



Oil&Gas

Professional Threading Solutions



INCH

VARDEX

Advanced Threading Solutions

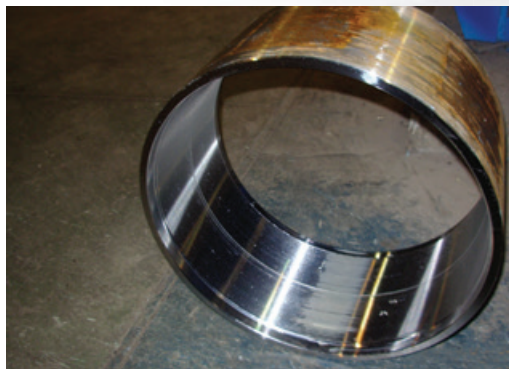
Professional Threading Solutions

Expanded Line of Thread Turning Solutions for the Oil and Gas Industry

Solutions for Pipes and Couplings

Vardex's advanced threading solutions for the oil and gas industry, now includes specialized solutions for tough and challenging applications in the following insert profiles:

- APIRD
- Buttress
- Extreme Line
- VAM
- New VAM
- Hughes H-90



Solutions for Rotary Drill Stem Connections

Unique insert design with strengthened cutting edge and increased tool life for the following Rotary Drill stem connections:

- NC - Number Connection
- REG -Regular Style
- FH - Full Hole
- IF - Internal Flash



Professional Threading Solutions

Specialized Thread Milling Solutions for the Oil & Gas Industry

Ask us about our specialized solutions for frac pump and valves manufacturers.
Contact your local Vargus distributor for ordering information.



Frac Pumps

Application

Common threads:

5.5"-6" -4 ABUT, 3/4"-10UNC



Recommended Solutions

Shell Mill (5/8" V Style)



V Style



Deep Threading -
Full & Partial Profile



Valves

Application

Common threads:

UN, UNC, ACME, STACME,
NPT, BSP

Ball



Gas Pipe



Butterfly



Recommended Solutions

MiTM 40 Standard



MiTM 40 Shell Mill



TM Solid - Helical Flutes
with Thru-Hole Coolant



TMSD Vertical



TMSD U Style



TMSD L Style (3/8"L)



Professional Threading Solutions



New Solutions for Machining Seal Components in Premium Connections

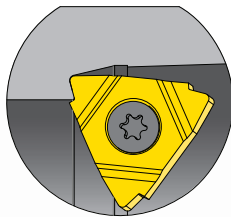
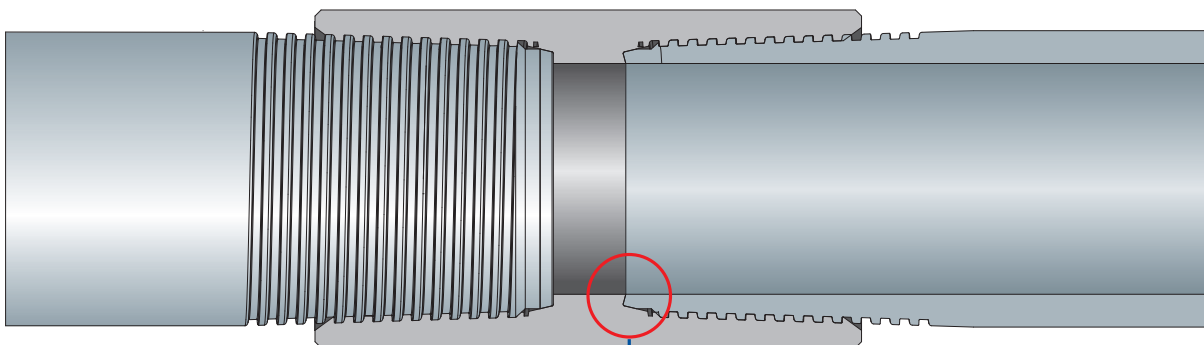
Vargus' new high precision inserts for the Oil & Gas industry are specially designed to reproduce a variety of different insert profile geometries accurately and consistently onto the component for optimized manufacturing of seal components.

Quotations on tailor-made solutions are available upon receipt of the seal component geometry.

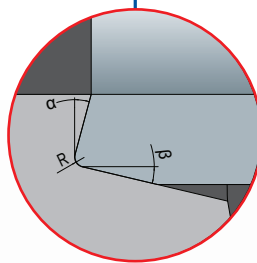
Advantages:

- High indexability of insert cutting edges: $\pm .0008'' (\pm .02\text{mm})$
- Profile geometry can be tailored to specific applications
- Economical inserts with 3 cutting corners
- Insert profile is copied onto the component for significantly reduced machining cycle times
- Shorter set-up time
- Simple CNC programming

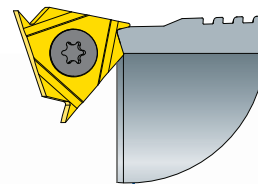
Seal Component Machining



Profile Copied to the Coupling



Sample Seal Component Geometry



Profile Copied to the Pipe



Special Toolholder Solutions (See Pages 45-46)



OIL & GAS CATALOG

THREAD TURNING INSERTS

■ NPT	Page 6
■ NPTF	Page 9
■ API	Page 11
■ API Buttress Casing	Page 13
■ API Round Casing & Tubing	Page 17
■ American ACME	Page 21
■ Stub ACME	Page 24
■ VAM	Page 26
■ New VAM	Page 28
■ EL-Extreme Line	Page 29
■ Hughes H-90	Page 30

EXTERNAL THREAD TURNING TOOLHOLDERS

■ Standard	Page 31
■ Standard with Clamp	Page 32
■ Oil & Gas	Page 32
■ U Style	Page 33
■ U Style with Clamp	Page 33
■ Slim Throat	Page 34
■ V Style	Page 35
■ 14D	Page 36
■ Z+ Style	Page 36
■ M+ Style	Page 37
■ T+ Style	Page 37

INTERNAL THREAD TURNING TOOLHOLDERS

■ Standard	Page 38
■ V6 Style	Page 39
■ V Style	Page 39
■ Standard with Clamp	Page 40
■ U Style for Coarse Pitch	Page 40
■ U Style	Page 41
■ U Style with Clamp	Page 41
■ Z+ Style	Page 42
■ M+ Style	Page 42
■ T+ Style	Page 43
■ Oil & Gas	Page 43
■ 14D	Page 44

SPECIAL SOLUTIONS

■ Special Toolholder Solutions	Page 45
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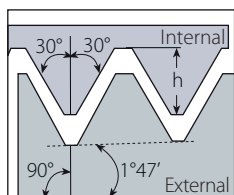
TECHNICAL DATA

■ Calculating the Helix Angle and Choosing the Right Anvil	Page 47
■ Anvils	Page 48
■ Recommended Grades and Cutting Speeds	Page 49
■ Technical Data	Page 50

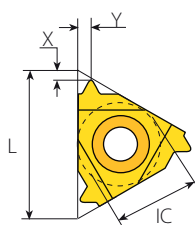


NPT

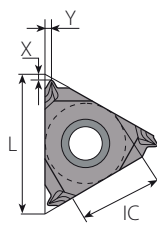
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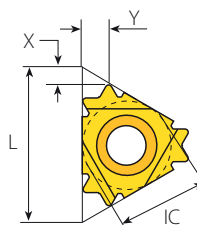
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



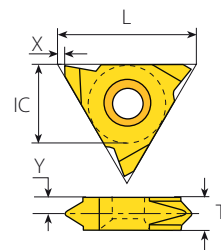
Standard



SCB Sintered
Chipbreaker

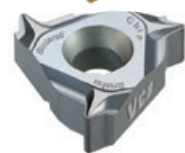


V6



Slim Throat

Standard



SCB



V6

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	.04			
		14	3ER14NPT...	3EL14NPT...	.052	.04	.05			
		11.5	3ER11.5NPT...	3EL11.5NPT...	.065	.04	.06			
		8	3ER8NPT...	3EL8NPT...	.095	.05	.07			
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	.04	.06			
3/8" V6	.63	14	3ER14NPT-6C...		.052	.07	.12	YE3-6C	-	AL...-3

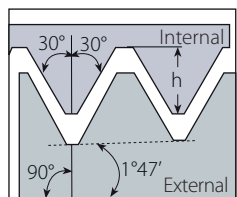
Slim Throat



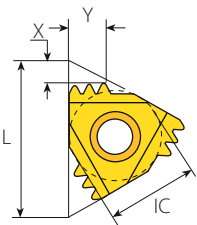
Insert Size		Pitch	Ordering Code		Dimensions (inch)			Toolholder
IC	L inch	tpi	RH	LH	h min	X	Y	
1/4"V	.43	27	2VER27NPT...	2VEL27NPT...	.026	.03	.08	NL...-2V (LH)
		18	2VER18NPT...	2VEL18NPT...	.040	.03	.07	
		14	2VER14NPT...	2VEL14NPT...	.052	.03	.07	
		11.5	2VER11.5NPT...	2VEL11.5NPT...	.065	.03	.08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

NPT (con't)

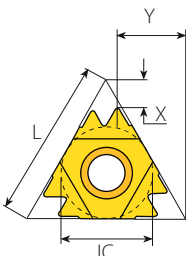
External



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



M+ Style



Z+ Style

M+ Style



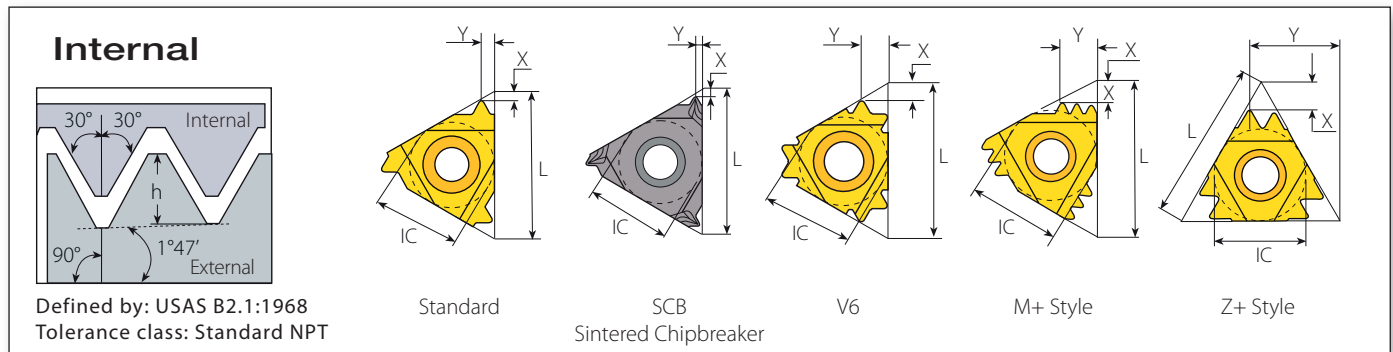
Insert Size		Pitch	Teeth	Ordering Code	Dimensions (inch)			Anvil	Toolholder
IC	L inch	tpi		RH	h min	X	Y	RH	
3/8"	.63	14	2	3ER14NPT2M+...	.052	.08	.12	YE3M	AL..-3
1/2"	.87	11.5	2	4ER11.5NPT2M+...	.065	.09	.13	YE4M	AL..-4
5/8"	1.06	11.5	3	5ER11.5NPT3M+...	.065	.14	.22	YE5M	AL..-5M
		8	2	5ER8NPT2M+...	.095	.12	.19		

Z+ Style

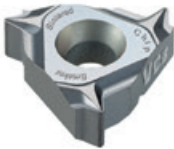
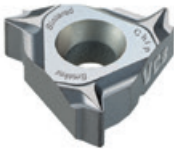


Insert Size		Pitch	Teeth	Ordering Code	Dimensions (inch)			Anvil	Toolholder
IC	L inch	tpi		RH	h min	X	Y	RH	
1/2"	.87	11.5	2	4ER11.5NPT2Z+...	.065	.11	.39	YE4Z	AL..-4Z
		8	2	4ER8NPT2Z+...	.095	.13	.38		

NPT (con't)



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	YI3	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	.07			
	3/8" SCB	.63	27 3JIR27NPT...		.026	.02	.03	YI3	-	AVR..-3
		18	3JIR18NPT...		.040	.02	.03			
		14	3JIR14NPT...		.052	.04	.06			
		11.5	3JIR11.5NPT...		.065	.04	.06			
		8	3JIR8NPT...		.095	.04	.06			
	3/8" V6	.63	14 3IR14NPT-6C...		.052	.07	.11	YI3-6C	-	AVR..-3 NVRC..-3V6

M+ Style

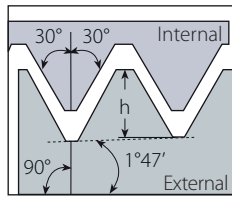
Insert Size		Pitch	Teeth	Ordering Code	Dimensions (inch)			Anvil	
IC	L inch	tpi		RH	h min	X	Y	RH	Toolholder
	3/8"	.63	14	2	3IR14NPT2M+...	.052	.08	.12	YI3M
	1/2"	.87	11.5	2	4IR11.5NPT2M+...	.065	.09	.13	YI4M
	5/8"	11.5	3	5IR11.5NPT3M+...	.065	.14	.22	YI5M	AVR..-5M
		8	2	5IR8NPT2M+...	.095	.12	.19		

Z+ Style

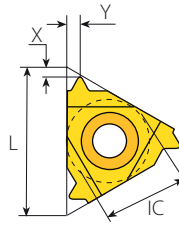
Insert Size		Pitch	Teeth	Ordering Code	Dimensions (inch)			Anvil	
IC	L inch	tpi		RH	h min	X	Y	RH	Toolholder
	1/2"	11.5	2	4IR11.5NPT2Z+...	.065	.11	.39	YI4Z	AVR..-4Z
		8	2	4IR8NPT2Z+...	.095	.13	.38		

NPTF

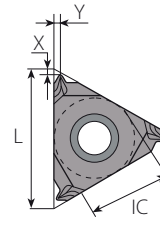
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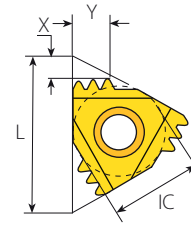
Defined by: ANSI B1.2.3-1976
Tolerance class: Class 2



Standard

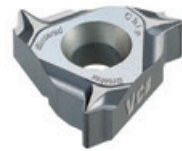


SCB
Sintered Chipbreaker



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			
		8	3ER8NPTF...	3EL8NPTF...	.094	.05	.07			
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	.04	.06			

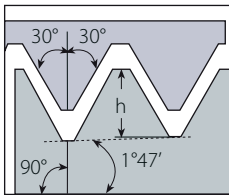
M+ Style



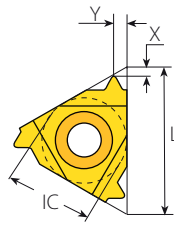
Insert Size		Pitch	Teeth	Ordering Code	Dimensions (inch)			Anvil		Toolholder
IC	L inch	tpi		RH	h min	X	Y	RH		
3/8"	.63	14	2	3ER14NPTF2M+...	.053	.08	.12	YE3M		AL...-3

NPTF (con't)

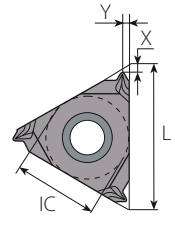
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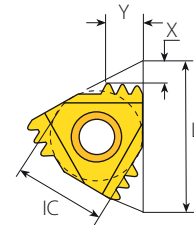
Defined by: ANSI B1.2.3-1976
Tolerance class: Class 2



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	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			
		8	3IR8NPTF...	3IL8NPTF...	.094	.05	.07			
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			

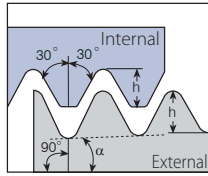
M+ Style



Insert Size		Pitch	Teeth	Ordering Code	Dimensions (inch)			Anvil		Toolholder
IC	L inch	tpi		RH	h min	X	Y	RH		
3/8"	.63	14	2	3IR14NPTF2M+...	.053	.08	.12	Y13M		AVR..-3

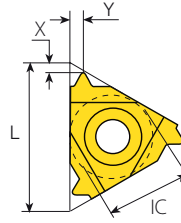
API

External / Internal

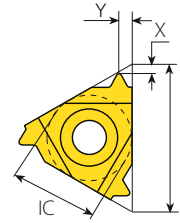


$$a = \arctg (IPF/24)$$

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



Standard - External



Standard - Internal

Standard - External



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-.038R	2	4ER4API382...	NC23-NC50	.122	.08	.11	YEI 4-API-1P YE4	AL...-4 5BUT/API AL...-4 (LH)
		4	V-.038R	3	4ER4API383...	NC56-NC77	.121	.08	.11		
		4	V-.050	2	4ER4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8"FH	.148	.08	.11		
		4	V-.050	3	4ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	.147	.08	.11		
		5	V-.040	3	4ER5API403...	2 3/8"-4 1/2" REG	.118	.07	.10		
		6	V-.055	1.5	4ER6API551...	NC10-NC16	.056	.10	.09		
5/8"	1.06	4	V-.038R	2	5ER4API382...	NC23-NC50	.122	.08	.11	YE5OIL	AL...-5 OIL (LH)
		4	V-.038R	3	5ER4API383...	NC56-NC77	.121	.08	.11		
		4	V-.050	2	5ER4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8"FH	.148	.08	.12		
		4	V-.050	3	5ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	.147	.08	.12		
		5	V-.040	3	5ER5API403...	2 3/8"-4 1/2" REG	.118	.07	.11		
		4	V-.065	2	5ER4API652...	2 3/8"IF- 5 1/2"IF	.1106	.091	.11		

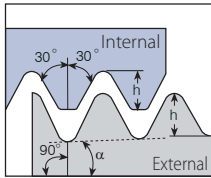
Standard - Internal



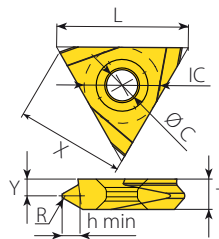
Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions (inch)			Anvil	
IC	L inch	tpi		IPF	RH		h min	X	Y	RH	Toolholder
1/2"	.87	4	V-.038R	2	4IR4API382...	NC23-NC50	.122	.08	.11	YEI 4-API-1P YI4	AVRC...-4 5BUT/API AVR...-4 (LH)
		4	V-.038R	3	4IR4API383...	NC56-NC77	.121	.08	.11		
		4	V-.050	2	4IR4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8"FH	.148	.08	.12		
		4	V-.050	3	4IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	.147	.08	.11		
		5	V-.040	3	4IR5API403...	2 3/8"-4 1/2" REG	.118	.07	.10		
		6	V-.055	1.5	4IR6API551...	NC10-NC16	.056	.10	.08		
5/8"	1.06	4	V-.038R	2	5IR4API382...	NC23-NC50	.122	.08	.11	YI5OIL	AVR...-5 OIL (LH)
		4	V-.038R	3	5IR4API383...	NC56-NC77	.121	.08	.11		
		4	V-.050	2	5IR4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8"FH	.148	.08	.12		
		4	V-.050	3	5IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	.147	.08	.12		
		5	V-.040	3	5IR5API403...	2 3/8"-4 1/2" REG	.118	.07	.11		
		4	V-.065	2	5IR4API652...	2 3/8"IF- 5 1/2"IF	.1106	.091	.110		

API (con't)

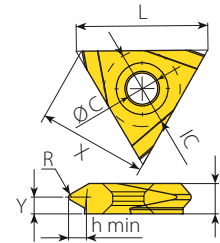
External / Internal



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



On Edge - External



On Edge - Internal

On Edge* - External



Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions (inch)				Position	
IC	L inch	tpi		IPF	RH		R	h min	T	Ø C	X	Y
5/8"	1.063	5	V-.040	3	TNEC54 ER5API 403	2 3/8"-4 1/2" REG	.020	.118	.250	.256	.921	.155
		4	V-.050	2	TNEC55 ER4API 502	6 5/8" REG, 5 1/2 FH, 6 5/8 FH	.025	.148	.3125			.195
		4	V-.050	3	TNEC55 ER4API 503	5 1/2", 7 5/8", 8 5/8" REG	.025	.148	.3125			.195
		4	V-.038	2	TNEC55 ER4API 382	NC23-NC50, 2 3/8 - 6 5/8 IF	.038	.122	.3125			.195
		4	V-.038	3	TNEC55 ER4API 383	NC56-NC77	.038	.122	.3125			.195

On Edge* - Internal

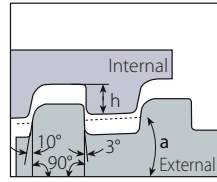


Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions (inch)				Position	
IC	L inch	tpi		IPF	RH		R	h min	T	Ø C	X	Y
5/8"	1.063	5	V-.040	3	TNEC54 IR5API 403	2 3/8"-4 1/2" REG	.020	.118	.250	.256	.921	.155
		4	V-.050	2	TNEC55 IR4API 502	6 5/8" REG, 5 1/2 FH, 6 5/8 FH	.025	.148	.3125			.195
		4	V-.050	3	TNEC55 IR4API 503	5 1/2", 7 5/8", 8 5/8" REG	.025	.148	.3125			.195
		4	V-.038	2	TNEC55 IR4API 382	NC23-NC50, 2 3/8 - 6 5/8 IF	.038	.122	.3125			.195
		4	V-.038	3	TNEC55 IR4API 383	NC56-NC77	.038	.122	.3125			.195

* On Edge inserts are suited to existing toolholders on the market.

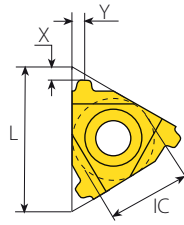
API Buttress Casing

External

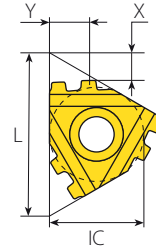


Defined by: STD.5B.1979
Tolerance class: Standard API

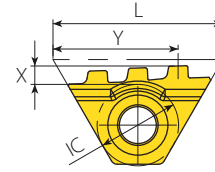
$$a = \arctg (IPF/24)$$



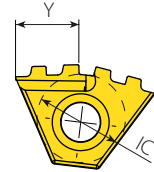
Standard



M+ Style



T+ Style



14D - 2 Cutting Edges

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	3/4"	4ER5BUT75...	4 1/2"-13 3/8"	.061	.12	.07	YEI 4-BUT	AL...-4 5BUT/API
		5	1	4ER5BUT1...	16"-20"	.061	.12	.07	YE4	AL...-4

T+ Style



Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)			Anvil	
IC	L inch	tpi	IPF		RH		h min	X	Y	RH	Toolholder
1/2" T	.87	5	3/4	3	4ER5BUT753T+	4 1/2"-13 3/8"	.061	.10	.63	Y4T	AL...-4T
			1		4ER5BUT13T+	16"-20"					

M+ Style



Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)			Anvil	
IC	L inch	tpi	IPF		RH		h min	X	Y	RH	Toolholder
5/8"	1.06	5	3/4	2	5ER5BUT752M+...	4 1/2"-13 3/8"	.061	.19	.27	YE5M	AL...-5M

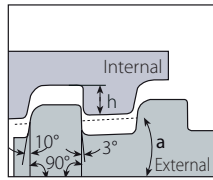
14D



Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)			Anvil	
IC	tpi	IPF					h min	Y			Toolholder
14D	5	3/4	2		14DER5BUT752T+	4 1/2"-9 5/8"	.061	.394		Y14DER-5 BUT	AL...-14D
						10 3/4"-13 3/8"					
14D	5	1	2		14DER5BUT12T+	16"-20"	.061	.394		Y14DER-5BUT-.4N	AL...-14D

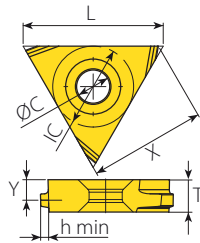
API Buttress Casing (con't)

External

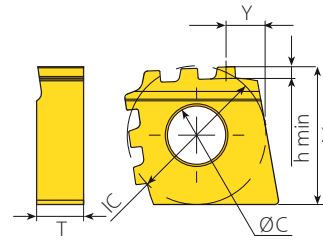


$$a = \arctg (IPF/24)$$

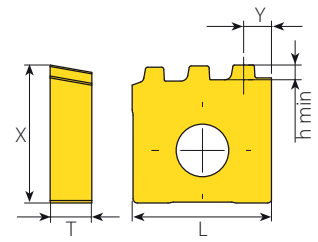
Defined by: STD.5B:1979
Tolerance class: Standard API



On Edge



CNGA



Chaser

On Edge*



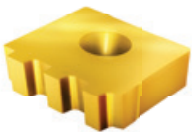
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions (inch)			Position	
IC	L inch	tpi	IPF	RH		h min	T	Ø C	X	Y
5/8"	1.063	5	3/4	TNEC54 ER5BUT75	4 1/2"-13 3/8"	.061	.25	.256	.921	.1588
		5	1	TNEC54 ER5BUT1	16"-20"		.25			

CNGA*



Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)			Position	
IC	tpi	IPF		RH		h min	T	Ø C	X	Y
3/4"	5	3/4	3	CNGA 64 ER5BUT75T3	4 1/2"-13 3/8"	.061	.25	.315	.745	.222
	5	1	3	CNGA 64 ER5BUT1T3	16"-20"		.25		.745	.215

Chaser*

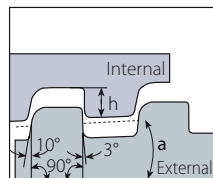


Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)		Position	
L	tpi	IPF		RH		h min	T	X	Y
.63	5	3/4	3	1616ER 5BUT75 3S+	4 1/2"-13 3/8"	.061	.187	.62	.125
	5	1	3	1616ER 5BUT1 3S+	16"-20"				

* On Edge, CNGA and Chaser inserts are suited to existing toolholders on the market

API Buttress Casing (con't)

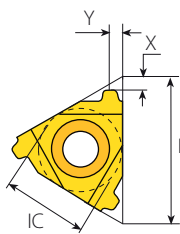
Internal



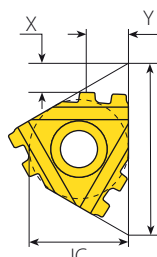
$$a = \arctg (IPF/24)$$

Defined by: STD.5B:1979

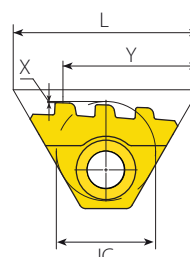
Tolerance class: Standard API



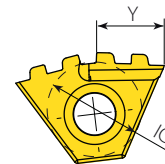
Standard



M+ Style



T+ Style



14D - 2 Cutting Edges

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	3/4	4IR5BUT75...	4 1/2"-13 3/8"	.061	.11	.07	YEI 4-BUT	AVRC...-4 5BUT/API
		5	1	4IR5BUT1...	16"-20"	.061	.11	.07	YI4	AVR...-4

M+ Style



Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)			Anvil	
IC	L inch	tpi	IPF		RH		h min	X	Y	RH	Toolholder
5/8"	1.06	5	3/4	2	5IR5BUT752M+...	4 1/2"-13 3/8"	.061	.19	.26	YI5M	AVR...-5M

T+ Style



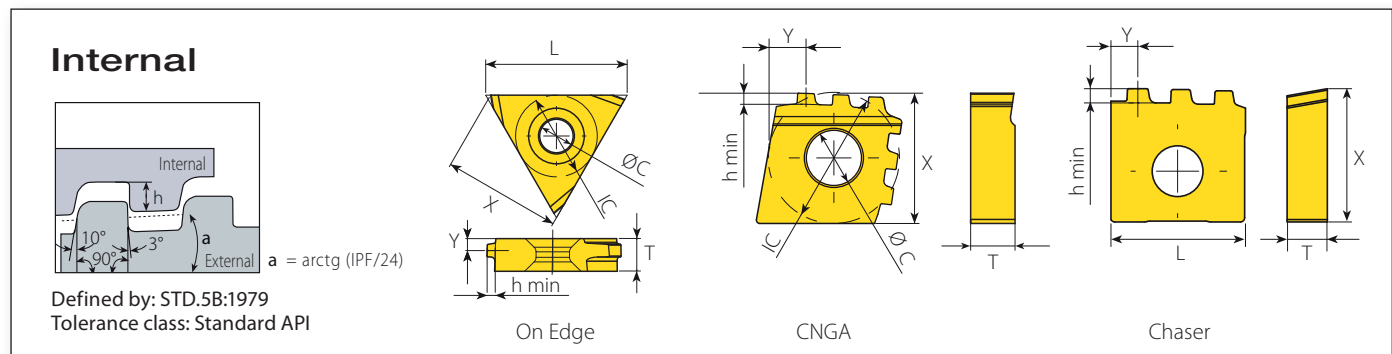
Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)			Anvil	
IC	L inch	tpi	IPF		RH		h min	X	Y	RH	Toolholder
1/2"T	.87	5	3/4	3	4IR5BUT753T+...	4 1/2"-13 3/8"	.061	.10	.63	Y4T	AVR...-4T
			1		4IR5BUT13T+	16"-20"					

14D



Insert size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)		Anvil	
IC	tpi	IPF				h min	Y		Toolholder
14D	5	3/4	2	14DIR5BUT752T+	4 ½"-9 ⅝"	.061	.394	Y14DIR-5 BUT	AVRC...-14D
					10 ¾"-13 ⅜"			Y14DIR-5BUT-4N	
14D	5	1	2	14DIR5BUT12T+	16"-20"	.061	.394	Y14DIR-5BUT-4N	AVRC...-14D

API Buttress Casing (con't)

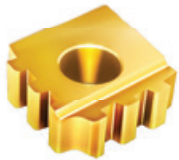


On Edge*



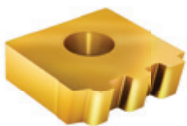
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions (inch)			Position	
IC	L inch	tpi	IPF	RH		h min	T	Ø C	X	Y
5/8"	1.063	5	3/4	TNEC54 IR5BUT75	4 1/2"-13 3/8"	.061	.25	.256	.921	.1688
		5	1	TNEC54 IR5BUT1	16"-20"					

CNGA*



Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)			Position	
IC	tpi	IPF		RH		h min	T	Ø C	X	Y
3/4"	5	3/4	3	CNGA 64 IR5BUT75T3	4 1/2"-13 3/8"	.061	.25	.315	.745	.222
	5	3/4	2	CNGA 64 IR5BUT75T2	4 1/2"-13 3/8"					.410
	5	1	3	CNGA 64 IR5BUT1T3	16"-20"					.215

Chaser*

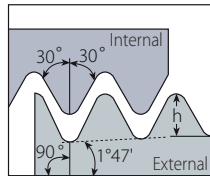


Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)			Position	
L	tpi	IPF		RH		h min	T		X	Y
.63	5	3/4	3	1616IR 5BUT75 3S+	4 1/2"-13 3/8"	.061	.187		.62	.125
	5	1	3	1616IR 5BUT1 3S+	16"-20"					

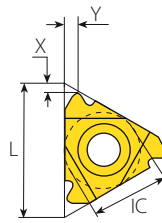
* On Edge, CNGA and Chaser inserts are suited to existing toolholders on the market

API Round Casing & Tubing

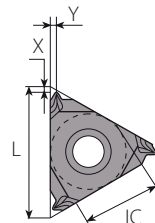
External



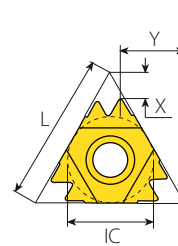
Defined by: API STD. 5B:1979
Tolerance class: Standard API RD



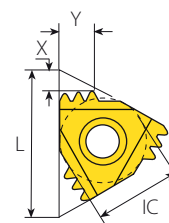
Standard



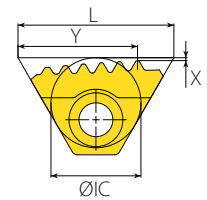
SCB
Sintered Chipbreaker



Z+ Style

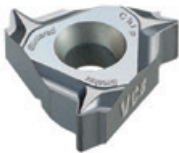


M+ Style



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	YE13-APIRD YE3	AL...-3 APIRD AL...-3
		8	3ER8APIRD...	.071	.05	.06		
3/8" SCB	.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 YE5M	AL...-4 AL...-5M
5/8"	1.06	10	3	5ER10APIRD3M+...	.056	.15	.25		
		8	2	5ER8APIRD2M+...	.071	.11	.18		

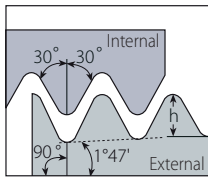
T+ Style



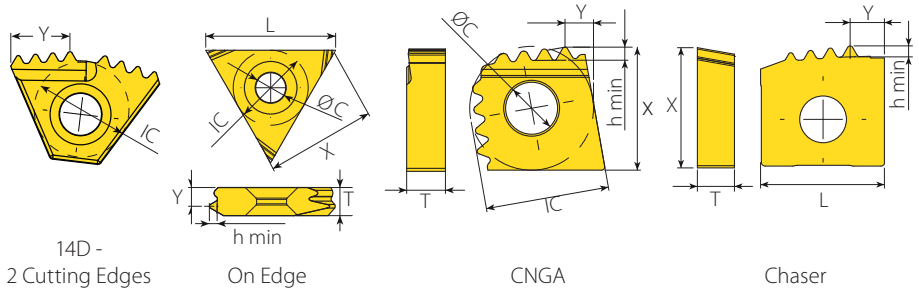
Insert Size		Pitch	Teeth	Ordering Code	Dimensions (inch)			Anvil	
IC	L inch	tpi		RH	h min	X	Y	RH	Toolholder
1/2" T	.87	10	6	4ER10APIRD6T+...	.056	.01	.64	Y4T	AL...-4T
		8	3	4ER8APIRD3T+...	.071	.01	.56		
		8	5	4ER8APIRD5T+...	.071	.01	.66		

API Round Casing & Tubing (con't)

External



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



14D



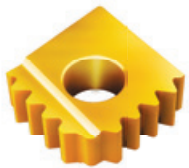
Insert size	Pitch	Teeth	Ordering Code	Size	Dimensions (inch)		Anvil	
IC	tpi				h min	Y		Toolholder
14D	10	4	14DER10APIRD4T+	2 3/8" and up	.055	.343	Y14DER-10 APIRD	AL...-14D
14D	10	3	14DER10APIRD3T+	2 3/8" and up		.346	Y14DER-10 APIRD-3+	AL...-14D
14D	8	3	14DER8APIRD3T+	2 3/8" and up	.070	.319	Y14DER-8 APIRD	AL...-14D

On Edge*



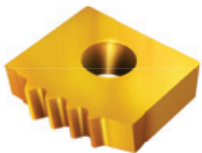
Insert Size		Pitch	Ordering Code	Dimensions (inch)			Position	
IC	L inch	tpi	RH	h min	T	Ø C	X	Y
1/2"	.866	10	TNEC 43 ER10APIRD	.056	.188	.205	.734	.125
		8	TNEC 43 ER8APIRD	.071				

CNGA*



Insert Size	Pitch	Teeth	Ordering Code	Dimensions (inch)			Position	
IC	tpi		RH	h min	T	Ø C	X	Y
3/4"	10	5	CNGA 64 ER10APIRDT5	.056	.25	.315	.745	.177
	8	4	CNGA 64 ER8APIRDT4	.071				

Chaser*

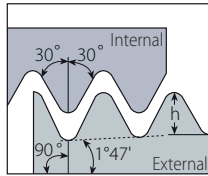


Insert Size	Pitch	Teeth	Ordering Code	Dimensions (inch)			Position	
L	tpi		RH	h min	T		X	Y
.63	10	4	1616ER 10APIRD 4S+	.056	.187		.608	.173
	8	3	1616ER 8APIRD 3S+	.071			.624	

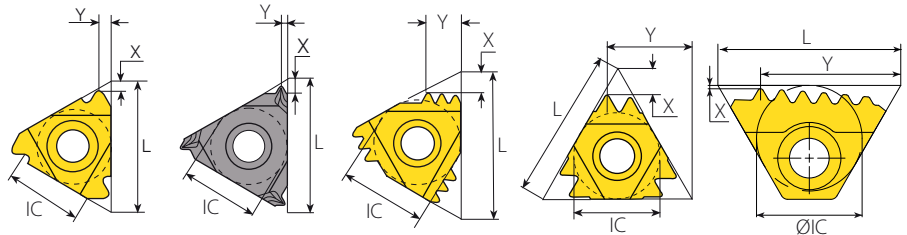
* On Edge, CNGA and Chaser inserts are suited to existing toolholders on the market

API Round Casing & Tubing (con't)

Internal

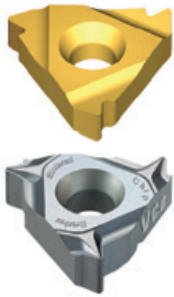


Defined by: API STD. 5B:1979
Tolerance class: Standard API RD



Standard SCB M+ Style Z+ 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	YEI3-APIRD YI3	AVRC... 3APIRD AVRC...-3
		8	3IR8APIRD...	.071	.05	.06		
3/8" SCB	.63	10	3JIR10APIRD...	.056	.05	.06		
		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
		8	2	4IR8APIRD2M+...	.071	.11	.18		
5/8"	1.06	10	3	5IR10APIRD3M+...	.056	.15	.25	YI5M	AVR...-5M
		8	2	5IR8APIRD2M+...	.071	.11	.18		

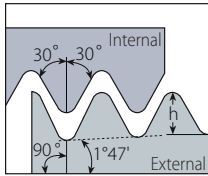
T+ Style



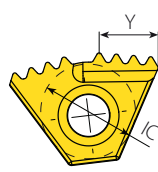
Insert Size		Pitch	Teeth	Ordering Code	Dimensions (inch)			Anvil	
IC	L inch	tpi		RH	h min	X	Y	RH	Toolholder
1/2"T	.87	10	6	4IR10APIRD6T+...	.056	.001	.66	Y4T	AVR...-4T
		8	3	4IR8APIRD3T+...	.071	.001	.56		
		8	5	4IR8APIRD5T+...	.071	.001	.66		

API Round Casing & Tubing (con't)

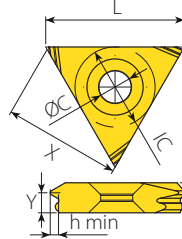
Internal



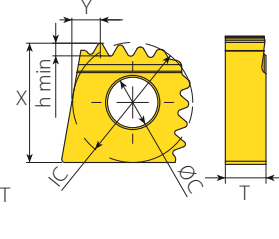
Defined by: STD. 5B:1979
Tolerance class: Standard API RD



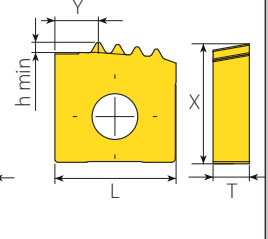
14D -
2 Cutting Edges



On Edge

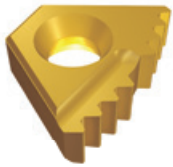


CNGA



Chaser

14D



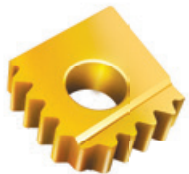
Insert size	Pitch	Teeth	Ordering Code	Size	Dimensions (inch)		Anvil	
IC	tpi				h min	Y		Toolholder
14D	10	4	14DIR10APIRD4T+	2 3/8" and up	.055	.343	Y14DIR-10 APIRD	AVRC...-14D
14D	10	3	14DIR10APIRD3T+	2 3/8" and up		.346	Y14DIR-10 APIRD-3+	AVRC...-14D
14D	8	3	14DIR8APIRD3T+	2 3/8" and up	.070	.319	Y14DIR-8 APIRD	AVRC...-14D

On Edge*



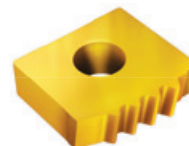
Insert Size		Pitch	Ordering Code	Dimensions (inch)			Position	
IC	L inch	tpi	RH	h min	T	Ø C	X	Y
1/2"	.866	10	TNEC 43 IR10APIRD	.056	.188	.205	.734	.125
		8	TNEC 43 IR8APIRD	.071	.188			

CNGA*



Insert Size	Pitch	Teeth	Ordering Code	Dimensions (inch)		Position		
IC	tpi		RH	h min	T	Ø C	X	Y
3/4"	10	5	CNGA 64 IR10APIRDT5	.056	.25	.315	.745	.177
	8	4	CNGA 64 IR8APIRDT4	.071	.25			

Chaser*

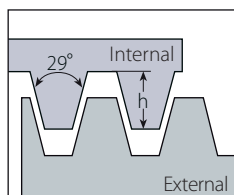


Insert Size	Pitch	Teeth	Ordering Code	Dimensions (inch)		Position		
L	tpi		RH	h min	T	X	Y	
.63	10	4	1616IR 10APIRD 4S+	.056	.187	.62	.224	.173
	8	3	1616IR 8APIRD 3S+	.071				

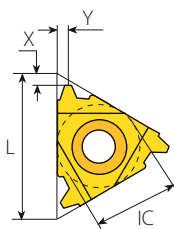
* On Edge, CNGA and Chaser inserts are suited to existing toolholders on the market

American ACME

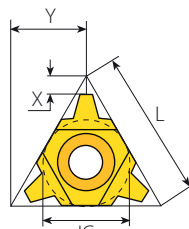
External



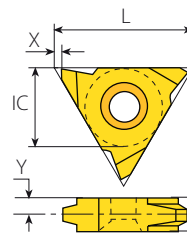
Defined by: ANSI B1.5:1988
Tolerance class: 3G



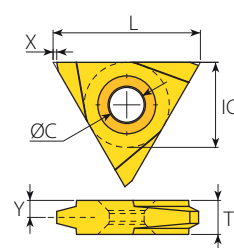
Standard



U Style



V Style



On Edge

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	16	2ER16ACME...	2EL16ACME...	.036	.04	.04	-	-	NL..-2 (LH)
		16	3ER16ACME...	3EL16ACME...	.036	.04	.04	YE3	YI3	AL..-3 (LH)
		14	3ER14ACME...	3EL14ACME...	.041	.04	.05			
		12	3ER12ACME...	3EL12ACME...	.047	.04	.05			
		10	3ER10ACME...	3EL10ACME...	.060	.05	.06			
		8	3ER8ACME...	3EL8ACME...	.072	.06	.06			
3/8"	.63	7	3ER7ACME...	3EL7ACME...	.082	.07	.09	YE3AC6	YI3AC6	AL..-3 (LH)
		6	3ER6ACME...	3EL6ACME...	.093	.07	.07			
		7	4ER7ACME...	4EL7ACME...	.082	.07	.09	YE4	YI4	AL..-4 (LH)
		6	4ER6ACME...	4EL6ACME...	.093	.07	.08			
		5	4ER5ACME...	4EL5ACME...	.110	.08	.09			
		4	5ER4ACME...	5EL4ACME...	.135	.09	.11	YE5	YI5	AL..-5 (LH)

U Style



Insert Size		Pitch	Ordering Code		Dimensions (inch)			Anvil		Toolholder
IC	L inch	tpi	RH+LH		h min	X	Y	RH	LH	
1/2"U	.87	3	4UE3ACME...		.177	.12	.43	YE4U	YI4U	AL..-4U (LH)
		4	4UE4ACME...		.135	.09	.43			
5/8"U	1.06	3	5UE3ACME...		.177	.12	.54	YE5U	YI5U	AL..-5U (LH)

V Style



Insert Size		Pitch	Ordering Code		Dimensions (inch)				Toolholder
IC	L inch	tpi	RH	LH	h min	X	Y	T	
5/8"V	1.06	4	5VER4ACME...	5VEL4ACME...	.135	.04	.13	.24	NL..-5V-6 (LH)
		3.5	5VER3.5ACME...	5VEL3.5ACME...	.152	.04	.13	.24	
		3	5VER3ACME...	5VEL3ACME...	.177	.04	.13	.24	
		2	5VER2ACME...	5VEL2ACME...	.26	.04	.20	.39	NL..-5V-10 (LH)

On Edge*

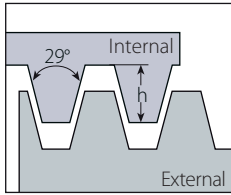


Insert Size		Pitch	Ordering Code		Dimensions (inch)				
IC	L inch	tpi	RH		h min	T	Ø C	X	Y
1/2"	.87	4	TNEC43 EI4ACME		.135	.188	.205	.019	.0937
		6	TNEC43 EI6ACME		.093				
		8	TNEC43 EI8ACME		.072				
		10	TNEC43 EI10ACME		.06				
		12	TNEC43 EI12ACME		.047				
5/8"	1.063	4	TNEC54 EI4ACME		.135	.25	.256		.125
		3	TNEC54 EI3ACME		.177				
3/4"	1.279	2	TNEC56 EI2ACME		.26	.375	.315	.02	.1875

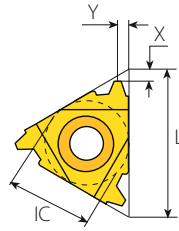
* On Edge inserts are suited to existing toolholders on the market

American ACME (con't)

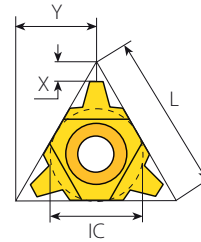
Internal



Defined by: ANSI B1.5:1988
Tolerance class: 3G

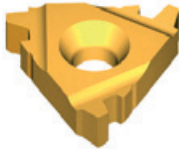


Standard



U Style

Standard



Insert Size		Pitch	Ordering Code		Dimensions (inch)			Anvil		
IC	L inch	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	16	2IR16ACME...	2IL16ACME...	.036	.04	.04	-	-	NVR..-2 (LH)
3/8"	.63	16	3IR16ACME...	3IL16ACME...	.036	.04	.04	YI3	YE3	AVR..-3 (LH)
		14	3IR14ACME...	3IL14ACME...	.041	.04	.05			
		12	3IR12ACME...	3IL12ACME...	.047	.05	.05			
		10	3IR10ACME...	3IL10ACME...	.060	.05	.05			
		8	3IR8ACME...	3IL8ACME...	.072	.06	.06			
		6	3IR6ACME...	3IL6ACME...	.093	.07	.07	YI3AC6	YE3AC6	
1/2"	.87	6	4IR6ACME...	4IL6ACME...	.093	.07	.08	YI4	YE4	AVR..-4 (LH)
		5	4IR5ACME...	4IL5ACME...	.110	.08	.09			
5/8"	1.06	4	5IR4ACME...	5IL4ACME...	.135	.09	.10	YI5	YE5	AVR..-5 (LH)

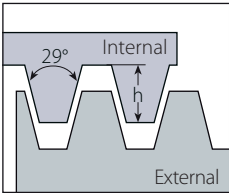
U Style



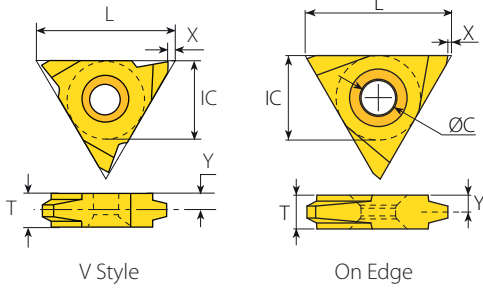
Insert Size		Pitch	Ordering Code		Dimensions (inch)			Anvil		Toolholder
IC	L inch	tpi	RH+LH		h min	X	Y	RH	LH	
1/2"U	.87	4	4UI4ACME...		.135	.09	.43	YI4U	YE4U	AVR..-4U (LH)
		3	4UI3ACME...		.177	.11	.43			
5/8"U	1.06	3	5UI3ACME...		.177	.11	.54	YI5U	YE5U	AVR..-5U(LH)

American ACME (con't)

Internal



Defined by: ANSI B1.5:1988
Tolerance class: 3G



V Style



Insert Size		Pitch	Ordering Code		Dimensions (inch)				Toolholder
IC	L inch	tpi	RH	LH	h min	X	Y	T	
5/8"V	1.06	4	5VIR4ACME...	5VIL4ACME...	.135	.04	.13	.24	NVR..5V (LH)
		3.5	5VIR3.5ACME...	5VIL3.5ACME...	.152	.04	.13	.24	
		3	5VIR3ACME...	5VIL3ACME...	.177	.04	.13	.24	
		2	5VIR2ACME...	5VIL2ACME...	.260	.04	.20	.39	

On Edge*

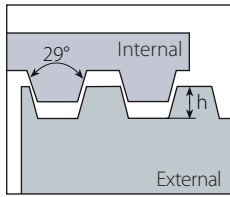


Insert Size		Pitch	Ordering Code		Dimensions (inch)				
IC	L inch	tpi	RH		h min	T	Ø C	X	Y
1/2"	.87	4	TNEC43 EI4ACME		.135	.188	.205	.019	.0937
		6	TNEC43 EI6ACME		.093				
		8	TNEC43 EI8ACME		.072				
		10	TNEC43 EI10ACME		.06				
		12	TNEC43 EI12ACME		.047				
5/8"	1.063	4	TNEC54 EI4ACME		.135	.25	.256		.125
		3	TNEC54 EI3ACME		.177				
3/4"	1.279	2	TNEC56 EI2ACME		.26	.375	.315	.02	.1875

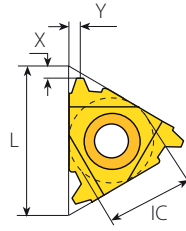
* On Edge inserts are suited to existing toolholders on the market

Stub ACME

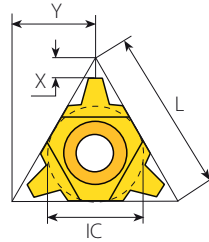
External



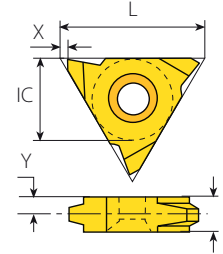
Defined by: ANSI B1.8:1988
Tolerance class: 2G



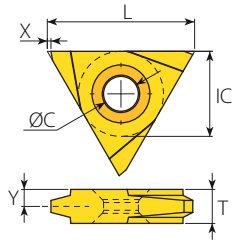
Standard



U Style



V Style



On Edge

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	16	2ER16STACME...	2EL16STACME...	.024	.04	.04	-	-	NL..-2 (LH)
		16	3ER16STACME...	3EL16STACME...	.024	.04	.04			
		14	3ER14STACME...	3EL14STACME...	.026	.04	.04			
		12	3ER12STACME...	3EL12STACME...	.030	.05	.05	YE3	YI3	AL..-3 (LH)
		10	3ER10STACME...	3EL10STACME...	.040	.05	.05			
		8	3ER8STACME...	3EL8STACME...	.048	.06	.06			
3/8"	.63	6	3ER6STACME...	3EL6STACME...	.060	.07	.07			
		6	4ER6STACME...	4EL6STACME...	.060	.07	.07	YE4	YI4	AL..-4 (LH)
		5	4ER5STACME...	4EL5STACME...	.070	.08	.09			
		4	4ER4STACME...	4EL4STACME...	.085	.09	.09			
1/2"	.87	4	5ER4STACME...	5EL4STACME...	.085	.09	.09	YE5	YI5	AL..-5 (LH)
		3	5ER3STACME...	5EL3STACME...	.110	.11	.11			

U Style



Insert Size		Pitch	Ordering Code		Dimensions (inch)			Anvil		Toolholder
IC	L inch	tpi	RH+LH		h min	X	Y	RH	LH	
1/2"U	.87	4	4UE4STACME...		.085	2.6	11.0	YE4U	YI4U	AL..-4U (LH)
		3	4UE3STACME...		.110	3.4	11.0			

V Style



Insert Size		Pitch	Ordering Code		Dimensions (inch)					Toolholder
IC	L inch	tpi	RH	LH	h min	X	Y	T		
5/8"V	1.06	4	5VER4STACME...	5VEL4STACME...	.085	.04	.13	.24		NL..-5V-6 (LH)
		3	5VER3STACME...	5VEL3STACME...	.110	.04	.13	.24		
		2	5VER2STACME...	5VEL2STACME...	.160	.04	.17	.31		NL..-5V-8 (LH)

On Edge

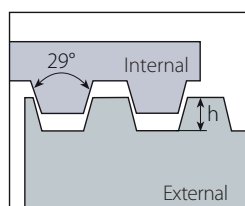


Insert Size		Pitch	Ordering Code		Dimensions (inch)				
IC	L inch	tpi	RH		h min	T	Ø C	X	Y
3/8"	.63	10	TNEC32 EI10STACME		.04				
		12	TNEC32 EI12STACME		.03	.14	.15	.040	.0625
		8	TNEC32 EI8STACME		.048				
1/2"	.87	4	TNEC43 EI4STACME		.085	.188	.205	.019	.0937
		6	TNEC43 EI6STACME		.06				
		8	TNEC43 EI8STACME		.048				
		10	TNEC43 EI10STACME		.04				
		12	TNEC43 EI12STACME		.03				
5/8"	1.063	4	TNEC54 EI4STACME		.085	.25	.256		.125

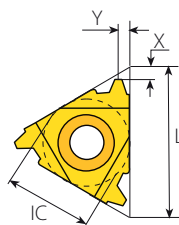
* On Edge inserts are suited to existing toolholders on the market

Stub ACME (con't)

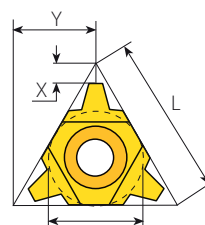
Internal



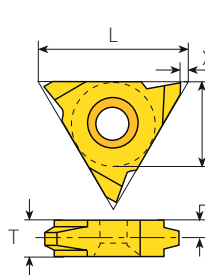
Defined by: ANSI B1.8:1988
Tolerance class: 2G



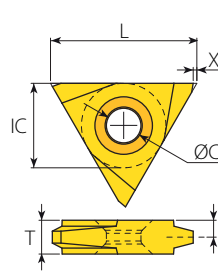
Standard



U Style



V Style



On Edge

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	16	2IR16STACME...	2IL16STACME...	.024	.04	.04	-	-	NVR..-2 (LH)
		16	3IR16STACME...	3IL16STACME...	.024	.04	.04			
		14	3IR14STACME...	3IL14STACME...	.026	.04	.04			
		12	3IR12STACME...	3IL12STACME...	.030	.04	.05	YI3	YE3	AVR..-3 (LH)
		10	3IR10STACME...	3IL10STACME...	.040	.05	.05			
		8	3IR8STACME...	3IL8STACME...	.048	.06	.06			
1/2"	.63	6	3IR6STACME...	3IL6STACME...	.060	.07	.07			
		6	4IR6STACME...	4IL6STACME...	.060	.07	.07	YI4	YE4	AVR..-4 (LH)
		5	4IR5STACME...	4IL5STACME...	.070	.08	.09			
		4	4IR4STACME...	4IL4STACME...	.085	.09	.09			
5/8"	1.06	4	5IR4STACME...	5IL4STACME...	.085	.09	.09	YI5	YE5	AVR..-5 (LH)
		3	5IR3STACME...	5IL3STACME...	.110	.11	.11			

U Style



Insert Size		Pitch	Ordering Code		Dimensions (inch)			Anvil		Toolholder
IC	L inch	tpi	RH+LH		h min	X	Y	RH	LH	
1/2"U	.87	4	4UI4STACME...		.085	.10	.43	YI4U	YE4U	AVR..-4U (LH)
		3	4UI3STACME...		.110	.13	.43			

V Style



Insert Size		Pitch	Ordering Code		Dimensions (inch)					Toolholder
IC	L inch	tpi	RH	LH	h min	X	Y	T		
5/8"V	1.06	4	5VIR4STACME...	5VIL4STACME...	.085	.04	.13	.24		NVR..-5V (LH)
		3	5VIR3STACME...	5VIL3STACME...	.110	.04	.13	.24		
		2	5VIR2STACME...	5VIL2STACME...	.160	.04	.17	.31		

On Edge*

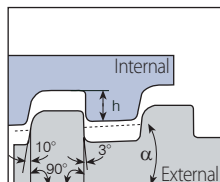


Insert Size		Pitch	Ordering Code		Dimensions (inch)					Toolholder
IC	L inch	tpi	RH		h min	T	Ø C	X	Y	
3/8"	.63	10	TNEC32 EI10STACME		.04					
		12	TNEC32 EI12STACME		.03					
		8	TNEC32 EI8STACME		.048	.14	.15	.040	.0625	
1/2"	.87	4	TNEC43 EI4STACME		.085					
		6	TNEC43 EI6STACME		.06					
		8	TNEC43 EI8STACME		.048	.188	.205	.019	.0937	
		10	TNEC43 EI10STACME		.04					
5/8"	1.063	12	TNEC43 EI12STACME		.03					
		4	TNEC54 EI4STACME		.085	.25	.256		.125	

* On Edge inserts are suited to existing toolholders on the market

VAM

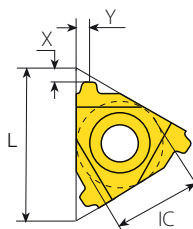
External / Internal



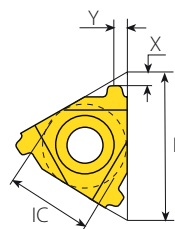
$$a = \arctg (IPF/24)$$

Defined by: VAM

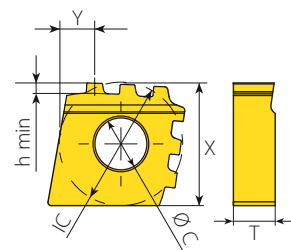
Tolerance class: Standard VAM



VAM - External



VAM - Internal



CNGA - Internal

VAM - External



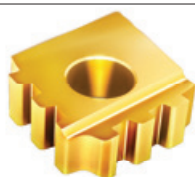
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions (inch)			Anvil	
IC	L inch	tpi	IPF	RH		h min	X	Y	RH	Toolholder
3/8"	.63	8	3/4	3ER8VAM...	2 3/8", 2 7/8"	.038	.07	.07	YE3	AL...-3
1/2"	.87	6		4ER6VAM...	3 1/2"	.038	.09	.09	YE4	AL...-4
		5		4ER5VAM...	5"-9 5/8"	.061	.09	.11		

VAM - Internal



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	3/4	3IR8VAM...	2 3/8", 2 7/8"	.040	.07	.07	Y13	AVR...-3
1/2"	.87	6		4IR6VAM.....	3 1/2"	.040	.10	.10	Y14	AVR...-4
		5		4IR5VAM...	5"-9 5/8"	.061	.09	.10		

CNGA* - Internal

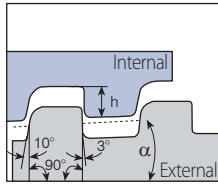


Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)			Position
IC	tpi	IPF			RH		h min	T	Ø C	X Y
3/4"	5	3/4	2		CNGA 64 IR5VAM75T2	4 1/2"-13 3/8"	.061	.25	.315	.745 .366

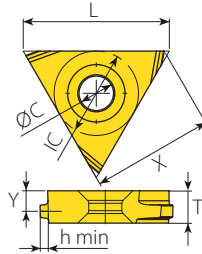
* CNGA inserts are suited to existing toolholders on the market

VAM

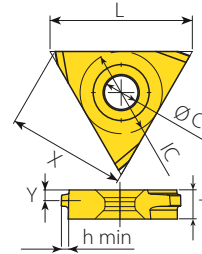
External / Internal



$a = \arctg (IPF/24)$
Defined by: VAM
Tolerance class: Standard VAM



On Edge - External



On Edge - Internal

On Edge* - External



Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions (inch)			Position	
IC	L inch	tpi	IPF	RH		h min	T	Ø C	X	Y
1/2"	.87	8	3/4	TNEC43 ER8VAM	2 3/8", 2 7/8"	.038	.188	.204	.734	.128
		6		TNEC43 ER6VAM	3 1/2"	.038	.188			.115
5/8	1.06	5		TNEC54 ER5VAM	5"- 9 5/8"	.061	.25	.256	.921	.159

On Edge* - Internal



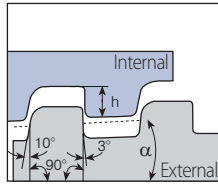
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions (inch)			Position	
IC	L inch	tpi	IPF	RH		h min	T	Ø C	X	Y
1/2"	.87	8	3/4	TNEC43 IR8VAM	2 3/8", 2 7/8"	.040	.188	.204	.734	.126
		6		TNEC43 IR6VAM	3 1/2"	.040	.188			.123
5/8	1.06	5		TNEC54 IR5VAM	5"- 9 5/8"	.061	.25	.256	.921	.1665

* On Edge inserts are suited to existing toolholders on the market

New VAM



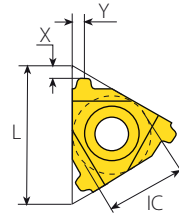
External / Internal



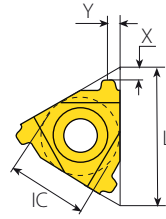
$$a = \arctg (IPF/24)$$

Defined by: VAM

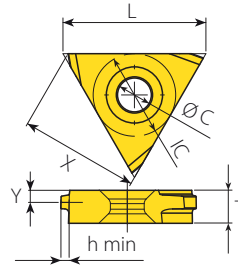
Tolerance class: Standard VAM



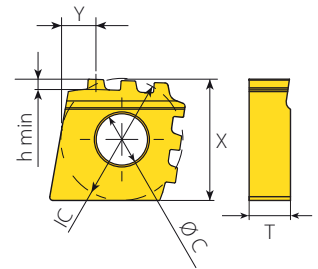
Standard - External



Standard - Internal



On Edge - Internal



CNGA

On Edge* - Internal



Insert Size	Pitch	Taper	Ordering Code	Size	Dimensions (inch)
IC	L inch	tpi	IPF	RH	h min T Ø C X Y
1/2"	.87	8	3/4	TNEC43 IR8NVAM	2 3/8" - 2 7/8" .0485 .188 .204 .734 .126
	1.06	6		TNEC43 IR6NVAM	3 1/2" - 4 1/2" .0485 .188 .204 .921 .123
5/8"	1.06	5		TNEC54 IR5NVAM	5" - 16" .0695 .250 .256 .921 .1665

CNGA* - Internal



Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions (inch)	Position
IC	tpi	IPF		RH	h min	T Ø C X Y	
3/4"	6	3/4	2	CNGA 64 IR6NVAM75T2	3 1/2" - 4 1/2"	.0485 .25 .315 .745 .366	
	5	3/4	2	CNGA 64 IR5NVAM75T2	5" - 16"	.0695 .25 .315 .745 .366	

Laydown - External



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	3/4	3ER8NVAM	2 3/8", 2 7/8" .038 .07 .07	YE3 AL...-3
1/2"	.87	6		4ER6NVAM	3 1/2" .038 .09 .09	YE4 AL...-4
		5		4ER5NVAM	5" - 9 5/8" .061 .09 .09	

Laydown - Internal

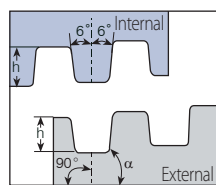


Insert Size	Pitch	Taper	Ordering Code	Size	Dimensions (inch)	Anvil
IC	L inch	tpi	IPF	RH	h min X Y	RH Toolholder
3/8"	.63	8	3/4	3IR8NVAM	2 3/8", 2 7/8" .0485 .07 .07	Y13 AVR...-3
1/2"	.87	6		4IR6NVAM	3 1/2" .0485 .10 .10	Y14 AVR...-4
		5		4IR5NVAM	5" - 9 5/8" .0695 .09 .10	

* On Edge and CNGA inserts are suited to existing toolholders on the market

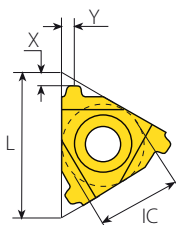
EL-Extreme Line

External / Internal

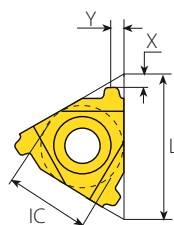


$$\alpha = \arctg (IPF/24)$$

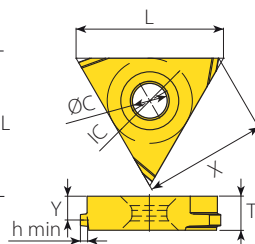
Defined by: API STD,5B:1979
Tolerance class: Standard



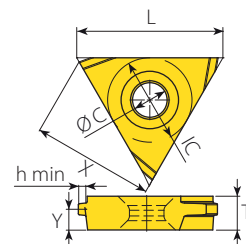
Standard - External



Standard - Internal



On Edge - External



On Edge - Internal

Standard - External



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	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		

Standard - Internal



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	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		



On Edge* - External



Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions (inch)			Position	
IC	L inch	tpi	IPF	RH		h min	T	Ø C	X	Y
5/8"	1.063	6	1 1/2	TNEC54 ER6EL15	5"-7 5/8"	.048	.25	.256	.921	.1763
		5	1 1/4	TNEC54 ER5EL125	8 5/8"-10 3/4"	.067	.25			.168



On Edge* - Internal

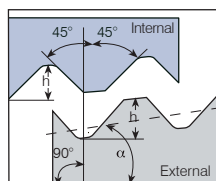


Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions (inch)			Position	
IC	L inch	tpi	IPF	RH		h min	T	Ø C	X	Y
5/8"	1.063	6	1 1/2	TNEC54 IR6EL15	5"-7 5/8"	.055	.25	.256	.921	.1763
		5	1 1/4	TNEC54 IR5EL125	8 5/8"-10 3/4"	.075	.25			.168

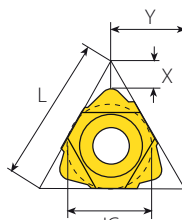
* On Edge inserts are suited to existing toolholders on the market

Hughes H-90

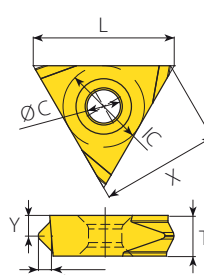
External / Internal



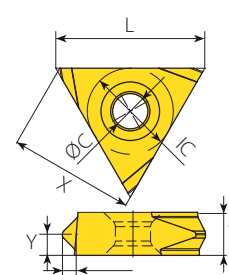
Defined by: API STD, 5B:1979
Tolerance class: Standard



U Style



On Edge - External



On Edge - Internal

U Style - External



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	.87	3.5	2	4UER3.5H902...	3 1/2"-6 5/8"	.098	.17	.43	YE4U-H90	AL.-4U (LH)
5/8" U	1.06	3.5	3	4UER3.5H903...	7"-8 5/8"	.098	.17	.43	YE5U-H90	AL.-5UH90 (LH)
		3	1.25*	5UER3H90SL...	2 3/8"-3 1/2"	.088	.22	.54		

* H-90 Slimline

U Style - Internal



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	.87	3.5	2	4UIR3.5H902...	3 1/2"-6 5/8"	.098	.17	.43	YI4U-H90	AVR.-4U (LH)
5/8" U	1.06	3.5	3	4UIR3.5H903...	7"-8 5/8"	.098	.17	.43	YI5U-H90	AVR.-5UH90 (LH)
		3	1.25*	5UIR3H90SL...	2 3/8"-3 1/2"	.088	.22	.54		

* H-90 Slimline

On Edge* - External



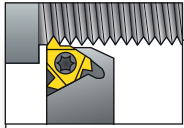
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions (inch)			Position	
IC	L inch	tpi	IPF	RH		h min	T	Ø C	X	Y
5/8"	1.063	3 1/2	2	TNEC55 ER3.5H902	3 1/2" - 6 5/8"	.098	.3125	.256	.921	.171
		3 1/2	3	TNEC55 ER3.5H903	7" - 8 5/8"	.098	.3125			.171
		3	1 1/4	TNEC56 ER3H90SL	2 3/8" - 3 1/2"	.088	.375			.225

On Edge* - Internal

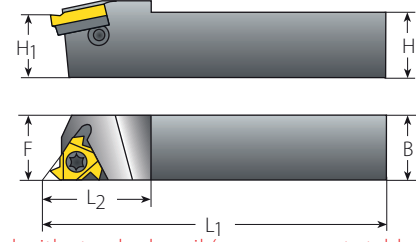


Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions (inch)			Position	
IC	L inch	tpi	IPF	RH		h min	T	Ø C	X	Y
5/8"	1.063	3 1/2	2	TNEC55 IR3.5H902	3 1/2" - 6 5/8"	.098	.3125	.256	.921	.171
		3 1/2	3	TNEC55 IR3.5H903	7" - 8 5/8"	.098	.3125			.171
		3	1 1/4	TNEC56 IR3H90SL	2 3/8" - 3 1/2"	.088	.375			.225

* On Edge inserts are suited to existing toolholders on the market



External Toolholders



The AL..-3 holders are supplied with standard anvil (see spare parts table below). For V6, please use the V6 anvil YE3-6C. For more info see page 48.

Standard

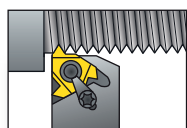
Spare Parts

Insert Size	Ordering Code	EDP No.	Dimensions (inch)				    				
IC	RH		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/4"	NL031-2	66214	.31	.43	5.37	.69	SN2T	-	K2T	-	-
	NL050-3	66220	.50	.63	3.27	.87	SA3T	-	K3T	-	-
3/8"	AL3/8-3	66091	.37	.63	2.45	.76	SA3T	SY3T	K3T	YE3	YI3
	AL050-3	66000	.50	.63	3.27	.87					
	AL0625-3	66005	.63	.63	5.00	1.02					
	AL075-3	66007	.75	.75	5.00	1.02					
	AL100-3	66016	1.00	1.00	6.00	1.20					
	AL125-3	66036	1.25	1.25	7.00	1.18					
1/2"	AL100-4	66024	1.00	1.00	6.00	1.42	SA4T	SY4T	K4T	YE4	YI4
	AL125-4	66042	1.25	1.25	7.00	1.42					
	AL150-4	66066	1.50	1.50	8.00	1.42					
5/8"	AL100-5	66034	1.00	1.25	6.00	1.57	SA5T	SY5T	K5T	YE5	YI5
	AL125-5	66051	1.25	1.25	7.00	1.57					
	AL150-5	66073	1.50	1.50	8.00	1.57					
	AL200-5	66085	2.00	2.00	10.00	1.57					

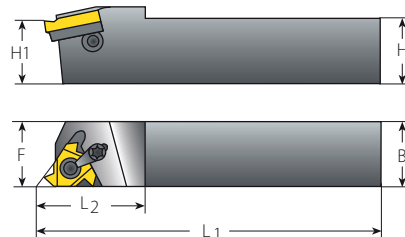
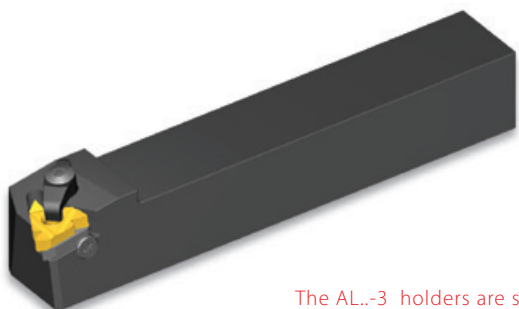
The above toolholders have a 1.5° helix angle. For other helix angles, see page 47.

Toolholders with prefix "N" cannot be used with an anvil.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL075-3C LH).



External Toolholders



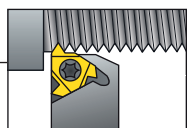
The AL...3 holders are supplied with standard anvil (see spare parts table below).
For V6, please use the V6 anvil YE3-6C. For more info see page 48.

Standard with Clamp (Dual System, Screw or Clamp)

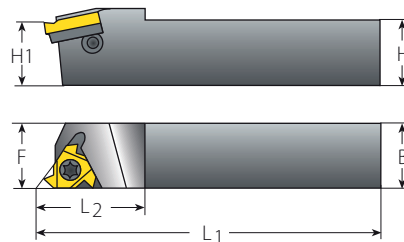
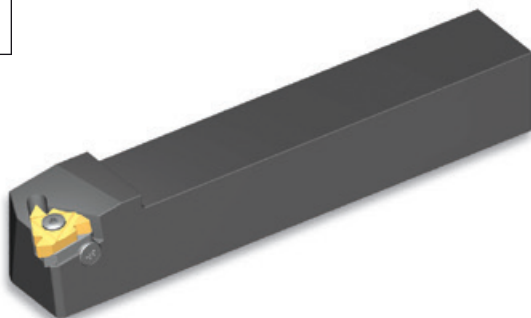
Spare Parts

Insert Size	Ordering Code	EDP No.	Dimensions (inch)				     					
IC	RH		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
3/8"	AL075-3C	66008	.75	.75	5.00	1.20	SA3T	SY3T	C3	K3CT	YE3	YI3
	AL100-3C	66017	1.00	1.00	6.00	1.20						
	AL125-3C	66031	1.25	1.25	7.00	1.20						
1/2"	AL100-4C	66330	1.00	1.00	6.00	1.42	SA4T	SY4T	C4	K4T	YE4	YI4
	AL125-4C	66222	1.25	1.25	7.00	1.42						
	AL150-4C	66223	1.50	1.50	8.00	1.42						
5/8"	AL100-5C	66327	1.00	1.25	6.00	1.57	SA5T	SY5T	C5	K5T	YE5	YI5
	AL125-5C	66224	1.25	1.25	7.00	1.57						
	AL150-5C	66225	1.50	1.50	8.00	1.57						
	AL200-5C	66230	2.00	2.00	10.00	1.57						

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code. (Example AL075-3C LH).
The above toolholders have a 1.5° helix angle. For other helix angles, see page 47.



External Toolholders

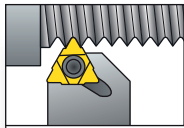


Oil & Gas

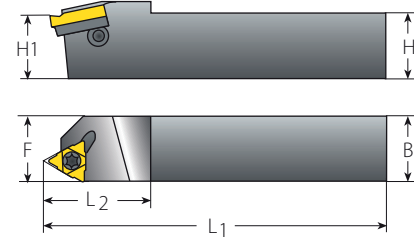
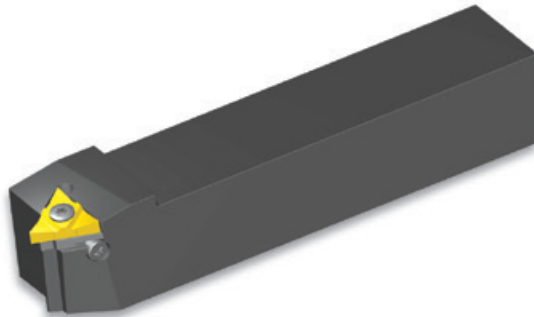
Spare Parts

Insert Size	Ordering Code	EDP No.	Thread Form	Connection no. or size	Dimensions (inch)				Helix Angle	    				
IC	RH				H=H1=B=F	L1	L2			Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8" 	AL125-3 APIRD	66527	APIRD 8	2.375"-20"	1.25	7.00	1.30	1		SA3T	SY3T	K3T	YEI3 APIRD	
	AL150-3 APIRD	66528	APIRD10	1.05"-3.5"	1.5	8.00	1.60	1						
1/2" 	AL125-4 5BUT/API	66532	5BUT, V.038R,V.05	4 1/2"-20"	1.25	7.00	1.30	0		SA4T	SY4T	K4T	YEI4-API-1P YEI4-5BUT	
	AL150-4 5BUT/API	66533	OV.040,V.055	NC10-NC77 all sizes	1.5	8.00	1.60	0						
5/8"	AL125-5OIL	66058	V.038R V.050	NC23-NC77 all sizes	1.25	7.00	1.60	1.5		SA5T	SY5T	K5T	YE5OIL	YI5OIL
	AL150-5OIL	66075	V.038R V.050	NC23-NC77 all sizes	1.50	8.00	1.60	1.5						

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code. (Example AL075-3C LH).

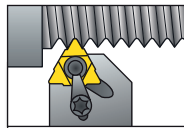


External Toolholders

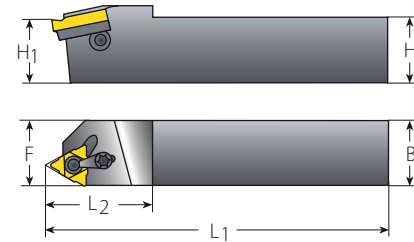
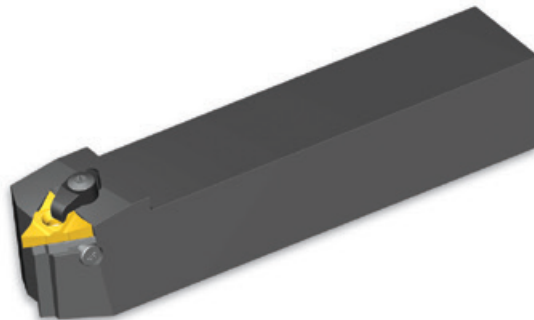


U Style

Insert Size Ordering Code EDP No. Dimensions (inch)							Spare Parts				
IC	RH		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"U	AL125-4U	66048	1.25	1.25	7.00	1.52	SA4T	SY4T	K4T	YE4U	YI4U
	AL150-4U	66247	1.50	1.50	8.00	1.52					
5/8"U	AL125-5U	66059	1.25	1.25	7.00	1.57					
	AL150-5U	66076	1.50	1.50	8.00	1.57	SA5T	SY5T	K5T	YE5U	YI5U
	AL200-5U	66249	2.00	2.00	10.00	1.57					



External Toolholders

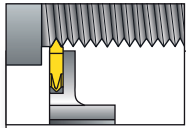


U Style with Clamp

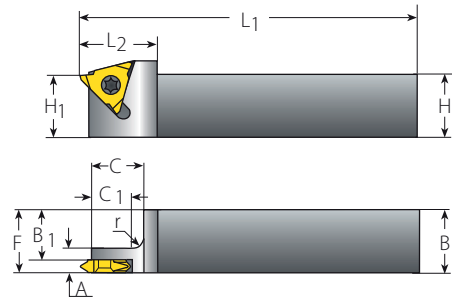
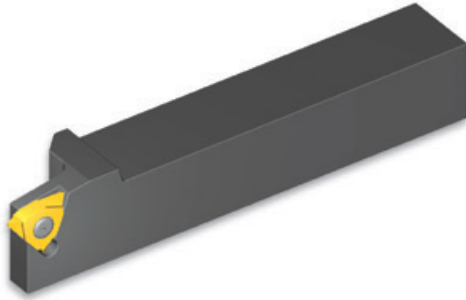
(Dual System, Screw or Clamp)

Insert Size Ordering Code EDP No. Dimensions (inch)							Spare Parts					
IC	RH		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
1/2"U	AL125-4UC	66250	1.25	1.25	7.00	1.52	SA4T	SY4T	C4	K4T	YE4U	YI4U
	AL150-4UC	66251	1.50	1.50	8.00	1.52						
5/8"U	AL125-5UC	66252	1.25	1.25	7.00	1.57						
	AL150-5UC	66253	1.50	1.50	8.00	1.57	SA5T	SY5T	C5	K5T	YE5U	YI5U
	AL200-5UC	66256	2.00	2.00	10.00	1.57						

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code. (Example AL125-4U LH)
All U Style Toolholders have a 1.5° helix angle. For other helix angles see page 47.



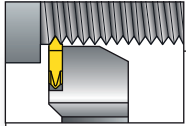
External Toolholders



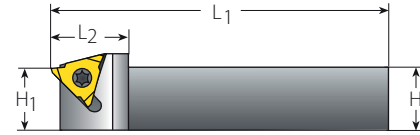
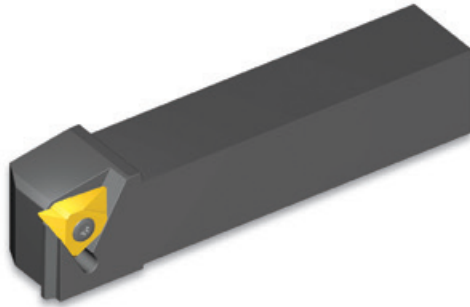
Slim Throat

Slim Throat											Spare Parts		
Insert Size	Ordering Code	EDP No.	Dimensions (inch)										
IC	RH		H=B=F	H1	A	B1	C	C1	L1	L2	r	Insert Screw	Torx Key
1/4"V	NL0325-2V	66257	.27	.32	.25	.25	.50	.45	2.50	.60	.04	SN2T	K2T
	NL0375-2V	67226	.37	.37	.27	.25	.50	.45	2.75	.60	.04		
	NL050-2V	67232	.50	.50	.27	.37	.57	.45	3.15	.60	.12		
	NL0625-2V	67229	.62	.62	.27	.50	.57	.45	4.00	.60	.12		
3/8"V	NL0625-3V	67201	.62	.62	.27	.47	.57	.45	4.00	1.00	.12	SN3TV	K3T
	NL075-3V	67203	.75	.75	.27	.60	.65	.45	5.00	1.20	.12		
	NL100-3V	67205	1.00	1.00	.27	.85	.65	.45	6.00	1.20	.20		
	NL125-3V	66258	1.25	1.25	.27	1.20	.65	.45	7.00	1.20	.20		
	NL150-3V	66259	1.50	1.50	.28	1.25	.65	.45	8.00	1.20	.20		
1/2"V	NL100-4V	66221	1.00	1.00	.47	.81	.65	.45	6.00	1.20	.20	SN4T	K4T
	NL125-4V	66263	1.25	1.25	.47	1.07	.65	.45	7.00	1.20	.20		
	NL150-4V	66266	1.50	1.50	.47	1.31	.65	.45	8.00	1.20	.20		

All Slim Throat toolholders have a 1.5° helix angle.



External Toolholders



V Style

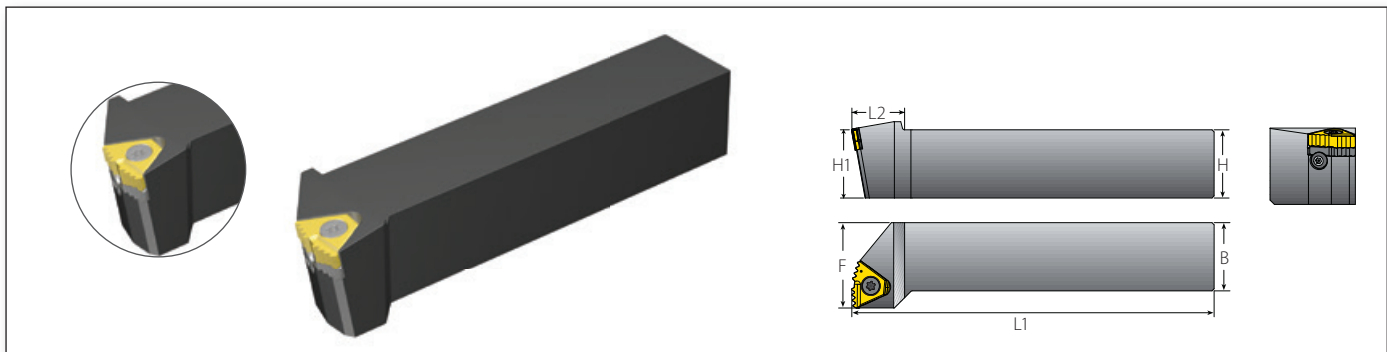
Dimensions (inch)								Spare Parts	
Insert Size	Ordering Code	EDP No.							
IC	RH		H=H1=B	B1	F	L1	L2	Insert Screw	Torx key
5/8"V	NL125-5V-6	67213	1.25	1.00	1.25	7.00	1.57	SN6T	K6T
	NL125-5V-8	67214	1.25	1.00	1.33	7.00	1.57		
	NL125-5V-10	67212	1.25	1.00	1.40	7.00	1.57		
	NL125-5V-10ABUT*	66382	1.25	1.00	1.40	7.00	1.57		
	NL150-5V-6	66383	1.50	1.24	1.50	8.00	1.57		
	NL150-5V-8	66384	1.50	1.24	1.63	8.00	1.57		
	NL150-5V-10	67215	1.50	1.24	1.65	8.00	1.57		
	NL150-5V-10ABUT*	66385	1.50	1.24	1.65	8.00	1.57		

All V Style toolholders have a 1° helix angle.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code. (Example NL125-5V-6 LH)

* To be used only with inserts 5VER2.5ABUT...

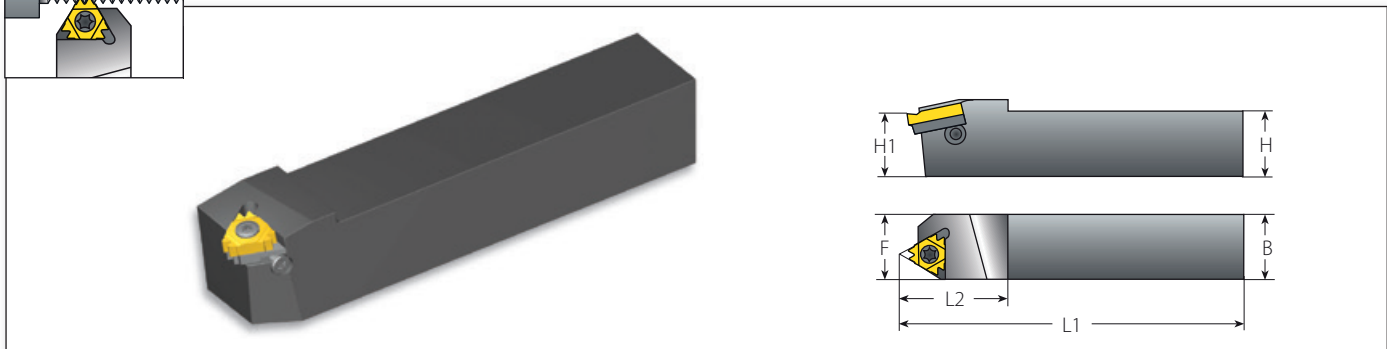
14D External Toolholders



14D						Spare Parts			
Insert Size	Ordering Code		Dimensions (inch)						
IC	RH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw & Washer	Torx Key	Anvil Key
14D	AL100-14D	1.00	1.75	5.80	1.00	SA5T	M4x6(14D)	K5T	KT15
	AL125-14D	1.25	1.50	7.00	1.00				
	AL150-14D	1.50	1.50	8.00	1.25				

14D holders are supplied without anvils. For specific applications, please use the anvils indicated in the table on page 48.

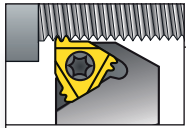
External Toolholders



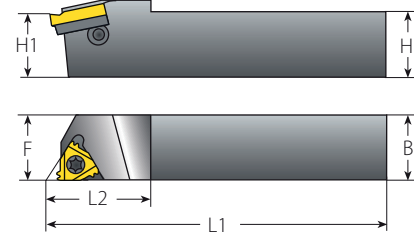
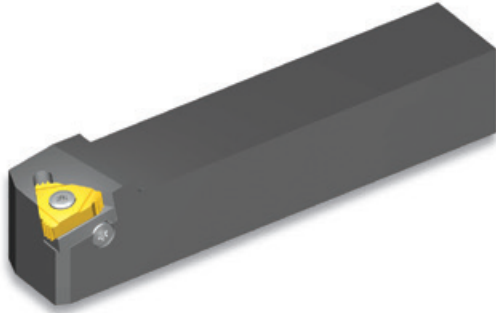
Z+ Style						Spare Parts				
Insert Size	Ordering Code	EDP No.	Dimensions (inch)							
IC	RH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"Z	AL125-4Z	66386	1.25	1.25	7.00	SA4T	SY4T	K4T	YE4Z	YI4Z
	AL150-4Z	66387	1.50	1.50	8.00					
5/8"Z	AL125-5Z	66388	1.25	1.25	7.00	SA5T	SY5T	K5T	YE5Z	YI5Z
	AL150-5Z	66389	1.50	1.50	8.00					
	AL200-5Z	66390	2.00	2.00	10.00					

All Z+ Style toolholders have a 1.5° helix angle.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL125-4Z LH).



External Toolholders



M+ Style

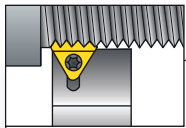
Insert Size	Ordering Code	EDP No.	Dimensions (inch)			
IC	RH		H=H1=B	F	L1	L2
5/8"M	AL125-5M	66391	1.25	1.25	7.00	1.57
	AL150-5M	66392	1.50	1.50	8.00	1.57
	AL200-5M	66393	2.00	2.00	10.00	1.57

Spare Parts

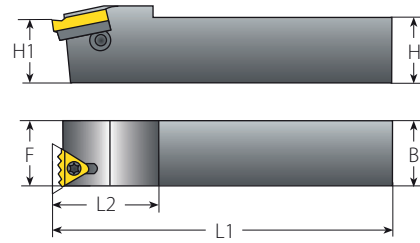
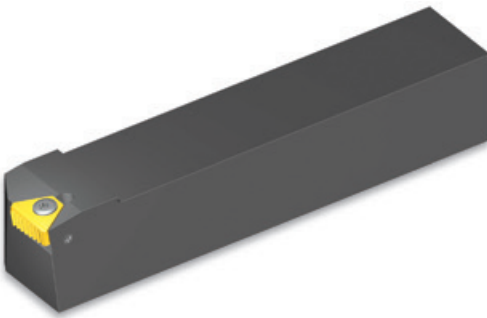


Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
SA5T	SY5T	K5T	YE5M	YI5M

All M+ Style toolholders have a 1.5° helix angle.



External Toolholders



T+ Style

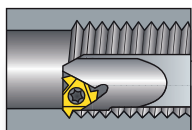
Insert Size	Ordering Code	EDP No.	Dimensions (inch)			
IC	RH		H=H1=B	F	L1	L2
1/2"T	AL100-4T	66334	1.00	1.08	6.00	1.20
	AL125-4T	66394	1.25	1.33	7.00	1.20
	AL150-4T	66395	1.50	1.58	8.00	1.20

Spare Parts

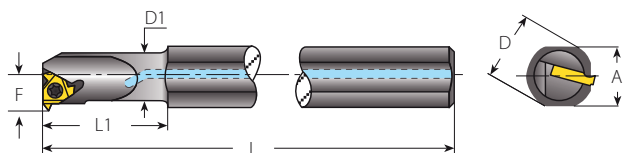
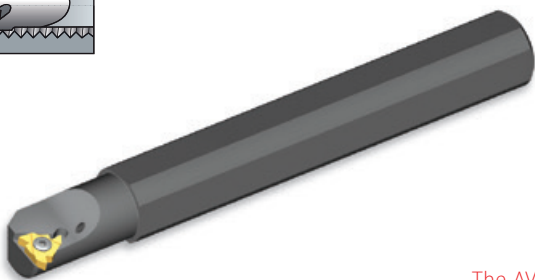


Insert Screw	Anvil Screw	Insert Torx Key	Anvil Torx Key	Anvil RH/LH
SA4T	SY4K2	K4T	K2	Y4T

All T+ Style toolholders have a 0° helix angle.



Internal Toolholders



The AVR.-3 holders are supplied with standard anvil (see spare parts table below). For V6, please use the V6 anvil YI3-6C. For more info see page 48.

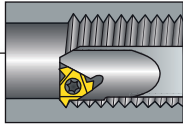
Standard

Standard										Spare Parts					
Insert Size	Ordering Code	EDP No.	Dimensions (inch)							Min. Bore dia.					
IC	RH		A	L	L1	D	D1	F	inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH	
1/4"	NVRC0375D-2	66234	.67	7.00	1.00	.75	.37	.28	.50						
	NVRC050-2	66236	.67	7.00	1.25	.75	.50	.37	.65	SN2T	-	K2T	-	-	
3/8"	NVRC050-3	66238	.67	7.00	1.25	.75	.62	.40	.67	SN3T	-	K3T	-	-	
	NVRC0625-3	66240	.67	7.00	1.50	.75	.62	.46	.80						
	NVRC0625D-3	66242	.58	6.00	1.25	.62	.62	.46	.80						
	AVRC075-3	66098	.67	7.00	1.50	.75	.75	.51	.90						
	AVRC100-3	66100	1.12	1.00	2.50	1.25	1.00	.65	1.20	SA3T	SY3T	K3T	YI3	YE3	
	AVRC100D-3	66104	.89	8.00	1.75	1.00	1.00	.65	1.20						
	AVRC125-3	66108	1.12	1.00	2.50	1.25	1.25	.77	1.45						
	AVRC150-3	66114	1.34	12.00	2.50	1.50	1.50	.90	1.65						
	AVRC200-3	66294	1.80	14.00	3.00	2.00	1.99	1.10	2.22						
	NVRC075-4	66244	.67	7.00	2.00	.75	.75	.59	1.00						
1/2"	AVRC100-4	66102	1.12	1.00	2.50	1.25	1.00	.71	1.25	SA4T	SY4T	K4T	YI4	YE4	
	AVRC100D-4	66106	.89	8.00	1.75	1.00	1.00	.71	1.25						
	AVRC125-4	66110	1.12	1.00	2.50	1.25	1.25	.85	1.50						
	AVRC150-4	66116	1.34	12.00	2.50	1.50	1.50	.98	1.75						
5/8"	AVRC125-5	66112	1.12	1.00	2.50	1.25	1.25	.88	1.55	SN5T	SY5T	K5T	YI5	YE5	
	AVRC150-5	66118	1.34	12.00	2.50	1.50	1.50	1.00	1.80	SA5T	SY5T	K5T	YI5	YE5	
	AVRC200-5	66120	1.80	14.00	3.00	2.00	2.00	1.25	2.30						
	AVRC250-5	66123	2.26	16.00	3.00	2.50	2.50	1.50	2.80						

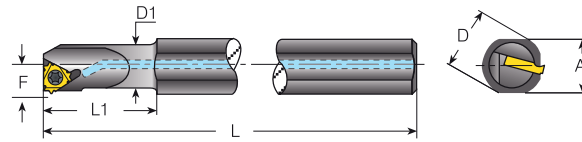
The above toolholders have a 1.5° helix angle. For other helix angles, see page 47

Toolholders with prefix "N" cannot be used with an anvil.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example: NVRC050D-2 LH).



Internal Toolholders for V6 (without anvil)*



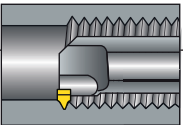
Specially designed for V6 inserts

V6* Style

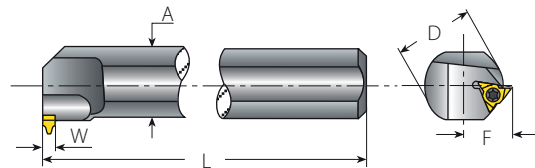
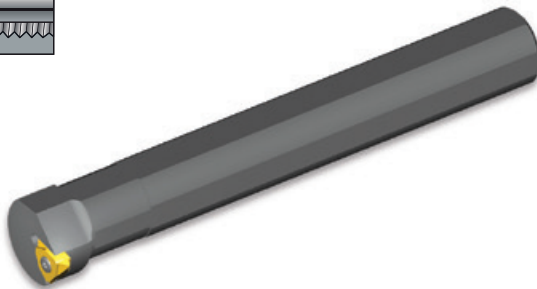
										Spare Parts	
Insert Size	Ordering Code	EDP No.	Dimensions (inch)							Min. Bore dia.	
IC	RH		A	L	L1	D	D1	F	inch		
3/8" V6	NVRC050-3V6	66231	.67	7.0	1.25	.75	.50	.40	.67		Insert Screw
	NVRC0625-3V6	66232	.67	7.0	1.50	.75	.62	.46	.80		SN3TM
	NVRC0625D-3V6	66233	.58	6.0	1.25	.62	.62	.46	.80		SN3T
											Torx Key
											K3T

The above toolholders have 1.5° helix angle.

* V6 inserts cannot be used on standard internal toolholders without anvil. For this purpose you must use one of these special V6 toolholders.



Internal Toolholders



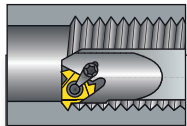
V Style

								Spare Parts	
Insert Size	Ordering Code	EDP No.	Dimensions (inch)						
IC	RH		A	L	D	F	W		
5/8"V	NVR150-5V	67220	1.34	12.00	1.50	1.08	.256		Insert Screw
	NVR200-5V	67222	1.80	14.00	2.00	1.33	.256		SN6T
	NVR250-5V	67223	2.26	16.00	2.50	1.58	.256		K6T
									Torx Key

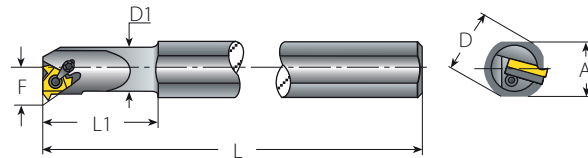
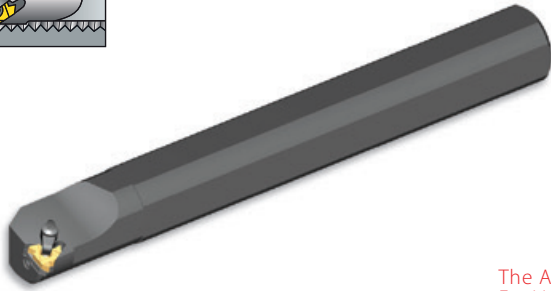
The above toolholders have a 1.0° helix angle.

Minimum Bore Dia

	Pitch mm	6.0 ISO	8.0 ISO	1.0 ISO	
	Pitch tpi	4 UN	3 UN		2.5 W
NVR150-5V		1.98	2.17	2.76	3.15
NVR200-5V		2.37	2.37	2.76	3.15
NVR250-5V		2.76	2.76	2.76	3.15



Internal Toolholders



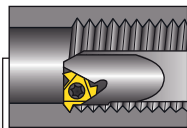
The AVR.-3C holders are supplied with standard anvil (see spare parts table below). For V6, please use the V6 anvil YE3-6C. For more info see page 48.

Standard with Clamp (Dual System, Screw or Clamp)

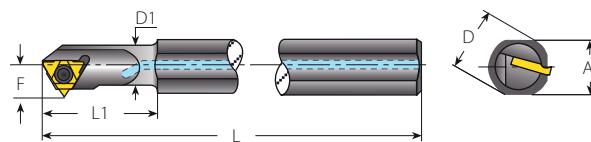
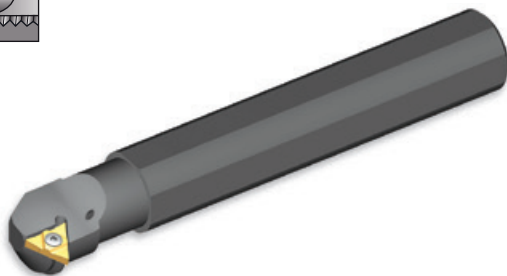
Insert Size	Ordering Code	EDP No.	Dimensions (inch)							Min. Bore dia.						
IC	RH		A	L	L1	D	D1	F	inch	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH	
3/8"	AVR075-3C	66130	.67	7.00	2.00	.75	.75	.51	.94	SA3T	SY3T	C3	K3CT	YI3	YE3	
	AVR100-3C	66397	1.12	1.00	2.50	1.25	1.00	.65	1.20							
	AVR100D-3C	66132	.90	8.00	1.75	1.00	1.00	.65	1.20							
	AVR125-3C	66398	1.12	1.00	2.50	1.25	1.25	.77	1.45							
	AVR150-3C	66399	1.34	12.00	2.50	1.50	1.50	.90	1.65							
1/2"	AVR100-4C	66400	1.12	1.00	2.50	1.25	1.00	.71	1.25	SA4T	SY4T	C4	K4T	YI4	YE4	
	AVR100D-4C	66401	.90	8.00	1.75	1.00	1.00	.71	1.25							
	AVR125-4C	66402	1.12	1.00	2.50	1.25	1.25	.85	1.50							
	AVR150-4C	66403	1.34	12.00	2.50	1.50	1.50	.98	1.75							
5/8"	AVR125-5C	66404	1.12	1.00	2.50	1.25	1.25	.88	1.55	SN5T	SY5T	C5	K5T	YI5	YE5	
	AVR150-5C	66405	1.34	12.00	2.50	1.50	1.50	1.00	1.80	SA5T	SY5T	C5	K5T	YI5	YE5	
	AVR200-5C	66406	1.80	14.00	3.00	2.00	2.00	1.25	2.30							
	AVR250-5C	66407	2.26	16.00	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 47.

Toolholders with prefix "N" cannot be used with an anvil. Holders with coolant channel available as standard (Example AVRC100-3C).



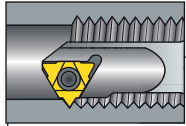
Internal Toolholders



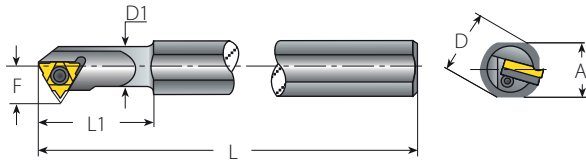
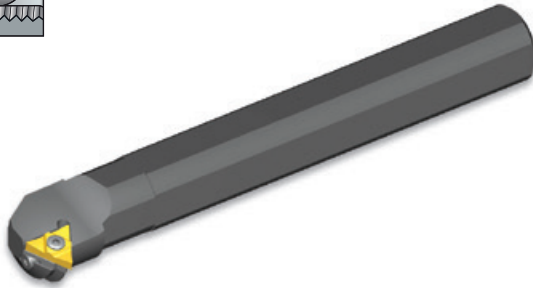
U Style for Coarse Pitch

Insert Size		Ordering Code	EDP No.	Dimensions (inch)					F to insert	Holder Helix	Spare Parts	
IC	RH			A	L	L1	D	D1	inch	Deg.	Insert Screw	Torx Key
6.0U	NVRC032-6.0U	157/003	66299	.67	7.00	.94	.75	.31	.23	4.0	SN6MT	K6MT
1/4"U	NVRC039-2U	157/004	66300	.67	7.00	1.26	.75	.39	.29	4.0	SM2T8	K2T

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code. (Example AVR075-3C LH)

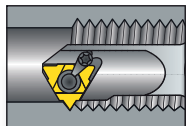


Internal Toolholders

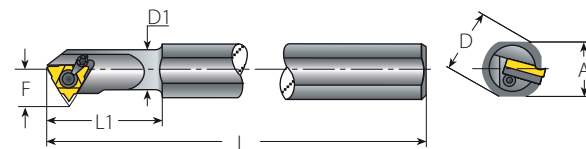
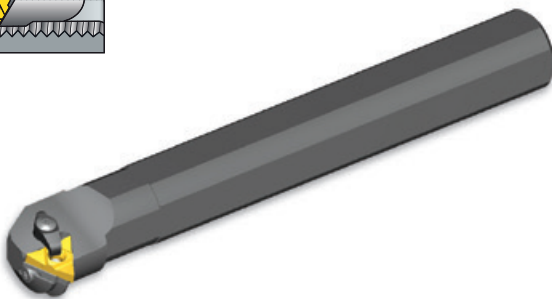


U Style

Insert Size Ordering Code EDP No. Dimensions (inch) Min. Bore dia.										Spare Parts				
IC	RH		A	L	L1	D	D1	F	inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"U	AVR125-4U	66421	1.12	1.00	2.50	1.25	1.25	1.01	1.65	SA4T	SY4T	K4T	YI4U	YE4U
	AVR150-4U	66156	1.34	12.00	2.50	1.50	1.50	1.12	1.90					
5/8"U	NVR125-5U	66264	1.12	1.00	2.50	1.25	1.25	.98	1.65	SN5T	-	K5T	-	-
	AVR150-5U	66162	1.34	12.00	2.50	1.50	1.50	1.13	1.90					
	AVR200-5U	66179	1.80	14.00	3.00	2.00	2.00	1.37	2.40	SA5T	SY5T	K5T	YI5U	YE5U
	AVR250-5U	66187	2.26	16.00	3.00	2.50	2.50	1.31	2.90					



Internal Toolholders



U Style with Clamp

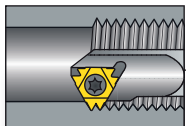
(Dual System, Screw or Clamp)

Insert Size Ordering Code EDP No. Dimensions (inch) Min. Bore dia.										Spare Parts					
IC	RH		A	L	L1	D	D1	F	inch	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
1/2"U	AVR125-4UC	66408	1.12	1.00	2.50	1.25	1.25	1.01	1.65	SA4T	SY4T	C4	K4T	YI4U	YE4U
	AVR150-4UC	66409	1.34	12.00	2.50	1.50	1.50	1.12	1.90						
5/8"U	AVR150-5UC	66410	1.34	12.00	2.50	1.50	1.50	1.13	1.90						
	AVR200-5UC	66411	1.80	14.00	3.00	2.00	2.00	1.37	2.40	SA5T	SY5T	C5	K5T	YI5U	YE5U
	AVR250-5UC	66412	2.26	16.00	3.00	2.50	2.50	1.61	2.90						

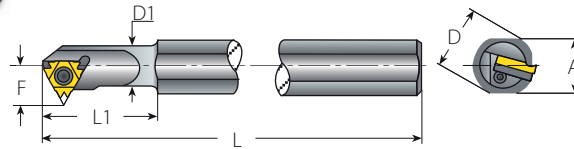
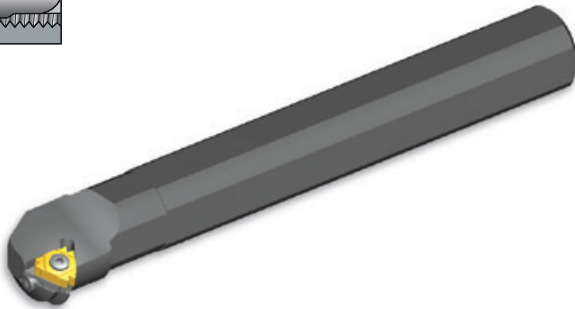
The above toolholders have a 1.5° helix angle. For other helix angles, see page 47.

Toolholders with prefix "N" cannot be used with an anvil. Holders with coolant channel available as standard.
(Example AVRC100-3C).

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.
(Example AVR075-3C LH)



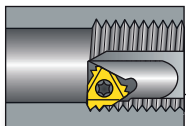
Internal Toolholders



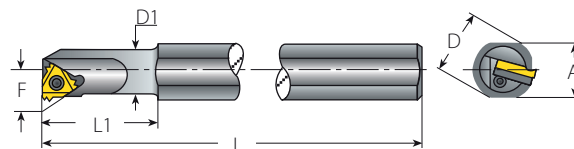
Z+ Style

Insert Size	Ordering Code	EDP No.	Dimensions (inch)							Min. Bore dia.	Spare Parts				
IC	RH		A	L	L1	D	D1	F	inch		Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"Z	AVR125-4Z	66413	1.12	1.00	2.50	1.25	1.25	1.01	1.65		SA4T	SY4T	K4T	YI4Z	YE4Z
	AVR150-4Z	66414	1.34	12.00	2.50	1.50	1.50	1.12	1.90						
5/8"Z	NVR125-5Z	66415	1.12	1.00	2.50	1.25	1.25	.98	1.65		SN5T	-	K5T	-	-
	AVR150-5Z	66416	1.34	12.00	2.50	1.50	1.50	1.13	1.90						
	AVR200-5Z	66417	1.80	14.00	3.00	2.00	2.00	1.37	2.40		SA5T	SY5T	K5T	YI5Z	YE5Z
	AVR250-5Z	66418	2.26	16.00	3.00	2.50	2.50	1.61	2.90						

All Z+ style toolholders have a 1.5° helix angle.



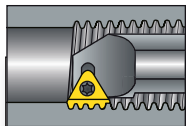
Internal Toolholders



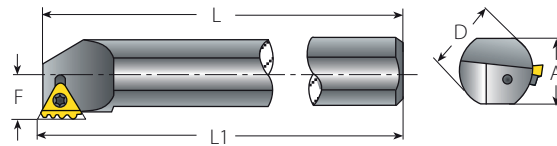
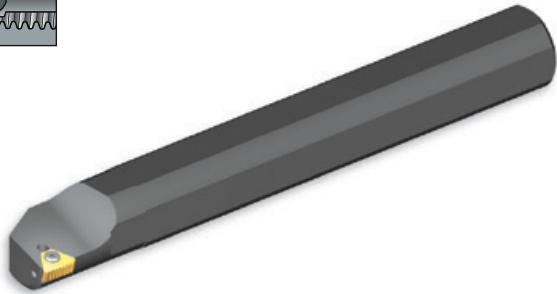
M+ Style

Insert Size	Ordering Code	EDP No.	Dimensions (inch)							Min. Bore dia.	Spare Parts				
IC	RH		A	L	L1	D	D1	F	inch		Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
5/8"M	AVR125-5M	66127	1.12	1.00	2.50	1.25	1.25	.88	1.55		SN5T	SY5T	K5T	YI5M	YE5M
	AVR150-5M	66161	1.34	12.00	2.50	1.50	1.50	1.00	1.80						
	AVR200-5M	66419	1.80	14.00	3.00	2.00	2.00	1.25	2.30		SA5T	SY5T	K5T	YI5M	YE5M
	AVR250-5M	66422	2.26	16.00	3.00	2.50	2.50	1.50	2.80						

All M style toolholders have a 1.5° helix angle.



Internal Toolholders

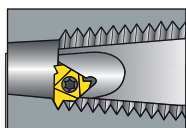


T+ Style

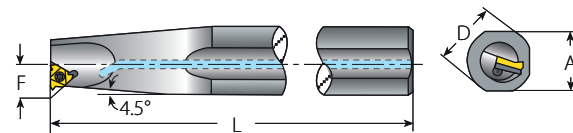
Insert Size	Ordering Code	EDP No.	Dimensions (inch)					Min. Bore dia.	Spare Parts				
IC	RH		A	L	L1	D	F	inch	Insert Screw	Anvil Screw	Torx Key	Anvil Torx Key	Anvil RH/LH
1/2" T	AVR150-4T	66423	1.34	12.00	12.08	1.50	.88	2.40					
	AVR200-4T	66424	1.80	14.00	14.08	2.00	1.13	2.75	SA4T	SY4K2	K4T	K2	Y4T
	AVR250-4T	66425	2.26	16.00	16.08	2.50	1.38	3.25					

All T+ style toolholders have a 0° helix angle.

Holders with coolant channel available as standard. (Example: AVRC150-4T)



Internal Toolholders



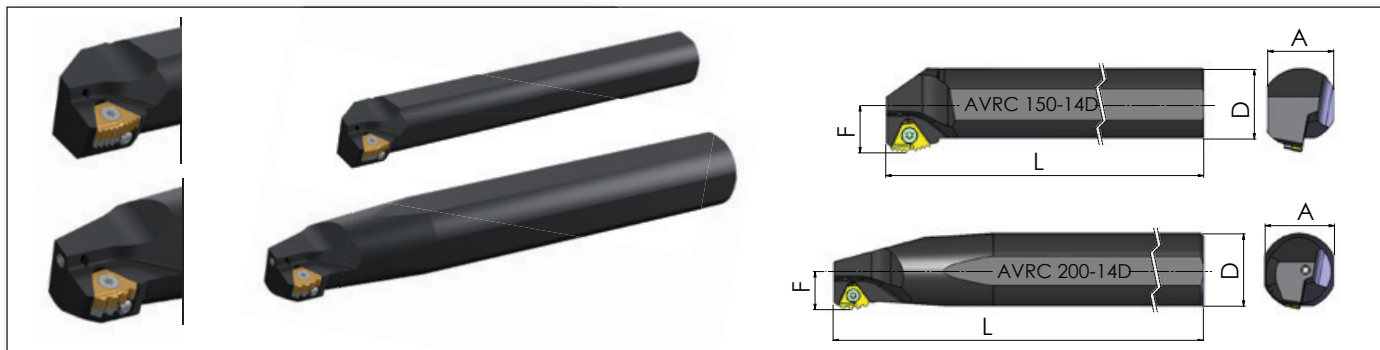
Oil & Gas

Insert Size	Ordering Code	EDP No.	Thread Form	Connection No. or Size	Dimensions (inch)				Helix Angle	Spare Parts				
IC	RH				A	L	D	F		Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8" NEW	AVRC100-3 APIRD	66529	APIRD 8 APIRD 10	2.375"-20" 1.315"-3.5"	1.12	10.0	1	.65	1					
	AVRC125-3 APIRD	66530	APIRD 8 APIRD 10	2.375"-20" 1.66"-3.5"	1.12	10.0	1.25	.77	1	SA3T	SY3T	K3T	YEI3-APIRD	
	AVRC150-3 APIRD	66531	APIRD 8 APIRD 10	2.375"-20" 1.9"-3.5"	1.34	12.0	1.5	.9	0					
1/2" NEW	AVRC150-45BUT/API	66534	5BUT, V.038R, V.050, V.040, V.055	4 1/2"-20" NC10-NC77 all sizes	1.34	12.0	1.5	.98	0	SA4T	SY4T	K4T	YEI4-API-1P YEI4-5BUT	
5/8"	AVR200-5OIL	66426	V.038R	NC23-NC38	1.80	12.0	2.00	.90	1.5					
	AVRC200-5OIL	66122	V.038R	NC23-NC38						SA5T	SY5T	K5T	YI5OIL	YE5OIL
	AVR300-5OIL	66188	V.050R	NC40-NC77	2.68	16.0	3.00	1.50	1.5					
	AVRC300-5OIL	66125	V.050R	NC40-NC77										

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

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code. (Example AVR200-5OIL LH)

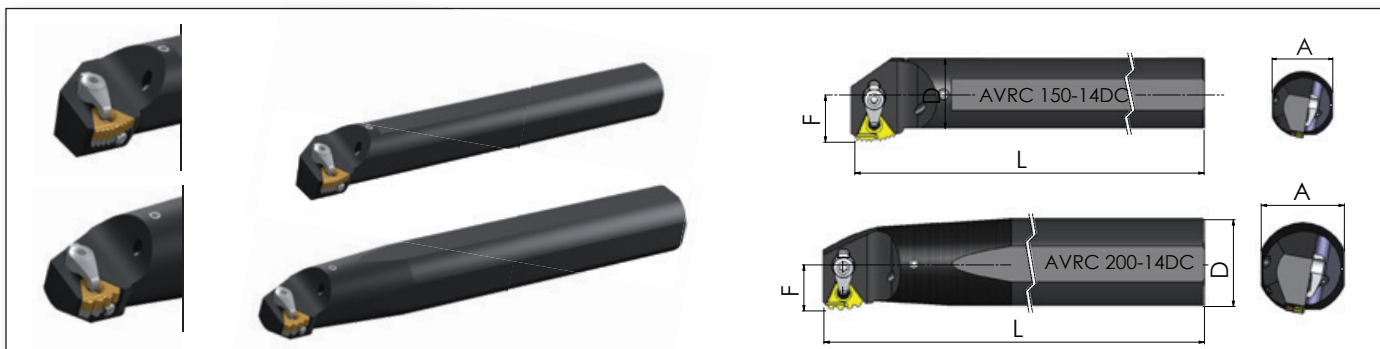
14D Internal Toolholders



14D*

Insert Size		Ordering Code		Dimensions (inch)			Spare Parts			
IC		A	L	D	F	Min. Bore Dia.	Insert Screw	Anvil Screw & Washer	Insert Key	Anvil Key
14D	AVRC150-14D	1.34	12.00	1.50	1.03	2.146	SA5T	M4x6(14D)	K5T	KT15
14D	AVRC200-14D	1.80	12.00	2.00	1.00	2.146	SA5T	M4x6(14D)	K5T	KT15

14D Internal Toolholders with Clamp



14D*

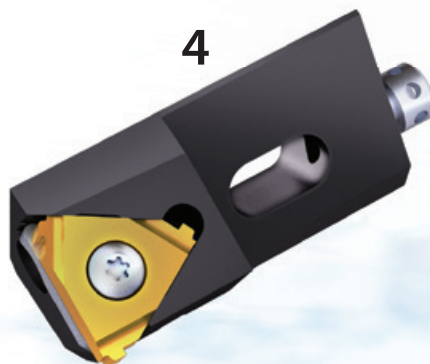
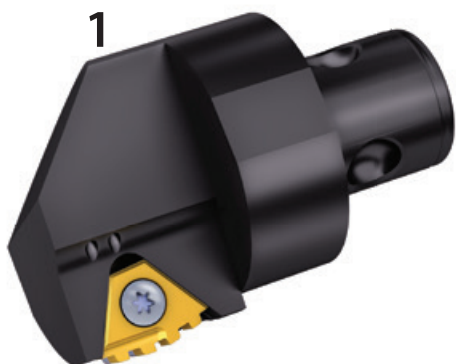
Insert Size		Ordering Code		Dimensions (inch)			Spare Parts			
IC		A	L	D	F	Min. Bore Dia.	Insert Screw	Anvil Screw & Washer	Clamp	Anvil Key
14D	AVRC150-14DC	1.34	12.00	1.50	1.03	2.146	SA5T	M4x6(14D)	C5	KT15
14D	AVRC200-14DC	1.80	12.00	2.00	1.00	2.146	SA5T	M4x6(14D)	C5	KT15

* 14D holders are supplied without anvils. For specific applications, please use the anvils indicated in the table on page 48. The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AVRC 150-14DC LH).

Special Toolholder Solutions



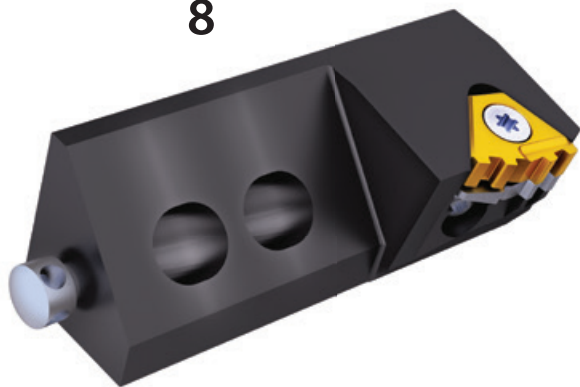
Tailor-made toolholder solutions are available upon request through your local Vargus distributor. Please indicate the toolholder number when making a request for quotation.



Special Toolholder Solutions



8



11



9



12



10

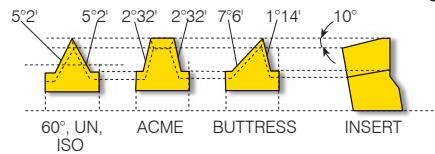


13



Calculating the Helix Angle and Choosing The Right Anvil

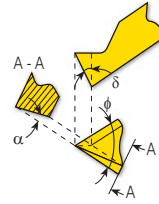
Flank Clearance Angle a



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.

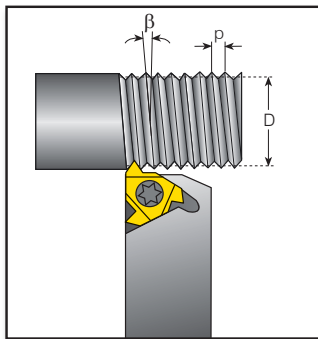
This correction is provided by Vardex anvils.



$$a = \arctan (\tan \frac{\varnothing}{2} \times \tan d)$$

Where: a - Flank clearance angle
d - Tilt angle
Ø - Enclosed flank angle

Calculating the Helix Angle b



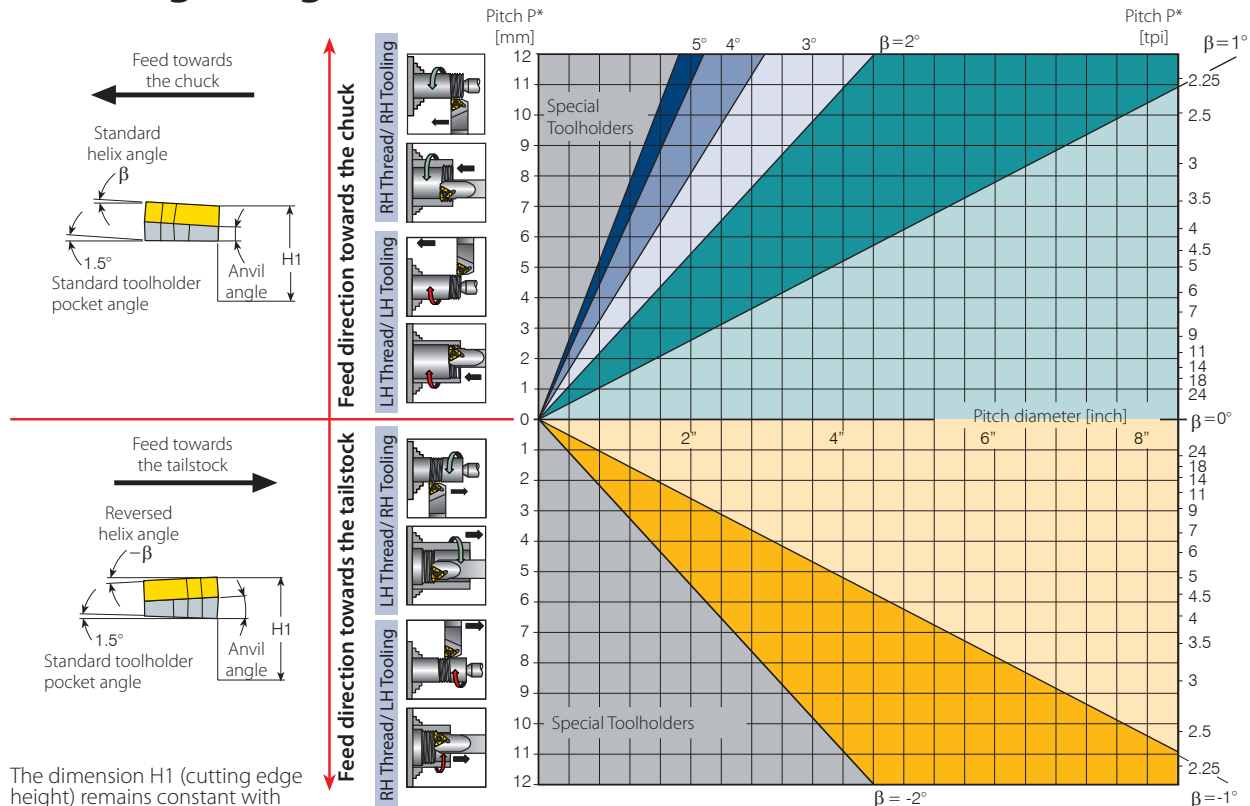
The helix angle is calculated by the following formula:

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

b - 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



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

Anvils

Resultant Helix Angle		4.5°	3.5°	2.5°	1.5°	.5°	0°	-.5°	-1.5°	
Insert Size	Holder	Ordering Code	Size	Size	Size	Size	Size	Size	Size	
IC mm	L mm									
3/8"	16	ER / IL	YE3-3P	YE3-2P	YE3-1P	YE3 YEI3 APIRD	YE3-1N	YE3-1.5N	YE3-2N	YE3-3N
		EL / IR	YI3-3P	YI3-2P	YI3-1P	YI3 YEI3 APIRD	YI3-1N	YI3-1.5N	YI3-2N	YI3-3N
1/2"	22	ER / IL	YE4-3P	YE4-2P	YE4-1P	YE4YEI4- APIYEI4-5BUT	YE4-1N	YE4-1.5N	YE4-2N	YE4-3N
		EL / IR	YI4-3P	YI4-2P	YI4-1P	YI4YEI4- APIYEI4-5BUT	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				Y4T				
		ER / IL								

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

Oil&Gas Anvils

Standard	Application	Anvils with Protected Second Cutting Edge			
		Ordering Code External Application		Ordering Code Internal Application	
API Round Casing & Tubing	10 tpi from Ø 2 3/8" and up	Y14DER-10APIRD (4 teeth)		Y14DIR-10APIRD (4 teeth)	
	10 tpi from Ø 2 3/8" and up	Y14DER10APIRD-3+ (3 teeth)		Y14DIR10APIRD-3+ (3 teeth)	
	8 tpi from Ø 2 3/8" and up	Y14DER-8APIRD		Y14DIR-8APIRD	
API Buttress Casing	5 tpi for Ø 4 1/2" - Ø 9 5/8"	Y14DER-5 BUT		Y14DIR-5 BUT	
	5 tpi for Ø 10 3/4" and up	Y14DER-5BUT-4N		Y14DIR-5BUT-4N	

Resultant Helix Angle	3°	2°	1°	0°	0.5°
Insert Size					
3/8 APIRD			YEI3-APIRD		
1/2 API	YEI4-API-3P	YEI4-API-2P	YEI4-API-1P		
1/2 BUT					YEI4-BUT-0.5N

Recommended Grades and Cutting Speeds Vc [ft/min]

Material Group	Vardex No.	Material		Hardness Brinell HB	Vc [ft/min]				
					Coated				Uncoated
					VKX	VCB	VM7	VTX	VK2 / VK2P
P Steel	1	Unalloyed steel	Low carbon (C=0.1-0.25%)	125	377-623	377-623		377-623	
	2		Medium carbon (C=0.25-0.55%)	150	328-574	328-541		328-574	
	3		High carbon (C=0.55-0.85%)	170	295-541	295-508		295-541	
	4	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	328-590	328-590		328-590	
	5		Hardened	275	246-459	246-459		246-459	
	6		Hardened	350	229-443	229-443		229-443	
	7	High alloy steel (alloying elements > 5%)	Annealed	200	262-393	262-393		262-393	
	8		Hardened	325	164-328	164-328		164-328	
	9	Cast steel	Low alloy (alloying elements < 5%)	200	229-426	229-426		229-426	
	10		High alloy (alloying elements > 5%)	225	197-393	197-393		197-393	
M Stainless Steel	11	Stainless steel Ferritic	Non hardened	200	229-426	229-426	229-492	229-426	
	12		Hardened	330	197-377	164-311	197-410	197-377	
	13	Stainless steel Austenitic	Austenitic	180	295-459	262-393	295-524	295-459	
	14		Super Austenitic	200	131-361	98-328	131-393	131-361	
	15	Stainless steel Cast ferritic	Non hardened	200	295-393	295-393	295-492	295-393	
	16		Hardened	330	213-361	213-361	213-393	213-361	
	17	Stainless steel Cast austenitic	Austenitic	200	279-361	279-361	279-393	279-361	
	18		Hardened	330	197-328	197-328	197-361	197-328	
K Cast Iron	28	Malleable Cast iron	Ferritic (short chips)	130	197-229	229-393		197-229	
	29		Pearlitic (long chips)	230	197-475	229-393		197-475	
	30	Grey Cast iron	Low tensile strength	180	229-426	229-426		229-426	
	31		High tensile strength	260	197-377	197-328		197-377	
	32	Nodular SG iron	Ferritic	160	410-524	410-524		410-524	
	33		Pearlitic	260	295-393	295-393		295-393	
N(k) Non-Ferrous Metals	34	Aluminium alloys Wrought	Non aging	60	328-1196	328-819		328-1196	328-819
	35		Aged	100	262-721	262-590		262-721	262-524
	36	Aluminium alloys	Cast	75	656-1312	656-1312		656-1312	262-393
	37		Cast & aged	90	656-918	656-918		656-918	229-328
	38	Aluminium alloys	Cast Si 13-22%	130	197-590	197-492		197-590	164-393
	39	Copper and copper alloys	Brass	90	262-738	262-688		262-738	229-557
	40		Bronze and non leaded copper	100	262-836	262-688		262-836	229-557
S(m) Heat Resistant Material	19	High temperature alloys	Annealed (Iron based)	200	148-197	148-197		148-197	98-164
	20		Aged (Iron based)	280	98-164	98-164		98-164	82-131
	21		Annealed (Nickel or Cobalt based)	250	66-98	66-98		66-98	66-98
	22		Aged (Nickel or Cobalt based)	350	49-82	49-82		49-82	49-82
	23	Titanium alloys	Pure 99.5 Ti	400Rm	459-557	459-557		459-557	197-328
	24		α+β alloys	1050Rm	164-229	164-229		164-229	131-197
H(k) Hardened Material	25	Extra hard steel	Hardened & tempered	45-50HRc	148-197	148-197		148-197	
	26			51-55HRc	131-164	131-164		131-164	

Cutting Speed Recommendations for Materials Specified by API STB 5

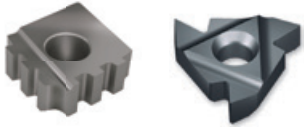
Material	J55-K55	N80-L80-C95-TN70	TN95-P110-TN110
Cutting Speed (ft/min)	558-656	492-591	427-525

Cutting Pass Division Recommendations for Multi Tooth Inserts

The following table provides the optimal cutting pass division options, depending on the material, machine stability and clamping conditions:

Application	No. of Passes/ Pass No.	1	2	3	4	5	6
APIRD 8 Ex, In	3 passes	.0350	.0319	.0043			
	4 passes	.0236	.0228	.0205	.0043		
	5 passes	.0185	.0185	.0169	.0130	.0043	
	6 passes	.0154	.0161	.0146	.0114	.0094	.0043
APIRD 10 Ex, In	3 passes	.0264	.0248	.0043			
	4 passes	.0173	.0177	.0161	.0043		
	5 passes	.0134	.0146	.0130	.0102	.0043	
	6 passes	.0110	.0126	.0114	.0087	.0075	.0043
BUT 5 Ex, In	3 passes	.0299	.0278	.0043			
	4 passes	.0199	.0197	.0180	.0043		
	5 passes	.0156	.0161	.0147	.0113	.0043	
	6 passes	.0130	.0139	.0128	.0098	.0083	.0043
OTTM 5 Ex, In OTTG 5 Ex, In	3 passes	.0299	.0278	.0043			
	4 passes	.0199	.0197	.0180	.0043		
	5 passes	.0156	.0161	.0147	.0113	.0043	
	6 passes	.0130	.0139	.0128	.0098	.0083	.0043

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.	
VTXP	Specialty grade with heavy honing for a longer tool life. Specially designed for API materials. Recommended for tough and challenging applications in unstable working environments.	
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.	
VKXP	High hardness substrate for steels, stainless steel, non ferrous & aluminum. Specialty grade with heavy honing for a longer tool life. Specially designed for API materials. Recommended for tough and challenging applications in unstable working environments. TiN coating.	



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