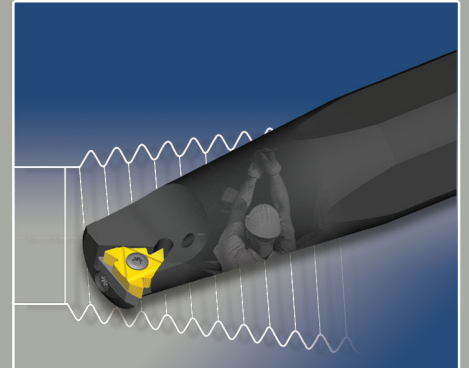
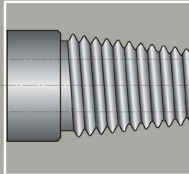




API

Threading Solutions

By **VARDEX**





VARDEX
Oilfield Threading Solutions



API

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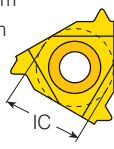
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Threading Inserts

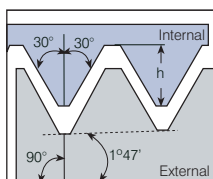
3		E	R	12	UN				VTX	
1	2	3	4	5	6	7	8	9	10	11

1 - Insert size 5L - IC5.0L mm 6.0-IC6.0 mm 2 - IC1/4" 3 - IC 3/8" 4 - IC 1/2" 5 - IC5/8" 	2 - Insert style U  V  L  J  SCB	3 - Type of Insert E - External I - Internal EI - External+Internal	4 - RH/LH Insert R - Right Hand Insert L - Left Hand Insert None - Right+Left Hand Insert																											
5 - Pitch <table><tr><th colspan="2">Full Profile - Pitch Range</th></tr><tr><th>mm</th><th>tpi</th></tr><tr><td>0.35-12.0</td><td>72-2</td></tr></table> <table><tr><th colspan="2">Partial Profile - Pitch Range</th></tr><tr><th>mm</th><th>tpi</th></tr><tr><td>A 0.5 - 1.5</td><td>48 - 16</td></tr><tr><td>AG 0.5 - 3.0</td><td>48 - 8</td></tr><tr><td>G 1.75 - 3.0</td><td>14 - 8</td></tr><tr><td>N 3.5 - 5.0</td><td>7 - 5</td></tr><tr><td>U 5.5 - 8.0</td><td>4 1/2 - 3 1/2</td></tr><tr><td>Q 5.5 - 6.0</td><td>4 1/2 - 4</td></tr><tr><td>U 6.5 - 9.0</td><td>4 - 2 3/4</td></tr><tr><td>V 6.0 - 10.0</td><td>4 - 2 1/2</td></tr></table>	Full Profile - Pitch Range		mm	tpi	0.35-12.0	72-2	Partial Profile - Pitch Range		mm	tpi	A 0.5 - 1.5	48 - 16	AG 0.5 - 3.0	48 - 8	G 1.75 - 3.0	14 - 8	N 3.5 - 5.0	7 - 5	U 5.5 - 8.0	4 1/2 - 3 1/2	Q 5.5 - 6.0	4 1/2 - 4	U 6.5 - 9.0	4 - 2 3/4	V 6.0 - 10.0	4 - 2 1/2	6 - Standard 60° - Partial profile 60° 55° - Partial profile 55° ISO - ISO Metric UN - American UN W - Whitworth for BSW, BSP BSPT - British Standard Pipe Thread NPT - NPT NPTF - NPTF NPS - NPS RD - Round DIN 405 RD20400 - Round DIN 20400 TR - Trapez DIN 103 ACME - ACME STACME - Stub ACME UNJ - UNJ MJ - ISO 5855 ABUT - American Buttress BBUT - British Buttress SAGE - Metric Buttress DIN 513 API - API BUT - API Buttress Casing APIRD - API Round Casing & Tubing VAM - VAM EL - Extreme Line Casing H90 - H90 PG - Pg DIN 40430	7 - API P 382 383 403 502 503	8 - No. c (for Multi 2, 3, 5, 6, 8	9 - Multi M  Z 
Full Profile - Pitch Range																														
mm	tpi																													
0.35-12.0	72-2																													
Partial Profile - Pitch Range																														
mm	tpi																													
A 0.5 - 1.5	48 - 16																													
AG 0.5 - 3.0	48 - 8																													
G 1.75 - 3.0	14 - 8																													
N 3.5 - 5.0	7 - 5																													
U 5.5 - 8.0	4 1/2 - 3 1/2																													
Q 5.5 - 6.0	4 1/2 - 4																													
U 6.5 - 9.0	4 - 2 3/4																													
V 6.0 - 10.0	4 - 2 1/2																													
10 - Carbide Grade VTX, VCB, VM7, VKX, VSX, VK2, VK2P, VHX, VKP	11-Coarse Pitch Inserts 158/...																													

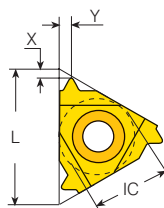


NPT

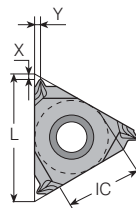
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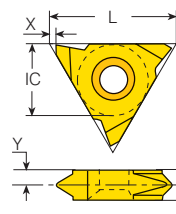
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



Standard

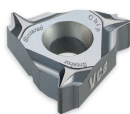


SCB
Sintered Chipbreaker



Slim Throat

Standard



SCB

Insert Size		Pitch	Ordering Code		Dimensions Inch			Anvil		Toolholder
IC	L Inch	tpi	RH	LH	h min	X	Y	RH	LH	
1/4"	.43	27	2ER27NPT...	2EL27NPT...	.026	.03	.03	-	-	NL...-2 (LH)
		18	2ER18NPT...	2EL18NPT...	.040	.03	.04			
		14	2ER14NPT...	2EL14NPT...	.052	.03	.04			
3/8"	.63	27	3ER27NPT...	3EL27NPT...	.026	.03	.03	YE3	YI3	AL...-3 (LH)
		18	3ER18NPT...	3EL18NPT...	.040	.03	.004			
		14	3ER14NPT...	3EL14NPT...	.052	.04	.005			
		11.5	3ER11.5NPT...	3EL11.5NPT...	.065	.04	.06			
3/8" SCB	.63	8	3ER8NPT...	3EL8NPT...	.095	.05	.07	YE3	-	AL...-3
		27	3JER27NPT...	3EL27NPT...	.026	.02	.03			
		18	3JER18NPT...	3EL18NPT...	.040	.02	.03			
		14	3JER14NPT...	3EL14NPT...	.052	.04	.06			
		11.5	3JER11.5NPT...	3EL11.5NPT...	.065	.04	.06			
		8	3JER8NPT...	3EL8NPT...	.095	.04	.06			

Slim Throat

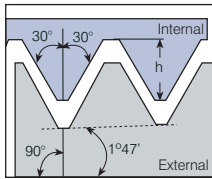


Insert Size		Pitch	Ordering Code		Dimensions Inch				Toolholder
IC	L Inch	tpi	RH	LH	h min	X	Y	T	
1/4"V	.43	27	2VER27NPT...	2VEL27NPT...	.026	.03	.08	.13	NL...-2V (LH)
		18	2VER18NPT...	2VEL18NPT...	.040	.03	.07	.13	
		14	2VER14NPT...	2VEL14NPT...	.052	.03	.07	.13	
		11.5	2VER11.5NPT...	2VEL11.5NPT...	.065	.03	.08	.13	
3/8"V	.63	27	3VER27NPT...	3VEL27NPT...	.026	.04	.11	.14	NL...-3V (LH)
		18	3VER18NPT...	3VEL18NPT...	.040	.04	.10	.14	
		11.5	3VER11.5NPT...	3VEL11.5 NPT...	.065	.04	.08	.14	

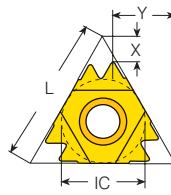


NPT (con't)

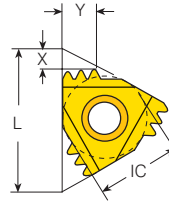
External



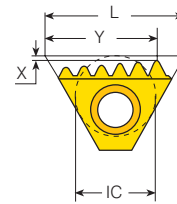
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



Z Style



M Style



T Style

Z Style



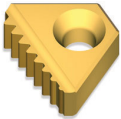
Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil	
IC	L Inch	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	.87	11.5	2	4ER11.5NPT2Z...	.065	.09	.39	YE4Z	AVR...-4Z
		8	2	4ER8NPT2Z...	.095	.13	.38		

M Style



Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil	
IC	L Inch	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	.87	11.5	2	4ER11.5NPT2M...	.065	.13	.09	YE4M	AL...-4
		11.5	3	5ER11.5NPT3M...	.065	.14	.22		
5/8"	1.06	8	2	5ER8NPT2M...	.095	.11	.19	YE5M	AL...-5M

T Style

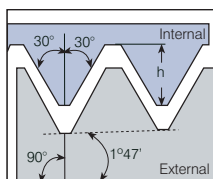


Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil	
IC	L Inch	tpi		RH	h min	X	Y	RH	Toolholder
1/2"T	.87	11.5	6	4ER11.5NPT6T...	.065	.004	.53	Y4T	AL...-4T
		8	5	4ER8NPT5T...	.065	.004	.62		

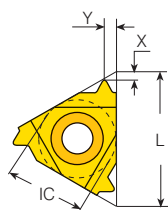


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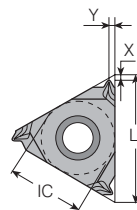
Internal



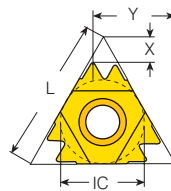
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



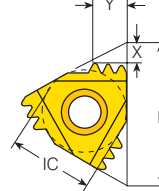
Standard



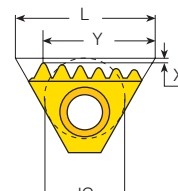
SCB
Sintered Chipbreaker



Z Style

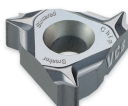


M Style



T Style

Standard



SCB

Insert Size		Pitch	Ordering Code		Dimensions Inch			Anvil		Toolholder
IC	L Inch	tpi	RH	LH	h _{min}	X	Y	RH	LH	
1/4"	.43	27	2IR27NPT...	2IL27NPT...	.026	.03	.03	-	-	NVR...-2 (LH)
		18	2IR18NPT...	2IL18NPT...	.040	.03	.04			
		14	2IR14NPT...	2IL14NPT...	.052	.03	.04			
1/4" SCB	.43	27	2JIR27NPT...		.026	.02	.03	-	-	NVR...-2
		18	2JIR18NPT...		.040	.02	.03			
3/8"	.63	27	3IR27NPT...	3IL27NPT...	.026	.03	.03	Y13	YE3	AVR...-3 (LH)
		18	3IR18NPT...	3IL18NPT...	.040	.03	.04			
		14	3IR14NPT...	3IL14NPT...	.052	.04	.05			
		11.5	3IR11.5NPT...	3IL11.5NPT...	.065	.04	.06			
		8	3IR8NPT...	3IL8NPT...	.095	.05	.06			
3/8" SCB	.63	27	3JIR27NPT...		.026	.02	.03	Y13	-	AVR...-3
		18	3JIR18NPT...		.040	.02	.03			
		14	3JIR14NPT...		.052	.04	.06			
		11.5	3JIR11.5NPT...		.065	.04	.06			
		8	3JIR8NPT...		.095	.04	.06			

Z Style



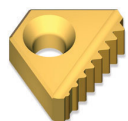
Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil		Toolholder
IC	L Inch	tpi		RH	h _{min}	X	Y	RH		
1/2"	.87	11.5	2	4IR11.5NPT2Z...	.065	.09	.39	Y14Z		AVR...-4Z
		8	2	4IR8NPT2Z...	.095	.13	.38			

M Style



Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil		Toolholder
IC	L Inch	tpi		RH	h _{min}	X	Y	RH		
1/2"	.87	11.5	2	4IR11.5NPT2M...	.065	.13	.09	Y14M		AVR...-4
		8	2	4IR8NPT2M...	.095	.11	.19			
5/8"	1.06	11.5	3	5IR11.5NPT3M...	.065	.14	.22	Y15M		AVR...-5M
		8	2	5IR8NPT2M...	.095	.11	.19			

T Style

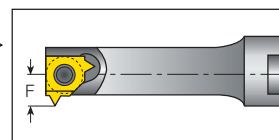
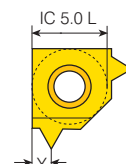
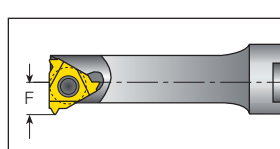
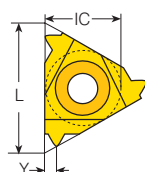
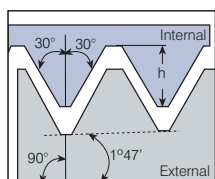


Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil		Toolholder
IC	L Inch	tpi		RH	h _{min}	X	Y	RH		
1/2"T	.87	11.5	6	4IR11.5NPT6T...	.065	.004	.53	Y4T		AVR...-4T
		8	5	4IR8NPT5T...	.065	.004	.62			



NPT (con't)

Internal



Defined by: USAS B2.1:1968
Tolerance class: Standard NPT

Mini-3

Mini-L

Mini-3



Insert Size		Pitch	Ordering Code		Dimensions Inch			Min. Bore dia.	
IC mm	L Inch	tpi	RH	h min	Y	F	Inch	Toolholder	
4.0	.24	27	4.0KIR27NPT...	.026	.02	.15	0.25	.NVR.020-4.0K	
		27	6.0IR27NPT...	.026	.03	.21			
6.0	.39	18	6.0IR18NPT...	.040	.04	.21	0.39	.NVR....-6.0	
		14	6.0IR14NPT...	.052	.04	.21			

Mini-L

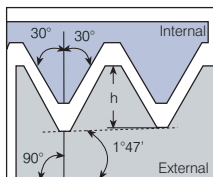


Insert Size		Pitch	Ordering Code		Dimensions Inch			Min. Bore dia.	
IC mm		tpi	RH	h min	Y	F	Inch	Toolholder	
5.0L		27	5LIR27NPT...	.026	.03	.18	0.31	.NVR....-5L	
		18	5LIR18NPT...	.040	.04	.18			
		14	5LIR14NPT...	.052	.04	.18			

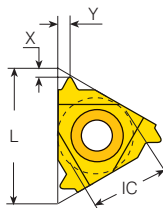


NPTF

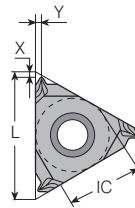
External



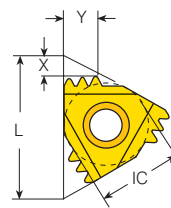
Defined by: ANSI B1.20.3-1976
Tolerance class: Class 2



Standard

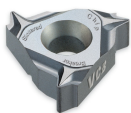


SCB
Sintered Chipbreaker



M Style

Standard



SCB

Insert Size		Pitch	Ordering Code		Dimensions Inch			Anvil		Toolholder
IC	L Inch	tpi	RH	LH	h min	X	Y	RH	LH	
1/4"	.43	27	2ER27NPTF...	2EL27NPTF...	.025	.03	.03	-	-	NL...-2 (LH)
		18	2ER18NPTF...	2EL18NPTF...	.039	.03	.04			
		14	2ER14NPTF...	2EL14NPTF...	.053	.03	.04			
3/8"	.63	27	3ER27NPTF...	3EL27NPTF...	.025	.03	.03	YE3	YI3	AL...-3 (LH)
		18	3ER18NPTF...	3EL18NPTF...	.039	.03	.04			
		14	3ER14NPTF...	3EL14NPTF...	.053	.04	.05			
		11.5	3ER11.5NPTF...	3EL11.5NPTF...	.064	.04	.06			
3/8" SCB	.63	8	3ER8NPTF...	3EL8NPTF...	.094	.05	.07	YE3	-	AL...-3
		27	3JER27NPTF...		.025	.03	.03			
		18	3JER18NPTF...		.039	.02	.03			
		14	3JER14NPTF...		.053	.04	.06			
		11.5	3JER11.5NPTF...		.064	.04	.06			
		8	3JER8NPTF		.094	.04	.06			

M Style

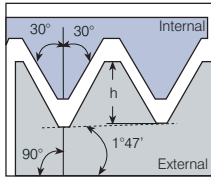


Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil	
IC	L Inch	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	.87	11.5	2	4ER11.5NPTF2M...	.065	.13	.09	YE4M	AL...-4

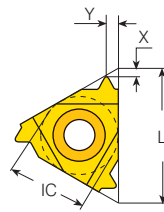


NPTF (con't)

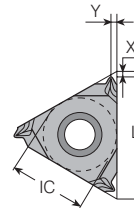
Internal



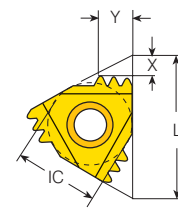
Defined by: ANSI B1.20.3-1976
Tolerance class: Class 2



Standard

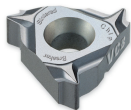


SCB
Sintered Chipbreaker



M Style

Standard



SCB

Insert Size		Pitch	Ordering Code		Dimensions Inch			Anvil		Toolholder
IC	L Inch	tpi	RH	LH	h _{min}	X	Y	RH	LH	
1/4"	.43	27	2IR27NPTF...	2IL27NPTF...	.025	.03	.03	-	-	NVR...-2 (LH)
		18	2IR18NPTF...	2IL18NPTF...	.039	.03	.04			
		14	2IR14NPTF...	2IL14NPTF...	.053	.03	.04			
1/4" SCB	.43	27	2JIR27NPTF...		.025	.03	.03	-	-	NVR...-2
		18	2JIR18NPTF...		.039	.02	.03			
3/8"	.63	27	3IR27NPTF...	3IL27NPTF...	.025	.03	.03	YI3	YE3	AVR...-3 (LH)
		18	3IR18NPTF...	3IL18NPTF...	.039	.03	.04			
		14	3IR14NPTF...	3IL14NPTF...	.053	.04	.05			
		11.5	3IR11.5NPTF...	3IL11.5NPTF...	.064	.04	.06			
		8	3IR8NPTF...	3IL8NPTF...	.094	.05	.07			
3/8" SCB	.63	27	3JIR27NPTF...		.025	.03	.03	YI3	-	AVR...-3
		18	3JIR18NPTF...		.039	.02	.03			
		14	3JIR14NPTF...		.053	.04	.06			
		11.5	3JIR11.5NPTF...		.064	.04	.06			
		8	3JIR8NPTF...		.094	.04	.06			

M Style

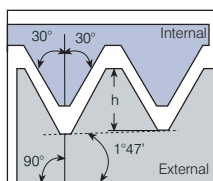


Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil	
IC	L Inch	tpi		RH	h _{min}	X	Y	RH	Toolholder
1/2"	.87	11.5	2	4IR11.5NPTF2M...	.064	.13	.09	YI4M	AVR...-4
5/8"	1.06	11.5	3	5IR11.5NPTF3M...	.064	.14	.22	YI5M	AVR...-5M

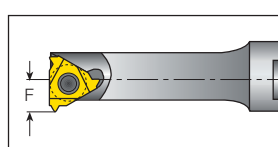
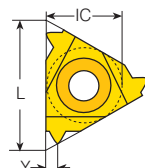


NPTF (con't)

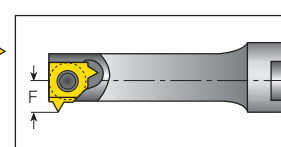
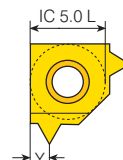
Internal



Defined by: ANSI B1.20.3-1976
Tolerance class: Class 2



Mini-3



Mini-L

Mini-3



Insert Size		Pitch	Ordering Code	Dimensions Inch			Min. Bore dia.	Toolholder
IC mm	L Inch	tpi	RH	h min	Y	F	Inch	
4.0	.24	27	4.0KIR27NPTF...	.025	.02	.14	.25	.NVR.020-4.0K
		27	6.0IR27NPTF...	.025	.03	.21		
6.0	.39	18	6.0IR18NPTF...	.039	.04	.21	.39	.NVR...-6.0
		14	6.0IR14NPTF...	.053	.04	.21		

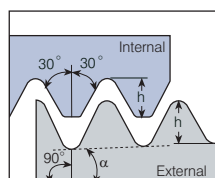
Mini-L



Insert Size		Pitch	Ordering Code	Dimensions Inch			Min. Bore dia.	Toolholder
IC mm		tpi	RH	h min	Y	F	Inch	
5.0L		27	5LIR27NPTF...	.025	.03	.18		.NVR...-5L
		18	5LIR18NPTF...	.039	.04	.18	.31	
		14	5LIR14NPTF...	.053	.04	.18		

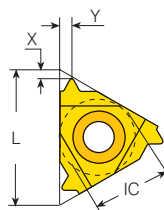


API

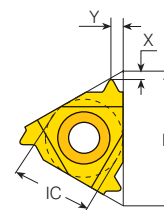


$$\alpha = \arctg (IPF/24)$$

Defined by: API SPEC. 7:1990
Tolerance class: Standard API



External - Standard



Internal - Standard

External

Standard



Insert Size	Pitch	Thread	Taper	Ordering Code	Size	Dimensions Inch			Anvil	
IC L Inch tpi			IPF	RH		h min	X	Y	RH	Toolholder
1/2"	.87	4 V-0.38R	2	4ER4API382...	NC23-NC50	.122	.08	.11	YE4	AL...-4 (LH)
		4 V-0.38R	3	4ER4API383...	NC56-NC77	.122	.08	.11		
		4 V-0.050	2	4ER4API502...	6 5/8" REG	.148	.08	.11		
		4 V-0.050	3	4ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	.148	.08	.11		
		5 V-0.040	3	4ER5API403...	2 3/8"-4 1/2" REG	.118	.07	.10		
		6 V-0.055	1.5	4ER6API551...	NC10-NC16	.056	.10	.09		
5/8"	.63	4 V-0.038R	2	5ER4API382...	NC23-NC50	.122	.08	.11	YE50IL	AL...-5 OIL (LH)
		4 V-0.038R	3	5ER4API383...	NC56-NC77	.122	.08	.11		
		4 V-0.050	2	5ER4API502...	6 5/8" REG	.148	.08	.12		
		4 V-0.050	3	5ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	.148	.08	.12		
		5 V-0.040	3	5ER5API403...	2 3/8"-4 1/2" REG	.056	.07	.11		

Internal

Standard

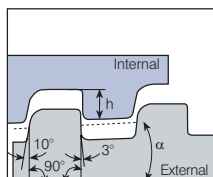


Insert Size	Pitch	Thread	Taper	Ordering Code	Size	Dimensions Inch			Anvil	
IC L Inch tpi			IPF	RH		h min	X	Y	RH	Toolholder
1/2"	.87	4 V-0.38R	2	4IR4API382...	NC23-NC50	.122	.08	.11	YI4	AVR...-4 (LH)
		4 V-0.38R	3	4IR4API383...	NC56-NC77	.122	.08	.11		
		4 V-0.050	2	4IR4API502...	6 5/8" REG	.148	.08	.12		
		4 V-0.050	3	4IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	.148	.08	.11		
		5 V-0.040	3	4IR5API403...	2 3/8"-4 1/2" REG	.118	.07	.10		
		6 V-0.055	1.5	4IR6API551...	NC10-NC16	.056	.10	.09		
5/8"	.63	4 V-0.038R	2	5IR4API382...	NC23-NC50	.122	.08	.11	YI50IL	AVR...-5 OIL (LH)
		4 V-0.038R	3	5IR4API383...	NC56-NC77	.122	.08	.11		
		4 V-0.050	2	5IR4API502...	6 5/8" REG	.148	.08	.12		
		4 V-0.050	3	5IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	.148	.08	.12		
		5 V-0.040	3	5IR5API403...	2 3/8"-4 1/2" REG	.056	.07	.11		



API Buttress Casing

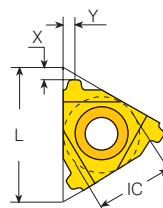
External



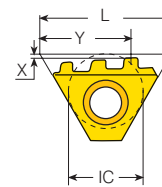
$$\alpha = \arctg (IPF/24)$$

Defined by: STD.5B.1979

Tolerance class: Standard API



Standard



T Style

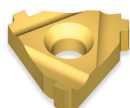


EL



ER

Standard



Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF	RH		h min	X	Y	RH	Toolholder
1/2"	.87	5	0.75	4ER5BUT75...	4 1/2"-13 3/8"	.061	.12	.07	YE4	AL...-4
		5	1	4ER5BUT1...	16"-20"	.061	.12	.07		

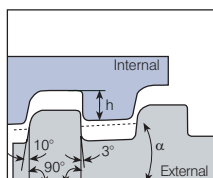
T Style



Insert Size		Pitch	Taper	Teeth	Ordering Code	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF		RH	h min	X	Y	RH	Toolholder
1/2"T	.87	5	0.75	3	4ER5BUT753T...	.061	.004	.63	Y4T	AL...-4T

API Buttress Casing

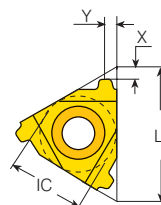
Internal



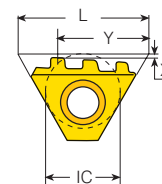
$$\alpha = \arctg (IPF/24)$$

Defined by: STD.5B.1979

Tolerance class: Standard API



Standard



T Style



IR

Standard



Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF	RH		h min	X	Y	RH	Toolholder
1/2"	.87	5	0.75	4IR5BUT75...	4 1/2"-13 3/8"	.061	.12	.07	YI4	AVR...-4
		5	1	4IR5BUT1...	16"-20"	.061	.12	.07		

T Style

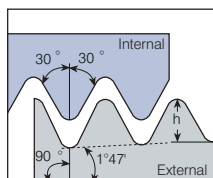


Insert Size		Pitch	Taper	Teeth	Ordering Code	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF		RH	h min	X	Y	RH	Toolholder
1/2"T	.87	5	0.75	3	4IR5BUT753T...	.061	.004	.63	Y4T	AVR...-4T

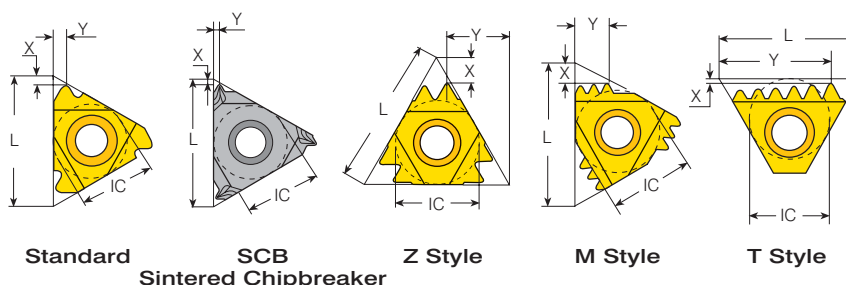


API Round Casing & Tubing

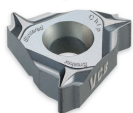
External



Defined by: API STD. 5B:1979
Tolerance class: Standard API RD



Standard



SCB

Insert Size		Pitch	Ordering Code		Dimensions Inch		Anvil	
IC	L Inch	tpi	RH	h min	X	Y	RH	Toolholder
3/8"	.63	10	3ER10APIRD...	.056	.05	.06	YE3	AL...-3
		8	3ER8APIRD...	.071	.05	.06		
3/8"	.63	10	3JER10APIRD...	.056	.05	.06	YE3	AL...-3
		8	3JER8APIRD...	.071	.05	.06		

Z Style



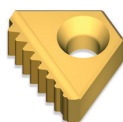
Insert Size		Pitch	Teeth	Ordering Code		Dimensions Inch		Anvil	
IC	L Inch	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	.87	10	2	4ER10APIRD2Z...	.056	.12	.39	YE4Z	AL...-4Z
		8	2	4ER8APIRD2Z...	.071	.15	.38		

M Style



Insert Size		Pitch	Teeth	Ordering Code		Dimensions Inch		Anvil	
IC	L Inch	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	.87	10	2	4ER10APIRD2M...	.056	.09	.15	YE4M	AL...-4
5/8"	1.06	10	3	5ER10APIRD3M...	.056	.15	.24		
		8	2	5ER8APIRD2M...	.071	.11	.18	YE5M	AL...-5M

T Style

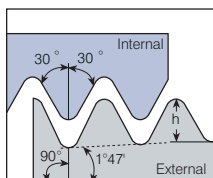


Insert Size		Pitch	Teeth	Ordering Code		Dimensions Inch		Anvil	
IC	L Inch	tpi		RH	h min	X	Y	RH	Toolholder
1/2"T	.87	10	6	4ER10APIRD6T...	.056	.004	.64	Y4T	AL...-4T
		8	3	4ER8APIRD3T...	.071	.004	.56		
		8	5	4ER8APIRD5T...	.071	.004	.66		

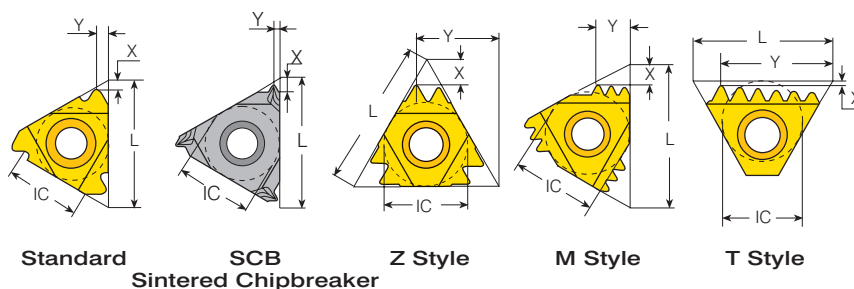


API Round Casing & Tubing (con't)

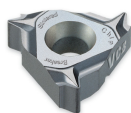
Internal



Defined by: API STD. 5B:1979
Tolerance class: Standard API RD



Standard



SCB

Insert Size		Pitch	Ordering Code		Dimensions Inch			Anvil	
IC	L Inch	tpi	RH	h _{min}	X	Y	RH	Toolholder	
3/8"	.63	10	3IR10APIRD...	.056	.05	.06	YI3	AVR...-3	
		8	3IR8APIRD...	.071	.05	.06			
3/8" SCB	.63	10	3JIR10APIRD...	.056	.05	.06	YI3	AVR...-3	
		8	3JIR8APIRD...	.071	.05	.06			

Z Style



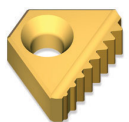
Insert Size		Pitch	Teeth	Ordering Code		Dimensions Inch			Anvil
IC	L Inch	tpi		RH	h _{min}	X	Y	RH	Toolholder
1/2"	.87	10	2	4IR10APIRD2Z...	.056	.12	.39	YI4Z	AVR...-4Z
		8	2	4IR8APIRD2Z...	.071	.15	.38		

M Style



Insert Size		Pitch	Teeth	Ordering Code		Dimensions Inch			Anvil
IC	L Inch	tpi		RH	h _{min}	X	Y	RH	Toolholder
1/2"	.87	10	2	4IR10APIRD2M...	.056	.09	.15	YI4M	AVR...-4
5/8"	1.06	10	3	5IR10APIRD3M...	.056	.15	.24	YI5M	AVR...-5M
		8	2	5IR8APIRD2M...	.071	.11	.18		

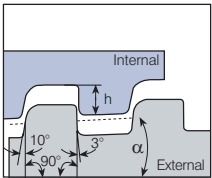
T Style



Insert Size		Pitch	Teeth	Ordering Code		Dimensions Inch			Anvil
IC	L Inch	tpi		RH	h _{min}	X	Y	RH	Toolholder
1/2"T	.87	10	6	4IR10APIRD6T...	.056	.004	.64	Y4T	AVR...-4T
		8	3	4IR8APIRD3T...	.071	.004	.56		
		8	5	4IR8APIRD5T...	.071	.004	.66		

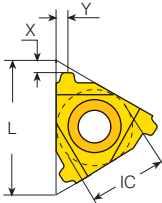


VAM

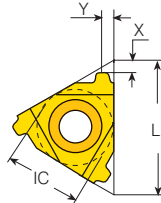


$\alpha = \arctg (IPF/24)$

Defined by: API STD. 5B:1979
Tolerance class: Standard API RD



External - Standard



Internal - Standard

External

Standard



Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF	RH		h min	X	Y	RH	Toolholder
3/8"	.63	8	0.75	3ER8VAM...	2 3/8" ,2 7/8"	.038	.07	.07	YE3	AL...-3
1/2"	.87	6	0.75	4ER6VAM...	3 1/2"	.038	.09	.09	YE4	AL...-4
		5	0.75	4ER5VAM...	5"-9 5/8"	.061	.09	.11		

Internal

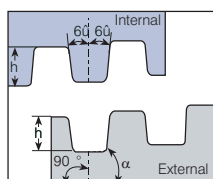
Standard



Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF	RH		h min	X	Y	RH	Toolholder
3/8"	.63	8	0.75	3IR8VAM...	2 3/8" ,2 7/8"	.038	.07	.07	YI3	AVR...-3
1/2"	.87	6	0.75	4IR6VAM...	3 1/2"	.038	.10	.10	YI4	AVR...-4
		5	0.75	4IR5VAM...	5"-9 5/8"	.061	.09	.10		

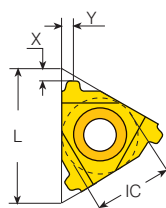


EL-Extreme Line

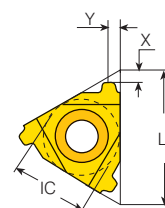


$$\alpha = \arctg (IPF/24)$$

Defined by: API STD,5B:1979
Tolerance class: Standard



External - Standard



Internal - Standard

External

Standard



Insert Size		Pitch	Taper	Ordering Code	Connection No. or Size	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF	RH		h_{min}	X	Y	RH	Toolholder
1/2"	.087	6	1.5	4ER6EL15...	5"-7 5/8"	.048	.07	.07	YE4	AL...-4 (LH)
		5	1.25	4ER5EL125...	8 5/8"-10 3/4"	.067	.09	.09		

Internal

Standard

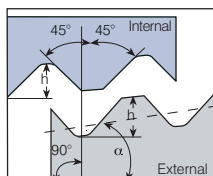


Insert Size		Pitch	Taper	Ordering Code	Connection No. or Size	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF	RH		h_{min}	X	Y	RH	Toolholder
1/2"	.087	6	1.5	4IR6EL15...	5"-7 5/8"	.055	.07	.07	YI4	AVR...-4 (LH)
		5	1.25	4IR5EL125...	8 5/8"-10 3/4"	.075	.09	.09		

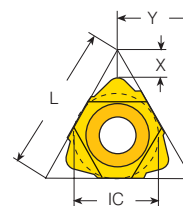


Hughes H-90

Internal



$$\alpha = \arctg (IPF/24)$$



U Style

External

U Style



Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF	RH		h min	X	Y	RH	Toolholder
1/2" U	.087	3.5	2	4UER3.5H902...	3 1/2"-6 5/8"	.098	.17	.43	YE4U-H90	AL...-4U (LH)
		3.5	3	4UER3.5H903...	7"-8 5/8"	.098	.17	.43	YE5U-H90	AL...-5U (LH)
5/8" U	1.06	3	1.25*	5UER3H90SL...	2 3/8"-3 1/2"	.088	.22	.54		

* H-90 Slimline

Internal

U Style



Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF	RH		h min	X	Y	RH	Toolholder
1/2" U	.087	3.5	2	4UIR3.5H902...	3 1/2"-6 5/8"	.098	.17	.43	YI4U-H90	AVR...-4U (LH)
		3.5	3	4UIR3.5H903...	7"-8 5/8"	.098	.17	.43	YI5U-H90	AVR...-5U (LH)
5/8" U	1.06	3	1.25*	5UIR3H90SL...	2 3/8"-3 1/2"	.088	.22	.54		

* H-90 Slimline



Vardex Ordering Code System

External Toolholders

A	L	125	-	4	U	C			
1	2	3		4	5	6	7	8	9

1 - Anvil

A - Anvil required
N - No Anvil required
O - Miniature holder

2 - Holder Type

L - External
V - Miniature Square Shank
VR - Miniature Round Shank

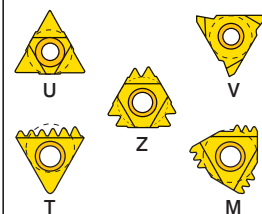
3 - Shank Square

031 - 5/16"
3/8 - 3/8"
050 - 1/2"
0625 - 5/8"
075 - 3/4"
100 - 1"
125 - 1 1/4"
150 - 1 1/2"
200 - 2"

4 - Insert Size

2 - IC1/4"
3 - IC3/8"
4 - IC1/2"
5 - IC5/8"

5 - Insert Style



6 - Clamping

C - with Clamping

7 - Insert Width[mm]

(for IC5/8"V)
6, 8, 10

8 - Holder Type

CQ - Drop Head
FQ - Off-Set
Oil - For API Inserts

9 - RH / LH Holder

None - Right Hand
LH - Left Hand

Internal Toolholders

C	A	VR	C	075		-	3					
1	2	3	4	5	6		7	8	9	10	11	12

1 - Shank Type

B - Anti Vibration System
C - Carbide Shank
S - Mini Holders

2 - Anvil

A - Anvil required
N - No Anvil required
O - Miniature holder

3 - Tool Type

VR - Internal Round Shank

4 - Cooling

C - with Coolant Channel

5 - Shank Front Dia

0375 - 3/8" **125** - 1 1/4"
050 - 1/2" **150** - 1 1/2"
0625 - 5/8" **200** - 2"
075 - 3/4" **250** - 2 1/2"
100 - 1"
 6.2 (Mini Adjust)
 8.0 (Mini Adjust)

6 - Holder Length

(Mini Holders)
U - Ultra Short
S - Short
M - Medium
L - Long
T - Adjustable
K - Mini IC 4.0mm

7 - Insert Size

4.0K - IC4.0mm
5L - IC5.0Lmm
6.0 - IC6.0mm
2 - IC1/4"
3 - IC3/8"
4 - IC1/2"
5 - IC5/8"

8 - Insert Style

U
V
T
M
Z
L

9 - Clamping

C - with Clamp

10 - Oil Field

OIL - For API Inserts

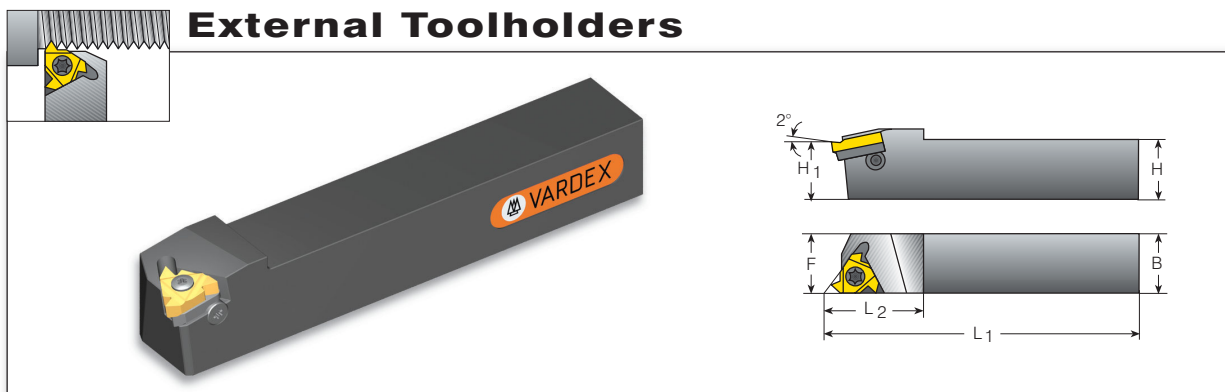
11 - RH / LH Holder

None - Right Hand
LH - Left Hand

12 - Coarse Pitch Holder

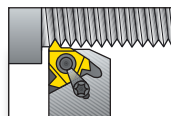
157/...



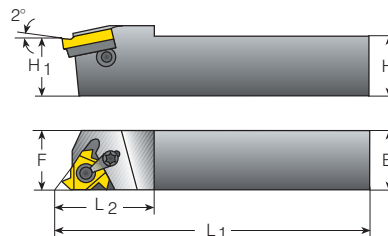

Standard
Spare Parts

Insert Size		Ordering Code		Dimensions Inch						
IC		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/4"	NL031-2	.31	.43	5.37	.69	SN2T	-	K2T	-	-
	NL050-3	.50	.63	3.27	.87	SA3T	-	K3T	-	-
	AL3/8-3	.37	.63	2.45	.76					
3/8"	AL050-3	.50	.63	3.27	.87					
	AL0625-3	.63	.63	5.00	1.02	SA3T	SY3T	K3T	YE3	YI3
	AL075-3	.75	.75	5.00	1.02					
	AL100-3	1.00	1.00	6.00	1.20					
	AL125-3	1.25	1.25	7.00	1.18					
1/2"	AL100-4	1.00	1.00	6.00	1.42					
	AL125-4	1.25	1.25	7.00	1.42	SA4T	SY4T	K4T	YE4	YI4
	AL150-4	1.50	1.50	8.00	1.42					
5/8"	AL100-5	1.00	1.25	6.00	1.57					
	AL125-5	1.25	1.25	7.00	1.57					
	AL150-5	1.50	1.50	8.00	1.57	SA5T	SY5T	K5T	YE5	YI5
	AL200-5	2.00	2.00	10.00	1.57					

The above toolholders have a 1.5° helix angle. For other helix angles, see page 33.
Toolholders with prefix "N" cannot be used with an anvil.



External Toolholders

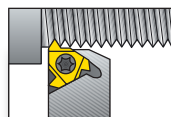


Standard with Clamp

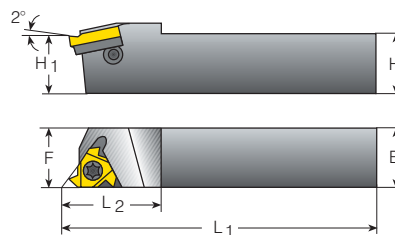
(Dual System, Screw or Clamp)

Insert Size		Ordering Code		Dimensions Inch			Spare Parts					
IC		H=H1=B	F	L1	L2		Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
3/8"	AL75-3C	.75	.75	5.00	1.20		SA3T	SY3T	C3	K3CT	YE3	YI3
	AL1000-3C	1.00	1.00	6.00	1.20							
	AL125-3C	1.25	1.25	7.00	1.20							
1/2"	AL100-4C	1.00	1.00	6.00	1.42		SA4T	SY4T	C4	K4T	YE4	YI4
	AL125-4C	1.25	1.25	7.00	1.42							
	AL150-4C	1.50	1.50	8.00	1.42							
5/8"	AL100-5C	1.00	1.25	6.00	1.57		SA5T	SY5T	C5	K5T	YE5	YI5
	AL125-5C	1.25	1.25	7.00	1.57							
	AL150-5C	1.50	1.50	8.00	1.57							
	AL200-5C	2.00	2.00	10.00	1.57							

The above toolholders have a 1.5° helix angle. For other helix angles, see page 33.



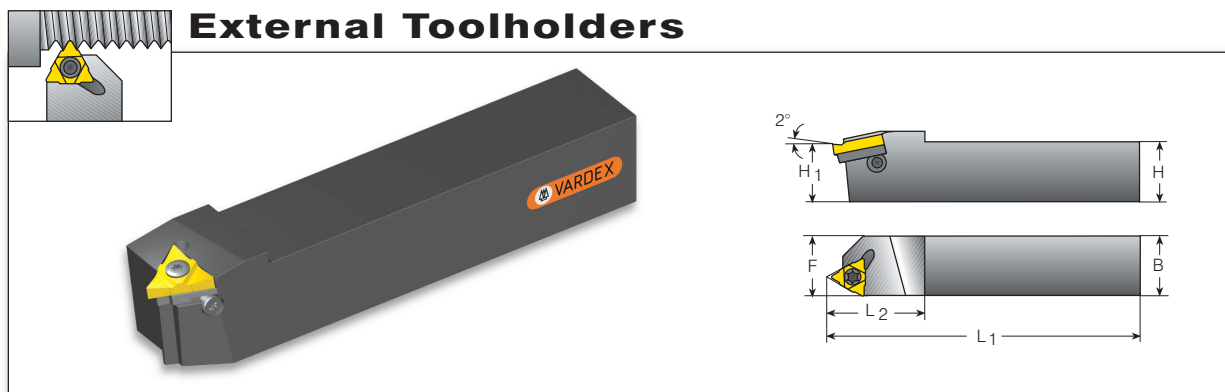
External Toolholders



Standard for API

Insert Size		Ordering Code		Thread Form	Connection no. or size	Dimensions Inch		Spare Parts				
IC						H=H1=B=F	L1 L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
5/8"	AL125-5OIL	V0.038R	V0.050	NC23-NC77 all sizes	1.25	7.00	1.60	SA5T	SY5T	K5T	YE5OIL	YI5OIL
	AL150-5OIL	V0.038R	V0.050	NC23-NC77 all sizes	1.50	8.00	1.60					

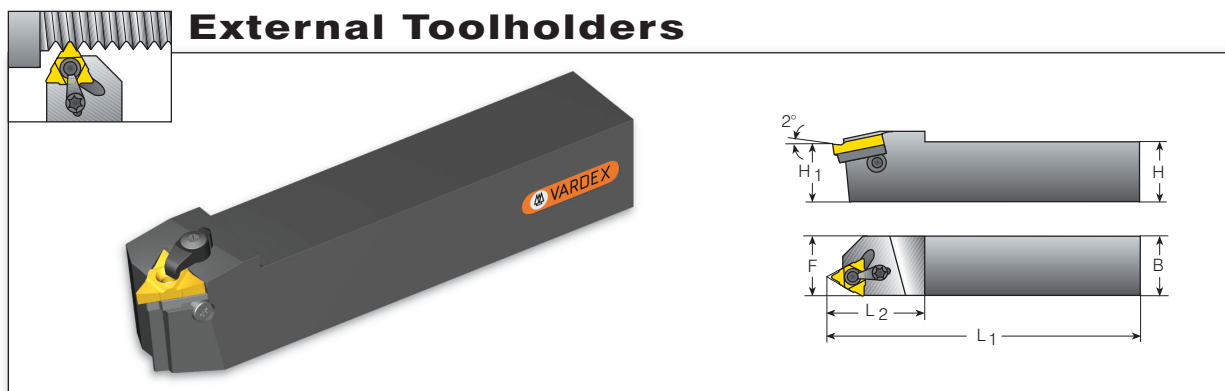
The above toolholders have a 1.5° helix angle. For other helix angles, see page 33.



U Style

Insert Size		Ordering Code		Dimensions Inch		Spare Parts				
IC		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"U	AL125-4U	1.25	1.25	7.00	1.52	SA4T	SY4T	K4T	YE4U	YI4U
	AL150-4U	1.50	1.50	8.00	1.52					
5/8"U	AL125-5U	1.25	1.25	7.00	1.57	SA5T	SY5T	K5T	YE5U	YI5U
	AL150-5U	1.50	1.50	8.00	1.57					
	AL200-5U	2.00	2.00	10.00	1.57					

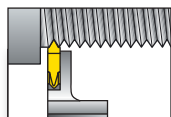
All U Style Toolholders have a 1.5° helix angle. For other helix angles see page 33.



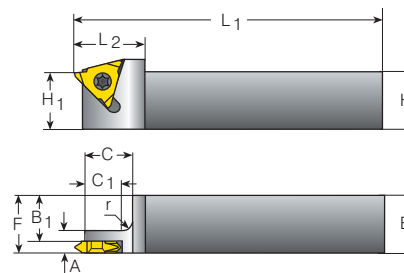
U Style with Clamp

Insert Size		Ordering Code		Dimensions Inch		Spare Parts					
IC		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
1/2"U	AL125-4UC	1.25	1.25	7.00	1.52	SA4T	SY4T	C4	K4T	YE4U	YI4U
	AL150-4UC	1.50	1.50	8.00	1.52						
5/8"U	AL125-5UC	1.25	1.25	7.00	1.57	SA5T	SY5T	C5	K5T	YE5U	YI5U
	AL150-5UC	1.50	1.50	8.00	1.57						
	AL200-5UC	2.00	2.00	10.00	1.57						

All U Style Toolholders have a 1.5° helix angle. For other helix angles see page 33



External Toolholders

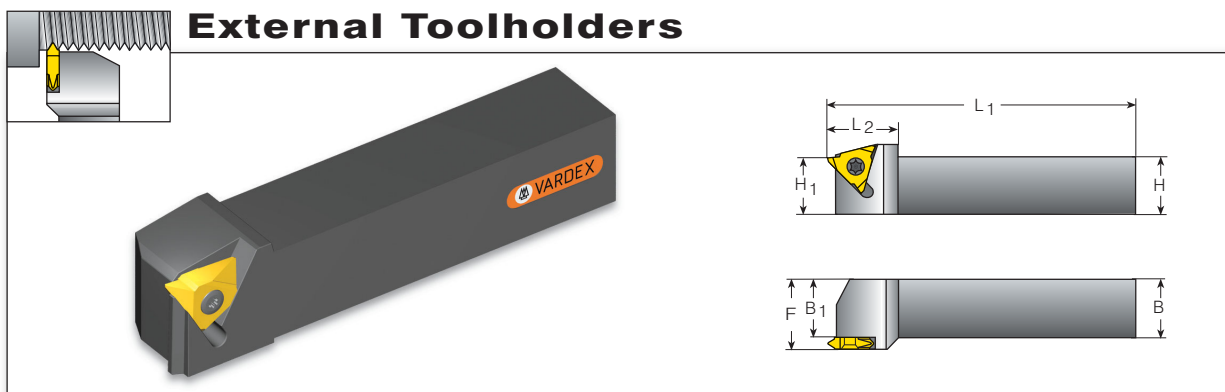


Slim Throat

Insert Size Ordering Code Dimensions Inch											Spare Parts	
IC		H=B=F	H1	A	B1	C	C1	L1	L2	r	Insert Screw	Torx Key
1/4"V	NL0325-2V	.272	.325	.250	.250	.50	.453	2.50	0.6	.04	SN2T	K2T
	NL0375-2V	.375	.375	.272	.250	.50	.453	2.75	0.6	.04		
	NL050-2V	.500	.472	.272	.375	.57	.453	3.15	0.6	.12		
	NL0625-2V	.625	.625	.272	.500	.57	.453	4.00	0.6	.12		
3/8"V	NL0625-3V	.625	.625	.272	.475	.57	.453	4.00	1.0	.12	SN3T	K3T
	NL075-3V	.750	.750	.272	.600	.65	.531	5.00	1.2	.12		
	NL100-3V	1.00	1.00	.272	.850	.65	.453	6.00	1.2	.20		
	NL125-3V	1.25	1.25	.272	1.200	.65	.453	7.00	1.2	.20		
	NL150-3V	1.50	1.50	.272	1.250	.65	.453	8.00	1.2	.20		
1/2"V	NL100-4V	1.00	1.00	.472	.810	.65	.453	6.00	1.2	.20	SN4T	K4T
	NL125-4V	1.25	1.25	.472	1.060	.65	.453	7.00	1.2	.20		
	NL150-4V	1.50	1.50	.472	1.310	.65	.453	8.00	1.2	.20		

All Slim Throat toolholders have a 1.5° helix angle.

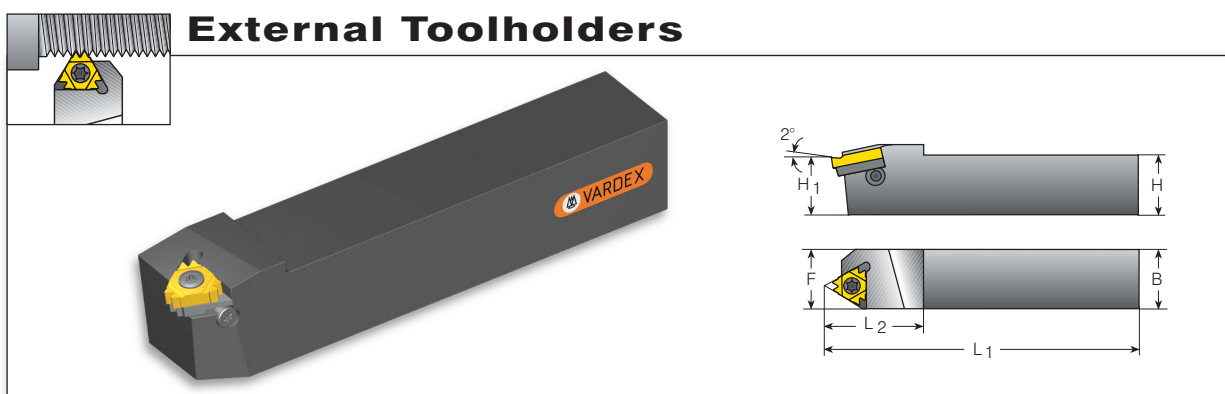




V Style

V Style							Spare Parts	
Insert Size	Ordering Code		Dimensions Inch					
IC	H=H1=B	B1	F	L1	L2		Insert Screw	Torx key
5/8"V	NL125-5V-6	1.25	.99	1.25	7.00	1.57	SN6T	K6T
	NL125-5V-8	1.25	.99	1.33	7.00	1.57		
	NL125-5V-10	1.25	.99	1.40	7.00	1.57		
	NL150-5V-6	1.50	1.24	1.50	8.00	1.57		
	NL150-5V-8	1.50	1.24	1.63	8.00	1.57		
	NL150-5V-10	1.50	1.24	1.65	8.00	1.57		

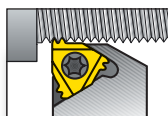
All V Style toolholders have a 1° helix angle.



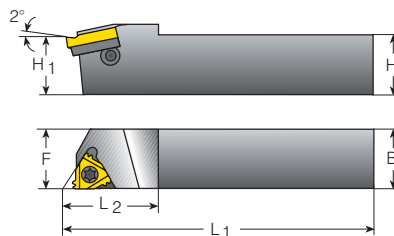
Z Style

Dimensions Inch						Spare Parts				
Insert Size	Ordering Code	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2" Z	AL125-4Z	1.25	1.25	7.00	1.52	SA4T	SY4T	K4T	YE4Z	YI4Z
	AL150-4Z	1.50	1.50	8.00	1.52					
5/8" Z	AL125-5Z	1.25	1.25	7.00	1.57	SA5T	SY5T	K5T	YE5Z	YI5Z
	AL150-5Z	1.50	1.50	8.00	1.57					
	AL200-5Z	2.00	2.00	10.00	1.57					

All Z Style toolholders have a 1.5° helix angle.



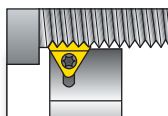
External Toolholders



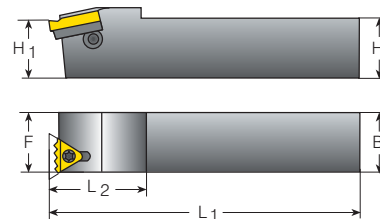
M Style

Insert Size		Ordering Code				Dimensions Inch					Spare Parts				
IC		H=H1=B	F	L1	L2						Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
5/8"M	AL125-5M	1.25	1.25	7.00	1.57						SA5T	SY5T	K5T	YE5M	YI5M
	AL150-5M	1.50	1.50	8.00	1.57										
	AL200-5M	2.00	2.00	10.00	1.57										

All M Style toolholders have a 1.5° helix angle.



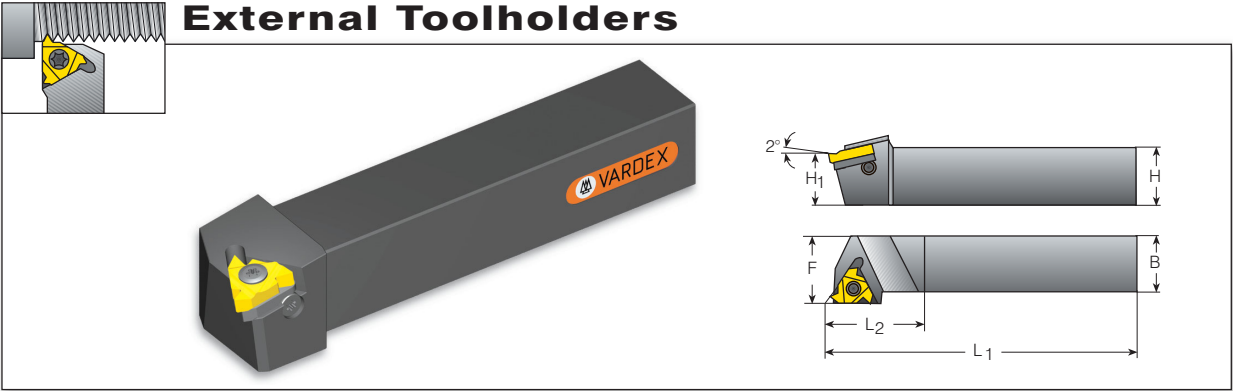
External Toolholders



T Style

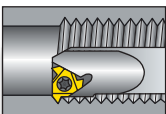
Insert Size		Ordering Code				Dimensions Inch					Spare Parts				
IC		H=H1=B	F	L1	L2						Insert Screw	Anvil Screw	Insert Torx Key	Anvil Torx Key	Anvil RH/LH
1/2"T	AL100-4T	1.00	1.08	6.00	1.2						SA4T	SY4K2	K4T	K2	Y4T
	AL125-4T	1.25	1.33	7.00	1.2										
	AL150-4T	1.50	1.58	8.00	1.2										

All T Style toolholders have a 0° helix angle.

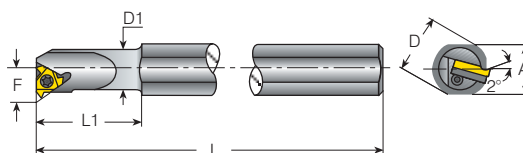
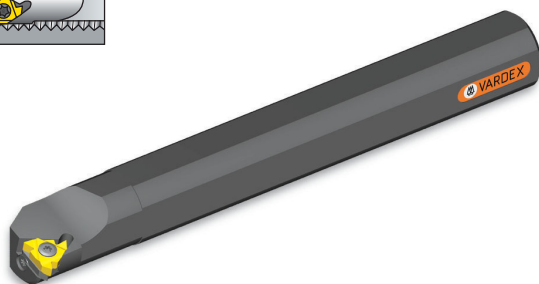


Off-Set Qualified (FQ)						Spare Parts				
Insert Size	Ordering Code	Dimensions Inch								
IC		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8"	AL75-3FQ	.75	.75	6.0	1.0	SA3T	SY3T	K3T	YE3	YI3
	AL100-3FQ	1.00	1.25	6.0	1.0					
	AL125-3FQ	1.25	1.50	6.0	1.2					
1/2"	AL100-4FQ	1.00	1.25	6.0	1.2	SA4T	SY4T	K4T	YE4	YI4
	AL125-4FQ	1.25	1.50	6.0	1.2					
5/8"	AL125-5FQ	1.25	1.50	6.0	1.2	SA5T	SY5T	K5T	YE5	YI5

The above toolholders have a 1.5° helix angle.



Internal Toolholders



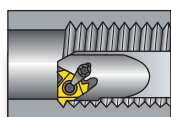
Standard

Standard									Spare Parts				
Insert Size	Ordering Code	Dimensions Inch							    				
IC		A	L	L1	D	D1	F	Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/4"	NVRC0375-2	.67	7.0	1.00	.75	.37	.28	.50	SN2T	-	K2T	-	-
	NVRC050-2	.67	7.0	1.25	.75	.50	.37	.65					
	NVRC050-3	.67	7.0	1.25	.75	.50	.40	.67	SN3T	-	K3T	-	-
	NVRC0625-3	.67	7.0	1.50	.75	.62	.46	.80					
	NVRC0625D-3	.58	6.0	1.25	.62	.62	.46	.80					
3/8"	AVRC075-3	.67	7.0	1.50	.75	.75	.51	.90	SA3T	SY3T	K3T	YI3	YE3
	AVRC100-3	1.12	10.0	2.50	1.25	1.00	.65	1.20					
	AVRC100D-3	.90	8.0	1.75	1.00	1.00	.65	1.20					
	AVRC125-3	1.12	10.0	2.50	1.25	1.25	.77	1.45					
	AVRC150-3	1.34	12.0	2.50	1.50	1.50	.90	1.65					
1/2"	NVRC075-4	.67	7.0	2.00	.75	.75	.59	1.00	SN4T	-	K4T	-	-
	AVRC100-4	1.12	10.0	2.50	1.25	1.00	.71	1.25					
	AVRC100D-4	.88	8.0	1.75	1.00	1.00	.71	1.25	SA4T	SY4T	K4T	YI4	YE4
	AVRC125-4	1.12	10.0	2.50	1.25	1.25	.85	1.50					
	AVRC150-4	1.34	12.0	2.50	1.50	1.50	.98	1.75					
5/8"	AVRC125-5	1.12	10.0	2.50	1.25	1.25	.88	1.55	SA5T	SY5T	K5T	YI5	YE5
	AVRC150-5	1.34	12.0	2.50	1.50	1.50	1.00	1.80					
	AVRC200-5	1.80	14.0	3.00	2.00	2.00	1.25	2.30					
	AVRC250-5	2.26	16.0	3.00	2.50	2.50	1.50	2.80					

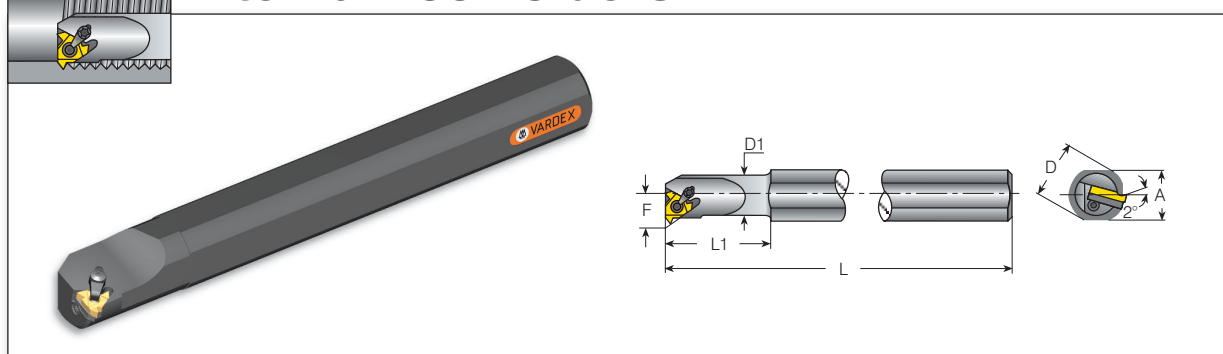
The above toolholders have a 1.5° helix angle. For other helix angles, see page 33.
Toolholders with prefix "N" cannot be used with an anvil.

Holders with coolant channel are available as standard. For ordering code, see page 17.



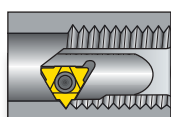


Internal Toolholders

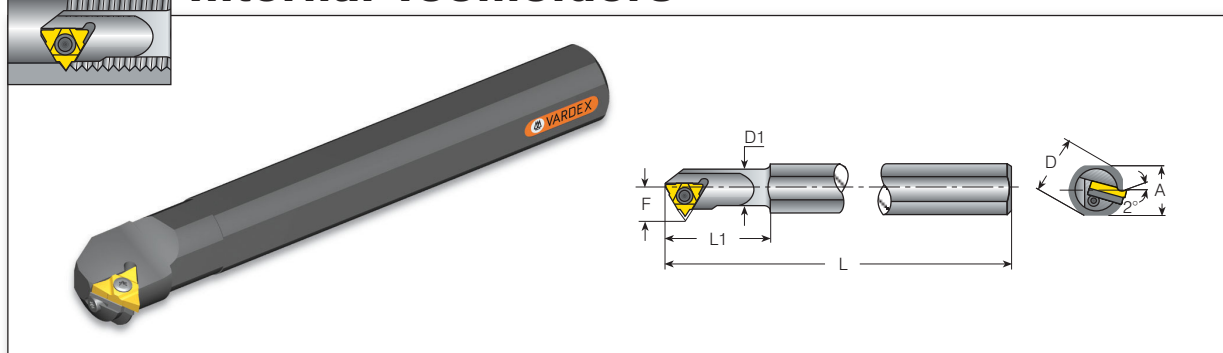


Standard with Clamp

Insert Size	Ordering Code	Dimensions Inch							Min. bore dia.	Spare Parts					
IC		A	L	L1	D	D1	F	Inch		Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
3/8"	AVR075-3C	.67	7.0	2.00	.75	.75	.51	.90							
	AVR100-3C	1.12	10.0	2.50	1.25	1.00	.65	1.20							
	AVR100D-3C	.90	8.0	1.75	1.00	1.00	.65	1.20		SA3T	SY3T	C3	K3CT	YI3	YE3
	AVR125-3C	1.12	10.0	2.50	1.25	1.25	.77	1.45							
	AVR150-3C	1.34	12.0	2.50	1.50	1.50	.90	1.65							
1/2"	AVR100-4C	1.12	10.0	2.50	1.25	1.00	.71	1.25							
	AVR100D-4C	.90	8.0	1.75	1.00	1.00	.71	1.25		SA4T	SY4T	C4	K4T	YI4	YE4
	AVR125-4C	1.12	10.0	2.50	1.25	1.25	.85	1.50							
	AVR150-4C	1.34	12.0	2.50	1.50	1.50	.98	1.75							
	AVR125-5C	1.12	10.0	2.50	1.25	1.25	.88	1.55							
5/8"	AVR150-5C	1.34	12.0	2.50	1.50	1.50	1.00	1.80		SA5T	SY5T	C5	K5T	YI5	YE5
	AVR200-5C	1.80	14.0	3.00	2.00	2.00	1.25	2.30							
	AVR250-5C	2.26	16.0	3.00	2.50	2.50	1.50	2.80							



Internal Toolholders

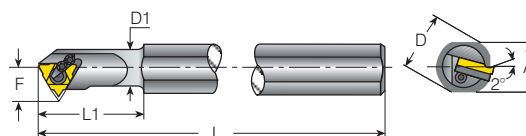
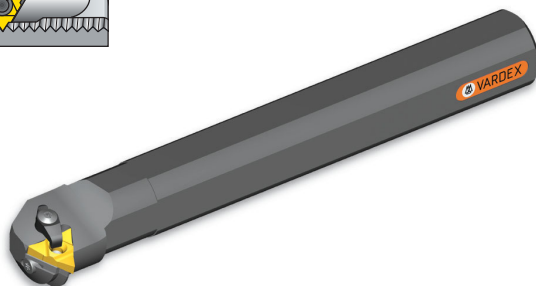
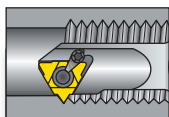


U Style

Insert Size	Ordering Code	Dimensions Inch							Min. bore dia.	Spare Parts				
IC		A	L	L1	D	D1	F	Inch		Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"U	AVR125-4U	1.12	10.0	2.50	1.25	1.25	1.01	1.65		SA4T	SY4T	K4T	YI4U	YE4U
	AVR150-4U	1.34	12.0	2.50	1.50	1.50	1.12	1.90						
5/8"U	NVR125-5U	1.12	10.0	2.50	1.25	1.25	.98	1.65						
	AVR150-5U	1.34	12.0	2.50	1.50	1.50	1.13	1.90		SA5T	SY5T	K5T	YI5U	YE5U
	AVR200-5U	1.80	14.0	3.00	2.00	2.00	1.37	2.40						
	AVR250-5U	2.26	16.0	3.00	2.50	2.50	1.61	2.90						



Internal Toolholders

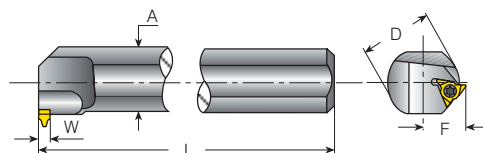
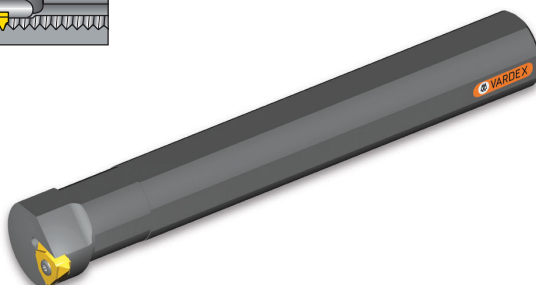
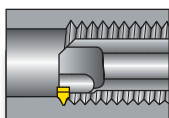


U style with Clamp

Insert Size		Ordering Code		Dimensions Inch					Min. bore dia.	Spare Parts					
IC		A	L	L1	D	D1	F	Inch		Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
1/2"U	AVR125-4UC	1.12	10.0	2.50	1.25	1.25	1.01	1.65		SA4T	SY4T	C4	K4T	YI4U	YE4U
	AVR150-4UC	1.34	12.0	2.50	1.50	1.50	1.12	1.90							
5/8"U	AVR150-5UC	1.34	12.0	2.50	1.50	1.50	1.13	1.90							
	AVR200-5UC	1.80	14.0	3.00	2.00	2.00	1.37	2.40		SA5T	SY5T	C5	K5T	YI5U	YE5U
	AVR250-5UC	2.26	16.0	3.00	2.50	2.50	1.61	2.90							

The above toolholders have a 1.5° helix angle. For other helix angles, see page 33. Holders with coolant channel available as standard. For ordering code see page 17.

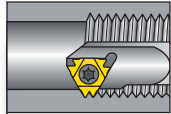
Internal Toolholders



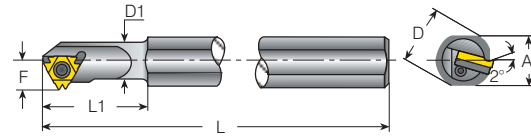
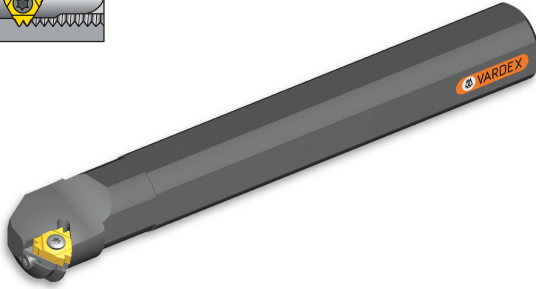
V Style

Insert Size		Ordering Code		Dimensions Inch					Spare Parts	
IC		A	L	D	F	W			Insert Screw	Torx Key
5/8"V	NVR150-5V	1.34	12.00	1.50	1.08	.256			SN6T	K6T
	NVR200-5V	1.80	14.00	2.00	1.33	.256				
	NVR250-5V	2.26	16.00	2.50	1.58	.256				

The above toolholders have a 1.0° helix angle.



Internal Toolholders

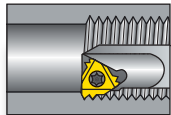


Z Style

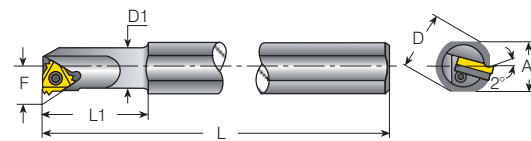
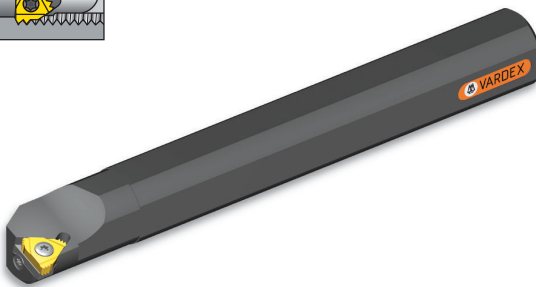
Insert Size	Ordering Code	Dimensions Inch							Spare Parts				
		A	L	L1	D	D1	F	Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"Z	AVR125-4Z	1.12	10.0	2.50	1.25	1.25	1.01	1.65	SA4T	SY4T	K4T	YI4Z	YE4Z
	AVR150-4Z	1.34	12.0	2.50	1.50	1.50	1.12	1.90					
5/8"Z	NVR125-5Z	1.12	10.0	2.50	1.25	1.25	.98	1.65	SA5T	SY5T	K5T	YI5Z	YE5Z
	AVR150-5Z	1.34	12.0	2.50	1.50	1.50	1.13	1.90					
	AVR200-5Z	1.80	14.0	3.00	2.00	2.00	1.37	2.40					
	AVR250-5Z	2.26	16.0	3.00	2.50	2.50	1.61	2.90					

All Z style toolholders have a 1.5° helix angle.

Holders with coolant channel available as standard. For ordering code see page 17.



Internal Toolholders

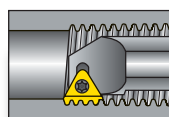


M Style

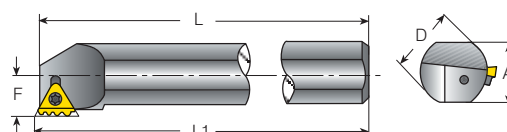
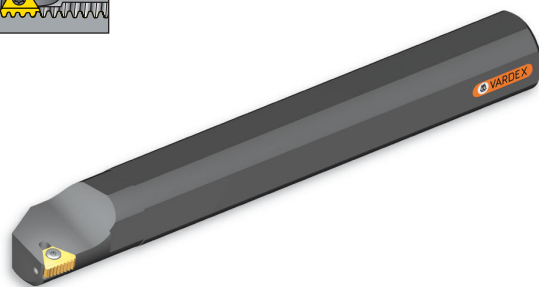
Insert Size	Ordering Code	Dimensions Inch							Spare Parts				
		A	L	L1	D	D1	F	Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
5/8"M	AVR125-5M	1.12	10.0	2.50	1.25	1.25	0.88	1.55	SA5T	SY5T	K5T	YI5M	YE5M
	AVR150-5M	1.34	12.0	2.50	1.50	1.50	1.00	1.80					
	AVR200-5M	1.80	14.0	3.00	2.00	2.00	1.25	2.30					
	AVR250-5M	2.26	16.0	3.00	2.50	2.50	1.50	2.80					

All M style toolholders have a 1.5° helix angle.

Holders with coolant channel available as standard. For ordering code see page 17.



Internal Toolholders

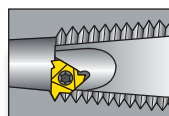


T Style

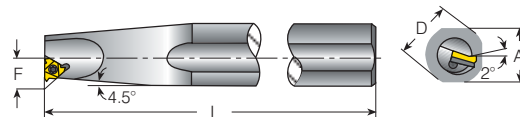
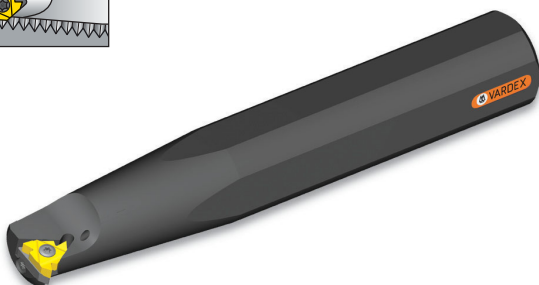
Insert Size		Ordering Code		Dimensions Inch				Min. bore dia	Spare Parts				
IC		A	L	L1	D	F	Inch		Insert Screw	Anvil Screw	Torx Key	Anvil Torx Key	Anvil RH/LH
1/2" T	AVR150-4T	1.34	12.0	12.078	1.50	.88	2.40		SA4T	SY4K2	K4T	K2	Y4T
	AVR200-4T	1.80	14.0	14.079	2.00	1.13	2.75						
	AVR250-4T	2.26	16.0	16.079	2.50	1.38	3.25						

All toolholders have a 0° helix angle.

Holders with coolant channel available as standard. For ordering code, see page 17.



Internal Toolholders



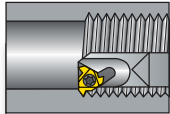
API

Insert Size		Ordering Code		Thread Form	Connection no. or size	Dimensions Inch			Spare Parts				
IC		A	L	D	F				Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
5/8"	AVR200-5OIL	V0.038R	NC23-NC38	1.80	12.0	2.00	.90		SA5T	SY5T	K5T	YI5OIL	YE5OIL
	AVRC200-5OIL	V0.038R	NC23-NC38										
	AVR300-5OIL	V0.050R	NC40-NC77	2.68	16.0	3.00	1.50						
	AVRC300-5OIL	V0.050R	NC40-NC77										

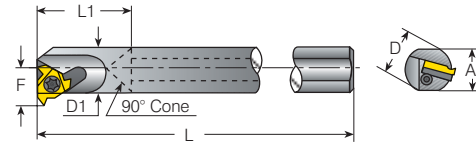
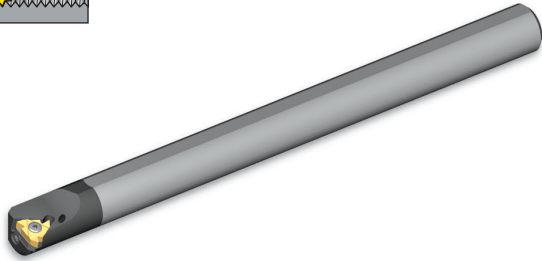
The above toolholders have a 1.5° helix angle.

Toolholders ordered with an internal coolant channel have an internal BSP 1/2" thread for connection to the flexible coolant pipe.

Holders with coolant channel available as standard. For ordering code, see page 17.



Internal Toolholders



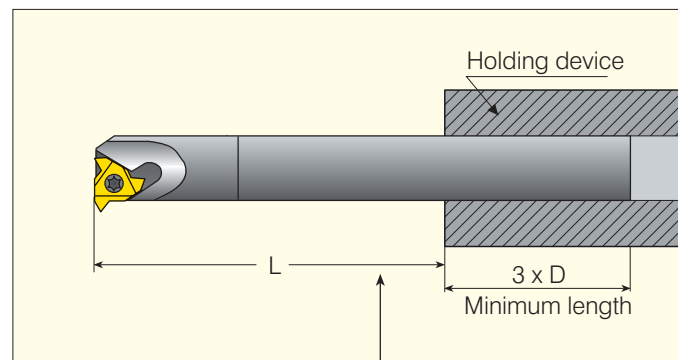
Standard with Carbide Shank

Spare Parts

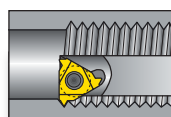
Insert Size	Ordering Code	Dimensions Inch							Min. Bore Dia.					
IC	A	L	L1	D	D1	F	Inch			Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
4.0mm	CNVRC0205-4.0K	.204	4.00	1.02	.250	.200	.170	.24		SN4MT	-	K6MT	-	-
1/4"	CNVRC0375-2	.352	6.00	-	.375	.375	.278	.50		SN2T	-	K2T	-	-
	CNVRC050-2	.477	7.00	-	.500	.500	.349	.60						
3/8"	CNVRC050-3	.477	7.00	-	.500	.500	.400	.67		SN3T	-	K3T	-	-
	CNVRC0625-3	.602	8.00	-	.625	.625	.450	.80						
	CAVRC075-3	.727	10.00	-	.750	.750	.509	.90		SA3T	SY3T	K3T	YI3	YE3
1/2"	CNVRC075-4	.727	10.00	-	.750	.750	.590	1.00		SN4T	-	K4T	-	-

The above toolholders have 1.5° helix angle. For other helix angles see page 33.
 Toolholders with prefix "CN" cannot be used with an anvil.
 The above Toolholders have coolant channel as standard.

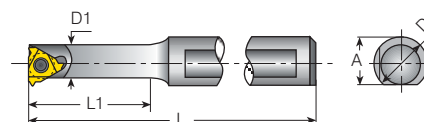
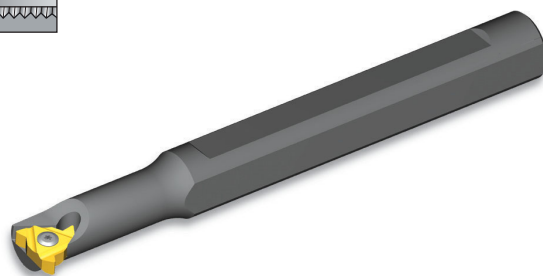
Carbide Shank toolholders should be used when extra accuracy is required or when the bar length to bar diameter ratio exceeds 3:1.



The overhang to bar diameter ratio should be as small as possible to eliminate the chance of chatter (vibration). The minimum length inside a holding device should be 3 times the diameter of the bar shank.

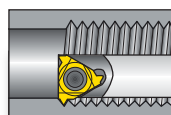


Internal Toolholders

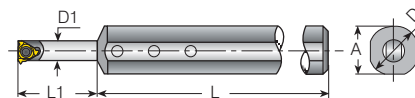
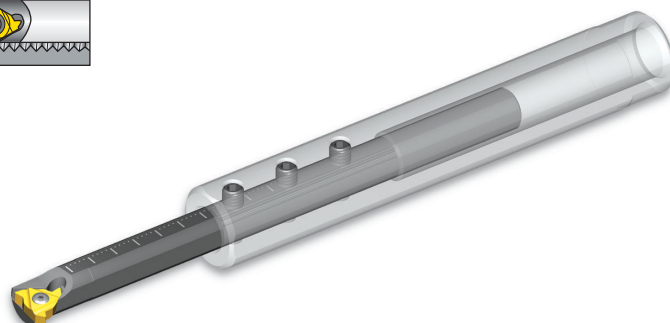


Mini-3

Spare Parts									
Insert Size	Ordering Code	Dimensions Inch				Anti-Vibration System			
IC mm	A	L	L1	D	D1			Insert Screw	Torx Key
4.0mm	NVR020-4K	.489	4.000	.470	.500	.200	No	SN4MT	K6MT
6.0	SNVR 375U-6.0	.363	3.228	.630	.375	.315	No	SN6MT	K6MT
	BNVR 375S-6.0	.363	3.504	.866	.375	.315	Yes		
	BNVR 375M-6.0	.363	3.858	1.220	.375	.315	Yes		
	BNVR 375L-6.0	.363	4.330	1.693	.375	.315	Yes		
6.0	SNVR 050U-6.0	.489	3.228	.630	.500	.315	No	SN6MT	K6MT
	BNVR 050S-6.0	.489	3.504	.866	.500	.315	Yes		
	BNVR 050M-6.0	.489	3.858	1.220	.500	.315	Yes		
	BNVR 050L-6.0	.489	4.330	1.693	.500	.315	Yes		

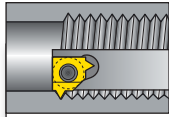


Internal Toolholders

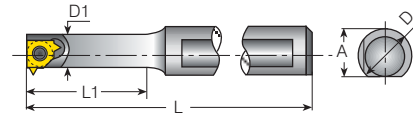
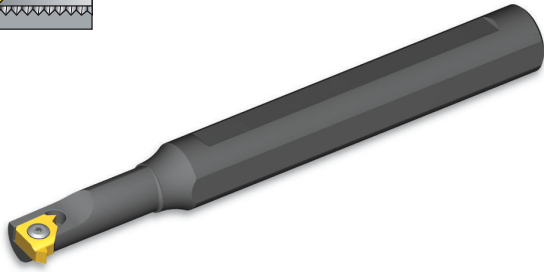


Mini-3-Adjustable

Spare Parts									
Insert Size	Ordering Code	Dimensions Inch							
IC mm	Sleeve	Holder	A	L	L1	D	D1	Insert Screw	Torx Key for Insert Screw
6.0	SV0625-8.0	BNVR8.0T-6.0	.584	4	.315-2.2	.625	.315	SN6MT	K6MT
								Holder Screw x3	Key for Holder Screw
								S4.0	K4.0

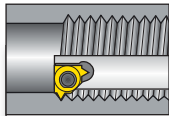


Internal Toolholders

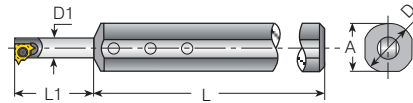
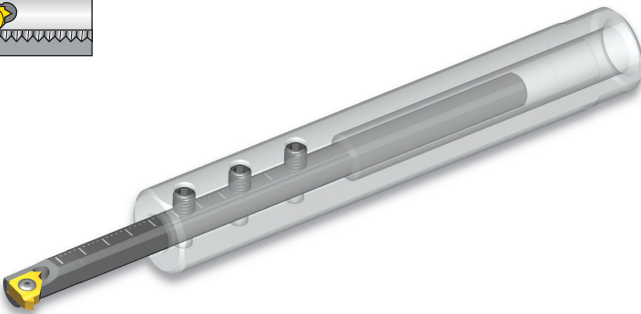


Mini-L

Insert Size		Ordering Code		Dimensions Inch			Anti-Vibration System	Spare Parts	
IC mm		A	L	L1	D	D1		Insert Screw	Torx Key
5.0L	SNVR 0375U-5L	.363	3.189	.630	.375	.244	No	SN5LT	K5LT
	BNVR 0375S-5L	.363	3.425	.866	.375	.244	Yes		
	BNVR 0375M-5L	.363	3.819	1.220	.375	.244	Yes		
	BNVR 0375L-5L	.363	4.291	1.693	.375	.244	Yes		
5.0L	SNVR 050U-5L	.489	3.189	.630	.500	.244	No		
	BNVR 050S-5L	.489	3.425	.866	.500	.244	Yes		
	BNVR 050M-5L	.489	3.819	1.220	.500	.244	Yes		
	BNVR 050L-5L	.489	4.291	1.693	.500	.244	Yes		



Internal Toolholders



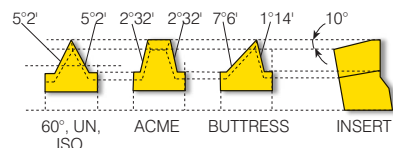
Mini-L-Adjustable

								Spare Parts			
Insert Size		Ordering Code		Dimensions Inch							
IC mm	Sleeve	Holder	A	L	L1	D	D1	Insert Screw	Torx Key for Insert Screw	Holder Screw x3	Key for Holder Screw
5.0L	SV0625-6.2	BNVR6.2T-5L	.584	4	.315-1.73	.625	.244	SN5LT	K5LT	S4.0	K4.0



Calculating the Helix Angle and Choosing The Right Anvil

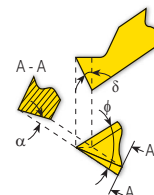
Flank Clearance Angle α



Vardex toolholders are designed to tilt the insert when seated in the toolholder (10° for external, 15° for internal tooling).

This results in the differing flank clearance angles, based on the geometry of insert.

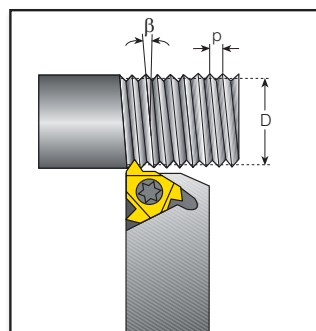
To ensure that the side of the insert cutting edge will not rub on the workpiece, it is most important that the insert helix angle be correct - especially in profiles with small enclosed flank angles. This correction is provided by Vardex anvils.



$$\alpha = \arctan (\tan \phi / 2 \times \tan \delta)$$

Where: α - Flank clearance angle
 δ - Tilt angle
 ϕ - Enclosed flank angle

Calculating the Helix Angle β



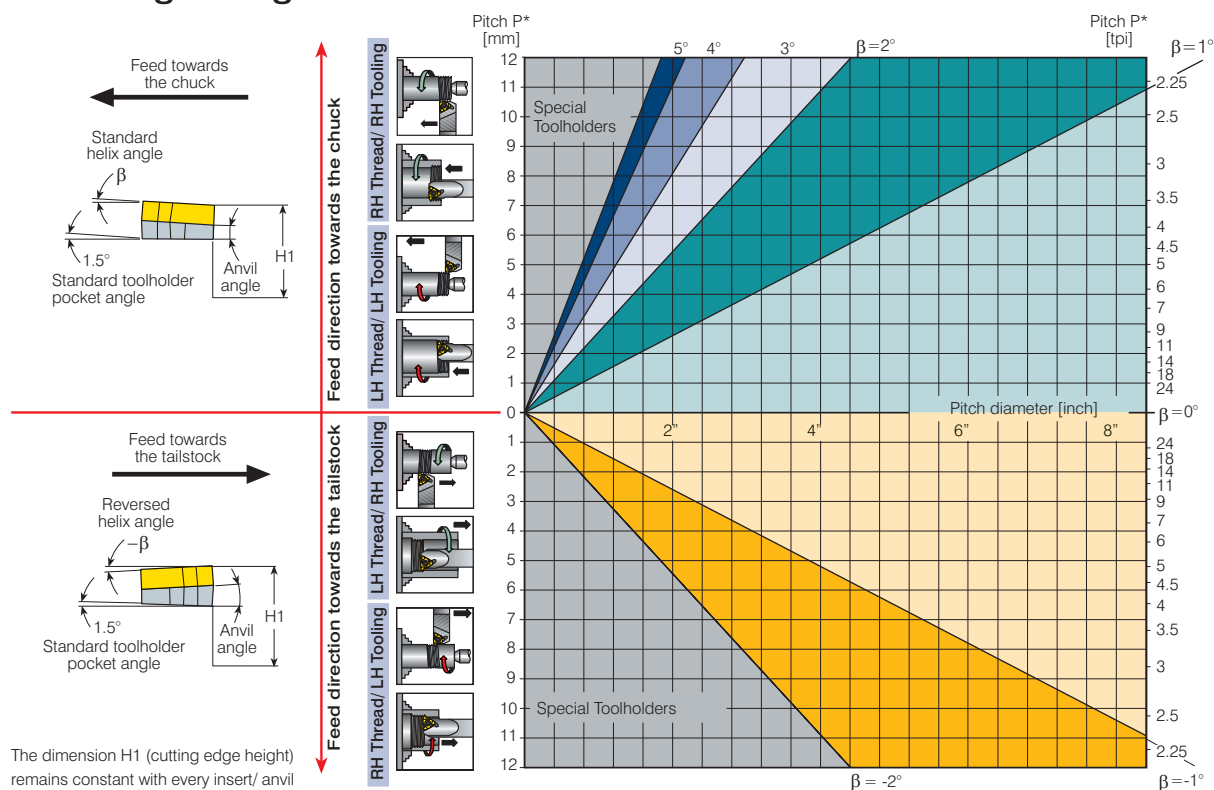
The helix angle is calculated by the following formula:

$$\beta = \arctan \frac{P \times N}{\pi \times D}$$

β - Helix angle [°]
P - Pitch [inch]
N - No. of starts
D - Pitch diameter [inch]
Lead = P x N

The helix angle can also be found from the diagram below.

Helix Angle Diagram

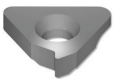
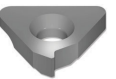
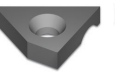
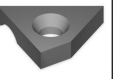


The dimension H1 (cutting edge height) remains constant with every insert/ anvil combination.

*For Multi-start threads, use the lead value instead of the pitch

Anvils

Resultant Helix Angle		4.5°	3.5°	2.5°	1.5°	0.5°	0°	-0.5°	-1.5°	
Insert Size		Holder	Ordering Code							
IC	L mm									
3/8"	16	ER / IL	YE3-3P	YE3-2P	YE3-1P	YE3	YE3-1N	YE3-1.5N	YE3-2N	YE3-3N
		EL / IR	YI3-3P	YI3-2P	YI3-1P	YI3	YI3-1N	YI3-1.5N	YI3-2N	YI3-3N
1/2"	22	ER / IL	YE4-3P	YE4-2P	YE4-1P	YE4	YE4-1N	YE4-1.5N	YE4-2N	YE4-3N
		EL / IR	YI4-3P	YI4-2P	YI4-1P	YI4	YI4-1N	YI4-1.5N	YI4-2N	YI4-3N
1/2"U	22	ER / IL	YE4U-3P	YE4U-2P	YE4U-1P	YE4U	YE4U-1N	YE4U-1.5N	YE4U-2N	YE4U-3N
		EL / IR	YI4U-3P	YI4U-2P	YI4U-1P	YI4U	YI4U-1N	YI4U-1.5N	YI4U-2N	YI4U-3N
5/8"	27	ER / IL	YE5-3P	YE5-2P	YE5-1P	YE5	YE5-1N	YE5-1.5N	YE5-2N	YE5-3N
		EL / IR	YI5-3P	YI5-2P	YI5-1P	YI5	YI5-1N	YI5-1.5N	YI5-2N	YI5-3N
5/8"U	27	ER / IL	YE5U-3P	YE5U-2P	YE5U-1P	YE5U	YE5U-1N	YE5U-1.5N	YE5U-2N	YE5U-3N
		EL / IR	YI5U-3P	YI5U-2P	YI5U-1P	YI5U	YI5U-1N	YI5U-1.5N	YI5U-2N	YI5U-3N
3/8"M	16	ER / IL			YE3M-1P	YE3M	YE3M-1N	YE3M-1.5N	YE3M-2N	
		EL / IR			YI3M-1P	YI3M	YI3M-1N	YI3M-1.5N		
1/2"M	22	ER / IL			YE4M-1P	YE4M	YE4M-1N	YE4M-1.5N	YE4M-2N	
		EL / IR			YI4M-1P	YI4M	YI4M-1N	YI4M-1.5N		
5/8"M	27	ER / IL				YE5M	YE5M-1N	YE5M-1.5N		
		EL / IR				YI5M	YI5M-1N	YI5M-1.5N		
1/2"Z	22	ER / IL			YE4Z-1P	YE4Z	YE4Z-1N			
		EL / IR			YI4Z-1P	YI4Z	YI4Z-1N			
5/8"Z	27	ER / IL				YE5Z				
		EL / IR				YI5Z				
1/2"T	22	ER / IL EL / IR				Y4T				

Standard Anvil		U Style Anvil		M Style Anvil		Z Style Anvil		T Style Anvil	
									
ER/IL	EL/IR	ER/IL	EL/IR	ER/IL	EL/IR	ER/IL	EL/IR	ER/IL	EL/IR Same anvil turned over

Anvil Kits

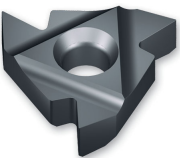
Anvil Size		Ordering Code		Included Anvils:
IC	L mm			
3/8"	16	ABY3	YE3-2P, 1P, 1N, 2N, 3N	
			YI3-2P, 1P, 1N, 2N, 3N	
1/2"	22	ABY4	YE4-2P, 1P, 1N, 2N, 3N	
			YI4-2P, 1P, 1N, 2N, 3N	
1/2"U	22	ABY4U	YE4U-2P, 1P, 1N, 2N, 3N	
			YI4U-2P, 1P, 1N, 2N, 3N	
5/8"	27	ABYE5	YE5-2P, 1P, 1N, 2N, 3N	
		ABYI5	YI5-2P, 1P, 1N, 2N, 3N	
5/8"U	27	ABYE5U	YE5U-2P, 1P, 1N, 2N, 3N	
		ABYI5U	YI5U-2P, 1P, 1N, 2N, 3N	

To ensure that you always have on hand an assortment of anvils for any job, we recommend that anvil kits be readily available.





Grades and their Applications

Grade	Application	Sample
VTX	A tough sub-micron substrate with TiAlN coating. For general use. Provides good fracture toughness and excellent wear resistance.	
VCB	Vardex Sintered chipbreaker for general use. The combination of sintered chipbreaker with ground profile provides excellent chip control and high quality of thread. TiAlN coating.	
VM7	Premium grade for stainless steel. Extra tough coating. Special multi-layer PVD coating guaranteeing higher resistance to wear in Stainless Steel applications.	
VKX	High hardness substrate for steels, stainless steel, non ferrous & aluminum. Recommended for rigid machine conditions. TiN coating.	

Recommended Grades and Cutting Speeds Vc [ft/min]

Material			Hardness Brinell HB	V c [f t / m i n]			
				Coated			
				VTX	VCB	VM7	VKX
P	Unalloyed Steel	Low carbon (C=0.1-0.25 %)	125	377-623	377-623		459-656
		Medium carbon (C=0.25-0.55 %)	150	328-574	328-541		394-590
		High carbon (C=0.55-0.85 %)	170	295-541	295-508		361-590
	Low Alloy Steel (alloying elements ≤ 5%)	Non hardened	180	279-476	328-590		328-508
		Hardened	275	246-459	246-459		295-476
		Hardened	350	230-443	230-443		262-443
	High Alloy Steel (alloying elements > 5%)	Annealed	200	230-361	262-394		230-377
		Hardened	325	164-328	164-328		164-328
	Cast Steel	Low alloy (alloying elements <5%)	200	246-459	230-426	230-492	
		High alloy (alloying elements >5%)	225	197-394	197-394	197-410	
M	Stainless Steel Ferritic	Non hardened	200	230-426	230-426	295-525	230-394
		Hardened	330	197-377	164-312	131-394	197-312
	Stainless Steel Austenitic	Austenitic	180	295-459	262-394	295-492	230-328
		Super austenitic	200	131-361	98-328	213-394	131-295
	Stainless Steel Cast Ferritic	Non hardened	200	295-394	328-394	279-394	262-361
		Hardened	330	213-361	213-361	197-361	213-361
	Stainless Steel Cast Austenitic	Austenitic	200	279-361	279-361		279-328
		Hardened	330	197-328	197-328		197-328
	High Temperature Alloys	Annealed (Iron based)	200	148-197	148-197		
		Aged (Iron based)	280	98-164	98-164		
		Annealed (Nickel or Cobalt based)	250	66-98	66-98		
		Aged (Nickel or Cobalt based)	350	49-82	49-82		
	Titanium Alloys	Pure 99.5 Ti	400Rm	459-558	459-558		
		α + β alloys	1050Rm	164-230	164-230		
K	Extra Hard Steel	Hardened & tempered	55HRc	148-197	148-197		148-197
	Malleable Cast Iron	Ferritic (short chips)	130	230-525	230-394		
		Pearlitic (long chips)	230	197-476	230-394		
	Grey Cast Iron	Low tensile strength	180	230-426	230-426		
		High tensile strength	260	197-377	197-328		
	Nodular SG Iron	Ferritic	160	410-525	410-525		
		Pearlitic	260	295-394	295-394		
	Aluminum Alloys Wrought	Non aging	60	328-1197	328-820		328-787
		Aged	100	262-722	262-590		262-558
	Aluminum Alloys	Cast	75	656-1312	656-1312		
		Cast & aged	90	656-918	656-918		
	Aluminum Alloys	Cast Si 13-22%	130	197-590	197-492		
	Copper and Copper Alloys	Brass	90	262-738	262-689		262-656
		Bronze and non leaded copper	100	262-836	262-689		262-656



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