HUGHES H90 THREADING</b>		Vee Bottom . . . . .	28	LT-Series Laydown . . . . .	21
L-Series Laydown . . . . .	14	<b>NPT THREADING</b>		L-Series Laydown . . . . .	21
On Edge . . . . .	22	Chasers . . . . .	3	On-Edge . . . . .	26
<b>API ROTARY SHOULDER</b>		Flo Lock . . . . .	6	Vee Bottom . . . . .	30
<b>CONNECTION THREADING</b>		LT-Series Laydown . . . . .	10, 11		
Flo Lock . . . . .	7	L-Series Laydown . . . . .	14, 15	<b>TECHNICAL DATA</b> . . . . .	<b>39-44</b>
LT-Series Laydown . . . . .	12	<b>NPTF DRYSEAL THREADING</b>		API . . . . .	40
L-Series Laydown . . . . .	15, 16	LT-Series Laydown . . . . .	11	Chasers . . . . .	39
On Edge . . . . .	23	<b>PITTSBURG ACME</b>			
Vee Bottom . . . . .	27	L-Series Laydown . . . . .	15		
<b>API ROUND THREADING</b>		<b>RING GROOVERS</b> . . . . .	32		
Chasers		<b>TUBE SCARFING</b> . . . . .	34		
CNGA (2 sided) . . . . .	2				
CR . . . . .	2	<b>BRAZED TOOLS</b> . . . . .	35, 36		
Flo Lock . . . . .	6, 7	<b>TOOLHOLDERS/BARS</b>			
LT-Series Laydown . . . . .	12, 13	Chasers . . . . .	4		
L-Series Laydown . . . . .	17	Flo-Lock . . . . .	8, 9		

# INDEX

## Alphabetical

16 . . . . .	10-13	CDVOL/R . . . . .	28,29	HS-BLANK . . . . .	33	SI-MTHOL/R . . . . .	25
22 . . . . .	10-13	CLVOR . . . . .	4	HS-CDHOL/R . . . . .	31	SI-PCLHORM . . . . .	5,36
27 . . . . .	11-13	CNGA . . . . .	2	HS-FLER3 . . . . .	9	SI-STHOL/R . . . . .	26
A-FLEL . . . . .	9	CR . . . . .	23	HS-LNFL/R . . . . .	21	SPUB . . . . .	34
A-FLER . . . . .	9	FGNR . . . . .	32	HS-MTHOL/R . . . . .	26	SQ86 . . . . .	34
AHL/R . . . . .	31	FLD . . . . .	7	IDR . . . . .	34	S-44 . . . . .	33
AL . . . . .	18	FLDC . . . . .	6,7	L43 . . . . .	14,15,17	S-570 . . . . .	33
APIP . . . . .	32	FLEL . . . . .	8	L53 . . . . .	14,15,17	STVOL/R . . . . .	24
AVR . . . . .	18,19	FLER . . . . .	8	LDS . . . . .	15-17	TD . . . . .	3
B10 . . . . .	35,36	FLSL . . . . .	8	LNFL/R . . . . .	20	TNFA . . . . .	17
B12 . . . . .	36	FLSR . . . . .	8	MTHOR . . . . .	25	TNMA . . . . .	22,23
B6 . . . . .	36	H-AVR . . . . .	21	MTVNL/R . . . . .	19	TNMC . . . . .	22,23
B64 . . . . .	36	H-BLANK . . . . .	33	MTVOL/R . . . . .	24	V84 . . . . .	27
B8 . . . . .	35	H-CDHOL/R . . . . .	31	NVR . . . . .	18	V85 . . . . .	27
B85 . . . . .	36	H-FLER3 . . . . .	9	PCFNR . . . . .	4		
B86 . . . . .	36	H-LNFL/R . . . . .	20	SI-CDHOR . . . . .	30		
CDHOL/R . . . . .	28,30	H-MTHOL/R . . . . .	26	SI-CLHOR . . . . .	4		
CDVOC . . . . .	29	HS-AVR . . . . .	21	SI-CLHORM . . . . .	5,36		

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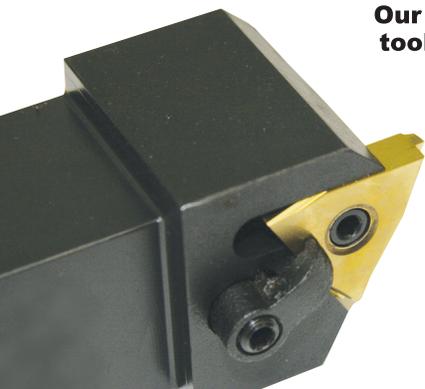
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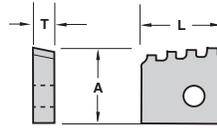




# CHASERS

## External API Buttress

■ For holders see pg. 4

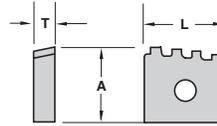


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth				
								G50	GP50	ZA3	AC50
CR-5B75-3E #1	M16415188	5	3/4	.670	.573	.205	3	●	●	●	●
CR-5B75-3E #2	M16415189	5	3/4	.670	.582	.205	3	●	●	●	●
CR-5B75-3E #3	M16426149	5	3/4	.670	.590	.205	3	●	●	●	●
CR-5B75-4E	M16422675	5	3/4	.804	.625	.200	4	●	●	●	●
CR-5B1-4E	M17411130	5	1	.800	.640	.200	4	●	●	●	●
CR-8B75-4E	M2145353	8	3/4	.800	.605	.200	4	●	●	●	●

CVD Coated	TIN Coated	AIN Coated
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●

## Internal API Buttress

■ For bars see pg. 4

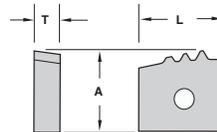


Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth				
								G50	GP50	ZA3	AC50
CR-5B75-2I	M16828936	5	3/4	.630	.622	.204	2	●	●	●	●
CR-5B75-3I	M1681847	5	3/4	.630	.577	.204	3	●	●	●	●
CR-5B75-4I	M1681347	5	3/4	.800	.582	.205	4	●	●	●	●
CR-5B75-5I	M16815688	5	3/4	1.000	.590	.205	5	●	●	●	●
CR-5B1-3I	M1782052	5	1	.635	.635	.200	3	●	●	●	●
CR-5B1-4I	M1782051	5	1	.800	.640	.200	4	●	●	●	●
CR-8B75-4I	M2185353	8	3/4	.800	.590	.205	4	●	●	●	●

G50	GP50	ZA3	AC50
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●
●	●	●	●

## External API Round

■ For holders see pg. 4



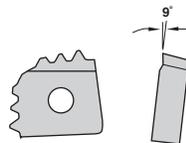
Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth			
								G50	GP50	AC50
CR-8R-3E #1	M32416731	8	3/4	.630	.577	.204	3	●	●	●
CR-8R-3E #2	M32416732	8	3/4	.630	.586	.204	3	●	●	●
CR-8R-3E #3	M32416733	8	3/4	.630	.591	.204	3	●	●	●
CR-8R-3E	M32419310	8	3/4	.630	.592	.204	3	●	●	●
CR-8R-4E 6°	M3241136	8	3/4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

G50	GP50	AC50
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●

## External API Round and Buttress

### CNGA Double Sided (2 cutting edges)

■ For holders see pg. 4

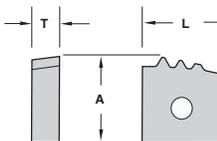


Description	EDP Code	TPI	TPF	No. of Teeth				
					G50	GP50	ZA3	AC50
CNGA-8R-3E	M32427407	8	3/4	3	●	●	●	●
CNGA-10R-3E	M34427408	10	3/4	3	●	●	●	●
CNGA-5B75-3E	M16427408	5	3/4	3	●	●	●	●

G50	GP50	ZA3	AC50
●	●	●	●
●	●	●	●
●	●	●	●

## Internal API Round

■ For bars see pg. 4



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

G50	GP50	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.

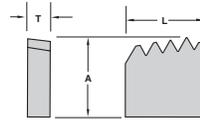
J-Series	▲	●
K-Series	▲	●
L-Series	▲	●
N-Series	●	▲
P-Series	●	▲
Q-Series	●	●



# CHASERS

## External NPT and Waterwell

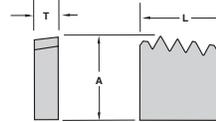
■ For holders see pg. 4



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth				
								G50	GP50	AC3	AC50
CR-8NPT-4E	M3648996	8	3/4	.625	.620	.203	4	●	●	●	●
CR-11.5NPT-4E	M3649668	11.5	3/4	.625	.620	.1875	4	●	●	●	●
CR-8P-3E WW	M50928966	8	0°	.630	.592	.203	3	●	●	●	●

## Internal NPT and Waterwell

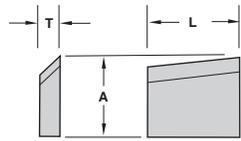
■ For bars see pg. 4



Description	EDP Code	TPI	TPF	L	A	T	No. of Teeth				
								G50	GP50	AC3	AC50
CR-8NPT-4I	M3689804	8	3/4	.625	.620	.2030	4	●	●	●	●
CR-11.5NPT-4I	M3689804	11.5	3/4	.625	.620	.1875	4	●	●	●	●
CR-8NPT-7I	M3689804	8	3/4	.625	.620	.1875	7	●	●	●	●
CR-8P-3I WW	M50828192	8	0°	.630	.592	.203	3	●	●	●	●

# CHIPBREAKERS

## External

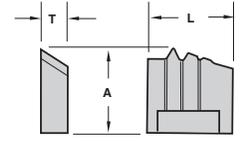


Description	EDP Code	L	A	T	Inserts
CR-5B75/5B1-4E-CB	TF2993	.800	.500	.125	CR-5B75-4E/CR-5B1-4E
CR-8R/10R-3E/4E-CB	TF1353E	.630	.460	.125	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8NPT-4E
#3 CB W/O COOLANT GROOVES .170	TF26424	.618	.460	.170	CR-8R-3E/CR-8R-4E/CR-10R-3E/CR-8NPT-4E

## External

with coolant grooves

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

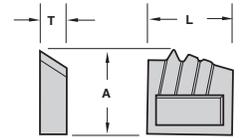


Description	EDP Code	L	A	T	Coolant Grooves	Inserts
TD4601 5B75-1-CB	TF16660	.665	.550	.170	✓	CR-5B75-3E #1
TD4602 5B75-2-CB	TF16661	.668	.550	.170	✓	CR-5B75-3E #2
TD4603 5B75-3-CB	TF16662	.665	.560	.170	✓	CR-5B75-3E #3
TD3931 8R-1-CB	TF16657	.628	.518	.165	✓	CR-8R-3E #1
TD3932 8R-2-CB	TF16658	.635	.526	.165	✓	CR-8R-3E #2
TD3933 8R-3-CB	TF16659	.628	.520	.165	✓	CR-8R-3E #3
TA2237 10R-1-CB	TF16760	.628	.503	.175	✓	CR-10R-3E #1
TA2238 10R-2-CB	TF16761	.628	.512	.175	✓	CR-10R-3E #2
TA2239 10R-3-CB	TF16762	.628	.515	.175	✓	CR-10R-3E #3
#3 CB W/COOLANT GROOVES .170	TF26423	.618	.460	.170	✓	CR-8R-3E

## External

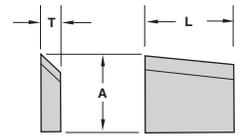
with coolant grooves and cavity

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



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

## Internal

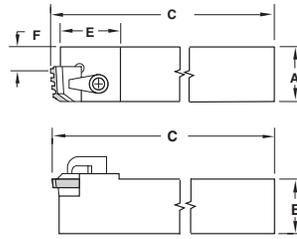


Description	EDP Code	L	A	T	Coolant Grooves	Inserts
CR-5B75/5B1-4I-CB	TF16104	.800	.500	.125		CR-5B75-4I/CR-5B1-4I
CR-8R/10R-3I/4I-CB	TF1353I	.630	.488	.125		CR-8R-3I/CR-8R-4I/CR-10R-3I/CR-8LPT-4I
CR-5B75-5I-CB		1.000	.540	.125	✓	CR-5B75-5I
CR-8R-7I-CB	TF3435	1.000	.520	.125		CR-8R-7I
CR-8R-7I-CB		1.000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



# EXTERNAL HOLDER CHASERS

Threading  
CLVOR



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

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

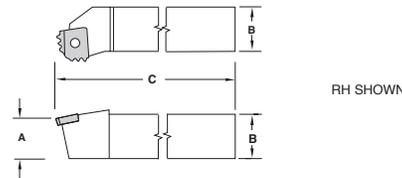
## METRIC

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

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

## PCFNR

For double sided CNGA chaser style

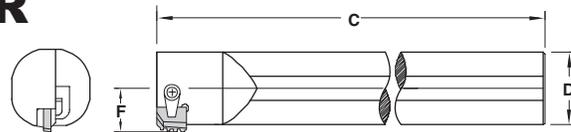


RH SHOWN

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

# INTERNAL BAR

Threading  
SI-CLHOR



RH SHOWN

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

## 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



# Save Cycle Time!

All-In-One!

- Threading**
- Turning**
- Facing**
- Chamfering**

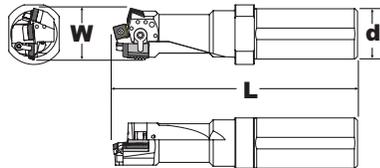
- Save time with less tooling changes and free up more tooling positions.
- Available for standard API Round and Buttress internal threading applications.
- Available for standard chasers (CNGA style shown).



## COMBINATION BAR

### CR Chaser style

Threading, Facing and Turning  
ALL-IN-ONE

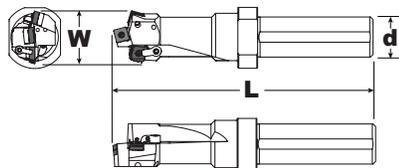


Description	EDP Code	W	d	L	Chaser	Turning Insert	Seat Screw	CHASER SPARE PARTS					TURNING SPARE PARTS			
								Seat	Side Clamp	Clamp Screw	Insert Clamp	Clamp Screw	Seat	Clamp	Clamp Screw	Lock Pin
SI-CLHORM-329	97103298	1.992	2.000	8.990	CR-8R-71*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
					CR-5B75-51*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
SI-CLHORM-40M9	9710M4098	1.992	1.575	11.470	CR-8R-71*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
					CR-5B75-51*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
SI-CLHORM-50M9	9710M5098	2.467	1.968	13.495	CR-8R-71*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
					CR-5B75-51*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
SI-CLHORM-60M9	9710M6098	3.146	2.361	15.086	CR-8R-71*	SNMG-64_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-633	TC-311	STC-8	NL-68
					CR-5B75-51*	SNMG-64_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-633	TC-311	STC-8	NL-68

\*These items are sold separately.

### CNGA Chaser style (Double sided)

Threading, Facing and Turning  
ALL-IN-ONE



Description	EDP Code	W	d	L	Chaser	Turning Insert	TURNING SPARE PARTS				CHASER SPARE PARTS			
							Lock Pin	Seat	Clamp	Clamp Screw	Clamp	Clamp Screw	Lock Pin	
SI-PCLHORM-329	97153298	1.977	2.000	8.990	CNGA-8R-3I*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
					CNGA-5B75-3I*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
SI-PCLHORM-40M9	9715M4098	1.977	1.575	11.470	CNGA-8R-3I*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
					CNGA-5B75-3I*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
SI-PCLHORM-50M9	9715M5098	2.467	1.968	13.494	CNGA-8R-3I*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
					CNGA-5B75-3I*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
SI-PCLHORM-60M9	9715M6098	3.144	2.361	15.146	CNGA-8R-3I*	SNMG-64_*	NL-68	ISSN-633	TC-311	STC-8	TC-250	STC-11	NL-44	
					CNGA-5B75-3I*	SNMG-64_*	NL-68	ISSN-633	TC-311	STC-8	TC-250	STC-11	NL-44	

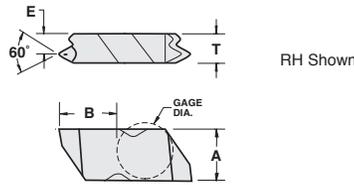
\*These items are sold separately.



# FLO-LOCK

## API Round Threading with Chipbreaker

**Exclusive patented design!**



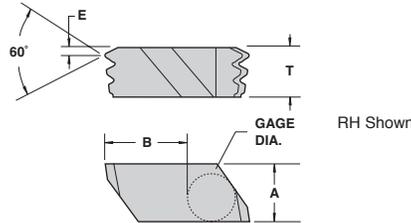
	Uncoated	TIN Coated	AITIN Coated
C3	GP3	GP50	AC3
	●	●	●
	●	●	●
	●	●	●

■ For holders and bars see pgs. 8, 9

Description	EDP Code	TPI	TPF	T	E	A	B	Gage Dia.
FLDC-3-8RDR75-CB	553632PR	8	3/4	.195	.125	.344	.4010	.3750
FLDC-3-8RDL75-CB	553632PL	8	3/4	.195	.125	.344	.4010	.3750

# API Round Threading Multi-Tooth

■ For holders and bars see pgs. 8, 9

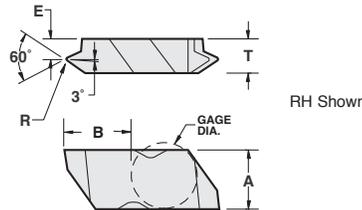


	Uncoated	TIN Coated	AITIN Coated
C3	GP3	GP50	AC3
	●	●	●
	●	●	●
	●	●	●

Description	EDP Code	TPI	TPF	E	T	A	B	Gage Dia.
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. 8, 9

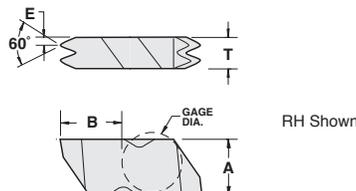


	Uncoated	TIN Coated	AITIN Coated
C3	GP3	GP50	AC3
	●	●	●
	●	●	●
	●	●	●
	●	●	●
	●	●	●
	●	●	●
	●	●	●
	●	●	●

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

# NPT Threading Multi-Tooth

■ For holders and bars see pgs. 8, 9



	Uncoated	TIN Coated	AITIN Coated
C3	GP3	GP50	AC3
	●	●	●
	●	●	●
	●	●	●
	●	●	●
	●	●	●
	●	●	●
	●	●	●
	●	●	●
	●	●	●

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

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

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

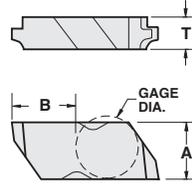
Cast Iron	▲	●	●
Non-Ferrous	▲	●	●
Stainless/High Temp	▲	●	●
Steel	▲	●	●



# FLO-LOCK

## API Buttress Threading

■ For holders and bars see pgs. 8, 9



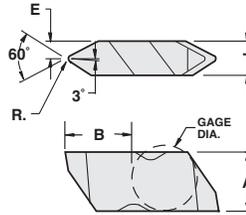
RH Shown



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

## API Threading Non-Topping

■ For holders and bars see pgs. 8, 9



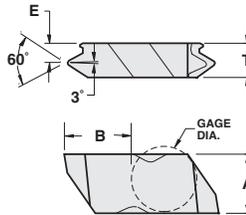
RH Shown



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

## API Rotary Shoulder Connexion Threading

■ For holders and bars see pgs. 8, 9



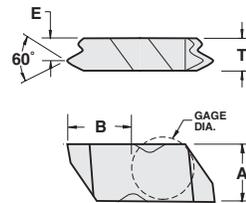
RH Shown



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

## API Round Threading

■ For holders and bars see pgs. 8, 9



RH Shown



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

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

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

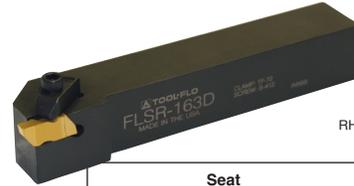
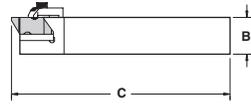
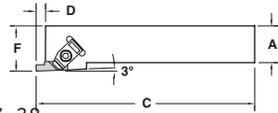
Cast Iron	Non-Ferrous	Stainless/High Temp	Steel
			▲



# EXTERNAL HOLDER

## FLSR/L

Threading and Grooving

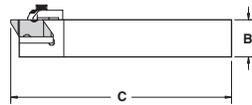
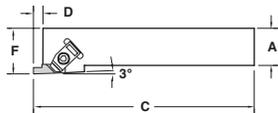


■ Coolant Fed clamps - See pages 37, 38.

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

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

## METRIC



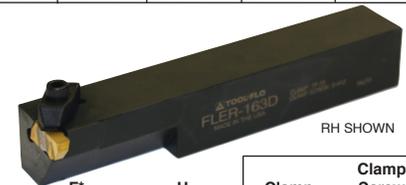
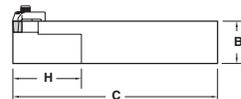
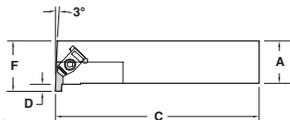
■ Coolant Fed clamps - See pages 37, 38.

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

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

## FLER/L

Threading and Grooving



■ Coolant Fed clamps - See pages 37, 38.

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

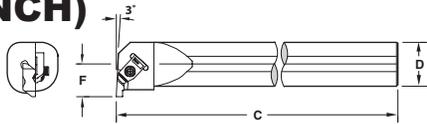
\* C&F measured over sharp point of grooving insert



# INTERNAL HOLDER (INCH)

## A-FLER/L

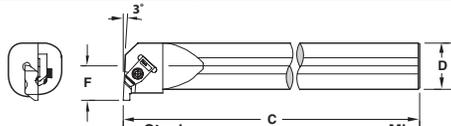
Threading and Grooving  
Coolant hole



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

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

## METRIC

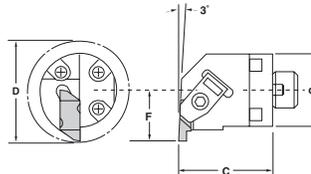


Description	EDP Code	Stock Status	Insert	Min. Bore	D	C	F	Clamp	Clamp Screw
A16M-FLER2	96441608	●	FL-2L	25,4	16,0	250,0	12,65	TF-75	S-310
A20M-FLER2	96442008	●	FL-2L	28,6	20,0	250,0	13,8	TF-75	S-310
A25M-FLER2	96442508	●	FL-2L	34,9	25,0	300,0	17,7	TF-75	S-310
A25M-FLEL2	96432508	●	FL-2R	34,9	25,0	300,0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

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

# INTERCHANGEABLE HEADS

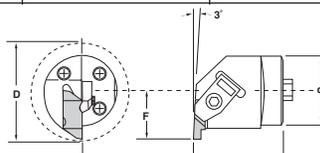
## H-FLEL/R\*



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

\*Left hand quoted on request.

## HS-FLEL/R\*



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

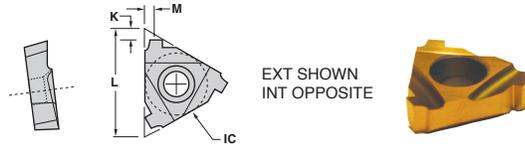
\*Left hand quoted on request.



# LAYDOWN-LT

## API Buttress Threading

■ For holders and bars see pgs. 18, 19

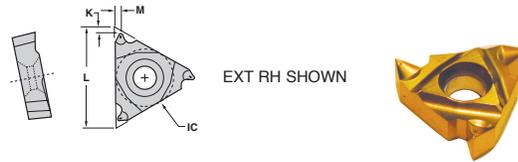


Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Coating					
									C22	GP22	GP50	AC22	AC50	
22ER 8B75	5102100	8	3/4	1/2	.87	.102	.073	U.S. Improved Buttress		●	●	●	●	●
22ER 5B75	5101600	5	3/4	1/2	.87	.087	.087	4-1/2 - 13-3/8		●	●	●	●	●
22ER 5B1	5101700	5	1	1/2	.87	.095	.087	16 and larger		●	●	●	●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

## NPT Threading with Chipbreaker

*Exclusive patented design!*

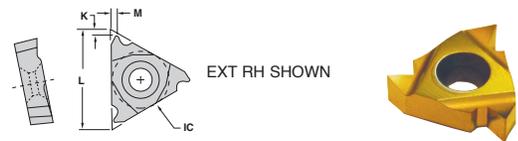
■ For holders and bars see pgs. 18, 19



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	5003611P	11.5	3/8	.65	.06	.04		●	●	●	●	●
16ER 8NPT-CB	5003608P	8	3/8	.65	.06	.04		●	●	●	●	●
16NR 27NPT-CB	5023627P	27	3/8	.65	.03	.02		●	●	●	●	●
16NR 18NPT-CB	5023618P	18	3/8	.65	.03	.02		●	●	●	●	●
16NR 14NPT-CB	5023614P	14	3/8	.65	.06	.04		●	●	●	●	●
16NR 11.5NPT-CB	5023611P	11.5	3/8	.65	.06	.04		●	●	●	●	●
16NR 8NPT-CB	5023608P	8	3/8	.65	.06	.04		●	●	●	●	●

## NPT Threading

■ For holders and bars see pgs. 18, 19



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

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

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

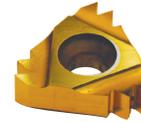
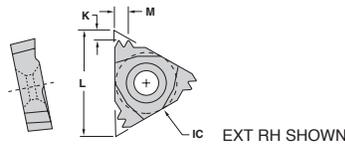
Material	C22	GP22	GP50	AC22	AC50
Cast Iron		▲			●
Non-Ferrous				▲	●
Stainless/High Temp		▲			●
Steel			▲		●



# LAYDOWN-LT

## NPT Threading Multi-Tooth

■ For holders and bars see pgs. 18, 19

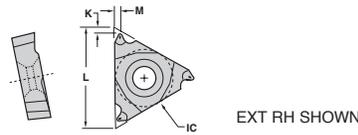


Description	EDP Code	No of Teeth	TPI	IC	L	M	K	TIN Coated			AlTiN Coated		
								GP22	GP25	GP50	GP54	AC22	AC50
22ER 11.5NPT2M	5103811	2	11.5	1/2	.87	.13	.09	●	●	●	●	●	●
27ER 11.5NPT3M	5203811	3	11.5	5/8	1.08	.22	.14	●	●	●	●	●	●
27ER 8NPT2M	5203808	2	8	5/8	1.08	.19	.11	●	●	●	●	●	●
22NR 11.5NPT2M	5123811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

## NPTF Threading Chipbreaker

**Exclusive patented design!**

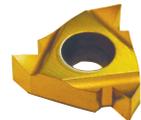
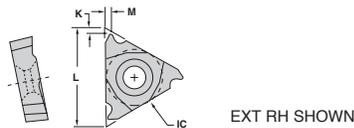
■ For holders and bars see pgs. 18, 19



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

## NPTF Threading

■ For holders and bars see pgs. 18, 19



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

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.

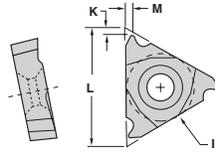
Cast Iron	▲	●	●	●
Non-Ferrous	▲	●	●	●
Stainless/High Temp	▲	●	●	●
Steel				●



# LAYDOWN-LT

## API Rotary Shoulder Connection Threading

■ For holders and bars see pgs. 18, 19



EXT SHOWN  
INT OPPOSITE

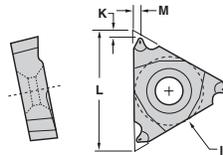


Description	EDP Code	TPI	TPF	IC	L	M	K	Connection	Coating				
									C22	GP22	GP50	AC22	AC50
22ER 530	5101300	5	3	1/2	.87	.10	.08	3-1/2FH, 2-3/8, 4-1/2 Reg.					
22ER 4PAC	5101500	4	1-1/2	1/2	.87	.11	.08	American Open Hole					
22ER 438	5101200	4	3	1/2	.87	.11	.11	NC56 - NC71					
22ER 435	5101100	4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

\* 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. 18, 19



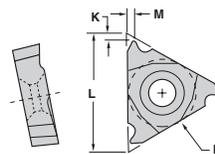
EXT SHOWN  
INT OPPOSITE



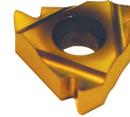
Description	EDP Code	TPI	IC	L	M	K	Coating				
							GP22	GP50	AC22	AC3	AC50
16ER 8RD-CB	5003200HC	8	3/8	.65	.051	.059					
16ER 10RD-CB	5003400HC	10	3/8	.65	.047	.059					
16NR 8RD-CB	5023200HC	8	3/8	.65	.051	.059					
16NR 10RD-CB	5023400HC	10	3/8	.65	.047	.059					

## API Round Threading

■ For holders and bars see pgs. 18, 19



EXT SHOWN  
INT OPPOSITE



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

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

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

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

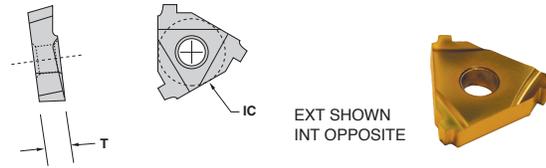




# LAYDOWN

## API Buttress Threading

■ For holders and bars see pgs. 18, 19



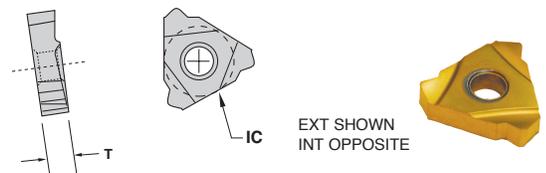
EXT SHOWN  
INT OPPOSITE

Description	EDP Code	TPI	TPF	IC	T	Connection	Coating			
							C6H	GP50	GP54	AC50
L43 5B75 EXT-FC	16154F	5	3/4	.500	.189	4-1/2 - 13-3/8				●
L43 5B1 EXT-FC	17154F	5	1	.500	.189	16 and larger		●		●
L43 8B75 EXT-FC	21154F	8	3/4	.500	.189	US Improved Buttress		●		●
L53 5B75 EXT-FC	16474F	5	3/4	.625	.189	4-1/2 - 13-3/8		●		●
L53 5B1 EXT-FC	17474F	5	1	.625	.189	16 and larger		●		●
L53 8B75 EXT-FC	21474F	8	3/4	.625	.189	US Improved Buttress		●		●
L43 5B75 INT-FC	16158F	5	3/4	.500	.189	4-1/2 - 13-3/8		●		●
L43 5B1 INT-FC	17158F	5	1	.500	.189	16 and larger		●		●
L43 8B75 INT-FC	21158F	8	3/4	.500	.189	US Improved Buttress		●		●
L53 5B75 INT-FC	16478F	5	3/4	.625	.189	4-1/2 - 13-3/8		●		●
L53 5B1 INT-FC	17478F	5	1	.625	.189	16 and larger		●		●
L53 8B75 INT-FC	21478F	8	3/4	.625	.189	US Improved Buttress		●		●

FC designates 5° flank clearance

## API Hughes H90 Threading

■ For holders and bars see pgs. 18, 19

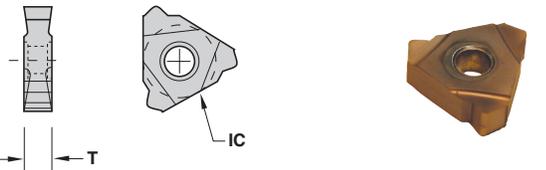


EXT SHOWN  
INT OPPOSITE

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

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

■ For holders and bars see pgs. 18, 19

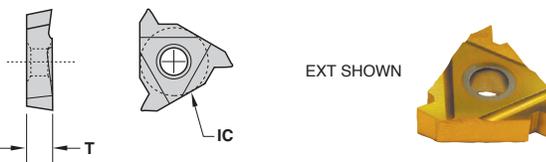


EXT SHOWN  
INT OPPOSITE

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

## NPT Threading

■ For holders and bars see pgs. 18, 19



EXT SHOWN

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

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

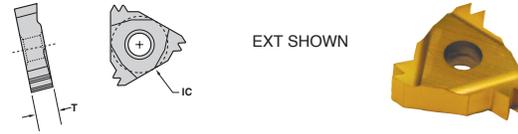
Material	Coating	GP22	GP50	AC22	AC50
Cast Iron					●
Non-Ferrous					●
Stainless/High Temp					●
Steel			▲		●



# LAYDOWN-LT

## NPT Threading Multi-Tooth

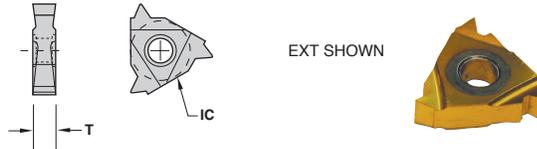
■ For holders and bars see pgs. 18, 19



Description	EDP Code	TPI	TPF	IC	T	C22	GP22	GP50	GP54	AC22	AC50
L43 11.5NPT2M EXT	3615114T	11.5	3/4	.500	.189						
L43 11.5NPT2M INT	3615118T	11.5	3/4	.500	.189			●	●	●	●

## NPT Threading LDS Double Sided Internal/External

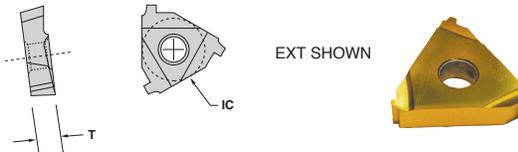
■ For holders and bars see pgs. 18, 19



Description	EDP Code	TPI	TPF	IC	T	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

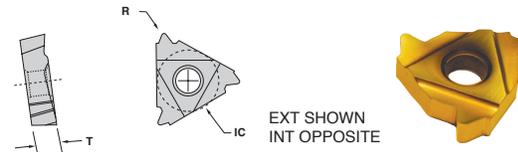
■ For holders and bars see pgs. 18, 19



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

## API Rotary Shoulder Connection Threading

■ For holders and bars see pgs. 18, 19



Description	EDP Code	TPI	TPF	R	IC	T	Connection	TIN Coated		A1TIN Coated	
								GP50	GP54	AC22	AC50
L43 425 EXT	09154	4	2	.025	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●	●	●	●
L43 428 EXT	10154	4	2	.038	.500	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●	●	●	●
L43 42F EXT*	14154	4	2	---	.500	.189	V0.065*				
L43 435 EXT	11154	4	3	.025	.500	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●	●	●	●
L43 438 EXT	12154	4	3	.038	.500	.189	NC56 - NC71	●	●	●	●
L43 530 EXT	13154	5	3	.020	.500	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●	●	●	●
L43 4PAC EXT	15154	4	1-1/2	---	.500	.189	American Open Hole	●			
L53 425 EXT	09474	4	2	.025	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●	●	●	●
L53 428 EXT	10474	4	2	.038	.625	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●	●	●	●
L53 42F EXT*	14474	4	2	---	.625	.189	V0.065*				
L53 435 EXT	11474	4	3	.025	.625	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●	●	●	●
L53 438 EXT	12474	4	3	.038	.625	.189	NC56 - NC71	●	●	●	●
L53 530 EXT	13474	5	3	.020	.625	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●	●	●	●
L53 4PAC EXT	15474	4	1-1/2	---	.625	.189	American Open Hole	●			
L43 425 INT	09158	4	2	.025	.500	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●	●	●	●
L43 428 INT	10158	4	2	.038	.500	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●	●	●	●
L43 42F INT*	14158	4	2	---	.500	.189	V0.065*				
L43 435 INT	11158	4	3	.025	.500	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●	●	●	●
L43 438 INT	12158	4	3	.038	.500	.189	NC56 - NC71	●	●	●	●
L43 530 INT	13158	5	3	.020	.500	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●	●	●	●
L43 4PAC INT	15158	4	1-1/2	---	.500	.189	American Open Hole	●			
L53 425 INT	09478	4	2	.025	.625	.189	5-1/2 FH 6-5/8 FH 6-5/8 Reg.	●	●	●	●
L53 428 INT	10478	4	2	.038	.625	.189	NC 23-NC50 2-3/8 - 5-1/2 IF	●	●	●	●
L53 42F INT*	14478	4	2	---	.625	.189	V0.065*				
L53 435 INT	11478	4	3	.025	.625	.189	5-1/2 Rg. 7-5/8 Reg. 8-5/8 Reg.	●	●	●	●
L53 438 INT	12478	4	3	.038	.625	.189	NC56 - NC71	●	●	●	●
L53 530 INT	13478	5	3	.020	.625	.189	3-1/2 FH 2-3/8 - 4-1/2 Reg.	●	●	●	●
L53 4PAC INT	15478	4	1-1/2	---	.625	.189	American Open Hole	●			

\* 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	▲	●

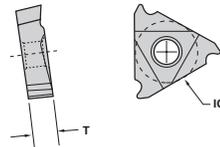




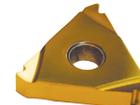
# LAYDOWN

## API Round Threading

■ For holders and bars see pgs. 20, 21



EXT SHOWN

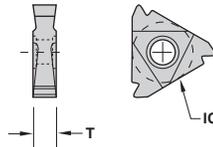


Description	EDP Code	TPI	TPF	IC	T	TIN Coated		AITIN Coated	
						GP50	GP54	AC22	AC50
L43 8RD EXT	32154	8	3/4	.500	.189	●	●	●	●
L43 10RD EXT	34154	10	3/4	.500	.189	●	●	●	●
L53 8RD EXT	32474	8	3/4	.625	.189	●	●	●	●
L43 8RD INT	32158	8	3/4	.500	.189	●	●	●	●
L43 10RD INT	34158	10	3/4	.500	.189	●	●	●	●
L53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

## API Round Threading

### LDS Double Sided Internal/External

■ For holders and bars see pgs. 20, 21



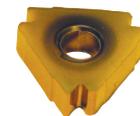
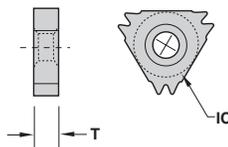
EXT SIDE SHOWN



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

## API Round Threading

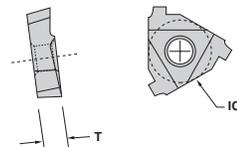
### Double Sided Internal/External



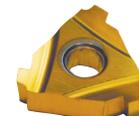
Description	EDP Code	TPI	TPF	IC	T	C6H	Uncoated	TIN Coated	AITIN Coated
							GP50	GP54	AC50
TNFA 43 8RD	32N70	8	3/4	.500	.187	●	●	●	●

## API VAM Threading

■ For holders and bars see pgs. 19-21



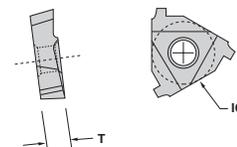
EXT SHOWN  
INT OPPOSITE



Description	EDP Code	TPI	TPF	IC	T	C6H	Uncoated	TIN Coated	AITIN Coated
							GP50	GP54	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 Threading

■ For holders and bars see pgs. 19-21



EXT SHOWN  
INT OPPOSITE



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

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

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

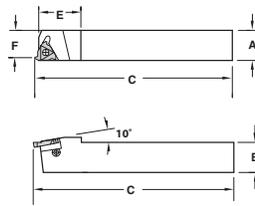
Cast Iron	●	●	●	●
Non-Ferrous	●	●	●	●
Stainless/High Temp	●	●	●	●
Steel	▲	▲	●	●



# EXTERNAL HOLDER

AL

For Threading and Grooving  
Inch



RH Holder uses RH Inserts



RH SHOWN

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

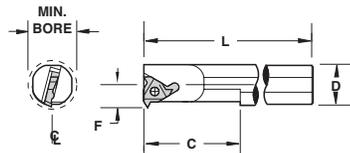
## METRIC

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

# INTERNAL BAR

AVR/NVR

Inch



RH SHOWN

Description	EDP Code	Insert	D	F**	L	C	Min. Bore	Insert Screw	Seat Screw & Washer	Wrench	Seat
NVR 375-2R*	962048351	11NR	.375	.280	7	N/A	.500	SA3	-	K3	-
NVR 500-2R*	962008511	11NR	.500	.370	7	N/A	.625	SA3	-	K3	-
NVR 500-3R*	962008361	16NR	.500	.370	7	1.25	.670	SA3	-	K3	-
NVR 625-3R*	962052361	16NR	.625	.312	7	2.50	.700	SA3	-	K3	-
NVR 625-3L*	962052362	16NL	.625	.312	7	2.50	.700	SA3	-	K3	-
AVR 750-3R	918056361	16NR	.750	.510	7	2.75	.950	SA3	SY3	K3	YI3
AVR 750-3L	918056362	16NL	.750	.510	7	2.75	.950	SA3	SY3	K3	YE3
AVR 100-3R	918064361	16NR	1.000	.640	10	3.00	1.150	SA3	SY3	K3	YI3
AVR 100-3L	918064362	16NL	1.000	.640	10	3.00	1.150	SA3	SY3	K3	YE3
AVR 125-3R	918068361	16NR	1.250	.770	10	3.00	1.400	SA3	SY3	K3	YI3
AVR 125-3L	918068362	16NL	1.250	.770	10	3.00	1.400	SA3	SY3	K3	YE3
AVR 150-3R	918072361	16NR	1.500	.900	12	3.00	1.700	SA3	SY3	K3	YI3
AVR 150-3L	918072362	16NL	1.500	.900	12	3.00	1.700	SA3	SY3	K3	YE3
NVR 750-4R	962056401	22NR	.750	.610	7	2.75	1.100	SA4	-	K4	-
NVR 750-4L	962056402	22NL	.750	.610	7	2.75	1.100	SA4	-	K4	-
AVR 100-4R	918064401	22NR	1.000	.710	10	3.00	1.200	SA4	SY4	K4	YI4
AVR 100-4L	918064402	22NL	1.000	.710	10	3.00	1.200	SA4	SY4	K4	YE4
AVR 125-4R	918068401	22NR	1.250	.840	10	3.00	1.500	SA4	SY4	K4	YI4
AVR 125-4L	918068402	22NL	1.250	.840	10	3.00	1.500	SA4	SY4	K4	YE4
AVR 150-4R	918072401	22NR	1.500	.980	12	3.00	1.800	SA4	SY4	K4	YI4
AVR 150-4L	918072402	22NL	1.500	.980	12	3.00	1.800	SA4	SY4	K4	YE4
AVR 125-5R	918068441	27NR	1.250	.880	10	3.00	1.800	SA5	SY5	K4	YI5
AVR 125-5L	918068442	27NL	1.250	.880	10	3.00	1.800	SA5	SY5	K4	YE5
AVR 150-5R	918072441	27NR	1.500	1.000	12	3.00	1.900	SA5	SY5	K4	YI5
AVR 150-5L	918072442	27NL	1.500	1.000	12	3.00	1.900	SA5	SY5	K4	YE5
AVR 200-5R	918080441	27NR	2.000	1.125	12	3.00	2.400	SA5	SY5	K4	YI5
AVR 200-5L	918080442	27NL	2.000	1.125	12	3.00	2.400	SA5	SY5	K4	YE5

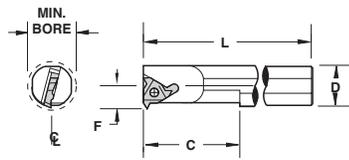
\*Over NV Insert

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



# INTERNAL BAR

AVR/NVR  
METRIC



Description	EDP Code	Insert	D	F**	L	C	Min. Bore	Insert Screw	Seat Screw & Washer	Wrench	Seat
AVR 20M-3R	918020M361	16NR	20,0	13,4	180,0	20,0	26,8	SA3	SY3	K3	YI3
AVR 20M-3L	918020M362	16NL	20,0	13,4	180,0	20,0	26,8	SA3	SY3	K3	YE3
AVR 25M-3R	918025M361	16NR	25,0	16,3	250,0	20,0	32,6	SA3	SY3	K3	YI3
AVR 25M-3L	918025M362	16NL	25,0	16,3	250,0	20,0	32,6	SA3	SY3	K3	YE3
AVR 32M-3R	918032M361	16NR	32,0	19,5	254,0	76,2	39,1	SA3	SY3	K3	YI3
AVR 32M-3L	918032M362	16NL	32,0	19,5	254,0	76,2	39,1	SA3	SY3	K3	YE3
AVR 40M-3R	918040M361	16NR	40,0	22,8	304,8	76,2	45,7	SA3	SY3	K3	YI3
AVR 40M-3L	918040M362	16NL	40,0	22,8	304,8	76,2	45,7	SA3	SY3	K3	YE3
AVR 25M-4R	918025M401	22NR	25,0	17,4	250,0	20,0	34,8	SA4	SY4	K4	YI4
AVR 25M-4L	918025M402	22NL	25,0	17,4	250,0	20,0	34,8	SA4	SY4	K4	YE4
AVR 32M-4R	918032M401	22NR	32,0	21,3	254,0	20,0	42,6	SA4	SY4	K4	YI4
AVR 32M-4L	918032M402	22NL	32,0	21,3	254,0	20,0	42,6	SA4	SY4	K4	YE4
AVR 40M-4R	918040M401	22NR	40,0	25,7	300,0	22,2	51,5	SA4	SY4	K4	YI4
AVR 40M-4L	918040M402	22NL	40,0	25,7	300,0	22,2	51,5	SA4	SY4	K4	YE4
AVR 50M-4R	918050M401	22NR	50,0	30,8	350,0	25,4	61,6	SA5	SY4	K4	YI4
AVR 50M-4L	918050M402	22NL	50,0	30,8	350,0	25,4	61,6	SA5	SY4	K4	YE4
AVR 50M-5R	918050M41	27NR	50,0	31,7	350,0	25,4	63,5	SA5	SY5	K4	YI5
AVR 50M-5L	918050M42	27NL	50,0	31,7	350,0	25,4	63,5	SA5	SY5	K4	YE5

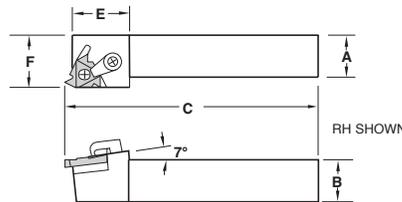
\*Over NV Insert

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

# EXTERNAL HOLDER

MTVNR/L

Threading & Grooving  
Inch



## PARTS

Description	EDP Code	Insert	A	B	C	E	F*	Seat	Lock Pin	Clamp	Clamp Screw
MTVNR-164	95801656	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNL-164	95701656	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNR-204	95802056	L43	1-1/4	1-1/4	7	1.27	1.500	LS43*	NL46	TC-190	STC5
MTVNR-165	95801662	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNL-165	95701662	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNR-205	95802062	L53	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11
MTVNR-2054	95802064	LDS 54	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11

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

METRIC

## PARTS

Description	EDP Code	Insert	A	B	C	E	F*	Seat	Lock Pin	Clamp	Clamp Screw
MTVNR-2525M4	95801656	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNL-2525M4	95701656	L43	1	1	6	1.27	1.250	LS43*	NL46	TC-190	STC5
MTVNR-3232M4	95802056	L43	1-1/4	1-1/4	7	1.27	1.500	LS43*	NL46	TC-190	STC5
MTVNR-2525M5	95801662	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNL-2525M5	95701662	L53	1	1	6	1.53	1.250	LS53*	NL58	TC-250	STC11
MTVNR-3232M5	95802062	L53	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11
MTVNR-3232M54	95802064	LDS 54	1-1/4	1-1/4	7	1.53	1.500	LS53*	NL58	TC-250	STC11

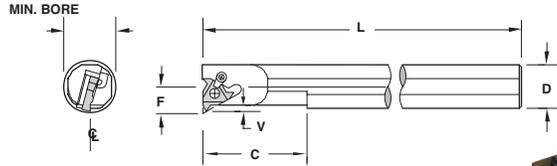
\*Seats can be ordered as NO FORM or a FORM can be specified. Ex: LS 43 API EXT. Seat.



# INTERNAL BAR

## LNFR/L

Threading & Grooving  
Inch



### 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.

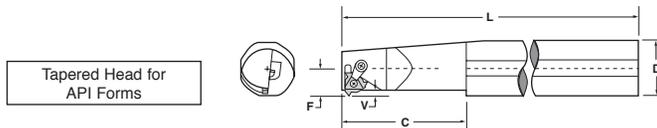
## METRIC

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.

## LNFR/L-API

Threading  
Inch



### PARTS

Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Lock Pin	Clamp	Clamp Screw
LNFR 150-43API	94407256	L43	1.500	14	1-1/2	4-1/2	.750	.167	NL44	TC190	XNS-36
LNFR 200-43API	94408056	L43	2.000	14	2	4-1/2	1.000	.167	NL44	TC190	XNS-36
LNFR 150-53API	94407262	L53	1.500	16	1-1/2	4-1/2	.750	.200	NL56	TC250	STC-11
LNFR 200-53API	94408062	L53	2.000	16	2	4-1/2	1.000	.200	NL56	TC250	STC-11
LNFR 200-54API	94408064	LDS 54	2.000	16	2	4-1/2	1.000	.200	NL56	TC250	STC-11

\*Seat can be ordered as NO FORM or a FORM can be specified. EX: LS 43 API INT SEAT if required.  
\*\*Required for rotary shoulder connection threading inserts.

## METRIC

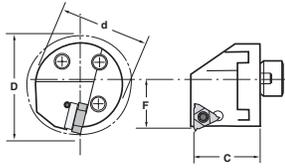
Description	EDP Code	Insert	Min. Bore	L	D	C	F	V*	Lock Pin	Clamp	Clamp Screw
LNFR 40M-43API	944M4056	L43	41,9	355,6	40,0	114,3	20,9	4,2	NL44	TC190	XNS-36
LNFR 50M-43API	944M5056	L43	55,0	355,6	50,0	114,3	27,4	4,2	NL44	TC190	XNS-36
LNFR 40M-53API	944M4062	L53	42,1	355,6	40,0	114,3	20,9	5,8	NL56	TC250	STC-11
LNFR 50M-53API	944M5062	L53	55,2	406,4	50,0	114,3	27,6	5,8	NL56	TC250	STC-11
LNFR 50M-54API	944M5064	LDS 54	55,2	406,4	50,0	114,3	27,6	5,8	NL56	TC250	STC-11

\*Seat can be ordered as NO FORM or a FORM can be specified. EX: LS 43 API INT SEAT if required.  
\*\*Required for rotary shoulder connection threading inserts.



# INTERCHANGEABLE HEADS LAYDOWN

## H-LNFR/L\*

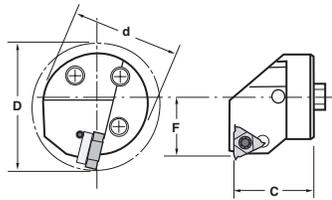


### PARTS

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

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

## HS-LNFR/L\*

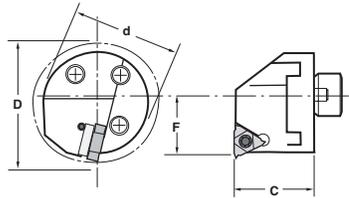


### PARTS

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

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

## H-AVR/L\*

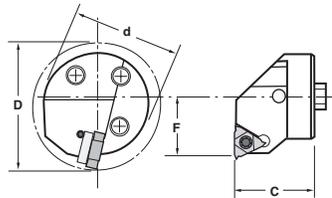


### PARTS

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

\*Left hand quoted on request.

## HS-AVR/L\*



### PARTS

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

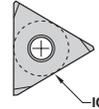
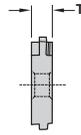
\*Left hand quoted on request.



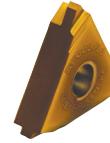
# ON-EDGE

## API Buttress Threading Straight Hole

■ For holders and bars see pgs. 24-26



EXT SHOWN  
INT OPPOSITE

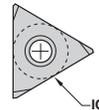
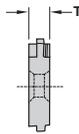


Description	EDP Code	TPI	TPF	IC	T	Connection	Coating Options						
							C3	C6H	GP3	GP50	AC22	AC50	
TNMA 43 8B75 EXT	21394	8	3/4	.500	.189	U.S. Improved Buttress				●			
TNMA 44 5B75 EXT	16434	5	3/4	.500	.252	4-1/2 - 13-3/8				●			
TNMA 54 5B1 EXT -FC*	17514F	5	1	.625	.252	16 and larger				●	●	●	
TNMA 54 5B75 EXT-FC	16514F	5	3/4	.625	.252	4-1/2 - 13-3/8				●	●	●	
TNMA 43 8B75 INT	21398	8	3/4	.500	.189	U.S. Improved Buttress				●			
TNMA 44 5B75 INT	16438	5	3/4	.500	.252	4-1/2 - 13-3/8				●			●
TNMA 54 5B1 INT-FC	17518F	5	1	.625	.252	16 and larger				●	●	●	
TNMA 54 5B75 INT-FC	16518F	5	3/4	.625	.252	4-1/2 - 13-3/8				●	●	●	

\*FC indicates 5° flank clearance

## API Buttress Threading Countersink Hole

■ For holders and bars see pgs. 24-26



EXT SHOWN  
INT OPPOSITE

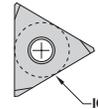
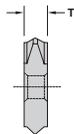


Description	EDP Code	TPI	TPF	IC	T	Connection	Coating Options						
							C3	C6H	GP3	GP50	AC22	AC50	
TNMC 43 8B75 EXT	21414	8	3/4	.500	.189	U.S. Improved Buttress				●			
TNMC 54 5B75 EXT-FC*	16534F	5	3/4	.625	.252	4-1/2 - 13-3/8				●	●	●	
TNMC 54 5B1 EXT-FC	17534F	5	1	.625	.252	16 and larger				●	●	●	
TNMC 43 8B75 INT	21418	8	3/4	.500	.189	U.S. Improved Buttress				●			●
TNMC 54 5B75 INT-FC	16538F	5	3/4	.625	.252	4-1/2 - 13-3/8				●			●
TNMC 54 5B1 INT-FC	17538F	5	1	.625	.252	16 and larger				●	●	●	

\*FC indicates 5° flank clearance

## API Hughes H90 Threading Straight Hole

■ For holders and bars see pgs. 24-26



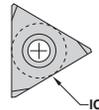
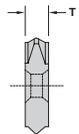
EXT SHOWN  
INT OPPOSITE



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

## API Hughes H90 Threading Countersink Hole

■ For holders and bars see pgs. 24-26



EXT SHOWN  
INT OPPOSITE



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

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

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

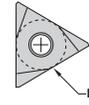
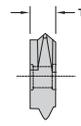
Cast Iron													
Non-Ferrous													
Stainless/High Temp													
Steel												▲	



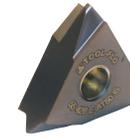
# ON-EDGE

## API Rotary Shoulder Connection Threading Straight Hole

■ For holders and bars see pgs. 24-26



EXT SHOWN  
INT OPPOSITE

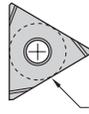
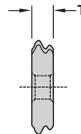


Description	EDP Code	TPI	TPF	IC	T	Connection	Coating					
							C3	C6H	GP3	GP50	AC3	AC50
TNMA 54 530 EXT	13514	5	3	.625	.252	3-1/2 FH 2-3/8 - 4-1/2 Reg.				●		●
TNMA 55 425 EXT	09554	4	2	.625	.314	5-1/2 FH 6-5/8 FH 6-5/8 Reg.				●		●
TNMA 55 428 EXT	10554	4	2	.625	.314	NC 23-NC50 2-3/8 - 5-1/2 IF		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

\*Obsolete 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. 24-26



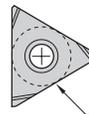
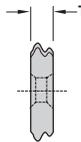
INT SHOWN  
EXT OPPOSITE



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

## API Round Threading Countersink Hole

■ For holders and bars see pgs. 24-26



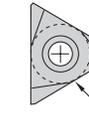
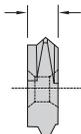
INT SHOWN  
EXT OPPOSITE



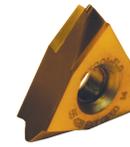
Description	EDP Code	TPI	TPF	IC	T	Coating					
						C3	GP3	GP50	AC22	AC3	AC50
TNMC 43 8RD EXT	32414	8	3/4	.500	.189				●		●
TNMC 43 10RD EXT	34414	10	3/4	.500	.189				●		●
TNMC 54 8RD EXT	32534	8	3/4	.625	.252				●		●
TNMC 43 8RD INT	32418	8	3/4	.500	.189				●		●
TNMC 43 10RD INT	34418	10	3/4	.500	.189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

## API Rotary Shoulder Connection Threading Countersink Hole

■ For holders and bars see pgs. 24-26



EXT SHOWN  
INT OPPOSITE



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

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

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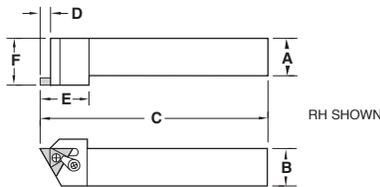
Material	C3	C6H	GP3	GP50	AC3	AC50
Cast Iron						●
Non-Ferrous						●
Stainless/High Temp						●
Steel			▲			●



# EXTERNAL HOLDER

## MTVOR/L

Threading/Grooving  
Inch



### PARTS

Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Lock Pin	Clamp	Clamp Screw
MTVOR-123	96001248	T_MA/C 32	3/4	3/4	4-1/2	.15	1.08	1.00	NL33	TC-190	STC5
MTVOL-123	95901248	T_MA/C 32	3/4	3/4	4-1/2	.15	1.08	1.00	NL33	TC-190	STC5
MTVOR-163	96001648	T_MA/C 32	1	1	6	.15	1.08	1.25	NL33	TC-190	STC9
MTVOL-163	95901648	T_MA/C 32	1	1	6	.15	1.08	1.25	NL33	TC-190	STC9
MTVOR-124	96001256	T_MA/C 43	3/4	3/4	4-1/2	.23	1.23	1.00	NL44	TC-190	STC5
MTVOL-124	95901256	T_MA/C 43	3/4	3/4	4-1/2	.23	1.23	1.00	NL44	TC-190	STC5
MTVOR-164	96001656	T_MA/C 43	1	1	6	.23	1.23	1.25	NL44	TC-190	STC5
MTVOL-164	95901656	T_MA/C 43	1	1	6	.23	1.23	1.25	NL44	TC-190	STC5
MTVOR-204	96002056	T_MA/C 43	1-1/4	1-1/4	7	.23	1.23	1.50	NL44	TC-190	STC5
MTVOR-165	96001664	T_MA/C 54	1	1	6	.29	1.43	1.25	NL56	TC-250	STC11
MTVOL-165	95901664	T_MA/C 54	1	1	6	.29	1.43	1.25	NL56	TC-250	STC11
MTVOR-205	96002064	T_MA/C 54	1-1/4	1-1/4	7	.29	1.43	1.50	NL56	TC-250	STC11
MTVOR-2055	96002066	T_MA/C 55	1-1/4	1-1/4	7	.37	1.43	1.50	NL56	TC-250	STC11
MTVOR-2064	96002072	T_MA/C 64	1-1/4	1-1/4	7	.37	1.62	1.50	NL66	TC-310	STC4
MTVOR-206	96002076	T_MA/C 66	1-1/4	1-1/4	7	.37	1.62	1.50	NL66L	TC-310	STC4
MTVOL-206	95902076	T_MA/C 66	1-1/4	1-1/4	7	.37	1.62	1.50	NL66L	TC-310	STC4
MTVOR-246	96002476	T_MA/C 66	1-1/2	1-1/2	7	.37	1.62	2.00	NL66L	TC-310	STC4
MTVOR-2067	96002078	T_MA/C 67	1-1/4	1-1/4	7	.37	1.62	1.50	NL66L	TC-310	STC8

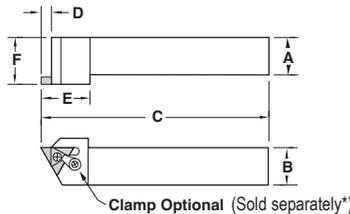
## METRIC

### PARTS

Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Lock Pin	Clamp	Clamp Screw
MTVOR-2525M3	960025M3	T_MA/C 32	25,0	25,0	150,0	3,8	27,4	31,7	NL33	TC-190	STC9
MTVOL-2525M3	959025M48	T_MA/C 32	25,0	25,0	150,0	3,8	27,4	31,7	NL33	TC-190	STC9
MTVOR-2525M4	960025M56	T_MA/C 43	25,0	25,0	150,0	5,8	31,2	31,7	NL44	TC-190	STC5
MTVOL-2525M4	959025M56	T_MA/C 43	25,0	25,0	150,0	5,8	31,2	31,7	NL44	TC-190	STC5
MTVOR-3232M4	960032M56	T_MA/C 43	32,0	32,0	177,8	5,8	31,2	38,1	NL44	TC-190	STC5
MTVOR-2525M5	960025M64	T_MA/C 54	25,0	25,0	150,0	7,3	35,8	31,7	NL56	TC-250	STC11
MTVOL-2525M5	959025M64	T_MA/C 54	25,0	25,0	150,0	7,3	35,8	31,7	NL56	TC-250	STC11
MTVOR-3232M5	960032M64	T_MA/C 54	32,0	32,0	177,8	7,3	35,8	38,1	NL56	TC-250	STC11
MTVOR-2525M55	960025M66	T_MA/C 55	25,0	25,0	177,8	7,9	35,8	38,1	NL56	TC-250	STC11
MTVOR-3232M6	960032M76	T_MA/C 66	32,0	32,0	177,8	9,6	41,1	38,1	NL66L	TC-310	STC8
MTVOL-3232M6	960032M76	T_MA/C 66	32,0	32,0	177,8	9,6	41,1	38,1	NL66L	TC-310	STC4

## STVOR/L

Threading/Grooving  
Inch



### PARTS

Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Screw	Clamp*	Clamp Screw
STVOR-123	98001248	T_MC 32	3/4	3/4	4-1/2	.15	1.08	1.00	SD-1	TC-190	STC9
STVOL-123	97801248	T_MC 32	3/4	3/4	4-1/2	.15	1.08	1.00	SD-1	TC-190	STC5
STVOR-163	98001648	T_MC 32	1	1	6	.15	1.08	1.25	SD-1	TC-190	STC5
STVOL-163	97801648	T_MC 32	1	1	6	.15	1.08	1.25	SD-1	TC-190	STC5
STVOR-124	98001256	T_MC 43	3/4	3/4	4-1/2	.23	1.23	1.00	SD-2	TC-190	STC9
STVOR-164	98001656	T_MC 43	1	1	6	.23	1.23	1.25	SD-2	TC-190	STC9
STVOL-164	97801656	T_MC 43	1	1	6	.23	1.23	1.25	SD-2	TC-190	STC9
STVOR-204	98002056	T_MC 43	1-1/4	1-1/4	7	.23	1.23	1.50	SD-2	TC-190	STC9
STVOR-165	98001664	T_MC 54	1	1	6	.29	1.43	1.25	SD-3	TC-250	STC11
STVOL-165	97801664	T_MC 54	1	1	6	.29	1.43	1.25	SD-3	TC-250	STC11
STVOR-205	98002064	T_MC 54	1-1/4	1-1/4	7	.29	1.43	1.50	SD-3	TC-250	STC11
STVOR-2055	98002066	T_MC 55	1-1/4	1-1/4	7	.37	1.43	1.50	SD-3	TC-250	STC11
STVOR-206	98002076	T_MC 66	1-1/4	1-1/4	7	.37	1.62	1.50	SD-4	TC-310	STC4
STVOR-246	98002476	T_MC 66	1-1/2	1-1/2	7	.37	1.62	2.00	SD-4	TC-310	STC4

## METRIC

### PARTS

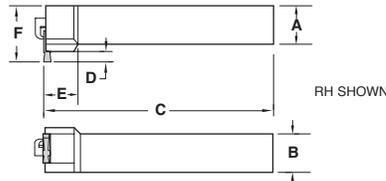
Description	EDP Code	Insert	A	B	C	D	E	F	PARTS		
									Screw	Clamp	Clamp Screw
STVOR-2525M4	980125M56	T_MC 43	25,0	25,0	152,4	5,8	31,2	31,7	SD-2	TC-190	STC9
STVOL-2525M4	978025M56	T_MC 43	25,0	25,0	152,4	5,8	31,2	31,7	SD-2	TC-190	STC9
STVOR-3232M4	980132M56	T_MC 43	32,0	32,0	177,8	5,8	31,2	38,1	SD-2	TC-190	STC9
STVOR-2525M5	980125M64	T_MC 54	25,0	25,0	152,4	7,4	36,3	31,7	SD-3	TC-250	STC11
STVOL-2525M5	978025M64	T_MC 54	25,0	25,0	152,4	7,4	36,3	31,7	SD-3	TC-250	STC11
STVOR-3232M5	980132M64	T_MC 54	32,0	32,0	177,8	7,4	36,3	38,1	SD-3	TC-250	STC11
STVOR-3232M55	980132M66	T_MC 55	32,0	32,0	177,8	9,4	36,3	38,1	SD-3	TC-250	STC11
STVOR-3232M6	980132M76	T_MC 66	32,0	32,0	177,8	9,4	41,1	38,1	SD-4	TC-310	STC8



# EXTERNAL HOLDER

## MTHOR/L

Threading/Grooving



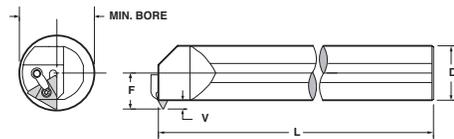
### PARTS

Description	EDP Code	Insert	A	B	C	D	E	F	Lock Pin	Clamp	Clamp Screw
MTHOR-164	95501656	T_MA/C 43	1	1	6	.19	.74	1.5	NL44	TC-250	STC11
MTHOL-164	95401656	T_MA/C 43	1	1	6	.19	.74	1.5	NL44	TC-250	STC11
MTHOR-204	95502056	T_MA/C 43	1-1/4	1-1/4	7	.19	.99	1.75	NL44	TC-250	STC11
MTHOR-165	95501664	T_MA/C 54	1	1	6	.24	.99	1.5	NL56	TC-250	STC11
MTHOL-165	95401664	T_MA/C 54	1	1	6	.24	.99	1.5	NL56	TC-250	STC11
MTHOR-205	95502064	T_MA/C 54	1-1/4	1-1/4	7	.24	.99	1.75	NL56	TC-250	STC11

# INTERNAL BAR

## SI-MTHOR/L

Threading/Grooving



### PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	Lock Pin	Clamp	Clamp Screw
SI-MTHOR-163	97301648	T_MA 32	1.383	1.000	14	.687	.120	NL-33	TC-190	STC-5
SI-MTHOL-163	97201648	T_MA 32	1.383	1.000	14	.687	.120	NL-33	TC-190	STC-5
SI-MTHOR-204	97302056	T_MA 43	1.815	1.250	14	.875	.190	NL-44	TC-190	STC-9
SI-MTHOL-204	97202056	T_MA 43	1.815	1.250	14	.875	.190	NL-44	TC-190	STC-9
SI-MTHOR-244	97302456	T_MA 43	1.892	1.500	14	1.000	.190	NL-44	TC-190	STC-5
SI-MTHOL-244	97202456	T_MA 43	1.892	1.500	14	1.000	.190	NL-44	TC-190	STC-5
SI-MTHOR-245	97302464	T_MA 54	2.125	1.500	14	1.073	.220	NL-56	TC-250	STC-11
SI-MTHOL-245	97202464	T_MA 54	2.125	1.500	14	1.073	.220	NL-56	TC-250	STC-11
SI-MTHOR-325	97303264	T_MA 54	2.750	2.000	16	1.323	.220	NL-56	TC-250	STC-11
SI-MTHOR-406	97304076	T_MA 66	3.250	2.500	16	1.625	.320	NL-66L	TC-380	STC-19

## METRIC

### PARTS

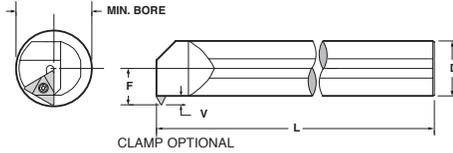
Description	EDP Code	Insert	Min. Bore	D	L	F	V	Lock Pin	Clamp	Clamp Screw
SI-MTHOR-32M4	973032M56	T_MA 43	46,1	32,0	355,6	22,5	4,8	NL-44	TC-190	STC-9
SI-MTHOL-32M4	972032M56	T_MA 43	46,1	32,0	355,6	22,5	4,8	NL-44	TC-190	STC-9
SI-MTHOR-40M4	973040M56	T_MA 43	48,1	40,0	355,6	25,9	4,8	NL-44	TC-190	STC-5
SI-MTHOL-40M4	972040M56	T_MA 43	48,1	40,0	355,6	25,9	4,8	NL-44	TC-190	STC-5
SI-MTHOR-50M4	973050M56	T_MA 43	69,9	50,0	406,4	32,9	4,8	NL-44	TC-190	STC-5
SI-MTHOR-60M4	973060M56	T_MA 43	82,6	60,0	406,4	36,8	4,8	NL-44	TC-190	STC-5
SI-MTHOR-63M4	973063M56	T_MA 43	89,0	63,0	406,4	40,0	4,8	NL-44	TC-190	STC-5
SI-MTHOR-40M5	973040M64	T_MA 54	48,1	40,0	355,6	25,9	5,6	NL-56	TC-250	STC-11
SI-MTHOL-40M5	972040M64	T_MA 54	48,1	40,0	355,6	25,9	5,6	NL-56	TC-250	STC-11
SI-MTHOR-50M5	973050M64	T_MA 54	69,9	50,0	406,4	32,9	5,6	NL-56	TC-250	STC-11
SI-MTHOR-60M5	973060M64	T_MA 54	82,6	60,0	406,4	36,8	5,6	NL-56	TC-250	STC-11
SI-MTHOR-63M5	973063M64	T_MA 54	89,0	63,0	406,4	40,0	5,6	NL-56	TC-250	STC-11
SI-MTHOR-50M6	973050M76	T_MA 66	69,9	50,0	406,4	32,9	8,1	NL-66L	TC-380	STC-19
SI-MTHOR-63M6	973063M76	T_MA 66	89,0	63,0	406,4	40,0	8,1	NL-66L	TC-380	STC-19



# INTERNAL BAR

## SI-STHOR/L

Threading/Grooving



### PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	Screw	Clamp*	Clamp Screw
SI-STHOR-163	97601648	T_MC 32	1.383	1.000	14	.687	.120	SD-1	TC-190	STC-9
SI-STHOL-163	97501648	T_MC 32	1.383	1.000	14	.687	.120	SD-1	TC-190	STC-9
SI-STHOR-204	97602056	T_MC 43	1.815	1.250	14	.875	.190	SD-2	TC-190	STC-9
SI-STHOL-204	97502056	T_MC 43	1.815	1.250	14	.875	.190	SD-2	TC-190	STC-9
SI-STHOR-244	97602456	T_MC 43	1.892	1.500	14	1.000	.190	SD-2	TC-190	STC-9
SI-STHOL-244	97502456	T_MC 43	1.892	1.500	14	1.000	.190	SD-2	TC-190	STC-9
SI-STHOR-245	97602464	T_MC 54	2.240	1.500	14	1.073	.220	SD-3	TC-250	STC-11
SI-STHOL-245	97502464	T_MC 54	2.240	1.500	16	1.323	.220	SD-3	TC-250	STC-11
SI-STHOR-325	97603264	T_MC 54	2.750	2.000	16	1.323	.220	SD-3	TC-250	STC-11
SI-STHOR-406	97604076	T_MC 66	3.250	2.500	16	1.625	.320	SD-4	TC-380	STC-19

\*Clamp optional and sold separately.

## METRIC

### PARTS

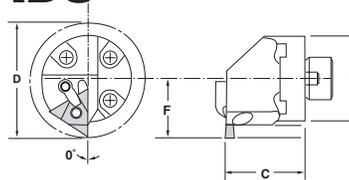
Description	EDP Code	Insert	Min. Bore	D	L	F	V	Screw	Clamp	Clamp Screw
SI-STHOR-25M3	976025M48	T_MC 32	35,1	25,0	355,6	17,4	3,1	SD-1	TC-190	STC-9
SI-STHOL-25M3	975025M48	T_MC 32	35,1	25,0	355,6	17,4	3,1	SD-1	TC-190	STC-9
SI-STHOR-32M4	976032M56	T_MC 43	46,1	32,0	355,6	22,5	4,8	SD-2	TC-190	STC-9
SI-STHOL-32M4	975032M56	T_MC 43	46,1	32,0	355,6	22,5	4,8	SD-2	TC-190	STC-9
SI-STHOR-40M4	976040M56	T_MC 43	48,1	40,0	355,6	25,9	4,8	SD-2	TC-190	STC-9
SI-STHOL-40M4	975040M56	T_MC 43	48,1	40,0	355,6	25,9	4,8	SD-2	TC-190	STC-9
SI-STHOR-40M5	976040M64	T_MC 54	48,1	40,0	355,6	26,8	5,6	SD-3	TC-250	STC-11
SI-STHOL-40M5	975040M64	T_MC 54	56,9	40,0	406,4	33,6	5,6	SD-3	TC-250	STC-11
SI-STHOR-50M5	976050M64	T_MC 54	69,9	50,0	406,4	33,6	5,6	SD-3	TC-250	STC-11
SI-STHOR-60M6	976060M76	T_MC 66	82,6	60,0	406,4	40,6	8,1	SD-4	TC-380	STC-19

\*Clamp optional and sold separately.

# INTERCHANGEABLE HEADS

## ON-EDGE

### H-MTHOR/L\*



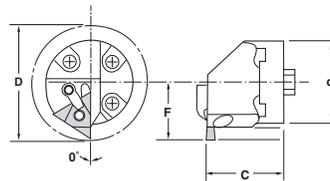
RH SHOWN

### PARTS

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

\*Left hand quoted on request.

### HS-MTHOR/L\*



RH SHOWN

### PARTS

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

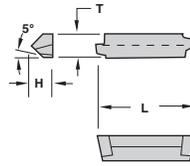
\*Left hand quoted on request.



# VEE-BOTTOM

## API Buttress Threading

■ For holders and bars see pgs. 28-31



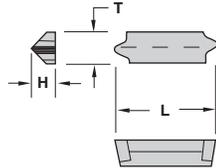
EXT SHOWN  
INT OPPOSITE

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

\*FC indicates 5° flank clearance

## API Rotary Shoulder Connection Threading

■ For holders and bars see pgs. 28-31



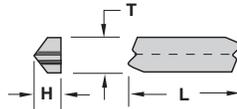
EXT SHOWN  
INT OPPOSITE

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

\* 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. 28-31

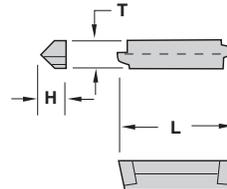


EXT SHOWN  
INT OPPOSITE

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

## API VAM Threading

■ For holders and bars see pgs. 28-31



EXT SHOWN  
INT OPPOSITE

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

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

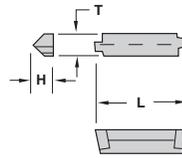
● High performance choice in optimal conditions.  
▲ Recommended grade under general conditions.

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

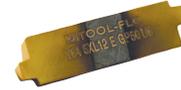


# VEE-BOTTOM API X-LINE THREADING

■ For holders and bars see pgs. 28-31



EXT SHOWN  
INT OPPOSITE

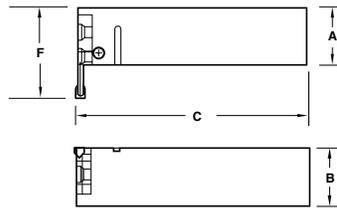


Uncoated		TIN Coated		ALTiN Coated	
C3	C6H	GP3	GP50	AC3	AC50
			●		●
			●		●
			●		●
			●		●
			●		●

Description	EDP Code	TPI	TPF	T	L	H	Connection
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	-

# EXTERNAL 90° HOLDER CDHOR/L

■ RH Holders use LH components - See pages 31.



RH SHOWN

## PARTS

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

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

(1) Anvil D.O.C.

## METRIC

## PARTS

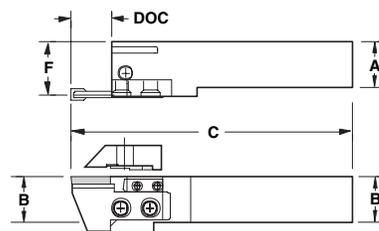
Description	EDP Code	A	B	C	F*		Clamp Screw	Stop Screw	Anvil Screw
					7,0(1)	20,0(1)			
CDHOR-25MM	92112500	25,0	25,0	150,0	33,3	46,0	SB90	SS20	SF95
CDHOR-32MM	92113200	32,0	32,0	150,0	39,7	52,4	SB90	SS20	SF95
CDHOR-40MM	92114000	40,0	40,0	150,0	46,0	58,7	SB90	SS20	SF95

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

(1) Anvil D.O.C.

# EXTERNAL STRAIGHT HOLDER CDVOR/L

■ RH Holders use RH components - See pages 31.



RH SHOWN

## PARTS

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

\*The "C" dimension is determined by the D.O.C. of the anvil. If the D.O.C. is .312, C=5.500. If the D.O.C. is .812, C=6.000.

## METRIC

## PARTS

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



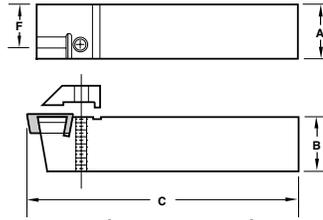
# EXTERNAL STRAIGHT HOLDER

CDVOR/L/C

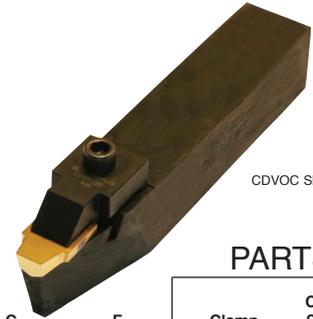
One piece design

■ RH Holders use RH clamps

CDVOR Shown



CDVOC Shown



## PARTS

Description	EDP Code	Insert	A	B	C	F	PARTS	
							Clamp	Clamp Screw
CDVOR-168	92401682	V84/V85	1	1	6	0.875	CHR-431	SB90
CDVOL-168	92301682	V84/V85	1	1	6	0.875	CHL-431	SB90
CDVOR-208	92402082	V84/V85	1-1/4	1-1/4	6	1.125	CHR-431	SB90
CDVOL-208	92302082	V84/V85	1-1/4	1-1/4	6	1.125	CHL-431	SB90
CDVOR-209	92402086	V96/V98	1-1/4	1-1/4	7	1.000	CHR-98	SS100
CDVOC-2012	92202090	V120	1-1/4	1-1/4	7	0.625	CHR-120	SS90

## METRIC

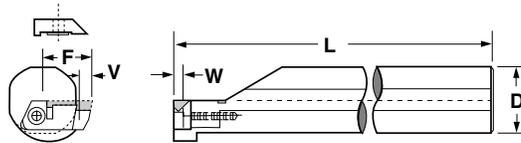
## PARTS

Description	EDP Code	Insert	A	B	C	F	PARTS	
							Clamp	Clamp Screw
CDVOR-25M8	92412582	V84/V85	25,0	25,0	150,0	21,8	CHR-431	SB90
CDVOL-25M8	92312582	V84/V85	25,0	25,0	150,0	21,8	CHL-431	SB90
CDVOR-32M8	92413282	V84/V85	32,0	32,0	150,0	28,8	CHR-431	SB90
CDVOL-32M8	92313282	V84/V85	32,0	32,0	150,0	28,8	CHL-431	SB90
CDVOR-32M9	92413286	V96/V98	32,0	32,0	180,0	25,5	CHR-98	SS100
CDVOC-32M12	92413290	V120	32,0	32,0	180,0	22,5	CHR-120	SS90

# INTERNAL BAR

SI-CDHOR

■ RH Holders use LH components



RH Shown

## PARTS

Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	PARTS			
										Anvil	Anvil Screw	Clamp	Clamp Screw
SI-CDHOR-24	96802400	V84/V85	1-1/2	14	.188-.250	.180	1.062	1.880	.080	ABL/R-131	SF69	CBL/R-411	SB90
SI-CDHOL-24	96702400	V84/V85			60°V	.180	1.062	1.880	.080	ABL/R-171	SF69	CBL/R-411	SB90
		V85			.295-.312	.312	1.062	1.880	.080	ABL/R-143	SF69	CBL/R-531	SB90
		DBP24/VDB125			.105-.125	.312	1.062	1.880	.240	ABL/R-113	SF69	CBL/R-132	SB90
		DBP34/VDB188			.170-.188	.530	1.280	2.098	.240	ABL/R-135	SF69	CBL/R-352	SB90
		VDB250A			.220-.250	.530	1.280	2.098	.240	ABL/R-145	SF69	CBL/R-452	SB90
		DBP45/VDB250B			.220-.250	.530	1.280	2.098	.240	ABL/R-245	SF69	CBL/R-452	SB90

## METRIC

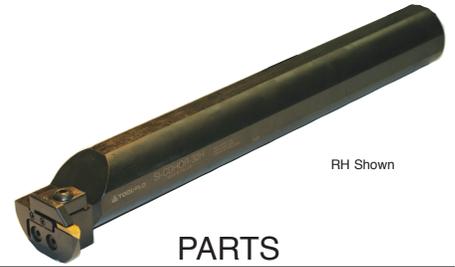
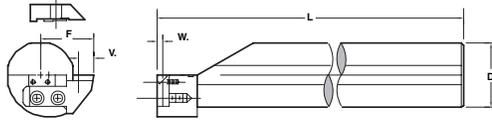
## PARTS

Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	PARTS			
										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

■ RH Holders use LH components



## PARTS

Description	EDP Code	Insert	D	L	W	V	F	Min. Bore	D.O.C. at Min. Bore	Anvil	Anvil Screw	Clamp	Clamp Screw	Stop Block	SBH Screw
SI-CDHOR-32H	96803200H	V84/V85	2	16	.220-.250	.312	1.584	3.000	.150	AHL/R-148	SF95	CHL/R-482	SB90	SBH-1	SS-20
SI-CDHOL-32H	96703200H	V84/V85			60°V	.312	1.584	3.000	.150	AHL/R-173	SF95	CHL/R-431	SB90	SBH-1	SS-20
		DBP34/VDB188			.170-.188	.625	1.592	3.000	.270	AHL/R-138	SF95	CHL/R-382	SB90	SBH-2	SS-20
		VDB250A			.220-.250	.625	1.592	3.000	.270	AHL/R-148	SF95	CHL/R-482	SB90	SBH-2	SS-20
		DBP45/VDB250B			.220-.250	.625	1.592	3.000	.270	AHL/R-248	SF95	CHL/R-482	SB90	SBH-2	SS-20

## METRIC

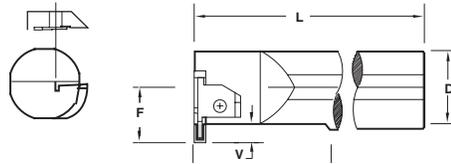
## PARTS

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

# SI-CDHOR/L

One piece design

■ RH Holders use LH components



## PARTS

Description	EDP Code	Insert	Min. Bore	D	L	F	V	D.O.C. at Min. Bore	Clamp Screw	Clamp
SI-CDHOR-168	96801682	V84/V85	2.500	1	10	.687	.270	.200	S526	CBL-84
SI-CDHOL-168	96701682	V84/V85	2.500	1	10	.687	.270	.200	S526	CBR-84
SI-CDHOR-208	96802082	V84/V85	2.500	1-1/4	12	.875	.285	.250	S526	CBL-84
SI-CDHOL-208	96702082	V84/V85	2.500	1-1/4	12	.875	.285	.250	S526	CBR-84
SI-CDHOR-329	96803286	V96/V98	3.100	2	16	1.530	.325	.312	SS110	CBL-98
SI-CDHOL-329	96703286	V96/V98	3.100	2	16	1.530	.325	.312	SS110	CBR-98
SI-CDHOR-409	96804086	V96/V98	4.000	2-1/2	16	1.575	.365	.312	SS110	CBL-98
SI-CDHOR-4012	96804092	V120	4.000	2-1/2	16	1.575	.570	.500	SB100	CBL-120

## METRIC

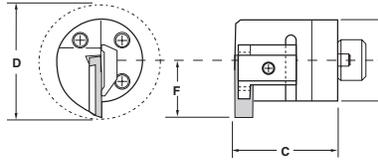
## PARTS

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	V96/V98	63,5	50,0	400,0	38,8	9,2	7,9	SS110	CBL-98
SI-CDHOL-50M9	96715086	V96/V98	63,5	50,0	400,0	38,8	9,2	7,9	SS110	CBR-98
SI-CDHOR-65M9	96816586	V96/V98	76,2	65,0	400,0	40,0	9,2	9,5	SS110	CBL-98
SI-CDHOR-65M12	96816590	V120	76,2	65,0	400,0	40,0	14,0	12,7	SB100	CBL-120



# INTERCHANGEABLE HEADS VEE BOTTOM

H-CDHOR/L\*



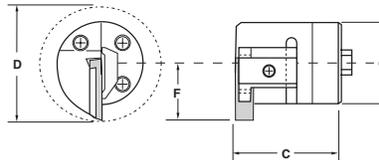
RH SHOWN

## PARTS

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

\*Left hand quoted on request.

# HS-CDHOR/L\*



RH SHOWN

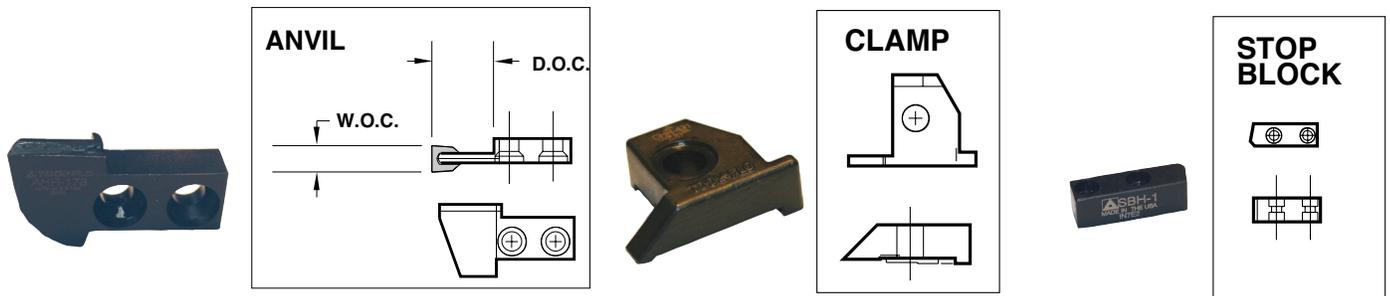
## PARTS

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

\*Left hand quoted on request.

# COMPONENTS

For CDHOR/L and CDVOR/L

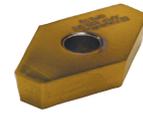
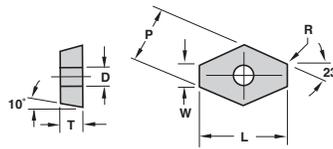


Anvil	EDP Code	Insert	DOC	WOC	Clamp	Stop Block
AHR-118	9140118	VDB125	.812	.105-.125	CHR-182	SBH-2
AHL-118	9130118	VDB125	.812	.105-.125	CHL-182	SBH-2
AHR-148	9140148	V84/V85	.812	.220-.250	CHR-482	SBH-2
AHL-148	9130148	V84/V85	.812	.220-.250	CHL-482	SBH-2
AHR-173	9140173	V84/V85	.312	V-THREAD	CHR-431	SBH-2
AHL-173	9130173	V84/V85	.312	V-THREAD	CHL-431	SBH-2
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



# RING GROOVING

API 46°  
APIP



Uncoated	TIN Coated	AlTiN Coated
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Description	EDP Code	R	W	P	T	L	D	Style	C6H	GP25	GP6	AC25	AC6
APIP 086-3	754000	.015	.079	.372	.187	3/4	-	Clamp	●		●		●
APIP 131-3	754005	.031	.125	.407	.187	3/4	-	Clamp	●		●		●
APIP (PGN-1A)	754003	.031	.131	.414	.187	3/4	-	Clamp	●		●		●
APIP 162-3 (PGN-6A)	75403	.031	.156	.437	.187	3/4	-	Clamp	●		●		●
APIP (PGN-7A)	75887	.031	.203	.484	.187	3/4	-	Clamp	●		●		●
APIP 203-3 (PGN-2A)	75413	.031	.197	.574	.187	1"	-	Clamp	●		●		●
APIP 203-3H	75413H	.031	.197	.574	.187	1"	.203	Lock Pin			●	●	
APIP 213-3	75423	.062	.206	.574	.187	1"	.203	Lock Pin			●	●	
APIP 265-3	75433	.031	.260	.633	.187	1"	.250	Lock Pin			●	●	
APIP 281-3	75443	.031	.277	.645	.187	1"	.250	Lock Pin			●	●	
APIP 300-3	75463	.031	.295	.662	.187	1"	.250	Lock Pin			●	●	
APIP 329-3	75473	.031	.324	.683	.187	1"	.250	Lock Pin			●	●	
APIP 355-3	75476	.031	.350	.712	.187	1"	.250	Lock Pin			●	●	
APIP 420-3	75490	.031	.415	.772	.187	1"	.250	Lock Pin	●		●		●

## HEAVY DUTY

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

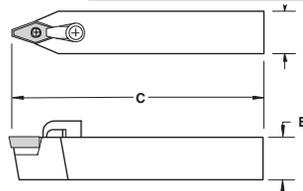
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up-to-date grade offering.

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

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

# RING GROOVING HOLDERS

FGNR

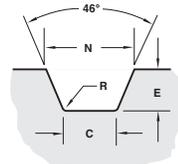


RH SHOWN

## PARTS

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

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



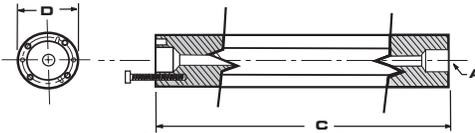
# RING GROOVE SPECIFICATIONS

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



## S-4400W

Steel Shank with Through Coolant

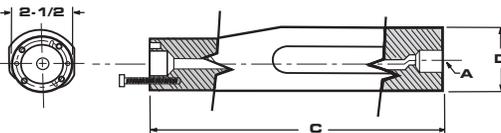


### PARTS

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

## S-4400W48

Steel Shank with Through Coolant

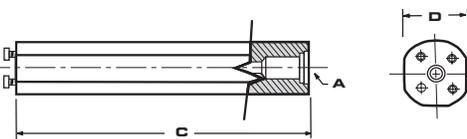


### PARTS

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

## S-570

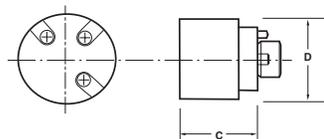
Steel Shank with Through Coolant



### PARTS

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

## H/HS-BLANKS



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

\*Specify right or left hand when ordering.

## CROSSOVER CHART

INTERCHANGEABLE HEAD

TOOL-FLO DESCRIPTION

KENAMETAL®

SANDVIK®

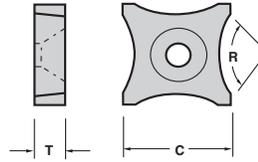
H Style	TOOL-FLO DESCRIPTION	KENAMETAL®	SANDVIK®
	H_-FLER_W	H_-FLER_W	
	H_-AVR_	H_-LSER-	
	H_-MTHOR_	H_-MTHOR_	
	H_-MCLNR_	H_-MCLNR_	
	H_-MDUNR_	H_-MDUNR_	
	H_-MSKNR_	H_-MSKNR_	
	H_-MTFNR_	H_-MTFNR_	
	H_-MVUNR_	H_-MVUNR_	
	H_-MWLNR_	H_-MWLNR_	
		HS_-FLER_W	
HS_-AVR_			R566-4KFC-_-_-
HS_-MTHOR_			
HS_-MCLNR_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



# EXTERNAL SCARFING INSERTS

## SPUB-63 - EXTERNAL

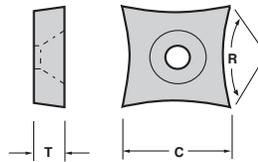
3/4" Square 4-sided - OD



Description	EDP Code	Tube Diameter	T	C	R - Radius	CVD Coated		AlTiN Coated	
						G50	G54	AC22	AC50
SPUB-63B-E	SI63EB	up to 7/8"	3/16"	3/4"	.475	●	●	●	●
SPUB-63C-E	SI63EC	7/8" - 1-1/8"	3/16"	3/4"	.590	●	●	●	●
SPUB-63D-E	SI63ED	1-1/8" - 1-1/2"	3/16"	3/4"	.785	●	●	●	●
SPUB-63E-E	SI63EE	1-1/2" - 1-7/8"	3/16"	3/4"	.985	●	●	●	●
SPUB-63F-E	SI63EF	1-7/8" - 2-1/4"	3/16"	3/4"	1.180	●	●	●	●
SPUB-63G-E	SI63EG	2-1/4" - 3-1/8"	3/16"	3/4"	1.575	●	●	●	●
SPUB-63H-E	SI63EH	3-1/8" - 3-7/8"	3/16"	3/4"	1.970	●	●	●	●
SPUB-63I-E	SI63EI	3-7/8" - 4-7/8"	3/16"	3/4"	2.470	●	●	●	●
SPUB-63J-E	SI63EJ	4-7/8" - 5-7/8"	3/16"	3/4"	2.970	●	●	●	●
SPUB-63K-E	SI63EK	5-7/8" - 6-7/8"	3/16"	3/4"	3.470	●	●	●	●
SPUB-63L-E	SI63EL	6-7/8" - 7-7/8"	3/16"	3/4"	3.970	●	●	●	●
SPUB-63M-E	SI63EM	7-7/8" and up	3/16"	3/4"	None	●	●	●	●
SPUB-63M-30-E	SI63EM30	30° Relief	3/16"	3/4"	None	●	●	●	●

## SQ86 - EXTERNAL

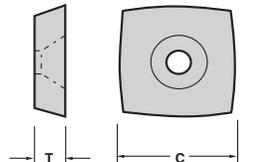
1" Square 4-sided - OD



Description	EDP Code	Tube Diameter	T	C	R - Radius	CVD Coated		AlTiN Coated	
						G50	G54	AC22	AC50
SQ86-14-0-E	SI86E0	ANY	3/8"	1.000	0.000	●	●	●	●
SQ86-14-2.5-E	SI86E25	3" - 4-3/4"	3/8"	1.000	2.500	●	●	●	●
SQ86-10-3.4-E	SI86E34	4-3/4" - 6-3/4"	3/8"	1.000	3.400	●	●	●	●
SQ86-14-4.5-E	SI86E45	6-3/4" - 8-3/4"	3/8"	1.000	4.500	●	●	●	●
SQ86-10-9.5-E	SI86E95	8-3/4" - 18"	3/8"	1.000	9.500	●	●	●	●

## SQ86 - INTERNAL

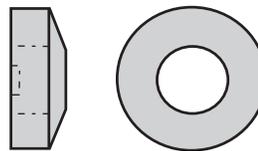
1" Square 4-sided - ID



Description	EDP Code	Tube Diameter	T	C	R - Radius	CVD Coated		AlTiN Coated	
						G50	G54	AC22	AC50
SQ86-14-0-I	SI86I0	ANY	3/8"	1.000	0.000	●	●	●	●
SQ86-14-2.5-I	SI86I25	3" - 4-3/4"	3/8"	1.000	2.500	●	●	●	●
SQ86-10-3.4-I	SI86I34	4-3/4" - 6-3/4"	3/8"	1.000	3.400	●	●	●	●

# INTERNAL SCARFING INSERTS

IDR

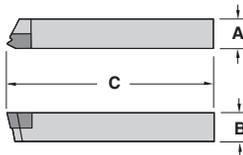


Description	EDP Code	Int'l Tube Diameter	Description	CVD Coated		AlTiN Coated	
				G50	G54	AC22	AC50
IDR-2010	IDSR2010	9/16" - 11/16"	#1	●	●	●	●
IDR-2020	IDSR2020	11/16" - 13/16"	#2	●	●	●	●
IDR-2030	IDSR2030	13/16" - 1-1/32"	#3	●	●	●	●
IDR-2040	IDSR2040	1-1/32" - 1-3/8"	#4	●	●	●	●
IDR-2050	IDSR2050	5/16" - 1-7/16"	#5	●	●	●	●
IDR-2060	IDSR2060	1-1/32" - 1-1/8"	#6	●	●	●	●
IDR-2070	IDSR2070	1-1/8" - 1-3/16"	#7	●	●	●	●
IDR-2080	IDSR2080	1-3/16" - 1-3/8"	#8	●	●	●	●
IDR-2090	IDSR2090	1-1/4" - 1-5/8"	#9	●	●	●	●
IDR-2100	IDSR2100	1-5/8" - 2"	#10	●	●	●	●
IDR-2110	IDSR2110	1-7/8" - 2-7/8"	#11	●	●	●	●
IDR-2120	IDSR2120	2-3/4" - 3-3/8"	#12	●	●	●	●
IDR-2130	IDSR2130	3-3/8" - 4"	#13	●	●	●	●
IDR-2140	IDSR2140	4" - 5"	#14	●	●	●	●
IDR-2150	IDSR2150	5" - 6-1/4"	#15	●	●	●	●
IDR-2160	IDSR2160	6" - 10-1/4"	#16	●	●	●	●



# BRAZED TOOLS

## API THREADING



Description	EDP Code	TPI	TPF	A	B	C	Conn No or Size	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

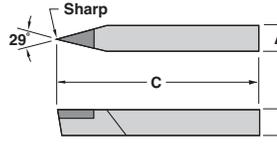
TOOL-FLO	VALENITE®	CARBOLOY®	VARDEX®	ISCAR®	TGI®	KENAMETAL®
L43	TNEM 43					
LDS 43	TNEG 43					
L53						
LDS 54	TNEG 54					
LDS 54 - FT	TNEGX 54					
TNMC	TNEC/TNMC					
TNFA	TNFA					
16ER		16ER	3ER	16ER		
16NR		16NR	3IR	16IR		
22ER		22ER	4ER	22ER		
22NR		22NR	4IR	22IR		
27ER		27ER	5ER	27ER		
27NR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



# BRAZED TOOLS

## ACME THREADING

NO PITCH

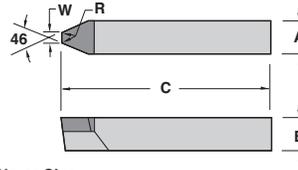


Description	EDP Code	TPI	A	B	C	CSH
B6 NT NO PITCH	77104A	6-16	3/8	3/8	2-1/2	●
B8 NT NO PITCH	77304A	4-16	1/2	1/2	3-1/2	●
B10 NT NO PITCH	77504A	2-16	5/8	5/8	4	●
B12 NT NO PITCH	77604A	2-16	3/4	3/4	4-1/2	●

Uncoated

## RING GROOVING

NO PITCH



Description	EDP Code	W	R	A	B	C	Conn No or Size	CSH
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

\* See page 21 for ring groove specs.

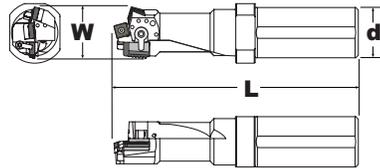
In an effort to improve our stock standard grade offering, there are periodic changes. Please see current price list for up to date grade offering.

Cast Iron	
Non-Ferrous	
Stainless/High Temp	
Steel	

# COMBINATION BAR

## CR Chaser style

Threading, Facing and Turning  
ALL-IN-ONE

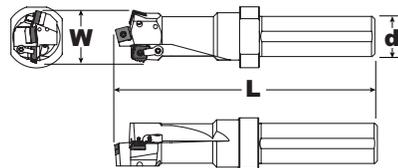


Description	EDP Code	W	d	L	Chaser	Turning Insert	Seat Screw	CHASER SPARE PARTS					TURNING SPARE PARTS			
								Seat	Side Clamp	Clamp Screw	Insert Clamp	Clamp Screw	Seat	Clamp	Clamp Screw	Lock Pin
SI-CLHORM-329	97103298	1.992	2.000	8.990	CR-8R-71*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
					CR-5B75-51*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
SI-CLHORM-40M9	9710M4098	1.992	1.575	11.470	CR-8R-71*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
					CR-5B75-51*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
SI-CLHORM-50M9	9710M5098	2.467	1.968	13.495	CR-8R-71*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
					CR-5B75-51*	SNMG-43_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-433	TC-191	XNS-35	NL-46
SI-CLHORM-60M9	9710M6098	3.146	2.361	15.086	CR-8R-71*	SNMG-64_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-633	TC-311	STC-8	NL-68
					CR-5B75-51*	SNMG-64_*	SF-48	TF3218	TC-191	XNS-35	TC-311	XNS-59	ISSN-633	TC-311	STC-8	NL-68

\*These items are sold separately.

## CNGA Chaser style (Double sided)

Threading, Facing and Turning  
ALL-IN-ONE



Description	EDP Code	W	d	L	Chaser	Turning Insert	TURNING SPARE PARTS				CHASER SPARE PARTS			
							Lock Pin	Seat	Clamp	Clamp Screw	Clamp	Clamp Screw	Lock Pin	
SI-PCLHORM-329	97153298	1.977	2.000	8.990	CNGA-8R-31*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
					CNGA-5B75-31*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
SI-PCLHORM-40M9	9715M4098	1.977	1.575	11.470	CNGA-8R-31*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
					CNGA-5B75-31*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
SI-PCLHORM-50M9	9715M5098	2.467	1.968	13.494	CNGA-8R-31*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
					CNGA-5B75-31*	SNMG-43_*	NL-46	ISSN-433	TC-191	XNS-35	TC-250	STC-11	NL-44	
SI-PCLHORM-60M9	9715M6098	3.144	2.361	15.146	CNGA-8R-31*	SNMG-64_*	NL-68	ISSN-633	TC-311	STC-8	TC-250	STC-11	NL-44	
					CNGA-5B75-31*	SNMG-64_*	NL-68	ISSN-633	TC-311	STC-8	TC-250	STC-11	NL-44	

\*These items are sold separately.

# Coolant-Fed Clamps

Patent pending

Can be used with low pressure  
or high pressure coolant  
(rated up to 1500 psi)

- Available for #2, 3 & 4 Flo-Lock right and left hand inserts
- Fits other brand's standard holders
- Available in 6 and 12 pack quantities for an added cost savings!



## Use Your Existing Holders!

Simply replace the top clamp on your standard holder.

## 6mm High Pressure Coolant Kit

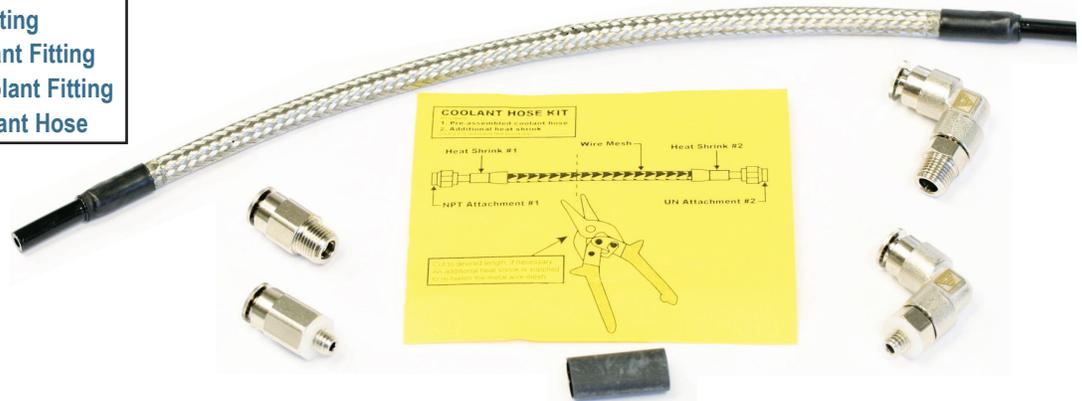
### 6MM COOLANT KIT HIGH PRESSURE

EDP code: 9HCPKIT6MHP

Kit comes complete with:

1 pc	M6X1 Elbow Coolant Fitting
1 pc	M6x1 Straight Coolant Fitting
1 pc	.125 (1/8")x1 Elbow Coolant Fitting
1 pc	.125 (1/8")x1 Straight Coolant Fitting
1 pc	6mm High Pressure Coolant Hose

Clamp not included. Sold separately.

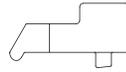
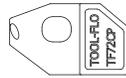




# Coolant Fed Clamps

For FL<sub>SR</sub>/L and FL<sub>SR</sub> holders

TF-CP



TF72CP shown

Clamp	EDP Code	Toolholder	Insert
TF72CP	9HTF72CP	FLSR- 3/4	FL_-3R/4R
TF73CP	9HTF73CP	FLSL- 3/4	FL_-3L/4L
TF74CP	9HTF74CP	FLSR- 2	FL_-2R
TF75CP	9HTF75CP	FLSL- 2	FL_-2L
TF182CP	9HTF182CP	FLASR- 2	FL_-2R
TF184CP	9HTF183CP	FLASR- 3	FL_-3R

## Fittings

6mm & 1/8"



M6 x 1 elbow  
(Connection to machine)



M6 x 1 straight  
(Connection to machine)



1/8" (.125) NPT elbow  
(Connection to clamp)

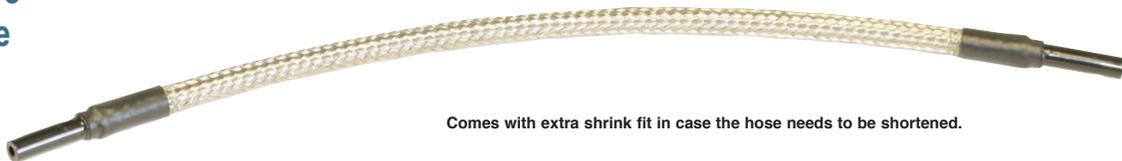


1/8" (.125) NPT straight  
(Connection to clamp)

Description	EDP Code	Fitting/Thread size
M6X1 ELBOW COOLANT FITTING	9HCPM6X190	6mm x 1.0 (Connection to machine)
M6X1 STRAIGHT COOLANT FITTING	9HCPM6X1	6mm x 1.0 (Connection to machine)
1/8" NPT ELBOW COOLANT FITTING	9HCP12590NPT	1/8" (.125) x 27 NPT (Connection to clamp)
1/8" NPT STRAIGHT COOLANT FITTING	9HCP125NPT	1/8" (.125) x 27 NPT (Connection to clamp)

## High Pressure Coolant Hose

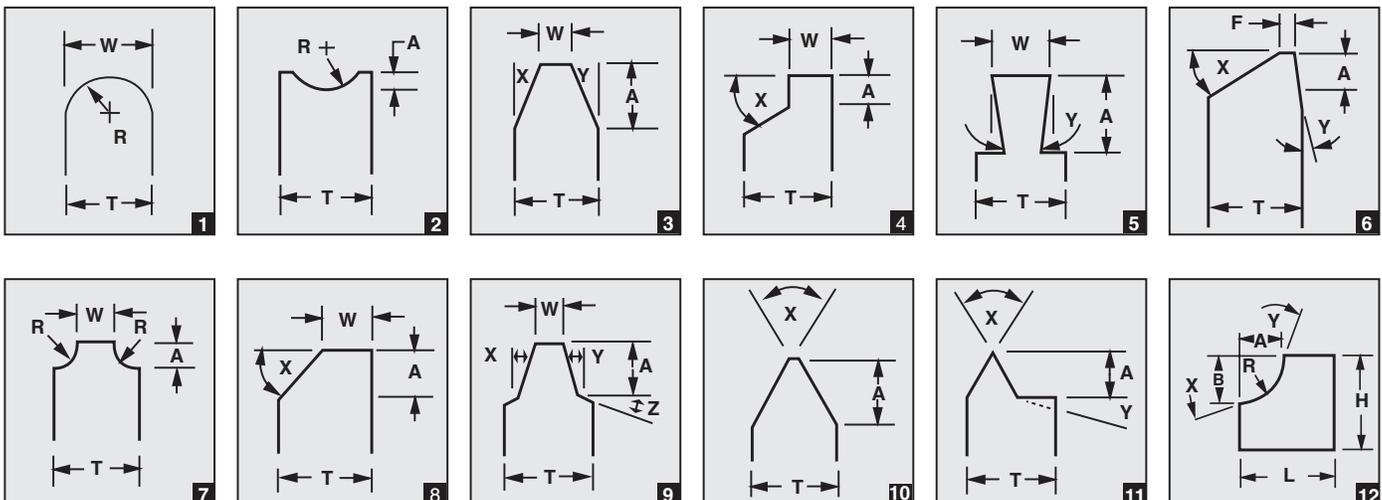
6mm



Comes with extra shrink fit in case the hose needs to be shortened.

Description	EDP Code	Size	Length
6MM HIGH PRESSURE COOLANT HOSE	9HCP6MHOSEHP	6mm	12"

We welcome specials! Please call us with your specs.





# Technical Information

# CHASERS API Buttress & 8 Round

## Recommended SFPM for Chasers

EXTERNAL 8 Round Sets	1st Choice	2nd Choice			
	AITIN PVD Coated	AITIN PVD Coated	AITIN PVD Coated	CVD Coated	General Purpose TIN PVD Coated
Material	ZA3	AC3	AC50	G50	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
Q	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	2nd Choice		
	AITIN PVD Coated	AITIN PVD Coated	TIN PVD Coated	TIN CVD Coated
Material	ZA3	AC3	AC50	G50
H	500	500	500	500
J	500	500	500	500
K	500	500	500	500
L	500	500	500	500
N	500	500	500	500
P	500	500	500	500
Q	500	500	500	500

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

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

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

INTERNAL 8 Round Stand Alone TF1968 7 TOOTH Material	1st Choice	2nd Choice	
	AITIN PVD Coated	AITIN PVD Coated	TIN PVD Coated
Material	ZA3	AC3	AC50
H	500	500	700
J	500	500	700
K	500	500	700
L	500	500	700
N	500	500	700
P	500	500	700
Q	500	500	700

AC50 - All diameters  
1-2 PASSES

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

G50 - All diameters

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

G50 - All diameters  
5 PASSES

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

G50 - All diameters  
5 PASSES

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

G50 - All diameters  
5 PASSES

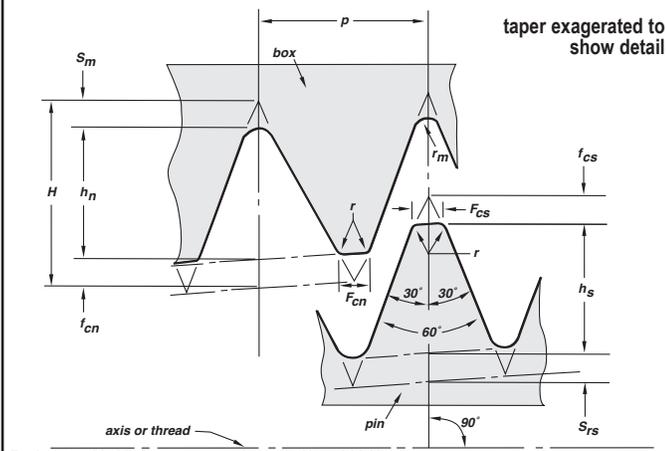


# API Rotary Shoulder Connections, Buttress, Rounds, NPT

## PRODUCT THREAD DIMENSIONS - ROTARY SHOULDER CONNECTIONS

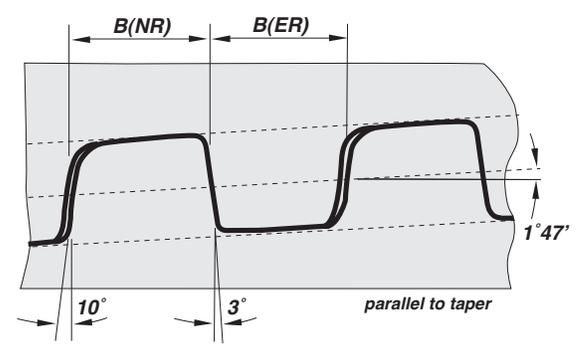
thread form	taper in. per ft.	thread height not truncated H	thread height truncated $h_n = h_s$	root truncation $S_m = S_{rs}$ $f_m = f_{rs}$	crest truncation $f_{cn} = f_{cs}$	width of flat		root radius $r_m = r_{rs}$	radius at thread corners r	pitch p
						crest $f_{cn} = f_{cs}$	crest $f_m = f_{rs}$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

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



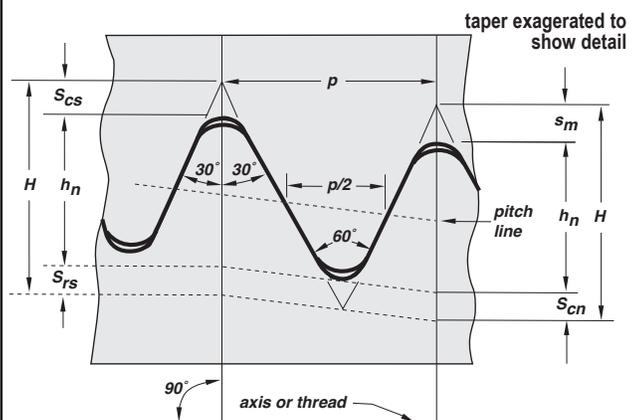
For inserts with this form see pages 8, 14, 17, 18, and 21-23  
Chart based on API Spec 7, 38th Edition, April 1994, pg 30

### API BUTTRESS



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

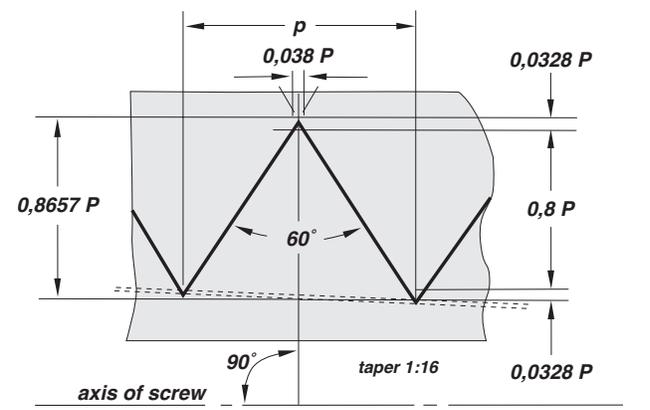
### API CASING AND TUBING ROUND THREAD FORM



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

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

### AMERICAN NATIONAL PIPE THREAD (NPT)



Use: fittings and pipe couplings

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

### CASING AND TUBING ROUND THREAD (Height Dimensions)

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

### NPT PIPE SIZE CROSSOVER

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



# API Rotary Shoulder Connections

thread form	Tool-Flo insert		tool joint application	minimum box size
	cresting	non-cresting		
V-.038R 2" tpf 4 tpi	22ER/NR 428 27ER/NR 428 FLDC-4-428 E/I L53 428 L43 428 LDS 54 428 TNMA/C 55 428 V85 428	FLD-3038R/L TNMA/C 54 NV .038R	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	22ER/NR 438 27ER/NR 438 FLDC-4-438 E/I L53 438 L43 438 LDS 54 438 TNMA/C 55 438 V85 438	FLD-3038R/L TNMA/C 54 NV .038R	NC56 NC61 NC70 NC77	NC56
V-.050 2" tpf 4 tpi	27ER/NR 425 FLDC-4-425 E/I LDS 54 425	FLD-4050R/L TNMA/C 54 NV .025R	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	22ER/NR 435 FLDC-4-435 E/I LDS 54 435	FLD-4050R/L TNMA/C 54 NV .025R	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	22ER/NR 530 FLDC-3-530 E/I FLDC-4-530 E/I LDS 54 530	FLD-3040R/L FLD-4040R/L TNMA/C 54 NV .020R	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



# Zenith

## TOOL-FLO's New Premium Coatings

Grade Name	ANSI range	ISO range	Coating	Description
<b>C2</b>	C1-C2	K05-K15	Uncoated	Uncoated general purpose C2 grade. Good for all non-ferrous materials.
<b>C22</b>	C1	K30	Uncoated	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.
<b>C25</b>	C1-C2	K05-K10 M05-M10	Uncoated	Uncoated general purpose C2 grade. Good for all non-ferrous materials.
<b>C26S</b>	C1	K30-K40	Uncoated	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.
<b>C3</b>	C3	K15-K25 M05-M20	Uncoated	Uncoated micro-grain C3 grade. Versatile grade that combines high hardness with toughness. Good for all non-ferrous, stainless steel, and nickel-based alloys at low to medium SFM.
<b>GFI</b>	C1-C5A	K30/P30	Uncoated	Uncoated extremely tough grade that performs well at very slow SFPM with minimal breakage or chipping.
<b>C5</b>	C5	P10-P35 M15-M30	Uncoated	Uncoated general purpose C5 grade. Good for all carbon/alloy steels at low to medium SFM.
<b>C6</b>	C6	P15-P20 M10-M20	Uncoated	Uncoated general purpose C5/C6 harder grade. Good for all carbon/alloy steels at low to medium SFM.
<b>GP2</b>	C1-C2	K05-K15	PVD TiN coated	PVD TiN coated grade. Works well in stainless steel, high-temperature alloys, and standard steels at low to medium SFM.
<b>GP22</b>	C1	K30	PVD TiN coated	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.
<b>GP25</b>	C1-C2	K05-K10 M05-M10	PVD TiN coated	PVD TiN coated general purpose C2 grade. Good for all non-ferrous materials at low to medium SFM.
<b>GP26</b>	C1	K30-K40	PVD TiN coated	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.
<b>GP3</b>	C3	K15-K25 M05-M20	PVD TiN coated	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.
<b>GP4</b>	C1-C5A	K30/P30	PVD TiN coated	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.
<b>GP44</b>	C5A	P35-P50	PVD TiN coated	PVD TiN coated extremely tough sub-micron grade that performs well at very slow SFPM with minimal breakage or chipping.
<b>GP5</b>	C5	P10-P35 M15-M30	PVD TiN coated	PVD TiN grade with a medium tough substrate. Good general purpose grade for steel applications. Primary grade in LPGC and TPGC style inserts.
<b>GP50</b>	C5	P10-P35 M15-M30	PVD TiN coated	PVD TiN grade with a medium tough substrate and excellent wear properties. Great general purpose grade for steel applications.
<b>GP54</b>	C5A	P35-P50	PVD TiN coated	PVD TiN grade with a tough substrate.
<b>GP6</b>	C6	P15-P20 M10-M20	PVD TiN coated	PVD TiN coated general purpose grade. Good for all carbon/alloy steels at medium SFM.
<b>AC2</b>	C1-C2	K05-K15	PVD AlTiN coated	PVD AlTiN coated 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.
<b>AC22</b>	C1	K30	PVD AlTiN coated	PVD TiAlN grade with a tough, micro-grain substrate. <b>First choice in Laydown Threading</b> in all materials. Dry machining capable.
<b>AC25</b>	C1-C2	K05-K10 M05-M10	PVD AlTiN coated	PVD AlTiN coated general purpose C2 grade. Good for all non-ferrous materials at medium to high SFM.
<b>AC26</b>	C1	K30-K40	PVD AlTiN coated	PVD TiAlN grade with a tough, fine grain, unalloyed substrate with excellent wear properties. <b>First choice in Rigid-Lock</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.
<b>AC3</b>	C3	K15-K25 M05-M20	PVD AlTiN coated	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.
<b>AC5</b>	C5	P10-P35 M15-M30	PVD AlTiN coated	PVD AlTiN coated general purpose grade. Good for all carbon/alloy steels at medium to high SFM.
<b>AC50</b>	C5	P10-P35 M15-M30	PVD AlTiN coated	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.
<b>AC54</b>	C5A	P35-P50	PVD AlTiN coated	PVD AlTiN coated grade. Good for all carbon/alloy steels at medium SFM.
<b>AC6</b>	C6	P15-P20 M10-M20	PVD AlTiN coated	PVD AlTiN coated grade. Good for all carbon/alloy steels at medium SFM.



## Grade Description (cont.)

Grade Name	ANSI range	ISO range	Coating	Description
<b>ZA22</b>	C1	K30	PVD AlTiN coated	PVD TiAlN grade with a tough, micro-grain substrate. Dry machining capable.
<b>ZA26</b>	C1	K30-K40	PVD AlTiN coated	PVD TiAlN grade with a tough, fine grain, unalloyed substrate with excellent wear properties. <b>First choice in Rigid-Lock</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.
<b>ZA3</b>	C3	K15-K25 M05-M20	PVD AlTiN coated	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.
<b>ZA50</b>	C5	P10-P35 M15-M30	PVD AlTiN coated	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.
<b>ZS22</b>	C1	K30	PVD AlTiN coated	PVD AlTiN grade with a tough, micro-grain substrate. Good in <b>Laydown Threading</b> in all materials. Dry machining capable.
<b>ZS26</b>	C1	K30-K40	PVD AlTiN coated	PVD AlTiN grade with extra lubricity, a tough, fine grain, unalloyed substrate with excellent wear properties. <b>First choice in Rigid-Lock</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.
<b>ZS3</b>	C3	K15-K25 M05-M20	PVD AlTiN coated	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.
<b>ZS50</b>	C5	P10-P35 M15-M30	PVD AlTiN coated	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.
<b>ZL22</b>	C1	K30	PVD AlTiN coated	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.
<b>ZL26</b>	C1	K30-K40	PVD AlTiN coated	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.
<b>ZL3</b>	C3	K15-K25 M05-M20	PVD AlTiN coated	PVD grade with a wear resistant micro-grain substrate. Excellent choice in high-temperature alloys, aerospace materials, and non-ferrous materials.
<b>ZR22</b>	C1	K30	PVD AlTiN coated	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.
<b>ZR26</b>	C1	K30-K40	PVD AlTiN coated	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.
<b>ZR3</b>	C3	K15-K25 M05-M20	PVD AlTiN coated	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.
<b>ZR50</b>	C5	P10-P35 M15-M30	PVD AlTiN coated	PVD AlTiN grade with a medium tough substrate and excellent wear properties. Great general purpose grade for steel applications.
<b>ZU22</b>	C1	K30	PVD AlTiN coated	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.
<b>ZU26</b>	C1	K30-K40	PVD AlTiN coated	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.
<b>ZU3</b>	C3	K15-K25 M05-M20	PVD AlTiN coated	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.
<b>ZU50</b>	C5	P10-P35 M15-M30	PVD AlTiN coated	PVD AlTiN grade with a medium tough substrate and excellent wear properties. Great general purpose grade for steel applications.
<b>GPM6</b>	C6/C7	P1-P10 K1-K10	PVD TiN coated Cermet	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.
<b>G50</b>	C5	P10-P35 M15-M30	CVD coated	CVD TiN/TiC/TiN grade. API chaser grade for Q-Series material.
<b>CB200</b>	C8	K01	PCBN	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.
<b>CB400</b>	C8		PCBN	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.
<b>CB410</b>	C8		PCBN	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.
<b>PC33</b>			PCD	PCD tip brazed onto a carbide insert. <b>First choice</b> for high silicon aluminum applications at high SFM. Use on all types of highly abrasive materials including non-ferrous metals and non-metallics. High SFM only!
<b>DX200</b>	C1-C2	K05-K15	PCD CVD coated	PCD CVD coated grade. Rigid-Lock insert grade. <b>First choice</b> at high SFM in non-metallic materials such as graphite, epoxy based resins, plastics and aluminum.



## Grade Crossover Chart

	Carboly®	Iscar®	Kennametal®	Sandvik®	Teledyne	Valenite®	Vardex®
<b>GFI</b>			K1				
<b>GP4</b>						V1N	
<b>AC4</b>							
<b>C22</b>							
<b>GP22</b>	CP50	IC908	KC722	GC1020		VC927	
<b>AC22</b>	CP500						
<b>GP222</b>							
<b>AC222</b>							
<b>C25</b>	HX	IC20	K68		HTA		VK2
<b>GP25</b>					TP21		
<b>AC25</b>							
<b>C26S</b>							
<b>GP26</b>							
<b>AC26</b>							
<b>C2</b>	883	IC20					
<b>GP2</b>							
<b>AC2</b>							
<b>C3</b>			K313	H13A			
<b>GP3</b>			KC730				VKX
<b>AC3</b>			KC5010				VTX
<b>GP50</b>	CP30	IC250	KC810/KC850	225G		VN8	
<b>AC50</b>	CP300		KC5025	225G			VSX
<b>AG50</b>	560		KC950				
<b>G50</b>							
<b>C5H</b>	P30		K420	S4			
<b>GP5</b>			KC710/KC810	GC135		VN5	
<b>AC5</b>							
<b>C6H</b>	S10M	IC50M		SM			V30
<b>GP6</b>	550	IC656				VN8	
<b>AC6</b>							VSX
<b>M6</b>		IC20N	KT175		SD5	VC671	VX5
<b>GPM6</b>			KT315				
<b>M3</b>							
<b>CB200</b>			KD120			VC722	
<b>CB400</b>			KD050	CB20		VC734	
<b>DX200</b>							
<b>PC33</b>			KD100			VC727	

# 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.



Please visit our website to see our complete line of products:

**[toolflo.com](http://toolflo.com)**



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Please contact us or your nearest Tool-Flo distributor:

