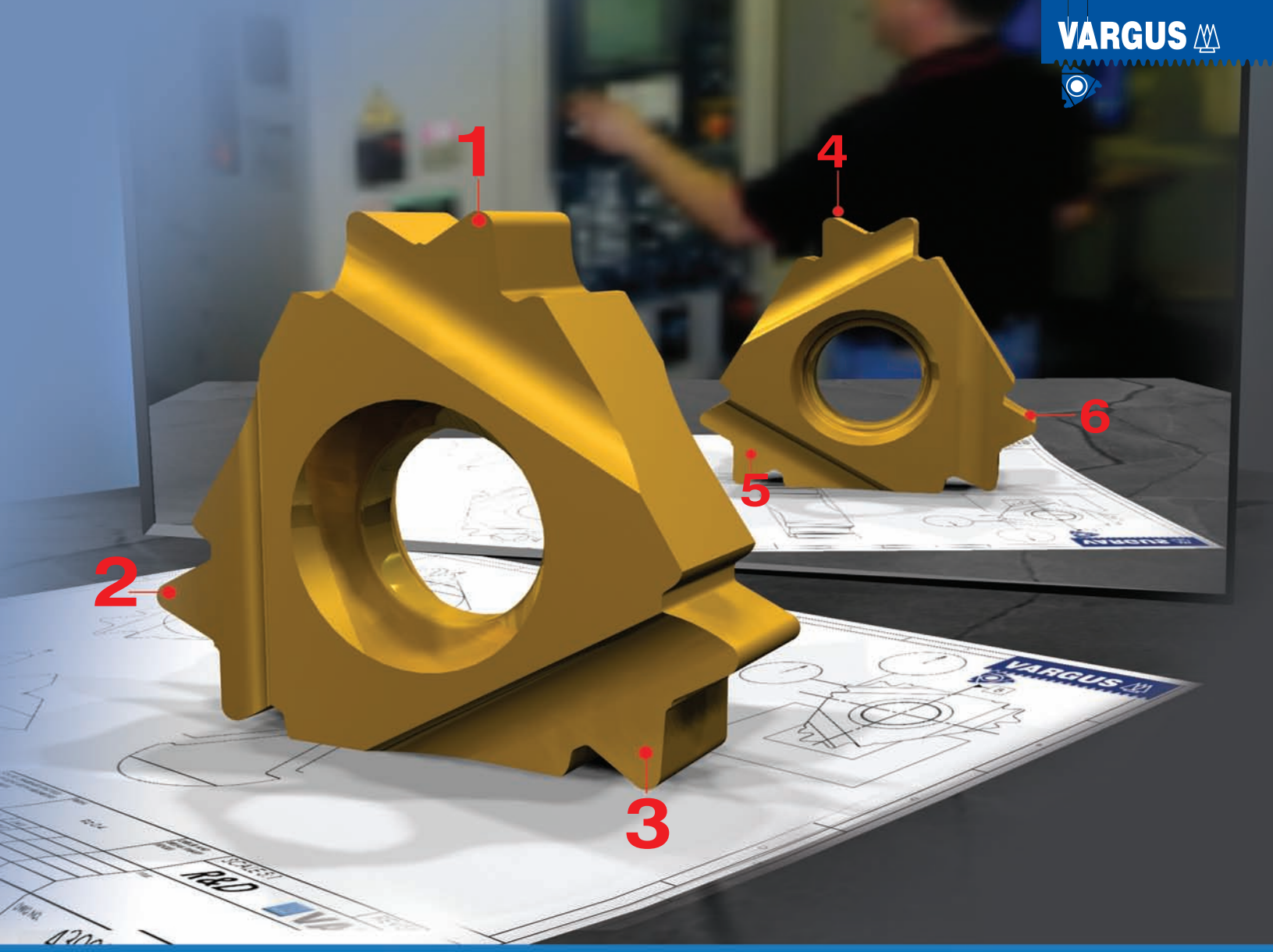
VARGUS



A Revolution in Thread Turning

V6

6 Cutting Corners

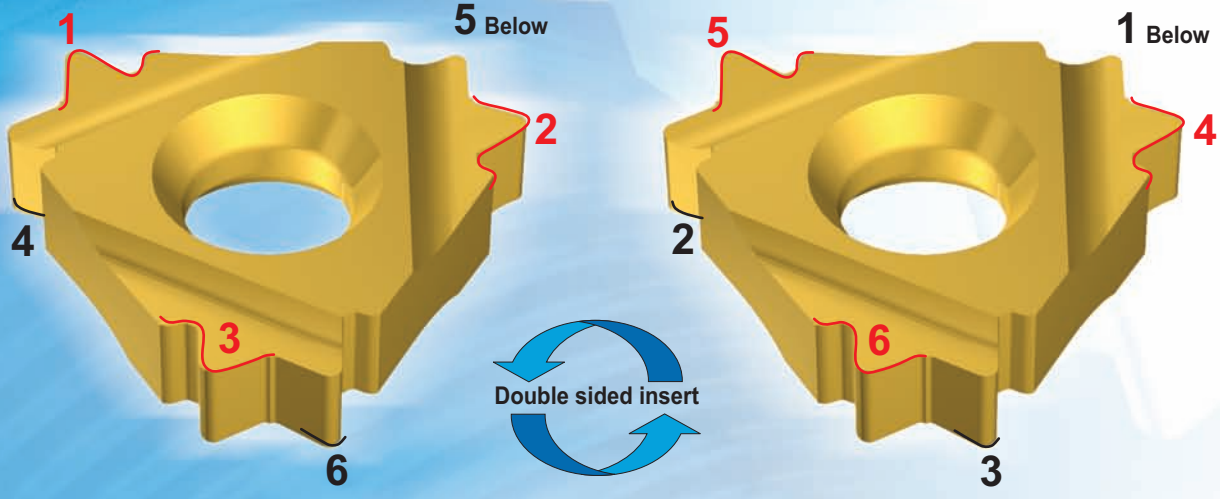
Patent Pending

VARDEX Threading Solutions

Inch

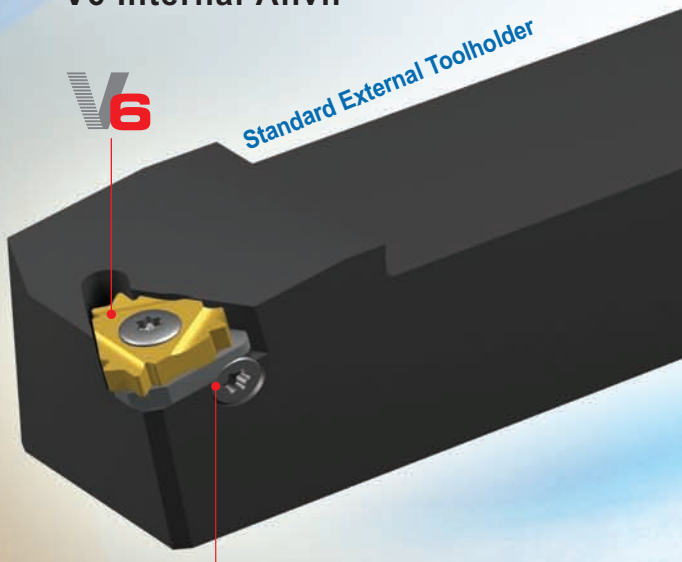
Patent Pending

A Revolutionary 6 Cutting Corner System



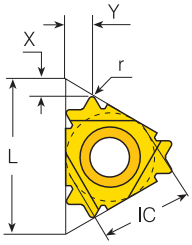
Features:

- 6 Cutting corners
- Fits standard holders
- Economical insert for lower tooling costs
- Same application on all corners
- Doubles your tool life

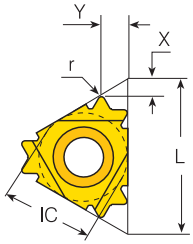


Every box contains a V6 anvil

V6 Inserts

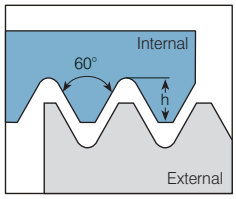


V6 External



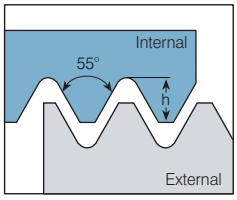
V6 Internal

Partial 60°



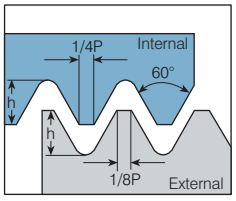
	Insert Size		Pitch		Ordering Code	EDP No.	Dimensions [inch]			V6 Anvil	
	IC	L[inch]	mm	tpi	RH	VKX	r	X	Y	RH	Toolholder
External	3/8" V6	.63	0.5-2.0	48-13	3ERS60-6C...	59528	.002	.08	.12	YE3-6C	AL..-3
Internal	3/8" V6	.63	0.5-2.0	48-14	3IRS60-6C...	59547	.001	.06	.10	YI3-6C	AVRC..-3 NVRC..-3V6

Partial 55°



	Insert Size		Pitch		Ordering Code	EDP No.	Dimensions [inch]			V6 Anvil	
	IC	L[inch]	mm	tpi	RH	VKX	r	X	Y	RH	Toolholder
External	3/8" V6	.63	-	48-14	3ERS55-6C...	59529	.002	.07	.11	YE3-6C	AL..-3
Internal	3/8" V6	.63	-	48-16	3IRS55-6C...	59546	.002	.06	.10	YI3-6C	AVRC..-3 NVRC..-3V6

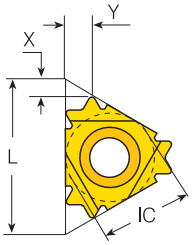
ISO



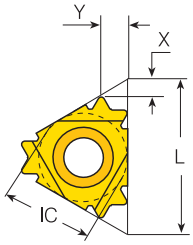
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H

	Insert Size		Pitch	Ordering Code	EDP No.	Dimensions [inch]			V6 Anvil	
	IC	L[inch]	mm	RH	VKX	h min	X	Y	RH	Toolholder
External	3/8" V6	.63	0.5	3ER0.5ISO-6C...	59522	.012	.09	.07	YE3-6C	AL..-3
			0.75	3ER0.75ISO-6C...	59523	.018	.08	.07		
			0.8	3ER0.8ISO-6C...	59524	.019	.08	.08		
			1.0	3ER1.0ISO-6C...	59520	.024	.08	.09		
			1.25	3ER1.25ISO-6C...	59525	.030	.07	.09		
			1.5	3ER1.5ISO-6C...	59521	.036	.07	.10		
			1.75	3ER1.75ISO-6C...	59526	.042	.07	.10		
			2.0	3ER2.0ISO-6C...	59527	.060	.07	.11		
Internal	3/8" V6	.63	0.5	3IR0.5ISO-6C...	59564	.011	.08	.07	YI3-6C	AVRC..-3 NVRC..-3V6
			0.75	3IR0.75ISO-6C...	59565	.017	.08	.07		
			0.8	3IR0.8ISO-6C...	59566	.018	.07	.07		
			1.0	3IR1.0ISO-6C...	59570	.023	.08	.08		
			1.25	3IR1.25ISO-6C...	59567	.028	.07	.07		
			1.5	3IR1.5ISO-6C...	59571	.034	.06	.09		
			1.75	3IR1.75ISO-6C...	59568	.040	.06	.09		
			2.0	3IR2.0ISO-6C...	59569	.045	.07	.10		

V6 Inserts

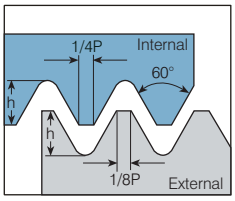


V6 External



V6 Internal

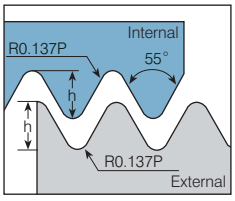
UN



Defined by: ANSI B1.1.74
Tolerance class: 2A/2B

	IC	Insert Size L [inch]	Pitch tpi	Ordering Code RH	EDP No. VKX	Dimensions [inch] h min	X	Y	V6 Anvil RH	Toolholder
External	3/8" V6	.63	32	3ER32UN-6C...	59530	.019	.08	.08	YE3-6C	AL..-3
			28	3ER28UN-6C...	59531	.022	.08	.08		
			24	3ER24UN-6C...	59532	.026	.07	.08		
			20	3ER20UN-6C...	59533	.031	.07	.09		
			18	3ER18UN-6C...	59534	.034	.07	.09		
			16	3ER16UN-6C...	59535	.038	.07	.10		
			14	3ER14UN-6C...	59536	.044	.07	.11		
			13	3ER13UN-6C...	59537	.047	.08	.11		
			12	3ER12UN-6C...	59538	.051	.08	.12		
Internal	3/8" V6	.63	32	3IR32UN-6C...	59563	.020	.08	.07	YI3-6C	AVRC..-3 NVRC..-3V6
			28	3IR28UN-6C...	59562	.020	.07	.08		
			24	3IR24UN-6C...	59561	.024	.07	.08		
			20	3IR20UN-6C...	59560	.029	.07	.09		
			18	3IR18UN-6C...	59557	.032	.07	.09		
			16	3IR16UN-6C...	59555	.036	.06	.09		
			14	3IR14UN-6C...	59553	.041	.07	.10		
			13	3IR13UN-6C...	59550	.044	.07	.11		
			12	3IR12UN-6C...	59548	.048	.06	.10		

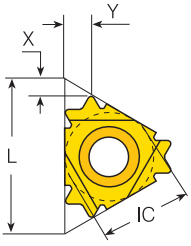
BSW



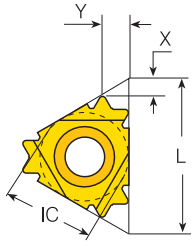
Defined by: B.S.84:1956,
DIN 259, ISO228/1:1982
Tolerance class: Medium class A

	IC	Insert Size L [inch]	Pitch tpi	Ordering Code RH	EDP No. VKX	Dimensions [inch] h	X	Y	V6 Anvil RH	Toolholder
External	3/8" V6	.63	19	3ER19W-6C...	59539	.034	.07	.09	YE3-6C	AL..-3
			16	3ER16W-6C...	59540	.040	.06	.09		
			14	3ER14W-6C...	59541	.046	.07	.11		
			12	3ER12W-6C...	59542	.054	.08	.12		
Internal	3/8" V6	.63	19	3IR19W-6C...	59559	.034	.07	.09	YI3-6C	AVRC..-3 NVRC..-3V6
			16	3IR16W-6C...	59556	.040	.06	.09		
			14	3IR14W-6C...	59554	.046	.07	.10		
			12	3IR12W-6C...	59549	.054	.07	.10		

V6 Inserts

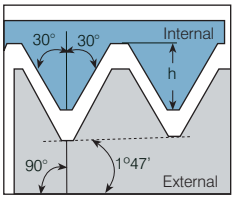


V6 External



V6 Internal

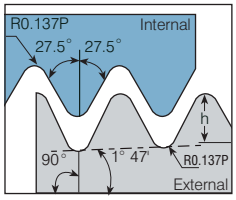
NPT



	Insert Size		Pitch	Ordering Code	EDP No.	Dimensions [inch]			V6 Anvil	
	IC	L [inch]	tpi	RH	VKX	h	X	Y	RH	Toolholder
External	3/8" V6	.63	14	3ER14NPT-6C...	59543	.052	.08	.12	YE3-6C	AL..-3
Internal	3/8" V6	.63	14	3IR14NPT-6C...	59551	.052	.08	.11	YI3-6C	AVRC..-3 NVRC..-3V6

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

BSPT

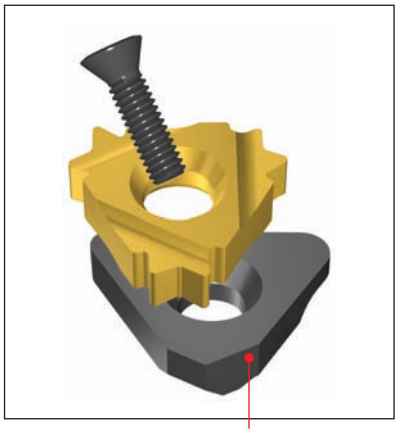


	Insert Size		Pitch	Ordering Code	EDP No.	Dimensions [inch]			V6 Anvil	
	IC	L [inch]	tpi	RH	VKX	h	X	Y	RH	Toolholder
External	3/8" V6	.63	19	3ER19BSPT-6C...	59544	.034	.07	.09	YE3-6C	AL..-3
			14	3ER14BSPT-6C...	59545	.046	.07	.11		
Internal	3/8" V6	.63	19	3IR19BSPT-6C...	59558	.034	.07	.09	YI3-6C	AVRC..-3
			14	3IR14BSPT-6C...	59552	.046	.08	.11		NVRC..-3V6

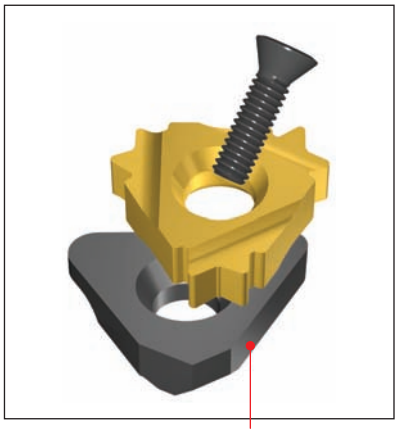
Defined by: B.S.21:1985
Tolerance class: Standard BSPT

Important!

Use a V6 anvil when using a V6 insert.

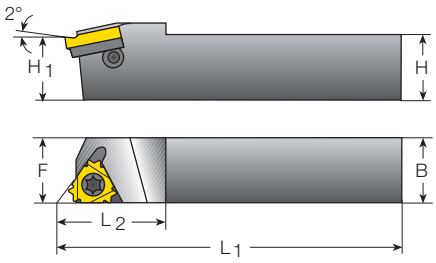


For External RH use YE3-6C anvil.



For Internal RH use YI3-6C anvil.

External Toolholders (with anvil)



V6 inserts can be used on any External RH holder that uses an anvil.

Standard

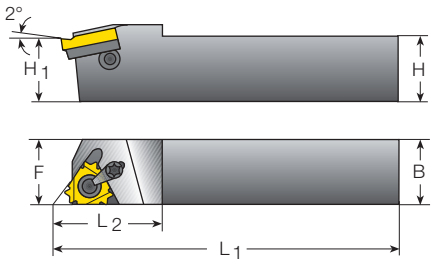
Insert Size	Ordering Code	EDP No.	Dimensions [inch]			
IC			H=H1=B	F	L1	L2
3/8"	AL3/8-3	66091	.37	.63	2.45	.76
	AL050-3	66000	.50	.63	3.27	.87
	AL0625-3	66005	.63	.63	5.00	1.02
	AL075-3	66007	.75	.75	5.00	1.02
	AL100-3	66016	1.00	1.00	6.00	1.20
	AL125-3	66036	1.25	1.25	7.00	1.18

Spare Parts (Ordering code & EDP No.)

Insert Screw	Anvil Screw	Torx Key	V6 Anvil RH *
SA3T (70028)	SY3T (70044)	K3T (70021)	YE3-6C (70249)

* The holders are supplied with standard anvils. For V6, please use the V6 anvil indicated in the table above.

External Toolholders (with anvil)



V6 inserts can be used on any External RH holder that uses an anvil.

Standard with Clamp
(Dual System: Screw or Clamp)

Insert Size	Ordering Code	EDP No.	Dimensions [inch]			
IC			H=H1=B	F	L1	L2
3/8"	AL075-3C	66008	.75	.75	5.00	1.20
	AL100-3C	66017	1.00	1.00	6.00	1.20
	AL125-3C	66031	1.25	1.25	7.00	1.20

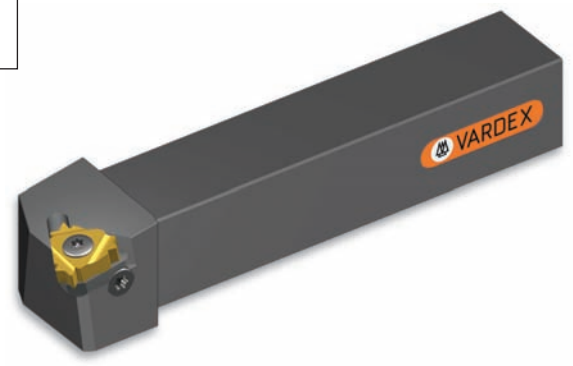
Spare Parts (Ordering code & EDP No.)

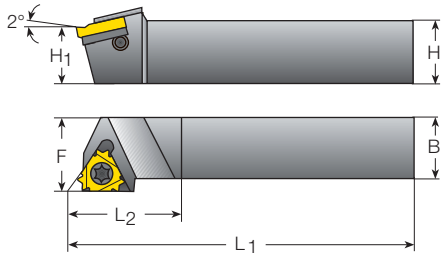
Insert Screw	Anvil Screw	Clamp	Torx Key	V6 Anvil RH *
SA3T (70028)	SY3T (70044)	C3 (70017)	K3CT (70244)	YE3-6C (70249)

* The holders are supplied with standard anvils. For V6, please use the V6 anvil indicated in the table above.

The above toolholders have a 1.5° helix angle. For other helix angles, see page 10.

External Toolholders (with anvil)





V6 inserts can be used on any External RH holder that uses an anvil.

Off-Set Qualified (FQ)

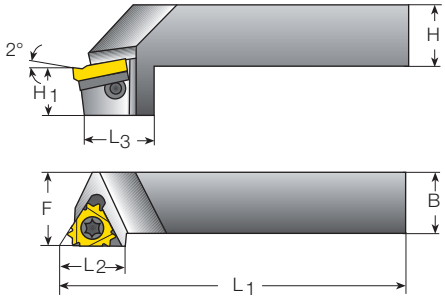
Insert Size	Ordering Code	EDP No.	Dimensions [inch]			
IC			H=H1=B	F	L1	L2
3/8"	AL075-3FQ	66011	.75	.75	6.00	1.00
	AL100-3FQ	66020	1.00	1.00	6.00	1.00
	AL125-3FQ	66039	1.25	1.25	6.00	1.20

Spare Parts (Ordering code & EDP No.)

			 *
Insert Screw	Anvil Screw	Torx Key	V6 Anvil RH
SA3T (70028)	SY3T (70044)	K3T (70021)	YE3-6C (70249)

* The holders are supplied with standard anvils. For V6, please use the V6 anvil indicated in the table above.

External Toolholders (with anvil)



V6 inserts can be used on any External RH holder that uses an anvil.

Drop Head-Qualified (CQ)

Insert Size	Ordering Code	EDP No.	Dimensions [inch]					
IC			H=B	F	L1	L2	L3	H1
3/8"	AL075-3CQ	66009	.75	1.00	5.00	.88	1.50	.69
	AL100-3CQ	66018	1.00	1.25	6.00	.88	1.50	.87
	AL125-3CQ	66037	1.25	1.5	7.00	.88	1.50	.87

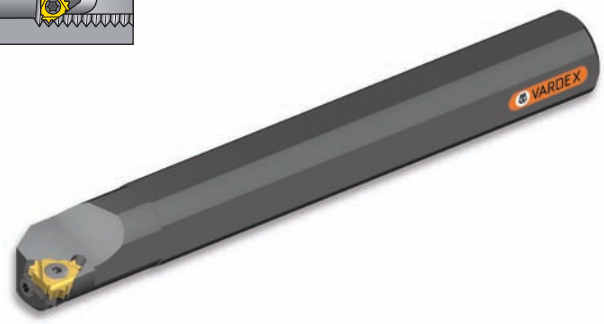
Spare Parts (Ordering code & EDP No.)

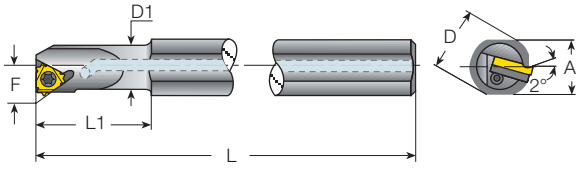
			 *
Insert Screw	Anvil Screw	Torx Key	V6 Anvil RH
SA3T (70028)	SY3T (70044)	K3T (70021)	YE3-6C (70249)

* The holders are supplied with standard anvils. For V6, please use the V6 anvil indicated in the table above.

The above toolholders have a 1.5° helix angle. For other helix angles, see page 10.

Internal Toolholders (with anvil)





V6 inserts can be used on any External RH holder that uses an anvil.

Standard

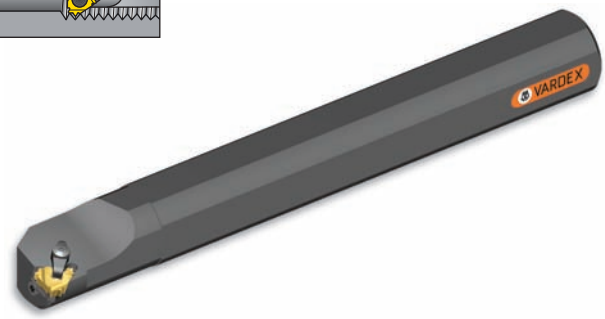
Insert Size	Ordering Code	EDP No.	Dimensions [inch]						Min. Bore dia.
IC			A	L	L1	D	D1	F	inch
3/8"	AVRC075-3	66098	.67	7.0	1.50	.75	.75	.51	.90
	AVRC100-3	66100	1.12	10.0	2.50	1.25	1.00	.65	1.20
	AVRC100D-3	66104	.90	8.0	1.75	1.00	1.00	.65	1.20
	AVRC125-3	66108	1.12	10.0	2.50	1.25	1.25	.77	1.45
	AVRC150-3	66114	1.34	12.0	2.50	1.50	1.50	.90	1.65

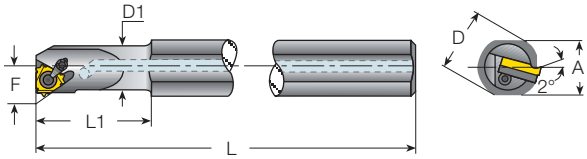
Spare Parts (Ordering code & EDP No.)

Insert Screw	Anvil Screw	Torx Key	V6 Anvil RH*
SA3T (70028)	SY3T (70044)	K3T (70021)	YI3-6C (70256)

* The holders are supplied with standard anvils. For V6, please use the V6 anvil indicated in the table above.

Internal Toolholders (with anvil)





V6 inserts can be used on any External RH holder that uses an anvil.

Standard with Clamp
(Dual System: Screw or Clamp)

Insert Size	Ordering Code	EDP No.	Dimensions [inch]						Min. bore dia.
IC			A	L	L1	D	D1	F	inch
3/8"	AVRC075-3C	66032	.67	7.0	2.00	.75	.75	.51	.90
	AVRC100-3C	66040	1.12	10.0	2.50	1.25	1.00	.65	1.20
	AVRC100D-3C	66056	.90	8.0	1.75	1.00	1.00	.65	1.20
	AVRC125-3C	66093	1.12	10.0	2.50	1.25	1.25	.77	1.45
	AVRC150-3C	66096	1.34	12.0	2.50	1.50	1.50	.90	1.65

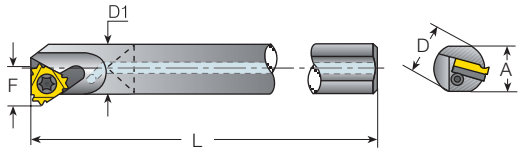
Spare Parts (Ordering code & EDP No.)

Insert Screw	Anvil Screw	Clamp	Torx Key	V6 Anvil RH*
SA3T (70028)	SY3T (70044)	C3 (70017)	K3CT (70244)	YI3-6C (70256)

* The holders are supplied with standard anvils. For V6, please use the V6 anvil indicated in the table above.

The above toolholders have a 1.5° helix angle. For other helix angles, see page 10.
Holders with coolant channel are available as standard. Example AVRC20-3.

Internal Toolholders (with anvil)



V6 inserts can be used on any Internal RH holder that uses an anvil.

Standard with Carbide Shank

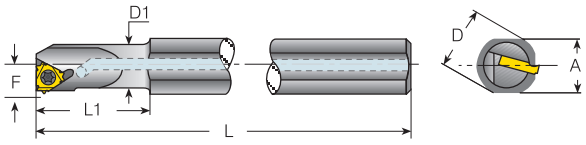
Insert Size	Ordering Code	EDP No.	Dimensions [inch]					Min .bore dia.
IC			A	L	D	D1	F	inch
3/8"	CAVRC075-3	66104	.727	10.00	.75	.75	.509	.90

Spare Parts (Ordering code & EDP No.)

Insert Screw	Anvil Screw	Torx Key	V6 Anvil RH *
SA3T (70028)	SY3T (70044)	K3T (70021)	YI3-6C (70256)

* The holders are supplied with standard anvils. For V6, please use the V6 anvil indicated in the table above.

Internal Toolholders for V6 (without anvil)*



Specially designed for V6 inserts

V6 Style

Insert Size	Ordering Code	EDP No.	Dimensions [inch]						Min. bore dia
IC			A	L	L1	D	D1	F	inch
3/8" V6	NVRC050-3V6	66231	.67	7.0	1.25	.75	.50	.40	.67
	NVRC0625-3V6	66232	.67	7.0	1.50	.75	.62	.46	.80
	NVRC0625D-3V6	66233	.58	6.0	1.25	.62	.62	.46	.80

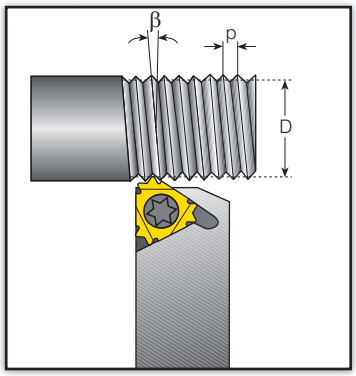
Spare Parts (Ordering code & EDP No.)

Insert Screw	Torx Key
SN3TM (70236)	K3T (70021)
SN3T (70038)	

The above toolholders have a 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.

Calculating the Helix Angle β



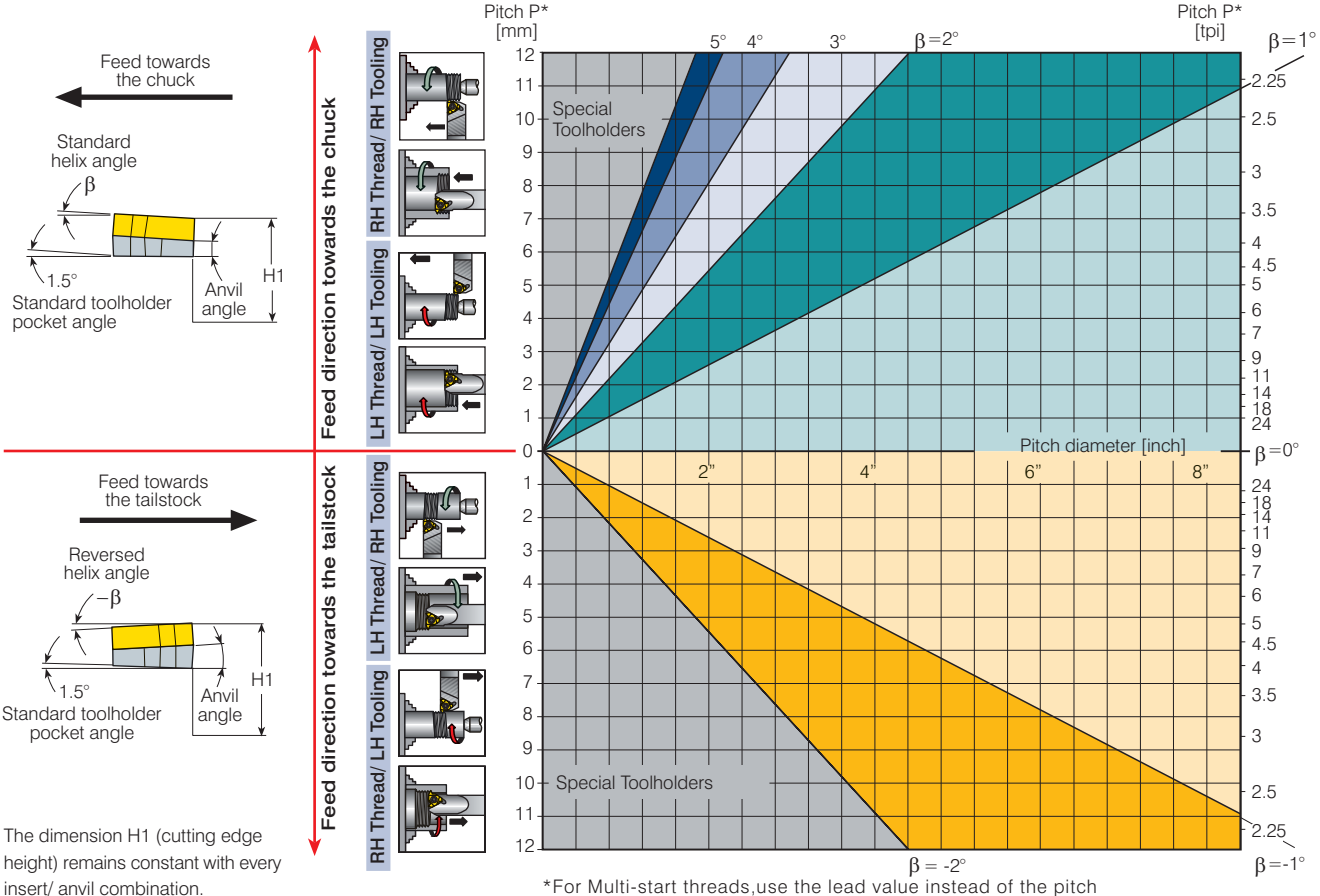
The helix angle is calculated by the following formula:

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

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

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

Helix Angle Diagram



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

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

V6 Anvil

V6 is indicated on the backside

Resultant Helix Angle			4.5°	3.5°	2.5°	1.5°	0.5°	0°	-0.5°	-1.5°
IC	L inch	Holder	Ordering Code(EDP No.)							
3/8" V6	.63	ER	YE3-6C-3P (70246)	YE3-6C-2P (70247)	YE3-6C-1P (70248)	YE3-6C (70249)	YE3-6C-1N (70250)	YE3-6C-1.5N (70258)	YE3-6C-2N (70251)	YE3-6C-3N (70252)
		IR	YI3-6C-3P (70253)	YI3-6C-2P (70254)	YI3-6C-1P (70255)	YI3-6C (70256)	YI3-6C-1N (70257)	YI3-6C-1.5N (70261)	YI3-6C-2N (70259)	YI3-6C-3N (70260)

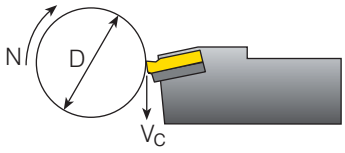
Recommended Grades and Cutting Speeds Vc [ft/min]

	Material		Hardness Brinell HB	Vc[ft/min] Coated VKX
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	459-656
		Medium carbon (C=0.25-0.55 %)	150	394-591
		High carbon (C=0.55-0.85 %)	170	361-591
	Low alloy steel (alloying elements ≤5%)	Non hardened	180	328-591
		Hardened	275	295-591
		Hardened	350	262-492
	(alloying elements > 5%)	Annealed	200	295-591
		Hardened	325	230-361
	Cast steel	Low alloy (alloying elements <5%)	200	295-525
		High alloy (alloying elements >5%)	225	295-459
M	Stainless steel Feritic	Non hardened	200	230-427
		Hardened	330	246-361
	Stainless steel Austenitic	Austenitic	180	295-459
		Super austenitic	200	246-394
	Stainless steel Cast feritic	Non hardened	200	295-459
		Hardened	330	262-427
	Stainless steel Cast austenitic	Austenitic	200	295-459
		Hardened	330	262-410
	High temperature alloys	Annealed (Iron based)	200	148-197
		Aged (Iron based)	280	98-197
		Annealed (Nickel or Cobalt based)	250	66-98
		Aged (Nickel or Cobalt based)	350	49-82
	Titanium alloys	Pure 99.5 Ti	400Rm	459-558
		$\alpha + \beta$ alloys	1050Rm	164-230
K	Extra hard steel	Hardened & tempered	55HRc	148-197
	Malleablecast iron	Ferritic (short chips)	130	230-525
		Pearlitic (long chips)	230	213-492
	Grey cast iron	Low tensile strength	180	262-459
		High tensile strength	260	230-394
	Nodular SG iron	Feritic	160	427-525
		Pearlitic	260	295-394
	Aluminium alloys Wrought	non aging	60	328-1198
		Aged	100	262-722
	Aluminium alloys	Cast	75	656-1312
		Cast & aged	90	656-919
	Aluminium alloys	Cast Si 13-22%	130	197-591
	Copper and copper alloys	Brass	90	262-738
		Bronze and non leaded copper	100	262-837

Calculation of N [RPM]

$$N = \frac{12 \times V_C}{\pi \times D}$$

$$V_C = \frac{N \times \pi \times D}{12}$$



N - Revolution Per Minute [RPM]
V_C - Cutting Speed [ft/min]
D - Workpiece Diameter [Inch]

VKX

Excellent grade for general use.

Number of Passes

Pitch	mm	0.50	0.75	1.00	1.25	1.50	1.75	2.00
	tpi	48	32	24	20	16	14	12
No. of passes		3-6	3-6	4-8	4-8	5-9	6-11	6-11

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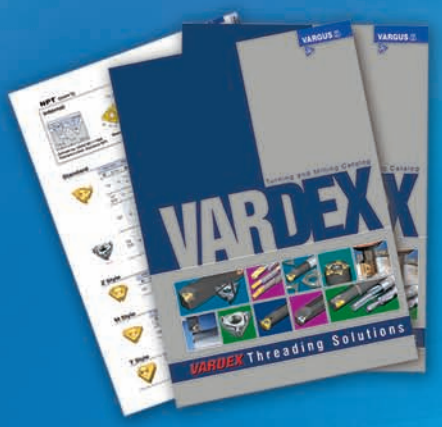

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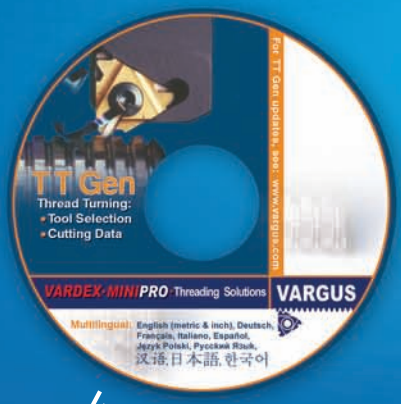

Includes V6

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