vargus
NEUMO Ehrenberg Group

REDLINE

Comprehensive Line of Thick Threading Inserts

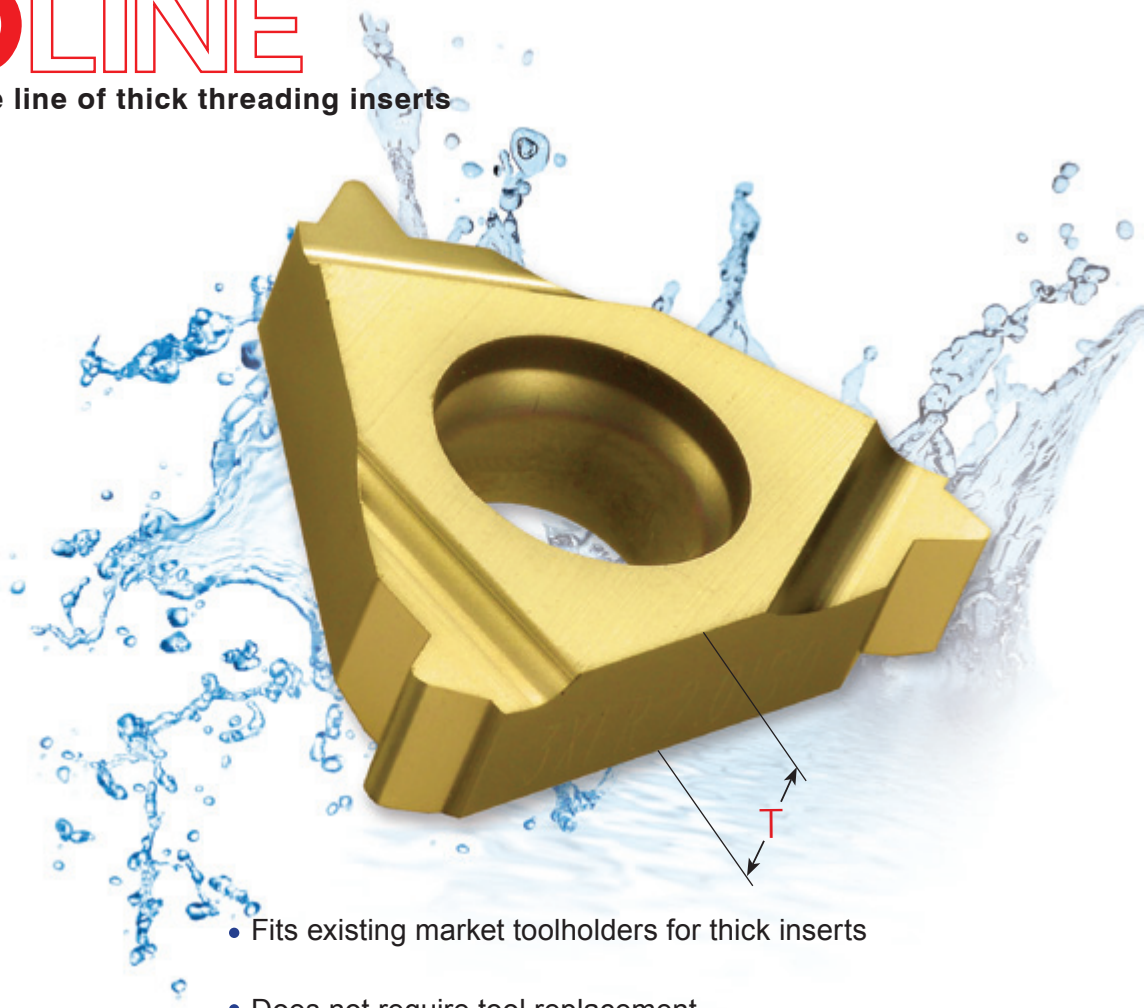
METRIC

2012

VARDEX
Advanced Threading Solutions

REDLINE

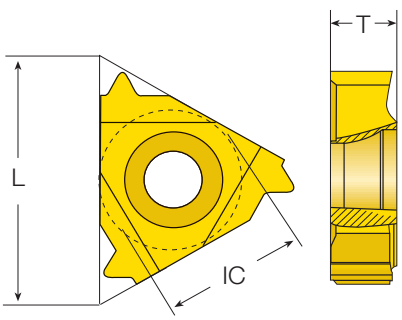
Comprehensive line of thick threading inserts



- Fits existing market toolholders for thick inserts
- Does not require tool replacement
- Produced in VKX, the superior grade for general use

Redline Insert Thickness (T)

I.C.	L (mm)	T - Standard (mm)	T - Redline (mm)
1/4”	11	3.17	3.39
3/8”	16	3.60	4.30
1/2”	22	4.76	5.90



REDLINE CATALOG

INSERTS

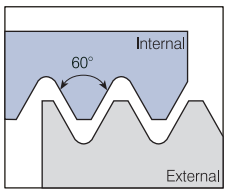
TOOLHOLDERS

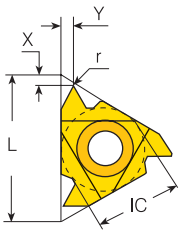
TECHNICAL DATA

TT Gen Software and updated versions can be downloaded from www.vargus.com

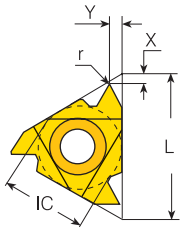
Partial Profile 60°

External / Internal





External

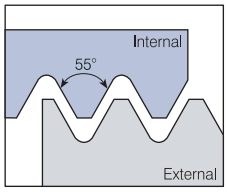


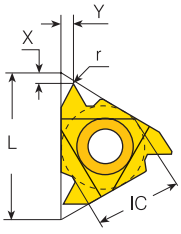
Internal

		Insert Size		Pitch		Ordering Code	Dimensions mm			Anvil	
		IC	L mm	mm	tpi	RH	r	X	Y	RH	Toolholder
	**External**	3/8"	16	0.5-1.5	48-16	3XERA60…	0.05	1.04	0.99	YE3	AL...-3X
				1.75-3.0	14-8	3XERG60…	0.27	1.10	1.65		
				0.5-3.0	48-8	3XERAG60…	0.08	1.17	1.70		
		1/2"	22	3.5-6.0	7-5	4XERP60…	0.53	0.45	2.90	YE4	AL...-4X
	**Internal**	1/4"	11	0.5-1.5	48-16	2XIRA60…	0.05	0.72	0.90	-	NVR…-2X
		3/8"	16	0.5-1.5	48-16	3XIRA60…	0.05	1.04	0.94	YI3	AVR…-3X
				1.75-3.0	14-8	3XIRG60…	0.16	1.12	1.60		
				0.5-3.0	48-8	3XIRAG60…	0.05	1.28	1.60		
		1/2"	22	3.5-6.0	7-5	4XIRP60…	0.30	0.68	2.60	YI4	AVR…-4X

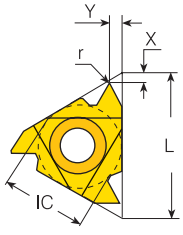
Partial Profile 55°

External / Internal





External

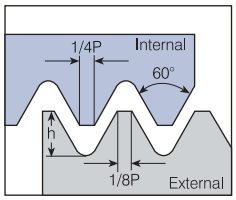


Internal

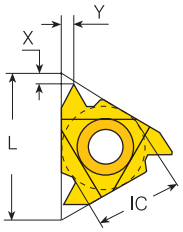
		Insert Size		Pitch		Ordering Code	Dimensions mm			Anvil	
		IC	L mm	mm	tpi	RH	r	X	Y	RH	Toolholder
	**External**	3/8"	16	0.5-1.5	48-16	3XERA55…	0.05	1.04	0.99	YE3	AL...-3X
				1.75-3.0	14-8	3XERG55…	0.21	1.10	1.65		
				0.5-3.0	48-8	3XERAG55…	0.07	1.13	1.70		
		1/2"	22	3.5-6.0	7-4	4XERP55…	0.43	0.11	2.75	YE4	AL...-4X
	**Internal**	1/4"	11	0.5-1.5	48-16	2XIRA55…	0.05	0.72	0.90	-	NVR…-2X
		3/8"	16	0.5-1.5	48-16	3XIRA55…	0.05	1.04	0.90	YI3	AVR…-3X
				1.75-3.0	14-8	3XIRG55…	0.21	1.12	1.65		
				0.5-3.0	48-8	3XIRAG55…	0.07	1.12	1.70		
		1/2"	22	3.5-6.0	7-4	4XIRP55…	0.43	0.25	2.75	YI4	AVR…-4X

ISO Metric

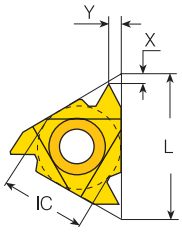
External / Internal



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



External

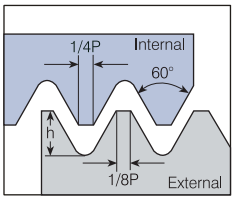


Internal

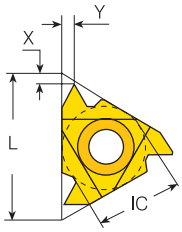
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	mm	RH	h min	X	Y	RH	Toolholder
	**External**	3/8”	16	0.5	3XER0.5ISO…	0.31	1.32	0.50	YE3	AL…-3X
				0.75	3XER0.75ISO…	0.46	1.32	0.50		
				0.8	3XER0.8ISO…	0.49	1.32	0.60		
				1.0	3XER1.0ISO…	0.61	1.32	0.80		
				1.25	3XER1.25ISO…	0.77	1.32	0.80		
				1.5	3XER1.5ISO…	0.92	1.32	1.00		
				1.75	3XER1.75ISO…	1.07	1.32	1.20		
				2.0	3XER2.0ISO…	1.23	1.32	1.40		
				2.5	3XER2.5ISO…	1.53	1.32	1.40		
				3.0	3XER3.0ISO…	1.84	1.32	1.80		
		1/2”	22	3.5	4XER3.5ISO…	2.15	1.67	2.40	YE4	AL…-4X
				4.0	4XER4.0ISO…	2.45	1.67	2.40		
				4.5	4XER4.5ISO…	2.76	1.67	2.35		
				5.0	4XER5.0ISO…	3.07	1.38	2.50		
				6.0	4XER6.0ISO…	3.68	0.88	2.80		
	**Internal**	1/4”	11	0.5	2XIR0.5ISO…	0.29	0.72	0.50	-	NVR…-2X
				0.75	2XIR0.75ISO…	0.43	0.72	0.60		
				1.0	2XIR1.0ISO…	0.58	0.72	0.85		
				1.5	2XIR1.5ISO…	0.87	0.72	0.90		
				2.0	2XIR2.0ISO…	1.15	0.72	0.92		
		3/8”	16	0.75	3XIR0.75ISO…	0.43	1.30	0.50	YI3	AVR…-3X
				1.0	3XIR1.0ISO…	0.58	1.30	0.80		
				1.25	3XIR1.25ISO…	0.72	1.30	0.80		
				1.5	3XIR1.5ISO…	0.87	1.30	1.00		
				1.75	3XIR1.75ISO…	1.01	1.30	1.20		
				2.0	3XIR2.0ISO…	1.15	1.30	1.40		
				2.5	3XIR2.5ISO…	1.44	1.30	1.40		
				3.0	3XIR3.0ISO…	1.73	1.30	1.80		
		1/2”	22	3.5	4XIR3.5ISO…	2.02	1.64	2.40	YI4	AVR…-4X
				4.0	4XIR4.0ISO…	2.31	1.64	2.40		
				4.5	4XIR4.5ISO…	2.60	1.64	2.40		
				5.0	4XIR5.0ISO…	2.89	1.35	2.50		
				6.0	4XIR6.0ISO…	3.46	0.87	2.40		

American UN

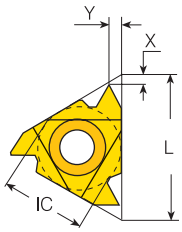
External / Internal



Defined by: ANSI B1.1:74
Tolerance class: 2A/2B



External

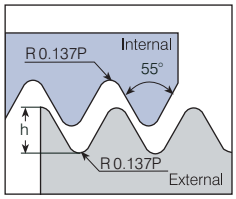


Internal

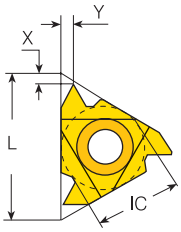
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	tpi	RH	h min	X	Y	RH	Toolholder
	**External**	3/8"	16	32	3XER32UN…	0.49	1.32	0.50	YE3	AL…-3X
				28	3XER28UN…	0.56	1.32	0.80		
				24	3XER24UN…	0.65	1.32	0.80		
				20	3XER20UN…	0.78	1.32	0.80		
				18	3XER18UN…	0.87	1.32	1.00		
				16	3XER16UN…	0.97	1.32	1.00		
				14	3XER14UN…	1.11	1.32	1.20		
				13	3XER13UN…	1.20	1.32	1.40		
				12	3XER12UN…	1.30	1.32	1.40		
				8	3XER8UN…	1.95	1.32	1.45		
	**Internal**	1/4”	11	32	2XIR32UN…	0.46	0.72	0.60	-	NVR…-2X
				28	2XIR28UN…	0.52	0.72	0.80		
				24	2XIR24UN…	0.61	0.72	0.85		
				20	2XIR20UN…	0.73	0.72	0.90		
				18	2XIR18UN…	0.81	0.72	0.90		
				16	2XIR16UN…	0.92	0.72	0.90		
				14	2XIR14UN…	1.05	0.80	1.10		
		3/8”	16	20	3XIR20UN…	0.73	1.30	0.80	YI3	AVR…-3X
				18	3XIR18UN…	0.81	1.30	1.00		
				16	3XIR16UN…	0.92	1.30	1.00		
				14	3XIR14UN…	1.05	1.30	1.20		
				13	3XiR13UN...	1.13	1.30	1.40		
				12	3XIR12UN…	1.22	1.30	1.40		
				8	3XIR8UN…	1.83	1.30	1.40		

Whitworth – BSW, BSP, BSF, BSB

External / Internal



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



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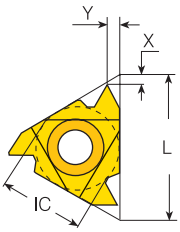
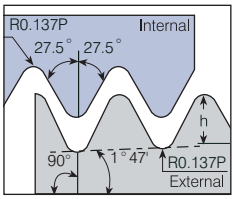


Internal

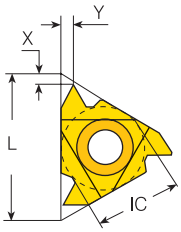
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	tpi	RH	h min	X	Y	RH	Toolholder
	**External**	3/8"	16	28	3XER28W…	0.58	1.32	0.80	YE3	AL...-3X
				19	3XER19W…	0.86	1.32	0.80		
				16	3XER16W…	1.02	1.32	1.00		
				14	3XER14W…	1.16	1.32	1.40		
				11	3XER11W…	1.48	1.32	1.40		
	**Internal**	1/4"	11	19	2XIR19W…	0.86	0.72	0.90	-	NVR…-2X
				14	2XIR14W…	1.16	0.72	0.95		
		3/8"	16	16	3XIR16W…	1.02	1.30	1.00	YI3	AVR…-3X
				14	3XIR14W…	1.16	1.30	1.20		
				11	3XIR11W…	1.48	1.30	1.40		

BSPT

External / Internal



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



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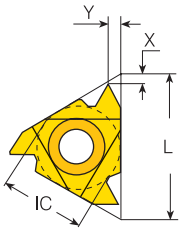
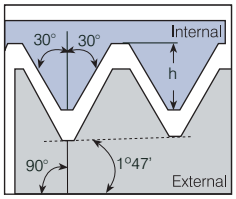


Internal

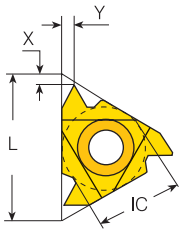
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	tpi	RH	h min	X	Y	RH	Toolholder
	**External**	3/8"	16	19	3XER19BSPT…	0.86	1.32	0.80	YE3	AL...-3X
				14	3XER14BSPT…	1.16	1.32	1.20		
				11	3XER11BSPT…	1.48	1.32	1.40		
	**Internal**	1/4"	11	19	2XIR19BSPT…	0.86	0.72	0.85	-	NVR…-2X
				14	2XIR14BSPT…	1.16	0.72	0.95		
		3/8"	16	14	3XIR14BSPT…	1.16	1.30	1.20	YI3	AVR… -3X
				11	3XIR11BSPT…	1.48	1.30	1.40		

NPT

External / Internal



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



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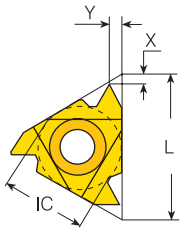
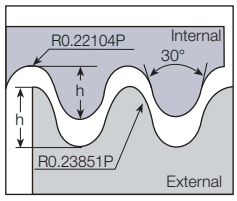


Internal

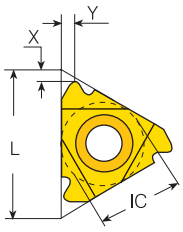
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	tpi	RH	h min	X	Y	RH	Toolholder
	**External**	3/8"	16	27	3XER27NPT…	0.66	1.03	0.80	YE3	AL...-3X
				18	3XER18NPT…	1.01	1.03	1.00		
				14	3XER14NPT…	1.33	1.03	1.20		
				11.5	3XER11.5NPT…	1.64	1.03	1.40		
				8	3XER8NPT…	2.42	1.03	1.55		
	**Internal**	1/4"	11	18	2XIR18NPT…	1.01	0.72	0.85	-	NVR…-2X
				14	2XIR14NPT…	1.33	0.72	1.00		
		3/8"	16	14	3XIR14NPT…	1.33	1.01	1.20	YI3	AVR…-3X
				11.5	3XIR11.5NPT…	1.64	1.01	1.40		
				8	3XIR8NPT…	2.42	1.01	1.55		

Round (DIN 405)

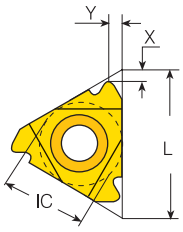
External / Internal



Defined by: DIN 405
Tolerance class: 7h/7H



External

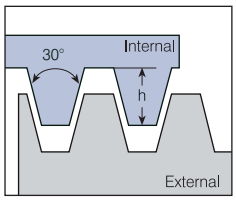


Internal

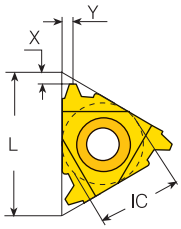
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	tpi	RH	h min	X	Y	RH	Toolholder
	**External**	3/8”	16	6	3XER6RD…	2.12	1.43	1.60	YE3	AL…-3X
		1/2”	22	4	4XER4RD…	3.18	2.12	2.13	YE4	AL…-4X
	**Internal**	3/8”	16	6	3XIR6RD…	2.12	1.45	1.60	YI3	AVR…-3X
		1/2”	22	4	4XIR4RD…	3.18	2.18	2.25	YI4	AVR…-4X

Trapez

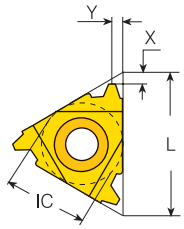
External / Internal



Defined by: DIN 103
Tolerance class: 7e/7H



External

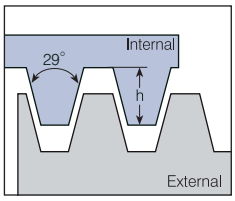


Internal

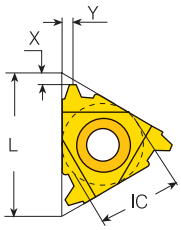
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	mm	RH	h min	X	Y	RH	Toolholder
	**External**	3/8"	16	2.0	3XER2.0TR…	1.25	1.37	1.10	YE3	AL…-3X
				3.0	3XER3.0TR…	1.75	1.27	1.30		
		1/2"	22	4.0	4XER4.0TR…	2.25	1.42	2.45	YE4	AL…-4X
				5.0	4XER5.0TR…	2.75	1.42	2.45		
				6.0	4XER6.0TR…	3.50	0.81	2.40		
	**Internal**	3/8"	16	2.0	3XIR2.0TR…	1.25	1.40	1.10	YI3	AVR…-3X
				3.0	3XIR3.0TR…	1.75	1.29	1.40		
		1/2"	22	4.0	4XIR4.0TR…	2.25	1.45	2.45	YI4	AVR…-4X
				5.0	4XIR5.0TR…	2.75	1.45	2.45		
				6.0	4XIR6.0TR…	3.50	0.83	2.40		

American ACME

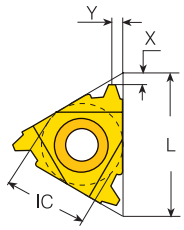
External / Internal



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



External

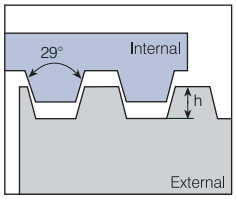


Internal

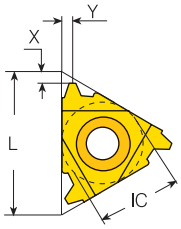
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	tpi	RH	h min	X	Y	RH	Toolholder
	**External**	3/8"	16	12	3XER12ACME…	1.19	1.33	1.20	YE3	AL…-3X
				10	3XER10ACME…	1.52	1.33	1.30		
				8	3XER8ACME…	1.84	1.50	1.30		
		1/2"	22	6	4XER6ACME…	2.37	1.37	2.50	YE4	AL…-4X
				5	4XER5ACME…	2.79	1.37	2.50		
				4	4XER4ACME…	3.43	0.76	2.40		
	**Internal**	3/8"	16	12	3XIR12ACME…	1.19	1.30	1.20	YI3	AVR…-3X
				10	3XIR10ACME…	1.52	1.30	1.30		
				8	3XIR8ACME…	1.84	1.20	1.25		
		1/2"	22	6	4XIR6ACME…	2.37	1.37	2.40	YI4	AVR…-4X
				5	4XIR5ACME…	2.79	1.37	2.30		
				4	4XIR4ACME…	3.43	0.76	2.40		

Stub ACME

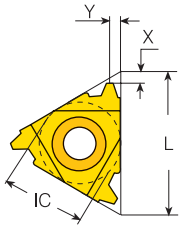
External / Internal



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



External

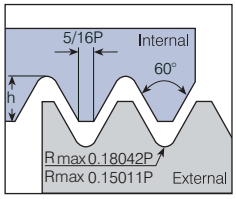


Internal

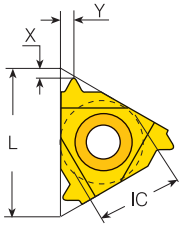
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	tpi	RH	h min	X	Y	RH	Toolholder
	**External**	3/8”	16	12	3XER12STACME…	0.76	1.33	1.10	YE3	AL…-3X
				10	3XER10STACME…	1.02	1.33	1.20		
				8	3XER8STACME…	1.21	1.14	1.15		
				6	3XER6STACME…	1.52	1.67	1.50		
	**Internal**	3/8”	16	12	3XIR12STACME…	0.76	1.33	1.10	YI3	AVR…-3X
				10	3XIR10STACME…	1.02	1.33	1.20		
				8	3XIR8STACME…	1.21	1.14	1.10		
				6	3XIR6STACME…	1.52	1.67	1.60		

UNJ

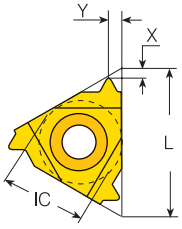
External / Internal



Defined by: MIL-S-8879C
Tolerance class: 3A/3B



External

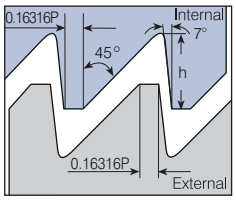


Internal

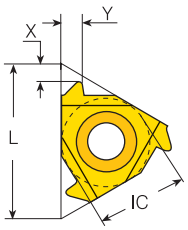
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	tpi	RH	h min	X	Y	RH	Toolholder
	**External**	3/8”	16	24	3XER24UNJ…	0.61	1.32	0.80	YE3	AL…-3X
				20	3XER20UNJ…	0.73	1.32	0.80		
				18	3XER18UNJ…	0.81	1.32	1.00		
				16	3XER16UNJ…	0.92	1.32	1.00		
				12	3XER12UNJ…	1.22	1.32	1.40		
	**Internal**	1/4”	11	18	2XIR18UNJ…	0.74	0.72	0.90	-	NVR…-2X
				14	2XIR14UNJ…	0.95	0.72	0.95		
		3/8”	16	16	3XIR16UNJ …	0.83	1.30	1.00	YI3	AVR…-3X
				12	3XIR12UNJ …	1.11	1.30	1.40		

American Buttress

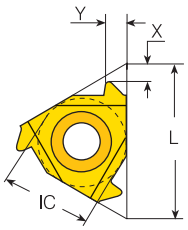
External / Internal



Defined by: ANSI B1.9.1973
Tolerance class: Class 2



External



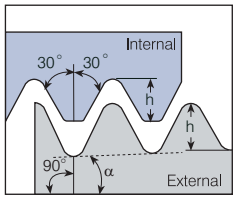
Internal

	Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
	IC	L mm	tpi	RH	h min	X	Y	RH	Toolholder
External	3/8"	16	12	3XER12ABUT…	1.40	1.40	1.40	YE3	AL…-3X

Internal	3/8"	16	12	3XIR12ABUT…	1.40	1.40	1.40	YI3	AVR…-3X

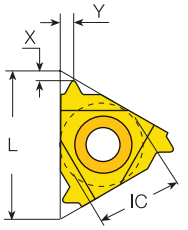
API

External / Internal

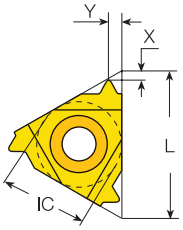


α = arctg (IPF/24)

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



External



Internal

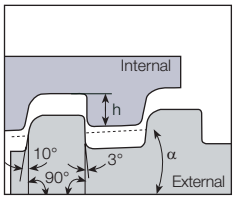
For additional information regarding the standard dimensions and tolerances, see page 15.

	Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions mm			Anvil	
	IC	L mm	tpi		IPF	RH		h nominal	X	Y	RH	Toolholder
External	1/2"	22	4	V-0.038R	2	4XER4API382…	NC23-NC50	3.09	1.67	2.60	YE4	AL…-4X
			4	V-0.038R	3	4XER4API383…	NC56-NC77	3.08	1.67	2.70		
			4	V-0.050	2	4XER4API502…	6 5/8" REG	3.75	0.98	2.80		
			4	V-0.050	3	4XER4API503…	5 1/2", 7 5/8", 8 5/8" REG	3.74	0.98	2.90		
			5	V-0.040	3	4XER5API403…	2 3/8" - 4 1/2" REG	2.99	1.38	2.50		

Internal	1/2"	22	4	V-0.038R	2	4XIR4API382...	NC23-NC50	3.09	1.64	2.60	YI4	AVR…-4X
			4	V-0.038R	3	4XIR4API383…	NC56-NC77	3.08	1.64	2.70		
			4	V-0.050	2	4XIR4API502…	6 5/8" REG	3.75	0.98	2.80		
			4	V-0.050	3	4XIR4API503…	5 1/2", 7 5/8", 8 5/8" REG	3.74	0.98	2.90		
			5	V-0.040	3	4XIR5API403...	2 3/8" - 4 1/2" REG	2.99	1.35	2.50		

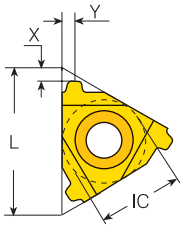
API Buttress Casing

External / Internal

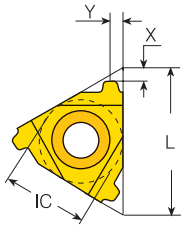


α = arctg (IPF/24)

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



External



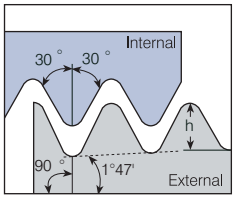
Internal

For additional information regarding the standard dimensions and tolerances, see page 15.

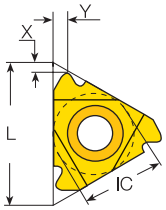
		Insert Size		Pitch	Taper	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	tpi	IPF	RH	h nominal	X	Y	RH	Toolholder
	**External**	1/2"	22	5	0.75	4XER5BUT75…	1.57	1.97	2.60	YE4	AL…-4X
				5	1	4XER5BUT1…	1.57	1.97	2.41		
	**Internal**	1/2"	22	5	0.75	4XIR5BUT75...	1.57	1.93	2.89	YI4	AVR…-4X
				5	1	4XIR5BUT1...	1.57	1.93	2.09		

API Round Casing & Tubing

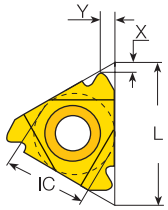
External / Internal



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



External

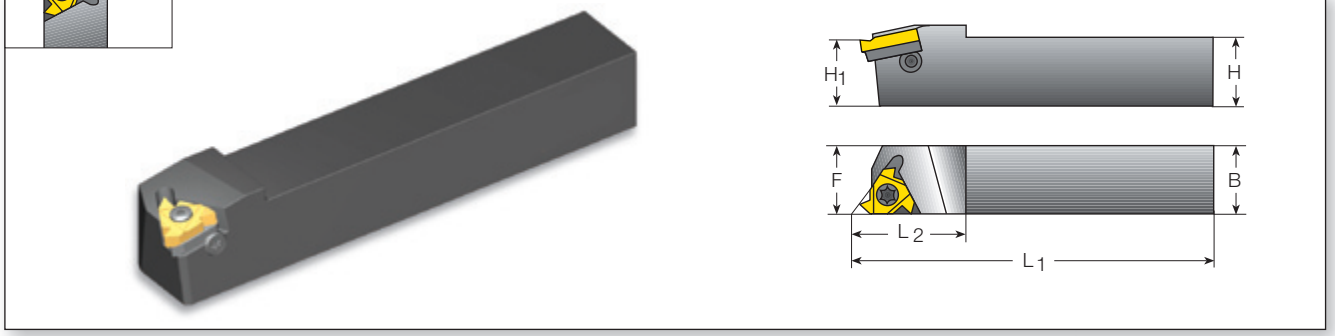


Internal

For additional information regarding the standard dimensions and tolerances, see page 15.

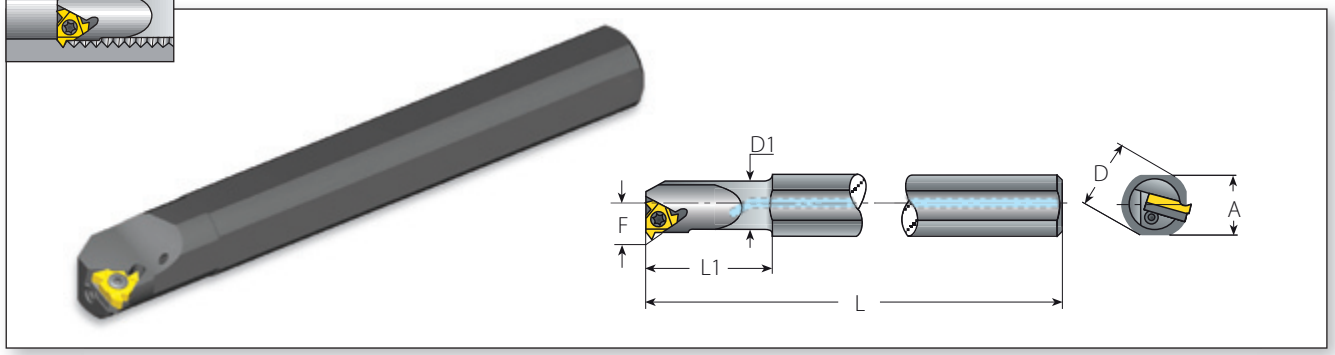
		Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
		IC	L mm	tpi	RH	h nominal	X	Y	RH	Toolholder
	**External**	3/8"	16	10	3XER10APIRD…	1.41	1.32	1.30	YE3	AL…-3X
				8	3XER8APIRD…	1.81	1.32	1.50		
		1/2"	22	10	4XER10APIRD…	1.41	1.67	2.40	YE4	AL…-4X
				8	4XER8APIRD…	1.81	1.67	2.40		
	**Internal**	3/8"	16	10	3XIR10APIRD…	1.41	1.30	1.30	YI3	AVR…-3X
				8	3XIR8APIRD…	1.81	1.30	1.50		
		1/2"	22	10	4XIR10APIRD…	1.41	1.64	2.20	YI4	AVR…-4X
				8	4XIR8APIRD…	1.81	1.64	2.20		

External Toolholders



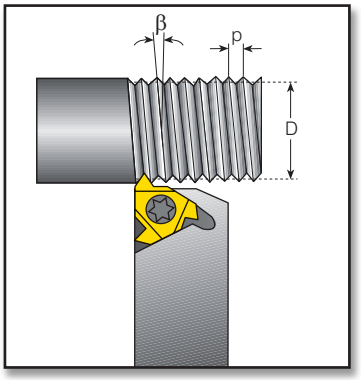
Insert Size	Ordering Code	Dimensions mm				Spare Parts				
IC	RH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8"	AL 12-3X	12	16	83.2	22	SA3TS	SY3T	K3T	YE3	YI3
	AL 16-3X	16	16	100	20.5					
	AL 20-3X	20	20	128.6	30					
	AL 25-3X	25	25	153.6	30					
	AL 32-3X	32	32	173.6	30					
1/2"	AL 25-4X	25	25	153	31	SA4TS	SY4T	K4T	YE4	YI4
	AL 32-4X	32	32	173	34					

Internal Toolholders



Insert Size	Ordering Code	Dimensions mm						Min.Bore dia.	Spare Parts				
IC	RH	A	L	L1	D	D1	F	mm	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/4"	NVRC 10-2X	18	180	27	20	10	7.4	13	SN2TS	-	K2T	-	-
	NVRC 13-2X	18	180	33	20	13	8.9	16					
3/8"	NVRC 13-3X	18	180	32	20	12.7	10.3	17	SN3TS	-	K3T	-	-
	NVRC 16-3X	18	180	40	20	16	11.5	20					
	AVRC 20-3X	18	180	40	20	20	13.4	24	SA3TS	SY3T	K3T	YI3	YE3
	AVRC 25-3X	29	250	60	32	25	16.3	29					
	AVRC 32-3X	29	250	60	32	32	19.6	36					
	AVRC 40-3X	36	300	60	40	40	23.8	44					
1/2"	NVRC 20-4X	18	180	51	20	19.6	15.4	26	SN4TS	-	K4T	-	-
	AVRC 25-4X	28.8	250	61	32	25	17.6	32	SA4TS	SY4T	K4T	Y14	YE4
	AVRC 32-4X	28.8	250	51	32	31.6	21.1	38					
	AVRC 40-4X	36	300	61	40	39.7	25.7	46					

Calculating the Helix Angle β



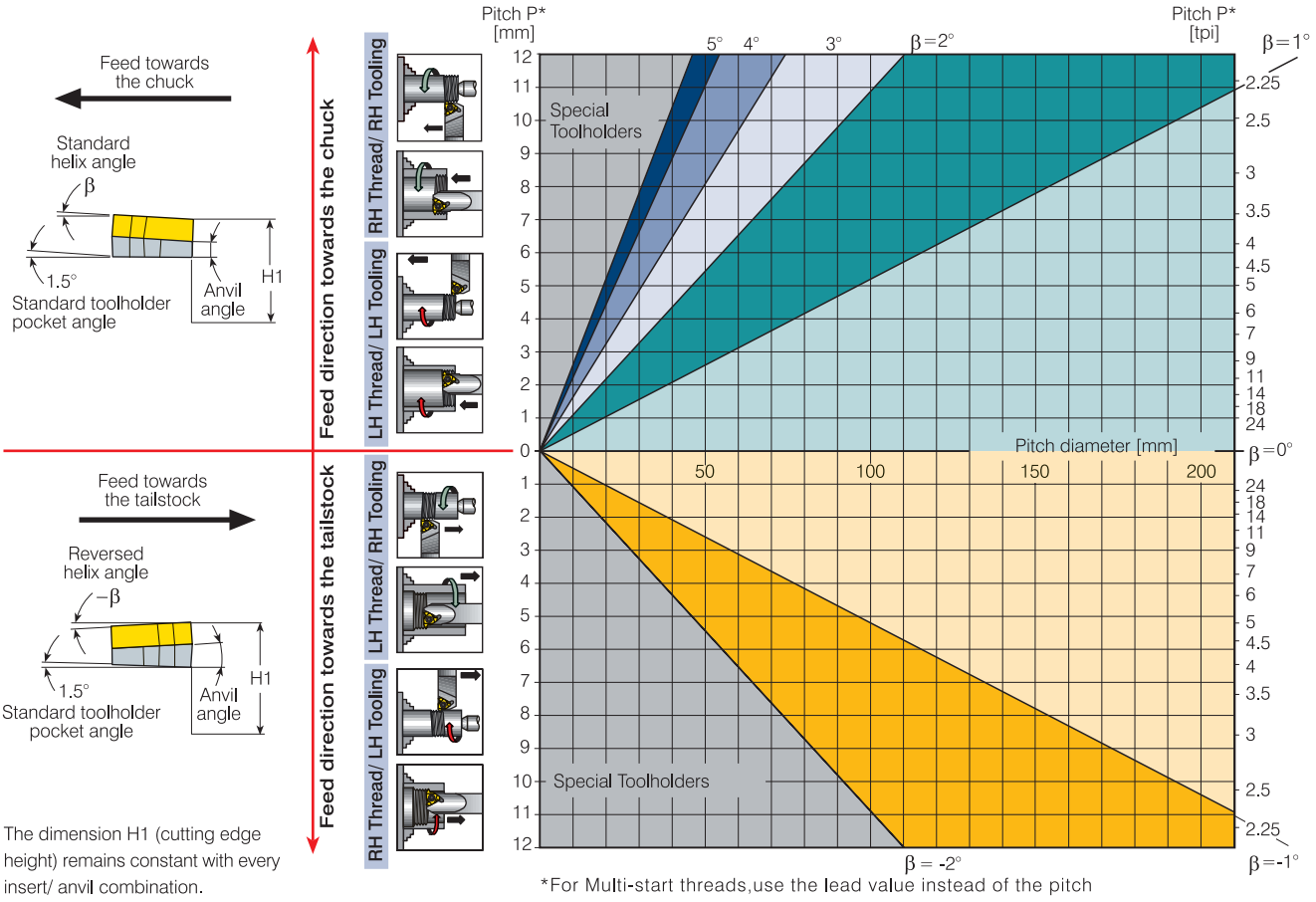
The helix angle is calculated by the following formula:

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

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

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

Helix Angle Diagram



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

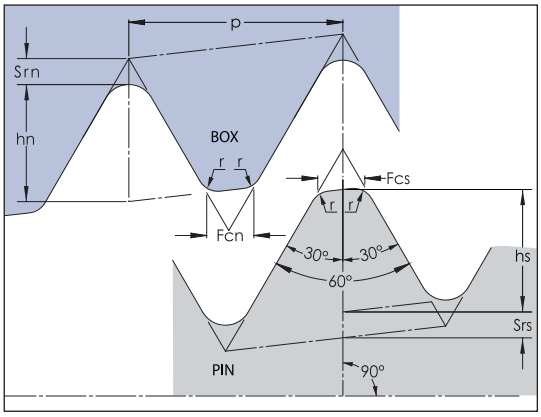
*For Multi-start threads,use the lead value instead of the pitch

Anvils

Resultant Helix Angle			4.5°	3.5°	2.5°	1.5°	0.5°	0°	-0.5°	-1.5°
Insert Size		Holder	Ordering Code							
IC	L mm									
3/8"	16	ER / IL	YE3-3P	YE3-2P	YE3-1P	YE3	YE3-1N	YE3-1.5N	YE3-2N	YE3-3N
		EL / IR	YI3-3P	YI3-2P	YI3-1P	YI3	YI3-1N	YI3-1.5N	YI3-2N	YI3-3N
1/2"	22	ER / IL	YE4-3P	YE4-2P	YE4-1P	YE4	YE4-1N	YE4-1.5N	YE4-2N	YE4-3N
		EL / IR	YI4-3P	YI4-2P	YI4-1P	YI4	YI4-1N	YI4-1.5N	YI4-2N	YI4-3N

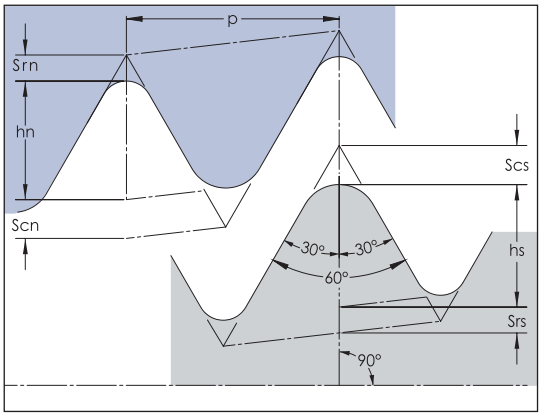
API Standard Drawings

API



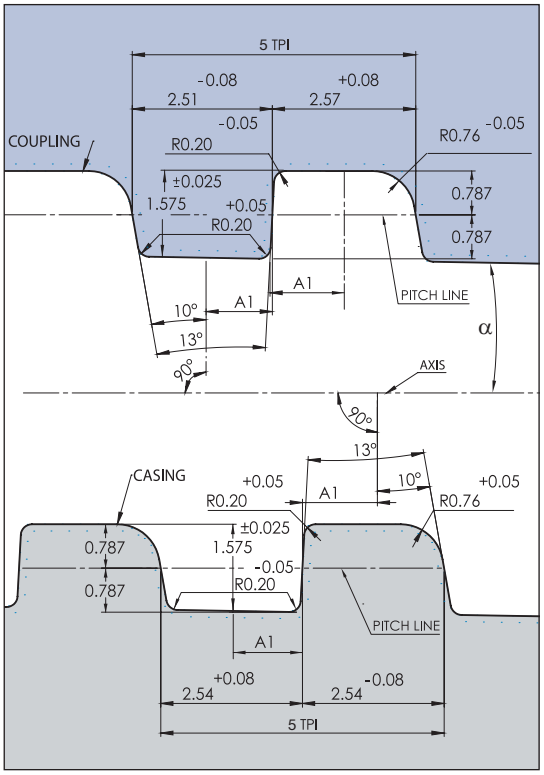
Thread form	IPF	Thread height truncated hs =hn	Root Truncation Srn =Srs	Width of flat fcn=fcs	Radius at thread corners (r)	pitch (TPI)
V 0.038R	2	+ 0.03 - 0.08 3.09	+ 0.03 - 0.03 0.96	+ 0.05 1.65	+ 0.05 - 0.05 0.38	4
V 0.038R	3	+ 0.03 - 0.08 3.08	+ 0.03 - 0.03 0.96	+ 0.05 1.65	+ 0.05 - 0.05 0.38	4
V0.040	3	+ 0.03 - 0.08 2.99	+ 0.03 - 0.03 0.51	+ 0.05 1.02	+ 0.05 - 0.05 0.38	5
V0.050	2	+ 0.03 - 0.08 3.75	+ 0.03 - 0.03 0.63	+ 0.05 1.27	+ 0.05 - 0.05 0.38	4
V0.050	3	+ 0.03 - 0.08 3.74	+ 0.03 - 0.03 0.63	+ 0.05 1.27	+ 0.05 - 0.05 0.38	4

API Round Casing & Tubing



Thread Data	8 TPI	10 TPI
hs=hn	+0.05 - 0.10 1.81	+0.05 - 0.10 1.41
Srn=Srs	0.43	0.36
Scs=Scn	0.51	0.43

API Buttress Casing



Taper	A1, mm	α	Profile Height
0.75	-	1°47'24"	± 0.025 1.575
1	1.27	2°23'17"	

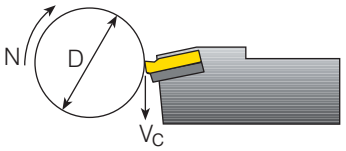
Recommended Grades and Cutting Speeds Vc [m/min]

Material Group	Vardex No.	Material		Hardness Brinell HB	Vc [m/min] Coated VKX
P Steel	1	Unalloyed steel	Low carbon (C=0.1-0.25%)	125	115-190
	2		Medium carbon (C=0.25-0.55%)	150	100-175
	3		High carbon (C=0.55-0.85%)	170	90-165
	4	Low alloy steel (alloying elements ≤5%)	Non hardened	180	100-180
	5		Hardened	275	75-140
	6		Hardened	350	70-135
	7	High alloy steel (alloying elements>5%)	Annealed	200	80-120
	8		Hardened	325	50-100
	9	Cast steel	Low alloy (alloying elements <5%)	200	70-130
	10		High alloy (alloying elements >5%)	225	60-120
M Stainless Steel	11	Stainless steel Ferritic	Non hardened	200	70-130
	12		Hardened	330	60-115
	13	Stainless steel Austenitic	Austenitic	180	90-140
	14		Super Austenitic	200	40-110
	15	Stainless steel Cast Ferritic	Non hardened	200	90-120
	16		Hardened	330	65-110
	17	Stainless steel Cast austenitic	Austenitic	200	85-110
	18		Hardened	330	60-100
K Cast Iron	28	Malleable Cast iron	Ferritic (short chips)	130	60-70
	29		Pearlitic (long chips)	230	60-145
	30	Grey Cast iron	Low tensile strength	180	70-130
	31		High tensile strength	260	60-115
	32	Nodular SG iron	Ferritic	160	125-160
	33		Pearlitic	260	90-120
N(K) Non-Ferrous Metals	34	Aluminium alloys Wrought	Non aging	60	100-365
	35		Aged	100	80-220
	36	Aluminium alloys	Cast	75	200-400
	37		Cast & aged	90	200-280
	38	Aluminium alloys	Cast Si 13-22%	130	60-180
	39	Copper and copper alloys	Brass	90	80-225
	40		Bronze and non leaded copper	100	80-255
S(M) Heat Resistant Material	19	High temperature alloys	Annealed (Iron based)	200	45-60
	20		Aged (Iron based)	280	30-50
	21		Annealed (Nickel or Cobalt based)	250	20-30
	22		Aged (Nickel or Cobalt based)	350	15-25
	23	Titanium alloys	Pure 99.5 Ti	400Rm	140-170
	24		α+β alloys	1050Rm	50-70
H(K) Hardened Material	25	Extra hard steel	Hardened & tempered	45-50HRc	45-60
	26			51-55HRc	40-50

Calculation of N [RPM]

$$N = \frac{1000 \times V_c}{\pi \times D}$$

$$V_c = \frac{N \times \pi \times D}{1000}$$



N - Revolution Per Minute [RPM]
V_c - Cutting Speed [m/min]
D - Workpiece Diameter [mm]

Grade:

VKX

Superior general purpose grade, excellent in steels and stainless steels. TiN coated.

Number of Passes

Pitch	mm	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00
	tpi	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4
No. of passes		4-6	4-7	4-8	5-9	6-10	7-12	7-12	8-14	9-16	10-18	11-18	11-19	12-20	12-20	12-20