vargus
NEUMO Ehrenberg Group

NOW INCLUDES
SUPPLEMENT 2021

VARDEX
Advanced Threading Solutions

MAIN CATALOG

Thread Turning | **Thread Milling**

METRIC

VARGUS NEUMO Ehrenberg Group

Company Profile

VARGUS is a world leading developer, manufacturer and supplier of high-quality, precision threading, grooving, turning and hand deburring tools.

Established in 1960, VARGUS is the cutting tools division of the NEUMO Ehrenberg Group, a multinational organization headquartered in Germany.

With 13 international subsidiaries, and a network of distributors, warehouses and certified ISO 9001 manufacturing facilities, VARGUS Ltd. serves customers in more than 100 countries around the globe. A customer-focused organization, VARGUS Ltd. is committed to providing products and solutions of the highest quality and excellent value, and is renowned for its technical expertise and uncompromising service.

COMPANY PRODUCTS:

VARDEX Advanced Threading Solutions is the company's prominent product line for Thread Turning, Thread Milling, and Gear Milling Solutions.

Thread Turning: The VARDEX TT tools offer an extensive collection of pitches and standards in different grades, IC ranges and types of insert styles, as well as customized methods for the oil and gas industry.

Thread Milling: The VARDEX TM line provides a wide range of applications and solutions in multi-tooth, single-tooth for deep holes, and solid carbide tools.

Gear Milling: The VARDEX Gear Milling line is a revolutionary concept for gear, rack and spline applications, offered in indexable inserts and solid carbide tools.

VARGUS GENius™: VARGUS' industry-leading Thread Turning and Thread Milling solutions are seamlessly complimented by the VARGUS GENius™ software – The most powerful tool selector, cutting data and CNC program generating software.

GROOVEX Innovative Grooving & Turning Solutions, the newest product line by VARGUS, provides innovative solutions for grooving, boring and turning, in a wide range of applications.

SHAVIV Leading Deburring Solutions, manufactures world leading hand-deburring solutions for metals and plastics.

IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFIED QMS
SI
ISO 9001:
2015
THE STANDARDS INSTITUTION OF ISRAEL

VARDEX
Advanced Threading Solutions

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MAIN CATALOG **SUPPLEMENT** 2021 NEW

MAIN CATALOG

This extended version of the MAIN VARDEX CATALOG includes the newest VARDEX products as they appear in the 2021 Catalog Supplement, followed by the VARDEX MAIN Catalog, Edition 02.

vargus
NEUMO Ehrenberg Group

VARDEX
Advanced Threading Solutions

MAIN CATALOG **SUPPLEMENT**

2021

VARDEX
Advanced Threading Solutions

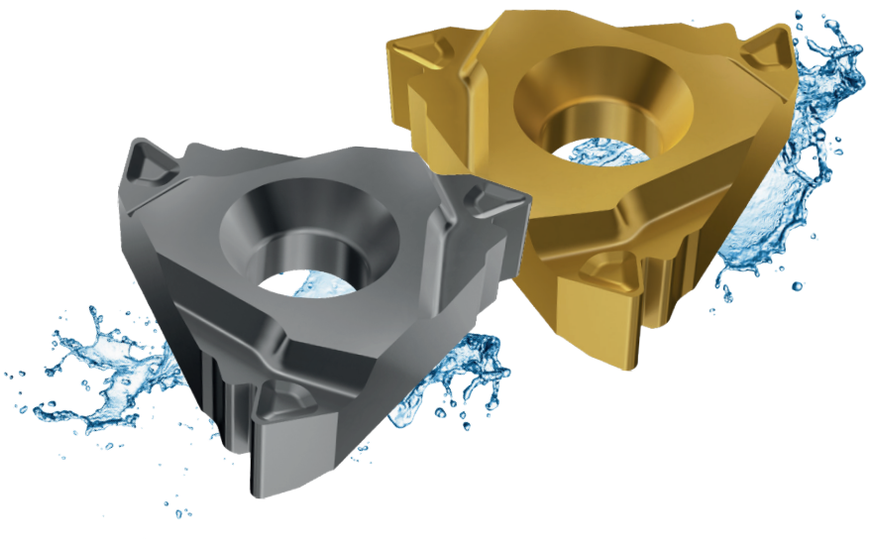
MAIN CATALOG **SUPPLEMENT** 2021

Thread Turning

Thread Milling

FS LINE NEW

Fully Sintered Inserts



Features and Benefits:

- Economical solution for all industries
- The program offers 62 of the most popular profiles for external and internal inserts
- IC range: 1/4" (11), 3/8" (16), 1/2" (22)
- Threading standards: Partial Profile 60°, Partial Profile 55°, ISO Metric, American UN, Whitworth, NPT & API Round
- FS Line inserts are suitable with all standard Thread Turning Holders

Grades:

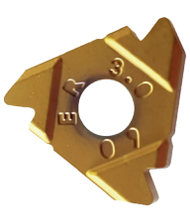
- **FSK Grade** - TiN coated, recommended for steel and general use
- **FST Grade** - TiAlN coated, for stainless steel and general use

Ordering Code:

- New FS Line insert designation is marked as "FS". For example: 3**FS**ER3.0ISOFSK

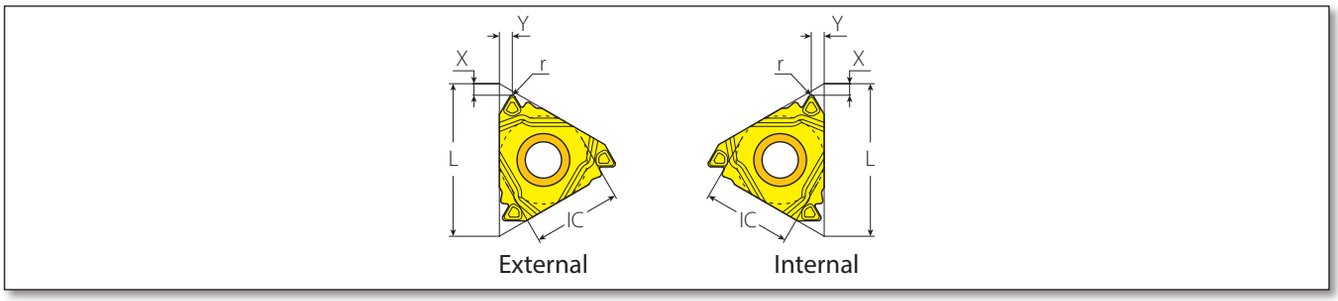
Insert Marking:

- Insert designation on the bottom of the insert

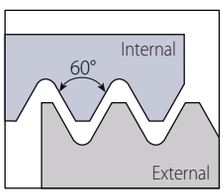


The NEW **FS LINE** is now included in the **VARGUS GENius™**, the most advanced Tool Selector and CNC Program Generator in the metal cutting tools industry.

VARGUS GENius™ Tool Selector and CNC Program Generator

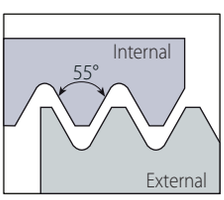


Partial Profile 60°



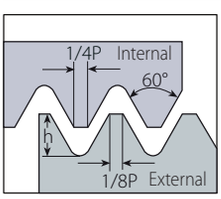
	Insert Size		Pitch		Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	mm	TPI	RH		r	X	Y	RH	Toolholder
External	3/8"	16	0.5-1.5	48-16	3FSERA60...	*16FSERA60...*	0.06	0.8	0.9	YE3	AL...-3
			1.75-3.0	14-8	3FSERG60...	*16FSERG60...*	0.27	1.3	1.7		
			0.5-3.0	48-8	3FSERAG60...	*16FSERAG60...*	0.08	1.2	1.7		
	1/2"	22	3.5-5.0	7-5	4FSERN60...	*22FSERN60...*	0.54	1.7	2.5	YE4	AL...-4
Internal	1/4"	11	0.5-1.5	48-16	2FSIRA60...	*11FSIRA60...*	0.05	0.8	0.9	-	NVR...-2
	3/8"	16	0.5-1.5	48-16	3FSIRA60...	*16FSIRA60...*	0.05	0.8	1.0	YI3	A/NVR...-3
			1.75-3.0	14-8	3FSIRG60...	*16FSIRG60...*	0.16	1.1	1.5		
			0.5-3.0	48-8	3FSIRAG60...	*16FSIRAG60...*	0.05	1.1	1.6		
	1/2"	22	3.5-5.0	7-5	4FSIRN60...	*22FSIRN60...*	0.32	1.7	2.5	YI4	A/NVR...-4

Partial Profile 55°

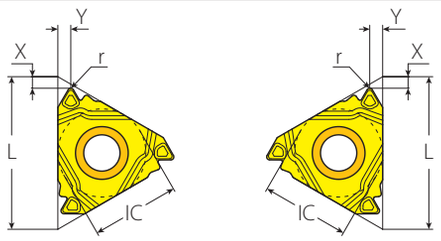


	Insert Size		Pitch		Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	mm	TPI	RH		r	X	Y	RH	Toolholder
External	3/8"	16	1.75-3.0	14-8	3FSERG55...	*16FSERG55...*	0.22	1.2	1.7	YE3	AL...-3
			0.5-3.0	48-8	3FSERAG55...	*16FSERAG55...*	0.07	1.1	1.7		
Internal	3/8"	16	1.75-3.0	14-8	3FSIRG55...	*16FSIRG55...*	0.22	1.1	1.7	YI3	A/NVR..-3
			0.5-3.0	48-8	3FSIRAG55...	*16FSIRAG55...*	0.07	1.1	1.7		

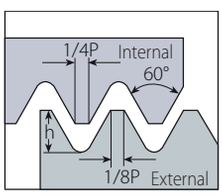
ISO Metric | Defined by: R262 (DIN 13) | Tolerance class: 6g/6H



	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	mm	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	1.0	3FSER1.0ISO...	*16FSER1.0ISO...*	0.61	1.5	0.7	YE3	AL...-3
			1.25	3FSER1.25ISO...	*16FSER1.25ISO...*	0.77	1.4	0.8		
			1.5	3FSER1.5ISO...	*16FSER1.5ISO...*	0.92	1.3	0.9		
			1.75	3FSER1.75ISO...	*16FSER1.75ISO...*	1.07	1.0	1.1		
			2.0	3FSER2.0ISO...	*16FSER2.0ISO...*	1.23	1.4	1.3		
			2.5	3FSER2.5ISO...	*16FSER2.5ISO...*	1.53	1.6	1.5		
			3.0	3FSER3.0ISO...	*16FSER3.0ISO...*	1.84	1.6	1.6		
Internal	1/4"	11	1.0	2FSIR1.0ISO...	*11FSIR1.0ISO...*	0.58	1.0	0.6	-	NVR...-2
			1.5	2FSIR1.5ISO...	*11FSIR1.5ISO...*	0.87	0.9	0.8		
			2.0	2FSIR2.0ISO...	*11FSIR2.0ISO...*	1.15	0.9	1.0		
	3/8"	16	1.0	3FSIR1.0ISO...	*16FSIR1.0ISO...*	0.58	1.4	0.7	YI3	A/NVR...-3
			1.25	3FSIR1.25ISO	*16FSIR1.25ISO*	0.72	1.3	0.8		
			1.5	3FSIR1.5ISO...	*16FSIR1.5ISO...*	0.87	1.2	0.9		
			1.75	3FSIR1.75ISO...	*16FSIR1.75ISO...*	1.01	1.0	1.1		
			2.0	3FSIR2.0ISO...	*16FSIR2.0ISO...*	1.15	1.3	1.3		
			2.5	3FSIR2.5ISO...	*16FSIR2.5ISO...*	1.44	1.3	1.4		
			3.0	3FSIR3.0ISO...	*16FSIR3.0ISO...*	1.73	1.2	1.5		

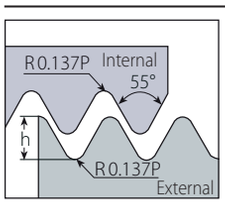


American UN | Defined by: ANSI B1.1:74 | Tolerance class: 2A/2B



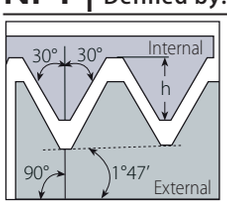
	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	24	3FSER24UN...	*16FSER24UN...*	0.65	1.4	0.8	YE3	AL...-3
			20	3FSER20UN...	*16FSER20UN...*	0.78	1.4	0.8		
			18	3FSER18UN...	*16FSER18UN...*	0.87	1.2	0.9		
			16	3FSER16UN...	*16FSER16UN...*	0.97	1.2	1.1		
			14	3FSER14UN...	*16FSER14UN...*	1.11	0.9	1.2		
			12	3FSER12UN...	*16FSER12UN...*	1.30	1.3	1.4		
			8	3FSER8UN...	*16FSER8UN...*	1.95	1.3	1.6		
Internal	3/8"	16	20	3FSIR20UN...	*16FSIR20UN...*	0.73	1.3	0.8	YI3	A/NVR...-3
			18	3FSIR18UN...	*16FSIR18UN...*	0.81	1.2	0.9		
			16	3FSIR16UN...	*16FSIR16UN...*	0.92	1.1	0.9		
			14	3FSIR14UN...	*16FSIR14UN...*	1.05	1.1	1.1		
			12	3FSIR12UN...	*16FSIR12UN...*	1.22	1.4	1.4		
			8	3FSIR8UN...	*16FSIR8UN...*	1.83	1.2	2.5		

Whitworth for BSW, BSP | Defined by: B.S.84:1956, DIN 259, ISO228/1:1982 | Tolerance class: Medium class A

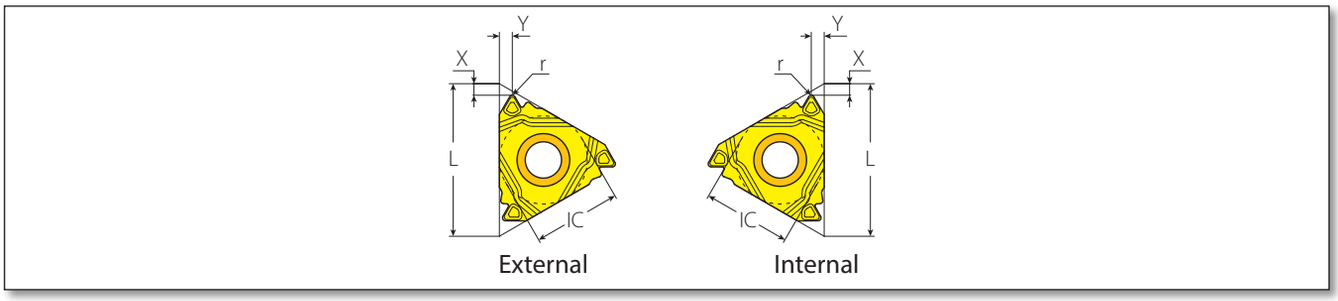


	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	19	3FSER19W...	*16FSER19W...*	0.86	1.2	0.9	YE3	AL...-3
			14	3FSER14W...	*16FSER14W...*	1.16	1.0	1.2		
			11	3FSER11W...	*16FSER11W...*	1.48	1.4	1.5		
Internal	1/4"	11	19	2FSIR19W...	*11FSIR19W...*	0.86	1.2	1.9	-	NVR...-2
			14	2FSIR14W...	*11FSIR14W...*	1.16	1.0	1.0		
	3/8"	16	14	3FSIR14W...	*16FSIR14W...*	1.16	1.2	1.2	YI3	A/NVR...-3
			11	3FSIR11W...	*16FSIR11W...*	1.48	1.3	1.4		

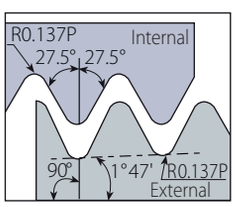
NPT | Defined by: USAS B2.1:1968 | Tolerance class: Standard NPT



	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	18	3FSER18NPT...	*16FSER18NPT...*	1.01	1.0	0.9	YE3	AL...-3
			14	3FSER14NPT...	*16FSER14NPT...*	1.33	0.9	1.2		
			11.5	3FSER11.5NPT...	*16FSER11.5NPT...*	1.64	1.1	1.5		
			8	3FSER8NPT...	*16FSER8NPT...*	2.42	1.1	1.7		
Internal	3/8"	16	14	3FSIR14NPT...	*16FSIR14NPT...*	1.33	1.1	1.2	YI3	A/NVR...-3
			11.5	3FSIR11.5NPT...	*16FSIR11.5NPT...*	1.64	1.2	1.4		
			8	3FSIR8NPT...	*16FSIR8NPT...*	2.42	1.2	1.8		



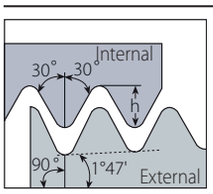
BSPT



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

	Insert Size			Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	14	3FSER14BSPT	*16FSER14BSPT...*	1.16	0.9	1.0	YE3	AL…-3
			11	3FSER11BSPT	*16FSER11BSPT...*	1.48	1.1	1.3		
Internal	3/8"	16	14	3FSIR14BSPT	*16FSIR14BSPT...*	1.16	1.1	1.2	YI3	A/NVR..-3
			11	3FSIR11BSPT	*16FSIR11BSPT...*	1.48	1.2	1.4		

API Round Casing & Tubing | Defined by: API STD. 5B:1979 | Tolerance class: Standard API RD



	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH		h min	X	Y	RH	Toolholder
Internal	3/8"	16	10	3FSIR10APIRD...	*16FSIR10APIRD...*	1.41	1.2	1.5	YEI3-APIRD or YI3	AVRC… 3APIRD or AVRC…-3

PRECISION PRODUCTIVITY PROFITABILITY
HPC High Pressure Coolant for SWISS TYPE MACHINES

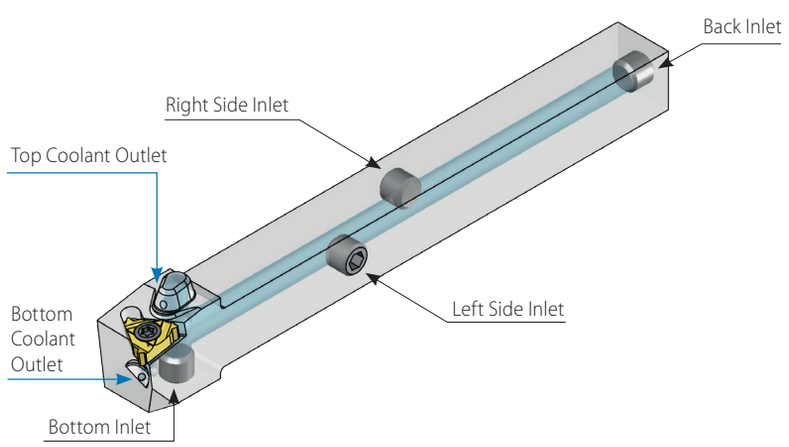
NEW

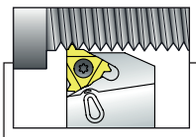
ALCS

External Thread Turning Toolholders
FOR SWISS TYPE MACHINES
WITH HIGH PRESSURE COOLANT (HPC)

Features and Benefits:

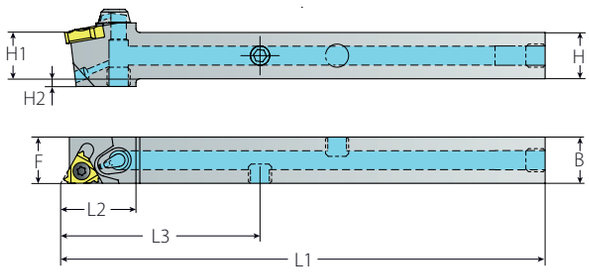
- Two dedicated inlets for Swiss type machines, accessible from both sides of the holder
- Back and bottom coolant inlets also available for conventional machines
- Two precise high pressure coolant outlets, designed to cool down the top and bottom of the insert for longer tool life and better chip evacuation
- High Pressure Coolant up to 70 bar
- Nickel coating for better wear resistance and anti-corrosion protection
- Available for standard insert sizes: IC1/4" (11), 3/8" (16)
- Shank sizes: 10mm and 12mm
- Left Hand holders are available as standard
- **New!** Now including innovative laser markings of spare parts and maximum torque details

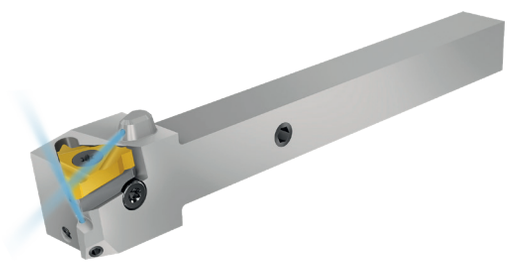




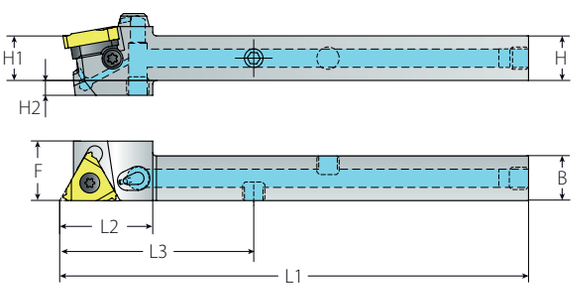
External Toolholders

NLCS Type
(without Anvil)



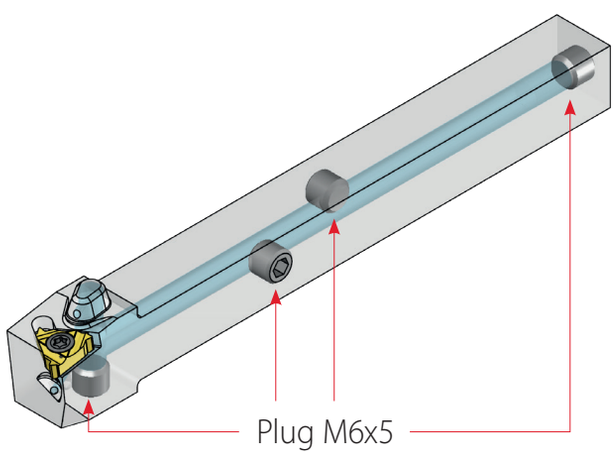


ALCS Type
(with Anvil)
& NLCS Type
(without Anvil)



Standard with Coolant

Insert Size	Ordering Code		Dimensions mm						Market Description		Spare Parts					
IC	RH	LH	H=H1=B	F	L1	L2	L3	H2	RH	LH	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH	Plug* x 4
1/4"	NLCS10-2	NLCS10-2LH	10	12	110.7	18.8	36.7	4	*NLCS10-11*	*NLCS10-11LH*	SN2T	-	K2T	-	-	Plug M6x5
	NLCS12-2	NLCS12-2LH	12	12	125.7	18.8	51.7	2	*NLCS12-11*	*NLCS12-11LH*						
3/8"	ALCS12-3	ALCS12-3LH	12	16	125.7	23.8	51.7	4	*ALCS12-16*	*ALCS12-16LH*	SA3T	SY3T	K3T	YE3	YI3	



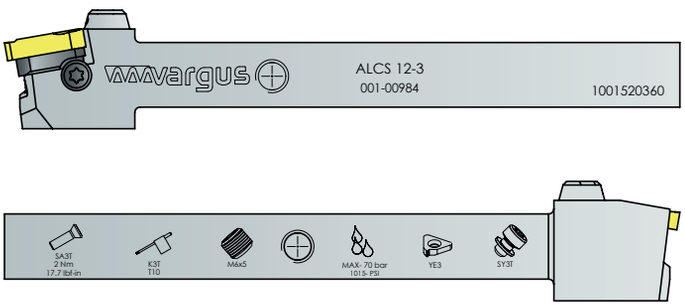
* When reassembling the M6X5 plug, it is necessary to use LOCTITE 542.

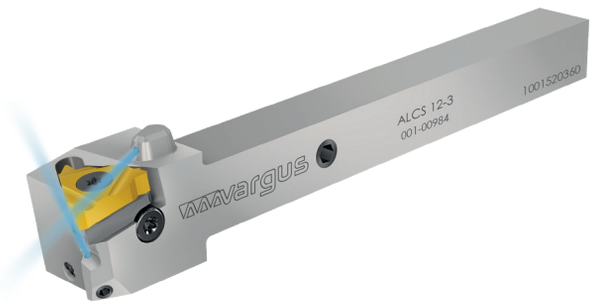
The NEW **External Toolholders with HPC** are included in the **VARGUS GENius™**, the most advanced Tool Selector and CNC Program Generator in the metal cutting tools industry.

VARGUS GENius™ Tool Selector and CNC Program Generator

Laser markings include spare parts and maximum torque details

NEW



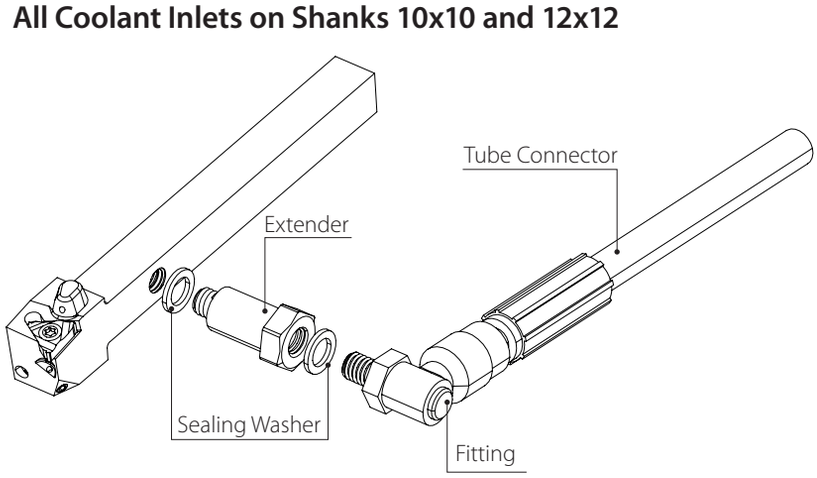


The following HPC accessories (not included) can be ordered separately:

Image	Ordering Code	Item Number	QTY
	Tube Connector 25-6	013-00941	1
	Angled Fitting M6x6	013-01011	1
	Straight Fitting M6x6	013-01012	1
	Extender M6x5*	013-01096	1
	Sealing Washer M6	013-01097	2

* When working with Shanks 10x10 & 12x12 the extender is necessary to connect the fitting.

How to Assemble the Accessories for All Coolant Inlets on Shanks 10x10 and 12x12

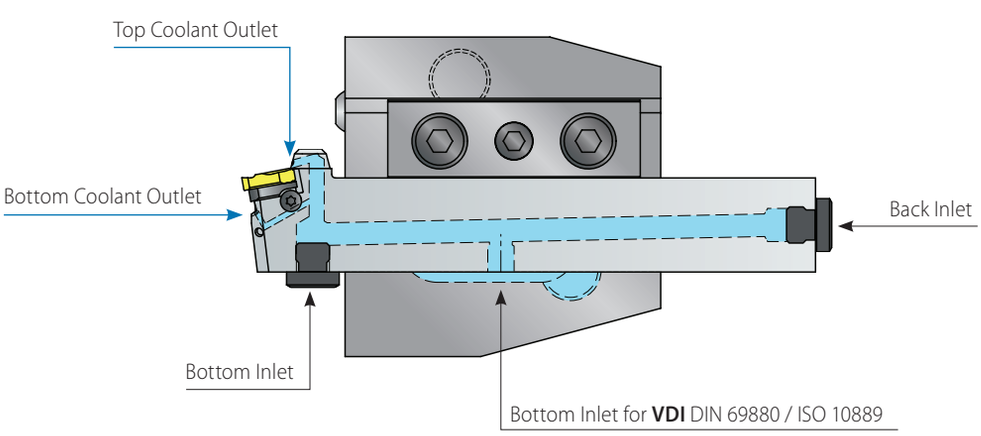


ALCN

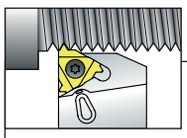
External Thread Turning Toolholders WITH TWO HIGH PRESSURE COOLANT OUTLETS

Features and Benefits:

- Two precise high pressure coolant outlets, designed to cool down the top and bottom of the insert for longer tool life and improved chip evacuation NEW
- Up to 70 bar
- Three different coolant inlets available:
  - Bottom inlet, specially designed for **VDI** DIN 69880 / ISO 10889 NEW
  - Back inlet
  - Bottom inlet
- Nickel coating for better wear resistance and anti-corrosion protection
- Greater range of holders for standard insert sizes: IC3/8" (16), 1/2" (22), & 5/8" (27) NEW
- Left Hand holders are available as standard

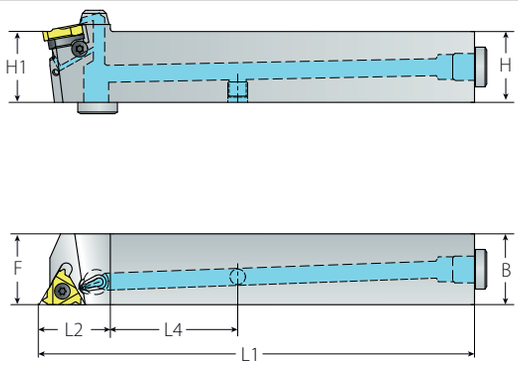


VARGUS GENius™ Tool Selector and CNC Program Generator



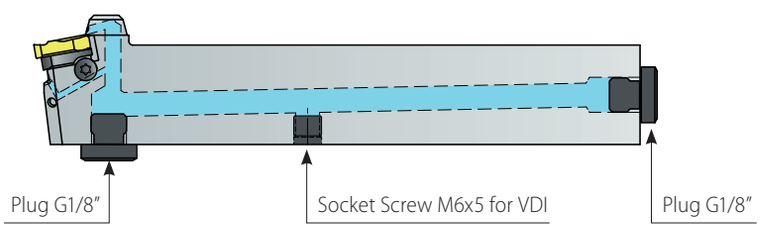
External Toolholders

ALCN



Standard with HPC

Insert Size	Ordering Code		Dimensions mm					Spare Parts						
IC	RH	LH	H=H1=B	F	L1	L2	L4	Insert Screw (Max. Torque)	Anvil Screw	Torx Key	Anvil RH	Anvil LH	Plug Screw x2	Socket Screw
3/8"	ALCN16-3	ALCN16-3LH	16	16	100.0	25.1	25	SA3T (3.0 Nm)	SY3T	K3T	YE3	YI3	Plug G1/8"	Socket Screw M6x5
	ALCN20-3	ALCN20-3LH	20	20	127.0		30							
	ALCN25-3	ALCN25-3LH	25	25	155.0		35							
	ALCN32-3	ALCN32-3LH	32	32	175.0		40							
1/2"	ALCN25-4	ALCN25-4LH	25	25	155.0	30.2	35	SA4T (5.0 Nm)	SY4T	K4T	YE4	YI4		
	ALCN32-4	ALCN32-4LH	32	32	175.0		40							
5/8"	ALCN25-5	ALCN25-5LH	25	25	155.0	35.1	35	SA5T (10.0 Nm)	SY5T	K5T	YE5	YI5		
	ALCN32-5	ALCN32-5LH	32	32	175.0		40							



The following HPC accessories (not included) can be ordered separately:

Image	Ordering Code	Item Number	QTY
	Tube Connector 25-6P	013-00941	1
	Angled Fitting G1_8x6P	013-00947	2
	Straight Fitting G1_8x6P	013-00942	

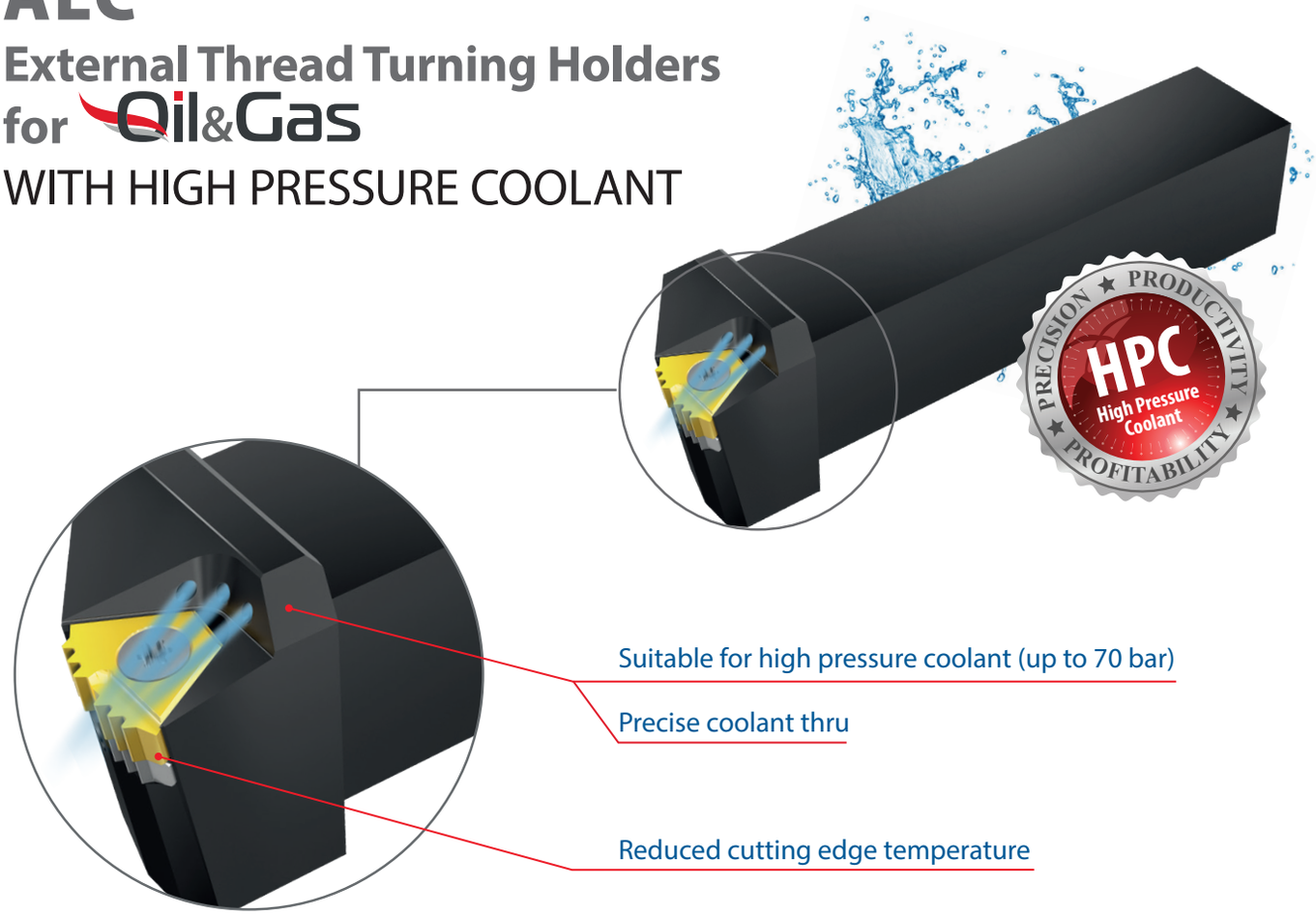
The NEW External Thread Turning Toolholders with HPC are fully supported by **VARGUS GENius™**, the most advanced Tool Selector and CNC Program Generator in the metal cutting industry

VARGUS GENius™ Tool Selector and CNC Program Generator

ALC

External Thread Turning Holders for Oil&Gas

WITH HIGH PRESSURE COOLANT

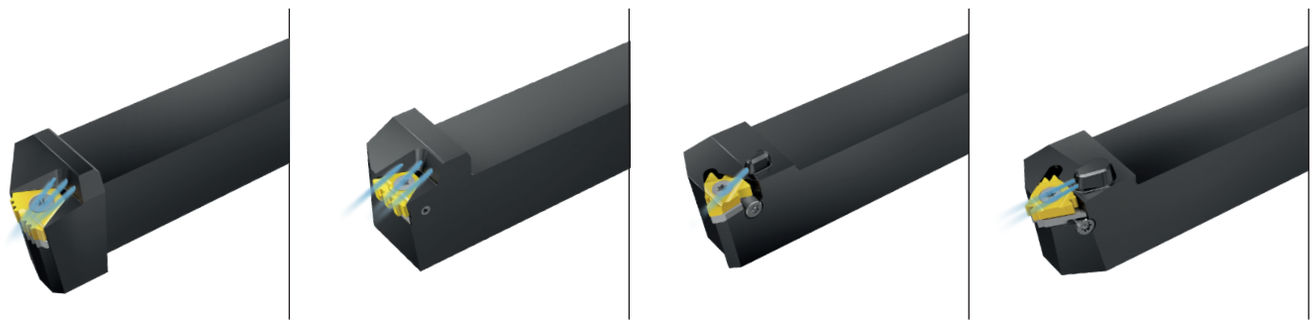


Features and Benefits:

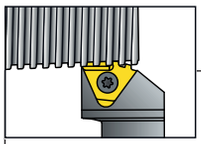
- Precise coolant thru, designed to efficiently cool down the cutting edge
- Suitable for high pressure coolant up to 70 bar
- Reduced cutting edge temperature for better tool life
- Better chip evacuation and improved chip control and flow

External holders with coolant are fully supported by **VARGUS GENius™**, the most advanced Tool Selector and CNC Program Generator in the metal cutting industry

VARGUS GENius™ Tool Selector and CNC Program Generator

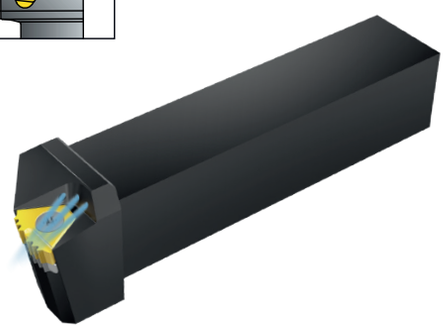


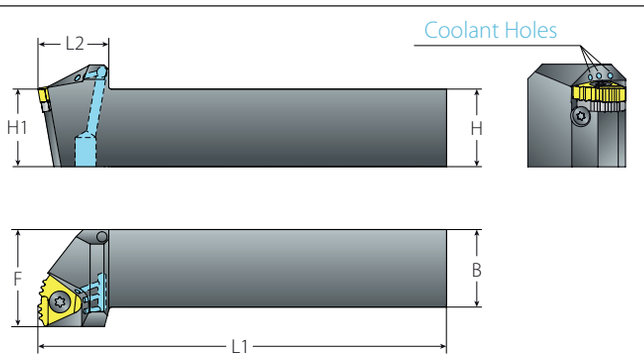
14D Standard with HPC | T+ Style with HPC | API with HPC | Z+ Style with HPC



External Toolholders

Oil&Gas





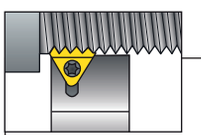
14D Standard with HPC

Insert Size	Ordering Code	Dimensions mm			
IC	RH	H=H1=B	F	L1	L2
14D	ALC32-14D	32	32	170	30
	ALC40-14D	40	40	200	30

Spare Parts

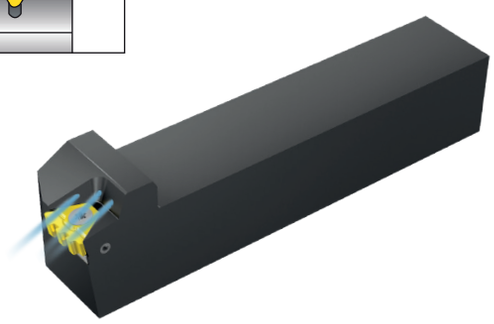
Insert Screw (Max. Torque)	Anvil Screw	Torx Key	Anvil Key
SA5T (10.0 Nm)	M4X6(14D)	K5T	KT15

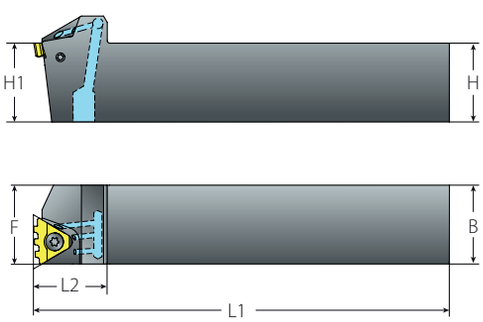
14D holders are supplied without anvils. For specific applications, refer to the Vardex Main Catalog.
Left Hand tools are available upon request.



External Toolholders

Oil&Gas





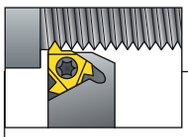
T+ Style with HPC

Insert Size	Ordering Code	Dimensions mm			
IC	RH	H=H1=B	F	L1	L2
1/2"T	ALC32-4T	32	32	170	30
	ALC40-4T	40	40	200	30

Spare Parts

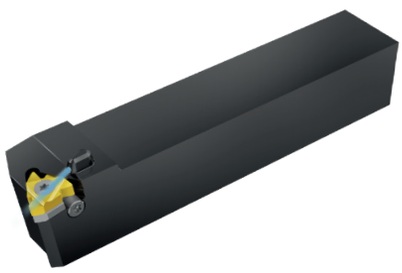
Insert Screw (Max. Torque)	Anvil Screw	Torx Key	Anvil Key	Anvil RH
SA4T (5.0 Nm)	SY4K2	K4T	K2	Y4T

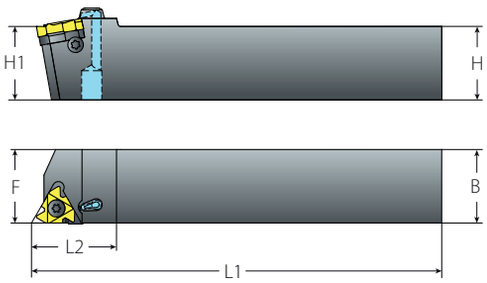
All T Style toolholders have a 0° helix angle.
Left Hand tools are available upon request.



External Toolholders

Oil&Gas

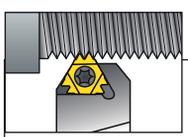




API with HPC

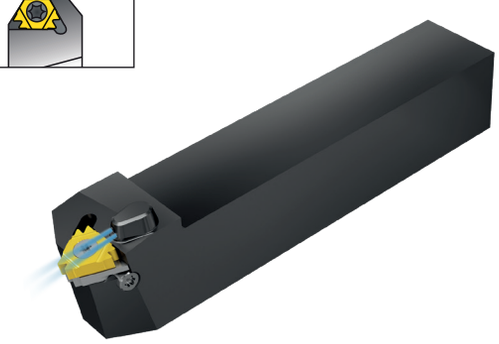
Insert Size	Ordering Code	Dimensions mm				Spare Parts			
IC	RH	H=H1=B	F	L1	L2	Insert Screw (Max. Torque)	Anvil Screw	Torx Key	Anvil RH
1/2"	ALC32-4-5BUT/API	32	32	177	37	SA4T (5.0 Nm)	SY4T	K4T	YEI4-API-1P; YEI4-5BUT
	ALC40-4-5BUT/API	40	40	205	37				

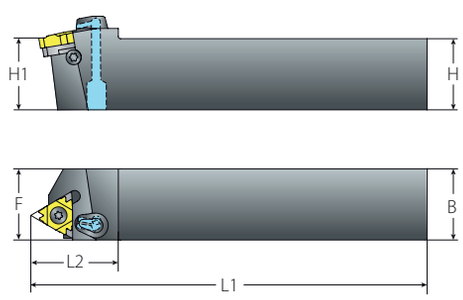
All API holders have a 0° helix angle.
Left Hand tools are available upon request



External Toolholders

Oil&Gas





Z+ Style with HPC

Insert Size	Ordering Code	Dimensions mm				Spare Parts			
IC	RH	H=H1=B	F	L1	L2	Insert Screw (Max. Torque)	Anvil Screw	Torx Key	Anvil RH
1/2"Z	ALC32-4Z	32	32	178	37	SA4T (5.0 Nm)	SY4T	K4T	YE4Z
	ALC40-4Z	40	40	208	37				

All Z Style toolholders have a 1.5° helix angle.
Left Hand tools are available upon request.

V-CAP
Internal & External Toolholders for IC1/2" (22)

Features and Benefits:

- Suitable for IC1/2" (22) insert size
- Polygon shaped shank, complies with standard ISO 26623
- Works with wide range of machine types
- For all industrial sectors
- High Pressure Coolant up to 70 bar for better chip evacuation and increased tool life

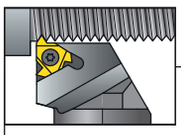
V-CAP Toolholder Range:

Internal and external V-CAP toolholders are available with IC1/2" (22) inserts in the following shank diameters:

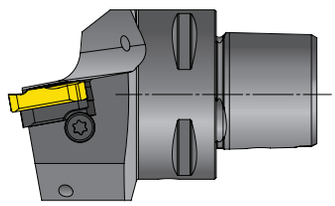
- C4
- C5
- C6
- C8

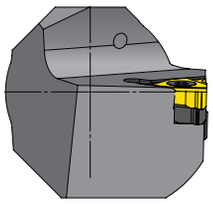
Special sizes are available upon request

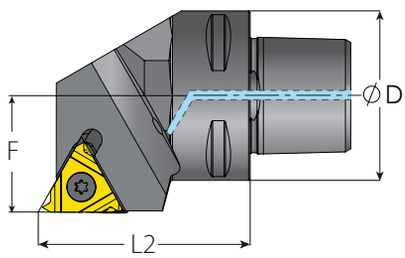
The NEW **V-CAP Toolholders** are included in the **VARGUS GENius™**, the most advanced Tool Selector and CNC Program Generator in the metal cutting tools industry.



V-CAP External Toolholders



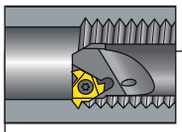




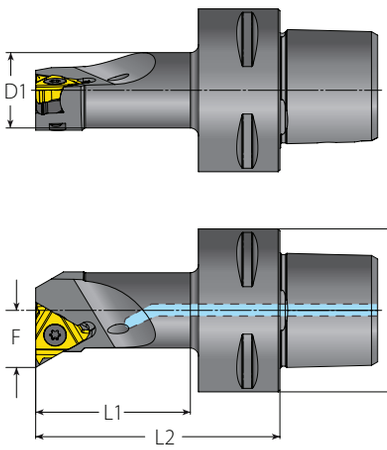
V-CAP

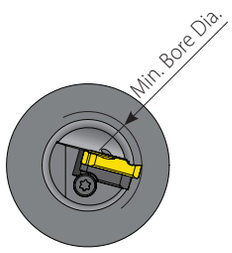
Insert Size	Ordering Code	Dimensions mm			Market Description	Spare Parts			
IC	RH/LH	D	F	L2	RH/LH	Insert Screw	Anvil Screw	Torx Key	Anvil RH
1/2″	VCAP40-SER27050-4	40	27	50	*VCAP40-SER27050-22*	SA4T	SY4T	K4T	YE4
	VCAP50-SER35060-4	50	35	60	*VCAP50-SER35060-22*				
	VCAP63-SER45065-4	63	45	65	*VCAP63-SER45065-22*				
	VCAP80-SER55080-4	80	55	81.7	*VCAP80-SER55080-22*				

The above toolholders are for RH inserts. For LH inserts, change R to L in the toolholder's ordering code (Example VCAP80-SE**L**55080-4).



V-CAP Internal Toolholders





V-CAP

Insert Size	Ordering Code	Dimensions mm					Min. Bore Dia.	Market Description	Spare Parts			
IC	RH/LH	D1	D	F	L2	L1 (max)	mm	RH/LH	Insert Screw	Anvil Screw	Torx Key	Anvil RH
1/2"	VCAP40-SIR15065-4	20	40	15.6	65	42	25	*VCAP40-SIR15065-22*	SN4T	-	K4T	-
	VCAP40-SIR19070-4	25		19	70	48	32	*VCAP40-SIR19070-22*	SA4T	SY4T	K4T	YI4
	VCAP40-SIR22090-4	32		22	90	69	40	*VCAP40-SIR22090-22*				
	VCAP40-SIR27080-4	39.5		26	80	60	50	*VCAP40-SIR27080-22*				
	VCAP50-SIR15065-4	20	50	15.6	65	42	25	*VCAP50-SIR15065-22*	SN4T	-	K4T	-
	VCAP50-SIR19070-4	25		19	70	47	32	*VCAP50-SIR19070-22*	SA4T	SY4T	K4T	YI4
	VCAP50-SIR22090-4	32		22	90	68	40	*VCAP50-SIR22090-22*				
	VCAP50-SIR27105-4	39.5		26	105	84	50	*VCAP50-SIR27105-22*				
	VCAP63-SIR19075-4	25	63	19	75	48	32	*VCAP63-SIR19075-22*				
	VCAP63-SIR22090-4	32		22	90	64	40	*VCAP63-SIR22090-22*				
	VCAP63-SIR27105-4	39.5		26	105	80	50	*VCAP63-SIR27105-22*				

The above toolholders are for RH inserts. For LH inserts, change R to L in the toolholder's ordering code (Example VCAP80-SE**L**55080-4).

SMOOTH CUT SYSTEM

NEW

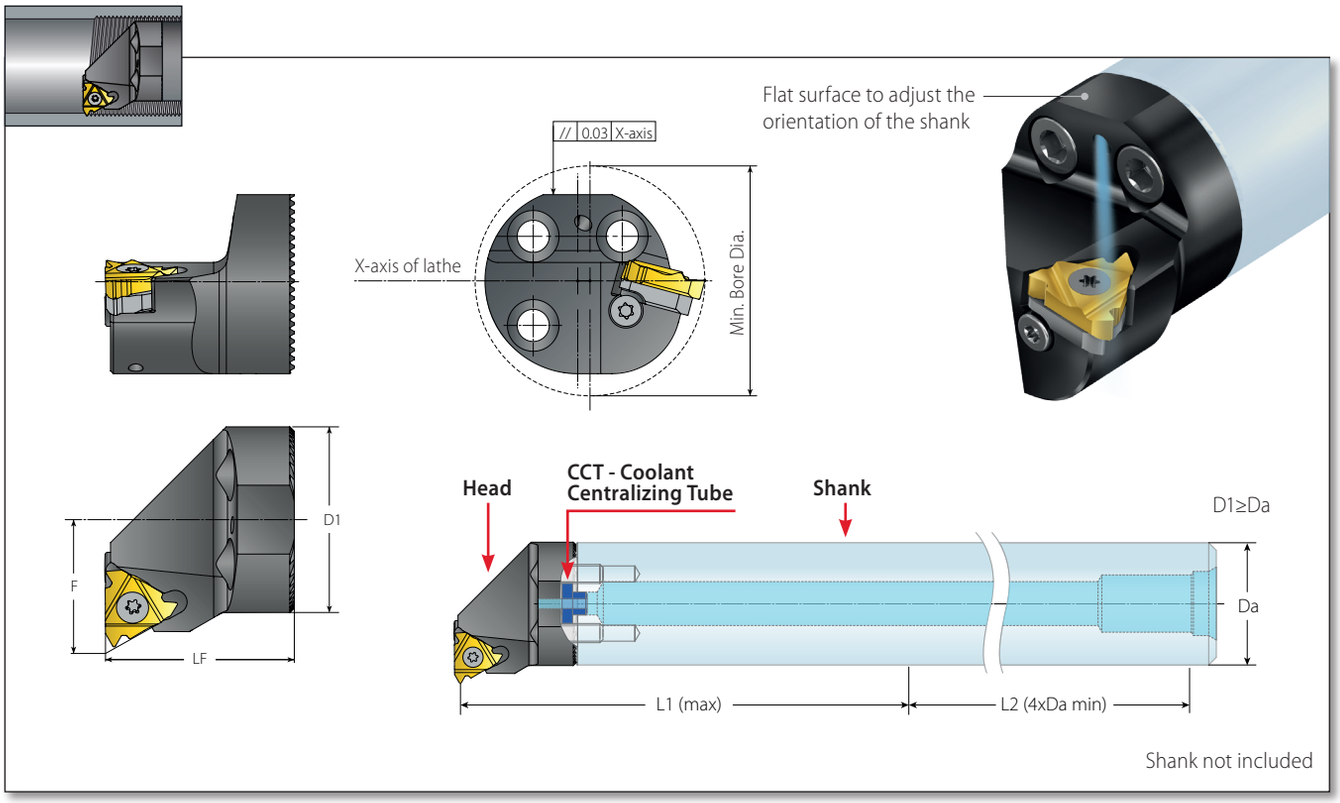
Modular Toolholder Heads for Anti-Vibration Shanks

Features and Benefits:

- Modular head for anti-vibration system
- Same head can be used with wide range of shanks of different lengths
- Maximum overhang 5xDa (Da - shank diameter)
- Compatible with the most common anti-vibration shanks in the market
- Available for standard insert sizes: IC3/8" (16), 1/2" (22), 5/8" (27)
- Toolholder includes High Pressure Coolant up to 70 bar for better chip evacuation and increased tool life

The NEW **Smooth Cut System Toolholder Heads** are included in the **VARGUS GENius™**, the most advanced Tool Selector and CNC Program Generator in the metal cutting tools industry.

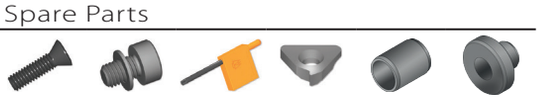
VARGUS GENius™ Tool Selector and CNC Program Generator



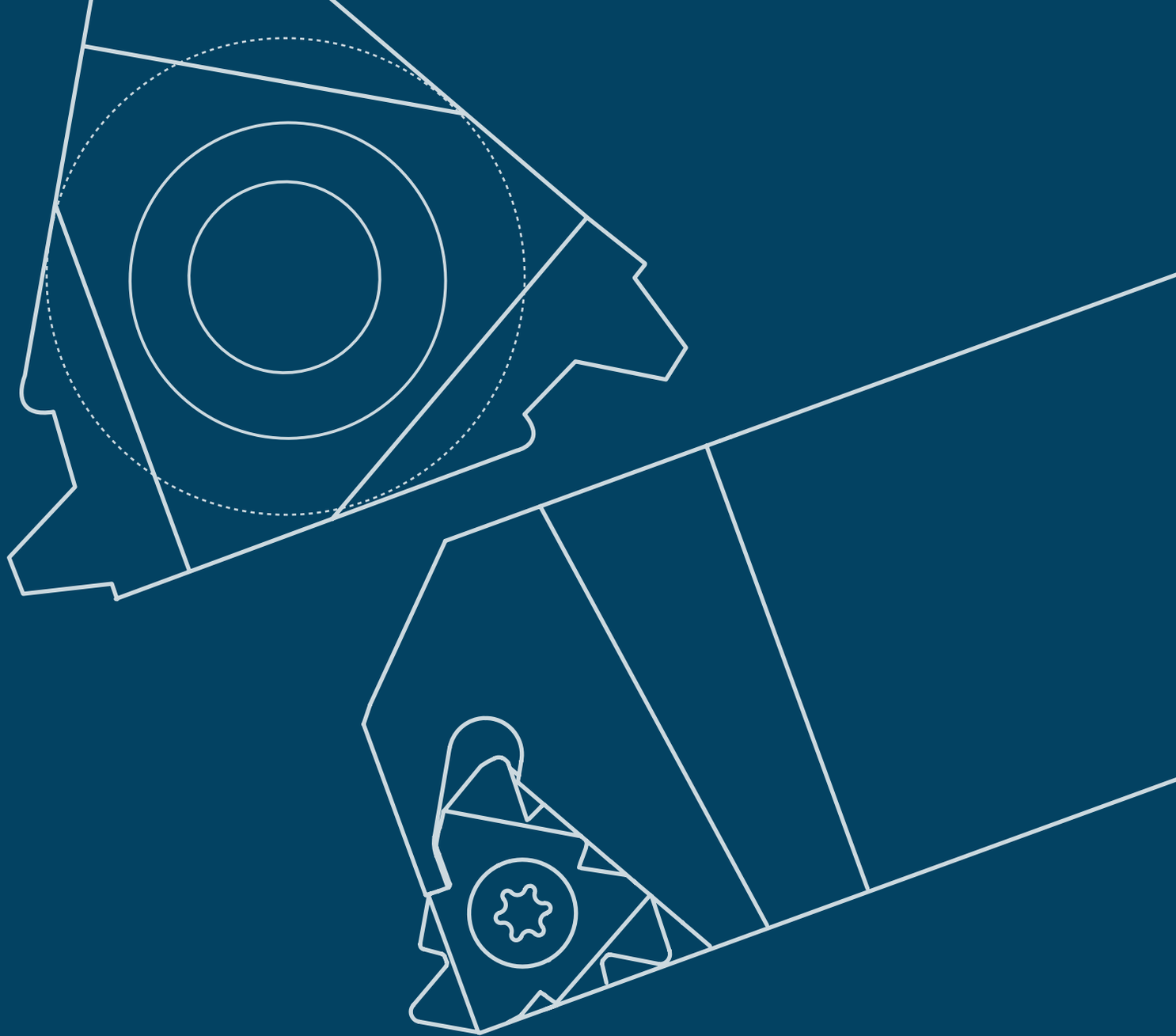
Smooth Cut Toolholder Heads

Insert Size	Ordering Code	Dimensions mm						Min. Bore dia.	Market Description
IC	RH	D1	Da mm	Da inch	F	L1 max	LF	mm	RH
3/8"	VAS25-IR2517-3	25.3	25	1.00"	17.0	125.0	25.0	32	*VAS25-IR2517-16*
	VAS32-IR3222-3	32.3	32	1.25"	22.0	160.0	32.0	40	*VAS32-IR3222-16*
	VAS40-IR3227-3	40.0	40	1.50"	27.0	200.0	32.0	50	*VAS40-IR3227-16*
1/2"	VAS32-IR3222-4	32.3	32	1.25"	22.7	160.0	32.0	40	*VAS32-IR3222-22*
	VAS40-IR3227-4	40.0	40	1.50"	27.0	200.0	32.0	50	*VAS40-IR3227-22*
5/8"	VAS40-IR3627-5	40.0	40	1.50"	27.3	200.0	36.0	50	*VAS40-IR3627-27*

Spare Parts



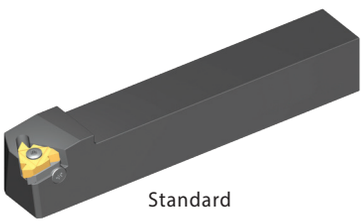
Insert Screw	Anvil Screw	Torx Key	Anvil RH	CCT - Coolant Centralizing Tube	
				CCT6	-
SA3T	SY3T	K3T	YI3	-	CCT12
SA4T	SY4T	K4T	YI4		
SA5T	SY5T	K5T	YI5		



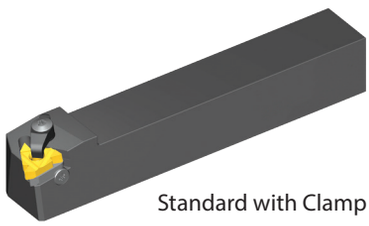
THREAD TURNING

Thread Turning System - EXTERNAL

Standard



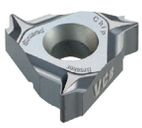
Standard



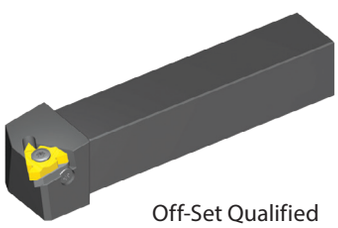
Standard with Clamp

V-Cap

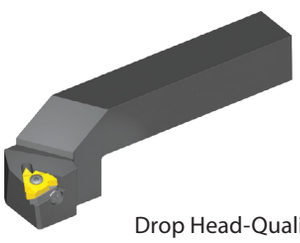
V6



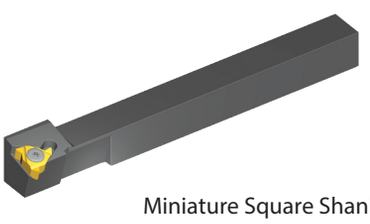
SCB



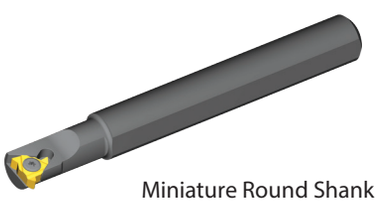
Off-Set Qualified



Drop Head-Qualified



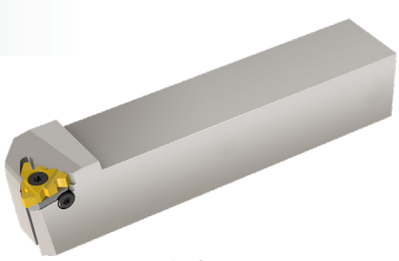
Miniature Square Shank



Miniature Round Shank

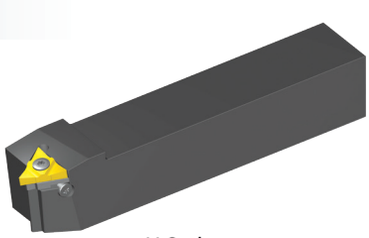
F-LINE

IC 1/2"F

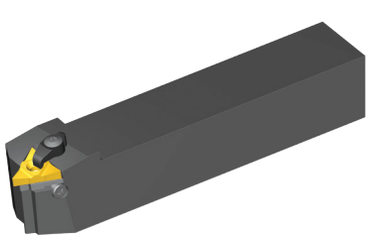


F Style

U Style



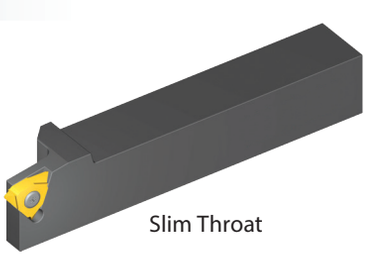
U Style



U Style with Clamp

V Style

1/4"V, 3/8" V, 1/2"V



Slim Throat

VG-Cut

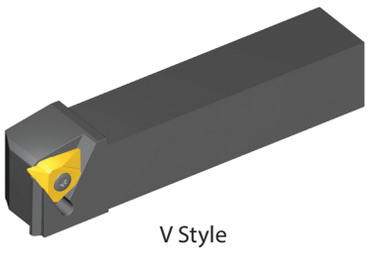
Reinforced Monoblock

Monoblock

Thread Turning System - EXTERNAL

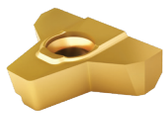
V Style

5/8"V



V Style

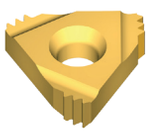
MEGALINE

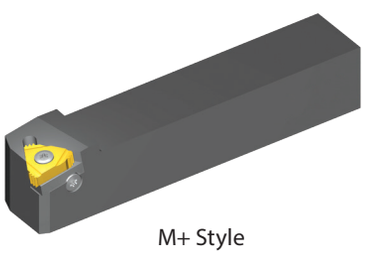


5/8"MG

MG Style

Multiplus

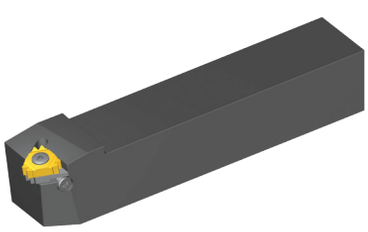




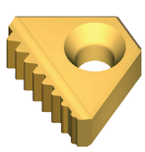
M+ Style

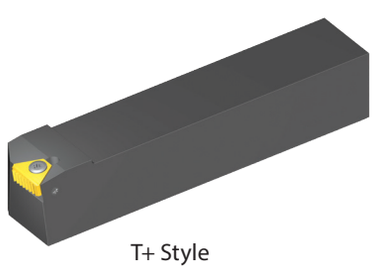
F-LINE

MF+ Style



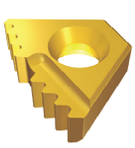
Z+ Style



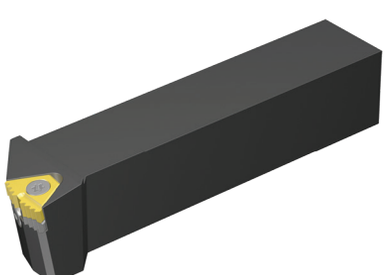


T+ Style

Oil&Gas

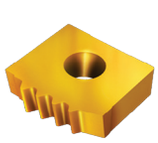


14D



14D Standard

CNGA



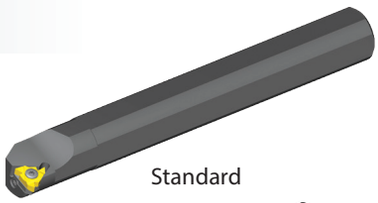
Chaser

T+ Style

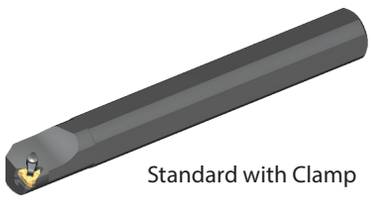
On Edge

Thread Turning System - INTERNAL

Standard

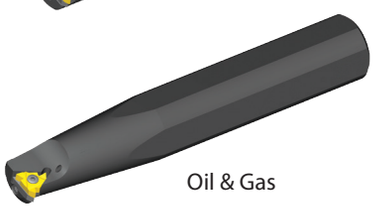


Standard

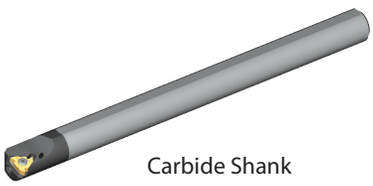


Standard with Clamp

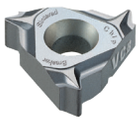
V-Cap



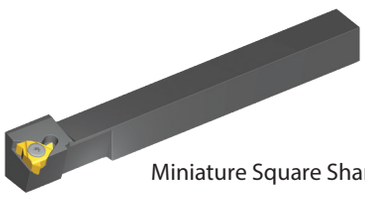
Oil & Gas



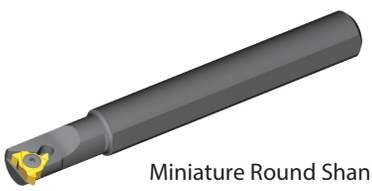
Carbide Shank



SCB



Miniature Square Shank

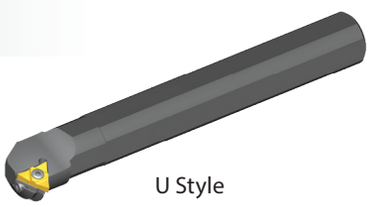


Miniature Round Shank

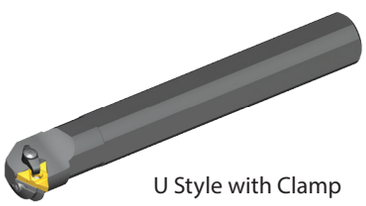
F-LINE

F Style

U Style



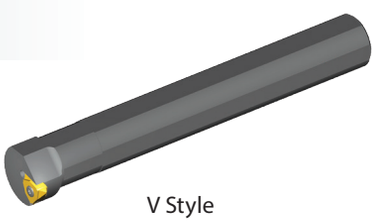
U Style



U Style with Clamp

V Style

5/8"V



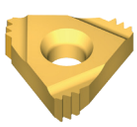
V Style

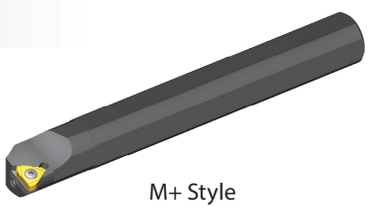
MEGALINE

5/8"MG

MG Style

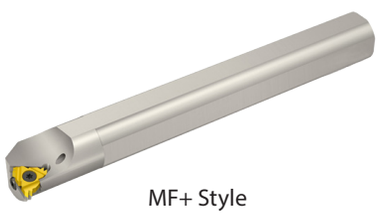
Multi plus



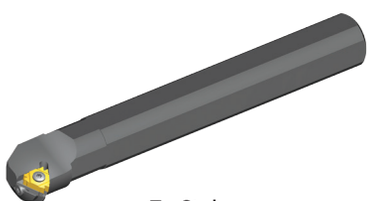


M+ Style

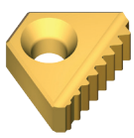
F-LINE

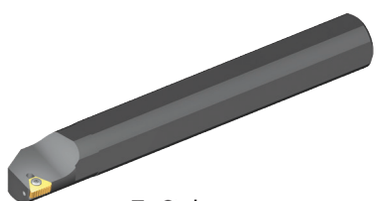


MF+ Style



Z+ Style





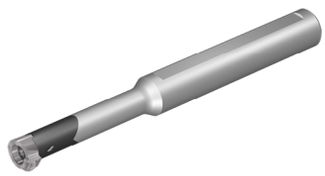
T+ Style

Thread Turning System - INTERNAL

VARGUS GENius™ Tool Selector and CNC Program Generator

Mini-V

Steel Shank

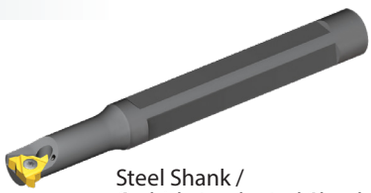


Carbide Shank

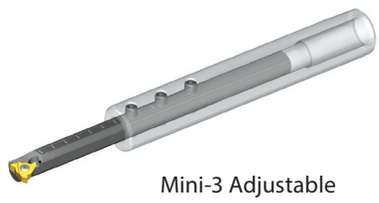
Sleeve Clamping Shank

MINIPRO

Mini-3
IC 4.0, IC 5.0, IC 6.0



Steel Shank /
Carbide Implanted Shank

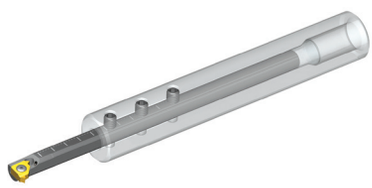


Mini-3 Adjustable

Carbide Shank

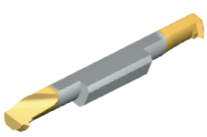
Mini-5L

Steel Shank /
Carbide Implanted Shank

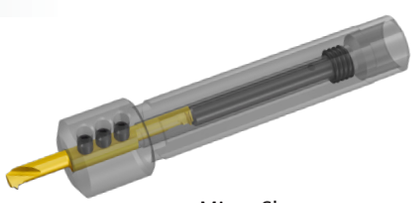


Mini-L Adjustable

MINIPRO



Micro Double-Ended



Micro Sleeve

microscope

Micro Single-Ended

Shrink

Round Without Shoulder

Round Double Sided

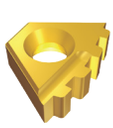
2 Flats Round Shank

4 Flats Round Shank

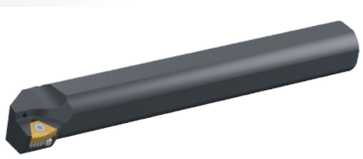
Square Shank

Drop Head

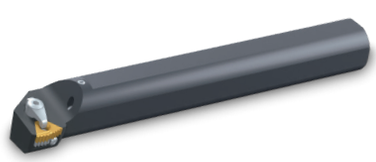
Oil&Gas



14D

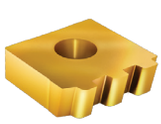


14D



14D with Clamping

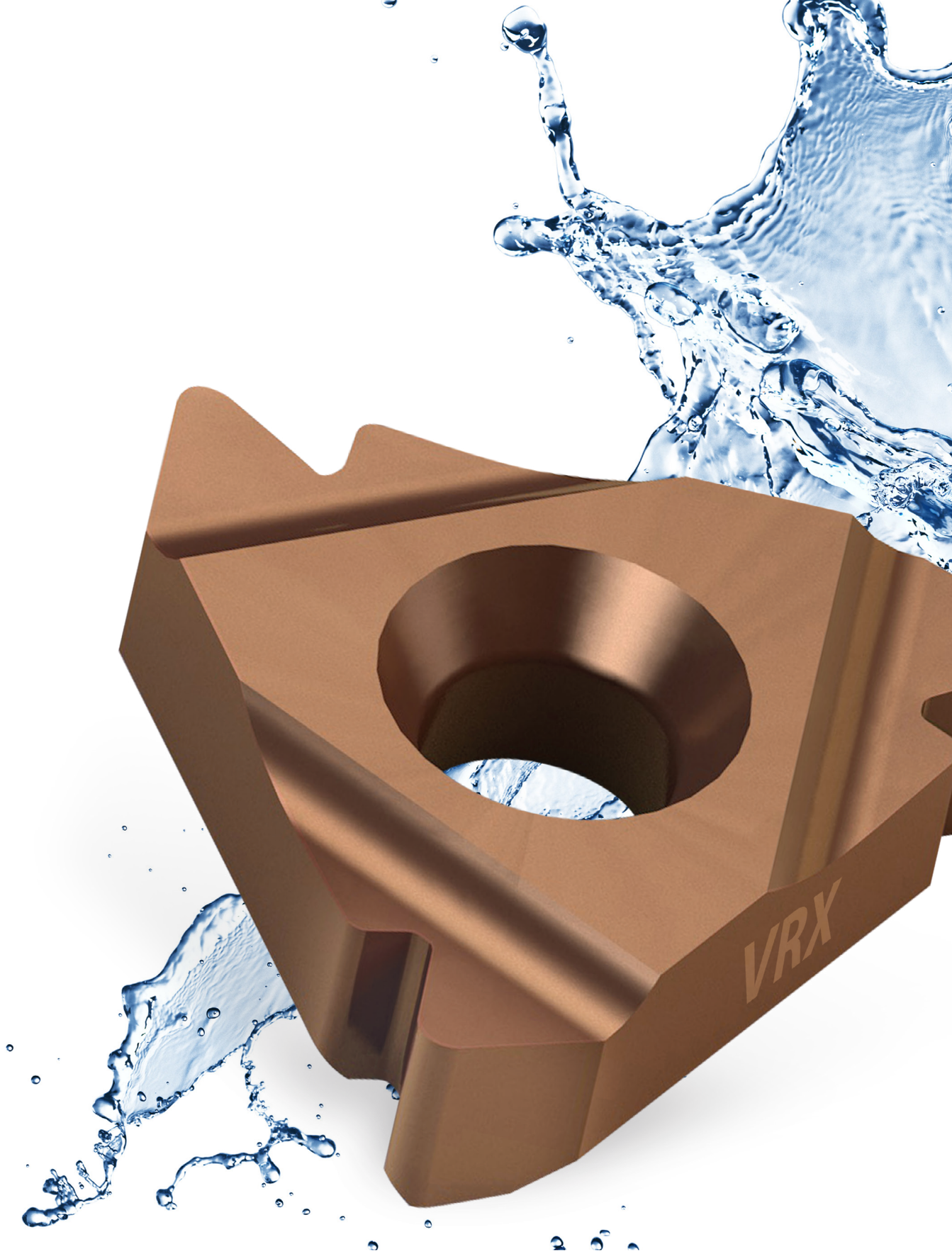
CNGA



Chaser

T+ Style

On Edge



Thread Turning Inserts

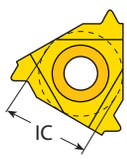
Vardex Ordering Code System

Threading Inserts

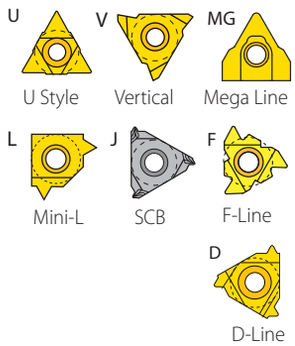
3		E	R	1.5	ISO					VTX	
1	2	3	4	5	6	7	8	9	10	11	12

1 - Insert Size

5LK - IC5.0L mm
4.0K - IC4.0 mm
5.0K - IC5.0 mm
6.0K - IC6.0 mm
2 - IC1/4"
3 - IC 3/8"
4 - IC 1/2"
5 - IC5/8"
14D - 14D
1616 - Chaser size 16x16



2 - Insert Style



3 - Type of Insert

E - External
I - Internal
EI - External +Internal

4 - RH/LH Insert

R - Right Hand Insert
L - Left Hand Insert
None - Right + Left Insert

5 - Pitch

Full Profile - Pitch Range

mm	TPI
0.35-25.0	72-1

Partial Profile - Pitch Range

	mm	TPI
A	0.5 - 1.5	48 - 16
B	1.75 - 2.0	14 - 11
AG	0.5 - 3.0	48 - 8
G	1.75 - 3.0	14 - 8
N	3.5 - 5.0	7 - 5
U	5.5 - 8.0	4.5 - 3.25
Q	5.5 - 6.0	4.5 - 4
U	6.5 - 9.0	4 - 2.75
V	6.0 - 10.0	4 - 2.5
S	0.5 - 2.0	48 - 13

6 - Standard

60 - Partial Profile 60°
55 - Partial Profile 55°
ISO - ISO Metric
UN - American UN
W - Whitworth for BSW, BSP
BSPT - British Standard Pipe Thread
NPT - NPT
ANPT - ANPT
NPTF - NPTF
NPS - NPS
RD - Round DIN 405
RD20400 - Round DIN 20400
TR - Trapez DIN 103
ACME - ACME
STACME - Stub ACME
UNJ - UNJ
MJ - ISO 5855
ABUT - American Buttress
BBUT - British Buttress
SAGE - Metric Buttress DIN 513
API - API
BUT - API Buttress Casing
APIRD - API Round Casing & Tubing
VAM - VAM
NVAM - New Vam
EL - Extreme Line Casing
H90 - H90
PG - Pg DIN 40430

7 - No. of Cutting Corners

6C - V6 Cutting Corners

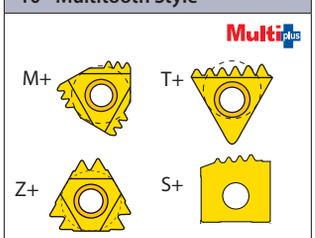
8 - API Form

382
383
403
502
503
652

9 - No. of Teeth

(for Multitooth Style)
2, 3, 5, 6, 8

10 - Multitooth Style



11 - Coarse Pitch Inserts

158/...

12 - Carbide Grade

VKX, VTX, VCB, VM7, VK2, VK2P, VBX, VRX, VTXP, VKXP, VRXP

Micro Threading Inserts - Double Ended

3	S	I	R	0.5	ISO	VMX
1	2	3	4	5	6	7

1 - Insert Dia.

3.0 - 3.0 mm
4.0 - 4.0 mm
6.0 - 6.0 mm
8.0 - 8.0 mm
10.0 -10.0 mm

2 - Insert Style

S - Micro Insert

3 - Type of Insert

I - Internal

4 - RH/LH Insert

R - Right Hand Insert
L - Left Hand Insert

5 - Pitch

Full Profile - Pitch Range	
mm	TPI
0.30-1.5	40-16

Partial Profile - Pitch Range			
mm		TPI	
A	0.5 - 1.5	A	48 - 16
F	0.5 - 3.0	F	48 - 24

6 - Standard

60 - Partial Profile 60°
55 - Partial Profile 55°
ISO - ISO Metric
MJ - ISO 5855
NPT - NPT
NPTF - NPTF
UN - American UN
W - Whitworth for BSW, BSP

7 - Carbide Grades

VMX

microscope

Micro Threading Inserts - Single Ended

M	5	42	TH	0.5	ISO	L16	R	VBX
1	2	3	4	5	6	7	8	9

1 - Product Line

M, MS - Microscope

2 - Insert Size

4, 5, 6, 7

3 - Min. Bore Dia.

3.2, 4.2,...

4 - Type of Application

TH - Threading

5 - Pitch (for Threading)

Full Profile - Pitch Range	
mm	TPI
0.5-1.5	32-16

Partial Profile - Pitch Range			
mm		TPI	
A	0.5 - 1.5	A	48 -16
F	0.5 - 1.0	F	48 - 24

6 - Threading Standard

60 - Partial Profile 60°
55 - Partial Profile 55°
ISO - ISO Metric
UN - American UN
W - Whitworth for BSW, BSP
NPT - NPT
TR - Trapez DIN 103

7 - Overhang

L16

8 - LH or RH

R - RH Helix
L - LH Helix

9 - Carbide Grades

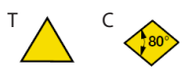
VBX, VTX

Oil&Gas

CNGA and On Edge Inserts for Oil & Gas

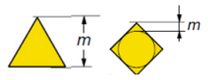
C	N	G	A	6	4	I	R	5	BUT75	VKX
T	N	E	C	4	3	E	R	4	APIRD	VKX
1	2	3	4	5	6	7	8	9	10	11

1 - Insert Shape



2 - Clearance Angle on Major Cutting Edge

3 - Tolerances

IC		S	m
Theoretical diameter of inscribed circle		Insert thickness	
E	±0.025	±0.025	±0.025
G	±0.025	±0.13	±0.025

4 - Clamp Type

5 - Theoretical diameter of inscribed circle

4 - 1/2" (12.7 mm)
5 - 5/8" (15.875 mm)
6 - 6/8" (19.05 mm)

6 - Thickness

3 - 3/16" (4.76 mm)
4 - 4/16" (6.35 mm)
5 - 5/16" (7.94 mm)
6 - 6/16" (9.525 mm)

7 - Type of Insert

E - External
I - Internal
EI - External + Internal

8 - RH/LH Insert

R - Right Hand Insert
L - Left Hand Insert

9 - Pitch

10-5 TPI

10 - Standard

ACME - ACME
STACME - Stub ACME
API - API
BUT - API Buttress Casing
APIRD - API Round Casing & Tubing
VAM - VAM
NVAM - New Vam
EL - Extreme Line Casing
H90 - H90

11 - No. of Teeth

(For Multitooth Style)
T3-T5

12 - Carbide Grades

VKX, VKXP, VTX, VTXP

VG-Cut Inserts

VG	D	3.0	ISO	1.50	RH	-	RS	VPG
1	2	3	4	5	6		7	8

1 - Line Name

VG - Deep Grooving, Threading & Parting Off

2 - Number of Cutting Corners

D - Double

3 - Inserts Width

3.0 mm

4 - Standard

60 - Partial Profile 60°
55 - Partial Profile 55°
ISO - ISO Metric
UN - American UN
W - Whitworth for BSW, BSP
NPT - NPT

5 - Pitch

Full Profile - Pitch Range		
mm		TPI
0.5-2.0		32-11.5
Partial Profile - Pitch Range		
mm		TPI
A	0.5 - 1.5	48 -16

6 - RH/LH Inserts

RH Helix
LH Helix

7 - Top Rake Geometry

RS - Close to right shoulder
LS - Close to left shoulder

8 - Carbide Grade

VPG

Mini-V Inserts

V	08	TH	1.5	ISO	R	VBX
1	2	3	4	5	6	7

1 - Product Line

V- Mini-V

2 - Insert Style

08 , 11, 14, 16

3 - Type of Application

TH - Threading

4 - Pitch (for Threading)

Full Profile - Pitch Range		
mm		TPI
0.5-2.0		32-12
Partial Profile - Pitch Range		
	mm	TPI
H	0.5-.75	48-32
I	1.0-1.25	24-20
J	1.5-1.75	16-14
A	0.5-1.5	48-16
G	1.75-3.0	14-8
AG	0.5-3.0	48-8

5 - Threading Standard

60 - Partial Profile 60°
55 - Partial Profile 55°
ISO - ISO Metric
UN - American UN
W - Whitworth for BSW, BSP
BSPT - British Standard Pipe Thread
NPT - NPT National Pipe Thread
NPTF - NPTF National Seal Pipe Thread
TR - Trapez Din 103

6 - RH

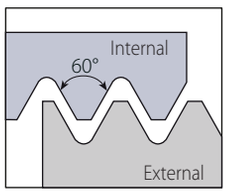
R - RH Helix

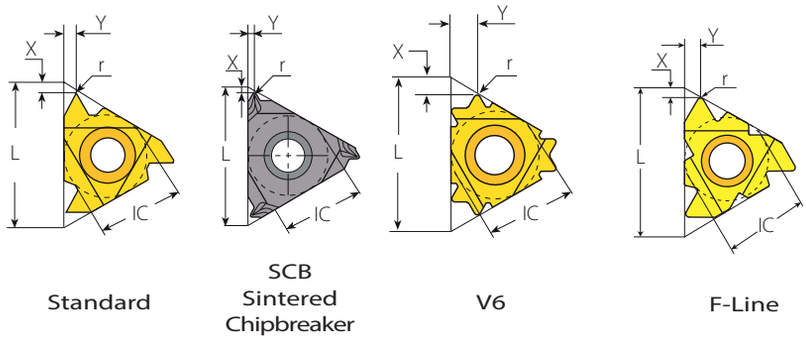
7 - Carbide Grade

VBX

Partial Profile 60°

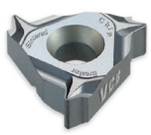
External





Standard | SCB Sintered Chipbreaker | V6 | F-Line

Standard



SCB

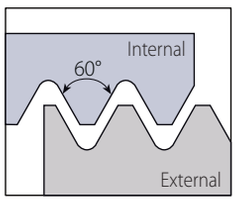
V6

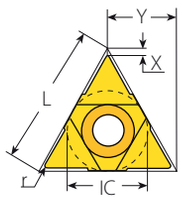
F-LINE

Insert Size		Pitch		Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	TPI	RH	LH	r	X	Y	RH	LH	Toolholder
1/4"	11	0.5-1.5	48-16	2ERA60...	2ELA60...	0.05	0.8	0.9	-	-	NL..-2 (LH)
3/8"	16	0.5-1.5	48-16	3ERA60...	3ELA60...	0.05	0.8	0.9	YE3	YI3	AL..-3 (LH)
		1.75-3.0	14-8	3ERG60...	3ELG60...	0.27	1.2	1.7			
		0.5-3.0	48-8	3ERAG60...	3ELAG60...	0.08	1.2	1.7			
3/8" SCB	16	0.5-1.5	48-16	3JERA60...		0.05	0.6	0.8	YE3	-	AL..-3
		1.75-3.0	14-8	3JERG60...		0.27	1.1	1.5			
		0.5-3.0	48-8	3JERAG60...		0.08	0.9	1.5			
3/8" V6	16	0.5-2.0	48-13	3ERS60-6C...		0.06	1.9	3.0	YE3-6C	-	AL..-3
1/2"	22	3.5-5.0	7-5	4ERN60...	4ELN60...	0.53	1.7	2.5	YE4	YI4	AL..-4 (LH)
1/2"F	23	3.5-5.0	7-5	4FERN60...		0.53	1.7	2.5	YE4F	-	AL..-4F
5/8"	27	5.5-6.0	4.5-4	5ERQ60...	5ELQ60...	0.64	2.1	3.1	YE5	YI5	AL..-5 (LH)

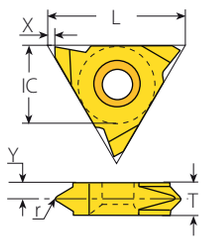
Partial Profile 60° (con't)

External





U Style



V Style / Slim Throat

U Style

Insert Size		Pitch		Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	TPI	RH+LH	r	X	Y	RH	LH	Toolholder
1/2"U	22	5.5-8.0	4.5-3.25	4UEIU60...	0.30	0.6	11.0	YE4U	YI4U	AL..-4U (LH)
5/8"U	27	6.5-9.0	4-2.75	5UEIU60...	0.37	1.0	13.7	YE5U	YI5U	AL..-5U (LH)

Slim Throat

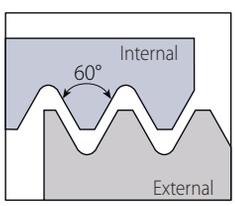
Insert Size		Pitch		Ordering Code		Dimensions mm				
IC	L mm	mm	TPI	RH	LH	r	X	Y	T	Toolholder
1/4"V	11	0.5-1.5	48-16	2VERA60...	2VELA60...	0.05	0.69	2.3	3.2	NL..-2V (LH)
3/8"V	16	0.5-1.5	48-16	3VERA60...	3VELA60...	0.05	1.10	2.7	3.6	NL..-3V (LH)
		1.75-3.0	14-8	3VERG60...	3VELG60...	0.27	1.10	1.9	3.6	
		0.5-3.0	48-8	3VERAG60...	3VELAG60...	0.08	1.10	1.9	3.6	
1/2"V	22	3.5-5.0	7-5	4VERN60...	4VELN60...	0.53	1.10	2.3	4.8	NL..-4V (LH)

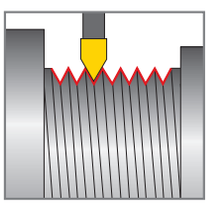
V Style

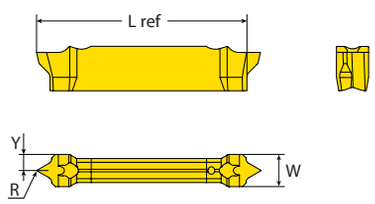
Insert Size		Pitch		Ordering Code		Dimensions mm				
IC	L mm	mm	TPI	RH	LH	r	X	Y	T	Toolholder
5/8"V	27	6.0-10.0	4-2.5	5VERV60...	5VELV60...	0.75	0.6	5.2	10	NL..-5V-10 (LH)

Partial Profile 60°

External







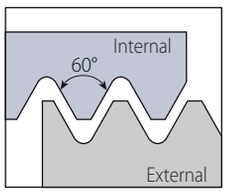
VG-Cut

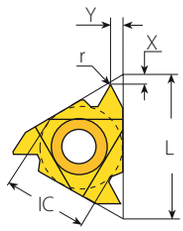
VG-Cut

Pocket Size	Ordering Code	Dimensions mm					No. of Passes	Helix	Min. Thread Diameter	Toolholder
	RH	W ref	Pitch mm	R	Y	L ref		Deg		Monoblock
3	VGD3.0A60RH...	3.00	0.5-1.5	0.05	1.68	21.9	5 - 8	1.5°	Partial Profile A60	VGE...-3T...

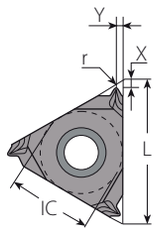
Partial Profile 60° (con't)

Internal

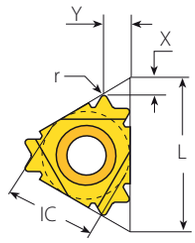




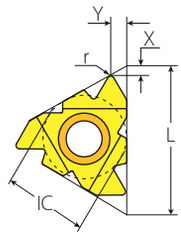
Standard



SCB
Sintered
Chipbreaker

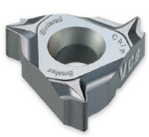


V6



F-Line

Standard

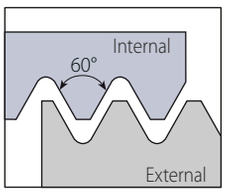


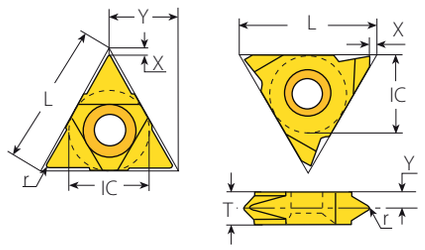
SCB

Insert Size		Pitch		Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	TPI	RH	LH	r	X	Y	RH	LH	Toolholder
1/4"	11	0.5-1.5	48-16	2IRA60...	2ILA60...	0.05	0.8	0.9	-	-	NVR..-2 (LH)
1/4" SCB	11	0.5-1.5	48-16	2JIRA60...		0.05	0.6	0.8	-	-	NVR..-2
3/8"	16	0.5-1.5	48-16	3IRA60...	3ILA60...	0.05	0.8	0.9	YI3	YE3	AVR..-3 (LH)
		1.75-3.0	14-8	3IRG60...	3ILG60...	0.16	1.2	1.7			
		0.5-3.0	48-8	3IRAG60...	3ILAG60...	0.05	1.2	1.7			
3/8" SCB	16	0.5-1.5	48-16	3JIRA60...		0.05	0.6	0.8	YI3	-	AVR..-3
		1.75-3.0	14-8	3JIRG60...		0.16	1.0	1.5			
		0.5-3.0	48-8	3JIRAG60...		0.05	0.9	1.5			
3/8" V6	16	0.5-2.0	48-14	3IRS60-6C...		0.03	1.6	2.6	YI3-6C	-	AVR..-3 NVRC..-3 206/...
1/2"	22	3.5-5.0	7-5	4IRN60...	4ILN60...	0.30	1.7	2.5	YI4	YE4	AVR..-4 (LH)
1/2"F	23	3.5-5.0	7-5	4FIRN60...		0.3	1.7	2.5	YI4F	-	AVRC...-4F
5/8"	27	5.5-6.0	4.5-4	5IRQ60...	5ILQ60...	0.30	1.8	2.7	YI5	YE5	AVR..-5 (LH)

Partial Profile 60° (con't)

Internal





U Style V Style

U Style

Insert Size		Pitch		Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	TPI	RH+LH	r	X	Y	RH	LH	Toolholder
1/2"U	22	5.5-8.0	4.5-3.25	4UEIU60...	0.30	0.6	11.0	YI4U	YE4U	AVR..-4U (LH)
5/8"U	27	6.5-9.0	4-2.75	5UEIU60...	0.37	1.0	13.7	YI5U	YE5U	AVR..-5U (LH)

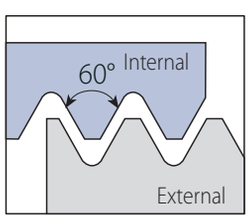
V Style

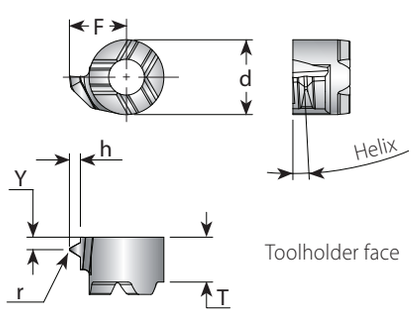
Insert Size		Pitch		Ordering Code		Dimensions mm				
IC	L mm	mm	TPI	RH	LH	r	X	Y	T	Toolholder
5/8"V	27	6.0-10.0	4-2.5	5VIRV60...	5VILV60...	0.35	1.0	4.3	8	NVR..-5V (LH)

Partial Profile 60° (con't)

Mini-V

Internal





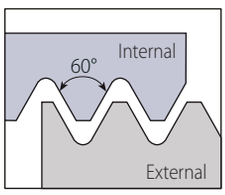
Mini-V

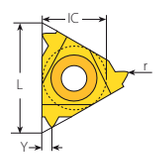
Insert Style	Pitch		Ordering Code	Dimensions mm					Helix	Toolholder
	TPI	mm	RH	d	T	F	Y	r	Deg.	
V08	48-32	0.5-0.75	V08THH60R...	6	3.8	4.20	0.5	0.03	1.5	.V08-...
	24-20	1.0-1.25	V08THI60R...			4.46	0.8	0.10	2.5	
	16-14	1.5-1.75	V08THJ60R...			4.76	0.9	0.14	3	
V11	48-32	0.5-0.75	V11THH60R...	8	4.2	5.80	0.5	0.30	1.5	.V11-...
	24-20	1.0-1.25	V11THI60R...			6.06	0.8	0.10	1.5	
	16-14	1.5-1.75	V11THJ60R...			5.61	0.9	0.14	3	
V14	48-16	0.5-1.5	V14THA60R...	9	5.7	9	0.9	0.05	1.5	.V14-...
	14-8	1.75-3.0	V14THG60R...				1.7	0.16		
	48-8	0.5-3.0	V14THAG60R...				1.7	0.05		
V16	48-16	0.5-1.5	V16THA60R...	11	5.7	10.2	0.9	0.05	1.5	.V16-...
	14-8	1.75-3.0	V16THG60R...				1.7	0.16		
	48-8	0.5-3.0	V16THAG60R...				1.7	0.05		

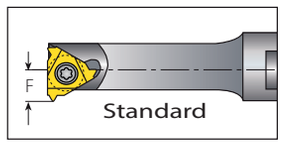
Partial Profile 60° (con't)

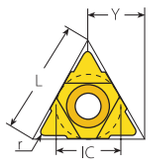
MINIPRO

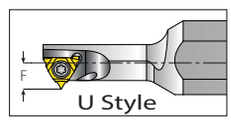
Internal

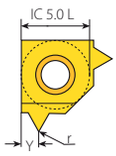


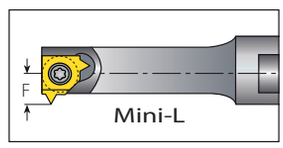












Mini-3 Standard

Insert Size		Pitch		Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	mm	TPI	RH	LH	r	Y	F	mm	Toolholder
4.0	6	0.5-1.25	48-20	4.0KIRA60...	4.0KILA60...	0.05	0.6	3.7	6.35	.NVR.5-4.0K (LH)
5.0	8	0.5-1.5	48-16	5.0KIRA60...	5.0KILA60...	0.05	0.7	4.7	7.80	.NVRC7-5.0K (LH)
6.0	10	0.5-1.5	48-16	6.0KIRA60...	6.0KILA60...	0.05	0.9	5.3	10.00	.NVRC1..-6.0K (LH)

Mini-3 U Style

Insert Size		Pitch		Ordering Code	Dimensions mm			Min. Bore Dia.	
IC mm	L mm	mm	TPI	RH+LH	r	Y	F	mm	Toolholder
5.0U	8	1.75-2.0	14-11	5.0KUIB60...	0.16	4.0	5.8	9.0	.NVRC8-5.0KU (LH)

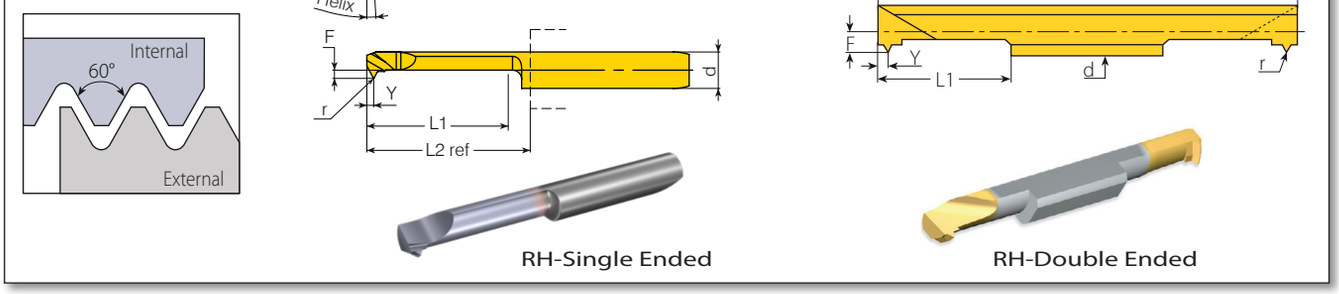
Mini-L

Insert Size		Pitch		Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm		mm	TPI	RH	LH	r	Y	F	mm	Toolholder
5.0L		0.5-1.5	48-16	5LKIRA60...	5LKILA60...	0.05	0.9	4.65	8.0	.NVRC10.-5LK (LH)

Partial Profile 60° (con't)

MINIPRO

Internal



Micro - Double Ended

Insert Dia.	Pitch		Ordering Code	Dimensions mm					Min. Bore Dia.	
d mm	mm	TPI	RH	r	L1	L	F	Y	mm	Toolholder
3.0	0.5-1.0	48-24	3.0SIRF60...	0.05	16	50	1.46	0.9	3.3	SMC..-3.0
4.0	0.5-1.0	48-24	4.0SIRF60...	0.05	16	50	1.96	0.9	4.3	SMC..-4.0
6.0	0.5-1.5	48-16	6.0SIRA60...	0.05	16	50	2.50	0.9	6.0	SMC..-6.0

Left handed tool supplied by request (Example: 6.0SI**L**A60...).

Micro - Single Ended

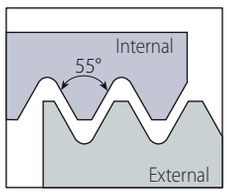
microscope

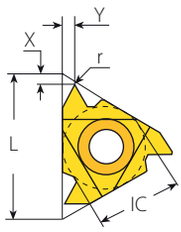
	Insert Dia.	Pitch		Ordering Code	Dimensions mm								Min. Bore Dia.	
Thread	d mm	mm	TPI	RH/LH	Helix °	r	L1	F	Y	h min	L2 ref*	L ref	D mm	Toolholder
M1-M2x0.25	4.0	0.25		M407TH0.25P60L02R...	4.9		2.5	1.95	0.14	0.29	13.0	29.8	0.73	MH...-4.0
M1.6-M3x0.35		0.35		M412TH0.35P60L04R...	3.8		4		0.18	0.29			1.22	
M2x0.4		0.4		M416TH0.40P60L05R...	4.2		5		0.20	0.41			1.57	
M2.2-M2.5x0.45		0.45		M417TH0.45P60L06R...	4.0		6		0.22	0.46			1.71	
-	4.0	0.5-1.0	48-24	MS429THF60L16R/L...	3.5	0.03	16	0.90	0.90		18.4	35.4	3.2	MH...-4.0
		0.5-1.0	48-24	MS439THF60L16R/L...		0.03		1.90					4.2	
	6.0	0.5-1.5	48-16	M659THA60L16R/L...		0.05		2.90			18.5	42.2	6.2	MH...-6.0

* L2 Ref: Repeatability within +/-0.02.

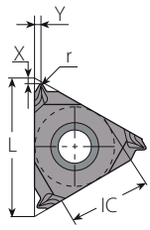
Partial Profile 55°

External

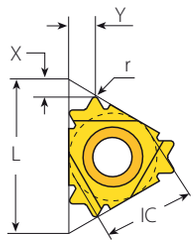




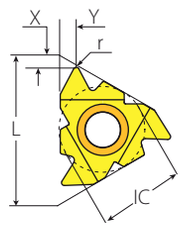
Standard



SCB
Sintered
Chipbreaker

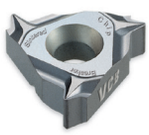


V6



F-Line

Standard



SCB

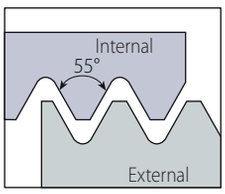
V6

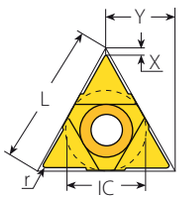
F-LINE

Insert Size		Pitch		Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	TPI	RH	LH	r	X	Y	RH	LH	Toolholder
1/4"	11	0.5-1.5	48-16	2ERA55...	2ELA55...	0.05	0.8	0.9	-	-	NL..-2 (LH)
3/8"	16	0.5-1.5	48-16	3ERA55...	3ELA55...	0.05	0.8	0.9	YE3	YI3	AL..-3 (LH)
		1.75-3.0	14-8	3ERG55...	3ELG55...	0.21	1.2	1.7			
		0.5-3.0	48-8	3ERAG55...	3ELAG55...	0.07	1.2	1.7			
3/8" SCB	16	0.5-1.5	48-16	3JERA55...		0.05	0.6	0.8	YE3	-	AL..-3
		1.75-3.0	14-8	3JERG55...		0.21	1.1	1.5			
		0.5-3.0	48-8	3JERAG55...		0.07	0.9	1.5			
3/8"V6	16	0.5-1.75	48-14	3ERS55-6C...		0.05	1.8	2.8	YE3-6C	-	AL..-3
1/2"	22	3.5-5.0	7-5	4ERN55...	4ELN55...	0.43	1.7	2.5	YE4	YI4	AL..-4 (LH)
1/2"F	23	3.5-5.0	7-5	4FERN55...		0.43	1.7	2.5	YE4F	-	AL...-4F
5/8"	27	5.5-6.0	4.5-4	5ERQ55...	5ELQ55...	0.60	2.0	2.9	YE5	YI5	AL..-5 (LH)

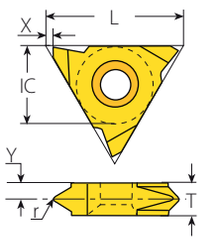
Partial Profile 55° (con't)

External





U Style



V Style / Slim Throat

U Style

Insert Size		Pitch		Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	TPI	RH+LH	r	X	Y	RH	LH	Toolholder
1/2"U	22	5.5-8.0	4.5-3.25	4UEIU55...	0.60	0.9	11.0	YE4U	YI4U	AL..-4U (LH)
5/8"U	27	6.5-9.0	4-2.75	5UEIU55...	0.80	1.2	13.7	YE5U	YI5U	AL..-5U (LH)

Slim Throat

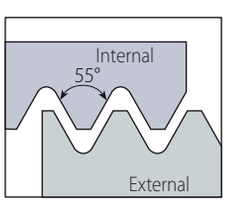
Insert Size		Pitch		Ordering Code		Dimensions mm				
IC	L mm	mm	TPI	RH	LH	r	X	Y	T	Toolholder
1/4"V	11	0.5-1.5	48-16	2VERA55...	2VELA55...	0.05	0.8	2.7	3.2	NL..-2V (LH)
3/8"V	16	0.5-1.5	48-16	3VERA55...	3VELA55...	0.05	1.1	2.7	3.6	NL..-3V (LH)
		1.75-3.0	14-8	3VERG55...	3VELG55...	0.21	1.1	1.9	3.6	
		0.5-3.0	48-8	3VERAG55...	3VELAG55...	0.07	1.1	1.9	3.6	
1/2"V	22	3.5-5.0	7-5	4VERN55...	4VELN55...	0.43	1.1	2.3	4.8	NL..-4V (LH)

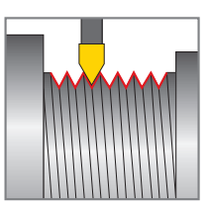
V Style

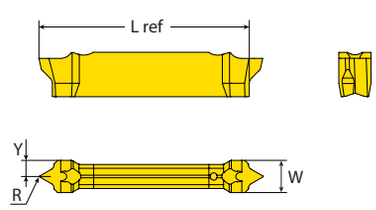
Insert Size		Pitch		Ordering Code		Dimensions mm				
IC	L mm	mm	TPI	RH	LH	r	X	Y	T	Toolholder
5/8"V	27	6.0-9.0	4-2.75	5VERV55...	5VELV55...	0.70	1.0	4.3	8	NL..-5V-8 (LH)

Partial Profile 55°

External







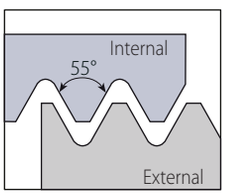
VG-Cut

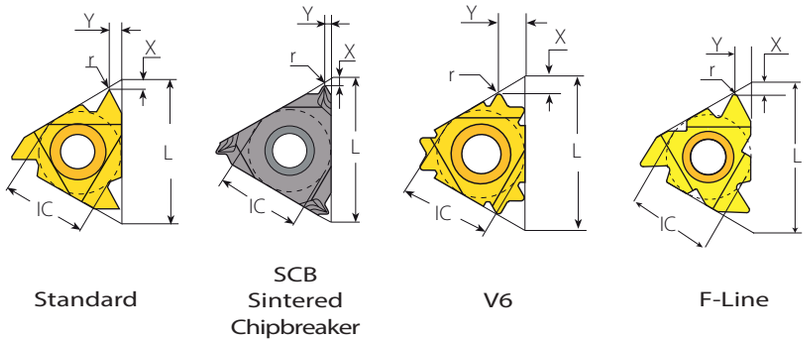
VG-Cut

Pocket Size	Ordering Code	Dimensions mm					No. of Passes	Helix	Min. Thread Diameter	Toolholder
	RH	W ref	Pitch TPI	R	Y	L ref		Deg		Monoblock
3	VGD3.0A55RH...	3.00	48-16	0.05	1.68	21.9	5 - 8	1.5°	Partial Profile A55	VGE...-3T...

Partial Profile 55° (con't)

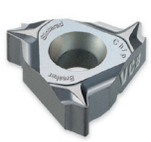
Internal





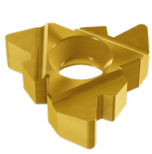
Standard | SCB Sintered Chipbreaker | V6 | F-Line

Standard



SCB

V6

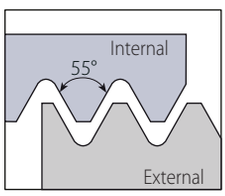


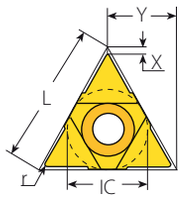
F-LINE

Insert Size		Pitch		Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	TPI	RH	LH	r	X	Y	RH	LH	Toolholder
1/4″	11	0.5-1.5	48-16	2IRA55...	2ILA55...	0.05	0.8	0.9	-	-	NVR..-2 (LH)
1/4″ SCB	11	0.5-1.5	48-16	2JIRA55...		0.05	0.6	0.8	-	-	NVR..-2
3/8″	16	0.5-1.5	48-16	3IRA55...	3ILA55...	0.05	0.8	0.9	YI3	YE3	AVR..-3 (LH)
		1.75-3.0	14-8	3IRG55...	3ILG55...	0.21	1.2	1.7			
		0.5-3.0	48-8	3IRAG55...	3ILAG55...	0.07	1.2	1.7			
3/8″ SCB	16	0.5-1.5	48-16	3JIRA55...		0.05	0.6	0.8	YI3	-	AVR..-3
		1.75-3.0	14-8	3JIRG55...		0.21	1.1	1.5			
		0.5-3.0	48-8	3JIRAG55...		0.07	0.9	1.5			
3/8″ V6	16	0.5-1.5	48-16	3IRS55-6C...		0.05	1.6	2.6	YI3-6C	-	AVR..-3 NVRC..-3 206/...
1/2″	22	3.5-5.0	7-5	4IRN55...	4ILN55...	0.43	1.7	2.5	YI4	YE4	AVR..-4 (LH)
1/2″F	23	3.5-5.0	7-5	4FIRN55...		0.43	1.7	2.5	YI4F	-	AVRC...-4F
5/8″	27	5.5-6.0	4.5-4	5IRQ55...	5ILQ55...	0.60	2.0	2.9	YI5	YE5	AVR..-5 (LH)

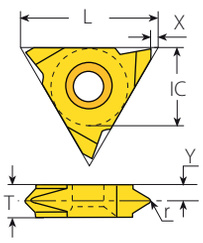
Partial Profile 55° (con't)

Internal





U Style



V Style

U Style

Insert Size		Pitch		Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	TPI	RH+LH	r	X	Y	RH	LH	Toolholder
1/2"U	22	5.5-8.0	4.5-3.25	4UEIU55...	0.60	0.9	11.0	YI4U	YE4U	AVR..-4U (LH)
5/8"U	27	6.5-9.0	4-2.75	5UEIU55...	0.80	1.2	13.7	YI5U	YE5U	AVR..-5U (LH)

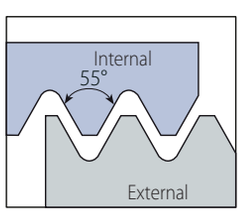
V Style

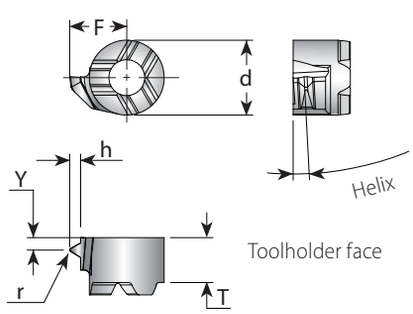
Insert Size		Pitch		Ordering Code		Dimensions mm				
IC	L mm	mm	TPI	RH	LH	r	X	Y	T	Toolholder
5/8"V	27	6.0-9.0	4-2.75	5VIRV55...	5VILV55...	0.70	1.0	4.3	8	NVR..-5V (LH)

Partial Profile 55° (con't)

Mini-V

Internal





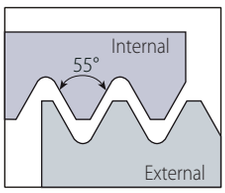
Mini-V

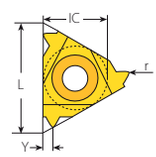
Insert Style	Pitch		Ordering Code	Dimensions mm					Helix	Toolholder
	TPI	mm	RH	d	T	F	Y	r	Deg.	
V14	48-16	0.5-1.5	V14THA55R...	9	5.7	9	0.9	0.05	1.5	.V14-...
	14-8	1.75-3.0	V14THG55R...				1.7	0.21		
	48-8	0.5-3.0	V14THAG55R...				1.7	0.07		
V16	48-16	0.5-1.5	V16THA55R...	11	5.7	10.2	0.9	0.07	1.5	.V16-...
	14-8	1.75-3.0	V16THG55R...				1.7	0.25		
	48-8	0.5-3.0	V16THAG55R...				1.7	0.07		

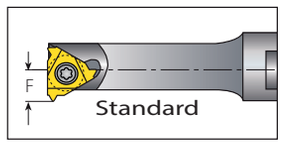
Partial Profile 55° (con't)

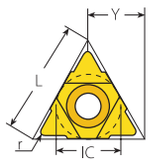
MINIPRO

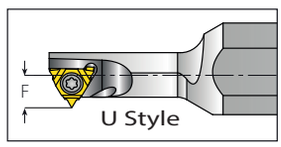
Internal

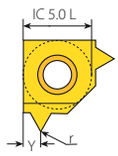


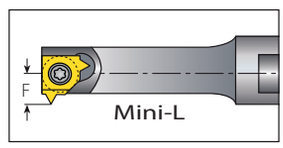












Mini-3 Standard

Insert Size		Pitch		Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	mm	TPI	RH	LH	r	Y	F	mm	Toolholder
4.0	6	0.5-1.25	48-20	4.0KIRA55...	4.0KILA55...	0.05	0.6	3.8	6.45	.NVR.5-4.0K (LH)
5.0	8	0.5-1.5	48-16	5.0KIRA55...	5.0KILA55...	0.05	0.7	4.7	7.80	.NVRC7-5.0K (LH)
6.0	10	0.5-1.50	48-16	6.0KIRA55...	6.0KILA55...	0.05	0.9	5.3	10.00	.NVRC1..-6.0K (LH)

Mini-3 U Style

Insert Size		Pitch		Ordering Code	Dimensions mm			Min. Bore Dia.	
IC mm	L mm	mm	TPI	RH+LH	r	Y	F	mm	Toolholder
5.0U	8	1.75-2.0	14-11	5.0KUIB55...	0.21	4.0	5.7	9.0	.NVRC8-5.0KU (LH)

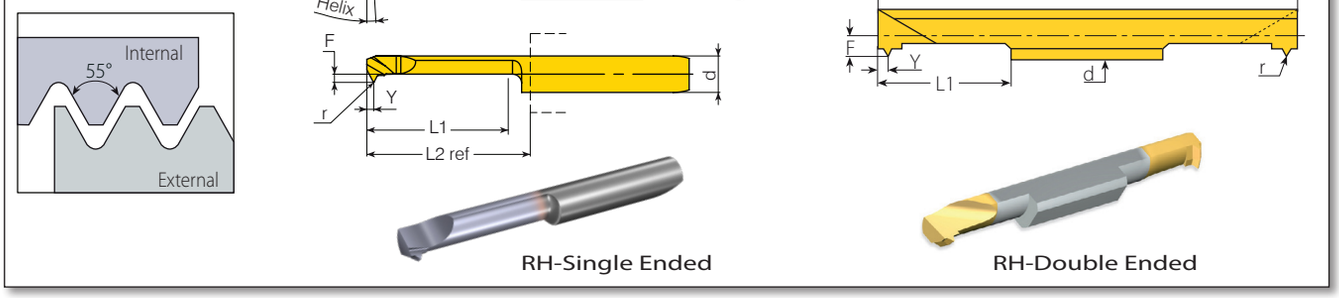
Mini-L

Insert Size	Pitch		Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	mm	TPI	RH	LH	r	Y	F	mm	Toolholder
5.0L	0.5-1.5	48-16	5LKIRA55...	5LKILA55...	0.05	0.9	4.65	8.0	.NVRC10.-5LK (LH)

Partial Profile 55° (con't)

MINIPRO

Internal



Micro - Double Ended

Insert Dia.	Pitch		Ordering Code	Dimensions mm					Min. Bore Dia.	
d mm	mm	TPI	RH	r	L1	L	F	Y	mm	Toolholder
3.0	0.5-1.0	48-24	3.0SIRF55...	0.05	16	50	1.46	0.9	3.3	SMC..-3.0
4.0	0.5-1.0	48-24	4.0SIRF55...	0.05	16	50	1.96	0.9	4.3	SMC..-4.0
6.0	0.5-1.5	48-16	6.0SIRA55...	0.05	16	50	2.50	0.9	6.0	SMC..-6.0

Left handed tool supplied by request (Example: 6.0SI**L**A55...).

Micro - Single Ended

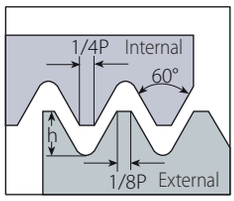
microscope

Insert Dia.	Pitch		Ordering Code	Dimensions mm							Min. Bore Dia.	
d mm	mm	TPI	RH/LH	Helix °	r	L1	F	Y	L2 ref*	L ref	D mm	Toolholder
4.0	0.5-1.0	48-24	MS429THF55L16R/L...	3.5	0.05	16	0.9	0.75	18.4	35.4	3.2	MH...-4.0
	0.5-1.0	48-24	MS439THF55L16R/L...		0.05		1.9				4.2	
6.0	0.5-1.5	48-16	M659THA55L16R/L...		0.06		2.9	0.9	18.5	42.2	6.2	MH...-6.0

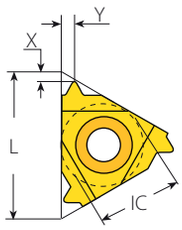
* L2 Ref: Repeatability within +/-0.02.

ISO Metric

External



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



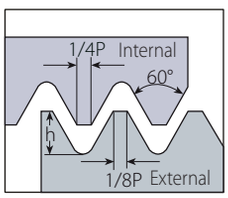
Standard

Standard

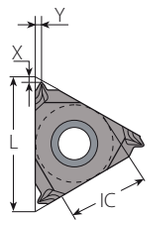
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	0.25	2ER0.25ISO...	2EL0.25ISO...	0.14	0.4	0.2	-	-	NL..-2 (LH)
		0.3	2ER0.3ISO...	2EL0.3ISO...	0.19	0.7	0.3			
		0.35	2ER0.35ISO...	2EL0.35ISO...	0.21	0.8	0.4			
		0.4	2ER0.4ISO...	2EL0.4ISO...	0.25	0.7	0.4			
		0.45	2ER0.45ISO...	2EL0.45ISO...	0.28	0.7	0.4			
		0.5	2ER0.5ISO...	2EL0.5ISO...	0.31	0.6	0.4			
		0.6	2ER0.6ISO...	2EL0.6ISO...	0.37	0.6	0.6			
		0.7	2ER0.7ISO...	2EL0.7ISO...	0.43	0.6	0.6			
		0.75	2ER0.75ISO...	2EL0.75ISO...	0.46	0.6	0.6			
		0.8	2ER0.8ISO...	2EL0.8ISO...	0.49	0.6	0.6			
		1.0	2ER1.0ISO...	2EL1.0ISO...	0.61	0.7	0.7			
		1.25	2ER1.25ISO...	2EL1.25ISO...	0.77	0.8	0.9			
		1.5	2ER1.5ISO...	2EL1.5ISO...	0.92	0.8	1.0			
		1.75	2ER1.75ISO...	2EL1.75ISO...	1.07	0.8	1.1			
3/8"	16	0.25	3ER0.25ISO...	3EL0.25ISO...	0.14	0.4	0.2	YE3	YI3	AL..-3 (LH)
		0.3	3ER0.3ISO...	3EL0.3ISO...	0.17	0.73	0.29			
		0.35	3ER0.35ISO...	3EL0.35ISO...	0.21	0.8	0.4			
		0.4	3ER0.4ISO...	3EL0.4ISO...	0.25	0.7	0.4			
		0.45	3ER0.45ISO...	3EL0.45ISO...	0.28	0.7	0.4			
		0.5	3ER0.5ISO...	3EL0.5ISO...	0.31	0.6	0.4			
		0.6	3ER0.6ISO...	3EL0.6ISO...	0.37	0.6	0.6			
		0.7	3ER0.7ISO...	3EL0.7ISO...	0.43	0.6	0.6			
		0.75	3ER0.75ISO...	3EL0.75ISO...	0.46	0.6	0.6			
		0.8	3ER0.8ISO...	3EL0.8ISO...	0.49	0.6	0.6			
		1.0	3ER1.0ISO...	3EL1.0ISO...	0.61	0.7	0.7			
		1.25	3ER1.25ISO...	3EL1.25ISO...	0.77	0.8	0.9			
		1.5	3ER1.5ISO...	3EL1.5ISO...	0.92	0.8	1.0			
		1.75	3ER1.75ISO...	3EL1.75ISO...	1.07	0.9	1.2			
		2.0	3ER2.0ISO...	3EL2.0ISO...	1.23	1.0	1.3			
		2.5	3ER2.5ISO...	3EL2.5ISO...	1.53	1.1	1.5			
		3.0	3ER3.0ISO...	3EL3.0ISO...	1.84	1.2	1.6			
		3.5	3ER3.5ISO...	3EL3.5ISO...	2.15	1.6	1.9			

ISO Metric (con't)

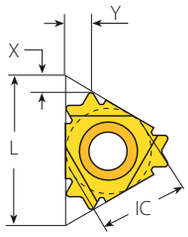
External



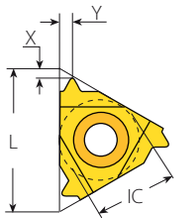
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H



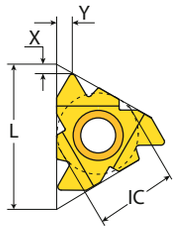
SCB Sintered Chipbreaker



V6



Standard



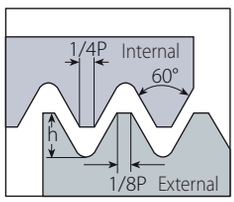
F-Line

Standard

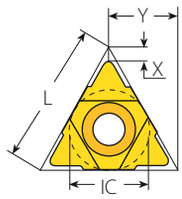
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″ SCB	16	0.5	3JER0.5ISO...		0.31	1.2	0.5	YE3	-	AL..-3
		0.75	3JER0.75ISO...		0.46	1.2	0.5			
		0.8	3JER0.8ISO...		0.49	1.2	0.5			
		1.0	3JER1.0ISO...		0.61	0.7	0.8			
		1.25	3JER1.25ISO...		0.77	0.7	0.8			
		1.5	3JER1.5ISO...		0.92	0.7	0.8			
		1.75	3JER1.75ISO...		1.07	1.2	1.5			
		2.0	3JER2.0ISO...		1.23	1.2	1.5			
		2.5	3JER2.5ISO...		1.53	1.2	1.5			
		3.0	3JER3.0ISO...		1.84	1.3	1.5			
		3.5	3JER3.5ISO...		2.15	1.2	1.5			
3/8″ V6	16	0.5	3ER0.5ISO-6C...		0.31	2.2	1.8	YE3-6C	-	AL..-3
		0.75	3ER0.75ISO-6C...		0.46	2.0	1.8			
		0.8	3ER0.8ISO-6C...		0.49	2.0	1.9			
		1.0	3ER1.0ISO-6C...		0.61	1.9	2.0			
		1.25	3ER1.25ISO-6C...		0.77	1.8	2.1			
		1.5	3ER1.5ISO-6C...		0.92	1.9	2.4			
		1.75	3ER1.75ISO-6C...		1.07	1.8	2.6			
		2.0	3ER2.0ISO-6C...		1.23	1.9	2.8			
1/2″	22	3.5	4ER3.5ISO...	4EL3.5ISO...	2.15	1.6	2.3	YE4	YI4	AL..-4 (LH)
		4.0	4ER4.0ISO...	4EL4.0ISO...	2.45	1.6	2.3			
		4.5	4ER4.5ISO...	4EL4.5ISO...	2.76	1.7	2.4			
		5.0	4ER5.0ISO...	4EL5.0ISO...	3.07	1.7	2.5			
		5.5	4ER5.5ISO...	4EL5.5ISO...	3.37	1.9	2.7			
		6.0	4ER6.0ISO...	4EL6.0ISO...	3.68	1.8	2.7			
1/2″F	23	3.5	4FER3.5ISO...		2.15	1.6	2.3	YE4F	-	AL...-4F
		4.0	4FER4.0ISO...		2.45	1.6	2.3			
		4.5	4FER4.5ISO...		2.76	1.7	2.4			
		5.0	4FER5.0ISO...		3.07	1.7	2.5			
		5.5	4FER5.5ISO...		3.37	1.9	2.7			
		6.0	4FER6.0ISO...		3.68	1.8	2.7			
5/8″	27	5.5	5ER5.5ISO...	5EL5.5ISO...	3.37	1.9	2.7	YE5	YI5	AL..-5 (LH)
		6.0	5ER6.0ISO...	5EL6.0ISO...	3.68	2.0	2.9			

ISO Metric (con't)

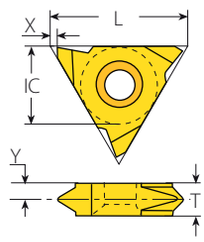
External



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



U Style



V Style / Slim Throat

U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2″U	22	5.0	4UE5.0ISO...	3.07	2.2	11.0	YE4U	YI4U	AL..-4U (LH)
		5.5	4UE5.5ISO...	3.37	2.3	11.0			
		6.0	4UE6.0ISO...	3.68	2.6	11.0			
5/8″U	27	8.0	5UE8.0ISO...	4.91	2.4	13.7	YE5U	YI5U	AL..-5U (LH)

Slim Throat

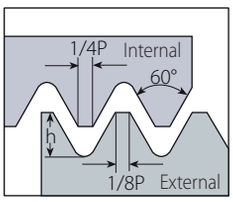
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	mm	RH	LH	h min	X	Y	T	Toolholder
1/4″V	11	0.75	2VER0.75ISO...	2VEL0.75ISO...	0.46	0.7	2.6	3.2	NL..-2V (LH)
		1.0	2VER1.0ISO...	2VEL1.0ISO...	0.61	0.7	2.5	3.2	
		1.5	2VER1.5ISO...	2VEL1.5ISO...	0.92	0.7	2.2.	3.2	
		1.75	2VER1.75ISO...	2VEL1.75ISO...	1.07	0.7	2.1	3.2	
		2.0	2VER2.0ISO...	2VEL2.0ISO...	1.23	0.7	1.9	3.2	
3/8″V	16	0.35	3VER0.35ISO...	3VEL0.35ISO...	0.20	1.1	3.25	3.6	NL..-3V (LH)
		0.4	3VER0.4ISO...	3VEL0.4ISO...	0.25	1.1	3.20	3.6	
		0.5	3VER0.5ISO...	3VEL0.5ISO...	0.31	1.1	3.0	3.6	
		0.75	3VER0.75ISO...	3VEL0.75ISO...	0.46	1.1	3.0	3.6	
		0.8	3VER0.8ISO...	3VEL0.8ISO...	0.49	1.1	3.0	3.6	
		1.0	3VER1.0ISO...	3VEL1.0ISO...	0.61	1.1	2.9	3.6	
		1.25	3VER1.25ISO...	3VEL1.25ISO...	0.77	1.1	2.7	3.6	
		1.5	3VER1.5ISO...	3VEL1.5ISO...	0.92	1.1	2.6	3.6	
		1.75	3VER1.75ISO...	3VEL1.75ISO...	1.07	1.1	2.45	3.6	
		2.0	3VER2.0ISO...	3VEL2.0ISO...	1.23	1.1	2.3	3.6	
		2.5	3VER2.5ISO...	3VEL2.5ISO...	1.53	1.1	2.1	3.6	
		3.0	3VER3.0ISO...	3VEL3.0ISO...	1.84	1.1	2.0	3.6	

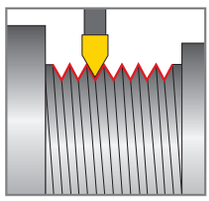
V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	mm	RH	LH	h min	X	Y	T	Toolholder
5/8″V	27	5.5	5VER5.5ISO...	5VEL5.5ISO...	3.37	1.0	3.3	6	NL..-5V-6 (LH)
		6.0	5VER6.0ISO...	5VEL6.0ISO...	3.68	1.0	3.3	6	
		8.0	5VER8.0ISO...	5VEL8.0ISO...	4.91	1.0	4.3	8	NL..-5V-8 (LH)
		10.0	5VER10.0ISO...	5VEL10.0ISO...	6.13	1.0	5.2	10	NL..-5V-10 (LH)

ISO Metric (con't)

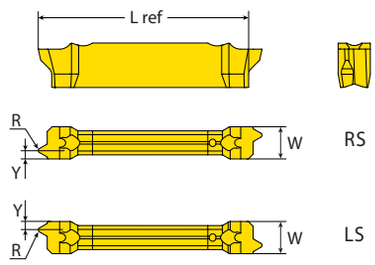
External





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

RS/LS Varied range of threading standards for machining between shoulders and close to spindle.



VG-Cut

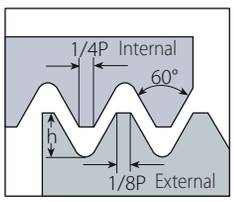
Pocket Size	Ordering Code	Dimensions mm					No. of Passes	Helix	Min. Thread Diameter	Toolholder
	RH	W ref	Pitch mm	h min	Y	L ref		Deg		Monoblock
3	VGD3.0ISO0.50RH-RS/LS...	3.00	0.50	0.31	0.53	21.9	5 - 7	2.5°	M3x0.5	VGE...-3T...
	VGD3.0ISO0.75RH-RS/LS...		0.75	0.46	0.64		5 - 8		M5x0.75	
	VGD3.0ISO1.00RH-RS/LS...		1.00	0.61	0.74		5 - 9		M6x1	
	VGD3.0ISO1.25RH-RS/LS...		1.25	0.77	0.85		6 - 10		M8x1.25	
	VGD3.0ISO1.50RH-RS/LS...		1.50	0.92	1.10		7 - 12		M10x1.5 Coarse	
	VGD3.0ISO1.75RH-RS/LS...		1.75	1.07	1.20		8 - 14		M12x1.75 Coarse	
	VGD3.0ISO2.00RH-RS/LS...		2.00	1.23	1.30		9 - 14		M16x2.0 Coarse	
	VGD3.0ISO2.50RH-RS/LS		2.50	1.53	1.55		8 - 14		M18x2.5 Coarse	

LH Helix threads available upon request.

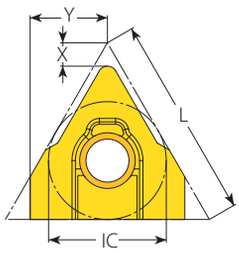
ISO Metric (con't)

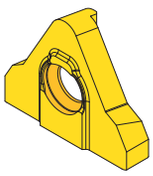
MEGALINE

External



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

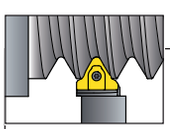




Mega Line

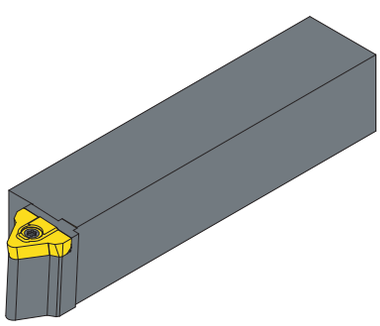
External

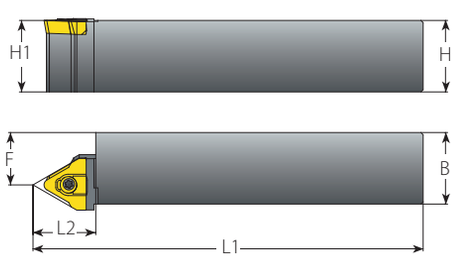
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	mm	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	12.0	5MGER12.0ISO...	7.36	4.08	11.3	105	49
		16.0	5MGER16.0ISO...	9.82	4.66		140	66
		18.0	5MGER18.0ISO...	11.04	4.95		158	74
		20.0	5MGER20.0ISO...	12.27	5.24		175	82
		25.0	5MGER25.0ISO...	15.34	4.46		219	102



External Toolholders for ISO Metric

MEGALINE





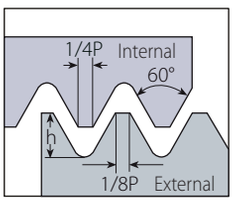
External

Insert	Ordering Code	Dimensions mm				Thread Diameter Range (Min.)	Spare Parts	
	RH	H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER12.0ISO...	NL25-5MG12ISO	25	16.5	155	22	M43x12	S5MG	K6T
	NL32-5MG12ISO	32	23.5	175				
	NL40-5MG12ISO	40	31.5	205				
5MGER16.0ISO...	NL25-5MG16ISO	25	16.5	155	22	M57x16		
	NL32-5MG16ISO	32	23.5	175				
	NL40-5MG16ISO	40	31.5	205				
5MGER18.0ISO...	NL25-5MG18ISO	25	16.5	155	22	M65x18		
	NL32-5MG18ISO	32	23.5	175				
	NL40-5MG18ISO	40	31.5	205				
5MGER20.0ISO...	NL25-5MG20ISO	25	16.5	155	22	M72x20		
	NL32-5MG20ISO	32	23.5	175				
	NL40-5MG20ISO	40	31.5	205				
5MGER25.0ISO...	NL25-5MG25ISO	25	16.5	155	22	M90x25		
	NL32-5MG25ISO	32	23.5	175				
	NL40-5MG25ISO	40	31.5	205				

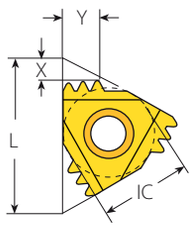
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

ISO Metric (con't)

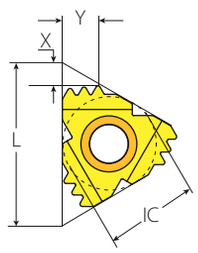
External



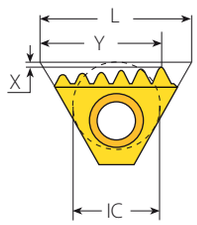
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H



M+ Style



F-Line M+



T+ Style

M+ Style

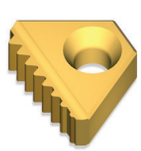
Multi plus

F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	mm		RH	h min	X	Y	RH	Toolholder
3/8″	16	1.0	3	3ER1.0ISO3M+...	0.61	1.8	2.6	YE3M	AL..-3
		1.5	2	3ER1.5ISO2M+...	0.92	1.6	2.4		
		2.0	2	3ER2.0ISO2M+...	1.23	2.1	3.1		
1/2″	22	1.5	3	4ER1.5ISO3M+...	0.92	2.5	3.8	YE4M	AL..-4
		2.0	2	4ER2.0ISO2M+...	1.23	2.1	3.1		
		2.0	3	4ER2.0ISO3M+...	1.23	3.2	5.1		
		2.5	2	4ER2.5ISO2M+...	1.53	2.5	3.9		
1/2″F	23	2.0	2	4FER2.0ISO2M+...	1.23	2.1	3.1	YE4M2F	AL...-4MF
		2.0	3	4FER2.0ISO3M+...	1.23	3.2	5.1	YE4M3F	
5/8″	27	3.0	2	5ER3.0ISO2M+...	1.84	3.0	4.7	YE5M	AL..-5M

T+ Style

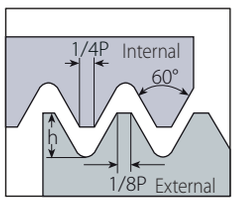
Multi plus



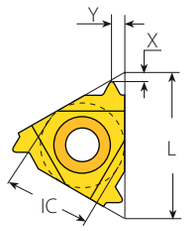
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	mm		RH	h min	X	Y	RH	Toolholder
1/2″T	22	1.5	8	4ER1.5ISO8T+...	0.92	0.2	12.4	Y4T	AL..-4T
		2.0	8	4ER2.0ISO8T+...	1.23	0.2	17.5		

ISO Metric (con't)

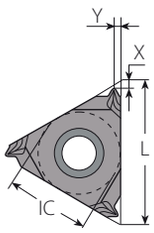
Internal



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

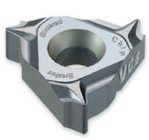


Standard



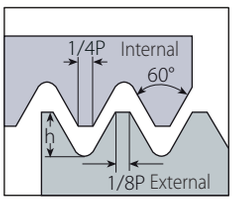
SCB
Sintered
Chipbreaker

Standard

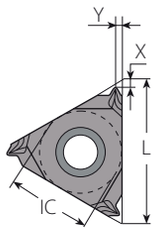
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
 1/4″	11	0.35	2IR0.35ISO...	2IL0.35ISO...	0.20	0.8	0.3	-	-	NVR..-2 (LH)
		0.4	2IR0.4ISO...	2IL0.4ISO...	0.23	0.8	0.4			
		0.45	2IR0.45ISO...	2IL0.45ISO...	0.26	0.8	0.4			
		0.5	2IR0.5ISO...	2IL0.5ISO...	0.29	0.6	0.4			
		0.6	2IR0.6ISO...	2IL0.6ISO...	0.35	0.6	0.6			
		0.7	2IR0.7ISO...	2IL0.7ISO...	0.40	0.6	0.6			
		0.75	2IR0.75ISO...	2IL0.75ISO...	0.43	0.6	0.6			
		0.8	2IR0.8ISO...	2IL0.8ISO...	0.46	0.6	0.6			
		1.0	2IR1.0ISO...	2IL1.0ISO...	0.58	0.6	0.7			
		1.25	2IR1.25ISO...	2IL1.25ISO...	0.72	0.8	0.9			
		1.5	2IR1.5ISO...	2IL1.5ISO...	0.87	0.8	1.0			
		1.75	2IR1.75ISO...	2IL1.75ISO...	1.01	0.9	1.1			
		2.0	2IR2.0ISO...	2IL2.0ISO...	1.15	0.9	1.1			
		2.5	2IR2.5ISO...	2IL2.5ISO...	1.44	0.8	1.1			
 SCB 1/4″ SCB	11	0.5	2JIR0.5ISO...		0.29	1.2	0.5	-	-	NVR..-2
		0.75	2JIR0.75ISO...		0.43	1.2	0.5			
		0.8	2JIR0.8ISO...		0.46	1.2	0.5			
		1.0	2JIR1.0ISO...		0.58	0.7	0.8			
		1.25	2JIR1.25ISO...		0.72	0.7	0.8			
		1.5	2JIR1.5ISO...		0.87	0.7	0.8			
 3/8″	16	0.35	3IR0.35ISO...	3IL0.35ISO...	0.20	0.8	0.3	YI3	YE3	AVR..-3 (LH)
		0.4	3IR0.4ISO...	3IL0.4ISO...	0.23	0.8	0.4			
		0.45	3IR0.45ISO...	3IL0.45ISO...	0.26	0.8	0.4			
		0.5	3IR0.5ISO...	3IL0.5ISO...	0.29	0.6	0.4			
		0.6	3IR0.6ISO...	3IL0.6ISO...	0.35	0.6	0.6			
		0.7	3IR0.7ISO...	3IL0.7ISO...	0.40	0.6	0.6			
		0.75	3IR0.75ISO...	3IL0.75ISO...	0.43	0.6	0.6			
		0.8	3IR0.8ISO...	3IL0.8ISO...	0.46	0.6	0.6			
		1.0	3IR1.0ISO...	3IL1.0ISO...	0.58	0.6	0.7			
		1.25	3IR1.25ISO...	3IL1.25ISO...	0.72	0.8	0.9			
		1.5	3IR1.5ISO...	3IL1.5ISO...	0.87	0.8	1.0			
		1.75	3IR1.75ISO...	3IL1.75ISO...	1.01	0.9	1.2			
		2.0	3IR2.0ISO...	3IL2.0ISO...	1.15	1.0	1.3			
		2.5	3IR2.5ISO...	3IL2.5ISO...	1.44	1.1	1.5			
		3.0	3IR3.0ISO...	3IL3.0ISO...	1.73	1.1	1.5			
		3.5	3IR3.5ISO...	3IL3.5ISO...	2.02	1.2	1.5			

ISO Metric (con't)

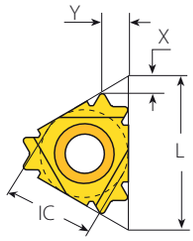
Internal



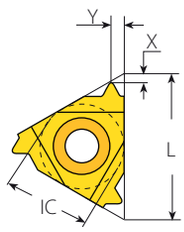
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H



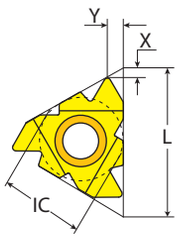
SCB
Sintered
Chipbreaker



V6

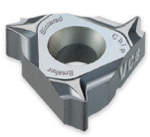


Standard



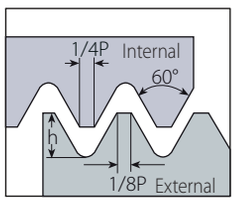
F-Line

Standard

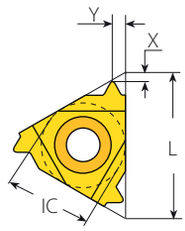
	Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
	IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
 SCB	3/8" SCB	16	1.0	3JIR1.0ISO...		0.58	0.7	0.8	YI3	-	AVR..-3
			1.25	3JIR1.25ISO...		0.72	0.7	0.8			
			1.5	3JIR1.5ISO...		0.87	0.7	0.8			
			1.75	3JIR1.75ISO...		1.01	1.1	1.5			
			2.0	3JIR2.0ISO...		1.15	1.1	1.5			
			2.5	3JIR2.5ISO...		1.44	1.1	1.5			
			3.0	3JIR3.0ISO...		1.73	1.1	1.5			
			3.5	3JIR3.5ISO...		2.02	1.2	1.5			
 V6	3/8" V6	16	0.5	3IR0.5ISO-6C...		0.29	2.1	1.7	YI3-6C	-	AVR..-3 NVRC..-3 206/
			0.75	3IR0.75ISO-6C...		0.43	2.0	1.8			
			0.8	3IR0.8ISO-6C...		0.46	1.9	1.8			
			1.0	3IR1.0ISO-6C...		0.58	2.0	2.0			
			1.25	3IR1.25ISO-6C...		0.72	1.8	2.2			
			1.5	3IR1.5ISO-6C...		0.87	1.6	2.3			
			1.75	3IR1.75ISO-6C...		1.01	1.6	2.4			
			2.0	3IR2.0ISO-6C...		1.15	1.7	2.6			
	1/2"	22	3.5	4IR3.5ISO...	4IL3.5ISO...	2.02	1.6	2.3	YI4	YE4	AVR..-4 (LH)
			4.0	4IR4.0ISO...	4IL4.0ISO...	2.31	1.6	2.3			
			4.5	4IR4.5ISO...	4IL4.5ISO...	2.60	1.6	2.4			
			5.0	4IR5.0ISO...	4IL5.0ISO...	2.89	1.6	2.3			
			5.5	4IR5.5ISO...	4IL5.5ISO...	3.17	1.6	2.3			
			6.0	4IR6.0ISO...	4IL6.0ISO...	3.46	1.8	2.5			
 F-LINE	1/2"F	23	3.5	4FIR3.5ISO...		2.02	1.6	2.3	YI4F		AVRC...-4F
			4	4FIR4.0ISO...		2.31	1.6	2.3			
			4.5	4FIR4.5ISO...		2.60	1.6	2.4			
			5	4FIR5.0ISO...		2.89	1.6	2.3			
			5.5	4FIR5.5ISO...		3.18	1.6	2.3			
			6	4FIR6.0ISO...		3.46	1.8	2.5			
	5/8"	27	4.5	5IR4.5ISO...	5IL4.5ISO...	2.60	1.6	2.4	YI5	YE5	AVR..-5 (LH)
			5.0	5IR5.0ISO...	5IL5.0ISO...	2.89	1.6	2.3			
			5.5	5IR5.5ISO...	5IL5.5ISO...	3.17	1.6	2.3			
			6.0	5IR6.0ISO...	5IL6.0ISO...	3.46	1.8	2.5			

ISO Metric (con't)

Internal



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



D-Line

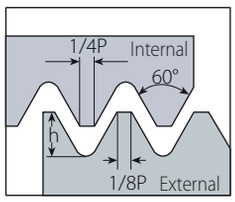
D-Line Deep Rack

D-Line

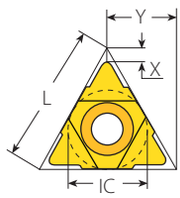
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
IC	L mm	mm	RH	h min	X	Y	RH	Toolholder
1/4"	11	1.0	2DIR1.0ISO...	0.58	0.6	0.7	-	NVR..-2
		1.25	2DIR1.25ISO...	0.72	0.8	0.9		
		1.5	2DIR1.5ISO...	0.87	0.9	1.0		
		2.0	2DIR2.0ISO...	1.15	1.1	0.9		
3/8"	16	1.0	3DIR1.0ISO...	0.58	0.6	0.7	YI3	AVR..-3
		1.5	3DIR1.5ISO...	0.87	0.8	1.0		
		1.75	3DIR1.75ISO...	1.01	0.9	1.2		
		2.0	3DIR2.0ISO...	1.15	1.0	1.3		
		2.5	3DIR2.5ISO...	1.44	1.1	1.5		
		3.0	3DIR3.0ISO...	1.73	1.1	1.5		
1/2"	22	3.5	4DIR3.5ISO...	2.02	1.6	2.3	YI4	AVR..-4
		4.0	4DIR4.0ISO...	2.31	1.6	2.3		

ISO Metric (con't)

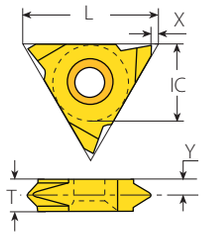
Internal



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



U Style



V Style

U Style

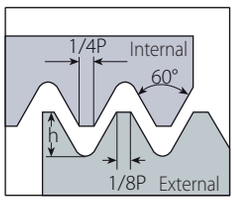
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	5.5	4UI5.5ISO...	3.17	2.4	11.0	YI4U	YE4U	AVR..-4U (LH)
		6.0	4UI6.0ISO...	3.46	2.1	11.0			
5/8"U	27	8.0	5UI8.0ISO...	4.62	2.4	13.7	YI5U	YE5U	AVR..-5U (LH)

V Style

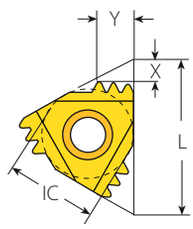
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	mm	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	6.0	5VIR6.0ISO...	5VIL6.0ISO...	3.46	1.0	3.3	6	NVR..-5V (LH)
		8.0	5VIR8.0ISO...	5VIL8.0ISO...	4.62	1.0	4.3	8	
		10.0	5VIR10.0ISO...	5VIL10.0ISO...	5.77	1.0	5.2	10	

ISO Metric (con't)

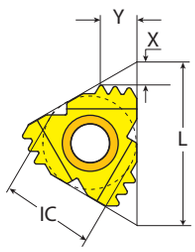
Internal



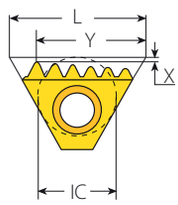
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H



M+ Style



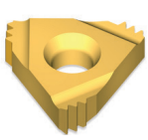
F-Line M+



T+ Style

M+ Style

Multi plus

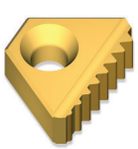


F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	mm		RH	h min	X	Y	RH	Toolholder
3/8″	16	1.0	3	3IR1.0ISO3M+...	0.58	1.7	2.6	YI3M	AVR..-3
		1.5	2	3IR1.5ISO2M+...	0.87	1.6	2.4		
		2.0	2	3IR2.0ISO2M+...	1.15	2.0	3.1		
1/2″	22	1.5	3	4IR1.5ISO3M+...	0.87	2.5	3.8	YI4M	AVR..-4
		2.0	2	4IR2.0ISO2M+...	1.15	2.0	3.1		
		2.0	3	4IR2.0ISO3M+...	1.15	3.2	5.1		
1/2″F	23	2.0	2	4FIR2.0ISO2M+...	1.15	2	3.1	YI4M2F	AVRC...-4MF
5/8″	27	3.0	2	5IR3.0ISO2M+...	1.73	3.0	4.7	YI5M	AVR..-5M

T+ Style

Multi plus

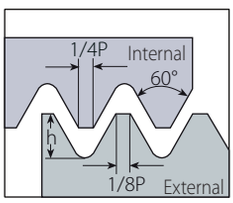


Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	mm		RH	h min	X	Y	RH	Toolholder
1/2″	22	1.5	8	4IR1.5ISO8T+...	0.87	0.2	12.4	Y4T	AVR..-4T
		2.0	8	4IR2.0ISO8T+...	1.15	0.2	17.5		

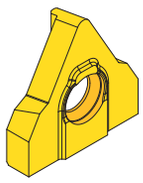
ISO Metric (con't)

MEGALINE

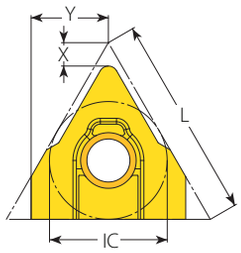
Internal



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

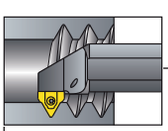


Mega Line



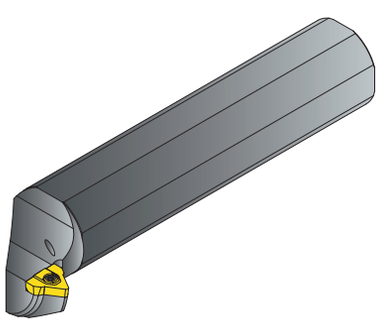
Internal

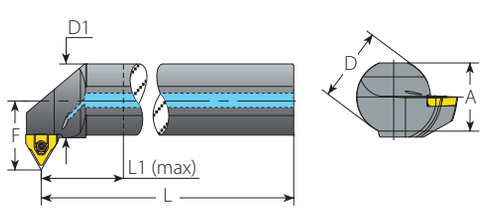
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	mm	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	12.0	5MGIR12.0ISO...	6.94	2.65	10.4	99	46
		16.0	5MGIR16.0ISO...	9.32	3.01		132	62
		18.0	5MGIR18.0ISO...	10.49	3.15		149	69
		20.0	5MGIR20.0ISO...	11.63	3.29		165	77
		25.0	5MGIR25.0ISO...	14.57	3.65		206	96



Internal Toolholders for ISO Metric

MEGALINE





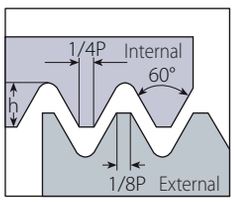
Internal

Insert	Ordering Code	Dimensions mm						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH	A	L	L1 (max)	D	D1	F	mm	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR12.0ISO...	NVRC40-5MG12ISO	36	232.5	100	40	39.7	41.5	60.0	(M73-90)x12	(M85-90)x12	S5MG	K6T
	NVRC50-5MG12ISO	46	257.5	125	50	49.7	46.5	70.0	(M83-90)x12	(M83-90)x12		
5MGIR16.0ISO...	NVRC40-5MG16ISO	36	232.5	100	40	39.7	41.5	59.7	(M77-190)x16	(M89-190)x16		
	NVRC50-5MG16ISO	46	257.5	125	50	49.7	46.5	69.7	(M87-190)x16	(M101-190)x16		
	NVRC60-5MG16ISO	57	282.5	150	60	59.7	51.5	79.7	(M97-190)x16	(M113-190)x16		
5MGIR18.0ISO...	NVRC40-5MG18ISO	36	232.5	100	40	39.7	41.5	65.5	(M85-230)x18	(M91-230)x18		
	NVRC50-5MG18ISO	46	257.5	125	50	49.7	46.5	69.5	(M89-230)x18	(M103-230)x18		
	NVRC60-5MG18ISO	57	282.5	150	60	59.7	51.5	79.5	(M99-230)x18	(M115-230)x18		
5MGIR20.0ISO...	NVRC40-5MG20ISO	36	232.5	100	40	39.7	41.5	70.4	(M92-290)x20	(M93-290)x20		
	NVRC50-5MG20ISO	46	257.5	125	50	49.7	46.5	70.4	(M92-290)x20	(M105-290)x20		
	NVRC60-5MG20ISO	57	282.5	150	60	59.7	51.5	79.4	(M101-290)x20	(M117-290)x20		
5MGIR25.0ISO...	NVRC40-5MG25ISO	36	232.5	100	40	39.7	41.5	82.0	(M109-405)x25	(M109-405)x25		
	NVRC50-5MG25ISO	46	257.5	125	50	49.7	46.5	82.0	(M109-405)x25	(M110-405)x25		
	NVRC60-5MG25ISO	57	282.5	150	60	59.7	51.5	82.0	(M109-405)x25	(M122-405)x25		

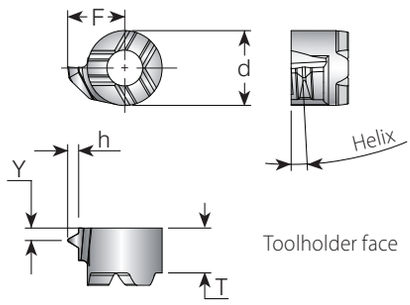
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

ISO Metric (con't)

Internal



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



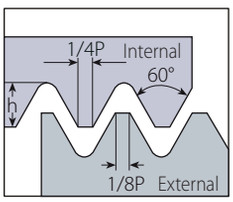
Mini-V

Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions mm					Helix	Toolholder
		mm	RH	d	T	F	Y	h min	Deg.	
M8x0.5	V08	0.5	V08TH0.50ISOR...	6	3.8	3.86	0.35	0.29	1	.V08-...
M8.5x0.75		0.75	V08TH0.75ISOR...			4.19	0.5	0.43	1.5	
M9x1.0		1.0	V08TH1.0ISOR...			4.29	0.5	0.58	2	
M10x1.25		1.25	V08TH1.25ISOR...			4.44	0.8	0.72	2.5	
M10x1.5		1.5	V08TH1.5ISOR...			4.58	0.9	0.87	3	
M12x1.75		1.75	V08TH1.75ISOR...			4.80	0.9	1.01	3	
M14x2.0	V11	2.0	V11TH2.0ISOR...	8	4.2	6.47	1.1	1.15	2.5	.V11-...

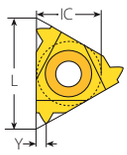
ISO Metric (con't)

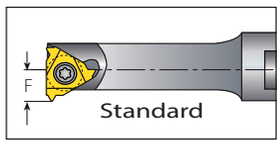
MINIPRO

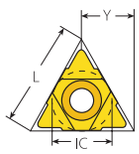
Internal

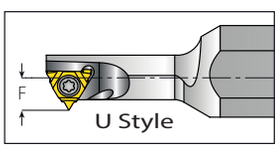


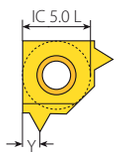
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H

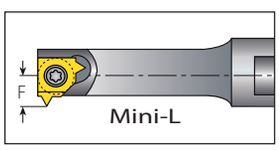












Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	mm	RH	LH	h min	Y	F	mm	Toolholder
4.0	6	0.25	4.0KIR0.25ISO...	4.0KIL0.25ISO...	0.15	0.25	3.3	5.95	.NVR.5-4.0K (LH)
		0.5	4.0KIR0.5ISO...	4.0KIL0.5ISO...	0.29	0.5	3.4	6.05	
		0.75	4.0KIR0.75ISO...	4.0KIL0.75ISO...	0.43	0.5	3.5	6.15	
		1.0	4.0KIR1.0ISO...	4.0KIL1.0ISO...	0.58	0.7	3.6	6.25	
		1.25	4.0KIR1.25ISO...	4.0KIL1.25ISO...	0.72	0.6	3.7	6.35	
5.0	8	0.5	5.0KIR0.5ISO...	5.0KIL0.5ISO...	0.29	0.5	4.7	7.8	.NVRC7-5.0K (LH)
		0.75	5.0KIR0.75ISO...	5.0KIL0.75ISO...	0.43	0.5			
		1.0	5.0KIR1.0ISO...	5.0KIL1.0ISO...	0.58	0.6			
		1.25	5.0KIR1.25ISO...	5.0KIL1.25ISO...	0.72	0.7			
		1.5	5.0KIR1.5ISO...	5.0KIL1.5ISO...	0.87	0.7			
		1.75	5.0KIR1.75ISO...	5.0KIL1.75ISO...	1.01	0.8			
6.0	10	0.5	6.0KIR0.5ISO...	6.0KIL0.5ISO...	0.29	0.6	4.4	9.3	.NVRC1..-6.0K (LH)
		0.75	6.0KIR0.75ISO...	6.0KIL0.75ISO...	0.43	0.6	4.6	9.5	
		1.0	6.0KIR1.0ISO...	6.0KIL1.0ISO...	0.58	0.7	4.7	9.6	
		1.25	6.0KIR1.25ISO...	6.0KIL1.25ISO...	0.72	0.9	4.9	9.8	
		1.5	6.0KIR1.5ISO...	6.0KIL1.5ISO...	0.87	1.0	5.0	9.9	
		1.75	6.0KIR1.75ISO...	6.0KIL1.75ISO...	1.01	1.05	5.2	10.0	
		2.0	6.0KIR2.0ISO...	6.0KIL2.0ISO...	1.15	1.05	5.3	10.0	

Mini-3 U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore Dia.	
IC mm	L mm	mm	RH+LH	h min	Y	F	mm	Toolholder
5.0U	8	2	5.0KUI2.0ISO...	1.23	4.0	5.7	9.0	.NVRC8-5.0KU (LH)

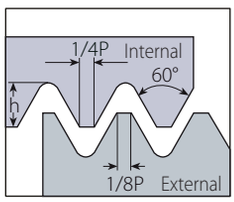
Mini-L

Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	mm	RH	LH	h min	Y	F	mm	Toolholder
5.0L	0.35	5LKIR0.35ISO...	5LKIL0.35ISO...	0.20	0.3	3.75	7.3	.NVRC10.-5LK (LH)
	0.5	5LKIR0.5ISO...	5LKIL0.5ISO...	0.29	0.4	3.75	7.3	
	0.75	5LKIR0.75ISO...	5LKIL0.75ISO...	0.43	0.6	3.91	7.5	
	1.0	5LKIR1.0ISO...	5LKIL1.0ISO...	0.58	0.7	4.06	7.7	
	1.25	5LKIR1.25ISO...	5LKIL1.25ISO...	0.72	0.9	4.21	7.8	
	1.5	5LKIR1.5ISO...	5LKIL1.5ISO...	0.87	1.0	4.35	7.9	
	1.75	5LKIR1.75ISO...	5LKIL1.75ISO...	1.01	1.05	4.51	8.0	
	2.0	5LKIR2.0ISO...	5LKIL2.0ISO...	1.15	1.05	4.65	8.0	

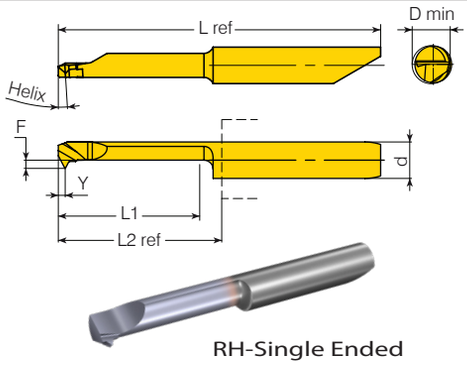
ISO Metric (con't)

MINIPRO

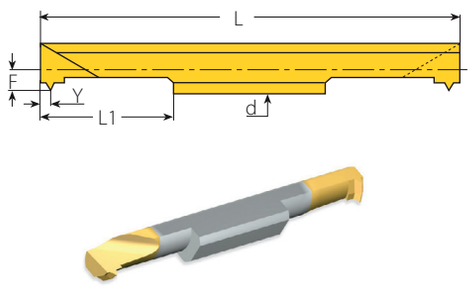
Internal



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



RH-Single Ended



RH-Double Ended

Micro - Double Ended

	Insert Dia.	Pitch	Ordering Code	Dimensions mm					Min. Bore Dia.	
Thread	d mm	mm	RH	L1	L	F	Y	h min	mm	Toolholder
M4x0.3	3.0	0.3	3.0SIR0.3ISO...	16	50	1.31	0.20	0.17	3.2	SMC..-3.0
M4x0.4		0.4	3.0SIR0.4ISO...	16	50	1.31	0.35	0.22	3.2	
M4x0.5		0.5	3.0SIR0.5ISO...	16	50	1.31	0.40	0.29	3.2	
M4x0.6		0.6	3.0SIR0.6ISO...	16	50	1.34	0.60	0.35	3.2	
M4.5x0.7		0.7	3.0SIR0.7ISO...	16	50	1.43	0.60	0.40	3.3	
M4.5x0.75		0.75	3.0SIR0.75ISO...	16	50	1.45	0.60	0.43	3.3	
M5x0.8		0.8	3.0SIR0.8ISO...	16	50	1.46	0.60	0.46	3.3	
M5x0.4	4.0	0.4	4.0SIR0.4ISO...	16	50	1.65	0.35	0.22	4.0	SMC..-4.0
M5x0.5		0.5	4.0SIR0.5ISO...	16	50	1.65	0.40	0.29	4.0	
M5x0.6		0.6	4.0SIR0.6ISO...	16	50	1.68	0.60	0.35	4.0	
M5x0.7		0.7	4.0SIR0.7ISO...	16	50	1.77	0.60	0.40	4.1	
M5.5x0.75		0.75	4.0SIR0.75ISO...	16	50	1.81	0.60	0.43	4.2	
M5.5x0.8		0.8	4.0SIR0.8ISO...	16	50	1.80	0.60	0.46	4.2	
M6x1		1.0	4.0SIR1.0ISO...	16	50	1.96	0.90	0.58	4.3	
M6x0.5	6.0	0.5	6.0SIR0.5ISO...	16	50	1.90	0.60	0.29	5.4	SMC..-6.0
M6.5x0.75		0.75	6.0SIR0.75ISO...	16	50	2.06	0.60	0.43	5.6	
M7x1		1.0	6.0SIR1.0ISO...	16	50	2.21	0.70	0.58	5.7	
M8x1.25		1.25	6.0SIR1.25ISO...	16	50	2.36	0.90	0.72	5.9	
M10.5x1.5		1.5	6.0SIR1.5ISO...	16	50	2.50	1.00	0.87	6.0	

Left handed tool supplied by request (Example: 3.0SI**L**0.3ISO...)

Micro - Single Ended

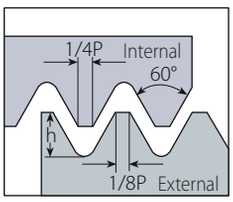
microscope

	Insert Dia.	Pitch	Ordering Code	Dimensions mm							Min. Bore Dia.	
Thread	d mm	mm	RH/LH	Helix °	L1	F	Y	h min	L2 ref*	L ref	D mm	Toolholder
M3-M5x0.5	4.0	0.5	M425TH0.50ISOL08R...	3	7.6	1.95	0.4	0.58	13.0	29.8	2.46	MH...-4.0
M4x0.7		0.7	M432TH0.70ISOL10R...	3.6	10.2	1.95	0.6	0.29			3.24	
M4x0.5		0.5	MS429TH0.50ISOL16R/L...	3.5	16	0.9	0.4	0.29	18.4	35.4	3.4	
M5x0.5		0.5	MS439TH0.50ISOL16R/L...			1.9	0.4	0.29			4.4	
M4x0.7		0.7	MS429TH0.70ISOL16R/L...			0.9	0.6	0.41			3.2	
M4.5-M6x0.75		0.75	M429TH0.75ISOL16R...			1.9	0.6	0.44			3.1	
M5x0.8		0.8	MS429TH0.80ISOL16R/L...			0.9	0.6	0.46			4.0	
M6x1.0		1.0	MS439TH1.00ISOL16R/L...			1.9	0.7	0.58			4.8	
M5.5x0.5	5.0	0.5	M542TH0.50ISOL16R/L...			1.7	0.4	0.29	18.35	41.2	4.9	MH...-5.0
M5.5x0.75		0.75	M542TH0.75ISOL16R/L...			1.7	0.6	0.43			4.6	
M7x1.0		1.0	M549TH1.00ISOL16R/L...			2.4	0.7	0.58			5.8	
M6x0.5	6.0	0.5	M649TH0.50ISOL16R/L...			1.9	0.4	0.29	18.5	42.2	5.4	MH...-6.0
M6.5x0.75		0.75	M649TH0.75ISOL16R/L...			1.9	0.6	0.43			5.6	
M7.5x1.0		1.0	M659TH1.00ISOL16R/L...			2.9	0.7	0.58			6.3	
M8x1.25		1.25	M659TH1.25ISOL16R/L...			2.9	0.9	0.72			6.5	
M10x1.5		1.5	M659TH1.50ISOL16R/L...	3		2.9	1.0	0.87			8.3	

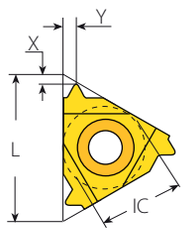
* L2 Ref: Repeatability within +/-0.02.

American UN - UNC, UNF, UNEF, UNS

External



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



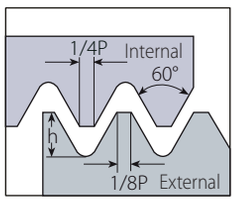
Standard

Standard

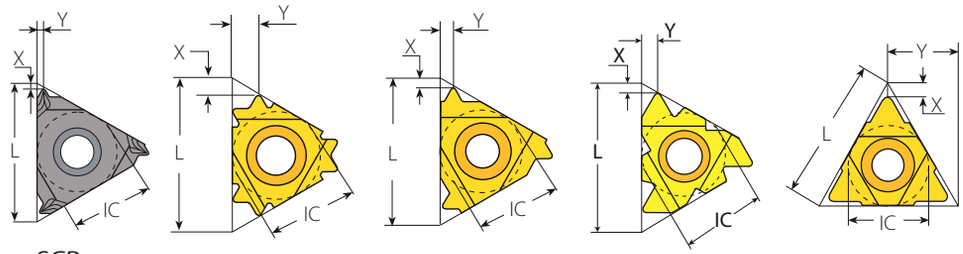
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	72	2ER72UN...	2EL72UN...	0.22	0.8	0.4	-	-	NL ..-2 (LH)
		64	2ER64UN...	2EL64UN...	0.24	0.8	0.4			
		56	2ER56UN...	2EL56UN...	0.28	0.7	0.4			
		48	2ER48UN...	2EL48UN...	0.32	0.6	0.6			
		44	2ER44UN...	2EL44UN...	0.35	0.6	0.6			
		40	2ER40UN...	2EL40UN...	0.39	0.6	0.6			
		36	2ER36UN...	2EL36UN...	0.43	0.6	0.6			
		32	2ER32UN...	2EL32UN...	0.49	0.6	0.6			
		28	2ER28UN...	2EL28UN...	0.56	0.6	0.7			
		27	2ER27UN...	2EL27UN...	0.58	0.7	0.8			
		24	2ER24UN...	2EL24UN...	0.65	0.7	0.8			
		20	2ER20UN...	2EL20UN...	0.78	0.8	0.9			
		18	2ER18UN...	2EL18UN...	0.87	0.8	1.0			
		16	2ER16UN...	2EL16UN...	0.97	0.9	1.1			
		14	2ER14UN...	2EL14UN...	1.11	0.9	1.1			
3/8"	16	80	3ER80UN...	3EL80UN...	0.18	0.8	0.3	YE3	YI3	AL..-3 (LH)
		72	3ER72UN...	3EL72UN...	0.22	0.8	0.4			
		64	3ER64UN...	3EL64UN...	0.24	0.8	0.4			
		56	3ER56UN...	3EL56UN...	0.28	0.7	0.4			
		48	3ER48UN...	3EL48UN...	0.32	0.6	0.6			
		44	3ER44UN...	3EL44UN...	0.35	0.6	0.6			
		40	3ER40UN...	3EL40UN...	0.39	0.6	0.6			
		36	3ER36UN...	3EL36UN...	0.43	0.6	0.6			
		32	3ER32UN...	3EL32UN...	0.49	0.6	0.6			
		28	3ER28UN...	3EL28UN...	0.56	0.6	0.7			
		27	3ER27UN...	3EL27UN...	0.58	0.7	0.8			
		26	3ER26UN...	3EL26UN...	0.59	0.7	0.8			
		24	3ER24UN...	3EL24UN...	0.65	0.7	0.8			
		20	3ER20UN...	3EL20UN...	0.78	0.8	0.9			
		18	3ER18UN...	3EL18UN...	0.87	0.8	1.0			
		16	3ER16UN...	3EL16UN...	0.97	0.9	1.1			
		14	3ER14UN...	3EL14UN...	1.11	1.0	1.2			
		13	3ER13UN...	3EL13UN...	1.20	1.0	1.3			
		12	3ER12UN...	3EL12UN...	1.30	1.1	1.4			
		11.5	3ER11.5UN...	3EL11.5UN...	1.35	1.1	1.5			
		11	3ER11UN...	3EL11UN...	1.42	1.1	1.5			
		10	3ER10UN...	3EL10UN...	1.56	1.1	1.5			
		9	3ER9UN...	3EL9UN...	1.73	1.2	1.7			
		8	3ER8UN...	3EL8UN...	1.95	1.2	1.6			

American UN - UNC, UNF, UNEF, UNS (con't)

External



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



Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" SCB	16	36	3JER36UN...		0.43	1.2	0.5	YE3	-	AL..-3
		32	3JER32UN...		0.49	1.2	0.5			
		28	3JER28UN...		0.56	0.7	0.8			
		24	3JER24UN...		0.65	0.7	0.8			
		20	3JER20UN...		0.78	0.7	0.8			
		18	3JER18UN...		0.87	0.7	0.8			
		16	3JER16UN...		0.97	0.8	0.8			
		14	3JER14UN...		1.11	1.2	1.5			
		13	3JER13UN...		1.20	1.2	1.5			
		12	3JER12UN...		1.30	1.3	1.5			
		10	3JER10UN...		1.56	1.2	1.5			
		9	3JER9UN...		1.73	1.2	1.5			
		8	3JER8UN...		1.95	1.3	1.5			
SCB										
3/8" V6	16	32	3ER32UN-6C...		0.49	2.0	1.9	YE3-6C	-	AL..-3
		28	3ER28UN-6C...		0.56	2.0	2.0			
		24	3ER24UN-6C...		0.65	1.9	2.0			
		20	3ER20UN-6C...		0.78	1.8	2.1			
		18	3ER18UN-6C...		0.87	1.9	2.3			
		16	3ER16UN-6C...		0.97	1.8	2.4			
		14	3ER14UN-6C...		1.11	1.8	2.7			
		13	3ER13UN-6C...		1.20	1.9	2.9			
		12	3ER12UN-6C...		1.30	1.9	2.3			
1/2"	22	7	4ER7UN...	4EL7UN...	2.22	1.6	2.3	YE4	YI4	AL..-4 (LH)
		6	4ER6UN...	4EL6UN...	2.60	1.6	2.3			
		5	4ER5UN...	4EL5UN...	3.12	1.7	2.5			
1/2"F	23	7	4FER7UN...		2.22	1.6	2.3	YE4F		AL...-4F
		6	4FER6UN...		2.60	1.6	2.3			
		5	4FER5UN...		3.12	1.7	2.5			
5/8"	27	4.5	5ER4.5UN...	5EL4.5UN...	3.46	1.9	2.7	YE5	YI5	AL..-5 (LH)
		4	5ER4UN...	5EL4UN...	3.89	2.1	3.0			

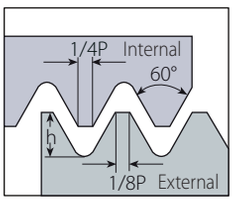
F-LINE

U Style

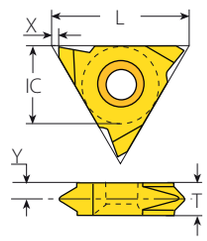
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4.5	4UE4.5UN...	3.46	2.0	11.0	YE4U	YI4U	AL..-4U (LH)
		4	4UE4UN...	3.89	2.0	11.0			
5/8"U	27	3	5UE3UN...	5.19	2.5	13.7	YE5U	YI5U	AL..-5U (LH)

American UN - UNC, UNF, UNEF, UNS (con't)

External



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



V Style / Slim Throat

Slim Throat

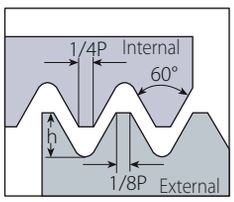
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
1/4"V	11	20	2VER20UN...	2VEL20UN...	0.78	0.69	2.3	3.2	NL..-2V (LH)
		18	2VER18UN...	2VEL18UN...	0.87	0.69	2.2	3.2	
		16	2VER16UN...	2VEL16UN...	0.97	0.69	2.2	3.2	
		14	2VER14UN...	2VEL14UN...	1.11	0.69	2.0	3.2	
		12	2VER12UN...	2VEL12UN...	1.30	0.69	1.8	3.2	
3/8"V	16	32	3VER32UN...	3VEL32UN...	0.48	1.1	3.0	3.6	NL..-3V (LH)
		28	3VER28UN...	3VEL28UN...	0.56	1.1	3.0	3.6	
		24	3VER24UN...	3VEL24UN...	0.65	1.1	2.9	3.6	
		20	3VER20UN...	3VEL20UN...	0.78	1.1	2.7	3.6	
		18	3VER18UN...	3VEL18UN...	0.87	1.1	2.6	3.6	
		16	3VER16UN...	3VEL16UN...	0.97	1.1	2.55	3.6	
		14	3VER14UN...	3VEL14UN...	1.11	1.1	2.4	3.6	
		12	3VER12UN...	3VEL12UN...	1.30	1.1	2.2	3.6	
		10	3VER10UN...	3VEL10UN...	1.56	1.1	2.1	3.6	
		8	3VER8UN...	3VEL8UN...	1.95	1.1	2.0	3.6	
1/2"V	22	7	4VER7UN...	4VEL7UN...	2.22	1.1	2.5	4.8	NL..-4V (LH)

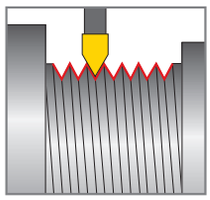
V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VER4UN...	5VEL4UN...	3.89	1.0	3.3	6	NL..-5V-6 (LH)
		3	5VER3UN...	5VEL3UN...	5.19	1.0	4.3	8	NL..-5V-8 (LH)

American UN - UNC, UNF, UNEF, UNS (con't)

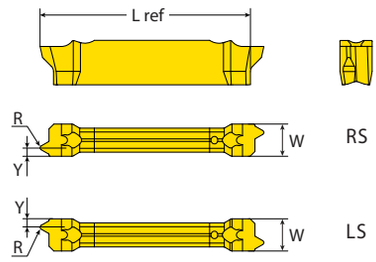
External





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

RS/LS Varied range of threading standards for machining between shoulders and close to spindle.



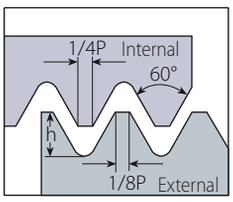
VG-Cut

Pocket Size	Ordering Code	Dimensions mm					No. of Passes	Helix	Min. Thread Diameter	Toolholder
	RH	W ref	Pitch TPI	h min	Y	L ref		Deg		Monoblock
3	VGD3.0UN32RH-RS/LS...	3.00	32	0.49	0.66	21.9	5 - 8	2.5°	5/32"-32 UNC	VGE...-3T...
	VGD3.0UN28RH-RS/LS...		28	0.56	0.71		5 - 9		3/16"-28 UNC	
	VGD3.0UN24RH-RS/LS...		24	0.65	0.77		5 - 9		7/32"-24 UNC	
	VGD3.0UN20RH-RS/LS...		20	0.78	0.86		6 - 10		1/4"-20 UNC	
	VGD3.0UN18RH-RS/LS...		18	0.87	0.93		7 - 12		5/16"-18 UNC	
	VGD3.0UN16RH-RS/LS...		16	0.97	1.10		7 - 12		3/8"-16 UNC	
	VGD3.0UN14RH-RS/LS...		14	1.11	1.09		8 - 14		7/16"-14 UNC	
	VGD3.0UN12RH-RS/LS...		12	1.30	1.30		8 - 14		9/16"-14 UNC	

LH Helix threads available upon request.

American UN - UNC, UNF, UNEF, UNS (con't)

External



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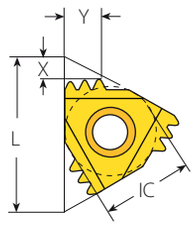
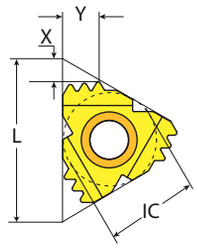
Tolerance class: 2A/2B



M+ Style



F-Line M+

M+ Style

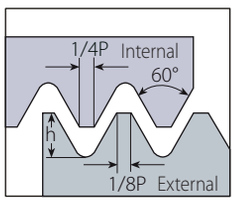
Multi plus

F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
3/8"	16	20	3	3ER20UN3M+...	0.78	2.2	3.3	YE3M	AL..-3
		18	2	3ER18UN2M+...	0.87	1.5	2.2		
		18	3	3ER18UN3M+...	0.87	2.3	3.6		
		16	2	3ER16UN2M+...	0.97	1.7	2.5		
		14	2	3ER14UN2M+...	1.11	1.9	2.8		
		12	2	3ER12UN2M+...	1.30	2.2	3.3		
1/2"	22	16	3	4ER16UN3M+...	0.97	2.6	4.1	YE4M	AL..-4
		14	2	4ER14UN2M+...	1.11	1.9	2.8		
		12	2	4ER12UN2M+...	1.30	2.2	3.3		
		12	3	4ER12UN3M+...	1.30	3.4	5.4		
		11	2	4ER11UN2M+...	1.42	2.3	3.6		
		10	2	4ER10UN2M+...	1.56	2.5	3.9		
1/2"F	23	16	3	4FER16UN3M+...	0.97	2.6	4.1	YE4M3F	AL...-4MF
		12	3	4FER12UN3M+...	1.30	3.4	5.4		
		12	2	4FER12UN2M+...	1.30	2.2	3.3	YE4M2F	
		10	2	4FER10UN2M+...	1.56	2.5	3.9		
5/8"	27	8	2	5ER8UN2M+...	1.95	3.1	4.9	YE5M	AL..-5M

American UN - UNC, UNF, UNEF, UNS (con't)

Internal



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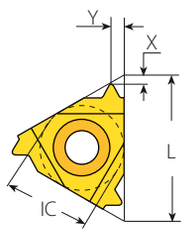
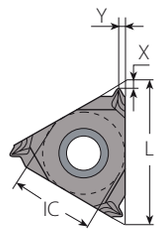
Tolerance class: 2A/2B



Standard



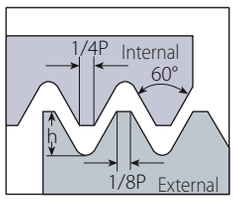
SCB
Sintered
Chipbreaker

Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	72	2IR72UN...	2IL72UN...	0.20	0.8	0.3	-	-	NVR..-2 (LH)
		64	2IR64UN...	2IL64UN...	0.23	0.8	0.4			
		56	2IR56UN...	2IL56UN...	0.26	0.7	0.4			
		48	2IR48UN...	2IL48UN...	0.31	0.6	0.6			
		44	2IR44UN...	2IL44UN...	0.33	0.6	0.6			
		40	2IR40UN...	2IL40UN...	0.37	0.6	0.6			
		36	2IR36UN...	2IL36UN...	0.41	0.6	0.6			
		32	2IR32UN...	2IL32UN...	0.46	0.6	0.6			
		28	2IR28UN...	2IL28UN...	0.52	0.6	0.7			
		27	2IR27UN...	2IL27UN...	0.54	0.7	0.8			
		24	2IR24UN...	2IL24UN...	0.61	0.7	0.8			
		20	2IR20UN...	2IL20UN...	0.73	0.8	0.9			
		18	2IR18UN...	2IL18UN...	0.81	0.8	1.0			
		16	2IR16UN...	2IL16UN...	0.92	0.9	1.1			
		14	2IR14UN...	2IL14UN...	1.05	0.9	1.1			
		12	2IR12UN...	2IL12UN...	1.22	0.8	1.1			
		11	2IR11UN...	2IL11UN...	1.33	0.8	1.1			
1/4" SCB	11	36	2JIR36UN...		0.41	1.1	0.5	-	-	NVR..-2
		32	2JIR32UN...		0.46	1.2	0.5			
		28	2JIR28UN...		0.52	0.6	0.8			
		24	2JIR24UN...		0.61	0.7	0.8			
		20	2JIR20UN...		0.73	0.6	0.8			
		18	2JIR18UN...		0.81	0.6	0.8			
		16	2JIR16UN...		0.97	0.7	0.8			
3/8"	16	72	3IR72UN...	3IL72UN...	0.20	0.8	0.3	YI3	YE3	AVR..-3 (LH)
		64	3IR64UN...	3IL64UN...	0.23	0.8	0.4			
		56	3IR56UN...	3IL56UN...	0.26	0.7	0.4			
		48	3IR48UN...	3IL48UN...	0.31	0.6	0.6			
		44	3IR44UN...	3IL44UN...	0.33	0.6	0.6			
		40	3IR40UN...	3IL40UN...	0.37	0.6	0.6			
		36	3IR36UN...	3IL36UN...	0.41	0.6	0.6			
		32	3IR32UN...	3IL32UN...	0.51	0.6	0.6			
		28	3IR28UN...	3IL28UN...	0.52	0.6	0.7			
		27	3IR27UN...	3IL27UN...	0.54	0.7	0.8			
		26	3IR26UN...	3IL26UN...	0.56	0.7	0.75			

American UN - UNC, UNF, UNEF, UNS (con't)

Internal



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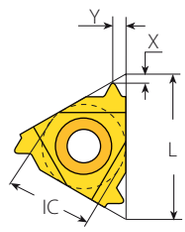
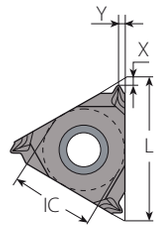


Standard



SCB
Sintered
Chipbreaker

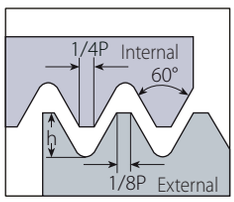
Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	24	3IR24UN...	3IL24UN...	0.61	0.7	0.8	YI3	YE3	AVR..-3 (LH)
		20	3IR20UN...	3IL20UN...	0.73	0.8	0.9			
		18	3IR18UN...	3IL18UN...	0.81	0.8	1.0			
		16	3IR16UN...	3IL16UN...	0.92	0.9	1.1			
		14	3IR14UN...	3IL14UN...	1.05	0.9	1.2			
		13	3IR13UN...	3IL13UN...	1.13	1.0	1.3			
		12	3IR12UN...	3IL12UN...	1.22	1.1	1.4			
		11.5	3IR11.5UN...	3IL11.5UN...	1.28	1.1	1.5			
		11	3IR11UN...	3IL11UN...	1.33	1.1	1.5			
		10	3IR10UN...	3IL10UN...	1.47	1.1	1.5			
		9	3IR9UN...	3IL9UN...	1.63	1.2	1.7			
		8	3IR8UN...	3IL8UN...	1.83	1.1	1.5			
3/8" SCB	16	28	3JIR28UN...		0.52	0.6	0.8	YI3	-	AVR..-3
		24	3JIR24UN...		0.61	0.7	0.8			
		20	3JIR20UN...		0.73	0.6	0.8			
		18	3JIR18UN...		0.81	0.6	0.8			
		16	3JIR16UN...		0.92	0.7	0.8			
		14	3JIR14UN...		1.05	1.1	1.5			
		13	3JIR13UN...		1.13	1.1	1.5			
		12	3JIR12UN...		1.22	1.1	1.5			
		10	3JIR10UN...		1.47	1.1	1.5			
		9	3JIR9UN...		1.63	1.0	1.5			
		8	3JIR8UN...		1.83	1.1	1.5			

SCB

American UN - UNC, UNF, UNEF, UNS (con't)

Internal



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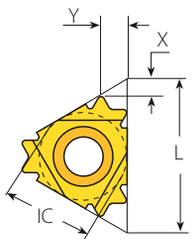
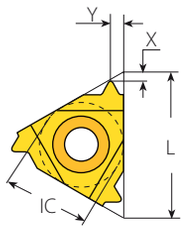
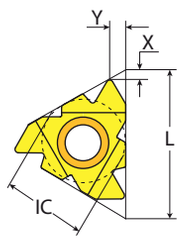
Tolerance class: 2A/2B



V6

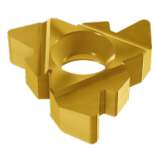


Standard & D-Line



F-Line

Standard



Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" V6	16	32	3IR32UN-6C...		0.51	2.0	1.8	YI3-6C	-	AVR..-3 NVRC..-3 206/...
		28	3IR28UN-6C...		0.52	1.9	1.9			
		24	3IR24UN-6C...		0.61	1.9	1.9			
		20	3IR20UN-6C...		0.73	1.8	2.1			
		18	3IR18UN-6C...		0.81	1.7	2.1			
		16	3IR16UN-6C...		0.92	1.6	2.2			
		14	3IR14UN-6C...		1.05	1.7	2.5			
		13	3IR13UN-6C...		1.13	1.8	2.7			
		12	3IR12UN-6C...		1.22	1.6	2.5			
1/2"	22	7	4IR7UN...	4IL7UN...	2.09	1.6	2.3	YI4	YE4	AVR..-4 (LH)
		6	4IR6UN...	4IL6UN...	2.44	1.6	2.3			
		5	4IR5UN...	4IL5UN...	2.93	1.6	2.3			
1/2"F	23	7	4FIR7UN...		2.09	1.6	2.3	YI4F		AVRC...-4F
		6	4FIR6UN...		2.44	1.6	2.3			
		5	4FIR5UN...		2.93	1.6	2.3			
5/8"	27	4.5	5IR4.5UN...	5IL4.5UN...	3.26	1.7	2.4	YI5	YE5	AVR..-5 (LH)
		4	5IR4UN...	5IL4UN...	3.67	1.8	2.7			

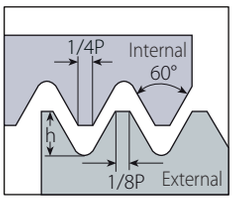
D-Line Deep Rake

D-Line

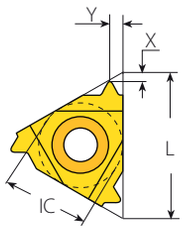
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI	RH	h min	X	Y	RH	Toolholder
1/4"	11	24	2DIR24UN...	0.61	0.7	0.8	-	NVR..-2
		20	2DIR20UN...	0.73	0.8	0.9		
		18	2DIR18UN...	0.81	0.8	1.0		
3/8"	16	20	3DIR20UN...	0.73	0.8	0.9	YI3	AVR..-3
		16	3DIR16UN...	0.92	0.9	1.1		
		14	3DIR14UN...	1.05	0.9	1.2		
		12	3DIR12UN...	1.22	1.1	1.4		
		8	3DIR8UN...	1.83	1.1	1.5		

American UNC (con't)

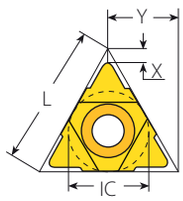
Internal



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



Coarse Pitch



U Style Coarse Pitch

Coarse Pitch RH

Thread	Insert Size		Ordering Code	Dimensions mm				Min Bore Dia.
	IC	L mm	RH	h min	X	Y	Toolholder RH	mm
1/2"x13UN	6.0	10	6.0KIR13UN158/001...	1.13	0.8	0.9	BNVRC10S-6.0K	10.6
9/16"x12UN	1/4"	11	2IR12UN158/002...	1.22	0.9	1.0	NVRC10-2-156/001	12.0
5/8"x11UN	1/4"U		2UIR11UN158/003...	1.33	1.2	5.5	NVRC11-2U-156/002	13.4
3/4"x10UN	3/8"	16	3IR10UN...	1.47	1.1	1.5	NVRC13-3-156/016	16.3
7/8"x9UN			3IR9UN...	1.63	1.2	1.7	NVRC13-3-156/016	19.2
1"x8UN			3IR8UN...	1.83	1.1	1.5	NVRC16-3	22.0
1 1/8"x7UN	1/2"	22	4IR7UN...	2.09	1.6	2.3	NVRC20-4	24.6
1 1/4"x7UN			4IR7UN...	2.09	1.6	2.3	NVRC20-4	27.8
1 3/8"x6UN			4IR6UN...	2.44	1.6	2.3	NVRC20-4	30.3

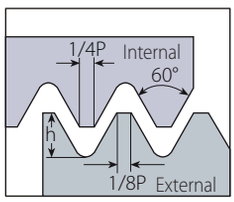
Coarse Pitch LH

Thread	Insert Size		Ordering Code	Dimensions mm				Min Bore Dia.
	IC	L mm	LH	h min	X	Y	Toolholder LH	mm
1/2"x13UN	6.0	10	6.0KIL13UN158/016...	1.13	0.8	0.9	BNVRC10S-6.0KLH	10.6
9/16"x12UN	1/4"	11	2IL12UN158/017...	1.22	0.9	1.0	NVRC10-2LH-156/036	12.0
5/8"x11UN	1/4"U		2UIR11UN158/003...	1.33	1.2	5.5	NVRC11-2ULH-156/035	13.4
3/4"x10UN	3/8"	16	3IL10UN...	1.47	1.1	1.5	NVRC13-3LH-156/026	16.3
7/8"x9UN			3IL9UN...	1.63	1.2	1.7	NVRC13-3LH-156/026	19.2
1"x8UN			3IL8UN...	1.83	1.1	1.5	NVRC16-3LH	22.0
1 1/8"x7UN	1/2"	22	4IL7UN...	2.09	1.6	2.3	NVRC20-4LH	24.6
1 1/4"x7UN			4IL7UN...	2.09	1.6	2.3	NVRC20-4LH	27.8
1 3/8"x6UN			4IL6UN...	2.44	1.6	2.3	NVRC20-4LH	30.3

U Type RH inserts can be used for both LH and RH applications.

American UN - UNC, UNF, UNEF, UNS (con't)

Internal



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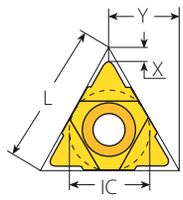
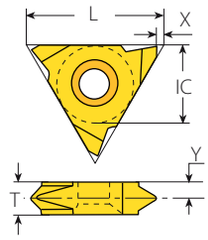
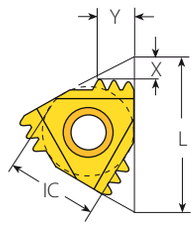
Tolerance class: 2A/2B



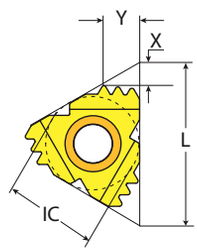
U Style



V Style



M+ Style



F-Line M+

U Style

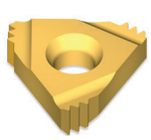
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4.5	4UI4.5UN...	3.26	2.4	11.0	YI4U	YE4U	AVR..-4U (LH)
		4	4UI4UN...	3.67	2.4	11.0			
5/8"U	27	3	5UI3UN...	4.89	2.7	13.7	YI5U	YE5U	AVR..-5U (LH)

V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VIR4UN...	5VIL4UN...	3.67	1.0	3.3	6	NVR..-5V (LH)
		3	5VIR3UN...	5VIL3UN...	4.89	1.0	4.3	8	

M+ Style

Multi plus



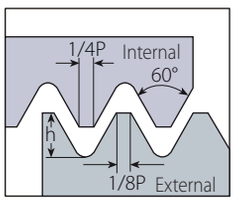
F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
3/8"	16	12	2	3IR12UN2M+...	1.22	2.2	3.3	YI3M	AVR..-3
		14	2	3IR14UN2M+...	1.05	1.9	2.8		
		16	2	3IR16UN2M+...	0.92	1.7	2.5		
1/2"	22	16	3	4IR16UN3M+...	0.92	2.6	4.1	YI4M	AVR..-4
		14	2	4IR14UN2M+...	1.05	1.9	2.8		
		12	2	4IR12UN2M+...	1.22	2.2	3.3		
		12	3	4IR12UN3M+...	1.22	3.4	5.4		
1/2"F	23	12	2	4FIR12UN2M+...	1.22	2.2	3.3	YI4M2F	AVRC...-4MF
5/8"	27	8	2	5IR8UN2M+...	1.83	3.1	4.9	YI5M	AVR..-5M

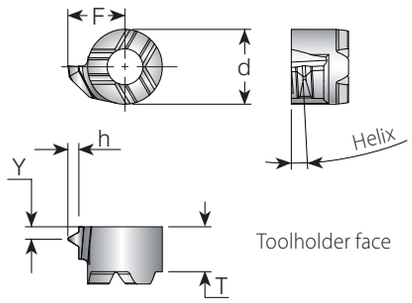
American UN - UNC, UNF, UNEF, UNS (con't)

Mini-V

Internal



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



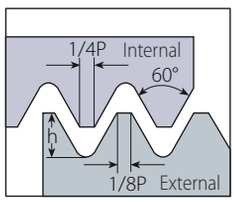
Mini-V

Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions mm					Helix	Toolholder
		TPI	RH	d	T	F	Y	h min	Deg.	
3/8"-32UNEF	V08	32	V08TH32UNR...	6	3.8	4.21	0.5	0.46	1.5	.V08-...
3/8"-28UN		28	V08TH28UNR...			4.28	0.5	0.52	2	
3/8"-24UNF		24	V08TH24UNR...			4.32	0.65	0.61	2	
3/8"-20UN		20	V08TH20UNR...			4.45	0.8	0.73	2.5	
3/8"-18UNS		18	V08TH18UNR...			4.53	0.85	0.81	2.5	
3/8"-16UNC		16	V08TH16UNR...			4.33	0.95	0.92	2.5	
7/16"-14UNC		14	V08TH14UNR...			4.78	1.1	1.05	3	
9/16"-12UNC	V11	12	V11TH12UNR...	8	4.2	6.44	1.24	1.22	2.5	.V11-...

American UN - UNC, UNF, UNEF, UNS (con't)

MINIPRO

Internal



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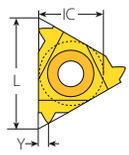
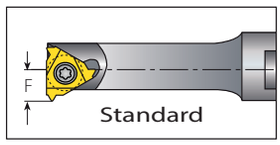
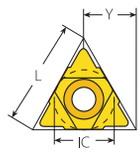
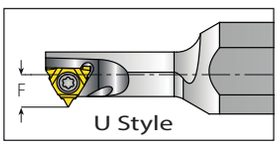
Tolerance class: 2A/2B









Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
4.0	6	32	4.0KIR32UN...	4.0KIL32UN...	0.46	0.5	3.50	6.15	.NVRC.5-4.0K (LH)
		28	4.0KIR28UN...	4.0KIL28UN...	0.52	0.6	3.50	6.15	
		24	4.0KIR24UN...	4.0KIL24UN...	0.61	0.6	3.60	6.25	
		20	4.0KIR20UN...	4.0KIL20UN...	0.73	0.6	3.70	6.35	
		18	4.0KIR18UN...	4.0KIL18UN...	0.81	0.7	3.70	6.35	
5.0	8	32	5.0KIR32UN...	5.0KIL32UN...	0.46	0.5	4.7	7.8	.NVRC7-5.0K (LH)
		28	5.0KIR28UN...	5.0KIL28UN...	0.52	0.6			
		24	5.0KIR24UN...	5.0KIL24UN...	0.61	0.6			
		20	5.0KIR20UN...	5.0KIL20UN...	0.73	0.7			
		18	5.0KIR18UN...	5.0KIL18UN...	0.81	0.7			
		16	5.0KIR16UN...	5.0KIL16UN...	0.92	0.7			
		14	5.0KIR14UN...	5.0KIL14UN...	1.05	0.8			
6.0	10	40	6.0KIR40UN...	6.0KIL40UN...	0.37	0.6	4.50	9.5	.NVRC1..-6.0K (LH)
		32	6.0KIR32UN...	6.0KIL32UN...	0.46	0.6	4.60	9.5	
		28	6.0KIR28UN...	6.0KIL28UN...	0.52	0.65	4.70	9.6	
		24	6.0KIR24UN...	6.0KIL24UN...	0.61	0.75	4.80	9.7	
		20	6.0KIR20UN...	6.0KIL20UN...	0.73	0.9	4.90	9.8	
		18	6.0KIR18UN...	6.0KIL18UN...	0.81	1.0	5.00	9.9	
		16	6.0KIR16UN...	6.0KIL16UN...	0.92	1.05	5.10	10.0	
		14	6.0KIR14UN...	6.0KIL14UN...	1.05	1.05	5.20	10.0	

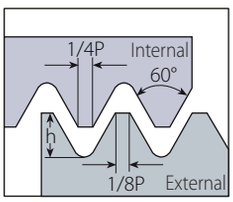
Mini-3 U Style

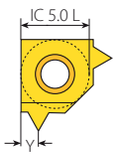
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH+LH	h min	Y	F	mm	Toolholder
5.0U	8	13	5.0KUI13UN...	1.20	4.0	5.6	9.0	.NVRC8-5.0KU (LH)
		12	5.0KUI12UN...	1.30		5.7		
		11	5.0KUI11UN...	1.42		5.7		

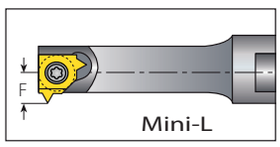
American UN - UNC, UNF, UNEF, UNS (con't)

MINIPRO

Internal







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

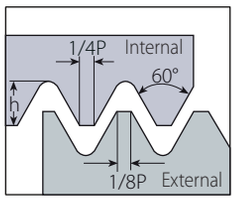
Mini-L

Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
5.0L	40	5LKIR40UN...	5LKIL40UN...	0.37	0.6	3.80	7.6	.NVRC10.-5LK (LH)
	32	5LKIR32UN...	5LKIL32UN...	0.46	0.6	3.92	7.6	
	28	5LKIR28UN...	5LKIL28UN...	0.52	0.65	3.99	7.6	
	24	5LKIR24UN...	5LKIL24UN...	0.61	0.75	4.09	7.6	
	20	5LKIR20UN...	5LKIL20UN...	0.73	0.9	4.21	7.7	
	18	5LKIR18UN...	5LKIL18UN...	0.81	1.0	4.30	7.8	
	16	5LKIR16UN...	5LKIL16UN...	0.92	1.05	4.41	7.8	
	14	5LKIR14UN...	5LKIL14UN...	1.05	1.05	4.54	7.9	

American UN - UNC, UNF, UNEF, UNS (con't)

MINIPRO

Internal



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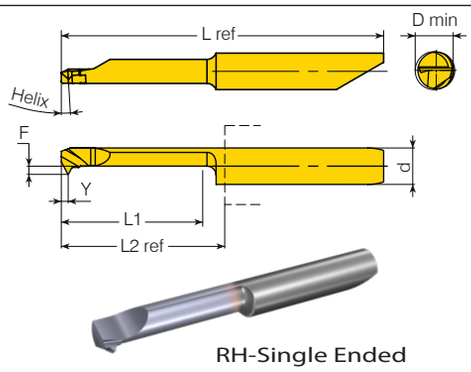
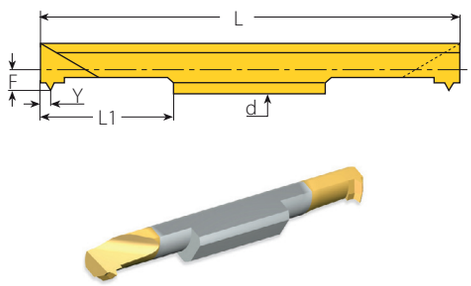
Tolerance class: 2A/2B



RH-Single Ended



RH-Double Ended

Micro - Double Ended

	Insert Dia.	Pitch	Ordering Code	Dimensions mm					Min. Bore Dia.	
Thread	d mm	mm	RH	L1	L	F	Y	h min	mm	Toolholder
10-40UNS	3.0	40	3.0SIR40UN...	16	50	1.35	0.60	0.37	3.2	SMC..-3.0
8-36UNF		36	3.0SIR36UN...	16	50	1.46	0.60	0.41	3.2	
8-32UNF		32	3.0SIR32UN...	16	50	1.40	0.60	0.46	3.3	
10-40UNS	4.0	40	4.0SIR40UN...	16	50	1.65	0.60	0.37	4.0	SMC..-4.0
10-36UNS		36	4.0SIR36UN...	16	50	1.70	0.60	0.41	4.1	
12-32UNEF		32	4.0SIR32UN...	16	50	1.76	0.60	0.46	4.1	
12-28UNF		28	4.0SIR28UN...	16	50	1.83	0.65	0.52	4.2	
1/4"-27UNS		27	4.0SIR27UN...	16	50	1.85	0.75	0.54	4.2	
12-24UNC		24	4.0SIR24UN...	16	50	1.93	0.75	0.61	4.3	
1/4"-20UNC		20	4.0SIR20UN...	16	50	2.03	0.76	0.73	4.3	
1/4"-32UNEF	6.0	32	6.0SIR32UN...	16	50	2.01	0.60	0.46	5.5	SMC..-6.0
5/16"-28UN		28	6.0SIR28UN...	16	50	2.08	0.65	0.52	5.6	
5/16"-27UNS		27	6.0SIR27UN...	16	50	2.10	0.75	0.54	5.6	
5/16"-24UNF		24	6.0SIR24UN...	16	50	2.18	0.75	0.61	5.7	
5/16"-20UN		20	6.0SIR20UN...	16	50	2.30	0.90	0.73	5.8	
5/16"-18UNC		18	6.0SIR18UN...	16	50	2.39	1.00	0.81	5.9	
3/8"-16UNC		16	6.0SIR16UN...	16	50	2.50	1.05	0.92	6.0	

Left handed tool supplied by request (Example: 6.0SI**L**16UN...).

Micro - Single Ended

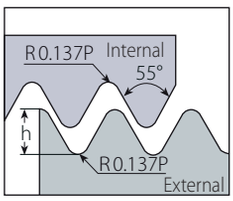
micrOscope

	Insert Dia.	Pitch	Ordering Code	Dimensions mm							Min. Bore Dia.	
Thread	d mm	TPI	RH/LH	Helix °	L1	F	Y	h min	L2 ref*	L ref	D mm	Toolholder
No.8-32UNC	4.0	32	MS429TH32UNL16R/L...	3.5	16	0.92	0.60	0.46	18.4	35.4	3.3	MH...-4.0
No.10-28UNS		28	MS429TH28UNL16R/L...			0.92	0.65	0.52			3.6	
1/4"-27UNS	5.0	27	M549TH27UNL16R/L...			2.4	0.75	0.54	18.35	41.2	5.3	MH...-5.0
1/4"-24UNS		24	M542TH24UNL16R/L...			1.7	0.75	0.61			5.1	
1/4"-20UNC		20	M542TH20UNL16R/L...			1.7	0.90	0.73			4.6	
5/16"-18UNC	6.0	18	M659TH18UNL16R/L...			2.9	1.05	0.81	18.5	42.2	6.3	MH...-6.0
3/8"-16UNC		16	M659TH16UNL16R/L...			2.9	1.00	0.92			7.7	

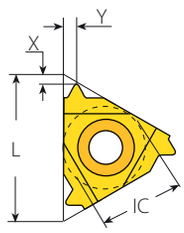
* L2 Ref: Repeatability within +/-0.02.

Whitworth - BSW, BSP, BSF, BSB

External



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



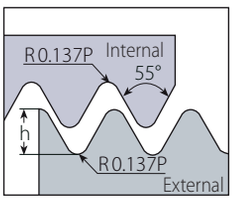
Standard

Standard

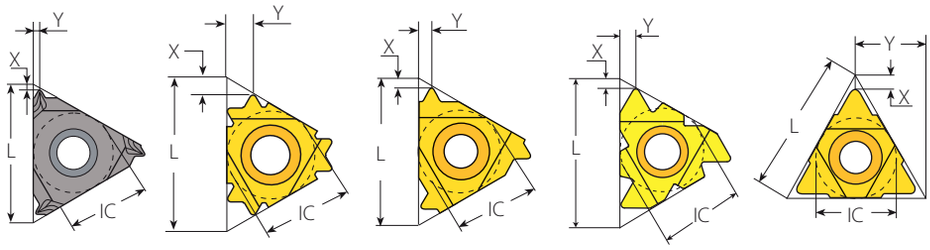
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	72	2ER72W...	2EL72W...	0.23	0.7	0.4	-	-	NL ..-2 (LH)
		60	2ER60W...	2EL60W...	0.27	0.7	0.4			
		56	2ER56W...	2EL56W...	0.29	0.7	0.4			
		48	2ER48W...	2EL48W...	0.34	0.6	0.6			
		40	2ER40W...	2EL40W...	0.41	0.6	0.6			
		36	2ER36W...	2EL36W...	0.45	0.6	0.6			
		32	2ER32W...	2EL32W...	0.51	0.6	0.6			
		28	2ER28W...	2EL28W...	0.58	0.6	0.7			
		26	2ER26W...	2EL26W...	0.63	0.7	0.8			
		24	2ER24W...	2EL24W...	0.68	0.7	0.8			
		22	2ER22W...	2EL22W...	0.74	0.8	0.9			
		20	2ER20W...	2EL20W...	0.81	0.8	0.9			
		19	2ER19W...	2EL19W...	0.86	0.8	1.0			
		18	2ER18W...	2EL18W...	0.90	0.8	1.0			
		16	2ER16W...	2EL16W...	1.02	0.9	1.1			
		14	2ER14W...	2EL14W...	1.16	1.0	1.2			
3/8"	16	72	3ER72W...	3EL72W...	0.23	0.7	0.4	YE3	YI3	AL..-3 (LH)
		60	3ER60W...	3EL60W...	0.27	0.7	0.4			
		56	3ER56W...	3EL56W...	0.29	0.7	0.4			
		48	3ER48W...	3EL48W...	0.34	0.6	0.6			
		40	3ER40W...	3EL40W...	0.41	0.6	0.6			
		36	3ER36W...	3EL36W...	0.45	0.6	0.6			
		32	3ER32W...	3EL32W...	0.51	0.6	0.6			
		30	3ER30W...	3EL30W...	0.55	0.6	0.7			
		28	3ER28W...	3EL28W...	0.58	0.6	0.7			
		26	3ER26W...	3EL26W...	0.63	0.7	0.8			
		24	3ER24W...	3EL24W...	0.68	0.7	0.8			
		22	3ER22W...	3EL22W...	0.74	0.8	0.9			
		20	3ER20W...	3EL20W...	0.81	0.8	0.9			
		19	3ER19W...	3EL19W...	0.86	0.8	1.0			
		18	3ER18W...	3EL18W...	0.90	0.8	1.0			
		16	3ER16W...	3EL16W...	1.02	0.9	1.1			
		14	3ER14W...	3EL14W...	1.16	1.0	1.2			
		12	3ER12W...	3EL12W...	1.36	1.1	1.4			
		11	3ER11W...	3EL11W...	1.48	1.1	1.5			
		10	3ER10W...	3EL10W...	1.63	1.1	1.5			
		9	3ER9W...	3EL9W...	1.81	1.2	1.7			
		8	3ER8W...	3EL8W...	2.03	1.2	1.5			

Whitworth - BSW, BSP, BSF, BSB (con't)

External

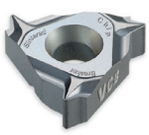


Defined by: B.S.84:1956,
DIN 259, ISO228/1:1982
Tolerance class: Medium class A



SCB Sintered Chipbreaker | V6 | Standard | F-Line | U Style

Standard



SCB

V6

F-LINE

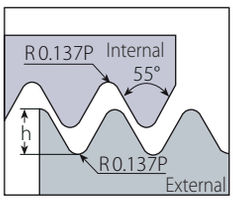
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" SCB	16	36	3JER36W...		0.45	1.2	0.5	YE3	-	AL..-3
		32	3JER32W...		0.51	1.2	0.5			
		28	3JER28W...		0.58	0.7	0.8			
		24	3JER24W...		0.68	0.7	0.8			
		20	3JER20W...		0.81	0.7	0.8			
		19	3JER19W...		0.86	0.7	0.8			
		18	3JER18W...		0.90	0.8	0.8			
		16	3JER16W...		1.02	0.8	0.8			
		14	3JER14W...		1.16	1.3	1.5			
		12	3JER12W...		1.36	1.3	1.5			
		11	3JER11W...		1.48	1.3	1.5			
		10	3JER10W...		1.63	1.3	1.5			
		8	3JER8W...		2.03	1.3	1.5			
3/8" V6	16	19	3ER19W-6C...		0.86	1.8	2.2	YE3-6C	-	AL..-3
		16	3ER16W-6C...		1.02	1.6	2.4			
		14	3ER14W-6C...		1.16	1.8	2.7			
		12	3ER12W-6C...		1.36	1.9	3.0			
1/2"	22	7	4ER7W...	4EL7W...	2.41	1.6	2.3	YE4	YI4	AL..-4 (LH)
		6	4ER6W...	4EL6W...	2.71	1.6	2.3			
		5	4ER5W...	4EL5W...	3.25	1.7	2.4			
1/2"F	23	7	4FER7W...		2.41	1.6	2.6	YE4F		AL...-4F
		6	4FER6W...		2.71	1.6	2.3			
		5	4FER5W...		3.25	1.7	2.4			
5/8"	27	4.5	5ER4.5W...	5EL4.5W...	3.61	1.8	2.6	YE5	YI5	AL..-5 (LH)
		4	5ER4W...	5EL4W...	4.07	2.0	2.9			

U Style

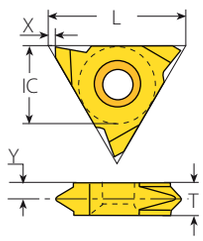
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4.5	4UEI4.5W...	3.61	2.3	11.0	YE4U	YI4U	AL..-4U (LH)
		4	4UEI4W...	4.07	1.8	11.0			
		3.5	4UEI3.5W...	4.65	2.1	11.0			
		3.25	4UEI3.25W...	5.00	2.0	11.0			
5/8"U	27	3.5	5UEI3.5W...	4.65	2.1	13.7	YE5U	YI5U	AL..-5U (LH)
		3.25	5UEI3.25W...	5.00	2.0	13.7			
		3	5UEI3W...	5.42	2.3	13.7			
		2.75	5UEI2.75W...	5.91	2.4	13.7			

Whitworth - BSW, BSP, BSF, BSB (con't)

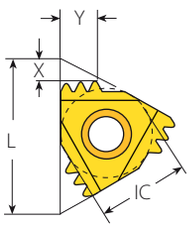
External



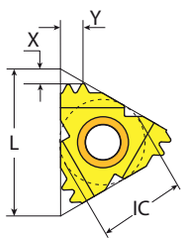
Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
Tolerance class: Medium class A



V Style / Slim Throat



M+ Style



F-Line M+

Slim Throat

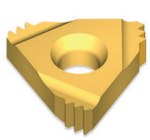
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
1/4"V	11	19	2VER19W...	2VEL19W...	0.86	0.69	2.3	3.2	NL..-2V (LH)
		14	2VER14W...	2VEL14W...	1.16	0.69	2.0	3.2	
		11	2VER11W...	2VEL11W...	1.48	0.69	1.7	3.2	
3/8"V	16	19	3VER19W...	3VEL19W...	0.86	1.1	2.7	3.6	NL..-3V (LH)
		18	3VER18W...	3VEL18W...	0.90	1.1	2.6	3.6	
		16	3VER16W...	3VEL16W...	1.02	1.1	2.6	3.6	
		14	3VER14W...	3VEL14W...	1.16	1.1	2.4	3.6	
		12	3VER12W...	3VEL12W...	1.36	1.1	2.2	3.6	
		11	3VER11W...	3VEL11W...	1.48	1.1	2.1	3.6	

V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VER4W...	5VEL4W...	4.07	1.0	3.3	6	NL..-5V-6 (LH)
		3	5VER3W...	5VEL3W...	5.42	1.0	4.3	8	NL..-5V-8 (LH)
		2.5	5VER2.5W...	5VEL2.5W...	6.51	1.0	5.2	10	NL..-5V-10 (LH)

M+ Style

Multi plus

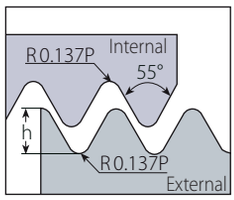


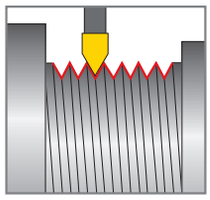
F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
3/8"	16	28	2	3ER28W2M+...	0.58	1.2	1.6	YE3M	AL..-3
		19	2	3ER19W2M+...	0.86	1.6	2.3		
		19	3	3ER19W3M+...	0.86	2.2	3.4		
		14	2	3ER14W2M+...	1.16	2.0	3.0		
1/2"	22	14	3	4ER14W3M+...	1.16	2.9	4.6	YE4M	AL..-4
		11	2	4ER11W2M+...	1.48	2.3	3.5		
1/2"F	23	11	2	4FER11W2M+...	1.48	2.3	3.5	YE4M2F	AL...-4MF

Whitworth - BSW, BSP, BSF, BSB (con't)

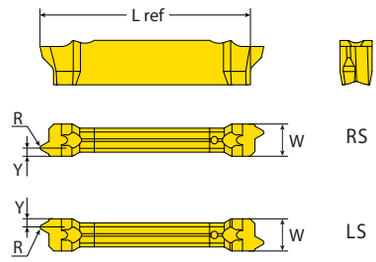
External





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

RS/LS Varied range of threading standards for machining between shoulders and close to spindle.



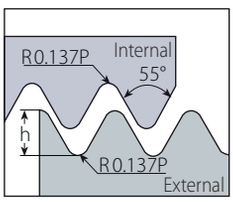
VG-Cut

Pocket Size	Ordering Code		Dimensions mm				No. of Passes	Helix	Min. Thread Diameter	Toolholder
	RH	W ref	Pitch TPI	h min	Y	L ref		Deg		Monoblock
3	VGD3.0W19RH-RS/LS...	3.00	19	0.86	0.95	21.9	7 - 12	2.5°	1/2"-19BSW	VGE...-3T...
	VGD3.0W14RH-RS/LS...		14	1.16	1.15		8 - 14		1/2"-14BSW	
	VGD3.0W11RH/LH...		11	1.48	1.68		8 - 14		5/8"-11BSW	

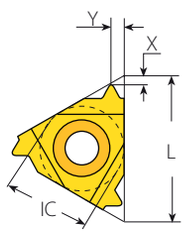
LH Helix threads available upon request.

Whitworth - BSW, BSP, BSF, BSB (con't)

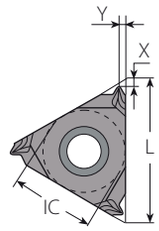
Internal



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



Standard



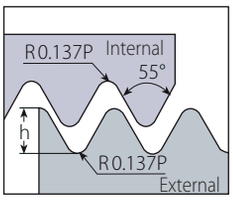
SCB
Sintered
Chipbreaker

Standard

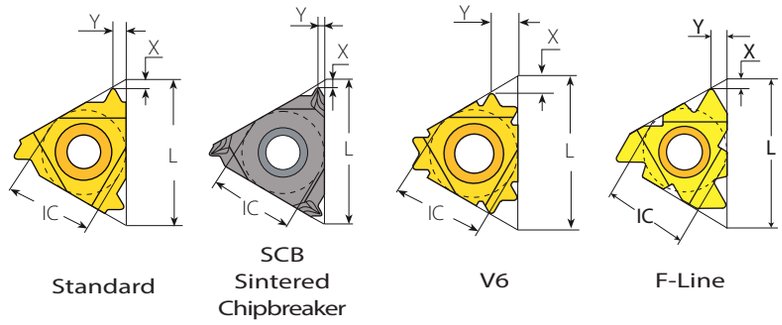
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	72	2IR72W...	2IL72W...	0.23	0.7	0.4	-	-	NVR..-2 (LH)
		60	2IR60W...	2IL60W...	0.27	0.7	0.4			
		56	2IR56W...	2IL56W...	0.29	0.7	0.4			
		48	2IR48W...	2IL48W...	0.34	0.6	0.6			
		40	2IR40W...	2IL40W...	0.41	0.6	0.6			
		36	2IR36W...	2IL36W...	0.45	0.6	0.6			
		32	2IR32W...	2IL32W...	0.51	0.6	0.6			
		28	2IR28W...	2IL28W...	0.58	0.6	0.7			
		26	2IR26W...	2IL26W...	0.63	0.7	0.8			
		24	2IR24W...	2IL24W...	0.68	0.7	0.8			
		22	2IR22W...	2IL22W...	0.74	0.8	0.9			
		20	2IR20W...	2IL20W...	0.81	0.8	0.9			
		19	2IR19W...	2IL19W...	0.86	0.8	1.0			
		18	2IR18W...	2IL18W...	0.90	0.8	1.0			
		16	2IR16W...	2IL16W...	1.02	0.9	1.1			
		14	2IR14W...	2IL14W...	1.16	0.9	1.1			
		12	2IR12W...	2IL12W...	1.32	0.9	1.2			
1/4" SCB	11	36	2JIR36W...		0.45	1.2	0.5	-	-	NVR..-2
		32	2JIR32W...		0.51	1.2	0.5			
		28	2JIR28W...		0.58	0.7	0.8			
		24	2JIR24W...		0.68	0.7	0.8			
		20	2JIR20W...		0.81	0.7	0.8			
		19	2JIR19W...		0.86	0.6	0.8			
		18	2JIR18W...		0.90	0.8	0.8			
		16	2JIR16W...		1.02	0.8	0.8			
		14	2JIR14W...		1.16	0.7	0.9			
3/8"	16	72	3IR72W...	3IL72W...	0.23	0.7	0.4	YI3	YE3	AVR..-3 (LH)
		60	3IR60W...	3IL60W...	0.27	0.7	0.4			
		56	3IR56W...	3IL56W...	0.29	0.7	0.4			
		48	3IR48W...	3IL48W...	0.34	0.6	0.6			
		40	3IR40W...	3IL40W...	0.41	0.6	0.6			
		36	3IR36W...	3IL36W...	0.45	0.6	0.6			
		32	3IR32W...	3IL32W...	0.51	0.6	0.6			
		30	3IR30W...	3IL30W...	0.55	0.6	0.7			

Whitworth - BSW, BSP, BSF, BSB (con't)

Internal



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



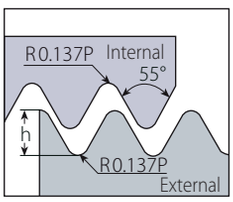
Standard | SCB Sintered Chipbreaker | V6 | F-Line

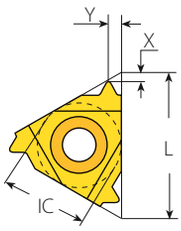
Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	28	3IR28W...	3IL28W...	0.58	0.6	0.7	YI3	YE3	AVR..-3 (LH)
		26	3IR26W...	3IL26W...	0.63	0.7	0.8			
		24	3IR24W...	3IL24W...	0.68	0.7	0.8			
		22	3IR22W...	3IL22W...	0.74	0.8	0.9			
		20	3IR20W...	3IL20W...	0.81	0.8	0.9			
		19	3IR19W...	3IL19W...	0.86	0.8	1.0			
		18	3IR18W...	3IL18W...	0.90	0.8	1.0			
		16	3IR16W...	3IL16W...	1.02	0.9	1.1			
		14	3IR14W...	3IL14W...	1.16	1.0	1.2			
		12	3IR12W...	3IL12W...	1.36	1.1	1.4			
		11	3IR11W...	3IL11W...	1.48	1.1	1.5			
		10	3IR10W...	3IL10W...	1.63	1.1	1.5			
		9	3IR9W...	3IL9W...	1.81	1.2	1.7			
		8	3IR8W...	3IL8W...	2.03	1.2	1.5			
3/8" SCB	16	28	3JIR28W...		0.58	0.7	0.8	YI3	-	AVR...-3
		24	3JIR24W...		0.68	0.7	0.8			
		20	3JIR20W...		0.81	0.7	0.8			
		19	3JIR19W...		0.86	0.6	0.5			
		18	3JIR18W...		0.90	0.8	0.8			
		16	3JIR16W...		1.02	0.8	0.8			
		14	3JIR14W...		1.16	1.3	1.5			
		12	3JIR12W...		1.36	1.3	1.5			
		11	3JIR11W...		1.48	1.3	1.5			
		10	3JIR10W...		1.63	1.3	1.5			
		8	3JIR8W...		2.03	1.3	1.5			
3/8" V6	16	19	3IR19W-6C...		0.86	1.7	2.2	YI3-6C	-	AVR..-3 NVRC..-3 206/...
		16	3IR16W-6C...		1.02	1.6	2.6			
		14	3IR14W-6C...		1.16	1.8	2.7			
		12	3IR12W-6C...		1.36	1.7	2.6			
1/2"	22	7	4IR7W...	4IL7W...	2.41	1.6	2.3	YI4	YE4	AVR..-4 (LH)
		6	4IR6W...	4IL6W...	2.71	1.6	2.3			
		5	4IR5W...	4IL5W...	3.25	1.7	2.4			
1/2"F	23	7	4FIR7W...		2.41	1.6	2.3	YI4F		AVRC...-4F
		6	4FIR6W...		2.71	1.6	2.3			
		5	4FIR5W...		3.25	1.7	2.4			
5/8"	27	4.5	5IR4.5W...	5IL4.5W...	3.61	1.8	2.6	YI5	YE5	AVR..-5 (LH)
		4	5IR4W...	5IL4W...	4.07	2.0	2.9			

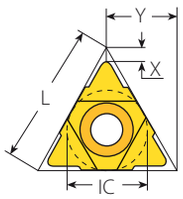
Whitworth - BSW, BSP, BSF, BSB (con't)

Internal

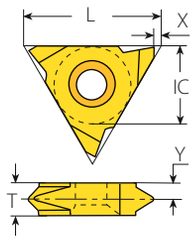




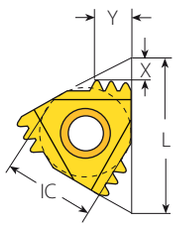
D-Line



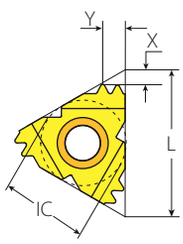
U Style



V Style



M+ Style



F-Line M+

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

D-Line Deep Rake

D-Line

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI	RH	h min	X	Y	RH	Toolholder
1/4"	11	19	2DIR19W...	0.86	0.8	1.0	-	NVR..-2
3/8"	16	19	3DIR19W...	0.86	0.8	1.0	YI3	AVR..-3
		14	3DIR14W...	1.16	1.0	1.2		
		11	3DIR11W...	1.48	1.1	1.5		

U Style

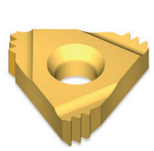
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4.5	4UEI4.5W...	3.61	2.3	11.0	YI4U	YE4U	AVR..-4U (LH)
		4	4UEI4W...	4.07	1.8	11.0			
		3.5	4UEI3.5W...	4.65	2.1	11.0			
		3.25	4UEI3.25W...	5.00	2.0	11.0			
5/8"U	27	3.5	5UEI3.5W...	4.65	2.1	13.7	YI5U	YE5U	AVR..-5U (LH)
		3.25	5UEI3.25W...	5.00	2.0	13.7			
		3	5UEI3W...	5.42	2.3	13.7			
		2.75	5UEI2.75W...	5.91	2.4	13.7			

V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VIR4W...	5VIL4W...	4.07	1.0	3.3	6	NVR..-5V (LH)
		3	5VIR3W...	5VIL3W...	5.42	1.0	4.3	8	
		2.5	5VIR2.5W...	5VIL2.5W...	6.51	1.0	5.2	10	

M+ Style

Multi plus

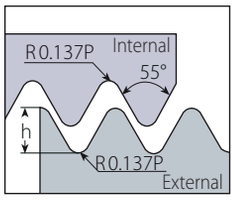


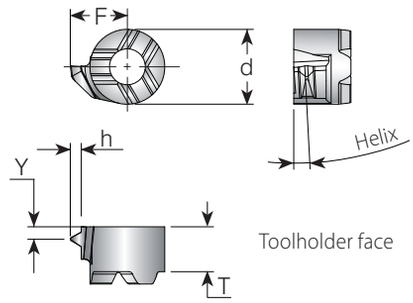
F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
3/8"	16	14	2	3IR14W2M+...	1.16	2.0	3.0	YI3M	AVR..-3
1/2"	22	11	2	4IR11W2M+...	1.48	2.3	3.5	YI4M	AVR..-4
1/2"F	23	11	2	4FIR11W2M+...	1.48	2.3	3.5	YI4M2F	AVRC... -4MF

Whitworth - BSW, BSP, BSF, BSB (con't)

Internal





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

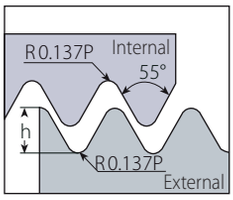
Mini-V

Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions mm					Helix	Toolholder
		TPI	RH	d	T	F	Y	h min	Deg.	
1/2"x19W	V11	19	V11TH19WR...	8	4.2	6.18	0.8	0.86	2	.V11-...

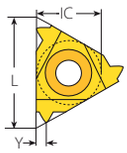
Whitworth - BSW, BSP, BSF, BSB (con't)

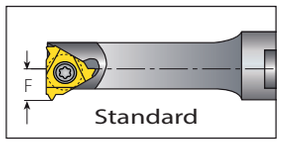
MINIPRO

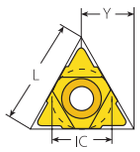
Internal

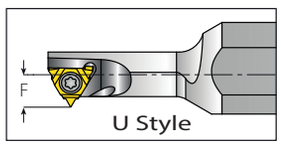


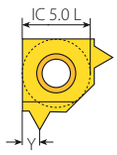
Defined by: B.S.84:1956, DIN 259,
ISO228/1:1982
Tolerance class: Medium class A

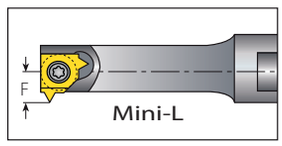












Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
4.0	6	26	4.0KIR26W...	4.0KIL26W...	0.63	0.6	3.6	6.25	.NVR.5-4.0K (LH)
		22	4.0KIR22W...	4.0KIL22W...	0.74	0.6	3.7	6.35	
		20	4.0KIR20W...	4.0KIL20W...	0.81	0.7	3.7	6.35	
		19	4.0KIR19W...	4.0KIL19W...	0.86	0.7	3.7	6.35	
		18	4.0KIR18W...	4.0KIL18W...	0.90	0.7	3.7	6.35	
5.0	8	28	5.0KIR28W...	5.0KIL28W...	0.58	0.6	4.7	7.8	.NVRC7-5.0K (LH)
		24	5.0KIR24W...	5.0KIL24W...	0.68	0.6			
		20	5.0KIR20W...	5.0KIL20W...	0.81	0.7			
		19	5.0KIR19W...	5.0KIL19W...	0.86	0.7			
		18	5.0KIR18W...	5.0KIL18W...	0.90	0.7			
		16	5.0KIR16W...	5.0KIL16W...	1.02	0.7			
6.0	10	28	6.0KIR28W...	6.0KIL28W...	0.58	0.7	4.7	9.6	.NVRC1..-6.0K (LH)
		19	6.0KIR19W...	6.0KIL19W...	0.86	1.0	5.0	9.9	
		14	6.0KIR14W...	6.0KIL14W...	1.16	1.1	5.3	10.0	

Mini-3 U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH+LH	h min	Y	F	mm	Toolholder
5.0U	8	14	5.0KUI14W...	1.16	4.0	5.6	9.0	.NVRC8-5.0KU (LH)
		12	5.0KUI12W...	1.36		5.7		
		11	5.0KUI11W...	1.48		5.7		

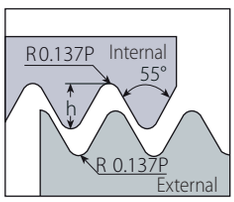
Mini-L

Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
5.0L	28	5LKIR28W...	5LKIL28W...	0.58	0.7	4.05	7.6	.NVRC10. -5LK (LH)
	19	5LKIR19W...	5LKIL19W...	0.86	1.0	4.35	7.9	
	14	5LKIR14W...	5LKIL14W...	1.16	1.1	4.68	8.0	

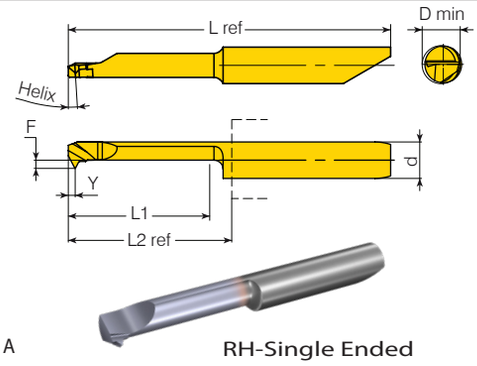
Whitworth - BSW, BSP, BSF, BSB (con't)

MINIPRO

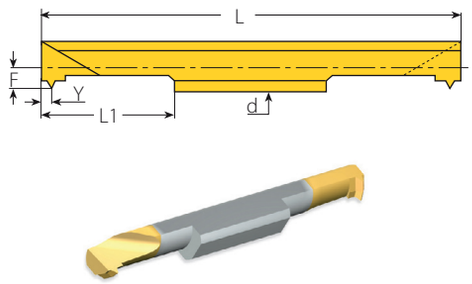
Internal



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



RH-Single Ended



RH-Double Ended

Micro - Double Ended

	Insert Dia.	Pitch	Ordering Code	Dimensions mm					Min. Bore Dia.	
Thread	d mm	TPI	RH	L1	L	F	Y	h min	mm	Toolholder
1/16"-28BSP	4.0	28	4.0SIR28W...	16	50	1.86	0.65	0.58	4.2	SMC..-4.0
1/4"-26BSF		26	4.0SIR26W...	16	50	1.93	0.75	0.63	4.2	
1/4"-24BSW		24	4.0SIR24W...	16	50	1.96	0.75	0.68	4.3	
1/16"-28BSP	6.0	28	6.0SIR28W...	16	50	2.50	0.65	0.58	6.0	SMC..-6.0
5/16"-28BSW		26	6.0SIR26W...	16	50	2.50	0.75	0.63	6.0	
5/16"-24BSW		24	6.0SIR24W...	16	50	2.50	0.75	0.68	6.0	
5/16"-22BSW		22	6.0SIR22W...	16	50	2.50	0.90	0.74	6.0	
3/8"-20BSF		20	6.0SIR20W...	16	50	2.50	0.90	0.81	6.0	
1/4"-19BSP		19	6.0SIR19W...	16	50	2.50	0.95	0.86	6.0	

Left handed tool supplied by request (Example: 6.0SI**L**19W...).

Micro - Single Ended

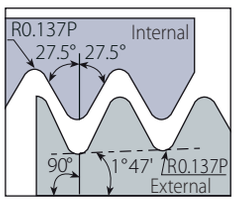
micrOscope

	Insert Dia.	Pitch	Ordering Code	Dimensions mm							Min. Bore Dia.	
Thread	d mm	TPI	RH/LH	Helix °	L1	F	Y	h min	L2 ref*	L ref	D mm	Toolholder
1/16"-28BSP	6.0	28	M659TH28WL16R/L...	3.5	16	2.9	0.65	0.58	18.5	42.2	6.5	MH...-6.0
1/4"-19BSP		19	M659TH19WL16R/L...				0.95	0.86			11.4	

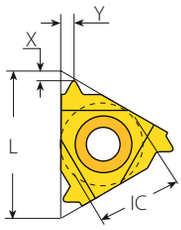
* L2 Ref: Repeatability within +/-0.02.

BSPT

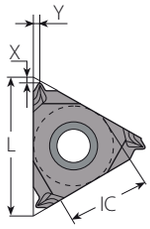
External



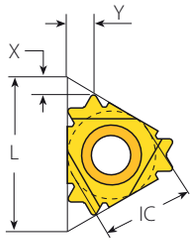
Defined by: B.S. 21:1985
Tolerance class: Standard BSPT



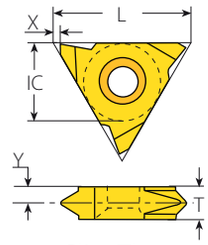
Standard



SCB
Sintered
Chipbreaker

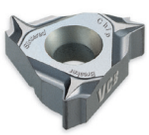


V6



Slim Throat

Standard



SCB

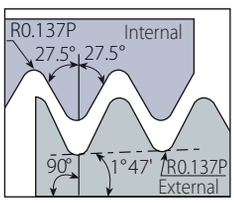
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	28	2ER28BSPT...	2EL28BSPT...	0.58	0.6	0.6	-	-	NL ..-2 (LH)
		19	2ER19BSPT...	2EL19BSPT...	0.86	0.8	0.9			
		14	2ER14BSPT...	2EL14BSPT...	1.16	0.9	1.0			
3/8"	16	28	3ER28BSPT...	3EL28BSPT...	0.58	0.6	0.6	YE3	YI3	AL..-3 (LH)
		19	3ER19BSPT...	3EL19BSPT...	0.86	0.8	0.9			
		14	3ER14BSPT...	3EL14BSPT...	1.16	1.0	1.2			
		11	3ER11BSPT...	3EL11BSPT...	1.48	1.1	1.5			
3/8" SCB	16	28	3JER28BSPT...		0.58	0.7	0.8	YE3	-	AL..-3
		19	3JER19BSPT...		0.86	0.7	0.8			
		14	3JER14BSPT...		1.16	1.3	1.5			
		11	3JER11BSPT...		1.48	1.3	1.5			
3/8" V6	16	19	3ER19BSPT-6C...		0.86	1.7	2.2	YE3-6C	-	AL..-3
		14	3ER14BSPT-6C...		1.16	1.9	2.8			

Slim Throat

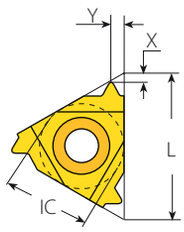
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
3/8"V	16	28	3VER28BSPT...	3VEL28BSPT...	0.58	1.1	3.0	3.6	NL..-3V (LH)
		19	3VER19BSPT...	3VEL19BSPT...	0.86	1.1	2.7	3.6	
		14	3VER14BSPT...	3VEL14BSPT...	1.16	1.1	2.4	3.6	
		11	3VER11BSPT...	3VEL11BSPT...	1.48	1.1	2.1	3.6	

BSPT (con't)

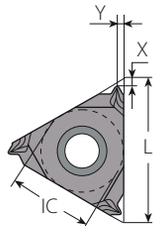
Internal



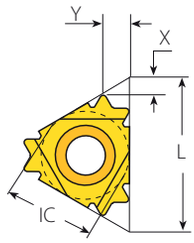
Defined by: B.S. 21:1985
Tolerance class: Standard BSPT



Standard & D-Line



SCB Sintered Chipbreaker



V6

Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	28	2IR28BSPT...	2IL28BSPT...	0.58	0.6	0.6	-	-	NVR..-2 (LH)
		19	2IR19BSPT...	2IL19BSPT...	0.86	0.8	0.9			
		14	2IR14BSPT...	2IL14BSPT...	1.16	0.9	1.0			
1/4" SCB	11	28	2JIR28BSPT...		0.58	0.7	0.8	-	-	NVR..-2
		19	2JIR19BSPT...		0.86	0.7	0.8			
3/8"	16	28	3IR28BSPT...	3IL28BSPT...	0.58	0.6	0.6	YI3	YE3	AVR..-3 (LH)
		19	3IR19BSPT...	3IL19BSPT...	0.86	0.8	0.9			
		14	3IR14BSPT...	3IL14BSPT...	1.16	1.0	1.2			
		11	3IR11BSPT...	3IL11BSPT...	1.48	1.1	1.5			
3/8" SCB	16	28	3JIR28BSPT...		0.58	0.7	0.8	YI3	-	AVR..-3
		19	3JIR19BSPT...		0.86	0.7	0.8			
		14	3JIR14BSPT...		1.16	1.3	1.5			
		11	3JIR11BSPT...		1.48	1.3	1.5			
3/8" V6	16	19	3IR19BSPT-6C...		0.86	1.8	2.3	YI3-6C	-	AVR..-3 NVRC..-3 206/...
		14	3IR14BSPT-6C...		1.16	1.9	2.7			

D-Line Deep Rake

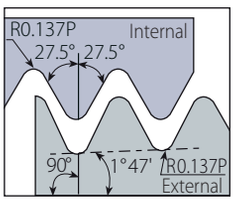
D-Line

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI	RH	h min	X	Y	RH	Toolholder
1/4"	11	19	2DIR19BSPT...	0.86	0.8	0.9	-	NVR..-2
		14	2DIR14BSPT...	1.16	0.9	1.0		
3/8"	16	19	3DIR19BSPT...	0.86	0.8	0.9	YI3	AVR..-3
		14	3DIR14BSPT...	1.16	1.0	1.2		
		11	3DIR11BSPT...	1.48	1.1	1.5		

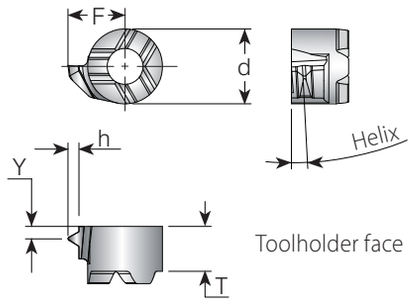
BSPT (con't)

Mini-V

Internal



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



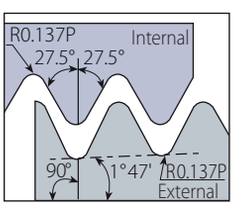
Mini-V

Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions mm					Helix	Toolholder
		TPI	RH	d	T	F	Y	h min	Deg.	
1/4"-19BSPT	V11	19	V11TH19BSPTR...	8	4.2	6.13	0.9	0.86	2.5	.V11-...

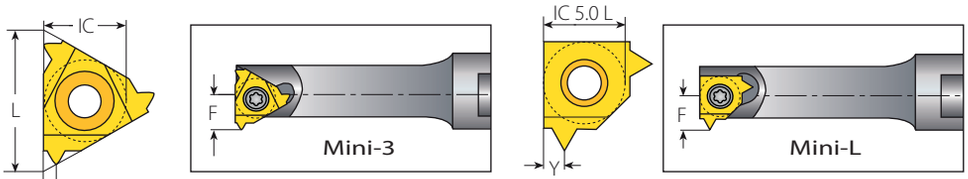
BSPT

MINIPRO

Internal



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



Mini-3 Standard

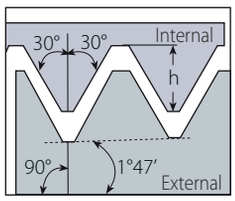
Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
4.0	6	28	4.0KIR28BSPT...	4.0KIL28BSPT...	0.58	0.6	3.6	6.25	.NVR.5-4.0K (LH)
5.0	8	28	5.0KIR28BSPT...	5.0KIL28BSPT...	0.58	0.6	4.7	7.8	.NVRC7-5.0K (LH)
		19	5.0KIR19BSPT...	5.0KIL19BSPT...	0.86	0.7			
6.0	10	28	6.0KIR28BSPT...	6.0KIL28BSPT...	0.58	0.6	4.7	9.6	.NVRC1..-6.0K (LH)
		19	6.0KIR19BSPT...	6.0KIL19BSPT...	0.86	0.9	5.0	9.9	
		14	6.0KIR14BSPT...	6.0KIL14BSPT...	1.16	1.2	5.3	10.0	

Mini-L

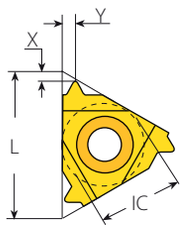
Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
5.0L	28	5LKIR28BSPT...	5LKIL28BSPT...	0.58	0.6	4.05	7.6	.NVRC10. -5LK (LH)
	19	5LKIR19BSPT...	5LKIL19BSPT...	0.86	0.9	4.35	7.9	
	14	5LKIR14BSPT...	5LKIL14BSPT...	1.16	1.2	4.68	8.0	

NPT

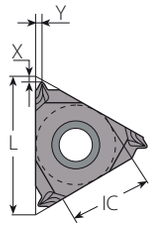
External



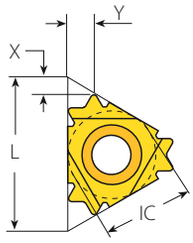
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



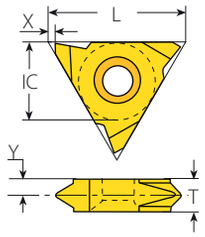
Standard



SCB
Sintered
Chipbreaker

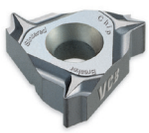


V6



Slim Throat

Standard



SCB

V6

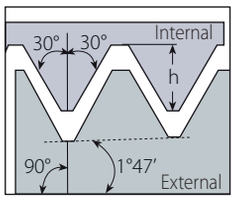
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	27	2ER27NPT...	2EL27NPT...	0.66	0.7	0.8	-	-	NL..-2 (LH)
		18	2ER18NPT...	2EL18NPT...	1.01	0.8	1.0			
		14	2ER14NPT...	2EL14NPT...	1.33	0.8	1.0			
3/8"	16	27	3ER27NPT...	3EL27NPT...	0.66	0.7	0.8	YE3	YI3	AL..-3 (LH)
		18	3ER18NPT...	3EL18NPT...	1.01	0.8	1.0			
		14	3ER14NPT...	3EL14NPT...	1.33	0.9	1.2			
		11.5	3ER11.5NPT...	3EL11.5NPT...	1.64	1.1	1.5			
		8	3ER8NPT...	3EL8NPT...	2.42	1.3	1.8			
3/8" SCB	16	27	3JER27NPT...		0.66	0.6	0.8	YE3	-	AL..-3
		18	3JER18NPT...		1.01	0.6	0.8			
		14	3JER14NPT...		1.33	1.1	1.5			
		11.5	3JER11.5NPT...		1.64	1.1	1.5			
		8	3JER8NPT...		2.42	1.0	1.5			
3/8" V6	16	14	3ER14NPT-6C...		1.33	1.9	3.0	YE3-6C	-	AL..-3

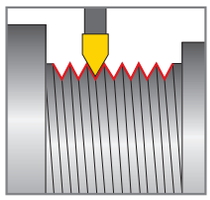
Slim Throat

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
1/4"V	11	27	2VER27NPT...	2VEL27NPT...	0.66	0.7	2.0	3.2	NL..-2V (LH)
		18	2VER18NPT...	2VEL18NPT...	1.01	0.7	1.8	3.2	
		14	2VER14NPT...	2VEL14NPT...	1.33	0.7	1.8	3.2	
		11.5	2VER11.5NPT...	2VEL11.5NPT...	1.64	0.7	2.1	3.2	
3/8"V	16	27	3VER27NPT...	3VEL27NPT...	0.66	1.1	2.9	3.6	NL..-3V (LH)
		18	3VER18NPT...	3VEL18NPT...	1.01	1.1	2.6	3.6	
		11.5	3VER11.5NPT...	3VEL11.5 NPT...	1.64	1.1	2.1	3.6	

NPT (con't)

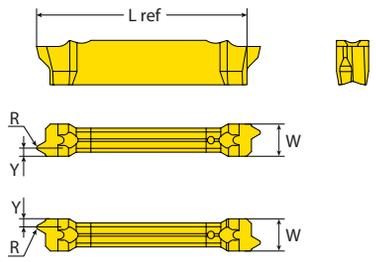
External





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

RS/LS Varied range of threading standards for machining between shoulders and close to spindle.



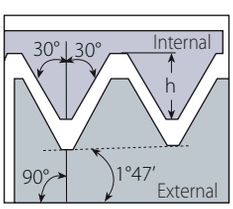
VG-Cut

Pocket Size	Ordering Code	Dimensions mm					No. of Passes	Helix	Min. Thread Diameter	Toolholder
	RH	W ref	Pitch TPI	h min	Y	L ref		Deg		Monoblock
3	VGD3.0NPT18RH-RS/LS...		18	1.01	1.20		7 - 12		1/4″-18NPT	
3	VGD3.0NPT14RH-RS/LS...	3.00	14	1.33	1.40	21.9	8 - 14	1.5°	1/2″-14NPT	VGE...-3T...
3	VGD3.0NPT11.5RH-RS/LS...		11.5	1.64	1.60		9 - 15		1″-11.5NPT	

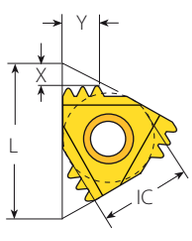
LH Helix threads available upon request.

NPT (con't)

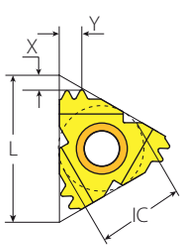
External



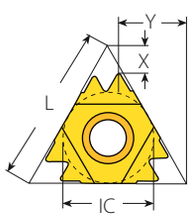
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



M+ Style



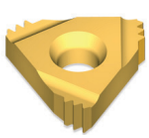
F-Line M+



Z+ Style

M+ Style

Multiplus



F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
3/8″	16	14	2	3ER14NPT2M+...	1.33	2.0	3.0	YE3M	AL..-3
1/2″	22	11.5	2	4ER11.5NPT2M+...	1.64	2.2	3.4	YE4M	AL..-4
1/2″F	23	11.5	2	4FER11.5NPT2M+...	1.64	2.2	3.4	YE4M2F	AL...-4MF
5/8″	27	11.5	3	5ER11.5NPT3M+...	1.64	3.5	5.6	YE5M	AL..-5M
		8	2	5ER8NPT2M+...	2.42	3.1	4.9		

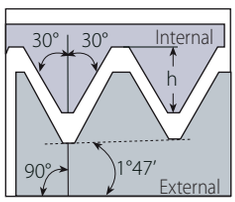
Z+ Style

Multiplus

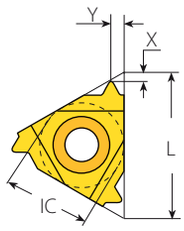
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
1/2″	22	11.5	2	4ER11.5NPT2Z+...	1.64	2.7	10.0	YE4Z	AL..-4Z
		8	2	4ER8NPT2Z+...	2.42	3.4	9.6		

NPT (con't)

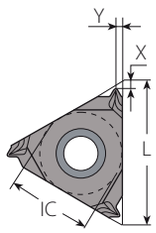
Internal



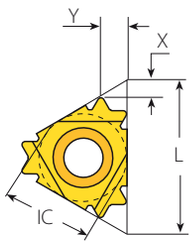
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



Standard & D-Line

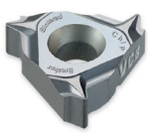


SCB Sintered Chipbreaker



V6

Standard



SCB

V6

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	27	2IR27NPT...	2IL27NPT...	0.66	0.7	0.8	-	-	NVR..-2 (LH)
		18	2IR18NPT...	2IL18NPT...	1.01	0.8	1.0			
		14	2IR14NPT...	2IL14NPT...	1.33	0.8	1.0			
1/4" SCB	11	27	2JIR27NPT...		0.66	0.6	0.8	-	-	NVR..-2
		18	2JIR18NPT...		1.01	0.6	0.8			
3/8"	16	27	3IR27NPT...	3IL27NPT...	0.66	0.7	0.8	YI3	YE3	AVR..-3 (LH)
		18	3IR18NPT...	3IL18NPT...	1.01	0.8	1.0			
		14	3IR14NPT...	3IL14NPT...	1.33	0.9	1.2			
		11.5	3IR11.5NPT...	3IL11.5NPT...	1.64	1.1	1.5			
		8	3IR8NPT...	3IL8NPT...	2.42	1.3	1.8			
3/8" SCB	16	27	3JIR27NPT...		0.66	0.6	0.8	YI3	-	AVR..-3
		18	3JIR18NPT...		1.01	0.6	0.8			
		14	3JIR14NPT...		1.33	1.1	1.5			
		11.5	3JIR11.5NPT...		1.64	1.1	1.5			
		8	3JIR8NPT...		2.42	1.0	1.5			
3/8" V6	16	14	3IR14NPT-6C...		1.33	1.9	2.8	YI3-6C	-	AVR..-3 NVRC..-3 206/...

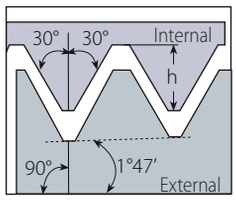
D-Line Deep Rake

D-Line

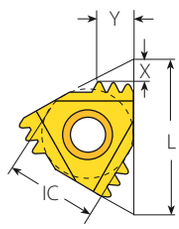
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI	RH	h min	X	Y		Toolholder
1/4"	11	18	2DIR18NPT...	1.01	0.7	0.8	-	NVR..-2
		14	2DIR14NPT...	1.33	0.8	1.0		
3/8"	16	18	3DIR18NPT...	1.01	0.8	1.0	YI3	AVR..-3
		14	3DIR14NPT...	1.33	0.9	1.2		
		11.5	3DIR11.5NPT...	1.64	1.1	1.5		

NPT (con't)

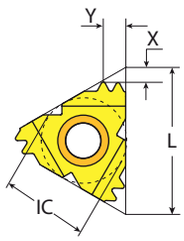
Internal



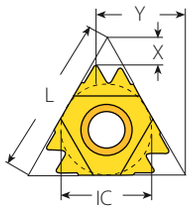
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



M+ Style



F-Line M+



Z+ Style

M+ Style

F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
3/8″	16	14	2	3IR14NPT2M+...	1.33	2.0	3.0	YI3M	AVR..-3
1/2″	22	11.5	2	4IR11.5NPT2M+...	1.64	2.2	3.4	YI4M	AVR..-4
1/2″F	23	11.5	2	4FIR11.5NPT2M+...	1.64	2.2	3.4	YI4M2F	AVRC...-4MF
5/8″	27	11.5	3	5IR11.5NPT3M+...	1.64	3.5	5.6	YI5M	AVR..-5M
		8	2	5IR8NPT2M+...	2.42	3.1	4.9		

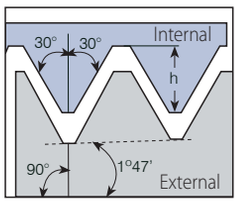
Z+ Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
1/2″	22	11.5	2	4IR11.5NPT2Z+...	1.64	2.7	10.0	YI4Z	AVR..-4Z
		8	2	4IR8NPT2Z+...	2.42	3.4	9.6		

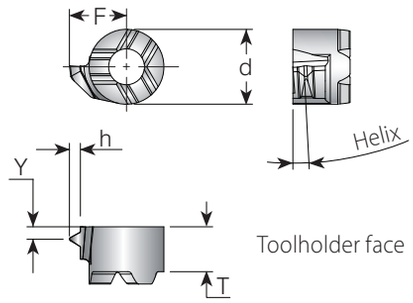
NPT (con't)

Mini-V

Internal



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



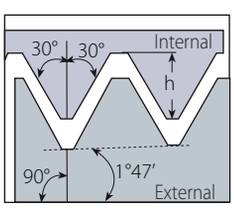
Mini-V

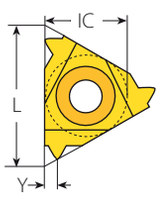
Min. Thread	Insert Style	Pitch	Ordering Code		Dimensions mm				Helix	Toolholder
		TPI	RH	d	T	F	Y	h min	Deg.	
1/8"-27NPT	V08	27	V08TH27NPTR...	6	3.8	4.35	0.6	0.64	2	.V08-...
1/4"-18NPT		18	V08TH18NPTR...			4.8	0.9	1.0	2	

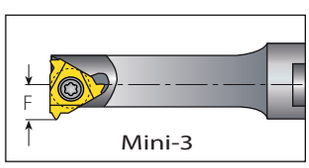
NPT

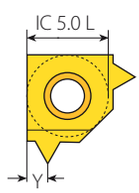
MINIPRO

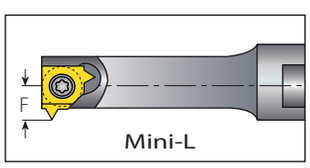
Internal











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

Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
4.0	6.0	27	4.0KIR27NPT...	4.0KIL27NPT...	0.66	0.6	3.7	6.35	.NVR.5-4.0K (LH)
5.0	8	27	5.0KIR27NPT...	5.0KIL27NPT...	0.66	0.6	4.7	7.8	.NVRC7-5.0K (LH)
		18	5.0KIR18NPT...	5.0KIL18NPT...	1.01	0.8			
6.0	10	27	6.0KIR27NPT...	6.0KIL27NPT...	0.66	0.8	5.3	10.0	.NVRC1..-6.0K (LH)
		18	6.0KIR18NPT...	6.0KIL18NPT...	1.01	1.0	5.3		
		14	6.0KIR14NPT...	6.0KIL14NPT...	1.33	1.1	5.3		

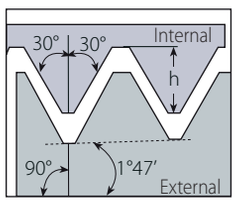
Mini-L

Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
5.0L	27	5LKIR27NPT...	5LKIL27NPT...	0.66	0.8	4.65	8.0	.NVRC10.-5LK (LH)
	18	5LKIR18NPT...	5LKIL18NPT...	1.01	1.0	4.65		
	14	5LKIR14NPT...	5LKIL14NPT...	1.33	1.1	4.65		

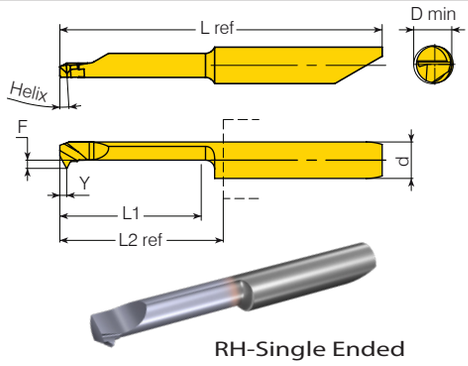
NPT (con't)

MINIPRO

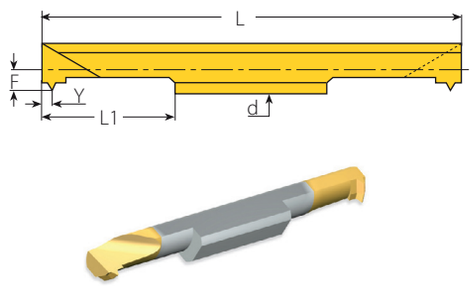
Internal



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



RH-Single Ended



RH-Double Ended

Micro - Double Ended

	Insert Dia.	Pitch	Ordering Code	Dimensions mm					Min. Bore Dia.	
Thread	d mm	TPI	RH	L1	L	F	Y	h min	mm	Toolholder
1/16"-27NPT	6.0	27	6.0SIR27NPT...	16	50	2.50	1.00	0.66	5.9	SMC..-6.0
1/4"-18NPT		18	6.0SIR18NPT...	16	50	2.50	0.80	1.01	6.0	

Left handed tool supplied by request (Example: 6.0SI**L**18NPT...).

Micro - Single Ended

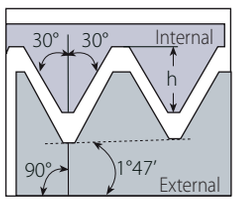
microscope

	Insert Dia.	Pitch	Ordering Code	Dimensions mm							Min. Bore Dia.	
Thread	d mm	TPI	RH/LH	Helix°	L1	F	Y	h min	L2 ref*	L ref	D mm	Toolholder
1/16"-27NPT	6.0	27	M659TH27NPTL16R/L...	3.5	16	2.9	0.75	0.66	18.5	42.2	6.1	MH...-6.0
1/4"-18NPT		18	M659TH18NPTL16R/L...				1.0	1.01			10.7	
1/2"-14NPT		14	M659TH14NPTL16R/L...				1.05	1.33			17.0	

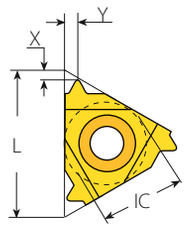
* L2 Ref: Repeatability within +/-0.02.

ANPT

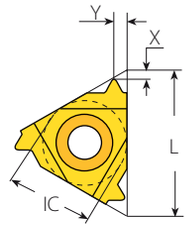
External / Internal



Defined by: MIL-P-7105B
Tolerance class: Standard ANPT



External
Standard



Internal
Standard

Standard - External

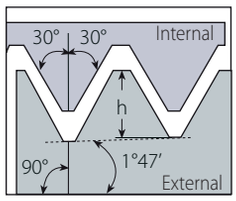
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	18	3ER18ANPT...	3EL18ANPT...	1.08	0.8	1.0	YE3	YI3	AL..-3 (LH)
		14	3ER14ANPT...	3EL14ANPT...	1.39	0.8	1.0			

Standard - Internal

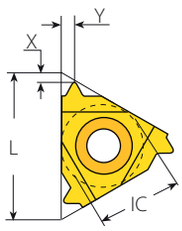
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	18	2IR18ANPT...	2IL18ANPT...	1.08	0.80	1.0	-	-	NVR..-2 (LH)
3/8"	16	14	3IR14ANPT...	3IL14ANPT...	1.39	0.80	1.0	YI3	YE3	AVR..-3 (LH)

NPTF

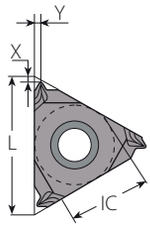
External



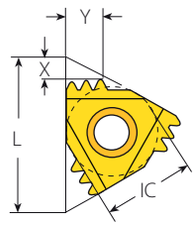
Defined by: ANSI B1.20.3-1976
Tolerance class: Standard NPTF



Standard

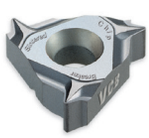


SCB
Sintered
Chipbreaker



M+ Style

Standard

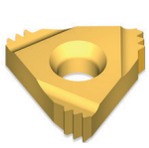


SCB

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	11	27	2ER27NPTF...	2EL27NPTF...	0.64	0.7	0.8	-	-	NL..-2 (LH)
		18	2ER18NPTF...	2EL18NPTF...	1.00	0.8	1.0			
		14	2ER14NPTF...	2EL14NPTF...	1.35	0.8	1.0			
3/8″	16	27	3ER27NPTF...	3EL27NPTF...	0.64	0.7	0.8	YE3	YI3	AL..-3 (LH)
		18	3ER18NPTF...	3EL18NPTF...	1.00	0.8	1.0			
		14	3ER14NPTF...	3EL14NPTF...	1.35	0.9	1.2			
		11.5	3ER11.5NPTF...	3EL11.5NPTF...	1.63	1.1	1.5			
		8	3ER8NPTF...	3EL8NPTF...	2.38	1.3	1.8			
3/8″ SCB	16	27	3JER27NPTF...		0.64	0.7	0.8	YE3	-	AL..-3
		18	3JER18NPTF...		1.00	0.6	0.8			
		14	3JER14NPTF...		1.35	1.1	1.5			
		11.5	3JER11.5NPTF...		1.63	1.1	1.5			
		8	3JER8NPTF...		2.38	1.1	1.5			

M+ Style

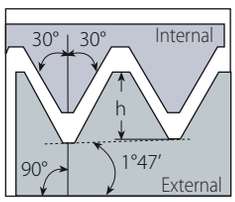
Multi plus



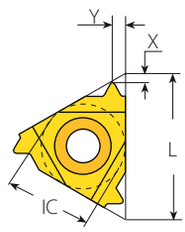
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
3/8″	16	14	2	3ER14NPTF2M+...	1.35	2.0	3.0	YE3M	AL...-3

NPTF (con't)

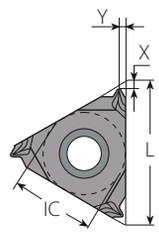
Internal



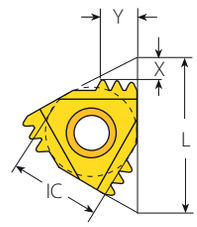
Defined by: ANSI B1.20.3-1976
Tolerance class: Standard NPTF



Standard

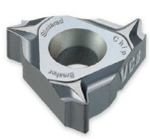


SCB
Sintered
Chipbreaker



M+ Style

Standard

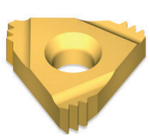


SCB

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	11	27	2IR27NPTF...	2IL27NPTF...	0.64	0.7	0.8	-	-	NVR..-2 (LH)
		18	2IR18NPTF...	2IL18NPTF...	1.00	0.8	1.0			
		14	2IR14NPTF...	2IL14NPTF...	1.35	0.8	1.0			
1/4″ SCB	11	27	2JIR27NPTF...		0.64	0.7	0.8	-	-	NVR..-2
		18	2JIR18NPTF...		1.00	0.6	0.8			
3/8″	16	27	3IR27NPTF...	3IL27NPTF...	0.64	0.7	0.8	YI3	YE3	AVR..-3 (LH)
		18	3IR18NPTF...	3IL18NPTF...	1.00	0.8	1.0			
		14	3IR14NPTF...	3IL14NPTF...	1.35	0.9	1.2			
		11.5	3IR11.5NPTF...	3IL11.5NPTF...	1.63	1.1	1.5			
		8	3IR8NPTF...	3IL8NPTF...	2.38	1.3	1.8			
3/8″ SCB	16	27	3JIR27NPTF...		0.64	0.7	0.8	YI3	-	AVR..-3
		18	3JIR18NPTF...		1.00	0.6	0.8			
		14	3JIR14NPTF...		1.35	1.1	1.5			
		11.5	3JIR11.5NPTF...		1.63	1.1	1.5			
		8	3JIR8NPTF...		2.38	1.1	1.5			

M+ Style

Multiplus

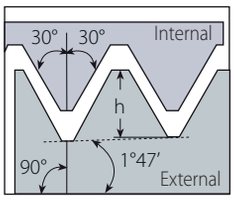


Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
3/8″	16	14	2	3IR14NPTF2M+...	1.35	2.0	3.0	YI3M	AVR..-3

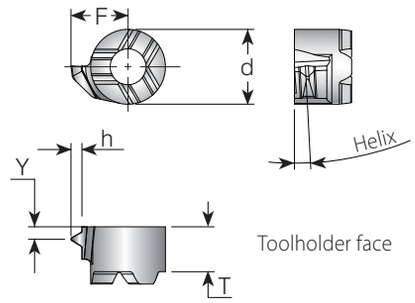
NPTF (con't)

Mini-V

Internal



Defined by: ANSI B1.20.3-1976
Tolerance class: Standard NPTF



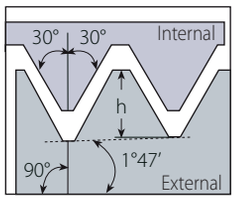
Mini-V

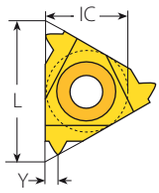
Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions mm					Helix	Toolholder
		TPI	RH	d	T	F	Y	h min	Deg.	
1/4"-18NPTF	V08	18	V08TH18NPTFR...	6	3.8	4.64	0.9	1.0	2.0	.V08-...

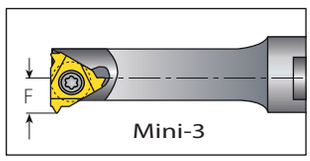
NPTF (con't)

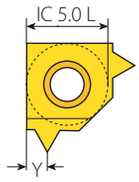
MINIPRO

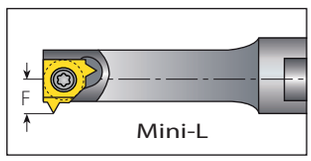
Internal











Defined by: ANSI B1.20.3-1976
Tolerance class: Standard NPTF

Mini-3 Standard

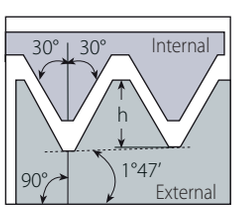
Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
4.0	6	27	4.0KIR27NPTF...	4.0KIL27NPTF...	0.64	0.6	3.6	6.25	.NVR.5-4.0K (LH)
5.0	8	27	5.0KIR27NPTF...	5.0KIL27NPTF...	0.64	0.6	4.7	7.8	.NVRC7-5.0K (LH)
		18	5.0KIR18NPTF...	5.0KIL18NPTF...	1.00	0.8			
6.0	10	27	6.0KIR27NPTF...	6.0KIL27NPTF...	0.64	0.8	5.3	10.0	.NVRC1..-6.0K (LH)
		18	6.0KIR18NPTF...	6.0KIL18NPTF...	1.00	1.0	5.3		
		14	6.0KIR14NPTF...	6.0KIL14NPTF...	1.35	1.1	5.3		

Mini-L

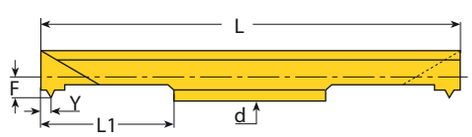
Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
5.0L	27	5LKIR27NPTF...	5LKIL27NPTF...	0.64	0.8	4.65	8.0	.NVRC10.-5LK (LH)
	18	5LKIR18NPTF...	5LKIL18NPTF...	1.00	1.0	4.65		
	14	5LKIR14NPTF...	5LKIL14NPTF...	1.35	1.1	4.65		

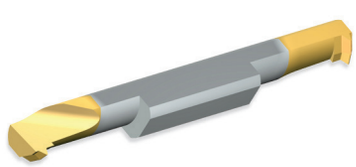
NPTF

Internal



Defined by: ANSI B1.20.3-1976
Tolerance class: Standard NPTF





RH-Double Ended

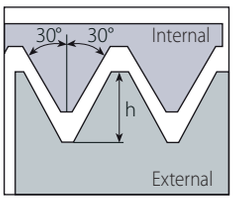
Micro - Double Ended

Insert Dia.		Pitch	Ordering Code	Dimensions mm					Min. Bore Dia.	
Thread	d mm	TPI	RH	L1	L	F	Y	h min	mm	Toolholder
1/16"-27NPTF	6.0	27	6.0SIR27NPTF...	16	50	2.50	0.80	0.64	6.0	SMC..-6.0
1/4"-18NPTF		18	6.0SIR18NPTF...	16	50	2.50	1.00	1.00		

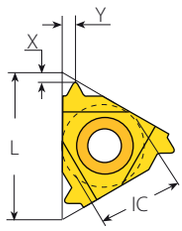
Left handed tool supplied by request (Example: 6.0SI**L**18NPTF...).

NPS

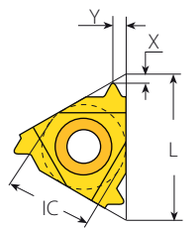
External / Internal



Defined by: USA NBS H28 (1957)
Tolerance class: Standard NPS



External Standard



Internal Standard

Standard - External

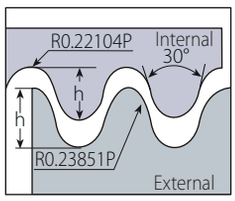
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	16	24	3ER24NPS...	3EL24NPS...	0.79	0.7	0.8	YE3	YI3	AL..-3 (LH)
		16	3ER16NPS...	3EL16NPS...	1.21	0.8	1.1			
		14	3ER14NPS...	3EL14NPS...	1.33	0.9	1.2			
		12	3ER12NPS...	3EL12NPS...	1.63	1.1	1.4			
		11.5	3ER11.5NPS...	3EL11.5NPS...	1.71	1.1	1.5			
		9	3ER9NPS...	3EL9NPS...	2.20	1.2	1.6			
1/2″	22	8	4ER8NPS...	4EL8NPS...	2.46	1.3	1.9	YE4	YI4	AL..-4 (LH)
		7	4ER7NPS...	4EL7NPS...	2.82	1.6	2.3			
		6	4ER6NPS...	4EL6NPS...	3.31	1.6	2.3			
5/8″	27	5	5ER5NPS...	5EL5NPS...	3.98	1.9	2.8	YE5	YI5	AL..-5 (LH)

Standard - Internal

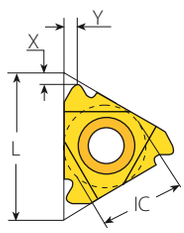
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	16	24	3IR24NPS...	3IL24NPS...	0.79	0.7	0.8	YI3	YE3	AVR..-3 (LH)
		14	3IR14NPS...	3IL14NPS...	1.33	0.9	1.2			
		12	3IR12NPS...	3IL12NPS...	1.63	1.1	1.4			
		11.5	3IR11.5NPS...	3IL11.5NPS...	1.71	1.1	1.5			
		9	3IR9NPS...	3IL9NPS...	2.20	1.2	1.6			
1/2″	22	8	4IR8NPS...	4IL8NPS...	2.46	1.3	1.9	YI4	YE4	AVR..-4 (LH)
		7	4IR7NPS...	4IL7NPS...	2.82	1.6	2.3			
		6	4IR6NPS...	4IL6NPS...	3.31	1.6	2.3			
5/8″	27	5	5IR5NPS...	5IL5NPS...	3.98	1.9	2.8	YI5	YE5	AVR..-5 (LH)

Round (DIN 405)

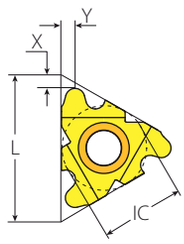
External



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



Standard



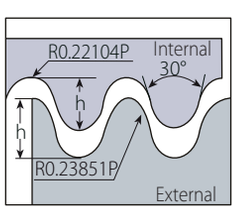
F-Line

Standard

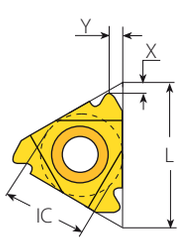
F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	16	10	3ER10RD...	3EL10RD...	1.27	1.1	1.2	YE3	YI3	AL..-3 (LH)
		8	3ER8RD...	3EL8RD...	1.59	1.4	1.3			
		6	3ER6RD...	3EL6RD...	2.12	1.5	1.7			
1/2″	22	6	4ER6RD...	4EL6RD...	2.12	1.5	1.7	YE4	YI4	AL..-4 (LH)
		4	4ER4RD...	4EL4RD...	3.18	2.2	2.3			
1/2″F	23	6	4FER6RD...		2.12	1.5	1.7	YE4F		AL...-4F
		4	4FER4RD...		3.18	2.2	2.3			
5/8″	27	4	5ER4RD...	5EL4RD...	3.18	2.2	2.3	YE5	YI5	AL..-5 (LH)

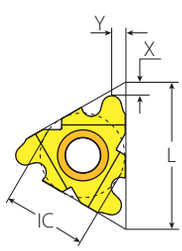
Internal



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



Standard



F-Line

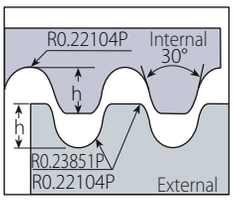
Standard

F-LINE

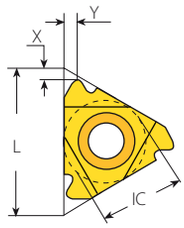
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	16	10	3IR10RD...	3IL10RD...	1.27	1.1	1.2	YI3	YE3	AVR..-3 (LH)
		8	3IR8RD...	3IL8RD...	1.59	1.4	1.4			
		6	3IR6RD...	3IL6RD...	2.12	1.4	1.5			
1/2″	22	6	4IR6RD...	4IL6RD...	2.12	1.5	1.7	YI4	YE4	AVR..-4 (LH)
		4	4IR4RD...	4IL4RD...	3.18	2.2	2.3			
1/2″F	23	6	4FIR6RD...		2.12	1.5	1.7	YI4F		AVRC...-4F
		4	4FIR4RD...		3.18	2.2	2.3			
5/8″	27	4	5IR4RD...	5IL4RD...	3.18	2.2	2.3	YI5	YE5	AVR..-5 (LH)

Round (DIN 20400)

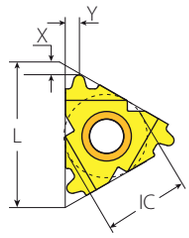
External



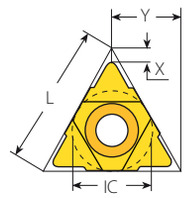
Defined by: DIN 20400
Tolerance class: Standard



Standard



F-Line



U Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2"	22	3.0	4ER3.0RD20400...	4EL3.0RD20400...	1.65	1.3	1.7	YE4	YI4	AL..-4 (LH)
		4.0	4ER4.0RD20400...	4EL4.0RD20400...	2.20	1.6	2.2			
		5.0	4ER5.0RD20400...	4EL5.0RD20400...	2.75	1.4	1.7			
		6.0	4ER6.0RD20400...	4EL6.0RD20400...	3.30	1.7	2.1			
1/2"F	23	3.0	4FER3.0RD20400...		1.65	1.3	1.7	YE4F		AL...-4F
		4.0	4FER4.0RD20400...		2.2	1.6	2.2			
		5.0	4FER5.0RD20400...		2.75	1.4	1.7			
		6.0	4FER6.0RD20400...		3.3	1.7	2.1			

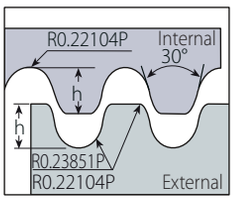
U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
5/8"U	27	8.0	5UEI8.0RD20400...	4.4	2.9	13.5	YE5U	YI5U	AL..-5U (LH)

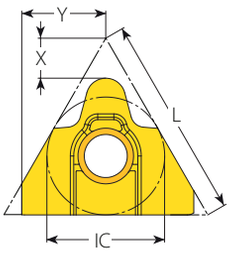
Round (DIN 20400) (con't)

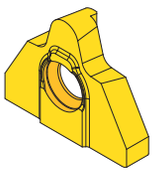
MEGALINE

External



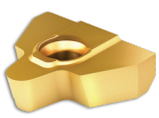
Defined by: DIN 20400
Tolerance class: Standard



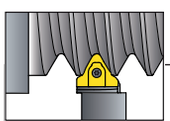


Mega Line

External

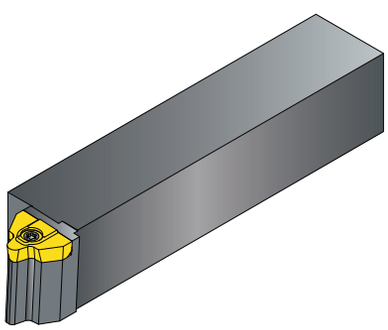


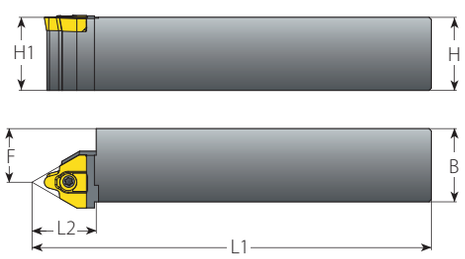
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	mm	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	10.0	5MGER10.0RD20400...	5.50	4.12	11.3	78	36
		12.0	5MGER12.0RD20400...	6.60	5.39		93	43
		16.0	5MGER16.0RD20400...	8.80	4.92		124	58



External Toolholders for Round (DIN 20400)

MEGALINE





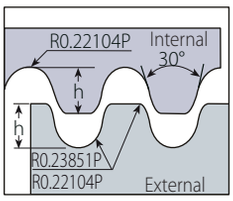
External

Insert	Ordering Code	Dimensions mm				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH	H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER10.0RD20400...	NL25-5MG10RD	25	16.5	155	22	(RD132-170)x10	S5MG	K6T
	NL32-5MG10RD	32	23.5	175				
	NL40-5MG10RD	40	31.5	205				
5MGER12.0RD20400...	NL25-5MG12RD	25	16.5	155	22	(RD180-224)x12		
	NL32-5MG12RD	32	23.5	175				
	NL40-5MG12RD	40	31.5	205				
5MGER16.0RD20400...	NL25-5MG16RD	25	16.5	155	22	(RD236-300)x16		
	NL32-5MG16RD	32	23.5	175				
	NL40-5MG16RD	40	31.5	205				

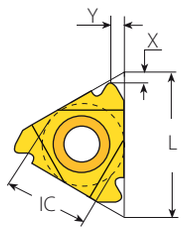
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

Round (DIN 20400) (con't)

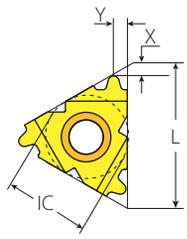
Internal



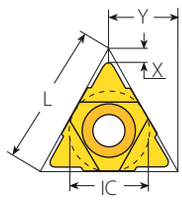
Defined by: DIN 20400
Tolerance class: Standard



Standard



F-Line



U Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2″	22	3.0	4IR3.0RD20400...	4IL3.0RD20400...	1.65	1.3	1.7	YI4	YE4	AVR..-4 (LH)
		4.0	4IR4.0RD20400...	4IL4.0RD20400...	2.20	1.6	2.2			
		5.0	4IR5.0RD20400...	4IL5.0RD20400...	2.75	1.4	1.7			
		6.0	4IR6.0RD20400...	4IL6.0RD20400...	3.30	1.7	2.1			
1/2″F	23	3.0	4FIR3.0RD20400...		1.65	1.3	1.7	YI4F		AVRC...-4F
		4.0	4FIR4.0RD20400...		2.20	1.6	2.2			
		5.0	4FIR5.0RD20400...		2.75	1.4	1.7			
		6.0	4FIR6.0RD20400...		3.30	1.7	2.1			

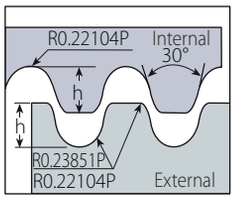
U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
5/8″U	27	8.0	5UEI8.0RD20400...	4.40	2.9	13.5	YI5U	YE5U	AVR..-5U (LH)

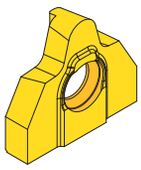
Round (DIN 20400) (con't)

MEGALINE

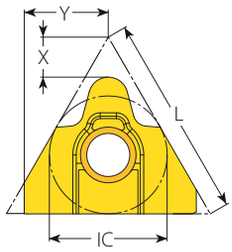
Internal



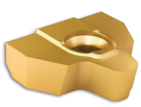
Defined by: DIN 20400
Tolerance class: Standard



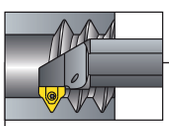
Mega Line



Internal

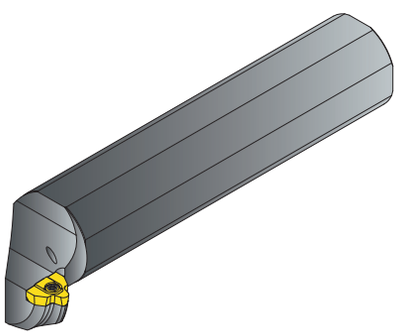


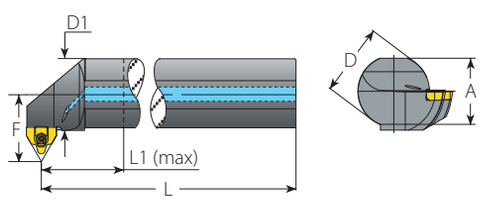
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	mm	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	10.0	5MGIR10.0RD20400...	5.50	4.12	10.4	78	36
		12.0	5MGIR12.0RD20400...	6.60	5.39		93	43
		16.0	5MGIR16.0RD20400...	8.80	4.92		124	58



Internal Toolholders for Round (DIN 20400)

MEGALINE





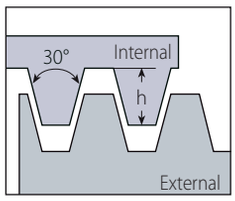
Internal

Insert	Ordering Code	Dimensions mm						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH	A	L	L1 (max)	D	D1	F	mm	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR10.0RD20400...	NVRC40-5MG10RD	36	232.5	100	40	39.7	41.5	122	(RD132-170)x10	(RD132-170)x10	S5MG	K6T
	NVRC50-5MG10RD	46	257.5	125	50	49.7	46.5					
	NVRC60-5MG10RD	57	282.5	150	60	59.7	51.5					
5MGIR12.0RD20400...	NVRC40-5MG12RD	36	232.5	100	40	39.7	41.5	168	(RD180-224)x12	(RD180-224)x12		
	NVRC50-5MG12RD	46	257.5	125	50	49.7	46.5					
	NVRC60-5MG12RD	57	282.5	150	60	59.7	51.5					
5MGIR16.0RD20400...	NVRC40-5MG16RD	36	232.5	100	40	39.7	41.5	220	(RD236-300)x16	(RD236-300)x16		
	NVRC50-5MG16RD	46	257.5	125	50	49.7	46.5					
	NVRC60-5MG16RD	57	282.5	150	60	59.7	51.5					

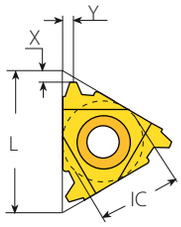
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

Trapez

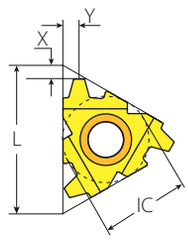
External



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



Standard



F-Line

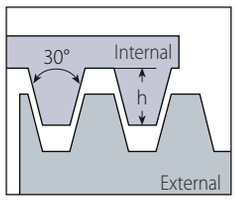
Standard

F-LINE

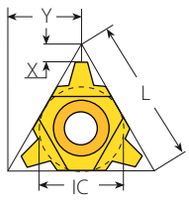
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	1.5	2ER1.5TR...	2EL1.5TR...	0.90	0.8	0.9	-	-	NL..-2 (LH)
3/8"	16	1.5	3ER1.5TR...	3EL1.5TR...	0.90	1.0	1.1	YE3	YI3	AL..-3 (LH)
		2.0	3ER2.0TR...	3EL2.0TR...	1.25	1.1	1.3			
		2.5	3ER2.5TR...	3EL2.5TR...	1.55	1.2	1.4			
		3.0	3ER3.0TR...	3EL3.0TR...	1.75	1.3	1.5			
1/2"	22	4.0	4ER4.0TR...	4EL4.0TR...	2.25	1.7	1.9	YE4	YI4	AL..-4 (LH)
		5.0	4ER5.0TR...	4EL5.0TR...	2.75	2.1	2.5			
		6.0	4ER6.0TR...	4EL6.0TR...	3.50	2.3	2.7			
1/2"F	23	4.0	4FER4.0TR...		2.25	1.7	1.9	YE4F		AL...-4F
		5.0	4FER5.0TR...		2.75	2.1	2.5			
		6.0	4FER6.0TR...		3.50	2.3	2.7			
5/8"	27	6.0	5ER6.0TR...	5EL6.0TR...	3.50	2.3	2.7	YE5	YI5	AL..-5 (LH)

Trapez

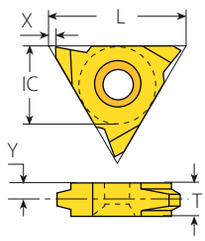
External



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



U Style



V Style

U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	6.0	4UE6.0TR...	3.50	2.0	11.0	YE4U	YI4U	AL..-4U (LH)
		7.0	4UE7.0TR...	4.00	2.3	11.0			
		8.0	4UE8.0TR...	4.50	2.6	11.0			
5/8"U	27	8.0	5UE8.0TR...	4.50	2.6	13.7	YE5U	YI5U	AL..-5U (LH)
		9.0	5UE9.0TR...	5.00	3.0	13.7			

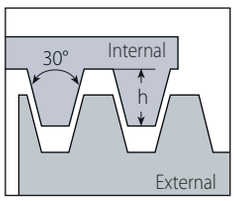
V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	mm	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	6.0	5VER6.0TR...	5VEL6.0TR...	3.50	1.0	3.3	6	NL..-5V-6 (LH)
		7.0	5VER7.0TR...	5VEL7.0TR...	4.00	1.0	3.3	6	
		8.0	5VER8.0TR...	5VEL8.0TR...	4.50	1.0	3.3	6	
		9.0	5VER9.0TR...	5VEL9.0TR...	5.00	1.0	4.3	8	NL..-5V-8 (LH)
		10.0	5VER10.0TR...	5VEL10.0TR...	5.50	1.0	4.3	8	
		12.0	5VER12.0TR...	5VEL12.0TR...	6.50	1.0	5.2	10	NL..-5V-10 (LH)

Trapez (con't)

MEGALINE

External



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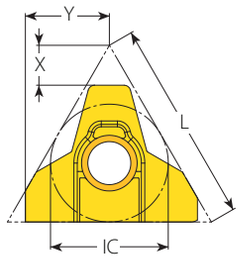
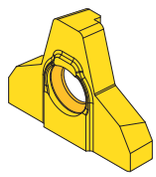
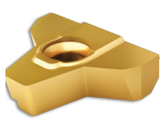
Tolerance class: 7e/7H





Mega Line

External

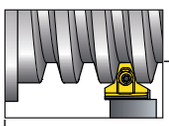


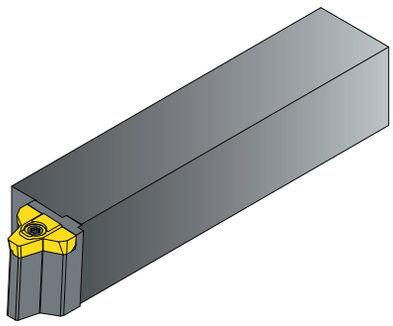
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	mm	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	12.0	5MGER12.0TR...	6.5	5.38	11.3	94	44
		14.0	5MGER14.0TR...	8.0	4.38		115	54
		16.0	5MGER16.0TR...	9.0	5.38		129	60
		18.0	5MGER18.0TR...	10.0	5.38		143	67
		20.0	5MGER20.0TR...	11.0	7.38		158	74
		24.0	5MGER24.0TR...	13.0	7.38		186	87

Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

External Toolholders for Trapez

MEGALINE





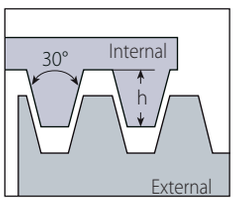
External

Insert	Ordering Code	Dimensions mm				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH	H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER12.0TR...	NL25-5MG12TR	25	16.5	155	22	(TR44-300)x12	S5MG	K6T
	NL32-5MG12TR	32	23.5	175				
	NL40-5MG12TR	40	31.5	205				
5MGER14.0TR...	NL25-5MG14TR	25	16.5	155	22	(TR55-145)x14		
	NL32-5MG14TR	32	23.5	175				
	NL40-5MG14TR	40	31.5	205				
5MGER16.0TR...	NL25-5MG16TR	25	16.5	155	22	(TR65-175)x16		
	NL32-5MG16TR	32	23.5	175				
	NL40-5MG16TR	40	31.5	205				
5MGER18.0TR...	NL25-5MG18TR	25	16.5	155	22	(TR85-200)x18		
	NL32-5MG18TR	32	23.5	175				
	NL40-5MG18TR	40	31.5	205				
5MGER20.0TR...	NL25-5MG20TR	25	16.5	155	22	(TR100-230)x20		
	NL32-5MG20TR	32	23.5	175				
	NL40-5MG20TR	40	31.5	205				
5MGER24.0TR...	NL25-5MG24TR	25	16.5	155	22	(TR135-300)x24		
	NL32-5MG24TR	32	23.5	175				
	NL40-5MG24TR	40	31.5	205				

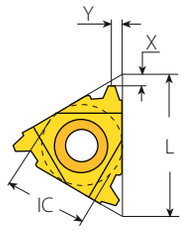
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

Trapez (con't)

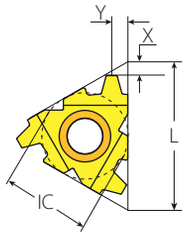
Internal



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



Standard



F-Line

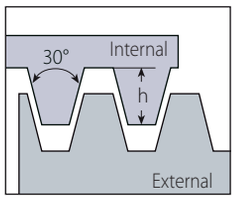
Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	11	1.5	2IR1.5TR...	2IL1.5TR...	0.90	0.8	0.9	-	-	NVR..-2 (LH)
3/8″	16	1.5	3IR1.5TR...	3IL1.5TR...	0.90	1.0	1.1	YI3	YE3	AVR..-3 (LH)
		2.0	3IR2.0TR...	3IL2.0TR...	1.25	1.1	1.3			
		2.5	3IR2.5TR...	3IL2.5TR...	1.53	1.2	1.4			
		3.0	3IR3.0TR...	3IL3.0TR...	1.75	1.3	1.5			
1/2″	22	4.0	4IR4.0TR...	4IL4.0TR...	2.25	1.7	1.9	YI4	YE4	AVR..-4 (LH)
		5.0	4IR5.0TR...	4IL5.0TR...	2.75	2.1	2.5			
		6.0	4IR6.0TR...	4IL6.0TR...	3.50	2.3	2.7			
1/2″F	23	4.0	4FIR4.0TR...		2.25	1.7	1.9	YI4F		AVRC...-4F
		5.0	4FIR5.0TR...		2.75	2.1	2.5			
		6.0	4FIR6.0TR...		3.50	2.3	2.7			
5/8″	27	6.0	5IR6.0TR...	5IL6.0TR...	3.50	2.3	2.7	YI5	YE5	AVR..-5 (LH)

Trapez (con't)

Internal



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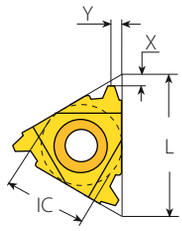
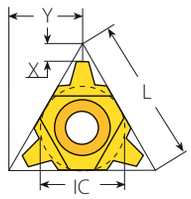
Tolerance class: 7e/7H



Coarse Pitch

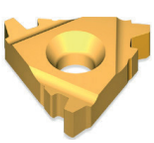


U Style Coarse Pitch

Coarse Pitch RH

Thread	Insert Size		Ordering Code	Dimensions mm				Min Bore Dia.
	IC	L mm	RH	h min	X	Y	Toolholder RH	mm
TR18x4	3/8"U	16	3UIR4.0TR158/013...	2.25	2.10	8.0	NVRC11-3U-156/020	14.0
TR20x4	3/8"	16	3IR4.0TR158/012...	2.25	1.53	1.9	NVRC13-3-156/006	16.0
TR22x5	3/8"U	16	3UIR5.0TR158/011...	2.75	1.56	8.0	NVRC14-3U-156/018	17.0
TR24x5			3UIR5.0TR158/011...	2.75	1.56	8.0	NVRC15-3U-156/019	19.0
TR26x5			3UIR5.0TR158/011...	2.75	1.56	8.0	NVRC15-3U-156/019	21.0
TR28x5	1/2"	22	4IR5.0TR...	2.75	2.30	2.7	NVRC20-4-156/008	23.0
TR30x6	1/2"U	22	4UIR6.0TR158/007...	3.50	1.94	11.0	NVRC20-4U-156/011	24.0
TR36x6	5/8"	27	5IR6.0TR...	3.50	2.30	2.7	NVRC25-5-156/012	30.0
TR38x7	1/2"U	22	4UIR7.0TR158/008...	4.00	2.27	11.0	NVRC25-4U-156/013	31.0
TR40x7			4UIR7.0TR158/008...	4.00	2.27	11.0	NVRC25-4U-156/013	33.0
TR42x7			4UIR7.0TR158/008...	4.00	2.27	11.0	NVRC32-4U-156/014	35.0
TR44x7			4UIR7.0TR158/008...	4.00	2.27	11.0	NVRC32-4U-156/014	37.0
TR46x8	5/8"U	27	5UIR8.0TR158/010...	4.50	2.59	13.5	NVRC32-5U-156/015	38.0
TR48x8			5UIR8.0TR158/010...	4.50	2.59	13.5	NVRC32-5U-156/015	40.0
TR50x8			5UIR8.0TR158/010...	4.50	2.59	13.5	NVRC32-5U-156/015	42.0
TR52x8			5UIR8.0TR158/010...	4.50	2.59	13.5	NVRC32-5U-156/015	44.0

Coarse Pitch LH

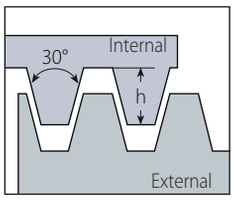


Thread	Insert Size		Ordering Code	Dimensions mm				Min Bore Dia.
	IC	L mm	LH	h min	X	Y	Toolholder LH	mm
TR18x4	3/8"U	16	3UIR4.0TR158/013...	2.25	2.10	8.0	NVRC11-3ULH-156/029	14.0
TR20x4	3/8"	16	3IL4.0TR158/015...	2.25	1.53	1.9	NVRC13-3LH-156/028	16.0
TR22x5	3/8"U	16	3UIR5.0TR158/011...	2.75	1.56	8.0	NVRC14-3ULH-156/030	17.0
TR24x5			3UIR5.0TR158/011...	2.75	1.56	8.0	NVRC15-3ULH-156/031	19.0
TR26x5			3UIR5.0TR158/011...	2.75	1.56	8.0	NVRC15-3ULH-156/031	21.0
TR28x5	1/2"	22	4IL5.0TR...	2.75	2.30	2.7	NVRC20-4LH-156/024	23.0
TR30x6	1/2"U	22	4UIR6.0TR158/007...	3.50	1.94	11.0	NVRC20-4ULH-156/021	24.0
TR36x6	5/8"	27	5IL6.0TR...	3.50	2.30	2.7	NVRC25-5LH-156/017	30.0
TR38x7	1/2"U	22	4UIR7.0TR158/008...	4.00	2.27	11.0	NVRC25-4ULH-156/032	31.0
TR40x7			4UIR7.0TR158/008...	4.00	2.27	11.0	NVRC25-4ULH-156/032	33.0
TR42x7			4UIR7.0TR158/008...	4.00	2.27	11.0	NVRC32-4ULH-156/022	35.0
TR44x7			4UIR7.0TR158/008...	4.00	2.27	11.0	NVRC32-4ULH-156/022	37.0
TR46x8	5/8"U	27	5UIR8.0TR158/010...	4.50	2.59	13.5	NVRC32-5ULH-156/027	38.0
TR48x8			5UIR8.0TR158/010...	4.50	2.59	13.5	NVRC32-5ULH-156/027	40.0
TR50x8			5UIR8.0TR158/010...	4.50	2.59	13.5	NVRC32-5ULH-156/027	42.0
TR52x8			5UIR8.0TR158/010...	4.50	2.59	13.5	NVRC32-5ULH-156/027	44.0

U Type RH inserts can be used for both LH and RH applications.

Trapez (con't)

Internal



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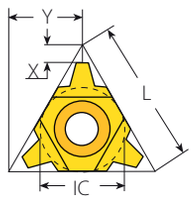
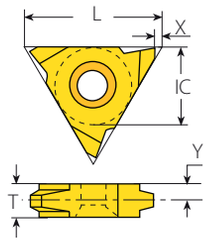
Tolerance class: 7e/7H



U Style



V Style

U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	6.0	4UI6.0TR...	3.50	2.0	11.0	YI4U	YE4U	AVR..-4U (LH)
		7.0	4UI7.0TR...	4.00	2.3	11.0			
		8.0	4UI8.0TR...	4.50	2.6	11.0			
5/8"U	27	8.0	5UI8.0TR...	4.50	2.6	13.7	YI5U	YE5U	AVR..-5U (LH)
		9.0	5UI9.0TR...	5.00	3.0	13.7			

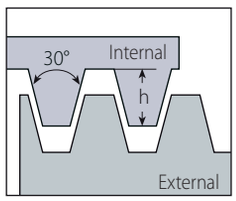
V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	mm	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	6.0	5VIR6.0TR...	5VIL6.0TR...	3.50	1.0	3.3	6	NVR..-5V (LH)
		7.0	5VIR7.0TR...	5VIL7.0TR...	4.00	1.0	3.3	6	
		8.0	5VIR8.0TR...	5VIL8.0TR...	4.50	1.0	3.3	6	
		9.0	5VIR9.0TR...	5VIL9.0TR...	5.00	1.0	4.3	8	
		10.0	5VIR10.0TR...	5VIL10.0TR...	5.50	1.0	4.3	8	
		12.0	5VIR12.0TR...	5VIL12.0TR...	6.50	1.0	5.2	10	

Trapez

MEGALINE

Internal



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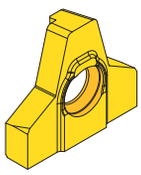
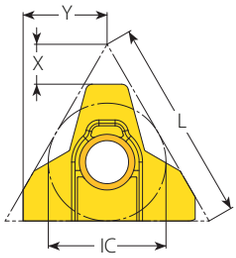
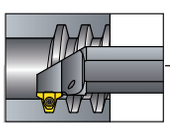


Mega Line



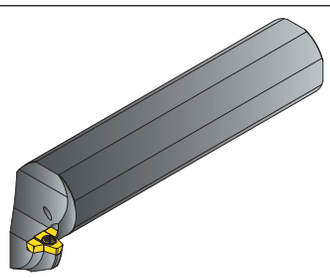
Internal

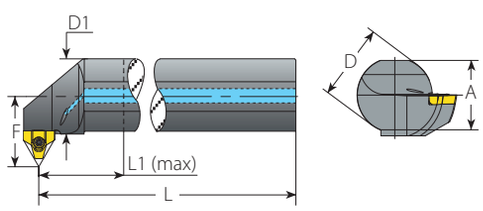
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	mm	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	12.0	5MGIR12.0TR...	6.5	5.38	10.4	96	45
		14.0	5MGIR14.0TR...	8.0	4.38		118	55
		16.0	5MGIR16.0TR...	9.0	5.38		131	61
		18.0	5MGIR18.0TR...	10.0	5.38		145	68
		20.0	5MGIR20.0TR...	11.0	7.38		160	75
		24.0	5MGIR24.0TR...	13.0	7.38		188	88



Internal Toolholders for Trapez

MEGALINE





Internal

Spare Parts

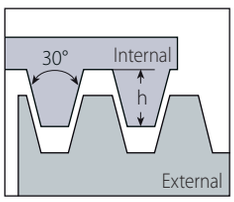
Insert	Ordering Code	Dimensions mm						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH	A	L	L1 (max)	D	D1	F	mm	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR12.0TR...	NVRC40-5MG12TR	36	232.5	100	40	39.7	41.5	73	(TR85-300)x12	(TR85-300)x12	S5MG	K6T
	NVRC50-5MG12TR	46	257.5	125	50	49.7	46.5	73	(TR85-300)x12	(TR95-300)x12		
	NVRC60-5MG12TR	57	282.5	150	60	59.7	51.5	83	(TR95-300)x12	(TR105-300)x12		
5MGIR14.0TR...	NVRC40-5MG14TR	36	232.5	100	40	39.7	41.5	101	(TR115-145)x14	(TR115-145)x14		
	NVRC50-5MG14TR	46	257.5	125	50	49.7	46.5	101	(TR115-145)x14	(TR115-145)x14		
	NVRC60-5MG14TR	57	282.5	150	60	59.7	51.5	101	(TR115-145)x14	(TR115-145)x14		
5MGIR16.0TR...	NVRC40-5MG16TR	36	232.5	100	40	39.7	41.5	64	(TR80-175)x16	(TR150-175)x16		
	NVRC50-5MG16TR	46	257.5	125	50	49.7	46.5	134	(TR150-175)x16	(TR150-175)x16		
	NVRC60-5MG16TR	57	282.5	150	60	59.7	51.5	134	(TR150-175)x16	(TR150-175)x16		
5MGIR18.0TR...	NVRC40-5MG18TR	36	232.5	100	40	39.7	41.5	72	(TR85-200)x18	(TR90-200)x18		
	NVRC50-5MG18TR	46	257.5	125	50	49.7	46.5	72	(TR90-200)x18	(TR180-200)x18		
	NVRC60-5MG18TR	57	282.5	150	60	59.7	51.5	162	(TR180-200)x18	(TR180-200)x18		
5MGIR20.0TR...	NVRC40-5MG20TR	36	232.5	100	40	39.7	41.5	80	(TR100-230)x20	(TR100-230)x20		
	NVRC50-5MG20TR	46	257.5	125	50	49.7	46.5	80	(TR100-230)x20	(TR100-230)x20		
	NVRC60-5MG20TR	57	282.5	150	60	59.7	51.5	85	(TR105-230)x20	(TR210-230)x20		
5MGIR24.0TR...	NVRC40-5MG24TR	36	232.5	100	40	39.7	41.5	111	(TR135-300)x24	(TR135-300)x24		
	NVRC50-5MG24TR	46	257.5	125	50	49.7	46.5	111	(TR135-300)x24	(TR135-300)x24		
	NVRC60-5MG24TR	57	282.5	150	60	59.7	51.5	111	(TR135-300)x24	(TR135-300)x24		

Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

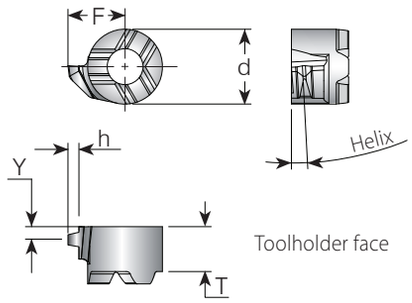
Trapez (con't)

Mini-V

Internal



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



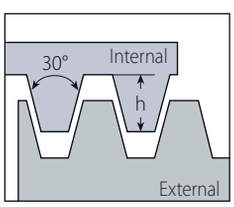
Mini-V

Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions mm					Helix	Toolholder
		mm	RH	d	T	F	Y	h min	Deg.	
TR10x2.0	V08	2.0	V08TH2.0TRR...	6	3.8	4.79	0.90	1.25	3.5	.V08-...
TR11x3.0		3.0	V08TH3.0TRR...			4.95	1.18	1.75	5	
TR16x4.0	V11	4.0	V11TH4.0TRR...	8	4.2	6.53	1.55	2.25	4.5	.V11-...

Trapez

MINIPRO

Internal



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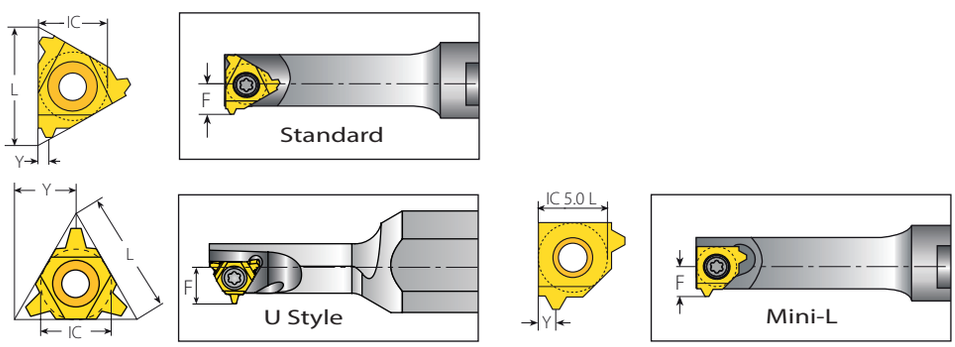


Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	mm	RH	LH	h min	Y	F	mm	Toolholder
5.0	8	1.5	5.0KIR1.5TR...	5.0KIL1.5TR...	0.85	0.70	4.7	7.8	.NVRC7-5.0K (LH)
6.0	10	1.5	6.0KIR1.5TR...	6.0KIL1.5TR...	0.85	0.85	5.3	10.0	.NVRC1..-6.0K (LH)
		2.0	6.0KIR2.0TR...	6.0KIL2.0TR...	1.25	1.30	5.3	10.0	

Mini-3 U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore Dia.	
IC mm	L mm	mm	RH+LH	h min	Y	F	mm	Toolholder
5.0U	8	2.0	5.0KUI2TR...	1.25	4.00	5.7	9.0	.NVRC8-5.0KU (LH)

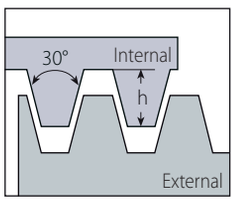
Mini-L

Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	mm	RH	LH	h min	Y	F	mm	Toolholder
5.0L	1.5	5LKIR1.5TR...	5LKIL1.5TR...	0.85	0.85	4.65	8.0	.NVRC10. -5LK (LH)
	2.0	5LKIR2.0TR...	5LKIL2.0TR...	1.25	1.30	4.80	9.0	

Trapez

MINIPRO

Internal



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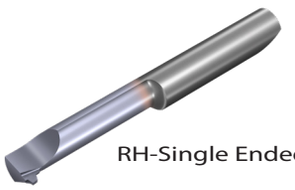
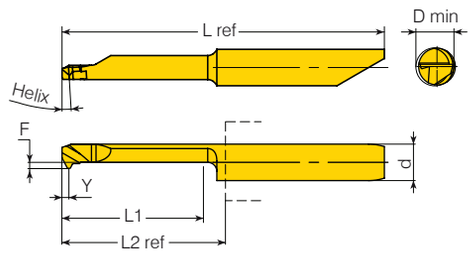


RH-Single Ended



Micro - Single Ended

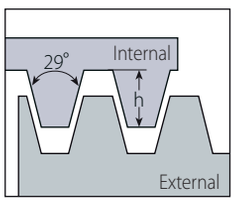
micrOscope

	Insert Dia.	Pitch	Ordering Code		Dimensions mm						Min. Bore Dia.	
Thread	d mm	mm	RH/LH	Helix °	L1	F	Y	h min	L2 ref*	L ref	D mm	Toolholder
TR8-TR10x1.5	6.0	1.5	M662TH1.5TRL20R...	3.3	20.3	2.95	1.1	0.9	23	46.7	6.2	MH...-4.0
TR9-TR12x2.0		2.0	M662TH2.0TRL20R...	4.0		2.95	1.3	1.25				
TR10-TR14x2.0	7.0	2.0	M772TH2.0TRL20R...	3.4		3.45					7.2	MH...-7.0
TR11-TR16x3.0		3.0	M772TH3.0TRL20R...	4.75		3.45	1.5	1.75				

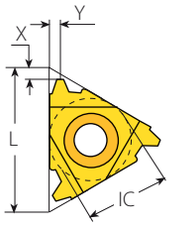
* L2 Ref: Repeatability within +/-0.02.

American ACME

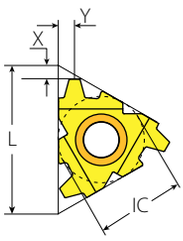
External



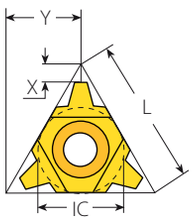
Defined by: ANSI B1.5:1988
Tolerance class: 3G



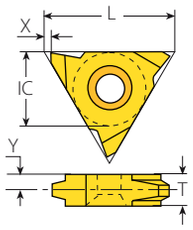
Standard



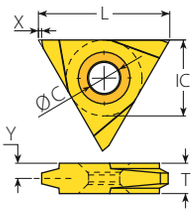
F-Line



U Style



V Style



On Edge

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	16	2ER16ACME...	2EL16ACME...	0.92	1.0	1.1	-	-	NL..-2 (LH)
3/8"	16	16	3ER16ACME...	3EL16ACME...	0.92	1.0	1.1	YE3	YI3	AL..-3 (LH)
		14	3ER14ACME...	3EL14ACME...	1.03	1.0	1.2			
		12	3ER12ACME...	3EL12ACME...	1.19	1.1	1.2			
		10	3ER10ACME...	3EL10ACME...	1.52	1.3	1.4			
		8	3ER8ACME...	3EL8ACME...	1.84	1.4	1.5			
		7	3ER7ACME...	3EL7ACME...	2.08	1.9	2.2			
1/2"	22	7	4ER7ACME...	4EL7ACME...	2.08	1.9	2.2	YE4	YI4	AL..-4 (LH)
		6	4ER6ACME...	4EL6ACME...	2.37	1.8	2.1			
		5	4ER5ACME...	4EL5ACME...	2.79	2.0	2.3			
1/2"F	23	6	4FER6ACME...		2.37	1.8	2.1	YE4F		AL...-4F
		5	4FER5ACME...		2.79	2.0	2.3			
5/8"	27	4	5ER4ACME...	5EL4ACME...	3.43	2.4	2.7	YE5	YI5	AL..-5 (LH)

U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4	4UE4ACME...	3.43	2.3	11.0	YE4U	YI4U	AL..-4U (LH)
		3	4UE3ACME...	4.49	3.0	11.0			
5/8"U	27	3	5UE3ACME...	4.49	3.0	13.7	YE5U	YI5U	AL..-5U (LH)

V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VER4ACME...	5VEL4ACME...	3.43	1.0	3.3	6	NL..-5V-6 (LH)
		3.5	5VER3.5ACME...	5VEL3.5ACME...	3.85	1.0	3.3	6	
		3	5VER3ACME...	5VEL3ACME...	4.49	1.0	3.3	6	
		2	5VER2ACME...	5VEL2ACME...	6.60	1.0	5.2	10	NL..-5V-10 (LH)

On Edge

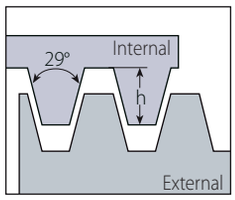
Insert Size		Pitch	Ordering Code	Dimensions mm				
IC	L mm	TPI	RH	h min	T	Ø C	X	Y
1/2"	22	12	TNEC43EI12ACME...	1.19	4.76	5.2	0.5	2.4
		10	TNEC43EI10ACME...	1.52				
		8	TNEC43EI8ACME...	1.83				
		6	TNEC43EI6ACME...	2.36				
		4	TNEC43EI4ACME...	3.43				
5/8"	27	4	TNEC54EI4ACME...	3.43	6.35	6.5		3.2
		3	TNEC54EI3ACME...	4.50				
3/4"	32	2	TNEC56EI2ACME...	6.60	9.53	8.0		4.8

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

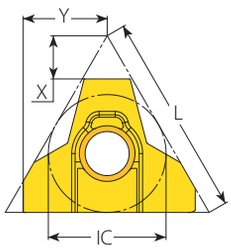
American ACME (con't)

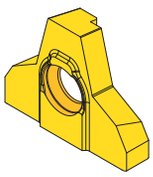
MEGALINE

External



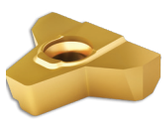
Defined by: ANSI B1.5:1988
Tolerance class: 3G



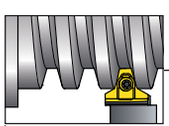


Mega Line

External

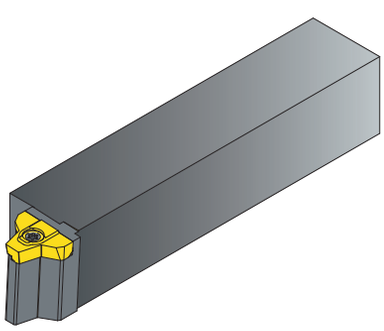


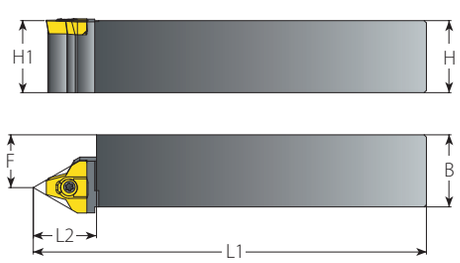
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	TPI	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	2	5MGER2ACME...	6.60	4.81	11.3	95	44
		1 1/2	5MGER1-1/2ACME...	8.72	5.81		125	58
		1 1/3	5MGER1-1/3ACME...	9.78	6.81		140	65
		1	5MGER1ACME...	12.95	8.31		186	87



External Toolholders for American ACME

MEGALINE





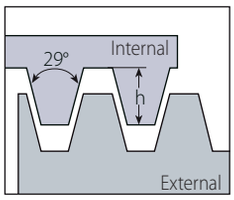
External

Insert	Ordering Code	Dimensions				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH	H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER2ACME...	NL25-5MG2ACME	25	16.5	155	22	(3"-5")-2ACME	S5MG	K6T
	NL32-5MG2ACME	32	23.5	175				
	NL40-5MG2ACME	40	31.5	205				
5MGER1-1/2ACME...	NL25-5MG1-1/2ACME	25	16.5	155	22	(3"-5")-1 1/2ACME		
	NL32-5MG1-1/2ACME	32	23.5	175				
	NL40-5MG1-1/2ACME	40	31.5	205				
5MGER1-1/3ACME...	NL25-5MG1-1/3ACME	25	16.5	155	22	(3"-5")-1 1/3ACME		
	NL32-5MG1-1/3ACME	32	23.5	175				
	NL40-5MG1-1/3ACME	40	31.5	205				
5MGER1ACME...	NL25-5MG1ACME	25	16.5	155	22	(3.5"-5")-1ACME		
	NL32-5MG1ACME	32	23.5	175				
	NL40-5MG1ACME	40	31.5	205				

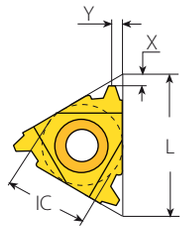
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

American ACME (con't)

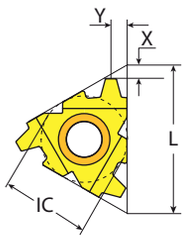
Internal



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



Standard



F-Line

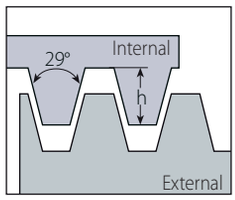
Standard

F-LINE

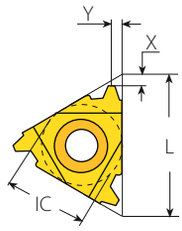
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	16	2IR16ACME...	2IL16ACME...	0.92	0.9	0.9	-	-	NVR..-2 (LH)
3/8"	16	16	3IR16ACME...	3IL16ACME...	0.92	1.0	1.1	YI3	YE3	AVR..-3 (LH)
		14	3IR14ACME...	3IL14ACME...	1.03	1.1	1.2			
		12	3IR12ACME...	3IL12ACME...	1.19	1.2	1.3			
		10	3IR10ACME...	3IL10ACME...	1.52	1.2	1.3			
		8	3IR8ACME...	3IL8ACME...	1.84	1.4	1.5			
1/2"	22	6	4IR6ACME...	4IL6ACME...	2.37	1.8	2.1	YI4	YE4	AVR..-4 (LH)
		5	4IR5ACME...	4IL5ACME...	2.79	2.0	2.3			
1/2"F	23	6	4FIR6ACME...		2.37	1.8	2.1	YI4F		AVRC...-4F
		5	4FIR5ACME...		2.79	2.0	2.3			
5/8"	27	4	5IR4ACME...	5IL4ACME...	3.43	2.3	2.6	YI5	YE5	AVR..-5 (LH)

American ACME (con't)

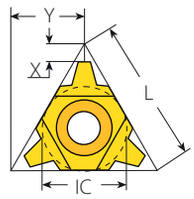
Internal



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



Standard

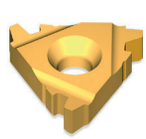


U Style

Coarse Pitch RH

Thread	Insert Size		Ordering Code	Dimensions mm			Anvil		Min Bore Dia.
TPI	IC	L mm	RH	h min	X	Y	RH	Toolholder RH	mm
1/2"x10	6.0U	10	6.0KUIR10ACME158/005...	1.52	1.0	5.2	-	NVRC8-6.0KU-156/003	10.16
5/8"x8	1/4"U	11	2UIR8ACME158/006...	1.84	1.0	5.5	-	NVRC10-2U-156/004	12.70
3/4"x6	3/8"	16	3IR6ACME...	2.37	1.7	1.8	-	NVRC11-3-156/005	14.82
7/8"x6			3IR6ACME...	2.37	1.7	1.8	-	NVRC13-3-156/006	18.42
1"x5	1/2"	22	4IR5ACME158/018...	2.79	2.0	2.3	-	NVRC17-4-156/039	20.32
1 1/8"x5			4IR5ACME...	2.79	2.0	2.3	-	NVRC20-4-156/008	24.00
1 1/4"x5			4IR5ACME...	2.79	2.0	2.3	-	NVRC20-4-156/009	27.18
1 1/2"x4	5/8"	27	5IR4ACME...	3.43	2.3	2.6	-	NVRC28-5-156/010	32.38
1 3/4"x4			5IR4ACME...	3.43	2.3	2.6	YI5-1P	AVRC32-5	38.74

Coarse Pitch LH



Thread	Insert Size		Ordering Code	Dimensions mm			Anvil		Min Bore Dia.
TPI	IC	L mm	LH	h min	X	Y	LH	Toolholder LH	mm
1/2"x10	6.0U	10	6.0KUIR10ACME158/005...	1.52	1.0	5.2	-	NVRC8-6.0KULH-156/037	10.16
5/8"x8	1/4"U	11	2UIR8ACME158/006...	1.84	1.0	5.5	-	NVRC10-2ULH-156/038	12.70
3/4"x6	3/8"	16	3IL6ACME...	2.37	1.7	1.8	-	NVRC11-3LH-156/025	14.82
7/8"x6			3IL6ACME...	2.37	1.7	1.8	-	NVRC13-3LH-156/028	18.42
1"x5	1/2"	22	4IL5ACME158/019...	2.79	2.0	2.3	-	NVRC17-4LH-156/040	20.32
1 1/8"x5			4IL5ACME...	2.79	2.0	2.3	-	NVRC20-4LH-156/024	24.00
1 1/4"x5			4IL5ACME...	2.79	2.0	2.3	-	NVRC20-4LH-156/033	27.18
1 1/2"x4	5/8"	27	5IL4ACME...	3.43	2.3	2.6	-	NVRC28-5LH-156/034	32.38
1 3/4"x4			5IL4ACME...	3.43	2.3	2.6	YE5-1P	AVRC32-5LH	38.74

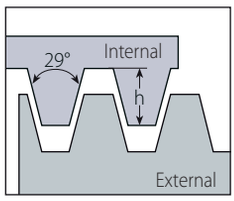
U Type RH Inserts Can Be Used for Both LH and RH Applications.

U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4	4UI4ACME...	3.43	2.3	11.0	YI4U	YE4U	AVR..-4U (LH)
		3	4UI3ACME...	4.49	2.9	11.0			
5/8"U	27	3	5UI3ACME...	4.49	2.9	13.7	YI5U	YE5U	AVR..-5U(LH)

American ACME (con't)

Internal



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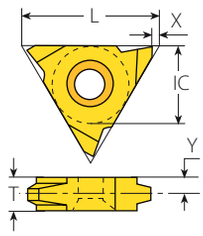
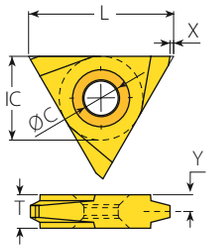


V Style



On Edge

V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VIR4ACME...	5VIL4ACME...	3.43	1.0	3.3	6	NVR..-5V (LH)
		3.5	5VIR3.5ACME...	5VIL3.5ACME...	3.85	1.0	3.3	6	
		3	5VIR3ACME...	5VIL3ACME...	4.49	1.0	3.3	6	
		2	5VIR2ACME...	5VIL2ACME...	6.60	1.0	5.2	10	

On Edge

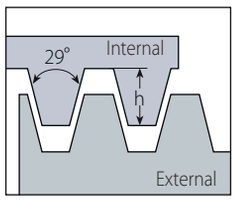
Insert Size		Pitch	Ordering Code	Dimensions mm				
IC	L mm	TPI	RH	h min	T	Ø C	X	Y
1/2"	22	12	TNEC43EI12ACME...	1.19	4.76	5.2	0.5	2.4
		10	TNEC43EI10ACME...	1.52				
		8	TNEC43EI8ACME...	1.83				
		6	TNEC43EI6ACME...	2.36				
		4	TNEC43EI4ACME...	3.43				
5/8"	27	4	TNEC54EI4ACME...	3.43	6.35	6.5		3.2
		3	TNEC54EI3ACME...	4.50				
3/4"	32	2	TNEC56EI2ACME...	6.60	9.53	8.0		4.8

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

American ACME (con't)

MEGALINE

Internal



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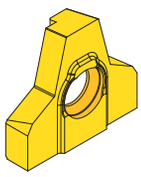
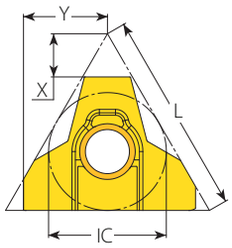
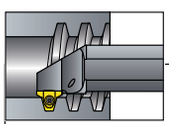


Mega Line



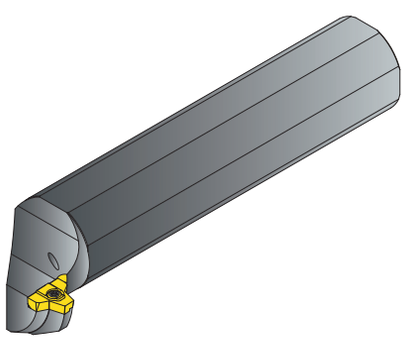
Internal

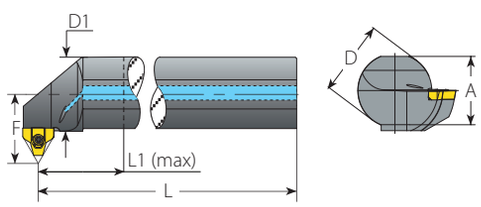
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	TPI	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	2	5MGIR2ACME...	6.54	4.81	10.4	94	44
		1 1/2	5MGIR1-1/2ACME...	8.55	5.81		124	58
		1 1/3	5MGIR1-1/3ACME...	9.56	6.81		139	65
		1	5MGIR1ACME...	12.57	8.31		184	86



Internal Toolholders for American ACME

MEGALINE





Internal

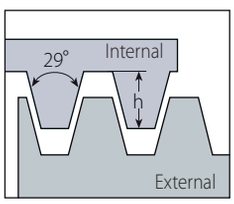
Insert	Ordering Code	Dimensions mm						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH	A	L	L1 (max)	D	D1	F	mm	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR2ACME...	NVRC40-5MG2ACME	36	232.5	100	40	39.7	41.5	63.5	(3"-5")-2ACME	(3.5"-5")-2ACME	S5MG	K6T
	NVRC50-5MG2ACME	46	257.5	125	50	49.7	46.5	76.2	(3.5"-5")-2ACME	(4"-5")-2ACME		
	NVRC60-5MG2ACME	57	282.5	150	60	59.7	51.5	88.9	(4"-5")-2ACME	(4.5"-5")-2ACME		
5MGIR1-1/2ACME...	NVRC40-5MG1-1/2ACME	36	232.5	100	40	39.7	41.5	59.3	(3''-5")-1 1/2ACME	(3.5''-5")-1 1/2ACME		
	NVRC50-5MG1-1/2ACME	46	257.5	125	50	49.7	46.5	72.0	(3.5''-5")-1 1/2ACME	(4''-5")-1 1/2ACME		
	NVRC60-5MG1-1/2ACME	57	282.5	150	60	59.7	51.5	84.7	(4''-5")-1 1/2ACME	(4.5''-5")-1 1/2ACME		
5MGIR1-1/3ACME...	NVRC40-5MG1-1/3ACME	36	232.5	100	40	39.7	41.5	57.2	(3''-5")-1 1/3ACME	(3.5''-5")-1 1/3ACME		
	NVRC50-5MG1-1/3ACME	46	257.5	125	50	49.7	46.5	69.9	(3.5''-5")-1 1/3ACME	(4.0''-5")-1 1/3ACME		
	NVRC60-5MG1-1/3ACME	57	282.5	150	60	59.7	51.5	82.6	(4.0''-5")-1 1/3ACME	(4.5''-5")-1 1/3ACME		
5MGIR1ACME...	NVRC40-5MG1ACME	36	232.5	100	40	39.7	41.5	63.5	(3.5''-5")-1ACME	(4''-5")-1ACME		
	NVRC50-5MG1ACME	46	257.5	125	50	49.7	46.5	76.2	(4''-5")-1ACME	(4.5''-5")-1ACME		
	NVRC60-5MG1ACME	57	282.5	150	60	59.7	51.5	76.2	(4''-5")-1ACME	(4.5''-5")-1ACME		

Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

American ACME (con't)

MINIPRO

Internal



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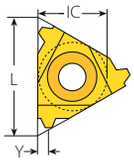
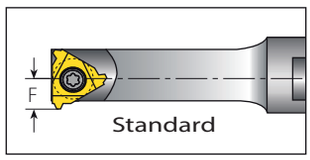
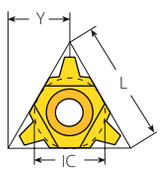
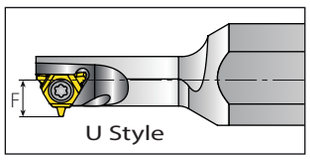
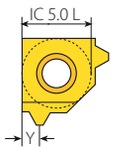
Tolerance class: 3G

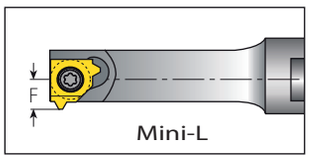












Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
5.0	8	16	5.0KIR16ACME...	5.0KIL16ACME...	0.92	0.7	4.7	7.8	.NVRC7-5.0K (LH)
6.0	10	12	6.0KIR12ACME...	6.0KIL12ACME...	1.19	1.1	5.1	10.0	.NVRC1..-6.0K (LH)

Mini-3 U Style

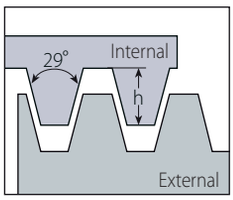
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH+LH	h min	Y	F	mm	Toolholder
5.0U	8	14	5.0KUI14ACME...	1.03	4.0	5.8	9.0	.NVRC8-5.0KU (LH)
		12	5.0KUI12ACME...	1.19				
		10	5.0KUI10ACME...	1.52				

Mini-L

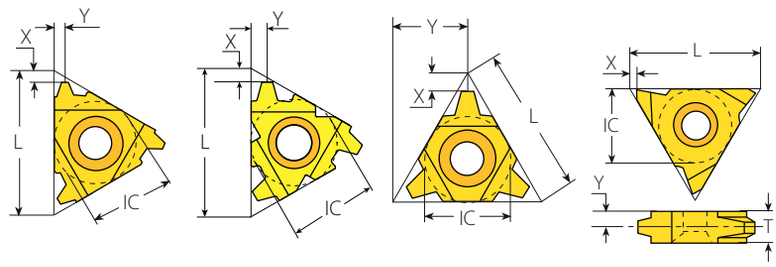
Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
5.0L	12	5LKIR12ACME...	5LKIL12ACME...	1.19	1.1	4.42	8.0	.NVRC10. -5LK (LH)

American ACME (2G)

External

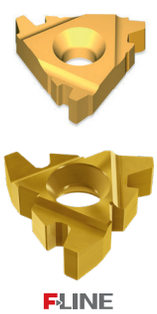


Defined by: ANSI B1.5:1988
Tolerance class: 2G



Standard F-Line U Style V Style

Standard



Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	16	10	3ER10ACME-2G...	3EL10ACME-2G...	1.52	1.3	1.4	YE3	YI3	AL..-3 (LH)
		8	3ER8ACME-2G...	3EL8ACME-2G...	1.84	1.4	1.5			
1/2″	22	5	4ER5ACME-2G...	4EL5ACME-2G...	2.79	2.0	2.3	YE4	YI4	AL..-4 (LH)
1/2″F	23	5	4FER5ACME-2G...		2.79	2.0	2.3	YE4F		AL...-4F

U Style

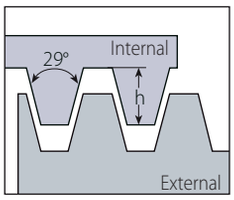
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2″U	22	4	4UE4ACME-2G...	3.43	2.3	11.0	YE4U	YI4U	AL..-4U (LH)
		3.5	4UE3.5ACME-2G...	3.85	2.6	11.0			
		3	4UE3ACME-2G...	4.49	3.0	11.0			

V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8″V	27	4	5VER4ACME-2G...	5VEL4ACME-2G...	3.43	1.0	3.3	6	NL..-5V-6 (LH)
		3.5	5VER3.5ACME-2G...	5VEL3.5ACME-2G...	3.85	1.0	3.3	6	
		3	5VER3ACME-2G...	5VEL3ACME-2G...	4.49	1.0	3.3	6	

American ACME (2G) (con't)

Internal



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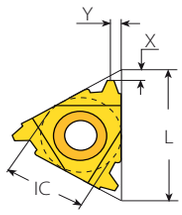
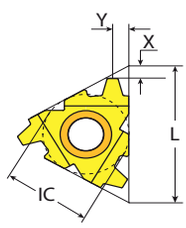
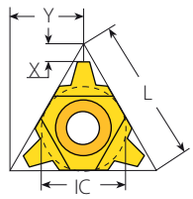
Tolerance class: 2G



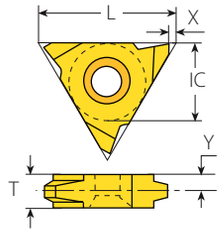
Standard



F-Line



U Style



V Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	16	10	3IR10ACME-2G...	3IL10ACME-2G...	1.52	1.2	1.3	YI3	YE3	AVR..-3 (LH)
		8	3IR8ACME-2G...	3IL8ACME-2G...	1.84	1.4	1.5			
1/2″	22	5	4IR5ACME-2G...	4IL5ACME-2G...	2.79	2.0	2.3	YI4	YE4	AVR..-4 (LH)
1/2″F	23	5	4FIR5ACME-2G...		2.79	2.0	2.3	YI4F		AVRC...-4F

U Style

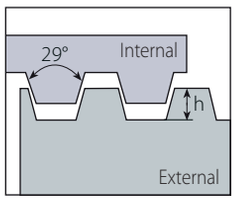
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2″U	22	4	4UI4ACME-2G...	3.43	2.3	11.0	YI4U	YE4U	AVR..-4U (LH)
		3.5	4UI3.5ACME-2G...	3.85	2.6	11.0			
		3	4UI3ACME-2G...	4.49	2.9	11.0			

V Style

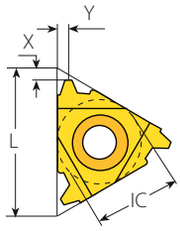
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8″V	27	4	5VIR4ACME-2G...	5VIL4ACME-2G...	3.43	1.0	3.3	6	NVR..-5V (LH)
		3.5	5VIR3.5ACME-2G...	5VIL3.5ACME-2G...	3.85	1.0	3.3	6	
		3	5VIR3ACME-2G...	5VIL3ACME-2G...	4.49	1.0	3.3	6	

Stub ACME

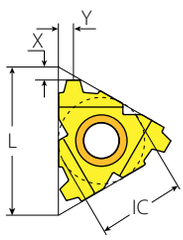
External



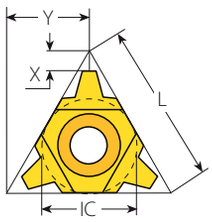
Defined by: ANSI B1.8:1988
Tolerance class: 2G



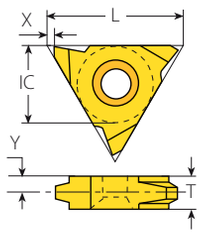
Standard



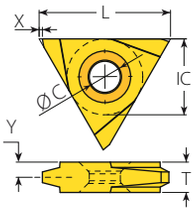
F-Line



U Style



V Style



On Edge

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	11	16	2ER16STACME...	2EL16STACME...	0.60	1.0	1.0	-	-	NL..-2 (LH)
3/8″	16	16	3ER16STACME...	3EL16STACME...	0.60	1.0	1.0	YE3	YI3	AL..-3 (LH)
		14	3ER14STACME...	3EL14STACME...	0.67	1.1	1.1			
		12	3ER12STACME...	3EL12STACME...	0.76	1.2	1.2			
		10	3ER10STACME...	3EL10STACME...	1.02	1.2	1.3			
		8	3ER8STACME...	3EL8STACME...	1.21	1.4	1.5			
		6	3ER6STACME...	3EL6STACME...	1.52	1.7	1.8			
1/2″	22	6	4ER6STACME...	4EL6STACME...	1.52	1.7	1.8	YE4	YI4	AL..-4 (LH)
		5	4ER5STACME...	4EL5STACME...	1.78	2.1	2.3			
		4	4ER4STACME...	4EL4STACME...	2.16	2.3	2.3			
1/2″F	23	6	4FER6STACME...		1.52	1.7	1.8	YE4F		AL...-4F
		5	4FER5STACME...		1.78	2.1	2.3			
		4	4FER4STACME...		2.16	2.3	2.3			
5/8″	27	4	5ER4STACME...	5EL4STACME...	2.16	2.3	2.4	YE5	YI5	AL..-5 (LH)
		3	5ER3STACME...	5EL3STACME...	2.79	2.9	2.9			

U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2″U	22	4	4UE4STACME...	2.16	2.6	11.0	YE4U	YI4U	AL..-4U (LH)
		3	4UE3STACME...	2.79	3.4	11.0			

V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8″V	27	4	5VER4STACME...	5VEL4STACME...	2.16	1.0	3.3	6	NL..-5V-6 (LH)
		3	5VER3STACME...	5VEL3STACME...	2.79	1.0	3.3	6	
		2	5VER2STACME...	5VEL2STACME...	4.06	1.0	4.3	8	NL..-5V-8 (LH)

On Edge

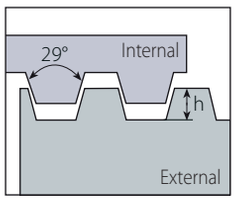
Insert Size		Pitch	Ordering Code	Dimensions mm				
IC	L mm	TPI	RH	h min	T	Ø C	X	Y
3/8″	16	12	TNEC32EI12STACME...	0.76	3.18	3.8	1.0	1.6
		10	TNEC32EI10STACME...	1.02				
		8	TNEC32EI8STACME...	1.22				
1/2″	22	12	TNEC43EI12STACME...	0.76	4.76	5.2	0.5	2.4
		10	TNEC43EI10STACME...	1.02				
		8	TNEC43EI8STACME...	1.22				
		6	TNEC43EI6STACME...	1.52				
		4	TNEC43EI4STACME...	2.16				
5/8″	27	4	TNEC54EI4STACME...	2.16	6.35	6.5		3.2

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

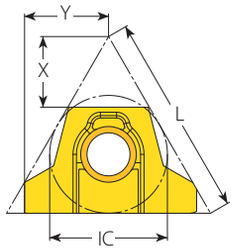
Stub ACME (con't)

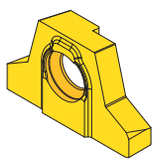
MEGALINE

External



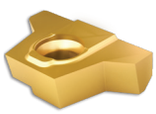
Defined by: ANSI B1.8:1988
Tolerance class: 2G



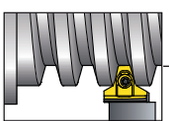


Mega Line

External

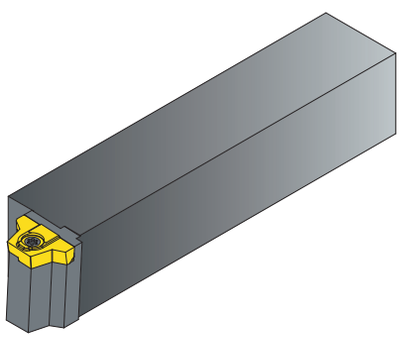


Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	TPI	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	1	5MGER1STACME...	7.87	9.51	11.3	113	53



External Toolholders for Stub ACME

MEGALINE



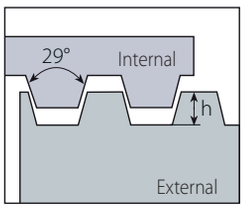
External

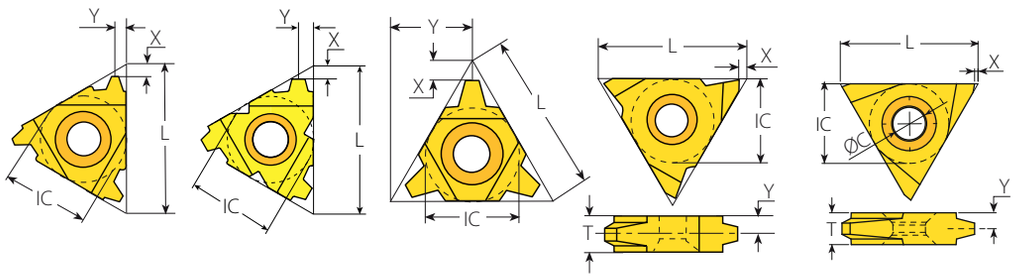
Insert	Ordering Code	Dimensions mm				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH	H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER1STACME...	NL25-5MG1STACME	25	16.5	155	22	(3.5"-5")-1STACME	S5MG	K6T
	NL32-5MG1STACME	32	23.5	175				
	NL40-5MG1STACME	40	31.5	205				

Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

Stub ACME (con't)

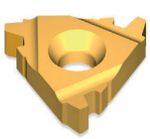
Internal





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

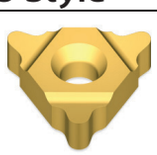
Standard



F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	11	16	2IR16STACME...	2IL16STACME...	0.60	1.0	1.0	-	-	NVR..-2 (LH)
3/8″	16	16	3IR16STACME...	3IL16STACME...	0.60	1.0	1.0	YI3	YE3	AVR..-3 (LH)
		14	3IR14STACME...	3IL14STACME...	0.67	1.1	1.1			
		12	3IR12STACME...	3IL12STACME...	0.76	1.1	1.2			
		10	3IR10STACME...	3IL10STACME...	1.02	1.2	1.3			
		8	3IR8STACME...	3IL8STACME...	1.21	1.4	1.5			
		6	3IR6STACME...	3IL6STACME...	1.52	1.7	1.8			
1/2″	22	6	4IR6STACME...	4IL6STACME...	1.52	1.7	1.8	YI4	YE4	AVR..-4 (LH)
		5	4IR5STACME...	4IL5STACME...	1.78	2.1	2.3			
		4	4IR4STACME...	4IL4STACME...	2.16	2.3	2.3			
1/2″F	23	6	4FIR6STACME...		1.52	1.7	1.8	YI4F		AVRC...-4F
		5	4FIR5STACME...		1.78	2.1	2.3			
		4	4FIR4STACME...		2.16	2.3	2.3			
5/8″	27	4	5IR4STACME...	5IL4STACME...	2.16	2.3	2.4	YI5	YE5	AVR..-5 (LH)
		3	5IR3STACME...	5IL3STACME...	2.79	2.9	2.9			

U Style



Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2″U	22	4	4UI4STACME...	2.16	2.5	11.0	YI4U	YE4U	AVR..-4U (LH)
		3	4UI3STACME...	2.79	3.3	11.0			

V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8″V	27	4	5VIR4STACME...	5VIL4STACME...	2.16	1.0	3.3	6	NVR..-5V (LH)
		3	5VIR3STACME...	5VIL3STACME...	2.79	1.0	3.3	6	
		2	5VIR2STACME...	5VIL2STACME...	4.06	1.0	4.3	8	

On Edge

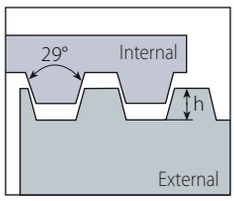
Insert Size		Pitch	Ordering Code	Dimensions mm				
IC	L mm	TPI	RH	h min	T	Ø C	X	Y
3/8″	16	12	TNEC32EI12STACME...	0.76	3.175	3.8	1	1.6
		10	TNEC32EI10STACME...	1.02				
		8	TNEC32EI8STACME...	1.22				
1/2″	22	12	TNEC43EI12STACME...	0.76	4.76	5.2	0.5	2.4
		10	TNEC43EI10STACME...	1.02				
		8	TNEC43EI8STACME...	1.22				
		6	TNEC43EI6STACME...	1.52				
		4	TNEC43EI4STACME...	2.16				
5/8″	27	4	TNEC54EI4STACME...	2.16	6.35	6.5		3.2

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

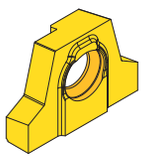
Stub ACME (con't)

MEGALINE

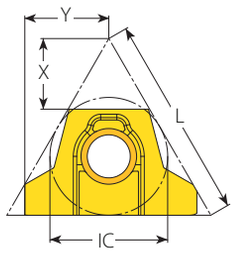
Internal



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

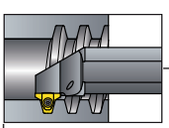


Mega Line



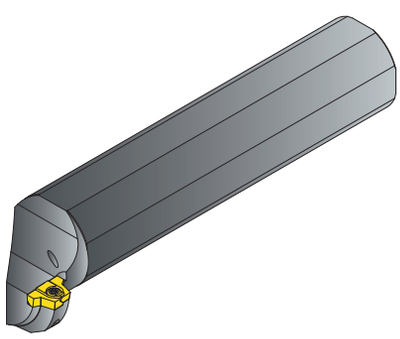
Internal

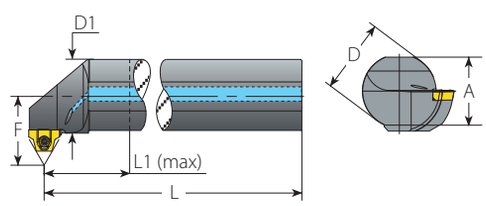
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	TPI	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	1	5MGIR1STACME...	7.82	9.51	10.4	113	53



Internal Toolholders for Stub ACME

MEGALINE





Internal

Spare Parts

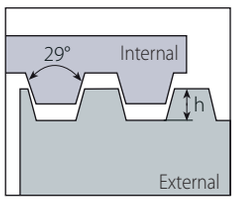
Insert	Ordering Code	Dimensions						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH	A	L	L1 (max)	D	D1	F	mm	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR 1STACME...	NVRC40-5MG1STACME	36	232.5	100	40	39.7	41.5	73.7	(3.5"-5")-1STACME	(3.5"-5")-1STACME	S5MG	K6T
	NVRC50-5MG1STACME	46	257.5	125	50	49.7	46.5	73.7	(3.5"-5")-1STACME	(4.0"-5")-1STACME		
	NVRC60-5MG1STACME	57	282.5	150	60	59.7	51.5	86.4	(4.0"-5")-1STACME	(4.5"-5")-1STACME		

Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

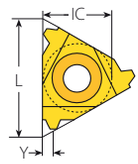
Stub ACME (con't)

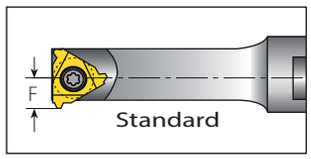
MINIPRO

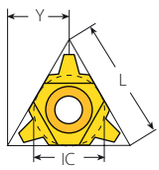
Internal

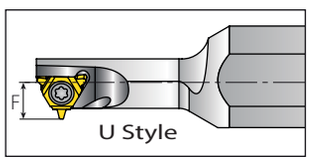


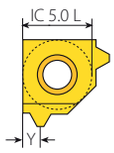
Defined by: ANSI B1.8:1988
Tolerance class: 2G

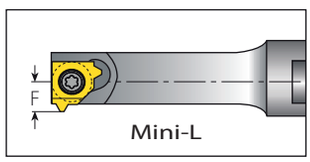












Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
5.0	8	16	5.0KIR16STACME...	5.0KIL16STACME...	0.60	0.7	4.7	7.8	.NVRC7-5.0K (LH)
6.0	10	12	6.0KIR12STACME...	6.0KIL12STACME...	0.76	1.2	5.1	10.0	.NVRC1..-6.0K (LH)

Mini-3 U Style

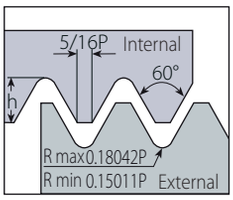
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH+LH	h min	Y	F	mm	Toolholder
5.0U	8	14	5.0KUI14STACME...	0.67	4.0	5.8	9.0	.NVRC8-5.0KU (LH)
		12	5.0KUI12STACME...	0.76		5.7		
		10	5.0KUI10STACME...	1.02		5.6		

Mini-L

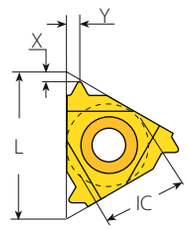
Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
5.0L	12	5LKIR12STACME...	5LKIL12STACME...	0.76	1.2	4.42	8.0	.NVRC10. -5LK (LH)

UNJ - UNJC, UNJF, UNJEF, UNJS

External



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



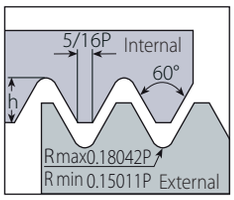
Standard

Standard

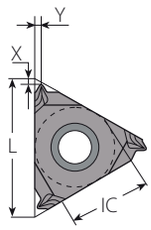
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	48	2ER48UNJ...	2EL48UNJ...	0.31	0.6	0.5	-	-	NL..-2 (LH)
		44	2ER44UNJ...	2EL44UNJ...	0.33	0.6	0.6			
		40	2ER40UNJ...	2EL40UNJ...	0.37	0.6	0.6			
		36	2ER36UNJ...	2EL36UNJ...	0.41	0.6	0.6			
		32	2ER32UNJ...	2EL32UNJ...	0.46	0.6	0.7			
		28	2ER28UNJ...	2EL28UNJ...	0.52	0.7	0.7			
		24	2ER24UNJ...	2EL24UNJ...	0.61	0.7	0.8			
		20	2ER20UNJ...	2EL20UNJ...	0.73	0.8	0.9			
		18	2ER18UNJ...	2EL18UNJ...	0.81	0.8	1.0			
		16	2ER16UNJ...	2EL16UNJ...	0.92	0.9	1.1			
		14	2ER14UNJ...	2EL14UNJ...	1.05	1.0	1.2			
3/8"	16	48	3ER48UNJ...	3EL48UNJ...	0.31	0.6	0.5	YE3	YI3	AL..-3 (LH)
		44	3ER44UNJ...	3EL44UNJ...	0.33	0.6	0.6			
		40	3ER40UNJ...	3EL40UNJ...	0.37	0.6	0.6			
		36	3ER36UNJ...	3EL36UNJ...	0.41	0.6	0.6			
		32	3ER32UNJ...	3EL32UNJ...	0.46	0.6	0.7			
		28	3ER28UNJ...	3EL28UNJ...	0.52	0.7	0.7			
		24	3ER24UNJ...	3EL24UNJ...	0.61	0.7	0.8			
		20	3ER20UNJ...	3EL20UNJ...	0.73	0.8	0.9			
		18	3ER18UNJ...	3EL18UNJ...	0.81	0.8	1.0			
		16	3ER16UNJ...	3EL16UNJ...	0.92	0.9	1.1			
		14	3ER14UNJ...	3EL14UNJ...	1.05	1.0	1.2			
		13	3ER13UNJ...	3EL13UNJ...	1.13	1.0	1.3			
		12	3ER12UNJ...	3EL12UNJ...	1.22	1.1	1.3			
		11	3ER11UNJ...	3EL11UNJ...	1.33	1.2	1.5			
		10	3ER10UNJ...	3EL10UNJ...	1.47	1.2	1.5			
		9	3ER9UNJ...	3EL9UNJ...	1.63	1.3	1.7			
		8	3ER8UNJ...	3EL8UNJ...	1.83	1.2	1.6			

UNJ - UNJC, UNJF, UNJEF, UNJS (con't)

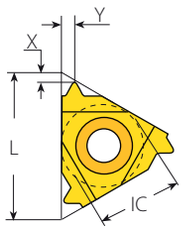
External



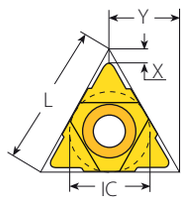
Defined by: MIL-S-8879C
Tolerance class: 3A/3B



SCB
Sintered
Chipbreaker

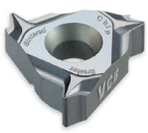


Standard



U Style

Standard



SCB

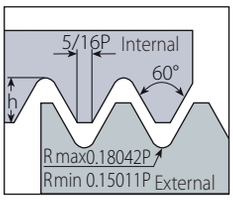
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" SCB	16	36	3JER36UNJ...		0.41	1.3	0.5	YE3	-	AL..-3
		32	3JER32UNJ...		0.46	1.2	0.5			
		28	3JER28UNJ...		0.52	0.7	0.8			
		24	3JER24UNJ...		0.61	0.7	0.8			
		20	3JER20UNJ...		0.73	0.7	0.8			
		18	3JER18UNJ...		0.81	0.7	0.8			
		16	3JER16UNJ...		0.92	0.8	0.8			
		14	3JER14UNJ...		1.05	1.3	1.5			
		12	3JER12UNJ...		1.22	1.3	1.5			
		10	3JER10UNJ...		1.47	1.3	1.5			
		8	3JER8UNJ...		1.83	1.4	1.5			
1/2"	22	7	4ER7UNJ...	4EL7UNJ...	2.09	1.7	2.3	YE4	YI4	AL..-4 (LH)
		6	4ER6UNJ...	4EL6UNJ...	2.44	1.7	2.3			
		5	4ER5UNJ...	4EL5UNJ...	2.93	1.8	2.5			
5/8"	27	4.5	5ER4.5UNJ...	5EL4.5UNJ...	3.26	2.0	2.7	YE5	YI5	AL..-5 (LH)
		4	5ER4UNJ...	5EL4UNJ...	3.67	2.2	3.1			

U Style

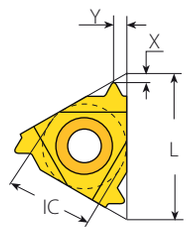
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4.5	4UE4.5UNJ...	3.26	2.1	11.0	YE4U	YI4U	AL..-4U (LH)
		4	4UE4UNJ...	3.67	2.2	11.0			

UNJ - UNJC, UNJF, UNJEF, UNJS (con't)

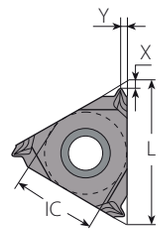
Internal



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

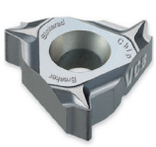


Standard



SCB
Sintered
Chipbreaker

Standard

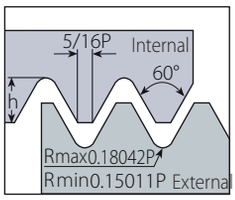


SCB

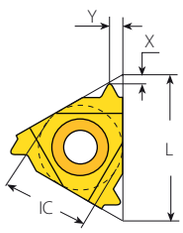
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	48	2IR48UNJ...	2IL48UNJ...	0.28	0.6	0.5	-	-	NVR..-2 (LH)
		44	2IR44UNJ...	2IL44UNJ...	0.30	0.6	0.6			
		40	2IR40UNJ...	2IL40UNJ...	0.33	0.6	0.6			
		36	2IR36UNJ...	2IL36UNJ...	0.37	0.6	0.6			
		32	2IR32UNJ...	2IL32UNJ...	0.42	0.6	0.7			
		28	2IR28UNJ...	2IL28UNJ...	0.47	0.7	0.7			
		24	2IR24UNJ...	2IL24UNJ...	0.55	0.7	0.8			
		20	2IR20UNJ...	2IL20UNJ...	0.66	0.8	0.9			
		18	2IR18UNJ...	2IL18UNJ...	0.74	0.8	1.0			
		16	2IR16UNJ...	2IL16UNJ...	0.83	0.9	1.1			
		14	2IR14UNJ...	2IL14UNJ...	0.95	1.0	1.2			
1/4" SCB	11	36	2JIR36UNJ...		0.37	1.1	0.5	-	-	NVR..-2
		32	2JIR32UNJ...		0.42	1.2	0.5			
		28	2JIR28UNJ...		0.47	0.6	0.8			
		24	2JIR24UNJ...		0.55	0.6	0.8			
		20	2JIR20UNJ...		0.66	0.6	0.8			
		18	2JIR18UNJ...		0.74	0.6	0.8			
		16	2JIR16UNJ...		0.83	0.6	0.8			
		14	2JIR14UNJ...		0.95	0.6	0.8			

UNJ - UNJC, UNJF, UNJEF, UNJS (con't)

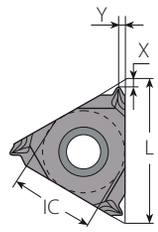
Internal



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



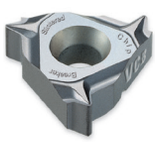
Standard



SCB
Sintered
Chipbreaker

Standard

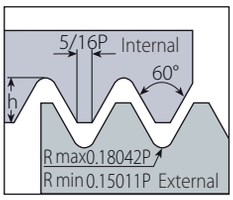
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	16	48	3IR48UNJ...	3IL48UNJ...	0.28	0.6	0.5	YI3	YE3	AVR..-3 (LH)
		44	3IR44UNJ...	3IL44UNJ...	0.30	0.6	0.6			
		40	3IR40UNJ...	3IL40UNJ...	0.33	0.6	0.6			
		36	3IR36UNJ...	3IL36UNJ...	0.37	0.6	0.6			
		32	3IR32UNJ...	3IL32UNJ...	0.42	0.6	0.7			
		28	3IR28UNJ...	3IL28UNJ...	0.47	0.7	0.7			
		24	3IR24UNJ...	3IL24UNJ...	0.55	0.7	0.8			
		20	3IR20UNJ...	3IL20UNJ...	0.66	0.8	0.9			
		18	3IR18UNJ...	3IL18UNJ...	0.74	0.8	1.0			
		16	3IR16UNJ...	3IL16UNJ...	0.83	0.9	1.1			
		14	3IR14UNJ...	3IL14UNJ...	0.95	1.0	1.2			
		13	3IR13UNJ...	3IL13UNJ...	1.02	1.0	1.3			
		12	3IR12UNJ...	3IL12UNJ...	1.11	1.1	1.3			
		11	3IR11UNJ...	3IL11UNJ...	1.21	1.2	1.5			
		10	3IR10UNJ...	3IL10UNJ...	1.33	1.2	1.5			
		9	3IR9UNJ...	3IL9UNJ...	1.48	1.3	1.7			
		8	3IR8UNJ...	3IL8UNJ...	1.66	1.2	1.6			
3/8″ SCB	16	28	3JIR28UNJ...		0.47	0.6	0.8	YI3	-	AVR..-3
		24	3JIR24UNJ...		0.55	0.6	0.8			
		20	3JIR20UNJ...		0.66	0.6	0.8			
		18	3JIR18UNJ...		0.74	0.6	0.8			
		16	3JIR16UNJ...		0.83	0.6	0.8			
		14	3JIR14UNJ...		0.95	1.1	1.5			
		12	3JIR12UNJ...		1.11	1.1	1.5			
		10	3JIR10UNJ...		1.33	1.1	1.5			
		8	3JIR8UNJ...		1.66	1.0	1.5			
1/2″	22	7	4IR7UNJ...	4IL7UNJ...	1.90	1.7	2.3	YI4	YE4	AVR..-4 (LH)
		6	4IR6UNJ...	4IL6UNJ...	2.21	1.7	2.3			
		5	4IR5UNJ...	4IL5UNJ...	2.66	1.8	2.5			
5/8″	27	4.5	5IR4.5UNJ...	5IL4.5UNJ...	2.95	2.0	2.7	YI5	YE5	AVR..-5 (LH)
		4	5IR4UNJ...	5IL4UNJ...	3.32	2.2	2.4			



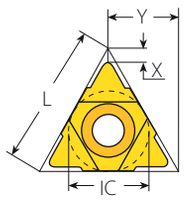
SCB

UNJ - UNJC, UNJF, UNJEF, UNJS (con't)

Internal



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



U Style

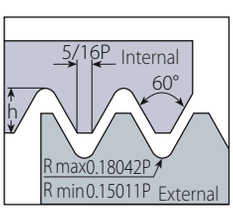
U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4.5	4UI4.5UNJ...	2.95	2.1	11.0	YI4U	YE4U	AVR..-4U (LH)
		4	4UI4UNJ...	3.32	2.2	11.0			

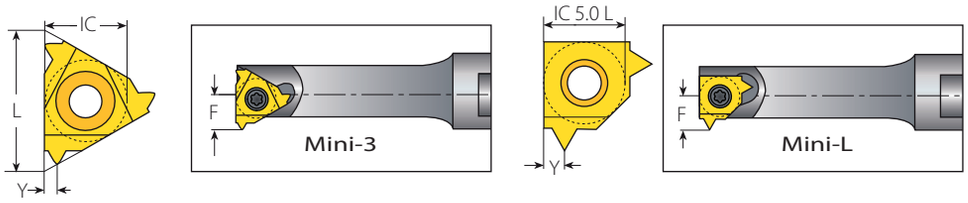
UNJ - UNJC, UNJF, UNJEF, UNJS

MINIPRO

Internal



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



Mini-3 Standard

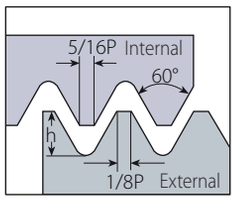
Insert Size		Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
6.0	10	20	6.0KIR20UNJ...	6.0KIL20UNJ...	0.66	0.9	4.90	9.8	.NVRC1..-6.0K (LH)

Mini-L

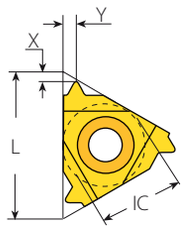
Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	mm	Toolholder
5.0L	32	5LKIR32UNJ...	5LKIL32UNJ...	0.42	0.6	3.92	7.6	.NVRC10. -5LK (LH)
	28	5LKIR28UNJ...	5LKIL28UNJ...	0.47	0.6	3.99	7.6	
	24	5LKIR24UNJ...	5LKIL24UNJ...	0.55	0.8	4.20	7.6	
	20	5LKIR20UNJ...	5LKIL20UNJ...	0.66	0.9	4.21	7.7	
	18	5LKIR18UNJ...	5LKIL18UNJ...	0.74	1.0	4.30	7.8	
	16	5LKIR16UNJ...	5LKIL16UNJ...	0.83	1.0	4.41	7.8	
	14	5LKIR14UNJ...	5LKIL14UNJ...	0.95	1.0	4.54	7.9	

MJ

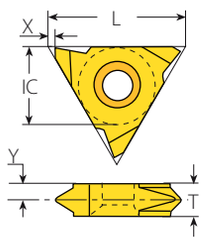
External



Defined by: ISO 5855
Tolerance class: 4h/6h-4H/5H



Standard



Slim Throat

Standard

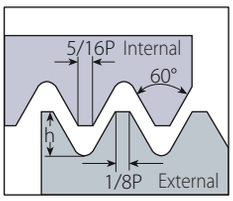
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	11	1.0	2ER1.0MJ...	2EL1.0MJ...	0.58	0.7	0.7	-	-	NL..-2 (LH)
		1.25	2ER1.25MJ...	2EL1.25MJ...	0.72	0.8	0.9			
		1.5	2ER1.5MJ...	2EL1.5MJ...	0.87	0.8	1.0			
3/8″	16	0.7	3ER0.7MJ...	3EL0.7MJ...	0.40	0.6	0.6	YE3	YI3	AL..-3 (LH)
		0.8	3ER0.8MJ...	3EL0.8MJ...	0.45	0.7	0.7			
		1.0	3ER1.0MJ...	3EL1.0MJ...	0.58	0.7	0.7			
		1.25	3ER1.25MJ...	3EL1.25MJ...	0.72	0.8	0.9			
		1.5	3ER1.5MJ...	3EL1.5MJ...	0.87	0.8	1.0			
		2.0	3ER2.0MJ...	3EL2.0MJ...	1.15	1.0	1.3			
		2.5	3ER2.5MJ...	3EL2.5MJ...	1.49	1.1	1.5			
		3.0	3ER3.0MJ...	3EL3.0MJ...	1.73	1.2	1.6			

Slim Throat

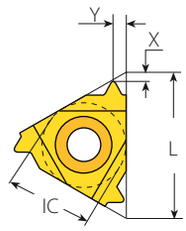
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	mm	RH	LH	h min	X	Y	T	Toolholder
1/4″V	11	0.7	2VER0.7MJ...	2VEL0.7MJ...	0.40	0.7	2.5	3.2	NL..-2V (LH)
		0.8	2VER0.8MJ...	2VEL0.8MJ...	0.44	0.7	2.5	3.2	
		0.9	2VER0.9MJ...	2VEL0.9MJ...	0.53	0.7	2.6	3.2	
		1.0	2VER1.0MJ...	2VEL1.0MJ...	0.58	0.7	2.5	3.2	
		1.25	2VER1.25MJ...	2VEL1.25MJ...	0.72	0.7	2.3	3.2	
		1.5	2VER1.5MJ...	2VEL1.5MJ...	0.87	0.7	2.2	3.2	

MJ (con't)

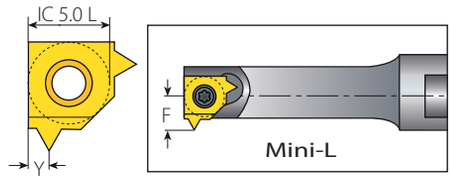
Internal



Defined by: ISO 5855
Tolerance class: 4h/6h-4H/5H



Standard



Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC mm	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	1.0	2IR1.0MJ...	2IL1.0MJ...	0.49	0.6	0.7	-	-	NVR..-2 (LH)
		1.25	2IR1.25MJ...	2IL1.25MJ...	0.61	0.8	0.9			
		1.5	2IR1.5MJ...	2IL1.5MJ...	0.73	0.8	1.0			
		2.0	2IR2.0MJ...	2IL2.0MJ...	0.97	0.8	1.0			
3/8"	16	0.75	3IR0.75MJ...	3IL0.75MJ...	0.37	0.6	0.6	YI3	YE3	AVR..-3 (LH)
		0.8	3IR0.8MJ...	3IL0.8MJ...	0.44	0.7	0.7			
		1.0	3IR1.0MJ...	3IL1.0MJ...	0.49	0.6	0.7			
		1.25	3IR1.25MJ...	3IL1.25MJ...	0.61	0.8	0.9			
		1.5	3IR1.5MJ...	3IL1.5MJ...	0.73	0.8	1.0			
		2.0	3IR2.0MJ...	3IL2.0MJ...	0.97	0.8	1.3			
		2.5	3IR2.5MJ...	3IL2.5MJ...	1.23	1.1	1.5			
		3.0	3IR3.0MJ...	3IL3.0MJ...	1.46	1.2	1.6			

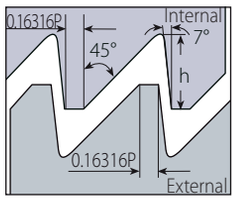
Mini - L

MINIPRO

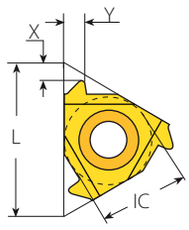
Insert Size	Pitch	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	mm	RH	LH	h min	Y	F	mm	Toolholder
5.0L	1.0	5LKIR1.0MJ...	5LKIL1.0MJ...	0.49	0.7	4.06	7.6	.NVRC10.-5LK (LH)
	1.25	5LKIR1.25MJ...	5LKIL1.25MJ...	0.61	0.9	4.21	7.6	
	1.5	5LKIR1.50MJ...	5LKIL1.50MJ...	0.73	1.0	4.35	7.7	

American Buttress

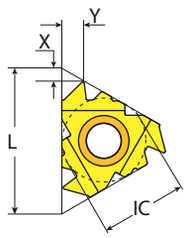
External



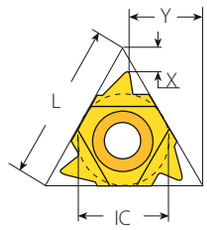
Defined by: ANSI B1.9.1973
Tolerance class: Class 2



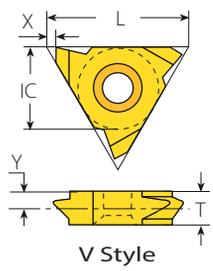
Standard



F-Line



U Style



V Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	11	20	2ER20ABUT...	2EL20ABUT...	0.84	1.0	1.4	-	-	NL..-2 (LH)
		16	2ER16ABUT...	2EL16ABUT...	1.05	1.3	1.9			
3/8″	16	20	3ER20ABUT...	3EL20ABUT...	0.84	1.0	1.4	YE3	YI3	AL..-3 (LH)
		16	3ER16ABUT...	3EL16ABUT...	1.05	1.3	1.9			
		12	3ER12ABUT...	3EL12ABUT...	1.40	1.4	2.0			
		10	3ER10ABUT...	3EL10ABUT...	1.68	1.5	2.3			
1/2″	22	8	4ER8ABUT...	4EL8ABUT...	2.10	2.0	3.2	YE4	YI4	AL..-4 (LH)
		6	4ER6ABUT...	4EL6ABUT...	2.80	2.2	3.5			
1/2″F	23	8	4FER8ABUT...		2.10	2.0	3.2	YE4F		AL...-4F
		6	4FER6ABUT...		2.80	2.2	3.5			

U Style

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2″U	22	4	4UER4ABUT...	4UEL4ABUT...	4.21	2.4	9.8	YE4U-BUT4	YI4U-BUT4	AL..-4U (LH)
5/8″U	27	3	5UER3ABUT...	5UEL3ABUT...	5.61	3.1	12.1	YE5U-BUT3	YI5U-BUT3	AL..-5U (LH)

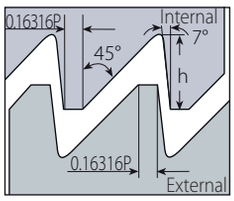
V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8″V	27	4	5VER4ABUT...	5VEL4ABUT...	4.21	0.6	1.8	6	NL..-5V-6 (LH)
		3	5VER3ABUT...	5VEL3ABUT...	5.61	0.6	2.2	8	NL..-5V-8 (LH)
		2.5	5VER2.5ABUT...	5VEL2.5ABUT...	6.73	0.6	2.7	10	NL..-5V-10ABUT (LH)

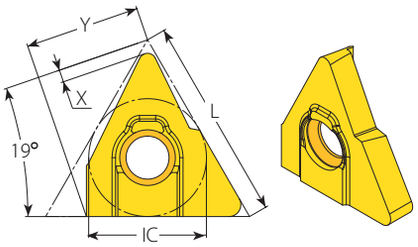
American Buttress (con't)

MEGALINE

External



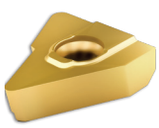
Defined by: ANSI B1.9.1973
Tolerance class: Class 2



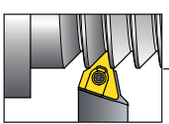
Mega Line

External

ER

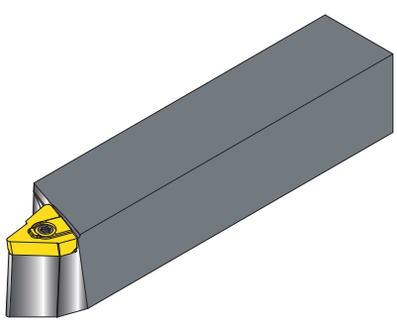


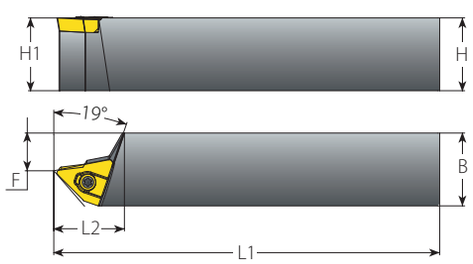
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	TPI	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	2	5MGER2ABUT...	8.42	1.58	15.55	120	56
		1.5	5MGER1.5ABUT...	11.22	1.64		160	75



External Toolholders for American Buttress

MEGALINE





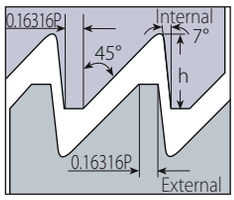
External

Insert	Ordering Code	Dimensions mm				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH	H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER2ABUT...	NL25-5MG2ABUT	25	9.5	150	31	(7"-24")-2ABUT	S5MG	K6T
	NL32-5MG2ABUT	32	16.5	170				
	NL40-5MG2ABUT	40	24.5	200				
5MGER1.5ABUT...	NL25-5MG1.5ABUT	25	9.5	150	31	(11"-24")-1.5ABUT		
	NL32-5MG1.5ABUT	32	16.5	170				
	NL40-5MG1.5ABUT	40	24.5	200				

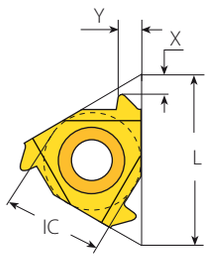
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

American Buttress (con't)

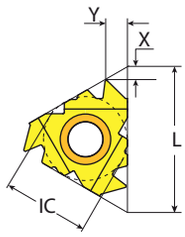
Internal



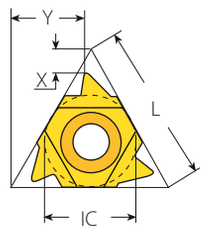
Defined by: ANSI B1.9.1973
Tolerance class: Class 2



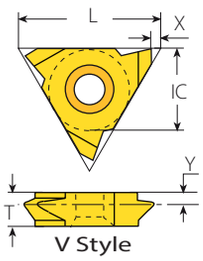
Standard



F-Line



U Style



V Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	11	20	2IR20ABUT...	2IL20ABUT...	0.84	1.0	1.4	-	-	NVR..-2 (LH)
		16	2IR16ABUT...	2IL16ABUT...	1.05	1.3	1.9			
3/8″	16	20	3IR20ABUT...	3IL20ABUT...	0.84	1.0	1.4	YI3	YE3	AVR..-3 (LH)
		16	3IR16ABUT...	3IL16ABUT...	1.05	1.3	1.9			
		12	3IR12ABUT...	3IL12ABUT...	1.40	1.4	2.0			
		10	3IR10ABUT...	3IL10ABUT...	1.68	1.5	2.3			
1/2″	22	8	4IR8ABUT...	4IL8ABUT...	2.10	2.0	3.2	YI4	YE4	AVR..-4 (LH)
		6	4IR6ABUT...	4IL6ABUT...	2.80	2.2	3.5			
1/2″F	23	8	4FIR8ABUT...		2.10	2.0	3.2	YI4F		AVRC...-4F
		6	4FIR6ABUT...		2.80	2.2	3.5			

U Style

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2″U	22	4	4UIR4ABUT...	4UIL4ABUT...	4.21	2.4	9.8	YI4U-4B	YE4U-4B	AVR..-4U (LH)
5/8″U	27	3	5UIR3ABUT...	5UIL3ABUT...	5.61	3.1	12.1	YI5U-3B	YE5U-3B	AVR..-5U (LH)

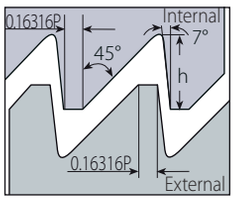
V Style

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8″V	27	4	5VIR4ABUT...	5VIL4ABUT...	4.21	0.6	1.8	6	NVR..-5V (LH)
		3	5VIR3ABUT...	5VIL3ABUT...	5.61	0.6	2.2	8	
		2.5	5VIR2.5ABUT...	5VIL2.5ABUT...	6.73	0.6	2.7	10	

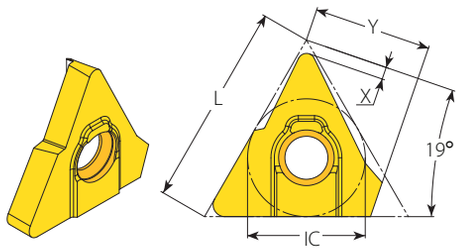
American Buttress (con't)

MEGALINE

Internal



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

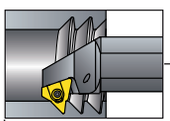


Mega Line

Internal

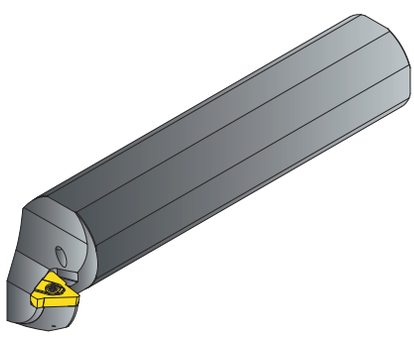
IR

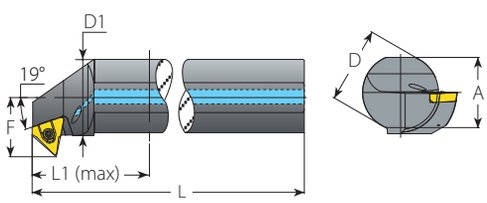
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	TPI	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8″ MG	27	2	5MGIR2ABUT...	8.94	1.58	15.9	128	60
		1.5	5MGIR1.5ABUT...	11.92	1.64		170	79



Internal Toolholders for American Buttress

MEGALINE





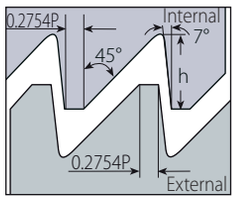
Internal

Insert	Ordering Code	Dimensions mm						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH	A	L	L1 (max)	D	D1	F	mm	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR2ABUT...	NVRC40-5MG2ABUT	36	230.5	100	40	39.7	35.0	162.6	(7″-16″)-2ABUT	(7″-16″)-2ABUT	S5MG	K6T
	NVRC50-5MG2ABUT	46	255.5	125	50	49.7	39.5					
	NVRC60-5MG2ABUT	57	280.5	150	60	59.7	44.0					
5MGIR1.5ABUT...	NVRC40-5MG1.5ABUT	36	230.5	100	40	39.7	35.0	259.1	(11″-22″)-1.5ABUT	(11″-22″)-1.5ABUT		
	NVRC50-5MG1.5ABUT	46	255.5	125	50	49.7	39.5					
	NVRC60-5MG1.5ABUT	57	280.5	150	60	59.7	44.0					

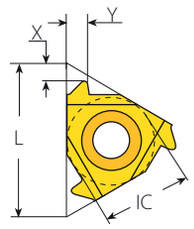
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

British Buttress

External



Defined by: B.S. 1657: 1950
Tolerance class: Medium Class



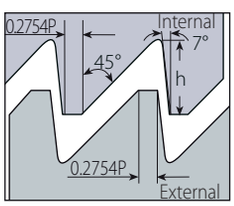
Standard

Standard

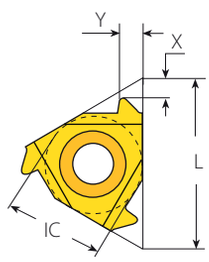
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	**h** min	X	Y	RH	LH	Toolholder
3/8″	16	16	3ER16BBUT...	3EL16BBUT...	0.80	1.1	1.6	YE3	YI3	AL..-3 (LH)
		12	3ER12BBUT...	3EL12BBUT...	1.07	1.4	2.1			
		10	3ER10BBUT...	3EL10BBUT...	1.28	1.4	2.2			
		8	3ER8BBUT...	3EL8BBUT...	1.61	1.6	2.5			
1/2″	22	8	4ER8BBUT...	4EL8BBUT...	1.61	1.6	2.5	YE4	YI4	AL..-4 (LH)

British Buttress

Internal

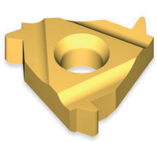


Defined by: B.S. 1657: 1950
Tolerance class: Medium Class



Standard

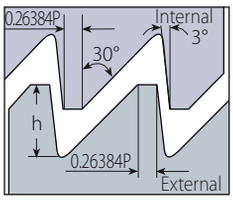
Standard



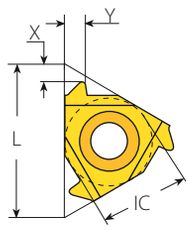
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	16	16	3IR16BBUT...	3IL16BBUT...	0.80	1.1	1.6	YI3	YE3	AVR..-3 (LH)
		12	3IR12BBUT...	3IL12BBUT...	1.07	1.4	2.1			
		10	3IR10BBUT...	3IL10BBUT...	1.28	1.4	2.2			
		8	3IR8BBUT...	3IL8BBUT...	1.61	1.6	2.5			
1/2″	22	8	4IR8BBUT...	4IL8BBUT...	1.61	1.6	2.5	YI4	YE4	AVR..-4 (LH)

Metric Buttress (Sägengewinde)

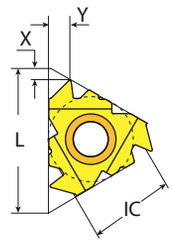
External



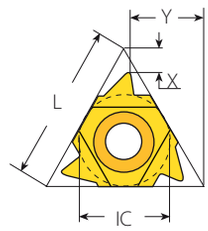
Defined by: DIN 513
Tolerance class: Medium Class



Standard



F-Line



U Style

Standard - External

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	2.0	3ER2.0SAGE...	3EL2.0SAGE...	1.74	1.5	2.1	YE3	YI3	AL..-3 (LH)
1/2"	22	2.0	4ER2.0SAGE...	4EL2.0SAGE...	1.74	1.5	2.1	YE4	YI4	AL..-4 (LH)
		3.0	4ER3.0SAGE...	4EL3.0SAGE...	2.60	1.8	2.6			
		4.0	4ER4.0SAGE...	4EL4.0SAGE...	3.55	1.75	3.1			
1/2"F	23	3.0	4FER3.0SAGE...		2.60	1.8	2.6	YE4F		AL...-4F
		4.0	4FER4.0SAGE...		3.55	1.75	3.1			
5/8"	27	4.0	5ER4.0SAGE...	5EL4.0SAGE...	3.55	1.9	3.2	YE5 082/038	YI5 082/039	AL..-5 (LH)

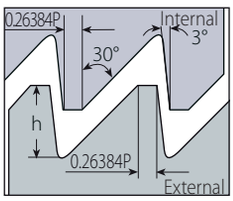
U Style - External

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	5.0	4UER5.0SAGE...	4UEL5.0SAGE...	4.41	1.27	10.35	YE4U-SAGE5	YI4U-SAGE5	AL..-4U (LH)
		6.0	4UER6.0SAGE...	4UEL6.0SAGE...	5.29	1.25	10.28	YE4U-SAGE6	YI4U-SAGE6	

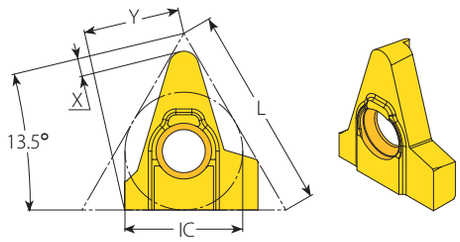
Metric Buttress (Sägengewinde) (con't)

MEGALINE

External

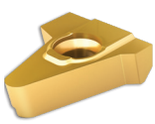


Defined by: DIN 513
Tolerance class: Medium Class

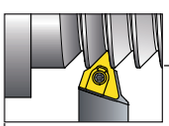


Mega Line

External

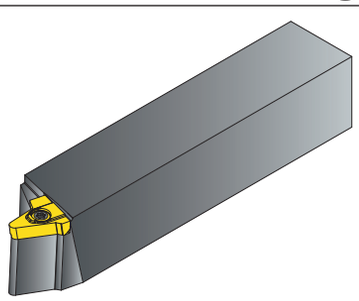


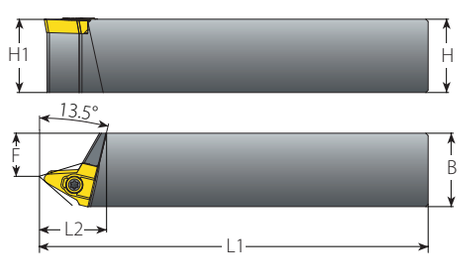
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	mm	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	10.0	5MGER10.0SAGE...	8.68	1.57	13.3	124	58
		12.0	5MGER12.0SAGE...	10.41	1.81		149	69
		14.0	5MGER14.0SAGE...	12.15	2.05		174	81
		16.0	5MGER16.0SAGE...	13.88	3.27		198	93
		20.0	5MGER20.0SAGE...	17.36	2.56		248	116



External Toolholders for Metric Buttress (Sägengewinde)

MEGALINE





External

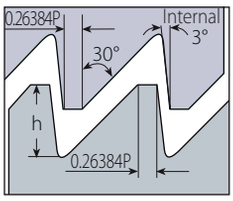
Spare Parts

Insert	Ordering Code	Dimensions mm				Thread Diameter Range (Min.-Max.)	Insert Screw	Torx Key
	RH	H=B=H1	F	L1	L2			
5MGER10.0SAGE...	NL25-5MG10SAGE	25	11.8	150	30	(S65-80)x10	S5MG	K6T
	NL32-5MG10SAGE	32	18.8	170				
	NL40-5MG10SAGE	40	26.8	200				
5MGER12.0SAGE...	NL25-5MG12SAGE	25	11.8	150	30	(S85-146)x12		
	NL32-5MG12SAGE	32	18.8	170				
	NL40-5MG12SAGE	40	26.8	200				
5MGER14.0SAGE...	NL25-5MG14SAGE	25	11.8	150	30	(S115-145)x14		
	NL32-5MG14SAGE	32	18.8	170				
	NL40-5MG14SAGE	40	26.8	200				
5MGER16.0SAGE...	NL25-5MG16SAGE	25	11.8	150	30	(S150-175)x16		
	NL32-5MG16SAGE	32	18.8	170				
	NL40-5MG16SAGE	40	26.8	200				
5MGER20.0SAGE...	NL25-5MG20SAGE	25	11.8	150	30	(S210-230)x20		
	NL32-5MG20SAGE	32	18.8	170				
	NL40-5MG20SAGE	40	26.8	200				

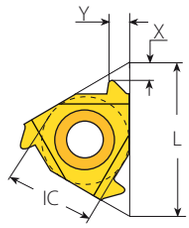
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

Metric Buttress (Sägengewinde) (con't)

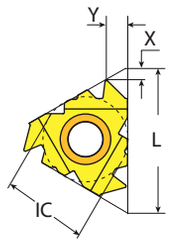
Internal



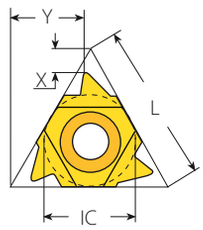
External



Standard



F-line



U Style

Defined by: DIN 513
Tolerance class: Medium Class

Standard - Internal

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	16	2.0	3IR2.0SAGE...	3IL2.0SAGE...	1.50	1.5	2.2	YI3	YE3	AVR..-3 (LH)
1/2″	22	3.0	4IR3.0SAGE...	4IL3.0SAGE...	2.25	1.7	2.9	YI4	YE4	AVR..-4 (LH)
		4.0	4IR4.0SAGE...	4IL4.0SAGE...	3.09	2.03	3.25			
1/2″F	23	3.0	4FIR3.0SAGE...		2.25	1.7	2.9	YI4F		AVRC...-4F
		4.0	4FIR4.0SAGE...		3.09	2.03	3.25			
5/8″	27	4.0	5IR4.0SAGE...	5IL4.0SAGE...	3.09	2.1	3.2	YI5 082/039	YE5 082/038	AVR..-5 (LH)

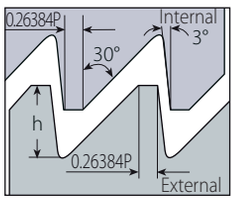
U Style - Internal

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2″U	22	5.0	4UIR5.0SAGE...	4UIL5.0SAGE...	3.76	1.8	10.3	YI4U-5S	YE4U-5S	AVR..-4U (LH)
		6.0	4UIR6.0SAGE...	4UIL6.0SAGE...	4.54	1.9	10.15	YI4U-6S	YE4U-6S	

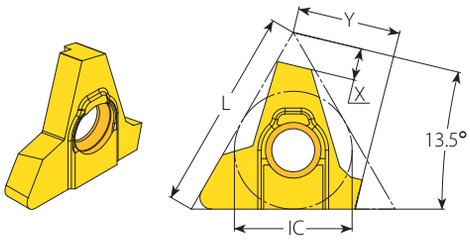
Metric Buttress (Sägengewinde) (con't)

MEGALINE

Internal



Defined by: DIN 513
Tolerance class: Medium Class

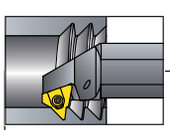


Mega Line

Internal

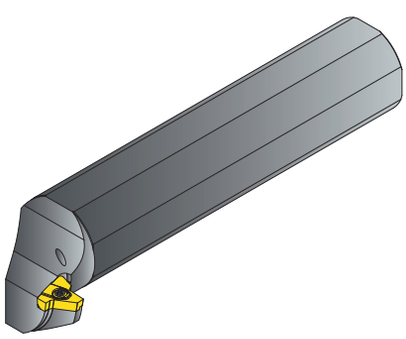
IR

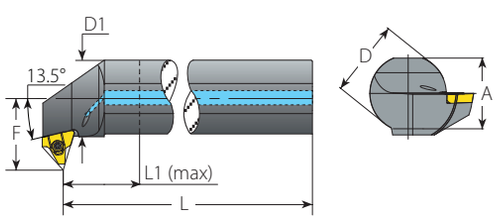
Insert Size		Pitch	Ordering Code	Dimensions mm			Number of Passes	
IC	L mm	mm	RH	h min	X	Y	0.07mm-Min. Depth of Cut (On radius)	0.15mm-Max. Depth of Cut (On radius)
5/8" MG	27	10.0	5MGIR10.0SAGE...	7.21	2.86	13.7	103	48
		12.0	5MGIR12.0SAGE...	8.67	3.34		124	58
		14.0	5MGIR14.0SAGE...	10.12	3.83		145	67
		16.0	5MGIR16.0SAGE...	11.58	4.30		165	77
		20.0	5MGIR20.0SAGE...	14.50	5.16		207	97



Internal Toolholders for Metric Buttress (Sägengewinde)

MEGALINE





Internal

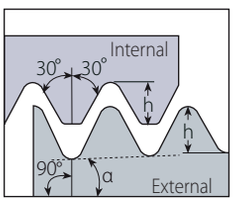
Spare Parts

Insert	Ordering Code	Dimensions mm						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH	A	L	L1 (max)	D	D1	F	mm	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR10.0SAGE...	NVRC40-5MG10SAGE	36	230.5	100	40	39.7	29.0	50	(S65-80)x10	(S75-80)x10	S5MG	K6T
5MGIR12.0SAGE...	NVRC40-5MG12SAGE	36	230.5	100	40	39.7	41.5	67	(S85-400)x12	(S90-400)x12		
	NVRC50-5MG12SAGE	46	255.5	125	50	49.7	46.5	72	(S90-400)x12	(S105-400)x12		
	NVRC60-5MG12SAGE	57	280.5	150	60	59.7	51.5	82	(S100-400)x12	(S250-400)x12		
5MGIR14.0SAGE...	NVRC40-5MG14SAGE	36	230.5	100	40	39.7	41.5	94	(S115-145)x14	(S115-145)x14		
	NVRC50-5MG14SAGE	46	255.5	125	50	49.7	46.5	94	(S115-145)x14	(S115-145)x14		
	NVRC60-5MG14SAGE	57	280.5	150	60	59.7	51.5	94	(S115-145)x14	(S120-145)x14		
5MGIR16.0SAGE...	NVRC40-5MG16SAGE	36	230.5	100	40	39.7	41.5	126	(S150-175)x16	(S150-175)x16		
	NVRC50-5MG16SAGE	46	255.5	125	50	49.7	46.5	126	(S150-175)x16	(S150-175)x16		
	NVRC60-5MG16SAGE	57	280.5	150	60	59.7	51.5	126	(S150-175)x16	(S150-175)x16		
5MGIR20.0SAGE...	NVRC40-5MG20SAGE	36	230.5	100	40	39.7	41.5	75	(S105-230)x20	(S105-230)x20		
	NVRC50-5MG20SAGE	46	255.5	125	50	49.7	46.5	75	(S105-230)x20	(S210-230)x20		
	NVRC60-5MG20SAGE	57	280.5	150	60	59.7	51.5	80	(S110-230)x20	(S210-230)x20		

Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

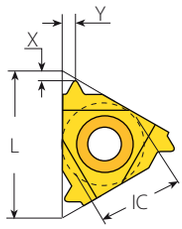
API

External

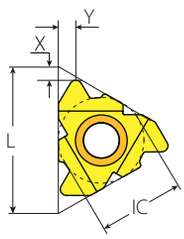


α = arctg (IPF/24)

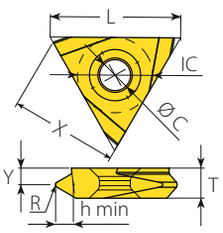
Defined by: API SPEC. 7:1990
Tolerance class: Standard API



Standard



F-Line



On Edge

Standard

F-LINE

Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI		IPF	RH		h min	X	Y	RH	Toolholder
1/2"	22	4	V-0.038R	2	4ER4API382...	NC23-NC50	3.09	2.1	2.8	YEI 4-API-1P or YE4	AL..-4 5BUT/API or AL...-4
		4	V-0.038R	3	4ER4API383...	NC56-NC77	3.08	2.1	2.8		
		4	V-0.050	2	4ER4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8" FH	3.75	2.0	2.9		
		4	V-0.050	3	4ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	3.74	2.0	2.9		
		5	V-0.040	3	4ER5API403...	2 3/8"-4 1/2" REG	2.99	1.8	2.6		
		6	V-0.055	1.5	4ER6API551...	NC10-NC16	1.41	2.6	2.0		
1/2"F	23	4	V-0.038R	2	4FER4API382...	NC23-NC50	3.09	2.1	2.8	YE4F	AL...-4F
		4	V-0.038R	3	4FER4API383...	NC56-NC77	3.08	2.1	2.8		
		4	V-0.050	2	4FER4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8"FH	3.75	2.0	2.9		
		4	V-0.050	3	4FER4API503...	5 1/2", 7 5/8", 8 5/8" REG	3.74	2.0	2.9		
		5	V-0.040	3	4FER5API403...	2 3/8"-4 1/2" REG	2.99	1.8	2.6		
		6	V-0.055	1.5	4FER6API551...	NC10-NC16	1.41	2.6	2.0		
5/8"	27	4	V-0.038R	2	5ER4API382...	NC23-NC50	3.09	2.1	2.8	YE5OIL	AL..-5 OIL
		4	V-0.038R	3	5ER4API383...	NC56-NC77	3.08	2.1	2.8		
		4	V-0.050	2	5ER4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8" FH	3.75	2.1	3.1		
		4	V-0.050	3	5ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	3.74	2.1	3.1		
		5	V-0.040	3	5ER5API403...	2 3/8"-4 1/2" REG	2.99	1.9	2.7		
		4	V-0.065	2	5ER4API652...	2 3/8"IF- 5 1/2IF	2.81	2.3	2.8		

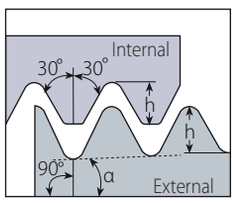
On Edge

Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions mm			Position		
IC	L mm	TPI		IPF	RH		R	h min	T	Ø C	X	Y
5/8"	27	5	V-0.040	3	TNEC54ER5API403...	2 3/8"-4 1/2" REG	0.51	3.00	6.35	6.50	23.4	3.9
		4	V-0.050	2	TNEC55ER4API502...	6 5/8" REG, 5 1/2 FH, 6 5/8 FH	0.64	3.76	7.94			5.0
		4	V-0.050	3	TNEC55ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	0.64	3.76	7.94			5.0
		4	V-0.038	2	TNEC55ER4API382...	NC23-NC50, 2 3/8 - 6 5/8 IF	0.97	3.10	7.94			5.0
		4	V-0.038	3	TNEC55ER4API383...	NC56-NC77	0.97	3.10	7.94			5.0

On Edge inserts are compatible with most commonly used toolholders in the market.

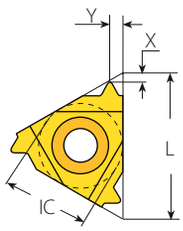
API (con't)

Internal

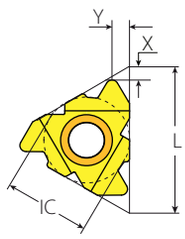


α = arctg (IPF/24)

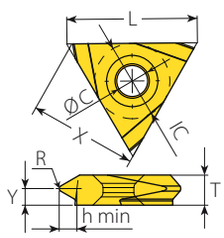
Defined by: API SPEC. 7:1990
Tolerance class: Standard API



Standard



F-Line



On Edge

Standard

F-LINE

Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI		IPF	RH		h min	X	Y	RH	Toolholder
1/2"	22	4	V-0.038R	2	4IR4API382...	NC23-NC50	3.09	2.1	2.8	YEI or YI4	4-API-1P AVRC..-4 5BUT/API or AVR...-4
		4	V-0.038R	3	4IR4API383...	NC56-NC77	3.08	2.1	2.8		
		4	V-0.050	2	4IR4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8" FH	3.75	2.1	3.1		
		4	V-0.050	3	4IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	3.74	2.0	2.9		
		5	V-0.040	3	4IR5API403...	2 3/8"-4 1/2" REG	2.99	1.8	2.6		
		6	V-0.055	1.5	4IR6API551...	NC10-NC16	1.41	2.6	2.0		
1/2"F	23	4	V-0.038R	2	4FIR4API382...	NC23-NC50	3.09	2.1	2.8	YI4F	AVRC...-4F
		4	V-0.038R	3	4FIR4API383...	NC56-NC77	3.08	2.1	2.8		
		4	V-0.050	2	4FIR4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8"FH	3.75	2.1	3.1		
		4	V-0.050	3	4FIR4API503...	5 1/2", 7 5/8", 8 5/8" REG	3.74	2.0	2.9		
		5	V-0.040	3	4FIR5API403...	2 3/8"-4 1/2" REG	2.99	1.8	2.6		
		6	V-0.055	1.5	4FIR6API551...	NC10-NC16	1.41	2.6	2.0		
5/8"	27	4	V-0.038R	2	5IR4API382...	NC23-NC50	3.09	2.1	2.8	YI5OIL	AVR..-5 OIL
		4	V-0.038R	3	5IR4API383...	NC56-NC77	3.08	2.1	2.8		
		4	V-0.050	2	5IR4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8" FH	3.75	2.1	3.1		
		4	V-0.050	3	5IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	3.74	2.1	3.1		
		5	V-0.040	3	5IR5API403...	2 3/8"-4 1/2" REG	2.99	1.9	2.7		
		4	V-0.065	2	5IR4API652...	2 3/8"IF- 5 1/2"IF	2.81	2.3	2.8		

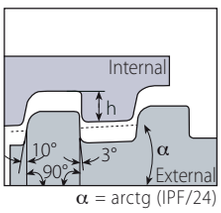
On Edge

Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions mm				Position	
IC	L mm	TPI		IPF	RH		R	h min	T	Ø C	X	Y
5/8"	27	5	V-0.040	3	TNEC54IR5API403...	2 3/8"-4 1/2" REG	0.51	3.00	6.35	6.50	23.4	3.9
		4	V-0.050	2	TNEC55IR4API502...	6 5/8" REG, 5 1/2 FH, 6 5/8 FH	0.64	3.76	7.94			5.0
		4	V-0.050	3	TNEC55IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	0.64	3.76	7.94			5.0
		4	V-0.038	2	TNEC55IR4API382...	NC23-NC50, 2 3/8 - 6 5/8 IF	0.97	3.10	7.94			5.0
		4	V-0.038	3	TNEC55IR4API383...	NC56-NC77	0.97	3.10	7.94			5.0

On Edge inserts are compatible with most commonly used toolholders in the market.

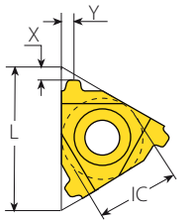
API Buttress Casing

External

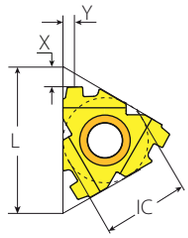


α = arctg (IPF/24)

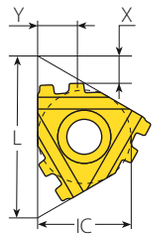
Defined by: STD.5B.1979
Tolerance class: Standard API



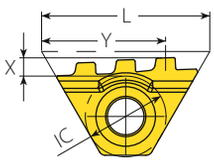
Standard

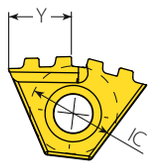


F-Line



M+ Style





T+ Style

14D
2 Cutting Edges

Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2″	22	5	0.75	4ER5BUT75...	4 1/2″-13 3/8″	1.55	3.1	1.9	YEI 4-BUT or YE4	AL..-4 5BUT/API or AL...-4
		5	1	4ER5BUT1...	16″-20″	1.55	3.1	1.9		
1/2″F	23	5	0.75	4FER5BUT75...	4 1/2″-13 3/8″	1.55	3.1	1.9	YE4F	AL...-4F
		5	1	4FER5BUT1...	16″-20″	1.55	3.1	1.9		

M+ Style

Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF		RH		h min	X	Y	RH	Toolholder
5/8″	27	5	0.75	2	5ER5BUT752M+...	4 1/2″-13 3/8″	1.55	4.8	6.8	YE5M	AL..-5M

T+ Style

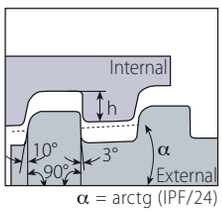
Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF		RH		h min	X	Y	RH	Toolholder
1/2″T	22	5	0.75	3	4ER5BUT753T+...	4 1/2″-13 3/8″	1.55	2.5	16.1	Y4T	AL..-4T
			1		4ER5BUT13T+...	16″-20″					

14D

Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm		Anvil	
IC	TPI	IPF		RH		h min	Y	RH	Toolholder
14D	5	0.75	2	14DER5BUT752T+...	4 1/2″-9 5/8″	1.55	10.0	Y14DER-5 BUT	AL...-14D
					10 3/4″-13 3/8″			Y14DER-5BUT-0.4N	
	5	1	2	14DER5BUT12T+...	16″-20″			Y14DER-5BUT-0.4N	AL...-14D

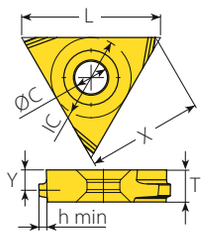
API Buttress Casing (con't)

External

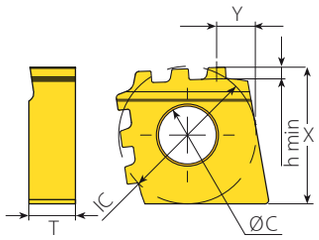


α = arctg (IPF/24)

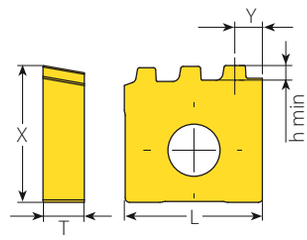
Defined by: STD.5B.1979
Tolerance class: Standard API



On Edge



CNGA



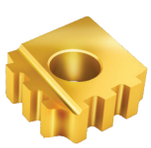
Chaser

On Edge

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Position	
IC	L mm	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8″	27	5	0.75	TNEC54ER5BUT75...	4 1/2″-13 3/8″	1.55	6.35	6.5	23.4	4.0
		5	1	TNEC54ER5BUT1...	16″-20″					

On Edge inserts are compatible with most commonly used toolholders in the market.

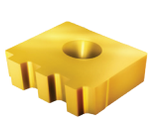
CNGA



Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm			Position	
IC	TPI	IPF		RH		h min	T	Ø C	X	Y
3/4″	5	0.75	3	CNGA64ER5BUT75T3...	4 1/2″-13 3/8″	1.55	6.35	8.0	18.9	5.6
	5	1	3	CNGA64ER5BUT1T3...	16″-20″					5.5

CNGA inserts are compatible with most commonly used toolholders in the market.

Chaser

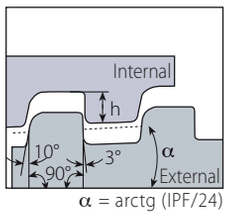


Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm		Position	
L	TPI	IPF		RH		h min	T	X	Y
16	5	0.75	3	1616ER5BUT753S+...	4 1/2″-13 3/8″	1.55	4.76	15.7	3.2
	5	1	3	1616ER5BUT13S+...	16″-20″				

Chaser inserts are compatible with most commonly used toolholders in the market.

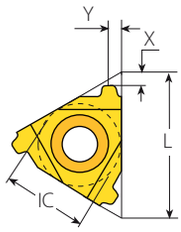
API Buttress Casing (con't)

Internal

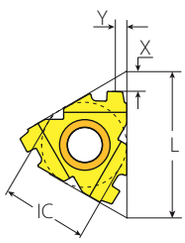


α = arctg (IPF/24)

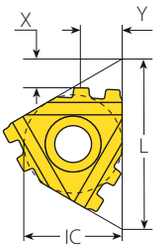
Defined by: STD.5B:1979
Tolerance class: Standard API



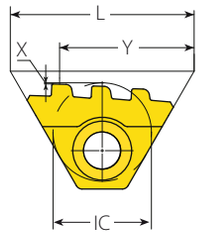
Standard



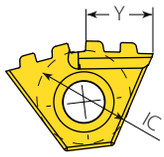
F-Line M+



M+ Style



T+ Style



14D
2 Cutting Edges

Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2″	22	5	0.75	4IR5BUT75...	4 1/2″-13 3/8″	1.55	2.8	1.9	YEI 4-BUT or YI4	AVRC..-4 5BUT/API or AVR...-4
		5	1	4IR5BUT1...	16″-20″	1.55	2.8	1.9		
1/2″F	23	5	0.75	4FIR5BUT75...	4 1/2″-13 3/8″	1.55	2.8	1.9	YI4F	AVRC...-4F
		5	1	4FIR5BUT1...	16″-20″	1.55	2.8	1.9		

M+ Style

Multi plus

Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF		RH		h min	X	Y	RH	Toolholder
5/8″	27	5	0.75	2	5IR5BUT752M+...	4 1/2″-13 3/8″	1.55	4.8	6.7	YI5M	AVR..-5M

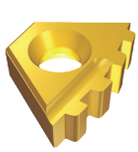
T+ Style

Multi plus

Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF		RH		h min	X	Y	RH	Toolholder
1/2″T	22	5	0.75	3	4IR5BUT753T+...	4 1/2″-13 3/8″	1.55	2.5	16.1	Y4T	AVR..-4T
			1		4IR5BUT13T+...	16″-20″					

14D

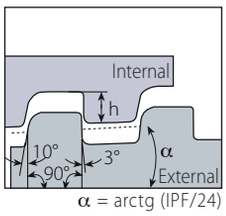
Multi plus



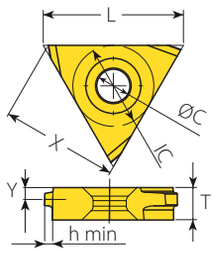
Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm		Anvil	
IC	TPI	IPF		RH		h min	Y	RH	Toolholder
14D	5	0.75	2	14DIR5BUT752T+...	4 1/2″-9 5/8″	1.55	10.0	Y14DIR-5 BUT	AVRC...-14D
					10 3/4″-13 3/8″			Y14DIR-5BUT-0.4N	
	5	1	2	14DIR5BUT12T+...	16″-20″	1.55	10.0	Y14DIR-5BUT-0.4N	AVRC...-14D

API Buttress Casing (con't)

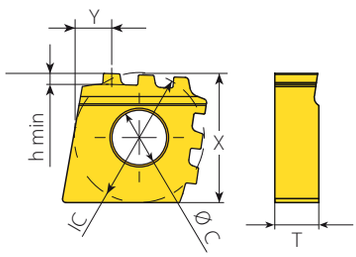
Internal



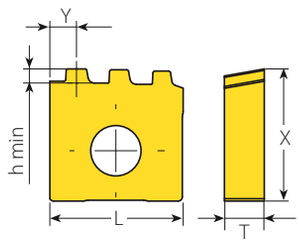
Defined by: STD.5B:1979
Tolerance class: Standard API



On Edge



CNGA



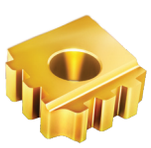
Chaser

On Edge

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Position	
IC	L mm	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8″	22	5	0.75	TNEC54IR5BUT75...	4 1/2″-13 3/8″	1.55	6.35	6.5	23.4	4.3
		5	1	TNEC54IR5BUT1...	16″-20″					

On Edge inserts are compatible with most commonly used toolholders in the market.

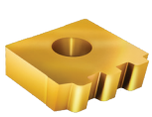
CNGA



Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm			Position	
IC	TPI	IPF		RH		h min	T	Ø C	X	Y
3/4″	5	0.75	3	CNGA64IR5BUT75T3...	4 1/2″-13 3/8″	1.55	6.35	8.0	18.9	5.6
	5	0.75	2	CNGA64IR5BUT75T2...	4 1/2″-13 3/8″					10.4
	5	1	3	CNGA64IR5BUT1T3...	16″-20″					5.5

CNGA inserts are compatible with most commonly used toolholders in the market.

Chaser

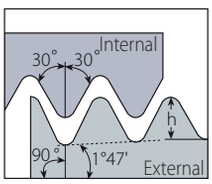


Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm		Position	
L	TPI	IPF		RH		h min	T	X	Y
16	5	0.75	3	1616IR5BUT753S+...	4 1/2″-13 3/8″	1.55	4.76	15.7	3.2
	5	1	3	1616IR5BUT13S+...	16″-20″				

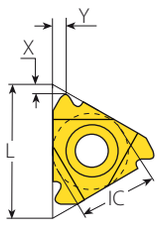
Chaser inserts are compatible with most commonly used toolholders in the market.

API Round Casing & Tubing

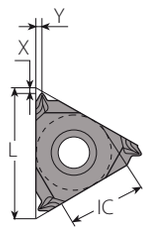
External



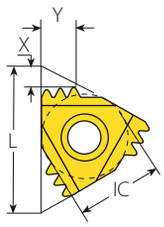
Defined by: API STD. 5B:1979
Tolerance class: Standard API RD



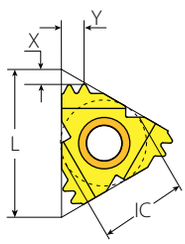
Standard



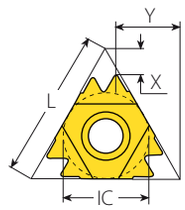
SCB Sintered Chipbreaker



M+ Style

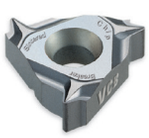


F-Line M+



Z+ Style

Standard



SCB

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI	RH	h min	X	Y	RH	Toolholder
3/8"	16	10	3ER10APIRD...	1.41	1.2	1.4	YEI3-APIRD or YE3	AL...-3 APIRD or AL..-3
		8	3ER8APIRD...	1.81	1.3	1.5		
3/8" SCB	16	10	3JER10APIRD...	1.41	1.2	1.5		
		8	3JER8APIRD...	1.81	1.3	1.5		

M+ Style

Multi plus

F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
1/2"	22	10	2	4ER10APIRD2M+...	1.41	2.3	3.8	YE4M	AL..-4
1/2"F	23	10	2	4FER10APIRD2M+...	1.41	2.3	3.8	YE4M2F	AL...-4MF
5/8"	27	10	3	5ER10APIRD3M+...	1.41	3.9	6.3	YE5M	AL..-5M
		8	2	5ER8APIRD2M+...	1.81	2.9	4.5		

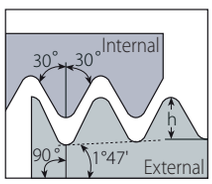
Z+ Style

Multi plus

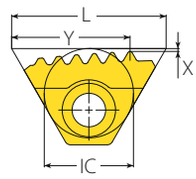
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
1/2"	22	10	2	4ER10APIRD2Z+...	1.41	3.0	9.9	YE4Z	AL..-4Z
		8	2	4ER8APIRD2Z+...	1.81	3.7	9.6		

API Round Casing & Tubing (con't)

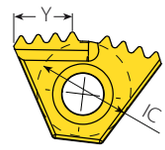
External



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



T+ Style

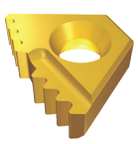


14D -
2 Cutting Edges

T+ Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
1/2"T	22	10	6	4ER10APIRD6T+...	1.41	0.2	16.2	Y4T	AL..-4T
		8	3	4ER8APIRD3T+...	1.81	0.2	14.2		
		8	5	4ER8APIRD5T+...	1.81	0.2	16.7		

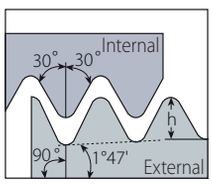
14D



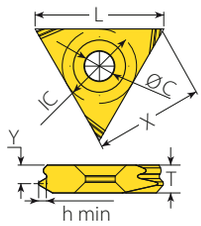
Insert Size	Pitch	Teeth	Ordering Code	Size	Dimensions mm		Anvil	
IC	TPI		RH		h min	Y	RH	Toolholder
14D	10	4	14DER10APIRD4T+...	2 3/8" and up	1.41	8.7	Y14DER-10 APIRD	AL...-14D
	10	3	14DER10APIRD3T+...	2 3/8" and up		8.8	Y14DER-10 APIRD-3+	
	8	3	14DER8APIRD3T+...	2 3/8" and up	1.81	8.1	Y14DER-8 APIRD	

API Round Casing & Tubing (con't)

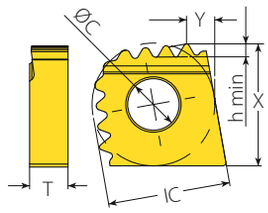
External



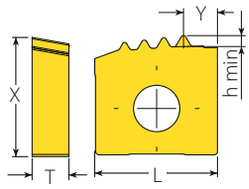
Defined by: API STD. 5B:1979
Tolerance class: Standard API RD



On Edge



CNGA



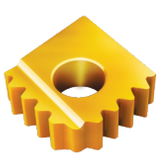
Chaser

On Edge

Insert Size		Pitch	Ordering Code	Dimensions mm			Position	
IC	L mm	TPI	RH	h min	T	Ø C	X	Y
1/2"	22	10	TNEC43ER10APIRD...	1.41	4.76	5.2	18.6	3.2
		8	TNEC43ER8APIRD...	1.81				

On Edge inserts are compatible with most commonly used toolholders in the market.

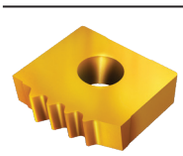
CNGA



Insert Size	Pitch	Teeth	Ordering Code	Dimensions mm			Position	
IC	TPI		RH	h min	T	Ø C	X	Y
3/4"	10	5	CNGA64ER10APIRDT5...	1.41	6.35	8.0	18.9	4.5
	8	4	CNGA64ER8APIRDT4...	1.81				

CNGA inserts are compatible with most commonly used toolholders in the market.

Chaser

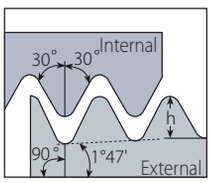


Insert Size	Pitch	Teeth	Ordering Code	Dimensions mm		Position	
L	TPI		RH	h min	T	X	Y
16	10	4	1616ER10APIRD4S+...	1.41	4.76	15.4	4.4
	8	3	1616ER8APIRD3S+...	1.81		15.9	

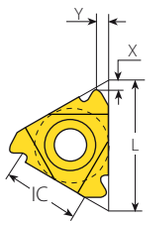
Chaser inserts are compatible with most commonly used toolholders in the market.

API Round Casing & Tubing (con't)

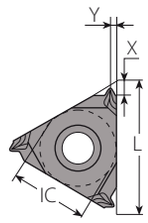
Internal



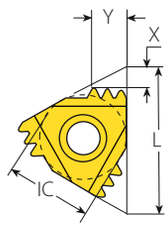
Defined by: API STD. 5B:1979
Tolerance class: Standard
API RD



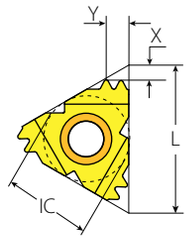
Standard



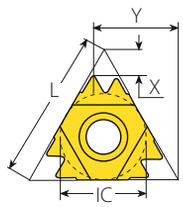
SCB Sintered Chipbreaker



M+ Style

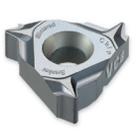


F-Line M+



Z+ Style

Standard

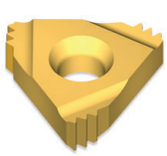


SCB

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI	RH	h min	X	Y	RH	Toolholder
3/8″	16	10	3IR10APIRD...	1.41	1.2	1.4	YEI3-APIRD or YI3	AVRC... 3APIRD or AVRC..-3
		8	3IR8APIRD...	1.81	1.3	1.5		
3/8″ SCB	16	10	3JIR10APIRD...	1.41	1.2	1.5		
		8	3JIR8APIRD...	1.81	1.3	1.5		

M+ Style

Multiplus



F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
1/2″	22	10	2	4IR10APIRD2M+...	1.41	2.4	3.7	YI4M	AVR..-4
		8	2	4IR8APIRD2M+...	1.81	2.9	4.5		
1/2″F	23	10	2	4FIR10APIRD2M+...	1.41	2.4	3.7	YI4M2F	AVRC...-4MF
5/8″	27	10	3	5IR10APIRD3M+...	1.41	3.9	6.3	YI5M	AVR..-5M
		8	2	5IR8APIRD2M+...	1.81	2.9	4.5		

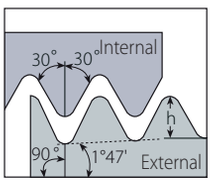
Z+ Style

Multiplus

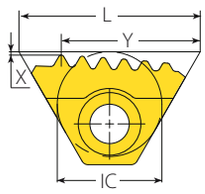
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
1/2″	22	10	2	4IR10APIRD2Z+...	1.41	3.0	9.9	YI4Z	AVR..-4Z
		8	2	4IR8APIRD2Z+...	1.81	3.7	9.6		

API Round Casing & Tubing (con't)

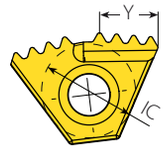
Internal



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



Z+ Style

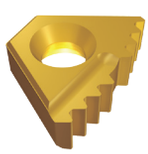


14D -
2 Cutting Edges

T+ Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	TPI		RH	h min	X	Y	RH	Toolholder
1/2"T	22	10	6	4IR10APIRD6T+...	1.41	0.2	16.8	Y4T	AVR..-4T
		8	3	4IR8APIRD3T+...	1.81	0.2	14.2		
		8	5	4IR8APIRD5T+...	1.81	0.2	16.7		

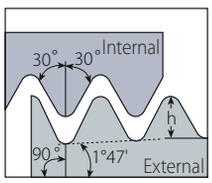
14D



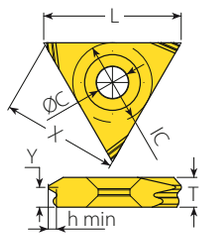
Insert Size	Pitch	Teeth	Ordering Code	Size	Dimensions mm		Anvil	
IC	TPI				h min	Y		Toolholder
14D	10	4	14DIR10APIRD4T+...	2 3/8" and up	1.41	8.71	Y14DIR-10 APIRD	AVRC...-14D
	10	3	14DIR10APIRD3T+...	2 3/8" and up		8.79	Y14DIR-10 APIRD-3+	
	8	3	14DIR8APIRD3T+...	2 3/8" and up	1.81	8.10	Y14DIR-8 APIRD	

API Round Casing & Tubing (con't)

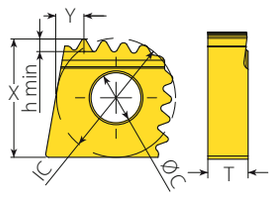
Internal



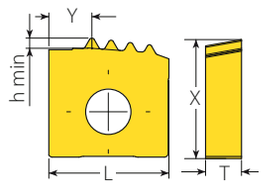
Defined by: STD. 5B:1979
Tolerance class: Standard API RD



On Edge



CNGA



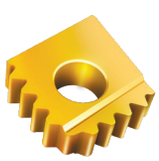
Chaser

On Edge

Insert Size		Pitch	Ordering Code	Dimensions mm			Position	
IC	L mm	TPI	RH	h min	T	Ø C	X	Y
1/2"	22	10	TNEC43IR10APIRD...	1.41	4.76	5.2	18.6	3.2
		8	TNEC43IR8APIRD...	1.81				

On Edge inserts are compatible with most commonly used toolholders in the market.

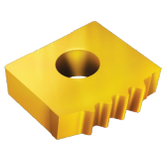
CNGA



Insert Size	Pitch	Teeth	Ordering Code	Dimensions mm			Position	
IC	TPI		RH	h min	T	Ø C	X	Y
3/4"	10	5	CNGA64IR10APIRDT5...	1.41	6.35	8.0	18.9	4.5
	8	4	CNGA64IR8APIRDT4...	1.81				

CNGA inserts are compatible with most commonly used toolholders in the market.

Chaser

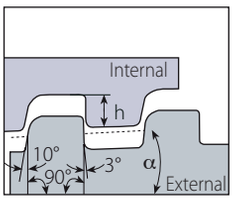


Insert Size	Pitch	Teeth	Ordering Code	Dimensions mm		Position	
L	TPI		RH	h min	T	Ø C	Y
16	10	4	1616IR10APIRD4S+...	1.41	4.76	15.4	5.7
	8	3	1616IR8APIRD3S+...	1.81		15.9	4.4

Chaser inserts are compatible with most commonly used toolholders in the market.

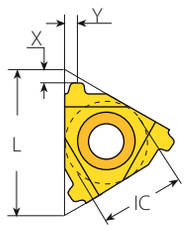
VAM

External

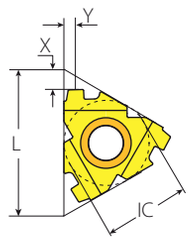


α = arctg (IPF/24)

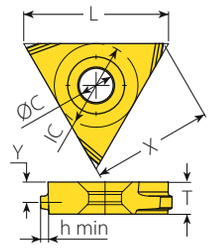
Defined by: VAM
Tolerance class: Standard VAM



Standard



F-Line



On Edge

Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF	RH		h min	X	Y	RH	Toolholder
3/8″	16	8	0.75	3ER8VAM...	2 3/8″, 2 7/8″	0.97	1.7	1.80	YE3	AL..-3
1/2″	22	6		4ER6VAM...	3 1/2″	0.97	2.4	2.40	YE4	AL..-4
		5		4ER5VAM...	5″-9 5/8″	1.55	2.4	2.70		
1/2″F	23	6		4FER6VAM...	3 1/2″	0.97	2.4	2.40	YE4F	AL...-4F
		5		4FER5VAM...	5″-9 5/8″	1.55	2.4	2.70		

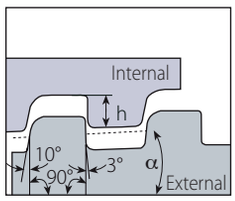
On Edge

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Position	
IC	L mm	TPI	IPF	RH		h min	T	Ø C	X	Y
1/2″	22	8	0.75	TNEC43ER8VAM...	2 3/8″, 2 7/8″	0.97	4.76	5.2	18.6	3.30
		6		TNEC43ER6VAM...	3 1/2″	0.97	4.76			2.90
5/8″	27	5		TNEC54ER5VAM...	5″- 9 5/8″	1.55	6.35	6.5	23.4	4.00

On Edge inserts are compatible with most commonly used toolholders in the market.

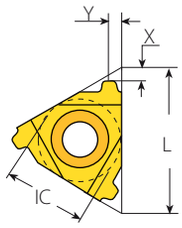
VAM (con't)

Internal

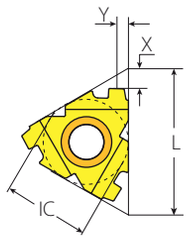


α = arctg (IPF/24)

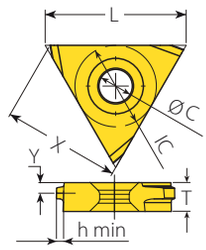
Defined by: VAM
Tolerance class: Standard VAM



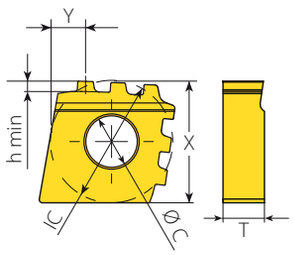
Standard



F-Line



On Edge



CNGA

Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF	RH		h min	X	Y	RH	Toolholder
3/8″	16	8	0.75	3IR8VAM...	2 3/8″, 2 7/8″	1.02	1.7	1.8	YI3	AVR..-3
1/2″	22	6		4IR6VAM...	3 1/2″	1.02	2.5	2.5	YI4	AVR..-4
		5		4IR5VAM...	5″-9 5/8″	1.55	2.4	2.5		
1/2″F	23	6		4FIR6VAM...	3 1/2″	1.02	2.5	2.5	YI4F	AVRC...-4F
		5		4FIR5VAM...	5″-9 5/8″	1.55	2.4	2.5		

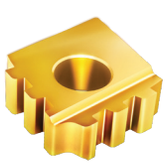
On Edge

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Position	
IC	L mm	TPI	IPF	RH		h min	T	Ø C	X	Y
1/2″	22	8	0.75	TNEC43IR8VAM...	2 3/8″, 2 7/8″	1.02	4.78	5.2	18.6	3.2
		6		TNEC43IR6VAM...	3 1/2″	1.02	4.78			3.1
5/8 ″	27	5		TNEC54IR5VAM...	5″- 9 5/8″	1.55	6.35	6.5	23.4	4.2

On Edge inserts are compatible with most commonly used toolholders in the market.

CNGA

Multiplus

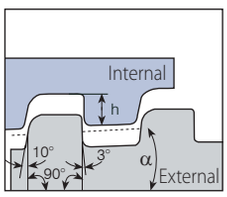


Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm			Position	
IC	TPI	IPF		RH		h min	T	Ø C	X	Y
3/4″	5	3/4	2	CNGA64IR5VAM75T2...	5″- 9 5/8″	1.55	6.35	8.0	18.9	9.3

CNGA inserts are compatible with most commonly used toolholders in the market.

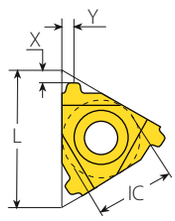
New VAM

External

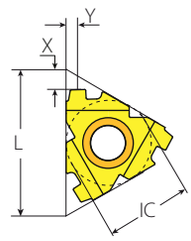


α= arctg (IPF/24)

Defined by: VAM
Tolerance class: Standard VAM



Standard



F-Line

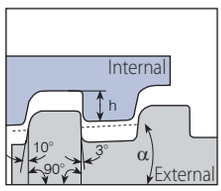
Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF	RH		h min	X	Y	RH	Toolholder
3/8″	16	8	0.75	3ER8NVAM...	2 3/8″ , 2 7/8″	0.97	1.8	1.8	YE3	AL...-3
1/2″	22	6		4ER6NVAM...	3 1/2″	0.97	2.3	2.3	YE4	AL...-4
		5		4ER5NVAM...	5″-9 5/8″	1.55	2.3	2.3		
1/2″F	23	6		4FER6NVAM...	3 1/2″	0.97	2.2	2.1	YE4F	AL...-4F
		5		4FER5NVAM...	5″-9 5/8″	1.55	2.5	2.3		

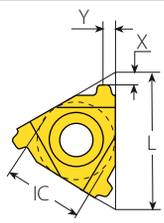
New VAM (con't)

Internal

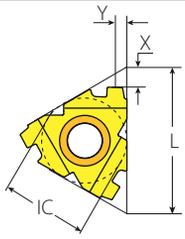


α= arctg (IPF/24)

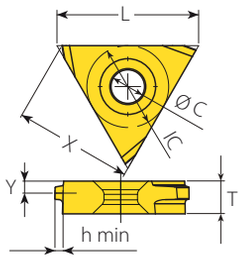
Defined by: VAM
Tolerance class: Standard VAM



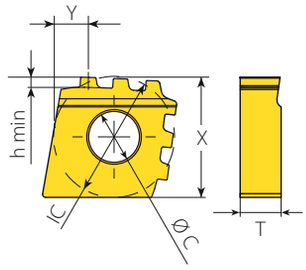
Standard



F-Line



On Edge



CNGA

Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF	RH		h min	X	Y	RH	Toolholder
3/8″	16	8	0.75	3IR8NVAM...	2 3/8″ , 2 7/8″	1.23	1.8	1.8	Y13	AVR...-3
1/2″	22	6		4IR6NVAM...	3 1/2″	1.23	2.5	2.5	Y14	AVR...-4
		5		4IR5NVAM...	5″-9 5/8″	1.77	2.3	2.5		
1/2″F	23	6		4FIR6NVAM...	3 1/2″	1.23	2.0	1.8	YI4F	AVRC...-4F
		5		4FIR5NVAM...	5″-9 5/8″	1.77	2.1	2.1		

On Edge

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm				
IC	L mm	TPI	IPF	RH		h min	T	Ø C	X	Y
1/2″	22	8	0.75	TNEC43IR8NVAM...	2 3/8″ -2 7/8″	1.23	4.76	5.2	18.6	3.2
		6		TNEC43IR6NVAM...	3 1/2″- 4 1/2″	1.23	4.76	5.2	23.4	3.1
5/8″	27	5		TNEC54IR5NVAM...	5″-16″	1.77	6.35	6.5		4.2

On Edge inserts are compatible with most commonly used toolholders in the market.

CNGA

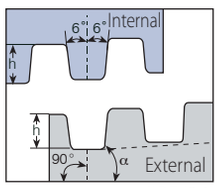
Multi plus

Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions mm			Position	
IC	TPI	IPF		RH		h min	T	Ø C	X	Y
3/4″	6	0.75	2	CNGA64IR6NVAM75T2...	3 1/2″- 4 1/2″	1.23	6.35	8	18.9	9.3
	5			CNGA64IR5NVAM75T2...	5″-16″	1.77	6.35			

CNGA inserts are compatible with most commonly used toolholders in the market.

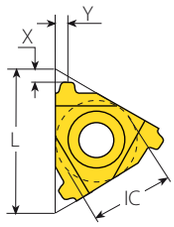
EL-Extreme Line

External / Internal

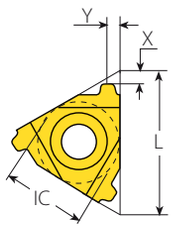


α= arctg (IPF/24)

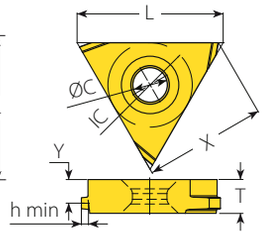
Defined by: API STD,5B:1979
Tolerance class: Standard



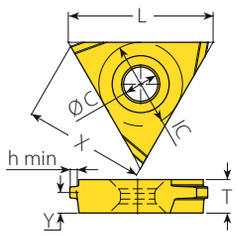
Standard External



Standard Internal



On Edge External



On Edge Internal

Standard - External

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2"	22	6	1.5	4ER6EL15...	5"-7 5/8"	1.21	1.9	1.9	YE4	AL..-4
		5	1.25	4ER5EL125...	8 5/8"-10 3/4"	1.71	2.3	2.4		

On Edge - External

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Position	
IC	L mm	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8"	27	6	1.5	TNEC54ER6EL15...	5 "-7 5/8"	1.21	6.35	6.5	23.4	4.8
		5	1.25	TNEC54ER5EL125...	8 5/8"-10 3/4"	1.71	6.35			4.3

On Edge inserts are compatible with most commonly used toolholders in the market.

Standard - Internal

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2"	22	6	1.5	4IR6EL15...	5"-7 5/8"	1.39	1.8	1.9	Y14	AVR..-4
		5	1.25	4IR5EL125...	8 5/8"-10 3/4"	1.91	2.2	2.4		

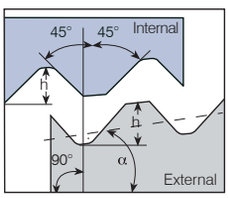
On Edge - Internal

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Position	
IC	L mm	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8"	27	6	1.5	TNEC54IR6EL15...	5 "-7 5/8"	1.39	6.35	6.5	23.4	4.8
		5	1.25	TNEC54IR5EL125...	8 5/8"-10 3/4"	1.91	6.35			4.3

On Edge inserts are compatible with most commonly used toolholders in the market.

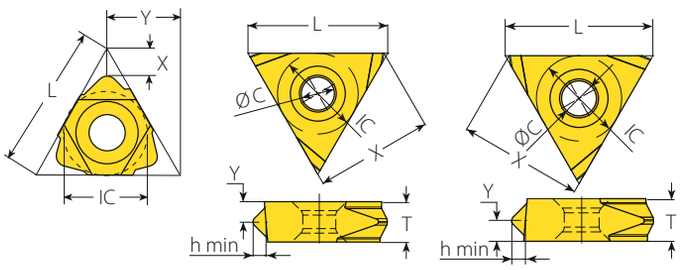
Hughes H-90

External / Internal



α= arctg (IPF/24)

Defined by: API specification 7-2/ISO 10242-2



U Style | On Edge External | On Edge Internal

U Style - External

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2" U	22	3.5	2	4UER3.5H902...	3 1/2"-6 5/8"	2.50	4.2	11	YE4U-H90	AL..-4U
5/8" U	27	3.5	3	4UER3.5H903...	7"-8 5/8"	2.50	4.2	11	YE5U-H90	AL..-5UH90
		3	1.25*	5UER3H90SL...	2 3/8"-3 1/2"	2.24	5.5	13.7		

On Edge - External

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Position	
IC	L mm	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8"	27	3.5	2	TNEC55ER3.5H902...	3 1/2 "- 6 5/8"	2.50	7.93	6.5	23.4	4.3
		3.5	3	TNEC55ER3.5H903...	7 "- 8 5/8"	2.50	7.93			4.3
		3	1.25*	TNEC56ER3H90SL...	2 3/8 "- 3 1/2"	2.24	9.53			5.7

On Edge inserts are compatible with most commonly used toolholders in the market.

U Style - Internal

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2" U	22	3.5	2	4UIR3.5H902...	3 1/2"-6 5/8"	2.50	4.2	11	YI4U-H90	AVR..-4U
5/8" U	27	3.5	3	4UIR3.5H903...	7"-8 5/8"	2.50	4.2	11	YI5U-H90	AVR..-5UH90
		3	1.25*	5UIR3H90SL...	2 3/8"-3 1/2"	2.24	5.5	13.7		

On Edge - Internal

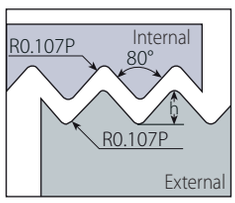
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Position	
IC	L mm	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8"	27	3.5	2	TNEC55IR3.5H902...	3 1/2 "- 6 5/8"	2.49	7.93	6.5	23.4	4.3
		3.5	3	TNEC55IR3.5H903...	7 "- 8 5/8"	2.49	7.93			4.3
		3	1.25*	TNEC56IR3H90SL...	2 3/8 "- 3 1/2"	2.24	9.53			5.7

On Edge inserts are compatible with most commonly used toolholders in the market.

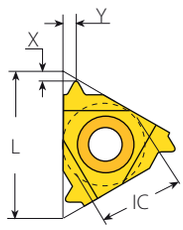
* H-90 Slimline.

Pg

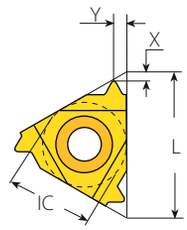
External / Internal



Defined by: DIN 40430
Tolerance class: Standard



Standard External



Standard Internal

Standard - External

Insert Size		Pitch	Thread	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI		RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	20	Pg7	2ER20PG...	2EL20PG...	0.61	0.8	0.9	-	-	NL..-2 (LH)
		18	Pg9/11/13.5/16	2ER18PG...	2EL18PG...	0.67	0.8	1.0			
		16	Pg21/29/36/42/48	2ER16PG...	2EL16PG...	0.76	0.9	1.1			
3/8"	16	20	Pg7	3ER20PG...	3EL20PG...	0.61	0.8	0.9	YE3	YI3	AL..-3 (LH)
		18	Pg9/11/13.5/16	3ER18PG...	3EL18PG...	0.67	0.8	1.0			
		16	Pg21/29/36/42/48	3ER16PG...	3EL16PG...	0.76	0.9	1.1			

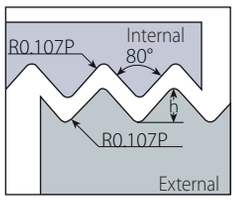
Standard - Internal

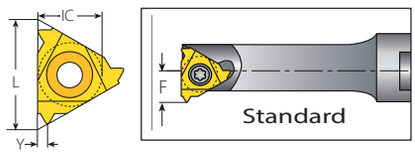
Insert Size		Pitch	Thread	Ordering Code		Dimensions mm			Anvil		
IC	L mm	TPI		RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	20	Pg7	2IR20PG...	2IL20PG...	0.64	0.8	0.9	-	-	NVR..-2 (LH)
		18	Pg9/11/13.5/16	2IR18PG...	2IL18PG...	0.67	0.8	1.0			
		16	Pg21/29/36/42/48	2IR16PG...	2IL16PG...	0.76	0.9	1.1			
3/8"	16	20	Pg7	3IR20PG...	3IL20PG...	0.64	0.8	0.9	YI3	YE3	AVR..-3 (LH)
		18	Pg11/13.5/16	3IR18PG...	3IL18PG...	0.67	0.8	1.0			
		16	Pg21/29/36/42/48	3IR16PG...	3IL16PG...	0.76	0.8	1.1			

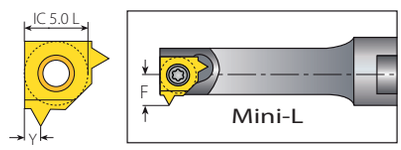
Pg (con't)

MINIPRO

Internal







Defined by: DIN 40430
Tolerance class: Standard

Mini-3 Standard

Insert Size		Pitch	Thread	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	L mm	TPI		RH	LH	h min	Y	F	mm	Toolholder
5.0	8	20	Pg7	5.0KIR20PG...	5.0KIL20PG...	0.61	0.7	4.7	7.8	(C)NVRC7-5.0K (LH)
6.0	10	20	Pg7	6.0KIR20PG...	6.0KIL20PG...	0.61	0.8	5.3	10.0	.NVRC1..-6.0K (LH)
		18	Pg9/11/13.5/16	6.0KIR18PG...	6.0KIL18PG...	0.67	0.9	5.3		

Mini-L

Insert Size	Pitch	Thread	Ordering Code		Dimensions mm			Min. Bore Dia.	
IC mm	TPI		RH	L H	h min	Y	F	mm	Toolholder
5.0L	20	Pg7	5LKIR20PG...	5LKIL20PG...	0.61	0.8	4.65	8.0	.NVRC10..-5LK (LH)
	18	Pg9/11/13.5/16	5LKIR18PG...	5LKIL18PG...	0.67	0.9	4.65		

Thread Turning Toolholders

Vardex Ordering Code System

External Toolholders

A	L	32	-	4	U	C			
1	2	3		4	5	6	7	8	9

1 - Anvil
- **A** - Anvil Required
- **N** - No Anvil Required
- **O** - Miniature Holder

2 - Holder Style
- **L** - External
- **V** - Miniature Square Shank
- **VR** - Miniature Round Shank

3 - Shank Square [mm]
- 8, 10, 12, 16, 20, 25, 32, 40, 50, 60

4 - Insert Size
- **2** - IC1/4"
- **3** - IC3/8"
- **4** - IC1/2"
- **5** - IC5/8"

5 - Insert Style
- **U** - U style
- **V** - Vertical
- **F** - F Line
- **M** - Multi+ M
- **MF** - Multi+ F Line
- **Z** - Multi+ Z
- **T** - Multi+ T
- **14D** - Multi+ 14D
- **MG** - Mega Line

6 - Clamping
- **C** - With Clamping

7 - Insert Width
- (for IC5/8"V)
- 6, 8, 10

8 - Tool Type
- **CQ** - Drop Head
- **FQ** - Off-Set
- **OIL** - For API Inserts

9 - RH/LH Holder
- **None** - Right Hand
- **LH** - Left Hand

Internal Toolholders

C	A	VR	C	20		-	3					
1	2	3	4	5	6		7	8	9	10	11	12

1 - Shank Type
- **B** - Anti Vibration System
- **C** - Carbide Shank
- **S** - Mini Holders

2 - Anvil
- **A** - Anvil Required
- **N** - No Anvil Required
- **O** - Miniature Holder

3 - Tool Type
- **VR** - Internal Round Shank

4 - Cooling
- **C** - With Coolant Channel

5 - Shank Front Dia.
- 10, 10D, 12, 13, 16
- 16D, 20, 25, 25D, 32, 40, 50
- 6.2 (Mini Adjust)
- 8.0 (Mini Adjust)

6 - Holder Length
- (Mini Holders)
- **U** - Ultra Short
- **S** - Short
- **M** - Medium
- **L** - Long
- **T** - Adjustable

7- Insert Size
- **5LK** - IC5.0L mm
- **4.0K** - IC4.0 mm
- **5.0K** - IC5.0 mm
- **6.0K** - IC6.0 mm
- **2** - IC1/4"
- **3** - IC3/8"
- **4** - IC1/2"
- **5** - IC5/8"

8 - Insert Style
- **U** - U style
- **V** - Vertical
- **F** - F Line
- **M** - Multi+ M
- **MF** - Multi+ F Line
- **Z** - Multi+ Z
- **T** - Multi+ T
- **14D** - Multi+ 14D
- **MG** - Mega Line

9 - Clamping
- **C** - Wth Clamp

10 -Oil Field
- **OIL** - For API Inserts

11 - RH/LH Holder
- **None** - Right Hand
- **LH** - Left Hand

12 - Serial No.
- **156/...** (Coarse Pitch Holder)
- **206/...** (V6 Holder)

Micro, Microscope & Adjustable Toolholders (Sleeves)

M	H	C	R	22	-	4	-	5	-	4F
1	2	3	4	5		6		7		8

1 - Holder Shape
- **S** - Sleeve (Double Ended)
- **M** - Microscope (Single Ended)

2 - Holder Type
- **V** - Adjustable Holders for Mini
- **M** - Micro (Double Ended)
- **H** - Microscope Round Holder
- **HS** - Microscope with Square Shank
- **HD** - Microscope with Drop Head

3 - Coolant
- **C** or **D** - Coolant Thru

4 - Round Tools
- **R** - Microscope Round Bore
- **S** - Microscope Shrink by Screw

5 - Shank Size [mm]
- 10-28

6 - Holder Bore Size
- **Micro Size** 3, 4, 5, 6, 7, 8, 10
- **Adjustable Holders (for Mini)** 6.2, 8

7 - Holder Bore Size for Double Sided
- **Microscope Size** 4, 5, 6,

8 - No. of Flats
- **4F** - 4 Flats
- **None** - 2 Flats

V-CAP Toolholders

VCAP	40	-	S	E	R	27	050	-	3
1	2		3	4	5	6	7		8

1 - Holder Style	2 - D (Polygon Size)	3 - Insert Style	4 - External / Internal	5 - RH / LH
VCAP - Vargus Polygon Shank	32, 40, 50, 63	S - Threading	E - External I - Internal	R - Right Hand L - Left Hand

6 - Cutting Radius	7 - Tool Overhang	8 - Insert Size
12-45	40-105	3 - IC3/8"

VG-Cut Toolholders for Threading

VG	E	R	2525	-	3	T12	PH
1	2	3	4		5	6	7

1 - Line Name	2 - Application Approach	3 - RH / LH	4 - Shank Size
VG - Deep Grooving & Parting Off	E - External	R - Right Hand L - Left Hand	Width-Height

5 - Pocket Size	6 - Depth of Cut	7 - PH
3	T8, T12 - Limit Depth of Cut 8, 12 mm	PH - Reinforced blade structure

Mini-V Holders

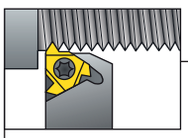
C	V	08	-	12	21	-
1	2	3		4	5	6

1 - Holder Type	2 - Product Line	3 - Insert Size	4 - Shank Diameter	5 - Tool Overhang	6 - RH or LH
C - Carbide Shank None - Steel Shank	V - Mini-V	08, 11, 14, 16	6, 8, 12, 16	12, 21, 29, 30, 42, 50, 56, 64, 80	None - RH L - LH

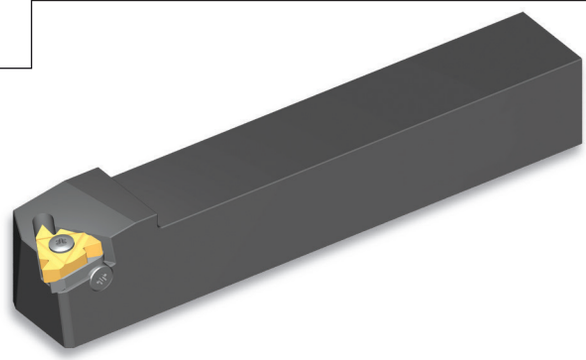
Mini-V Sleeves

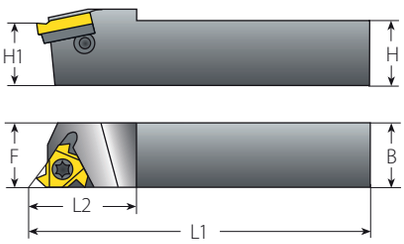
MH	C	16	-	6
1	2	3		4

1 - Holder Type	2 - Coolant	3 - Shank Dia.	4 - Sleeve Bore Dia.
MH - Microscope Holder	C - Coolant Channels	12 , 16 , 20	6, 8



External Toolholders

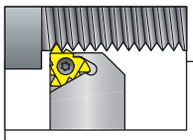




Standard

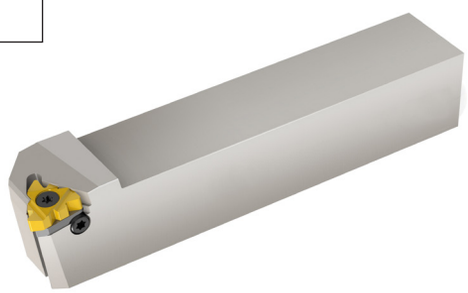
Insert Size	Ordering Code	Dimensions mm				Spare Parts				
IC	RH/LH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/4″	NL8-2	8	11	136.4	17.5	SN2T	-	K2T	-	-
	NL10-2	10	11	125.0	17.5					
	NL12-2	12	12	125.0	17.5					
3/8″	NL12-3	12	16	83.2	22	SA3T	-	K3T	-	-
	AL3/8-3	9.52	16	63.6	20.5	SA3T	SY3T	K3T	YE3	YI3
	AL12-3	12	16	83.2	22					
	AL16-3	16	16	100.0	20.5					
	AL20-3	20	20	128.6	30					
	AL25-3	25	25	153.6	30					
	AL32-3	32	32	173.6	30					
1/2″	AL25-4	25	25	155.7	36	SA4T	SY4T	K4T	YE4	YI4
	AL32-4	32	32	175.7	36					
	AL40-4	40	40	205.7	36					
5/8″	AL25-5	25	32	151.6	35	SA5T	SY5T	K5T	YE5	YI5
	AL32-5	32	32	176.6	40					
	AL40-5	40	40	206.6	40					
	AL50-5	50	50	256.6	40					

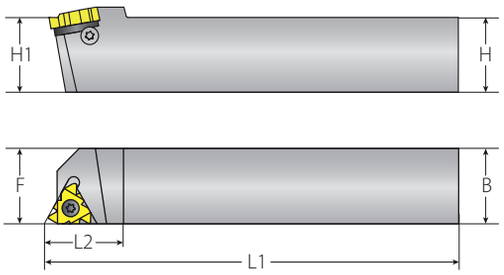
The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL20-3**LH**).



External Toolholders

F-LINE



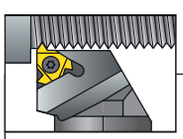


Standard F-Line

Insert Size	Ordering Code	Dimensions mm			
IC	RH	H=H1=B	F	L1	L2
1/2"F	AL25-4F	25	25	155	33
	AL32-4F	32	32	175	33
	AL40-4F	40	40	205	33

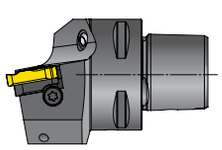
Spare Parts

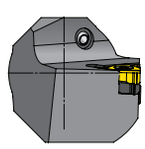
			
Insert Screw	Anvil Screw	Torx Key	Anvil RH
SA4T	SY4T	K6T	YE4F

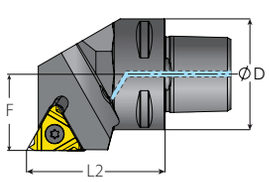


External Toolholders

Max. coolant pressure 10bar







V-CAP

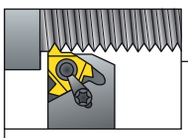
Insert Size	Ordering Code	Dimensions mm		
IC	RH/LH	D	F	L2
3/8"	VCAP32-SER22040-3	32	22	40
	VCAP40-SER27050-3	40	27	50
	VCAP50-SER35060-3	50	35	60
	VCAP63-SER45065-3	63	45	65

Spare Parts

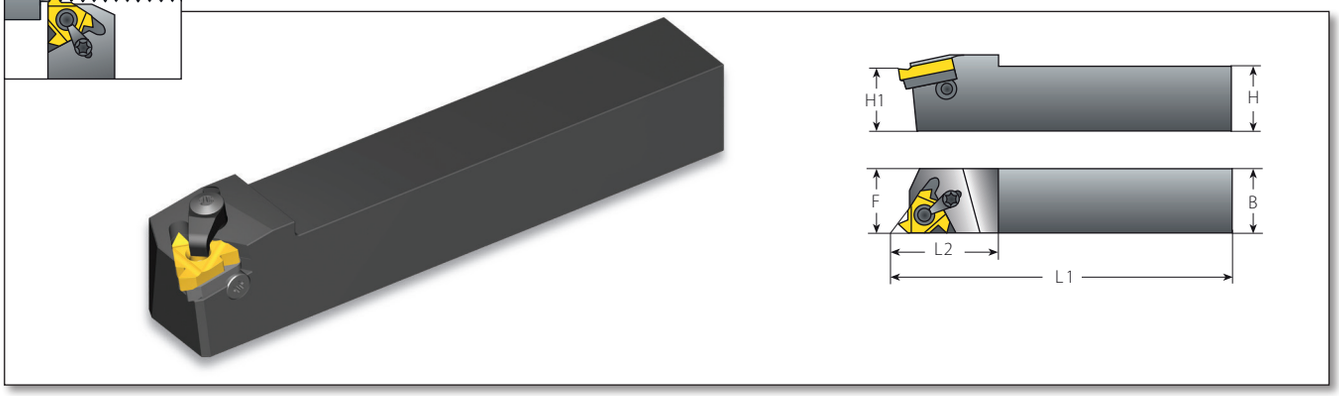
					
Insert Screw	Anvil Screw	Torx Key	Coolant Jet	Anvil RH	Anvil LH
SA3T	SY3T	K3T	OD6 / OD8	YE3	YI3

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example VCAP32-SE**L**22040-3).

The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.



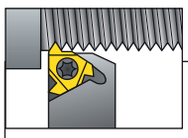
External Toolholders



Standard with Clamp
(Dual System, Screw or Clamp)

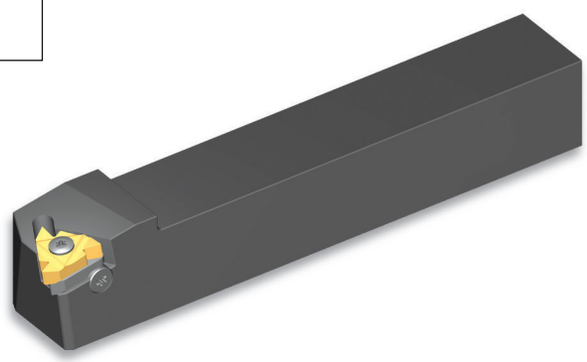
Insert Size	Ordering Code	Dimensions mm				Spare Parts					
IC	RH/LH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
3/8″	AL16-3C	16	16	100.0	20.5	SA3T	SY3T	C3	K3CT	YE3	YI3
	AL20-3C	20	20	128.6	30						
	AL25-3C	25	25	153.6	30						
	AL32-3C	32	32	173.6	30						
1/2″	AL25-4C	25	25	155.7	36	SA4T	SY4T	C4	K4T	YE4	YI4
	AL32-4C	32	32	175.7	36						
	AL40-4C	40	40	205.7	36						
5/8″	AL25-5C	25	32	151.6	35	SA5T	SY5T	C5	K5T	YE5	YI5
	AL32-5C	32	32	176.6	40						
	AL40-5C	40	40	206.6	40						
	AL50-5C	50	50	256.6	40						

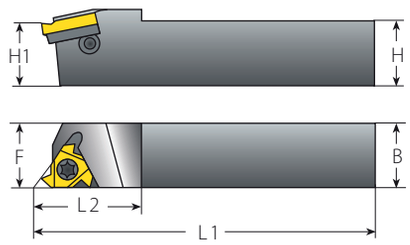
The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL16-3C**LH**).



External Toolholders

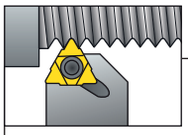
Oil&Gas



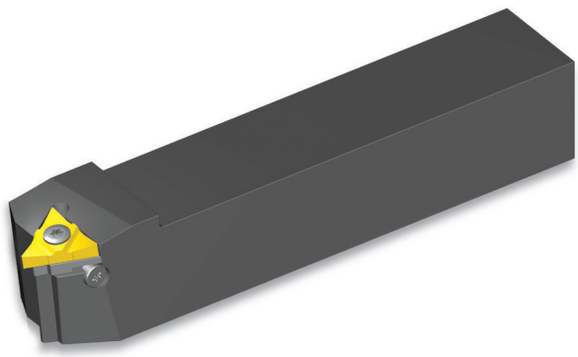


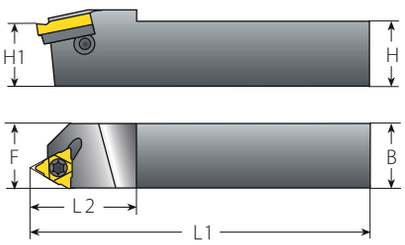
Oil & Gas

Insert Size	Ordering Code	Thread Form	Connection No. or Size	Dimensions mm			Helix Angle	Spare Parts			
IC	RH			H=H1=B=F	L1	L2		Insert Screw	Anvil Screw	Torx Key	Anvil RH
3/8"	AL32-3-APIRD	APIRD 8 APIRD 10	2.375"-20" 1.05"-3.5"	32	173.0	28.8	1	SA3T	SY3T	K3T	YEI3 APIRD
	AL40-3-APIRD			40	205.0	37.4	1				
1/2"	AL32-4-5BUT/API	5BUT, V0.038R, V0.050, V0.040, V0.055	4 1/2"-20"	32	177.0	36.6	0	SA4T	SY4T	K4T	YEI4-API-1P YEI4-5BUT
	AL40-4-5BUT/API		NC10-NC77 all sizes	40	204.0	34.5	0				
5/8"	AL32-5OIL	V0.038R, V0.050	NC23-NC77 all sizes	32	175.9	40.0	1.5	SA5T	SY5T	K5T	YE5OIL
	AL40-5OIL	V0.038R, V0.050	NC23-NC77 all sizes	40	205.9	40.0	1.5				



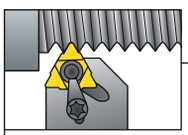
External Toolholders



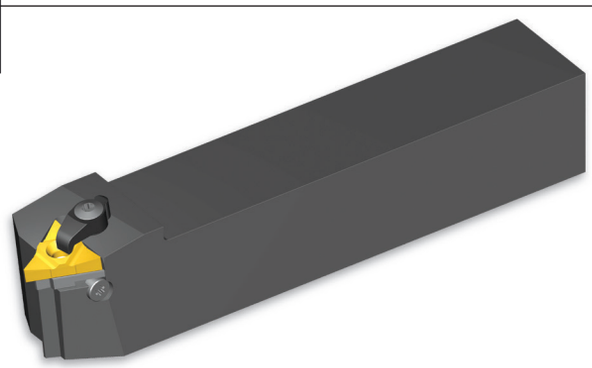


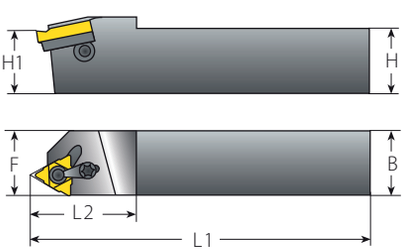
U Style

Insert Size	Ordering Code	Dimensions mm				Spare Parts				
IC	RH/LH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"U	AL25-4U	25	25	178.4	38	SA4T	SY4T	K4T	YE4U	YI4U
	AL32-4U	32	32	178.4	38					
	AL40-4U	40	40	208.4	38					
5/8"U	AL25-5U	25	25	179.1	40	SA5T	SY5T	K5T	YE5U	YI5U
	AL32-5U	32	32	179.1	40					
	AL40-5U	40	40	209.1	40					
	AL50-5U	50	50	259.1	40					



External Toolholders



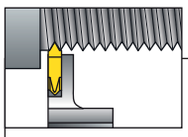


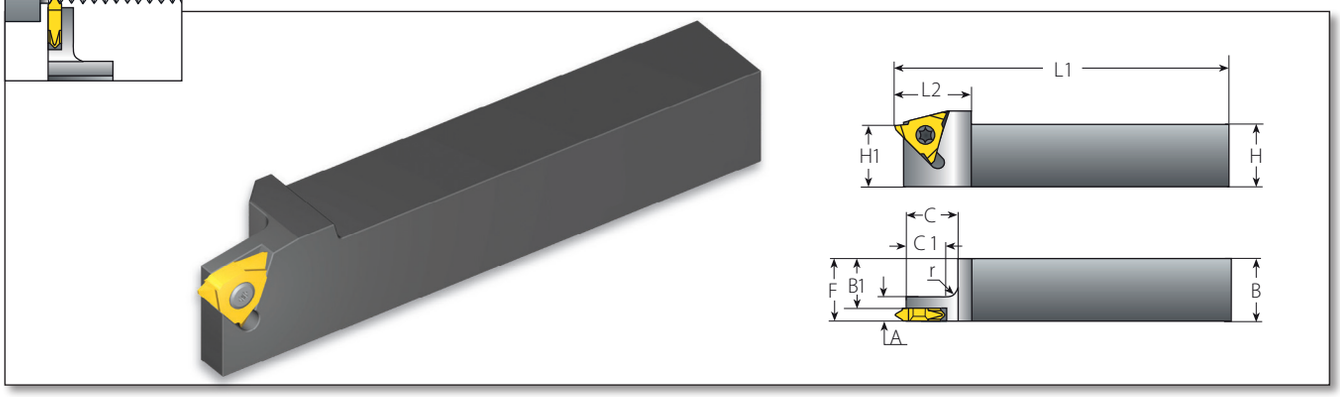
U Style with Clamp
(Dual System, Screw or Clamp)

Insert Size	Ordering Code	Dimensions mm				Spare Parts					
IC	RH/LH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
1/2"U	AL32-4UC	32	32	178.4	38	SA4T	SY4T	C4	K4T	YE4U	YI4U
	AL40-4UC	40	40	208.4	38						
5/8"U	AL32-5UC	32	32	179.1	40	SA5T	SY5T	C5	K5T	YE5U	YI5U
	AL40-5UC	40	40	209.1	40						
	AL50-5UC	50	50	259.1	40						

All U Style Toolholders have a 1.5° helix angle. For other helix angles see page 203.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL25-4U**LH**).

External Toolholders



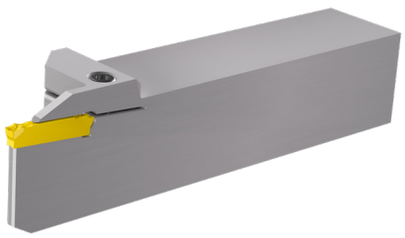


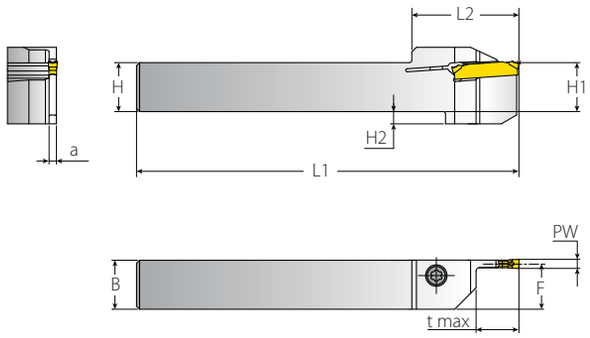
Slim Throat

Insert Size	Ordering Code	Dimensions mm									Spare Parts	
IC	RH/LH	H=B=F	H1	A	B1	C	C1	L1	L2	r	Insert Screw	Torx Key
1/4"V	NL8-2V	8	10	7	4.8	12.5	11.5	60	14.0	1	SN2T	K2T
	NL10-2V	10	10	7	6.8	12.5	11.5	70	14.0	1		
	NL12-2V	12	12	7	8.8	14.5	11.5	80	14.0	3		
	NL16-2V	16	16	7	12.8	14.5	11.5	100	14.0	3		
3/8"V	NL10-3V	10	14	7	6.4	14.5	11.5	70	18.5	3	SN3TV	K3T
	NL12-3V	12	14	7	8.4	14.5	11.5	80	18.5	3		
	NL16-3V	16	16	7	12.4	14.5	11.5	100	25.0	3		
	NL20-3V	20	20	7	16.4	16.5	11.5	125	30.0	3		
	NL25-3V	25	25	7	21.4	16.5	11.5	150	30.0	5		
	NL32-3V	32	32	7	28.4	16.5	11.5	170	30.0	5		
	NL40-3V	40	40	7	36.4	16.5	11.5	200	30.0	5		
1/2"V	NL25-4V	25	25	12	20.2	16.5	11.5	150	30.0	5	SN4T	K4T
	NL32-4V	32	32	12	27.2	16.5	11.5	170	30.0	5		
	NL40-4V	40	40	12	35.2	16.5	11.5	200	30.0	5		

All Slim Throat toolholders have a 1.5° helix angle see page 203.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example NL8-2V**LH**).

External Toolholders





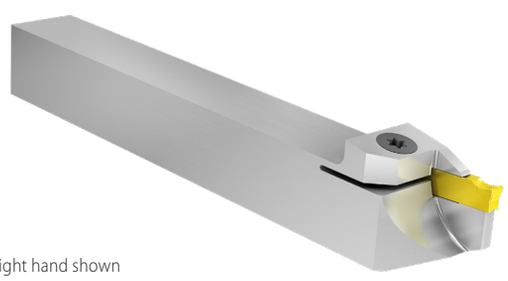
Right hand shown

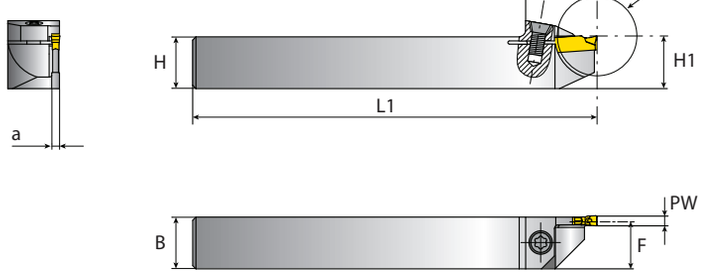
Monoblock

Spare Parts **VG-Cut**

Ordering Code		Dimensions mm								Cylindrical Holder Screw	Torx Key
PW	RH/LH	t max	HxB	H1	F	L1	L2	a	H2		
3	VGER/L1212-3T12	12	12x12	12	10.8	125	35	2.4	4.0	SM3.5x14-T15	KT-15
	VGER/L1616-3T12	12	16x16	16	14.8				4.0	SM4.0x18-T20	K6T
	VGER/L2020-3T08	8	20x20	20	18.8				-		
	VGER/L2020-3T12	12	20x20	20	18.8				-		
	VGER/L2525-3T08	8	25x25	25	23.8				-		
	VGER/L2525-3T12	12	25x25	25	23.8				-		

External Toolholders





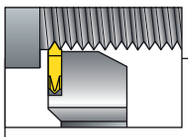
Right hand shown

Reinforced Monoblock

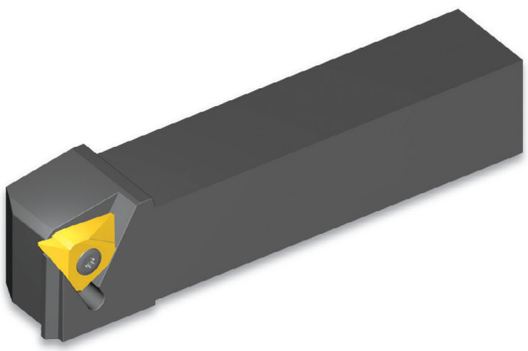
Spare Parts **VG-Cut**

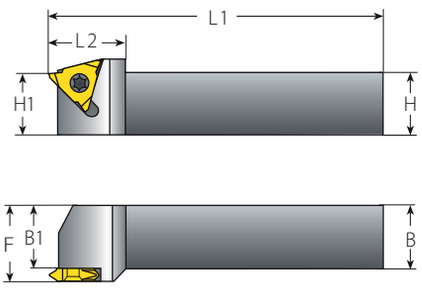
Ordering Code		Dimensions mm							Cylindrical Holder Screw	Torx Key
PW	RH/LH	D max	HxB	H1	F	L1	L2	a		
3	VGER/L1616-3T12PH	26	16x16	16	14.8	125	22	2.4	SCM4x14	KT-15
	VGER/L2020-3T12PH	26	20x20	20	18.8		22			
	VGER/L2020-3T21PH	42	20x20	20	18.8		30			
	VGER/L2525-3T12PH	26	25x25	25	18.8		22			
	VGER/L2525-3T21PH	42	25x25	25	23.8		30			

All VG-Cut tooling have 1.5° helix angle.



External Toolholders



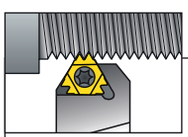


V Style

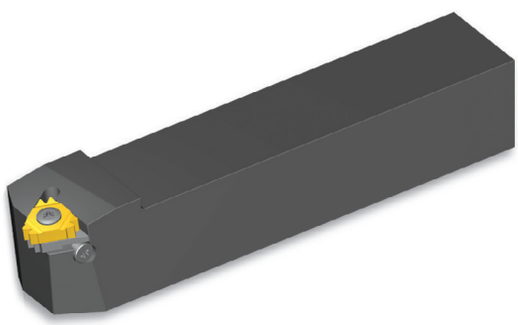
Spare Parts

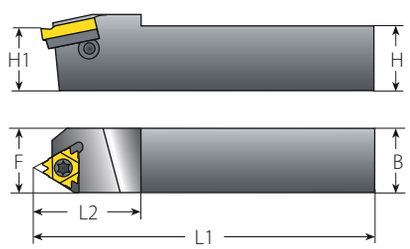
Insert Size	Ordering Code	Dimensions mm					Spare Parts	
IC	RH/LH	H=H1=B	B1	F	L1	L2	Insert Screw	Torx Key
5/8"V	NL32-5V-6	32	25.5	32.0	170	40	SN6T	K6T
	NL32-5V-8	32	25.5	34.1	170	40		
	NL32-5V-10	32	25.5	35.8	170	40		
	NL32-5V-10ABUT*	32	25.5	35.8	170	40		
	NL40-5V-6	40	33.5	40.0	200	40		
	NL40-5V-8	40	33.5	42.1	200	40		
	NL40-5V-10	40	33.5	43.8	200	40		
	NL40-5V-10ABUT*	40	33.5	43.8	200	40		

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 NL32-5V-6 LH).
* To be used only with inserts 5VER2.5ABUT...



External Toolholders



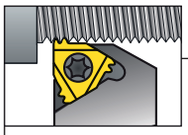


Z+ Style

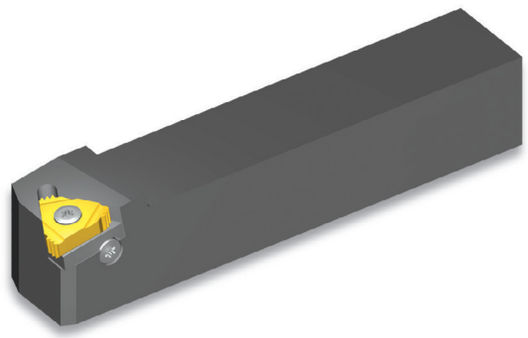
Spare Parts

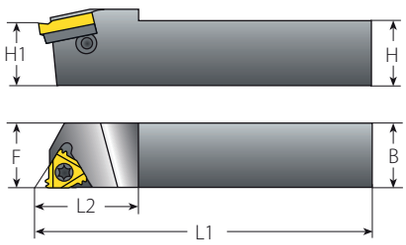
Insert Size	Ordering Code	Dimensions mm				Spare Parts				
IC	RH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"Z	AL32-4Z	32	32	178.4	38	SA4T	SY4T	K4T	YE4Z	YI4Z
	AL40-4Z	40	40	208.4	38					

All Z Style toolholders have a 1.5° helix angle.



External Toolholders



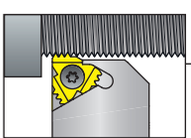


M+ Style

Spare Parts

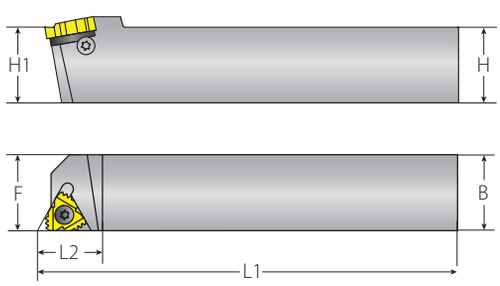
Multi plus

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
5/8"M	AL32-5M	32	32	176.6	40	SA5T	SY5T	K5T	YE5M	YI5M
	AL40-5M	40	40	206.6	40					
	AL50-5M	50	50	256.6	40					



External Toolholders

F-LINE



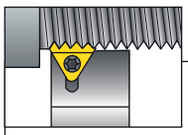
F-Line M+ Style

Spare Parts

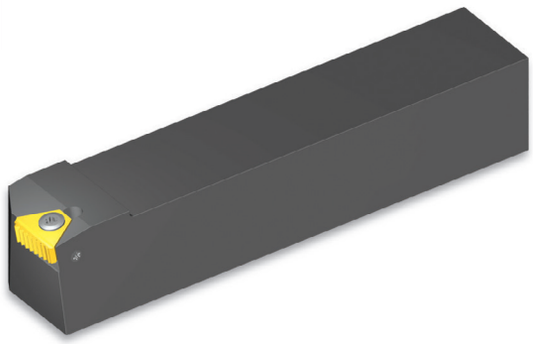
Multi plus

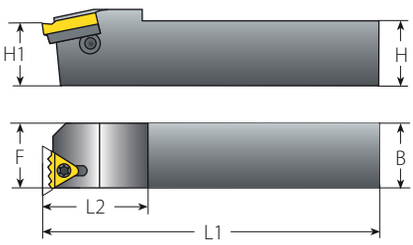
Insert Size	Ordering Code	Dimensions mm				Spare Parts			
IC	RH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH
1/2"F	AL25-4MF	25	25	155	33	SA4T	SY4T	K6T	YE4M2F
	AL32-4MF	32	32	175	33				
	AL40-4MF	40	40	205	33				

The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.



External Toolholders





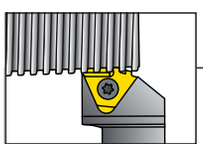
T+ Style

Spare Parts

Multiplus

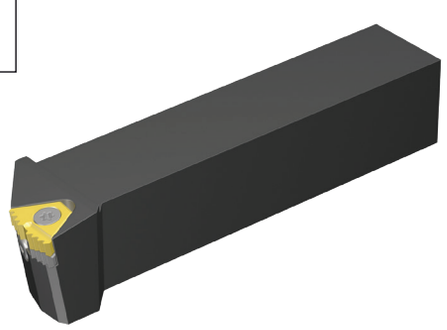
Insert Size	Ordering Code	Dimensions mm				Spare Parts				
IC	RH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Insert Torx Key	Anvil Torx Key	Anvil RH/LH
1/2"T	AL25-4T	25	27	150	30	SA4T	SY4K2	K4T	K2	Y4T
	AL32-4T	32	34	170	30					
	AL40-4T	40	42	200	30					

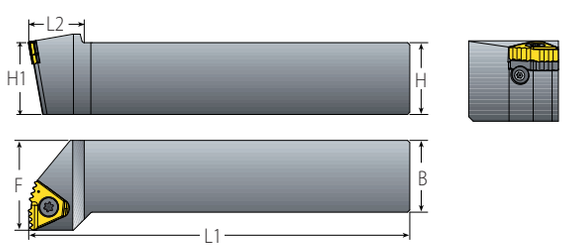
All T Style toolholders have a 0° helix angle.



External Toolholders

Oil&Gas





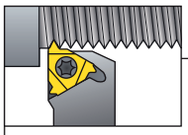
14D Standard

Spare Parts

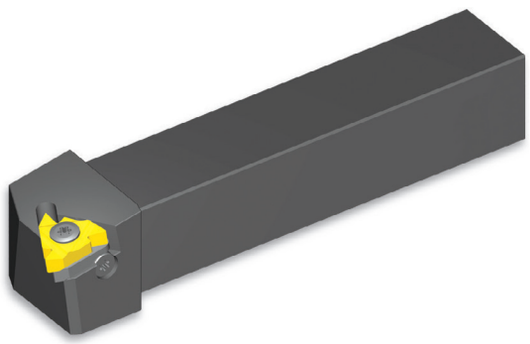
Multiplus

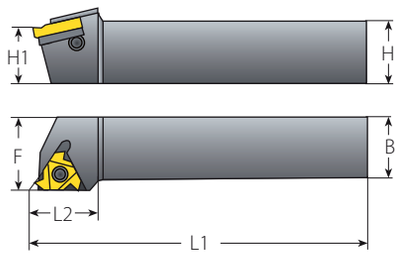
Insert Size	Ordering Code	Dimensions mm				Spare Parts			
IC	RH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw & Washer	Torx Key	Anvil Key
14D	AL25-14D	25	32	150	25	SA5T	M4x6(14D)	KT15	K5T
	AL32-14D	32	40	170	25				
	AL40-14D	40	40	200	30				

14D holders are supplied without anvils. For specific applications, please use the anvils indicated in the table on page 204.



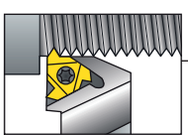
External Toolholders



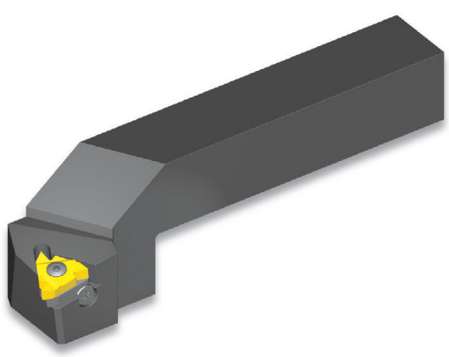


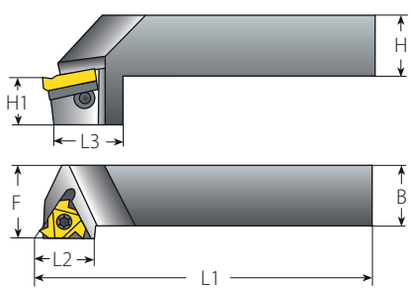
Off-Set Qualified (FQ)

Insert Size	Ordering Code	Dimensions mm				Spare Parts				
IC	RH/LH	H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8″	AL20-3FQ	20	25	125	25	SA3T	SY3T	K3T	YE3	YI3
	AL25-3FQ	25	32	150	25					
	AL32-3FQ	32	40	170	32					
1/2″	AL25-4FQ	25	32	150	30	SA4T	SY4T	K4T	YE4	YI4
	AL32-4FQ	32	40	170	30					
5/8″	AL32-5FQ	32	40	170	35	SA5T	SY5T	K5T	YE5	YI5



External Toolholders



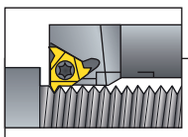


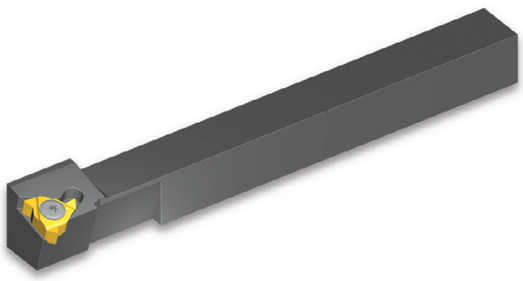
Drop Head-Qualified (CQ)

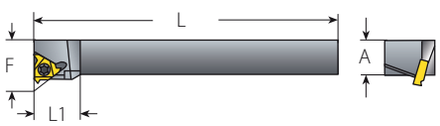
Insert Size	Ordering Code	Dimensions mm						Spare Parts				
IC	RH/LH	H=B	F	L1	L2	L3	H1	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8″	AL20-3CQ	20	25	125	24	38	17.5	SA3T	SY3T	K3T	YE3	YI3
	AL25-3CQ	25	32	150	24	38	22.2					
	AL32-3CQ	32	40	170	24	38	22.2					
1/2″	AL25-4CQ	25	32	150	30	38	22.2	SA4T	SY4T	K4T	YE4	YI4
	AL32-4CQ	32	40	170	30	38	22.2					
5/8″	AL32-5CQ	32	40	170	33	43	25.4	SA5T	SY5T	K5T	YE5	YI5

The above toolholders have a 1.5° helix angle. For other helix angles see page 203.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL20-3FQ**LH**).

External + Internal Toolholders



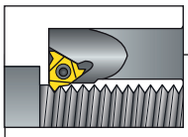


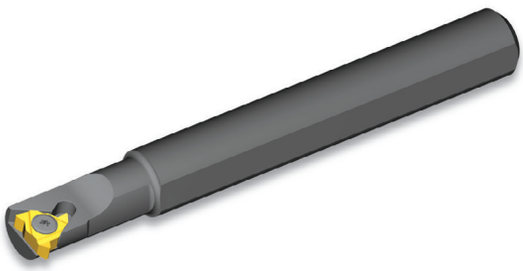


Miniature Square Shank*

Insert Size	Ordering Code	Dimensions mm				Min. Bore Dia.	Spare Parts	
IC	RH/LH	A	L	L1 (max)	F	mm	Insert Screw	Torx Key
1/4"	OV8-2	8	100	25	12	29.2	SN2T	K2T
	OV10-2	10	100	25	14	36.1		

External + Internal Toolholders





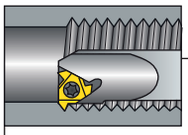
Miniature Round Shank*

Insert Size	Ordering Code	Dimensions mm						Min. Bore Dia.	Spare Parts	
IC	RH/LH	A	L	L1 (max)	D	D1	F	mm	Insert Screw	Torx Key
1/4"	OVR12-2	11.4	100	25	12	10	7.4	13	SN2T	K2T
	OVR15-2	14.3	100	32	15	13	8.9	16		
	OVR16D-2	15.3	100	32	16	13	8.9	16		

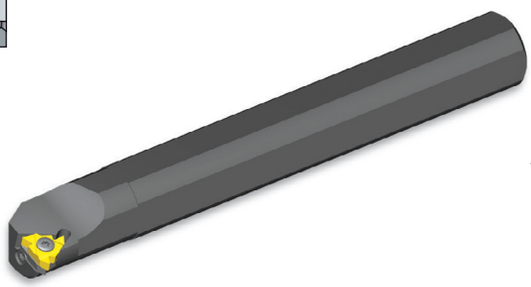
* Miniature square and round toolholders are designed for use on automatic lathes for the optical and other precision industries. They can be used for both external and internal threading, as follows:

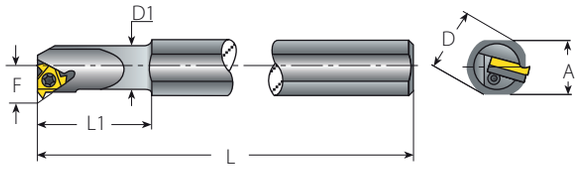
Thread	ER	EL	IR	IL
Insert	ER	EL	IR	IL
Holder	LH	RH	RH	LH

Miniature toolholders have a 0.5° helix angle.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example OV8-2**LH**).



Internal Toolholders





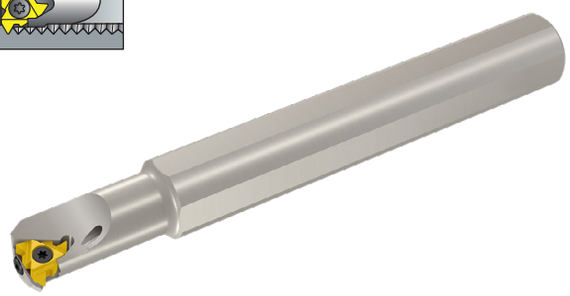
Standard

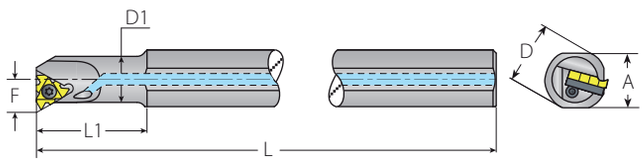
Insert Size	Ordering Code	Dimensions mm						Min. Bore Dia.	Spare Parts				
IC	RH/LH	A	L	L1 (max)	D	D1	F	mm	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/4″	NVR10D-2	9.5	100	40	10	10.0	7.3	13	SN2T	-	K2T	-	-
	NVR10-2	18.0	180	25	20	10.0	7.3	13					
	NVR13-2	18.0	180	32	20	13.0	8.9	16					
3/8″	NVR13-3	18.0	180	32	20	12.7	10.3	17	SN3T	-	K3T	-	-
	NVR16-3	18.0	180	40	20	16.0	11.5	20					
	NVR16D-3	15.2	150	64	16	16.0	11.3	20					
	AVR20-3	18.0	180	80	20	20.0	13.4	24	SA3T	SY3T	K3T	YI3	YE3
	AVR25-3	29.0	250	60	32	25.0	16.3	29					
	AVR25D-3	22.6	200	100	25	24.6	16.1	29					
	AVR32-3	29.0	250	128	32	32.0	19.6	36					
	AVR40-3	36.0	300	160	40	40.0	23.8	44					
1/2″	NVR20-4	18.0	180	80	20	20.0	15.6	27	SN4T	-	K4T	-	-
	AVR25-4	29.0	250	60	32	25.0	17.4	32	SA4T	SY4T	K4T	YI4	YE4
	AVR25D-4	22.6	200	100	25	24.6	17.2	32					
	AVR32-4	29.0	250	128	32	32.0	21.5	39					
	AVR40-4	36.0	300	160	40	40.0	25.8	47					
	AVR50-4	45.0	350	200	50	50.0	30.8	57					
5/8″	AVR32-5	29.0	250	128	32	32.0	22.4	40	SN5T	SY5T	K5T	YI5	YE5
	AVR40-5	36.0	300	160	40	40.0	26.4	48	SA5T	SY5T	K5T	YI5	YE5
	AVR50-5	45.0	350	200	50	50.0	31.4	58					
	AVR60-5	54.0	400	240	60	60.0	36.4	69					

- The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.
- Toolholders with prefix "N" cannot be used with an anvil.
- Holders with coolant channel are available as standard (Example NVR**C**10D-2) .
- The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example NVR10D-2**LH**).

Internal Toolholders

F-LINE





Standard F-Line

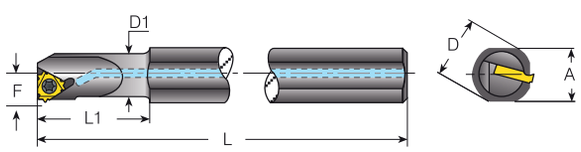
Insert Size	Ordering Code	Dimensions mm						Min. Bore Dia.
IC	RH	A	L	L1 (max)	D	D1	F	mm
1/2"F	AVRC25-4F	29.0	250	60	32	25.0	17.9	32
	AVRC25D-4F	22.6	200	100	25	24.6	17.9	32
	AVRC32-4F	29.0	250	128	32	32.0	21.6	39
	AVRC40-4F	36.0	300	160	40	40.0	25.4	47
	AVRC50-4F	45.0	350	200	50	50.0	30.6	57

Spare Parts

			
Insert Screw	Anvil Screw	Torx Key	Anvil RH
SA4T	SY4T	K6T	YI4F

The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.

Internal Toolholders for V6 (without anvil)*



Specially designed for V6 inserts

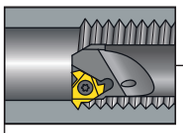
V6 Style

Insert Size	Ordering Code	Dimensions mm						Min. Bore Dia.
IC	RH	A	L	L1 (max)	D	D1	F	mm
3/8" V6	NVRC13-3-206/001	18	180	32	20	12.7	10.3	17
	NVRC16-3-206/002	18	180	40	20	16	11.5	20
	NVRC16D-3-206/003	15.2	150	64	16	16	11.3	20

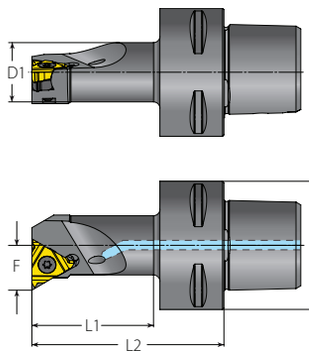
Spare Parts

	
Insert Screw	Torx Key
SN3TM	K3T
SN3T	

* V6 inserts cannot be used on standard internal toolholders without anvil. For this purpose you must use one of these special V6 toolholders.
The above toolholders have a 1.5° helix angle.



Internal Toolholders

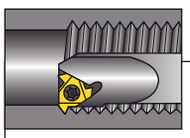


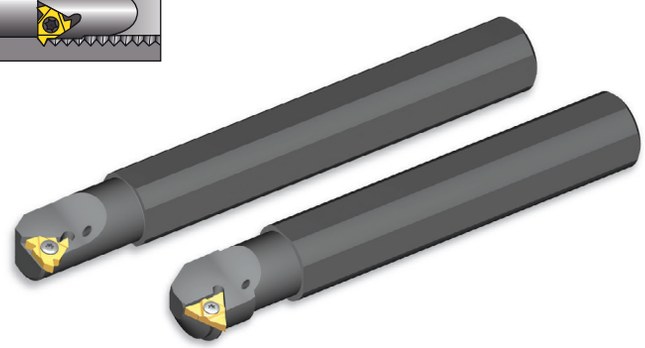
V-CAP

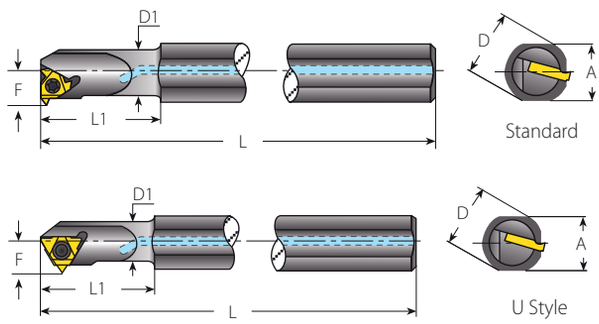
Insert Size	Ordering Code		Dimensions mm					Min. Bore Dia.	Spare Parts				
IC	RH/LH	D1	D	F	L2	L1 (max)	mm		Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8"	VCAP40-SIR12060-3	15.5	40	12	60	37	20		SN3T	-	K3T	-	-
	VCAP40-SIR14060-3	18.5		14	60	38	25		SA3T	SY3T	K3T	YI3	YE3
	VCAP40-SIR17070-3	24.5		17	70	48	32						
	VCAP40-SIR22090-3	32.0		22	90	69	40						
	VCAP40-SIR27080-3	39.5		27	80	60	50						
	VCAP50-SIR12060-3	15.5	50	12	60	35	20		SN3T	-	K3T	-	-
	VCAP50-SIR14060-3	18.5		14	60	36	25		SA3T	SY3T	K3T	YI3	YE3
	VCAP50-SIR17070-3	24.5		17	70	47	32						
	VCAP50-SIR22090-3	32.0		22	90	68	40						
	VCAP50-SIR27105-3	40.0		27	105	84	50						
	VCAP63-SIR14070-3	18.5	63	14	70	42	25		SA3T	SY3T	K3T	YI3	YE3
	VCAP63-SIR17075-3	24.5		17	75	48	32						
	VCAP63-SIR22090-3	32.0		22	90	64	40						
	VCAP63-SIR27105-3	40.0		27	105	80	50						

The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example VCAP40-SI**L**12060-3).

Internal Toolholders





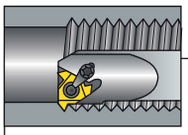


Standard for Coarse Pitch

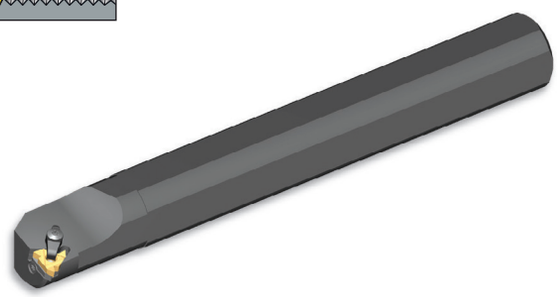
Insert Size	Ordering Code		Dimensions mm					F to Insert	Holder Helix	Spare Parts	
IC	RH	LH	A	L	L1 (max)	D	D1	mm	Deg.	Insert Screw	Torx Key
1/4"	NVRC10-2-156/001	NVRC10-2LH-156/036	18.0	180	25.0	20	10.1	6.53	3.0	SN2T	K2T
3/8"	NVRC11-3-156/005	NVRC11-3LH-156/025	18.0	180	25.4	20	11.2	8.30	4.5	SN3TM	K3T
	NVRC13-3-156/006	NVRC13-3LH-156/028	18.0	180	32.0	20	13.0	9.05	4.0	SN3T	K3T
	NVRC13-3-156/016	NVRC13-3LH-156/026	18.0	180	34.0	20	13.8	8.90	2.5		
1/2"	NVRC17-4-156/007	NVRC17-4LH-156/023	18.0	180	40.0	20	16.7	11.45	4.0	SN4TM	K4T
	NVRC17-4-156/039	NVRC17-4LH-156/040	18.0	180	40.0	20	16.5	13.40	4.0		
	NVRC20-4-156/008	NVRC20-4LH-156/024	18.0	180	50.0	20	19.6	12.55	3.5	SN4T	K4T
	NVRC20-4-156/009	NVRC20-4LH-156/033	18.0	180	50.0	20	19.6	12.55	3.0		
5/8"	NVRC25-5-156/012	NVRC25-5LH-156/017	29.0	250	60.0	32	25.0	16.78	3.3	SN5TM	K5T
	NVRC28-5-156/010	NVRC28-5LH-156/034	29.0	250	50.0	32	28.0	17.80	3.5		

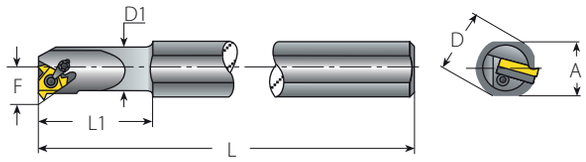
U Style for Coarse Pitch

Insert Size	Ordering Code		Dimensions mm					F to Insert	Holder Helix	Spare Parts	
IC	RH	LH	A	L	L1 (max)	D	D1	mm	Deg.	Insert Screw	Torx Key
6.0U	NVRC8-6.0KU-156/003	NVRC8-6.0KULH-156/037	18.0	180	24.0	20	8.0	5.86	4.0	SN6MTN	KIP6
1/4"U	NVRC10-2U-156/004	NVRC10-2ULH-156/038	18.0	180	32.0	20	10.0	7.40	4.0	SM2T8	K2T
	NVRC11-2U-156/002	NVRC11-2ULH-156/035	18.0	180	32.0	20	11.2	7.30	3.0		
3/8"U	NVRC11-3U-156/020	NVRC11-3ULH-156/029	18.0	180	32.0	20	11.0	8.23	4.5	SN3TM	K3T
	NVRC14-3U-156/018	NVRC14-3ULH-156/030	18.0	180	38.0	20	13.4	9.99	4.5		
	NVRC15-3U-156/019	NVRC15-3ULH-156/031	18.0	180	38.0	20	15.4	10.99	4.0		
1/2"U	NVRC20-4U-156/011	NVRC20-4ULH-156/021	18.0	180	40.0	20	19.2	13.68	4.0	SN4T	K4T
	NVRC25-4U-156/013	NVRC25-4ULH-156/032	29.0	250	60.0	32	25.0	17.63	3.5		
	NVRC32-4U-156/014	NVRC32-4ULH-156/022	29.0	250	60.0	32	28.0	18.76	3.3	SA4T	K4T
5/8"U	NVRC32-5U-156/015	NVRC32-5ULH-156/027	29.0	250	60.0	32	31.6	20.96	3.2	SN5T	K5T



Internal Toolholders





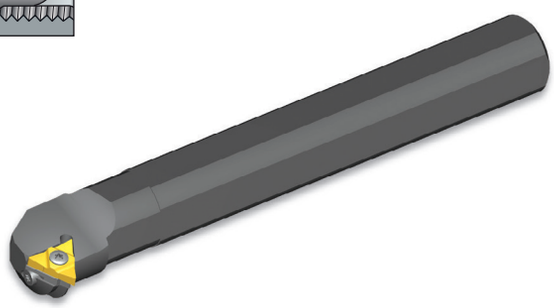
Standard with Clamp

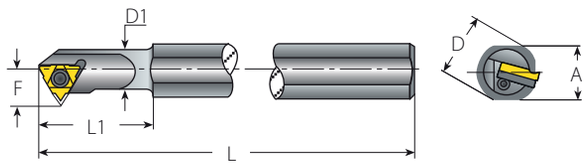
(Dual System, Screw or Clamp)

Insert Size	Ordering Code	Dimensions mm						Min. Bore Dia.	Spare Parts					
IC	RH/LH	A	L	L1 (max)	D	D1	F	mm	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
3/8″	AVR20-3C	18.0	180	80	20	20.0	13.4	24	SA3T	SY3T	C3	K3CT	YI3	YE3
	AVR25-3C	28.0	250	60	32	25.0	16.3	29						
	AVR25D-3C	22.6	200	100	25	24.6	16.1	29						
	AVR32-3C	29.0	250	128	32	32.0	19.6	36						
	AVR40-3C	36.0	300	160	40	40.0	23.8	44						
1/2″	AVR25-4C	29.0	250	60	32	25.0	17.4	32	SA4T	SY4T	C4	K4T	YI4	YE4
	AVR25D-4C	22.6	200	100	25	24.6	17.2	32						
	AVR32-4C	29.0	250	128	32	32.0	21.5	39						
	AVR40-4C	36.0	300	160	40	40.0	25.8	47						
5/8″	AVR32-5C	29.0	250	128	32	32.0	22.4	40	SN5T	SY5T	C5	K5T	YI5	YE5
	AVR40-5C	36.0	300	160	40	40.0	26.4	48	SA5T	SY5T	C5	K5T	YI5	YE5
	AVR50-5C	45.0	350	200	50	50.0	31.4	58						
	AVR60-5C	54.0	400	240	60	60.0	36.4	69						

- The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.
- Holders with coolant channel available as standard (Example AVR**C**20-3C).
- The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AVR20-3C**LH**).

Internal Toolholders





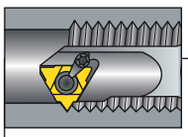
U Style

Insert Size	Ordering Code	Dimensions mm						Min. Bore Dia.
IC	RH/LH	A	L	L1 (max)	D	D1	F	mm
1/2"U	AVR32-4U	29	250	128	32	32	25.5	42
	AVR40-4U	36	300	160	40	40	29.5	51
5/8"U	NVR32-5U	29	250	128	32	32	24.7	42
	AVR40-5U	36	300	160	40	40	29.4	51
	AVR50-5U	45	350	200	50	50	34.3	63
	AVR60-5U	54	400	240	60	60	39.3	74

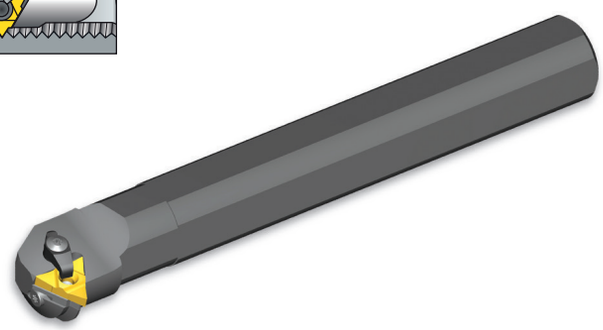
Spare Parts

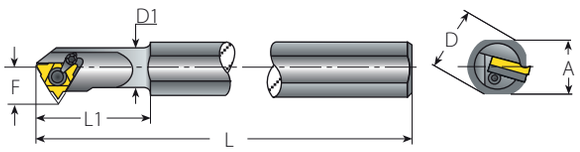
Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
SA4T	SY4T	K4T	YI4U	YE4U
SN5T	-	K5T	-	-
SA5T	SY5T	K5T	YI5U	YE5U

- The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.
- Holders with coolant channel available as standard (Example AVR**C**32-4U).
- The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AVR32-4U**LH**).



Internal Toolholders



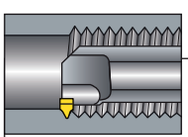


U style with Clamp
(Dual System, Screw or Clamp)

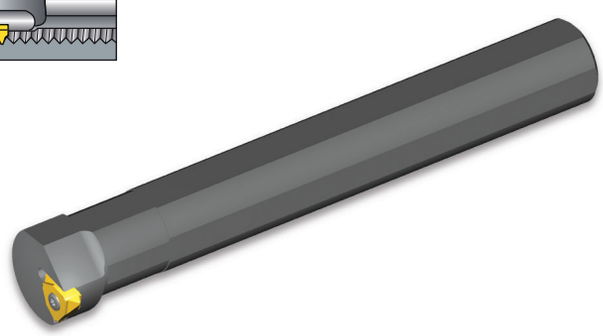
Spare Parts

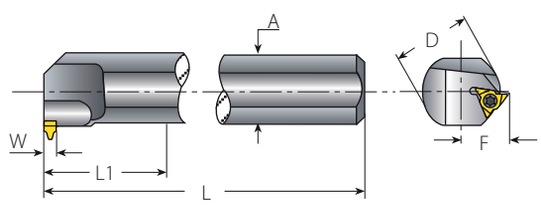
Insert Size	Ordering Code	Dimensions mm						Min. Bore Dia.	Spare Parts					
IC	RH/LH	A	L	L1 (max)	D	D1	F	mm	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
1/2"U	AVR32-4UC	29.0	250	128	32	32.0	25.5	42	SA4T	SY4T	C4	K4T	YI4U	YE4U
	AVR40-4UC	36.0	300	160	40	40.0	29.5	51						
5/8"U	AVR40-5UC	36.0	300	160	40	40.0	29.4	53	SA5T	SY5T	C5	K5T	YI5U	YE5U
	AVR50-5UC	45.0	350	200	50	50.0	34.4	63						
	AVR60-5UC	54.0	400	240	60	60.0	39.3	74						

The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.



Internal Toolholders





V Style

Spare Parts

Insert Size	Ordering Code	Dimensions mm						Spare Parts	
IC	RH/LH	A	L	L1 (max)	D	F	W	Insert Screw	Torx Key
5/8"V	NVR40-5V	36	300	160	40	28.4	6.5	SN6T	K6T
	NVR50-5V	45	350	200	50	33.4	6.5		
	NVR60-5V	54	400	240	60	38.0	6.5		

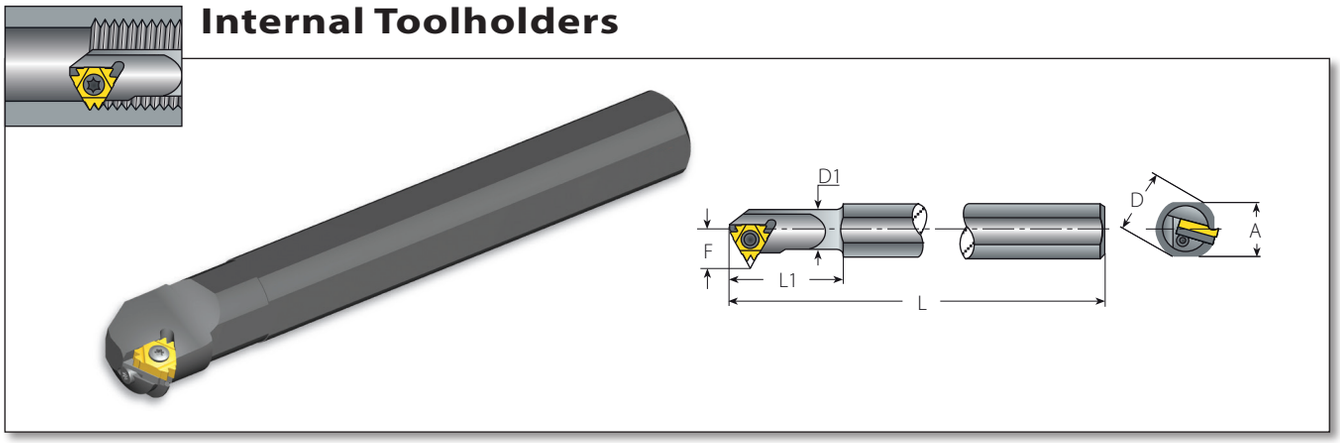
The above toolholders have a 1.0° helix angle.

Minimum Bore Diameter

	Pitch mm	6.0 ISO	8.0 ISO	10.0 ISO	
Holder	Pitch TPI	4 UN	3 UN		2.5 W
NVR40-5V		48	54	62	68
NVR50-5V		58	58	62	68
NVR60-5V		68	68	68	68

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AVR32-4UC**LH**).
Holders with coolant channel available as standard (Example AVR**C**32-4UC).

Internal Toolholders

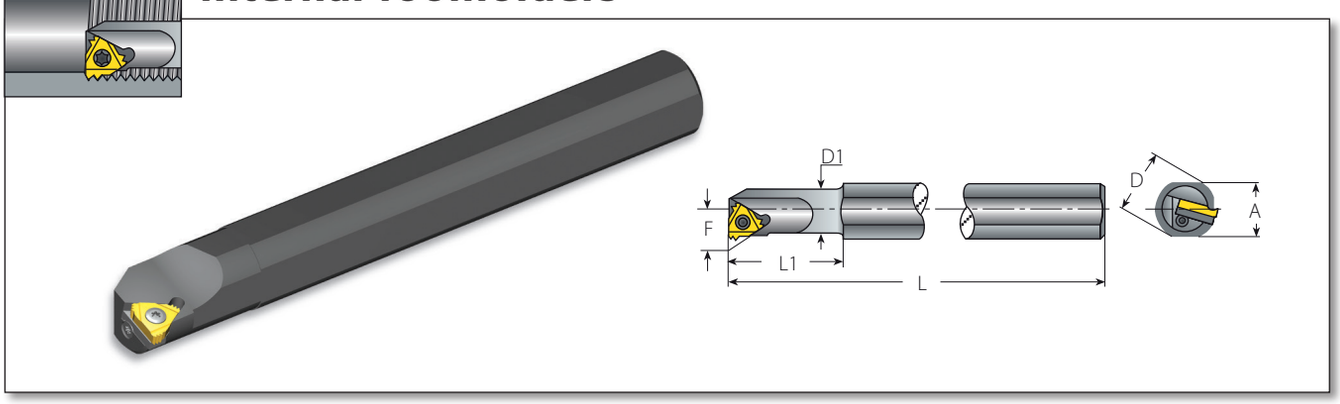


Z+ Style

Multiplus

Insert Size	Ordering Code	Dimensions mm						Min. Bore Dia.	Spare Parts				
IC	RH	A	L	L1 (max)	D	D1	F	mm	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"Z	AVR32-4Z	29	250	128	32	32	25.5	42	SA4T	SY4T	K4T	YI4Z	YE4Z
	AVR40-4Z	36	300	160	40	40	29.5	51					

Internal Toolholders

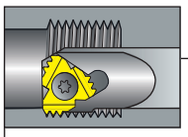


M+ Style

Multiplus

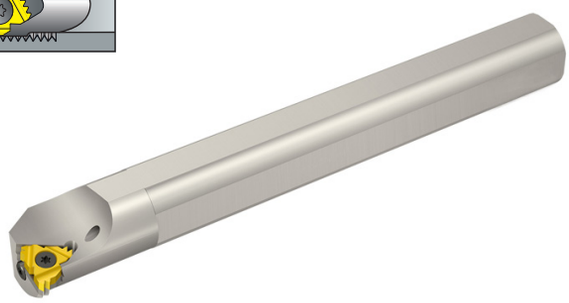
Insert Size	Ordering Code	Dimensions mm						Min. Bore Dia.	Spare Parts				
IC	RH	A	L	L1 (max)	D	D1	F	mm	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
5/8"M	AVR32-5M	29	250	128	32	32	22.4	40	SN5T	SY5T	K5T	YI5M	YE5M
	AVR40-5M	36	300	160	40	40	26.4	48	SA5T	SY5T	K5T	YI5M	YE5M
	AVR50-5M	45	350	200	50	50	31.4	58					
	AVR60-5M	54	400	240	60	60	36.4	69					

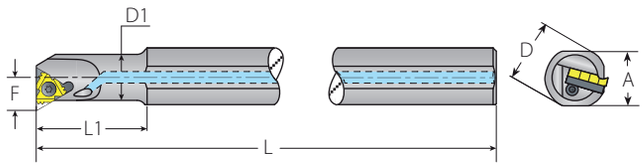
The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.
Holders with coolant channel available as standard (Example AVR**C**32-4Z).



Internal Toolholders

F-LINE





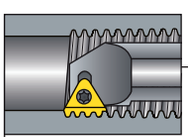
F-Line M+ Style

Spare Parts

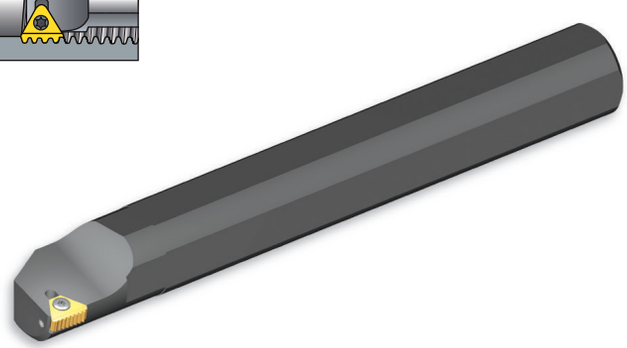
Multi plus

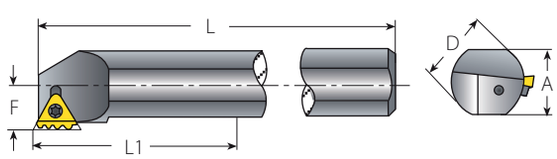
Insert Size	Ordering Code	Dimensions mm						Min. Bore Dia.				
IC	RH	A	L	L1 (max)	D	D1	F	mm	Insert Screw	Anvil Screw	Torx Key	Anvil RH
1/2"F	AVRC25-4MF	29	250	60	32	25.0	17.9	32	SA4T	SY4T	K6T	YI4M2F
	AVRC25D-4MF	22.6	200	100	25	24.6	17.9	32				
	AVRC32-4MF	29	250	128	32	32.0	21.4	39				
	AVRC40-4MF	36	300	160	40	40.0	25.6	47				
	AVRC50-4MF	45	350	200	50	50.0	30.6	57				

The above toolholders have a 1.5° helix angle. For other helix angles, see page 203.



Internal Toolholders





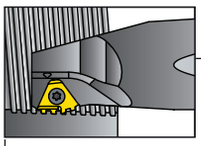
T+ Style

Spare Parts

Multi plus

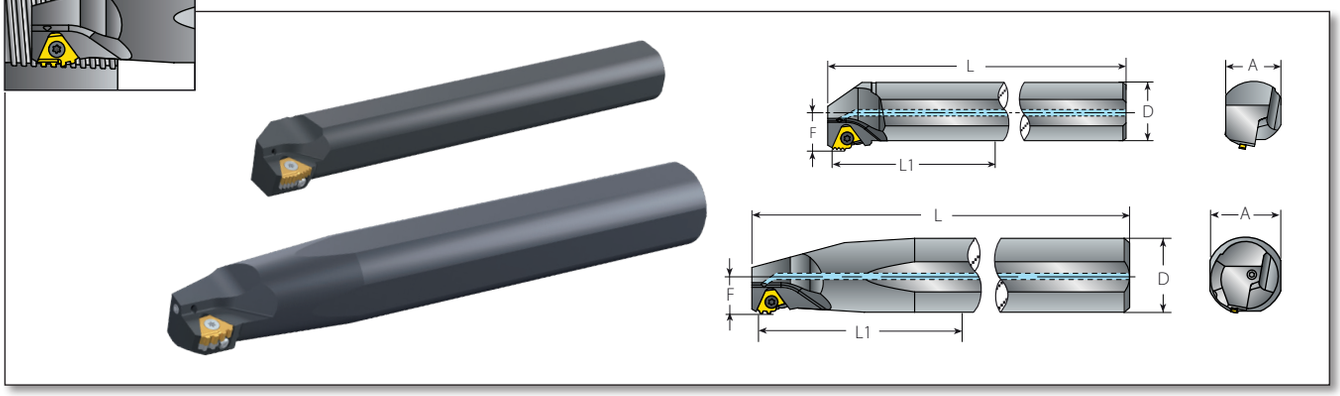
Insert Size	Ordering Code	Dimensions mm					Min. Bore Dia.					
IC	RH	A	L	L1 (max)	D	F	mm	Insert Screw	Anvil Screw	Torx Key	Anvil Torx Key	Anvil RH/LH
1/2"T	AVR40-4T	36	300	160	40	23.3	60	SA4T	SY4K2	K4T	K2	Y4T
	AVR50-4T	45	350	200	50	28.3	70					
	AVR60-4T	54	400	240	60	33.3	80					

All toolholders have a 0° helix angle.
Holders with coolant channel available as standard (Example: AVR**C**40-4T).



Internal Toolholders

Oil&Gas



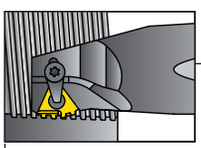
14D Standard

Multiplus

Insert Size	Ordering Code	Dimensions mm					Min. Bore Dia.
IC	RH	A	L	L1 (max)	D	F	mm
14D	AVRC40-14D	37	300	160	40	26	54.5
	AVRC50-14D	46	300	160	50	25	54.5

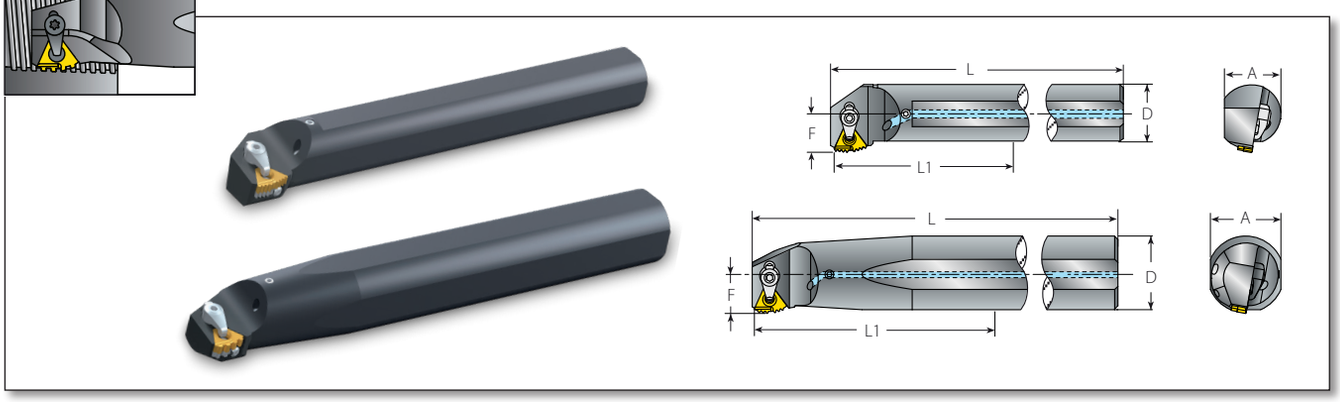
Spare Parts

Insert Screw	Anvil Screw & Washer	Torx Key	Anvil Key
SA5T	M4x6(14D)	K5T	KT15



Internal Toolholders

Oil&Gas



14D Standard with Clamp

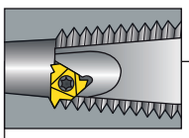
Multiplus

Insert Size	Ordering Code	Dimensions mm					Min. Bore Dia.
IC	RH	A	L	L1 (max)	D	F	mm
14D	AVRC40-14DC	37	300	160	40	26	54.5
	AVRC50-14DC	46	300	160	50	25	54.5

Spare Parts

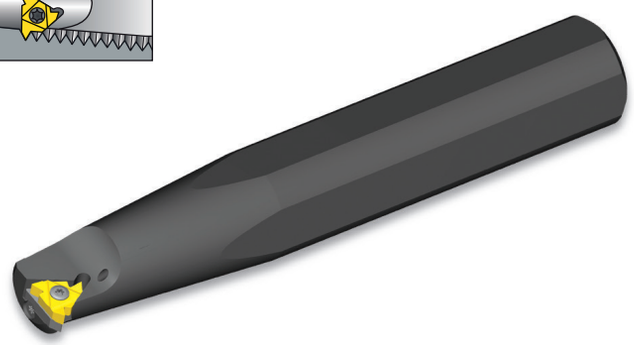
Insert Screw	Anvil Screw & Washer	Clamp	Torx Key	Anvil Key
SA5T	M4x6(14D)	C5	K5T	KT15

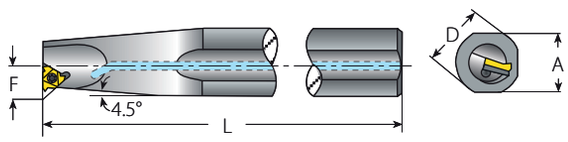
14D holders are supplied without anvils. For specific applications, please use the anvils indicated in the table on page 204.



Internal Toolholders

Oil&Gas



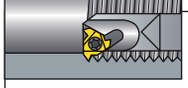


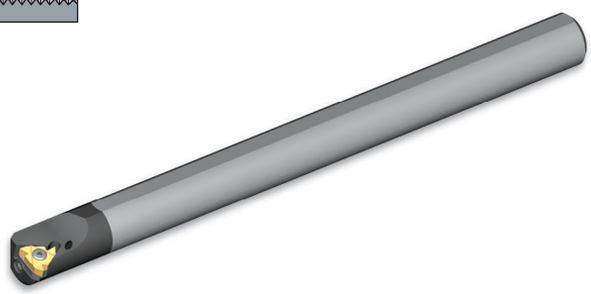
Oil & Gas

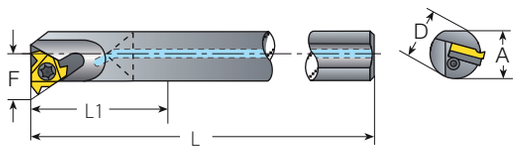
Insert Size	Ordering Code	Thread Form	Connection No. or Size	Dimensions mm				Helix Angle Deg.	Spare Parts			
												
IC	RH			A	L	D	F		Insert Screw	Anvil Screw	Torx Key	Anvil RH
3/8"	AVRC25-3-APIRD	APIRD 8 APIRD 10	2.375"-20" 1.315"-3.5"	29	250	25	14.5	1	SA3T	SY3T	K3T	YEI3-APIRD
	AVRC32-3-APIRD	APIRD 8 APIRD 10	2.375"-20" 1.66"-3.5"	29	250	32	19.6	1				
	AVRC40-3-APIRD	APIRD 8 APIRD 10	2.375"-20" 1.9"-3.5"	36	300	40	22.0	1				
1/2"	AVRC40-4-BUT/API	5BUT, V.038R, V.050, V.040, V.055	4 1/2"-20" NC10-NC77 all sizes	36	300	40	24.2	0	SA4T	SY4T	K4T	YEI4-API-1P YEI4-5BUT
5/8"	AVR50-5OIL	V0.038R	NC23-NC38	45	300	50	22.6	1.5	SA5T	SY5T	K5T	YI5OIL
	AVRC50-5OIL	V0.038R	NC23-NC38									
	AVR80-5OIL	V0.050R	NC40-NC77	72	400	80	39.7	1.5				
	AVRC80-5OIL	V0.050R	NC40-NC77									

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

Internal Toolholders







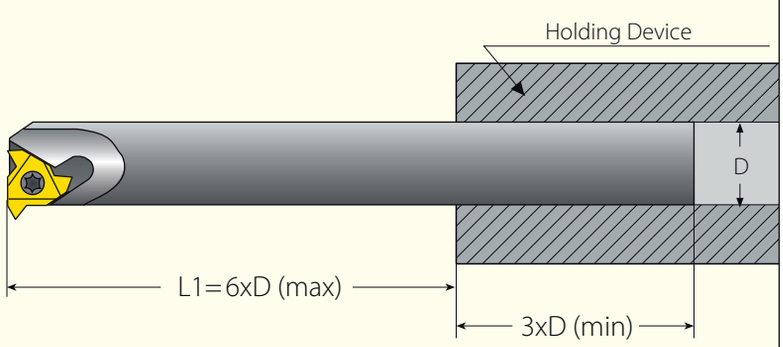
Standard with Carbide Shank

Insert Size	Ordering Code	Dimensions mm					Min. Bore Dia.
IC	RH/LH	D	A	F	L	L1 (max)	mm
1/4"	CNVRC10-2	10	9.5	7.3	150	60	13
	CNVRC12-2	12	11.7	8.3	180	72	15
3/8"	CNVRC16-3	16	15.6	11.5	200	96	20
	CAVRC20-3	20	19.5	13.4	250	120	24
1/2"	CNVRC20-4	20	19.5	15.5	250	120	25

Spare Parts

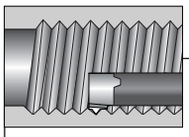
Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
SN2T	-	K2T	-	-
SN3T	-	K3T	-	-
SA3T	SY3T	K3T	YI3	YE3
SN4T	-	K4T	-	-

Toolholders with prefix "CN" cannot be used with an anvil. The above toolholders have coolant channel as standard.



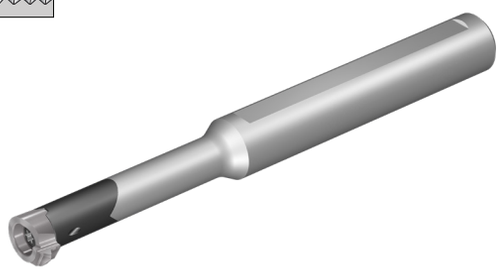
The overhang to bar diameter ratio should be as small as possible to eliminate the chance of chatter (vibration). The minimum length inside a holding device should be 3 times the diameter of the bar shank.

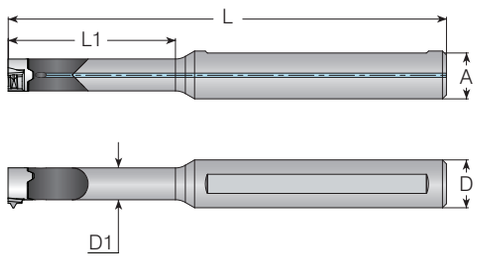
The above toolholders have 1.5° helix angle. For other helix angles see page 203.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example CNVRC10-2**LH**).



Internal Toolholders

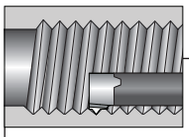
Mini-V





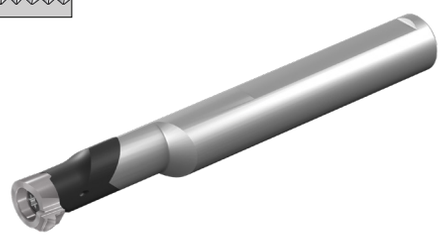
Carbide Shank with Alloy Steel Head

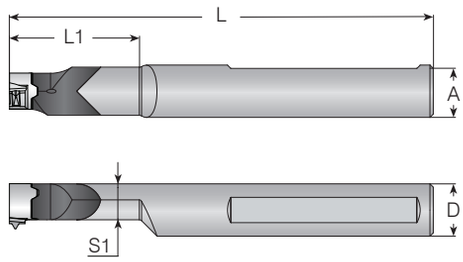
Insert Style	Ordering Code	Dimensions mm					Spare Parts		
	RH	A	L	L1	D	D1	Screw	Size	Torx Key
V08	CV08-1221	11.5	80.5	21	12	6	SNV08	M2.6x0.45x8	K2T
	CV08-1230		90.5	30					
V11	CV11-1229	11.5	95.0	29	12	8	SNV11	M3.5x0.6x10	K3T
	CV11-1242		110.0	42					
V16	CV16-1240	11.0	130.0	40	12	11	SNV16	M5x0.8x12	K4T
	CV16-1256		130.0	56					
	CV16-1280		150.0	80					



Internal Toolholders

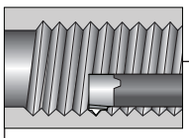
Mini-V





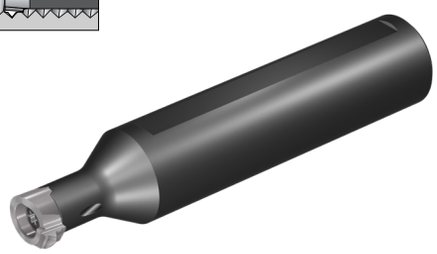
Reinforced Carbide Shank

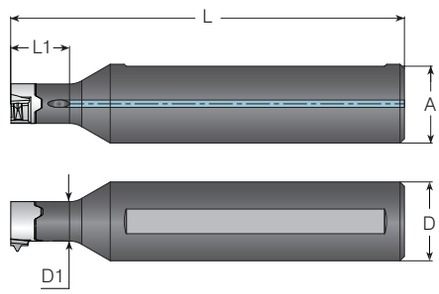
Insert Style	Ordering Code	Dimensions mm						Spare Parts		
	RH	A	L	L1	D	S1	S2	Screw	Size	Key
V14	CV14-1234	11	100.0	34.0	12	9.3	11.9	SNV14	M4x0.7x12	KT15
	CV14-1634	15	100.0	34.0	16	9.3	12.45			
V16	CV16-1640	15	129.7	39.7	16	11	14.75	SNV16	M5x0.8x12	K4T



Internal Toolholders

Mini-V

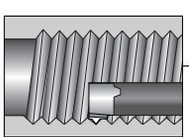




Alloy Steel Shank

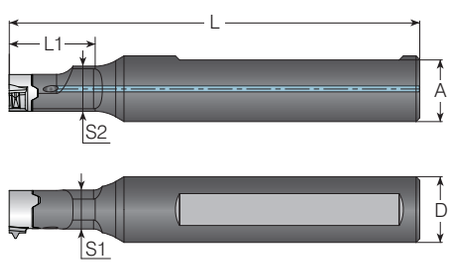
Spare Parts

Insert Style	Ordering Code	Dimensions mm					Spare Parts		
	RH	A	L	L1	D	D1	Screw	Size	Torx Key
V08	V08-1612	15.6	80	12	16	6	SNV08	M2.6x0.45x8	K2T
V11	V11-1612	15.6	80	12	16	8	SNV11	M3.5x0.6x10	K3T
V16	V16-1622	15.0	100	22	16	11	SNV16	M5.0x0.8x12	K4T



Internal Toolholders

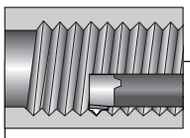
Mini-V



Alloy Steel Shank

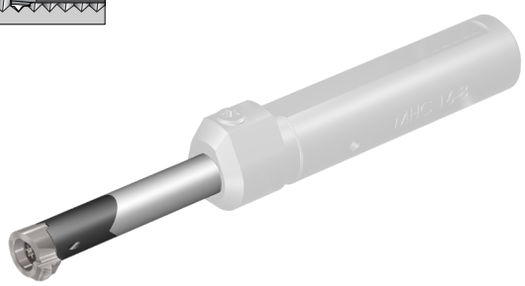
Spare Parts

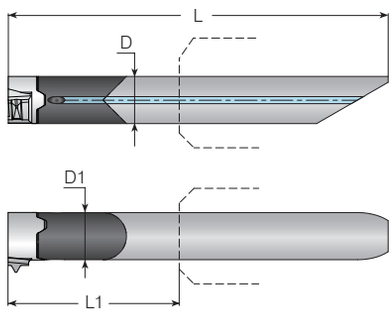
Insert Style	Ordering Code	Dimensions mm						Spare Parts		
	RH	A	L	L1	D	S1	S2	Screw	Size	Torx Key
V14	V14-1620	15.0	100	20	16	9.5	11	SNV14	M4x0.7x12	KT15



Internal Toolholders

Mini-V

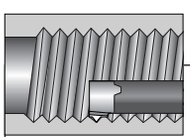




Holder for Sleeve Clamping

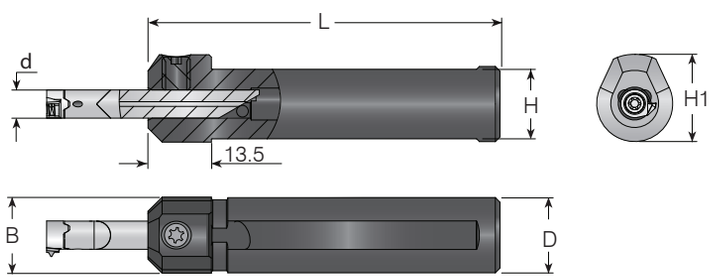
Spare Parts

Insert Style	Ordering Code	Dimensions mm					Ordering Code	Spare Parts		
	RH	A	L	L1 (max)	D	D1	Sleeve	Screw	Size	Torx Key
V08	CV08-0621	-	45	21	6	6	MHC...-6	SNV08	M2.6x0.45x8	K2T
V11	CV11-0829	-	64.5	29	8	8	MHC...-8	SNV11	M3.5x0.6x10	K3T



Internal Toolholders

Mini-V



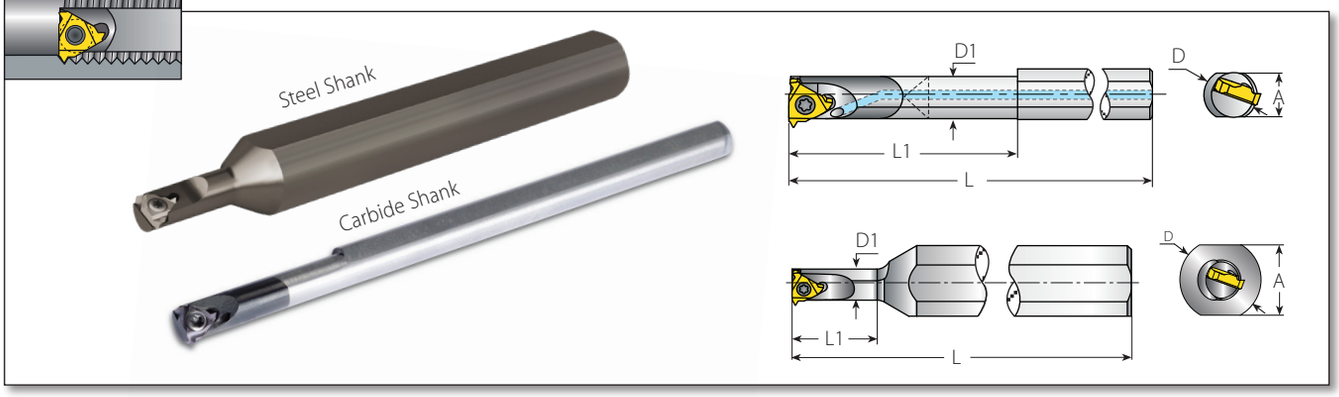
Sleeves

Spare Parts

Ordering Code		Dimensions mm				Spare Parts	
d	Sleeve	D=B	H1	H	L	Screw	Torx Key
6	MHC12-6	12	16.0	10.8	70.0	SL7DT15	KT15
	MHC16-6	16	18.6	14.8	75.0		
	MHC20-6	20	22.0	18.8	84.0		
8	MHC16-8	16	18.6	14.8	100.0		
	MHC20-8	20	22.0	18.8	103.5		

Internal Toolholders Standard

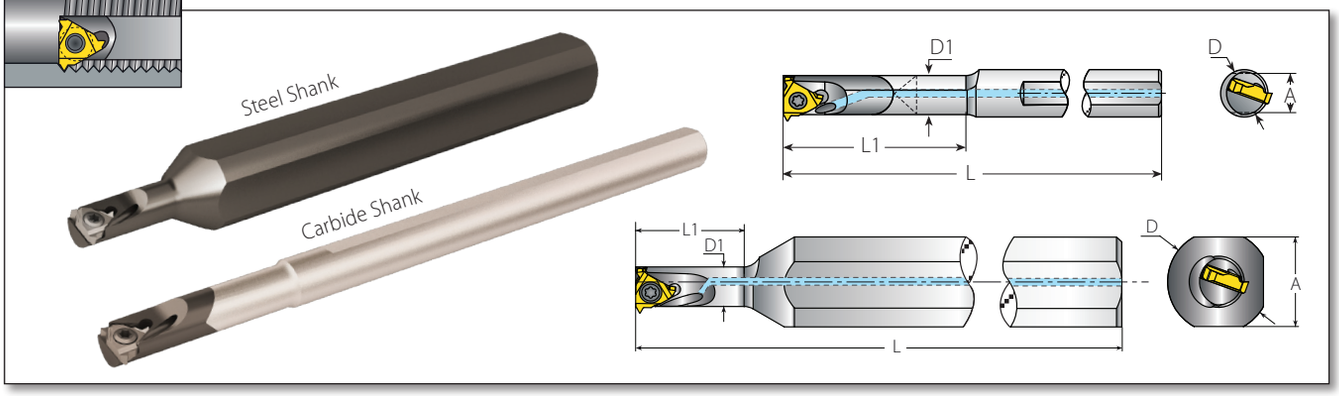
MINIPRO



Mini-3 Standard

Insert Size	Ordering Code	Dimensions mm					Anti-Vibration System	Spare Parts	
IC	RH/LH	A	L	L1	D	D1		Insert Screw	Torx Key
4.0	SNVR5-4.0K	11.0	100	12	12	5.1	No	SN4MT	K6MT
	CNVRC5-4.0K	5.2	100	26	6	5.1	Carbide Shank		

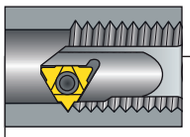
Internal Toolholders Standard



Mini-3 Standard

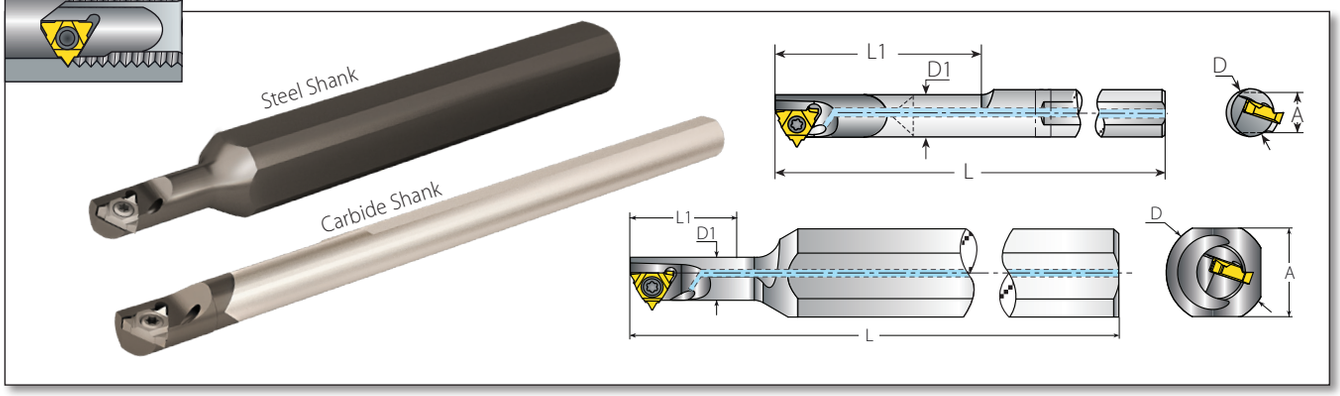
Insert Size	Ordering Code	Dimensions mm					Anti-Vibration System	Spare Parts	
IC	RH/LH	A	L	L1	D	D1		Insert Screw	Torx Key
5.0	NVRC7-5.0K	15	125	18	16	6.6	No	SN5MT	K6MT
	CNVRC7-5.0K	7	125	31	8	6.6	Carbide Shank		

The above toolholders have 2.5° helix angle.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example: CNVRC5-4.0K**LH**).



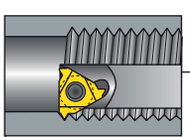
Internal Toolholders U Style

MINIPRO

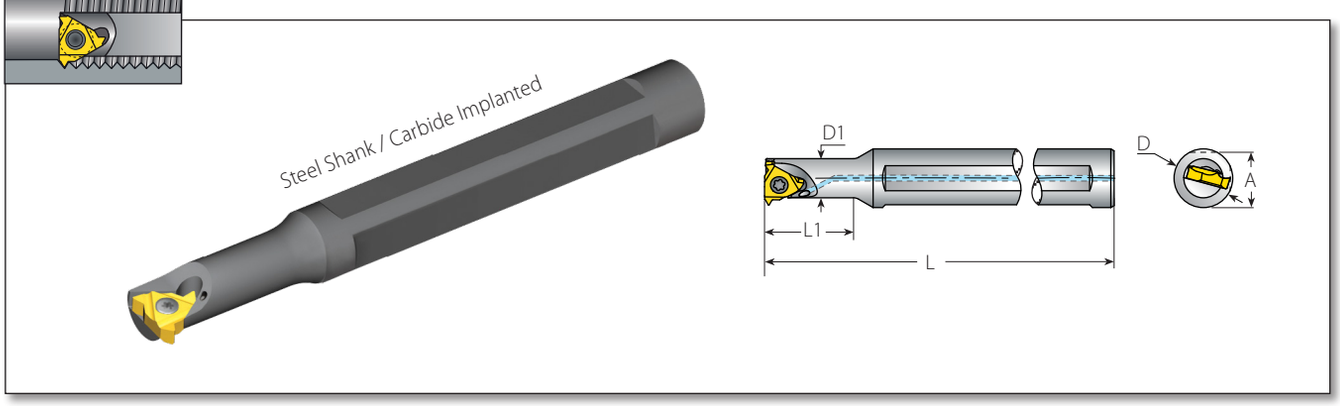


Mini-3 U Style

Insert Size	Ordering Code	Dimensions mm					Anti-Vibration System	Spare Parts	
IC mm	RH/LH	A	L	L1	D	D1		Insert Screw	Torx Key
5.0U	NVRC8-5.0KU	15	125	21	16	7.3	No	SN5MT	K6MT
	CNVRC8-5.0KU	7	125	35	8	7.3	Carbide Shank		



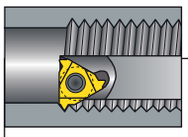
Internal Toolholders



Mini-3 Standard

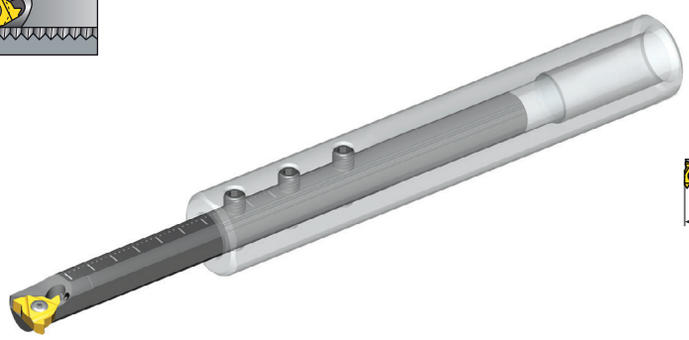
Insert Size	Ordering Code	Dimensions mm					Anti-Vibration System	Spare Parts	
IC	RH/LH	A	L	L1	D	D1		Insert Screw	Torx Key
6.0	SNVRC12U-6.0K	11.4	82	16	12	8	No	SN6MTN	KIP6
	BNVRC10S-6.0K	9.4	89	22	10	8	Carbide Implanted		
	BNVRC10M-6.0K	9.4	98	31	10	8	Carbide Implanted		
	BNVRC10L-6.0K	9.4	110	43	10	8	Carbide Implanted		

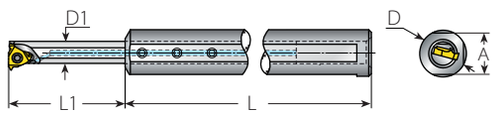
The above toolholders have 2.5° helix angle.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example: NVRC8-5.0KU**LH**).



Internal Toolholders

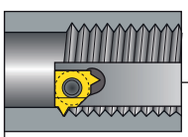
MINIPRO



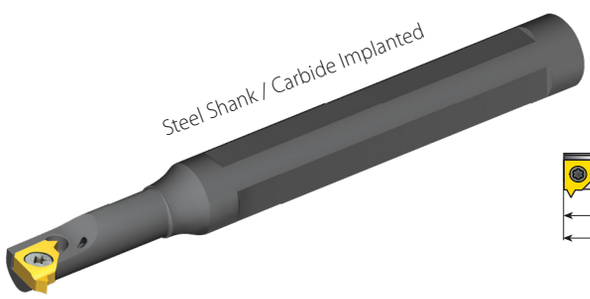


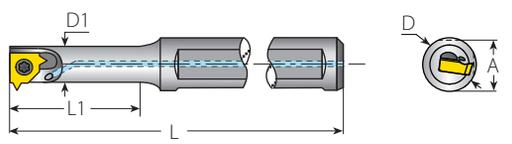
Mini-3 Adjustable

Insert Size		Ordering Code	Dimensions mm					Spare Parts			
IC	Sleeve	Holder RH/LH	A	L	L1	D	D1	Insert Screw	Torx Key for Insert Screw	Holder Screw x3	Key for Holder Screw
6.0	SVC16-8.0	BNVRC8.0T-6.0K	15.6	100	8-56	16	8	SN6MTN	KIP6	S4.0	K2.0



Internal Toolholders





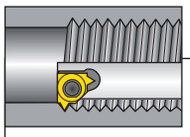
Mini-L

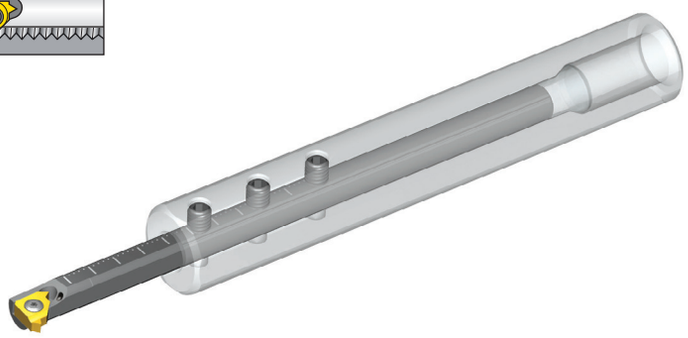
Insert Size	Ordering Code	Dimensions mm					Anti-Vibration System	Spare Parts	
IC	RH/LH	A	L	L1	D	D1		Insert Screw	Torx Key
5.0L	SNVRC10U-5LK	9.4	81	16	10	6.2	No	SN5LSTR	K7MT
	BNVRC10S-5LK	9.4	87	22	10	6.2	Carbide Implanted		
	BNVRC10M-5LK	9.4	97	31	10	6.2	Carbide Implanted		
	BNVRC10L-5LK	9.4	109	43	10	6.2	Carbide Implanted		

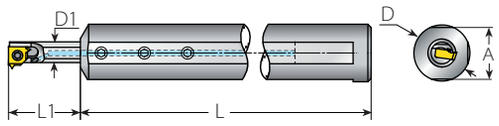
The above toolholders have 2.5° helix angle.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example: SNVRC10U-5LK**LH**).

Internal Toolholders

MINIPRO







Mini-L Adjustable

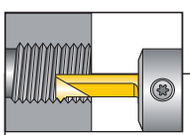
Insert Size		Ordering Code	Dimensions mm				
IC	Sleeve	Holder RH/LH	A	L	L1	D	D1
5.0L	SVC16-6.2	BNVRC6.2T-5LK	15.6	100	8-44	16	6.2

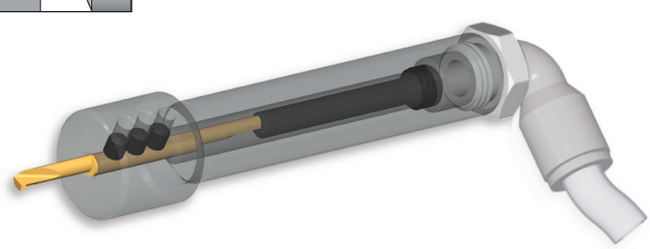
Spare Parts

Insert Screw	Torx Key for Insert Screw	Holder Screw x 3	Key for Holder Screw
SN5LSTR	K7MT	S4.0	K2.0

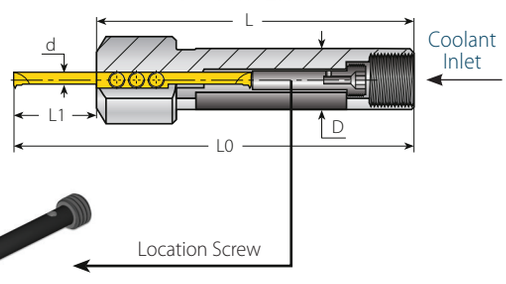
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example: BNVRC6.2T-5LK**LH**).

Internal Toolholders





Double Ended



Micro - Double Ended

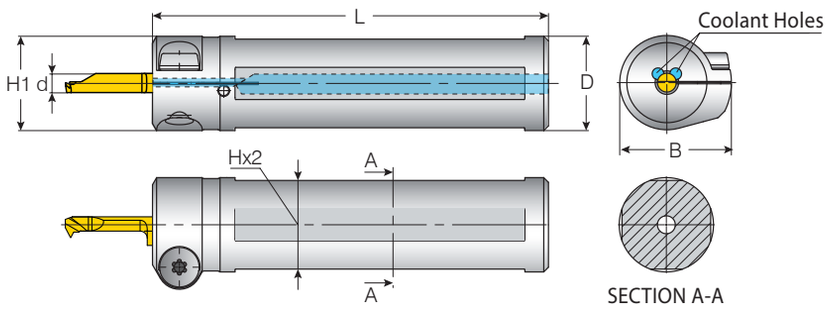
Spare Parts

Micro Insert Dia.	Shank Dia.	Ordering Code	Dimensions mm			Location Screw (Every toolholder package contains the full range of location screws needed)			Clamping Screw x 3	
d mm	D		L	L1	L0	Screw	M	Key	Screw	Key
3	10	SMC10-3.0	80	9 - Short	89	AGISM8X28	28	K4.0	M4X0.7X4.0	K2.0
	12	SMC12-3.0		16 - Medium	96	AGISM8X21	21			
	16	SMC16-3.0	95	9 - Short	104	AGISM8X49	49			
	20	SMC20-3.0		16 - Medium	111	AGISM8X42	42			
4	10	SMC10-4.0	80	9 - Short	89	AGISM8X28	28			
	12	SMC12-4.0		16 - Medium	96	AGISM8X21	21			
				21 - Long	101	AGISM8X16	16			
	16	SMC16-4.0	95	9 - Short	104	AGISM8X49	49			
	20	SMC20-4.0		16 - Medium	111	AGISM8X42	42			
				21 - Long	116	AGISM8X37	37			
6	12	SMC12-6.0	80	9 - Short	89	AGISM8X28	28			
				16 - Medium	96	AGISM8X21	21			
				21 - Long	101	AGISM8X16	16			
	16	SMC16-6.0	95	9 - Short	104	AGISM8X49	49			
				16 - Medium	111	AGISM8X42	42			
	20	SMC20-6.0		21 - Long	116	AGISM8X37	37			

Internal Toolholders

microscope

Micro - Single Ended



Shrink

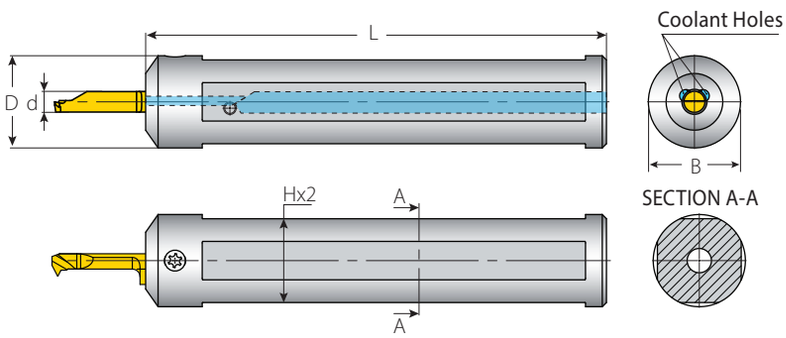
Micro Insert Dia.	Ordering Code	Dimensions mm					Spare Parts	
d (mm)		D	B	H1	H	L	Shrink Screw	Key
4.0	MHCS10-4-4F	10.0	19.7	13.3	8.8	65.0	SM5x10-15IPx2*	F15IP*
	MHCS12-4-4F	12.0	19.7	13.8	10.8	70.0		
	MHCS16-4-4F	16.0	21.7	16.0	14.8	75.0		
	MHCS20-4-4F	20.0	23.7	20.0	18.8	84.0		
	MHCS22-4-4F	22.0	24.7	22.0	20.0	110.0		
5.0	MHCS16-5-4F	16.0	21.7	16.0	14.8	75.0		
	MHCS20-5-4F	20.0	23.7	20.0	18.8	84.0		
6.0	MHCS12-6-4F	12.0	19.7	13.8	10.8	70.0		
	MHCS16-6-4F	16.0	21.7	16.0	14.8	75.0		
	MHCS20-6-4F	20.0	23.7	20.0	18.8	84.0		
	MHCS22-6-4F	22.0	24.7	22.0	20.0	110.0		
7.0	MHCS16-7-4F	16.0	21.7	16.0	14.8	75.0		
	MHCS20-7-4F	20.0	23.7	20.0	18.8	84.0		

SM5x10-15IPx2 is a special screw which can be used from both its sides.
For an alternative screw, please use MS5x10 (key: S4).

Internal Toolholder

micrOscope

Micro - Single Ended

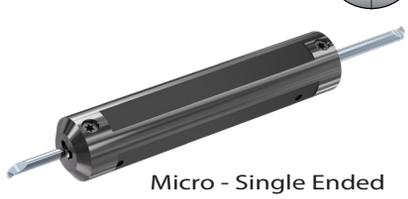


Round without Shoulder

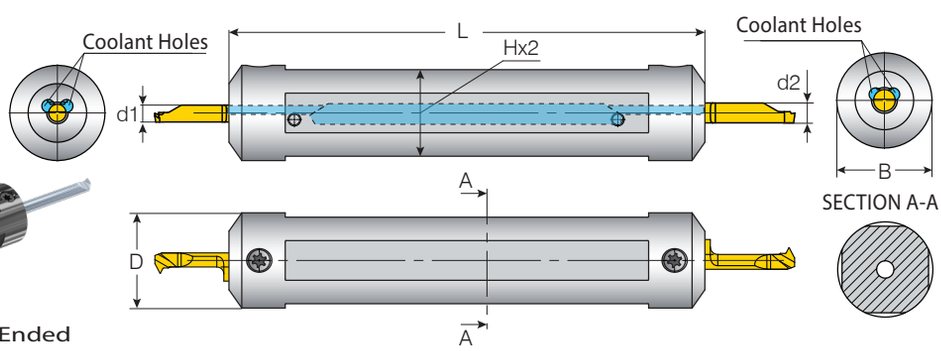
Micro Insert Dia.	Ordering Code	Dimensions mm			Spare Parts	
d (mm)		B=D	H	L	Clamping Screw	Key
4.0	MHCR20-4-4F	20	18.8	83.5	SLDBT15IP	F15IP
	MHCR22-4-4F	22	20.0	110.0		
5.0	MHCR20-5-4F	20	18.8	83.5		
	MHCR22-5-4F	22	20.0	110.0		
6.0	MHCR20-6-4F	20	18.8	83.5		
	MHCR22-6-4F	22	20.0	110.0		
7.0	MHCR25-7-4F	25	20.0	110.0		

Internal Toolholder

micrOscope



Micro - Single Ended



Round Double Sided

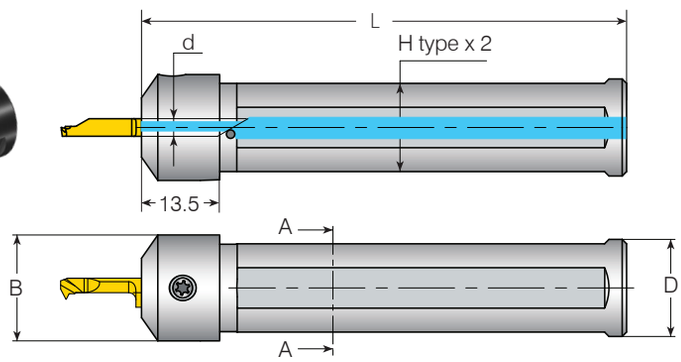
Micro Insert Dia.	Ordering Code	Dimensions mm			Spare Parts	
d1 - d2 (mm)		B=D	H	L	Clamping Screw	Key
4.0 - 5.0	MHCR075-4-5-4F*	19.05	17.8	83.5	SLDBT15IP	F15IP
	MHCR20-4-5-4F*	20	18.8	83.5		
	MHCR22-4-5-4F	22	20.0	110.0		
	MHCR25-4-5-4F	25	23.0	110.0		
6.0 - 7.0	MHCR20-6-7-4F*	20	18.8	83.5		
	MHCR25-6-7-4F	25	23.0	110.0		

* Front screw must be removed in order to mount the toolholder on the machine. Once mounted, set the screw back in place and secure the insert.

Internal Toolholders

microscope

Micro - Single Ended



Round Shank - 4 Flats

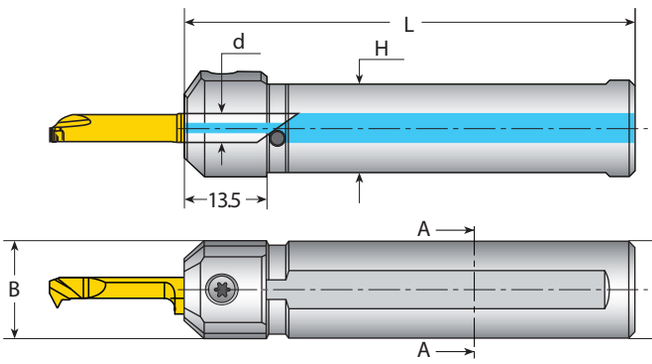
Micro Insert Dia.	Ordering Code	Dimensions mm				Spare Parts	
							
d mm		D	B	H	L	Clamping Screw	Torx Key
4.0	MHC20-4-4F	20.0	22.0	18.8	83.5	SL7DT15 or SL7DBT15IP*	KT15 or F15IP*
	MHC22-4-4F	22.0	24.0	20.0	110		
	MHC23-4-4F	23.0	25.0	21.0			
	MHC25-4-4F	25.0	27.0	23.0			
	MHC28-4-4F	28.0	30.0	26.0			
5.0	MHC20-5-4F	20.0	22.0	18.8	83.5		
	MHC22-5-4F	22.0	24.0	20.0	110		
	MHC23-5-4F	23.0	25.0	21.0			
	MHC25-5-4F	25.0	27.0	23.0			
	MHC28-5-4F	28.0	30.0	26.0			
6.0	MHC20-6-4F	20.0	22.0	18.8	83.5		
	MHC22-6-4F	22.0	24.0	20.0	110		
	MHC23-6-4F	23.0	25.0	21.0			
	MHC25-6-4F	25.0	27.0	23.0			
	MHC28-6-4F	28.0	30.0	26.0			
7.0	MHC22-7-4F	22.0	24.0	20.0			
	MHC23-7-4F	23.0	25.0	21.0			
	MHC25-7-4F	25.0	27.0	23.0			
	MHC28-7-4F	28.0	30.0	26.0			

* Torx+ screw and key are now available for improved clamping.

Internal Toolholders

microscope

Micro - Single Ended



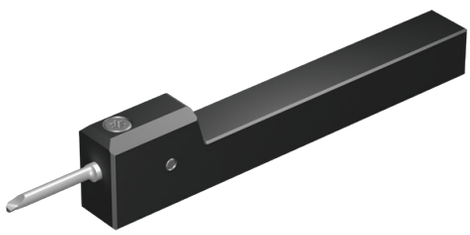
Round Shank - 2 Flats

Micro Insert Dia.	Ordering Code	Dimensions mm				Spare Parts	
							
d mm		D=B	H1	H	L	Clamping Screw	Torx Key
4.0	MHC10-4	10	14	8.8	65	SL7DT15 or SL7DBT15IP*	KT15 or F15IP*
	MHC12-4	12	16	10.8	70		
	MHC16-4	16	17.6	14.8	75		
	MHC20-4	20	22	18.8	84		
5.0	MHC10-5	10	14	8.8	65		
	MHC12-5	12	16	10.8	70		
	MHC16-5	16	18.6	14.8	75		
	MHC20-5	20	22	18.8	84		
6.0	MHC12-6	12	16	10.8	70		
	MHC16-6	16	18.6	14.8	75		
	MHC20-6	20	22	18.8	84		
7.0	MHC16-7	16	18.6	14.8	75		
	MHC20-7	20	22	18.8	84		

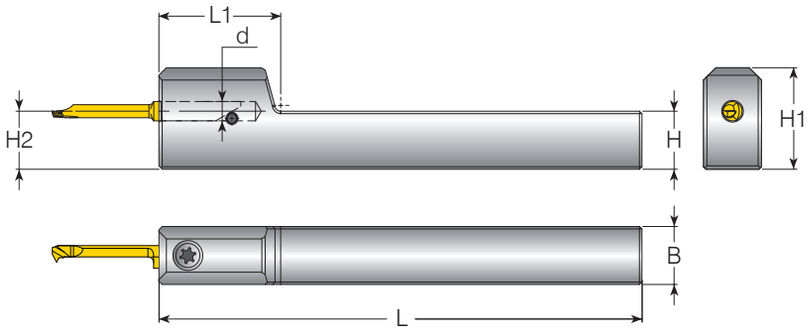
* Torx+ screw and key are now available for improved clamping.

Internal Toolholders

microscope



Micro - Single Ended



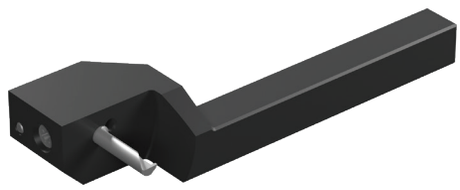
Microscope Holder with Square Shank

Micro Insert Dia.	Ordering Code	Dimensions mm				Spare Parts	
d mm		H=H2=B	H1	L	L1	Clamping Screw	Torx Key
4.0	MHS1010-4	10.0	19.0	100.0	25.0	SL7DT15 or SL7DBT15IP*	KT15 or F15IP*
5.0	MHS1010-5	10.0	19.5	100.0	25.0		
4.0	MHS1212-4	12.0	21.0	100.0	25.0		
5.0	MHS1212-5	12.0	21.5	100.0	27.0		
6.0	MHS1212-6	12.0	22.0	100.0	27.0		

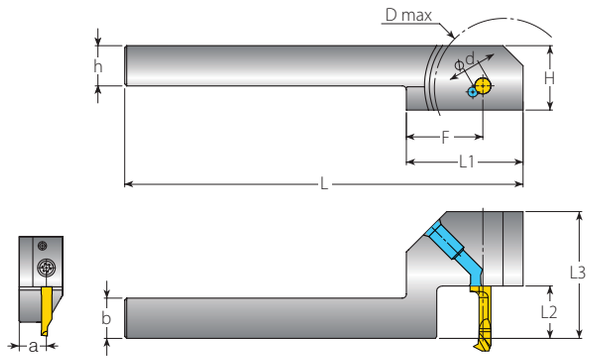
* Torx+ screw and key are now available for improved clamping.

Internal Toolholders

micrOscope



Micro - Single Ended



Microscope Holder with Drop Head

Micro Insert Dia.	Ordering Code	Dimensions mm								Spare Parts	
											
d mm		a=b=h	L3	H	L	L1	F	D max	L2	Clamping Screw	Torx Key
4.0	MHD1010-4L0500	10.0	31.5	16.0	99.0	29.0	19.0	26.0	13.0	SL7DT15 or SL7DBT15IP*	KT15 or F15IP*
5.0	MHD1010-5L0800		48.0						23.0		
6.0	MHD1010-6L1000		53.0						28.0		
4.0	MHD1212-4L0700	12.0	36.5	18.0					18.0		
5.0	MHD1212-5L0800		48.0						23.0		
6.0	MHD1212-6L1000		53.0						28.0		

* Torx+ screw and key are now available for improved clamping.

Thread Turning Kits

TT External + Internal Kit

TT External Kit

TT Internal Kit

TT External + Internal Kit

Ordering Code	Contents			
	Holder External + Internal	10 x External Inserts	10 x Internal Inserts	Torx Key
KHTT3EI-...	AL20-3 AVRC20-3	3ERA60...	3IRA60...	K3T
		3ERG60...	3IRG60...	
		3ER11W...	3IR11W...	
		3ER14W...	3IR14W...	
		3ER1.0ISO...	3IR1.0ISO...	
		3ER1.25ISO...	3IR1.25ISO...	
		3ER1.5ISO...	3IR1.5ISO...	
		3ER2.0ISO...	3IR2.0ISO...	
		3ER2.5ISO...	3IR2.5ISO...	
		3ER3.0ISO...	3IR3.0ISO...	

TT External Kit

Ordering Code	Contents		
	Holder External	10 x External Inserts	Torx Key
KHTT3E-...	AL20-3	3ERA60...	K3T
		3ERG60...	
		3ER11W...	
		3ER14W...	
		3ER1.0ISO...	
		3ER1.25ISO...	
		3ER1.5ISO...	
		3ER2.0ISO...	
		3ER2.5ISO...	
		3ER3.0ISO...	

TT Internal Kit

Ordering Code	Contents		
	Holder Internal	10 x Internal Inserts	Torx Key
KHTT3I-...	AVRC 20-3	3IRA60...	K3T
		3IRG60...	
		3IR11W...	
		3IR14W...	
		3IR1.0ISO...	
		3IR1.25ISO...	
		3IR1.5ISO...	
		3IR2.0ISO...	
		3IR2.5ISO...	
		3IR3.0ISO...	

Ordering Code Example: KHTT3I-VKX.
Additional kits are available by request.

Thread Turning Inserts Kits

TT Inserts Kit

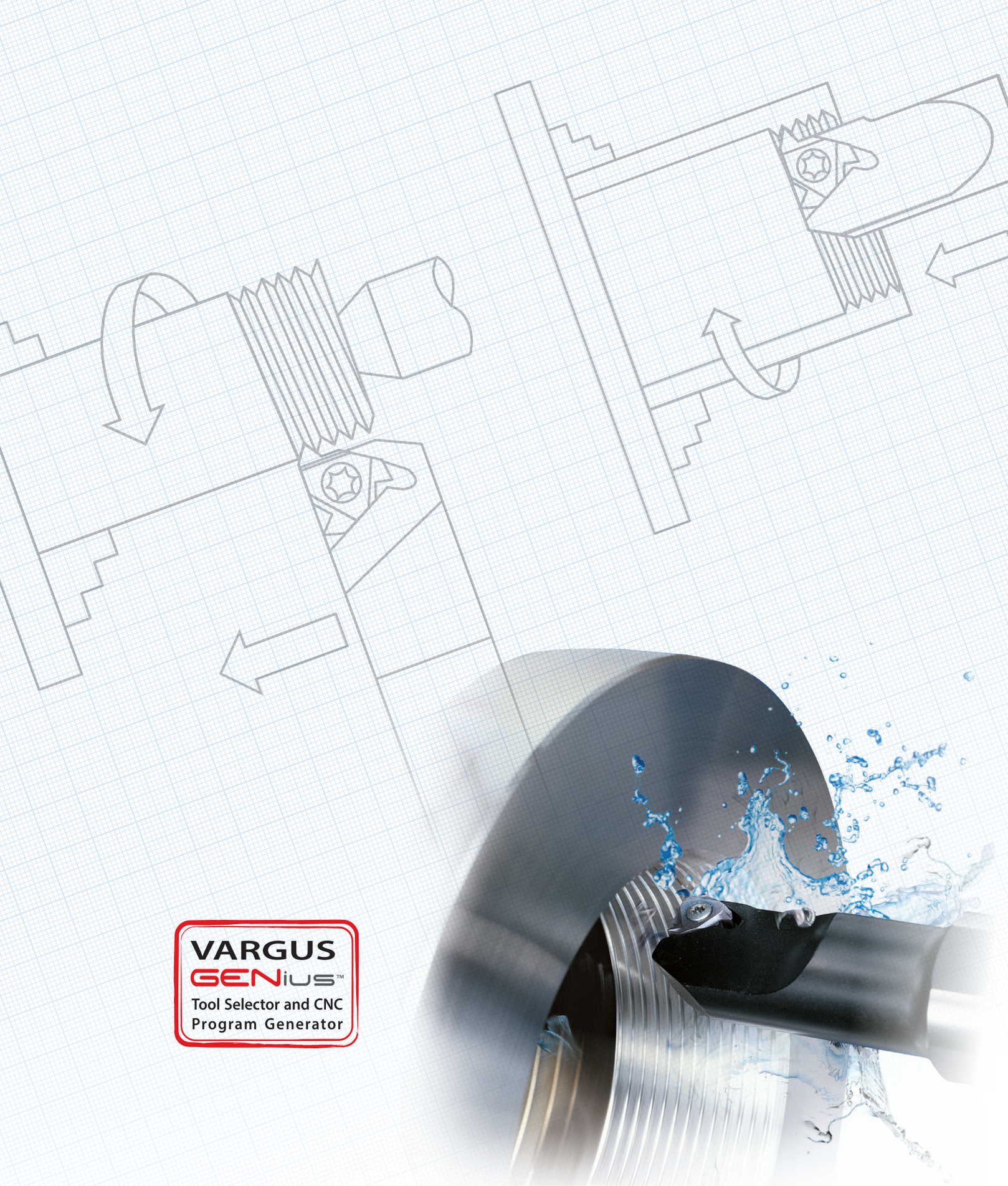
TT External Insert Kit

Ordering Code	Contents		
KITT3E-...	10 x External Inserts	Torx Key	Insert Screw
	3ERA60...	K3T	SA3T
	3ERG60...		
	3ER11W...		
	3ER14W...		
	3ER1.0ISO...		
	3ER1.25ISO...		
	3ER1.5ISO...		
	3ER2.0ISO...		
	3ER2.5ISO...		
	3ER3.0ISO...		

TT Internal Insert Kit

Ordering Code	Contents		
KITT3I-...	10 x Internal Inserts	Torx Key	Insert Screw
	3IRA60...	K3T	SA3T
	3IRG60...		
	3IR11W...		
	3IR14W...		
	3IR1.0ISO...		
	3IR1.25ISO...		
	3IR1.5ISO...		
	3IR2.0ISO...		
	3IR2.5ISO...		
	3IR3.0ISO...		

Ordering Code Example: KITT3E-VKX.
Additional kits are available by request.



VARGUS
GENius™
Tool Selector and CNC
Program Generator

Thread Turning Technical Data

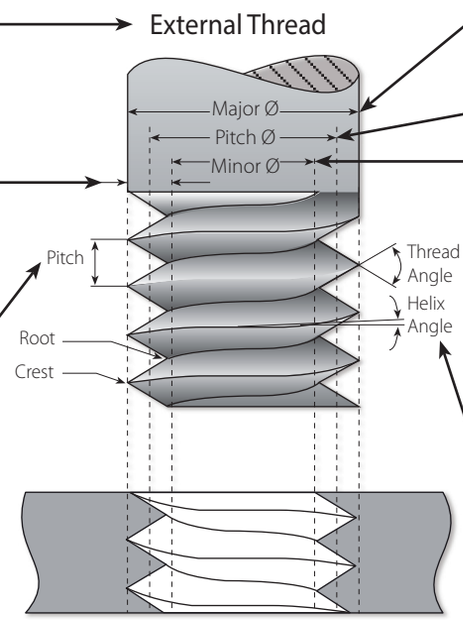
Thread Terminology

External Thread
A thread on the external surface of a cylinder screw or cone.

Depth of Thread
The distance between crest and root measured normal to the axis.

Pitch
The distance between two corresponding points on adjacent thread forms is measured parallel to the axis. This distance can be defined in either millimeters or by TPI (threads per inch).

Nominal Diameter
The diameter from which the diameter limits are derived by the application of deviation allowances and tolerances.



Internal Thread
A thread on the internal surface of a cylinder or cone.

Major Diameter
The largest diameter of a screw thread.

Pitch Diameter
On a straight thread, the diameter of an imaginary cylinder, the surface of which cuts the thread forms where the width of the thread and groove are equal.

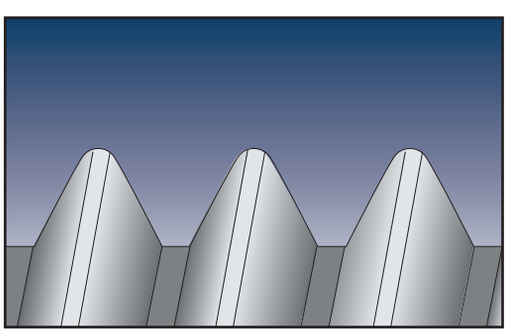
Minor Diameter
The smallest diameter of a screw thread.

Helix Angle
For a straight thread, where the lead of the thread and the pitch diameter circle circumference form a right angled triangle, the helix angle is the angle opposite the lead.

Straight Thread
A thread formed on a cylinder.

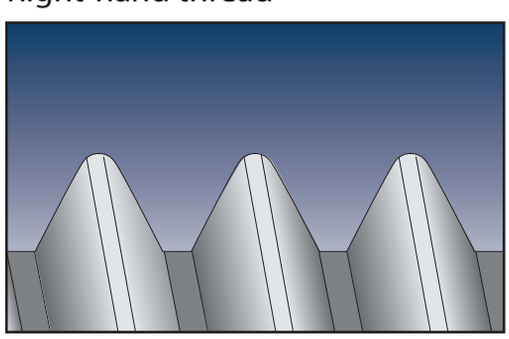
Taper Thread
A thread formed on a cone.

Left-hand thread



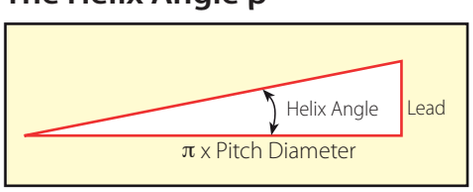
A thread which, when viewed axially, winds in a counterclockwise and receding direction. All left-hand threads are designated LH.

Right-hand thread



A thread which, when viewed axially, winds in a clockwise and receding direction. Threads are always right-hand unless otherwise specified.

The Helix Angle β



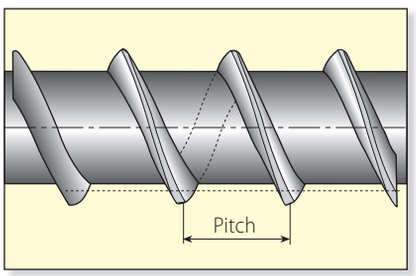
Lead

The distance a threaded part moves axially, with respect to a fixed mating part, in one complete revolution. The lead is equal to the pitch multiplied by the number of thread starts.

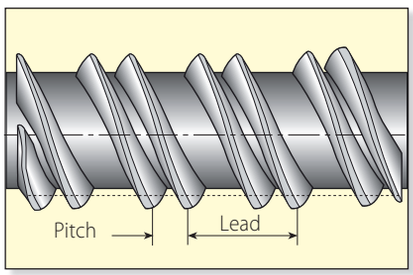
Machining a Multi-Start Thread

A thread in which the lead is an integral multiple, greater than one, of the pitch.
A multi-start thread permits a more rapid advance without a coarser (larger) thread form.

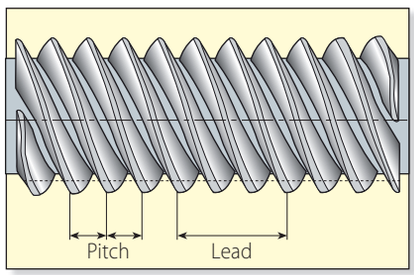
First Start Machined



Second Start Machined



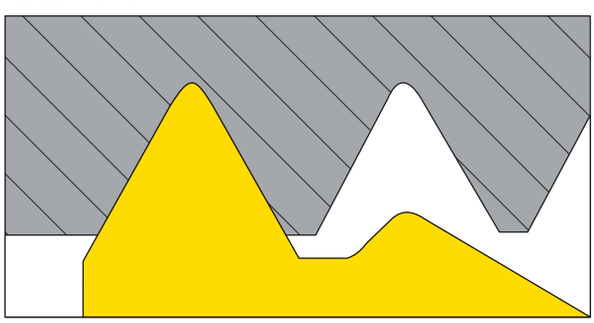
Third Start Machined
(Final, 3 Starts Thread)



Lead = 3 x Pitch

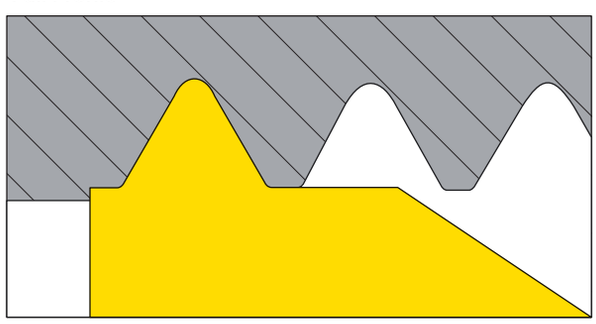
Insert Profile Styles

Partial Profile



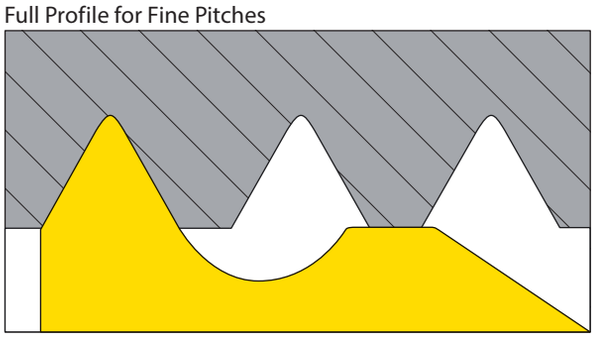
The V partial profile insert cuts without topping the outer diameter of the thread. The same insert can be used for a range of different thread pitches which have a common thread angle.

Full Profile



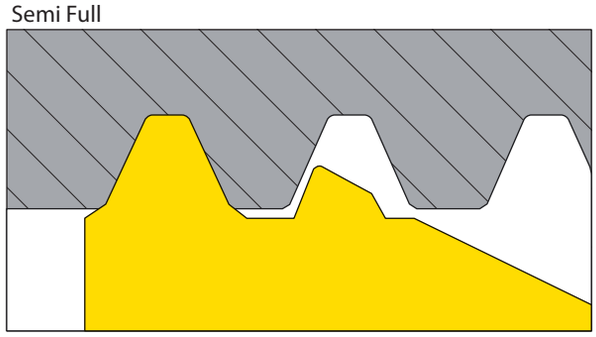
The full profile insert will form a complete thread profile including the crest. For every thread pitch and standard, a separate insert is required.

Full Profile for Fine Pitches



The full profile for Fine Pitches will form a complete thread.
The topping of the outer diameter is generated by the second tooth.

Semi Full

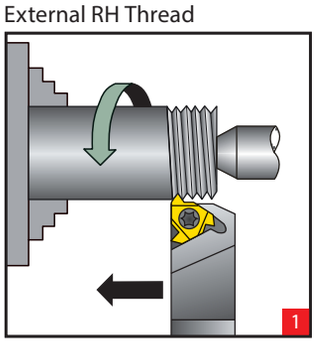


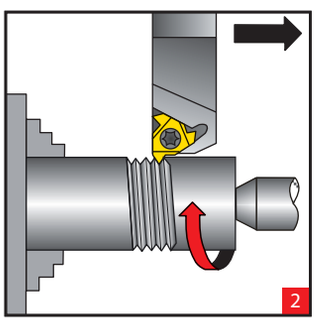
The Semi full profile insert will form a complete thread including crest radius but without topping the outer diameter.
Mainly used for trapezoidal profiles.

Thread Turning Methods for Symmetrical Inserts

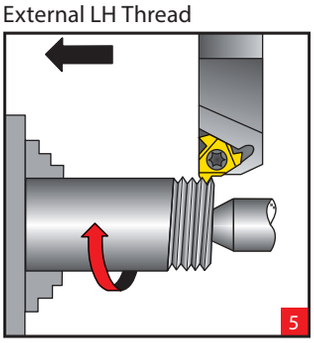
Thread	Inserts & Toolholder	Rotation	Feed Direction	Helix Method	Drawing No.
Right Hand External	EX RH	Counterclockwise	Towards chuck	Regular	1
	EX LH	Clockwise	From chuck	Reversed	2
Right Hand Internal	IN RH	Counterclockwise	Towards chuck	Regular	3
	IN LH	Clockwise	From chuck	Reversed	4
Left Hand External	EX LH	Clockwise	Towards chuck	Regular	5
	EX RH	Counterclockwise	From chuck	Reversed	6
Left Hand Internal	IN LH	Clockwise	Towards chuck	Regular	7
	IN RH	Counterclockwise	From chuck	Reversed	8

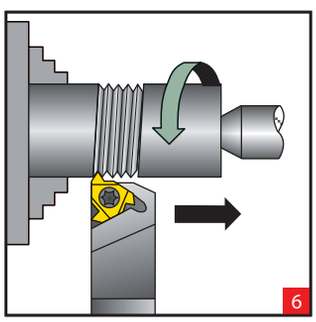
External RH Thread



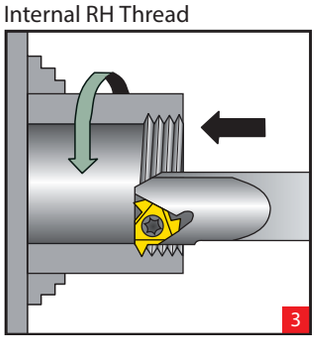


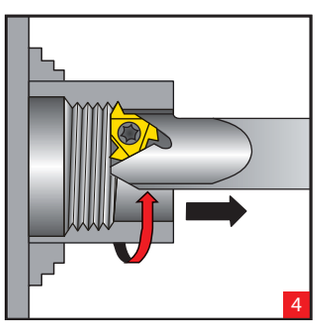
External LH Thread



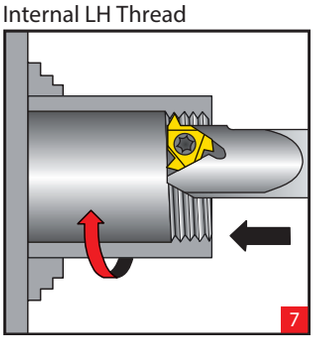


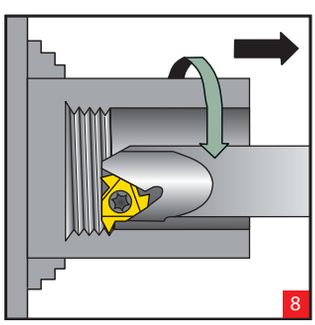
Internal RH Thread





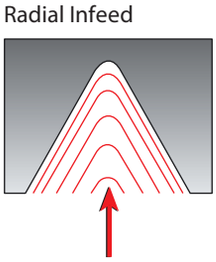
Internal LH Thread





Thread Infeed Methods

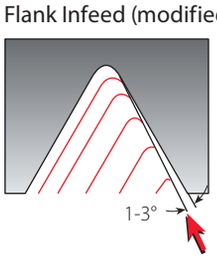
Radial Infeed



Radial infeed is the simplest and quickest method.
The feed is perpendicular to the turning axis, and both flanks of the insert perform the cutting operation.
Radial infeed is recommended in 3 cases:

- When the pitch is smaller than 16 TPI
- For material with short chips
- For work with hardened material

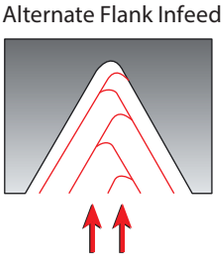
Flank Infeed (modified)



Flank infeed is recommended in the following cases:

- When the thread pitch is greater than 16 TPI, using the radial method, the effective cutting edge length is too large, resulting in chatter.
- For TRAPEZ and ACME. The radial method result in three cutting edges, making chip flow very difficult.

Alternate Flank Infeed

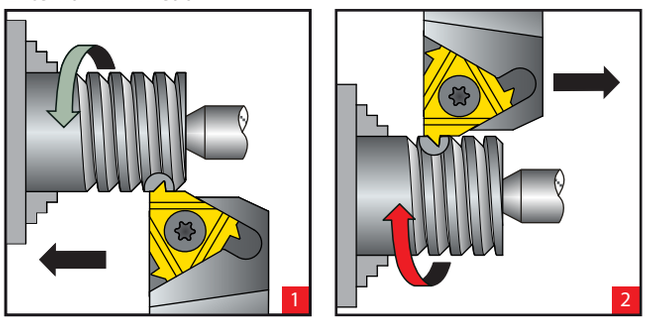


Use of the alternate flank method is recommended especially in large pitches and for materials with long chips.
This method divides the load equally on both flanks, resulting in equal wear along the cutting edges. Alternate flank infeed requires more complicated programming, and is not available on all lathes.

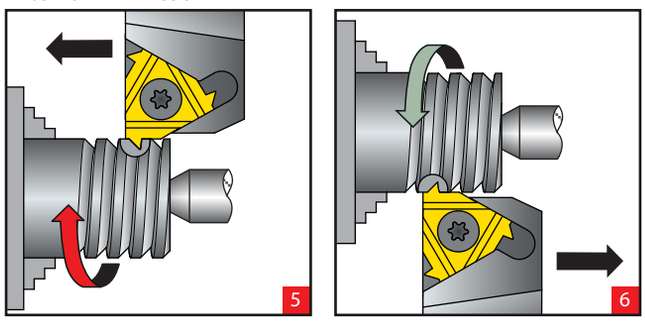
Thread Turning Methods for Asymmetrical Inserts (ABUT, BBUT, SAGE)

Thread	Inserts & Toolholder	Rotation	Feed Direction	Helix Method	Drawing No.
Right Hand External	EX RH	Counterclockwise	Towards chuck	Regular	1
	EX LH	Clockwise	From chuck	Reversed	2
Right Hand Internal	IN RH	Counterclockwise	Towards chuck	Regular	3
	IN LH	Clockwise	From chuck	Reversed	4
Left Hand External	EX LH	Clockwise	Towards chuck	Regular	5
	EX RH	Counterclockwise	From chuck	Reversed	6
Left Hand Internal	IN LH	Clockwise	Towards chuck	Regular	7
	IN RH	Counterclockwise	From chuck	Reversed	8

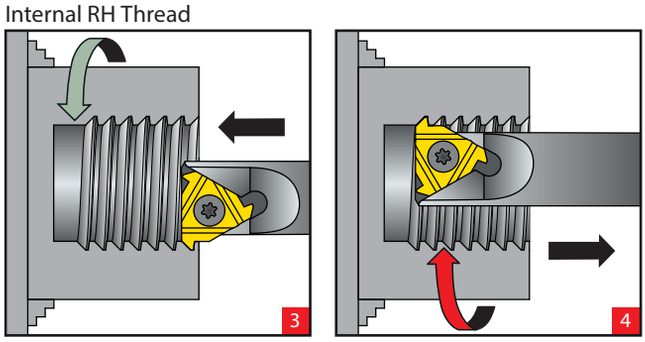
External RH Thread



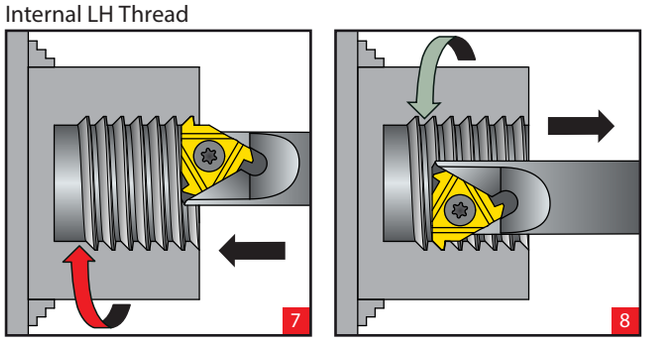
External LH Thread



Internal RH Thread

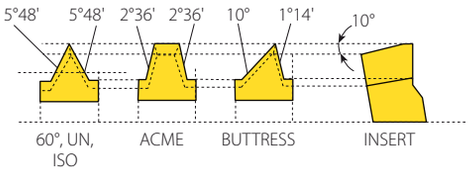


Internal LH Thread

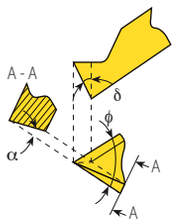


Calculating the Helix Angle and Choosing The Right Anvil

Flank Clearance Angle α (For External Inserts)



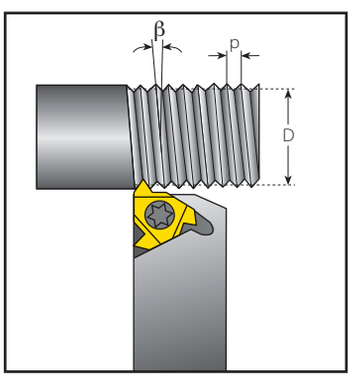
Vardex toolholders are designed to tilt the insert when seated in the toolholder (10° for external, 15° for internal tooling).
This results in the differing flank clearance angles, based on the geometry of the insert. To ensure that the side of the insert cutting edge will not rub on the workpiece, it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



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

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

Calculating the Helix Angle β



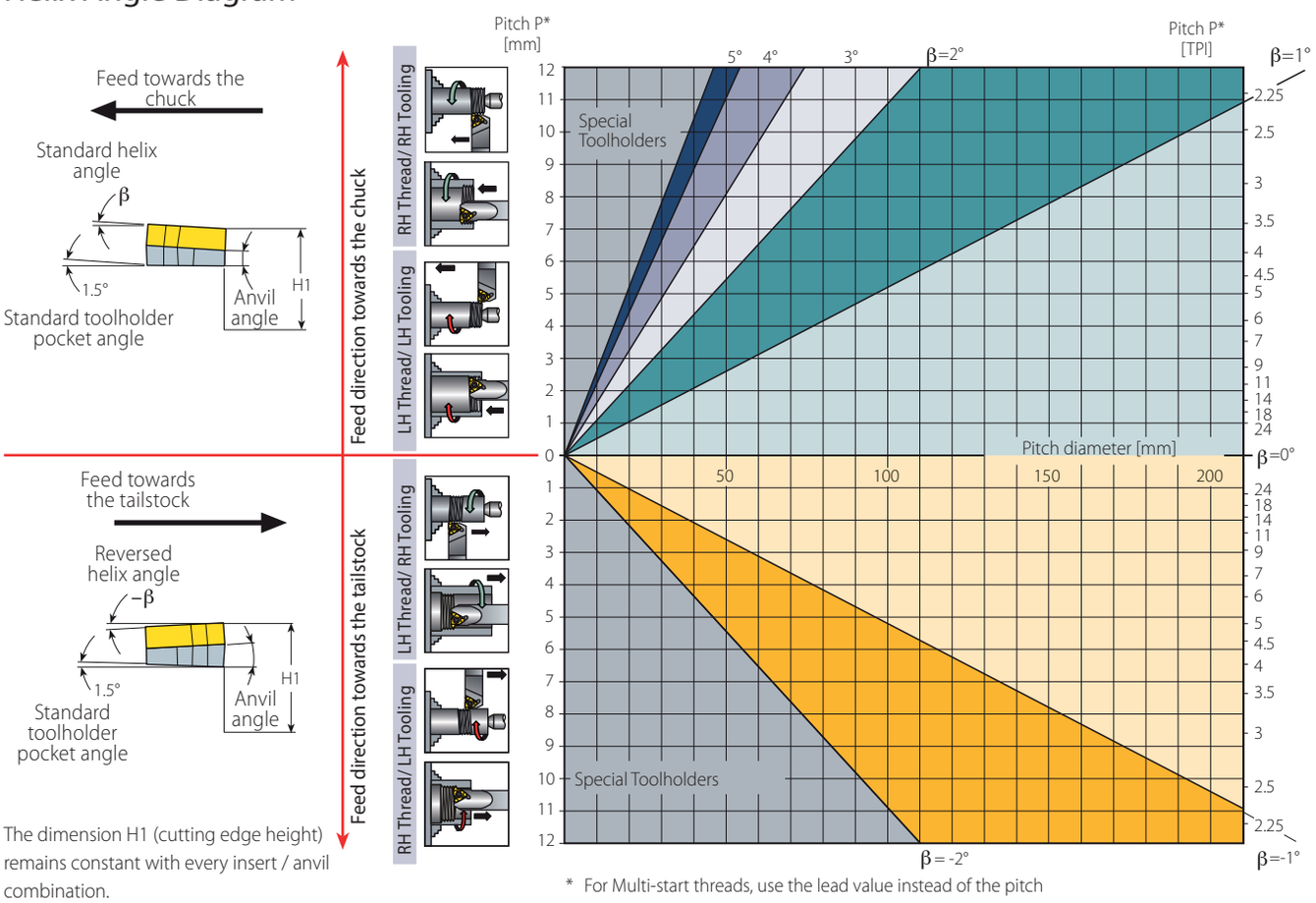
The helix angle is calculated by the following formula:

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

β - Helix angle [°]
P - Pitch [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

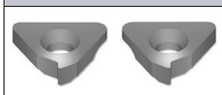
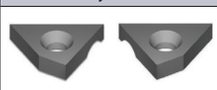
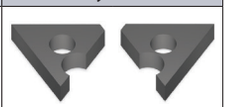


The dimension H1 (cutting edge height) remains constant with every insert / anvil combination.

* 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
3/8″ V6	16	ER	YE3-6C-3P	YE3-6C-2P	YE3-6C-1P	YE3-6C	YE3-6C-1N	YE3-6C-1.5N	YE3-6C-2N	YE3-6C-3N
		IR	YI3-6C-3P	YI3-6C-2P	YI3-6C-1P	YI3-6C	YI3-6C-1N	YI3-6C-1.5N	YI3-6C-2N	YI3-6C-3N
1/2″	22	ER / IL	YE4-3P	YE4-2P	YE4-1P	YE4	YE4-1N	YE4-1.5N	YE4-2N	YE4-3N
		EL / IR	YI4-3P	YI4-2P	YI4-1P	YI4	YI4-1N	YI4-1.5N	YI4-2N	YI4-3N
1/2″F	23	ER	YE4F-3P	YE4F-2P	YE4F-1P	YE4F	YE4F-1N	YE4F-1.5N		
		IR	YI4F-3P	YI4F-2P	YI4F-1P	YI4F	YI4F-1N	YI4F-1.5N		
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		
1/2″F 2M+	23	ER			YE4M2F-1P	YE4M2F	YE4M2F-1N	YE4M2F-1.5N		
1/2″F 3M+					YE4M3F-1P	YE4M3F	YE4M3F-1N	YE4M3F-1.5N		
1/2″F 2M+		IR			YI4M2F-1P	YI4M2F	YI4M2F-1N	YI4M2F-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			
1/2″T+	22	ER / IL EL / IR						Y4T		

Standard Anvil		V6 Anvil		U Style Anvil		M+ Style Anvil		Z+ Style Anvil		T+ Style Anvil	
											
ER/IL	EL/IR	ER	IR	ER/IL	EL/IR	ER/IL	EL/IR	ER/IL	EL/IR	ER/IL	EL/IR
		V6 is indicated on the backside									Same anvil turned over

F-LINE Anvil		M+ Style Anvil	
			
ER	IR	ER	IR

Oil&Gas - Anvils

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

Oil&Gas - 14D 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-0.4N	Y14DIR-5BUT-0.4N

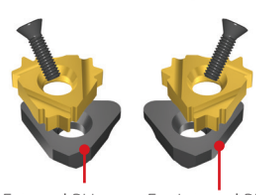
Anvil Kits

Anvil Size		Ordering Code	Included Anvils:
IC	L mm		
3/8"	16	ABY3	YE3-2P, 1P, 1N, 2N, 3N
			YI3-2P, 1P, 1N, 2N, 3N
3/8" V6	16	ABY3-6C	YE3-6C-2P, 1P, 1N, 2N, 3N
			YI3-6C-2P, 1P, 1N, 2N, 3N
1/2"	22	ABY4	YE4-2P, 1P, 1N, 2N, 3N
			YI4-2P, 1P, 1N, 2N, 3N
1/2"U	22	ABY4U	YE4U-2P, 1P, 1N, 2N, 3N
			YI4U-2P, 1P, 1N, 2N, 3N
5/8"	27	ABYE5	YE5-2P, 1P, 1N, 2N, 3N
		ABYI5	YI5-2P, 1P, 1N, 2N, 3N
5/8"U	27	ABYE5U	YE5U-2P, 1P, 1N, 2N, 3N
		ABYI5U	YI5U-2P, 1P, 1N, 2N, 3N

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

Important!

Use a V6 anvil when using a V6 insert.

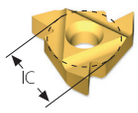


For External RH use YE3-6C anvil.

For Internal RH use YI3-6C anvil.

Spare Parts

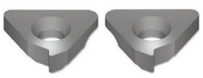
External and Internal Toolholders (not including Micro and Microscope)



Insert Size

Insert Screw / Clamp Screw

Anvil Screw & Washer



Anvil

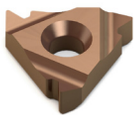
Toolholder	IC	Designation	Thread	Designation	Thread	Key	Torx size	EX RH/IN LH	IN RH/EX LH
Standard & D-Line	1/4"	SN2T	M2.6x0.45x6.5	-	-	K2T	T8	-	-
	3/8", 3/8"V6	SA3T	5-40UNCx11.3	SY3T	UNC5x7.3	K3T	T10	YE3/YE3-6C	YI3/YI3-6C
	3/8"	SN3T	5-40UNCx8.8	-	-	K3T	T10	-	-
	1/2"	SA4T	8-32UNCx14.0	SY4T	UNC8x9.3	K4T	T20	YE4	YI4
	1/2"	SN4T	8-32UNCx11.0	-	-	K4T	T20	-	-
	1/2F"	SA4T	8-32UNCx14.0	SY4T	UNC8x9.3	K6T	T20	YE4F	YI4F
	5/8"	SA5T	M5x0.8x22.0	SY5T	M5x0.8x9.5	K5T	T25	YE5	YI5
	5/8"	SN5T	M5x0.8x13.9	-	-	K5T	T25	-	-
Standard Coarse	3/8"	SN3TM	5-40UNCx7.3	-	-	K3T	T10	-	-
	1/2"	SN4TM	8-32UNCx9.8	-	-	K4T	T20	-	-
	5/8"	SN5TM	M5x0.8x13.9	-	-	K5T	T25	-	-
Standard with Clamp	3/8"	SA3T/C3	UNC5x12.0/M5x0.8x22.0	SY3T	UNC5x7.3	K3CT	T15/T10	YE3	YI3
	1/2"	SA4T/C4	UNC8x15.2/M6x1.0x29.5	SY4T	UNC8x9.3	K4T	T20	YE4	YI4
	5/8"	SA5T/C5	M5x0.8x22.0/M8x1.25x28.0	SY5T	M5x0.8x9.5	K5T	T25	YE5	YI5
U Style	1/2"U	SA4T	UNC8x15.2	SY4T	UNC8x9.3	K4T	T20	YE4U	YI4U
	5/8"U	SA5T	M5x0.8x22.0	SY5T	M5x0.8x9.5	K5T	T25	YE5U	YI5U
U Style with Clamp	1/2"U	SA4T/C4	UNC8x15.2/M6x1.0x29.5	SY4T	UNC8x9.3	K4T	T20	YE4U	YI4U
	5/8"U	SA5T/C5	M5x0.8x22.0/M8x1.25x28.0	SY5T	M5x0.8x9.5	K5T	T25	YE5U	YI5U
V Style	1/4"V	SN2T	M2.6x0.45x6.5	-	-	K2T	T8	-	-
	3/8"V	SN3TV	5-40UNCx6.7	-	-	K3T	T10	-	-
	1/2"V	SN4T	8-32UNCx11.0	-	-	K4T	T20	-	-
	5/8"V	SN6T	M6x1.0x29.0	-	-	K6T	T20	-	-
Mega Line	5/8"MG	S5MG	M5x0.8x16.0	-	-	K6T	T20	-	-
Z+ Style	1/2"Z	SA4T	UNC8x15.2	SY4T	UNC8x9.3	K4T	T20	YE4Z	YI4Z
M+ Style	3/8"M	SA3T	UNC5x12.0	SY3T	UNC5x7.3	K3T	T10	YE3M	YI3M
	1/2"M	SA4T	UNC8x15.2	SY4T	UNC8x9.3	K4T	T20	YE4M	YI4M
	5/8"M	SA5T	M5x0.8x22.0	SY5T	M5x0.8x9.5	K5T	T25	YE5M	YI5M
T+ Style	1/2"T	SA4T	UNC8x15.2	SY4K2	UNC8x7.3	K4T/K2	T20/T8	Y4T	Y4T
API	5/8"	SA5T/C5	M5x0.8x22.0/M8x1.25x28.0	SY5T	M5x0.8x9.5	K5T	T25	YE5OIL	YI5OIL
API 14D	14D	SA5T	M5x0.8x22.0	M4x0.7x6.0 (14D)		K5T/KT15	T25/T15	Y14DER-...	Y14DIR-...
Mini-V	V08	SNV08	M2.6x0.45x8	-	-	K2T	T8	-	-
	V11	SNV11	M3.5x0.6x10	-	-	K3T	T10	-	-
	V14	SNV14	M4x0.7x12	-	-	KT15	T15	-	-
	V16	SNV16	M5x0.8x12	-	-	K4T	T20	-	-
Mini-L	5.0L	SN5LSTR	M2.2x0.45x4.5	-	-	K7MT	T7	-	-
Mini-3	4.0mm	SN4MT	M2x0.4x4.0	-	-	K6MT	T6	-	-
	5.0mm	SN5MT	M2x0.4x5.3	-	-	K6MT	T6	-	-
	6.0mm	SN6MTN	M2.0x0.4x4.7	-	-	KIP6	T+6	-	-
Mini Adjustable Holder	-	S4.0	M4x0.7x4.0	-	-	K2.0	-	-	-

For Micro and Microscope Toolholders see pages 188-193

Grades and Their Applications

General Use

VRX

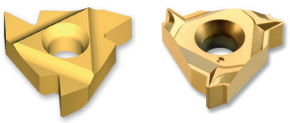


Premium multipurpose submicron grade for stronger wear resistance and improved productivity.
AlTiN alloyed PVD coated.

VTX

General purpose grade with tough submicron substrate. Provides good fracture toughness in non-rigid cutting conditions. TiAlN coated.

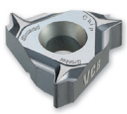
VKX



General purpose grade, excellent in steel and stainless steel, recommended for rigid cutting conditions. Ground or sintered chipbreaker styles. TiN coated.

General Use

VCB



Sintered chipbreaker with ground profile for machining materials with long chips. TiAlN coated.

Stainless Steel

VM7

Specialty grade for threading stainless steel.
Multi-layer PVD coated.

Non Ferrous, High Temperature Alloys and Titanium

VK2

Uncoated grade for non-ferrous, aluminum, high temperature and titanium alloys.

VK2P

Highly-polished version of the VK2 uncoated grade for high quality surface finish in aluminum.

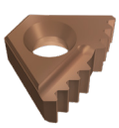
VG-Cut

VPG

Sub-micron substrate for a wide range of applications. Excellent anti-fracture resistance. Highly recommended for medium to high cutting speeds.
TiAlN coated.

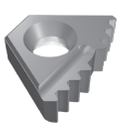
Oil&Gas General Use for Oil & Gas Materials

VRXP



Premium submicron grade with reinforced cutting edge for the oil & gas industry. Ideal for steel and stainless steel in unstable cutting conditions.
AlTiN alloyed PVD coated.

VTXP



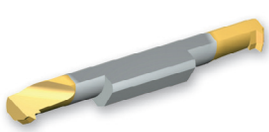
Excellent all-purpose grade, tailor-made to the oil & gas industry with reinforced cutting edge. Recommended for non-rigid cutting conditions.
TiAlN coated.

VKXP

General purpose grade, excellent in steel and stainless steel, and highly recommended for rigid cutting conditions. Special design with reinforced cutting edge for the oil & gas industry. TiN coated.

Micro Line

VMX



General purpose carbide grade for Micro double-ended inserts. TiN coated.

MINIPRO

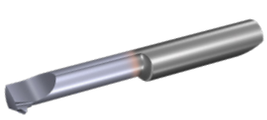
For all Mini Inserts

VTX

Sub-micron grade for general machining in low and medium cutting speeds. Highly recommended for stainless steel. TiAlN coated

micrOscope

VBX, VTX



General purpose carbide grade for micrOscope threading inserts. TiCN coated.

Mini 5L & Mini IC 6.0

VKX

General purpose carbide grade for the Mini 5L and Mini 6.0 inserts. TiN coated.

Mini IC4.0, IC5.0 & Mini-V

VBX

Sub-micron grade for general machining in low and medium cutting speeds for Mini 4.0K, 5.0K and Mini-V lines. Highly recommended for steel.
TiCN coated

Thread Turning Grades According to Product Lines

General

Insert Style	VRX	VTX	VKX	VCB	VM7	VK2	VK2P	VPG
TT inserts general	✓	✓	✓		✓	✓	✓	
SCB (Sintered Chipbreaker)			✓	✓				
V6			✓					
Mega Line			✓					
F line	✓	✓						
D-Line			✓					
VG Cut								✓

Oil & Gas

Insert Style	VRX	VTX	VKX	VRXP	VTXP	VKXP
T+		✓	✓		✓	✓
14D	✓	✓	✓	✓	✓	✓
CNGA		✓			✓	
On Edge		✓			✓	
Chaser		✓			✓	✓

MiniPro

Insert Style	VKX	VTX	VBX	VMX
Mini 4.0K, 5.0K		✓	✓	
Mini 5LK, 6.0K RH	✓	✓		
Mini 5LK, 6.0K LH	✓			
Mini-V		✓	✓	
Micro (Double Ended)				✓
Microscope (Single Ended)		✓	✓	

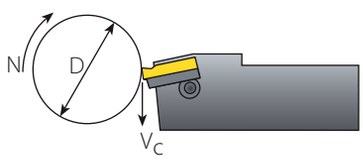
Recommended Grades and Cutting Speeds Vc [m/min]
Not Including MiniPro Line

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [m/min]				
					Coated				Uncoated
					VKX(P)	VCB	VM7	VTX(P), VRX(P)	VK2(P)
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	115-190	115-190		115-190	
	2		Medium Carbon (C=0.25-0.55%)	150	100-175	100-165		100-175	
	3		High Carbon (C=0.55-0.85%)	170	90-165	90-155		90-165	
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	100-180	100-180		100-180	
	5		Hardened	275	75-140	75-140		75-140	
	6		Hardened	350	70-135	70-135		70-135	
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	80-120	80-120		80-120	
	8		Hardened	325	50-100	50-100		50-100	
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	70-130	70-130		70-130	
	10		High Alloy (alloying elements >5%)	225	60-120	60-120		60-120	
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	70-130	70-130	70-150	70-130	
	12		Hardened	330	60-115	50-95	60-125	60-115	
	13	Stainless Steel Austenitic	Austenitic	180	90-140	80-120	90-160	90-140	
	14		Super Austenitic	200	40-110	30-100	40-120	40-110	
	15	Stainless Steel Cast Ferritic	Non Hardened	200	90-120	90-120	90-150	90-120	
	16		Hardened	330	65-110	65-110	65-120	65-110	
	17	Stainless Steel Cast Austenitic	Austenitic	200	85-110	85-110	85-120	85-110	
	18		Hardened	330	60-100	60-100	60-110	60-100	
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	60-70	70-120		60-70	
	29		Pearlitic (long chips)	230	60-145	70-120		60-145	
	30	Grey Cast Iron	Low Tensile Strength	180	70-130	70-130		70-130	
	31		High Tensile Strength	260	60-115	60-100		60-115	
	32	Nodular Sg Iron	Ferritic	160	125-160	125-160		125-160	
	33		Pearlitic	260	90-120	90-120		90-120	
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	100-365	100-250		100-365	100-250
	35		Aged	100	80-220	80-180		80-220	80-160
	36	Aluminium Alloys	Cast	75	200-400	200-400		200-400	80-120
	37		Cast & Aged	90	200-280	200-280		200-280	70-100
	38	Aluminium Alloys	Cast Si 13-22%	130	60-180	60-150		60-180	50-120
	39	Copper and Copper Alloys	Brass	90	80-225	80-210		80-225	70-170
	40		Bronze And Non Leaded Copper	100	80-255	80-210		80-255	70-170
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	45-60	45-60		45-60	30-50
	20		Aged (iron based)	280	30-50	30-50		30-50	25-40
	21		Annealed (nickel or cobalt based)	250	20-30	20-30		20-30	20-30
	22		Aged (nickel or cobalt based)	350	15-25	15-25		15-25	15-25
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	140-170	140-170		140-170	60-100
	24		α+β Alloys	1050Rm	50-70	50-70		50-70	40-60
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	45-60	45-60		45-60	
	26			51-55HRc	40-50	40-50		40-50	

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

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

Calculation of N [RPM]



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

Recommended Grades and Cutting Speeds Vc [m/min]
Mini, Micro and Microscope

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [m/min] Coated		
					VMX (Micro)	VBX/VTX (Microscope)	VKX/VBX VTX (Mini)
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	50-120	140-200	40-80
	2		Medium Carbon (C=0.25-0.55%)	150	40-100	120-180	40-80
	3		High Carbon (C=0.55-0.85%)	170	30-80	110-180	40-80
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	50-70	100-155	40-80
	5		Hardened	275	40-60	90-145	40-80
	6		Hardened	350	30-50	80-135	40-80
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	30-50	65-115	40-60
	8		Hardened	325	25-40	50-100	40-60
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	30-50	30-50	40-60
	10		High Alloy (alloying elements >5%)	225	25-40	25-40	40-60
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	60-100	80-120	40-60
	12		Hardened	330	40-60	55-95	40-60
	13	Stainless Steel Austenitic	Austenitic	180	50-90	60-100	40-60
	14		Super Austenitic	200	40-60	50-90	40-60
	15	Stainless Steel Cast Ferritic	Non Hardened	200	40-60	60-80	40-60
	16		Hardened	330	30-50	45-65	40-60
	17	Stainless Steel Cast Austenitic	Austenitic	200	40-60	50-70	40-60
	18		Hardened	330	30-50	40-60	40-60
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	50-70	60-80	40-80
	29		Pearlitic (long chips)	230	50-70	60-80	40-80
	30	Grey Cast Iron	Low Tensile Strength	180	50-70	60-80	40-80
	31		High Tensile Strength	260	40-60	40-70	40-80
	32	Nodular Sg Iron	Ferritic	160	50-70	60-80	40-80
	33		Pearlitic	260	60-80	70-90	40-80
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	100-300	80-240	40-120
	35		Aged	100	100-150	100-170	40-120
	36	Aluminium Alloys	Cast	75	100-150	100-150	40-120
	37		Cast & Aged	90	60-100	60-100	40-120
	38	Aluminium Alloys	Cast Si 13-22%	130	100-150	100-150	40-120
	39	Copper and Copper Alloys	Brass	90	60-100	80-200	40-120
	40		Bronze And Non Leaded Copper	100	60-100	80-200	40-120
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	25-45	25-45	30-45
	20		Aged (iron based)	280	20-30	20-30	20-30
	21		Annealed (nickel or cobalt based)	250	15-20	15-20	15-20
	22		Aged (nickel or cobalt based)	350	10-15	10-15	15-20
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	60-100	60-100	70-100
	24		α+β Alloys	1050Rm	40-50	40-50	40-50
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	20-40	20-40	20-40
	26			51-55HRc	20-40	20-40	20-40

Recommended Grades and Cutting Speeds Vc [m/min]
VG-Cut

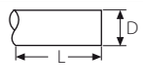
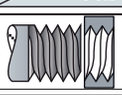
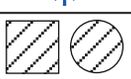
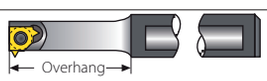
Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [m/min]
					VPG
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	120-260
	2		Medium Carbon (C=0.25-0.55%)	150	90-220
	3		High Carbon (C=0.55-0.85%)	170	90-220
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	90-220
	5		Hardened	275	60-160
	6		Hardened	350	50-100
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	90-220
	8		Hardened	325	50-100
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	90-220
	10		High Alloy (alloying elements >5%)	225	60-160
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	60-160
	12		Hardened	330	50-140
	13	Stainless Steel Austenitic	Austenitic	180	60-160
	14		Super Austenitic	200	60-160
	15	Stainless Steel Cast Ferritic	Non Hardened	200	60-160
	16		Hardened	330	50-140
	17	Stainless Steel Cast Austenitic	Austenitic	200	60-160
	18		Hardened	330	50-140
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	160-240
	29		Pearlitic (long chips)	230	140-220
	30	Grey Cast Iron	Low Tensile Strength	180	160-240
	31		High Tensile Strength	260	100-200
	32	Nodular Sg Iron	Ferritic	160	100-200
	33		Pearlitic	260	100-200
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	200-450
	35		Aged	100	200-350
	36	Aluminium Alloys	Cast	75	200-450
	37		Cast & Aged	90	200-450
	38	Aluminium Alloys	Cast Si 13-22%	130	200-350
	39	Copper and Copper Alloys	Brass	90	200-450
	40		Bronze And Non Leaded Copper	100	200-450
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	30-50
	20		Aged (iron based)	280	20-50
	21		Annealed (nickel or cobalt based)	250	20-50
	22		Aged (nickel or cobalt based)	350	20-50
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	30-50
	24		α+β Alloys	1050Rm	30-70
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	20-40
	26			51-55HRc	15-30

Recommended Grades, Cutting Speeds Vc [m/min] Mini-V

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [m/min] VBX/VTX*
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	40-80
	2		Medium Carbon (C=0.25-0.55%)	150	40-80
	3		High Carbon (C=0.55-0.85%)	170	40-80
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	40-80
	5		Hardened	275	40-80
	6		Hardened	350	40-80
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	40-60
	8		Hardened	325	40-60
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	40-60
	10		High Alloy (alloying elements >5%)	225	40-60
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	40-60
	12		Hardened	330	40-60
	13	Stainless Steel Austenitic	Austenitic	180	40-60
	14		Super Austenitic	200	40-60
	15	Stainless Steel Cast Ferritic	Non Hardened	200	40-60
	16		Hardened	330	40-60
	17	Stainless Steel Cast Austenitic	Austenitic	200	40-60
	18		Hardened	330	40-60
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	40-80
	29		Pearlitic (long chips)	230	40-80
	30	Grey Cast Iron	Low Tensile Strength	180	40-80
	31		High Tensile Strength	260	40-80
	32	Nodular Sg Iron	Ferritic	160	40-80
	33		Pearlitic	260	40-80
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	40-120
	35		Aged	100	40-120
	36	Aluminium Alloys	Cast	75	40-120
	37		Cast & Aged	90	40-120
	38	Aluminium Alloys	Cast Si 13-22%	130	40-120
	39	Copper and Copper Alloys	Brass	90	40-120
	40		Bronze And Non Leaded Copper	100	40-120
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	20-30
	20		Aged (iron based)	280	20-30
	21		Annealed (nickel or cobalt based)	250	15-20
	22		Aged (nickel or cobalt based)	350	10-15
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	40-60
	24		α+β Alloys	1050Rm	20-30
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	15-20
	26			51-55HRc	15-20

* Available for sizes V08 and V11. Sizes V14 and V16 are available upon request.

Cutting Conditions Parameters

Workpiece	Material Type	
	Material Dimension: Diameter and Length	
	Chipflow Character	
	Material Hardness	
Thread Application	External or Internal	
	Profile Shape	
	Surface Finish	
Machine	Machine Stability	
	Max. RPM	
	Clamping System Stability	
Coolant	Coolant Type	
Holders	Holder Cross Section Area	
	Holder Overhang	
	Through Coolant Option	
	Shank Type: Carbide, Alloy, Carbide Implant	
Insert	Grade	
	Profile Shape: Pitch and Depth	
	Nose Radius	
	Chipbreaker Style	

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	8.00
	TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
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	15-24
No. of passes (SCB)		3-4	3-4	3-5	4-6	5-6	6-8	6-8	8-10	9-12	10-14						
No. of passes (Micro / Microscope & Mini)		6-9	6-11	6-12	8-14	9-15	11-18	11-18									

Depths of Cut and Number of Passes for Mini-V

1. High pressure coolant is recommended
2. Infeed method - modified flank infeed 1°

Option of modified volume chip — Mini-V

	Pitch mm	0.5	0.75		1	1.25			1.5	1.75	2	2.5	3	3.5	4
	Pitch TPI	48	32	27	24	20	19	18	16	14	12	10	8	7	6
Insert Style	Standard	Passes (modified volume)													
V08	ISO	13	19		25	16			19	22					
	UN														
	W														
	NPT			28				43							
	NPTF														
V11	ISO	13	19		25	16			19	22	24				
	UN														
	W														
	BSPT						19								
V14	ISO	7	10		13	16			19	22	24	32	38		
	UN														
	W														
V16	ISO	7	10		13	16			19	22	24	32	38		
	UN														
	W														

Option of constant depth chip — Mini-V

	Pitch mm	0.5	0.75		1	1.25			1.5	1.75	2	2.5	3	3.5	4
	Pitch TPI	48	32	27	24	20	19	18	16	14	12	10	8	7	6
Insert Style	Standard	Passes (same)													
V08	ISO	11-24	17-35		23-48	18-28			21-34	25-40					
	UN														
	W														
	NPT			25-53				40-83							
	NPTF														
	TR										50-104		70-145		
V11	ISO	11-24	17-35		23-48	14-28			17-34	20-40	23-46				
	UN														
	W														
	BSPT						21-34								
	TR														90-187
V14	ISO	11-24	17-35		23-48	14-28			9-15	11-18	11-18	12-21	18-24		
	UN														
	W														
V16	ISO	11-24	17-35		23-48	14-28			9-15	11-18	11-18	12-21	18-24		
	UN														
	W														

Number of Passes and Depth of Cut per Pass for Multi+ Inserts

Standard	Insert Type	Insert Size		Pitch		Teeth	Ordering Code	Passes	Depth of cut per pass			
		IC	L mm				RH		1	2	3	4
ISO External	M+	3/8″	16	1.0	mm	3	3ER1.0ISO3M+...	2	0.32	0.30		
				1.5	mm	2	3ER1.5ISO2M+...	3	0.34	0.30	0.29	
				2.0	mm	2	3ER2.0ISO2M+...	3	0.45	0.40	0.38	
		1/2″	22	1.5	mm	3	4ER1.5ISO3M+...	2	0.48	0.45		
				2.0	mm	2	4ER2.0ISO2M+...	3	0.45	0.40	0.38	
				2.0	mm	3	4ER2.0ISO3M+...	2	0.64	0.59		
				2.5	mm	2	4ER2.5ISO2M+...	4	0.46	0.42	0.38	0.36
		5/8″	27	3.0	mm	2	5ER3.0ISO2M+...	4	0.53	0.47	0.45	0.39
	T+	1/2″T	22	1.5	mm	8	4ER1.5ISO8T+...	1	0.93			
				2.0	mm	8	4ER2.0ISO8T+...	1	1.23			
ISO Internal	M+	3/8″	16	1.0	mm	3	3IR1.0ISO3M+...	2	0.30	0.28		
				1.5	mm	2	3IR1.5ISO2M+...	3	0.31	0.28	0.27	
				2.0	mm	2	3IR2.0ISO2M+...	3	0.42	0.37	0.36	
		1/2″	22	1.5	mm	3	4IR1.5ISO3M+...	2	0.45	0.41		
				2.0	mm	2	4IR2.0ISO2M+...	3	0.42	0.37	0.36	
				2.0	mm	3	4IR2.0ISO3M+...	2	0.59	0.56		
		5/8″	27	3.0	mm	2	5IR3.0ISO2M+...	4	0.49	0.45	0.42	0.37
	T+	1/2″	22	1.5	mm	8	4IR1.5ISO8T+...	1	0.86			
				2.0	mm	8	4IR2.0ISO8T+...	1	1.15			
UN External	M+	3/8″	16	20	TPI	3	3ER20UN3M+...	2	0.41	0.38		
				18	TPI	2	3ER18UN2M+...	3	0.32	0.28	0.27	
				18	TPI	3	3ER18UN3M+...	2	0.45	0.42		
				16	TPI	2	3ER16UN2M+...	3	0.36	0.32	0.30	
				14	TPI	2	3ER14UN2M+...	3	0.43	0.38	0.37	
				12	TPI	2	3ER12UN2M+...	3	0.47	0.43	0.40	
		1/2″	22	16	TPI	3	4ER16UN3M+...	2	0.51	0.47		
				14	TPI	2	4ER14UN2M+...	3	0.43	0.38	0.37	
				12	TPI	2	4ER12UN2M+...	3	0.47	0.43	0.40	
				12	TPI	3	4ER12UN3M+...	2	0.67	0.63		
				11	TPI	2	4ER11UN2M+...	4	0.43	0.38	0.36	0.32
				10	TPI	2	4ER10UN2M+...	4	0.46	0.42	0.40	0.36
		5/8″	27	8	TPI	2	5ER8UN2M+...	4	0.56	0.50	0.48	0.41
UN Internal	M+	3/8″	16	12	TPI	2	3IR12UN2M+...	3	0.45	0.39	0.38	
				14	TPI	2	3IR14UN2M+...	3	0.41	0.36	0.34	
				16	TPI	2	3IR16UN2M+...	3	0.33	0.30	0.28	
		1/2″	22	16	TPI	3	4IR16UN3M+...	2	0.47	0.44		
				14	TPI	2	4IR14UN2M+...	3	0.41	0.36	0.34	
				12	TPI	2	4IR12UN2M+...	3	0.45	0.39	0.38	
				12	TPI	3	4IR12UN3M+...	2	0.63	0.59		
		5/8″	27	8	TPI	2	5IR8UN2M+...	4	0.52	0.47	0.44	0.38
BSW External	M+	3/8″	16	28	TPI	2	3ER28W2M+...	3	0.23	0.20	0.20	
				19	TPI	2	3ER19W2M+...	3	0.33	0.28	0.27	
				19	TPI	3	3ER19W3M+...	2	0.45	0.41		
				14	TPI	2	3ER14W2M+...	3	0.43	0.38	0.35	
		1/2″	22	14	TPI	3	4ER14W3M+...	2	0.60	0.56		
				11	TPI	2	4ER11W2M+...	4	0.44	0.38	0.36	0.30

Number of Passes and Depth of Cut per Pass for Multi+ Inserts

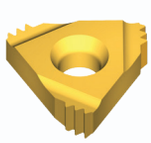
Multi plus

Standard	Insert Type	Insert Size		Pitch		Teeth	Ordering Code	Passes	Depth of cut per pass			
		IC	L mm				RH		1	2	3	4
BSW Internal	M+	3/8"	16	14	TPI	2	3IR14W2M+...	3	0.43	0.38	0.35	
		1/2"	22	11	TPI	2	4IR11W2M+...	4	0.44	0.38	0.36	0.30
NPT External	M+	3/8"	16	14	TPI	2	3ER14NPT2M+...	3	0.52	0.45	0.43	
		1/2"	22	11.5	TPI	2	4ER11.5NPT2M+...	4	0.46	0.43	0.42	0.40
		5/8"	27	11.5	TPI	3	5ER11.5NPT3M+...	4	0.48	0.43	0.42	0.38
				8	TPI	2	5ER8NPT2M+...	4	0.72	0.64	0.60	0.53
	Z+	1/2"	22	11.5	TPI	2	4ER11.5NPT2Z+...	4	0.46	0.43	0.42	0.40
				8	TPI	2	4ER8NPT2Z+...	4	0.72	0.64	0.60	0.53
NPT Internal	M+	3/8"	16	14	TPI	2	3IR14NPT2M+...	3	0.52	0.45	0.43	
		1/2"	22	11.5	TPI	2	4IR11.5NPT2M+...	4	0.46	0.43	0.42	0.40
		5/8"	27	11.5	TPI	2	5IR11.5NPT3M+...	4	0.48	0.43	0.42	0.38
				8	TPI	2	5IR8NPT2M+...	4	0.72	0.64	0.60	0.53
	Z+	1/2"	22	11.5	TPI	3	4IR11.5NPT2Z+...	4	0.46	0.43	0.42	0.40
				8	TPI	2	4IR8NPT2Z+...	4	0.72	0.64	0.60	0.53
NPTF External	M+	3/8"	16	14	TPI	2	3ER14NPTF2M+...	3	0.51	0.44	0.42	
NPTF Internal	M+	3/8"	16	14	TPI	2	3IR14NPTF2M+...	3	0.51	0.44	0.42	

API RD, API BUT, OTTM, OTTG

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

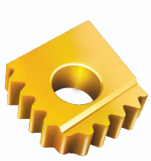
Application	No. of Passes / Pass No.	1	2	3	4	5	6
APIRD 8 Ex, In	3 passes	0.89	0.81	0.11			
	4 passes	0.6	0.58	0.52	0.11		
	5 passes	0.47	0.47	0.43	0.33	0.11	
	6 passes	0.39	0.41	0.37	0.29	0.24	0.11
APIRD 10 Ex, In	3 passes	0.67	0.63	0.11			
	4 passes	0.44	0.45	0.41	0.11		
	5 passes	0.34	0.37	0.33	0.26	0.11	
	6 passes	0.28	0.32	0.29	0.22	0.19	0.11
BUT 5 Ex, In	3 passes	0.760	0.705	0.110			
	4 passes	0.506	0.501	0.458	0.110		
	5 passes	0.395	0.409	0.374	0.287	0.110	
	6 passes	0.329	0.353	0.324	0.249	0.210	0.110
OTTM 5 Ex , In OTTG 5 Ex , In	3 passes	0.760	0.730	0.110			
	4 passes	0.506	0.501	0.483	0.110		
	5 passes	0.395	0.409	0.374	0.312	0.110	
	6 passes	0.329	0.353	0.324	0.249	0.235	0.110

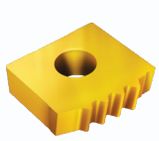

M+ Style


Z+ Style


T+ Style


14D Style


CNGA Style

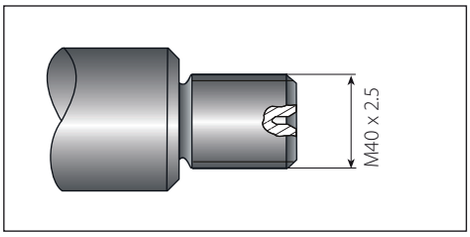

Chaser Style

Oil&Gas

Cutting Speed Recommendations for Materials Specified by API STB 5

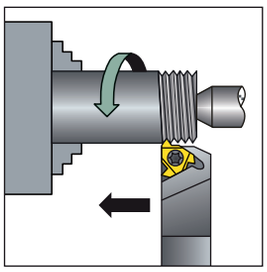
Material	J55-K55	N80-L80-C95-TN70	TN95-P110-TN110
Cutting Speed (m/min)	170-200	150-180	130-160

Step by Step Thread Turning - Example 1



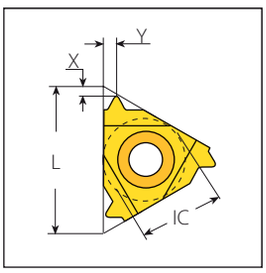
Application:
Thread: External Right Hand
ISO Metric M40x2.5
Material: 4140 (25 HRc)

1 Choose the Thread Turning Method



Feed **direction towards the chuck** was chosen.
Therefore, an external right hand insert and an external right hand holder will be used.

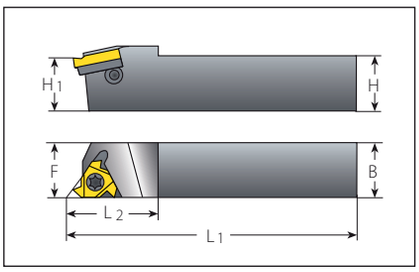
2 Choose the Insert Size



Chosen insert: **3ER2.5ISO**

Insert Size		Pitch	Ordering Code	Anvil	Toolholder
IC	L mm	mm	RH	RH	
3/8"	16	2.5	3ER2.5ISO...	YE3	AL..-3(LH)

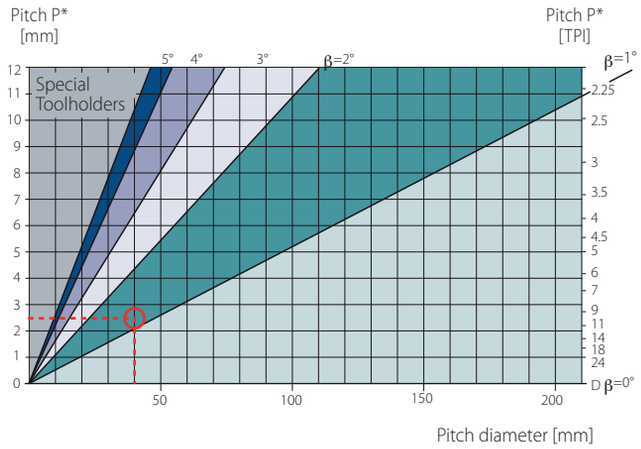
3 Choose the Toolholder



Chosen toolholder: **AL 25-3**

Insert Size	Ordering Code	Dimensions mm			
IC	RH	H=H1=B	F	L1	L2
3/8"	AL25-3	25	25	153.6	30

4



From the table, using a pitch of 2.5 mm (10 TPI) and a workpiece diameter of 40 mm (1.57"), we find the helix angle to be **1.5°**.

5 Choose the Correct Anvil

Anvil chosen: **YE3**

Resultant Helix Angle			3.5	2.5	**1.5**	0.5
Insert Size	Ordering Code	Holder	Ordering Code			
IC	L mm					
3/8″	16	ER/IL	YE3-2P	YE3-1P	**YE3**	YE3-1N

6 Choose the Carbide Grade and Cutting Speed

Carbide Grade chosen: **VTX**
Cutting Speed: **140 m/min**

	Material:		Hardness Brinell HB	**VTX**	VCB
P	Low alloy steel (alloying elements≤5%)	Non hardened	180	**85-145**	100-180
		Hardened	275	75-140	75-140
		Hardened	350	70-135	70-135

7 Determine the Number of Passes

Number of passes: 14

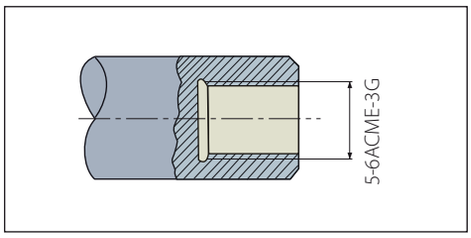
ISO External

Pitch	mm	1.50	1.75	2.00	**2.50**	3.00	3.50	4.00
	TPI	16	14	12	10	8	7	6
No. of Passes		6-10	7-12	7-12	**8-14**	9-16	10-18	11-18

Summary

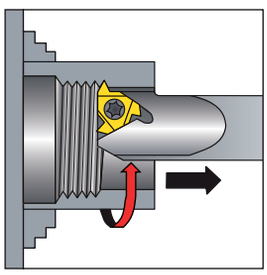
	Thread Type	**ISO M40x2.5 External Right Hand**
1	**Feed Direction:**	**Towards the chuck**
2	**Insert and Grade:**	**3ER2.5ISOVTX**
3	**Toolholder:**	**AL25-3**
4	**Helix Angle:**	**1.5°**
5	**Anvil:**	**YE3**
6	**Cutting Speed:**	**140 m/min**
7	**Number of Passes:**	**14**

Step by Step Thread Turning - Example 2



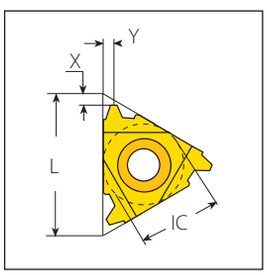
Application:
Thread: Internal Right Hand
ACME
Pitch: 6 TPI
Bore dia: 5″
Material: Stainless Steel Austemitic

1 Choose the Thread Turning Method



To facilitate the removal of chips from the machined area, we chose a feed direction away from the chuck. Therefore, an internal left hand insert and an internal left hand toolholder are to be used.

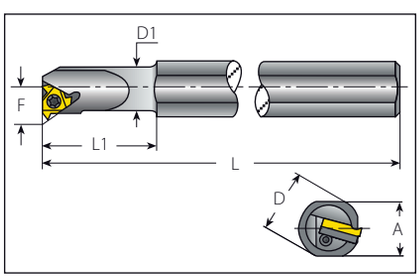
2 Choose the Insert Size



Chosen insert: **4IL6ACME**

Insert Size		Pitch	Ordering Code	Anvil	Toolholder
IC	L mm	TPI	RH	LH	
1/2″	22	6	4IL6ACME...	YE4	AVR..-4(LH)

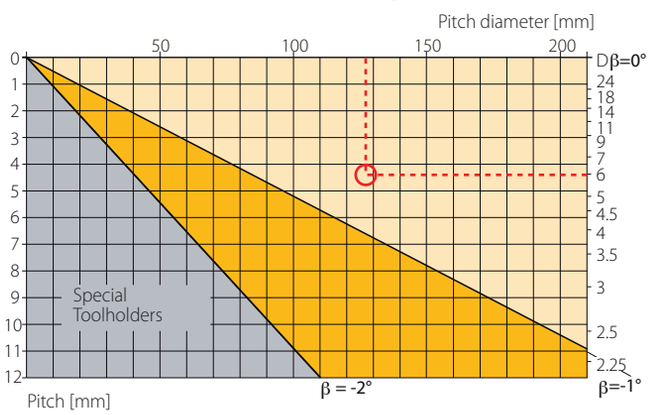
3 Choose the Toolholder



Chosen toolholder: **AVR 40-4LH**

Insert Size	Ordering Code	Dimensions mm						Min Bore
IC	RH	A	L	L1	D	D1	F	mm
1/2″	AVR 40-4	36.0	300	160	40	40.0	25.8	47

4 Determine the Helix Angle



In this case, a right hand thread is being turned with a left hand toolholder. The reverse helix method is used. From the lower part of the table, using a pitch of 6 TPI and a bore diameter of 127mm, we obtain a helix angle of **-0.65°**.

5 Choose the Correct Anvil

Anvil chosen: **YE4-2N**

Resultant Helix Angle			1.5	0.5	0	-0.5	-1.5
Insert Size		Ordering Code					
IC	L mm						
1/2"	22	ER/IL	YE4	YE4-1N	YE4-1.5N	**YE4-2N**	YE4-3N

6 Choose the Carbide Grade and Cutting Speed

Carbide grade chosen: **VTX**
Cutting speed: **140 m/min**

	Material:		Hardness Brinell HB	**VTX**	VCB
M	Stainless Steel Austenitic	Austenitic	180	**90-140**	80-120
		Super Austenitic	200	40-110	30-100

7 Determine the Number of Passess

Number of passes: **18**

ACME External & Internal

Pitch	mm	3.00	3.50	4.00	4.50	5.00	5.50	6.00
	TPI	8	7	**6**	5.5	5	4.5	4
No. of Passes		9-16	10-18	**11-18**	11-19	12-20	12-20	12-20

Summary

	Thread Type	**5"x6 ACME Internal Right Hand**
1	**Feed Direction:**	**Away from the chuck**
2	**Insert and Grade:**	**4IL6ACMEVTX**
3	**Toolholder:**	**AVR40-4LH**
4	**Helix Angle:**	**-0.65°**
5	**Anvil:**	**YE4-2N**
6	**Cutting Speed:**	**140 m/min**
7	**Number of Passes:**	**18**

Material Comparison Table

Material Group	Vargus No.	USA AISI/SAE	Germany W.-Nr.	Germany DIN	Great Britain BS	France AFNOR	Italy UNI
P Steel	1	1015	1.0037	St37-2	Fe360B	E24-2	Fe360 B FU
	1	1020	1.0044	St44-2	Fe430B FN	E28-2	Fe430B FN
	2	ASTM A570Gr.50	1.0050	St50-2	Fe490-2 FN	A50-2	Fe490
	2	-	1.0070	St70-2	Fe690-2 FN	A70-2	Fe690
	1	1015	1.0401	C15	080M15	CC12	C15C16
	1	1020	1.0402	C22	050A20	CC20	C20C21
	2	1035	1.0501	C35	060A35	CC35	C35
	2	1045	1.0503	C45	080M46	CC45	C45
	2	1055	1.0535	C55	070M55	-	C55
	2	1060	1.0601	C60	080A62	CC55	C60
	1	1213	1.0715	9SMn28	230M07	S250	CF9SMn28
	1	12L13	1.0718	9SMnPb28	-	S250Pb	CF9SMnPb28
	1	-	1.0722	10SPb20	-	10PbF2	CF10SPb20
	2	1140	1.0726	35S20	212M36	35MF4	-
	2	1215	1.0736	9SMn36	240M07	S300	CF9SMn36
	2	12L14	1.0737	9SMnPb36	-	S300Pb	CF9SMnPb36
	2	9255	1.0904	55Si7	250A53	55S7	55Si8
	2	9262	1.0961	60SiCr7	-	60SC7	60SiCr8
	1	1015	1.1141	Ck15	080M15	XC1 2	C16
	2	1039	1.1157	40Mn4	150M36	35M5	-
	2	1025	1.1158	Ck25	-	-	-
	2	1335	1.1167	36Mn5	-	40M5	-
	2	1330	1.1170	28Mn6	150M28	20M5	C28Mn
	2	1035	1.1183	Cf35	060A35	XC38TS	C36
	2	1045	1.1191	Ck45	080M46	XC42	C45
	2	1055	1.1203	Ck55	070M55	XC55	C50
	3	1050	1.1213	Cf53	060A52	XC48TS	C53
	3	1060	1.1221	Ck60	080A62	XC60	C60
	8	1095	1.1274	Ck101	060A96	-	-
	9	-	1.3401	X120Mn12	Z120M12	Z120M12	XG120Mn12
	8	52100	1.3505	100Cr6	534A99	100C6	100Cr6
	8	ASTM A20Gr.A	1.5415	15Mo3	1501-240	15D3	16Mo3KW
	8	4520	1.5423	16Mo5	1503-245-420	-	16Mo5
	4	ASTMA350LF5	1.5622	14Ni6	-	16N6	14Ni6
	8	ASTM A353	1.5662	X8Ni9	1501-509; 510	-	X10Ni9
	8	2515	1.5680	12Ni19	-	Z18N5	-
	5	3135	1.5710	36NiCr6	640A35	35NC6	-
	5	3415	1.5732	14NiCr10	-	14NC11	16NiCr11
	5	3415; 3310	1.5752	14NiCr14	655M13; 655M12	12NC15	-
	5	9840	1.6511	36CrNiMo4	816M40	40NCD3	38NiCrMo4(KB)
	5	8620	1.6523	21NiCrMo2	805M20	20NCD2	20NiCrMo2
	5	8740	1.6546	40NiCrMo22	311-Type7	-	40NiCrMo2(KB)
	5	4340	1.6582	34CrNiMo6	817M40	35NCD6	35NiCrMo6(KB)
	5	-	1.6587	17CrNiMo6	820A16	18NCD6	-
	5	-	1.6657	14NiCrMo134	832M13	-	15NiCrMo13
	2	5015	1.7015	15Cr3	523M15	12C3	-
	5	5132	1.7033	34Cr4	530A32	32C4	34Cr4(KB)
	5	5140	1.7035	41Cr4	530M40	42C4	41Cr4
	5	5140	1.7045	42Cr4	-	-	-
	5	5115	1.7131	16MnCr5	(527M20)	16MC5	16MnCr5
	5	5155	1.7176	55Cr3	527A60	55C3	-
	5	4130	1.7218	25CrMo4	1717CDS110	25CD4	25CrMo4(KB)
	5	4137; 4135	1.7220	34CrMo4	708A37	35CD4	35CrMo4
	5	4140; 4142	1.7223	41CrMo4	708M40	42CD4TS	41CrMo4
	5	4140	1.7225	42CrMo4	708M40	42CD4	42CrMo4
	5	-	1.7262	15CrMo5	-	12CD4	-
	5	ASTM A182; F11; F12	1.7335	13CrMo4 4	1501-620Gr.27	15CD3.5; 15CD4.5	14CrMo4 5
	5	-	1.7361	32CrMo12	722M24	30CD12	32CrMo12
	5	ASTM A182; F22	1.7380	10CrMo9 10	1501-622; Gr.31; 45	12CD9; 10	12CrMo9, 10
	5	-	1.7715	14MoV6 3	1503-660-440	-	-
	5	6150	1.8159	50CrV4	735A50	50CV4	50CrV4
	8	-	1.8509	41CrAlMo7	905M39	40CAD6, 12	41CrAlMo7
	8	-	1.8523	39CrMoV13 9	897M39	-	36CrMoV12
	5	W.110	1.1545	C105W1	-	Y1105	C98KU; C100KU
	5	W.112	1.1663	C125W	-	Y2120	C120KU
	8	L3	1.2067	100Cr6	BL3	Y100C6	-
	10	D3	1.2080	X210Cr12	BD3	Z200Cr12	X210Cr13KU
	10	-	-	-	-	-	X250Cr12KU
	10	-	1.2311	40CrMnMo7	-	-	35CrMo8KU
	10	-	1.2312	40CrMnMoS8-6	-	-	-
	10	H11	1.2343	X38CrMoV5-1	BH11	Z38CDV5	X37CrMoV51 1KU
	10	H13	1.2344	X40CrMoV5-1	BH13	Z40CDV5	X35CrMoV05KU
	10	-	-	-	-	-	X40CrMoV511KU
	10	A2	1.2363	X100CrMoV5-1	BA2	Z1 00CDV5	X100CrMoV51KU
	10	-	1.2367	X38CrMoV5-3	-	Z38CDV5-3	-
	10	D2	1.2379	X155CrVMo 12-1	BD2	Z160CDV12	X155CrVMo12 1 KU
	10	-	1.2419	105WCr6	-	105WC13	10WCr6; 107WCr5KU
	10	-	1.2436	X210CrW12	-	-	X215CrW121KU
	10	S1	1.2542	45WCrV17	BS1	-	45WCrV8KU
	10	H21	1.2581	X30WCrV9 3	BH21	Z30WCV9	X30WCrV9 3KU
	10	-	1.2601	X165CrMoV12	-	-	X165CrMoW12KU
	10	L6	1.2713	55NiCrMoV6	-	55NCDV7	-
	10	-	1.2738	40CrMnNiMo8-6-4	-	-	-
	10	W210	1.2833	100V1	BW2	Y1105V; 100V2	-
	10	-	1.3243	S 6-5-2-5	-	Z85WDKCV-06-05-05-04-02	HS 6-5-2-5
	10	T4	1.3255	S 18-1-2-5	BT4	Z80WKCV-18-05-04-01	X78WCo1805KU
	10	M2	1.3343	S 6-5-2	BM2	Z85WDCV-06-05-04-02	X82WMo0605KU
	10	M7	1.3348	S 2-9-2	-	Z100WCWV-09-04-02-02	HS 2-9-2
	10	T1	1.3355	S 18-0-1	BT1	Z80WCV-18-04-01	X75W18KU

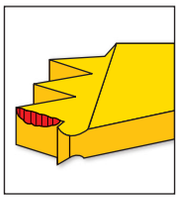
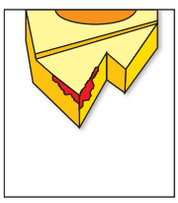
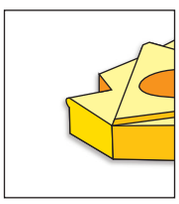
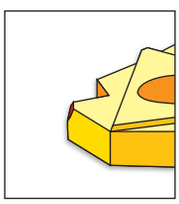
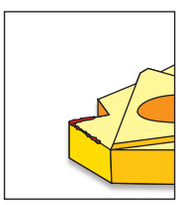
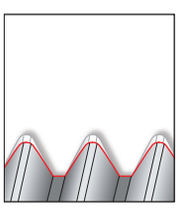
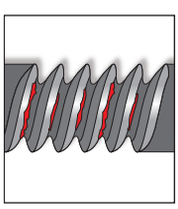
Sweden SS	Japan JIS	Russia GOST	Spain UNE	Vardex No.	
1311	STKM 12A;C	-	Fe360B	1	
1412	SM400A;B;C	St4ps;sp	Fe430B FN	1	
1550	SS490	St5ps;sp	A490-2	2	
-	-	-	A690-2	2	
1350	-	-	F.111	1	
1450	-	20	1 C 22 ; F.112	1	
1550	-	30	F. 113	2	
1650	-	45	F.114	2	
1655	-	55	F.115	2	
-	-	60(G)	-	2	
1912	SUM22	-	F.2111-11SMn28	1	
1914	SUM22L	-	F.2112-11SMnPb28	1	
-	-	-	F.2122-10SPb20	1	
1957	-	-	F.210.G	2	
-	-	-	F.2113-12SMn35	2	
1926	-	-	F.2114-12SMnPb35	2	
2085	-	55S2	F.1440-56Si7	2	
-	-	-	F.1442-60SiCr8	2	
1370	S15C	15	F.1110-C15k ; F.1511-C16k	1	
-	-	40G	-	2	
-	S25C	25	F.1120-C25k	2	
2120	SMn438(H)	35G2 ; 35GL	F.1203-36Mn6 ; F.8212-36Mn5	2	
-	SCM1	30G	28Mn6	2	
1572	S35C	35	-	2	
1672	S45C	45	F.1140-C45k ; F.1142-C48k	2	
-	S55C	55	F.1150-C55k	2	
1674	S50C	50	-	3	
1678	S58C	60 ;60G ;60GA	-	3	
1870	SUP4	-	-	8	
-	SCMnH/1	110G13L	F.8251-AM-X120Mn12	9	
2258	SUJ2	SchCh15	F.1310-100Cr6	8	
2912	-	-	F.2601-16Mo3	8	
-	-	-	F.2602-16Mo5	8	
-	-	-	F.2641-15Ni6	4	
-	-	-	F.2645-X8Ni09	8	
-	-	-	-	8	
-	SNC236	-	-	5	
-	SNC415(H)	-	F.1540-15NiCr11	5	
-	SNC81 5(H)	-	-	5	
-	-	40ChN2MA ; 40ChGNM	F.1280-35NiCrMo4	5	
2506	SNCM220(H)	20ChGNM	F.1552-20NiCrMo2 ; F.1534-20NiMo31	5	
-	SNCM240	38ChGNM	F.1204-40NiCrMo2 ; F.1205-40NiCrMo2DF	5	
2541	-	38Ch2N2MA	F.1272-40NiCrMo7 ;34CrNiMo6	5	
-	-	-	F.1560-14NiCrMo13	5	
-	-	-	F.1560-14NiCrMo13 ;F.1569-14NiCrMo131	5	P
-	SCr415(H)	15Ch	-	2	
-	SCr430(H)	35Ch	F.8221-35Cr4	5	
-	SCr440(H)	40Ch	F.1211-41Cr4DF ; F.1202-42Cr4	5	
2245	SCr440	40Ch	F.1202-42Cr4	5	
2511	-	18ChG	F.1516-16MnCr5 ; F.1517-16MnCr5	5	
-	SUP9(A)	50ChGA	F.1431-55Cr3	5	
2225	SCM420	20ChM ; 30ChM	F.8372-AM26CrMo4;F.8330-AM25CrMo4;F.1256-30CrMo4-1	5	
2234	SCM432; SCCRM3	AS38ChGM;35ChM;35ChML	F.8331-AM34CrMo4;F.823134CrMo4;F.1250-35CrMo4;F.1254-35CrMo4DF	5	
2244	SCM440	40ChFA	F.8332-AM42CrMo4;F.8232-42CrMo4;F.1252-40CrMo4	5	
2244	SCM440(H)	-	F.8332-AM42CrMo4;F.8232-42CrMo4;F.1252-40CrMo4	5	
2216	SCM415(H)	-	F.1551-12CrMo4	5	
-	-	12ChM ; 15ChM	F.2631-14CrMo45	5	
2240	-	-	F.124.A	5	
2218	-	12Ch8	TU.H	5	
-	-	-	F.2621-13MoCrV6	5	
2230	SUP10	50ChGFA ; 50CHFA	F.1430-51CrV4	5	
2940	-	38ChMJuA	F.1740-41CrAlMo7	8	
-	-	-	-	8	
1880	-	U10A-1;2	F.516	5	
-	SK2	U13	F.5123 ; C120	5	
-	-	Ch	F.5230 ; 100Cr6	8	
-	SKD1	Ch12	F.5212 ; X210 Cr12	10	
-	-	-	-	10	
-	-	-	-	10	
-	-	-	-	10	
-	SKD6	4ChMFS	F.5317 ; X37 CrMoV5	10	
2242	SKD61	4ChMF1S	F.5318 ; X40CrMoC5	10	
-	-	-	-	10	
2260	SKD12	-	F.5227 ; X100CrMoV5	10	
-	-	-	-	10	
2310	SKD11	-	F.520A	10	
2140	SKS31;SKS2,SKS3	ChWG	F.5233 ; 105WCr5	10	
2312	SKD2	-	F.5213 ; X210CrW12	10	
2710	-	5ChW2SF	F.5241 ; 45WCrSi8	10	
-	SKD5	3Ch2W8F	F.5323 ; X30WCrV9	10	
2310	-	-	F.5211 ; X160CrMoV12	10	
-	SKT4	5ChNM	F.520S	10	
-	-	-	-	10	
-	SKS43	-	-	10	
2723	SKH55	2723	R6M5K5	10	
-	SKH3	-	F.5530 ; 18-1-1-5	10	
2722	SKH9	(R6AM5); R6M5	F.5603 ; 6-5-2	10	
2782	-	-	F.5607 ; 18-0-1	10	
-	SKH2	R18	F.5520 ; 18-0-1	10	

Material Comparison Table (con't)

Material Group	Vargus No.	USA AISI/SAE	Germany W.-Nr.	Germany DIN	Great Britain BS	France AFNOR	Italy UNI
M Stainless Steel	12	403	1.4000	X6Cr13	403S17	Z6C13	X6Cr13
	12	-	1.4001	X7Cr14	-	-	-
	12	410	1.4006	X10Cr13	410S21	Z10C14	X12Cr13
	12	430	1.4016	X6Cr17	430S15	Z8C17	X8Cr17
	12	-	1.4027	G-X20Cr14	420C29	Z20C13M	-
	12	-	1.4034	X46Cr13	420S45	Z40CM;Z38C13M	X40Cr14
	12	431	1.4057	X20CrNi172	431S29	Z15CNi6.02	X16CrNi16
	12	430	1.4104	X12CrMoS17	-	Z10CF17	X10CrS17
	12	434	1.4113	X6CrMo171	434S17	Z8CD17.01	X8CrMo17
	12	-	1.4313	X5CrNi134	425C11	Z4CND13.4M	-
	12	-	1.4408	G-X6CrNiMo18 10	316C16	-	-
	12	HW3	1.4718	X45CrSi93	401S45	Z45CS 9	X45CrSi8
	12	405	1.4724	X10CrAl13	403S17	Z10C13	X101CrA112
	11	-	1.4742	X10CrAl18	430S15	Z12CAS18	X8Cr17
	12	HNV6	1.4747	X80CrNiSi20	443S65	Z80CSN20.02	X80CrSiNi20
	11	446	1.4762	X10CrAl24	-	Z10CAS24	X16Cr26
	13	304	1.4301	X5CrNi18 10	304S15	Z6CN18.09	X5CrNi1810
	13	303	1.4305	X10CrNiS18 9	303S21	Z10CNF 18.09	X10CrNiS 18.09
	13	304L	1.4306	X2CrNi19 11	304S12;304C12	Z2CN18.10;Z3CN 19.10	X2CrNi18.11
	13	CF8	1.4308	G-X6CrNi18 9	304C15	Z6CN18.10M	-
	13	301	1.4310	X12CrNi177	301S21	Z12CN 17.07	X1 2CrNi1 707
	13	304LN	1.4311	X2CrNiN18 10	304S62	Z2CN18.10	-
	13	316	1.4401	X5CrNiMo17122	316S16	Z6CND17.11	X5CrNiMo17 12
	13	316LN	1.4429	X2CrNiMoN17133	-	Z2CND17.13	-
	13	316L	1.4435	X2CrNiMo18143	316S12	Z2CND17.13	X2CrNiMo17 13
	13	317L	1.4438	X2CrNiMo17133	317S12	Z2CND19.15	X2CrNiMo18 16
	13	329	1.4460	X8CrNiMo275	-	-	-
	12	321	1.4541	X6CrNiTi18 10	2337	Z6CNT18.10	X6CrNiTi18 11
	12	347	1.4550	X6CrNiNb18 10	347S17	Z6CNNb18.10	X6CrNiNb18 11
	12	316Ti	1.4571	X6CrNiMoTi17122	320S17	Z6NDT1 7.12	X6CrNiMoTi17 12
	12	-	1.4581	G-X5CrNiMoNb18 10	318C17	Z4CNDNb18 12M	XG8CrNiMo18 11
	12	318	1.4583	X10CrNiMoNb18 12	-	Z6CNDNb17 13B	X6CrNiMoNb17 13
	13	309	1.4828	X15CrNiSi20 12	309S24	Z15CNS20.12	-
	13	310S	1.4845	X12CrNi25 21	310S24	Z12CN25 20	X6CrNi25 20
	13	330	1.4864	X12NiCr36 16	-	Z12NCS35.16	-
	13	-	1.4865	G-X40NiCrSi38 18	330C11	-	XG50NiCr39 19
	13	EV8	1.4871	X53CrMnNiN2 19	349S54;321S12	Z52CMN21.09	X53CrMnNiN219
	13	321	1.4878	X12CrNiTi18 9	321S320	Z6CNT18.12B	X6CrNiTi1811
K Cast Iron	30	No 20 B	0.6010	GG10	-	Ft 10 D	-
	30	No 25 B	0.6015	GG15	Grade 150	Ft 15 D	-
	30	No 30 B	0.6020	GG20	Grade 220	Ft 20 D	-
	29	No 35 B; No 40 B	0.6025	GG25	Grade 260	Ft 25 D	-
	29	No 45 B	0.6030	GG30	Grade 300	R 30 D	-
	29	No 50 B	0.6035	GG35	Grade 350	Ft 35 D	-
	29	No 55 B	0.6040	GG40	Grade 400	Ft 40 D	-
	29	ASTM	-	DIN4694	3468: 1974	-	-
	29	A436-72	-	GGL-		A32-301	
	29	Type 2	-	NiCr20 2	L-NiCr 20 2	L-NC 20 2	-
	30	60-40-18	0.7040	GGG 40	SNG 420/12	FCS 400-12	GS 370-17
	30	-	0.7043	GGG 40.3	SNG 370/17	FGS 370-17	-
	30	-	0.7033	GGG 35.3	-	-	-
	31	80-55-06	0.7050	GGG 50	SNG 500/7	FGS 500-7	GS 500
	31	-	0.7060	GGG 60	SNG 600/3	FGS 600-3	-
	31	100-70-03	0.7070	GGG70	SNG 700/2	FGS 700-2	GS 700-2
	31	-	-	DIN 1694	-	L-NM 13 7	-
	31	Type 2	-	GGG NiMn 13 7	L-NiMn 13 7	L-NC 20 2	-
	31	-	-	GGG NiCr 20 2	L-NC 20 2	-	-
	28	32510	0.8135	GTS-35	B 340/12	MN 35-10	-
	29	40010	0.8145	GTS-45	P 440/7	-	-
	29	50005	0.8155	GTS-55	P 510/4	MP 50-5	-
	29	70003	0.8165	GTS-65	P 570/3	MP 60-3	-
	29	80002	0.8170	GTS-70	P690/2	MP 70-2	-
N Non-Ferrous Metals	36	-	-	G-AlSi12	LM20	-	-
	36	-	-	GD-AlSi12	-	-	-
	36	-	-	GD-AlSi8Cu3	LM24	-	-
	36	-	-	G-AlSi10Mg	LM9	-	-
	36	-	-	G-AlSi12	LM6	-	-
S Heat Resistant Material	19	330	1.4864	X12NiCrSi	-	Z12NCS35.16	-
	19	-	1.4865	G-X40NiCrSi	330C11	-	XG50NiCr
	19	5390 A	2.4603	-	-	NC22FeD	-
	19	-	2.4630	NiCr20Ti	HR5, 203-4	NC20T	-
	19	5666	2.4856	NiCr22Mo9N	-	NC22FeDNB	-
	19	5537 C	LW2.496	CoCr20W15	-	KC20WN	-
	19	4676	2.4375	NiCu30Al	3072-76	-	-
	19	-	2.4631	NiCr20TiAk	Hr40,601	NC20TA	-
	19	AMS 5399	2.4973	NiCr19Co11	-	NC19KDT	-
	21	5391	LW2.467	S-NiCr13A16	3146-3	NC12AD	-
	21	5660	LW2.466	NiCr19Fe19	HR8	NC19FeNb	-
	21	5383	LW2.466	NiCr19Fe19	-	NC20K14	-
	21	-	-	CoCr22W14	-	KC22WN	-
	21	-	LW2.467	NiCo15Cr10	-	-	-
	23	-	-	TiAl14Mo4Sn4Si0.5	-	-	-
	23	-	-	TiAl5Sn2.5	TA14/17	T-A5E	-
	23	-	-	TiAl6V4	TA10-13/TA2	T-A6V	-
	23	-	-	TiAl6V4ELI	TA11	-	-

Sweden SS	Japan JIS	Russia GOST	Spain UNE	Vardex No.	
2301	SUS403	08Ch13	F.3110-X6Cr13 ; F.8401-AM-X12Cr13	12	
-	-	08Ch13	F.3110-X6Cr13 ; F.8401-AM-X12Cr13	12	
2302	SUS410	12Ch13 ; 15Ch13L	F.3401-X10Cr13	12	
2320	SUS430	12Ch17	F.3113-X6Cr17	12	
-	SCS2	20Ch13L	-	12	
2304	SUS420J2	40Ch13	F.3405-X45Cr13	12	
2321	SUS431	20Ch17N2	F.3427-X19CrNi172	12	
2383	SUS430F	-	F.3117-X10CrS17 ; F.3413-X14CrMoS17	12	
2325	SUS434	-	F.3116-X6CrMo171	12	
-	SCS5	-	-	12	
-	SCS14	07Ch18N10G2S2M2L	F.8414-AM-X7CrNiMo2010	12	
-	SUH1	40Ch9S2	F.3220-X4SCrSi09-03	12	
-	SUS405	10Ch13SJu	F.3152-X10CrAl13	12	
-	SUH21	15Ch18SJu	F.3153-X10CrAl18	11	
-	SUH4	-	F.3222-X80CrSiNi20-02	12	
2322	SUH446	-	F.3154-X10CrAl24	11	
2332	SUS304	08Ch18N10	F.3551-X5CrNi1811;F.3541-X5CrNi1810 ; F.3504-X6CrNi1910	13	
2346	SUS303	-	F.3508-X10CrNiS18-09	13	
2352	SCS19; SUS304L	03Ch18N11	F.3503-X2CrNi1810	13	
2333	SCS13	07Ch18N9L	-	13	**M**
2331	SUS301	-	F.3517-X12CrNi177	13	
2371	SUS304LN	-	F.3541-X2CrNiN1810	13	
2347	SUS316	-	F.3534-X5CrNiMo17122	13	
2375	SUS316LN	-	F.3543-X2CrNiMoN17133	13	
2353	SCS16	03Ch17N14M3	F.3533-X2CrNiMo17132	13	
2367	SUS317L	-	F.3539-X2CrNiMo18164	13	
2324	SUS329L;	-	F.3309-X8CrNiMo27-05; F.3552-X8CrNiMo266	13	
58B	SUS321	06Ch18N10T; 08Ch18N10T; 09Ch18N10T; 12Ch18N10T	F.3523-X6CrNiTi1810	12	
2338	SUS347	08Ch18N12B	F.3524-X6CrNiNb1810	12	
2350	-	10Ch17N13M2T	F.3535-X6CrNiMoTi17122	12	
-	SCS22	-	-	12	
-	-	-	-	12	
-	SUH309	20Ch20N14S2	F.3312-X15CrNiSi20-12	13	
2361	SUH310	20Ch23N18	-	13	
-	SUH330	-	F.3313-X12CrNiSi36-16	13	
-	SCH15	-	-	13	
-	SUH35,SUH36;SU321	55Ch20G9AN4	F.3217-X53CrMnNiN21-09	13	
-	-	-	-	13	
01 10	-	C410	FG10	30	
01 15	-	C415	FG15	30	
01 20	-	C420	FG20	30	
01 25	-	C425	FG25	29	
01 30	-	C430	FG30	29	
01 35	-	C435	FG35	29	
01 40	-	C440	-	29	
MB	-	-	-	29	
ISO-215		-	-	29	
523	-	-	-	29	
07 17-02	-	VC42-12	-	30	
07 17-12	-	VC42-12	-	30	**K**
07 17-15	-	-	-	30	
07 27-02	-	VC50-2	-	31	
07 32-03	-	VC60-2	-	31	
07 37-01	-	VC70-2	-	31	
07 72	-	-	-	31	
07 76	-	-	-	31	
-	-	-	-	31	
08 15	-	-	-	28	
08 52	-	-	-	29	
08 54	-	-	-	29	
08 58	-	-	-	29	
08 62	-	-	-	29	
4260	-	-	-	36	
4247	-	-	-	36	
4250	-	-	-	36	**N**
4253	-	-	-	36	
4261	-	-	-	36	
-	SUH 330	-	F.3313-X12CrNiSi36-16	19	
-	SCH 15	-	-	19	
-	-	-	-	19	
-	-	-	-	19	
-	-	-	-	19	
-	-	-	-	19	
-	-	-	-	19	
-	-	-	-	19	
-	-	-	-	19	**S**
-	-	-	-	19	
-	-	-	-	21	
-	-	-	-	21	
-	-	-	-	21	
-	-	-	-	21	
-	-	-	-	21	
-	-	-	-	23	
-	-	-	-	23	
-	-	-	-	23	
-	-	-	-	23	

Troubleshooting

	Problem	Possible Cause	Solution
	Increased flank wear	Cutting speed too high Depth of cut too low/ too many passes Unsuitable carbide grade Insufficient cooling	Reduce cutting speed / use coated insert Increase the depth of cut per pass Use a coated carbide grade Increase coolant flow rate
	Uneven cutting edge wear	\x{2063} helix angle Wrong infeed method	Choose the correct anvil Use the alternating flank infeed method
	Extreme plastic deformation	Depth of cut too large Insufficient cooling Cutting speed too high Unsuitable carbide grade Nose radius too small	Decrease depth of cut/ increase number of passes Increase coolant flow rate Reduce cutting speed Use a tougher carbide Use an insert with a larger radius, if possible
	Cutting edge breakage	Depth of cut too large Extreme plastic deformation Insufficient cooling Unsuitable carbide grade Instability	Decrease depth of cut/ increase number of passes Use a tougher carbide Increase flow rate and/ or correct flow direction Use a tougher carbide Check stability of the system
	Built-up edge	Incorrect cutting speed Unsuitable carbide grade	Change the cutting speed Use a coated carbide
	Thread profile is too shallow	The tool is not at the workpiece axis height Insert is not machining the thread crest Worn insert	Change tool height Measure the workpiece diameter Change the cutting edge sooner
	Poor surface quality	Cutting speed too low Wrong anvil Flank infeed method is not appropriate	Increase cutting speed Choose correct anvil Use the alternate flank or radial infeed method