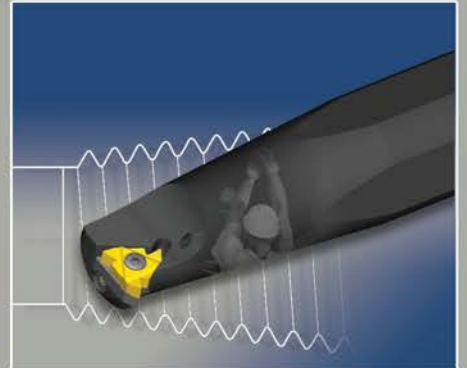
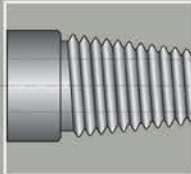




API

Threading Solutions

By **VARDEX**





VARDEX
Oilfield Threading Solutions



API

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Vardex Ordering Code System

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

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°	STACME - Stub ACME
55° - Partial profile 55°	UNJ - UNJ
ISO - ISO Metric	MJ - ISO 5855
UN - American UN	ABUT - American Buttress
W - Whitworth for BSW, BSP	BBUT - British Buttress
BSPT - British Standard Pipe Thread	SAGE - Metric Buttress DIN 513
NPT - NPT	API - API
NPTF - NPTF	BUT - API Buttress Casing
NPS - NPS	APIRD - API Round Casing & Tubing
RD - Round DIN 405	VAM - VAM
RD20400 - Round DIN 20400	EL - Extreme Line Casing
TR - Trapez DIN 103	H90 - H90
ACME - ACME	PG - Pg DIN 40430

7 - API Form

382	2
383	3
403	15
502	75
503	125

**8 - No. of Teeth
(for Multitooth Style)**

2, 3, 5, 6, 8

9 - Multitooth style

M T
 Z

10 - Carbide Grade

VTX, VCB, VM7, VKX, VSX,
 VK2, VK2P, VHX, VKP

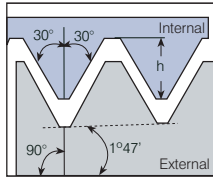
11-Coarse Pitch Inserts

158/...

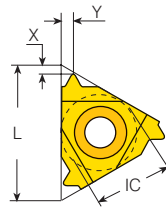


NPT

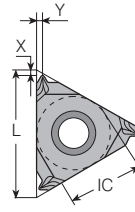
External



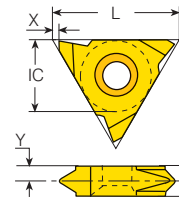
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



Standard

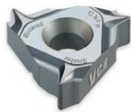


SCB
Sintered Chipbreaker



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	27	3JER27NPT...		.026	.02	.03	YE3	-	AL...-3
		18	3JER18NPT...		.040	.02	.03			
		14	3JER14NPT...		.052	.04	.06			
		11.5	3JER11.5NPT...		.065	.04	.06			
		8	3JER8NPT...		.095	.05	.07			

Slim Throat

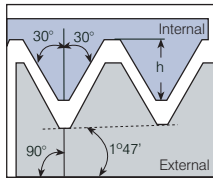


Insert Size		Pitch	Ordering Code		Dimensions Inch				Toolholder
IC	L Inch	tpi	RH	LH	h _{min}	X	Y	T	
1/4"V	.43	27	2VER27NPT...	2VEL27NPT...	.026	.03	.08	.13	NL...-2V (LH)
		18	2VER18NPT...	2VEL18NPT...	.040	.03	.07	.13	
		14	2VER14NPT...	2VEL14NPT...	.052	.03	.07	.13	
		11.5	2VER11.5NPT...	2VEL11.5NPT...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

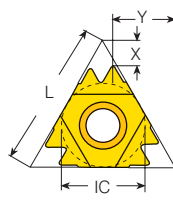


NPT (con't)

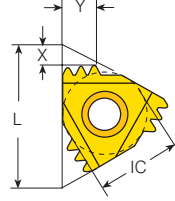
External



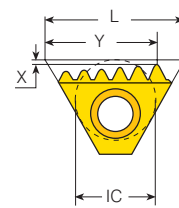
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



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

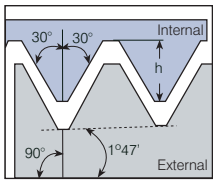


Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil	
IC	L Inch	tpi		RH	h _{min}	X	Y	RH	Toolholder
1/2"	.87	11.5	6	4ER11.5NPT6T...	.065	.004	.53	Y4T	AL...-4T
		8	5	4ER8NPT5T...	.065	.004	.62		

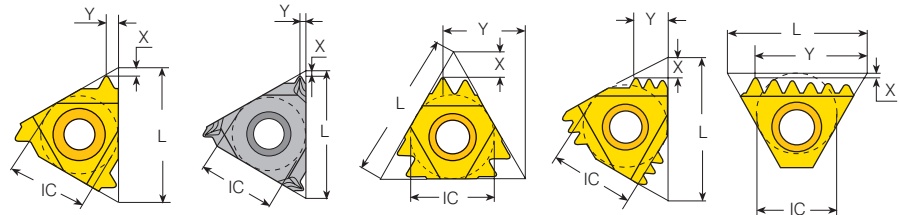


NPT (con't)

Internal



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



Standard **SCB**
Sintered Chipbreaker **Z Style** **M Style** **T Style**

Standard



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			
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			



SCB

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

T Style

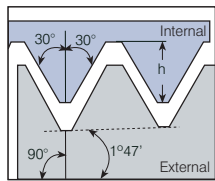


Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil	Toolholder
IC	L Inch	tpi		RH	h _{min}	X	Y	RH	
1/2"T	.87	11.5	6	4IR11.5NPT6T...	.065	.004	.53	Y4T	AVR...-4T
		8	5	4IR8NPT5T...	.065	.004	.62		

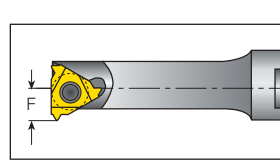
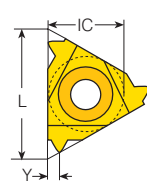


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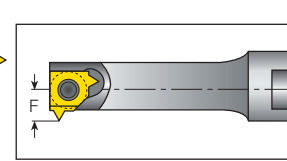
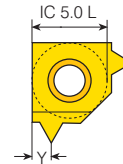
Internal



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

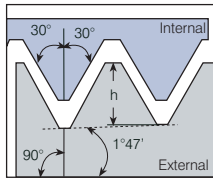


Insert Size		Pitch	Ordering Code	Dimensions Inch			Min. Bore dia.	
IC mm		tpi	RH	h _{min}	Y	F	Inch	Toolholder
5.0L		27	5LIR27NPT...	.026	.03	.18		
		18	5LIR18NPT...	.040	.04	.18	0.31	.NVR...-5L
		14	5LIR14NPT...	.052	.04	.18		

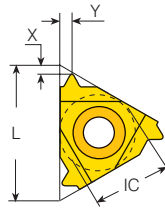


NPTF

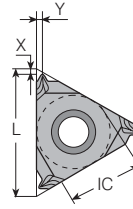
External



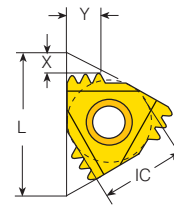
Defined by: ANSI B1.20.3-1976
Tolerance class: Class 2



Standard

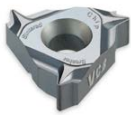


SCB
Sintered Chipbreaker



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	27	3JER27NPTF...		.025	.03	.03	YE3	-	AL...-3
		18	3JER18NPTF...		.039	.02	.03			
		14	3JER14NPTF...		.053	.04	.06			
		11.5	3JER11.5NPTF...		.064	.04	.06			
		8	3JER8NPTF...		.094	.05	.07			

M Style

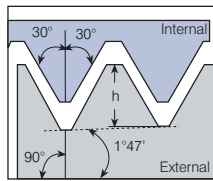


Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil		Toolholder
IC	L Inch	tpi	RH	h min	X	Y	RH			
1/2"	.87	11.5	2	4ER11.5NPTF2M...	.065	.13	.09	YE4M	AL...-4	

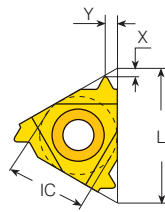


NPTF (con't)

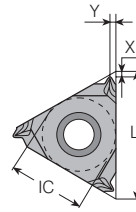
Internal



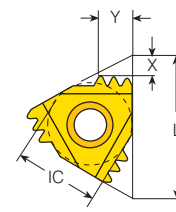
Defined by: ANSI B1.20.3-1976
Tolerance class: Class 2



Standard



**SCB
Sintered Chipbreaker**

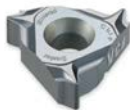


M Style

Standard



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	Y13	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			
3/8" SCB	.63	27	3JIR27NPTF...		.025	.03	.03	Y13	-	AVR...-3
		18	3JIR18NPTF...		.039	.02	.03			
		14	3JIR14NPTF...		.053	.04	.06			
		11.5	3JIR11.5NPTF...		.064	.04	.06			
		8	3JIR8NPTF...		.094	.04	.06			



SCB

M Style

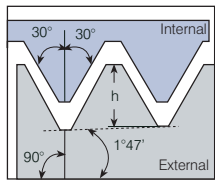


Insert Size		Pitch	Teeth	Ordering Code	Dimensions Inch			Anvil	Toolholder
IC	L Inch	tpi		RH	h _{min}	X	Y	RH	
1/2"	.87	11.5	2	4IR11.5NPTF2M...	.064	.13	.09	Y14M	AVR...-4
5/8"	1.06	11.5	3	5IR11.5NPTF3M...	.064	.14	.22	Y15M	AVR...-5M

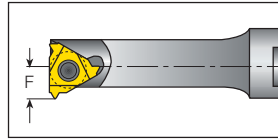
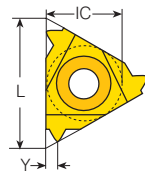


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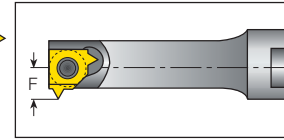
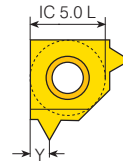
Internal



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.	
IC mm	L Inch	tpi	RH	h _{min}	Y	F	Inch	Toolholder
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		

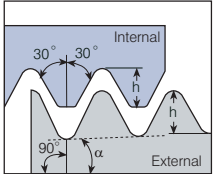
Mini-L



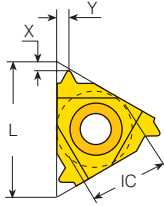
Insert Size		Pitch	Ordering Code	Dimensions Inch			Min. Bore dia.	
IC mm		tpi	RH	h _{min}	Y	F	Inch	Toolholder
5.0L		27	5LIR27NPTF...	.025	.03	.18	.31	.NVR...-5L
		18	5LIR18NPTF...	.039	.04	.18		
		14	5LIR14NPTF...	.053	.04	.18		



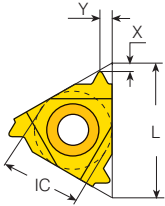
API



Internal
30° 30°
h
External
90° α
α = arctg (IPF/24)



External - Standard



Internal - Standard

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

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

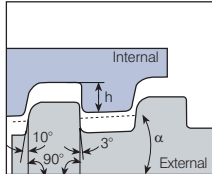


Insert Size	Pitch	Thread	Taper	Ordering Code	Size	Dimensions Inch			Anvil	
IC L Inch	tpi	IPF	RH			h min	X	Y	RH	Toolholder
1/2"	.87	4 V-0.38R	2	4IR4API382...	NC23-NC50	.122	.08	.11	YI4	AVR..-4 (LH)
		4 V-0.38R	3	4IR4API383...	NC56-NC77	.122	.08	.11		
		4 V-0.050	2	4IR4API502...	6 5/8" REG	.148	.08	.12		
		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		



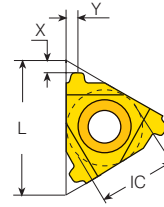
API Buttress Casing

External

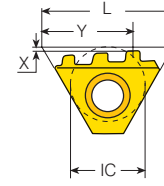


$$\alpha = \arctg (IPF/24)$$

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



Standard



T Style



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	

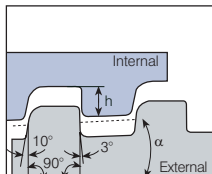
T Style



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

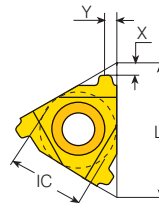
API Buttress Casing

Internal

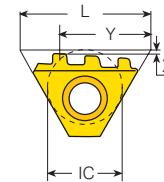


$$\alpha = \arctg (IPF/24)$$

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



Standard



T Style



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

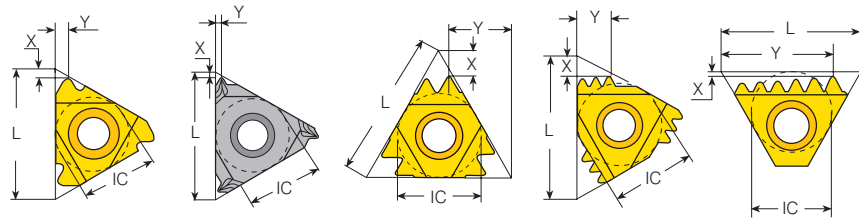
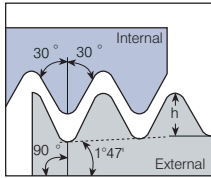


Insert Size		Pitch	Taper	Teeth	Ordering Code	Dimensions Inch			Anvil
IC	L Inch	tpi	IPF		RH	h _{min}	X	Y	RH Toolholder
1/2" T	.87	5	0.75	3	4IR5BUT753T...	.061	.004	.63	Y4T AVR..-4T



API Round Casing & Tubing

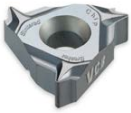
External



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

Standard **SCB**
Sintered Chipbreaker **Z Style** **M Style** **T Style**

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
		8	2	4ER8APIRD2M...	.071	.11	.18		
5/8"	1.06	10	3	5ER10APIRD3M...	.056	.15	.24	YE5M	AL...-5M
		8	2	5ER8APIRD2M...	.071	.11	.18		

T Style

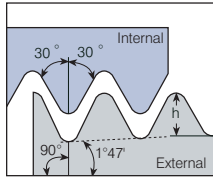


Insert Size		Pitch	Teeth	Ordering Code		Dimensions Inch		Anvil	
IC	L Inch	tpi		RH	h _{min}	X	Y	RH	Toolholder
1/2"	.87	10	6	4ER10APIRD6T...	.056	.004	.64	Y4T	AL...-4T
		8	3	4ER8APIRD3T...	.071	.004	.56		
		8	5	4ER8APIRD5T...	.071	.004	.66		

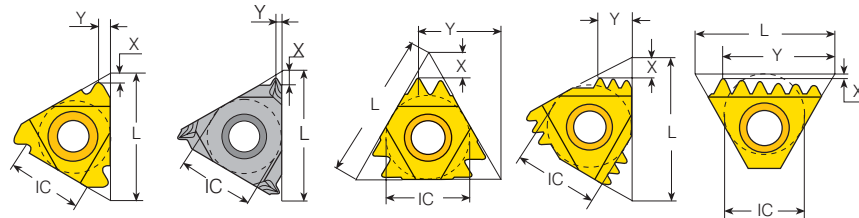


API Round Casing & Tubing (con't)

Internal

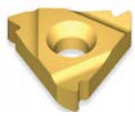


Defined by: API STD. 5B:1979
Tolerance class: Standard API RD



Standard **SCB**
Sintered Chipbreaker **Z Style** **M Style** **T Style**

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	Y13	AVR...-3
		8	3IR8APIRD...		.071	.05	.06		
3/8"	.63	10	3JIR10APIRD...		.056	.05	.06	Y13	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	Y14Z	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	Y14M	AVR...-4
5/8"	1.06	10	3	5IR10APIRD3M...		.056	.15	.24	Y15M	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"	.87	10	6	4IR10APIRD6T...		.056	.004	.64	Y4T	AVR...-4T
		8	3	4IR8APIRD3T...		.071	.004	.56		
		8	5	4IR8APIRD5T...		.071	.004	.66		



VAM

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

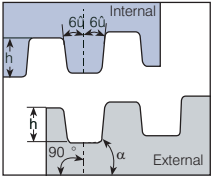
Standard



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		

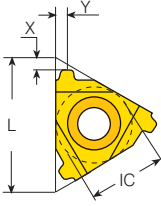


EL-Extreme Line

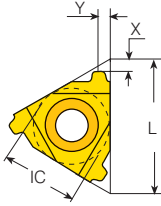


$\alpha = \arctg (IPF/24)$

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

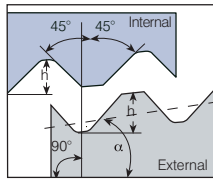


Insert Size		Pitch	Taper	Ordering Code	Connection No. or Size	Dimensions Inch			Anvil	
IC	L Inch	tpi	IPF	RH		h _{min}	X	Y	RH	Toolholder
1/2"	.087	6	1.5	4IR6EL15...	5"-7 5/8"	.055	.07	.07	Y14	AVR...-4 (LH)
		5	1.25	4IR5EL125...	8 5/8"-10 3/4"	.075	.09	.09		

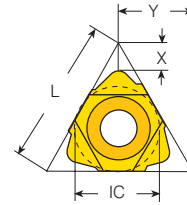


Hughes H-90

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

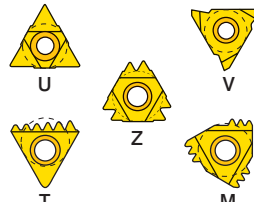
A	L	125	-	4	U	C			
1	2	3		4	5	6	7	8	9

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 - 11/2"
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

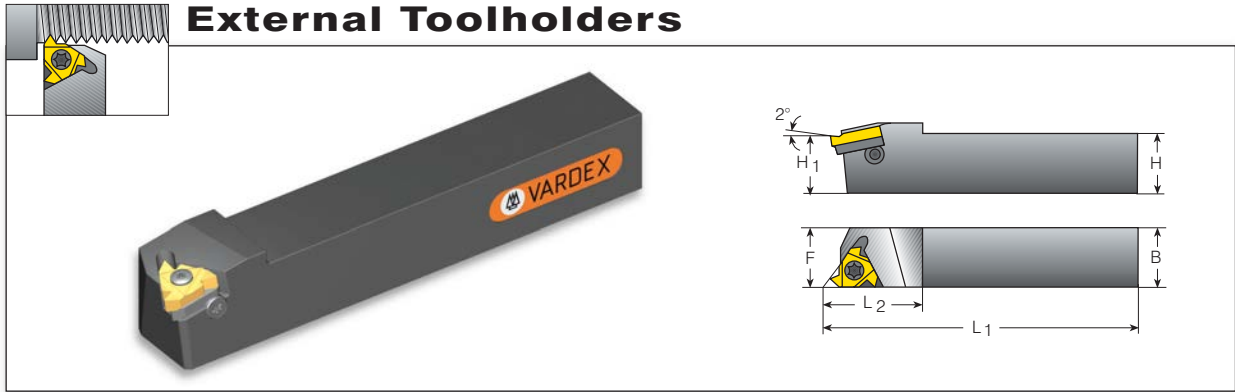
9 - Clamping
C - with Clamp

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								
		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					
1/2"	AL125-3	1.25	1.25	7.00	1.18					
	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
5/8"	AL150-4	1.50	1.50	8.00	1.42					
	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					
		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.

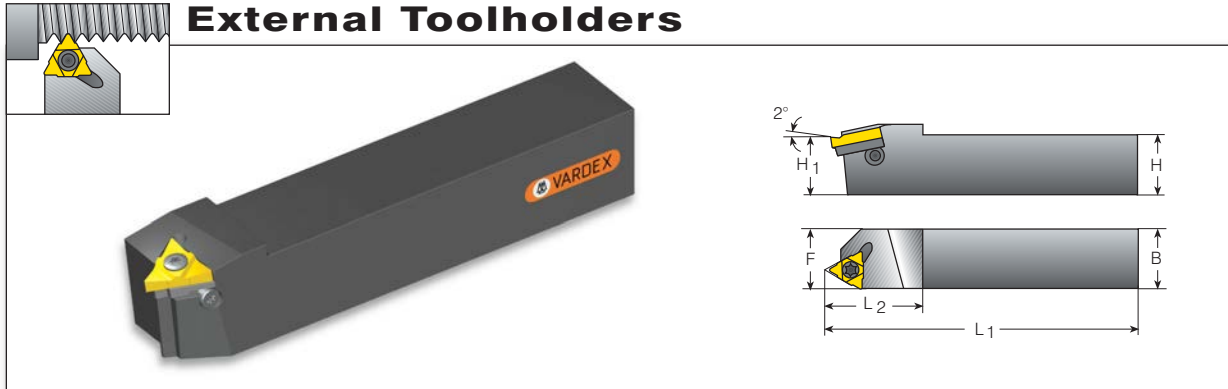
External Toolholders



Standard for API

Insert Size	Ordering Code	Thread Form	Connection no. or size	Dimensions Inch			Spare Parts				
				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					

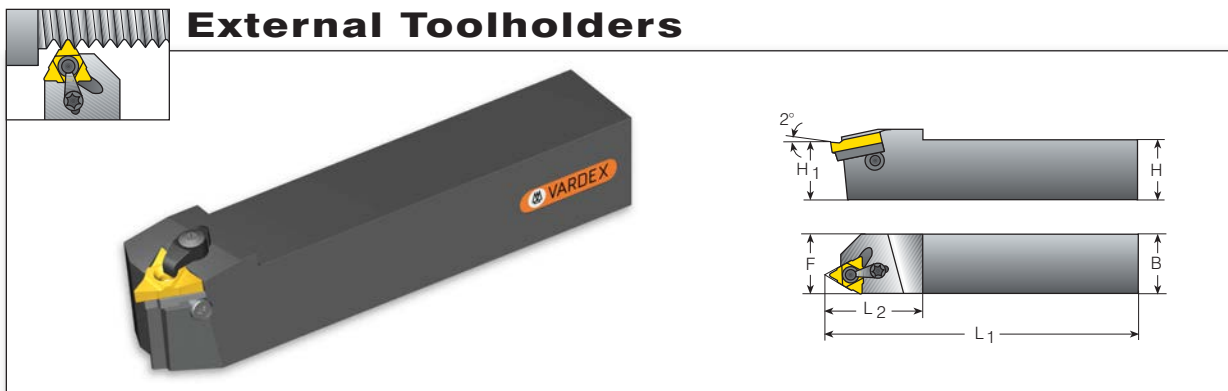
The above toolholders have a 1.5° helix angle. For other helix angles, see page 33.



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
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					

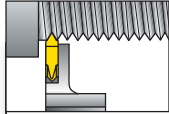
All U Style Toolholders have a 1.5° helix angle. For other helix angles see page 33.



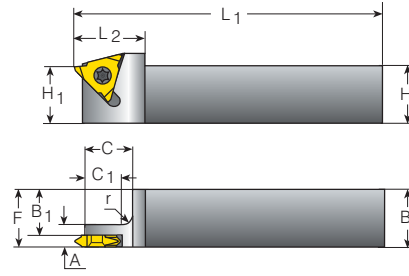
U Style with Clamp

Insert Size	Ordering Code	Dimensions Inch				Spare Parts					
		IC	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH
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

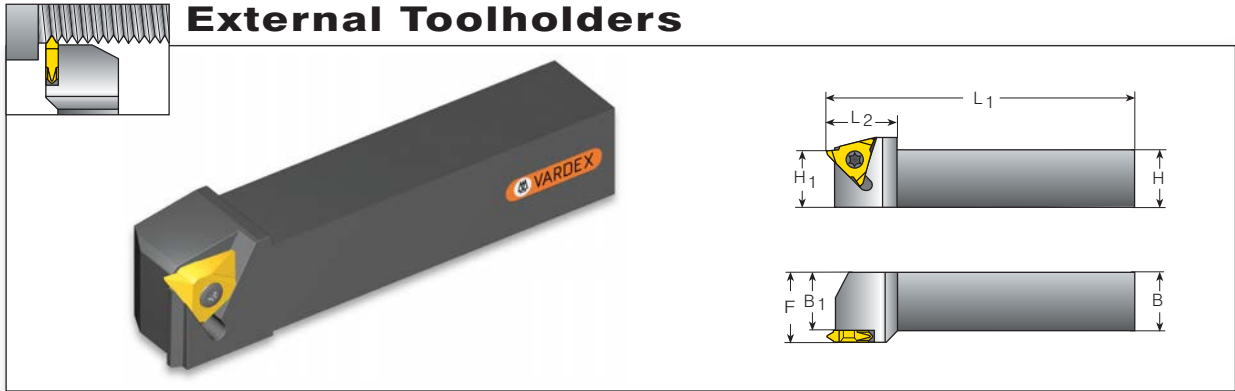


Slim Throat

Slim Throat										Spare Parts		
Insert Size	Ordering Code	Dimensions Inch										
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		
1/2"V	NL150-3V	1.50	1.50	.272	1.250	.65	.453	8.00	1.2	.20	SN4T	K4T
	NL100-4V	1.00	1.00	.472	.810	.65	.453	6.00	1.2	.20		
	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.

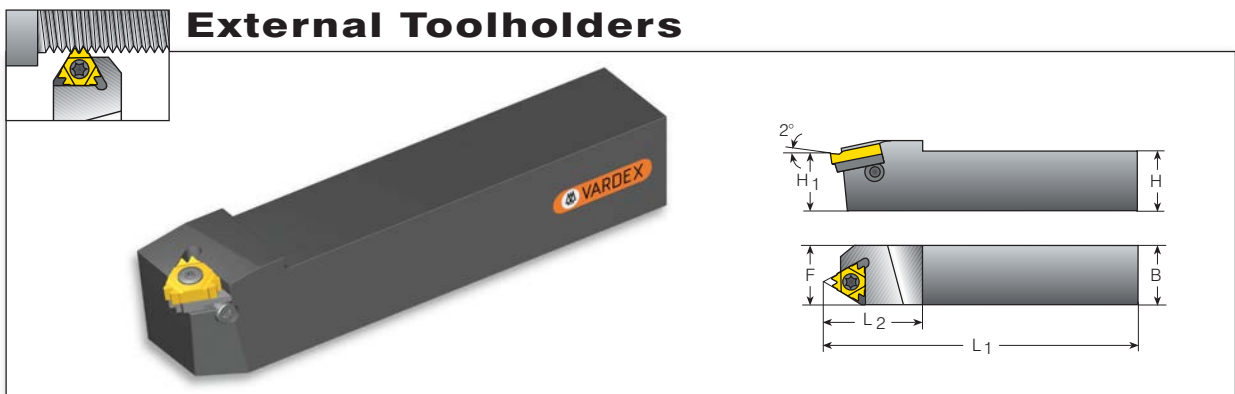




V Style

Dimensions Inch							Spare Parts	
Insert Size	Ordering Code	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		

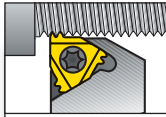
All V Style toolholders have a 1° helix angle.



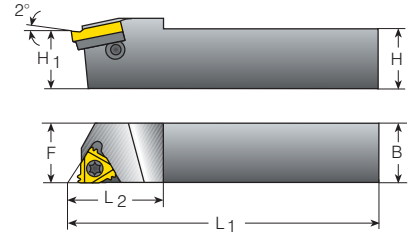
Z Style

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	Y14Z
	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	Y15Z
	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



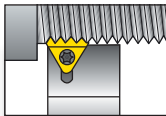
M Style

Insert Size	Ordering Code	Dimensions Inch			
IC	H=H1=B	F	L1	L2	
5/8" M	AL125-5M	1.25	1.25	7.00	1.57
	AL150-5M	1.50	1.50	8.00	1.57
	AL200-5M	2.00	2.00	10.00	1.57

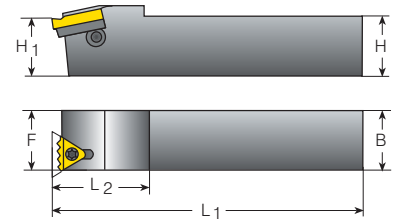
Spare Parts

Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
SA5T	SY5T	K5T	YE5M	YI5M

All M Style toolholders have a 1.5° helix angle.



External Toolholders



T Style

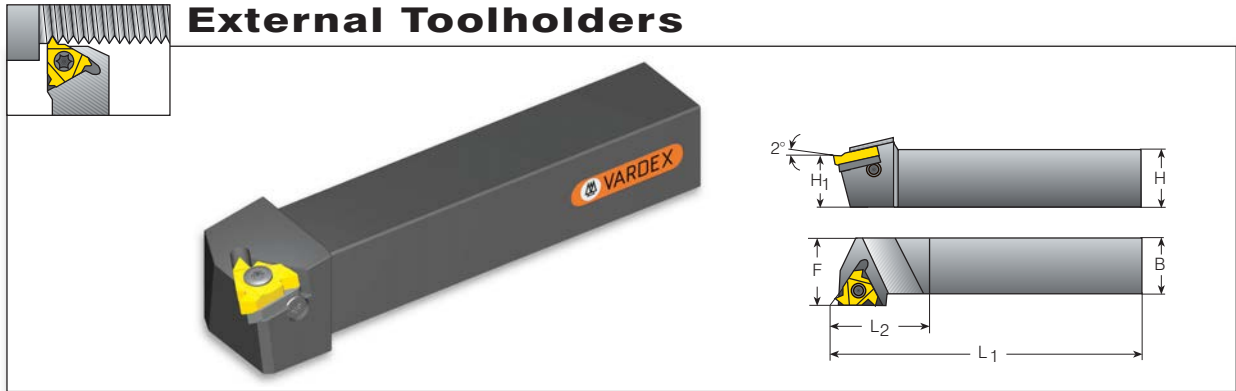
Insert Size	Ordering Code	Dimensions Inch			
IC	H=H1=B	F	L1	L2	
1/2" T	AL100-4T	1.00	1.08	6.00	1.2
	AL125-4T	1.25	1.33	7.00	1.2
	AL150-4T	1.50	1.58	8.00	1.2

Spare Parts

Insert Screw	Anvil Screw	Insert Torx Key	Anvil Torx Key	Anvil RH/LH
SA4T	SY4K2	K4T	K2	Y4T

All T Style toolholders have a 0° helix angle.



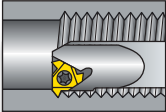


Off-Set Qualified (FQ)

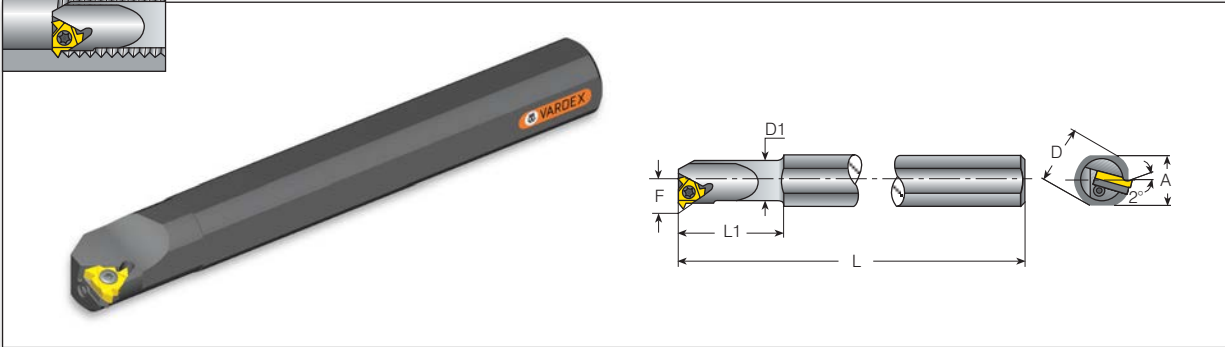
Spare Parts

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	
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

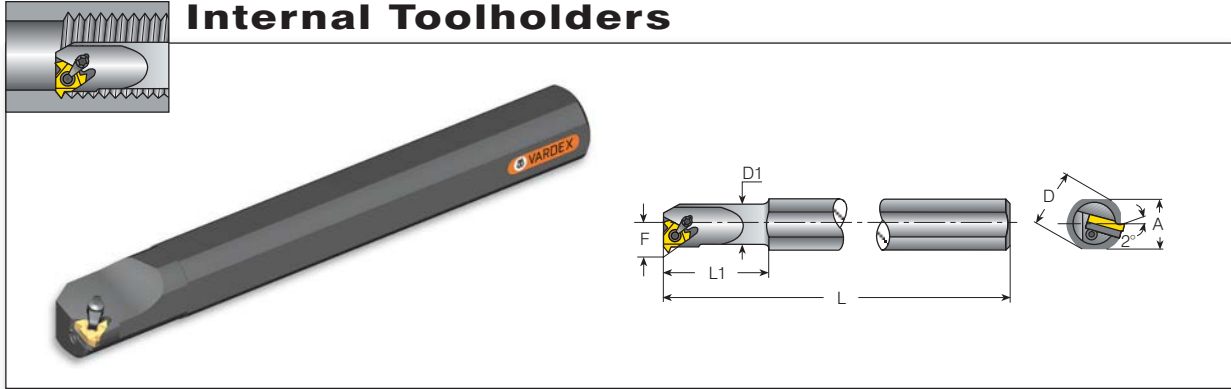
Spare Parts

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
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						
	NVRC0625-3	.67	7.0	1.50	.75	.62	.46	.80	SN3T	-	K3T	-	-	
3/8"	NVRC0625D-3	.58	6.0	1.25	.62	.62	.46	.80						
	AVRC075-3	.67	7.0	1.50	.75	.75	.51	.90						
	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	SA3T	SY3T	K3T	YI3	YE3	
	AVRC125-3	1.12	10.0	2.50	1.25	1.25	.77	1.45						
1/2"	AVRC150-3	1.34	12.0	2.50	1.50	1.50	.90	1.65						
	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						
5/8"	AVRC150-4	1.34	12.0	2.50	1.50	1.50	.98	1.75						
	AVRC125-5	1.12	10.0	2.50	1.25	1.25	.88	1.55						
	AVRC150-5	1.34	12.0	2.50	1.50	1.50	1.00	1.80	SA5T	SY5T	K5T	YI5	YE5	
	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.

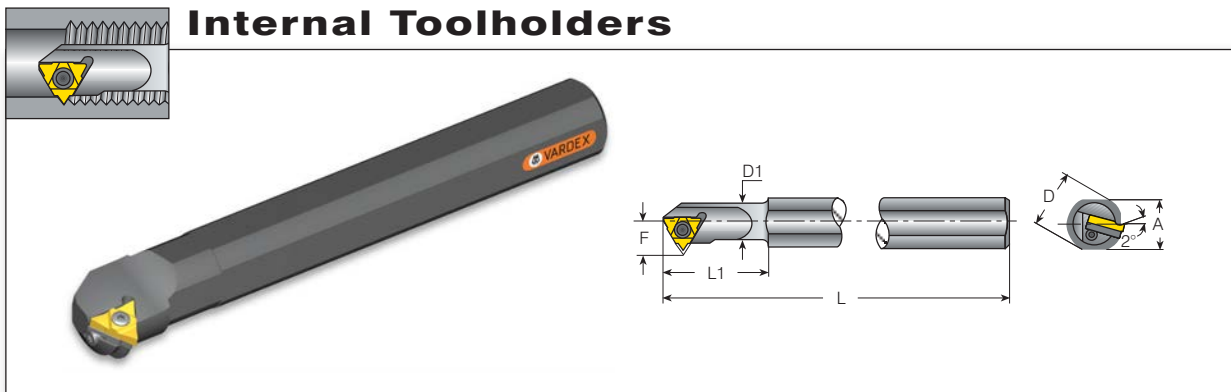
Holders with coolant channel are available as standard. For ordering code, see page 17.





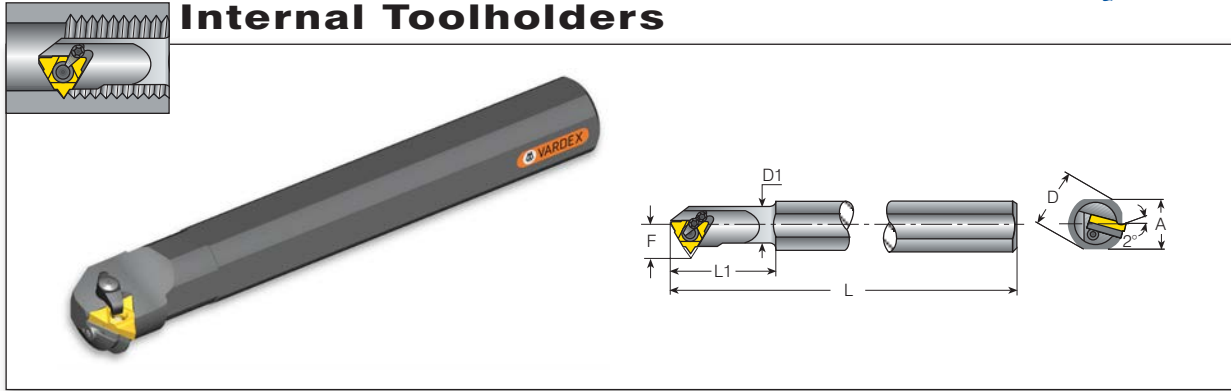
Standard with Clamp

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
3/8"	AVR075-3C	.67	7.0	2.00	.75	.75	.51	.90	SA3T	SY3T	C3	K3CT	YI3	YE3	
	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							
	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	SA4T	SY4T	C4	K4T	YI4	YE4	
	AVR100D-4C	.90	8.0	1.75	1.00	1.00	.71	1.25							
	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							



U Style

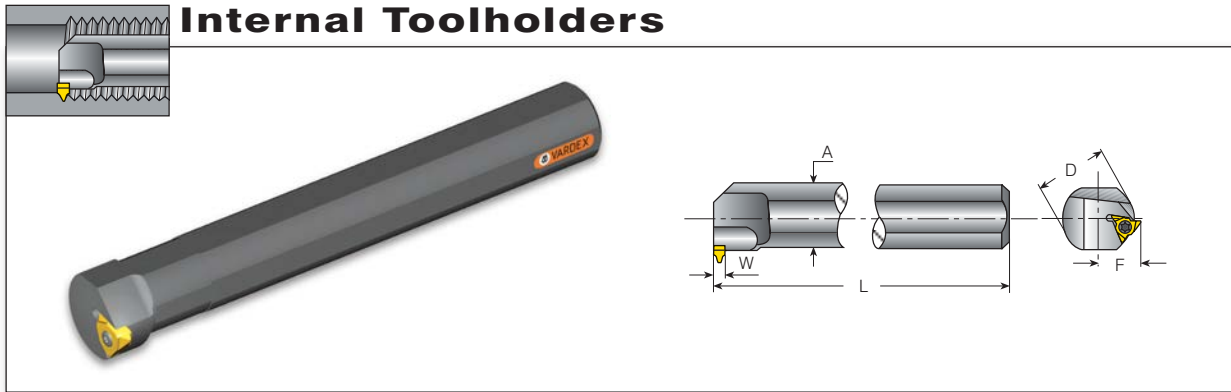
Insert Size	Ordering Code	Dimensions Inch							Min. bore dia.	Spare Parts				
		IC	A	L	L1	D	D1	F		Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH
1/2"U	AVR125-4U	1.12	10.0	2.50	1.25	1.25	1.01	1.65	SA4T	SY4T	K4T	YI4U	YE4U	
	AVR150-4U	1.34	12.0	2.50	1.50	1.50	1.12	1.90						
5/8"U	NVR125-5U	1.12	10.0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



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
1/2"U	AVR125-4UC	1.12	10.0	2.50	1.25	1.25	1.01	1.65	SA4T	SY4T	C4	K4T	Y14U	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	SA5T	SY5T	C5	K5T	Y15U	YE5U	
	AVR200-5UC	1.80	14.0	3.00	2.00	2.00	1.37	2.40							
	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.

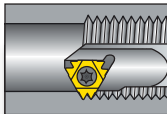


V Style

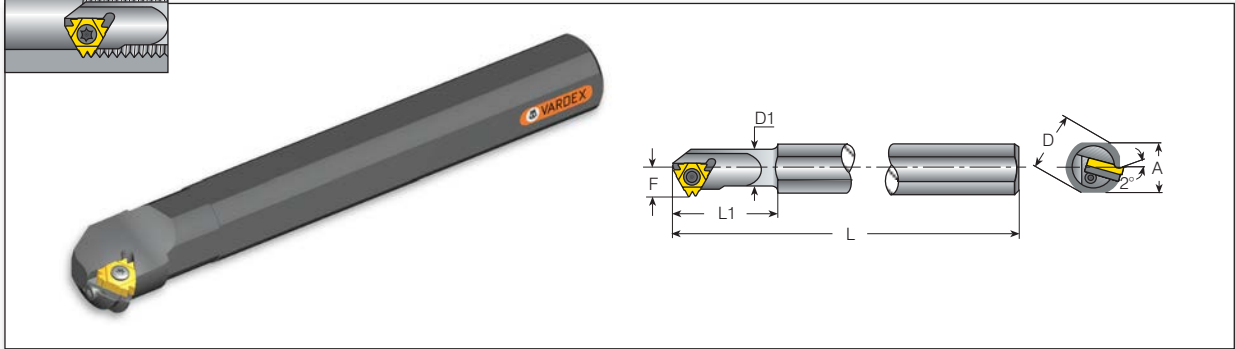
Insert Size	Ordering Code	Dimensions Inch					Spare Parts
		IC	A	L	D	F	
5/8"V	NVR150-5V	1.34	12.00	1.50	1.08	.256	SN6T K6T
	NVR200-5V	1.80	14.00	2.00	1.33	.256	
	NVR250-5V	2.26	16.00	2.50	1.58	.256	

The above toolholders have a 1.0° helix angle.





Internal Toolholders



Z Style

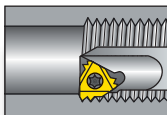
Insert Size	Ordering Code	Dimensions Inch							Min. bore dia
IC		A	L	L1	D	D1	F	Inch	
1/2"Z	AVR125-4Z	1.12	10.0	2.50	1.25	1.25	1.01	1.65	
	AVR150-4Z	1.34	12.0	2.50	1.50	1.50	1.12	1.90	
5/8"Z	NVR125-5Z	1.12	10.0	2.50	1.25	1.25	.98	1.65	
	AVR150-5Z	1.34	12.0	2.50	1.50	1.50	1.13	1.90	
	AVR200-5Z	1.80	14.0	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	

Spare Parts

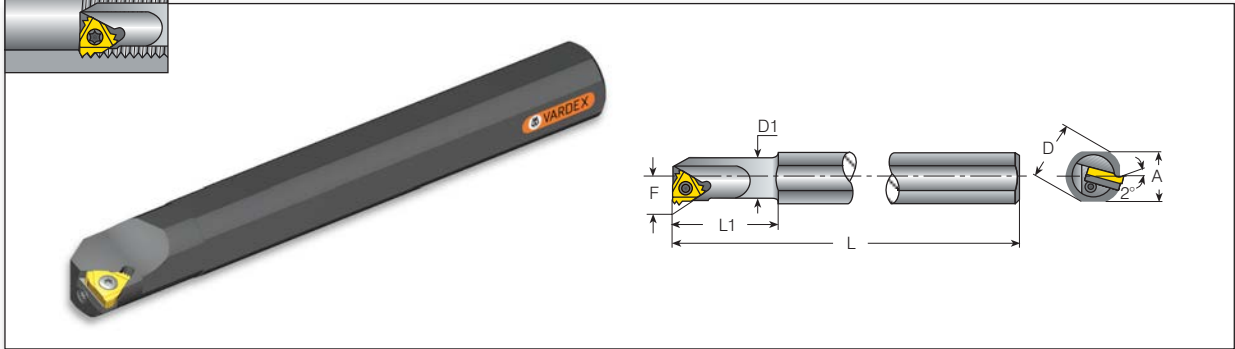
Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
SA4T	SY4T	K4T	YI4Z	YE4Z
SA5T	SY5T	K5T	YI5Z	YE5Z

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

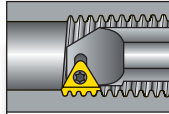
Insert Size	Ordering Code	Dimensions Inch							Min. bore dia
IC		A	L	L1	D	D1	F	Inch	
5/8"M	AVR125-5M	1.12	10.0	2.50	1.25	1.25	0.88	1.55	
	AVR150-5M	1.34	12.0	2.50	1.50	1.50	1.00	1.80	
	AVR200-5M	1.80	14.0	3.00	2.00	2.00	1.25	2.30	
	AVR250-5M	2.26	16.0	3.00	2.50	2.50	1.50	2.80	

Spare Parts

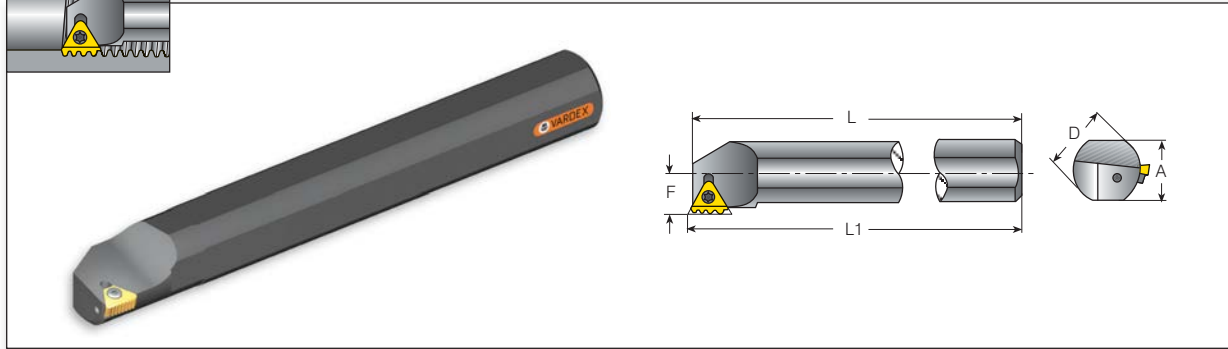
Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
SA5T	SY5T	K5T	YI5M	YE5M

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

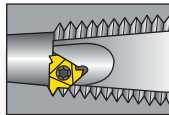


T Style

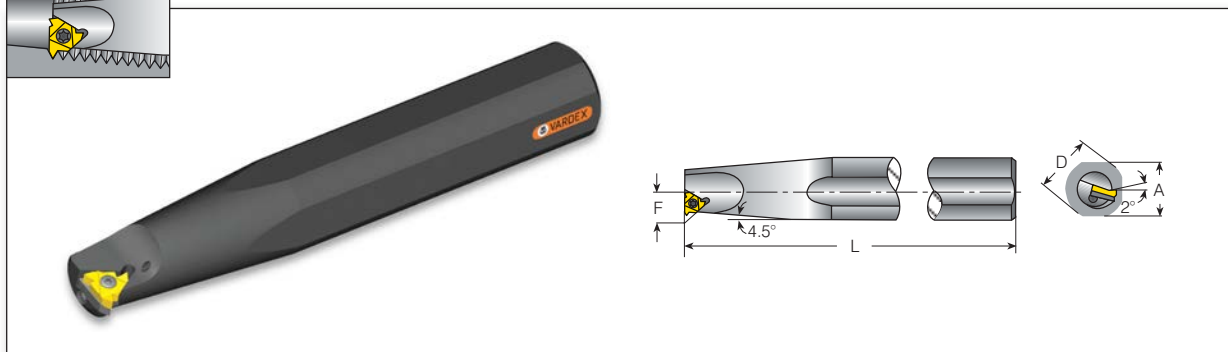
Insert Size	Ordering Code	Dimensions Inch						Min. bore dia	Spare Parts				
		IC	A	L	L1	D	F		Inch	Insert Screw	Anvil Screw	Torx Key	Anvil Torx Key
1/2" T	AVR150-4T	1.34	12.0	12.078	1.50	.88	2.40						
	AVR200-4T	1.80	14.0	14.079	2.00	1.13	2.75	SA4T	SY4K2	K4T	K2	Y4T	
	AVR250-4T	2.26	16.0	16.079	2.50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

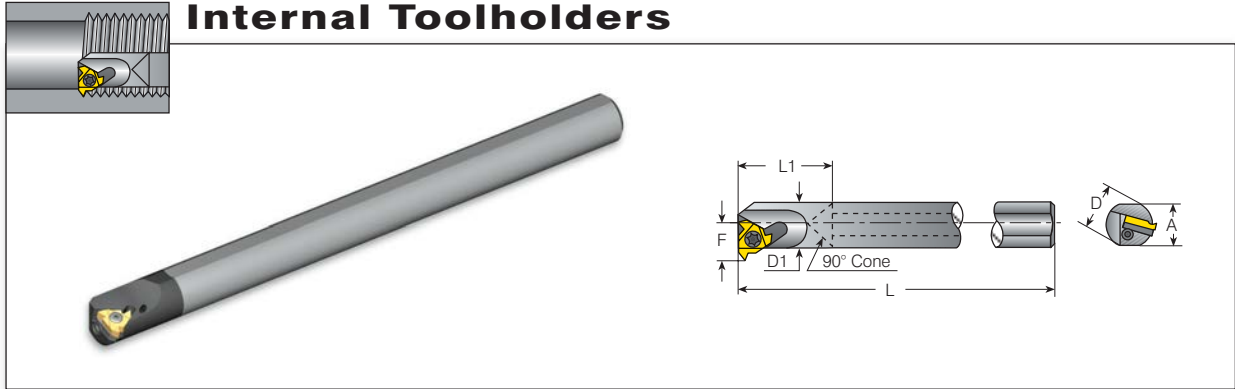


API

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
5/8"	AVR200-5OIL	V0.038R	NC23-NC38	1.80	12.0	2.00	.90					
	AVRC200-5OIL	V0.038R	NC23-NC38					SA5T	SY5T	K5T	YI5OIL	YE5OIL
	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.



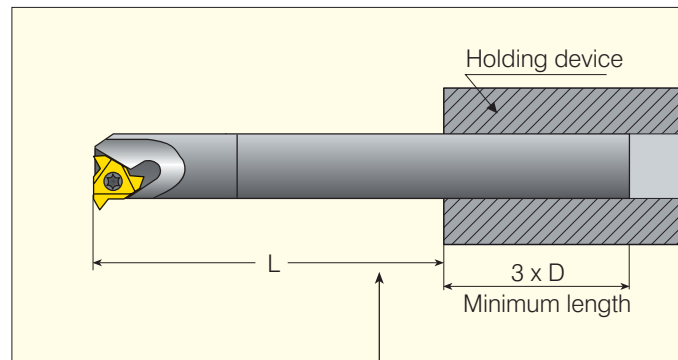
Standard with Carbide Shank

Spare Parts

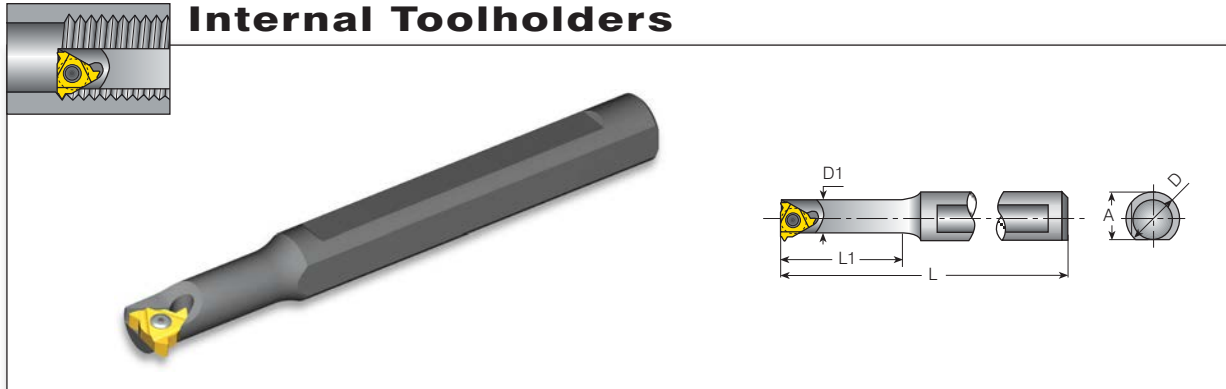
Insert Size	Ordering Code	Dimensions Inch							Min. Bore Dia.	Spare Parts				
		IC	A	L	L1	D	D1	F		Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH
4.0mm	CNVRC0205-4.0K	.204	4.00	1.02	.250	.200	.170	.24	SN4MT	-	K6MT	-	-	
1/4"	CNVRC0375-2	.352	6.00	-	.375	.375	.278	.50	SN2T	-	K2T	-	-	
	CNVRC050-2	.477	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.

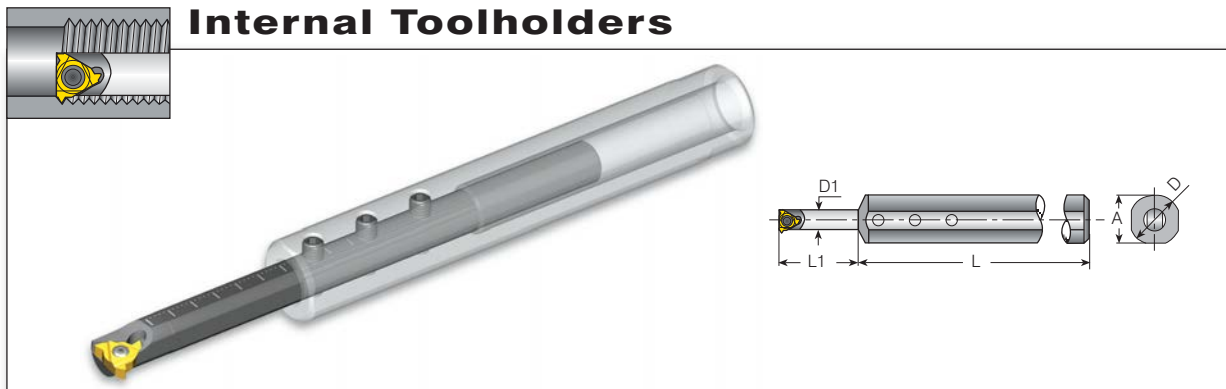


The overhang to bar diameter ratio should be as small as possible to eliminate the chance of chatter (vibration). The minimum length inside a holding device should be 3 times the diameter of the bar shank.




Mini-3

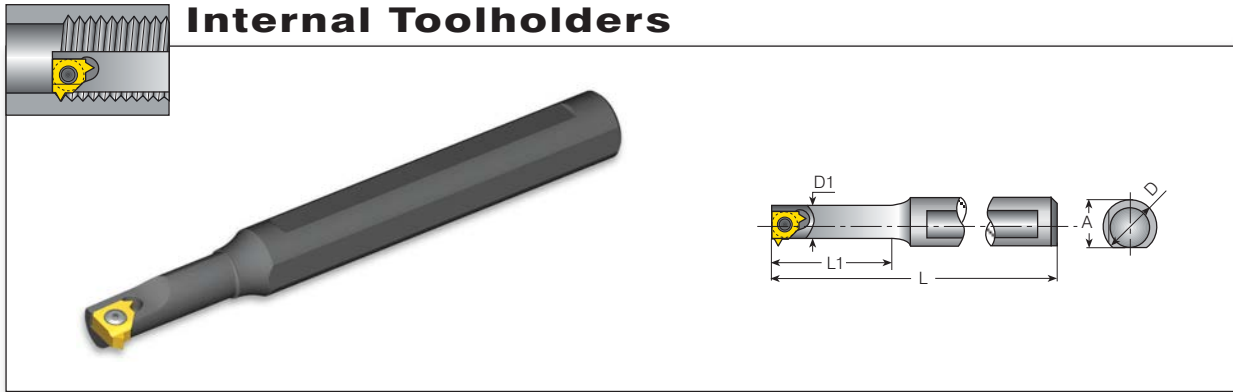
Mini-3								Spare Parts	
Insert Size	Ordering Code	Dimensions Inch					Anti-Vibration System		
IC mm	A	L	L1	D	D1		Insert Screw	Torx Key	
4.0mm	NVR020-4K	.489	4.000	.470	.500	.200	No	SN4MT	K6MT
6.0	SNVR 375U-6.0	.363	3.228	.630	.375	.315	No	SN6MT	K6MT
	BNVR 375S-6.0	.363	3.504	.866	.375	.315	Yes		
	BNVR 375M-6.0	.363	3.858	1.220	.375	.315	Yes		
6.0	BNVR 375L-6.0	.363	4.330	1.693	.375	.315	Yes	SN6MT	K6MT
	SNVR 050U-6.0	.489	3.228	.630	.500	.315	No		
	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		



Mini-3-Adjustable

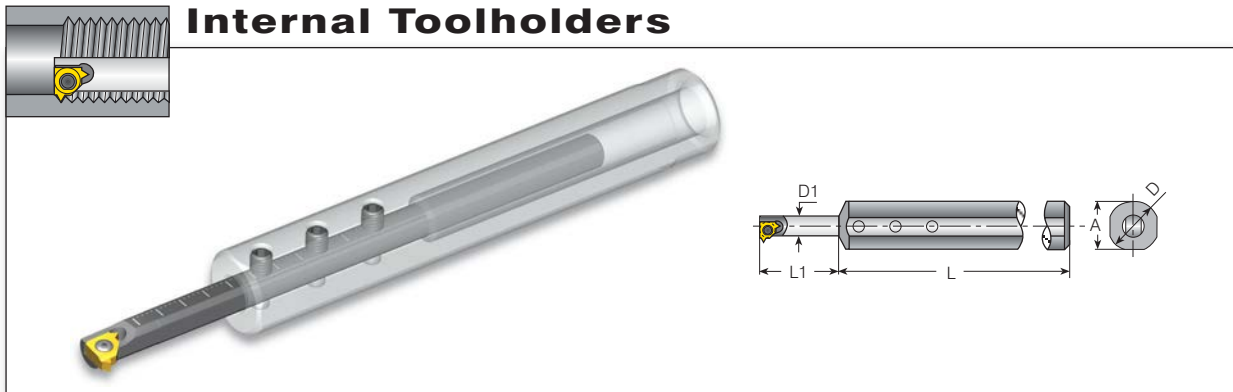
Mini-3-Adjustable								Spare Parts			
Insert Size	Ordering Code		Dimensions Inch								
IC mm	Sleeve	Holder	A	L	L1	D	D1	Insert Screw	Torx Key for Insert Screw	Holder Screw x3	Key for Holder Screw
6.0	SV0625-8.0	BNVR8.0T-6.0	.584	4	.315-2.2	.625	.315	SN6MT	K6MT	S4.0	K4.0





Mini-L

Mini-L								Spare Parts	
Insert Size	Ordering Code	Dimensions Inch					Anti-Vibration System	Insert Screw	Torx Key
IC mm	A	L	L1	D	D1				
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		



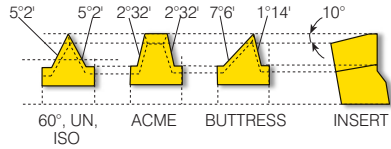
Mini-L-Adjustable

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

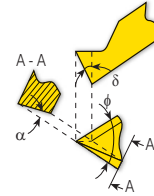


Calculating the Helix Angle and Choosing The Right Anvil

Flank Clearance Angle α



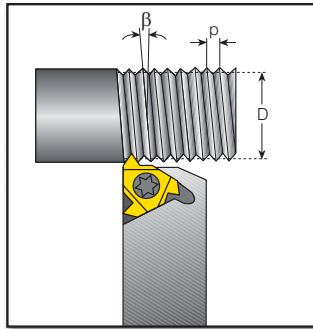
Vardex toolholders are designed to tilt the insert when seated in the toolholder (10° for external, 15° for internal tooling). This results in the differing flank clearance angles, based on the geometry of insert. To ensure that the side of the insert cutting edge will not rub on the workpiece, it is most important that the insert helix angle be correct - especially in profiles with small enclosed flank angles. This correction is provided by Vardex anvils.



$$\alpha = \arctan(\tan \frac{\phi}{2} \times \tan \delta)$$

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

Calculating the Helix Angle β



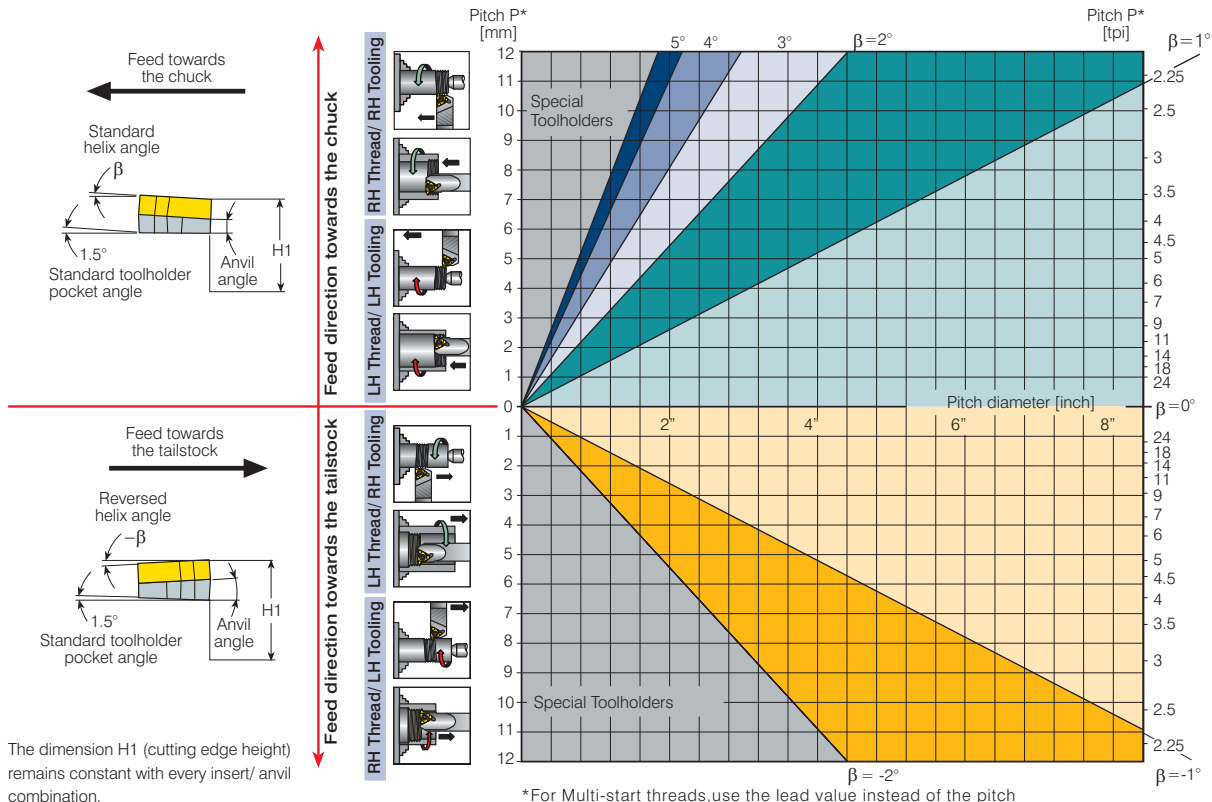
The helix angle is calculated by the following formula:

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

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.

Anvils

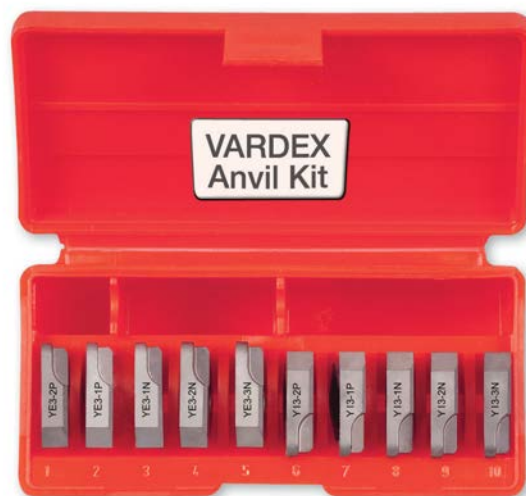
Resultant Helix Angle		4.5°	3.5°	2.5°	1.5°	0.5°	0°	-0.5°	-1.5°	
Insert Size		Holder	Ordering Code							
IC	L mm									
3/8"	16	ER / IL	YE3-3P	YE3-2P	YE3-1P	YE3	YE3-1N	YE3-1.5N	YE3-2N	YE3-3N
		EL / IR	YI3-3P	YI3-2P	YI3-1P	YI3	YI3-1N	YI3-1.5N	YI3-2N	YI3-3N
1/2"	22	ER / IL	YE4-3P	YE4-2P	YE4-1P	YE4	YE4-1N	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 <small>Same anvil turned over</small>

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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