vargus
NEUMO Ehrenberg Group

VARDEX
Advanced Threading Solutions

MAIN CATALOG

Thread Turning | **Thread Milling**

INCH

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.

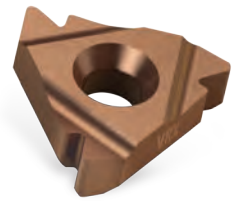
SHAVIV Leading Deburring Solutions, manufactures world leading hand-deburring solutions for metals and plastics.

IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFIED QMS
SI
ISO 9001:
2008
THE STANDARDS INSTITUTION OF ISRAEL

F-LINE
Fixed Clamping System

VRX
Multipurpose Premium Grade



MEGA-LINE
For Extra Large Pitches

V-CAP Toolholders
Polygon Shaped Shanks

Oil&Gas
Professional Threading Solutions

Mini-3 IC 5.0
Tools for Small Applications

VG-Cut
Machining Between Shoulders

Mini-V
Miniature Vertical Tools

TMSD Vertical
Multi-Flute Vertical Tools

VARDEX
Advanced Threading Solutions

Contents
THREAD TURNING

THREAD MILLING

MiTM Inserts

MiTM Toolholders

Standard Inserts

Standard Toolholders

TMSD....293

TMSD Vertical Inserts

TMSD Vertical Toolholders

TMSD Inserts

TMSD Toolholders

TM Solid....329

MINI PRO

VARGUS GENius™ – The most powerful tool selector, cutting data and CNC program generating software for the metal cutting tools industry.

Thread Turning: The Vargus GENius™ guides the user to the right tool and the best cutting conditions for the application.

Thread Milling: In a few simple steps, the Vargus GENius™ provides the user with the best tool and optimal machining data, as well as the G-Code for all popular CNC machines.

The VARGUS GENius™ is free and available in 16 languages in iOS and Android Apps, Online, Desktop, and SETUP versions.

VARGUS GENius™ | Tool Selector and CNC Program Generator

Anywhere! Anytime!

The most popular and advanced thread turning and thread milling software on the market today.

Available in 4 versions at www.vargus.com

VARGUS GENius™ ONLINE

- Online interactive software
- Always on, always updated!

VARGUS GENius™ DESKTOP

- Stand-alone software application
- MS Windows OS-based program
- Automatic updates

VARGUS GENius™ SETUP

- USB memory devices
- MS Windows operating system-based program
- To install, open ZIP and click Setup

APP VARGUS GENius™

- Available for iOS and Android devices
- New responsive design!
- Use on any device, anywhere in the world!

Custom Made Solutions

Whether you require a non-standard size, a complex shape or a special design, the Vargus Custom Made Solutions team has the experience and know-how for essentially any tooling solution.

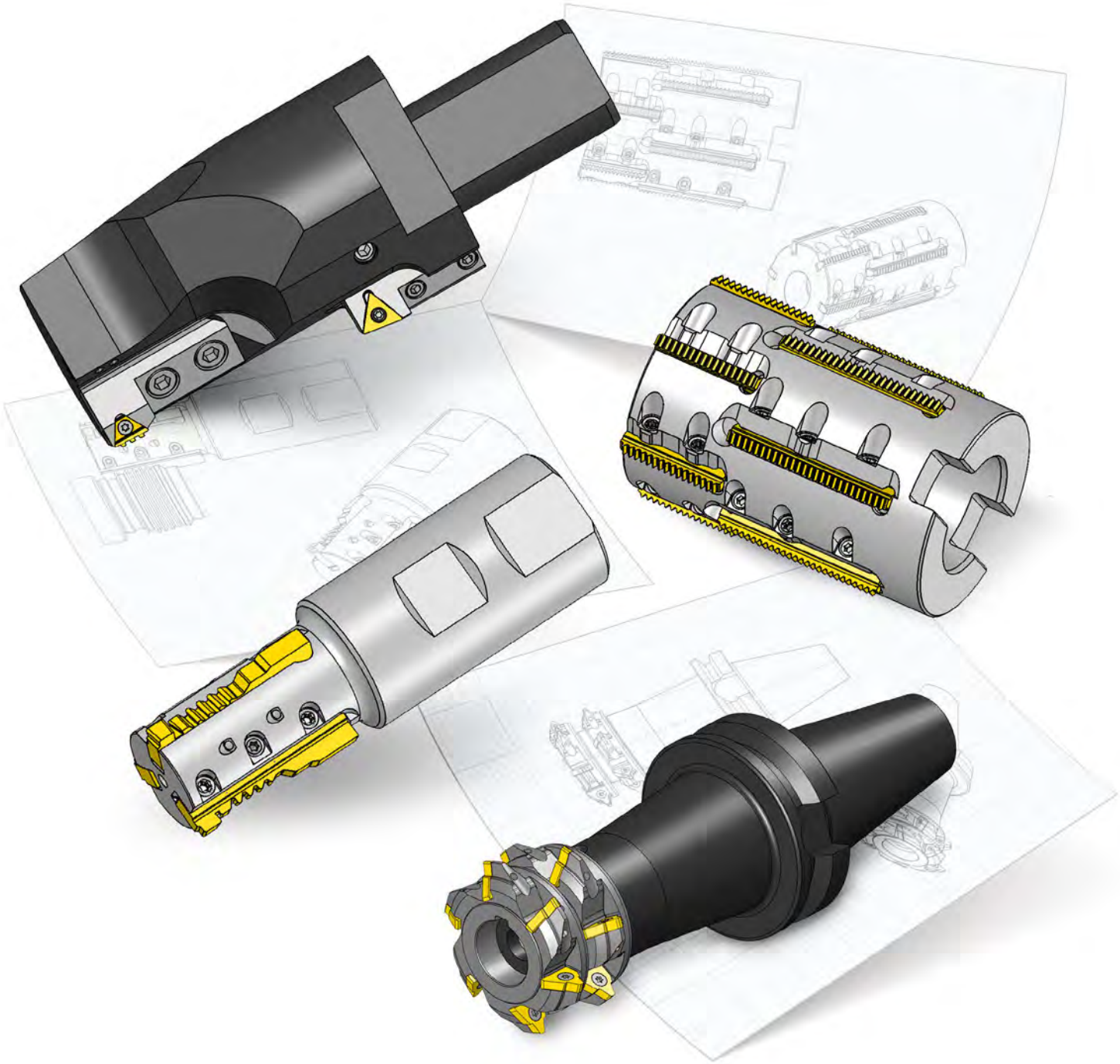
Working closely with the customer, VARGUS engineers provide the best solution for your operation, as well as guide and advise in the implementation of the customized machining process.

The Custom Made Solutions team has all of the know-how to design the right cutting tool, using the latest techniques and top-of-the-line technology.

Contact your VARGUS Sales Representative for more details.

QUALITY · INNOVATION · SERVICE
QIS

Quality | Innovation | Service



GEAR MILLING

Advanced Technologies for Gear, Spline and Rack Manufacturing

Revolutionary and cost-effective solutions for Gear, Spline & Rack applications, tailor-made to order or available as standard for Spline.

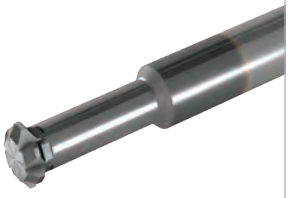
The complete Gear Milling Product Catalog is available at **www.vargususa.com**

Gear Milling Tool Range

End Mill

Shell Mill

Disc Mill



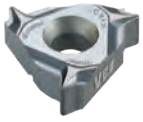
Solid Carbide

THREAD TURNING

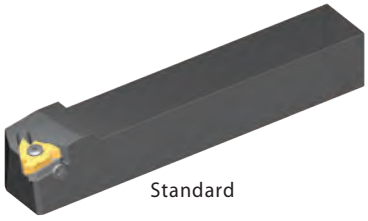
Thread Turning System - EXTERNAL

Standard

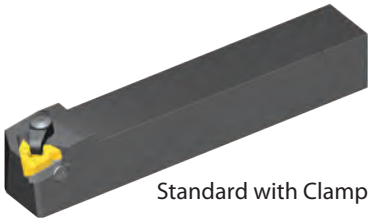
V6



SCB

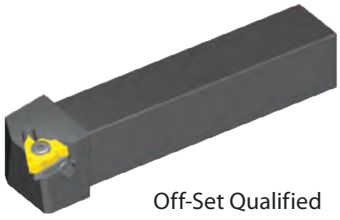


Standard



Standard with Clamp

V-Cap



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

Monoblock

Thread Turning System - EXTERNAL

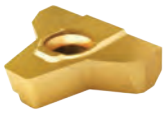
VARGUS GENius™ Tool Selector and CNC Program Generator

V Style

5/8"V

V Style

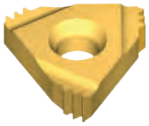
MEGALINE



5/8"MG

MG Style

Multi plus



M+ Style

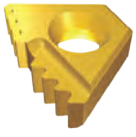
F-LINE

MF+ Style

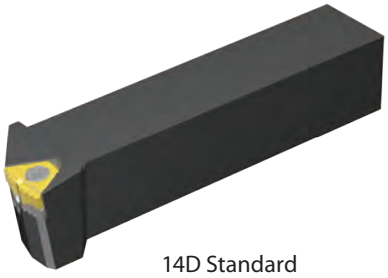
Z+ Style

T+ Style

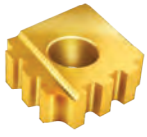
Oil&Gas



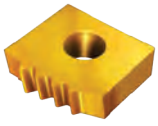
14D



14D Standard



CNGA



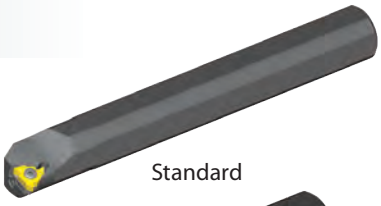
Chaser

T+ Style

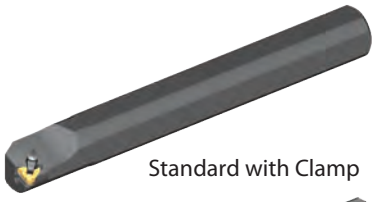
On Edge

Thread Turning System - INTERNAL

Standard



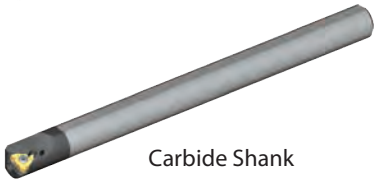
Standard



Standard with Clamp

V-Cap

Oil & Gas



Carbide Shank

SCB

Miniature Square Shank

Miniature Round Shank

F-LINE

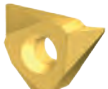
F Style

U Style

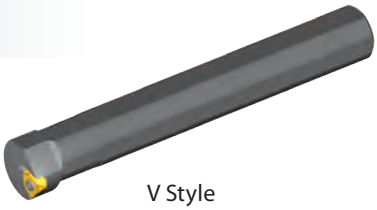
U Style

U Style with Clamp

V Style



5/8"V



V Style

MEGA-LINE

5/8"MG

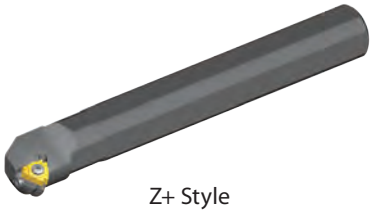
MG Style

Multi plus

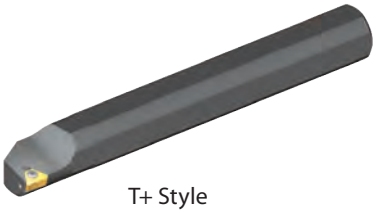
M+ Style

F-LINE

MF+ Style



Z+ Style



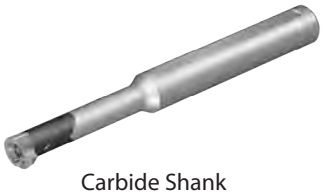
T+ Style

Thread Turning System - INTERNAL

VARGUS GENius™ Tool Selector and CNC Program Generator

Mini-V

Steel Shank



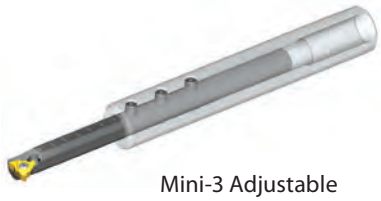
Carbide Shank

Sleeve Clamping Shank

MINIPRO

Mini-3
IC 4.0, IC 5.0, IC 6.0

Steel Shank /
Carbide Implanted Shank

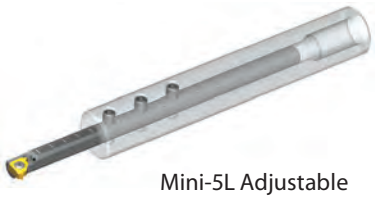


Mini-3 Adjustable

Carbide Shank

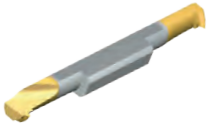
Mini-5L

Steel Shank /
Carbide Implanted Shank



Mini-5L Adjustable

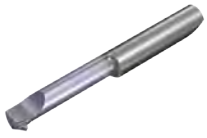
MINIPRO



Micro Double-Ended

Micro Sleeve

microscope



Micro Single-Ended

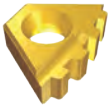
2 Flats Round Shank

4 Flats Round Shank

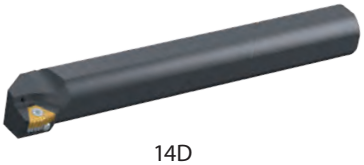
Square Shank

Drop Head

Oil&Gas

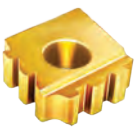


14D

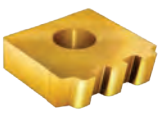


14D

14D with Clamping



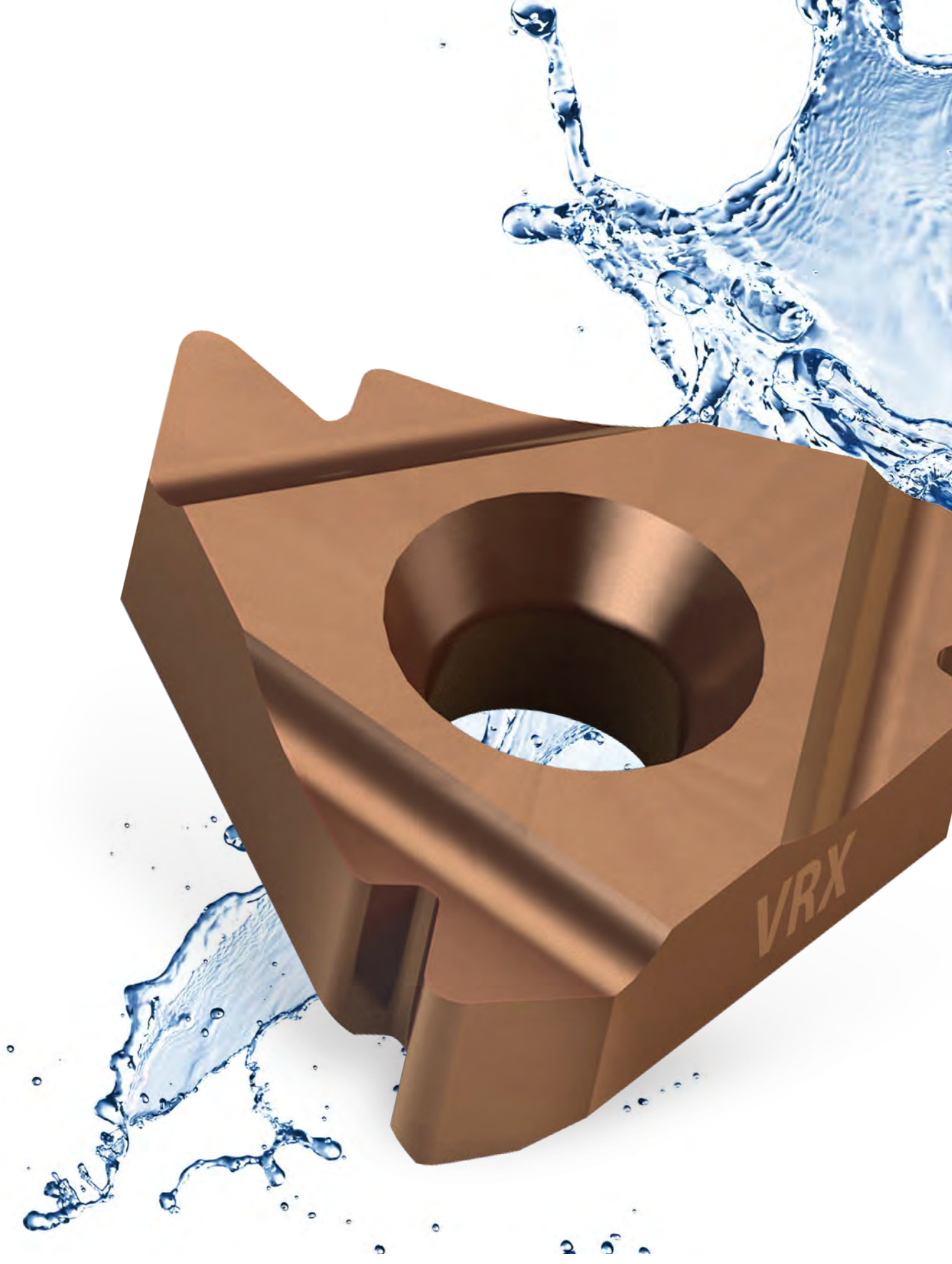
CNGA



Chaser

T+ Style

On Edge



Thread Turning Inserts

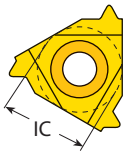
Vardex Ordering Code System

Threading Inserts

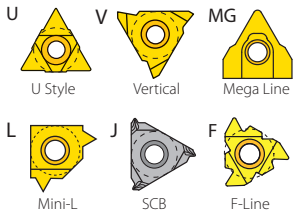
3		E	R	12	UN					VTX	
1	2	3	4	5	6	7	8	9	10	11	12

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 16x16mm



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
UNR - American UNR
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

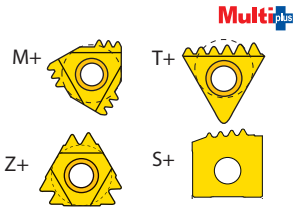
8 - API Form

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, VHX, 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 [mm]

4, 5, 6, 7

3 - Min. Bore Dia. [mm]

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

7 - Overhang [mm]

L16

8 - LH or RH

R - RH Helix
L - LH Helix

9 - Carbide Grades

VBX

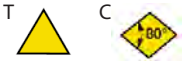
Oil&Gas

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

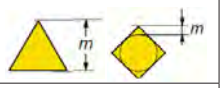
T C



2 - Clearance Angle on Major Cutting Edge

N

3 - Tolerances

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

4 - Clamp Type

C A

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	UN	12	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

6 - RH

R - RH Helix

7 - Carbide Grade

VBX

4 - Pitch (for Threading)

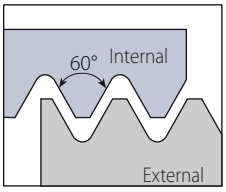
Full Profile - Pitch Range	
mm	TPI
0.5-2.0	32-12
Partial Profile - Pitch Range	
	mm / TPI
A	0.5-1.50 / 48-16
H	0.5-.75 / 48-32
I	1.0-1.25 / 24-20
J	1.5-1.75 / 16-14
G	1.75-3.0 / 14-8
AG	0.5-3.0 / 48-8

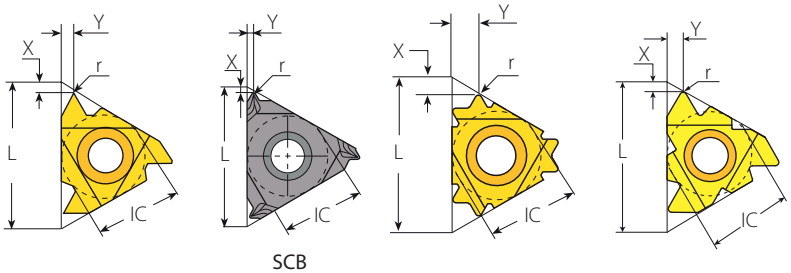
5 - Threading Standard

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

Partial Profile 60°

External





Standard | SCB Sintered Chipbreaker | V6 | F-Line

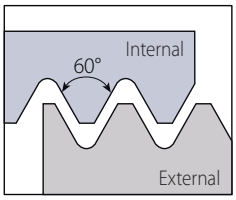
Standard

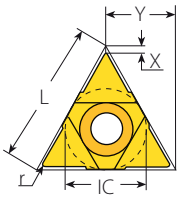
SCB

Insert Size		Pitch		Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	TPI	RH	LH	r	X	Y	RH	LH	Toolholder
1/4″	.43	0.5-1.5	48-16	2ERA60...	2ELA60...	.002	.03	.04	-	-	NL..-2 (LH)
3/8″	.63	0.5-1.5	48-16	3ERA60...	3ELA60...	.002	.03	.04	YE3	YI3	AL..-3 (LH)
		1.75-3.0	14-8	3ERG60...	3ELG60...	.011	.05	.07			
		0.5-3.0	48-8	3ERAG60...	3ELAG60...	.003	.05	.07			
3/8″ SCB	.63	0.5-1.5	48-16	3JERA60...		.002	.02	.03	YE3	-	AL..-3
		1.75-3.0	14-8	3JERG60...		.011	.04	.06			
		0.5-3.0	48-8	3JERAG60...		.003	.04	.06			
3/8″ V6	.63	0.5-2.0	48-13	3ERS60-6C...		.002	.07	.12	YE3-6C	-	AL..-3
1/2″	.87	3.5-5.0	7-5	4ERN60...	4ELN60...	.021	.07	.10	YE4	YI4	AL..-4 (LH)
1/2″F	.91	3.5-5.0	7-5	4FERN60...		.021	.07	.10	YE4F	-	AL..-4F
5/8″	1.06	5.5-6.0	4.5-4	5ERQ60...	5ELQ60...	.025	.08	.12	YE5	YI5	AL..-5 (LH)

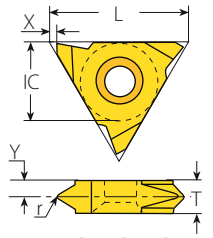
Partial Profile 60° (con't)

External





U Style



V Style / Slim Throat

U Style

Insert Size		Pitch		Ordering Code	Dimensions inch			Anvil		
IC	L inch	mm	TPI	RH+LH	r	X	Y	RH	LH	Toolholder
1/2"U	.87	5.5-8.0	4.5-3.25	4UEIU60...	.012	.02	.43	YE4U	YI4U	AL..-4U (LH)
5/8"U	1.06	6.5-9.0	4-2.75	5UEIU60...	.015	.04	.54	YE5U	YI5U	AL..-5U (LH)

Slim Throat

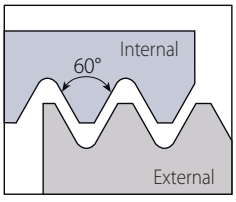
Insert Size		Pitch		Ordering Code		Dimensions inch				
IC	L inch	mm	TPI	RH	LH	r	X	Y	T	Toolholder
1/4"V	.43	0.5-1.5	48-16	2VERA60...	2VELA60...	.002	.03	.09	.13	NL..-2V (LH)
3/8"V	.63	0.5-1.5	48-16	3VERA60...	3VELA60...	.002	.04	.11	.14	NL..-3V (LH)
		1.75-3.0	14-8	3VERG60...	3VELG60...	.011	.04	.07	.14	
		0.5-3.0	48-8	3VERAG60...	3VELAG60...	.003	.04	.07	.14	
1/2"V	.87	3.5-5.0	7-5	4VERN60...	4VELN60...	.021	.04	.09	.19	NL..-4V (LH)

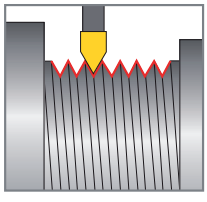
V Style

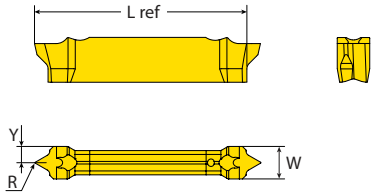
Insert Size		Pitch		Ordering Code		Dimensions inch				
IC	L inch	mm	TPI	RH	LH	r	X	Y	T	Toolholder
5/8"V	1.06	6.0-10.0	4-2.5	5VERV60...	5VELV60...	.03	.02	.20	.39	NL..-5V-10 (LH)

Partial Profile 60°

External







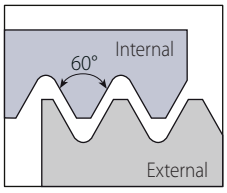
VG-Cut

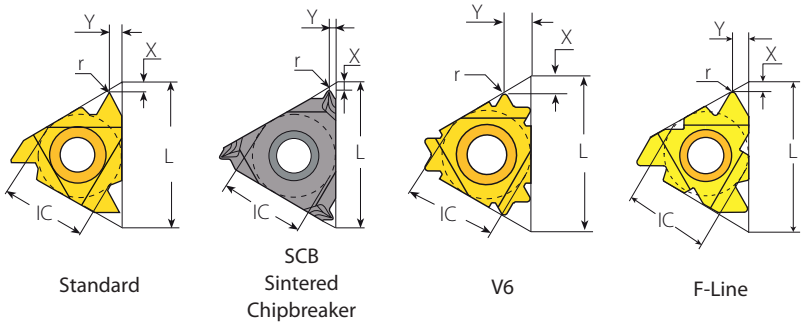
VG-Cut

Pocket Size	Ordering Code	Pitch			Dimensions inch			No. of Passes	Helix	Min. Thread Diameter	Toolholder
	RH	W ref	mm	TPI	R	Y	L ref		Deg		Monoblock
3	VGD3.0A60RH...	.12	0.5-1.5	48-16	.002	.07	.86	5 - 8	1.5°	Partial Profile A60	VGE...T12

Partial Profile 60° (con't)

Internal





Standard | SCB Sintered Chipbreaker | V6 | F-Line

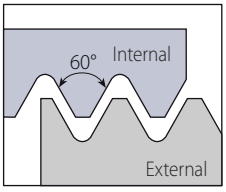
Standard

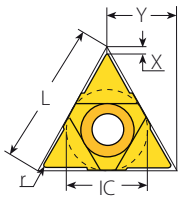
SCB

Insert Size		Pitch		Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	TPI	RH	LH	r	X	Y	RH	LH	Toolholder
1/4"	.43	0.5-1.5	48-16	2IRA60...	2ILA60...	.002	.03	.04	-	-	NVR..-2 (LH)
1/4" SCB	.43	0.5-1.5	48-16	2JIRA60...		.002	.02	.03	-	-	NVR..-2
3/8"	.63	0.5-1.5	48-16	3IRA60...	3ILA60...	.002	.03	.04	YI3	YE3	AVR..-3 (LH)
		1.75-3.0	14-8	3IRG60...	3ILG60...	.006	.05	.07			
		0.5-3.0	48-8	3IRAG60...	3ILAG60...	.002	.05	.07			
3/8" SCB	.63	0.5-1.5	48-16	3JIRA60...		.002	.02	.03	YI3	-	AVR..-3
		1.75-3.0	14-8	3JIRG60...		.006	.04	.06			
		0.5-3.0	48-8	3JIRAG60...		.002	.04	.06			
3/8" V6	.63	0.5-2.0	48-14	3IRS60-6C...		.001	.06	.10	YI3-6C	-	AVR..-3 NVRC..-3V6
1/2"	.87	3.5-5.0	7-5	4IRN60...	4ILN60...	.012	.07	.10	YI4	YE4	AVR..-4 (LH)
1/2"F	.91	3.5-5.0	7-5	4FIRN60...		.012	.07	.10	YI4F	-	AVRC...-4F
5/8"	1.06	5.5-6.0	4.5-4	5IRQ60...	5ILQ60...	.012	.07	.11	YI5	YE5	AVR..-5 (LH)

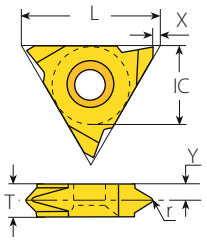
Partial Profile 60° (con't)

Internal





U Style



V Style

U Style

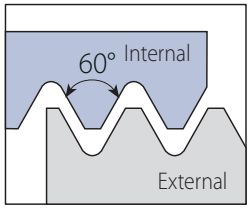
Insert Size		Pitch		Ordering Code	Dimensions inch			Anvil		
IC	L inch	mm	TPI	RH+LH	r	X	Y	RH	LH	Toolholder
1/2"U	.87	5.5-8.0	4.5-3.25	4UEIU60...	.012	.02	.43	YI4U	YE4U	AVR..-4U (LH)
5/8"U	1.06	6.5-9.0	4-2.75	5UEIU60...	.015	.04	.54	YI5U	YE5U	AVR..-5U (LH)

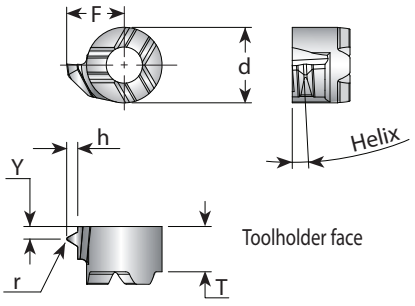
V Style

Insert Size		Pitch		Ordering Code		Dimensions inch				
IC	L inch	mm	TPI	RH	LH	r	X	Y	T	Toolholder
5/8"V	1.06	6.0-10.0	4-2.5	5VIRV60...	5VILV60...	.014	.04	.17	.31	NVR..-5V (LH)

Partial Profile 60° (con't)

Internal





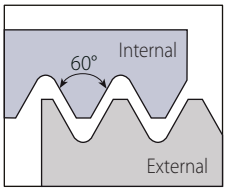
Mini-V

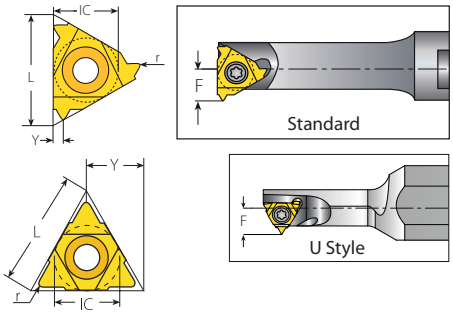
Insert Style	Pitch		Ordering Code	Dimensions inch					Helix	Toolholder
	TPI	mm	RH	d	T	F	Y	r	Deg.	
V08	48-32	0.5-0.75	V08THH60R...	.236	.15	.17	.02	.001	1.5	.V08-...
	24-20	1.0-1.25	V08THI60R...			.18	.03	.004	2.5	
	16-14	1.5-1.75	V08THJ60R...			.19	.04	.006	3	
V11	48-32	0.5-0.75	V11THH60R...	.315	.17	.23	.02	.012	1.5	.V11-...
	24-20	1.0-1.25	V11THI60R...			.24	.03	.004	1.5	
	16-14	1.5-1.75	V11THJ60R...			.22	.04	.006	3	
V14	48-16	0.5-1.5	V14THA60R...	.354	.22	.35	.04	.002	1.5	.V14-...
	14-8	1.75-3.0	V14THG60R...				.07	.006		
	48-8	0.5-3.0	V14THAG60R...				.07	.002		
V16	48-16	0.5-1.5	V16THA60R...	.433	.22	.40	.04	.002	1.5	.V16-...
	14-8	1.75-3.0	V16THG60R...				.07	.006		
	48-8	0.5-3.0	V16THAG60R...				.07	.002		

Partial Profile 60° (con't)

MINIPRO

Internal





Mini-3 Standard

Insert Size		Pitch		Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	mm	TPI	RH	LH	r	Y	F	inch	Toolholder
4.0	.24	0.5-1.25	48-20	4.0KIRA60...	4.0KILA60...	.002	.02	.15	.25	.NVR...-4.0K (LH)
5.0	.31	0.5-1.5	48-16	5.0KIRA60...	5.0KILA60...	.002	.03	.19	.31	.NVRC...-5.0K (LH)
6.0	.39	0.5-1.5	48-16	6.0KIRA60...	6.0KILA60...	.002	.04	.21	.39	.NVR...-6.0K (LH)

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

Mini-3 U Style

Insert Size		Pitch		Ordering Code	Dimensions inch			Min. Bore Dia.	
IC mm	L inch	mm	TPI	RH+LH	r	Y	F	inch	Toolholder
5.0U	.31	1.75-2.0	14-11	5.0KUIB60...	.006	.16	.23	.35	.NVRC...-5.0KU (LH)

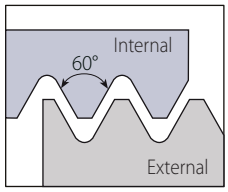
Mini-L

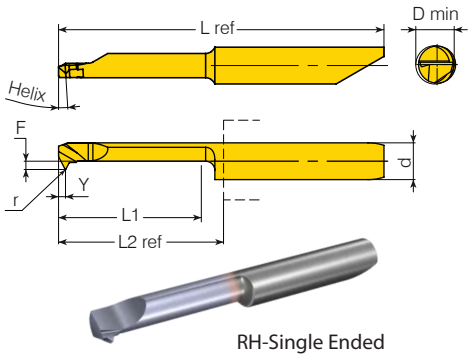
Insert Size	Pitch		Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	mm	TPI	RH	LH	r	Y	F	inch	Toolholder
5.0L	0.5-1.5	48-16	5LKIRA60...	5LKILA60...	.002	.04	.18	.31	.NVR...-5LK (LH)

Partial Profile 60° (con't)

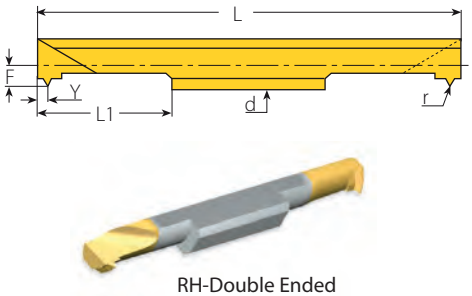
MINIPRO

Internal





RH-Single Ended



RH-Double Ended

Micro - Double Ended

Insert Dia.	Pitch		Ordering Code	Dimensions inch					Min. Bore Dia.	
d mm	mm	TPI	RH	r	L1	L	F	Y	inch	Toolholder
3.0	0.5-1.0	48-24	3.0SIRF60...	.002	.63	1.97	.06	.04	.13	SMC..-3.0
4.0	0.5-1.0	48-24	4.0SIRF60...	.002	.63	1.97	.08	.04	.17	SMC..-4.0
6.0	0.5-1.5	48-16	6.0SIRA60...	.002	.63	1.97	.10	.04	.24	SMC..-6.0

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

Micro - Single Ended

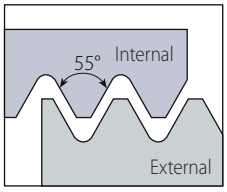
microscope

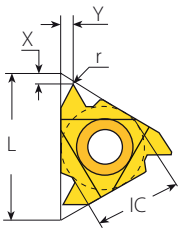
Insert Dia.	Pitch		Ordering Code	Dimensions inch							Min. Bore Dia.	
d mm	mm	TPI	RH/LH	Helix °	r	L1	F	Y	L2 ref*	L ref	D inch	Toolholder
4.0	0.5-1.0	48-24	MS429THF60L16R/L...	3.5	.001	.63	.04	.04	.72	1.39	.13	MH...-4.0
	0.5-1.0	48-24	MS439THF60L16R/L...		.001		.07				.17	
6.0	0.5-1.5	48-16	M659THA60L16R/L...		.002		.11		.73	1.66	.24	MH...-6.0

* L2 Ref: Repeatability within +/-.0008

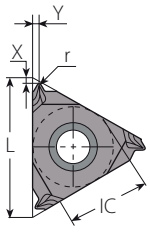
Partial Profile 55°

External

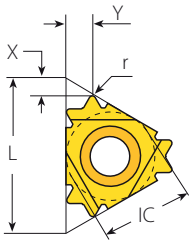




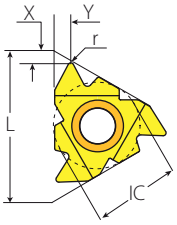
Standard



SCB
Sintered
Chipbreaker



V6



F-Line

Standard

SCB

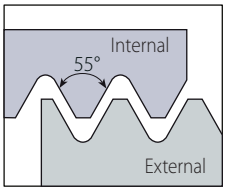
V6

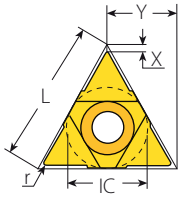
F-LINE

Insert Size		Pitch		Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	TPI	RH	LH	r	X	Y	RH	LH	Toolholder
1/4"	.43	0.5-1.5	48-16	2ERA55...	2ELA55...	.002	.03	.04	-	-	NL..-2 (LH)
3/8"	.63	0.5-1.5	48-16	3ERA55...	3ELA55...	.002	.03	.04	YE3	YI3	AL..-3 (LH)
		1.75-3.0	14-8	3ERG55...	3ELG55...	.008	.05	.07			
		0.5-3.0	48-8	3ERAG55...	3ELAG55...	.003	.05	.07			
3/8" SCB	.63	0.5-1.5	48-16	3JERA55...		.002	.02	.03	YE3	-	AL..-3
		1.75-3.0	14-8	3JERG55...		.008	.04	.06			
		0.5-3.0	48-8	3JERAG55...		.003	.04	.06			
3/8"V6	.63	0.5-1.75	48-14	3ERS55-6C...		.002	.07	.11	YE3-6C	-	AL..-3
1/2"	.87	3.5-5.0	7-5	4ERN55...	4ELN55...	.017	.07	.10	YE4	YI4	AL..-4 (LH)
1/2"F	.91	3.5-5.0	7-5	4FERN55...		.017	.07	.10	YE4F	-	AL...-4F
5/8"	1.06	5.5-6.0	4.5-4	5ERQ55...	5ELQ55...	.024	.08	.11	YE5	YI5	AL..-5 (LH)

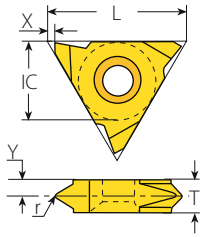
Partial Profile 55° (con't)

External





U Style



V Style / Slim Throat

U Style

Insert Size		Pitch		Ordering Code	Dimensions inch			Anvil		
IC	L inch	mm	TPI	RH+LH	r	X	Y	RH	LH	Toolholder
1/2"U	.87	5.5-8.0	4.5-3.25	4UEIU55...	.024	.04	.43	YE4U	YI4U	AL..-4U (LH)
5/8"U	1.06	6.5-9.0	4-2.75	5UEIU55...	.031	.05	.54	YE5U	YI5U	AL..-5U (LH)

Slim Throat

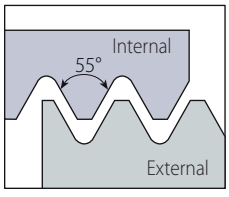
Insert Size		Pitch		Ordering Code		Dimensions inch				
IC	L inch	mm	TPI	RH	LH	r	X	Y	T	Toolholder
1/4"V	.43	0.5-1.5	48-16	2VERA55...	2VELA55...	.002	.03	.11	.13	NL..-2V (LH)
3/8"V	.63	0.5-1.5	48-16	3VERA55...	3VELA55...	.002	.04	.11	.14	NL..-3V (LH)
		1.75-3.0	14-8	3VERG55...	3VELG55...	.008	.04	.07	.14	
		0.5-3.0	48-8	3VERAG55...	3VELAG55...	.003	.04	.07	.14	
1/2"V	.87	3.5-5.0	7-5	4VERN55...	4VELN55...	.017	.04	.09	.19	NL..-4V (LH)

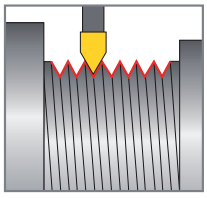
V Style

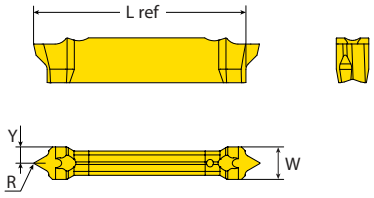
Insert Size		Pitch		Ordering Code		Dimensions inch				
IC	L inch	mm	TPI	RH	LH	r	X	Y	T	Toolholder
5/8"V	1.06	6.0-9.0	4-2.75	5VERV55...	5VELV55...	.028	.04	.17	.31	NL..-5V-8 (LH)

Partial Profile 55°

External







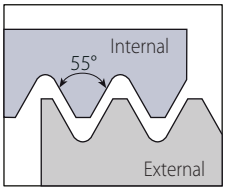
VG-Cut

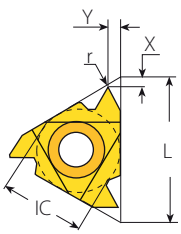
VG-Cut

Pocket Size	Ordering Code	Dimensions inch					No. of Passes	Helix	Min. Thread Diameter	Toolholder
	RH	W ref	Pitch TPI	R	Y	L ref		Deg		Monoblock
3	VGD3.0A55RH...	.12	48-16	.002	.07	0.86	5 - 8	1.5°	Partial Profile A55	VGE...T12

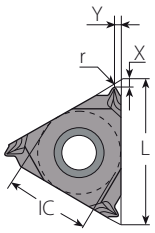
Partial Profile 55° (con't)

Internal

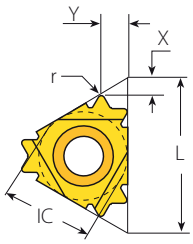




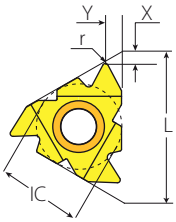
Standard



SCB
Sintered
Chipbreaker



V6



F-Line

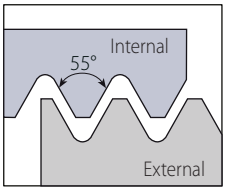
Standard

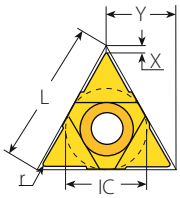
SCB

Insert Size		Pitch		Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	TPI	RH	LH	r	X	Y	RH	LH	Toolholder
1/4"	.43	0.5-1.5	48-16	2IRA55...	2ILA55...	.002	.03	.04	-	-	NVR..-2 (LH)
1/4" SCB	.43	0.5-1.5	48-16	2JIRA55...		.002	.02	.03	-	-	NVR..-2
3/8"	.63	0.5-1.5	48-16	3IRA55...	3ILA55...	.002	.03	.04	YI3	YE3	AVR..-3 (LH)
		1.75-3.0	14-8	3IRG55...	3ILG55...	.008	.05	.07			
		0.5-3.0	48-8	3IRAG55...	3ILAG55...	.003	.05	.07			
3/8" SCB	.63	0.5-1.5	48-16	3JIRA55...		.002	.02	.03	YI3	-	AVR..-3
		1.75-3.0	14-8	3JIRG55...		.008	.04	.06			
		0.5-3.0	48-8	3JIRAG55...		.003	.04	.06			
3/8" V6	.63	0.5-1.5	48-16	3IRS55-6C...		.002	.06	.10	YI3-6C	-	AVR..-3 NVRC..-3V6
1/2"	.87	3.5-5.0	7-5	4IRN55...	4ILN55...	.017	.07	.10	YI4	YE4	AVR..-4 (LH)
1/2"F	.91	3.5-5.0	7-5	4FIRN55...		.017	.07	.10	YI4F	-	AVRC...-4F
5/8"	1.06	5.5-6.0	4.5-4	5IRQ55...	5ILQ55...	.024	.08	.11	YI5	YE5	AVR..-5 (LH)

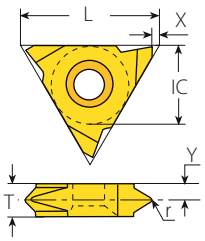
Partial Profile 55° (con't)

Internal





U Style



V Style

U Style

Insert Size		Pitch		Ordering Code	Dimensions inch			Anvil		
IC	L inch	mm	TPI	RH+LH	r	X	Y	RH	LH	Toolholder
1/2"U	.87	5.5-8.0	4.5-3.25	4UEIU55...	.024	.04	.43	YI4U	YE4U	AVR..-4U (LH)
5/8"U	1.06	6.5-9.0	4-2.75	5UEIU55...	.031	.05	.54	YI5U	YE5U	AVR..-5U (LH)

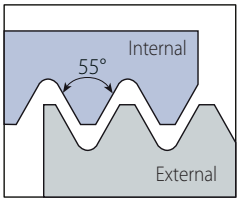
V Style

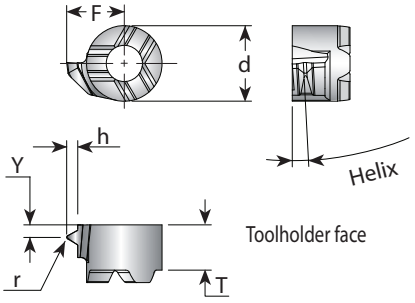
Insert Size		Pitch		Ordering Code		Dimensions inch				
IC	L inch	mm	TPI	RH	LH	r	X	Y	T	Toolholder
5/8"V	1.06	6.0-9.0	4-2.75	5VIRV55...	5VILV55...	.028	.04	.17	.31	NVR..-5V (LH)

Partial Profile 55° (con't)

Mini-V

Internal





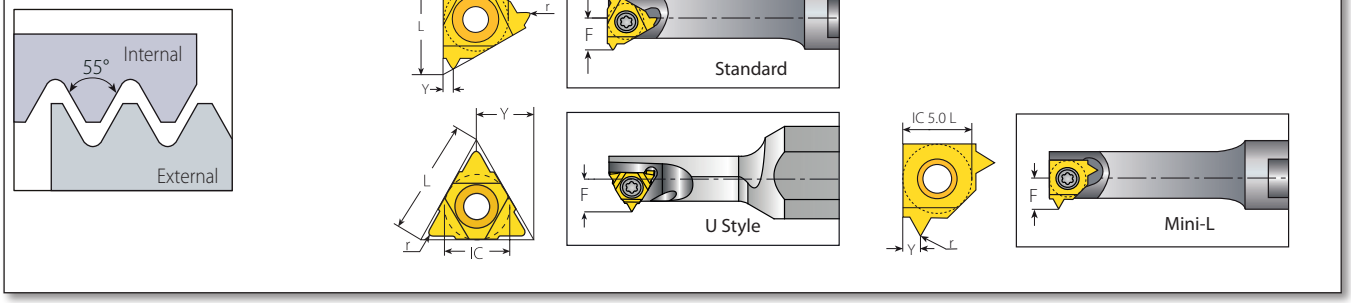
Mini-V

Insert Style	Pitch		Ordering Code	Dimensions inch					Helix	Toolholder
	TPI	mm	RH	d	T	F	Y	r	Deg.	
V14	48-16	0.5-1.5	V14THA55R...	.354	.22	.35	.04	.002	1.5	.V14-...
	14-8	1.75-3.0	V14THG55R...				.07	.008		
	48-8	0.5-3.0	V14THAG55R...				.07	.003		
V16	48-16	0.5-1.5	V16THA55R...	.433	.22	.40	.04	.003	1.5	.V16-...
	14-8	1.75-3.0	V16THG55R...				.07	.010		
	48-8	0.5-3.0	V16THAG55R...				.07	.003		

Partial Profile 55° (con't)

MINIPRO

Internal



Mini-3 Standard

Insert Size		Pitch		Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	mm	TPI	RH	LH	r	Y	F	inch	Toolholder
4.0	.24	0.5-1.25	48-20	4.0KIRA55...	4.0KILA55...	.002	.02	.15	.25	.NVR...-4.0K (LH)
5.0	.31	0.5-1.5	48-16	5.0KIRA55...	5.0KILA55...	.002	.03	.19	.31	.NVRC...-5.0K (LH)
6.0	.39	0.5-1.50	48-16	6.0KIRA55...	6.0KILA55...	.002	.04	.21	.39	.NVR...-6.0K (LH)

Mini-3 U Style

Insert Size		Pitch		Ordering Code	Dimensions inch			Min. Bore Dia.	
IC mm	L inch	mm	TPI	RH+LH	r	Y	F	inch	Toolholder
5.0U	.31	1.75-2.0	14-11	5.0KUIB55...	.008	.16	.22	.35	.NVRC...-5.0KU (LH)

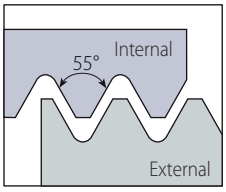
Mini-L

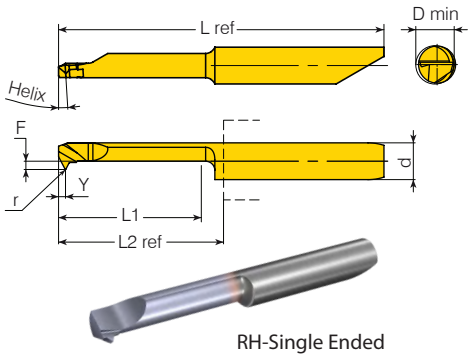
Insert Size		Pitch		Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm		mm	TPI	RH	LH	r	Y	F	inch	Toolholder
5.0L		0.5-1.5	48-16	5LKIRA55...	5LKILA55...	.002	.04	.18	.31	.NVR...-5LK (LH)

Partial Profile 55° (con't)

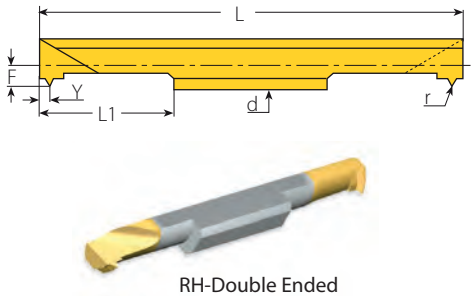
MINIPRO

Internal





RH-Single Ended



RH-Double Ended

Micro - Double Ended

Insert Dia.	Pitch		Ordering Code	Dimensions inch					Min. Bore Dia.	
d mm	mm	TPI	RH	r	L1	L	F	Y	inch	Toolholder
3.0	0.5-1.0	48-24	3.0SIRF55...	.002	.63	1.97	.06	.04	.13	SMC..-3.0
4.0	0.5-1.0	48-24	4.0SIRF55...	.002	.63	1.97	.08	.04	.17	SMC..-4.0
6.0	0.5-1.5	48-16	6.0SIRA55...	.002	.63	1.97	.10	.04	.24	SMC..-6.0

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

Micro - Single Ended

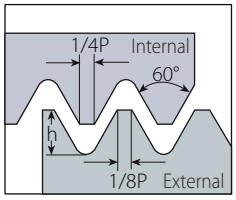
microscope

Insert Dia.	Pitch		Ordering Code	Dimensions inch							Min. Bore Dia.	
d mm	mm	TPI	RH/LH	Helix°	r	L1	F	Y	L2 ref*	L ref	D inch	Toolholder
4.0	0.5-1.0	48-24	MS429THF55L16R/L...	3.5	.002	.63	.04	.03	.72	1.39	.13	MH...-4.0
	0.5-1.0	48-24	MS439THF55L16R/L...		.002		.07				.17	
6.0	0.5-1.5	48-16	M659THA55L16R/L...		.002		.11	.04	.73	1.66	.24	MH...-6.0

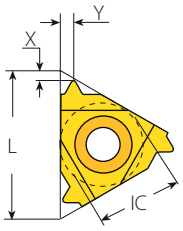
* L2 Ref: Repeatability within +/-.0008

ISO Metric

External



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



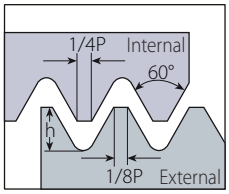
Standard

Standard

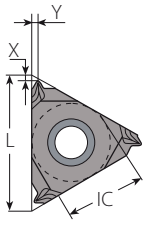
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	0.25	2ER0.25ISO...	2EL0.25ISO...	.006	.02	.01	-	-	NL..-2 (LH)
		0.3	2ER0.3ISO...	2EL0.3ISO...	.007	.03	.01			
		0.35	2ER0.35ISO...	2EL0.35ISO...	.008	.03	.02			
		0.4	2ER0.4ISO...	2EL0.4ISO...	.010	.03	.02			
		0.45	2ER0.45ISO...	2EL0.45ISO...	.011	.03	.02			
		0.5	2ER0.5ISO...	2EL0.5ISO...	.012	.02	.02			
		0.6	2ER0.6ISO...	2EL0.6ISO...	.015	.02	.02			
		0.7	2ER0.7ISO...	2EL0.7ISO...	.017	.02	.02			
		0.75	2ER0.75ISO...	2EL0.75ISO...	.018	.02	.02			
		0.8	2ER0.8ISO...	2EL0.8ISO...	.019	.02	.02			
		1.0	2ER1.0ISO...	2EL1.0ISO...	.024	.03	.03			
		1.25	2ER1.25ISO...	2EL1.25ISO...	.030	.03	.04			
		1.5	2ER1.5ISO...	2EL1.5ISO...	.036	.03	.04			
		1.75	2ER1.75ISO...	2EL1.75ISO...	.042	.03	.04			
3/8"	.63	0.25	3ER0.25ISO...	3EL0.25ISO...	.006	.02	.01	YE3	YI3	AL..-3 (LH)
		0.3	3ER0.3ISO...	3EL0.3ISO...	.007	.03	.01			
		0.35	3ER0.35ISO...	3EL0.35ISO...	.008	.03	.02			
		0.4	3ER0.4ISO...	3EL0.4ISO...	.010	.03	.02			
		0.45	3ER0.45ISO...	3EL0.45ISO...	.011	.03	.02			
		0.5	3ER0.5ISO...	3EL0.5ISO...	.012	.02	.02			
		0.6	3ER0.6ISO...	3EL0.6ISO...	.015	.02	.02			
		0.7	3ER0.7ISO...	3EL0.7ISO...	.017	.02	.02			
		0.75	3ER0.75ISO...	3EL0.75ISO...	.018	.02	.02			
		0.8	3ER0.8ISO...	3EL0.8ISO...	.019	.02	.02			
		1.0	3ER1.0ISO...	3EL1.0ISO...	.024	.03	.03			
		1.25	3ER1.25ISO...	3EL1.25ISO...	.030	.03	.04			
		1.5	3ER1.5ISO...	3EL1.5ISO...	.036	.03	.04			
		1.75	3ER1.75ISO...	3EL1.75ISO...	.042	.04	.05			
		2.0	3ER2.0ISO...	3EL2.0ISO...	.048	.04	.05			
		2.5	3ER2.5ISO...	3EL2.5ISO...	.060	.04	.06			
		3.0	3ER3.0ISO...	3EL3.0ISO...	.072	.05	.06			
		3.5	3ER3.5ISO...	3EL3.5ISO...	.085	.06	.07			

ISO Metric (con't)

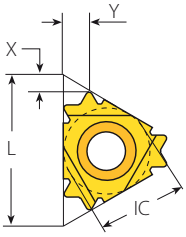
External



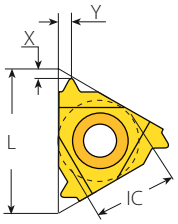
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H



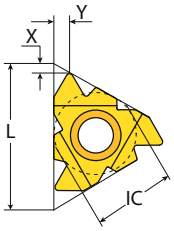
SCB
Sintered
Chipbreaker



V6



Standard



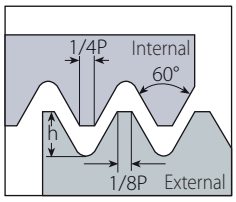
F-Line

Standard

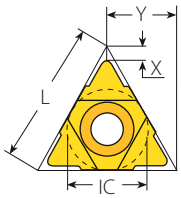
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" SCB	.63	0.5	3JER0.5ISO...		.012	.05	.02	YE3	-	AL..-3
		0.75	3JER0.75ISO...		.018	.05	.02			
		0.8	3JER0.8ISO...		.019	.05	.02			
		1.0	3JER1.0ISO...		.024	.03	.03			
		1.25	3JER1.25ISO...		.030	.03	.03			
		1.5	3JER1.5ISO...		.036	.03	.03			
		1.75	3JER1.75ISO...		.042	.05	.06			
		2.0	3JER2.0ISO...		.048	.05	.06			
		2.5	3JER2.5ISO...		.060	.05	.06			
		3.0	3JER3.0ISO...		.072	.05	.06			
		3.5	3JER3.5ISO...		.085	.05	.06			
3/8" V6	.63	0.5	3ER0.5ISO-6C...		.012	.09	.07	YE3-6C	-	AL..-3
		0.75	3ER0.75ISO-6C...		.018	.08	.07			
		0.8	3ER0.8ISO-6C...		.019	.08	.07			
		1.0	3ER1.0ISO-6C...		.024	.07	.08			
		1.25	3ER1.25ISO-6C...		.030	.07	.08			
		1.5	3ER1.5ISO-6C...		.036	.07	.09			
		1.75	3ER1.75ISO-6C...		.042	.07	.10			
		2.0	3ER2.0ISO-6C...		.048	.07	.11			
1/2"	.87	3.5	4ER3.5ISO...	4EL3.5ISO...	.085	.06	.09	YE4	YI4	AL..-4 (LH)
		4.0	4ER4.0ISO...	4EL4.0ISO...	.096	.06	.09			
		4.5	4ER4.5ISO...	4EL4.5ISO...	.109	.07	.09			
		5.0	4ER5.0ISO...	4EL5.0ISO...	.121	.07	.10			
		5.5	4ER5.5ISO...	4EL5.5ISO...	.133	.07	.11			
		6.0	4ER6.0ISO...	4EL6.0ISO...	.145	.07	.11			
1/2"F	.91	3.5	4FER3.5ISO...		.085	.06	.09	YE4F	-	AL...-4F
		4.0	4FER4.0ISO...		.096	.06	.09			
		4.5	4FER4.5ISO...		.109	.07	.09			
		5.0	4FER5.0ISO...		.121	.07	.10			
		5.5	4FER5.5ISO...		.133	.07	.11			
		6.0	4FER6.0ISO...		.145	.07	.11			
5/8"	1.06	5.5	5ER5.5ISO...	5EL5.5ISO...	.133	.07	.11	YE5	YI5	AL..-5 (LH)
		6.0	5ER6.0ISO...	5EL6.0ISO...	.145	.08	.11			

ISO Metric (con't)

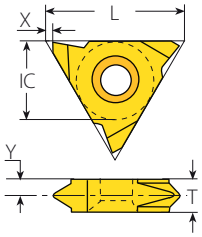
External



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



U Style



V Style / Slim Throat

U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	5.0	4UE5.0ISO...	.121	.09	.43	YE4U	YI4U	AL..-4U (LH)
		5.5	4UE5.5ISO...	.132	.09	.43			
		6.0	4UE6.0ISO...	.145	.10	.43			
5/8"U	1.06	8.0	5UE8.0ISO...	.193	.09	.54	YE5U	YI5U	AL..-5U (LH)

Slim Throat

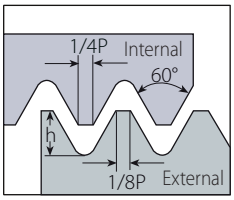
Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	mm	RH	LH	h min	X	Y	T	Toolholder
1/4"V	.43	0.75	2VER0.75ISO...	2VEL0.75ISO...	.018	.03	.10	.13	NL..-2V (LH)
		1.0	2VER1.0ISO...	2VEL1.0ISO...	.024	.03	.10	.13	
		1.5	2VER1.5ISO...	2VEL1.5ISO...	.036	.03	.09	.13	
		1.75	2VER1.75ISO...	2VEL1.75ISO...	.042	.03	.08	.13	
		2.0	2VER2.0ISO...	2VEL2.0ISO...	.048	.03	.07	.13	
3/8"V	.63	0.35	3VER0.35ISO...	3VEL0.35ISO...	.008	.04	.13	.14	NL..-3V (LH)
		0.4	3VER0.4ISO...	3VEL0.4ISO...	.010	.04	.13	.14	
		0.5	3VER0.5ISO...	3VEL0.5ISO...	.012	.04	.12	.14	
		0.75	3VER0.75ISO...	3VEL0.75ISO...	.018	.04	.12	.14	
		0.8	3VER0.8ISO...	3VEL0.8ISO...	.019	.04	.12	.14	
		1.0	3VER1.0ISO...	3VEL1.0ISO...	.024	.04	.11	.14	
		1.25	3VER1.25ISO...	3VEL1.25ISO...	.030	.04	.11	.14	
		1.5	3VER1.5ISO...	3VEL1.5ISO...	.036	.04	.10	.14	
		1.75	3VER1.75ISO...	3VEL1.75ISO...	.042	.04	.10	.14	
		2.0	3VER2.0ISO...	3VEL2.0ISO...	.048	.04	.09	.14	
		2.5	3VER2.5ISO...	3VEL2.5ISO...	.060	.04	.08	.14	
		3.0	3VER3.0ISO...	3VEL3.0ISO...	.072	.04	.08	.14	

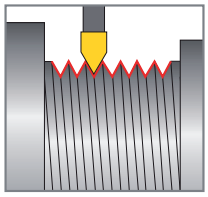
V Style

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	mm	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	5.5	5VER5.5ISO...	5VEL5.5ISO...	.133	.04	.13	.24	NL..-5V-6 (LH)
		6.0	5VER6.0ISO...	5VEL6.0ISO...	.145	.04	.13	.24	
		8.0	5VER8.0ISO...	5VEL8.0ISO...	.193	.04	.17	.31	NL..-5V-8 (LH)
		10.0	5VER10.0ISO...	5VEL10.0ISO...	.241	.04	.20	.39	NL..-5V-10 (LH)

ISO Metric (con't)

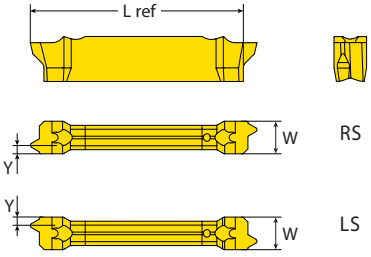
External





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

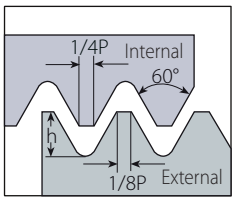
Pocket Size	Ordering Code		Dimensions inch				No. of Passes	Helix	Min. Thread Diameter	Toolholder
	RH	W ref	Pitch mm	h min	Y	L ref		Deg		Monoblock
3	VGD3.0ISO0.50RH-RS/LS...	.12	0.50	.012	.02	.86	5 - 7	2.5°	M 3x0.5	VGE...T12
	VGD3.0ISO0.75RH-RS/LS...		0.75	.018	.03		5 - 8		M 5x0.75	
	VGD3.0ISO1.00RH-RS/LS...		1.00	.024	.03		5 - 9		M 6x1	
	VGD3.0ISO1.25RH-RS/LS...		1.25	.030	.03		6 - 10		M 8x1.25	
	VGD3.0ISO1.50RH-RS/LS...		1.50	.036	.04		7 - 12		M10x1.5 Coarse	
	VGD3.0ISO1.75RH-RS/LS...		1.75	.042	.05		8 - 14		M12x1.75 Coarse	
	VGD3.0ISO2.00RH-RS/LS...		2.00	.048	.05		9 - 14		M16x2.0 Coarse	

LH Helix threads available upon request.

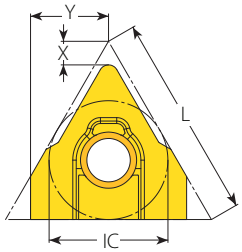
ISO Metric (con't)

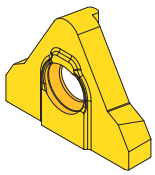
MEGALINE

External



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



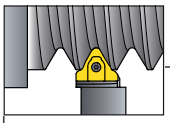


Mega Line

External

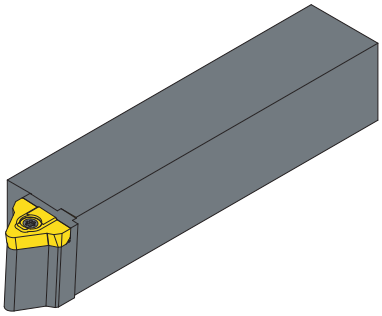
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	mm	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	12.0	5MGER12.0ISO...	42495	.290	.16	.44	105	49
		16.0	5MGER16.0ISO...	42496	.387	.18		140	66
		18.0	5MGER18.0ISO...	42497	.435	.19		158	74
		20.0	5MGER20.0ISO...	42498	.483	.21		175	82
		25.0	5MGER25.0ISO...	42499	.604	.18		219	102

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



External Toolholders for ISO Metric

MEGALINE



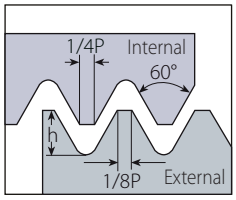
External

Insert	Ordering Code	EDP No.	Dimensions inch				Thread Diameter Range (Min.)	Spare Parts	
	RH		H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER12.0ISO...	NL100-5MG12ISO	66450	1.00	.65	6.1	.866	M43x12	S5MG	K6T
	NL125-5MG12ISO	66451	1.25	.93	6.9				
	NL150-5MG12ISO	66452	1.50	1.24	8.1				
5MGER16.0ISO...	NL100-5MG16ISO	66453	1.00	.65	6.1	.866	M57x16		
	NL125-5MG16ISO	66454	1.25	.93	6.9				
	NL150-5MG16ISO	66455	1.50	1.24	8.1				
5MGER18.0ISO...	NL100-5MG18ISO	66456	1.00	.65	6.1	.866	M65x18		
	NL125-5MG18ISO	66457	1.25	.93	6.9				
	NL150-5MG18ISO	66458	1.50	1.24	8.1				
5MGER20.0ISO...	NL100-5MG20ISO	66459	1.00	.65	6.1	.866	M72x20		
	NL125-5MG20ISO	66460	1.25	.93	6.9				
	NL150-5MG20ISO	66461	1.50	1.24	8.1				
5MGER25.0ISO...	NL100-5MG25ISO	66462	1.00	.65	6.1	.866	M90x25		
	NL125-5MG25ISO	66463	1.25	.93	6.9				
	NL150-5MG25ISO	66464	1.50	1.24	8.1				

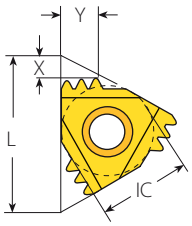
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

ISO Metric (con't)

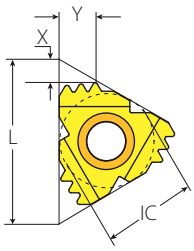
External



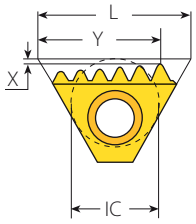
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H



M+ Style



F-Line M+



T+ Style

M+ Style

Multi plus

F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	mm		RH	h min	X	Y	RH	Toolholder
3/8″	.63	1.0	3	3ER1.0ISO3M+...	.024	.07	.10	YE3M	AL..-3
		1.5	2	3ER1.5ISO2M+...	.036	.06	.09		
		2.0	2	3ER2.0ISO2M+...	.048	.08	.12		
1/2″	.87	1.5	3	4ER1.5ISO3M+...	.036	.10	.15	YE4M	AL..-4
		2.0	2	4ER2.0ISO2M+...	.048	.08	.12		
		2.0	3	4ER2.0ISO3M+...	.048	.13	.20		
		2.5	2	4ER2.5ISO2M+...	.060	.10	.15		
1/2″F	.91	2.0	2	4FER2.0ISO2M+...	.048	.08	.12	YE4M2F	AL...-4MF
		2.0	3	4FER2.0ISO3M+...	.048	.13	.20	YE4M3F	
5/8″	1.06	3.0	2	5ER3.0ISO2M+...	.072	.12	.19	YE5M	AL..-5M

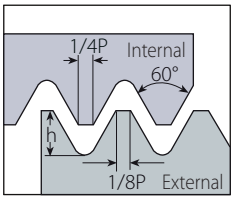
T+ Style

Multi plus

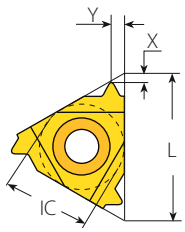
Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	mm		RH	h min	X	Y	RH	Toolholder
1/2″T	.87	1.5	8	4ER1.5ISO8T+...	.036	.01	.49	Y4T	AL..-4T
		2.0	8	4ER2.0ISO8T+...	.048	.01	.69		

ISO Metric (con't)

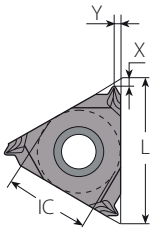
Internal



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



Standard



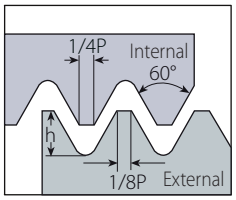
SCB
Sintered
Chipbreaker

Standard

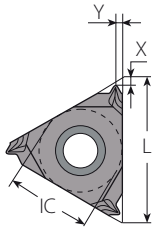
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	0.35	2IR0.35ISO...	2IL0.35ISO...	.008	.03	.01	-	-	NVR..-2 (LH)
		0.4	2IR0.4ISO...	2IL0.4ISO...	.009	.03	.02			
		0.45	2IR0.45ISO...	2IL0.45ISO...	.010	.03	.02			
		0.5	2IR0.5ISO...	2IL0.5ISO...	.011	.02	.02			
		0.6	2IR0.6ISO...	2IL0.6ISO...	.014	.02	.02			
		0.7	2IR0.7ISO...	2IL0.7ISO...	.016	.02	.02			
		0.75	2IR0.75ISO...	2IL0.75ISO...	.017	.02	.02			
		0.8	2IR0.8ISO...	2IL0.8ISO...	.018	.02	.02			
		1.0	2IR1.0ISO...	2IL1.0ISO...	.023	.02	.03			
		1.25	2IR1.25ISO...	2IL1.25ISO...	.028	.03	.04			
		1.5	2IR1.5ISO...	2IL1.5ISO...	.034	.03	.04			
		1.75	2IR1.75ISO...	2IL1.75ISO...	.040	.04	.04			
		2.0	2IR2.0ISO...	2IL2.0ISO...	.045	.04	.04			
		2.5	2IR2.5ISO...	2IL2.5ISO...	.057	.03	.04			
1/4″ SCB	.43	0.5	2JIR0.5ISO...		.011	.05	.02	-	-	NVR..-2
		0.75	2JIR0.75ISO...		.017	.05	.02			
		0.8	2JIR0.8ISO...		.018	.05	.02			
		1.0	2JIR1.0ISO...		.023	.03	.03			
		1.25	2JIR1.25ISO...		.028	.03	.03			
		1.5	2JIR1.5ISO...		.034	.03	.03			
3/8″	.63	0.35	3IR0.35ISO...	3IL0.35ISO...	.008	.03	.01	YI3	YE3	AVR..-3 (LH)
		0.4	3IR0.4ISO...	3IL0.4ISO...	.009	.03	.02			
		0.45	3IR0.45ISO...	3IL0.45ISO...	.010	.03	.02			
		0.5	3IR0.5ISO...	3IL0.5ISO...	.011	.02	.02			
		0.6	3IR0.6ISO...	3IL0.6ISO...	.014	.02	.02			
		0.7	3IR0.7ISO...	3IL0.7ISO...	.016	.02	.02			
		0.75	3IR0.75ISO...	3IL0.75ISO...	.017	.02	.02			
		0.8	3IR0.8ISO...	3IL0.8ISO...	.018	.02	.02			
		1.0	3IR1.0ISO...	3IL1.0ISO...	.023	.02	.03			
		1.25	3IR1.25ISO...	3IL1.25ISO...	.028	.03	.04			
		1.5	3IR1.5ISO...	3IL1.5ISO...	.034	.03	.04			
		1.75	3IR1.75ISO...	3IL1.75ISO...	.040	.04	.05			
		2.0	3IR2.0ISO...	3IL2.0ISO...	.045	.04	.05			
		2.5	3IR2.5ISO...	3IL2.5ISO...	.057	.04	.06			
		3.0	3IR3.0ISO...	3IL3.0ISO...	.068	.04	.06			
		3.5	3IR3.5ISO...	3IL3.5ISO...	.080	.05	.06			

ISO Metric (con't)

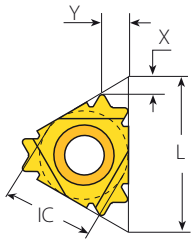
Internal



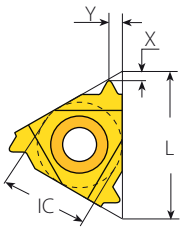
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H



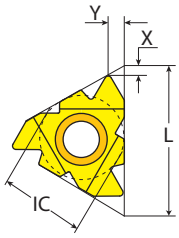
SCB
Sintered
Chipbreaker



V6



Standard



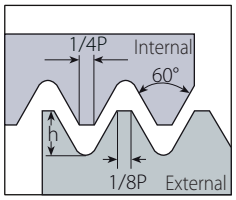
F-Line

Standard

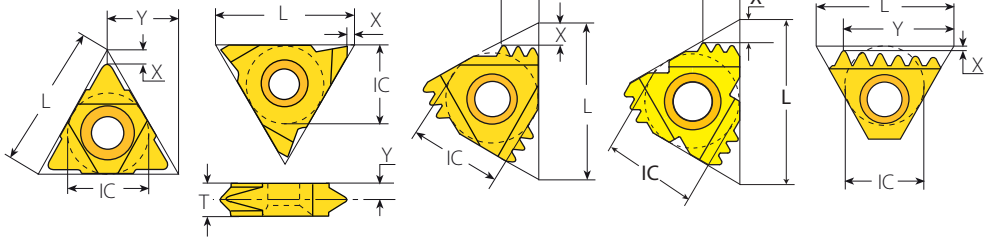
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″ SCB	.63	1.0	3JIR1.0ISO...		.023	.03	.03	YI3	-	AVR..-3
		1.25	3JIR1.25ISO...		.028	.03	.03			
		1.5	3JIR1.5ISO...		.034	.03	.03			
		1.75	3JIR1.75ISO...		.040	.04	.06			
		2.0	3JIR2.0ISO...		.045	.04	.06			
		2.5	3JIR2.5ISO...		.057	.04	.06			
		3.0	3JIR3.0ISO...		.068	.04	.06			
		3.5	3JIR3.5ISO...		.080	.05	.06			
3/8″ V6	.63	0.5	3IR0.5ISO-6C...		.011	.08	.07	YI3-6C	-	AVR..-3 NVRC..-3V6
		0.75	3IR0.75ISO-6C...		.017	.08	.07			
		0.8	3IR0.8ISO-6C...		.018	.07	.07			
		1.0	3IR1.0ISO-6C...		.023	.08	.08			
		1.25	3IR1.25ISO-6C...		.028	.07	.09			
		1.5	3IR1.5ISO-6C...		.034	.06	.09			
		1.75	3IR1.75ISO-6C...		.040	.06	.09			
		2.0	3IR2.0ISO-6C...		.045	.07	.10			
1/2″	.87	3.5	4IR3.5ISO...	4IL3.5ISO...	.080	.06	.09	YI4	YE4	AVR..-4 (LH)
		4.0	4IR4.0ISO...	4IL4.0ISO...	.091	.06	.09			
		4.5	4IR4.5ISO...	4IL4.5ISO...	.102	.06	.09			
		5.0	4IR5.0ISO...	4IL5.0ISO...	.114	.06	.09			
		5.5	4IR5.5ISO...	4IL5.5ISO...	.125	.06	.09			
		6.0	4IR6.0ISO...	4IL6.0ISO...	.136	.07	.10			
1/2″F	.91	3.5	4FIR3.5ISO...		.080	.06	.09	YI4F		AVRC...-4F
		4	4FIR4.0ISO...		.091	.06	.09			
		4.5	4FIR4.5ISO...		.102	.06	.09			
		5	4FIR5.0ISO...		.114	.06	.09			
		5.5	4FIR5.5ISO...		.125	.06	.09			
		6	4FIR6.0ISO...		.136	.07	.10			
5/8″	1.06	4.5	5IR4.5ISO...	5IL4.5ISO...	.102	.06	.09	YI5	YE5	AVR..-5 (LH)
		5.0	5IR5.0ISO...	5IL5.0ISO...	.114	.06	.09			
		5.5	5IR5.5ISO...	5IL5.5ISO...	.125	.06	.09			
		6.0	5IR6.0ISO...	5IL6.0ISO...	.136	.07	.10			

ISO Metric (con't)

Internal



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



U Style | V Style | M+ Style | F-Line M+ | T+ Style

U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	5.5	4UI5.5ISO...	.125	.09	.43	YI4U	YE4U	AVR..-4U (LH)
		6.0	4UI6.0ISO...	.136	.08	.43			
5/8"U	1.06	8.0	5UI8.0ISO...	.182	.09	.54	YI5U	YE5U	AVR..-5U (LH)

V Style

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	mm	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	6.0	5VIR6.0ISO...	5VIL6.0ISO...	.136	.04	.13	.24	NVR..-5V (LH)
		8.0	5VIR8.0ISO...	5VIL8.0ISO...	.182	.04	.17	.31	
		10.0	5VIR10.0ISO...	5VIL10.0ISO...	.227	.04	.20	.39	

M+ Style

Multi plus

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	mm		RH	h min	X	Y	RH	Toolholder
3/8"	.63	1.0	3	3IR1.0ISO3M+...	.023	.07	.10	YI3M	AVR..-3
		1.5	2	3IR1.5ISO2M+...	.034	.06	.09		
		2.0	2	3IR2.0ISO2M+...	.045	.08	.12		
1/2"	.87	1.5	3	4IR1.5ISO3M+...	.034	.10	.15	YI4M	AVR..-4
		2.0	2	4IR2.0ISO2M+...	.045	.08	.12		
		2.0	3	4IR2.0ISO3M+...	.045	.13	.20		
1/2"F	.91	2.0	2	4FIR2.0ISO2M+...	.045	.08	.12	YI4M2F	AVRC...-4MF
5/8"	1.06	3.0	2	5IR3.0ISO2M+...	.068	.12	.19	YI5M	AVR..-5M

T+ Style

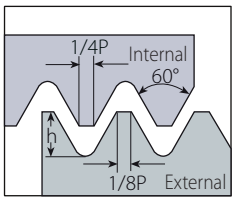
Multi plus

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	mm		RH	h min	X	Y	RH	Toolholder
1/2"	.87	1.5	8	4IR1.5ISO8T+...	.034	.01	.49	Y4T	AVR..-4T
		2.0	8	4IR2.0ISO8T+...	.045	.01	.69		

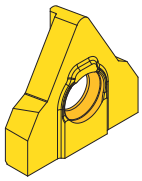
ISO Metric (con't)

MEGALINE

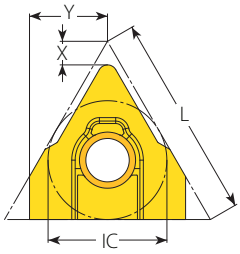
Internal



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



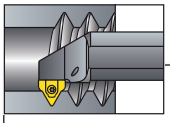
Mega Line



Internal

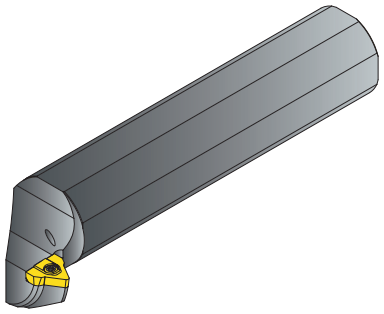
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	mm	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8″ MG	1.06	12.0	5MGIR12.0ISO...	42490	.273	.10	.41	99	46
		16.0	5MGIR16.0ISO...	42491	.367	.12		132	62
		18.0	5MGIR18.0ISO...	42492	.413	.12		149	69
		20.0	5MGIR20.0ISO...	42493	.458	.13		165	77
		25.0	5MGIR25.0ISO...	42494	.574	.14		206	96

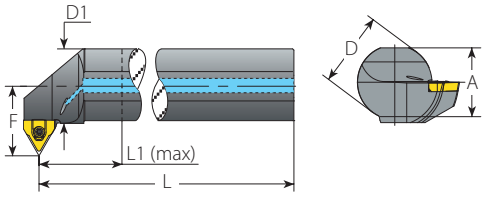
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.



Internal Toolholders for ISO Metric

MEGALINE





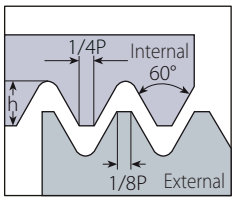
Internal

Insert	Ordering Code	EDP No.	Dimensions inch						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH		A	L	L1 (max)	D	D1	F	inch	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR12.0ISO...	NVRC150-5MG12ISO	66465	1.42	9.15	4	1.5	1.49	1.63	2.36	(M73-90)x12	(M85-90)x12	S5MG	K6T
	NVRC200-5MG12ISO	66466	1.81	10.15	5	2.0	1.99	1.83	2.75	(M83-90)x12	(M83-90)x12		
5MGIR16.0ISO...	NVRC150-5MG16ISO	66467	1.42	9.15	4	1.5	1.49	1.63	2.34	(M77-190)x16	(M89-190)x16		
	NVRC200-5MG16ISO	66468	1.81	10.15	5	2.0	1.99	1.83	2.74	(M87-190)x16	(M101-190)x16		
	NVRC250-5MG16ISO	66469	2.28	11.10	6	2.5	2.49	2.03	3.29	(M97-190)x16	(M113-190)x16		
5MGIR18.0ISO...	NVRC150-5MG18ISO	66470	1.42	9.15	4	1.5	1.49	1.63	2.58	(M85-230)x18	(M91-230)x18		
	NVRC200-5MG18ISO	66471	1.81	10.15	5	2.0	1.99	1.83	2.74	(M89-230)x18	(M103-230)x18		
	NVRC250-5MG18ISO	66472	2.28	11.10	6	2.5	2.49	2.03	3.29	(M99-230)x18	(M115-230)x18		
5MGIR20.0ISO...	NVRC150-5MG20ISO	66473	1.42	9.15	4	1.5	1.49	1.63	2.77	(M92-290)x20	(M93-290)x20		
	NVRC200-5MG20ISO	66474	1.81	10.15	5	2.0	1.99	1.83	2.77	(M92-290)x20	(M105-290)x20		
	NVRC250-5MG20ISO	66475	2.28	11.10	6	2.5	2.49	2.03	3.24	(M101-290)x20	(M117-290)x20		
5MGIR25.0ISO...	NVRC150-5MG25ISO	66476	1.42	9.15	4	1.5	1.49	1.63	3.23	(M109-405)x25	(M109-405)x25		
	NVRC200-5MG25ISO	66477	1.81	10.15	5	2.0	1.99	1.83	3.23	(M109-405)x25	(M110-405)x25		
	NVRC250-5MG25ISO	66478	2.28	11.10	6	2.5	2.49	2.03	3.27	(M110-405)x25	(M127-405)x25		

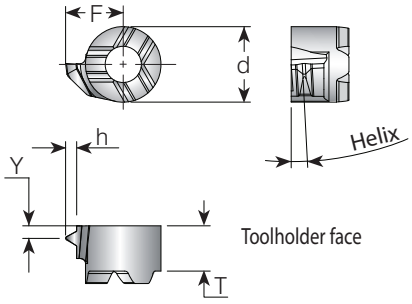
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

ISO Metric (con't)

Internal



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



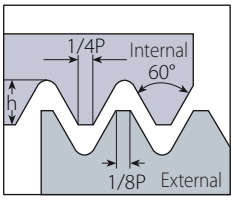
Mini-V

Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions inch					Helix	Toolholder
		mm	RH	d	T	F	Y	h min	Deg.	
M8x0.5	V08	0.5	V08TH0.50ISOR...	.24	.15	.15	.01	.29	1	.V08-...
M8.5x0.75		0.75	V08TH0.75ISOR...			.16	.02	.43	1.5	
M9x1.0		1.0	V08TH1.0ISOR...			.17	.02	.58	2	
M10x1.25		1.25	V08TH1.25ISOR...			.17	.03	.72	2.5	
M10x1.5		1.5	V08TH1.5ISOR...			.18	.04	.87	3	
M12x1.75		1.75	V08TH1.75ISOR...			.19	.04	1.01	3	
M14x2.0	V11	2.0	V11TH2.0ISOR...	.31	.17	.25	.04	1.15	2.5	.V11-...

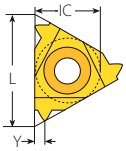
ISO Metric (con't)

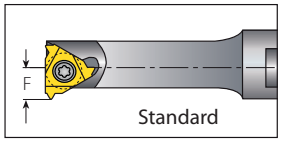
MINIPRO

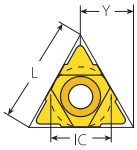
Internal

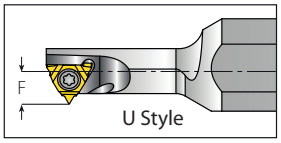


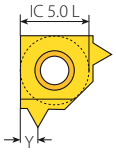
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H

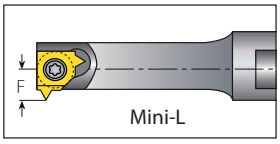












Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	mm	RH	LH	h min	Y	F	inch	Toolholder
4.0	.24	0.25	4.0KIR0.25ISO...	4.0KIL0.25ISO...	.006	.01	.13	.23	.NVR...-4.0K (LH)
		0.5	4.0KIR0.5ISO...	4.0KIL0.5ISO...	.011	.02	.13	.24	
		0.75	4.0KIR0.75ISO...	4.0KIL0.75ISO...	.017	.02	.14	.24	
		1.0	4.0KIR1.0ISO...	4.0KIL1.0ISO...	.023	.03	.14	.25	
		1.25	4.0KIR1.25ISO...	4.0KIL1.25ISO...	.028	.02	.15	.25	
5.0	.31	0.5	5.0KIR0.5ISO...	5.0KIL0.5ISO...	.011	.02	.19	.31	.NVRC...-5.0K (LH)
		0.75	5.0KIR0.75ISO...	5.0KIL0.75ISO...	.017	.02			
		1.0	5.0KIR1.0ISO...	5.0KIL1.0ISO...	.023	.02			
		1.25	5.0KIR1.25ISO...	5.0KIL1.25ISO...	.028	.03			
		1.5	5.0KIR1.5ISO...	5.0KIL1.5ISO...	.034	.03			
		1.75	5.0KIR1.75ISO...	5.0KIL1.75ISO...	.040	.03			
6.0	.39	0.5	6.0KIR0.5ISO...	6.0KIL0.5ISO...	.011	.02	.17	.37	.NVR...-6.0K (LH)
		0.75	6.0KIR0.75ISO...	6.0KIL0.75ISO...	.017	.02	.18	.37	
		1.0	6.0KIR1.0ISO...	6.0KIL1.0ISO...	.023	.03	.19	.38	
		1.25	6.0KIR1.25ISO...	6.0KIL1.25ISO...	.028	.04	.19	.39	
		1.5	6.0KIR1.5ISO...	6.0KIL1.5ISO...	.034	.04	.20	.39	
		1.75	6.0KIR1.75ISO...	6.0KIL1.75ISO...	.040	.04	.20	.39	
		2.0	6.0KIR2.0ISO...	6.0KIL2.0ISO...	.045	.04	.21	.39	

Mini-3 U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Min. Bore Dia.	
IC mm	L inch	mm	RH+LH	h min	Y	F	inch	Toolholder
5.0U	.31	2.0	5.0KUI2.0ISO...	.048	.16	.22	.35	.NVRC...-5.0KU (LH)

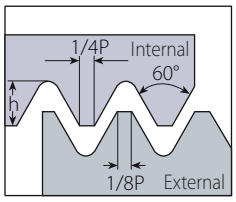
Mini-L

Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	mm	RH	LH	h min	Y	F	inch	Toolholder
5.0L	0.35	5LKIR0.35ISO...	5LKIL0.35ISO...	.008	.01	.15	.29	.NVR...-5LK (LH)
	0.5	5LKIR0.5ISO...	5LKIL0.5ISO...	.011	.02	.15	.29	
	0.75	5LKIR0.75ISO...	5LKIL0.75ISO...	.017	.02	.15	.30	
	1.0	5LKIR1.0ISO...	5LKIL1.0ISO...	.023	.03	.16	.30	
	1.25	5LKIR1.25ISO...	5LKIL1.25ISO...	.028	.04	.17	.31	
	1.5	5LKIR1.5ISO...	5LKIL1.5ISO...	.034	.04	.17	.31	
	1.75	5LKIR1.75ISO...	5LKIL1.75ISO...	.040	.04	.18	.31	
	2.0	5LKIR2.0ISO...	5LKIL2.0ISO...	.045	.04	.18	.31	

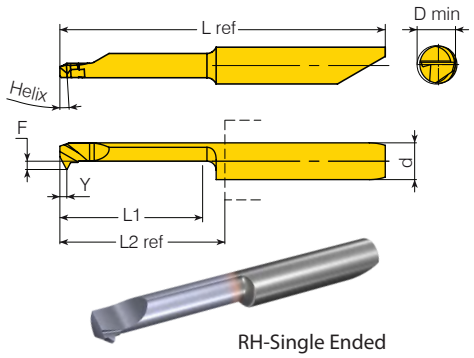
ISO Metric (con't)

MINIPRO

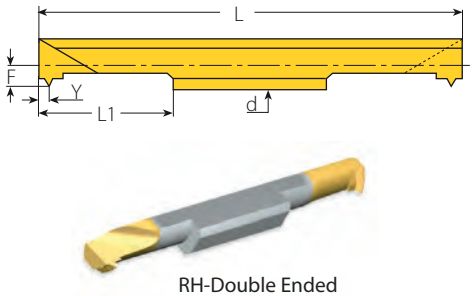
Internal



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



RH-Single Ended



RH-Double Ended

Micro - Double Ended

	Insert Dia.	Pitch	Ordering Code	Dimensions inch					Min. Bore Dia.	
Thread	d mm	mm	RH	L1	L	F	Y	h min	inch	Toolholder
M4 x 0.3		0.3	3.0SIR0.3ISO...	.63	1.97	.05	.01	.007	.13	
M4 x 0.4		0.4	3.0SIR0.4ISO...	.63	1.97	.05	.01	.009	.13	
M4 x 0.5		0.5	3.0SIR0.5ISO...	.63	1.97	.05	.02	.011	.13	
M4 x 0.6	3.0	0.6	3.0SIR0.6ISO...	.63	1.97	.05	.02	.014	.13	SMC..-3.0
M4.5 x 0.7		0.7	3.0SIR0.7ISO...	.63	1.97	.06	.02	.016	.13	
M4.5 x 0.75		0.75	3.0SIR0.75ISO...	.63	1.97	.06	.02	.017	.13	
M5 x 0.8		0.8	3.0SIR0.8ISO...	.63	1.97	.06	.02	.018	.13	
M5 x 0.4		0.4	4.0SIR0.4ISO...	.63	1.97	.06	.01	.009	.16	
M5 x 0.5		0.5	4.0SIR0.5ISO...	.63	1.97	.06	.02	.011	.16	
M5 x 0.6		0.6	4.0SIR0.6ISO...	.63	1.97	.07	.02	.014	.16	
M5 x 0.7	4.0	0.7	4.0SIR0.7ISO...	.63	1.97	.07	.02	.016	.16	SMC..-4.0
M5.5 x 0.75		0.75	4.0SIR0.75ISO...	.63	1.97	.07	.02	.017	.17	
M5.5 x 0.8		0.8	4.0SIR0.8ISO...	.63	1.97	.07	.02	.018	.17	
M6 x 1		1.0	4.0SIR1.0ISO...	.63	1.97	.08	.04	.023	.17	
M6 x 0.5		0.5	6.0SIR0.5ISO...	.63	1.97	.07	.02	.011	.21	
M6.5 x 0.75		0.75	6.0SIR0.75ISO...	.63	1.97	.08	.02	.017	.22	
M7 x 1	6.0	1.0	6.0SIR1.0ISO...	.63	1.97	.09	.03	.023	.22	SMC..-6.0
M8 x 1.25		1.25	6.0SIR1.25ISO...	.63	1.97	.09	.04	.028	.23	
M10.5 x 1.5		1.5	6.0SIR1.5ISO...	.63	1.97	.10	.04	.034	.24	

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

Micro - Single Ended

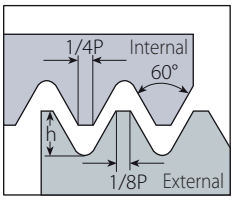
microscope

	Insert Dia.	Pitch	Ordering Code		Dimensions inch					Min. Bore Dia.	
Thread	d mm	mm	RH/LH	Helix °	L1	F	Y	h min	L2 ref*	L ref	D inch	Toolholder
M4x0.5		0.5	MS429TH0.50ISOL16R/L...			.04	.02	.011			.13	
M5x0.5		0.5	MS439TH0.50ISOL16R/L...			.07	.02	.011			.17	
M4x0.7	4.0	0.7	MS429TH0.70ISOL16R/L...			.04	.02	.016	.72	1.39	.13	MH...-4.0
M5x0.8		0.8	MS429TH0.80ISOL16R/L...			.04	.02	.018			.16	
M6x1.0		1.0	MS439TH1.00ISOL16R/L...			.07	.03	.023			.19	
M5.5x0.5		0.5	M542TH0.50ISOL16R/L...	3.5		.07	.02	.011			.19	
M5.5x0.75	5.0	0.75	M542TH0.75ISOL16R/L...		.63	.07	.02	.017	.72	1.62	.18	MH...-5.0
M7x1.0		1.0	M549TH1.00ISOL16R/L...			.09	.03	.023			.23	
M6x0.5		0.5	M649TH0.50ISOL16R/L...			.07	.02	.011			.21	
M6.5x0.75		0.75	M649TH0.75ISOL16R/L...			.07	.02	.017			.22	
M7.5x1.0	6.0	1.0	M659TH1.00ISOL16R/L...			.11	.03	.023	.73	1.66	.25	MH...-6.0
M8x1.25		1.25	M659TH1.25ISOL16R/L...			.11	.04	.028			.25	
M10x1.5		1.5	M659TH1.50ISOL16R/L...	3		.11	.04	.034			.25	

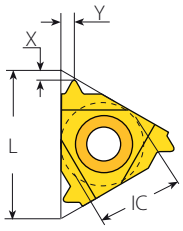
* L2 Ref: Repeatability within +/-.0008

American UN – UNC, UNF, UNEF, UNS

External



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



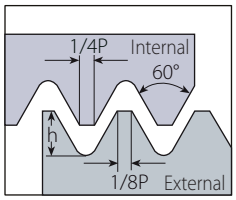
Standard

Standard

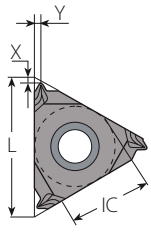
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	72	2ER72UN...	2EL72UN...	.009	.03	.02	-	-	NL ..-2 (LH)
		64	2ER64UN...	2EL64UN...	.009	.03	.02			
		56	2ER56UN...	2EL56UN...	.011	.03	.02			
		48	2ER48UN...	2EL48UN...	.013	.02	.02			
		44	2ER44UN...	2EL44UN...	.014	.02	.02			
		40	2ER40UN...	2EL40UN...	.015	.02	.02			
		36	2ER36UN...	2EL36UN...	.017	.02	.02			
		32	2ER32UN...	2EL32UN...	.019	.02	.02			
		28	2ER28UN...	2EL28UN...	.022	.02	.03			
		27	2ER27UN...	2EL27UN...	.023	.03	.03			
		24	2ER24UN...	2EL24UN...	.026	.03	.03			
		20	2ER20UN...	2EL20UN...	.031	.03	.04			
		18	2ER18UN...	2EL18UN...	.034	.03	.04			
		16	2ER16UN...	2EL16UN...	.038	.04	.04			
		14	2ER14UN...	2EL14UN...	.044	.04	.04			
3/8"	.63	80	3ER80UN...	3EL80UN...	.007	.03	.01	YE3	YI3	AL..-3 (LH)
		72	3ER72UN...	3EL72UN...	.009	.03	.02			
		64	3ER64UN...	3EL64UN...	.009	.03	.02			
		56	3ER56UN...	3EL56UN...	.011	.03	.02			
		48	3ER48UN...	3EL48UN...	.013	.02	.02			
		44	3ER44UN...	3EL44UN...	.014	.02	.02			
		40	3ER40UN...	3EL40UN...	.015	.02	.02			
		36	3ER36UN...	3EL36UN...	.017	.02	.02			
		32	3ER32UN...	3EL32UN...	.019	.02	.02			
		28	3ER28UN...	3EL28UN...	.022	.02	.03			
		27	3ER27UN...	3EL27UN...	.023	.03	.03			
		26	3ER26UN...	3EL26UN...	.023	.03	.03			
		24	3ER24UN...	3EL24UN...	.026	.03	.03			
		20	3ER20UN...	3EL20UN...	.031	.03	.04			
		18	3ER18UN...	3EL18UN...	.034	.03	.04			
		16	3ER16UN...	3EL16UN...	.038	.04	.04			
		14	3ER14UN...	3EL14UN...	.044	.04	.05			
		13	3ER13UN...	3EL13UN...	.047	.04	.05			
		12	3ER12UN...	3EL12UN...	.051	.04	.06			
		11.5	3ER11.5UN...	3EL11.5UN...	.053	.04	.06			
		11	3ER11UN...	3EL11UN...	.056	.04	.06			
		10	3ER10UN...	3EL10UN...	.061	.04	.06			
		9	3ER9UN...	3EL9UN...	.068	.05	.07			
		8	3ER8UN...	3EL8UN...	.077	.05	.06			

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

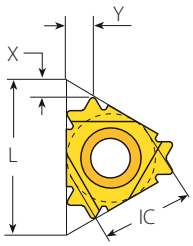
External



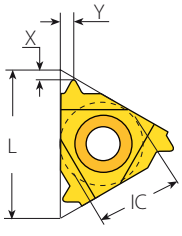
Defined by: ANSI B1.1:74
Tolerance class: 2A/2B



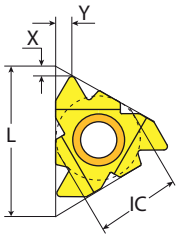
SCB
Sintered
Chipbreaker



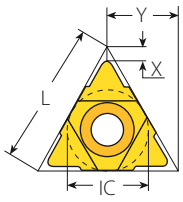
V6



Standard



F-Line



U Style

Standard

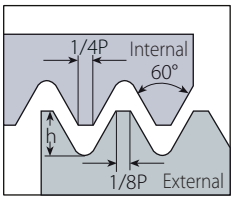
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" SCB	.63	36	3JER36UN...		.017	.05	.02	YE3	-	AL..-3
		32	3JER32UN...		.019	.05	.02			
		28	3JER28UN...		.022	.03	.03			
		24	3JER24UN...		.026	.03	.03			
		20	3JER20UN...		.031	.03	.03			
		18	3JER18UN...		.034	.03	.03			
		16	3JER16UN...		.038	.03	.03			
		14	3JER14UN...		.044	.05	.06			
		13	3JER13UN...		.047	.05	.06			
		12	3JER12UN...		.051	.05	.06			
		10	3JER10UN...		.061	.05	.06			
		9	3JER9UN...		.068	.05	.06			
		8	3JER8UN...		.077	.05	.06			
3/8" V6	.63	32	3ER32UN-6C...		.019	.08	.07	YE3-6C	-	AL..-3
		28	3ER28UN-6C...		.022	.08	.08			
		24	3ER24UN-6C...		.026	.07	.08			
		20	3ER20UN-6C...		.031	.07	.08			
		18	3ER18UN-6C...		.034	.07	.09			
		16	3ER16UN-6C...		.038	.07	.09			
		14	3ER14UN-6C...		.044	.07	.11			
		13	3ER13UN-6C...		.047	.07	.11			
		12	3ER12UN-6C...		.051	.07	.09			
1/2"	.87	7	4ER7UN...	4EL7UN...	.087	.06	.09	YE4	YI4	AL..-4 (LH)
		6	4ER6UN...	4EL6UN...	.102	.06	.09			
		5	4ER5UN...	4EL5UN...	.123	.07	.10			
1/2"F	.91	7	4FER7UN...		.087	.06	.09	YE4F		AL...-4F
		6	4FER6UN...		.102	.06	.09			
		5	4FER5UN...		.123	.07	.10			
5/8"	1.06	4.5	5ER4.5UN...	5EL4.5UN...	.136	.07	.11	YE5	YI5	AL..-5 (LH)
		4	5ER4UN...	5EL4UN...	.153	.08	.12			

U Style

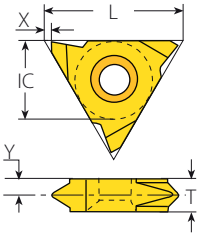
Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	4.5	4UE4.5UN...	.136	.08	.43	YE4U	YI4U	AL..-4U (LH)
		4	4UE4UN...	.153	.08	.43			
5/8"U	1.06	3	5UE3UN...	.204	.10	.54	YE5U	YI5U	AL..-5U (LH)

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

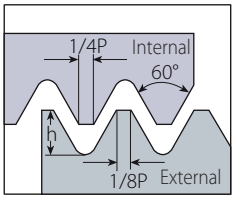
Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
1/4"V	.43	20	2VER20UN...	2VEL20UN...	.031	.03	.09	.13	NL..-2V (LH)
		18	2VER18UN...	2VEL18UN...	.034	.03	.09	.13	
		16	2VER16UN...	2VEL16UN...	.038	.03	.09	.13	
		14	2VER14UN...	2VEL14UN...	.044	.03	.08	.13	
		12	2VER12UN...	2VEL12UN...	.051	.03	.07	.13	
3/8"V	.63	32	3VER32UN...	3VEL32UN...	.019	.04	.12	.14	NL..-3V (LH)
		28	3VER28UN...	3VEL28UN...	.022	.04	.12	.14	
		24	3VER24UN...	3VEL24UN...	.026	.04	.11	.14	
		20	3VER20UN...	3VEL20UN...	.031	.04	.11	.14	
		18	3VER18UN...	3VEL18UN...	.034	.04	.10	.14	
		16	3VER16UN...	3VEL16UN...	.038	.04	.10	.14	
		14	3VER14UN...	3VEL14UN...	.044	.04	.09	.14	
		12	3VER12UN...	3VEL12UN...	.051	.04	.09	.14	
		10	3VER10UN...	3VEL10UN...	.061	.04	.08	.14	
		8	3VER8UN...	3VEL8UN...	.077	.04	.08	.14	
1/2"V	.87	7	4VER7UN...	4VEL7UN...	.087	.04	.10	.19	NL..-4V (LH)

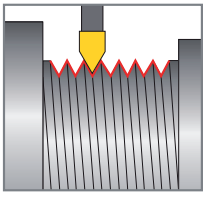
V Style

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	4	5VER4UN...	5VEL4UN...	.153	.04	.13	.24	NL..-5V-6 (LH)
		3	5VER3UN...	5VEL3UN...	.204	.04	.17	.31	NL..-5V-8 (LH)

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

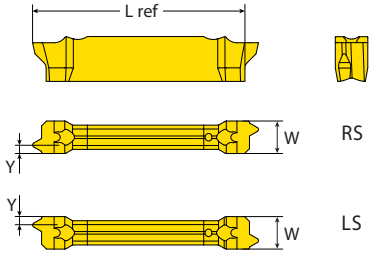
External





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.



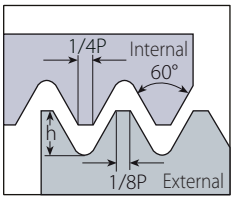
VG-Cut

Pocket Size	Ordering Code	Dimensions inch					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...	.12	32	.019	.03	.86	5 - 8	2.5°	5/32"-32 UNC	VGE...T12
	VGD3.0UN28RH-RS/LS...		28	.022	.03		5 - 9		3/16"-28 UNC	
	VGD3.0UN24RH-RS/LS...		24	.026	.03		5 - 9		7/32"-24 UNC	
	VGD3.0UN20RH-RS/LS...		20	.031	.03		6 - 10		1/4"-20 UNC	
	VGD3.0UN18RH-RS/LS...		18	.034	.04		7 - 12		5/16"-18 UNC	
	VGD3.0UN16RH-RS/LS...		16	.038	.04		7 - 12		3/8"-16 UNC	
	VGD3.0UN14RH-RS/LS...		14	.044	.04		8 - 14		7/16"-14 UNC	
	VGD3.0UN12RH-RS/LS...		12	.051	.05		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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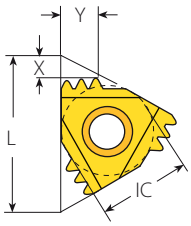
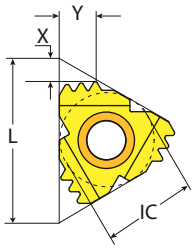


M+ Style



F-Line M+

M+ Style

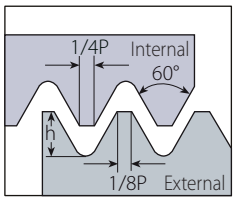
Multi plus

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
3/8"	.63	20	3	3ER20UN3M+...	.031	.09	.13	YE3M	AL..-3
		18	2	3ER18UN2M+...	.034	.06	.09		
		18	3	3ER18UN3M+...	.034	.09	.14		
		16	2	3ER16UN2M+...	.038	.07	.10		
		14	2	3ER14UN2M+...	.044	.07	.11		
		12	2	3ER12UN2M+...	.051	.09	.13		
1/2"	.87	16	3	4ER16UN3M+...	.038	.10	.16	YE4M	AL..-4
		14	2	4ER14UN2M+...	.044	.07	.11		
		12	2	4ER12UN2M+...	.051	.09	.13		
		12	3	4ER12UN3M+...	.051	.13	.21		
		11	2	4ER11UN2M+...	.056	.09	.14		
		10	2	4ER10UN2M+...	.061	.10	.15		
1/2"F	.91	16	3	4FER16UN3M+...	.038	.10	.16	YE4M3F	AL...-4MF
		12	3	4FER12UN3M+...	.051	.13	.21		
		12	2	4FER12UN2M+...	.051	.09	.13	YE4M2F	
		10	2	4FER10UN2M+...	.061	.10	.15		
5/8"	1.06	8	2	5ER8UN2M+...	.077	.12	.19	YE5M	AL..-5M

F-LINE

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

Internal



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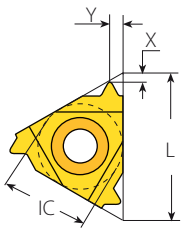
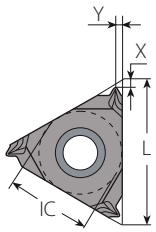
Tolerance class: 2A/2B



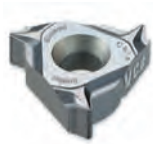
Standard



SCB
Sintered
Chipbreaker

Standard

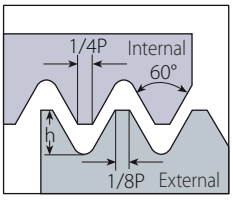
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	72	2IR72UN...	2IL72UN...	.008	.03	.01	-	-	NVR..-2 (LH)
		64	2IR64UN...	2IL64UN...	.009	.03	.02			
		56	2IR56UN...	2IL56UN...	.010	.03	.02			
		48	2IR48UN...	2IL48UN...	.012	.02	.02			
		44	2IR44UN...	2IL44UN...	.013	.02	.02			
		40	2IR40UN...	2IL40UN...	.015	.02	.02			
		36	2IR36UN...	2IL36UN...	.016	.02	.02			
		32	2IR32UN...	2IL32UN...	.018	.02	.02			
		28	2IR28UN...	2IL28UN...	.020	.02	.03			
		27	2IR27UN...	2IL27UN...	.021	.03	.03			
		24	2IR24UN...	2IL24UN...	.024	.03	.03			
		20	2IR20UN...	2IL20UN...	.029	.03	.04			
		18	2IR18UN...	2IL18UN...	.032	.03	.04			
		16	2IR16UN...	2IL16UN...	.036	.04	.04			
		14	2IR14UN...	2IL14UN...	.041	.04	.04			
		12	2IR12UN...	2IL12UN...	.048	.03	.04			
		11	2IR11UN...	2IL11UN...	.052	.03	.04			
1/4" SCB	.43	36	2JIR36UN...		.016	.04	.02	-	-	NVR..-2
		32	2JIR32UN...		.018	.05	.02			
		28	2JIR28UN...		.020	.02	.03			
		24	2JIR24UN...		.024	.03	.03			
		20	2JIR20UN...		.029	.02	.03			
		18	2JIR18UN...		.032	.02	.03			
		16	2JIR16UN...		.038	.03	.03			
3/8"	.63	72	3IR72UN...	3IL72UN...	.008	.03	.01	YI3	YE3	AVR..-3 (LH)
		64	3IR64UN...	3IL64UN...	.009	.03	.02			
		56	3IR56UN...	3IL56UN...	.010	.03	.02			
		48	3IR48UN...	3IL48UN...	.012	.02	.02			
		44	3IR44UN...	3IL44UN...	.013	.02	.02			
		40	3IR40UN...	3IL40UN...	.015	.02	.02			
		36	3IR36UN...	3IL36UN...	.016	.02	.02			
		32	3IR32UN...	3IL32UN...	.020	.02	.02			
		28	3IR28UN...	3IL28UN...	.020	.02	.03			
		27	3IR27UN...	3IL27UN...	.021	.03	.03			
		26	3IR26UN...	3IL26UN...	.022	.03	.03			



SCB

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

Internal



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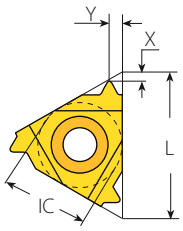
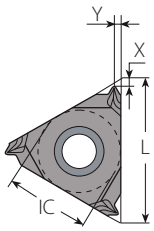
Tolerance class: 2A/2B



Standard



SCB
Sintered
Chipbreaker

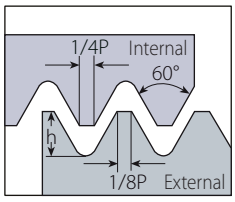
Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	.63	24	3IR24UN...	3IL24UN...	.024	.03	.03	YI3	YE3	AVR..-3 (LH)
		20	3IR20UN...	3IL20UN...	.029	.03	.04			
		18	3IR18UN...	3IL18UN...	.032	.03	.04			
		16	3IR16UN...	3IL16UN...	.036	.04	.04			
		14	3IR14UN...	3IL14UN...	.041	.04	.05			
		13	3IR13UN...	3IL13UN...	.044	.04	.05			
		12	3IR12UN...	3IL12UN...	.048	.04	.06			
		11.5	3IR11.5UN...	3IL11.5UN...	.050	.04	.06			
		11	3IR11UN...	3IL11UN...	.052	.04	.06			
		10	3IR10UN...	3IL10UN...	.058	.04	.06			
		9	3IR9UN...	3IL9UN...	.064	.05	.07			
		8	3IR8UN...	3IL8UN...	.072	.04	.06			
3/8" SCB	.63	28	3JIR28UN...		.020	.02	.03	YI3	-	AVR..-3
		24	3JIR24UN...		.024	.03	.03			
		20	3JIR20UN...		.029	.02	.03			
		18	3JIR18UN...		.032	.02	.03			
		16	3JIR16UN...		.036	.03	.03			
		14	3JIR14UN...		.041	.04	.06			
		13	3JIR13UN...		.044	.04	.06			
		12	3JIR12UN...		.048	.04	.06			
		10	3JIR10UN...		.058	.04	.06			
		9	3JIR9UN...		.064	.04	.06			
		8	3JIR8UN...		.072	.04	.06			

SCB

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

Internal



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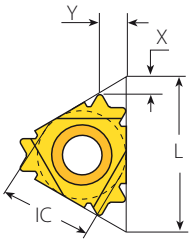
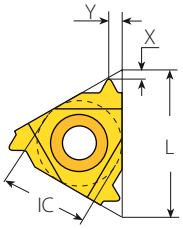
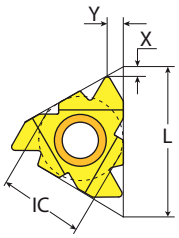
Tolerance class: 2A/2B



V6



Standard



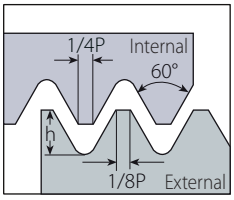
F-Line

Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" V6	.63	32	3IR32UN-6C...		.020	.08	.07	YI3-6C	-	AVR..-3 NVRC..-3V6
		28	3IR28UN-6C...		.020	.07	.07			
		24	3IR24UN-6C...		.024	.07	.07			
		20	3IR20UN-6C...		.029	.07	.08			
		18	3IR18UN-6C...		.032	.07	.08			
		16	3IR16UN-6C...		.036	.06	.09			
		14	3IR14UN-6C...		.041	.07	.10			
		13	3IR13UN-6C...		.044	.07	.11			
		12	3IR12UN-6C...		.048	.06	.10			
1/2"	.87	7	4IR7UN...	4IL7UN...	.082	.06	.09	YI4	YE4	AVR..-4 (LH)
		6	4IR6UN...	4IL6UN...	.096	.06	.09			
		5	4IR5UN...	4IL5UN...	.115	.06	.09			
1/2"F	.91	7	4FIR7UN...		.082	.06	.09	YI4F		AVRC...-4F
		6	4FIR6UN...		.096	.06	.09			
		5	4FIR5UN...		.115	.06	.09			
5/8"	1.06	4.5	5IR4.5UN...	5IL4.5UN...	.128	.07	.09	YI5	YE5	AVR..-5 (LH)
		4	5IR4UN...	5IL4UN...	.144	.07	.11			

American UNC (con't)

Internal



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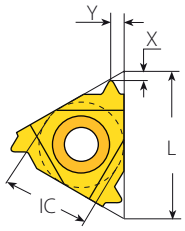
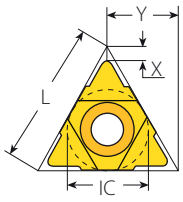


Coarse Pitch



U Style Coarse Pitch

Coarse Pitch RH

Thread	Insert Size		Ordering Code	Dimensions inch				Min Bore Dia.
	IC	L inch	RH	h min	X	Y	Toolholder RH	inch
1/2" x 13UN	6.0	.39	6.0KIR13UN158/001...	.044	.03	.04	BNVRC0375S-6.0K	.42
9/16" x 12UN	1/4"	.43	2IR12UN158/002...	.048	.04	.04	NVRC040-2-157/001	.47
5/8" x 11UN	1/4"U		2UIR11UN158/003...	.052	.05	.22	NVRC044-2U-157/002	.53
3/4" x 10UN	3/8"	.63	3IR10UN...	.058	.04	.06	NVRC050-3-157/016	.64
7/8" x 9UN			3IR9UN...	.064	.05	.07	NVRC050-3-157/016	.76
1" x 8UN			3IR8UN...	.072	.04	.06	NVRC0625-3	.87
1 1/8" x 7UN	1/2"	.87	4IR7UN...	.082	.06	.09	NVRC075-4	.97
1 1/4" x 7UN			4IR7UN...	.082	.06	.09	NVRC075-4	1.09
1 3/8" x 6UN			4IR6UN...	.096	.06	.09	NVRC075-4	1.19

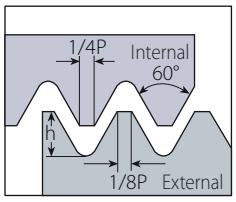
Coarse Pitch LH

Thread	Insert Size		Ordering Code	Dimensions inch				Min Bore Dia.
	IC	L inch	LH	h min	X	Y	Toolholder LH	inch
1/2" x 13UN	6.0	.39	6.0KIL13UN158/016...	.044	.03	.04	BNVRC0375S-6.0KLH	.42
9/16" x 12UN	1/4"	.43	2IL12UN158/017...	.048	.04	.04	NVRC040-2LH-157/025	.47
5/8" x 11UN	1/4"U		2UIR11UN158/003...	.052	.05	.22	NVRC044-2ULH-157/026	.53
3/4" x 10UN	3/8"	.63	3IL10UN...	.058	.04	.06	NVRC050-3LH-157/035	.64
7/8" x 9UN			3IL9UN...	.064	.05	.07	NVRC050-3LH-157/035	.76
1" x 8UN			3IL8UN...	.072	.04	.06	NVRC0625-3LH	.87
1 1/8" x 7UN	1/2"	.87	4IL7UN...	.082	.06	.09	NVRC075-4LH	.97
1 1/4" x 7UN			4IL7UN...	.082	.06	.09	NVRC075-4LH	1.09
1 3/8" x 6UN			4IL6UN...	.096	.06	.09	NVRC075-4LH	1.19

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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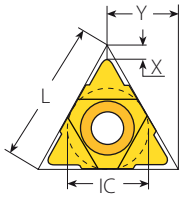
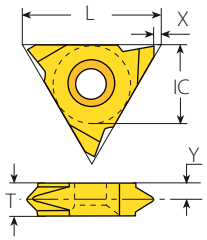
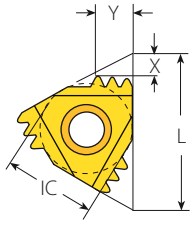


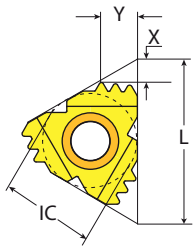
U Style



V Style



M+ Style



F-Line M+

U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	4.5	4UI4.5UN...	.128	.09	.43	YI4U	YE4U	AVR..-4U (LH)
		4	4UI4UN...	.144	.09	.43			
5/8"U	1.06	3	5UI3UN...	.193	.11	.54	YI5U	YE5U	AVR..-5U (LH)

V Style

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	4	5VIR4UN...	5VIL4UN...	.144	.04	.13	.24	NVR..-5V (LH)
		3	5VIR3UN...	5VIL3UN...	.193	.04	.17	.31	

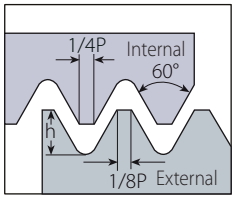
M+ Style

F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
3/8"	.63	12	2	3IR12UN2M+...	.048	.09	.13	YI3M	AVR..-3
		14	2	3IR14UN2M+...	.041	.07	.11		
		16	2	3IR16UN2M+...	.036	.07	.10		
1/2"	.87	16	3	4IR16UN3M+...	.036	.10	.16	YI4M	AVR..-4
		14	2	4IR14UN2M+...	.041	.07	.11		
		12	2	4IR12UN2M+...	.048	.09	.13		
		12	3	4IR12UN3M+...	.048	.13	.21		
1/2"F	.91	12	2	4FIR12UN2M+...	.048	.09	.13	YI4M2F	AVRC...-4MF
5/8"	1.06	8	2	5IR8UN2M+...	.072	.12	.19	YI5M	AVR..-5M

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

Internal



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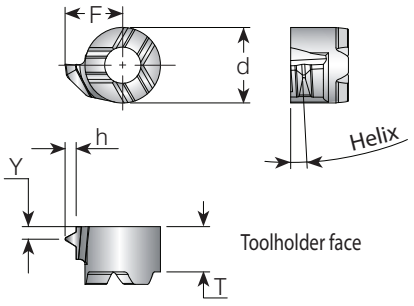
Tolerance class: 2A/2B



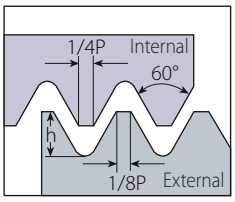
Mini-V

Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions inch					Helix	Toolholder
		TPI	RH	d	T	F	Y	h min	Deg.	
3/8"-32UNEF	V08	32	V08TH32UNR...	.24	.15	.17	.02	.018	1.5	.V08-...
3/8"-28UN		28	V08TH28UNR...			.17	.02	.020	2	
3/8"-24UNF		24	V08TH24UNR...			.17	.03	.024	2	
3/8"-20UN		20	V08TH20UNR...			.18	.03	.029	2.5	
3/8"-18UNS		18	V08TH18UNR...			.18	.03	.032	2.5	
3/8"-16UNC		16	V08TH16UNR...			.17	.04	.036	2.5	
7/16"-14UNC		14	V08TH14UNR...			.19	.04	.041	3	
9/16"-12UNC	V11	12	V11TH12UNR...	.31	.17	.25	.05	.048	2.5	.V11-...

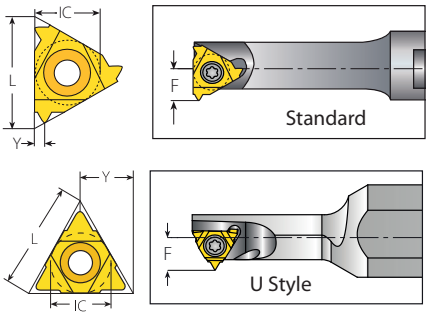
American UN - UNC, UNF, UNEF, UNS (con't)

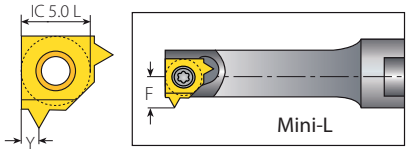
MINIPRO

Internal



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





Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH	LH	h min	Y	F	inch	Toolholder
4.0	.24	32	4.0KIR32UN...	4.0KIL32UN...	.018	.02	.14	.24	.NVR...-4.0K (LH)
		28	4.0KIR28UN...	4.0KIL28UN...	.020	.02	.14	.24	
		24	4.0KIR24UN...	4.0KIL24UN...	.024	.02	.14	.25	
		20	4.0KIR20UN...	4.0KIL20UN...	.029	.02	.15	.25	
		18	4.0KIR18UN...	4.0KIL18UN...	.032	.03	.15	.25	
5.0	.31	32	5.0KIR32UN...	5.0KIL32UN...	.018	.02	.19	.31	.NVRC...-5.0K (LH)
		28	5.0KIR28UN...	5.0KIL28UN...	.020	.02			
		24	5.0KIR24UN...	5.0KIL24UN...	.024	.02			
		20	5.0KIR20UN...	5.0KIL20UN...	.029	.03			
		18	5.0KIR18UN...	5.0KIL18UN...	.032	.03			
		16	5.0KIR16UN...	5.0KIL16UN...	.036	.03			
		14	5.0KIR14UN...	5.0KIL14UN...	.041	.03			
6.0	.39	40	6.0KIR40UN...	6.0KIL40UN...	.015	.02	.18	.37	.NVR...-6.0K (LH)
		32	6.0KIR32UN...	6.0KIL32UN...	.018	.02	.18	.37	
		28	6.0KIR28UN...	6.0KIL28UN...	.020	.03	.19	.38	
		24	6.0KIR24UN...	6.0KIL24UN...	.024	.03	.19	.38	
		20	6.0KIR20UN...	6.0KIL20UN...	.029	.04	.19	.39	
		18	6.0KIR18UN...	6.0KIL18UN...	.032	.04	.20	.39	
		16	6.0KIR16UN...	6.0KIL16UN...	.036	.04	.20	.39	
		14	6.0KIR14UN...	6.0KIL14UN...	.041	.04	.20	.39	

Mini-3 U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH+LH	h min	Y	F	inch	Toolholder
5.0U	.31	13	5.0KUI13UN...	.047	.16	.22	.35	.NVRC...-5.0KU (LH)
		12	5.0KUI12UN...	.051		.22		
		11	5.0KUI11UN...	.056		.22		

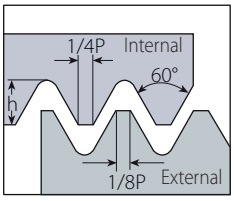
Mini-L

Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	inch	Toolholder
5.0L	40	5LKIR40UN...	5LKIL40UN...	.015	.02	.15	.30	.NVR...-5LK (LH)
	32	5LKIR32UN...	5LKIL32UN...	.018	.02	.15	.30	
	28	5LKIR28UN...	5LKIL28UN...	.020	.03	.16	.30	
	24	5LKIR24UN...	5LKIL24UN...	.024	.03	.16	.30	
	20	5LKIR20UN...	5LKIL20UN...	.029	.04	.17	.30	
	18	5LKIR18UN...	5LKIL18UN...	.032	.04	.17	.31	
	16	5LKIR16UN...	5LKIL16UN...	.036	.04	.17	.31	
	14	5LKIR14UN...	5LKIL14UN...	.041	.04	.18	.31	

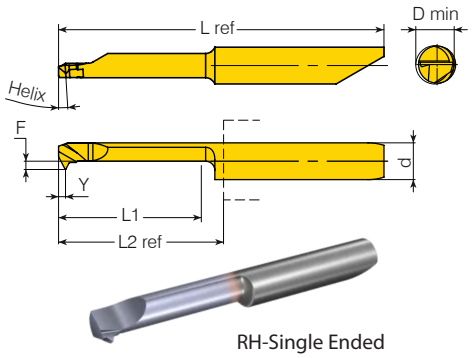
American UN - UNC, UNF, UNEF, UNS (con't)

MINIPRO

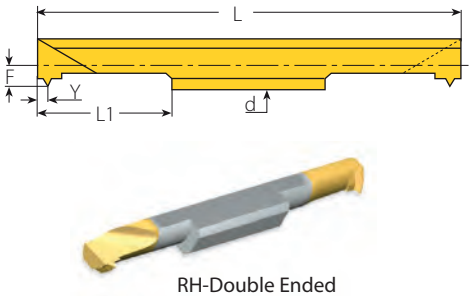
Internal



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



RH-Single Ended



RH-Double Ended

Micro - Double Ended

	Insert Dia.	Pitch	Ordering Code	Dimensions inch					Min. Bore Dia.	
Thread	d mm	mm	RH	L1	L	F	Y	h min	Inch	Toolholder
10-40UNS	3.0	40	3.0SIR40UN...	.63	1.97	.05	.02	.015	.13	SMC..-3.0
8-36UNF		36	3.0SIR36UN...	.63	1.97	.06	.02	.016	.13	
8-32UNF		32	3.0SIR32UN...	.63	1.97	.06	.02	.018	.13	
10-40UNS	4.0	40	4.0SIR40UN...	.63	1.97	.06	.02	.015	.16	SMC..-4.0
10-36UNS		36	4.0SIR36UN...	.63	1.97	.07	.02	.016	.16	
12-32UNEF		32	4.0SIR32UN...	.63	1.97	.07	.02	.018	.16	
12-28UNF		28	4.0SIR28UN...	.63	1.97	.07	.03	.020	.17	
1/4"-27UNS		27	4.0SIR27UN...	.63	1.97	.07	.03	.021	.17	
12-24UNC		24	4.0SIR24UN...	.63	1.97	.08	.03	.024	.17	
1/4"-20UNC		20	4.0SIR20UN...	.63	1.97	.08	.03	.029	.17	
1/4"-32UNEF	6.0	32	6.0SIR32UN...	.63	1.97	.08	.02	.018	.22	SMC..-6.0
5/16"-28UN		28	6.0SIR28UN...	.63	1.97	.08	.03	.020	.22	
5/16"-27UNS		27	6.0SIR27UN...	.63	1.97	.08	.03	.021	.22	
5/16"-24UNF		24	6.0SIR24UN...	.63	1.97	.09	.03	.024	.22	
5/16"-20UN		20	6.0SIR20UN...	.63	1.97	.09	.04	.029	.23	
5/16"-18UNC		18	6.0SIR18UN...	.63	1.97	.09	.04	.032	.23	
3/8"-16UNC		16	6.0SIR16UN...	.63	1.97	.10	.04	.036	.24	

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

Micro - Single Ended

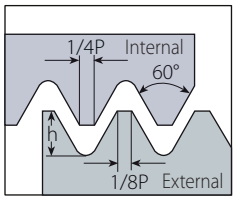
micrOscope

	Insert Dia.	Pitch	Ordering Code			Dimensions inch					Min. Bore Dia.	
Thread	d mm	TPI	RH/LH	Helix °	L1	F	Y	h min	L2 ref*	L ref	D inch	Toolholder
No.8-32UNC	4.0	32	MS429TH32UNL16R/L...	3.5	.63	.04	.02	.018	.72	1.39	.13	MH...-4.0
No.10-28UNS		28	MS429TH28UNL16R/L...			.04	.03	.020			.14	
1/4"-27UNS	5.0	27	M549TH27UNL16R/L...			.09	.03	.021	.72	1.62	.21	MH...-5.0
1/4"-24UNS		24	M542TH24UNL16R/L...			.07	.03	.024			.20	
1/4"-20UNC		20	M542TH20UNL16R/L...			.07	.04	.029			.18	
5/16"-18UNC	6.0	18	M659TH18UNL16R/L...			.11	.04	.032	.73	1.66	.25	MH...-6.0
3/8"-16UNC		16	M659TH16UNL16R/L...			.11	.04	.036			.30	

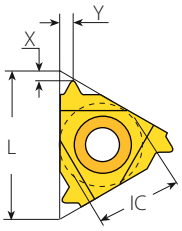
* L2 Ref: Repeatability within +/-.0008

American UNR

External



Defined by: ASME B1.1-2003
Tolerance class: 2A/2B



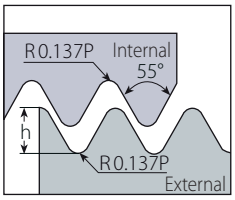
Standard External

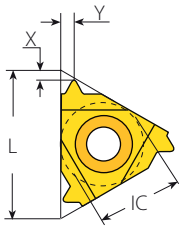
Standard - External

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	.63	8	3ER8UNR...	3EL8UNR...	.077	.05	.06	YE3	YI3	AL...-3 (LH)

Whitworth - BSW, BSP, BSF, BSB

External





Standard

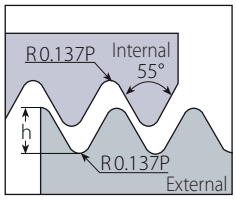
Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
Tolerance class: Medium class A

Standard

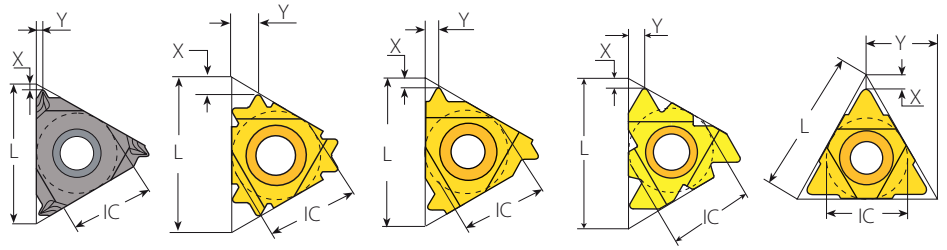
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	72	2ER72W...	2EL72W...	.009	.03	.02	-	-	NL ..-2 (LH)
		60	2ER60W...	2EL60W...	.011	.03	.02			
		56	2ER56W...	2EL56W...	.011	.03	.02			
		48	2ER48W...	2EL48W...	.013	.02	.02			
		40	2ER40W...	2EL40W...	.016	.02	.02			
		36	2ER36W...	2EL36W...	.018	.02	.02			
		32	2ER32W...	2EL32W...	.020	.02	.02			
		28	2ER28W...	2EL28W...	.023	.02	.03			
		26	2ER26W...	2EL26W...	.025	.03	.03			
		24	2ER24W...	2EL24W...	.027	.03	.03			
		22	2ER22W...	2EL22W...	.029	.03	.04			
		20	2ER20W...	2EL20W...	.032	.03	.04			
		19	2ER19W...	2EL19W...	.034	.03	.04			
		18	2ER18W...	2EL18W...	.035	.03	.04			
		16	2ER16W...	2EL16W...	.040	.04	.04			
		14	2ER14W...	2EL14W...	.046	.04	.05			
3/8"	.63	72	3ER72W...	3EL72W...	.009	.03	.02	YE3	YI3	AL..-3 (LH)
		60	3ER60W...	3EL60W...	.011	.03	.02			
		56	3ER56W...	3EL56W...	.011	.03	.02			
		48	3ER48W...	3EL48W...	.013	.02	.02			
		40	3ER40W...	3EL40W...	.016	.02	.02			
		36	3ER36W...	3EL36W...	.018	.02	.02			
		32	3ER32W...	3EL32W...	.020	.02	.02			
		30	3ER30W...	3EL30W...	.022	.02	.03			
		28	3ER28W...	3EL28W...	.023	.02	.03			
		26	3ER26W...	3EL26W...	.025	.03	.03			
		24	3ER24W...	3EL24W...	.027	.03	.03			
		22	3ER22W...	3EL22W...	.029	.03	.04			
		20	3ER20W...	3EL20W...	.032	.03	.04			
		19	3ER19W...	3EL19W...	.034	.03	.04			
		18	3ER18W...	3EL18W...	.035	.03	.04			
		16	3ER16W...	3EL16W...	.040	.04	.04			
		14	3ER14W...	3EL14W...	.046	.04	.05			
		12	3ER12W...	3EL12W...	.054	.04	.06			
		11	3ER11W...	3EL11W...	.058	.04	.06			
		10	3ER10W...	3EL10W...	.064	.04	.06			
		9	3ER9W...	3EL9W...	.071	.05	.07			
		8	3ER8W...	3EL8W...	.080	.05	.06			

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

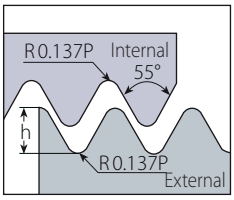
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" SCB	.63	36	3JER36W...		.018	.05	.02	YE3	-	AL..-3
		32	3JER32W...		.020	.05	.02			
		28	3JER28W...		.023	.03	.03			
		24	3JER24W...		.027	.03	.03			
		20	3JER20W...		.032	.03	.03			
		19	3JER19W...		.034	.03	.03			
		18	3JER18W...		.035	.03	.03			
		16	3JER16W...		.040	.03	.03			
		14	3JER14W...		.046	.05	.06			
		12	3JER12W...		.054	.05	.06			
		11	3JER11W...		.058	.05	.06			
		10	3JER10W...		.064	.05	.06			
		8	3JER8W...		.080	.05	.06			
3/8" V6	.63	19	3ER19W-6C...		.034	.07	.09	YE3-6C	-	AL..-3
		16	3ER16W-6C...		.040	.06	.09			
		14	3ER14W-6C...		.046	.07	.11			
		12	3ER12W-6C...		.054	.07	.12			
1/2"	.87	7	4ER7W...	4EL7W...	.095	.06	.09	YE4	YI4	AL..-4 (LH)
		6	4ER6W...	4EL6W...	.107	.06	.09			
		5	4ER5W...	4EL5W...	.128	.07	.09			
1/2"F	.91	7	4FER7W...		.095	.06	.10	YE4F		AL...-4F
		6	4FER6W...		.107	.06	.09			
		5	4FER5W...		.128	.07	.09			
5/8"	1.06	4.5	5ER4.5W...	5EL4.5W...	.142	.07	.10	YE5	YI5	AL..-5 (LH)
		4	5ER4W...	5EL4W...	.160	.08	.11			

U Style

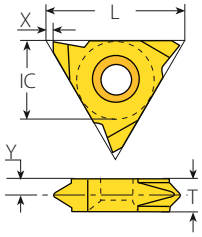
Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	4.5	4UEI4.5W...	.142	.09	.43	YE4U	YI4U	AL..-4U (LH)
		4	4UEI4W...	.160	.07	.43			
		3.5	4UEI3.5W...	.183	.08	.43			
		3.25	4UEI3.25W...	.197	.08	.43			
5/8"U	1.06	3.5	5UEI3.5W...	.183	.08	.54	YE5U	YI5U	AL..-5U (LH)
		3.25	5UEI3.25W...	.197	.08	.54			
		3	5UEI3W...	.213	.09	.54			
		2.75	5UEI2.75W...	.233	.09	.54			

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

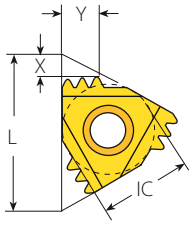
External



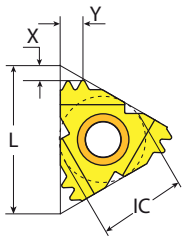
Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
Tolerance class: Medium class A



V Style / Slim Throat



M+ Style



F-Line M+

Slim Throat

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
1/4"V	.43	19	2VER19W...	2VEL19W...	.034	.03	.09	.13	NL..-2V (LH)
		14	2VER14W...	2VEL14W...	.046	.03	.08	.13	
		11	2VER11W...	2VEL11W...	.058	.03	.07	.13	
3/8"V	.63	19	3VER19W...	3VEL19W...	.034	.04	.11	.14	NL..-3V (LH)
		18	3VER18W...	3VEL18W...	.035	.04	.10	.14	
		16	3VER16W...	3VEL16W...	.040	.04	.10	.14	
		14	3VER14W...	3VEL14W...	.046	.04	.09	.14	
		12	3VER12W...	3VEL12W...	.054	.04	.09	.14	
		11	3VER11W...	3VEL11W...	.058	.04	.08	.14	

V Style

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	4	5VER4W...	5VEL4W...	.160	.039	.13	.24	NL..-5V-6 (LH)
		3	5VER3W...	5VEL3W...	.213	.039	.17	.31	NL..-5V-8 (LH)
		2.5	5VER2.5W...	5VEL2.5W...	.256	.039	.21	.39	NL..-5V-10 (LH)

M+ Style

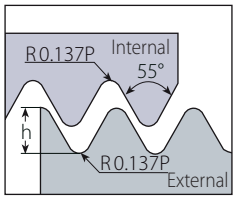
Multi plus

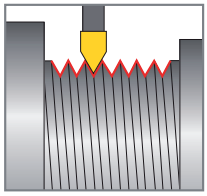
F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
3/8"	.63	28	2	3ER28W2M+...	.023	.05	.06	YE3M	AL..-3
		19	2	3ER19W2M+...	.034	.06	.09		
		19	3	3ER19W3M+...	.034	.09	.13		
		14	2	3ER14W2M+...	.046	.08	.12		
1/2"	.87	14	3	4ER14W3M+...	.046	.11	.18	YE4M	AL..-4
		11	2	4ER11W2M+...	.058	.09	.14		
1/2"F	.91	11	2	4FER11W2M+...	.058	.09	.14	YE4M2F	AL...-4MF

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

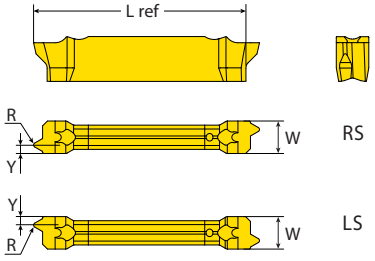
External





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.



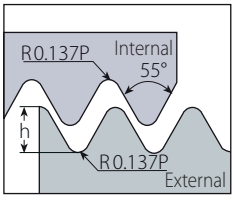
VG-Cut

Pocket Size	Ordering Code	Dimensions inch					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...	.12	19	.034	.04	.86	7-12	2.5°	1/2"-19BSW	VGE...T12
	VGD3.0W14RH-RS/LS...		14	.046	.05		8-14		1/2"-14BSW	
	VGD3.0W11RH/LH...		11	.060	.07		8-14		5/8-11BSW	

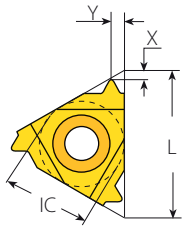
LH Helix threads available upon request.

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

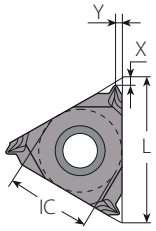
Internal



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



Standard



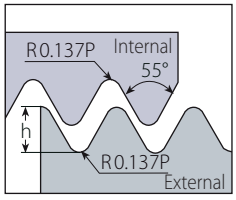
SCB
Sintered
Chipbreaker

Standard

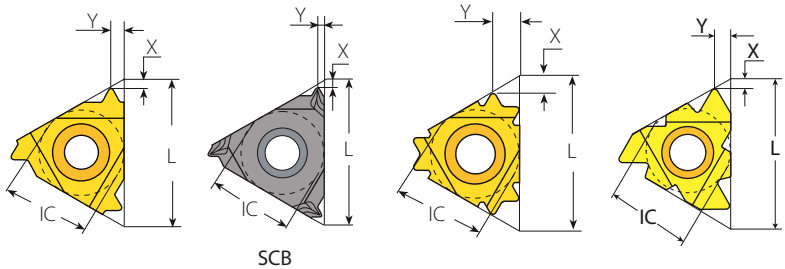
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	72	2IR72W...	2IL72W...	.009	.03	.02	-	-	NVR..-2 (LH)
		60	2IR60W...	2IL60W...	.011	.03	.02			
		56	2IR56W...	2IL56W...	.011	.03	.02			
		48	2IR48W...	2IL48W...	.013	.02	.02			
		40	2IR40W...	2IL40W...	.016	.02	.02			
		36	2IR36W...	2IL36W...	.018	.02	.02			
		32	2IR32W...	2IL32W...	.020	.02	.02			
		28	2IR28W...	2IL28W...	.023	.02	.03			
		26	2IR26W...	2IL26W...	.025	.03	.03			
		24	2IR24W...	2IL24W...	.027	.03	.03			
		22	2IR22W...	2IL22W...	.029	.03	.04			
		20	2IR20W...	2IL20W...	.032	.03	.04			
		19	2IR19W...	2IL19W...	.034	.03	.04			
		18	2IR18W...	2IL18W...	.035	.03	.04			
		16	2IR16W...	2IL16W...	.040	.04	.04			
		14	2IR14W...	2IL14W...	.046	.04	.04			
		12	2IR12W...	2IL12W...	.052	.04	.05			
1/4" SCB	.43	36	2JIR36W...		.018	.05	.02	-	-	NVR..-2
		32	2JIR32W...		.020	.05	.02			
		28	2JIR28W...		.023	.03	.03			
		24	2JIR24W...		.027	.03	.03			
		20	2JIR20W...		.032	.03	.03			
		19	2JIR19W...		.034	.02	.03			
		18	2JIR18W...		.035	.03	.03			
		16	2JIR16W...		.040	.03	.03			
		14	2JIR14W...		.046	.03	.04			
3/8"	.63	72	3IR72W...	3IL72W...	.009	.03	.02	YI3	YE3	AVR..-3 (LH)
		60	3IR60W...	3IL60W...	.011	.03	.02			
		56	3IR56W...	3IL56W...	.011	.03	.02			
		48	3IR48W...	3IL48W...	.013	.02	.02			
		40	3IR40W...	3IL40W...	.016	.02	.02			
		36	3IR36W...	3IL36W...	.018	.02	.02			
		32	3IR32W...	3IL32W...	.020	.02	.02			
		30	3IR30W...	3IL30W...	.022	.02	.03			

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

Internal



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



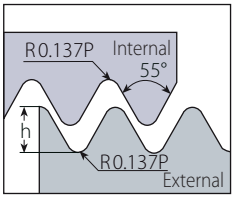
Standard | SCB Sintered Chipbreaker | V6 | F-Line

Standard

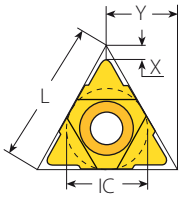
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	.63	28	3IR28W...	3IL28W...	.023	.02	.03	YI3	YE3	AVR..-3 (LH)
		26	3IR26W...	3IL26W...	.025	.03	.03			
		24	3IR24W...	3IL24W...	.027	.03	.03			
		22	3IR22W...	3IL22W...	.029	.03	.04			
		20	3IR20W...	3IL20W...	.032	.03	.04			
		19	3IR19W...	3IL19W...	.034	.03	.04			
		18	3IR18W...	3IL18W...	.035	.03	.04			
		16	3IR16W...	3IL16W...	.040	.04	.04			
		14	3IR14W...	3IL14W...	.046	.04	.05			
		12	3IR12W...	3IL12W...	.054	.04	.06			
		11	3IR11W...	3IL11W...	.058	.04	.06			
		10	3IR10W...	3IL10W...	.064	.04	.06			
		9	3IR9W...	3IL9W...	.071	.05	.07			
		8	3IR8W...	3IL8W...	.080	.05	.06			
SCB										
3/8" SCB	.63	28	3JIR28W...		.023	.03	.03	YI3	-	AVR...-3
		24	3JIR24W...		.027	.03	.03			
		20	3JIR20W...		.032	.03	.03			
		19	3JIR19W...		.034	.02	.02			
		18	3JIR18W...		.035	.03	.03			
		16	3JIR16W...		.040	.03	.03			
		14	3JIR14W...		.046	.05	.06			
		12	3JIR12W...		.054	.05	.06			
		11	3JIR11W...		.058	.05	.06			
		10	3JIR10W...		.064	.05	.06			
		8	3JIR8W...		.080	.05	.06			
V6										
3/8" V6	.63	19	3IR19W-6C...		.034	.07	.09	YI3-6C	-	AVR..-3 NVRC..-3V6
		16	3IR16W-6C...		.040	.06	.10			
		14	3IR14W-6C...		.046	.07	.11			
		12	3IR12W-6C...		.054	.07	.10			
1/2"	.87	7	4IR7W...	4IL7W...	.095	.06	.09	YI4	YE4	AVR..-4 (LH)
		6	4IR6W...	4IL6W...	.107	.06	.09			
		5	4IR5W...	4IL5W...	.128	.07	.09			
1/2"F	.91	7	4FIR7W...		.095	.06	.09	YI4F		AVRC...-4F
		6	4FIR6W...		.107	.06	.09			
		5	4FIR5W...		.128	.07	.09			
F-LINE										
5/8"	1.06	4.5	5IR4.5W...	5IL4.5W...	.142	.07	.10	YI5	YE5	AVR..-5 (LH)
		4	5IR4W...	5IL4W...	.160	.08	.11			

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

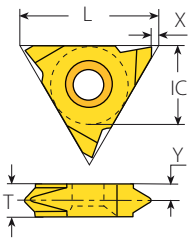
Internal



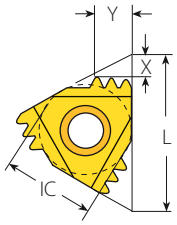
Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
Tolerance class: Medium class A



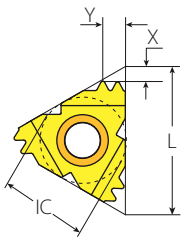
U Style



V Style



M+ Style



F-Line M+

U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	4.5	4UEI4.5W...	.142	.09	.43	YI4U	YE4U	AVR..-4U (LH)
		4	4UEI4W...	.160	.07	.43			
		3.5	4UEI3.5W...	.183	.08	.43			
		3.25	4UEI3.25W...	.197	.08	.43			
5/8"U	1.06	3.5	5UEI3.5W...	.183	.08	.54	YI5U	YE5U	AVR..-5U (LH)
		3.25	5UEI3.25W...	.197	.08	.54			
		3	5UEI3W...	.213	.09	.54			
		2.75	5UEI2.75W...	.233	.09	.54			

V Style

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	4	5VIR4W...	5VIL4W...	.160	.04	.13	.24	NVR..-5V (LH)
		3	5VIR3W...	5VIL3W...	.213	.04	.17	.31	
		2.5	5VIR2.5W...	5VIL2.5W...	.256	.04	.20	.39	

M+ Style

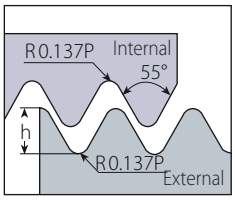
Multi plus

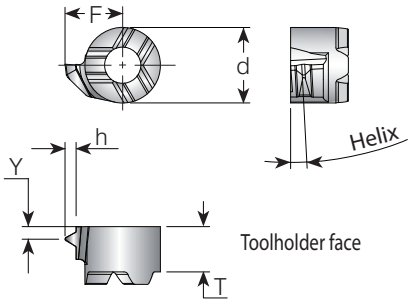
F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
3/8"	.63	14	2	3IR14W2M+...	.046	.08	.12	YI3M	AVR..-3
1/2"	.87	11	2	4IR11W2M+...	.058	.09	.14	YI4M	AVR..-4
1/2"F	.91	11	2	4FIR11W2M+...	.058	.09	.14	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

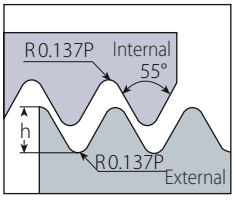
Mini-V

Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions inch					Helix	Toolholder
		TPI	RH	d	T	F	Y	h min	Deg.	
1/2"x19W	V11	19	V11TH19WR...	.31	.17	.24	.03	.034	2	.V11-...

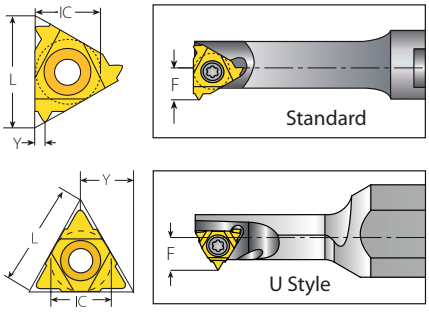
Whitworth - BSW, BSP, BSF, BSB (con't)

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 inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH	LH	h min	Y	F	inch	Toolholder
4.0	.24	26	4.0KIR26W...	4.0KIL26W...	.025	.02	.14	.25	.NVR...-4.0K (LH)
		22	4.0KIR22W...	4.0KIL22W...	.029	.02	.15	.25	
		20	4.0KIR20W...	4.0KIL20W...	.032	.03	.15	.25	
		19	4.0KIR19W...	4.0KIL19W...	.034	.03	.15	.25	
		18	4.0KIR18W...	4.0KIL18W...	.035	.03	.15	.25	
5.0	.31	28	5.0KIR28W...	5.0KIL28W...	.023	.02	.19	.31	.NVRC...-5.0K (LH)
		24	5.0KIR24W...	5.0KIL24W...	.027	.02			
		20	5.0KIR20W...	5.0KIL20W...	.032	.03			
		19	5.0KIR19W...	5.0KIL19W...	.034	.03			
		18	5.0KIR18W...	5.0KIL18W...	.035	.03			
		16	5.0KIR16W...	5.0KIL16W...	.040	.03			
6.0	.39	28	6.0KIR28W...	6.0KIL28W...	.023	.03	.19	.38	.NVR...-6.0K (LH)
		19	6.0KIR19W...	6.0KIL19W...	.034	.04	.20	.39	
		14	6.0KIR14W...	6.0KIL14W...	.046	.04	.21	.39	

Mini-3 U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH+LH	h min	Y	F	inch	Toolholder
5.0U	.31	14	5.0KUI14W...	.046	.16	.22	.35	.NVRC...-5.0KU (LH)
		12	5.0KUI12W...	.054		.22		
		11	5.0KUI11W...	.058		.22		

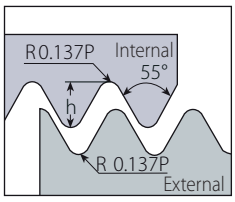
Mini-L

Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	inch	Toolholder
5.0 L	28	5LKIR28W...	5LKIL28W...	.023	.03	.16	.30	.NVR.... -5LK (LH)
	19	5LKIR19W...	5LKIL19W...	.034	.04	.17	.31	
	14	5LKIR14W...	5LKIL14W...	.046	.04	.18	.31	

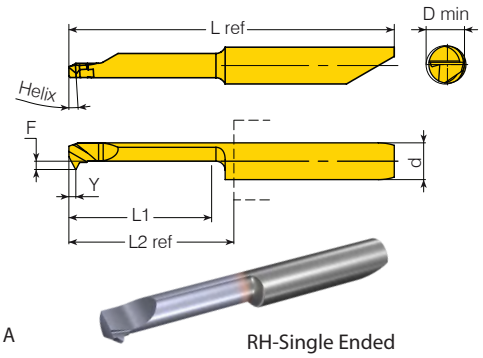
Whitworth - BSW, BSP, BSF, BSB (con't)

MINIPRO

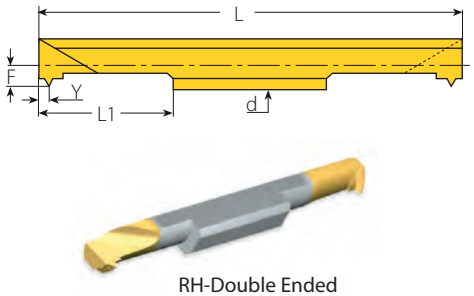
Internal



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 inch					Min. Bore Dia.	
Thread	d mm	TPI	RH	L1	L	F	Y	h min	inch	Toolholder
1/16"-28BSP	4.0	28	4.0SIR28W...	.63	1.97	.07	.03	.023	.17	SMC..-4.0
1/4"-26BSF		26	4.0SIR26W...	.63	1.97	.08	.03	.025	.17	
1/4"-24BSW		24	4.0SIR24W...	.63	1.97	.08	.03	.027	.17	
1/16"-28BSP	6.0	28	6.0SIR28W...	.63	1.97	.10	.03	.023	.24	SMC..-6.0
5/16"-28BSW		26	6.0SIR26W...	.63	1.97	.10	.03	.025	.24	
5/16"-24BSW		24	6.0SIR24W...	.63	1.97	.10	.03	.027	.24	
5/16"-22BSW		22	6.0SIR22W...	.63	1.97	.10	.04	.029	.24	
3/8"-20BSF		20	6.0SIR20W...	.63	1.97	.10	.04	.032	.24	
1/4"-19BSP		19	6.0SIR19W...	.63	1.97	.10	.04	.034	.24	

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

Micro - Single Ended

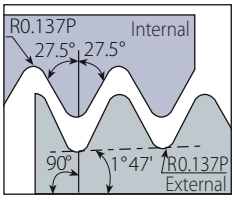
microscope

	Insert Dia.	Pitch	Ordering Code	Dimensions inch							Min. Bore Dia.	
Thread	d mm	TPI	RH/LH	Helix°	L1	F	Y	h min	L2 ref*	L ref	D Inch	Toolholder
1/16"-28BSP	6.0	28	M659TH28WL16R/L...	3.5	.63	.11	.03	.02	.73	1.66	.26	MH...-6.0
1/4"-19BSP		19	M659TH19WL16R/L...				.04	.03			.45	

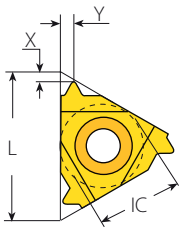
* L2 Ref: Repeatability within +/-.0008

BSPT

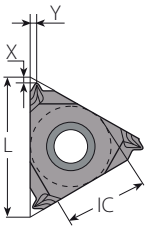
External



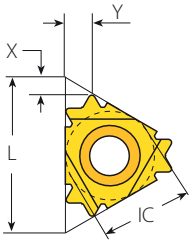
Defined by: B.S. 21:1985
Tolerance class: Standard BSPT



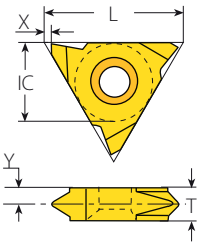
Standard



SCB
Sintered
Chipbreaker

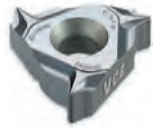


V6



Slim Throat

Standard



SCB

V6

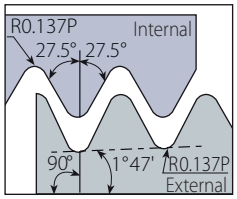
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	28	2ER28BSPT...	2EL28BSPT...	.023	.02	.02	-	-	NL ..-2 (LH)
		19	2ER19BSPT...	2EL19BSPT...	.034	.03	.04			
		14	2ER14BSPT...	2EL14BSPT...	.046	.04	.04			
3/8"	.63	28	3ER28BSPT...	3EL28BSPT...	.023	.02	.02	YE3	YI3	AL..-3 (LH)
		19	3ER19BSPT...	3EL19BSPT...	.034	.03	.04			
		14	3ER14BSPT...	3EL14BSPT...	.046	.04	.05			
		11	3ER11BSPT...	3EL11BSPT...	.058	.04	.06			
3/8" SCB	.63	28	3JER28BSPT...		.023	.03	.03	YE3	-	AL..-3
		19	3JER19BSPT...		.034	.03	.03			
		14	3JER14BSPT...		.046	.05	.06			
		11	3JER11BSPT...		.058	.05	.06			
3/8" V6	.63	19	3ER19BSPT-6C...		.034	.07	.09	YE3-6C	-	AL..-3
		14	3ER14BSPT-6C...		.046	.07	.11			

Slim Throat

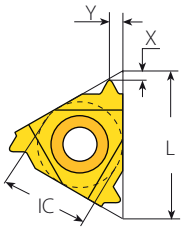
Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
3/8"V	.63	28	3VER28BSPT...	3VEL28BSPT...	.023	.04	.12	.14	NL..-3V (LH)
		19	3VER19BSPT...	3VEL19BSPT...	.034	.04	.11	.14	
		14	3VER14BSPT...	3VEL14BSPT...	.046	.04	.09	.14	
		11	3VER11BSPT...	3VEL11BSPT...	.058	.04	.08	.14	

BSPT (con't)

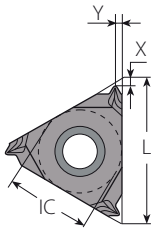
Internal



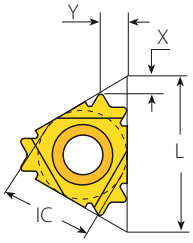
Defined by: B.S. 21:1985
Tolerance class: Standard BSPT



Standard



SCB
Sintered
Chipbreaker



V6

Standard

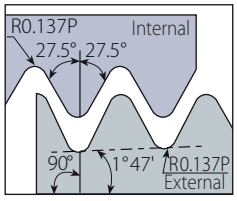
SCB

V6

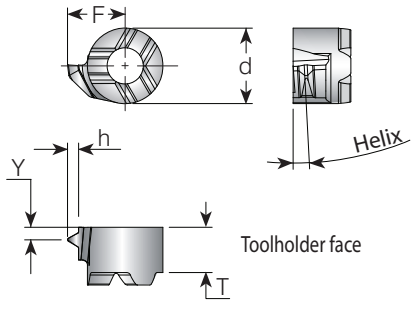
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	28	2IR28BSPT...	2IL28BSPT...	.023	.02	.02	-	-	NVR..-2 (LH)
		19	2IR19BSPT...	2IL19BSPT...	.034	.03	.04			
		14	2IR14BSPT...	2IL14BSPT...	.046	.04	.04			
1/4" SCB	.43	28	2JIR28BSPT...		.023	.03	.03	-	-	NVR..-2
		19	2JIR19BSPT...		.034	.03	.03			
3/8"	.63	28	3IR28BSPT...	3IL28BSPT...	.023	.02	.02	YI3	YE3	AVR..-3 (LH)
		19	3IR19BSPT...	3IL19BSPT...	.034	.03	.04			
		14	3IR14BSPT...	3IL14BSPT...	.046	.04	.05			
		11	3IR11BSPT...	3IL11BSPT...	.058	.04	.06			
3/8" SCB	.63	28	3JIR28BSPT...		.023	.03	.03	YI3	-	AVR..-3
		19	3JIR19BSPT...		.034	.03	.03			
		14	3JIR14BSPT...		.046	.05	.06			
		11	3JIR11BSPT...		.058	.05	.06			
3/8" V6	.63	19	3IR19BSPT-6C...		.034	.07	.09	YI3-6C	-	AVR..-3 NVRC..-3V6
		14	3IR14BSPT-6C...		.046	.07	.11			

BSPT Mini-V

Internal



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



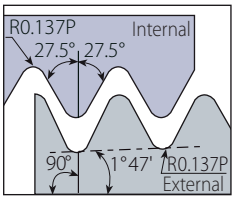
Mini-V

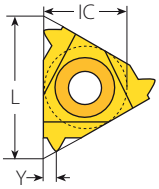
Min. Thread	Insert Style	Pitch	Ordering Code		Dimensions inch				Helix	Toolholder
		TPI	RH	d	T	F	Y	h min	Deg.	
1/4"-19BSPT	V11	19	V11TH19BSPTR...	.31	.17	.24	.04	.034	2.5	.V11-...

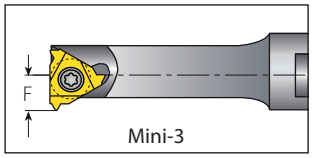
BSPT (con't)

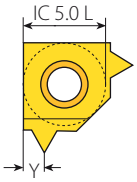
MINIPRO

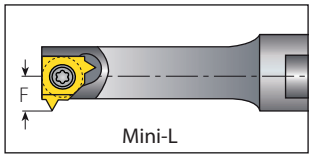
Internal











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

Mini-3 Standard

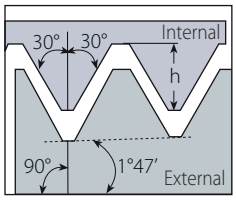
Insert Size		Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH	LH	h min	Y	F	inch	Toolholder
4.0	.24	28	4.0KIR28BSPT...	4.0KIL28BSPT...	.023	.02	.14	.25	.NVR...-4.0K (LH)
5.0	.31	28	5.0KIR28BSPT...	5.0KIL28BSPT...	.023	.02	.19	.31	.NVRC...-5.0K (LH)
		19	5.0KIR19BSPT...	5.0KIL19BSPT...	.034	.03			
6.0	.39	28	6.0KIR28BSPT...	6.0KIL28BSPT...	.023	.02	.19	.38	.NVR...-6.0K (LH)
		19	6.0KIR19BSPT...	6.0KIL19BSPT...	.034	.04	.20	.39	
		14	6.0KIR14BSPT...	6.0KIL14BSPT...	.046	.05	.21	.39	

Mini-L

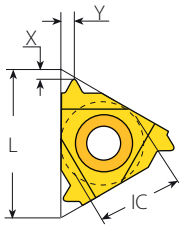
Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	inch	Toolholder
5.0L	28	5LKIR28BSPT...	5LKIL28BSPT...	.023	.02	.16	.30	.NVR...-5LK (LH)
	19	5LKIR19BSPT...	5LKIL19BSPT...	.034	.04	.17	.31	
	14	5LKIR14BSPT...	5LKIL14BSPT...	.046	.05	.18	.31	

NPT

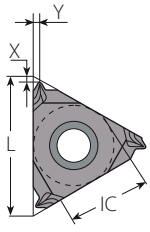
External



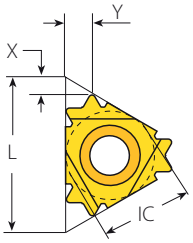
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



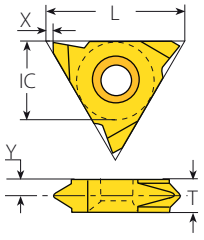
Standard



SCB
Sintered
Chipbreaker

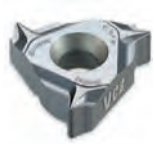


V6



Slim Throat

Standard



SCB

V6

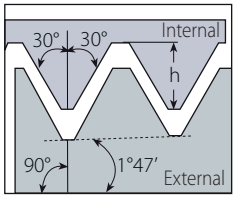
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	27	2ER27NPT...	2EL27NPT...	.026	.03	.03	-	-	NL..-2 (LH)
		18	2ER18NPT...	2EL18NPT...	.040	.03	.04			
		14	2ER14NPT...	2EL14NPT...	.052	.03	.04			
3/8"	.63	27	3ER27NPT...	3EL27NPT...	.026	.03	.03	YE3	YI3	AL..-3 (LH)
		18	3ER18NPT...	3EL18NPT...	.040	.03	.04			
		14	3ER14NPT...	3EL14NPT...	.052	.04	.05			
		11.5	3ER11.5NPT...	3EL11.5NPT...	.065	.04	.06			
		8	3ER8NPT...	3EL8NPT...	.095	.05	.07			
3/8" SCB	.63	27	3JER27NPT...		.026	.02	.03	YE3	-	AL..-3
		18	3JER18NPT...		.040	.02	.03			
		14	3JER14NPT...		.052	.04	.06			
		11.5	3JER11.5NPT...		.065	.04	.06			
		8	3JER8NPT...		.095	.04	.06			
3/8" V6	.63	14	3ER14NPT-6C...		.052	.07	.12	YE3-6C	-	AL..-3

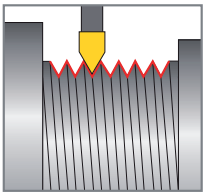
Slim Throat

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
1/4"V	.43	27	2VER27NPT...	2VEL27NPT...	.026	.03	.08	.13	NL..-2V (LH)
		18	2VER18NPT...	2VEL18NPT...	.040	.03	.07	.13	
		14	2VER14NPT...	2VEL14NPT...	.052	.03	.07	.13	
		11.5	2VER11.5NPT...	2VEL11.5NPT...	.065	.03	.08	.13	
3/8"V	.63	27	3VER27NPT...	3VEL27NPT...	.026	.04	.11	.14	NL..-3V (LH)
		18	3VER18NPT...	3VEL18NPT...	.040	.04	.10	.14	
		11.5	3VER11.5NPT...	3VEL11.5 NPT...	.065	.04	.08	.14	

NPT (con't)

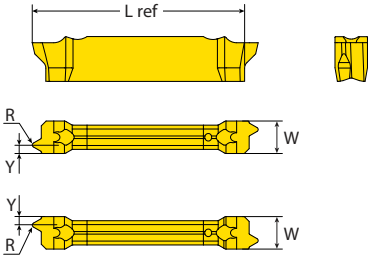
External





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

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



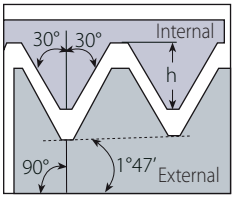
VG-Cut

Pocket Size	Ordering Code		Dimensions inch				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...	.12	18	.040	.05	0.86	7 - 12	1.5°	1/4"-18NPT	VGE...T12
3	VGD3.0NPT14RH-RS/LS...		14	.052	.06		8 - 14		1/2"-14NPT	
3	VGD3.0NPT11.5RH-RS/LS...		12	.065	.06		9 - 15		1"-11.5NPT	

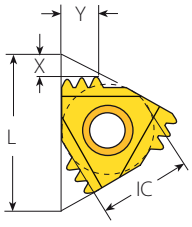
LH Helix threads available upon request.

NPT (con't)

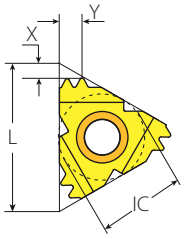
External



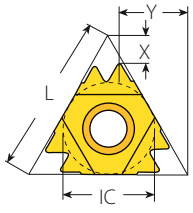
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



M+ Style



F-Line M+



Z+ Style

M+ Style

Multiplus

F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
3/8"	.63	14	2	3ER14NPT2M+...	.052	.08	.12	YE3M	AL..-3
1/2"	.87	11.5	2	4ER11.5NPT2M+...	.065	.09	.13	YE4M	AL..-4
1/2"F	.91	11.5	2	4FER11.5NPT2M+...	.065	.09	.13	YE4M2F	AL...-4MF
5/8"	1.06	11.5	3	5ER11.5NPT3M+...	.065	.14	.22	YE5M	AL..-5M
		8	2	5ER8NPT2M+...	.095	.12	.19		

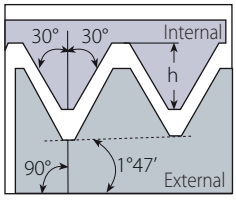
Z+ Style

Multiplus

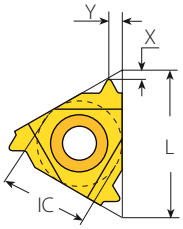
Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
1/2"	.87	11.5	2	4ER11.5NPT2Z+...	.065	.11	.39	YE4Z	AL..-4Z
		8	2	4ER8NPT2Z+...	.095	.13	.38		

NPT (con't)

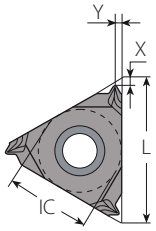
Internal



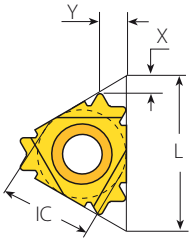
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



Standard



SCB
Sintered
Chipbreaker



V6

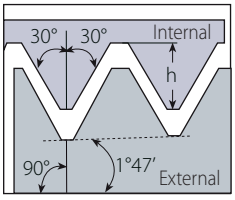
Standard

SCB

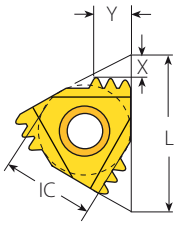
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	27	2IR27NPT...	2IL27NPT...	.026	.03	.03	-	-	NVR..-2 (LH)
		18	2IR18NPT...	2IL18NPT...	.040	.03	.04			
		14	2IR14NPT...	2IL14NPT...	.052	.03	.04			
1/4″ SCB	.43	27	2JIR27NPT...		.026	.02	.03	-	-	NVR..-2
		18	2JIR18NPT...		.040	.02	.03			
3/8″	.63	27	3IR27NPT...	3IL27NPT...	.026	.03	.03	YI3	YE3	AVR..-3 (LH)
		18	3IR18NPT...	3IL18NPT...	.040	.03	.04			
		14	3IR14NPT...	3IL14NPT...	.052	.04	.05			
		11.5	3IR11.5NPT...	3IL11.5NPT...	.065	.04	.06			
		8	3IR8NPT...	3IL8NPT...	.095	.05	.07			
3/8″ SCB	.63	27	3JIR27NPT...		.026	.02	.03	YI3	-	AVR..-3
		18	3JIR18NPT...		.040	.02	.03			
		14	3JIR14NPT...		.052	.04	.06			
		11.5	3JIR11.5NPT...		.065	.04	.06			
		8	3JIR8NPT...		.095	.04	.06			
3/8″ V6	.63	14	3IR14NPT-6C...		.052	.07	.11	YI3-6C	-	AVR..-3 NVRC..-3V6

NPT (con't)

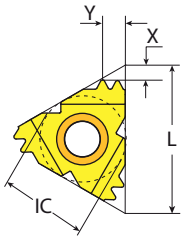
Internal



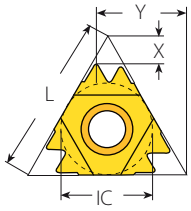
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



M+ Style



F-Line M+



Z+ Style

M+ Style

F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
3/8″	.63	14	2	3IR14NPT2M+...	.052	.08	.12	YI3M	AVR..-3
1/2″	.87	11.5	2	4IR11.5NPT2M+...	.065	.09	.13	YI4M	AVR..-4
1/2″F	.91	11.5	2	4FIR11.5NPT2M+...	.065	.09	.13	YI4M2F	AVRC...-4MF
5/8″	1.06	11.5	3	5IR11.5NPT3M+...	.065	.14	.22	YI5M	AVR..-5M
		8	2	5IR8NPT2M+...	.095	.12	.19		

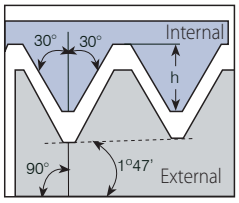
Z+ Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
1/2″	.87	11.5	2	4IR11.5NPT2Z+...	.065	.11	.39	YI4Z	AVR..-4Z
		8	2	4IR8NPT2Z+...	.095	.13	.38		

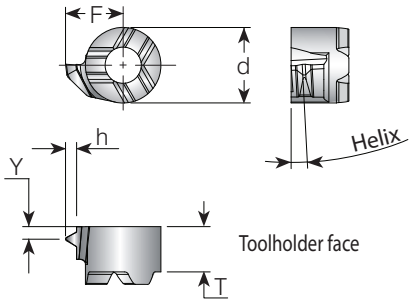
NPT (con't)

Mini-V

Internal



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



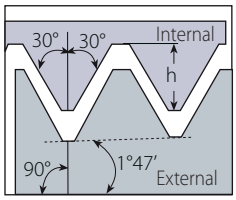
Mini-V

Min. Thread	Insert Style	Pitch	Ordering Code		Dimensions inch				Helix	Toolholder
		TPI	RH	d	T	F	Y	h min	Deg.	
1/8"-27NPT	V08	27	V08TH27NPTR...	.24	.15	.17	.02	.025	2	.V08-...
1/4"-18NPT		18	V08TH18NPTR...			.19	.04	.039	2	

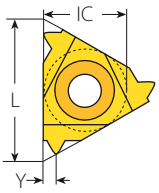
NPT

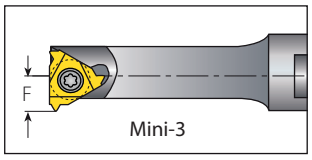
MINIPRO

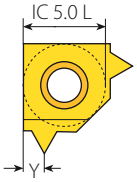
Internal

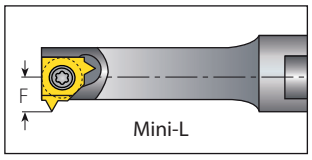


Defined by: USAS B2.1:1968
Tolerance class: Standard NPT









Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH	LH	h min	Y	F	inch	Toolholder
4.0	.24	27	4.0KIR27NPT...	4.0KIL27NPT...	.026	.02	.15	.25	.NVR...-4.0K (LH)
5.0	.31	27	5.0KIR27NPT...	5.0KIL27NPT...	.026	.02	.19	.31	.NVRC...-5.0K (LH)
		18	5.0KIR18NPT...	5.0KIL18NPT...	.040	.03			
6.0	.39	27	6.0KIR27NPT...	6.0KIL27NPT...	.026	.03	.21	.39	.NVR...-6.0K (LH)
		18	6.0KIR18NPT...	6.0KIL18NPT...	.040	.04	.21		
		14	6.0KIR14NPT...	6.0KIL14NPT...	.052	.04	.21		

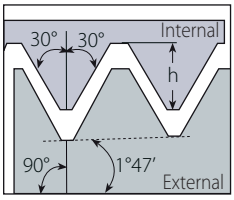
Mini-L

Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	inch	Toolholder
5.0L	27	5LKIR27NPT...	5LKIL27NPT...	.026	.03	.18	.315	.NVR...-5LK (LH)
	18	5LKIR18NPT...	5LKIL18NPT...	.040	.04	.18		
	14	5LKIR14NPT...	5LKIL14NPT...	.052	.04	.18		

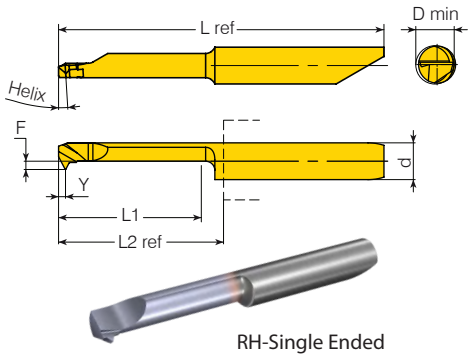
NPT (con't)

MINIPRO

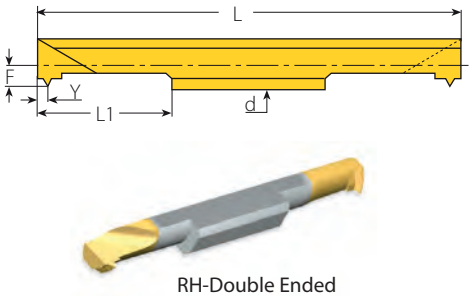
Internal



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 inch					Min. Bore Dia.	
Thread	d mm	TPI	RH	L1	L	F	Y	h min	mm	Toolholder
1/16"-27NPT	6.0	27	6.0SIR27NPT...	.63	1.97	.10	.04	.026	.23	SMC..-6.0
1/4"-18NPT		18	6.0SIR18NPT...	.63	1.97	.10	.03	.040	.24	

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

Micro - Single Ended

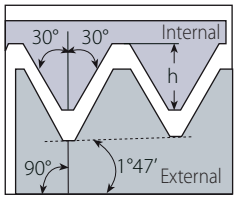
microscope

	Insert Dia.	Pitch	Ordering Code		Dimensions inch						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	.63	.11	.03	.026	.73	1.66	.24	MH...-6.0
1/4"-18NPT		18	M659TH18NPTL16R/L...				.04	.040			.42	
1/2"-14NPT		14	M659TH14NPTL16R/L...				.04	.052			.67	

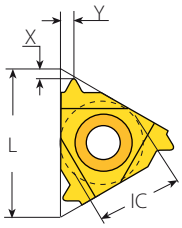
* L2 Ref: Repeatability within +/-.0008

ANPT

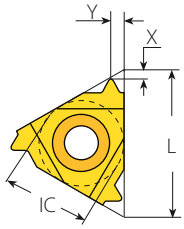
External / Internal



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



External
Standard



Internal
Standard

Standard - External

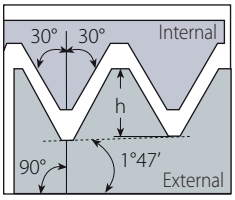
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	.63	18	3ER18ANPT...	3EL18ANPT...	.043	.03	.04	YE3	YI3	AL..-3 (LH)
		14	3ER14ANPT...	3EL14ANPT...	.055	.03	.04			

Standard - Internal

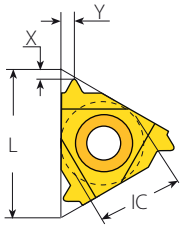
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	18	2IR18ANPT...	2IL18ANPT...	.043	.03	.04	-	-	NVR..-2 (LH)
3/8″	.63	14	3IR14ANPT...	3IL14ANPT...	.055	.03	.04	YI3	YE3	AVR..-3 (LH)

NPTF

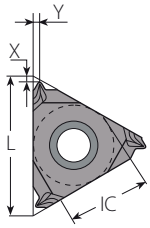
External



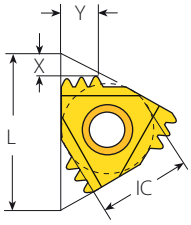
Defined by: ANSI B1.20.3-1976
Tolerance class: Standard NPTF



Standard

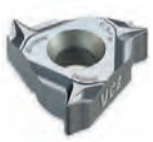


SCB
Sintered
Chipbreaker



M+ Style

Standard



SCB

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	27	2ER27NPTF...	2EL27NPTF...	.025	.03	.03	-	-	NL..-2 (LH)
		18	2ER18NPTF...	2EL18NPTF...	.039	.03	.04			
		14	2ER14NPTF...	2EL14NPTF...	.053	.03	.04			
3/8″	.63	27	3ER27NPTF...	3EL27NPTF...	.025	.03	.03	YE3	YI3	AL..-3 (LH)
		18	3ER18NPTF...	3EL18NPTF...	.039	.03	.04			
		14	3ER14NPTF...	3EL14NPTF...	.053	.04	.05			
		11.5	3ER11.5NPTF...	3EL11.5NPTF...	.064	.04	.06			
		8	3ER8NPTF...	3EL8NPTF...	.094	.05	.07			
3/8″ SCB	.63	27	3JER27NPTF...		.025	.03	.03	YE3	-	AL..-3
		18	3JER18NPTF...		.039	.02	.03			
		14	3JER14NPTF...		.053	.04	.06			
		11.5	3JER11.5NPTF...		.064	.04	.06			
		8	3JER8NPTF...		.094	.04	.06			

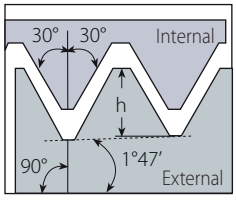
M+ Style

Multi plus

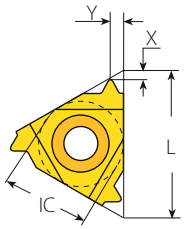
Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
3/8″	.63	14	2	3ER14NPTF2M+...	.053	.08	.12	YE3M	AL...-3

NPTF (con't)

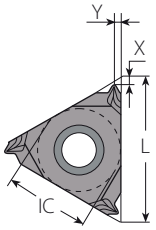
Internal



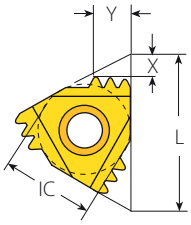
Defined by: ANSI B1.20.3-1976
Tolerance class: Standard NPTF



Standard

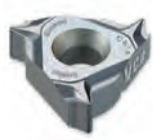


SCB
Sintered
Chipbreaker



M+ Style

Standard



SCB

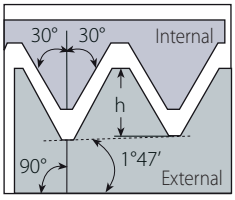
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	27	2IR27NPTF...	2IL27NPTF...	.025	.03	.03	-	-	NVR..-2 (LH)
		18	2IR18NPTF...	2IL18NPTF...	.039	.03	.04			
		14	2IR14NPTF...	2IL14NPTF...	.053	.03	.04			
1/4″ SCB	.43	27	2JIR27NPTF...		.025	.03	.03	-	-	NVR..-2
		18	2JIR18NPTF...		.039	.02	.03			
3/8″	.63	27	3IR27NPTF...	3IL27NPTF...	.025	.03	.03	YI3	YE3	AVR..-3 (LH)
		18	3IR18NPTF...	3IL18NPTF...	.039	.03	.04			
		14	3IR14NPTF...	3IL14NPTF...	.053	.04	.05			
		11.5	3IR11.5NPTF...	3IL11.5NPTF...	.064	.04	.06			
		8	3IR8NPTF...	3IL8NPTF...	.094	.05	.07			
3/8″ SCB	.63	27	3JIR27NPTF...		.025	.03	.03	YI3	-	AVR..-3
		18	3JIR18NPTF...		.039	.02	.03			
		14	3JIR14NPTF...		.053	.04	.06			
		11.5	3JIR11.5NPTF...		.064	.04	.06			
		8	3JIR8NPTF...		.094	.04	.06			

M+ Style

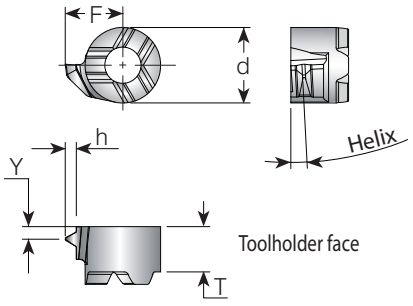
Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
3/8″	.63	14	2	3IR14NPTF2M+...	.053	.08	.12	YI3M	AVR..-3

NPTF (con't)

Internal



Defined by: ANSI 1.20.3-1976
Tolerance class: Standard NPTF



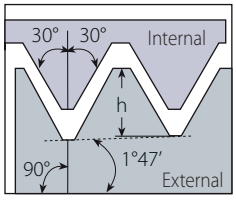
Mini-V

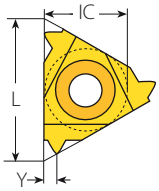
Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions inch					Helix	Toolholder
		TPI	RH	d	T	F	Y	h min	Deg.	
1/4"-18NPTF	V08	18	V08TH18NPTFR...	.24	.15	.18	.04	.04	2.0	.V08-...

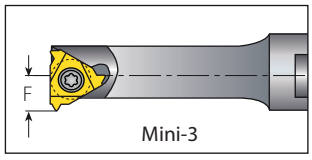
NPTF (con't)

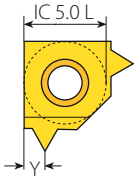
MINIPRO

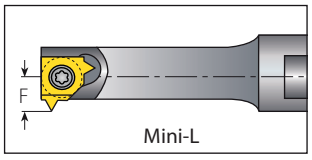
Internal











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

Mini-3 Standard

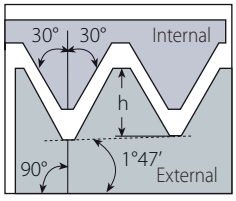
Insert Size		Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH	LH	h min	Y	F	inch	Toolholder
4.0	.24	27	4.0KIR27NPTF...	4.0KIL27NPTF...	.025	.02	.14	.25	.NVR...-4.0K (LH)
5.0	.31	27	5.0KIR27NPTF...	5.0KIL27NPTF...	.025	.02	.19	.31	.NVRC...-5.0K (LH)
		18	5.0KIR18NPTF...	5.0KIL18NPTF...	.039	.03			
6.0	.39	27	6.0KIR27NPTF...	6.0KIL27NPTF...	.025	.03	.21	.39	.NVR...-6.0K (LH)
		18	6.0KIR18NPTF...	6.0KIL18NPTF...	.039	.04	.21		
		14	6.0KIR14NPTF...	6.0KIL14NPTF...	.053	.04	.21		

Mini-L

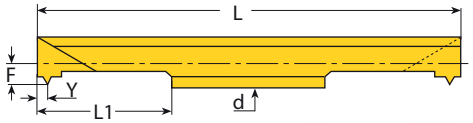
Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	inch	Toolholder
5.0L	27	5LKIR27NPTF...	5LKIL27NPTF...	.025	.03	.18	.31	.NVR...-5LK (LH)
	18	5LKIR18NPTF...	5LKIL18NPTF...	.039	.04	.18		
	14	5LKIR14NPTF...	5LKIL14NPTF...	.053	.04	.18		

NPTF

Internal



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



RH-Double Ended

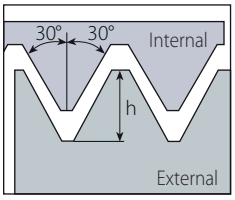
Micro - Double Ended

Thread	Insert Dia. d mm	Pitch TPI	Ordering Code RH	Dimensions inch L1	L	F	Y	h min	Min. Bore Dia. inch	Toolholder
1/16"-27NPTF	6.0	27	6.0SIR27NPTF...	.63	1.97	.10	.03	.025	.24	SMC..-6.0
1/4"-18NPTF		18	6.0SIR18NPTF...	.63	1.97	.10	.04	.039		

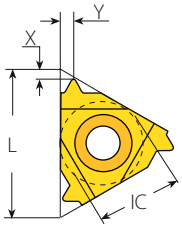
Left handed tool supplied by request (Example: 6.0SI**L**18NPTF...).

NPS

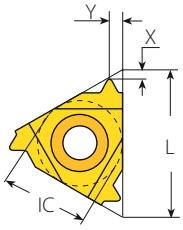
External / Internal



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



External Standard



Internal Standard

Standard - External

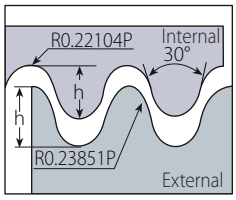
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	.63	24	3ER24NPS...	3EL24NPS...	.031	.03	.03	YE3	YI3	AL..-3 (LH)
		16	3ER16NPS...	3EL16NPS...	.048	.03	.04			
		14	3ER14NPS...	3EL14NPS...	.052	.04	.05			
		12	3ER12NPS...	3EL12NPS...	.064	.04	.06			
		11.5	3ER11.5NPS...	3EL11.5NPS...	.067	.04	.06			
		9	3ER9NPS...	3EL9NPS...	.087	.05	.06			
1/2″	.87	8	4ER8NPS...	4EL8NPS...	.097	.05	.07	YE4	YI4	AL..-4 (LH)
		7	4ER7NPS...	4EL7NPS...	.111	.06	.09			
		6	4ER6NPS...	4EL6NPS...	.130	.06	.09			
5/8″	1.06	5	5ER5NPS...	5EL5NPS...	.157	.07	.11	YE5	YI5	AL..-5 (LH)

Standard - Internal

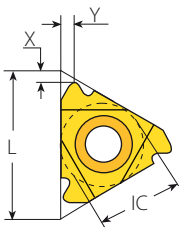
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	.63	24	3IR24NPS...	3IL24NPS...	.031	.03	.03	YI3	YE3	AVR..-3 (LH)
		14	3IR14NPS...	3IL14NPS...	.052	.04	.05			
		12	3IR12NPS...	3IL12NPS...	.064	.04	.06			
		11.5	3IR11.5NPS...	3IL11.5NPS...	.067	.04	.06			
		9	3IR9NPS...	3IL9NPS...	.087	.05	.06			
1/2″	.87	8	4IR8NPS...	4IL8NPS...	.097	.05	.07	YI4	YE4	AVR..-4 (LH)
		7	4IR7NPS...	4IL7NPS...	.111	.06	.09			
		6	4IR6NPS...	4IL6NPS...	.130	.06	.09			
5/8″	1.06	5	5IR5NPS...	5IL5NPS...	.157	.07	.11	YI5	YE5	AVR..-5 (LH)

Round (DIN 405)

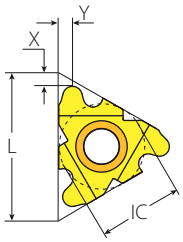
External



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



Standard



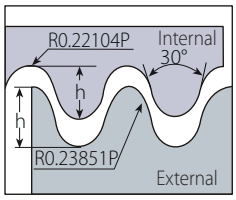
F-Line

Standard

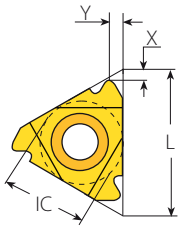
F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	.63	10	3ER10RD...	3EL10RD...	.050	.04	.05	YE3	YI3	AL..-3 (LH)
		8	3ER8RD...	3EL8RD...	.063	.06	.05			
		6	3ER6RD...	3EL6RD...	.083	.06	.07			
1/2″	.87	6	4ER6RD...	4EL6RD...	.083	.06	.07	YE4	YI4	AL..-4 (LH)
		4	4ER4RD...	4EL4RD...	.125	.09	.09			
1/2″F	.91	6	4FER6RD...		.083	.06	.07	YE4F		AL...-4F
		4	4FER4RD...		.125	.09	.09			
5/8″	1.06	4	5ER4RD...	5EL4RD...	.125	.09	.09	YE5	YI5	AL..-5 (LH)

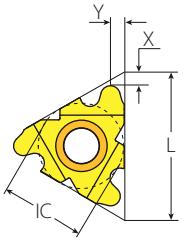
Internal



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



Standard



F-Line

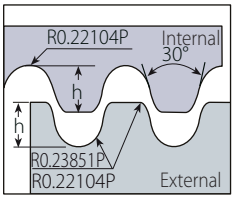
Standard

F-LINE

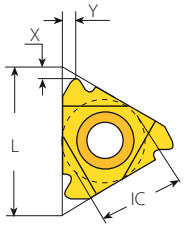
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	.63	10	3IR10RD...	3IL10RD...	.050	.04	.05	YI3	YE3	AVR..-3 (LH)
		8	3IR8RD...	3IL8RD...	.063	.06	.06			
		6	3IR6RD...	3IL6RD...	.083	.06	.06			
1/2″	.87	6	4IR6RD...	4IL6RD...	.083	.06	.07	YI4	YE4	AVR..-4 (LH)
		4	4IR4RD...	4IL4RD...	.125	.09	.09			
1/2″F	.91	6	4FIR6RD...		.083	.06	.07	YI4F		AVRC...-4F
		4	4FIR4RD...		.125	.09	.09			
5/8″	1.06	4	5IR4RD...	5IL4RD...	.125	.09	.09	YI5	YE5	AVR..-5 (LH)

Round (DIN 20400)

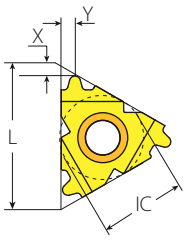
External



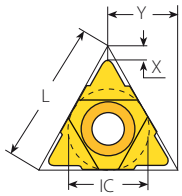
Defined by: DIN 20400
Tolerance class: Standard



Standard



F-Line



U Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2″	.87	3.0	4ER3.0RD20400...	4EL3.0RD20400...	.065	.05	.07	YE4	YI4	AL..-4 (LH)
		4.0	4ER4.0RD20400...	4EL4.0RD20400...	.087	.06	.09			
		5.0	4ER5.0RD20400...	4EL5.0RD20400...	.108	.06	.07			
		6.0	4ER6.0RD20400...	4EL6.0RD20400...	.130	.07	.08			
1/2″F	.91	3.0	4FER3.0RD20400...		.065	.05	.07	YE4F		AL...-4F
		4.0	4FER4.0RD20400...		.087	.06	.09			
		5.0	4FER5.0RD20400...		.108	.06	.07			
		6.0	4FER6.0RD20400...		.130	.07	.08			

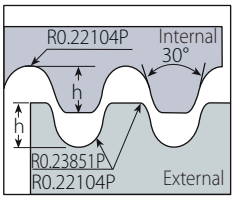
U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
5/8″U	1.06	8.0	5UEI8.0RD20400...	.173	.11	.53	YE5U	YI5U	AL..-5U (LH)

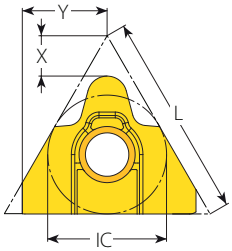
Round (DIN 20400) (con't)

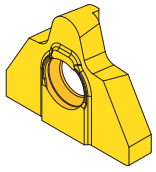
MEGALINE

External



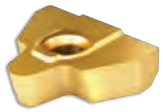
Defined by: DIN 20400
Tolerance class: Standard



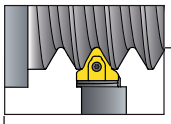


Mega Line

External

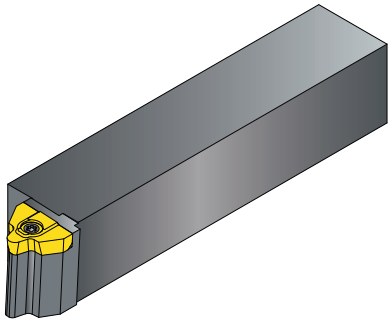


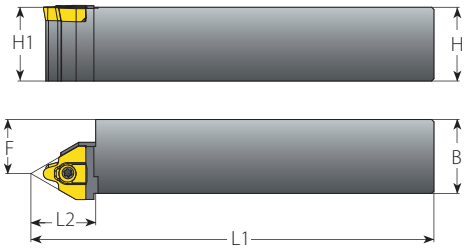
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	mm	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	10.0	5MGER10.0RD20400...	42517	.217	.16	.44	78	36
		12.0	5MGER12.0RD20400...	42518	.260	.21		93	43
		16.0	5MGER16.0RD20400...	42519	.346	.19		124	58



External Toolholders for Round (DIN 20400)

MEGALINE





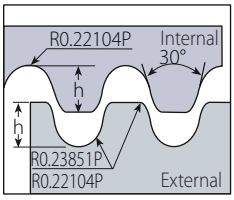
External

Insert	Ordering Code	EDP No.	Dimensions inch				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH		H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER10.0RD20400...	NL100-5MG10RD	66251	1.00	.65	6.1	.87	(RD132-170)x10	S5MG	K6T
	NL125-5MG10RD	66253	1.25	.93	6.9				
	NL150-5MG10RD	66256	1.50	1.24	8.1				
5MGER12.0RD20400...	NL100-5MG12RD	66257	1.00	.65	6.1	.87	(RD180-224)x12		
	NL125-5MG12RD	66258	1.25	.93	6.9				
	NL150-5MG12RD	66259	1.50	1.24	8.1				
5MGER16.0RD20400...	NL100-5MG16RD	66262	1.00	.65	6.1	.87	(RD236-300)x16		
	NL125-5MG16RD	66263	1.25	.93	6.9				
	NL150-5MG16RD	66266	1.50	1.24	8.1				

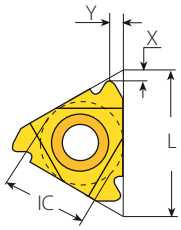
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

Round (DIN 20400) (con't)

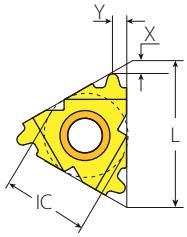
Internal



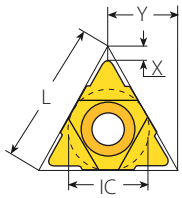
Defined by: DIN 20400
Tolerance class: Standard



Standard



F-Line



U Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2″	.87	3.0	4IR3.0RD20400...	4IL3.0RD20400...	.065	.05	.07	YI4	YE4	AVR..-4 (LH)
		4.0	4IR4.0RD20400...	4IL4.0RD20400...	.087	.06	.09			
		5.0	4IR5.0RD20400...	4IL5.0RD20400...	.108	.06	.07			
		6.0	4IR6.0RD20400...	4IL6.0RD20400...	.130	.07	.08			
1/2″F	.91	3.0	4FIR3.0RD20400...		.065	.05	.07	YI4F		AVRC...-4F
		4.0	4FIR4.0RD20400...		.087	.06	.09			
		5.0	4FIR5.0RD20400...		.108	.06	.07			
		6.0	4FIR6.0RD20400...		.130	.07	.08			

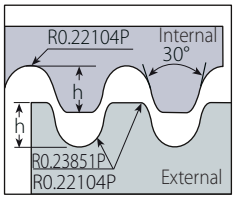
U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
5/8″U	1.06	8.0	5UEI8.0RD20400...	.173	.11	.53	YI5U	YE5U	AVR..-5U (LH)

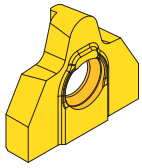
Round (DIN 20400) (con't)

MEGALINE

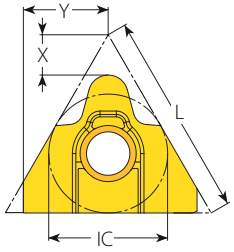
Internal



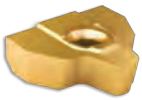
Defined by: DIN 20400
Tolerance class: Standard



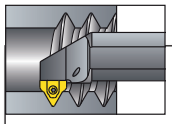
Mega Line



Internal

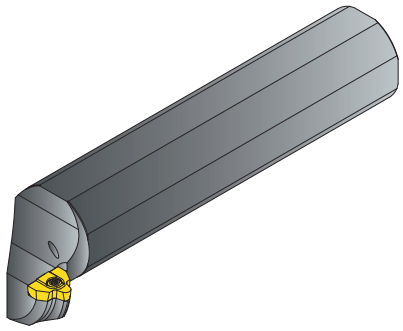


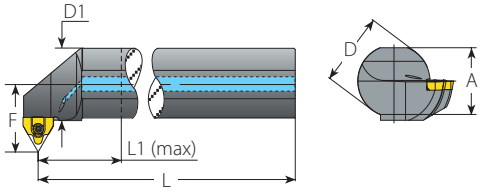
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	mm	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	10.0	5MGIR10.0RD20400...	42514	.217	.16	.41	78	36
		12.0	5MGIR12.0RD20400...	42515	.260	.21		93	43
		16.0	5MGIR16.0RD20400...	42516	.346	.19		124	58



Internal Toolholders for Round (DIN 20400)

MEGALINE





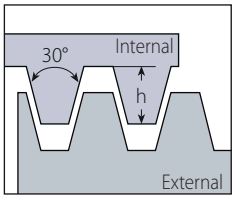
Internal

Insert	Ordering Code	EDP No.	Dimensions inch						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH		A	L	L1 (max)	D	D1	F	inch	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR10.0RD20400...	NVRC150-5MG10RD	66276	1.42	9.15	4	1.5	1.49	1.63	4.8	(RD132-170)x10	(RD132-170)x10	S5MG	K6T
	NVRC200-5MG10RD	66278	1.81	10.15	5	2.0	1.99	1.83					
	NVRC250-5MG10RD	66288	2.28	11.10	6	2.5	2.49	2.03					
5MGIR12.0RD20400...	NVRC150-5MG12RD	66289	1.42	9.15	4	1.5	1.49	1.63	6.61	(RD180-224)x12	(RD180-224)x12		
	NVRC200-5MG12RD	66293	1.81	10.15	5	2.0	1.99	1.83					
	NVRC250-5MG12RD	66318	2.28	11.10	6	2.5	2.49	2.03					
5MGIR16.0RD20400...	NVRC150-5MG16RD	66321	1.42	9.15	4	1.5	1.49	1.63	8.66	(RD236-300)x16	(RD236-300)x16		
	NVRC200-5MG16RD	66339	1.81	10.15	5	2.0	1.99	1.83					
	NVRC250-5MG16RD	66340	2.28	11.10	6	2.5	2.49	2.03					

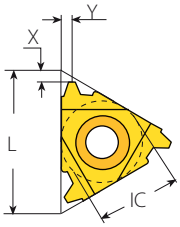
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

Trapez

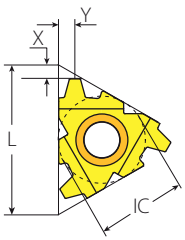
External



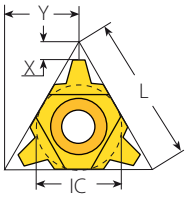
Defined by: DIN 103
Tolerance class: 7e/7H



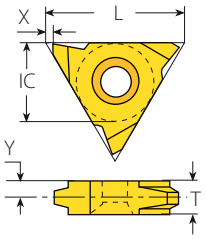
Standard



F-Line



U Style



V Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	1.5	2ER1.5TR...	2EL1.5TR...	.035	.03	.04	-	-	NL..-2 (LH)
3/8"	.63	1.5	3ER1.5TR...	3EL1.5TR...	.035	.04	.04	YE3	YI3	AL..-3 (LH)
		2.0	3ER2.0TR...	3EL2.0TR...	.049	.04	.05			
		2.5	3ER2.5TR...	3EL2.5TR...	.061	.05	.06			
		3.0	3ER3.0TR...	3EL3.0TR...	.069	.05	.06			
1/2"	.87	4.0	4ER4.0TR...	4EL4.0TR...	.089	.07	.07	YE4	YI4	AL..-4 (LH)
		5.0	4ER5.0TR...	4EL5.0TR...	.108	.08	.10			
		6.0	4ER6.0TR...	4EL6.0TR...	.138	.09	.11			
1/2"F	.91	4.0	4FER4.0TR...		.089	.07	.07	YE4F		AL...-4F
		5.0	4FER5.0TR...		.108	.08	.10			
		6.0	4FER6.0TR...		.138	.09	.11			
5/8"	1.06	6.0	5ER6.0TR...	5EL6.0TR...	.138	.09	.11	YE5	YI5	AL..-5 (LH)

U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	6.0	4UE6.0TR...	.138	.08	.43	YE4U	YI4U	AL..-4U (LH)
		7.0	4UE7.0TR...	.157	.09	.43			
		8.0	4UE8.0TR...	.177	.10	.43			
5/8"U	1.06	8.0	5UE8.0TR...	.177	.10	.54	YE5U	YI5U	AL..-5U (LH)
		9.0	5UE9.0TR...	.197	.12	.54			

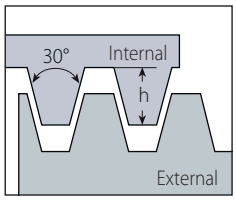
V Style

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	mm	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	6.0	5VER6.0TR...	5VEL6.0TR...	.138	.04	.13	.24	NL..-5V-6 (LH)
		7.0	5VER7.0TR...	5VEL7.0TR...	.157	.04	.13	.24	
		8.0	5VER8.0TR...	5VEL8.0TR...	.177	.04	.13	.24	
		9.0	5VER9.0TR...	5VEL9.0TR...	.197	.04	.17	.31	NL..-5V-8 (LH)
		10.0	5VER10.0TR...	5VEL10.0TR...	.217	.04	.17	.31	
		12.0	5VER12.0TR...	5VEL12.0TR...	.256	.04	.20	.39	NL..-5V-10 (LH)

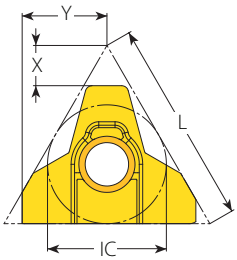
Trapez (con't)

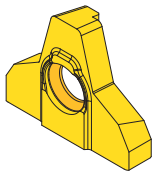
MEGALINE

External



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





Mega Line

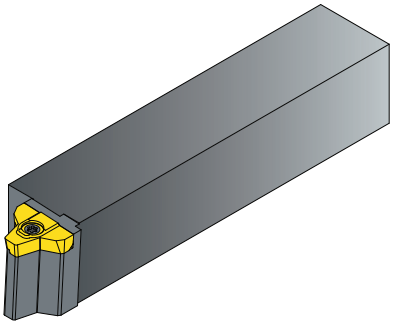
External

Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	mm	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	12.0	5MGER12.0TR...	42540	.256	.21	.44	94	44
		14.0	5MGER14.0TR...	42541	.315	.17		115	54
		16.0	5MGER16.0TR...	42530	.354	.21		129	60
		18.0	5MGER18.0TR...	42531	.394	.21		143	67
		20.0	5MGER20.0TR...	42532	.433	.29		158	74
		24.0	5MGER24.0TR...	42533	.512	.29		186	87

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

External Toolholders for Trapez

MEGALINE



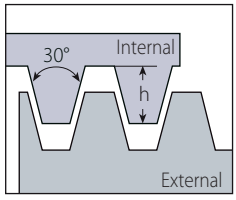
External

Insert	Ordering Code	EDP No.	Dimensions inch				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH		H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER12.0TR...	NL100-5MG12TR	66491	1.00	.65	6.1	.87	(TR44-300)x12	S5MG	K6T
	NL125-5MG12TR	66492	1.25	.93	6.9				
	NL150-5MG12TR	66493	1.50	1.24	8.1				
5MGER14.0TR...	NL100-5MG14TR	66494	1.00	.65	6.1	.87	(TR55-145)x14		
	NL125-5MG14TR	66495	1.25	.93	6.9				
	NL150-5MG14TR	66496	1.50	1.24	8.1				
5MGER16.0TR...	NL100-5MG16TR	66497	1.00	.65	6.1	.87	(TR65-175)x16		
	NL125-5MG16TR	66498	1.25	.93	6.9				
	NL150-5MG16TR	66499	1.50	1.24	8.1				
5MGER18.0TR...	NL100-5MG18TR	66500	1.00	.65	6.1	.87	(TR85-200)x18		
	NL125-5MG18TR	66501	1.25	.93	6.9				
	NL150-5MG18TR	66502	1.50	1.24	8.1				
5MGER20.0TR...	NL100-5MG20TR	66503	1.00	.65	6.1	.87	(TR100-230)x20		
	NL125-5MG20TR	66504	1.25	.93	6.9				
	NL150-5MG20TR	66505	1.50	1.24	8.1				
5MGER24.0TR...	NL100-5MG24TR	66506	1.00	.65	6.1	.87	(TR135-300)x24		
	NL125-5MG24TR	66507	1.25	.93	6.9				
	NL150-5MG24TR	66508	1.50	1.24	8.1				

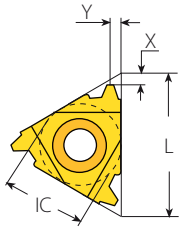
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

Trapez (con't)

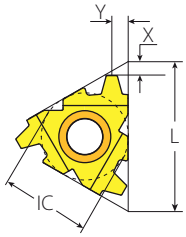
Internal



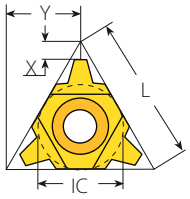
Defined by: DIN 103
Tolerance class: 7e/7H



Standard



F-Line



U Style

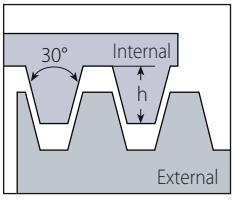
Standard

F-LINE

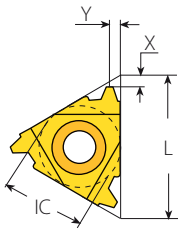
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	1.5	2IR1.5TR...	2IL1.5TR...	.035	.03	.04	-	-	NVR 8-2 (LH)
3/8″	.63	1.5	3IR1.5TR...	3IL1.5TR...	.035	.04	.04	YI3	YE3	AVR..-3 (LH)
		2.0	3IR2.0TR...	3IL2.0TR...	.049	.04	.05			
		2.5	3IR2.5TR...	3IL2.5TR...	.060	.05	.06			
		3.0	3IR3.0TR...	3IL3.0TR...	.069	.05	.06			
1/2″	.87	4.0	4IR4.0TR...	4IL4.0TR...	.089	.07	.07	YI4	YE4	AVR..-4 (LH)
		5.0	4IR5.0TR...	4IL5.0TR...	.108	.08	.10			
		6.0	4IR6.0TR...	4IL6.0TR...	.138	.09	.11			
1/2″F	.91	4.0	4FIR4.0TR...		.089	.07	.07	YI4F		AVRC...-4F
		5.0	4FIR5.0TR...		.108	.08	.10			
		6.0	4FIR6.0TR...		.138	.09	.11			
5/8″	1.06	6.0	5IR6.0TR...	5IL6.0TR...	.138	.09	.11	YI5	YE5	AVR..-5 (LH)

Trapez (con't)

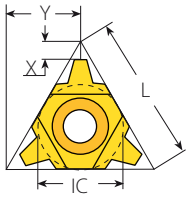
Internal



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



Coarse Pitch



U Style Coarse Pitch

Coarse Pitch RH

Thread	Insert Size		Ordering Code	Dimensions inch				Min Bore Dia.
	IC	L inch	RH	h min	X	Y	Toolholder RH	Inch
TR18x4	3/8″U	.63	3UIR4.0TR158/013...	.089	.08	.31	NVRC044-3U-157/020	.55
TR20x4	3/8″	.63	3IR4.0TR158/012...	.089	.06	.07	NVRC050-3-157/006	.63
TR22x5	3/8″U	.63	3UIR5.0TR158/011...	.108	.06	.31	NVRC055-3U-157/018	.67
TR24x5			3UIR5.0TR158/011...	.108	.06	.31	NVRC059-3U-157/019	.75
TR26x5			3UIR5.0TR158/011...	.108	.06	.31	NVRC059-3U-157/019	.83
TR28x5	1/2″	.87	4IR5.0TR...	.108	.09	.11	NVRC075-4-157/008	.91
TR30x6	1/2″U	.87	4UIR6.0TR158/007...	.138	.08	.43	NVRC075-4U-157/011	.94
TR36x6	5/8″	1.06	5IR6.0TR...	.138	.09	.11	NVRC100-5-157/012	1.18
TR38x7	1/2″U	.87	4UIR7.0TR158/008...	.157	.09	.43	NVRC100-4U-157/013	1.22
TR40x7			4UIR7.0TR158/008...	.157	.09	.43	NVRC100-4U-157/013	1.30
TR42x7			4UIR7.0TR158/008...	.157	.09	.43	NVRC125-4U-157/014	1.38
TR44x7			4UIR7.0TR158/008...	.157	.09	.43	NVRC125-4U-157/014	1.46
TR46x8	5/8″U	1.06	5UIR8.0TR158/010...	.177	.10	.53	NVRC125-5U-157/015	1.50
TR48x8			5UIR8.0TR158/010...	.177	.10	.53	NVRC125-5U-157/015	1.57
TR50x8			5UIR8.0TR158/010...	.177	.10	.53	NVRC125-5U-157/015	1.65
TR52x8			5UIR8.0TR158/010...	.177	.10	.53	NVRC125-5U-157/015	1.73

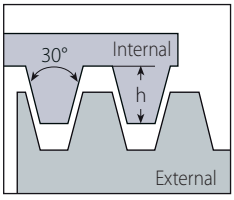
Coarse Pitch LH

Thread	Insert Size		Ordering Code	Dimensions inch				Min Bore Dia.
	IC	L inch	LH	h min	X	Y	Toolholder LH	Inch
TR18x4	3/8″U	.63	3UIR4.0TR158/013...	.089	.08	.31	NVRC044-3ULH-157/038	.55
TR20x4	3/8″	.63	3IL4.0TR158/015...	.089	.06	.07	NVRC050-3LH-157/030	.63
TR22x5	3/8″U	.63	3UIR5.0TR158/011...	.108	.06	.31	NVRC055-3ULH-157/036	.67
TR24x5			3UIR5.0TR158/011...	.108	.06	.31	NVRC059-3ULH-157/037	.75
TR26x5			3UIR5.0TR158/011...	.108	.06	.31	NVRC059-3ULH-157/037	.83
TR28x5	1/2″	.87	4IL5.0TR...	.108	.09	.11	NVRC075-4LH-157/017	.91
TR30x6	1/2″U	.87	4UIR6.0TR158/007...	.138	.08	.43	NVRC075-4ULH-157/024	.94
TR36x6	5/8″	1.06	5IL6.0TR...	.138	.09	.11	NVRC100-5LH-157/031	1.18
TR38x7	1/2″U	.87	4UIR7.0TR158/008...	.157	.09	.43	NVRC100-4ULH-157/032	1.22
TR40x7			4UIR7.0TR158/008...	.157	.09	.43	NVRC100-4ULH-157/032	1.30
TR42x7			4UIR7.0TR158/008...	.157	.09	.43	NVRC125-4ULH-157/033	1.38
TR44x7			4UIR7.0TR158/008...	.157	.09	.43	NVRC125-4ULH-157/033	1.46
TR46x8	5/8″U	1.06	5UIR8.0TR158/010...	.177	.10	.53	NVRC125-5ULH-157/034	1.50
TR48x8			5UIR8.0TR158/010...	.177	.10	.53	NVRC125-5ULH-157/034	1.57
TR50x8			5UIR8.0TR158/010...	.177	.10	.53	NVRC125-5ULH-157/034	1.65
TR52x8			5UIR8.0TR158/010...	.177	.10	.53	NVRC125-5ULH-157/034	1.73

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

Trapez (con't)

Internal



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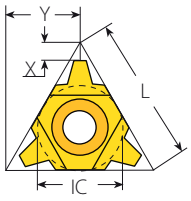
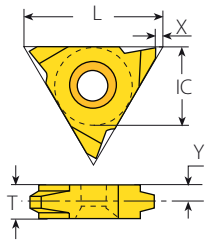
Tolerance class: 7e/7H



U Style



V Style

U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	6.0	4UI6.0TR...	.138	.08	.43	YI4U	YE4U	AVR..-4U (LH)
		7.0	4UI7.0TR...	.157	.09	.43			
		8.0	4UI8.0TR...	.177	.10	.43			
5/8"U	1.06	8.0	5UI8.0TR...	.177	.10	.54	YI5U	YE5U	AVR..-5U (LH)
		9.0	5UI9.0TR...	.197	.12	.54			

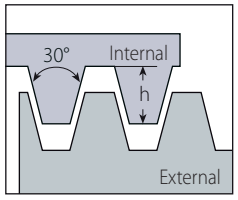
V Style

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	mm	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	6.0	5VIR6.0TR...	5VIL6.0TR...	.138	.04	.13	.24	NVR..-5V (LH)
		7.0	5VIR7.0TR...	5VIL7.0TR...	.157	.04	.13	.24	
		8.0	5VIR8.0TR...	5VIL8.0TR...	.177	.04	.13	.24	
		9.0	5VIR9.0TR...	5VIL9.0TR...	.197	.04	.17	.31	
		10.0	5VIR10.0TR...	5VIL10.0TR...	.217	.04	.17	.31	
		12.0	5VIR12.0TR...	5VIL12.0TR...	.256	.04	.20	.39	

Trapez

MEGALINE

Internal



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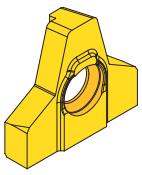
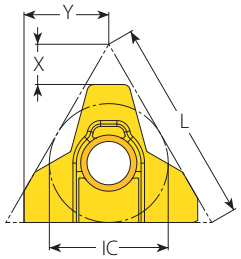


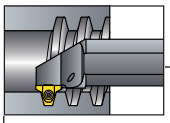
Mega Line



Internal

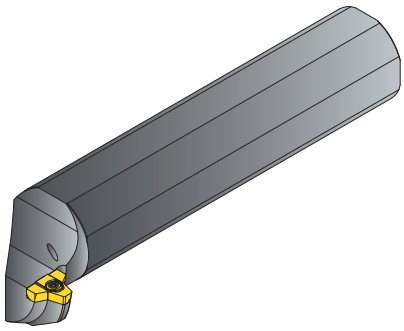
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	mm	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	12.0	5MGIR12.0TR...	42534	.25	.21	.41	96	45
		14.0	5MGIR14.0TR...	42535	.31	.17		118	55
		16.0	5MGIR16.0TR...	42536	.35	.21		131	61
		18.0	5MGIR18.0TR...	42537	.39	.21		145	68
		20.0	5MGIR20.0TR...	42538	.43	.29		160	75
		24.0	5MGIR24.0TR...	42539	.51	.29		188	88

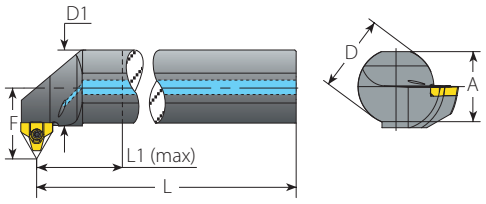
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.



Internal Toolholders for Trapez

MEGALINE





Internal

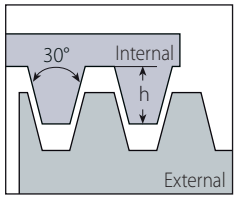
Insert	Ordering Code	EDP No.	Dimensions inch						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH		A	L	L1 (max)	D	D1	F	inch	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR12.0TR...	NVRC150-5MG12TR	66509	1.42	9.15	4	1.5	1.49	1.63	2.87	(TR85-300)x12	(TR85-300)x12	S5MG	K6T
	NVRC200-5MG12TR	66510	1.81	10.15	5	2.0	1.99	1.83	2.87	(TR85-300)x12	(TR95-300)x12		
	NVRC250-5MG12TR	66511	2.28	11.10	6	2.5	2.49	2.03	3.27	(TR95-300)x12	(TR105-300)x12		
5MGIR14.0TR...	NVRC150-5MG14TR	66512	1.42	9.15	4	1.5	1.49	1.63	3.98	(TR115-145)x14	(TR115-145)x14		
	NVRC200-5MG14TR	66513	1.81	10.15	5	2.0	1.99	1.83	3.98	(TR115-145)x14	(TR115-145)x14		
	NVRC250-5MG14TR	66514	2.28	11.10	6	2.5	2.49	2.03	3.98	(TR115-145)x14	(TR115-145)x14		
5MGIR16.0TR...	NVRC150-5MG16TR	66515	1.42	9.15	4	1.5	1.49	1.63	2.52	(TR80-175)x16	(TR150-175)x16		
	NVRC200-5MG16TR	66516	1.81	10.15	5	2.0	1.99	1.83	5.28	(TR150-175)x16	(TR150-175)x16		
	NVRC250-5MG16TR	66517	2.28	11.10	6	2.5	2.49	2.03	5.28	(TR150-175)x16	(TR150-175)x16		
5MGIR18.0TR...	NVRC150-5MG18TR	66518	1.42	9.15	4	1.5	1.49	1.63	2.64	(TR85-200)x18	(TR90-200)x18		
	NVRC200-5MG18TR	66519	1.81	10.15	5	2.0	1.99	1.83	2.83	(TR90-200)x18	(TR180-200)x18		
	NVRC250-5MG18TR	66520	2.28	11.10	6	2.5	2.49	2.03	6.38	(TR180-200)x18	(TR180-200)x18		
5MGIR20.0TR...	NVRC150-5MG20TR	66521	1.42	9.15	4	1.5	1.49	1.63	3.15	(TR100-230)x20	(TR100-230)x20		
	NVRC200-5MG20TR	66522	1.81	10.15	5	2.0	1.99	1.83	3.15	(TR100-230)x20	(TR100-230)x20		
	NVRC250-5MG20TR	66523	2.28	11.10	6	2.5	2.49	2.03	3.35	(TR105-230)x20	(TR210-230)x20		
5MGIR24.0TR...	NVRC150-5MG24TR	66524	1.42	9.15	4	1.5	1.49	1.63	4.37	(TR135-300)x24	(TR135-300)x24		
	NVRC200-5MG24TR	66525	1.81	10.15	5	2.0	1.99	1.83	4.37	(TR135-300)x24	(TR135-300)x24		
	NVRC250-5MG24TR	66526	2.28	11.10	6	2.5	2.49	2.03	4.37	(TR135-300)x24	(TR135-300)x24		

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

Trapez (con't)

Mini-V

Internal



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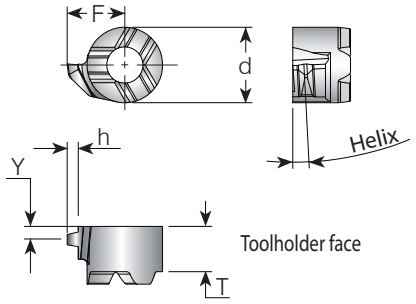
Tolerance class: 7e/7H



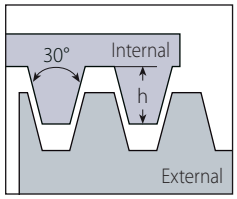
Mini-V

Min. Thread	Insert Style	Pitch	Ordering Code	Dimensions inch					Helix	Toolholder
		mm	RH	d	T	F	Y	h min	Deg.	
TR10x2.0	V08	2.0	V08TH2.0TRR...	.24	.15	.19	.04	.05	3.5	.V08-...
TR11x3.0		3.0	V08TH3.0TRR...			.19	.05	.07	5	
TR16x4.0	V11	4.0	V11TH4.0TRR...	.31	.17	.26	.06	.09	4.5	.V11-...

Trapez

MINIPRO

Internal



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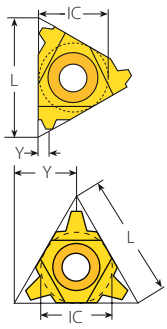
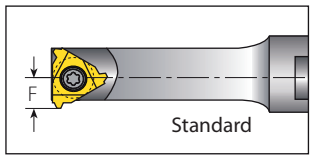
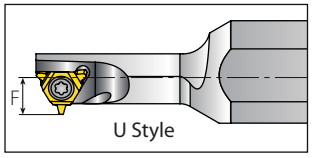
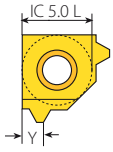
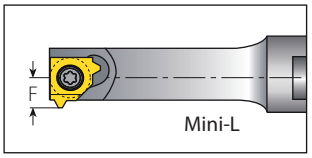










Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	mm	RH	LH	h min	Y	F	inch	Toolholder
5.0	.31	1.5	5.0KIR1.5TR...	5.0KIL1.5TR...	.033	.03	.19	.31	.NVRC...-5.0K (LH)
6.0	.39	1.5	6.0KIR1.5TR...	6.0KIL1.5TR...	.033	.03	.21	.39	.NVR...-6.0K (LH)
		2.0	6.0KIR2.0TR...	6.0KIL2.0TR...	.049	.05	.21	.39	

Mini-3 U Style

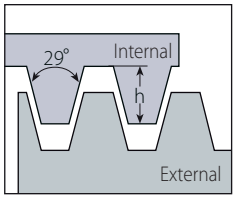
Insert Size		Pitch	Ordering Code	Dimensions inch			Min. Bore Dia.	
IC mm	L inch	mm	RH+LH	h min	Y	F	inch	Toolholder
5.0U	.31	2.0	5.0KUI2TR...	.049	.16	.22	.35	.NVRC...-5.0KU (LH)

Mini-L

Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	mm	RH	LH	h min	Y	F	inch	Toolholder
5.0L	1.5	5LKIR1.5TR...	5LKIL1.5TR...	.033	.03	.18	.31	.NVR...-5LK (LH)
	2.0	5LKIR2.0TR...	5LKIL2.0TR...	.049	.05	.19	.35	

American ACME

External



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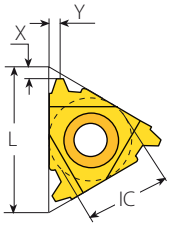
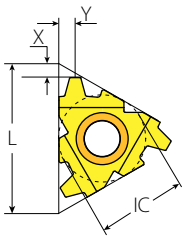
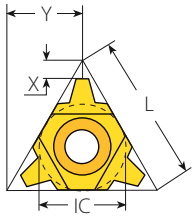
Tolerance class: 3G



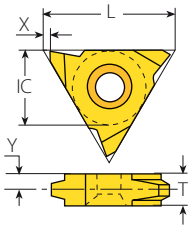
Standard



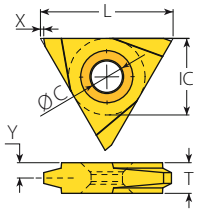
F-Line



U Style



V Style



On Edge

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	0.43	16	2ER16ACME...	2EL16ACME...	.036	.04	.04	-	-	NL..-2 (LH)
3/8"	.63	16	3ER16ACME...	3EL16ACME...	.036	.04	.04	YE3	YI3	AL..-3 (LH)
		14	3ER14ACME...	3EL14ACME...	.041	.04	.05			
		12	3ER12ACME...	3EL12ACME...	.047	.04	.05			
		10	3ER10ACME...	3EL10ACME...	.060	.05	.06			
		8	3ER8ACME...	3EL8ACME...	.072	.06	.06			
		7	3ER7ACME...	3EL7ACME...	.082	.07	.09			
1/2"	.87	7	4ER7ACME...	4EL7ACME...	.082	.07	.09	YE4	YI4	AL..-4 (LH)
		6	4ER6ACME...	4EL6ACME...	.093	.07	.08			
		5	4ER5ACME...	4EL5ACME...	.110	.08	.09			
1/2"F	.91	6	4FER6ACME...		.093	.07	.08	YE4F		AL...-4F
		5	4FER5ACME...		.110	.08	.09			
5/8"	1.06	4	5ER4ACME...	5EL4ACME...	.135	.09	.11	YE5	YI5	AL..-5 (LH)

U Style

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

V Style

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	4	5VER4ACME...	5VEL4ACME...	.135	.04	.13	.24	NL..-5V-6 (LH)
		3.5	5VER3.5ACME...	5VEL3.5ACME...	.152	.04	.13	.24	
		3	5VER3ACME...	5VEL3ACME...	.177	.04	.13	.24	
		2	5VER2ACME...	5VEL2ACME...	.260	.04	.20	.39	NL..-5V-10 (LH)

On Edge

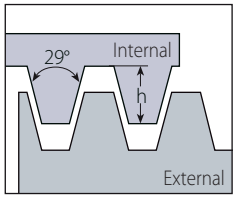
Insert Size		Pitch	Ordering Code	Dimensions inch				
IC	L inch	TPI	RH	h min	T	Ø C	X	Y
1/2"	.87	12	TNEC43EI12ACME...	.047	.19	.20	.02	.09
		10	TNEC43EI10ACME...	.060				
		8	TNEC43EI8ACME...	.072				
		6	TNEC43EI6ACME...	.093				
		4	TNEC43EI4ACME...	.135				
5/8"	1.06	4	TNEC54EI4ACME...	.135	.25	.26		.13
		3	TNEC54EI3ACME...	.177				
3/4"	1.26	2	TNEC56EI2ACME...	.260	.38	.31		.19

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

American ACME (con't)

MEGALINE

External



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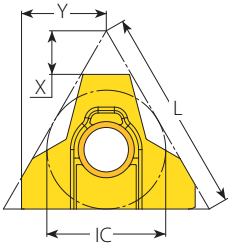
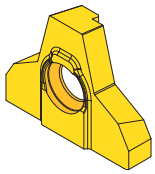
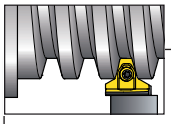




Mega Line

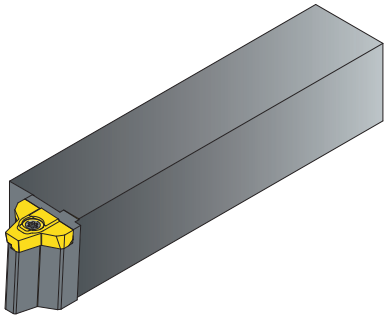
External

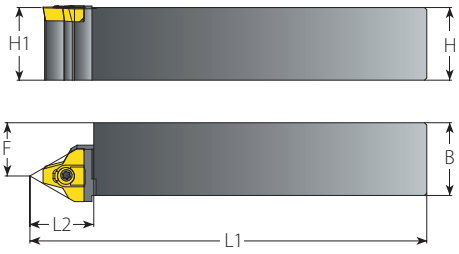
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	TPI	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	2	5MGER2ACME...	42511	.260	.19	.45	95	44
		1 1/2	5MGER1-1/2ACME...	42508	.343	.23		125	58
		1 1/3	5MGER1-1/3ACME...	42509	.385	.27		140	65
		1	5MGER1ACME...	42510	.510	.33		186	87



External Toolholders for American ACME

MEGALINE





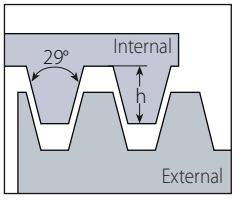
External

Insert	Ordering Code	EDP No.	Dimensions				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH		H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER2ACME...	NL100-5MG2ACME	66409	1.00	.65	6.1	.87	(3"-5")-2ACME	S5MG	K6T
	NL125-5MG2ACME	66410	1.25	.93	6.9				
	NL150-5MG2ACME	66412	1.50	1.24	8.1				
5MGER1-1/2ACME...	NL100-5MG1-1/2ACME	66413	1.00	.65	6.1	.87	(3"-5")-1 1/2ACME		
	NL125-5MG1-1/2ACME	66414	1.25	.93	6.9				
	NL150-5MG1-1/2ACME	66415	1.50	1.24	8.1				
5MGER1-1/3ACME...	NL100-5MG1-1/3ACME	66416	1.00	.65	6.1	.87	(3"-5")-1 1/3ACME		
	NL125-5MG1-1/3ACME	66417	1.25	.93	6.9				
	NL150-5MG1-1/3ACME	66418	1.50	1.24	8.1				
5MGER1ACME...	NL100-5MG1ACME	66420	1.00	.65	6.1	.87	(3.5"-5")-1ACME		
	NL125-5MG1ACME	66422	1.25	.93	6.9				
	NL150-5MG1ACME	66423	1.50	1.24	8.1				

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

American ACME (con't)

Internal



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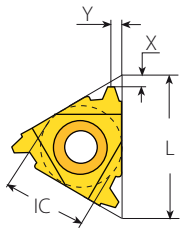
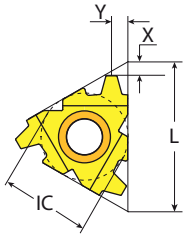
Tolerance class: 3G



Standard



F-Line

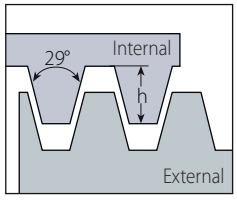
Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	16	2IR16ACME...	2IL16ACME...	.036	.04	.04	-	-	NVR..-2 (LH)
3/8″	.63	16	3IR16ACME...	3IL16ACME...	.036	.04	.04	YI3	YE3	AVR..-3 (LH)
		14	3IR14ACME...	3IL14ACME...	.041	.04	.05			
		12	3IR12ACME...	3IL12ACME...	.047	.05	.05			
		10	3IR10ACME...	3IL10ACME...	.060	.05	.05			
		8	3IR8ACME...	3IL8ACME...	.072	.06	.06			
1/2″	.87	6	4IR6ACME...	4IL6ACME...	.093	.07	.08	YI4	YE4	AVR..-4 (LH)
		5	4IR5ACME...	4IL5ACME...	.110	.08	.09			
1/2″F	.91	6	4FIR6ACME...		.093	.07	.08	YI4F		AVRC...-4F
		5	4FIR5ACME...		.110	.08	.09			
5/8″	1.06	4	5IR4ACME...	5IL4ACME...	.135	.09	.10	YI5	YE5	AVR..-5 (LH)

American ACME (con't)

Internal



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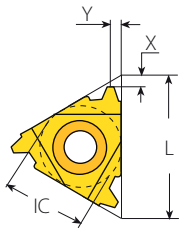
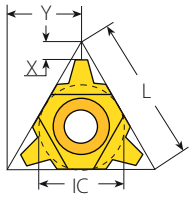
Tolerance class: 3G



Standard



U Style

Coarse Pitch RH

Thread	Insert Size		Ordering Code	Dimensions inch			Anvil		Min Bore Dia.
TPI	IC	L inch	RH	h min	X	Y	RH	Toolholder RH	Inch
1/2"x10	6.0U	.39	6.0KUIR10ACME158/005...	.060	.04	.20	-	NVRC032-6.0KU-157/003	.40
5/8"x8	1/4"U	.43	2UIR8ACME158/006...	.072	.04	.22	-	NVRC039-2U-157/004	.50
3/4"x6	3/8"	.63	3IR6ACME...	.093	.07	.07	-	NVRC044-3-157/005	.58
7/8"x6			3IR6ACME...	.093	.07	.07	-	NVRC050-3-157/006	.73
1"x5	1/2"	.87	4IR5ACME158/018...	.110	.08	.09	-	NVRC067-4-157/039	.83
1 1/8"x5			4IR5ACME...	.110	.08	.09	-	NVRC075-4-157/008	.94
1 1/4"x5			4IR5ACME...	.110	.08	.09	-	NVRC075-4-157/009	1.07
1 1/2"x4	5/8"	1.06	5IR4ACME...	.135	.09	.10	-	NVRC110-5-157/010	1.27
1 3/4"x4			5IR4ACME...	.135	.09	.10	YI5-1P	AVRC125-5	1.53

Coarse Pitch LH

Thread	Insert Size		Ordering Code	Dimensions inch			Anvil		Min Bore Dia.
TPI	IC	L inch	LH	h min	X	Y	LH	Toolholder LH	Inch
1/2"x10	6.0U	.39	6.0KUIR10ACME158/005...	.060	.04	.20	-	NVRC032-6.0KULH-157/027	.40
5/8"x8	1/4"U	.43	2UIR8ACME158/006...	.072	.04	.22	-	NVRC039-2ULH-157/028	.50
3/4"x6	3/8"	.63	3IL6ACME...	.093	.07	.07	-	NVRC044-3LH-157/029	.58
7/8"x6			3IL6ACME...	.093	.07	.07	-	NVRC050-3LH-157/030	.73
1"x5	1/2"	.87	4IL5ACME158/019...	.110	.08	.09	-	NVRC067-4LH-157/040	.83
1 1/8"x5			4IL5ACME...	.110	.08	.09	-	NVRC075-4LH-157/017	.94
1 1/4"x5			4IL5ACME...	.110	.08	.09	-	NVRC075-4LH-157/021	1.07
1 1/2"x4	5/8"	1.06	5IL4ACME...	.135	.09	.10	-	NVRC110-5LH-157/023	1.27
1 3/4"x4			5IL4ACME...	.135	.09	.10	YE5-1P	AVRC125-5LH	1.53

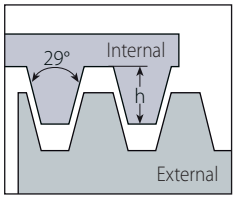
U Type RH inserts can be used for both LH and RH applications.

U Style

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

American ACME (con't)

Internal



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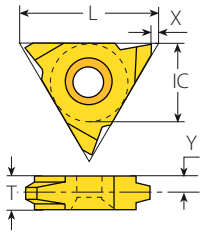
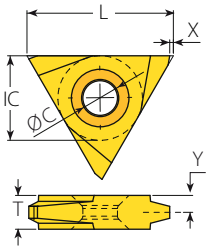
Tolerance class: 3G



V Style



On Edge

V Style

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

On Edge

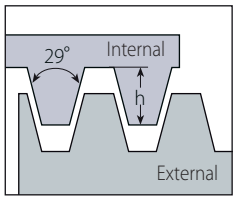
Insert Size		Pitch	Ordering Code	Dimensions inch				
IC	L inch	TPI	RH	h min	T	Ø C	X	Y
1/2"	.87	12	TNEC43EI12ACME...	.047	.19	.20	.02	.09
		10	TNEC43EI10ACME...	.060				
		8	TNEC43EI8ACME...	.072				
		6	TNEC43EI6ACME...	.093				
		4	TNEC43EI4ACME...	.135				
5/8"	1.06	4	TNEC54EI4ACME...	.135	.25	.26		.13
		3	TNEC54EI3ACME...	.177				
3/4"	1.26	2	TNEC56EI2ACME...	.260	.38	.31		.19

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

American ACME (con't)

MEGALINE

Internal



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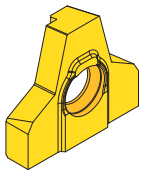
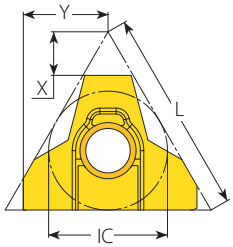
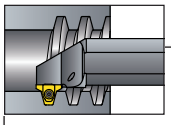


Mega Line



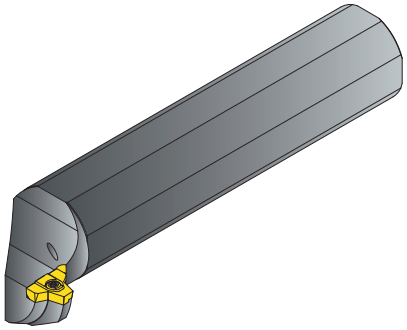
Internal

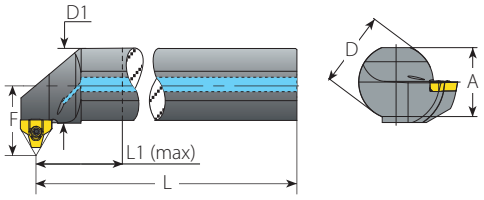
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	TPI	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	2	5MGIR2ACME...	42507	.257	.19	.41	94	44
		1 1/2	5MGIR1-1/2ACME...	42504	.337	.23		124	58
		1 1/3	5MGIR1-1/3ACME...	42505	.376	.27		139	65
		1	5MGIR1ACME...	42506	.495	.33		184	86



Internal Toolholders for American ACME

MEGALINE





Internal

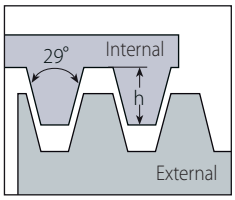
Insert	Ordering Code	EDP No.	Dimensions inch						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH		A	L	L1 (max)	D	D1	F	inch	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR2ACME...	NVRC150-5MG2ACME	66424	1.42	9.15	4	1.5	1.49	1.63	2.50	(3"-5")-2ACME	(3.5"-5")-2ACME	S5MG	K6T
	NVRC200-5MG2ACME	66425	1.81	10.15	5	2.0	1.99	1.83	3.00	(3.5"-5")-2ACME	(4"-5")-2ACME		
	NVRC250-5MG2ACME	66426	2.28	11.10	6	2.5	2.49	2.03	3.50	(4"-5")-2ACME	(4.5"-5")-2ACME		
5MGIR1-1/2ACME...	NVRC150-5MG1-1/2ACME	66434	1.42	9.15	4	1.5	1.49	1.63	2.33	(3"-5")-1 1/2ACME	(3.5"-5")-1 1/2ACME		
	NVRC200-5MG1-1/2ACME	66442	1.81	10.15	5	2.0	1.99	1.83	2.83	(3.5"-5")-1 1/2ACME	(4"-5")-1 1/2ACME		
	NVRC250-5MG1-1/2ACME	66443	2.28	11.10	6	2.5	2.49	2.03	3.33	(4"-5")-1 1/2ACME	(4.5"-5")-1 1/2ACME		
5MGIR1-1/3ACME...	NVRC150-5MG1-1/3ACME	66444	1.42	9.15	4	1.5	1.49	1.63	2.25	(3"-5")-1 1/3ACME	(3.5"-5")-1 1/3ACME		
	NVRC200-5MG1-1/3ACME	66445	1.81	10.15	5	2.0	1.99	1.83	2.75	(3.5"-5")-1 1/3ACME	(4.0"-5")-1 1/3ACME		
	NVRC250-5MG1-1/3ACME	66446	2.28	11.10	6	2.5	2.49	2.03	3.25	(4.0"-5")-1 1/3ACME	(4.5"-5")-1 1/3ACME		
5MGIR1ACME...	NVRC150-5MG1ACME	66447	1.42	9.15	4	1.5	1.49	1.63	2.50	(3.5"-5")-1ACME	(4"-5")-1ACME		
	NVRC200-5MG1ACME	66448	1.81	10.15	5	2.0	1.99	1.83	3.00	(4"-5")-1ACME	(4.5"-5")-1ACME		
	NVRC250-5MG1ACME	66449	2.28	11.10	6	2.5	2.49	2.03	3.00	(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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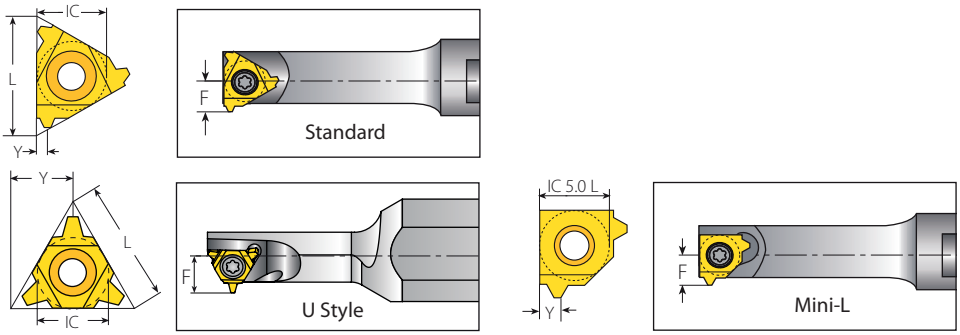


Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH	LH	h min	Y	F	inch	Toolholder
5.0	.31	16	5.0KIR16ACME...	5.0KIL16ACME...	.036	.03	.19	.31	.NVRC...-5.0K (LH)
6.0	.39	12	6.0KIR12ACME...	6.0KIL12ACME...	.047	.04	.20	.39	.NVR...-6.0K (LH)

Mini-3 U Style

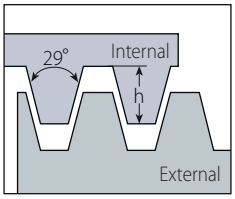
Insert Size		Pitch	Ordering Code	Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH+LH	h min	Y	F	inch	Toolholder
5.0U	.31	14	5.0KUI14ACME...	.041	.16	.23	.35	.NVRC...-5.0KU (LH)
		12	5.0KUI12ACME...	.047				
		10	5.0KUI10ACME...	.060				

Mini-L

Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	inch	Toolholder
5.0L	12	5LKIR12ACME...	5LKIL12ACME...	.047	.04	.17	.31	.NVR...-5LK (LH)

American ACME (2G)

External



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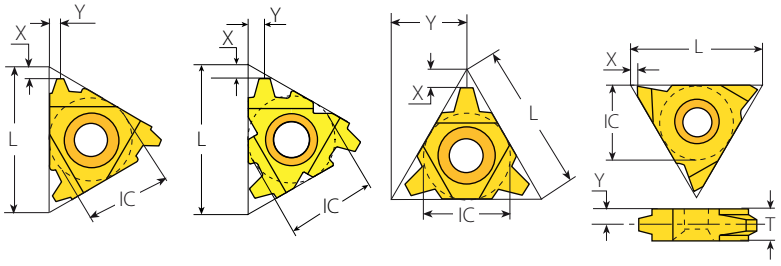
Tolerance class: 2G



Standard | F-Line | U Style | V Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	.63	10	3ER10ACME-2G...	3EL10ACME-2G...	1.52	.05	.06	YE3	YI3	AL..-3 (LH)
		8	3ER8ACME-2G...	3EL8ACME-2G...	1.84	.06	.06			
1/2″	.87	5	4ER5ACME-2G...	4EL5ACME-2G...	2.79	.08	.09	YE4	YI4	AL..-4 (LH)
1/2″F	.91	5	4FER5ACME-2G...		2.79	.08	.09	YE4F		AL...-4F

U Style

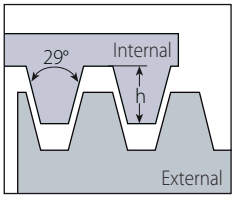
Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2″U	.87	4	4UE4ACME-2G...	.135	.09	.43	YE4U	YI4U	AL..-4U (LH)
		3.5	4UE3.5ACME-2G...	.152	.10	.43			
		3	4UE3ACME-2G...	.177	.12	.43			

V Style

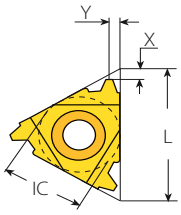
Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8″V	1.06	4	5VER4ACME-2G...	5VEL4ACME-2G...	.135	.04	.13	.24	NL..-5V-6 (LH)
		3.5	5VER3.5ACME-2G...	5VEL3.5ACME-2G...	.152	.04	.13	.24	
		3	5VER3ACME-2G...	5VEL3ACME-2G...	.177	.04	.13	.24	

American ACME (2G) (con't)

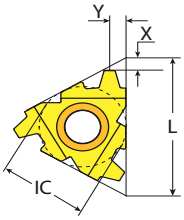
Internal



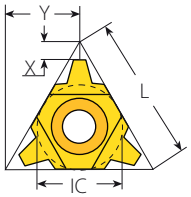
Defined by: ANSI B1.5:1988
Tolerance class: 2G



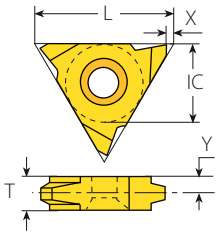
Standard



F-Line



U Style



V Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	.63	10	3IR10ACME-2G...	3IL10ACME-2G...	.060	.05	.05	YI3	YE3	AVR..-3 (LH)
		8	3IR8ACME-2G...	3IL8ACME-2G...	.072	.06	.06			
1/2"	.87	5	4IR5ACME-2G...	4IL5ACME-2G...	.110	.08	.09	YI4	YE4	AVR..-4 (LH)
1/2"F	.91	5	4FIR5ACME-2G...		.110	.08	.09	YI4F		AVRC...-4F

U Style

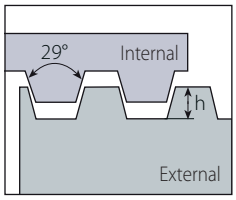
Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	4	4UI4ACME-2G...	.135	.09	.43	YI4U	YE4U	AVR..-4U (LH)
		3.5	4UI3.5ACME-2G...	.152	.10	.43			
		3	4UI3ACME-2G...	.177	.11	.43			

V Style

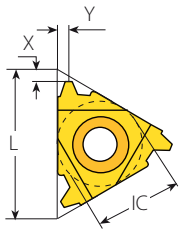
Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	4	5VIR4ACME-2G...	5VIL4ACME-2G...	.135	.04	.13	.24	NVR..-5V (LH)
		3.5	5VIR3.5ACME-2G...	5VIL3.5ACME-2G...	.152	.04	.13	.24	
		3	5VIR3ACME-2G...	5VIL3ACME-2G...	.177	.04	.13	.24	

Stub ACME

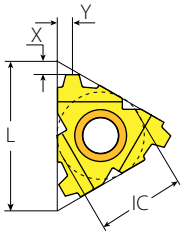
External



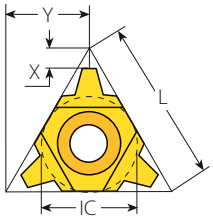
Defined by: ANSI B1.8:1988
Tolerance class: 2G



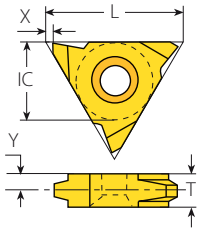
Standard



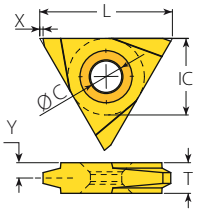
F-Line



U Style



V Style



On Edge

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	16	2ER16STACME...	2EL16STACME...	.024	.04	.04	-	-	NL..-2 (LH)
3/8″	.63	16	3ER16STACME...	3EL16STACME...	.024	.04	.04	YE3	YI3	AL..-3 (LH)
		14	3ER14STACME...	3EL14STACME...	.026	.04	.04			
		12	3ER12STACME...	3EL12STACME...	.030	.05	.05			
		10	3ER10STACME...	3EL10STACME...	.040	.05	.05			
		8	3ER8STACME...	3EL8STACME...	.048	.06	.06			
		6	3ER6STACME...	3EL6STACME...	.060	.07	.07			
1/2″	.87	6	4ER6STACME...	4EL6STACME...	.060	.07	.07	YE4	YI4	AL..-4 (LH)
		5	4ER5STACME...	4EL5STACME...	.070	.08	.09			
		4	4ER4STACME...	4EL4STACME...	.085	.09	.09			
1/2″F	.91	6	4FER6STACME...		.060	.07	.07	YE4F		AL...-4F
		5	4FER5STACME...		.070	.08	.09			
		4	4FER4STACME...		.085	.09	.09			
5/8″	1.06	4	5ER4STACME...	5EL4STACME...	.085	.09	.09	YE5	YI5	AL..-5 (LH)
		3	5ER3STACME...	5EL3STACME...	.110	.11	.11			

U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2″U	.87	4	4UE4STACME...	.085	.10	.43	YE4U	YI4U	AL..-4U (LH)
		3	4UE3STACME...	.110	.13	.43			

V Style

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

On Edge

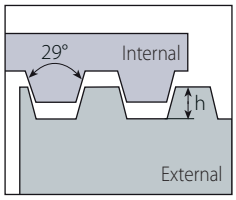
Insert Size		Pitch	Ordering Code	Dimensions inch				
IC	L inch	TPI	RH	h min	T	Ø C	X	Y
3/8″	.63	12	TNEC32EI12STACME...	.030	.13	.15	.04	.06
		10	TNEC32EI10STACME...	.040				
		8	TNEC32EI8STACME...	.048				
1/2″	.87	12	TNEC43EI12STACME...	.030	.19	.20	.02	.09
		10	TNEC43EI10STACME...	.040				
		8	TNEC43EI8STACME...	.048				
		6	TNEC43EI6STACME...	.060				
		4	TNEC43EI4STACME...	.085				
5/8″	1.06	4	TNEC54EI4STACME...	.085	.25	.26		.13

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

Stub ACME (con't)

MEGALINE

External



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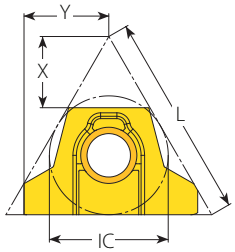
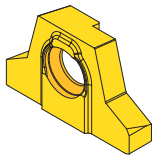
Tolerance class: 2G

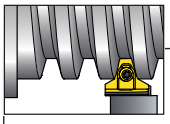




Mega Line

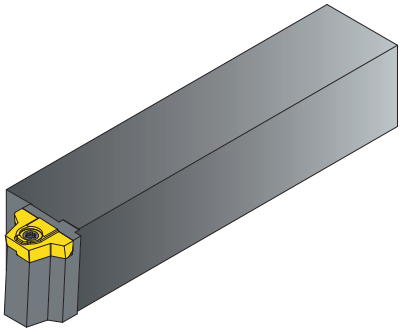
External

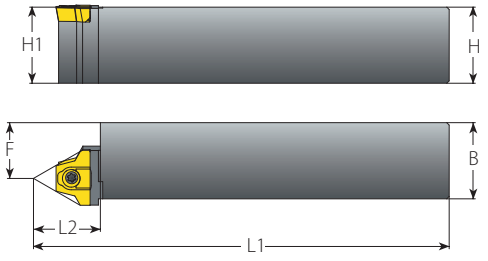
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	TPI	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	1	5MGER1STACME...	42513	.310	.37	.45	113	53



External Toolholders for Stub ACME

MEGALINE





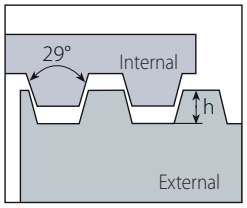
External

Insert	Ordering Code	EDP No.	Dimensions inch				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH		H=B=H1	F	L1	L2		 Insert Screw	 Torx Key
5MGER1STACME...	NL100-5MG1STACME	66403	1.00	.650	6.1	.87	(3.5"-5")-1STACME	S5MG	K6T
	NL125-5MG1STACME	66404	1.25	.930	6.9				
	NL150-5MG1STACME	66405	1.50	1.24	8.1				

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

Stub ACME (con't)

Internal



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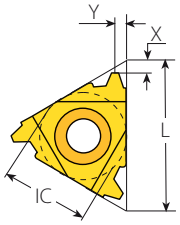
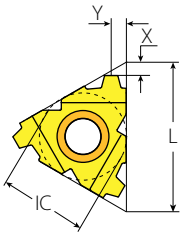
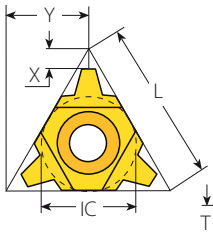
Tolerance class: 2G



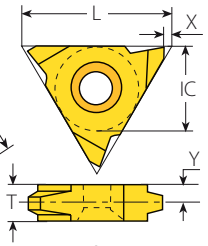
Standard



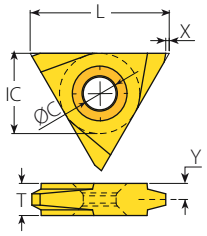
F-Line



U Style



V Style



On Edge

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	16	2IR16STACME...	2IL16STACME...	.024	.04	.04	-	-	NVR..-2 (LH)
3/8"	.63	16	3IR16STACME...	3IL16STACME...	.024	.04	.04	YI3	YE3	AVR..-3 (LH)
		14	3IR14STACME...	3IL14STACME...	.026	.04	.04			
		12	3IR12STACME...	3IL12STACME...	.030	.04	.05			
		10	3IR10STACME...	3IL10STACME...	.040	.05	.05			
		8	3IR8STACME...	3IL8STACME...	.048	.06	.06			
		6	3IR6STACME...	3IL6STACME...	.060	.07	.07			
1/2"	.87	6	4IR6STACME...	4IL6STACME...	.060	.07	.07	YI4	YE4	AVR..-4 (LH)
		5	4IR5STACME...	4IL5STACME...	.070	.08	.09			
		4	4IR4STACME...	4IL4STACME...	.085	.09	.09			
1/2"F	.91	6	4FIR6STACME...		.060	.07	.07	YI4F		AVRC...-4F
		5	4FIR5STACME...		.070	.08	.09			
		4	4FIR4STACME...		.085	.09	.09			
5/8"	1.06	4	5IR4STACME...	5IL4STACME...	.085	.09	.09	YI5	YE5	AVR..-5 (LH)
		3	5IR3STACME...	5IL3STACME...	.110	.11	.11			

U Style

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

V Style

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

On Edge

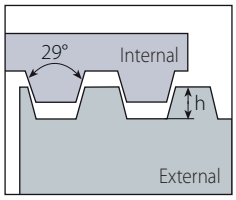
Insert Size		Pitch	Ordering Code	Dimensions inch				
IC	L inch	TPI	RH	h min	T	Ø C	X	Y
3/8"	.63	12	TNEC32EI12STACME...	.030	.13	.15	.04	.06
		10	TNEC32EI10STACME...	.040				
		8	TNEC32EI8STACME...	.048				
1/2"	.87	12	TNEC43EI12STACME...	.030	.19	.20	.02	.09
		10	TNEC43EI10STACME...	.040				
		8	TNEC43EI8STACME...	.048				
		6	TNEC43EI6STACME...	.060				
		4	TNEC43EI4STACME...	.085				
5/8"	1.06	4	TNEC54EI4STACME...	.085	.25	.26		.13

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

Stub ACME (con't)

MEGALINE

Internal



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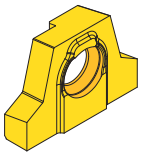
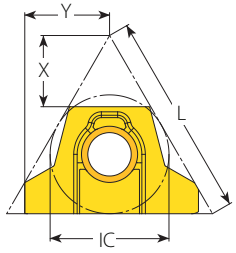
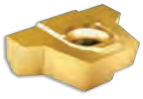


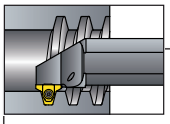
Mega Line



Internal

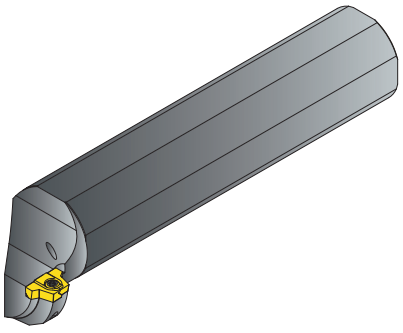


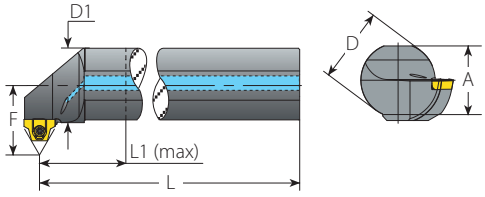
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	TPI	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	1	5MGIR1STACME...	42512	.308	.37	.41	113	53



Internal Toolholders for Stub ACME

MEGALINE





Internal

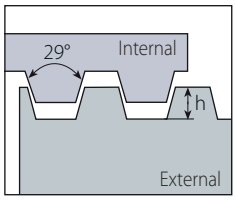
Insert	Ordering Code	EDP No.	Dimensions						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH		A	L	L1 (max)	D	D1	F	inch	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR1STACME...	NVRC150-5MG1STACME	66406	1.42	9.15	4	1.5	1.49	1.63	2.9	(3.5"-5")-1STACME	(3.5"-5")-1STACME	S5MG	K6T
	NVRC200-5MG1STACME	66407	1.81	10.15	5	2	1.99	1.83	2.9	(3.5"-5")-1STACME	(4.0"-5")-1STACME		
	NVRC250-5MG1STACME	66408	2.28	11.10	6	2.5	2.49	2.03	3.4	(4.0"-5")-1STACME	(4.5"-5")-1STACME		

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

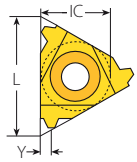
Stub ACME (con't)

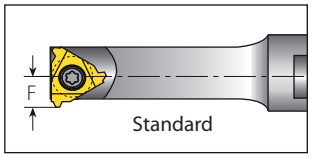
MINIPRO

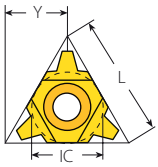
Internal

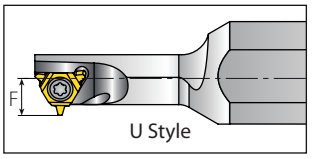


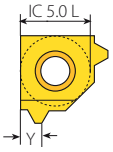
Defined by: ANSI B1.8:1988
Tolerance class: 2G

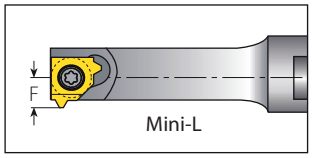












Mini-3 Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH	LH	h min	Y	F	inch	Toolholder
5.0	.31	16	5.0KIR16STACME...	5.0KIL16STACME...	.024	.03	.19	.31	.NVRC...-5.0K (LH)
6.0	.39	12	6.0KIR12STACME...	6.0KIL12STACME...	.030	.05	.20	.39	.NVR...-6.0K (LH)

Mini-3 U Style

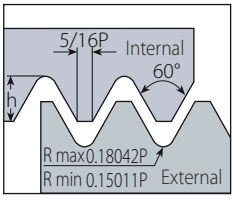
Insert Size		Pitch	Ordering Code	Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH+LH	h min	Y	F	inch	Toolholder
5.0U	.31	14	5.0KUI14STACME...	.026	.16	.23	.35	.NVRC...-5.0KU (LH)
		12	5.0KUI12STACME...	.030		.22		
		10	5.0KUI10STACME...	.040		.22		

Mini-L

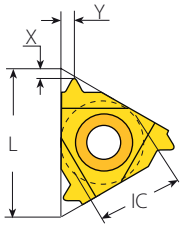
Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	inch	Toolholder
5.0L	12	5LKIR12STACME...	5LKIL12STACME...	.030	.05	.17	.31	.NVR...-5LK (LH)

UNJ – UNJC, UNJF, UNJEF, UNJS

External



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



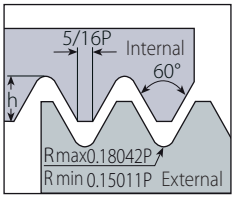
Standard

Standard

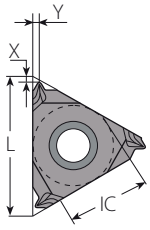
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	48	2ER48UNJ...	2EL48UNJ...	.012	.02	.02	-	-	NL..-2 (LH)
		44	2ER44UNJ...	2EL44UNJ...	.013	.02	.02			
		40	2ER40UNJ...	2EL40UNJ...	.015	.02	.02			
		36	2ER36UNJ...	2EL36UNJ...	.016	.02	.02			
		32	2ER32UNJ...	2EL32UNJ...	.018	.02	.03			
		28	2ER28UNJ...	2EL28UNJ...	.020	.03	.03			
		24	2ER24UNJ...	2EL24UNJ...	.024	.03	.03			
		20	2ER20UNJ...	2EL20UNJ...	.029	.03	.04			
		18	2ER18UNJ...	2EL18UNJ...	.032	.03	.04			
		16	2ER16UNJ...	2EL16UNJ...	.036	.04	.04			
		14	2ER14UNJ...	2EL14UNJ...	.041	.04	.05			
3/8"	.63	48	3ER48UNJ...	3EL48UNJ...	.012	.02	.02	YE3	YI3	AL..-3 (LH)
		44	3ER44UNJ...	3EL44UNJ...	.013	.02	.02			
		40	3ER40UNJ...	3EL40UNJ...	.015	.02	.02			
		36	3ER36UNJ...	3EL36UNJ...	.016	.02	.02			
		32	3ER32UNJ...	3EL32UNJ...	.018	.02	.03			
		28	3ER28UNJ...	3EL28UNJ...	.020	.03	.03			
		24	3ER24UNJ...	3EL24UNJ...	.024	.03	.03			
		20	3ER20UNJ...	3EL20UNJ...	.029	.03	.04			
		18	3ER18UNJ...	3EL18UNJ...	.032	.03	.04			
		16	3ER16UNJ...	3EL16UNJ...	.036	.04	.04			
		14	3ER14UNJ...	3EL14UNJ...	.041	.04	.05			
		13	3ER13UNJ...	3EL13UNJ...	.044	.04	.05			
		12	3ER12UNJ...	3EL12UNJ...	.048	.04	.05			
		11	3ER11UNJ...	3EL11UNJ...	.052	.05	.06			
		10	3ER10UNJ...	3EL10UNJ...	.058	.05	.06			
		9	3ER9UNJ...	3EL9UNJ...	.064	.05	.07			
		8	3ER8UNJ...	3EL8UNJ...	.072	.05	.06			

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

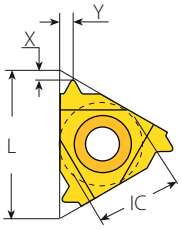
External



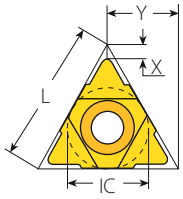
Defined by: MIL-S-8879C
Tolerance class: 3A/3B



SCB
Sintered
Chipbreaker

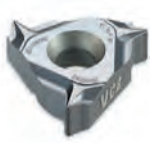


Standard



U Style

Standard



SCB

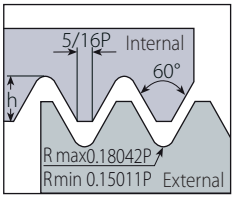
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" SCB	.63	36	3JER36UNJ...		.016	.05	.02	YE3	-	AL..-3
		32	3JER32UNJ...		.018	.05	.02			
		28	3JER28UNJ...		.020	.03	.03			
		24	3JER24UNJ...		.024	.03	.03			
		20	3JER20UNJ...		.029	.03	.03			
		18	3JER18UNJ...		.032	.03	.03			
		16	3JER16UNJ...		.036	.03	.03			
		14	3JER14UNJ...		.041	.05	.06			
		12	3JER12UNJ...		.048	.05	.06			
		10	3JER10UNJ...		.058	.05	.06			
		8	3JER8UNJ...		.072	.06	.06			
1/2"	.87	7	4ER7UNJ...	4EL7UNJ...	.082	.07	.09	YE4	YI4	AL..-4 (LH)
		6	4ER6UNJ...	4EL6UNJ...	.096	.07	.09			
		5	4ER5UNJ...	4EL5UNJ...	.115	.07	.10			
5/8"	1.06	4.5	5ER4.5UNJ...	5EL4.5UNJ...	.128	.08	.11	YE5	YI5	AL..-5 (LH)
		4	5ER4UNJ...	5EL4UNJ...	.144	.09	.12			

U Style

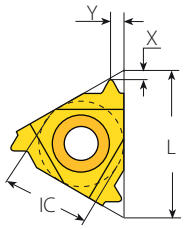
Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	4.5	4UE4.5UNJ...	.128	.08	.43	YE4U	YI4U	AL..-4U (LH)
		4	4UE4UNJ...	.144	.09	.43			

UNJ – UNJC, UNJF, UNJEF, UNJS (con't)

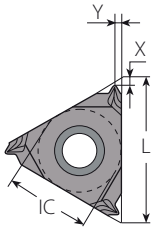
Internal



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



Standard



SCB
Sintered
Chipbreaker

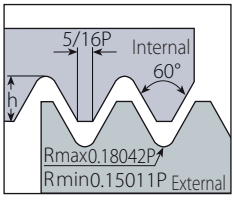
Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	48	2IR48UNJ...	2IL48UNJ...	.011	.02	.02	-	-	NVR..-2 (LH)
		44	2IR44UNJ...	2IL44UNJ...	.012	.02	.02			
		40	2IR40UNJ...	2IL40UNJ...	.013	.02	.02			
		36	2IR36UNJ...	2IL36UNJ...	.015	.02	.02			
		32	2IR32UNJ...	2IL32UNJ...	.017	.02	.03			
		28	2IR28UNJ...	2IL28UNJ...	.019	.03	.03			
		24	2IR24UNJ...	2IL24UNJ...	.022	.03	.03			
		20	2IR20UNJ...	2IL20UNJ...	.026	.03	.04			
		18	2IR18UNJ...	2IL18UNJ...	.029	.03	.04			
		16	2IR16UNJ...	2IL16UNJ...	.033	.04	.04			
		14	2IR14UNJ...	2IL14UNJ...	.037	.04	.05			
1/4" SCB	.43	36	2JIR36UNJ...		.015	.04	.02	-	-	NVR..-2
		32	2JIR32UNJ...		.017	.05	.02			
		28	2JIR28UNJ...		.019	.02	.03			
		24	2JIR24UNJ...		.022	.02	.03			
		20	2JIR20UNJ...		.026	.02	.03			
		18	2JIR18UNJ...		.029	.02	.03			
		16	2JIR16UNJ...		.033	.02	.03			
		14	2JIR14UNJ...		.037	.02	.03			

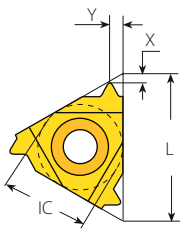
SCB

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

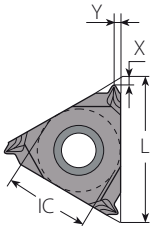
Internal



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



Standard



SCB
Sintered
Chipbreaker

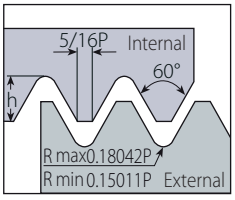
Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	.63	48	3IR48UNJ...	3IL48UNJ...	.011	.02	.02	YI3	YE3	AVR..-3 (LH)
		44	3IR44UNJ...	3IL44UNJ...	.012	.02	.02			
		40	3IR40UNJ...	3IL40UNJ...	.013	.02	.02			
		36	3IR36UNJ...	3IL36UNJ...	.015	.02	.02			
		32	3IR32UNJ...	3IL32UNJ...	.017	.02	.03			
		28	3IR28UNJ...	3IL28UNJ...	.019	.03	.03			
		24	3IR24UNJ...	3IL24UNJ...	.022	.03	.03			
		20	3IR20UNJ...	3IL20UNJ...	.026	.03	.04			
		18	3IR18UNJ...	3IL18UNJ...	.029	.03	.04			
		16	3IR16UNJ...	3IL16UNJ...	.033	.04	.04			
		14	3IR14UNJ...	3IL14UNJ...	.037	.04	.05			
		13	3IR13UNJ...	3IL13UNJ...	.040	.04	.05			
		12	3IR12UNJ...	3IL12UNJ...	.044	.04	.05			
		11	3IR11UNJ...	3IL11UNJ...	.048	.05	.06			
		10	3IR10UNJ...	3IL10UNJ...	.052	.05	.06			
		9	3IR9UNJ...	3IL9UNJ...	.058	.05	.07			
		8	3IR8UNJ...	3IL8UNJ...	.065	.05	.06			
3/8″ SCB	.63	28	3JIR28UNJ...		.019	.02	.03	YI3	-	AVR..-3
		24	3JIR24UNJ...		.022	.02	.03			
		20	3JIR20UNJ...		.026	.02	.03			
		18	3JIR18UNJ...		.029	.02	.03			
		16	3JIR16UNJ...		.033	.02	.03			
		14	3JIR14UNJ...		.037	.04	.06			
		12	3JIR12UNJ...		.044	.04	.06			
		10	3JIR10UNJ...		.052	.04	.06			
		8	3JIR8UNJ...		.065	.04	.06			
1/2″	.87	7	4IR7UNJ...	4IL7UNJ...	.075	.07	.09	YI4	YE4	AVR..-4 (LH)
		6	4IR6UNJ...	4IL6UNJ...	.087	.07	.09			
		5	4IR5UNJ...	4IL5UNJ...	.105	.07	.10			
5/8″	1.06	4.5	5IR4.5UNJ...	5IL4.5UNJ...	.116	.08	.11	YI5	YE5	AVR..-5 (LH)
		4	5IR4UNJ...	5IL4UNJ...	.131	.09	.09			

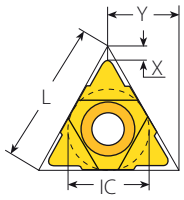
SCB

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

Internal



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



U Style

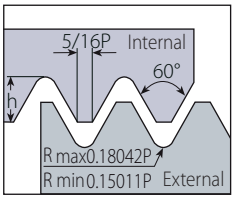
U Style

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil		
IC	L inch	TPI	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	4.5	4UI4.5UNJ...	.116	.08	.43	YI4U	YE4U	AVR..-4U (LH)
		4	4UI4UNJ...	.131	.09	.43			

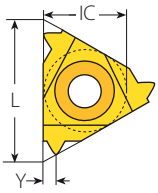
UNJ - UNJC, UNJF, UNJEF, UNJS

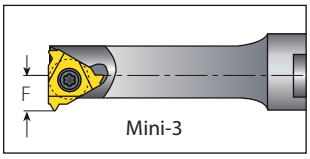
MINIPRO

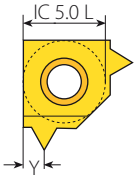
Internal

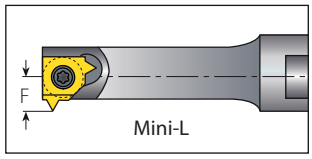


Defined by: MIL-S-8879C
Tolerance class: 3A/3B









Mini-3 Standard

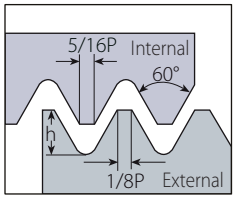
Insert Size		Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI	RH	LH	h min	Y	F	inch	Toolholder
6.0	.39	20	6.0KIR20UNJ...	6.0KIL20UNJ...	.026	.04	.19	.39	.NVR...-6.0K (LH)

Mini-L

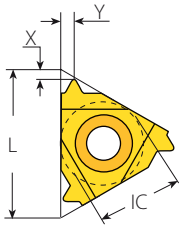
Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	TPI	RH	LH	h min	Y	F	inch	Toolholder
5.0L	32	5LKIR32UNJ...	5LKIL32UNJ...	.017	.02	.15	.30	.NVR...-5LK (LH)
	28	5LKIR28UNJ...	5LKIL28UNJ...	.019	.02	.16	.30	
	24	5LKIR24UNJ...	5LKIL24UNJ...	.022	.03	.17	.30	
	20	5LKIR20UNJ...	5LKIL20UNJ...	.026	.04	.17	.30	
	18	5LKIR18UNJ...	5LKIL18UNJ...	.029	.04	.17	.31	
	16	5LKIR16UNJ...	5LKIL16UNJ...	.033	.04	.17	.31	
	14	5LKIR14UNJ...	5LKIL14UNJ...	.037	.04	.18	.31	

MJ

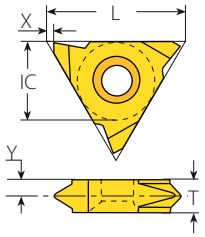
External



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



Standard



Slim Throat

Standard

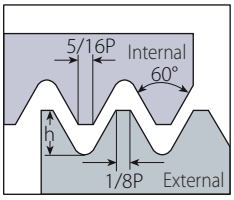
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	1.0	2ER1.0MJ...	2EL1.0MJ...	.023	.03	.03	-	-	NL..-2 (LH)
		1.25	2ER1.25MJ...	2EL1.25MJ...	.028	.03	.04			
		1.5	2ER1.5MJ...	2EL1.5MJ...	.034	.03	.04			
3/8″	.63	0.7	3ER0.7MJ...	3EL0.7MJ...	.016	.02	.02	YE3	YI3	AL..-3 (LH)
		0.8	3ER0.8MJ...	3EL0.8MJ...	.018	.03	.03			
		1.0	3ER1.0MJ...	3EL1.0MJ...	.023	.03	.03			
		1.25	3ER1.25MJ...	3EL1.25MJ...	.028	.03	.04			
		1.5	3ER1.5MJ...	3EL1.5MJ...	.034	.03	.04			
		2.0	3ER2.0MJ...	3EL2.0MJ...	.045	.04	.05			
		2.5	3ER2.5MJ...	3EL2.5MJ...	.059	.04	.06			
		3.0	3ER3.0MJ...	3EL3.0MJ...	.068	.05	.06			

Slim Throat

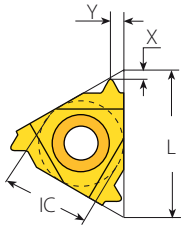
Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	mm	RH	LH	h min	X	Y	T	Toolholder
1/4″V	.43	0.7	2VER0.7MJ...	2VEL0.7MJ...	.016	.03	.10	.13	NL..-2V (LH)
		0.8	2VER0.8MJ...	2VEL0.8MJ...	.017	.03	.10	.13	
		0.9	2VER0.9MJ...	2VEL0.9MJ...	.021	.03	.10	.13	
		1.0	2VER1.0MJ...	2VEL1.0MJ...	.023	.03	.10	.13	
		1.25	2VER1.25MJ...	2VEL1.25MJ...	.028	.03	.09	.13	
		1.5	2VER1.5MJ...	2VEL1.5MJ...	.034	.03	.09	.13	

MJ (con't)

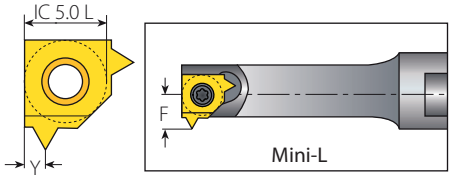
Internal



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



Standard



Standard

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC mm	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	1.0	2IR1.0MJ...	2IL1.0MJ...	.019	.02	.03	-	-	NVR..-2 (LH)
		1.25	2IR1.25MJ...	2IL1.25MJ...	.024	.03	.04			
		1.5	2IR1.5MJ...	2IL1.5MJ...	.029	.03	.04			
		2.0	2IR2.0MJ...	2IL2.0MJ...	.038	.03	.04			
3/8"	.63	0.75	3IR0.75MJ...	3IL0.75MJ...	.015	.02	.02	YI3	YE3	AVR..-3 (LH)
		0.8	3IR0.8MJ...	3IL0.8MJ...	.017	.03	.03			
		1.0	3IR1.0MJ...	3IL1.0MJ...	.019	.02	.03			
		1.25	3IR1.25MJ...	3IL1.25MJ...	.024	.03	.04			
		1.5	3IR1.5MJ...	3IL1.5MJ...	.029	.03	.04			
		2.0	3IR2.0MJ...	3IL2.0MJ...	.038	.03	.05			
		2.5	3IR2.5MJ...	3IL2.5MJ...	.048	.04	.06			
		3.0	3IR3.0MJ...	3IL3.0MJ...	.057	.05	.06			

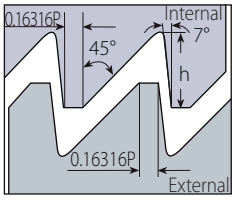
Mini - L

MINIPRO

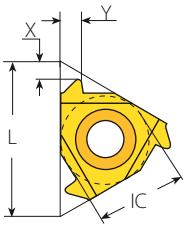
Insert Size	Pitch	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	mm	RH	LH	h min	Y	F	inch	Toolholder
5.0L	1.0	5LKIR1.0MJ...	5LKIL1.0MJ...	.019	.03	.16	.30	.NVR...-5LK (LH)
	1.25	5LKIR1.25MJ...	5LKIL1.25MJ...	.024	.04	.17	.30	
	1.5	5LKIR1.50MJ...	5LKIL1.50MJ...	.029	.04	.17	.30	

American Buttress

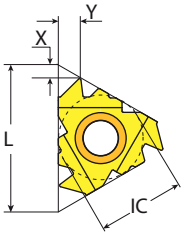
External



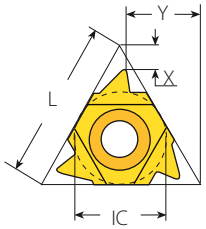
Defined by: ANSI B1.9.1973
Tolerance class: Class 2



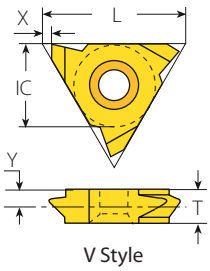
Standard



F-Line



U Style



V Style

Standard

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	20	2ER20ABUT...	2EL20ABUT...	.033	.04	.06	-	-	NL..-2 (LH)
		16	2ER16ABUT...	2EL16ABUT...	.041	.05	.07			
3/8″	.63	20	3ER20ABUT...	3EL20ABUT...	.033	.04	.06	YE3	YI3	AL..-3 (LH)
		16	3ER16ABUT...	3EL16ABUT...	.041	.05	.07			
		12	3ER12ABUT...	3EL12ABUT...	.055	.06	.08			
		10	3ER10ABUT...	3EL10ABUT...	.066	.06	.09			
1/2″	.87	8	4ER8ABUT...	4EL8ABUT...	.083	.08	.13	YE4	YI4	AL..-4 (LH)
		6	4ER6ABUT...	4EL6ABUT...	.110	.09	.14			
1/2″F	.91	8	4FER8ABUT...		.083	.08	.13	YE4F		AL...-4F
		6	4FER6ABUT...		.110	.09	.14			

U Style

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2″U	.87	4	4UER4ABUT...	4UEL4ABUT...	.166	.09	.39	YE4U-BUT4	YI4U-BUT4	AL..-4U (LH)
5/8″U	1.06	3	5UER3ABUT...	5UEL3ABUT...	.221	.12	.48	YE5U-BUT3	YI5U-BUT3	AL..-5U (LH)

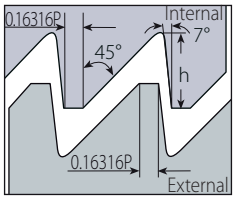
V Style

Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8″V	1.06	4	5VER4ABUT...	5VEL4ABUT...	.166	.02	.07	.24	NL..-5V-6 (LH)
		3	5VER3ABUT...	5VEL3ABUT...	.221	.02	.09	.31	NL..-5V-8 (LH)
		2.5	5VER2.5ABUT...	5VEL2.5ABUT...	.265	.02	.11	.39	NL..-5V-10ABUT (LH)

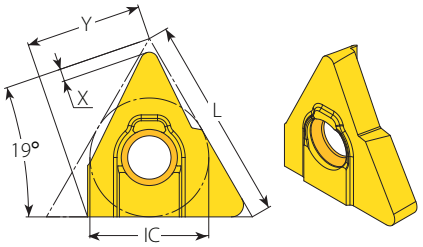
American Buttress (con't)

MEGALINE

External



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

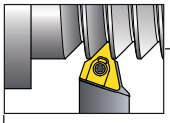


Mega Line

External

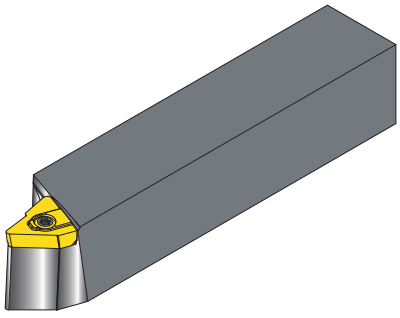
ER

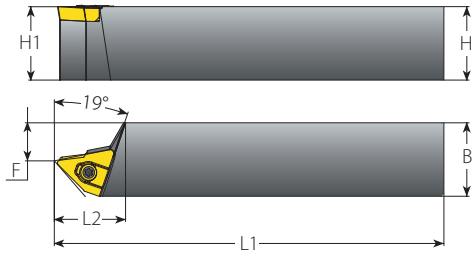
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	TPI	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	2	5MGER2ABUT...	42503	.332	.06	.61	120	56
		1.5	5MGER1.5ABUT...	42502	.442	.07		160	75



External Toolholders for American Buttress

MEGALINE





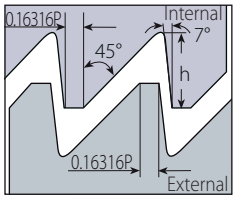
External

Insert	Ordering Code	EDP No.	Dimensions inch				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH		H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER2ABUT...	NL100-5MG2ABUT	66479	1.00	.37	5.9	1.22	(7"-24")-2ABUT	S5MG	K6T
	NL125-5MG2ABUT	66480	1.25	.65	6.7				
	NL150-5MG2ABUT	66481	1.50	.96	7.9				
5MGER1.5ABUT...	NL100-5MG1.5ABUT	66482	1.00	.37	5.9	1.22	(11"-24")-1.5ABUT		
	NL125-5MG1.5ABUT	66483	1.25	.65	6.7				
	NL150-5MG1.5ABUT	66484	1.50	.96	7.9				

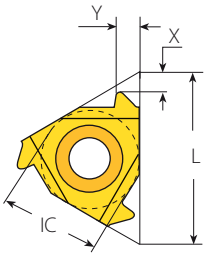
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

American Buttress (con't)

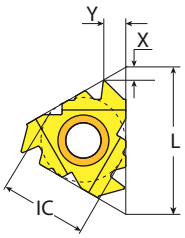
Internal



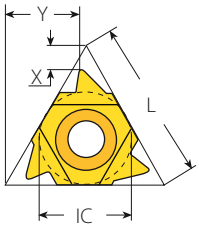
Defined by: ANSI B1.9.1973
Tolerance class: Class 2



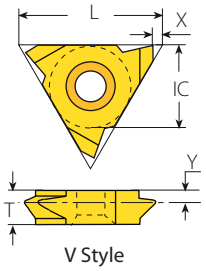
Standard



F-Line



U Style



V Style

Standard

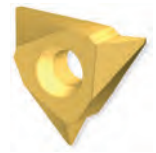
F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	.43	20	2IR20ABUT...	2IL20ABUT...	.033	.04	.06	-	-	NVR..-2 (LH)
		16	2IR16ABUT...	2IL16ABUT...	.041	.05	.07			
3/8"	.63	20	3IR20ABUT...	3IL20ABUT...	.033	.04	.06	YI3	YE3	AVR..-3 (LH)
		16	3IR16ABUT...	3IL16ABUT...	.041	.05	.07			
		12	3IR12ABUT...	3IL12ABUT...	.055	.06	.08			
		10	3IR10ABUT...	3IL10ABUT...	.066	.06	.09			
1/2"	.87	8	4IR8ABUT...	4IL8ABUT...	.083	.08	.13	YI4	YE4	AVR..-4 (LH)
		6	4IR6ABUT...	4IL6ABUT...	.110	.09	.14			
1/2"F	.91	8	4FIR8ABUT...		.083	.08	.13	YI4F		AVRC...-4F
		6	4FIR6ABUT...		.110	.09	.14			

U Style

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2"U	.87	4	4UIR4ABUT...	4UIL4ABUT...	.166	.09	.39	YI4U-4B	YE4U-4B	AVR..-4U (LH)
5/8"U	1.06	3	5UIR3ABUT...	5UIL3ABUT...	.221	.12	.48	YI5U-3B	YE5U-3B	AVR..-5U (LH)

V Style

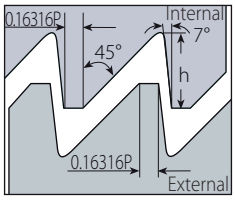


Insert Size		Pitch	Ordering Code		Dimensions inch				
IC	L inch	TPI	RH	LH	h min	X	Y	T	Toolholder
5/8"V	1.06	4	5VIR4ABUT...	5VIL4ABUT...	.166	.02	.07	.24	NVR..-5V (LH)
		3	5VIR3ABUT...	5VIL3ABUT...	.221	.02	.09	.31	
		2.5	5VIR2.5ABUT...	5VIL2.5ABUT...	.265	.02	.11	.39	

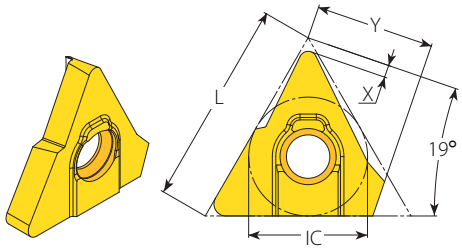
American Buttress (con't)

MEGALINE

Internal



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

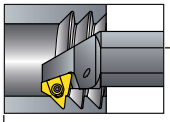


Mega Line

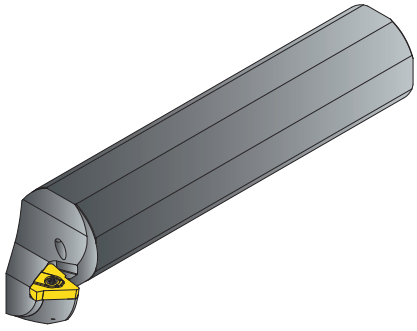
Internal

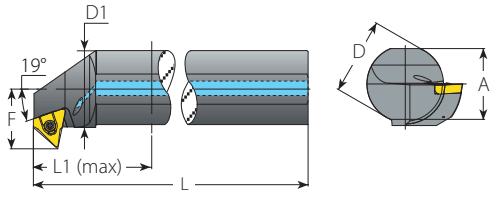
IR

Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	TPI	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	2	5MGIR2ABUT	42501	.352	.06	.63	128	60
		1.5	5MGIR1.5ABUT	42500	.469	.07		170	79



Internal Toolholders for American Buttress





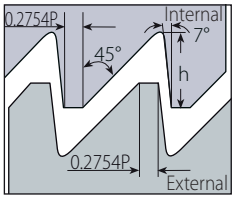
Internal

Insert	Ordering Code	EDP No.	Dimensions inch						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
	RH		A	L	L1 (max)	D	D1	F	inch	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR2ABUT...	NVRC150-5MG2ABUT	66485	1.42	9.05	4	1.5	1.49	1.38	6.4	(7"-16")-2ABUT	(7"-16")-2ABUT	S5MG	K6T
	NVRC200-5MG2ABUT	66486	1.81	10.05	5	2.0	1.99	1.56					
	NVRC250-5MG2ABUT	66487	2.28	11.04	6	2.5	2.49	1.81					
5MGIR1.5ABUT...	NVRC150-5MG1.5ABUT	66488	1.42	9.07	4	1.5	1.49	1.38	10.2	(11"-22")-1.5ABUT	(11"-22")-1.5ABUT		
	NVRC200-5MG1.5ABUT	66489	1.81	10.05	5	2.0	1.99	1.56					
	NVRC250-5MG1.5ABUT	66490	2.28	11.04	6	2.5	2.49	1.81					

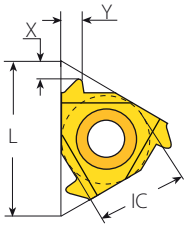
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

British Buttress

External



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



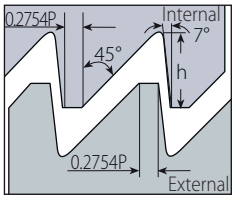
Standard

Standard

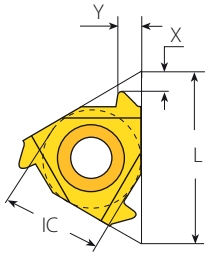
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	**h** min	X	Y	RH	LH	Toolholder
3/8″	.63	16	3ER16BBUT...	3EL16BBUT...	.031	.04	.06	YE3	YI3	AL..-3 (LH)
		12	3ER12BBUT...	3EL12BBUT...	.042	.06	.08			
		10	3ER10BBUT...	3EL10BBUT...	.050	.06	.09			
		8	3ER8BBUT...	3EL8BBUT...	.063	.06	.10			
1/2″	.87	8	4ER8BBUT...	4EL8BBUT...	.063	.06	.10	YE4	YI4	AL..-4 (LH)

British Buttress

Internal

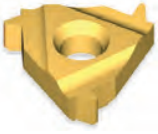


Defined by: B.S. 1657: 1950
Tolerance class: Medium Class



Standard

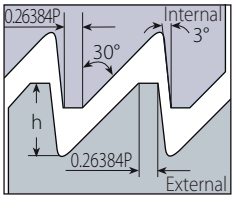
Standard



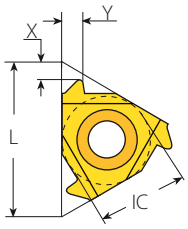
Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	.63	16	3IR16BBUT...	3IL16BBUT...	.031	.04	.06	YI3	YE3	AVR..-3 (LH)
		12	3IR12BBUT...	3IL12BBUT...	.042	.06	.08			
		10	3IR10BBUT...	3IL10BBUT...	.050	.06	.09			
		8	3IR8BBUT...	3IL8BBUT...	.063	.06	.10			
1/2″	.87	8	4IR8BBUT...	4IL8BBUT...	.063	.06	.10	YI4	YE4	AVR..-4 (LH)

Metric Buttress (Sägengewinde)

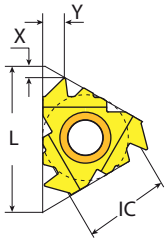
External



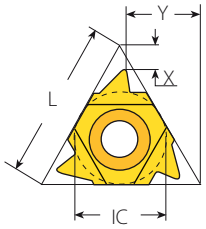
Defined by: DIN 513
Tolerance class: Medium Class



Standard



F-Line



U Style

Standard - External

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	.63	2.0	3ER2.0SAGE...	3EL2.0SAGE...	.069	.06	.08	YE3	YI3	AL..-3 (LH)
1/2″	.87	2.0	4ER2.0SAGE...	4EL2.0SAGE...	.069	.06	.08	YE4	YI4	AL..-4 (LH)
		3.0	4ER3.0SAGE...	4EL3.0SAGE...	.102	.07	.10			
		4.0	4ER4.0SAGE...	4EL4.0SAGE...	.140	.07	.12			
1/2″F	.91	3.0	4FER3.0SAGE...		.102	.07	.10	YE4F		AL...-4F
		4.0	4FER4.0SAGE...		.140	.07	.12			
5/8″	1.06	4.0	5ER4.0SAGE...	5EL4.0SAGE...	.140	.07	.13	YE5 082/038	YI5 082/039	AL..-5 (LH)

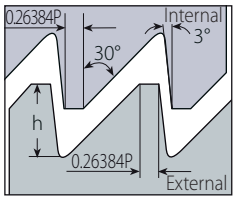
U Style - External

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2″U	.87	5.0	4UER5.0SAGE...	4UEL5.0SAGE...	.174	.05	.41	YE4U-SAGE5	YI4U-SAGE5	AL..-4U (LH)
		6.0	4UER6.0SAGE...	4UEL6.0SAGE...	.208	.05	.40	YE4U-SAGE6	YI4U-SAGE6	

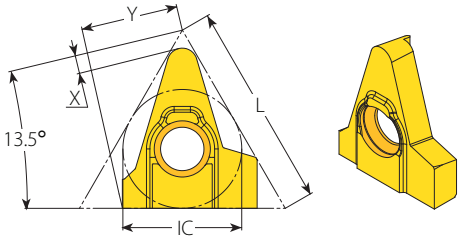
Metric Buttress (Sägengewinde) (con't)

MEGALINE

External



Defined by: DIN 513
Tolerance class: Medium Class

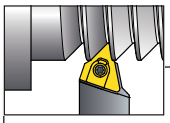


Mega Line

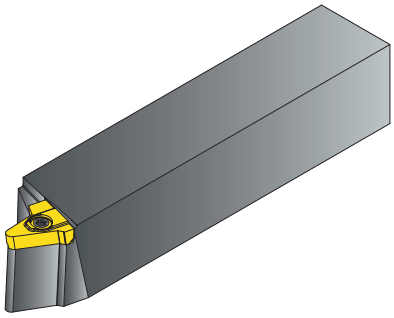
External

Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	mm	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	10.0	5MGER10.0SAGE...	42522	.342	.06	.52	124	58
		12.0	5MGER12.0SAGE...	42523	.410	.07		149	69
		14.0	5MGER14.0SAGE...	42524	.478	.08		174	81
		16.0	5MGER16.0SAGE...	42525	.547	.13		198	93
		20.0	5MGER20.0SAGE...	42526	.983	.10		248	116

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



External Toolholders for Metric Buttress (Sägengewinde) MEGALINE



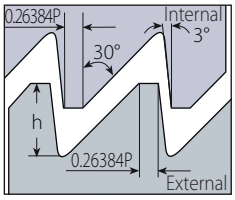
External

Insert	Ordering Code	EDP No.	Dimensions inch				Thread Diameter Range (Min.-Max.)	Spare Parts	
	RH		H=B=H1	F	L1	L2		Insert Screw	Torx Key
5MGER10.0SAGE...	NL100-5MG10SAGE	66341	1.00	.46	5.9	1.2	(S65-80)x10	S5MG	K6T
	NL125-5MG10SAGE	66342	1.25	.74	6.7				
	NL150-5MG10SAGE	66343	1.50	1.06	7.9				
5MGER12.0SAGE...	NL100-5MG12SAGE	66344	1.00	.46	5.9	1.2	(S85-146)x12		
	NL125-5MG12SAGE	66364	1.25	.74	6.7				
	NL150-5MG12SAGE	66365	1.50	1.06	7.9				
5MGER14.0SAGE...	NL100-5MG14SAGE	66366	1.00	.46	5.9	1.2	(S115-145)x14		
	NL125-5MG14SAGE	66367	1.25	.74	6.7				
	NL150-5MG14SAGE	66368	1.50	1.06	7.9				
5MGER16.0SAGE...	NL100-5MG16SAGE	66382	1.00	.46	5.9	1.2	(S150-175)x16		
	NL125-5MG16SAGE	66383	1.25	.74	6.7				
	NL150-5MG16SAGE	66384	1.50	1.06	7.9				
5MGER20.0SAGE...	NL100-5MG20SAGE	66385	1.00	.46	5.9	1.2	(S210-230)x20		
	NL125-5MG20SAGE	66387	1.25	.74	6.7				
	NL150-5MG20SAGE	66388	1.50	1.06	7.9				

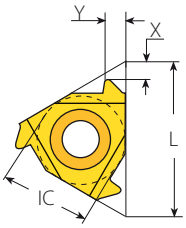
Recommended thread infeed method for Mega Line: Flank or Modified Flank 1°.

Metric Buttress (Sägengewinde) (con't)

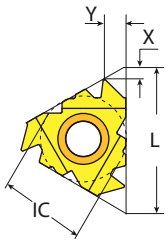
Internal



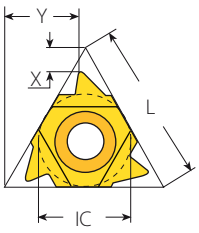
Defined by: DIN 513
Tolerance class: Medium Class



Standard



F-line



U Style

Standard - Internal

F-LINE

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8″	.63	2.0	3IR2.0SAGE...	3IL2.0SAGE...	.059	.06	.09	YI3	YE3	AVR..-3 (LH)
1/2″	.87	3.0	4IR3.0SAGE...	4IL3.0SAGE...	.089	.07	.11	YI4	YE4	AVR..-4 (LH)
		4.0	4IR4.0SAGE...	4IL4.0SAGE...	.122	.08	.13			
1/2″F	.91	3.0	4FIR3.0SAGE...		.089	.07	.11	YI4F		AVRC...-4F
		4.0	4FIR4.0SAGE...		.122	.08	.13			
5/8″	1.06	4.0	5IR4.0SAGE...	5IL4.0SAGE...	.122	.08	.13	YI5 082/039	YE5 082/038	AVR..-5 (LH)

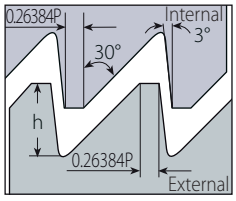
U Style - Internal

Insert Size		Pitch	Ordering Code		Dimensions inch			Anvil		
IC	L inch	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2″U	.87	5.0	4UIR5.0SAGE...	4UIL5.0SAGE...	.148	.07	.41	YI4U-5S	YE4U-5S	AVR..-4U (LH)
		6.0	4UIR6.0SAGE...	4UIL6.0SAGE...	.179	.07	.40	YI4U-6S	YE4U-6S	

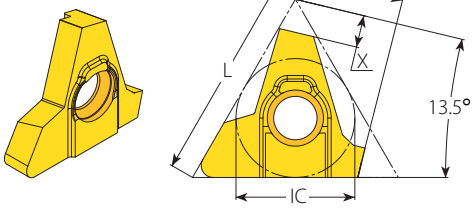
Metric Buttress (Sägengewinde) (con't)

MEGALINE

Internal



Defined by: DIN 513
Tolerance class: Medium Class

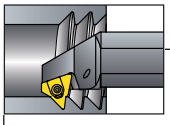


Mega Line

Internal

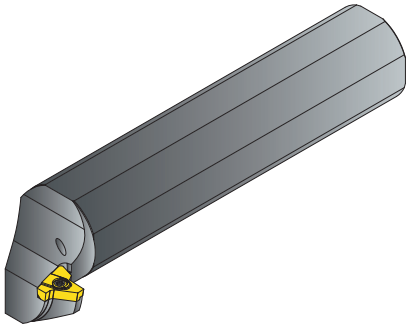
IR

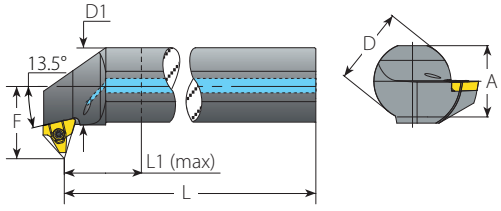
Insert Size		Pitch	Ordering Code	EDP No.	Dimensions inch			Number of Passes	
IC	L inch	mm	RH	VKX	h min	X	Y	0.003inch–Min. Depth of Cut (On radius)	0.006inch–Max. Depth of Cut (On radius)
5/8" MG	1.06	10.0	5MGIR10.0SAGE...	42527	.284	.11	.54	103	48
		12.0	5MGIR12.0SAGE...	42528	.341	.13		124	58
		14.0	5MGIR14.0SAGE...	42529	.398	.15		145	67
		16.0	5MGIR16.0SAGE...	42520	.456	.17		165	77
		20.0	5MGIR20.0SAGE...	42521	.571	.20		207	97



Internal Toolholders for Metric Buttress (Sägengewinde)

MEGALINE





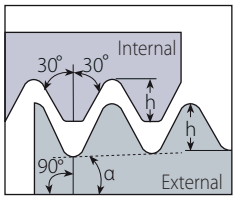
Internal

Insert	Ordering Code	EDP No.	Dimensions inch						Min. Bore Dia.	Thread Diameter Range (Min.-Max.)		Spare Parts	
RH			A	L	L1 (max)	D	D1	F	inch	Short Chip Material	Long Chip Material	Insert Screw	Torx Key
5MGIR10.0SAGE...	NVRC150-5MG10SAGE	66389	1.42	9.07	4	1.5	1.49	1.22	1.97	(S65-80)x10	(S75-80)x10	S5MG	K6T
5MGIR12.0SAGE...	NVRC150-5MG12SAGE	66390	1.42	9.07	4	1.5	1.49	1.63	2.64	(S85-400)x12	(S90-400)x12		
	NVRC200-5MG12SAGE	66391	1.81	10.05	5	2.0	1.99	1.83	2.84	(S90-400)x12	(S105-400)x12		
	NVRC250-5MG12SAGE	66392	2.28	11.04	6	2.5	2.49	2.03	3.27	(S105-400)x12	(S250-400)x12		
5MGIR14.0SAGE...	NVRC150-5MG14SAGE	66393	1.42	9.07	4	1.5	1.49	1.63	3.70	(S115-145)x14	(S115-145)x14		
	NVRC200-5MG14SAGE	66395	1.81	10.05	5	2.0	1.99	1.83	3.70	(S115-145)x14	(S115-145)x14		
	NVRC250-5MG14SAGE	66396	2.28	11.04	6	2.5	2.49	2.03	3.70	(S115-145)x14	(S120-145)x14		
5MGIR16.0SAGE...	NVRC150-5MG16SAGE	66397	1.42	9.07	4	1.5	1.49	1.63	4.96	(S150-175)x16	(S150-175)x16		
	NVRC200-5MG16SAGE	66398	1.81	10.05	5	2.0	1.99	1.83	4.96	(S150-175)x16	(S150-175)x16		
	NVRC250-5MG16SAGE	66399	2.28	11.04	6	2.5	2.49	2.03	4.96	(S150-175)x16	(S150-175)x16		
5MGIR20.0SAGE...	NVRC150-5MG20SAGE	66400	1.42	9.07	4	1.5	1.49	1.63	2.95	(S105-230)x20	(S105-230)x20		
	NVRC200-5MG20SAGE	66401	1.81	10.05	5	2.0	1.99	1.83	2.95	(S105-230)x20	(S210-230)x20		
	NVRC250-5MG20SAGE	66402	2.28	11.04	6	2.5	2.49	2.03	3.19	(S210-230)x20	(S210-230)x20		

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

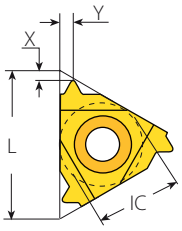
API

External

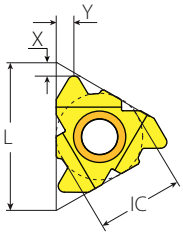


α = arctg (IPF/24)

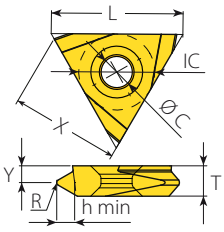
Defined by: API SPEC. 7:1990
Tolerance class: Standard API



Standard



F-Line



On Edge

Standard

F-LINE

Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI		IPF	RH		h min	X	Y	RH	Toolholder
1/2"	.87	4	V-0.038R	2	4ER4API382...	NC23-NC50	.122	.08	.11	YEI 4-API-1P or YE4	AL..-4 5BUT/API or AL...-4
		4	V-0.038R	3	4ER4API383...	NC56-NC77	.121	.08	.11		
		4	V-0.050	2	4ER4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8" FH	.148	.08	.11		
		4	V-0.050	3	4ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	.147	.08	.11		
		5	V-0.040	3	4ER5API403...	2 3/8"-4 1/2" REG	.118	.07	.10		
		6	V-0.055	1.5	4ER6API551...	NC10-NC16	.056	.10	.08		
1/2"F	.91	4	V-0.038R	2	4FER4API382...	NC23-NC50	.122	.08	.11	YE4F	AL...-4F
		4	V-0.038R	3	4FER4API383...	NC56-NC77	.121	.08	.11		
		4	V-0.050	2	4FER4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8"FH	.148	.08	.11		
		4	V-0.050	3	4FER4API503...	5 1/2", 7 5/8", 8 5/8" REG	.147	.08	.11		
		5	V-0.040	3	4FER5API403...	2 3/8"-4 1/2" REG	.118	.07	.10		
		6	V-0.055	1.5	4FER6API551...	NC10-NC16	.056	.10	.08		
5/8"	1.06	4	V-0.038R	2	5ER4API382...	NC23-NC50	.122	.08	.11	YE5OIL	AL..-5 OIL
		4	V-0.038R	3	5ER4API383...	NC56-NC77	.121	.08	.11		
		4	V-0.050	2	5ER4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8" FH	.148	.08	.12		
		4	V-0.050	3	5ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	.147	.08	.12		
		5	V-0.040	3	5ER5API403...	2 3/8"-4 1/2" REG	.118	.07	.11		
		4	V-0.065	2	5ER4API652...	2 3/8"IF- 5 1/2IF	.111	.09	.11		

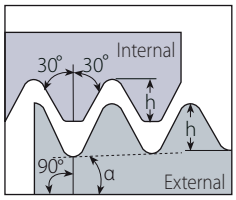
On Edge

Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions inch				Position	
IC	L inch	TPI		IPF	RH		R	h min	T	Ø C	X	Y
5/8"	1.06	5	V-0.040	3	TNEC54ER5API403...	2 3/8"-4 1/2" REG	.020	.118	.25	.26	.92	.15
		4	V-0.050	2	TNEC55ER4API502...	6 5/8" REG, 5 1/2 FH, 6 5/8 FH	.025	.148	.31			.20
		4	V-0.050	3	TNEC55ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	.025	.148	.31			.20
		4	V-0.038	2	TNEC55ER4API382...	NC23-NC50, 2 3/8 - 6 5/8 IF	.038	.122	.31			.20
		4	V-0.038	3	TNEC55ER4API383...	NC56-NC77	.038	.122	.31			.20

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

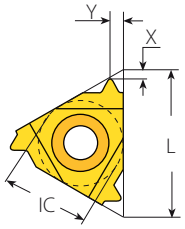
API (con't)

Internal

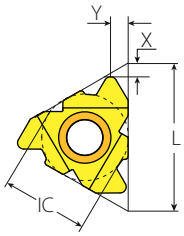


α = arctg (IPF/24)

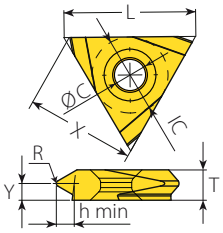
Defined by: API SPEC. 7:1990
Tolerance class: Standard API



Standard



F-Line



On Edge

Standard

F-LINE

Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI		IPF	RH		h min	X	Y	RH	Toolholder
1/2"	.87	4	V-0.038R	2	4IR4API382...	NC23-NC50	.122	.08	.11	YEI 4-API-1P or YI4	AVRC..-4 5BUT/API or AVR...-4
		4	V-0.038R	3	4IR4API383...	NC56-NC77	.121	.08	.11		
		4	V-0.050	2	4IR4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8" FH	.148	.08	.12		
		4	V-0.050	3	4IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	.147	.08	.11		
		5	V-0.040	3	4IR5API403...	2 3/8"-4 1/2" REG	.118	.07	.10		
		6	V-0.055	1.5	4IR6API551...	NC10-NC16	.056	.10	.08		
1/2"F	.91	4	V-0.038R	2	4FIR4API382...	NC23-NC50	.122	.08	.11	YI4F	AVRC...-4F
		4	V-0.038R	3	4FIR4API383...	NC56-NC77	.121	.08	.11		
		4	V-0.050	2	4FIR4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8"FH	.148	.08	.12		
		4	V-0.050	3	4FIR4API503...	5 1/2", 7 5/8", 8 5/8" REG	.147	.08	.11		
		5	V-0.040	3	4FIR5API403...	2 3/8"-4 1/2" REG	.118	.07	.10		
		6	V-0.055	1.5	4FIR6API551...	NC10-NC16	.056	.10	.08		
5/8"	1.06	4	V-0.038R	2	5IR4API382...	NC23-NC50	.122	.08	.11	YI5OIL	AVR..-5 OIL
		4	V-0.038R	3	5IR4API383...	NC56-NC77	.121	.08	.11		
		4	V-0.050	2	5IR4API502...	6 5/8" REG, 5 1/2"FH, 6 5/8" FH	.148	.08	.12		
		4	V-0.050	3	5IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	.147	.08	.12		
		5	V-0.040	3	5IR5API403...	2 3/8"-4 1/2" REG	.118	.07	.11		
		4	V-0.065	2	5IR4API652...	2 3/8"IF- 5 1/2"IF	.111	.09	.11		

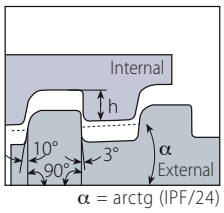
On Edge

Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions inch				Position	
IC	L inch	TPI		IPF	RH		R	h min	T	Ø C	X	Y
5/8"	1.06	5	V-0.040	3	TNEC54IR5API403...	2 3/8"-4 1/2" REG	.020	.118	.25	.26	.92	.15
		4	V-0.050	2	TNEC55IR4API502...	6 5/8" REG, 5 1/2 FH, 6 5/8 FH	.025	.148	.31			.20
		4	V-0.050	3	TNEC55IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	.025	.148	.31			.20
		4	V-0.038	2	TNEC55IR4API382...	NC23-NC50, 2 3/8 - 6 5/8 IF	.038	.122	.31			.20
		4	V-0.038	3	TNEC55IR4API383...	NC56-NC77	.038	.122	.31			.20

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

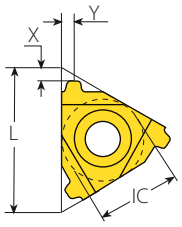
API Buttress Casing

External

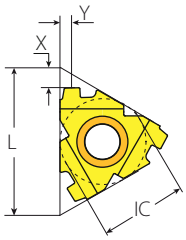


α = arctg (IPF/24)

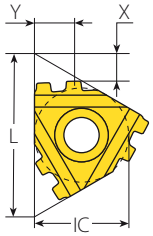
Defined by: STD.5B.1979
Tolerance class: Standard API



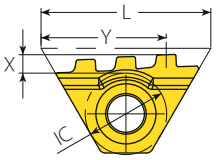
Standard



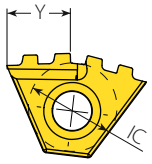
F-Line



M+ Style



T+ Style



14D
2 Cutting Edges

Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2″	.87	5	.75	4ER5BUT75...	4 1/2″-13 3/8″	.061	.12	.07	YEI 4-BUT or YE4	AL..-4 5BUT/API or AL...-4
		5	1	4ER5BUT1...	16″-20″	.061	.12	.07		
1/2″F	.91	5	.75	4FER5BUT75...	4 1/2″-13 3/8″	.061	.12	.07	YE4F	AL...-4F
		5	1	4FER5BUT1...	16″-20″	.061	.12	.07		

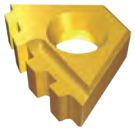
M+ Style

Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF		RH		h min	X	Y	RH	Toolholder
5/8″	1.06	5	.75	2	5ER5BUT752M+...	4 1/2″-13 3/8″	.061	.19	.27	YE5M	AL..-5M

T+ Style

Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF		RH		h min	X	Y	RH	Toolholder
1/2″T	.87	5	.75	3	4ER5BUT753T+...	4 1/2″-13 3/8″	.061	.10	.63	Y4T	AL..-4T
			1		4ER5BUT13T+...	16″-20″					

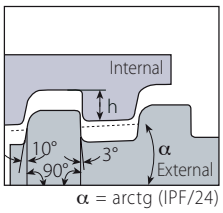
14D



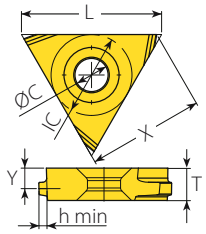
Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch		Anvil	
IC	TPI	IPF		RH		h min	Y	RH	Toolholder
14D	5	.75	2	14DER5BUT752T+...	4 1/2″-9 5/8″	.061	.39	Y14DER-5 BUT	AL...-14D
					10 3/4″-13 3/8″			Y14DER-5BUT-0.4N	
	5	1	2	14DER5BUT12T+...	16″-20″			Y14DER-5BUT-0.4N	AL...-14D

API Buttress Casing (con't)

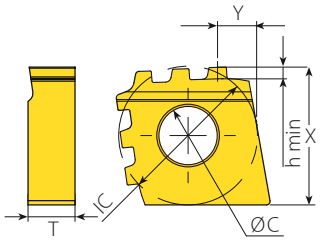
External



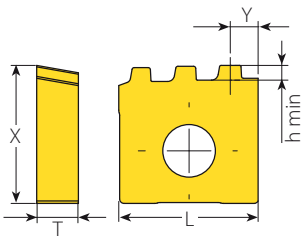
Defined by: STD.5B.1979
Tolerance class: Standard API



On Edge



CNGA



Chaser

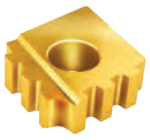
On Edge

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Position	
IC	L inch	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8″	1.06	5	.75	TNEC54ER5BUT75...	4 1/2″-13 3/8″	.061	.25	.26	.92	.16
		5	1	TNEC54ER5BUT1...	16″-20″					

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

CNGA

Multi plus

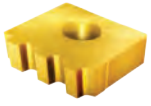


Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch			Position	
IC	TPI	IPF		RH		h min	T	Ø C	X	Y
3/4″	5	.75	3	CNGA64ER5BUT75T3...	4 1/2″-13 3/8″	.061	.25	.31	.74	.22
	5	1	3	CNGA64ER5BUT1T3...	16″-20″					.22

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

Chaser

Multi plus

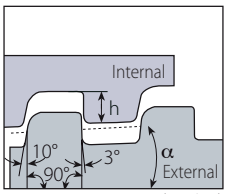


Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch		Position	
L	TPI	IPF		RH		h min	T	X	Y
.63	5	.75	3	1616ER5BUT753S+...	4 1/2″-13 3/8″	.061	.19	.62	.13
	5	1	3	1616ER5BUT13S+...	16″-20″				

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

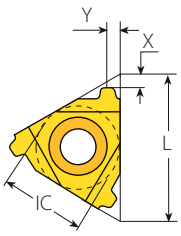
API Buttress Casing (con't)

Internal

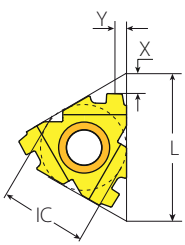


α = arctg (IPF/24)

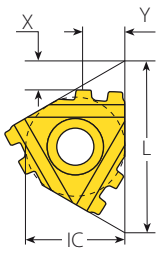
Defined by: STD.5B:1979
Tolerance class: Standard API



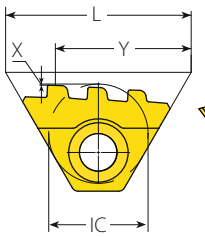
Standard



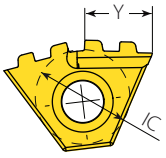
F-Line M+



M+ Style



T+ Style



14D
2 Cutting Edges

Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2"	.87	5	.75	4IR5BUT75...	4 1/2"-13 3/8"	.061	.11	.07	YEI 4-BUT or YI4	AVRC..-4 5BUT/API or AVR...-4
		5	1	4IR5BUT1...	16"-20"	.061	.11	.07		
1/2"F	.91	5	.75	4FIR5BUT75...	4 1/2"-13 3/8"	.061	.11	.07	YI4F	AVRC...-4F
		5	1	4FIR5BUT1...	16"-20"	.061	.11	.07		

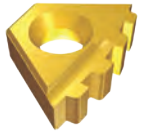
M+ Style

Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF		RH		h min	X	Y	RH	Toolholder
5/8"	1.06	5	.75	2	5IR5BUT752M+...	4 1/2"-13 3/8"	.061	.19	.26	YI5M	AVR..-5M

T+ Style

Insert Size		Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF		RH		h min	X	Y	RH	Toolholder
1/2"T	.87	5	.75	3	4IR5BUT753T+...	4 1/2"-13 3/8"	.061	.10	.63	Y4T	AVR..-4T
			1		4IR5BUT13T+...	16"-20"					

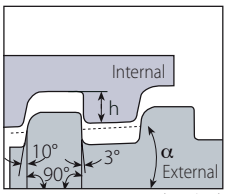
14D



Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch		Anvil	
IC	TPI	IPF		RH		h min	Y	RH	Toolholder
14D	5	.75	2	14DIR5BUT752T+...	4 1/2"-9 5/8"	.061	.39	Y14DIR-5 BUT	AVRC...-14D
					10 3/4"-13 3/8"			Y14DIR-5BUT-0.4N	
	5	1	2	14DIR5BUT12T+...	16"-20"	.061	.39	Y14DIR-5BUT-0.4N	AVRC...-14D

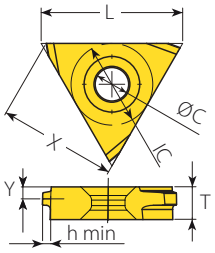
API Buttress Casing (con't)

Internal

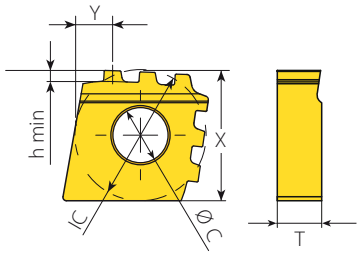


α = arctg (IPF/24)

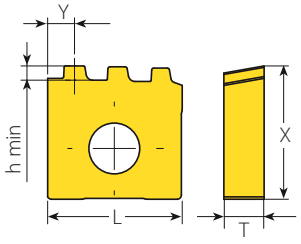
Defined by: STD.5B:1979
Tolerance class: Standard API



On Edge



CNGA



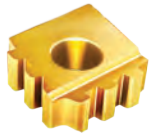
Chaser

On Edge

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Position	
IC	L inch	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8″	1.06	5	.75	TNEC54IR5BUT75...	4 1/2″-13 3/8″	.061	.25	.26	.92	.17
		5	1	TNEC54IR5BUT1...	16″-20″					

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

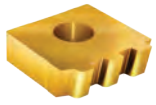
CNGA



Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch			Position	
IC	TPI	IPF		RH		h min	T	Ø C	X	Y
3/4″	5	.75	3	CNGA64IR5BUT75T3...	4 1/2″-13 3/8″	.061	.25	.31	.74	.22
	5	.75	2	CNGA64IR5BUT75T2...	4 1/2″-13 3/8″					.41
	5	1	3	CNGA64IR5BUT1T3...	16″-20″					.22

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

Chaser

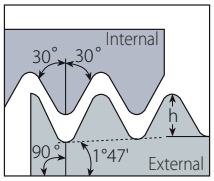


Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch		Position	
L	TPI	IPF		RH		h min	T	X	Y
.63	5	.75	3	1616IR5BUT753S+...	4 1/2″-13 3/8″	.061	.19	.62	.13
	5	1	3	1616IR5BUT13S+...	16″-20″				

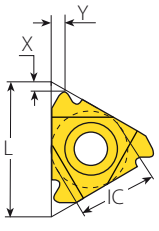
Chaser inserts are compatible with most commonly used toolholders in the market.

API Round Casing & Tubing

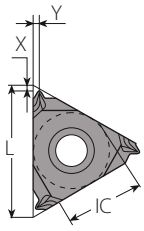
External



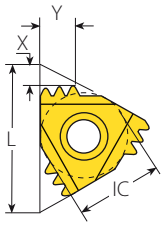
Defined by: API STD. 5B:1979
Tolerance class: Standard API RD



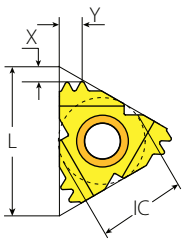
Standard



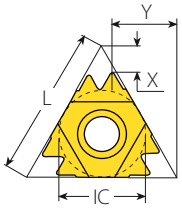
SCB Sintered Chipbreaker



M+ Style



F-Line M+



Z+ Style

Standard

SCB

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI	RH	h min	X	Y	RH	Toolholder
3/8"	.63	10	3ER10APIRD...	.056	.05	.06	YEI3-APIRD or YE3	AL...-3 APIRD or AL..-3
		8	3ER8APIRD...	.071	.05	.06		
3/8" SCB	.63	10	3JER10APIRD...	.056	.05	.06		
		8	3JER8APIRD...	.071	.05	.06		

M+ Style

Multi plus

F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
1/2"	.87	10	2	4ER10APIRD2M+...	.056	.09	.15	YE4M	AL..-4
1/2"F	.91	10	2	4FER10APIRD2M+...	.056	.09	.15	YE4M2F	AL...-4MF
5/8"	1.06	10	3	5ER10APIRD3M+...	.056	.15	.25	YE5M	AL..-5M
		8	2	5ER8APIRD2M+...	.071	.11	.18		

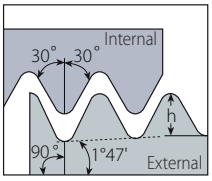
Z+ Style

Multi plus

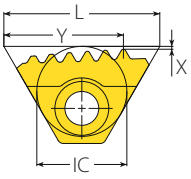
Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
1/2"	.87	10	2	4ER10APIRD2Z+...	.056	.12	.39	YE4Z	AL..-4Z
		8	2	4ER8APIRD2Z+...	.071	.15	.38		

API Round Casing & Tubing (con't)

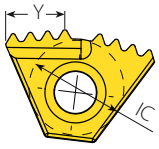
External



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



T+ Style



14D -
2 Cutting Edges

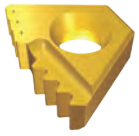
T+ Style

Multi plus

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

14D

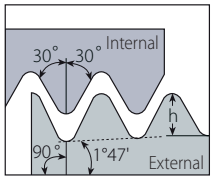
Multi plus



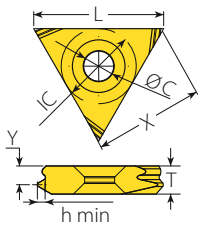
Insert Size	Pitch	Teeth	Ordering Code	Size	Dimensions inch		Anvil	
IC	TPI		RH		h min	Y	RH	Toolholder
14D	10	4	14DER10APIRD4T+...	2 3/8" and up	.056	.34	Y14DER-10 APIRD	AL...-14D
	10	3	14DER10APIRD3T+...	2 3/8" and up		.35	Y14DER-10 APIRD-3+	
	8	3	14DER8APIRD3T+...	2 3/8" and up	.071	.32	Y14DER-8 APIRD	

API Round Casing & Tubing (con't)

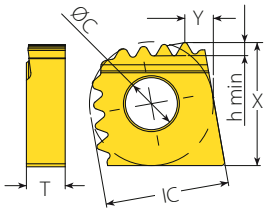
External



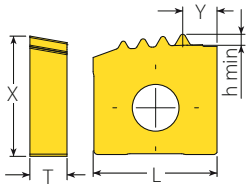
Defined by: API STD. 5B:1979
Tolerance class: Standard API RD



On Edge



CNGA



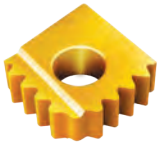
Chaser

On Edge

Insert Size		Pitch	Ordering Code	Dimensions inch			Position	
IC	L inch	TPI	RH	h min	T	Ø C	X	Y
1/2"	.87	10	TNEC43ER10APIRD...	.056	.19	.20	.73	.13
		8	TNEC43ER8APIRD...	.071				

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

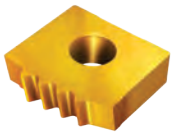
CNGA



Insert Size	Pitch	Teeth	Ordering Code	Dimensions inch			Position	
IC	TPI		RH	h min	T	Ø C	X	Y
3/4"	10	5	CNGA64ER10APIRDT5...	.056	.25	.31	.74	.18
	8	4	CNGA64ER8APIRDT4...	.071				

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

Chaser

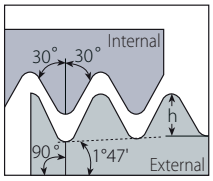


Insert Size	Pitch	Teeth	Ordering Code	Dimensions inch		Position	
L	TPI		RH	h min	T	X	Y
.63	10	4	1616ER10APIRD4S+...	.056	.19	.61	.17
	8	3	1616ER8APIRD3S+...	.071		.63	

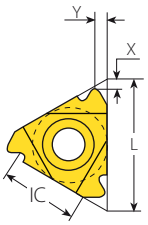
Chaser inserts are compatible with most commonly used toolholders in the market.

API Round Casing & Tubing (con't)

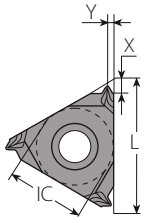
Internal



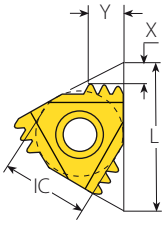
Defined by: API STD. 5B:1979
Tolerance class: Standard
API RD



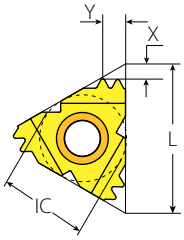
Standard



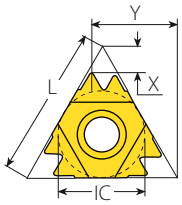
SCB
Sintered
Chipbreaker



M+ Style



F-Line M+



Z+ Style

Standard

SCB

Insert Size		Pitch	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI	RH	h min	X	Y	RH	Toolholder
3/8″	.63	10	3IR10APIRD...	.056	.05	.06	YEI3-APIRD or YI3	AVRC... 3APIRD or AVRC..-3
		8	3IR8APIRD...	.071	.05	.06		
3/8″ SCB	.63	10	3JIR10APIRD...	.056	.05	.06		
		8	3JIR8APIRD...	.071	.05	.06		

M+ Style

Multi plus

F-LINE

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
1/2″	.87	10	2	4IR10APIRD2M+...	.056	.09	.15	YI4M	AVR..-4
		8	2	4IR8APIRD2M+...	.071	.11	.18		
1/2″F	.91	10	2	4FIR10APIRD2M+...	.056	.09	.15	YI4M2F	AVRC...-4MF
5/8″	1.06	10	3	5IR10APIRD3M+...	.056	.15	.25	YI5M	AVR..-5M
		8	2	5IR8APIRD2M+...	.071	.11	.18		

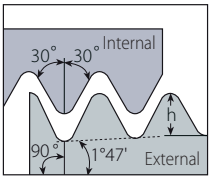
Z+ Style

Multi plus

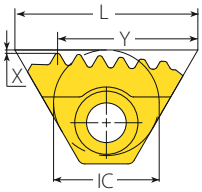
Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
1/2″	.87	10	2	4IR10APIRD2Z+...	.056	.12	.39	YI4Z	AVR..-4Z
		8	2	4IR8APIRD2Z+...	.071	.15	.38		

API Round Casing & Tubing (con't)

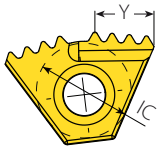
Internal



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



Z+ Style



14D -
2 Cutting Edges

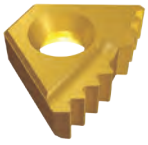
T+ Style

Multi plus

Insert Size		Pitch	Teeth	Ordering Code	Dimensions inch			Anvil	
IC	L inch	TPI		RH	h min	X	Y	RH	Toolholder
1/2"T	.87	10	6	4IR10APIRD6T+...	.056	.01	.66	Y4T	AVR..-4T
		8	3	4IR8APIRD3T+...	.071	.01	.56		
		8	5	4IR8APIRD5T+...	.071	.01	.66		

14D

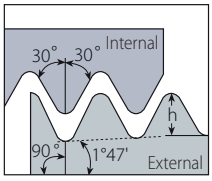
Multi plus



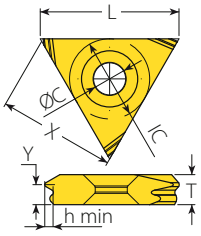
Insert Size	Pitch	Teeth	Ordering Code	Size	Dimensions inch		Anvil	
IC	TPI				h min	Y		Toolholder
14D	10	4	14DIR10APIRD4T+...	2 3/8" and up	.056	.34	Y14DIR-10 APIRD	AVRC...-14D
	10	3	14DIR10APIRD3T+...	2 3/8" and up		.35	Y14DIR-10 APIRD-3+	
	8	3	14DIR8APIRD3T+...	2 3/8" and up	.071	.32	Y14DIR-8 APIRD	

API Round Casing & Tubing (con't)

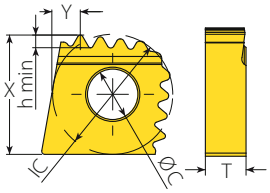
Internal



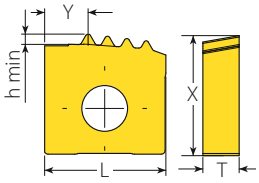
Defined by: STD. 5B:1979
Tolerance class: Standard API RD



On Edge



CNGA



Chaser

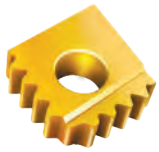
On Edge

Insert Size		Pitch	Ordering Code	Dimensions inch			Position	
IC	L inch	TPI	RH	h min	T	Ø C	X	Y
1/2"	.87	10	TNEC43IR10APIRD...	.056	.19	.20	.73	.13
		8	TNEC43IR8APIRD...	.071				

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

CNGA

Multi plus

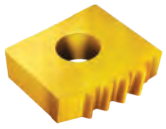


Insert Size	Pitch	Teeth	Ordering Code	Dimensions inch			Position	
IC	TPI		RH	h min	T	Ø C	X	Y
3/4"	10	5	CNGA64IR10APIRDT5...	.056	.25	.31	.74	.18
	8	4	CNGA64IR8APIRDT4...	.071				

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

Chaser

Multi plus

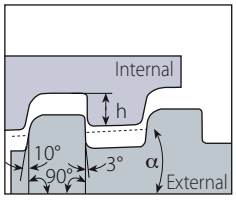


Insert Size	Pitch	Teeth	Ordering Code	Dimensions inch		Position	
L	TPI		RH	h min	T	X	Y
.63	10	4	1616IR10APIRD4S+...	.056	.19	.61	.22
	8	3	1616IR8APIRD3S+...	.071		.63	.17

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

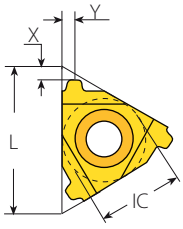
VAM

External

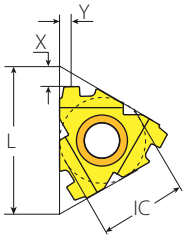


α = arctg (IPF/24)

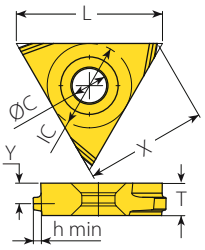
Defined by: VAM
Tolerance class: Standard VAM



Standard



F-Line



On Edge

Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF	RH		h min	X	Y	RH	Toolholder
3/8″	.63	8	.75	3ER8VAM...	2 3/8″, 2 7/8″	.038	.07	.07	YE3	AL..-3
1/2″	.87	6		4ER6VAM...	3 1/2″	.038	.09	.09	YE4	AL..-4
		5		4ER5VAM...	5″-9 5/8″	.061	.09	.11		
1/2″F	.91	6		4FER6VAM...	3 1/2″	.038	.09	.09	YE4F	AL...-4F
		5		4FER5VAM...	5″-9 5/8″	.061	.09	.11		

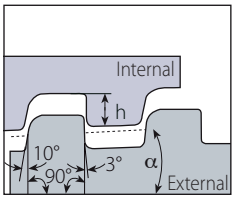
On Edge

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Position	
IC	L inch	TPI	IPF	RH		h min	T	Ø C	X	Y
1/2″	.87	8	.75	TNEC43ER8VAM...	2 3/8″, 2 7/8″	.038	.19	.20	.73	.13
		6		TNEC43ER6VAM...	3 1/2″	.038	.19			.11
5/8″	1.06	5		TNEC54ER5VAM...	5″- 9 5/8″	.061	.25	.26	.92	.16

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

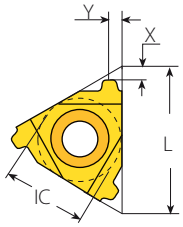
VAM (con't)

Internal

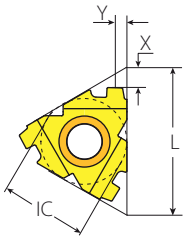


α = arctg (IPF/24)

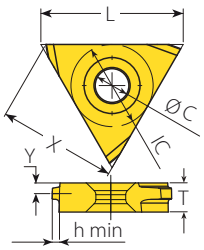
Defined by: VAM
Tolerance class: Standard VAM



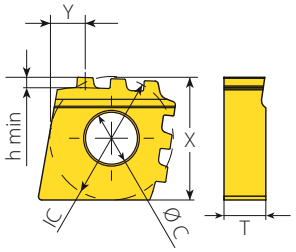
Standard



F-Line



On Edge



CNGA

Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF	RH		h min	X	Y	RH	Toolholder
3/8″	.63	8	.75	3IR8VAM...	2 3/8″, 2 7/8″	.040	.07	.07	YI3	AVR..-3
1/2″	.87	6		4IR6VAM...	3 1/2″	.040	.10	.10	YI4	AVR..-4
		5		4IR5VAM...	5″-9 5/8″	.061	.09	.10		
1/2″F	.91	6		4FIR6VAM...	3 1/2″	.040	.10	.10	YI4F	AVRC...-4F
		5		4FIR5VAM...	5″-9 5/8″	.061	.09	.10		

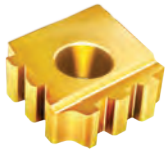
On Edge

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Position	
IC	L inch	TPI	IPF	RH		h min	T	Ø C	X	Y
1/2″	.87	8	.75	TNEC43IR8VAM...	2 3/8″, 2 7/8″	.040	.19	.20	.73	.13
		6		TNEC43IR6VAM...	3 1/2″	.040	.19			.12
5/8 ″	1.06	5		TNEC54IR5VAM...	5″- 9 5/8″	.061	.25	.26	.92	.17

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

CNGA

Multi plus

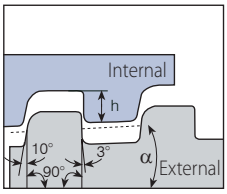


Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch			Position	
IC	TPI	IPF		RH		h min	T	Ø C	X	Y
3/4″	5	.75	2	CNGA64IR5VAM75T2...	5″- 9 5/8″	.061	.25	.31	.74	.37

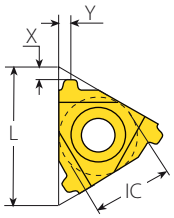
CNGA inserts are compatible with most commonly used toolholders in the market.

New VAM

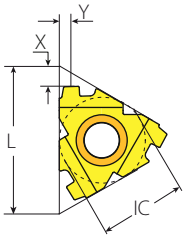
External



α= arctg (IPF/24)



Standard



F-Line

Defined by: VAM
Tolerance class: Standard VAM

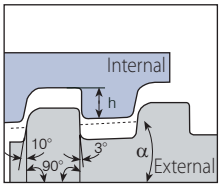
Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF	RH		h min	X	Y	RH	Toolholder
3/8″	.63	8	.75	3ER8NVAM...	2 3/8″ , 2 7/8″	.038	.07	.07	YE3	AL...-3
1/2″	.87	6		4ER6NVAM...	3 1/2″	.038	.09	.09	YE4	AL...-4
		5		4ER5NVAM...	5″-9 5/8″	.061	.09	.09		
1/2″F	.91	6		4FER6NVAM...	3 1/2″	.038	.09	.08	YE4F	AL...-4F
		5		4FER5NVAM...	5″-9 5/8″	.061	.10	.09		

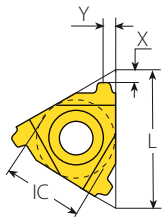
New VAM (con't)

Internal

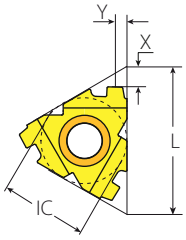


α= arctg (IPF/24)

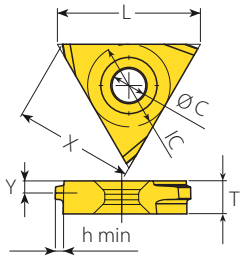
Defined by: VAM
Tolerance class: Standard VAM



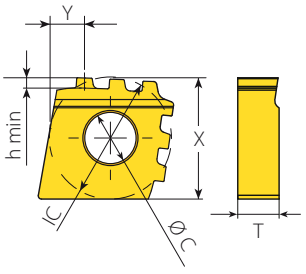
Standard



F-Line



On Edge



CNGA

Standard

F-LINE

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF	RH		h min	X	Y	RH	Toolholder
3/8"	.63	8	.75	3IR8NVAM...	2 3/8" , 2 7/8"	.048	.07	.07	Y13	AVR...-3
1/2"	.87	6		4IR6NVAM...	3 1/2"	.048	.10	.10	Y14	AVR...-4
		5		4IR5NVAM...	5"-9 5/8"	.070	.09	.10		
1/2"F	.91	6		4FIR6NVAM...	3 1/2"	.048	.08	.07	YI4F	AVRC...-4F
		5		4FIR5NVAM...	5"-9 5/8"	.070	.08	.08		

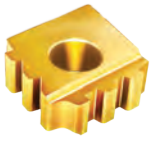
On Edge

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch				
IC	L inch	TPI	IPF	RH		h min	T	Ø C	X	Y
1/2"	.87	8	.75	TNEC43IR8NVAM...	2 3/8" -2 7/8"	.048	.19	.20	.73	.13
		6		TNEC43IR6NVAM...	3 1/2"- 4 1/2"	.048	.19	.20	.92	.12
5/8"	1.06	5		TNEC54IR5NVAM...	5"-16"	.070	.25	.26		.17

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

CNGA

Multi plus

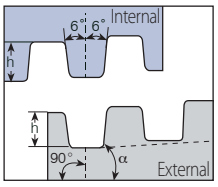


Insert Size	Pitch	Taper	Teeth	Ordering Code	Size	Dimensions inch			Position	
IC	TPI	IPF		RH		h min	T	Ø C	X	Y
3/4"	6	.75	2	CNGA64IR6NVAM75T2...	3 1/2"- 4 1/2"	.048	.25	.31	.74	.37
	5			CNGA64IR5NVAM75T2...	5"-16"	.070	.25			

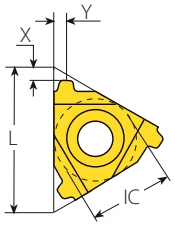
CNGA inserts are compatible with most commonly used toolholders in the market.

EL-Extreme Line

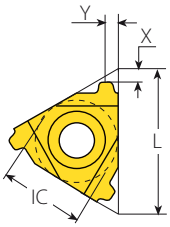
External / Internal



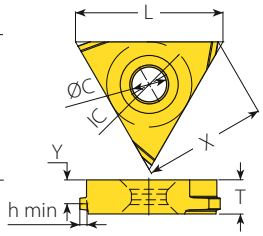
α= arctg (IPF/24)



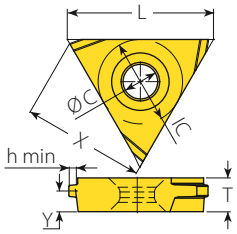
Standard External



Standard Internal



On Edge External



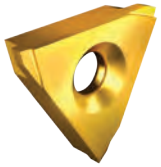
On Edge Internal

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

Standard - External

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2"	.87	6	1.5	4ER6EL15...	5"-7 5/8"	.048	.07	.07	YE4	AL..-4
		5	1.25	4ER5EL125...	8 5/8"-10 3/4"	.067	.09	.09		

On Edge - External



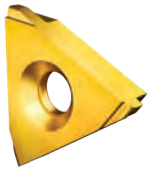
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Position	
IC	L inch	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8"	1.06	6	1.5	TNEC54ER6EL15...	5 "-7 5/8"	.048	.25	.26	.92	.19
		5	1.25	TNEC54ER5EL125...	8 5/8"-10 3/4"	.067	.25			.17

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

Standard - Internal

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2"	.87	6	1.5	4IR6EL15...	5"-7 5/8"	.055	.07	.07	Y14	AVR..-4
		5	1.25	4IR5EL125...	8 5/8"-10 3/4"	.075	.09	.09		

On Edge - Internal

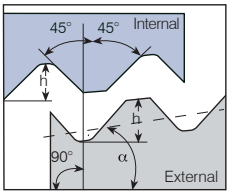


Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Position	
IC	L inch	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8"	1.06	6	1.5	TNEC54IR6EL15...	5 "-7 5/8"	.055	.25	.26	.92	.19
		5	1.25	TNEC54IR5EL125...	8 5/8"-10 3/4"	.075	.25			.17

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

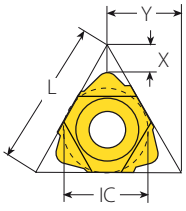
Hughes H-90

External / Internal

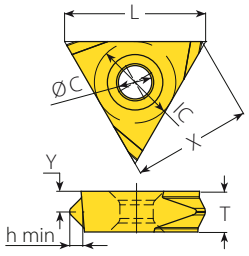


α= arctg (IPF/24)

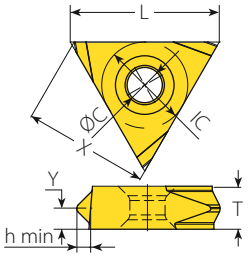
Defined by: API specification 7-2/ISO 10242-2



U Style



On Edge External



On Edge Internal

U Style - External

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2" U	.87	3.5	2	4UER3.5H902...	3 1/2"-6 5/8"	.098	.17	.43	YE4U-H90	AL..-4U
5/8" U	1.06	3.5	3	4UER3.5H903...	7"-8 5/8"	.098	.17	.43	YE5U-H90	AL..-5UH90
		3	1.25*	5UER3H90SL...	2 3/8"-3 1/2"	.088	.22	.54		

On Edge - External

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Position	
IC	L inch	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8"	1.06	3.5	2	TNEC55ER3.5H902...	3 1/2 "- 6 5/8"	.098	.31	.26	.92	.17
		3.5	3	TNEC55ER3.5H903...	7 "- 8 5/8"	.098	.31			.17
		3	1.25*	TNEC56ER3H90SL...	2 3/8 "- 3 1/2"	.088	.38			.22

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

U Style - Internal

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Anvil	
IC	L inch	TPI	IPF	RH		h min	X	Y	RH	Toolholder
1/2" U	.87	3.5	2	4UIR3.5H902...	3 1/2"-6 5/8"	.098	.17	.43	YI4U-H90	AVR..-4U
5/8" U	1.06	3.5	3	4UIR3.5H903...	7"-8 5/8"	.098	.17	.43	YI5U-H90	AVR..-5UH90
		3	1.25*	5UIR3H90SL...	2 3/8"-3 1/2"	.088	.22	.54		

On Edge - Internal

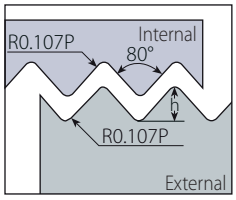
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions inch			Position	
IC	L inch	TPI	IPF	RH		h min	T	Ø C	X	Y
5/8"	1.06	3.5	2	TNEC55IR3.5H902...	3 1/2 "- 6 5/8"	.098	.31	.26	.92	.17
		3.5	3	TNEC55IR3.5H903...	7 "- 8 5/8"	.098	.31			.17
		3	1.25*	TNEC56IR3H90SL...	2 3/8 "- 3 1/2"	.088	.38			.22

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

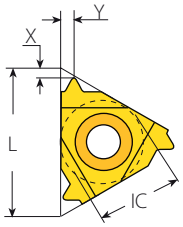
* H-90 Slimline.

Pg

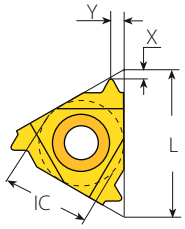
External / Internal



Defined by: DIN 40430
Tolerance class: Standard



Standard External



Standard Internal

Standard - External

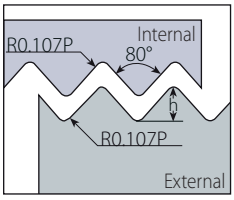
Insert Size		Pitch	Thread	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI		RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	20	Pg7	2ER20PG...	2EL20PG...	.024	.03	.04	-	-	NL..-2 (LH)
		18	Pg9/11/13.5/16	2ER18PG...	2EL18PG...	.026	.03	.04			
		16	Pg21/29/36/42/48	2ER16PG...	2EL16PG...	.030	.04	.04			
3/8″	.63	20	Pg7	3ER20PG...	3EL20PG...	.024	.03	.04	YE3	YI3	AL..-3 (LH)
		18	Pg9/11/13.5/16	3ER18PG...	3EL18PG...	.026	.03	.04			
		16	Pg21/29/36/42/48	3ER16PG...	3EL16PG...	.030	.04	.04			

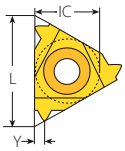
Standard - Internal

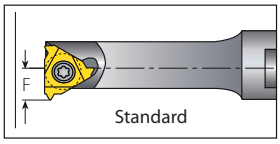
Insert Size		Pitch	Thread	Ordering Code		Dimensions inch			Anvil		
IC	L inch	TPI		RH	LH	h min	X	Y	RH	LH	Toolholder
1/4″	.43	20	Pg7	2IR20PG...	2IL20PG...	.025	.03	.04	-	-	NVR..-2 (LH)
		18	Pg9/11/13.5/16	2IR18PG...	2IL18PG...	.026	.03	.04			
		16	Pg21/29/36/42/48	2IR16PG...	2IL16PG...	.030	.04	.04			
3/8″	.63	20	Pg7	3IR20PG...	3IL20PG...	.025	.03	.04	YI3	YE3	AVR..-3 (LH)
		18	Pg11/13.5/16	3IR18PG...	3IL18PG...	.026	.03	.04			
		16	Pg21/29/36/42/48	3IR16PG...	3IL16PG...	.030	.03	.04			

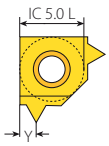
Pg (con't)

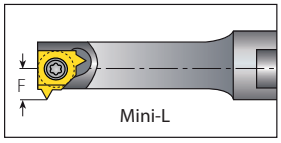
Internal











Defined by: DIN 40430
Tolerance class: Standard

Mini-3 Standard

Insert Size		Pitch	Thread	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	L inch	TPI		RH	LH	h min	Y	F	inch	Toolholder
5.0	.31	20	Pg7	5.0KIR20PG...	5.0KIL20PG...	.024	.03	.19	.31	(C)NVRC...-5.0K (LH)
6.0	.39	20	Pg7	6.0KIR20PG...	6.0KIL20PG...	.024	.03	.21	.39	.NVR...-6.0K (LH)
		18	Pg9/11/13.5/16	6.0KIR18PG...	6.0KIL18PG...	.026	.04	.21		

Mini-L

Insert Size	Pitch	Thread	Ordering Code		Dimensions inch			Min. Bore Dia.	
IC mm	TPI		RH	L H	h min	Y	F	inch	Toolholder
5.0L	20	Pg7	5LKIR20PG...	5LKIL20PG...	.024	.03	.18	.31	.NVR....-5LK (LH)
	18	Pg9/11/13.5/16	5LKIR18PG...	5LKIL18PG...	.026	.04	.18		

Thread Turning Toolholders

Vardex Ordering Code System

External Toolholders

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

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

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

3 - Shank Square [Inch]
031, 3/8, 050, 0625, 075, 100, 125, 150, 200

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 [mm]
(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	075		-	3					
1	2	3	4	5	6		7	8	9	10	11	12

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

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

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

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

5 - Shank Front Dia. (Inch)
0375, 050, 0625, 075, 100, 125, 150, 200, 250
6.2 mm (Mini Adjust)
8.0 mm (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.
- **157/...** (Coarse Pitch Holder)
- **V6** (V6 Holder)

Micro, Microscope & Adjustable Toolholders (Sleeves)

M	H	C	0750	-	4	-	4F
1	2	3	4		5		6

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 Holder
- **HS** - Microscope with Square Shank
- **HD** - Microscope with Drop Head

3 - Cooling
- **C** - Coolant Channel

4 - Shank Size [Inch]
0500, 0625, 0750, 1000

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

6 - 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 mm)	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
.47-2.17	1.57-4.13	3 - IC3/8"

VG-Cut Toolholders for Threading

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

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
3	T12 - Limit Depth of Cut 12 mm

Mini-V Holders

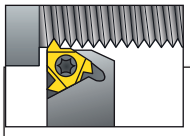
C	V	08	-	12	21	-
1	2	3		4	5	6

1- Holder Type	2 - Product Line	3 - Insert Style	4 - Shank Diameter	5 - Tool Overhang	6 - RH
C - Carbide Shank None - Steel Shank	V - Mini-V	08 , 11, 14, 16	06 - .236" 08 - .315" 12 - .472" 16 - .630" 0500 - 500" 0625 - .625"	.827" - 3.150" 12 - 80mm	None - RH

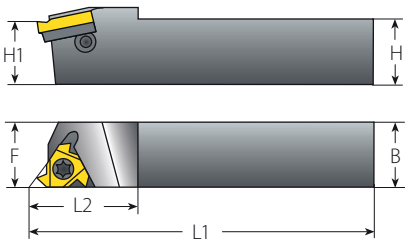
Mini-V Sleeves

MH	C	0625	-	6
1	2	3		4

1- Holder Type	2 - Cooling	3 - Shank Dia.	4 - Sleeve Bore Dia.
MH - Microscope Holder	C - Cooling Channels	12 - .472" 16 - .630" 0500 - .5" 0625 - 5/8" 0750 - 3/4"	.236" - .315"



External Toolholders



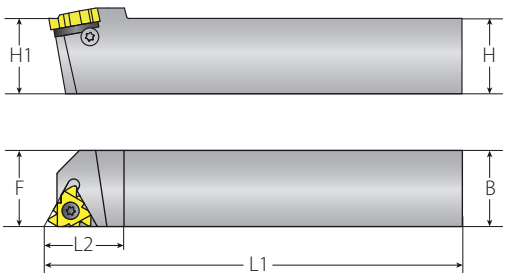
Standard

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

The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL075-3**LH**).

External Toolholders

F-LINE



Standard F-Line

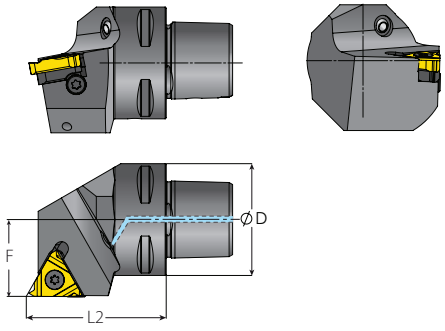
Insert Size	Ordering Code	EDP No.	Dimensions Inch			
IC	RH		H=H1=B	F	L1	L2
1/2"F	AL100-4F	66660	1.00	1.00	6.00	1.30
	AL125-4F	66661	1.25	1.25	7.00	1.30
	AL150-4F	66662	1.50	1.50	8.00	1.30

Spare Parts

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

External Toolholders

Max. coolant pressure 10bar



V-CAP

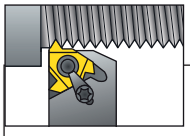
Insert Size	Ordering Code	EDP No.	Dimensions Inch		
IC	RH		D mm	F	L2
3/8"	VCAP32-SER22040-3	66717	32	.87	1.57
	VCAP40-SER27050-3	66165	40	1.06	1.97
	VCAP50-SER35060-3	66166	50	1.38	2.36
	VCAP63-SER45065-3	66167	63	1.77	2.56

Spare Parts

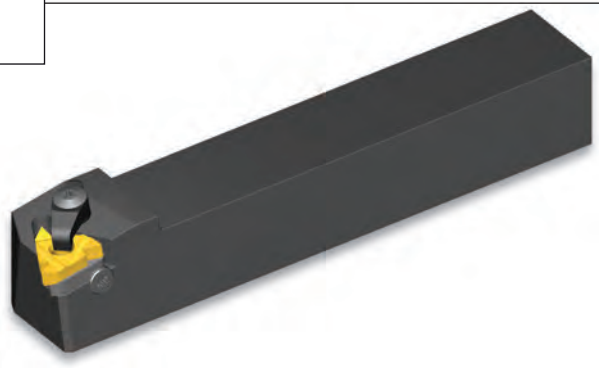
Insert Screw	Anvil Screw	Torx Key	Coolant Jet	Anvil RH	Anvil LH
SA3T	SY3T	K3T	OD6 OD8	YE3	YI3

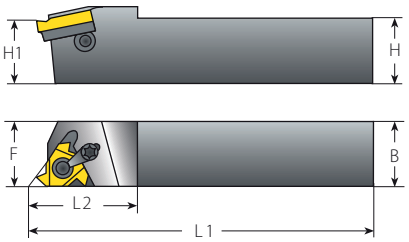
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example VCAP32-SE**L**22040-3).

The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.



External Toolholders





Standard with Clamp

(Dual System, Screw or Clamp)

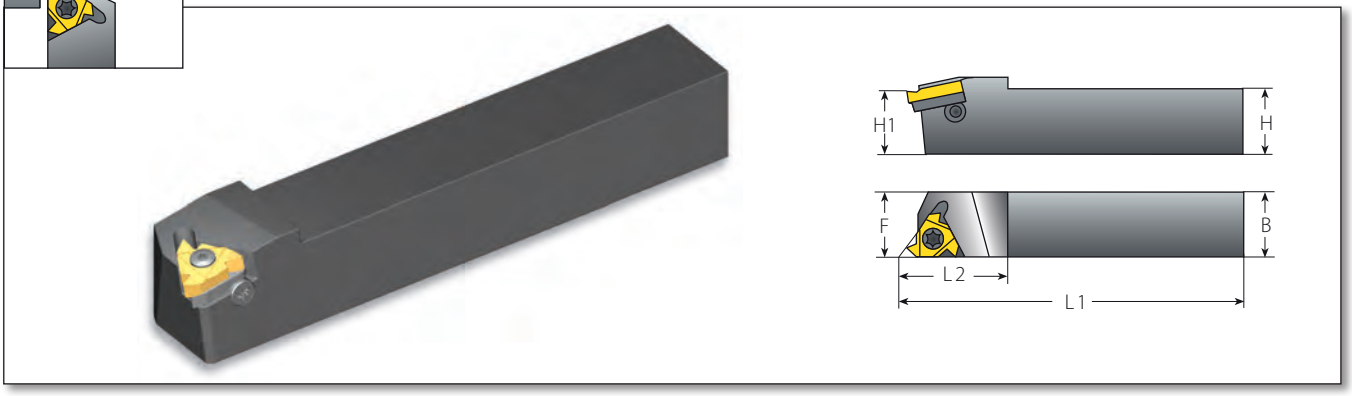
Spare Parts

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

The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL075-3C**LH**).

External Toolholders

Oil&Gas

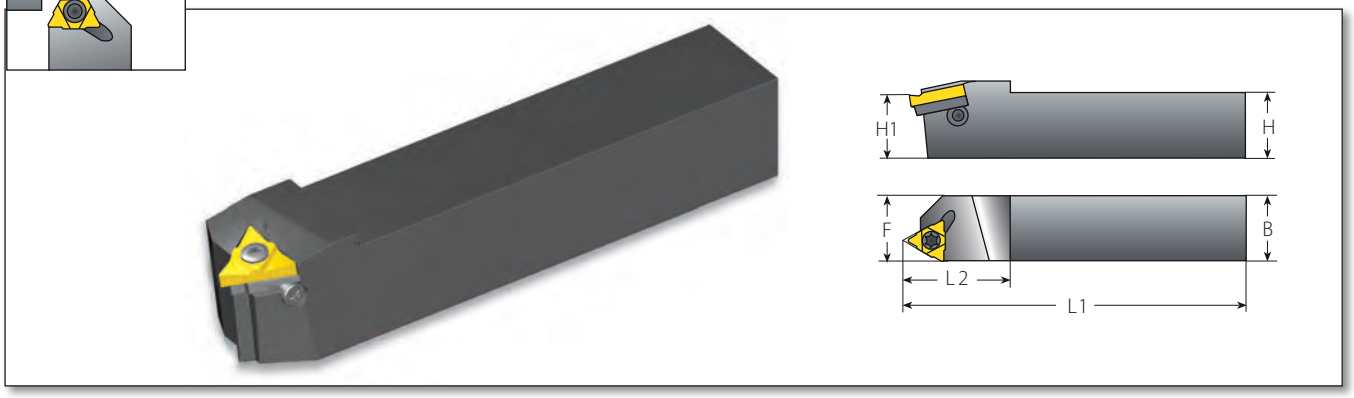


Oil & Gas

Insert Size	Ordering Code	EDP No.	Thread Form	Connection No. or Size	Dimensions Inch			Helix Angle Deg.	Spare Parts				
													
IC	RH				H=H1=B=F	L1	L2		Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8″	AL125-3 APIRD	66527	APIRD 8 APIRD10	2.375″-20″ 1.05″-3.5″	1.25	7.00	1.30	1	SA3T	SY3T	K3T	YEI3 APIRD	
	AL150-3 APIRD	66528			1.50	8.00	1.60	1					
1/2″	AL125-45BUT/API	66532	5BUT, V0.038R, V0.050 V0.040, V0.055	4 1/2″-20″	1.25	7.00	1.30	0	SA4T	SY4T	K4T	YEI4-API-1P YEI4-5BUT	
	AL150-45BUT/API	66533		NC10-NC77 all sizes	1.50	8.00	1.60	0					
5/8″	AL125-5OIL	66058	V0.038R, V0.050	NC23-NC77 all sizes	1.25	7.00	1.60	1.5	SA5T	SY5T	K5T	YE5OIL	YI5OIL
	AL150-5OIL	66075	V0.038R, V0.050	NC23-NC77 all sizes	1.50	8.00	1.60	1.5					

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL150-5OIL **LH**)

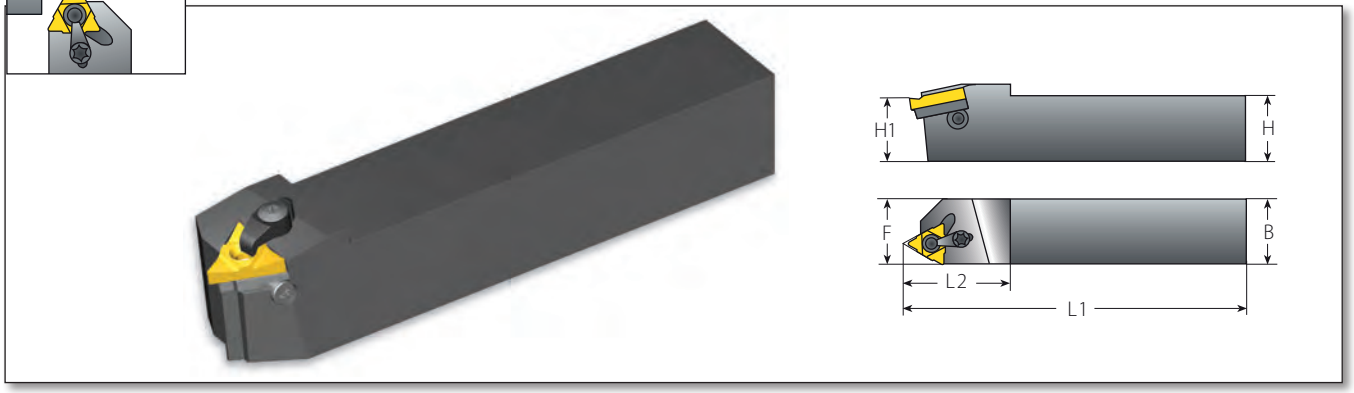
External Toolholders



U Style

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

External Toolholders



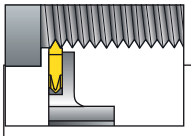
U Style with Clamp

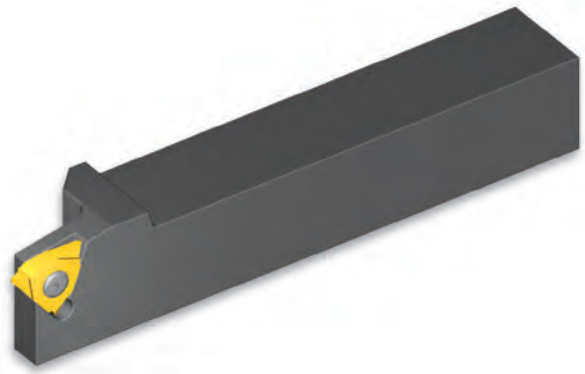
(Dual System, Screw or Clamp)

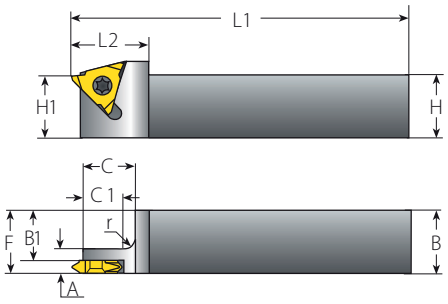
Insert Size	Ordering Code	EDP No.	Dimensions Inch				Spare Parts					
IC	RH		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
1/2"U	AL125-4UC	66250	1.25	1.25	7.00	1.52	SA4T	SY4T	C4	K4T	YE4U	YI4U
	AL150-4UC	66251	1.50	1.50	8.00	1.52						
5/8"U	AL125-5UC	66252	1.25	1.25	7.00	1.57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

All U Style Toolholders have a 1.5° helix angle. For other helix angles see page 199.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL100-4U**LH**).

External Toolholders







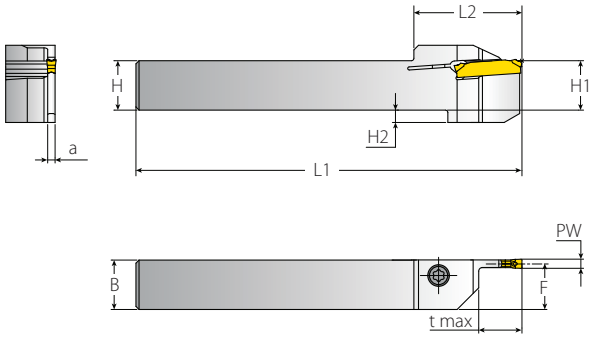
Slim Throat

Insert Size	Ordering Code	EDP No.	Dimensions Inch									Spare Parts	
IC	RH		H=B=F	H1	A	B1	C	C1	L1	L2	r	Insert Screw	Torx Key
1/4"V	NL0315-2V	66257	.31	.39	.28	.19	.50	.45	2.50	.60	.04	SN2T	K2T
	NL0375-2V	67226	.37	.37	.27	.25	.50	.45	2.75	.60	.04		
	NL050-2V	67232	.50	.50	.27	.37	.57	.45	3.15	.60	.12		
	NL0625-2V	67229	.62	.62	.27	.50	.57	.45	4.00	.60	.12		
3/8"V	NL0625-3V	67201	.62	.62	.27	.47	.57	.45	4.00	1.00	.12	SN3TV	K3T
	NL075-3V	67203	.75	.75	.27	.60	.65	.45	5.00	1.20	.12		
	NL100-3V	67205	1.00	1.00	.27	.85	.65	.45	6.00	1.20	.20		
	NL125-3V	66258	1.25	1.25	.27	1.20	.65	.45	7.00	1.20	.20		
	NL150-3V	66259	1.50	1.50	.28	1.25	.65	.45	8.00	1.20	.20		
1/2"V	NL100-4V	66221	1.00	1.00	.47	.81	.65	.45	6.00	1.20	.20	SN4T	K4T
	NL125-4V	66263	1.25	1.25	.47	1.07	.65	.45	7.00	1.20	.20		
	NL150-4V	66266	1.50	1.50	.47	1.31	.65	.45	8.00	1.20	.20		

All Slim Throat toolholders have a 1.5° helix angle see page 199.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example NL0325-2V**LH**).

External Toolholders

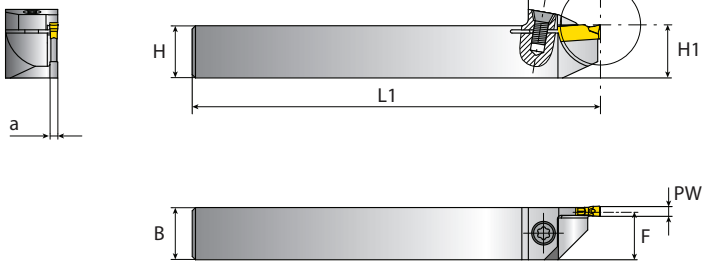
VG-Cut



Monoblock

Ordering Code			Dimensions Inch							Spare Parts	
RH/LH	PW	t max	HxB	H1	F	L1	L2	a	H2	Cylindrical Holder Screw	Torx Key
VGER/L0625-3T12			.625X.625	.625	.578				0.162		
VGER/L075-3T12	.118	.472	.750X.750	.750	.703	5.00	1.38	.09	-	SM4,0X18-T20	K6T
VGER/L100-3T12			1.00X1.00	1.000	.953				-		

External Toolholders

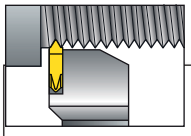


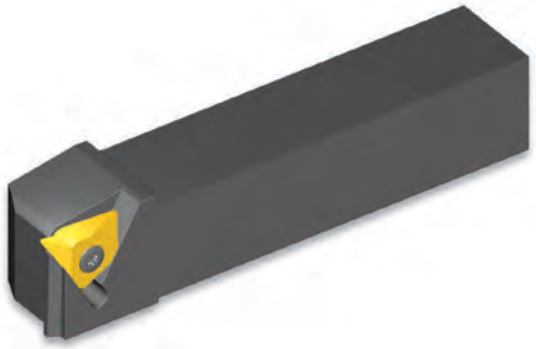
Reinforced Monoblock

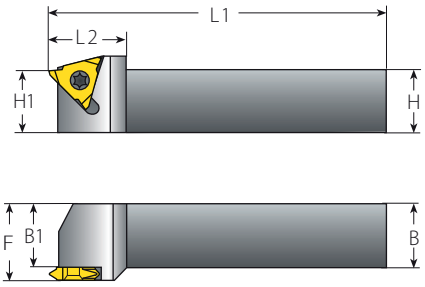
Ordering Code		Dimensions Inch							Spare Parts	
RH/LH	PW	D max	HxB	H1	F	L1	L2	a	Cylindrical Holder Screw	Torx Key
VGER/L0625-3T12PH		1.02	.625X.625	.625	.578		.87			
VGER/L075-3T21PH	.118	1.65	.750X.750	.750	.703	5.00	1.18	.09	SCM4X14	KT-15
VGER/L100-3T21PH		1.65	1.00X1.00	1.000	.953		1.18			

All VG-Cut tooling have 1.5° helix angle.

External Toolholders







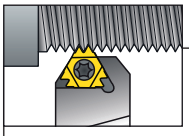
V Style

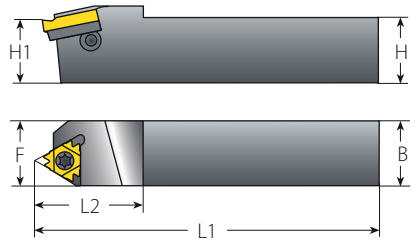
Spare Parts

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

All V Style toolholders have a 1° helix angle.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example NL125-5V-6 **LH**).
* To be used only with inserts 5VER2.5ABUT...

External Toolholders





Z+ Style

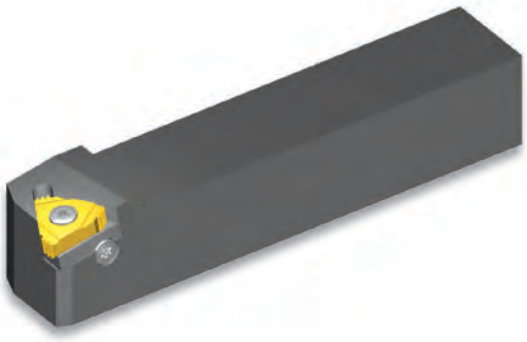
Spare Parts

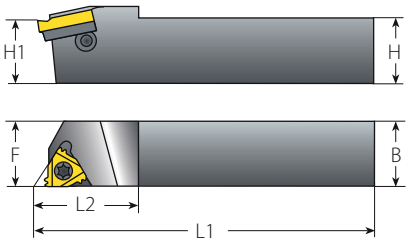
Multi plus

Insert Size	Ordering Code		Dimensions Inch				Spare Parts				
IC	RH		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"Z	AL125-4Z	66386	1.25	1.25	7.00	1.52	SA4T	SY4T	K4T	YE4Z	YI4Z
	AL150-4Z	66387	1.50	1.50	8.00	1.52					
5/8"Z	AL125-5Z	66388	1.25	1.25	7.00	1.57	SA5T	SY5T	K5T	YE5Z	YI5Z
	AL150-5Z	66389	1.50	1.50	8.00	1.57					
	AL200-5Z	66390	2.00	2.00	10.00	1.57					

All Z Style toolholders have a 1.5° helix angle.

External Toolholders





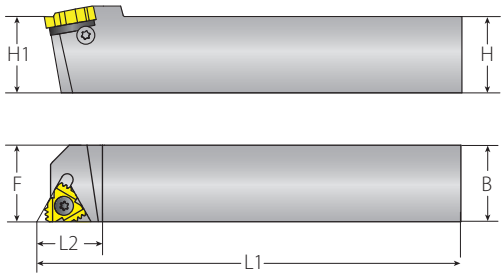
M+ Style

Multiplus

Insert Size	Ordering Code	EDP No.	Dimensions Inch				Spare Parts				
IC	RH		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
5/8"M	AL125-5M	66391	1.25	1.25	7.00	1.57	SA5T	SY5T	K5T	YE5M	YI5M
	AL150-5M	66392	1.50	1.50	8.00	1.57					
	AL200-5M	66393	2.00	2.00	10.00	1.57					

External Toolholders

F-LINE



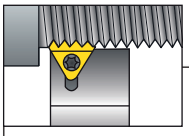
F-Line M+ Style

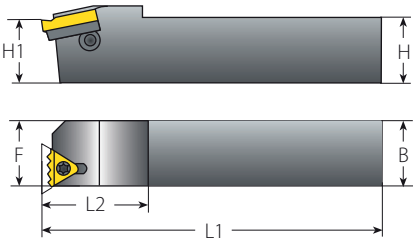
Multiplus

Insert Size	Ordering Code	EDP No.	Dimensions Inch				Spare Parts			
IC	RH		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH
1/2"F	AL100-4MF	66714	1.00	1.00	6.10	1.30	SA4T	SY4T	K6T	YE4M2F
	AL125-4MF	66663	1.25	1.25	7.00	1.30				
	AL150-4MF	66664	1.50	1.50	8.00	1.30				

The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.

External Toolholders





T+ Style

Multi plus

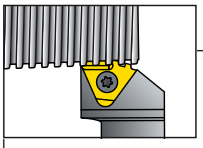
Spare Parts

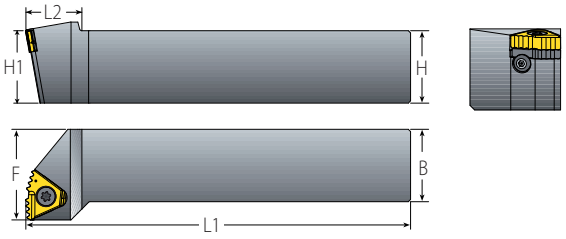
Insert Size	Ordering Code	EDP No.	Dimensions Inch				Spare Parts				
IC	RH		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Insert Torx Key	Anvil Torx Key	Anvil RH/LH
1/2"T	AL100-4T	66334	1.00	1.08	6.00	1.20	SA4T	SY4K2	K4T	K2	Y4T
	AL125-4T	66394	1.25	1.33	7.00	1.20					
	AL150-4T	66395	1.50	1.58	8.00	1.20					

All T Style toolholders have a 0° helix angle.

External Toolholders

Oil&Gas





14D Standard

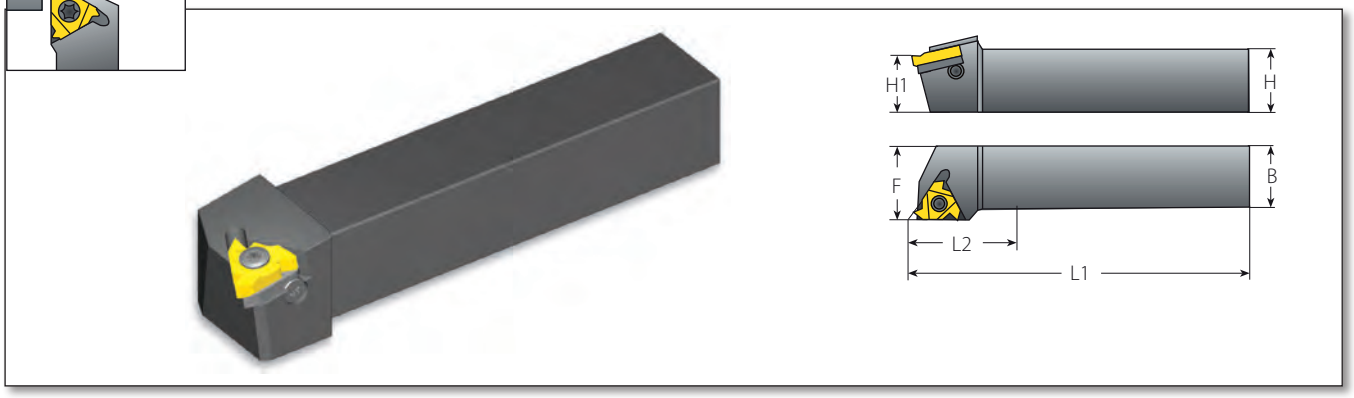
Multi plus

Spare Parts

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

14D holders are supplied without anvils. For specific applications, please use the anvils indicated in the table on page 199.

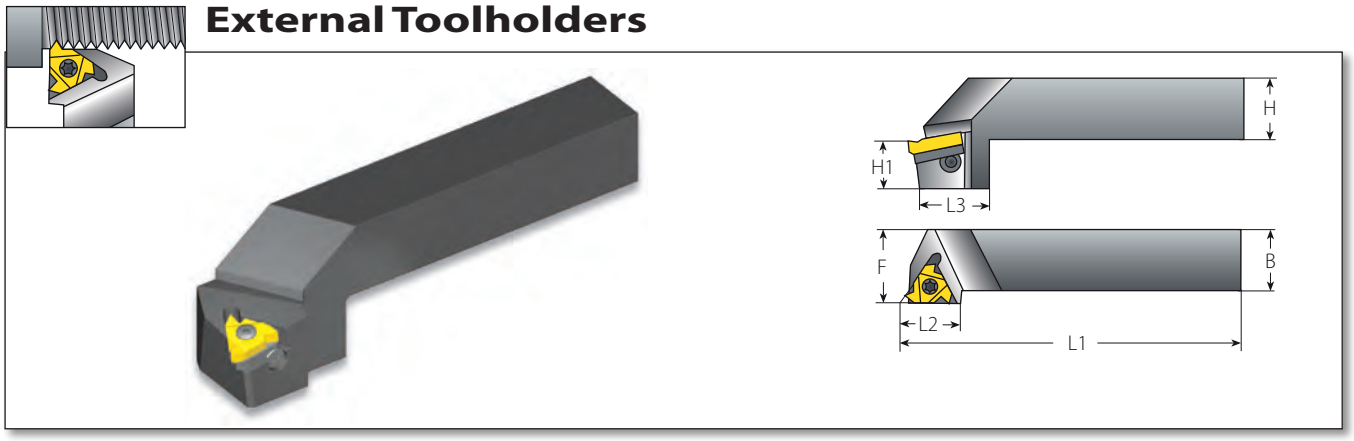
External Toolholders



Off-Set Qualified (FQ)

Insert Size	Ordering Code	EDP No.	Dimensions Inch				Spare Parts				
IC	RH		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8"	AL075-3FQ	66011	.75	1.00	6.00	1.00	SA3T	SY3T	K3T	YE3	YI3
	AL100-3FQ	66020	1.00	1.25	6.00	1.00					
	AL125-3FQ	66039	1.25	1.50	6.00	1.20					
1/2"	AL100-4FQ	66027	1.00	1.25	6.00	1.20	SA4T	SY4T	K4T	YE4	YI4
	AL125-4FQ	66045	1.25	1.50	6.00	1.20					
5/8"	AL125-5FQ	66053	1.25	1.50	6.00	1.20	SA5T	SY5T	K5T	YE5	YI5

External Toolholders

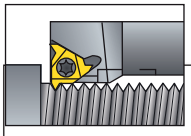


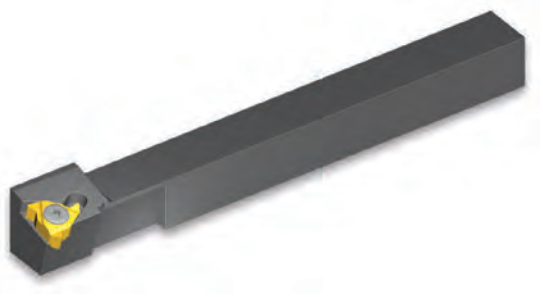
Drop Head-Qualified (CQ)

Insert Size	Ordering Code	EDP No.	Dimensions Inch						Spare Parts				
IC	RH		H=B	F	L1	L2	L3	H1	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8"	AL075-3CQ	66009	.75	1.00	5.00	.88	1.50	.69	SA3T	SY3T	K3T	YE3	YI3
	AL100-3CQ	66018	1.00	1.25	6.00	.88	1.50	.87					
	AL125-3CQ	66037	1.25	1.50	7.00	.88	1.50	.87					
1/2"	AL100-4CQ	66025	1.00	1.25	6.00	1.13	1.50	.87	SA4T	SY4T	K4T	YE4	YI4
	AL125-4CQ	66043	1.25	1.50	7.00	1.13	1.50	.87					
5/8"	AL125-5CQ	66052	1.25	1.50	7.00	1.25	1.69	1.00	SA5T	SY5T	K5T	YE5	YI5

The above toolholders have a 1.5° helix angle. For other helix angles see page 199.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AL075-3FQ**LH**).

External + Internal Toolholders

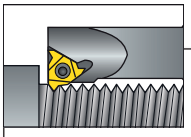


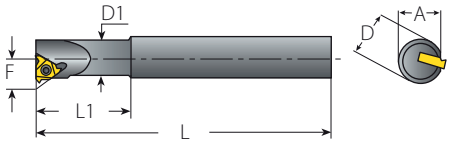


Miniature Square Shank*

Insert Size	Ordering Code	EDP No.	Dimensions Inch				Min. Bore Dia.	Spare Parts	
IC	RH		A	L	L1 (max)	F	Inch	Insert Screw	Torx Key
1/4"	OV8-2	66282	.31	3.94	1.00	.47	1.15	SN2T	K2T
	OV10-2	66280	.39	3.94	1.00	.55	1.42		

External + Internal Toolholders





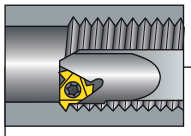
Miniature Round Shank*

Insert Size	Ordering Code	EDP No.	Dimensions Inch						Min. Bore Dia.	Spare Parts	
IC	RH		A	L	L1 (max)	D	D1	F	Inch	Insert Screw	Torx Key
1/4"	OVR12-2	66272	.45	3.94	.98	.47	.39	.29	.51	SN2T	K2T
	OVR15-2	66274	.56	3.94	1.26	.59	.51	.35	.63		
	OVR16D-2	66217	.60	3.94	1.26	.63	.51	.35	.63		

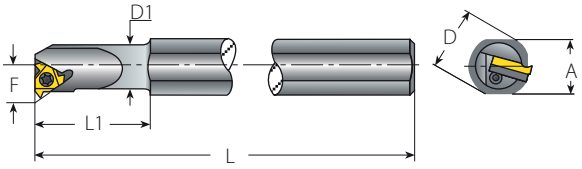
* Miniature square and round toolholders are designed for use on automatic lathes for the optical and other precision industries. They can be used for both external and internal threading, as follows:

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



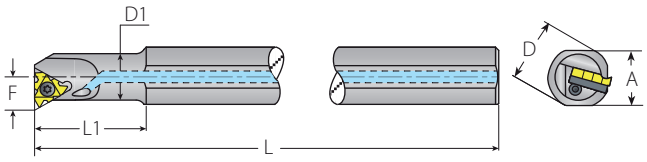
Standard

Insert Size	Ordering Code		Dimensions Inch						Min. Bore Dia.	Spare Parts				
IC	RH	EDP No.	A	L	L1 (max)	D	D1	F	Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/4"	NVRC0375D-2	66234	.67	7.00	1.00	.75	.37	.28	.50	SN2T	-	K2T	-	-
	NVRC050-2	66236	.67	7.00	1.25	.75	.50	.37	.65					
3/8"	NVRC050-3	66238	.67	7.00	1.25	.75	.62	.40	.67	SN3T	-	K3T	-	-
	NVRC0625-3	66240	.67	7.00	1.50	.75	.62	.46	.80					
	NVRC0625D-3	66242	.58	6.00	2.48	.625	.62	.46	.80					
	AVRC075-3	66098	.67	7.00	3.00	.75	.75	.51	.90	SA3T	SY3T	K3T	YI3	YE3
	AVRC100-3	66100	1.12	10.00	2.50	1.25	1.00	.65	1.20					
	AVRC100D-3	66104	.89	8.00	4.00	1.00	1.00	.65	1.20					
	AVRC125-3	66108	1.12	10.00	5.00	1.25	1.25	.77	1.45					
	AVRC150-3	66114	1.34	12.00	6.00	1.50	1.50	.90	1.65					
	AVRC200-3	66294	1.80	14.00	8.00	2.00	1.99	1.10	2.22					
1/2"	NVRC075-4	66244	.67	7.00	3.00	.75	.75	.59	1.00	SN4T	-	K4T	-	-
	AVRC100-4	66102	1.12	10.00	2.50	1.25	1.00	.71	1.25	SA4T	SY4T	K4T	YI4	YE4
	AVRC100D-4	66106	.89	8.00	4.00	1.00	1.00	.71	1.25					
	AVRC125-4	66110	1.12	10.00	5.00	1.25	1.25	.85	1.50					
	AVRC150-4	66116	1.34	12.00	6.00	1.50	1.50	.98	1.75					
	AVRC200-4	66715	1.80	14.00	8.00	2.00	2.00	1.22	2.17					
5/8"	AVRC125-5	66112	1.12	10.00	5.00	1.25	1.25	.88	1.55	SN5T	SY5T	K5T	YI5	YE5
	AVRC150-5	66118	1.34	12.00	6.00	1.50	1.50	1.00	1.80	SA5T	SY5T	K5T	YI5	YE5
	AVRC200-5	66120	1.80	14.00	8.00	2.00	2.00	1.25	2.30					
	AVRC250-5	66123	2.26	16.00	10.00	2.50	2.50	1.50	2.80					

- The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.
- Toolholders with prefix "N" cannot be used with an anvil.
- Holders with coolant channel are available as standard (Example NVR**C**0375D-2) .
- The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example NVR0375D-2**LH**).

Internal Toolholders

F-LINE



Standard F-Line

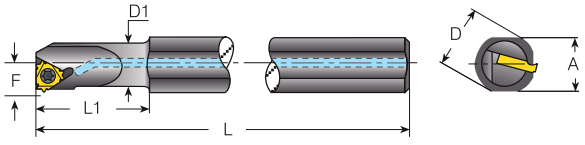
Spare Parts

Insert Size	Ordering Code	EDP No.	Dimensions Inch						Min. Bore Dia.
IC	RH		A	L	L1 (max)	D	D1	F	Inch
1/2"F	AVRC100-4F	66665	1.12	10.0	2.50	1.25	1.00	.64	1.25
	AVRC100D-4F	66672	.89	8.0	4.00	1.00	1.00	.64	1.25
	AVRC125-4F	66666	1.12	10.0	5.00	1.25	1.25	.76	1.50
	AVRC150-4F	66667	1.34	12.0	6.00	1.50	1.50	.90	1.75
	AVRC200-4F	66716	1.80	14.00	8.00	2.00	2.00	1.22	2.17

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 199.

Internal Toolholders for V6 (without anvil)*



Specially designed for V6 inserts

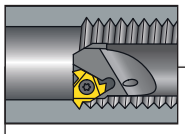
V6 Style

Spare Parts

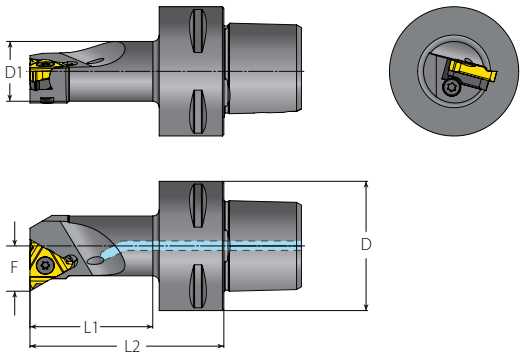
Insert Size	Ordering Code	EDP No.	Dimensions Inch						Min. Bore Dia.
IC	RH		A	L	L1 (max)	D	D1	F	Inch
3/8" V6	NVRC050-3V6	66231	.67	7.00	1.25	.75	.50	.40	.67
	NVRC0625-3V6	66232	.67	7.00	1.50	.75	.62	.46	.80
	NVRC0625D-3V6	66233	.58	6.00	2.48	.625	.62	.46	.80

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



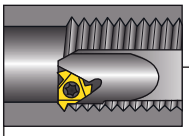
V-CAP

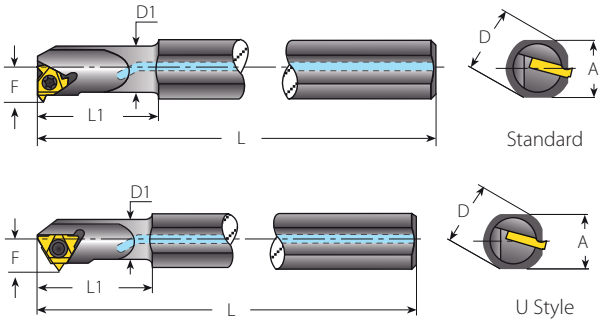
Spare Parts

Insert Size	Ordering Code	EDP No.	Dimensions Inch					Min. Bore Dia.	Spare Parts				
IC	RH		D1	D mm	F	L2	L1 (max)	Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8"	VCAP40-SIR12060-3	66169	.61	40	.47	2.36	1.46	.79	SN3T	-	K3T	-	-
	VCAP40-SIR14060-3	66170	.73		.55	2.36	1.50	.98	SA3T	SY3T	K3T	YI3	YE3
	VCAP40-SIR17070-3	66171	.96		.67	2.76	1.89	1.26					
	VCAP40-SIR22090-3	66172	1.26		.87	3.54	2.72	1.57					
	VCAP40-SIR27080-3	66175	1.56		1.06	3.15	2.36	1.97					
	VCAP50-SIR12060-3	66176	.61	50	.47	2.36	1.38	.79	SN3T	-	K3T	-	-
	VCAP50-SIR14060-3	66177	.73		.55	2.36	1.42	.98	SA3T	SY3T	K3T	YI3	YE3
	VCAP50-SIR17070-3	66178	.96		.67	2.76	1.85	1.26					
	VCAP50-SIR22090-3	66718	1.26		.87	3.54	2.68	1.57					
	VCAP50-SIR27105-3	66180	1.57		1.06	4.13	3.31	1.97					
	VCAP63-SIR14070-3	66181	.73	63	.55	2.76	1.65	.98	SA3T	SY3T	K3T	YI3	YE3
	VCAP63-SIR17075-3	66182	.96		.67	2.95	1.89	1.26					
	VCAP63-SIR22090-3	66184	1.26		.87	3.54	2.52	1.57					
	VCAP63-SIR27105-3	66168	1.57		1.06	4.13	3.15	1.97					

The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.
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



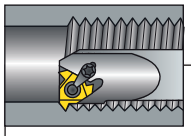


Standard for Coarse Pitch

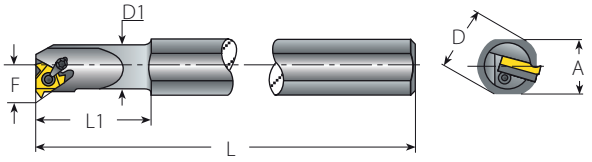
Insert Size	Ordering Code				Dimensions Inch					F to Insert	Holder Helix	Spare Parts	
IC	RH	EDP No.	LH	EDP No.	A	L	L1 (max)	D	D1	Inch	Deg.	Insert Screw	Torx Key
1/4″	NVRC040-2-157/001	66297	NVRC040-2LH-157/025	66717	.67	7.00	.98	.75	.40	.26	3.0	SN2T	K2T
3/8″	NVRC044-3-157/005	66301	NVRC044-3LH-157/029	66718	.67	7.00	1.00	.75	.44	.33	4.5	SN3TM	K3T
	NVRC050-3-157/006	66302	NVRC050-3LH-157/030	66685	.67	7.00	1.26	.75	.51	.36	4.0	SN3T	K3T
	NVRC050-3-157/016	66322	NVRC050-3LH-157/035	66686	.67	7.00	1.26	.75	.54	.35	2.5		
1/2″	NVRC067-4-157/007	66303	NVRC067-4LH-157/022	66719	.67	7.00	1.57	.75	.66	.45	4.0	SN4TM	K4T
	NVRC067-4-157/039	66721	NVRC067-4LH-157/040	66720	.67	7.00	1.60	.75	.65	.53	4.0		
	NVRC075-4-157/008	66304	NVRC075-4LH-157/017	66687	.67	7.00	1.97	.75	.77	.49	3.5	SN4T	K4T
	NVRC075-4-157/009	66305	NVRC075-4LH-157/021	66308	.67	7.00	1.97	.75	.77	.49	3.0		
5/8″	NVRC100-5-157/012	66362	NVRC100-5LH-157/031	66688	1.12	10.00	2.36	1.25	.98	.66	3.3	SN5TM	K5T
	NVRC110-5-157/010	66306	NVRC110-5LH-157/023	66323	1.12	10.00	1.97	1.25	1.10	.70	3.5		

U Style for Coarse Pitch

Insert Size	Ordering Code				Dimensions Inch					F to Insert	Holder Helix	Spare Parts	
IC	RH	EDP No.	LH	EDP No.	A	L	L1 (max)	D	D1	Inch	Deg.	Insert Screw	Torx Key
6.0U	NVRC032-6.0KU-157/003	66299	NVRC032-6.0KULH-157/027	66722	.67	7.00	.94	.75	.31	.23	4.0	SN6MTN	KIP6
1/4″U	NVRC039-2U-157/004	66300	NVRC039-2ULH-157/028	66723	.67	7.00	1.26	.75	.39	.29	4.0	SM2T8	K2T
	NVRC044-2U-157/002	66298	NVRC044-2ULH-157/026	66724	.67	7.00	1.26	.75	.44	.29	3.0		
3/8″U	NVRC044-3U-157/020	66420	NVRC044-3ULH-157/038	66725	.67	7.00	1.26	.75	.43	.32	4.5	SN3TM	K3T
	NVRC055-3U-157/018	66396	NVRC055-3ULH-157/036	66726	.67	7.00	1.50	.75	.53	.39	4.5		
	NVRC059-3U-157/019	66363	NVRC059-3ULH-157/037	66433	.67	7.00	1.50	.75	.61	.43	4.0		
1/2″U	NVRC075-4U-157/011	66329	NVRC075-4ULH-157/024	66430	.67	7.00	1.57	.75	.76	.54	4.0	SN4T	K4T
	NVRC100-4U-157/013	66360	NVRC100-4ULH-157/032	66689	1.12	10.00	2.36	1.25	.98	.69	3.5		
	NVRC125-4U-157/014	66136	NVRC125-4ULH-157/033	66690	1.12	10.00	2.36	1.25	1.17	.74	3.3	SA4T	K4T
5/8″U	NVRC125-5U-157/015	66361	NVRC125-5ULH-157/034	66691	1.12	10.00	2.36	1.25	1.24	.83	3.2	SN5T	K5T



Internal Toolholders



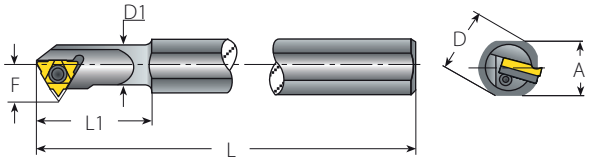
Standard with Clamp

(Dual System, Screw or Clamp)

Insert Size	Ordering Code	EDP No.	Dimensions Inch						Min. Bore Dia.	Spare Parts					
IC	RH		A	L	L1 (max)	D	D1	F	Inch	Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
3/8"	AVR075-3C	66130	.67	7.00	3.00	.75	.75	.51	.94	SA3T	SY3T	C3	K3CT	YI3	YE3
	AVR100-3C	66397	1.12	10.00	2.50	1.25	1.00	.65	1.20						
	AVR100D-3C	66132	.90	8.00	4.00	1.00	1.00	.65	1.20						
	AVR125-3C	66398	1.12	10.00	5.00	1.25	1.25	.77	1.45						
	AVR150-3C	66399	1.34	12.00	6.00	1.50	1.50	.90	1.65						
1/2"	AVR100-4C	66400	1.12	10.00	2.50	1.25	1.00	.71	1.25	SA4T	SY4T	C4	K4T	YI4	YE4
	AVR100D-4C	66401	.90	8.00	4.00	1.00	1.00	.71	1.25						
	AVR125-4C	66402	1.12	10.00	5.00	1.25	1.25	.85	1.50						
	AVR150-4C	66403	1.34	12.00	6.00	1.50	1.50	.98	1.75						
5/8"	AVR125-5C	66404	1.12	10.00	5.00	1.25	1.25	.88	1.55	SN5T	SY5T	C5	K5T	YI5	YE5
	AVR150-5C	66405	1.34	12.00	6.00	1.50	1.50	1.00	1.80	SA5T	SY5T	C5	K5T	YI5	YE5
	AVR200-5C	66406	1.80	14.00	8.00	2.00	2.00	1.25	2.30						
	AVR250-5C	66407	2.26	16.00	10.00	2.50	2.50	1.50	2.80						

- The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.
- Holders with coolant channel available as standard (Example AVR**C**075-3C).
- The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AVR075-3C**LH**).

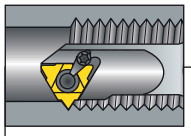
Internal Toolholders



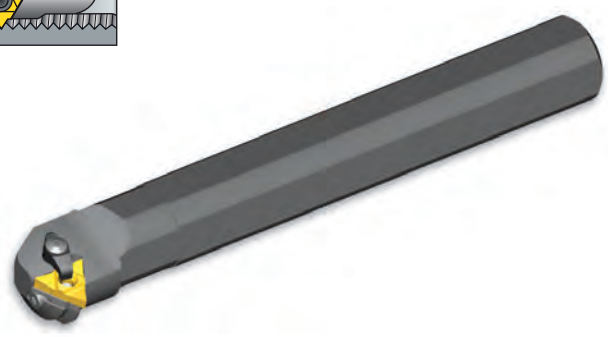
U Style

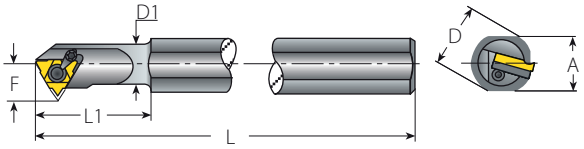
Insert Size	Ordering Code	EDP No.	Dimensions Inch						Min. Bore Dia.	Spare Parts				
IC	RH		A	L	L1 (max)	D	D1	F	Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"U	AVR125-4U	66421	1.12	10.00	5.00	1.25	1.25	1.01	1.65	SA4T	SY4T	K4T	YI4U	YE4U
	AVR150-4U	66156	1.34	12.00	6.00	1.50	1.50	1.12	1.90					
5/8"U	NVR125-5U	66264	1.12	10.00	5.00	1.25	1.25	.98	1.65	SN5T	-	K5T	-	-
	AVR150-5U	66162	1.34	12.00	6.00	1.50	1.50	1.13	1.90	SA5T	SY5T	K5T	YI5U	YE5U
	AVR200-5U	66179	1.80	14.00	8.00	2.00	2.00	1.37	2.40					
	AVR250-5U	66187	2.26	16.00	10.00	2.50	2.50	1.31	2.90					

- The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.
- Holders with coolant channel available as standard (Example AVR**C**125-4U).
- The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AVR125-4U**LH**).



Internal Toolholders





U style with Clamp

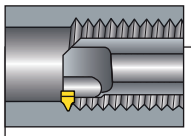
(Dual System, Screw or Clamp)

Insert Size	Ordering Code	EDP No.	Dimensions Inch						Min. Bore Dia.
IC	RH		A	L	L1 (max)	D	D1	F	Inch
1/2"U	AVR125-4UC	66408	1.12	10.00	5.00	1.25	1.25	1.01	1.65
	AVR150-4UC	66409	1.34	12.00	6.00	1.50	1.50	1.12	1.90
5/8"U	AVR150-5UC	66410	1.34	12.00	6.00	1.50	1.50	1.13	1.90
	AVR200-5UC	66411	1.80	14.00	8.00	2.00	2.00	1.37	2.40
	AVR250-5UC	66412	2.26	16.00	10.00	2.50	2.50	1.61	2.90

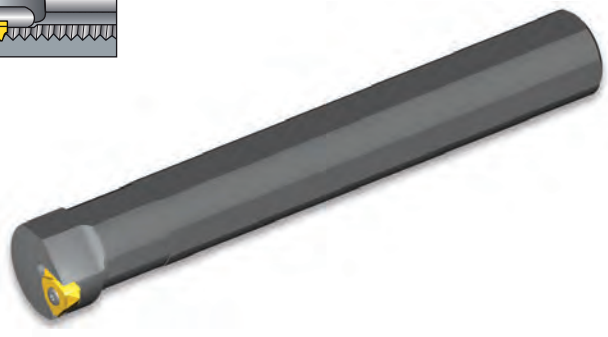
Spare Parts

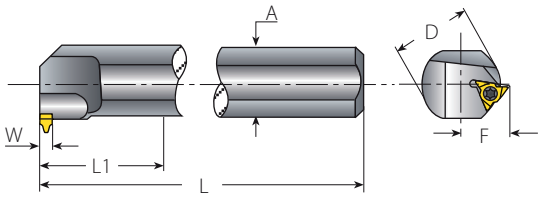
Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
SA4T	SY4T	C4	K4T	YI4U	YE4U
SA5T	SY5T	C5	K5T	YI5U	YE5U

The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.



Internal Toolholders





V Style

Insert Size	Ordering Code	EDP No.	Dimensions Inch					
IC	RH		A	L	L1 (max)	D	F	W
5/8"V	NVR125-5V	67219	1.20	10.00	5.00	1.25	.82	.256
	NVR150-5V	67220	1.34	12.00	6.00	1.50	1.08	
	NVR200-5V	67222	1.80	14.00	8.00	2.00	1.33	
	NVR250-5V	67223	2.26	16.00	10.00	2.50	1.58	

Spare Parts

Insert Screw	Torx Key
SN6T	K6T

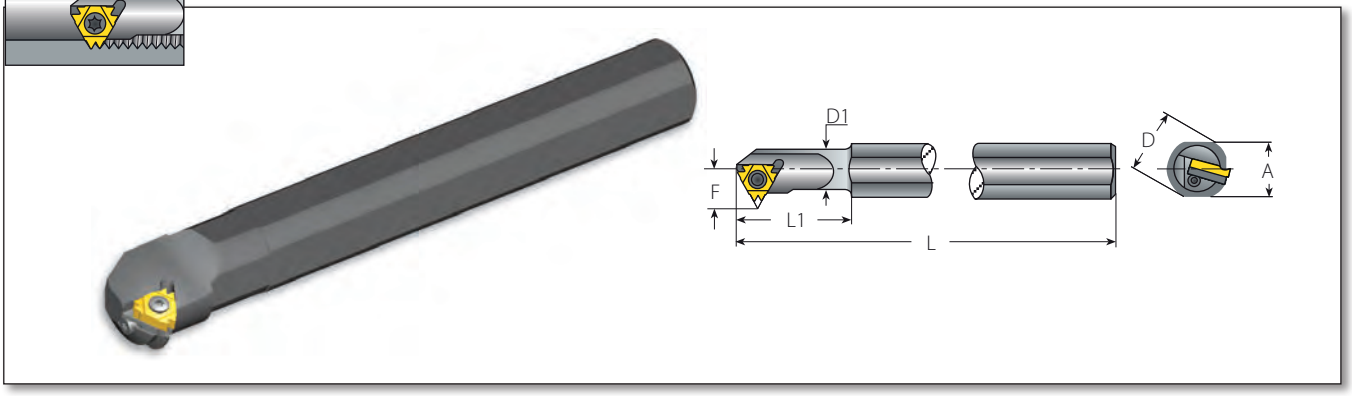
The above toolholders have a 1.0° helix angle.

Minimum Bore Diameter

	Pitch mm	6.0 ISO	8.0 ISO	10.0 ISO	
Holder	Pitch TPI	4 UN	3 UN		2.5 W
NVR125-5V		1.62	1.62	1.62	2.56
NVR150-5V		1.98	2.17	2.44	2.68
NVR200-5V		2.37	2.37	2.44	2.68
NVR250-5V		2.76	2.68	2.68	2.68

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example AVR125-4UC**LH**).
Holders with coolant channel available as standard (Example AVR**C**125-4UC).

Internal Toolholders

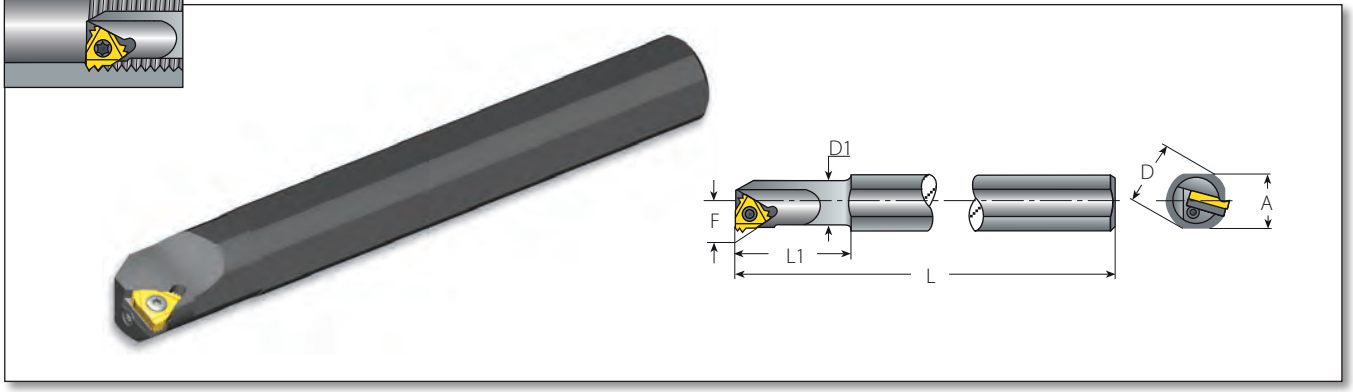


Z+ Style

Multi plus

Insert Size	Ordering Code	EDP No.	Dimensions Inch						Min. Bore Dia.	Spare Parts				
IC	RH		A	L	L1 (max)	D	D1	F	Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"Z	AVR125-4Z	66413	1.12	10.00	5.00	1.25	1.25	1.01	1.65	SA4T	SY4T	K4T	YI4Z	YE4Z
	AVR150-4Z	66414	1.34	12.00	6.00	1.50	1.50	1.12	1.90					
5/8"Z	NVR125-5Z	66415	1.12	10.00	5.00	1.25	1.25	.98	1.65	SN5T	-	K5T	-	-
	AVR150-5Z	66416	1.34	12.00	6.00	1.50	1.50	1.13	1.90	SA5T	SY5T	K5T	YI5Z	YE5Z
	AVR200-5Z	66417	1.80	14.00	8.00	2.00	2.00	1.37	2.40					
	AVR250-5Z	66418	2.26	16.00	10.00	2.50	2.50	1.61	2.90					

Internal Toolholders

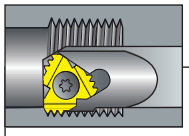


M+ Style

Multi plus

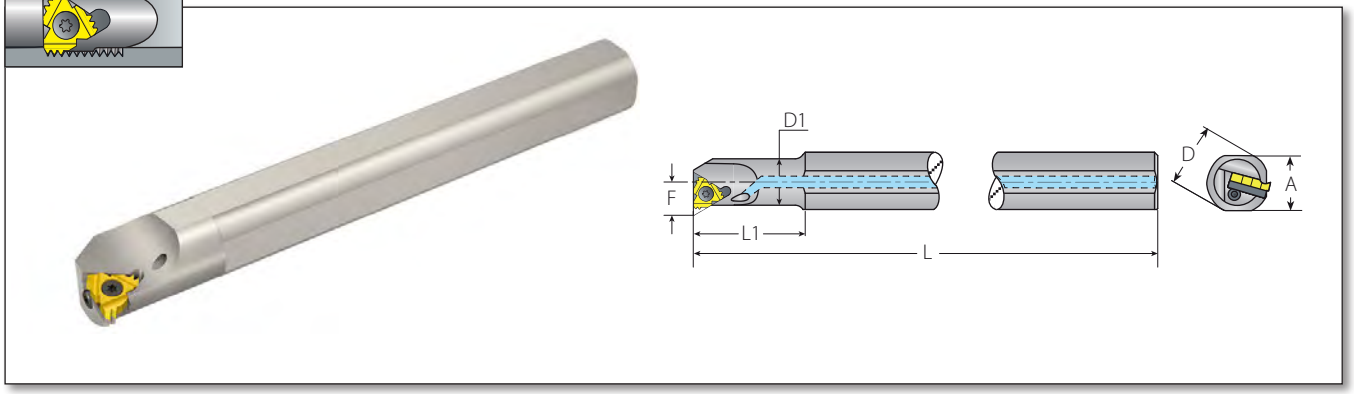
Insert Size	Ordering Code	EDP No.	Dimensions Inch						Min. Bore Dia.	Spare Parts				
IC	RH		A	L	L1 (max)	D	D1	F	Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
5/8"M	AVR125-5M	66127	1.12	10.00	5.00	1.25	1.25	.88	1.55	SN5T	SY5T	K5T	YI5M	YE5M
	AVR150-5M	66161	1.34	12.00	6.00	1.50	1.50	1.00	1.80	SA5T	SY5T	K5T	YI5M	YE5M
	AVR200-5M	66419	1.80	14.00	8.00	2.00	2.00	1.25	2.30					
	AVR250-5M	66422	2.26	16.00	10.00	2.50	2.50	1.50	2.80					

The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.
Holders with coolant channel available as standard (Example AVR**C**125-4Z).



Internal Toolholders

F-LINE



F-Line M+ Style

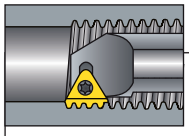
Spare Parts

Multi plus

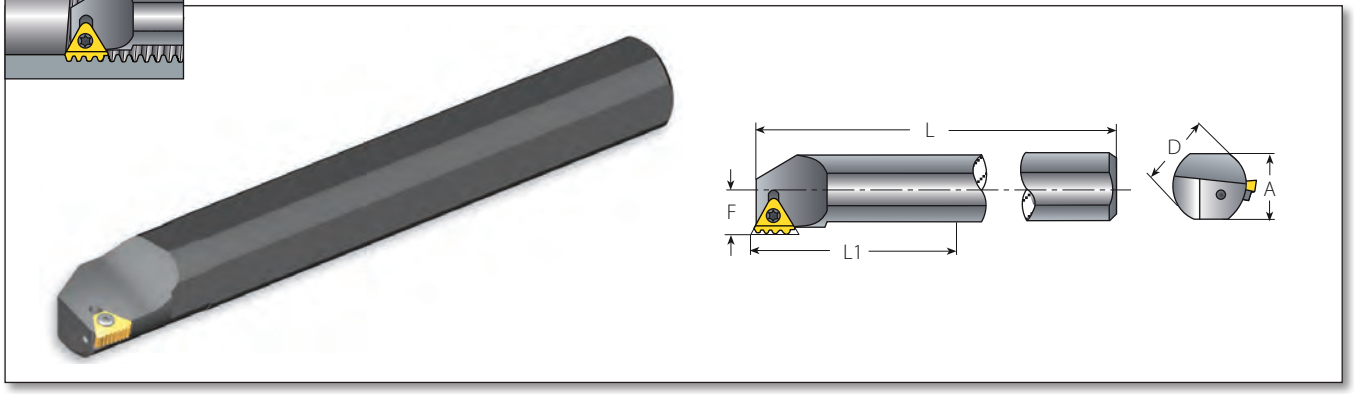
Insert Size	Ordering Code	EDP No.	Dimensions Inch						Min. Bore Dia.
IC	RH		A	L	L1 (max)	D	D1	F	Inch
1/2″F	AVRC100-4MF	66665	1.12	10.00	2.50	1.25	1.00	.64	1.25
	AVRC100D-4MF	66672	.89	8.00	4.00	1.00	1.00	.64	1.25
	AVRC125-4MF	66666	1.12	10.00	5.00	1.25	1.25	.76	1.50
	AVRC150-4MF	66667	1.34	12.00	6.00	1.50	1.50	.90	1.75
	AVRC200-4MF	66713	1.80	14.00	8.00	2.00	2.00	1.22	2.17

Insert Screw	Anvil Screw	Torx Key	Anvil RH
SA4T	SY4T	K6T	YI4M2F

The above toolholders have a 1.5° helix angle. For other helix angles, see page 199.



Internal Toolholders



T+ Style

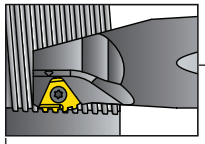
Spare Parts

Multi plus

Insert Size	Ordering Code	EDP No.	Dimensions Inch					Min. Bore Dia.
IC	RH		A	L	L1 (max)	D	F	Inch
1/2″T	AVR150-4T	66423	1.34	12.00	6.00	1.50	.88	2.40
	AVR200-4T	66424	1.80	14.00	8.00	2.00	1.13	2.75
	AVR250-4T	66425	2.26	16.00	10.00	2.50	1.38	3.25

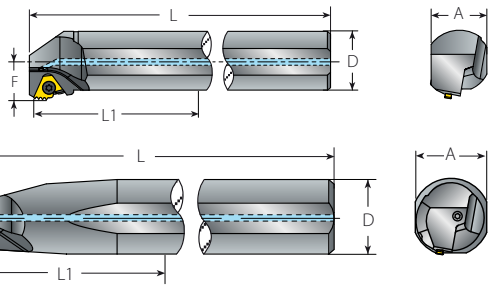
Insert Screw	Anvil Screw	Torx Key	Anvil Torx Key	Anvil RH/LH
SA4T	SY4K2	K4T	K2	Y4T

All toolholders have a 0° helix angle.
Holders with coolant channel available as standard (Example: AVR**C**150-4T).



Internal Toolholders

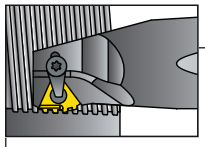
Oil&Gas



14D Standard

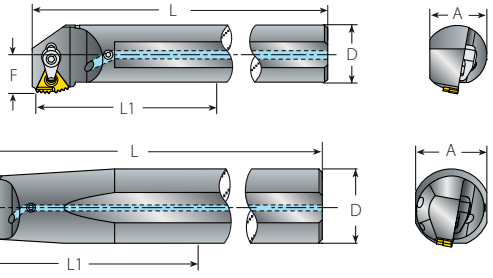
Multi plus

Insert Size	Ordering Code	Dimensions Inch					Min. Bore Dia.	Spare Parts			
IC	RH	A	L	L1 (max)	D	F	Inch	Insert Screw	Anvil Screw & Washer	Torx Key	Anvil Key
14D	AVRC150-14D	1.34	12.00	6.00	1.50	1.03	2.15	SA5T	M4x6(14D)	K5T	KT15
	AVRC200-14D	1.80	12.00	8.00	2.00	1.00	2.15				



Internal Toolholders

Oil&Gas

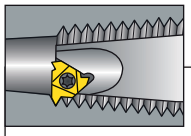


14D Standard with Clamp

Multi plus

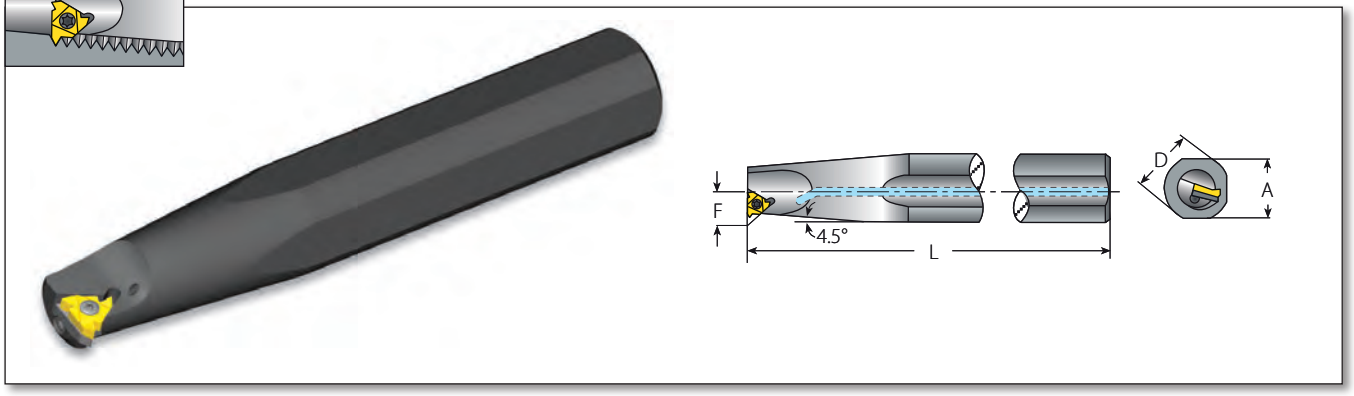
Insert Size	Ordering Code	Dimensions Inch					Min. Bore Dia.	Spare Parts				
IC	RH	A	L	L1 (max)	D	F	Inch	Insert Screw	Anvil Screw & Washer	Clamp	Torx Key	Anvil Key
14D	AVRC150-14DC	1.34	12.00	6.00	1.50	1.03	2.15	SA5T	M4x6(14D)	C5	K5T	KT15
	AVRC200-14DC	1.80	12.00	8.00	2.00	1.00	2.15					

14D holders are supplied without anvils. For specific applications, please use the anvils indicated in the table on page 200.



Internal Toolholders

Oil&Gas

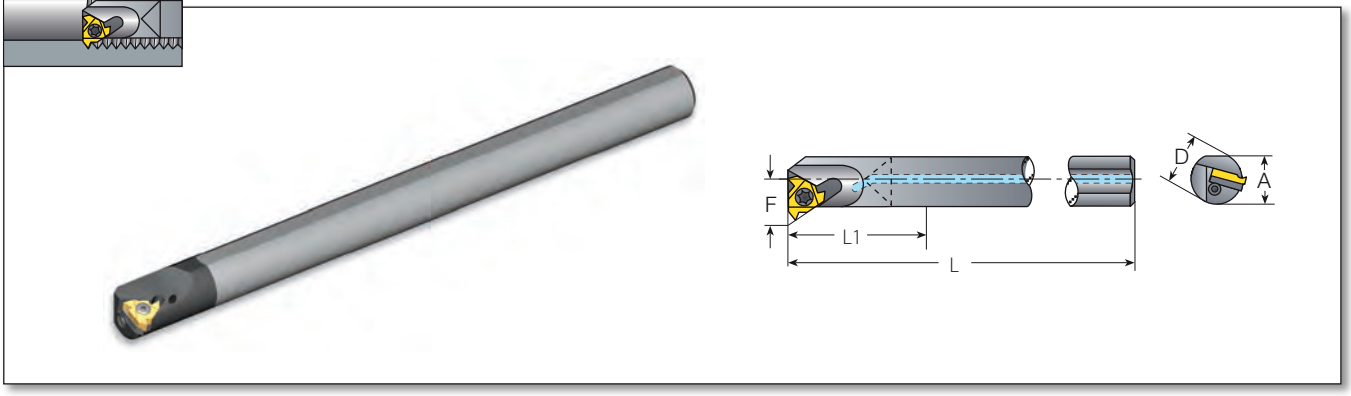


Oil & Gas

Insert Size	Ordering Code	EDP No.	Thread Form	Connection No. or Size	Dimensions Inch				Helix Angle Deg.	Spare Parts			
													
IC	RH				A	L	D	F		Insert Screw	Anvil Screw	Torx Key	Anvil RH
3/8"	AVRC100-3 APIRD	66529	APIRD 8 APIRD 10	2.375"-20" 1.315"-3.5"	1.12	10.00	1.00	.65	1	SA3T	SY3T	K3T	YEI3-APIRD
	AVRC125-3 APIRD	66530	APIRD 8 APIRD 10	2.375"-20" 1.66"-3.5"	1.12	10.00	1.25	.77	1				
	AVRC150-3 APIRD	66531	APIRD 8 APIRD 10	2.375"-20" 1.9"-3.5"	1.34	12.00	1.50	.90	0				
1/2"	AVRC150-4 5BUT/API	66534	5BUT, V0.038R, V0.050, V0.040, V0.055	4 1/2"-20" NC10-NC77 all sizes	1.34	12.00	1.50	.98	0	SA4T	SY4T	K4T	YEI4-API-1P YEI4-5BUT
5/8"	AVR200-5OIL	66426	V0.038R	NC23-NC38	1.80	12.00	2.00	.90	1.5	SA5T	SY5T	K5T	YI5OIL
	AVRC200-5OIL	66122	V0.038R	NC23-NC38									
	AVR300-5OIL	66188	V0.050R	NC40-NC77	2.68	16.00	3.00	1.50	1.5				
	AVRC300-5OIL	66125	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.

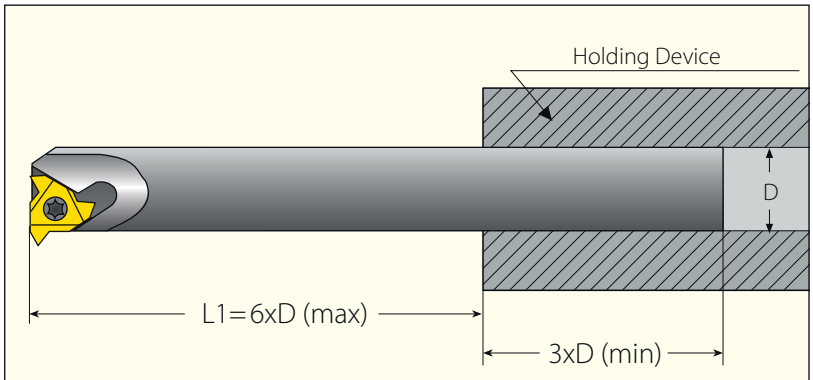
Internal Toolholders



Standard with Carbide Shank

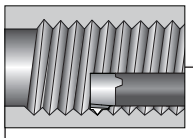
Insert Size	Ordering Code	EDP No.	Dimensions Inch					Min. Bore Dia.	Spare Parts				
IC	RH		D	A	F	L	L1 (Max)	Inch	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/4"	CNVRC0375-2	66196	.37	.35	.28	6.00	2.22	.50	SN2T	-	K2T	-	-
	CNVRC050-2	66197	.50	.48	.35	7.00	3.00	.60					
3/8"	CNVRC050-3	66199	.50	.48	.40	7.00	3.00	.67	SN3T	-	K3T	-	-
	CNVRC0625-3	66200	.62	.60	.45	8.00	3.72	.80					
	CAVRC075-3	66194	.75	.73	.51	10.00	4.50	.90	SA3T	SY3T	K3T	YI3	YE3
1/2"	CNVRC075-4	66202	.75	.73	.59	10.00	4.50	1.00	SN4T	-	K4T	-	-

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



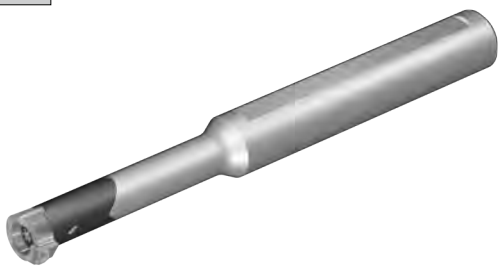
The overhang to bar diameter ratio should be as small as possible to eliminate the chance of chatter (vibration). The minimum length inside a holding device should be 3 times the diameter of the bar shank.

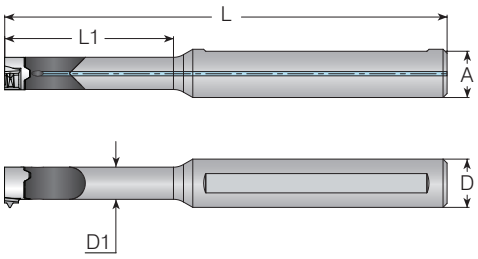
The above toolholders have 1.5° helix angle. For other helix angles see page 199.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code (Example CNVRC0375-2**LH**).



Internal Toolholders

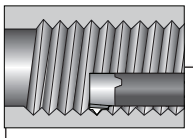
Mini-V





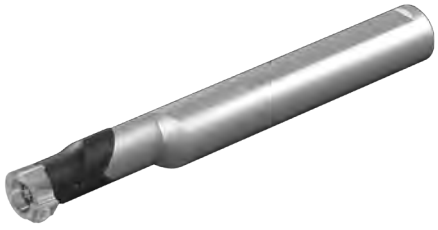
Carbide Shank with Alloy Steel Head

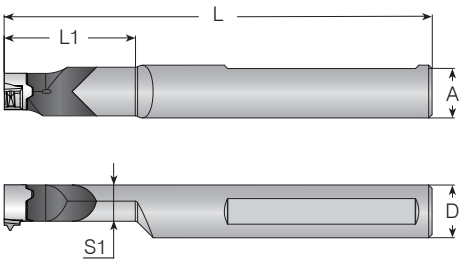
Insert Style	Ordering Code		Dimensions Inch				Spare Parts		
	Sleeve	RH	A	L	L1	D	D1	Screw	Size	Torx Key
V08	-	CV08-05000827	.433	3.150	.827	.500	.236	SNV08	M2.6x.45x8	K2T
	-	CV08-05001180		3.540	1.181					
V11	-	CV11-05001142		3.150	1.142		.315	SNV11	M3.5x.6x10	K3T
	-	CV11-05001654		3.540	1.654					
V16	-	CV16-05001575		5.120	1.575		.433	SNV16	M5x.8x12	K4T
	-	CV16-06251575	.591	5.120	1.575	.625				



Internal Toolholders

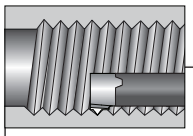
Mini-V





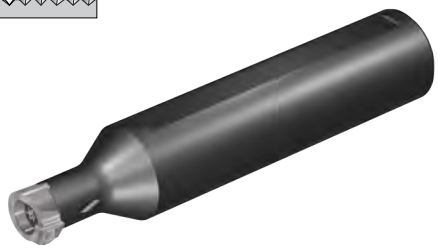
Reinforced Carbide Shank

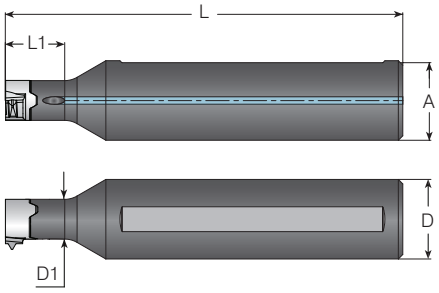
Insert Style		Ordering Code	Dimensions Inch					Spare Parts		
	Sleeve	RH	A	L	L1	D	S1	Screw	Size	Key
V14	-	CV14-05001339	.433	3.940	1.339	.500	.379	SNV14	M4x0.7x12	KT15



Internal Toolholders

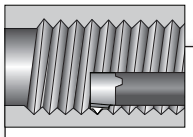
Mini-V





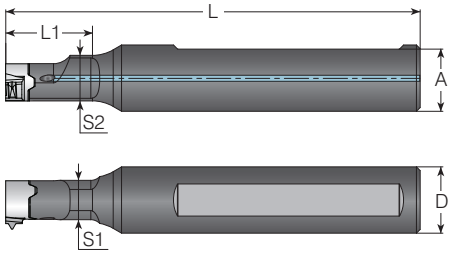
Alloy Steel Shank (Metric)

Insert Style	Ordering Code	Dimensions mm						Spare Parts		
	Sleeve	RH	A	L	L1	D (mm)	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		8	SNV11	M3.5x0.6x10	K3T
V16	-	V16-1622	15.0	100	22		11	SNV16	M5.0x0.8x12	K4T



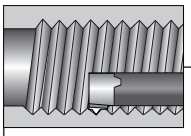
Internal Toolholders

Mini-V



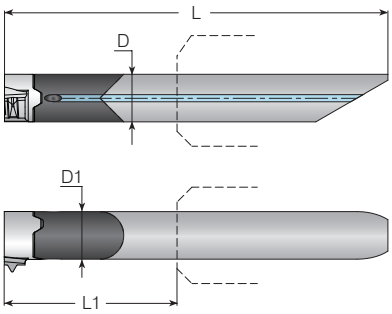
Alloy Steel Shank (Metric)

Insert Style	Ordering Code	Dimensions mm							Spare Parts		
	Sleeve	RH	A	L	L1	D (mm)	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

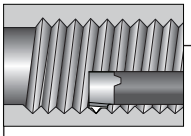


Holder for Sleeve Clamping

Insert Style	Ordering Code	Dimensions Inch					Ordering Code
	RH	A	L	L1 (max)	D (mm)	D1	Sleeve
V08	CV08-0621	-	1.772	.827	6	.236	MHC...-6
V11	CV11-0829	-	2.539	1.142	8	.315	MHC...-8

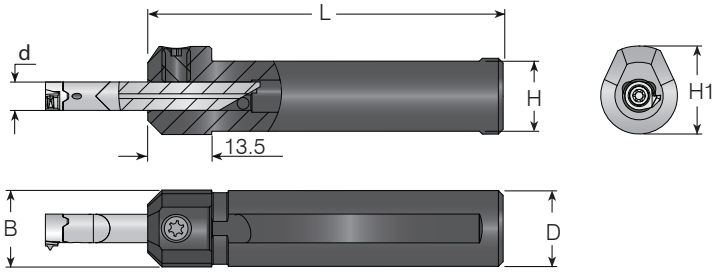
Spare Parts

Screw	Size	Torx Key
SNV08	M2.6x0.45x8	K2T
SNV11	M3.5x0.6x10	K3T



Internal Toolholders

Mini-V



Sleeves

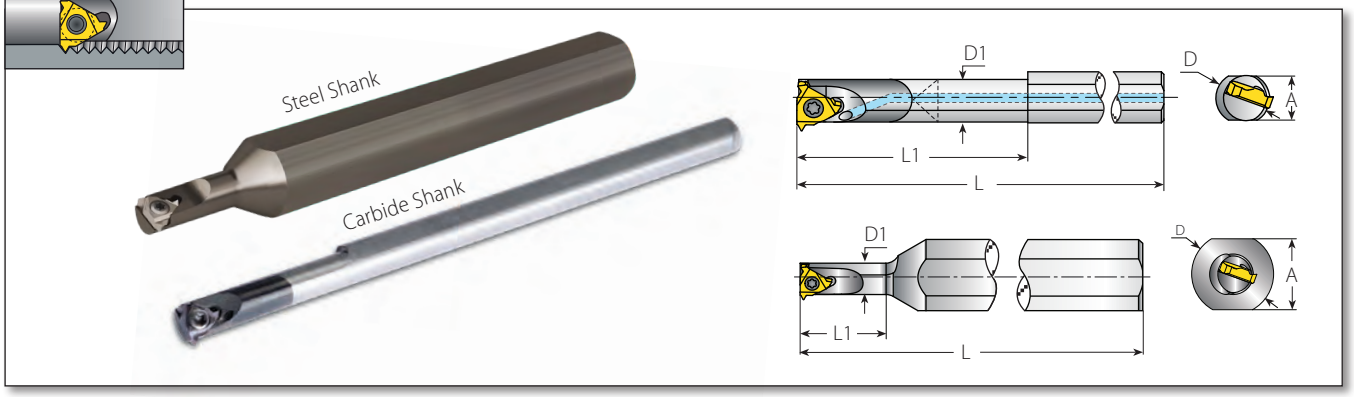
Ordering Code		Dimensions Inch			
d (mm)	Sleeve	D=B	H1	H	L
6	MHC 0500-6	0.500	0.644	0.394	2.756
	MHC 0625-6	0.625	0.732	0.551	2.953
	MHC 0750-6	0.750	0.866	0.709	3.543
8	MHC 0625-8	0.625	0.732	0.583	1.667
	MHC 0750-8	0.750	0.769	0.697	1.667

Spare Parts

Screw	Torx Key
SL7DT15	KT15

Internal Toolholders Standard

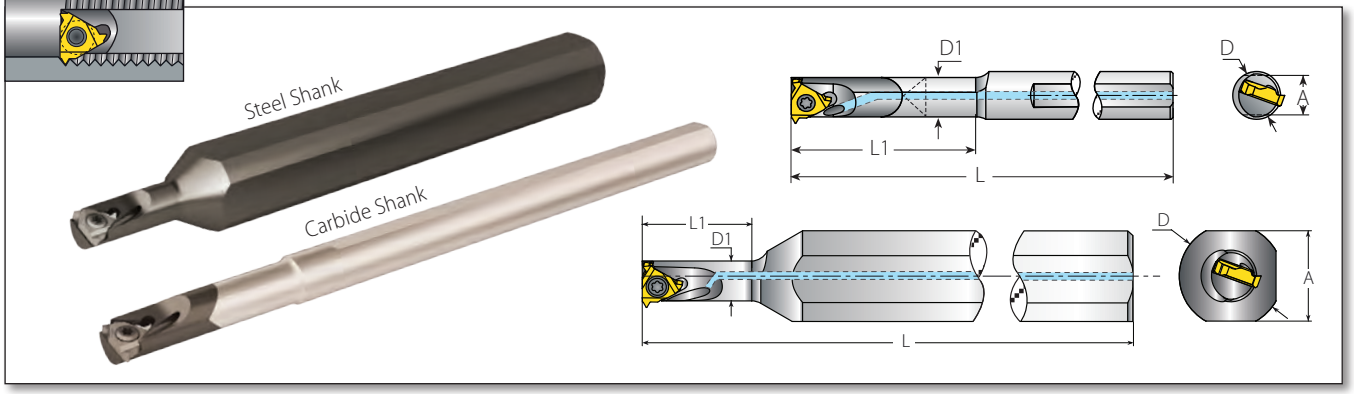
MINIPRO



Mini-3 Standard

Insert Size	Ordering Code	EDP No.	Dimensions Inch					Anti-Vibration System	Spare Parts	
IC mm	RH		A	L	L1	D	D1		Insert Screw	Torx Key
4.0	SNVR0205-4.0K	42267	.46	4.00	.47	.50	.20	No	SN4MT	K6MT
	CNVRC0205-4.0K	66347	.20	4.00	1.02	.25	.20	Carbide Shank		

Internal Toolholders Standard

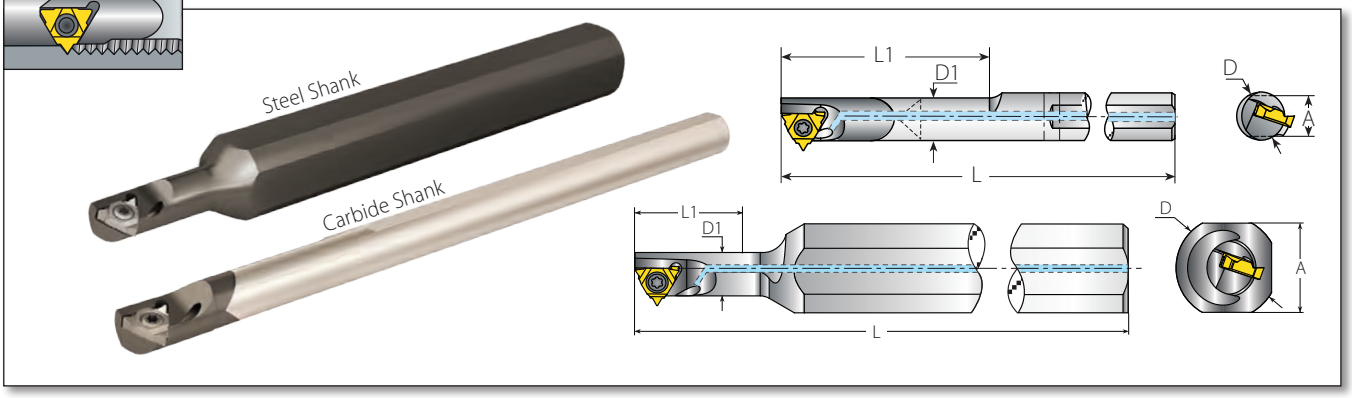


Mini-3 Standard

Insert Size	Ordering Code	EDP No.	Dimensions Inch					Anti-Vibration System	Spare Parts	
IC mm	RH		A	L	L1	D	D1		Insert Screw	Torx Key
5.0	NVRC260-5.0K	66258	.59	5.00	.70	.62	.26	No	SN5MT	K6MT
	CNVRC260-5.0K	66262	.28	5.00	1.22	.31	.26	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: CNVRC205-4.0K**LH**).

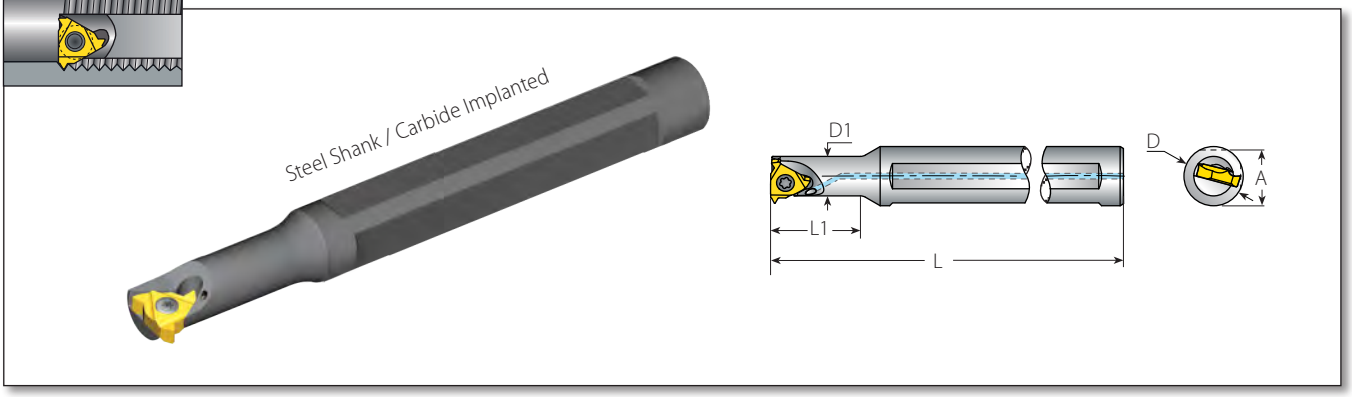
Internal Toolholders U Style



Mini-3 U Style

Insert Size	Ordering Code	EDP No.	Dimensions Inch					Anti-Vibration System	Spare Parts	
IC mm	RH		A	L	L1	D	D1		Insert Screw	Torx Key
5.0U	NVRC290-5.0KU	66247	.59	5.00	.83	.62	.29	No	SN5MT	K6MT
	CNVRC290-5.0KU	66249	.28	5.00	1.38	.31	.29	Carbide Shank		

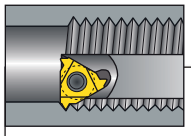
Internal Toolholders



Mini-3 Standard

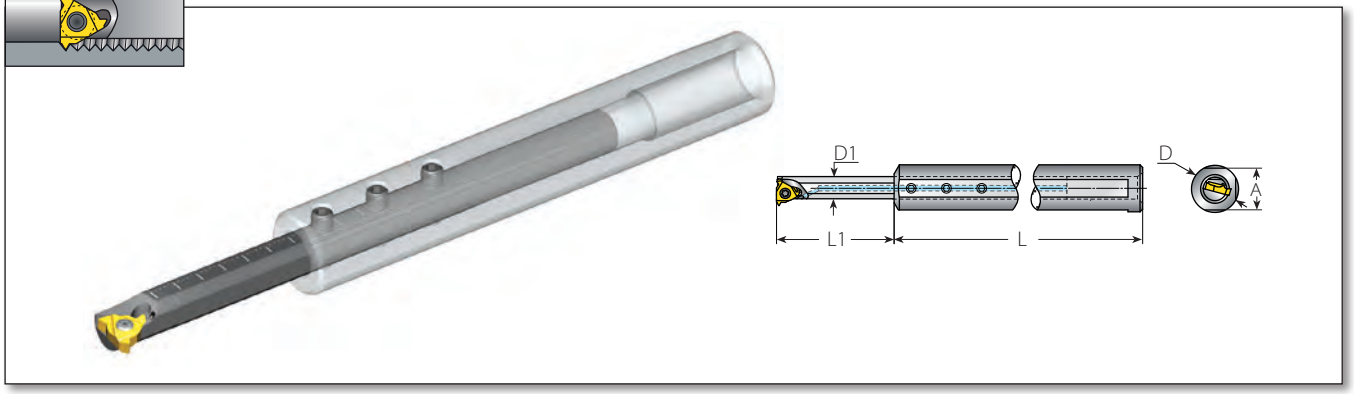
Insert Size	Ordering Code	EDP No.	Dimensions Inch					Anti-Vibration System	Spare Parts	
IC mm	RH		A	L	L1	D	D1		Insert Screw	Torx Key
6.0	SNVRC0375U-6.0K	66692	.36	3.23	.63	.375	.31	No	SN6MTN	KIP6
	BNVRC0375S-6.0K	66693	.36	3.50	.87			Carbide Implanted		
	BNVRC0375M-6.0K	66694	.36	3.86	1.22			Carbide Implanted		
	BNVRC0375L-6.0K	66695	.36	4.33	1.69			Carbide Implanted		
6.0	SNVRC050U-6.0K	66696	.49	3.23	.63	.50	.31	No		
	BNVRC050S-6.0K	66697	.49	3.50	.87			Carbide Implanted		
	BNVRC050M-6.0K	66698	.49	3.86	1.22			Carbide Implanted		
	BNVRC050L-6.0K	66699	.49	4.33	1.69			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: NVRC290-5.0KU**LH**).



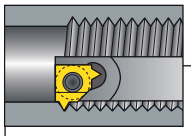
Internal Toolholders

MINIPRO

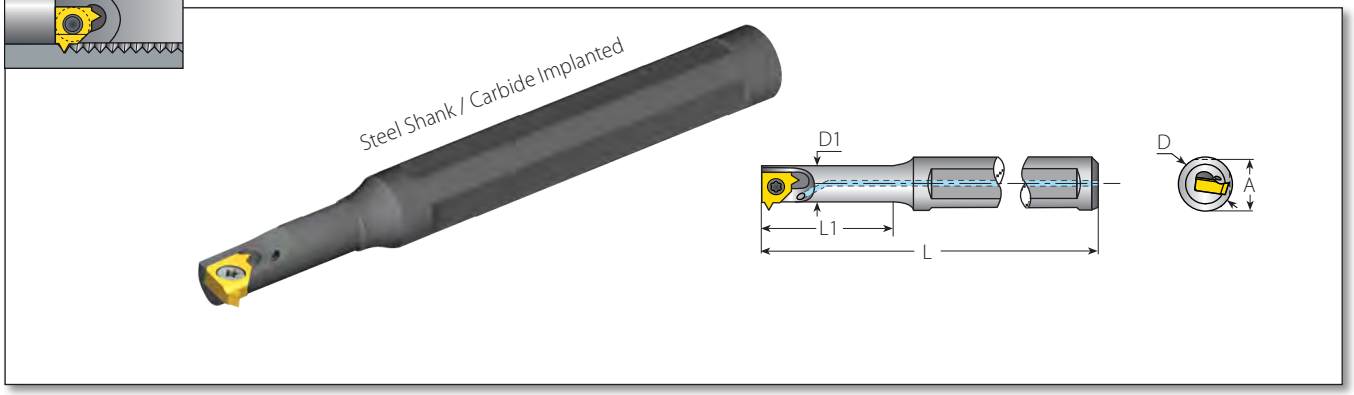


Mini-3 Adjustable

Insert Size		EDP No.	Ordering Code	EDP No.	Dimensions Inch					Spare Parts			
IC mm	Sleeve		Holder RH		A	L	L1	D	D1	Insert Screw	Torx Key for Insert Screw	Holder Screw x3	Key for Holder Screw
6.0	SVC0625-8.0	66700	BNVRC8.0T-6.0K	66701	.584	4	.315-2.2	.625	.315	SN6MTN	KIP6	S4.0	K2.0



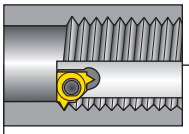
Internal Toolholders



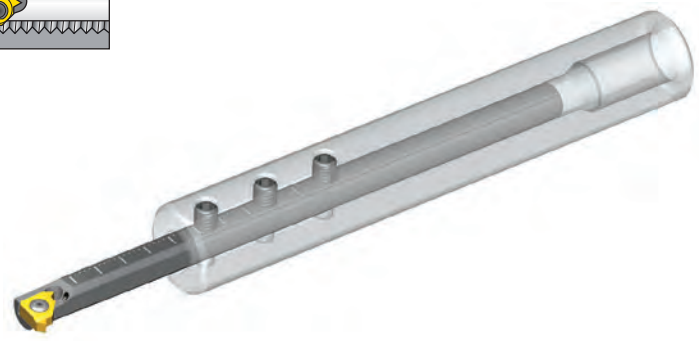
Mini-L

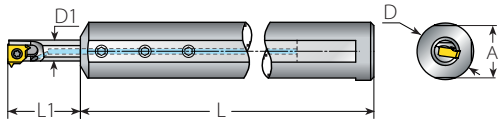
Insert Size	Ordering Code	EDP No.	Dimensions Inch					Anti-Vibration System	Spare Parts	
IC mm	RH		A	L	L1	D	D1		Insert Screw	Torx Key
5.0L	SNVRC0375U-5LK	66702	.36	3.19	.63	.375	.24	No	SN5LSTR	K7MT
	BNVRC0375S-5LK	66703	.36	3.43	.87			Carbide Implanted		
	BNVRC0375M-5LK	66704	.36	3.82	1.22			Carbide Implanted		
	BNVRC0375L-5LK	66705	.36	4.29	1.69			Carbide Implanted		
5.0L	SNVRC050U-5LK	66706	.49	3.19	.63	.50	.24	No		
	BNVRC050S-5LK	66707	.49	3.43	.87			Carbide Implanted		
	BNVRC050M-5LK	66708	.49	3.82	1.22			Carbide Implanted		
	BNVRC050L-5LK	66709	.49	4.29	1.69			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: SNVRC375U-5LK**LH**).



Internal Toolholders

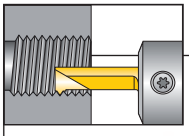




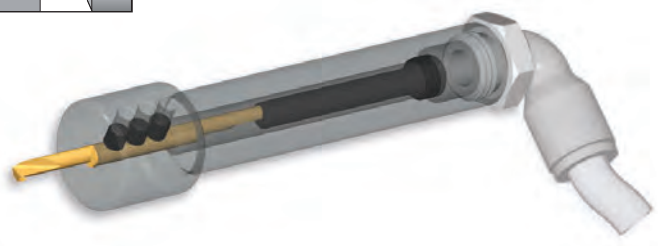
Mini-L-Adjustable

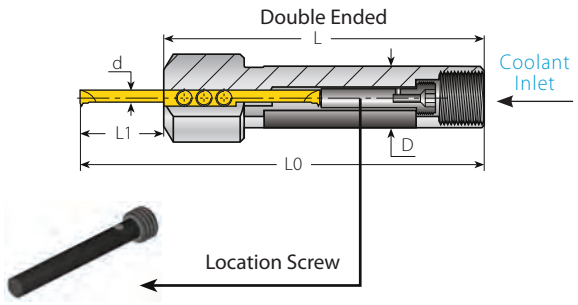
Insert Size		EDP No.	Ordering Code	EDP No.	Dimensions Inch					Spare Parts			
IC mm	Sleeve		Holder RH		A	L	L1	D	D1	Insert Screw	Torx Key for Insert Screw	Holder Screw x 3	Key for Holder Screw
5.0L	SVC0625-6.2	66710	BNVRC6.2T-5LK	66711	.58	4.00	.315-1.73	.625	.24	SN5LSTR	K7MT	S4.0	K2.0

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





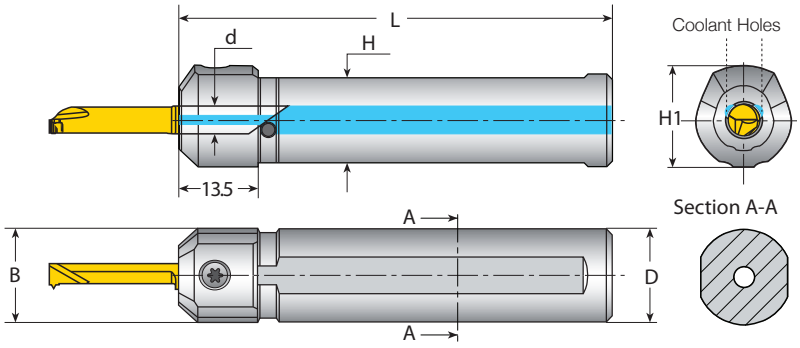
Micro - Double Ended

Micro Insert Dia.	Shank Dia.	Ordering Code	EDP No.	Dimensions Inch			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	.50	SMC050-3.0	41075	3.15	.35- Short	3.50	4GISM8X28	1.10	K4.0	M4X0.7X4.0	K2.0
					.63- Medium	3.78	4GISM8X21	.83			
	.625	SMC0625-3.0	40210	3.74	.35- Short	4.09	4GISM8X49	1.93			
	.75	SMC075-3.0	41080		.63- Medium	4.37	4GISM8X42	1.65			
4	.50	SMC050-4.0	41092	3.15	.35- Short	3.50	4GISM8X28	1.10			
					.63- Medium	3.78	4GISM8X21	.83			
					.83- Long	3.98	4GISM8X16	.63			
	.625	SMC0625-4.0	40212	3.74	.35- Short	4.09	4GISM8X49	1.93			
					.63- Medium	4.37	4GISM8X42	1.65			
	.75	SMC075-4.0	41081		.83- Long	4.57	4GISM8X37	1.46			
6	.50	SMC050-6.0	41517	3.15	.35- Short	3.50	4GISM8X28	1.10			
					.63- Medium	3.78	4GISM8X21	.83			
					.83- Long	3.98	4GISM8X16	.63			
	.625	SMC0625-6.0	40214	3.74	.35- Short	4.09	4GISM8X49	1.93			
					.63- Medium	4.37	4GISM8X42	1.65			
	.75	SMC075-6.0	41082		.83- Long	4.57	4GISM8X37	1.46			

Internal Toolholders

microscope

Micro - Single Ended



Round Shanks 2 Flats (Inch)

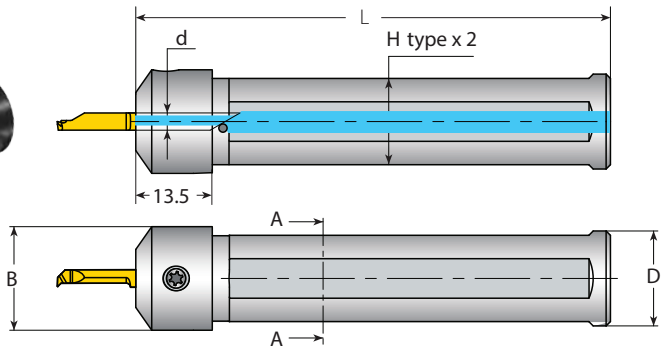
Micro Insert Dia.	Ordering Code	Dimensions Inch					Spare Parts	
d mm		D	B	H1	H	L	Clamping Screw	Torx Key
4.0	MHC0500-4	.500	.500	.644	.394	2.76	SL7DT15 or SL7DBT15IP*	KT15 or F15IP*
	MHC0625-4	.625	.638	.732	.551	2.95		
	MHC0750-4	.750	.827	.827	.709	3.54		
5.0	MHC0500-5	.500	.500	.644	.394	2.76		
	MHC0625-5	.625	.638	.732	.551	2.95		
	MHC0750-5	.750	.827	.827	.709	3.54		
6.0	MHC0500-6	.500	.500	.644	.394	2.76		
	MHC0625-6	.625	.638	.732	.551	2.95		
	MHC0750-6	.750	.827	.827	.709	3.54		
7.0	MHC0625-7	.625	.638	.732	.551	2.95		
	MHC0750-7	.750	.827	.827	.709	3.54		

Round Shanks 2 Flats (Metric)

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

Micro - Single Ended



Round Shank - 4 Flats (Inch)

Micro Insert Dia.	Ordering Code	Dimensions Inch				Spare Parts	
d (mm)		D	B	H	L	Clamping Screw	Torx Key
4.0	MHC0875-4-4F	.875	.925	.82	3.29	SL7DT15 or SL7DBT15IP*	KT15 or F15IP*
	MHC1000-4-4F	1.000	1.063	.90	4.33		
5.0	MHC0875-5-4F	.875	.925	.82	3.29		
	MHC1000-5-4F	1.000	1.063	.90	4.33		
6.0	MHC1000-6-4F	1.000	1.063	.90	4.33		

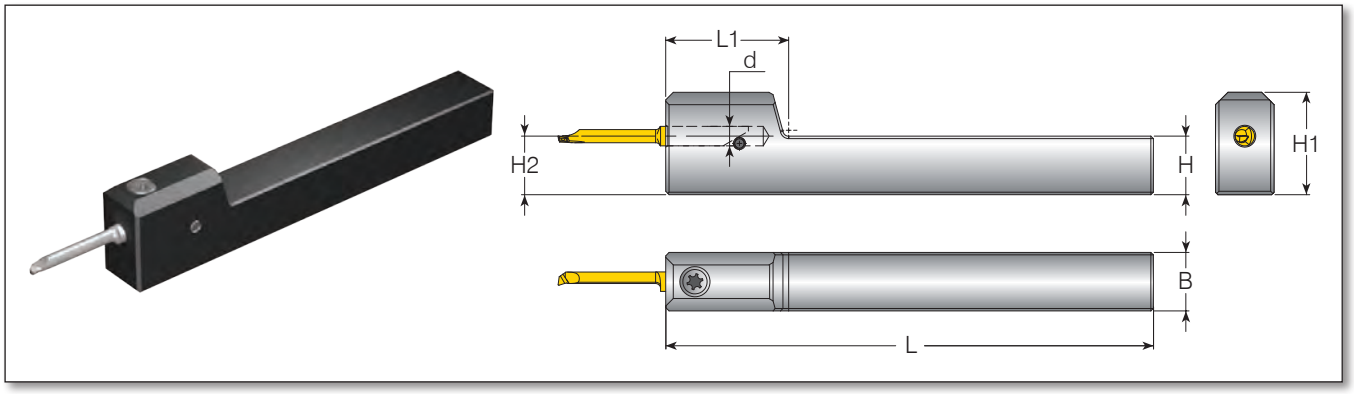
Round Shank - 4 Flats (Metric)

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



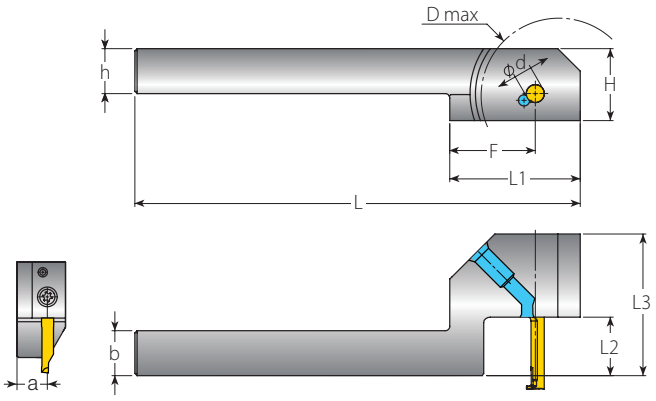
Microscope Holder with Square Shank (Inch)

Micro Insert Dia.	Ordering Code	Dimensions Inch				Spare Parts	
d (mm)		H=H2=B	H1	L	L1	Clamping Screw	Torx Key
4.0	MHS0500-4	.500	.827	4.00	.984	SL7DT15 or SL7DBT15IP*	KT15 or F15IP*
	MHS0625-4	.625	.984	5.00	.984		
5.0	MHS0500-5	.500	.846	4.00	1.063		
	MHS0625-5	.625	1.004	5.00	1.377		
6.0	MHS0500-6	.500	.866	4.00	1.063		
	MHS0625-6	.625	1.024	5.00	1.377		
7.0	MHS0625-7	.625	1.043	5.00	1.377		

Microscope Holder with Square Shank (Metric)

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



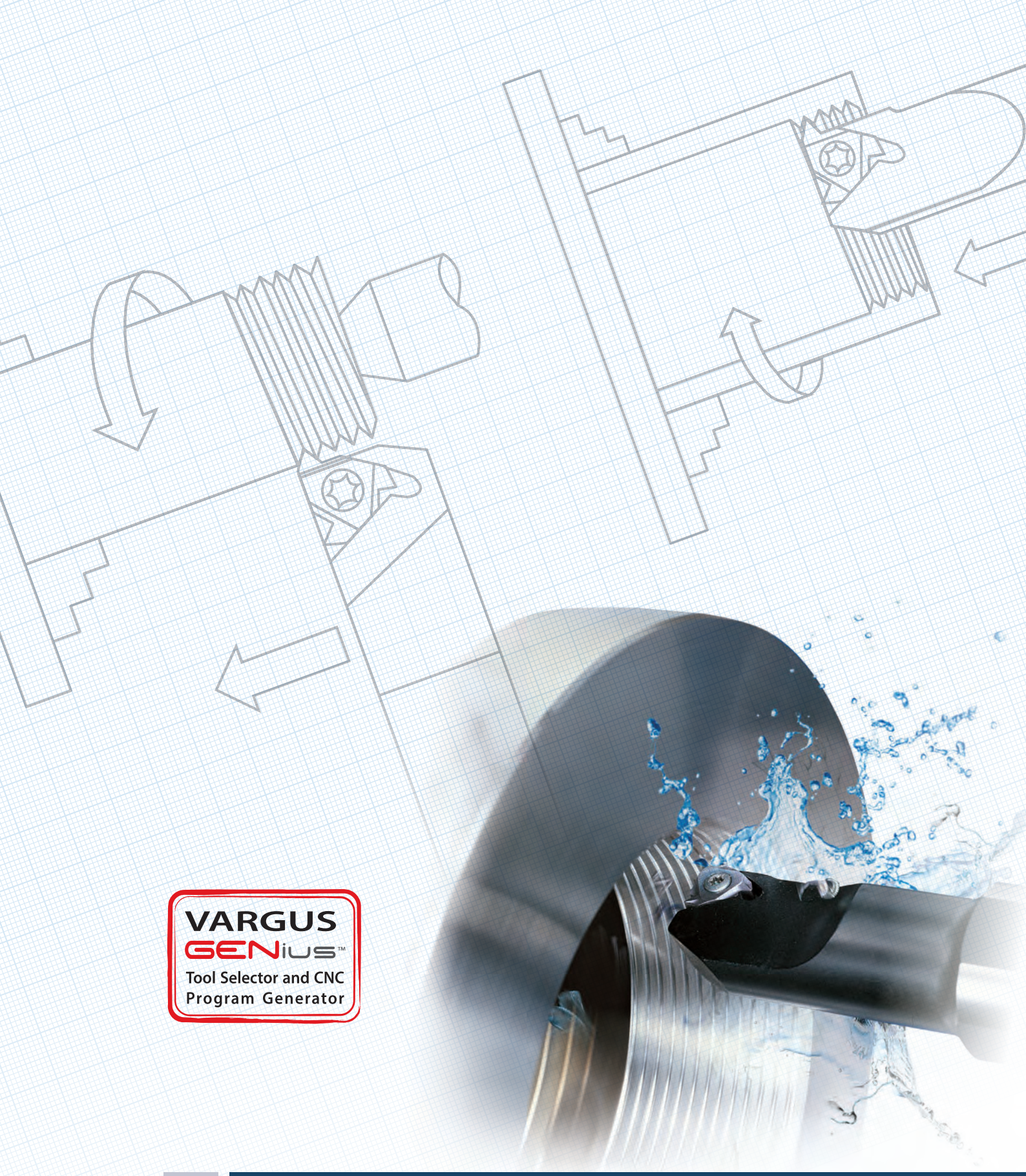
Microscope Holder with Drop Head (Inch)

Micro Insert Dia.	Ordering Code	Dimensions Inch								Spare Parts	
d mm		a=b=h	L3	H	L	L1	F	D max	L2	Clamping Screw	Torx Key
4.0	MHD0375-4L0700	.375	1.437	.630	3.898	1.142	.748	1.024	.709	SL7DT15 or SL7DBT15IP*	KT15 or F15IP*
5.0	MHD0375-5L0800		1.890						.906		
6.0	MHD0375-6L0800		2.087						.906		
4.0	MHD0500-4L0700	.500	1.437	.748					.709		
5.0	MHD0500-5L0800		1.890						.906		
6.0	MHD0500-6L1000		2.087						1.102		

Microscope Holder with Drop Head (Metric)

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



VARGUS
GENius™
Tool Selector and CNC
Program Generator

Thread Turning Technical Data

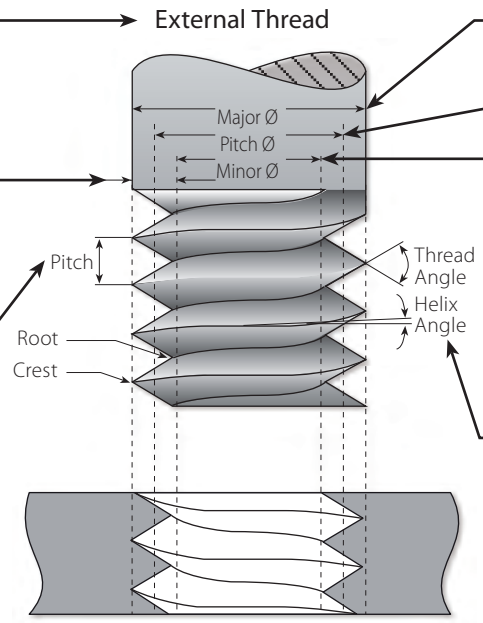
Thread Terminology

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.



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.

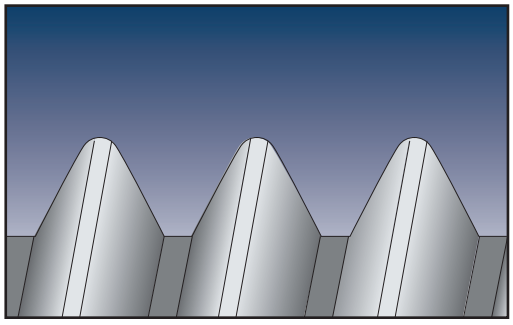
Minor Diameter
The smallest diameter of a screw thread.

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.

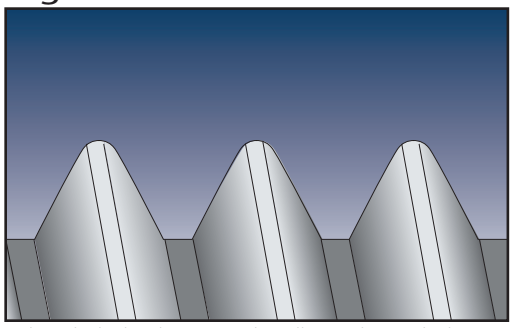
Taper Thread
A thread formed on a cone.

Left-hand thread



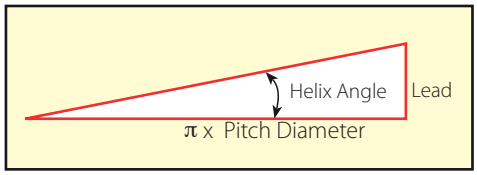
A thread which, when viewed axially, winds in a counterclockwise and receding direction. All left-hand threads are designated LH.

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

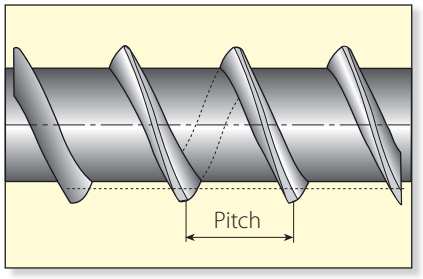


Lead
The distance a threaded part moves axially, with respect to a fixed mating part, in one complete revolution. The lead is equal to the pitch multiplied by the number of thread starts.

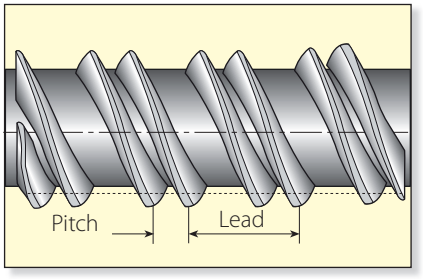
Machining a Multi-Start Thread

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.

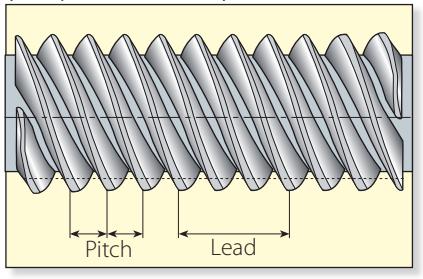
First Start Machined



Second Start Machined



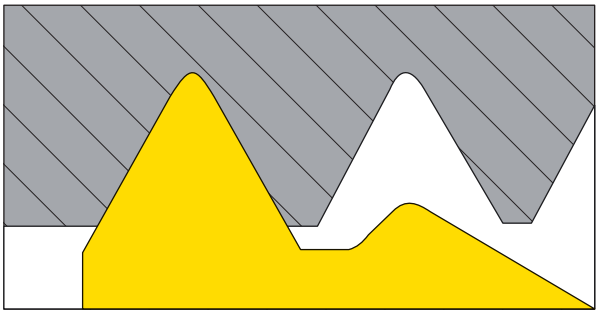
Third Start Machined
(Final, 3 Starts Thread)



Lead = 3 x Pitch

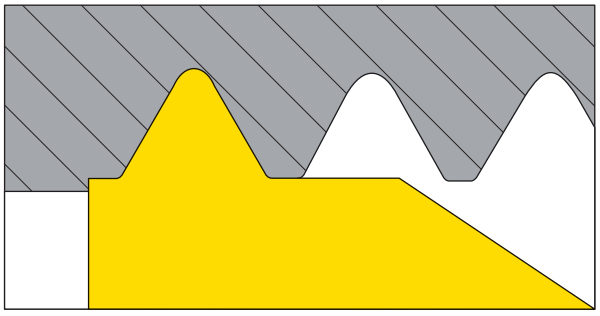
Insert Profile Styles

Partial Profile



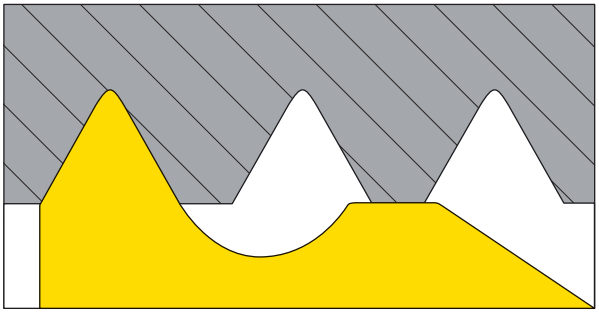
The V partial profile insert cuts without topping the outer diameter of the thread. The same insert can be used for a range of different thread pitches which have a common thread angle.

Full Profile



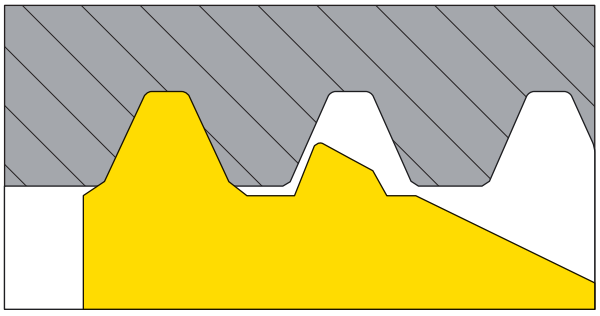
The full profile insert will form a complete thread profile including the crest. For every thread pitch and standard, a separate insert is required.

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

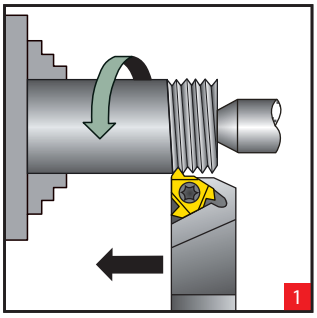


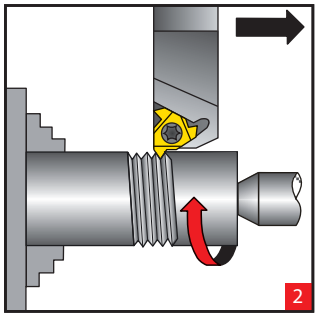
The Semi full profile insert will form a complete thread including crest radius but without topping the outer diameter.
Mainly used for trapezoidal profiles.

Thread Turning Methods for Symmetrical Inserts

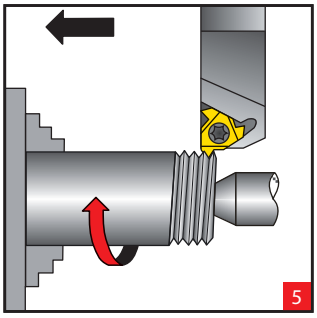
Thread	Inserts & Toolholder	Rotation	Feed Direction	Helix Method	Drawing No.
Right Hand External	EX RH	Counterclockwise	Towards chuck	Regular	1
	EX LH	Clockwise	From chuck	Reversed	2
Right Hand Internal	IN RH	Counterclockwise	Towards chuck	Regular	3
	IN LH	Clockwise	From chuck	Reversed	4
Left Hand External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

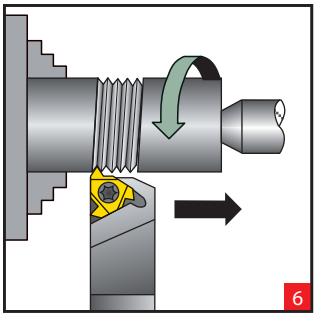
External RH Thread



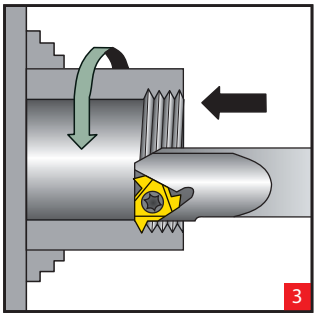


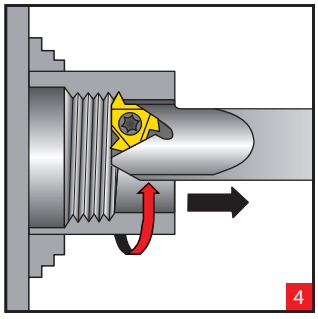
External LH Thread



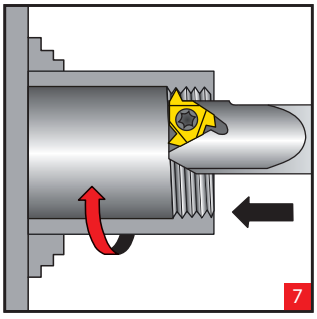


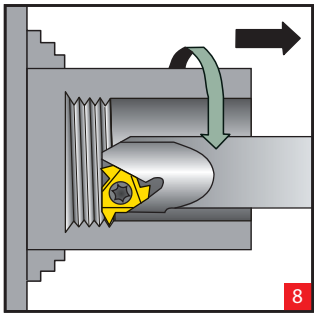
Internal RH Thread





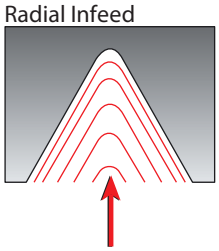
Internal LH Thread





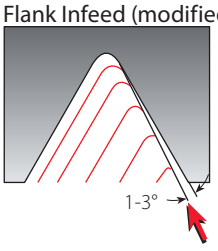
Thread Infeed Methods

Radial Infeed



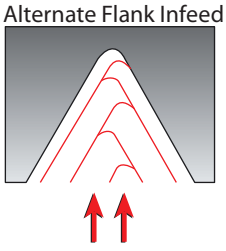
Radial infeed is the simplest and quickest method.
The feed is perpendicular to the turning axis, and both flanks of the insert perform the cutting operation.
Radial infeed is recommended in 3 cases:
- When the pitch is smaller than 16 TPI
- For material with short chips
- For work with hardened material

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

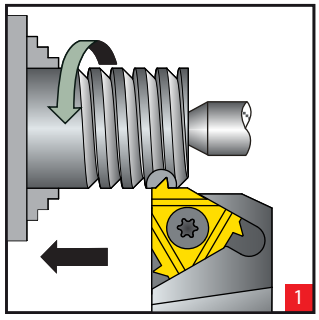


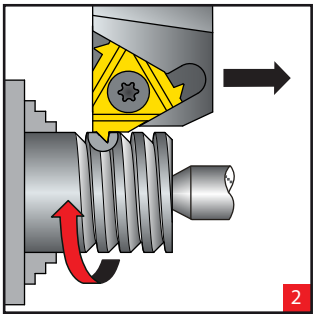
Use of the alternate flank method is recommended especially in large pitches and for materials with long chips.
This method divides the load equally on both flanks, resulting in equal wear along the cutting edges. Alternate flank infeed requires more complicated programming, and is not available on all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

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

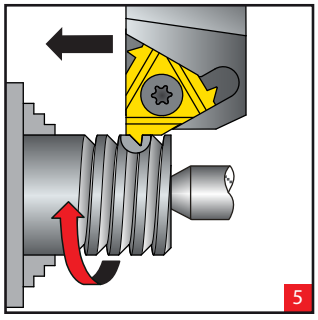
Thread	Inserts & Toolholder	Rotation	Feed Direction	Helix Method	Drawing No.
Right Hand External	EX RH	Counterclockwise	Towards chuck	Regular	1
	EX LH	Clockwise	From chuck	Reversed	2
Right Hand Internal	IN RH	Counterclockwise	Towards chuck	Regular	3
	IN LH	Clockwise	From chuck	Reversed	4
Left Hand External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

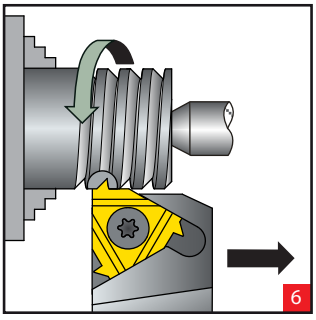
External RH Thread



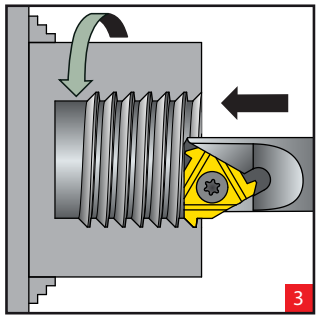


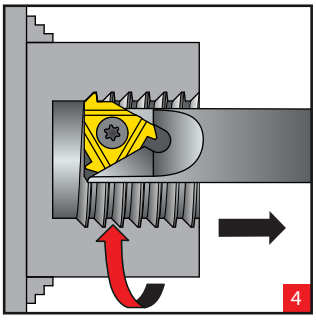
External LH Thread



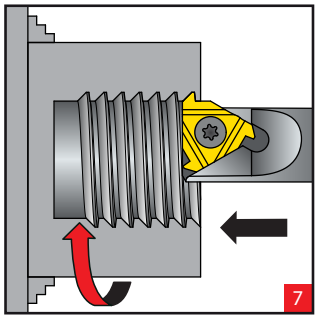


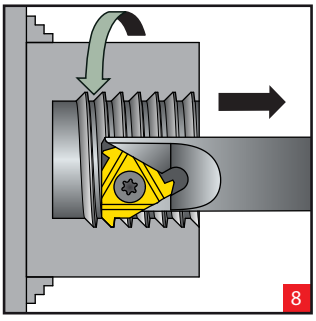
Internal RH Thread





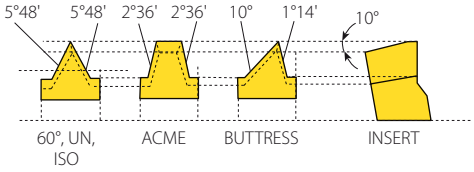
Internal LH Thread



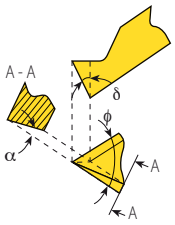


Calculating the Helix Angle and Choosing The Right Anvil

Flank Clearance Angle α (For External Inserts)



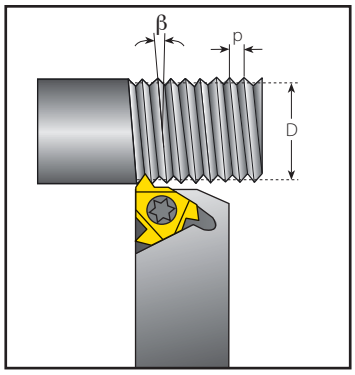
Vardex toolholders are designed to tilt the insert when seated in the toolholder (10° for external, 15° for internal tooling). This results in the differing flank clearance angles, based on the geometry of the insert. To ensure that the side of the insert cutting edge will not rub on the workpiece, it 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.



α = arctan (tan $\varnothing$/2 x tanδ)

Where: α - Flank clearance angle
δ - Tilt angle
$\varnothing$ - Enclosed flank angle

Calculating the Helix Angle β



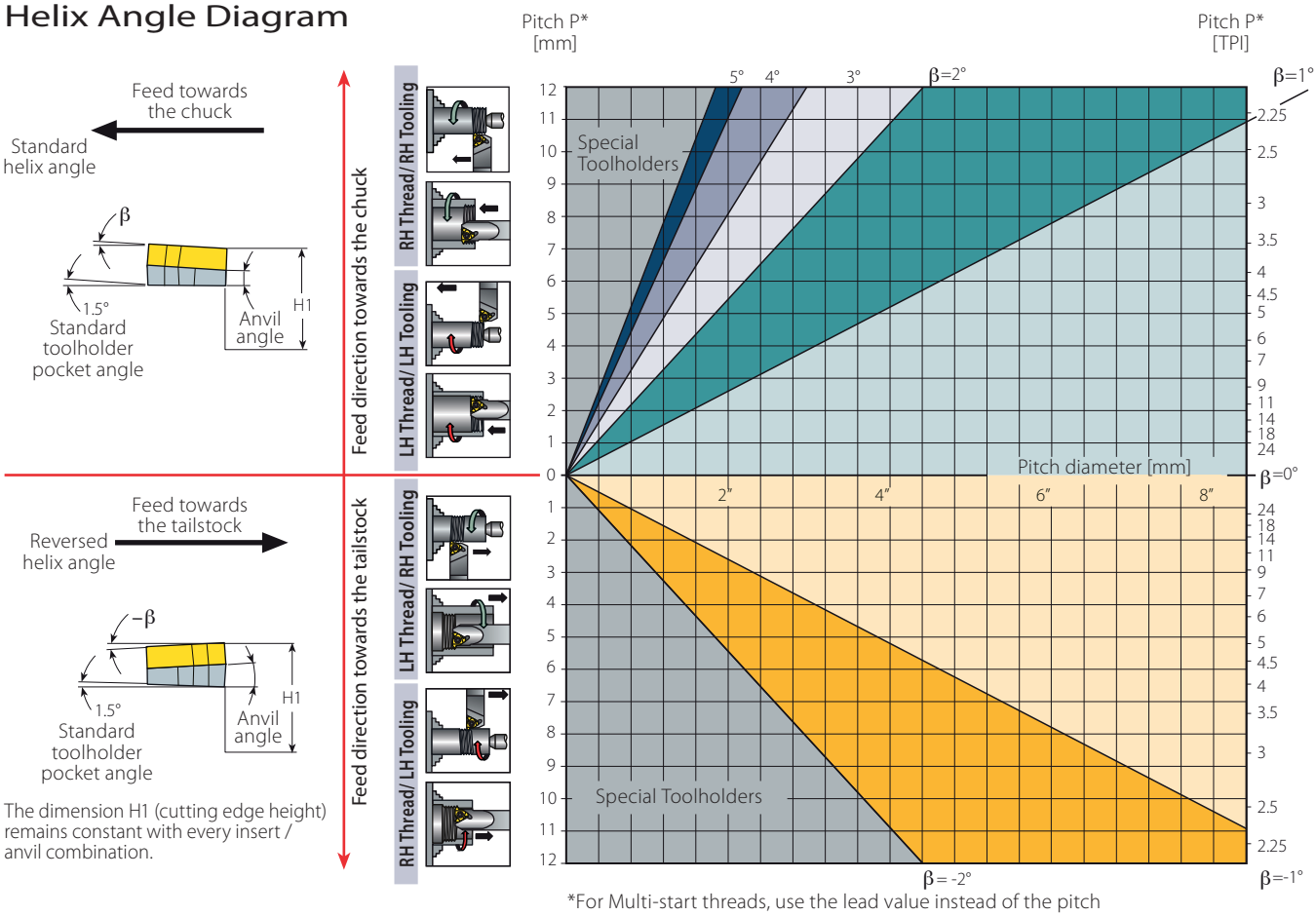
The helix angle is calculated by the following formula:

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

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 Inch									
3/8″	.63	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	.63	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″	.87	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	.91	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	.87	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″	1.06	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	1.06	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+	.63	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+	.87	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+	.91	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+	1.06	ER / IL				YE5M	YE5M-1N	YE5M-1.5N		
		EL / IR				YI5M	YI5M-1N	YI5M-1.5N		
1/2″Z+	.87	ER / IL			YE4Z-1P	YE4Z	YE4Z-1N			
		EL / IR			YI4Z-1P	YI4Z	YI4Z-1N			
5/8″Z+	1.06	ER / IL				YE5Z				
		EL / IR				YI5Z				
1/2″T+	.87	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		F-LINE 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

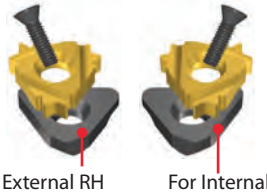
Anvil Kits

Anvil Size		Ordering Code	Included Anvils:
IC	L mm		
3/8"	.63	ABY3	YE3-2P, 1P, 1N, 2N, 3N
			YI3-2P, 1P, 1N, 2N, 3N
3/8" V6	.63	ABY3-6C	YE3-6C-2P, 1P, 1N, 2N, 3N
			YI3-6C-2P, 1P, 1N, 2N, 3N
1/2"	.87	ABY4	YE4-2P, 1P, 1N, 2N, 3N
			YI4-2P, 1P, 1N, 2N, 3N
1/2"U	.87	ABY4U	YE4U-2P, 1P, 1N, 2N, 3N
			YI4U-2P, 1P, 1N, 2N, 3N
5/8"	1.06	ABYE5	YE5-2P, 1P, 1N, 2N, 3N
		ABYI5	YI5-2P, 1P, 1N, 2N, 3N
5/8"U	1.06	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.

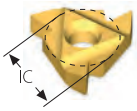


For External RH use YE3-6C anvil.

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	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"	SA4T/C4	UNC8x15.2/M6x1.0x29.5	SY4T	UNC8x9.3	K4T	T20	YE4U	YI4U
	5/8"	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
	5/8"Z	SA5T	M5x0.8x22.0	SY5T	M5x0.8x9.5	K5T	T25	YE5Z	YI5Z
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 187-191

Grades and Their Applications

General Use

VRX

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

VTX

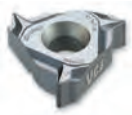
General purpose grade with tough submicron substrate. Provides good fracture toughness in non-rigid cutting conditions. TiAlN coated.

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

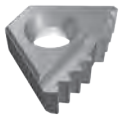
Sub-micron substrate for a wide range of applications. Excellent anti-fracture resistance. Highly recommended for medium to high cutting speeds.
TiAlN coated.

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



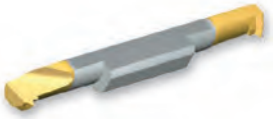
Excellent all-purpose grade, tailor-made to the oil & gas industry with reinforced cutting edge. Recommended for non-rigid cutting conditions.
TiAlN coated.

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

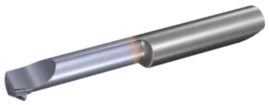
For all Mini Inserts

VTX

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

micrOscope

VBX



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	✓	✓						
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)			✓	

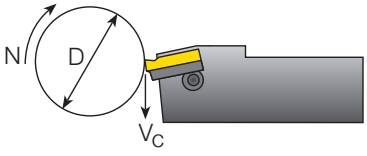
Recommended Grades and Cutting Speeds Vc [ft/min] Not Including MiniPro Line

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [ft/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	377-623	377-623		377-623	
	2		Medium Carbon (C=0.25-0.55%)	150	328-574	328-541		328-574	
	3		High Carbon (C=0.55-0.85%)	170	295-541	295-509		295-541	
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	328-591	328-591		328-591	
	5		Hardened	275	246-459	246-459		246-459	
	6		Hardened	350	230-443	230-443		230-443	
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	262-394	262-394		262-394	
	8		Hardened	325	164-328	164-328		164-328	
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	230-427	230-427		230-427	
	10		High Alloy (alloying elements >5%)	225	197-394	197-394		197-394	
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	230-427	230-427	230-492	230-427	
	12		Hardened	330	197-377	164-312	197-410	197-377	
	13	Stainless Steel Austenitic	Austenitic	180	295-459	262-394	295-525	295-459	
	14		Super Austenitic	200	131-361	98-328	131-394	131-361	
	15	Stainless Steel Cast Ferritic	Non Hardened	200	295-394	295-394	295-492	295-394	
	16		Hardened	330	213-361	213-361	213-394	213-361	
	17	Stainless Steel Cast Austenitic	Austenitic	200	279-361	279-361	279-394	279-361	
	18		Hardened	330	197-328	197-328	197-361	197-328	
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	197-230	230-394		197-230	
	29		Pearlitic (long chips)	230	197-476	230-394		197-476	
	30	Grey Cast Iron	Low Tensile Strength	180	230-427	230-427		230-427	
	31		High Tensile Strength	260	197-377	197-328		197-377	
	32	Nodular Sg Iron	Ferritic	160	410-525	410-525		410-525	
	33		Pearlitic	260	295-394	295-394		295-394	
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	328-1198	328-820		328-1198	328-820
	35		Aged	100	262-722	262-591		262-722	262-525
	36	Aluminium Alloys	Cast	75	656-1312	656-1312		656-1312	262-394
	37		Cast & Aged	90	656-919	656-919		656-919	230-328
	38	Aluminium Alloys	Cast Si 13-22%	130	197-591	197-492		197-591	164-394
	39	Copper and Copper Alloys	Brass	90	262-738	262-689		262-738	230-558
	40		Bronze And Non Leaded Copper	100	262-837	262-689		262-837	230-558
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	148-197	148-197		148-197	98-164
	20		Aged (iron based)	280	98-164	98-164		98-164	82-131
	21		Annealed (nickel or cobalt based)	250	66-98	66-98		66-98	66-98
	22		Aged (nickel or cobalt based)	350	49-82	49-82		49-82	49-82
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	459-558	459-558		459-558	197-328
	24		α+β Alloys	1050Rm	164-230	164-230		164-230	131-197
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	148-197	148-197		148-197	
	26			51-55HRc	131-164	131-164		131-164	

Calculation of N [RPM]

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

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



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

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

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [ft/min] Coated		
					VMX (Micro)	VBX (Microscope)	VKX/VBX VTX (Mini)
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	164-394	459-656	131-262
	2		Medium Carbon (C=0.25-0.55%)	150	131-328	394-591	131-262
	3		High Carbon (C=0.55-0.85%)	170	98-262	361-591	131-262
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	164-230	328-509	131-262
	5		Hardened	275	131-197	295-476	131-262
	6		Hardened	350	98-164	262-443	131-262
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	98-164	213-377	131-197
	8		Hardened	325	82-131	164-328	131-197
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	98-164	98-164	131-197
	10		High Alloy (alloying elements >5%)	225	82-131	82-131	131-197
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	197-328	262-394	131-197
	12		Hardened	330	131-197	180-312	131-197
	13	Stainless Steel Austenitic	Austenitic	180	164-295	197-328	131-197
	14		Super Austenitic	200	131-197	164-295	131-197
	15	Stainless Steel Cast Ferritic	Non Hardened	200	131-197	197-262	131-197
	16		Hardened	330	98-164	148-213	131-197
	17	Stainless Steel Cast Austenitic	Austenitic	200	131-197	164-230	131-197
	18		Hardened	330	98-164	131-197	131-197
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	164-230	197-262	131-262
	29		Pearlitic (long chips)	230	164-230	197-262	131-262
	30	Grey Cast Iron	Low Tensile Strength	180	164-230	197-262	131-262
	31		High Tensile Strength	260	131-197	131-230	131-262
	32	Nodular Sg Iron	Ferritic	160	164-230	197-262	131-262
	33		Pearlitic	260	197-262	230-295	131-262
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	328-984	262-787	131-394
	35		Aged	100	328-492	328-558	131-394
	36	Aluminium Alloys	Cast	75	328-492	328-492	131-394
	37		Cast & Aged	90	197-328	197-328	131-394
	38	Aluminium Alloys	Cast Si 13-22%	130	328-492	328-492	131-394
	39	Copper and Copper Alloys	Brass	90	197-328	262-656	131-394
	40		Bronze And Non Leaded Copper	100	197-328	262-656	131-394
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	82-148	82-148	98-148
	20		Aged (iron based)	280	66-98	66-98	66-98
	21		Annealed (nickel or cobalt based)	250	49-66	49-66	49-66
	22		Aged (nickel or cobalt based)	350	33-49	33-49	49-66
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	197-328	197-328	230-328
	24		α+β Alloys	1050Rm	131-164	131-164	131-164
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	66-131	66-131	66-131
	26			51-55HRc	66-131	66-131	66-131

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

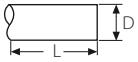
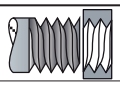
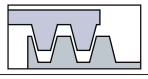
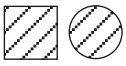
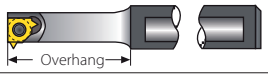
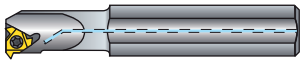
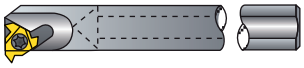
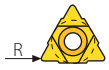
Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [ft/min] VPG
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	394-853
	2		Medium Carbon (C=0.25-0.55%)	150	295-722
	3		High Carbon (C=0.55-0.85%)	170	295-722
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	295-722
	5		Hardened	275	197-525
	6		Hardened	350	164-328
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	295-722
	8		Hardened	325	164-328
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	295-722
	10		High Alloy (alloying elements >5%)	225	197-525
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	197-525
	12		Hardened	330	164-459
	13	Stainless Steel Austenitic	Austenitic	180	197-525
	14		Super Austenitic	200	197-525
	15	Stainless Steel Cast Ferritic	Non Hardened	200	197-525
	16		Hardened	330	164-459
	17	Stainless Steel Cast Austenitic	Austenitic	200	197-525
	18		Hardened	330	164-459
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	525-787
	29		Pearlitic (long chips)	230	459-722
	30	Grey Cast Iron	Low Tensile Strength	180	525-787
	31		High Tensile Strength	260	328-656
	32	Nodular Sg Iron	Ferritic	160	328-656
	33		Pearlitic	260	328-656
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	656-1476
	35		Aged	100	656-1148
	36	Aluminium Alloys	Cast	75	656-1476
	37		Cast & Aged	90	656-1476
	38	Aluminium Alloys	Cast Si 13-22%	130	656-1148
	39	Copper and Copper Alloys	Brass	90	656-1476
	40		Bronze And Non Leaded Copper	100	656-1476
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	98-164
	20		Aged (iron based)	280	66-164
	21		Annealed (nickel or cobalt based)	250	66-164
	22		Aged (nickel or cobalt based)	350	66-164
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	98-164
	24		α+β Alloys	1050Rm	98-230
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	66-131
	26			51-55HRc	49-98

Recommended Grades, Cutting Speeds Vc [ft/min]

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [ft/min] VBX / VTX*
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	131-262
	2		Medium Carbon (C=0.25-0.55%)	150	131-262
	3		High Carbon (C=0.55-0.85%)	170	131-262
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	131-262
	5		Hardened	275	131-262
	6		Hardened	350	131-262
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	131-197
	8		Hardened	325	131-197
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	131-197
	10		High Alloy (alloying elements >5%)	225	131-197
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	131-197
	12		Hardened	330	131-197
	13	Stainless Steel Austenitic	Austenitic	180	131-197
	14		Super Austenitic	200	131-197
	15	Stainless Steel Cast Ferritic	Non Hardened	200	131-197
	16		Hardened	330	131-197
	17	Stainless Steel Cast Austenitic	Austenitic	200	131-197
	18		Hardened	330	131-197
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	131-262
	29		Pearlitic (long chips)	230	131-262
	30	Grey Cast Iron	Low Tensile Strength	180	131-262
	31		High Tensile Strength	260	131-262
	32	Nodular Sg Iron	Ferritic	160	131-262
	33		Pearlitic	260	131-262
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	131-394
	35		Aged	100	131-394
	36	Aluminium Alloys	Cast	75	131-394
	37		Cast & Aged	90	131-394
	38	Aluminium Alloys	Cast Si 13-22%	130	131-394
	39	Copper and Copper Alloys	Brass	90	131-394
	40		Bronze And Non Leaded Copper	100	131-394
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	66-98
	20		Aged (iron based)	280	66-98
	21		Annealed (nickel or cobalt based)	250	49-66
	22		Aged (nickel or cobalt based)	350	33-49
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	131-197
	24		α+β Alloys	1050Rm	66-98
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	49-65
	26			51-55HRc	49-65

* 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. Intensive coolant is strongly recommended.
2. Infeed method - modified flank infeed 1°.
3. Number of passes can be decreased when high pressure cooling is used.

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

Multi plus

Standard	Insert Type	Insert Size		Pitch		Teeth	Ordering Code	Passes	Depth of cut per pass			
		IC	L Inch				RH		1	2	3	4
ISO External	M+	3/8″	.63	1.0	mm	3	3ER1.0ISO3M+...	2	.013	.012		
				1.5	mm	2	3ER1.5ISO2M+...	3	.013	.012	.011	
				2.0	mm	2	3ER2.0ISO2M+...	3	.018	.016	.015	
		1/2″	.87	1.5	mm	3	4ER1.5ISO3M+...	2	.019	.018		
				2.0	mm	2	4ER2.0ISO2M+...	3	.018	.016	.015	
				2.0	mm	3	4ER2.0ISO3M+...	2	.025	.023		
				2.5	mm	2	4ER2.5ISO2M+...	4	.018	.017	.015	.014
		5/8″	1.06	3.0	mm	2	5ER3.0ISO2M+...	4	.021	.019	.018	.015
	T+	1/2″T	.87	1.5	mm	8	4ER1.5ISO8T+...	1	.037			
				2.0	mm	8	4ER2.0ISO8T+...	1	.048			
ISO Internal	M+	3/8″	.63	1.0	mm	3	3IR1.0ISO3M+...	2	.012	.011		
				1.5	mm	2	3IR1.5ISO2M+...	3	.012	.011	.011	
				2.0	mm	2	3IR2.0ISO2M+...	3	.017	.015	.014	
		1/2″	.87	1.5	mm	3	4IR1.5ISO3M+...	2	.018	.016		
				2.0	mm	2	4IR2.0ISO2M+...	3	.017	.015	.014	
				2.0	mm	3	4IR2.0ISO3M+...	2	.023	.022		
		5/8″	1.06	3.0	mm	2	5IR3.0ISO2M+...	4	.019	.018	.017	.015
	T+	1/2″	.87	1.5	mm	8	4IR1.5ISO8T+...	1	.034			
				2.0	mm	8	4IR2.0ISO8T+...	1	.045			
UN External	M+	3/8″	.63	20	TPI	3	3ER20UN3M+...	2	.016	.015		
				18	TPI	2	3ER18UN2M+...	3	.013	.011	.011	
				18	TPI	3	3ER18UN3M+...	2	.018	.017		
				16	TPI	2	3ER16UN2M+...	3	.014	.013	.012	
				14	TPI	2	3ER14UN2M+...	3	.017	.015	.015	
				12	TPI	2	3ER12UN2M+...	3	.019	.017	.016	
		1/2″	.87	16	TPI	3	4ER16UN3M+...	2	.020	.019		
				14	TPI	2	4ER14UN2M+...	3	.017	.015	.015	
				12	TPI	2	4ER12UN2M+...	3	.019	.017	.016	
				12	TPI	3	4ER12UN3M+...	2	.026	.025		
				11	TPI	2	4ER11UN2M+...	4	.017	.015	.014	.013
				10	TPI	2	4ER10UN2M+...	4	.018	.017	.016	.014
		5/8″	1.06	8	TPI	2	5ER8UN2M+...	4	.022	.020	.019	.016
UN Internal	M+	3/8″	.63	12	TPI	2	3IR12UN2M+...	3	.018	.015	.015	
				14	TPI	2	3IR14UN2M+...	3	.016	.014	.013	
				16	TPI	2	3IR16UN2M+...	3	.013	.012	.011	
		1/2″	.87	16	TPI	3	4IR16UN3M+...	2	.019	.017		
				14	TPI	2	4IR14UN2M+...	3	.016	.014	.013	
				12	TPI	2	4IR12UN2M+...	3	.018	.015	.015	
				12	TPI	3	4IR12UN3M+...	2	.025	.023		
		5/8″	1.06	8	TPI	2	5IR8UN2M+...	4	.020	.019	.017	.015
BSW External	M+	3/8″	.63	28	TPI	2	3ER28W2M+...	3	.009	.008	.008	
				19	TPI	2	3ER19W2M+...	3	.013	.011	.011	
				19	TPI	3	3ER19W3M+...	2	.018	.016		
				14	TPI	2	3ER14W2M+...	3	.017	.015	.014	
		1/2″	.87	14	TPI	3	4ER14W3M+...	2	.024	.022		
				11	TPI	2	4ER11W2M+...	4	.017	.015	.014	.012

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

Multi plus

Standard	Insert Type	Insert Size IC	Insert Size L Inch	Pitch		Teeth	Ordering Code RH	Passes	Depth of cut per pass 1	2	3	4
BSW Internal	M+	3/8″	.63	14	TPI	2	3IR14W2M+...	3	.017	.015	.014	
		1/2″	.87	11	TPI	2	4IR11W2M+...	4	.017	.015	.014	.012
NPT External	M+	3/8″	.63	14	TPI	2	3ER14NPT2M+...	3	.020	.018	.017	
		1/2″	.87	11.5	TPI	2	4ER11.5NPT2M+...	4	.018	.017	.017	.016
		5/8″	1.06	11.5	TPI	3	5ER11.5NPT3M+...	4	.019	.017	.017	.015
				8	TPI	2	5ER8NPT2M+...	4	.028	.025	.024	.021
	Z+	1/2″	.87	11.5	TPI	2	4ER11.5NPT2Z+...	4	.018	.017	.017	.016
				8	TPI	2	4ER8NPT2Z+...	4	.028	.025	.024	.021
NPT Internal	M+	3/8″	.63	14	TPI	2	3IR14NPT2M+...	3	.020	.018	.017	
		1/2″	.87	11.5	TPI	2	4IR11.5NPT2M+...	4	.018	.017	.017	.016
		5/8″	1.06	11.5	TPI	2	5IR11.5NPT3M+...	4	.019	.017	.017	.015
				8	TPI	2	5IR8NPT2M+...	4	.028	.025	.024	.021
	Z+	1/2″	.87	11.5	TPI	3	4IR11.5NPT2Z+...	4	.018	.017	.017	.016
				8	TPI	2	4IR8NPT2Z+...	4	.028	.025	.024	.021
NPTF External	M+	3/8″	.63	14	TPI	2	3ER14NPTF2M+...	3	.020	.017	.017	
NPTF Internal	M+	3/8″	.63	14	TPI	2	3IR14NPTF2M+...	3	.020	.017	.017	

Oil&Gas API RD, API BUT, OTTM, OTTG

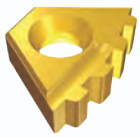
The following table provides the optimal cutting pass division options, depending on the material, machine stability and clamping conditions:

Application	No. of Passes/ Pass No.	1	2	3	4	5	6
APIRD 8 Ex, In	3 passes	.035	.032	.004			
	4 passes	.024	.023	.020	.004		
	5 passes	.019	.019	.017	.013	.004	
	6 passes	.015	.016	.015	.011	.009	.004
APIRD 10 Ex, In	3 passes	.026	.025	.004			
	4 passes	.017	.018	.016	.004		
	5 passes	.013	.015	.013	.010	.004	
	6 passes	.011	.013	.011	.009	.007	.004
BUT 5 Ex, In	3 passes	.030	.028	.004			
	4 passes	.020	.020	.018	.004		
	5 passes	.016	.016	.015	.011	.004	
	6 passes	.013	.014	.013	.010	.008	.004
OTTM 5 Ex , In OTTG 5 Ex , In	3 passes	.030	.029	.004			
	4 passes	.020	.020	.019	.004		
	5 passes	.016	.016	.015	.012	.004	
	6 passes	.013	.014	.013	.010	.009	.004

M+ Style

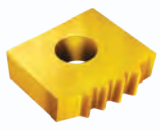
Z+ Style

T+ Style



14D Style

CNGA Style



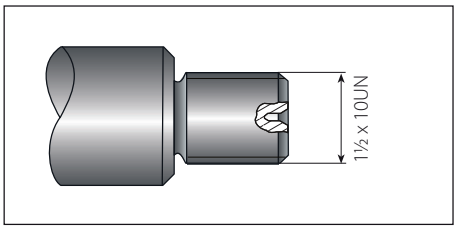
Chaser Style

Cutting Speed Recommendations for Materials Specified by API STB Oil&Gas

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

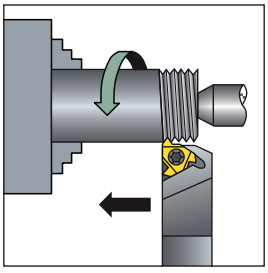
Step by Step Thread Turning - Example 1

VARGUS GENius™ Tool Selector and CNC Program Generator



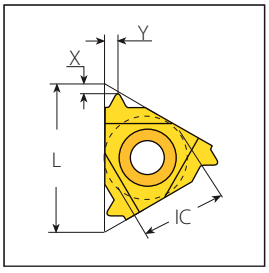
Application:
Thread: External Right Hand
1½ x 10UN
Material: 4140 (25 HRc)

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.

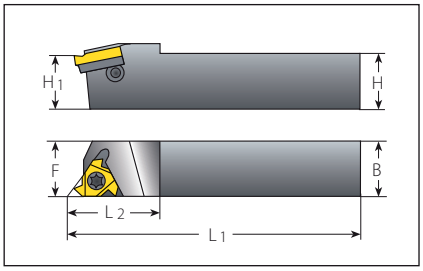
2 Choose the Insert Size



Chosen insert: **3ER10UN**

Insert Size		Pitch	Ordering Code	Anvil	Toolholder
IC	L Inch	TPI	RH	RH	
3/8"	.63	10	3ER10UN...	YE3	AL..-3(LH)

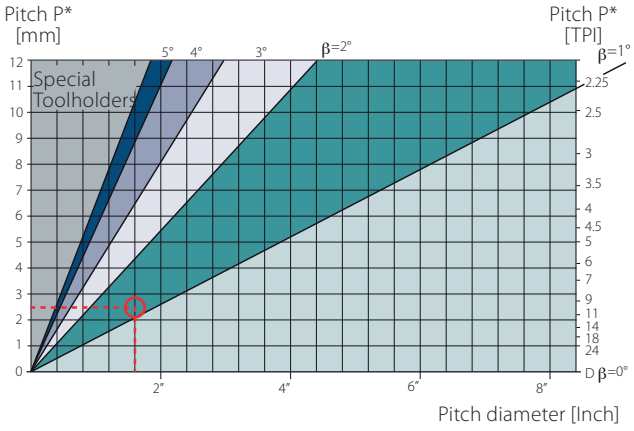
3 Choose the Toolholder



Chosen toolholder: **AL100-3**

Insert Size	Ordering Code	Dimensions Inch			
IC	RH	H=H1=B	F	L1	L2
3/8"	AL100-3	1.00	1.00	6.05	1.20

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 Inch					
3/8"	.63	ER/IL	YE3-2P	YE3-1P	**YE3**	YE3-1N

6 Choose the Carbide Grade and Cutting Speed

Carbide Grade chosen: **VTX**
Cutting Speed: **420 ft/min**

	Material:		Hardness Brinell HB	**VTX**	VCB
P	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	**279-476**	328-590
		Hardened	275	246-459	246-459
		Hardened	350	230-433	230-433

7 Determine the Number of Passes

Number of passes: 14

ISO External

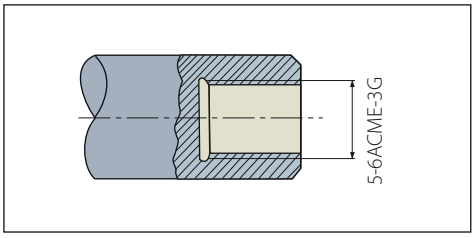
Pitch	mm	1.50	1.75	2.00	**2.50**	3.00	3.50	4.00
	TPI	16	14	12	10	8	7	6
No. of Passes		6-10	7-12	7-12	**8-14**	9-16	10-18	11-18

Summary

	Thread Type	**1½x10UN External Right Hand**
1	**Feed Direction:**	**Towards the chuck**
2	**Insert and Grade:**	**3ER10UN VTX**
3	**Toolholder:**	**AL 100 - 3**
4	**Helix Angle:**	**1.5°**
5	**Anvil:**	**YE3**
6	**Cutting Speed:**	**420 ft/min**
7	**Number of Passes:**	**10**

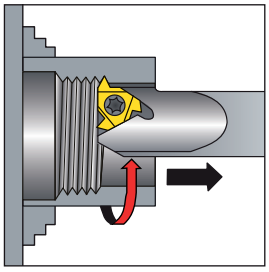
Step by Step Thread Turning - Example 2

VARGUS GENius™ Tool Selector and CNC Program Generator



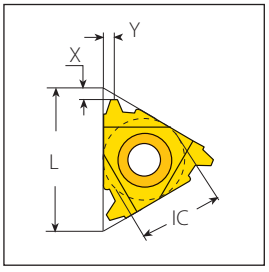
Application:
Thread: Internal Right Hand ACME
Pitch: 6 TPI
Bore dia: 5″
Material: Stainless Steel Austemitic

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.

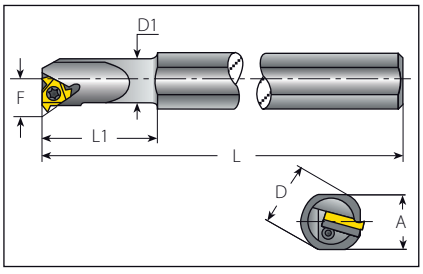
2 Choose the Insert Size



Chosen insert: **4IL6ACME**

Insert Size		Pitch	Ordering Code	Anvil	Toolholder
IC	L Inch	TPI	RH	LH	
1/2″	.87	6	4IL6ACME...	YE4	AVR..-4(LH)

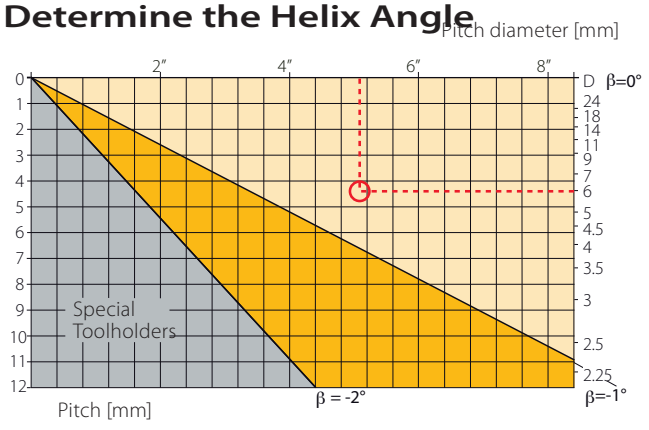
3 Choose the Toolholder



Chosen toolholder: **AVR 40-4LH**

Insert Size	Ordering Code	Dimensions Inch						Min Bore
IC	RH	A	L	L1	D	D1	F	Inch
1/2″	AVR150-4	1.34	12.00	2.50	1.50	1.50	.98	1.75

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 5", 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 Inch						
1/2"	.87	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 ft/min**

	Material:		Hardness Brinell HB	**VTX**	VCB
M	Stainless Steel Austenitic	Austenitic	180	**295-459**	266-394
		Super Austenitic	200	131-136	98-328

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:**	**4IL6ACME VTX**
3	**Toolholder:**	**AVR 150-4LH**
4	**Helix Angle:**	**-0.65°**
5	**Anvil:**	**YE4-2N**
6	**Cutting Speed:**	**420 ft/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	Vargus No.	
1311	STKM 12A;C	–	Fe360B	1	P
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	
–	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	MP50-5	–
	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	Vargus 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	
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	–	С410	FG10	30	
01 15	–	С415	FG15	30	
01 20	–	С420	FG20	30	
01 25	–	С425	FG25	29	
01 30	–	С430	FG30	29	
01 35	–	С435	FG35	29	
01 40	–	С440	–	29	
MB	–	–	–	29	
ISO-215		–	–	29	
523	–	–	–	29	
07 17-02	–	VC42-12	–	30	
07 17-12	–	VC42-12	–	30	
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	
4253	–	–	–	36	
4261	–	–	–	36	
–	SUH 330	–	F.3313-X12CrNiSi36-16	19	
–	SCH 15	–	–	19	
–	–	–	–	19	
–	–	–	–	19	
–	–	–	–	19	
–	–	–	–	19	
–	–	–	–	19	
–	–	–	–	19	
–	–	–	–	19	
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–	–	–	–	23	

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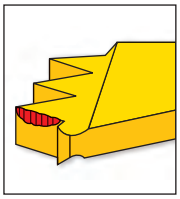
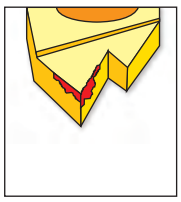
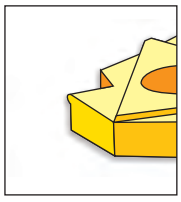
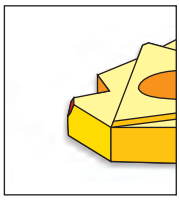
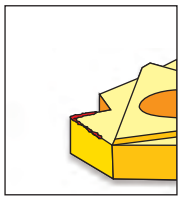
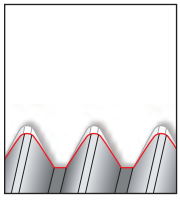
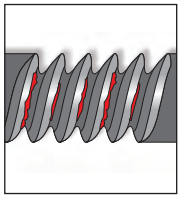
S

Troubleshooting

	Problem	Possible Cause	Solution
	Increased flank wear	Cutting speed too high	Reduce cutting speed / use coated insert
		Depth of cut too low/ too many passes	Increase the depth of cut per pass
		Unsuitable carbide grade	Use a coated carbide grade
		Insufficient cooling	Increase coolant flow rate
	Uneven cutting edge wear	Incorrect helix angle	Choose the correct anvil
		Wrong infeed method	Use the alternating flank infeed method
	Extreme plastic deformation	Depth of cut too large	Decrease depth of cut/ increase number of passes
		Insufficient cooling	Increase coolant flow rate
		Cutting speed too high	Reduce cutting speed
		Unsuitable carbide grade	Use a tougher carbide
		Nose radius too small	Use an insert with a larger radius, if possible
	Cutting edge breakage	Depth of cut too large	Decrease depth of cut/ increase number of passes
		Extreme plastic deformation	Use a tougher carbide
		Insufficient cooling	Increase flow rate and/ or correct flow direction
		Unsuitable carbide grade	Use a tougher carbide
		Instability	Check stability of the system
	Built-up edge	Incorrect cutting speed	Change the cutting speed
		Unsuitable carbide grade	Use a coated carbide
	Thread profile is too shallow	The tool is not at the workpiece axis height	Change tool height
		Insert is not machining the thread crest	Measure the workpiece diameter
		Worn insert	Change the cutting edge sooner
	Poor surface quality	Cutting speed too low	Increase cutting speed
		Wrong anvil	Choose correct anvil
		Flank infeed method is not appropriate	Use the alternate flank or radial infeed method

VRX

Multipurpose Premium Grade

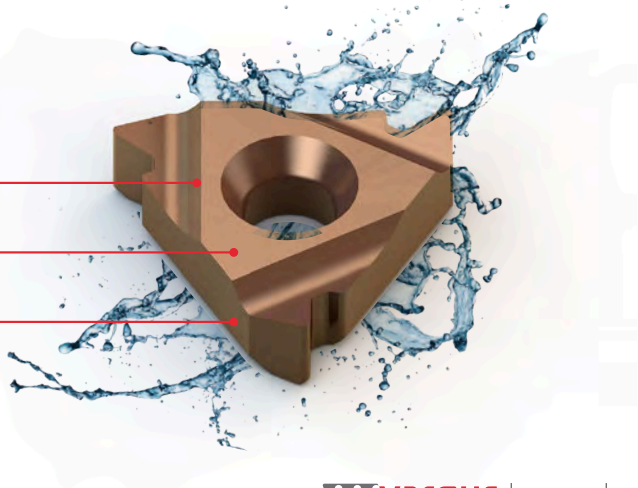
Multipurpose Thread Turning Grade for Stronger Wear Resistance and Improved Productivity

Redefining the Threading Benchmark

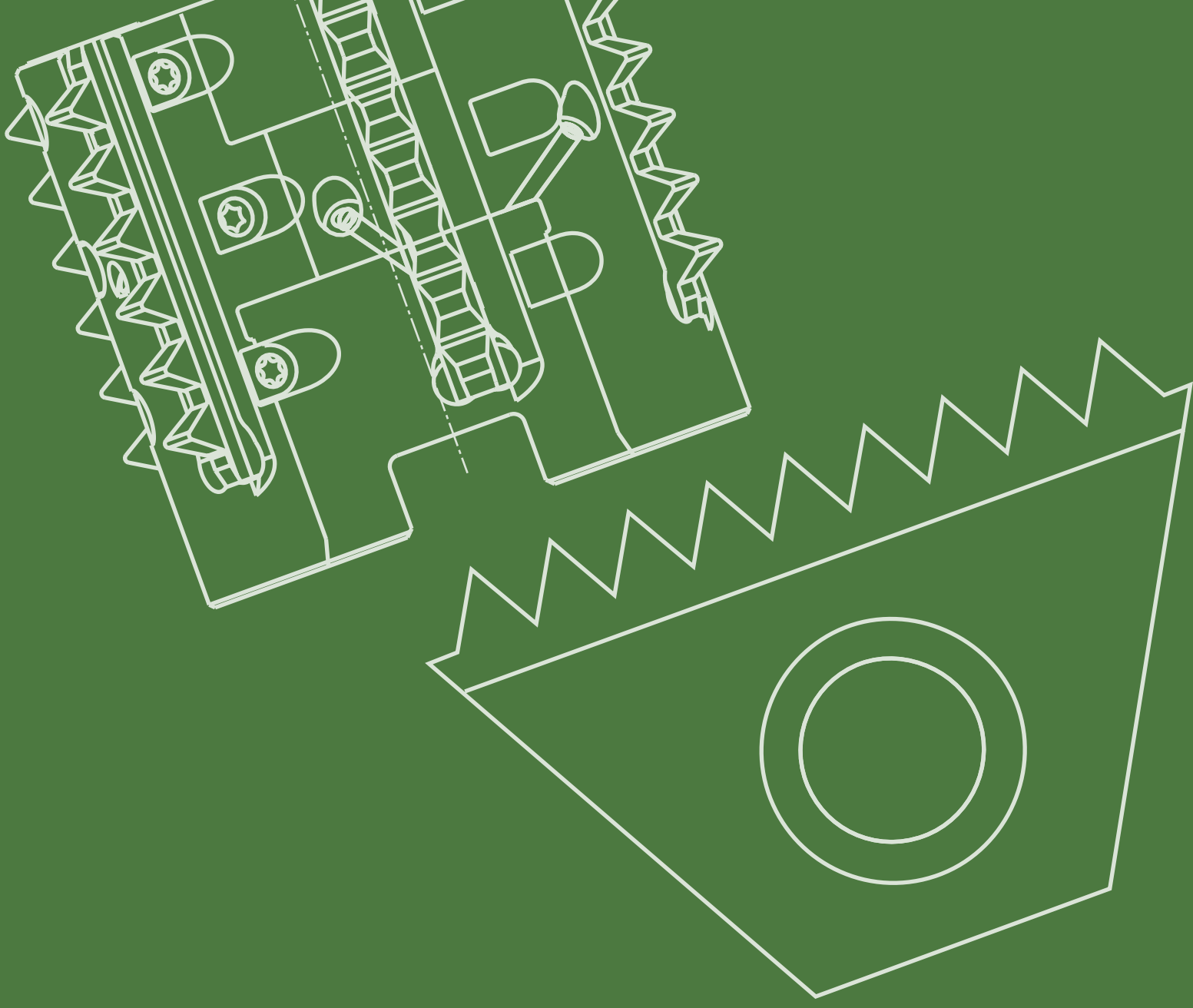
AlTiN Alloyed PVD Coating

High Oxidation Temperature

Submicron Substrate



See page 202 for more information.



THREAD MILLING

Thread Milling Systems

MiTM Multi-Flute Indexable Thread Mill Inserts

MiTM19 (A) For Small Bores


Standard


Conical

MiTM24 (M) For Medium Bores


Standard


Conical

MiTM25 (S) For Standard Applications


Standard


Conical


Shell Mill


Shell Mill Conical

MiTM40 (L) For Long Threads


Standard


Shell Mill


Shell Mill Conical

MiTM41 (B) For Large Pitches


Standard


Shell Mill

Standard

Standard / TMF


Mini TMMC


Standard TMC


Coarse 124/...


TMLC


TM2C


TMOC


TM Shell Mill

Coarse Pitch


Coarse 124/...
(Standard TMC Style)


Coarse 124/...
(Mini TMMC Style)

Conical


TMNC

TMSC - Single Point


TMSC

TMVC - Single Point Vertical


TMVC

TMSD Thread Milling for Deep Holes

U Style For Large Pitches


Weldon Shank


Carbide Cylindrical Shank


Steel Cylindrical Shank


Shell Mill

L Style (Mini L) For Small Bores and Short L2


Weldon Shank


Carbide Cylindrical Shank

Vertical Style (7V, 9V, 11V)


Weldon Shank


Carbide Cylindrical Shank

L Style (3/8" L) For Large Trapezoid Profiles and ABUT


Weldon Shank


Carbide Cylindrical Shank


Shell Mill

A Style For Shorter L2


Steel Cylindrical Shank

TM Solid Solid Carbide Thread Milling Tools

Helical Flutes with Coolant


Helicool (HC)

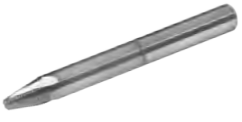

Helicool-R (HCR)


Helicool-C (HCC)


HTC (Thriller)

Helical Flutes


Helical (HX)


Taper

Miniature Tools


MilliPro


MilliPro HD


MilliPro Dental

Straight Flutes


Straight


Taper

Long Tools


Deep Threading Full Profile

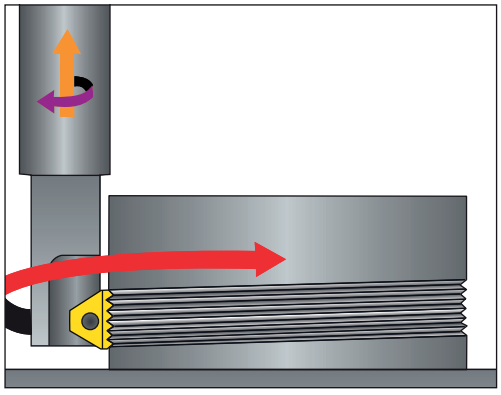

Deep Threading Partial Profile

Thread Milling Methods

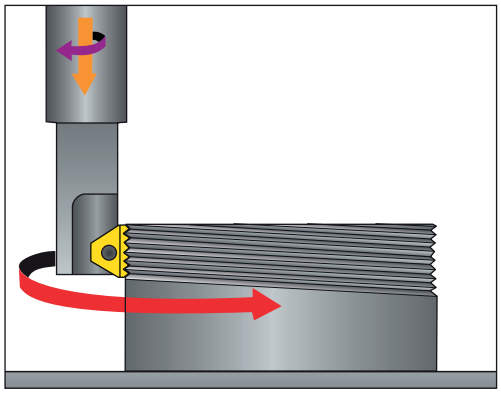
(for RH Tools only)

External

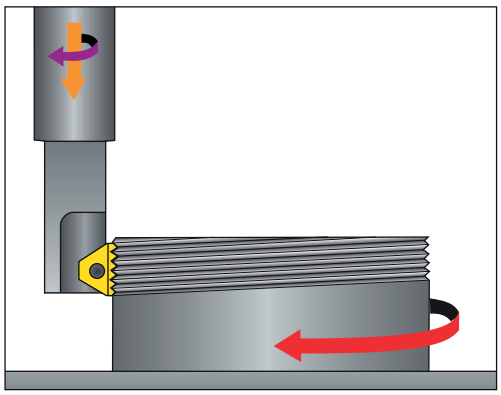
Right Hand Thread - Conventional Milling



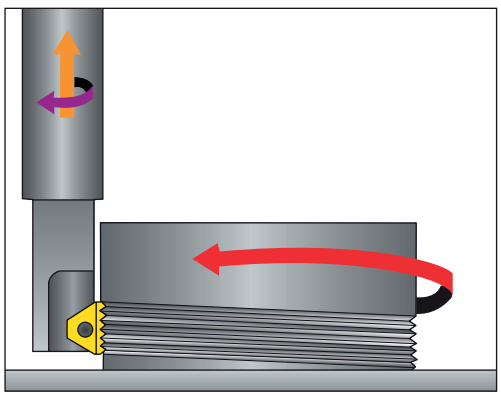
Left Hand Thread - Conventional Milling



Right Hand Thread - Climb Milling

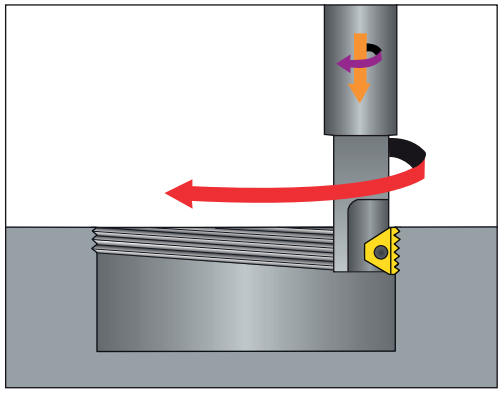


Left Hand Thread - Climb Milling

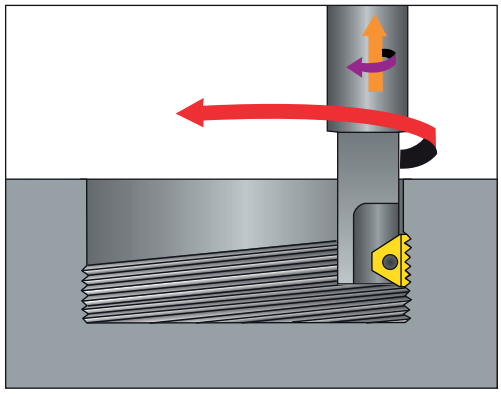


Internal

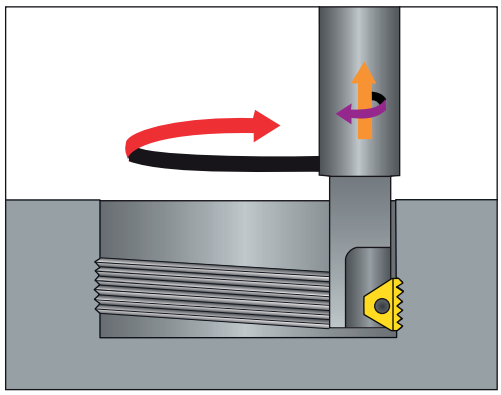
Right Hand Thread - Conventional Milling



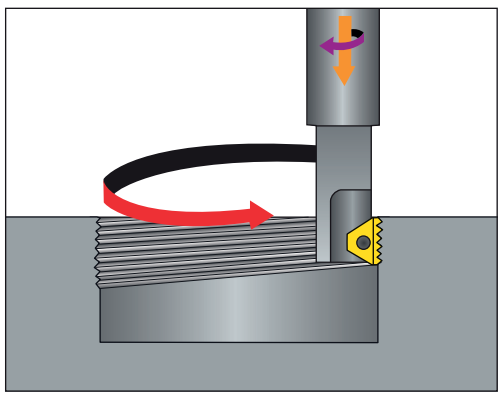
Left Hand Thread - Conventional Milling



Right Hand Thread - Climb Milling

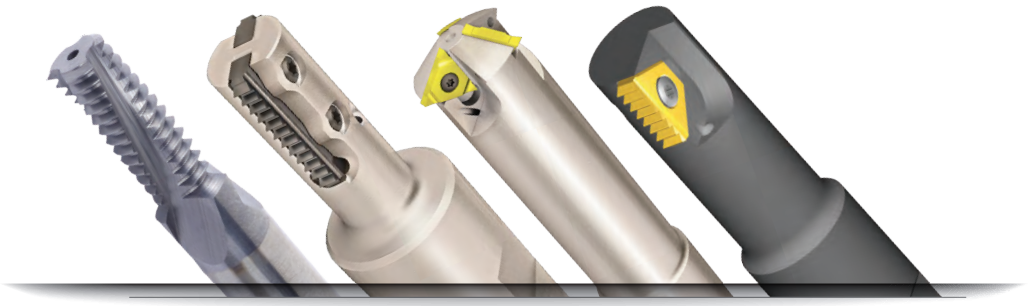


Left Hand Thread - Climb Milling



The Thread Milling Advantages

- Enables machining of large work pieces which cannot be easily mounted on a lathe
- Easily machine non-rotatable and asymmetrical parts
- Complete operation in one clamping
- Threading of large diameters requires less power than threading using taps
- No upper limits to bore diameter
- Chips are short
- Blind holes without a thread relief groove can be machined
- Thread relief grooves are unnecessary
- One holder can be used for both internal and external threads
- One tool can be used for both right hand and left hand thread
- Inventory can be reduced to a minimum as small range of tooling covers a wide range of thread diameters
- Interchangeable inserts
- Suitable for machining of hard materials
- Threads have a high surface finish
- Allows for correction of tool diameter and length
- Interrupted cuts are easily machined
- One tool for a wide range of materials
- A better thread quality in soft materials where taps normally tear the material
- Short machining time due to high cutting speed and rapid feed rates
- Small cutting forces allow machining of parts with thin walls



MiTM

Super Fast Thread Milling System

Inserts | Toolholders

Vardex Ordering Code System

MiTM Inserts

R	25	I	12	UN	TM	VBX
1	2	3	4	5	6	7

1- Product Line	2 - Insert Style	3 - Type of Insert	4 - Pitch	5 - Standard	6 - System	7 - Carbide Grade
R- MiTM line	19, 24, 25, 40, 41	I - Internal E - External EI-External+Internal NC- Plug	0.5-6.0 mm 32-4 TPI	ISO- ISO Metric UN-American UN W- BSW, BSP NPT-NPT NPTF-NPTF BSPT-BSPT	TM	VBX VTX

MiTM Holders (Standard and Conical)

R	TM	C	100	067	-	110	S	2
1	2	3	4	5		6	7	8

1- Product Line	2 - Holder Type	3 - Cooling	4 - Shank Dia.	5 - Cutting Dia.
R - MiTM line BR - MiTM with Anti-vibration System	TM - Standard Holder TMN - Conical Holder	C- Coolant Channel	.75, 1, 1.25	.54-1.42

6 - Tool Overhang	7 - Insert Style	8 - No. of Flutes
1.02-3.15	A - 19 M - 24 S - 25 L - 40 B - 41	1 - 5

MiTM Shell Mill

R	TM	C	-	D150	-	050	-	25S	5
1	2	3		4		5		6	7

1- Product Line	2 - Holder Type	3 - Cooling	4 - Cutting Dia.	5 - Drive Hole Dia.
R - MiTM line	TM - Standard Holder TMN - Conical Holder	C- Coolant Channel	1.54-2.48	.50, .75, 1.00

6 - Insert Style	7 - No. of Flutes
25S 40L 41B	5 - 8

MiTM

The VARDEX Multi-flute Indexable Thread Milling (MiTM) system for fast machining, reduces cycle times when machining threads with long inserts. Nickel coating for all MiTM toolholders provides better anti-rust protection.

VARGUS GENius™ Tool Selector and CNC Program Generator

MiTM 19 (A)
For Small Bores

Standard

No. of Flutes (Z) 1
Cutting Dia. (D2) .39-.46
Tool Overhang (L1) .79-.99

Conical

No. of Flutes (Z) 1
Cutting Dia. (D2) .42
Tool Overhang (L1) .71

MiTM 24 (M)
For Medium Bores

Standard

No. of Flutes (Z) 1-2
Cutting Dia. (D2) .53-.63
Tool Overhang (L1) 1.02-1.42

Conical

No. of Flutes (Z) 1
Cutting Dia. (D2) .55
Tool Overhang (L1) 1.02

MiTM 25 (S)
For Standard Applications

Standard

No. of Flutes (Z) 2-5
Cutting Dia. (D2) .67-1.18
Tool Overhang (L1) 1.10-3.15

Conical

No. of Flutes (Z) 2-4
Cutting Dia. (D2) .68-1.12
Tool Overhang (L1) 1.10-1.70

Shell Mill

No. of Flutes (Z) 5-9
Cutting Dia. (D2) 1.54-2.32
Tool Overhang (L1) max. 7.87

Shell Mill Conical

No. of Flutes (Z) 5
Cutting Dia. (D2) 1.53
Tool Overhang (L1) max. 7.87

MiTM 40 (L)
For Long Threads

Standard

No. of Flutes (Z) 3-4
Cutting Dia. (D2) .87-1.18
Tool Overhang (L1) 1.69-3.15

Shell Mill

No. of Flutes (Z) 7-9
Cutting Dia. (D2) 1.93-2.32
Tool Overhang (L1) max. 7.87

Shell Mill Conical

No. of Flutes (Z) 7
Cutting Dia. (D2) 1.93
Tool Overhang (L1) max. 7.87

MiTM 41 (B)
For Large Pitches

Standard

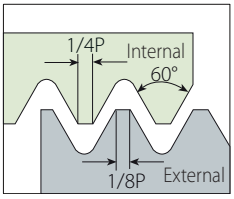
No. of Flutes (Z) 1-5
Cutting Dia. (D2) .84-1.42
Tool Overhang (L1) 1.69-2.56

Shell Mill

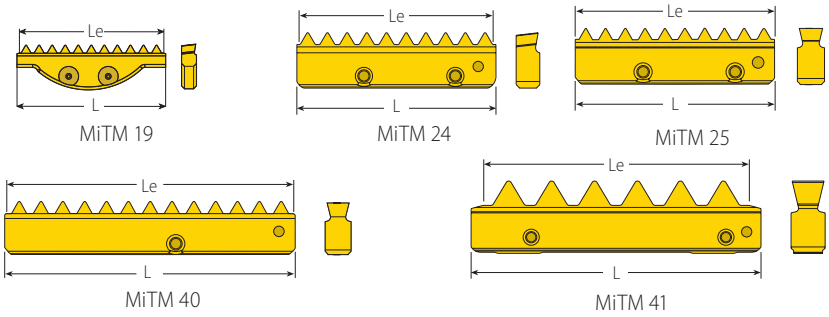
No. of Flutes (Z) 5-6
Cutting Dia. (D2) 2.09-2.48
Tool Overhang (L1) max. 7.87

ISO Metric

External / Internal



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



Standard MiTM

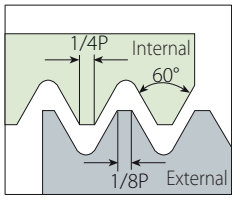
Insert Style	Pitch	Ordering Code	EDP No.		Ordering Code	EDP No.		Cutting Edge		Teeth	Toolholder
L	mm	External			Internal	VTX	VBX		Le	Zt	
19	0.5				R19I0.50ISOTM…	81001	81000	1	.79	40	RTMC….A
	0.75				R19I0.75ISOTM…	81003	81002	1	.79	27	
	1.0				R19I1.00ISOTM…	81005	81004	1	.79	20	
	1.25				R19I1.25ISOTM…	81007	81006	1	.79	16	
	1.5				R19I1.50ISOTM…	81009	81008	1	.77	13	
	1.75				R19I1.75ISOTM…	81011	81010	1	.76	11	
	2.0				R19I2.0ISOTM…	81013	81012	1	.79	10	
24	0.5				R24I0.50ISOTM...	80753	80754	1	.96	49	RTMC….M
	0.75				R24I0.75ISOTM...	80755	80751	1	.97	33	
	1.0				R24I1.00ISOTM...	80756	80757	1	.94	24	
	1.25				R24I1.25ISOTM...	80758	80759	1	.98	20	
	1.5				R24I1.50ISOTM...	80760	80761	1	.94	16	
	1.75				R24I1.75ISOTM...	80762	80763	1	.96	14	
	2.0				R24I2.00ISOTM...	80764	80765	1	.94	12	
	2.5				R24I2.50ISOTM...	80766	80767	1	.98	10	
25	1.0	R25E1.00ISOTM...	80584	80585	R25I1.00ISOTM...	80482	80483	2	.94	24	(B)RTMC….S
	1.25	R25E1.25ISOTM...	81046	81047	R25I1.25ISOTM...	81048	81049	2	.93	19	
	1.5	R25E1.50ISOTM...	80586	80587	R25I1.50ISOTM...	80484	80485	2	.94	16	
	2.0	R25E2.00ISOTM...	80588	80589	R25I2.00ISOTM...	80486	80487	2	.94	12	
	2.5	R25E2.50ISOTM...	80590	80591	R25I2.50ISOTM...	80488	80489	2	.98	10	
	3.0	*R25E3.00ISOTM...	80592	80593	*R25I3.00ISOTM...	80490	80491	2	.94	8	
40	1.0				R40I1.00ISOTM...	80702	80703	2	1.54	39	(B)RTMC….L
	1.5				R40I1.50ISOTM...	80704	80705	2	1.54	26	
	2.0				R40I2.00ISOTM...	80706	80707	2	1.50	19	
	2.5				R40I2.50ISOTM...	80708	80709	2	1.48	15	
	3.0				R40I3.00ISOTM...	80710	80711	2	1.54	13	
41	3.0	R41E3.00ISOTM...	80768	80769	R41I3.00ISOTM...	80782	80783	2	1.54	13	RTMC….B
	3.5	R41E3.50ISOTM...	80770	80771	R41I3.50ISOTM...	80784	80785	2	1.52	11	
	4.0	R41E4.00ISOTM...	80772	80773	R41I4.00ISOTM...	80786	80787	2	1.57	10	
	4.5	R41E4.50ISOTM...	80774	80775	R41I4.50ISOTM...	80788	80789	2	1.59	9	
	5.0	R41E5.00ISOTM...	80776	80777	R41I5.00ISOTM...	80790	80791	2	1.57	8	
	5.5	R41E5.50ISOTM...	80778	80779	R41I5.50ISOTM...	80792	80793	2	1.52	7	
	6.0	R41E6.00ISOTM...	80780	80781	R41I6.00ISOTM...	80794	80795	2	1.42	6	

* 3.0 ISO inserts do not fit into toolholder RTMC100067....
For external insert 3.0 ISO use for CNC program (D2 + .02").

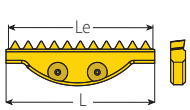
MiTM inserts 25, 40 and 41 are offered with 2 cutting edges. In case of chip flow difficulty, inserts with a single cutting edge can be ordered by request. Example: R25I2.00ISOTM(S)...

American UN - UNC, UNF, UNEF, UNS

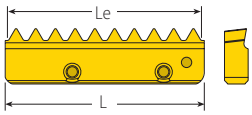
External / Internal



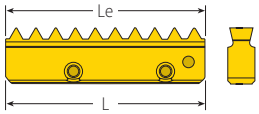
Defined by: ANSI B1.1:74
Tolerance class: 2A/2B



MiTM 19



MiTM 24



MiTM 25

Standard MiTM

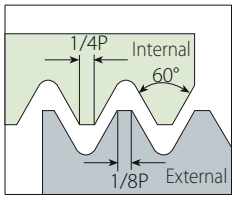
Insert Style	Pitch	Ordering Code	EDP No.		Ordering Code	EDP No.		Cutting Edge		Teeth	Toolholder
L	TPI	External	VTX	VBX	Internal	VTX	VBX		Le	Zt	
19	32				R19I32UNTM…	81015	81014	1	.78	25	RTMC.....A
	28				R19I28UNTM…	81017	81016	1	.79	22	
	27				R19I27UNTM…	81019	81018	1	.78	21	
	24				R19I24UNTM…	81021	81020	1	.79	19	
	20				R19I20UNTM…	81023	81022	1	.75	15	
	18				R19I18UNTM…	81025	81024	1	.78	14	
	16				R19I16UNTM…	81027	81026	1	.75	12	
	14				R19I14UNTM…	81029	81028	1	.79	11	
	13				R19I13UNTM…	81031	81030	1	.77	10	
	12				R19I12UNTM…	81033	81032	1	.75	9	
24	32				R24I32UNTM…	80796	80797	1	.97	31	RTMC.....M
	28				R24I28UNTM...	80798	80799	1	.96	27	
	24				R24I24UNTM...	80802	80803	1	.96	23	
	20				R24I20UNTM...	80804	80805	1	.95	19	
	18				R24I18UNTM...	80806	80807	1	.94	17	
	16				R24I16UNTM...	80808	80809	1	.94	15	
	14				R24I14UNTM...	80810	80811	1	.93	13	
	12				R24I12UNTM...	80812	80813	1	.92	11	
	10				R24I10UNTM...	80814	80815	1	.90	9	
25	20	R25E20UNTM...	80594	80595	R25I20UNTM...	80492	80493	2	.95	19	(B)RTMC.....S
	18	R25E18UNTM...	80596	80597	R25I18UNTM...	80494	80495	2	.94	17	
	16	R25E16UNTM...	80598	80599	R25I16UNTM...	80496	80497	2	.94	15	
	14	R25E14UNTM...	80600	80601	R25I14UNTM...	80498	80499	2	.93	13	
	12	R25E12UNTM...	80602	80603	R25I12UNTM...	80500	80501	2	.92	11	
	10	R25E10UNTM...	80604	80605	R25I10UNTM...	80502	80503	2	.90	9	
	9	*R25E9UNTM...	80606	80607	*R25I9UNTM...	80504	80505	2	.89	8	* See note below
	8	*R25E8UNTM...	80608	80609	*R25I8UNTM...	80506	80507	2	.87	7	

* Note: 8 UN & 9 UN inserts do not fit into toolholder RTMC100067....
For external insert 8 UN use for CNC program (D2 + .02").

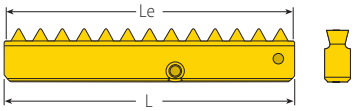
MiTM inserts 25, 40 and 41 are offered with 2 cutting edges. In case of chip flow difficulty, inserts with a single cutting edge can be ordered by request. Example: R25I20UNTM(S)...

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

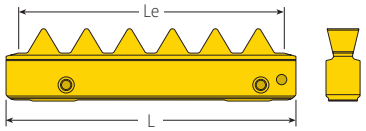
External / Internal



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



MiTM 40



MiTM 41

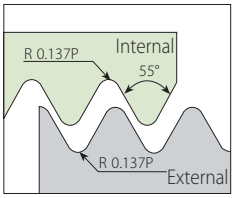
Standard MiTM

Insert Style	Pitch	Ordering Code	EDP No.		Ordering Code	EDP No.		Cutting Edge		Teeth	Toolholder
L	TPI	External	VTX	VBX	Internal	VTX	VBX		Le	Zt	
40	20				R40I20UNTM...	80712	80713	2	1.55	31	(B)RTMC....L
	18				R40I18UNTM...	80714	80715	2	1.56	28	
	16				R40I16UNTM...	80716	80717	2	1.56	25	
	14				R40I14UNTM...	80718	80719	2	1.57	22	
	12				R40I12UNTM...	80720	80721	2	1.50	18	
	10				R40I10UNTM...	80722	80723	2	1.50	15	
	9				R40I9UNTM...	80724	80725	2	1.56	14	
	8				R40I8UNTM...	80726	80727	2	1.50	12	
41	8	R41E8UNTM...	80816	80817	R41I8UNTM...	80828	80829	2	1.50	12	RTMC....B
	7	R41E7UNTM...	80818	80819	R41I7UNTM...	80830	80831	2	1.57	11	
	6	R41E6UNTM...	80820	80821	R41I6UNTM...	80832	80833	2	1.50	9	
	5	R41E5UNTM...	80822	80823	R41I5UNTM...	80834	80835	2	1.40	7	
	4.5	R41E4.5UNTM...	80824	80825	R41I4.5UNTM...	80836	80837	2	1.56	7	
	4	R41E4UNTM...	80826	80827	R41I4UNTM...	80838	80839	2	1.50	6	

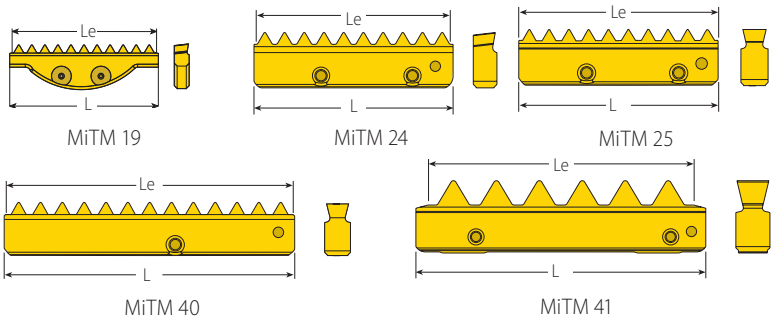
MiTM inserts 25, 40 and 41 are offered with 2 cutting edges. In case of chip flow difficulty, inserts with a single cutting edge can be ordered by request. Example: R25I20UNTM(S)...

Whitworth for BSF, BSP (G)

External / Internal



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



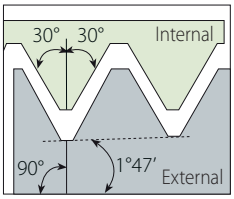
Standard MiTM

Insert Style	Pitch	Ordering Code	EDP No.		Ordering Code	EDP No.		Cutting Edge		Teeth	Toolholder
L	TPI	External+Internal	VTX	VBX	Internal	VTX	VBX		Le	Zt	
19	19	R19EI19WTM…	81035	81034				1	.79	15	RTMC.....A
	16	R19EI16WTM…	81037	81036				1	.75	12	
	14	R19EI14WTM…	81039	81038				1	.79	11	
24	19	R24EI19WTM...	80844	80845				1	.95	18	RTMC.....M
	14	R24EI14WTM...	80846	80847				1	.93	13	
	12	R24EI12WTM...	80848	80849				1	.92	11	
25	16	R25EI16WTM...	80508	80509				2	.94	15	(B)RTMC.....S
	14	R25EI14WTM...	80510	80511				2	.93	13	
	12	R25EI12WTM...	80512	80513				2	.92	11	
	11	R25EI11WTM...	80514	80515				2	.91	10	
40	16	R40EI16WTM...	80610	80611				2	1.56	25	(B)RTMC.....L
	14	R40EI14WTM...	80612	80613				2	1.57	22	
	12	R40EI12WTM...	80614	80615				2	1.50	18	
	11	R40EI11WTM...	80616	80617				2	1.55	17	
41	8				R41I8WTM...	80850	80851	2	1.50	12	RTMC.....B
	7				R41I7WTM...	80852	80853	2	1.57	11	
	6				R41I6WTM...	80854	80855	2	1.50	9	

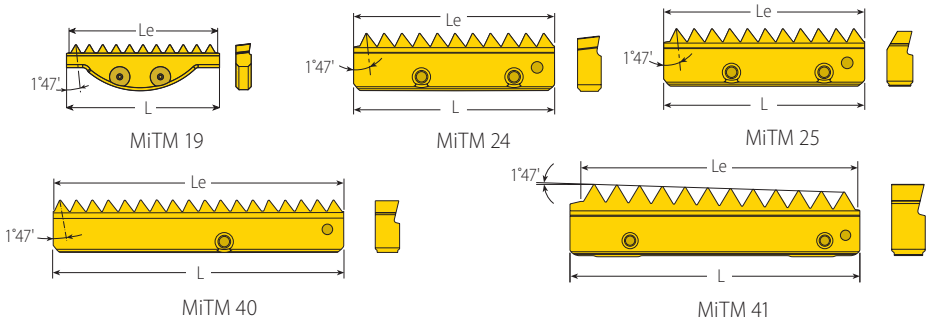
MiTM inserts 25, 40 and 41 are offered with 2 cutting edges. In case of chip flow difficulty, inserts with a single cutting edge can be ordered by request. Example: R25EI16WTM(S)...

NPT

External / Internal



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

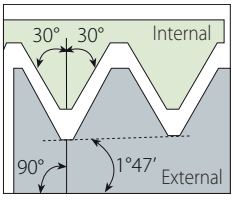


Standard MiTM

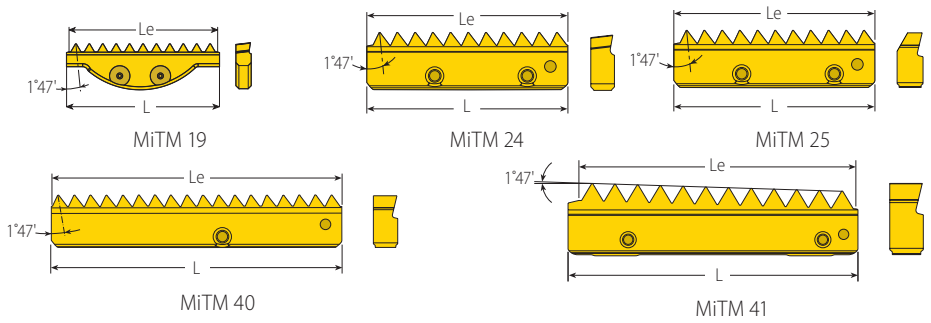
Insert Style	Pitch	Ordering Code	EDP No.		Cutting Edge		Teeth	Toolholder
L	TPI	External+Internal	VTX	VBX		Le	Zt	
19	18	R19EI18NPT-TM...	81041	81040	1	.78	14	RTMNC....A
24	18	R24EI18NPT-TM...	80873	80874	1	.94	17	RTMNC....M
25	14	R25EI14NPT-TM...	80516	80517	1	.93	13	RTMNC....S
	11.5	R25EI11.5NPT-TM...	80518	80519	1	.96	11	
	8	R25EI8NPT-TM...	80580	80581	1	.87	7	RTMNC-D150-050-25S5
40	11.5	R40EI11.5NPT-TM...	80743	80744	1	1.48	17	RTMNC-D190-075-40L7
	8	R40EI8NPT-TM...	80728	80729	1	1.50	12	
41	8	R41EI8NPT-TM...	80840	80841	1	1.50	12	RTMC....B

NPTF

External / Internal



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

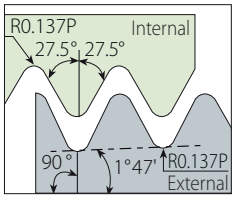


Standard MiTM

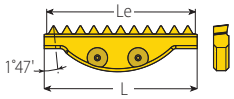
Insert Style	Pitch	Ordering Code	EDP No.		Cutting Edge		Teeth	Toolholder
L	TPI	External+Internal	VTX	VBX		Le	Zt	
19	18	R19EI18NPTFTM...	81043	81042	1	.78	14	RTMNC....A
24	18	R24EI18NPTFTM...	80875	80876	1	.94	17	RTMNC....M
25	14	R25EI14NPTFTM...	80520	80521	1	.93	13	RTMNC....S
	11.5	R25EI11.5NPTFTM...	80522	80523	1	.96	11	
	8	R25EI8NPTFTM...	80582	80583	1	.87	7	RTMNC-D150-050-25S5
40	11.5	R40EI11.5NPTFTM...	80745	80746	1	1.48	17	RTMNC-D190-075-40L7
	8	R40EI8NPTFTM...	80730	80731	1	1.50	12	
41	8	R41EI8NPTFTM...	80842	80843	1	1.50	12	RTMC....B

BSPT

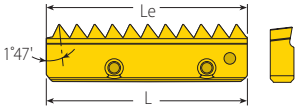
External / Internal



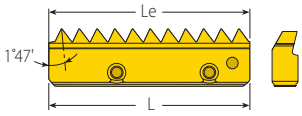
Defined by: B.S. 21:1985
Tolerance class: Standard BSPT



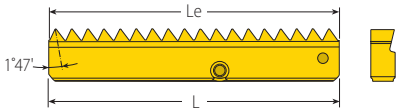
MiTM 19



MiTM 24



MiTM 25



MiTM 40

Standard MiTM

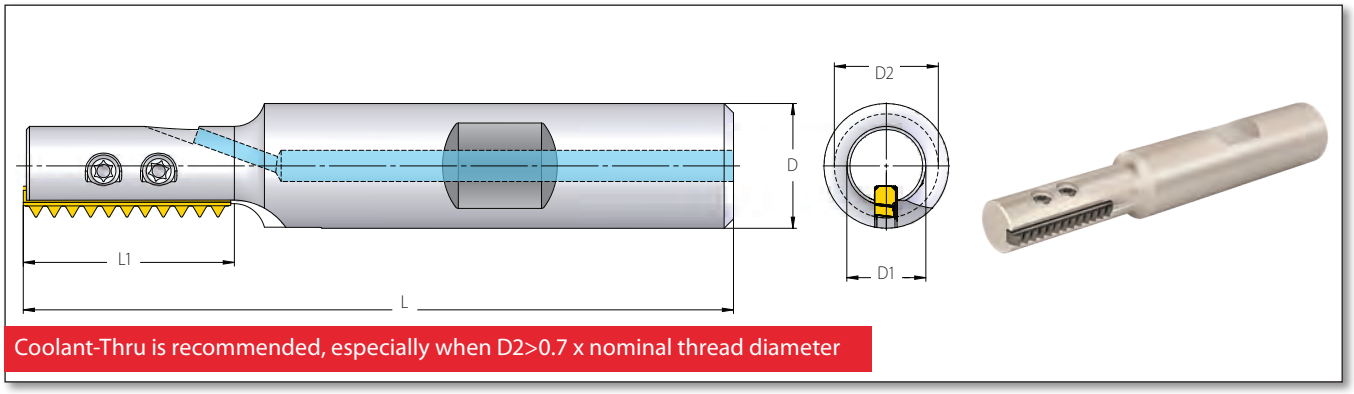
Insert Style	Pitch	Ordering Code	EDP No.		Cutting Edge		Teeth	Toolholder
L	TPI	External+Internal	VTX	VBX		Le	Zt	
19	19	R19EI19BSPT-TM...	81045	81044	1	.79	15	RTMNC....A
24	19	R24EI19BSPT-TM...	80871	80872	1	.95	18	RTMNC 075055-102M1
25	14	R25EI14BSPT-TM...	80524	80525	1	.93	13	RTMNC....S
	11	R25EI11BSPT-TM...	80526	80527	1	.91	10	
40	11	R40EI11BSPT-TM...	80732	80733	1	1.55	17	RTMNC-D190-075-40L7

Plug Insert

Insert Style	Ordering Code	EDP No.	Teeth	Toolholder	
L	External+Internal		Zt		
24	R24NC	80858	No Teeth	RTMC....M	All Types
25	R25NC	80532		(B)RTMC....S RTMNC....S	
40	R40NC	80626		(B)RTMC....L RTMNC....L	
41	R41NC	80859		RTMC....B	

Fill unused toolholder pockets with plug inserts (R..NC).
This assures balance and prevents instability and chips from packing into empty pockets.

Standard Toolholders (MiTM 19)



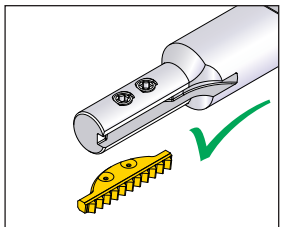
Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

RTMC - for Standard Threads

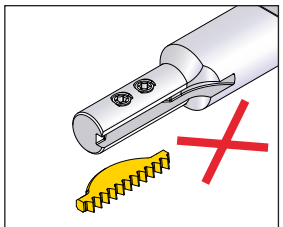
Insert Style	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes	Spare Parts	
			L	L1	D	D1	D2	Z	Location Screw x2	Torx+ Screwdriver
19	RTMC050039-079A1	80643	2.69	.79	.50	.30	.39	1	SLD3IP6 (M3x0.5) (80654)	KIP6 • Use the included Vardex Torx+ screwdriver only. • Recommended max. torque 1.2 NxM (80656)
	RTMC050046-098A1	80646	2.91	.99	.50	.34	.46	1		

Standard Thread Application by Toolholder

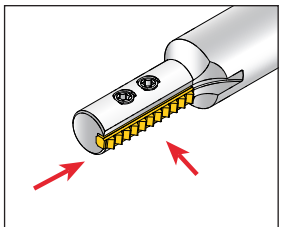
Toolholder	Min. Thread Dia.						
	D2 (Inch)	ISO (coarse)	ISO (fine)	UNC	UN/UNF/UNEF/UNS	BSF	BSP(G)
RTMC050039-079A1	.39	M12x1.75	M11x0.5; M11x0.75; M11.5x1; M12x1.25; M12x1.5	½-13	7/16-32UN; 7/16-28UNEF; 7/16-27UNS; ½-24UNS; ½-20UNF; ½-18UNS; ½-16UN; ½-14UNS	½-16	¼-19
RTMC050046-098A1	.46	M14x2.0; M16x2.0	M12.5x0.5; M13x0.75; M13x1; M13.5x1.25; M14x1.5; M14x1.75	9/16-12	½-32UN; 9/16-28UNS; 9/16-27UNS; 9/16-24UNEF; 9/16-20UN; 9/16-18UNF; 9/16-16UN; 9/16-14UNS;	5/8-14	¼-14



Side with screw location holes.

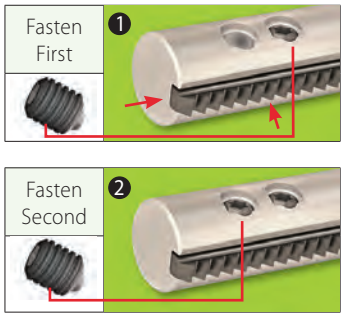


Always mount all inserts with screw location holes face up.

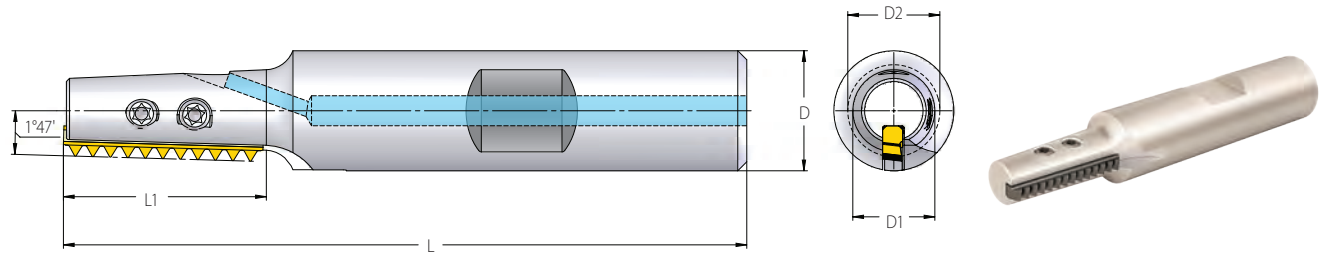


To mount insert correctly, push the insert toward the pocket walls.

2 Step Clamping System



Conical Toolholders (MiTM 19)



Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

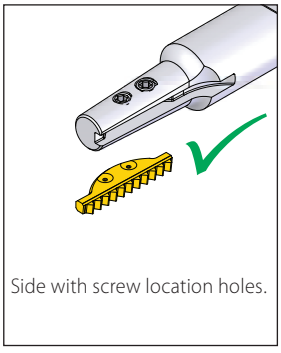
RTMNC - for Conical Threads

Insert Style	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes	Spare Parts	
			L	L1	D	D1	D2	Z	Location Screw x2	Torx+ Screwdriver
19	RTMNC050039-074A1	80653	2.63	.71	.50	.32	.42	1	SLD3IP6 (M3x0.5) (80654)	KIP6 • Use the included Vardex Torx+ screwdriver only. • Recommended max. torque 1.2 NxM (80656)

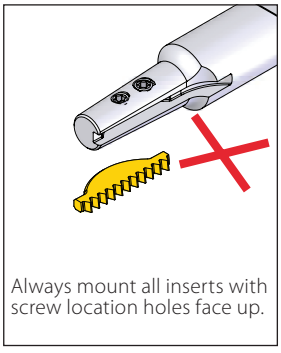
Conical Thread Application by Toolholder

Toolholder				
	D2 (Inch)	NPT	NPTF	BSPT
RTMNC050039-074A1	.42	1/4-18* 3/8-18	1/4-18* 3/8-18	1/4-19* 3/8-19

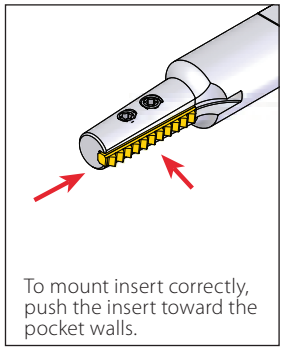
* Using MiTM 19 tools the maximum thread length is .413"



Side with screw location holes.

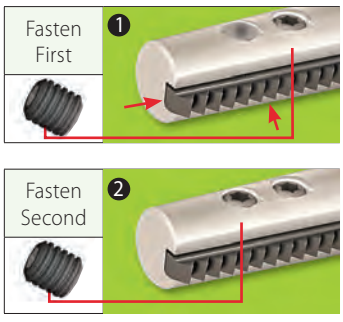


Always mount all inserts with screw location holes face up.

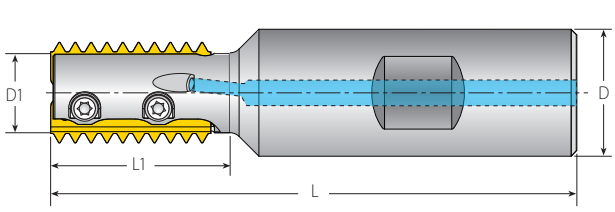


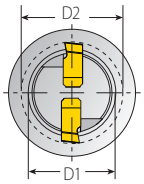
To mount insert correctly, push the insert toward the pocket walls.

2 Step Clamping System



Standard Toolholders (MiTM 24)





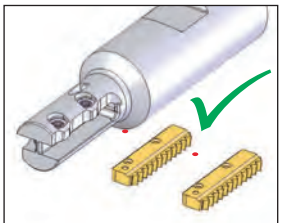
Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

RTMC - for Standard Threads

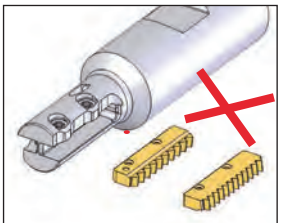
Insert Style	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes	Spare Parts	
			L	L1	D	D1	D2	Z	Location Screw x2	Torx+ Screwdriver
24	RTMC075053-102M1	80860	3.27	1.02	.75	.42	.53	1	SLD4IP8 (M4x0.7) (80533)	KIP8 •Use the included Vardex Torx+ screwdriver only. •Recommended max. torque 1.2 NxM (70231)
	RTMC075059-118M1	80861	3.39	1.18	.75	.47	.59	1		
	RTMC075063-110M2	80752	3.31	1.10	.75	.49	.63	2		
	RTMC075063-142M1	80862	3.62	1.42	.75	.49	.63	1		

Standard Thread Application by Toolholder

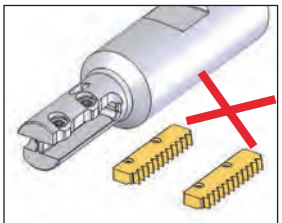
Toolholder	Min. Thread Dia.						
	D2 (Inch)	ISO (coarse)	ISO (fine)	UNC	UN/UNF/UNEF/UNS	BSF	BSP(G)
RTMC075053-102M1	.53	M16x2	M14.5x0.5; M15x0.75; M15x1; M15x1.25; M16x1.5; M16x1.75	-	11/16-12UN; 5/8-14UNS; 5/8-16UN; 5/8-18UNF; 5/8-20UN; 5/8-24UNEF; 5/8-28UN; 5/8-32UN	11/16-14; 3/4-12	3/8-19; 1/2-14
RTMC075059-118M1	.59	M18x2.5	M16x0.5; M17x0.75; M17x1; M17x1.25; M17x1.5; M18x1.75; M18x2	3/4-10	3/4-12UN; 3/4-14UNS; 11/16-16UN; 11/16-20UN; 11/16-24UNEF; 11/16-28UN; 11/16-32UN	3/4-12	1/2-14
RTMC075063-110M2	.63	M20x2.5	M17x0.5; M17x0.75; M18x1; M18x1.25; M18x1.5; M18x1.75; M19x2	3/4-10	3/4-12UN; 3/4-14UNS; 3/4-16UN; 3/4-18UNS; 3/4-20UNEF; 11/16-24UNEF; 11/16-28UN; 11/16-32UN	3/4-12	1/2-14
RTMC075063-142M1	.63	M20x2.5	M17x0.5; M17x0.75; M18x1; M18x1.25; M18x1.5; M18x1.75; M19x2	3/4-10	3/4-12UN; 3/4-14UNS; 3/4-16UN; 3/4-18UNS; 3/4-20UNEF; 11/16-24UNEF; 11/16-28UN; 11/16-32UN	3/4-12	1/2-14



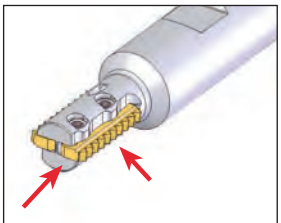
Side with identification marks.



Always mount all inserts with identification marks face up.

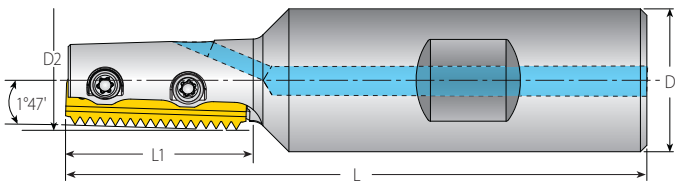


Side without identification marks.



To mount insert correctly, push the insert toward the pocket walls.

Conical Toolholders (MiTM 24)



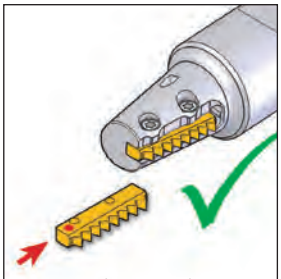
Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

RTMC - for Conical Threads

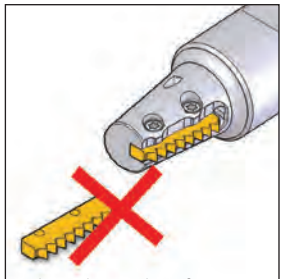
Insert Style	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes	Spare Parts	
			L	L1	D	D1	D2	Z	Location Screw x2	Torx+ Screwdriver
24	RTMNC075055-102M1	80863	3.23	1.02	.75	.45	.55	1	SLD4IP8 (M4x0.7) (80533)	KIP8 •Use the included Vardex Torx+ screwdriver only. •Recommended max. torque 1.2 NxM (70231)

Conical Thread Application by Toolholder

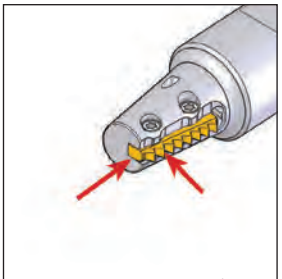
Toolholder		Thread Dia.		
	D2 (Inch)	NPT	NPTF	BSPT
RTMNC075055-102M1	.55	⅜-18	⅜-18	⅜-19



On Conical inserts, the identification mark mustface up.

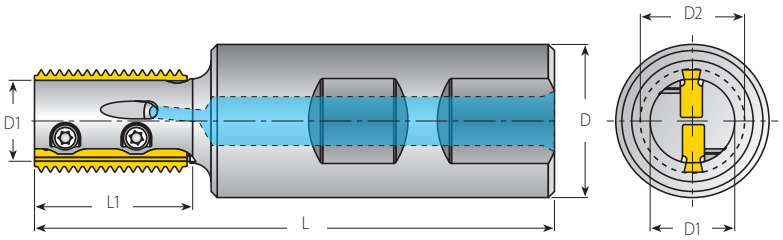


Side without identification marks.



To mount insert correctly, push the insert toward the pocket walls.

Standard Toolholders (MiTM 25)



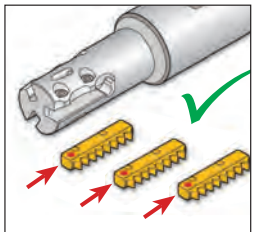
Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

RTMC - for Standard Threads

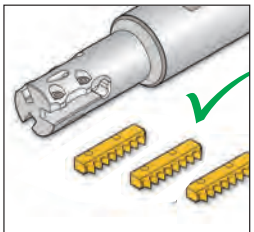
Insert Style	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes	Spare Parts: Location Screw x2	Spare Parts: Torx+ Screwdriver
			L	L1	D	D1	D2	Z		
25	RTMC075067-110S2	80748	3.29	1.10	.75	.55	.67	2	SLD4IP8 (M4x0.7) (80533)	KIP8 • Use the included Vardex Torx+ screwdriver only. • Recommended max. torque 1.2 NxM (70231)
	RTMC075067-145S2	80747	3.65	1.45		.55	.67	2		
	RTMC100067-110S2	80471	3.50	1.10	1.00	.55	.67	2		
	RTMC100067-145S2	80472	3.86	1.45		.55	.67	2		
	RTMC100075-125S2	80633	3.65	1.25		.60	.75	2		
	RTMC100075-175S2	80634	4.15	1.75		.60	.75	2		
	RTMC100081-150S3	80474	3.90	1.50		.65	.81	3		
	RTMC100081-175S3	80475	4.15	1.75		.65	.81	3		
	RTMC100087-170S3	80476	4.09	1.70		.71	.87	3		
	RTMC100087-220S3	80478	4.60	2.20		.71	.87	3		
	RTMC100118-220S5	80479	4.53	2.20		1.02	1.18	5		
	BRTMC100118-315S4	80481	5.51	3.15		1.02	1.18	4		

Standard Thread Application by Toolholder

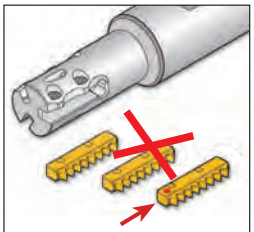
Toolholder	Min.Thread Dia.						
	D2 (Inch)	ISO (coarse)	ISO (fine)	UNC	UN/UNF/UNEF/UNS	BSF	BSP(G)
RTMC 075067-110S2 RTMC 075067-145S2 RTMC 100067-110S2 RTMC 100067-145S2	.67	M20x2.5	M19x1; M19x1.5; M20x2	-	7/8-10UNS; 13/16-12UN; 7/8-14UNF; 3/4-16UNF; 3/4-18UNS; 3/4-20UNEF	7/8-11; 7/8-12; 7/8-14; 7/8-16	1/2-14
RTMC 100075-125S2 RTMC 100075-175S2	.75	M22x2.5 M24x3	M21x1; M21x1.5; M22x2	7/8-9; 1-8	7/8-20UNEF; 7/8-18UNS; 7/8-16UN; 7/8-14UNF; 7/8-12UN; 7/8-10UNS	7/8-16; 7/8-14; 15/16-12; 15/16-11	5/8-14
RTMC 100081-150S3 RTMC 100081-175S3	.81	M24x3	M22x1; M23x1.5; M23x2; M23.5x2.5	1-8	15/16-9UN; 1-10UNS; 15/16-12UN; 1-14UNS; 15/16-16UN; 7/8-18UNS; 7/8-20UNEF	1-11; 1-12; 1-14; 1-16	5/8-14
RTMC 100087-170S3 RTMC 100087-220S3	.87	M27x3	M24x1; M24x1.5; M25x2; M25x2.5	-	1 11/16-8UN; 1-9UN; 1-10UNS; 1-12UNF; 1-14UNS; 1-16UN; 1-18UN; 15/16-20UNEF	1-11; 1-12; 1-14; 1-16	3/4-14
RTMC 100118-220S5 BRTMC 100118-315S4	1.18	-	M32x1; M32x1.5; M33x2; M33x2.5; M34x3	-	1 3/8-8UN; 1 3/8-9UN; 1 3/8-10UN; 1 5/16-12UN; 1 3/8-14UNS; 1 5/16-16UN; 1 5/16-18UNEF; 1 5/16-20UN	1 3/8-11; 1 3/8-12; 1 3/8-14; 1 3/8-16	1-11



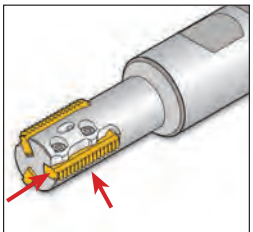
Side with identification marks



Side without identification marks.

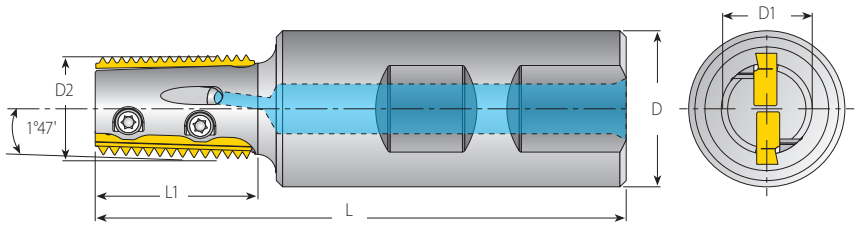


Always mount all inserts with identification marks on the same side.



To mount insert correctly, push the insert toward the pocket walls.

Conical Toolholders (MiTM 25)



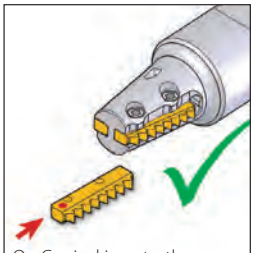
Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

RTMNC - for Conical Threads

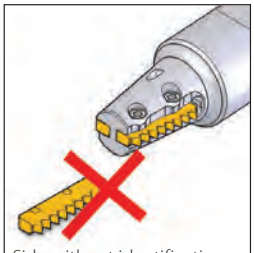
Insert Style	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes	Spare Parts	
			L	L1	D	D1	D2	Z	Location Screw x2	Torx+ Screwdriver
25	RTMNC075067-110S2	80749	3.29	1.10	.75	.55	.68	2	SLD4IP8 (M4x0.7) (80533)	KIP8 Use the included Vardex Torx+ screwdriver only. Recommended max. torque 1.2 NxM (70231)
	RTMNC100067-110S2	80473	3.50	1.10	1.00	.55	.68	2		
	RTMNC100087-170S3	80477	4.09	1.70	1.00	.71	.87	3		
	RTMNC100110-170S4	80480	4.06	1.70	1.00	1.10	1.12	4		

Conical Thread Application by Toolholder

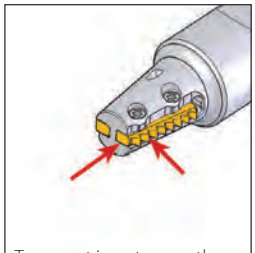
Toolholder	Thread Dia.			
	D2 (Inch)	NPT	NPTF	BSPT
RTMNC075067-110S2	.68	½-14; ¾-14; 1-11.5; 1¼-11.5; 1½-11.5; 2-11.5	½ -14; ¾-14; 1-11.5; 1¼-11.5; 1½-11.5; 2-11.5	½ -14; ¾-14
RTMNC100067-110S2				
RTMNC100087-170S3	.87	¾-14; 1-11.5; 1¼-11.5; 1½-11.5; 2-11.5	¾-14; 1-11.5; 1¼-11.5; 1½-11.5; 2-11.5	¾-14; 1-11; 1¼-11; 1½-11; 2-11; 2½-11; 3-11; 4-11; 5-11; 6-11
RTMNC100110-170S4	1.12	1-11.5; 1¼-11.5; 1½-11.5; 2-11.5	1-11.5; 1¼-11.5; 1½-11.5; 2-11.5	1-11; 1¼-11; 1½-11; 2-11; 2½-11; 3-11; 4-11; 5-11; 6-11



On Conical inserts, the identification mark must face up.

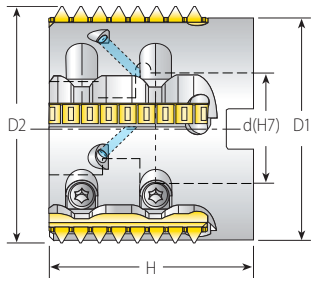


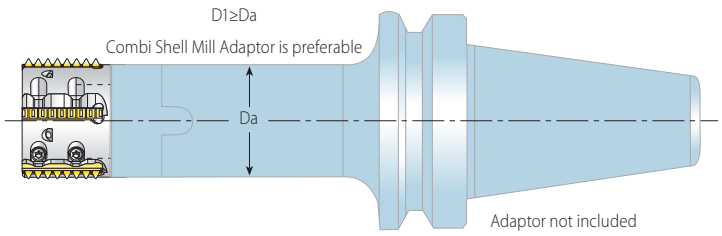
Side without identification marks.



To mount insert correctly, push the insert toward the pocket walls.

Shell Mill (MiTM 25)





Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Conical and Standard Shell Mills

	Insert Style	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Spare Parts		
				D1	D2	d(H7)	H	Z	Location Screw x2	Torx+ Screwdriver	Holder Screw
Standard	25	RTMC-D150-050-25S5	80569	1.38	1.54	.50	1.26	5	SLD4IP8 (M4x0.7) (80533)	KIP8 Use the included Vardex Torx+ screwdriver only. Recommended max. torque 1.2 NxM (70231)	1/4"-28x1.25 (70263)
		RTMC-D190-075-25S7	80570	1.77	1.93	.75	1.38	7			3/8"-24x1.25 (70223)
		RTMC-D230-100-25S9	80571	2.17	2.32	1.00	1.58	9			1/2"-20x1.50 (70262)
Conical		RTMNC-D150-050-25S5	80572	1.38	1.53*	.50	1.26	5			1/4"-28x1.25 (70263)

* For inserts 8NPT and 8NPTF use for CNC program 1.55".

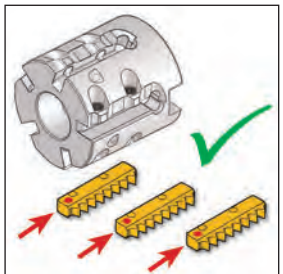
Standard Thread Applications by Toolholder

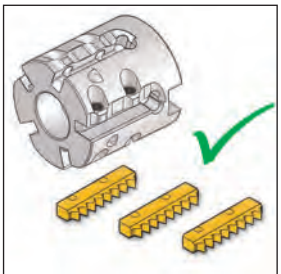
Toolholder		Min. Thread Dia.				
		D2 (Inch)	ISO (fine)	UN/UNF/UNEF/UNS	BSW	BSP(G)
Standard	RTMC-D150-050-25S5	1.54	M42x1; M42x1.25; M42 x1.5; M45x2; M45x3	1 11/16-12UNF; 1 3/4-14UNS; 1 5/8-16UN 1 5/8-18UNEF; 1 5/8-20UN;	1 3/4-16 1 3/4-12	1 1/2-11
	RTMC-D190-075-25S7	1.93	M52x1; M52x1.25; M55x1.5; M55x2; M55x3	2 1/8-12UN; 2 1/16-16UN; 2 1/8-20UN; 2 1/8-8UN 2 1/4-10UNS; 2 1/4-14UNS; 2 1/4-18UNS	2 1/4-16 2 1/4-12	1 3/4-11
	RTMC-D230-100-25S9	2.32	M64x1; M64x1.25; M64x1.5; M64x2; M65x3	2 1/2-18UN; 2 1/2-20UN; 2 1/2-8UN 2 1/2-12UN; 2 1/2-10UN; 2 1/2-14UN; 2 1/2-16UN	2 1/2-16 2 1/2-12	2 1/4-11

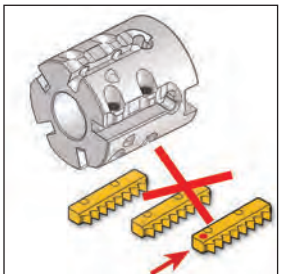
Conical Thread Applications by Toolholder

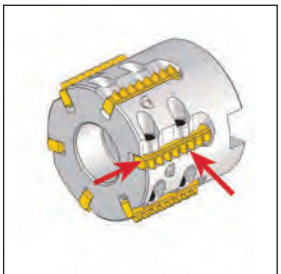
Toolholder		Thread Dia.			
		D2 (Inch)	NPT	NPTF	BSPT
Conical	RTMNC-D150-050-25S5	1.53*	1½ - 11.5; 2-11.5; 2½ (and up) -8	1½ - 11.5; 2-11.5	1½-6 x11

* For inserts 8NPT and 8NPTF use for CNC program 1.55".

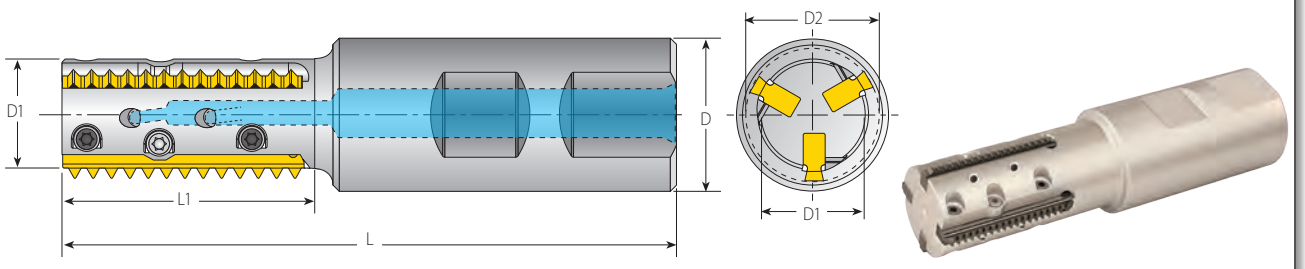

Side with identification marks.


Side without identification marks.


Always mount all inserts on the same side!


To mount insert correctly, push the insert toward the pocket walls.

Standard Toolholders (MiTM 40)



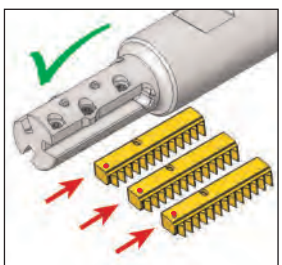
Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

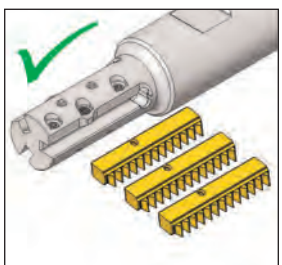
RTMC - for Standard Threads

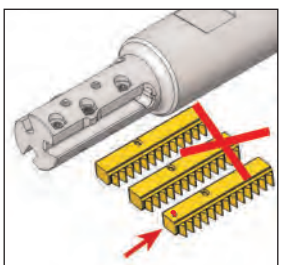
Insert Style	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes	Spare Parts		
			L	L1	D	D1	D2	Z	Location Screw	Clamping Screw x2	Torx+ Screwdriver
40	RTMC100087-169L3	80618	4.00	1.69	1.00	.71	.87	3	SLD4IP8A (M4x0.7) (80533)	SCD4IP8 (M4x0.7) (80622)	KIP8 • Use the included Vardex Torx+ screwdriver only. • Recommended max. torque 1.2 NxM (70231)
	RTMC100087-256L3	80619	4.87	2.56	1.00	.71	.87	3			
	RTMC125118-215L4	80620	4.55	2.15	1.25	1.02	1.18	4			
	BRTMC125118-315L3	80621	5.35	3.15	1.25	1.02	1.18	3			

Standard Thread Application by Toolholder

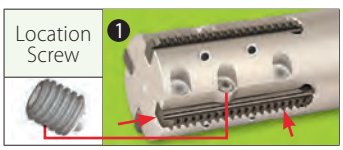
Toolholder	Min. Thread Dia.						
	D2 (Inch)	ISO (coarse)	ISO (fine)	UNC	UN/UNF/UNEF/UNS	BSF	BSP(G)
RTMC100087-169L3	.87	M27x3	M24x1; M24x1.5 M25x2; M25x2.5	-	1 11/16-8UN; 1-9UN; 1-10UNS; 1-12UNF; 1-14UNS; 1-16UN; 1-18UN; 15/16-20UNEF	1-11; 1-12; 1-14; 1-16;	3/4-14
RTMC100087-256L3	.87	M27x3	M24x1; M24x1.5 M25x2; M25x2.5	-	1 11/16-8UN; 1-9UN; 1-10UNS; 1-12UNF 1-14UNS; 1-16UN; 1-18UN; 15/16-20UNEF	1-11; 1-12; 1-14; 1-16;	3/4-14
RTMC125118-215L4	1.18	-	M32x1; M32x1.5 M33x2; M33x2.5; M34x3	-	1 3/8-8UN; 1 3/8-9UN; 1 3/8-10UN; 1 5/16-12UN; 1 3/8-14UNS; 1 5/16-16UN; 1 5/16-18UNEF; 1 5/16-20UN	1 3/8-11; 1 3/8-12; 1 3/8-14; 1 3/8-16	1-11
BRTMC125118-315L3	1.18	-	M32x1; M32x1.5 M33x2; M33x2.5; M34x3	-	1 3/8-8UN; 1 3/8-9UN; 1 3/8-10UN; 1 5/16-12UN; 1 3/8-14UNS; 1 5/16-16UN; 1 5/16-18UNEF; 1 5/16-20UN	1 3/8-11; 1 3/8-12; 1 3/8-14; 1 3/8-16	1-11

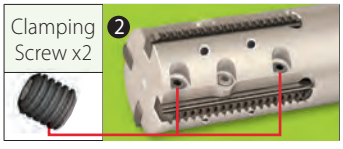

Side with identification marks.


Side without identification marks.

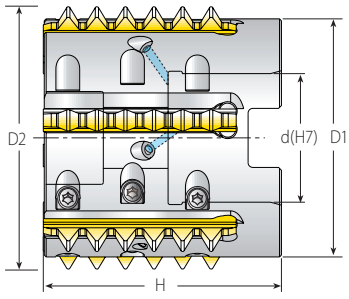

Always mount all inserts on the same side!

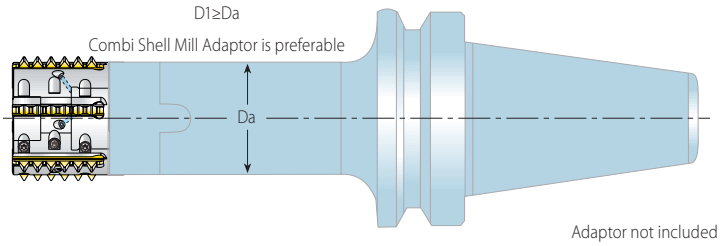
2 Step Clamping System





Shell Mill (MiTM 40)





Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Conical and Standard Shell Mills

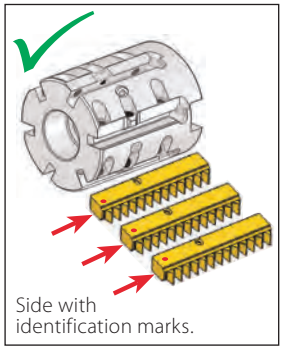
	Insert Style	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Spare Parts			
				D1	D2	d(H7)	H	Z	Location Screw	Clamping Screw x2	Torx+ Screwdriver	Holder Screw
Standard	40	RTMC-D190-075-40L7	80623	1.77	1.93	.75	1.97	7	SLD4IP8A (M4x0.7) (80533)	SCD4IP8 (M4x0.7) (80622)	KIP8 •Use the included Vardex Torx+ screwdriver only. •Recommended max. torque 1.2 NxM (70231)	3/8"-24x1.25 (70223)
		RTMC-D230-100-40L9	80624	2.17	2.32	1.00	2.00	9				1/2"-20x1.5 (70224)
Conical		RTMNC-D190-075-40L7	80625	1.77	1.93	.75	1.97	7				3/8"-24x1.25 (70223)

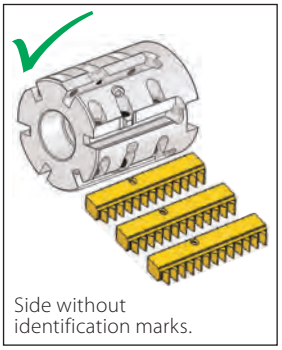
Standard Thread Application by Toolholder

Toolholder			Min. Thread Dia.			
		D2 (Inch)	ISO (fine)	UN/UNF/UNEF/UNS	BSW	BSP(G)
Standard	RTMC-D190-075-40L7	1.93	M52x1; M55x1.5; M55x2; M55x3	2⅛ -8UN; 2⅛ -12UN; 2 1/16-16UN; 2⅛ - 20UN; 2¼ -10UNS; 2¼ -14UNS; 2¼ -18UNS	2¼ -12; 2¼ -16	1¾ -11
	RTMC-D230-100-40L9	2.32	M64x1; M64x1.5; M64x2; M65x3	2½ -8UN; 2½ -10UNS; 2½ -12UN; 2½ -14UNS; 2½ -16UN; 2½ -18UNS; 2½ -20UN	2½ -12; 2½ -16	2¼ -11

Conical Thread Application by Toolholder

Toolholder			Min. Thread Dia.		
		D2 (Inch)	NPT	NPTF	BSPT
Conical	RTMNC-D190-075-40L7	1.93	2-11.5; 2½-8 (and up)	2-11.5; 2½-8; 3-8	2-6x11


Side with identification marks.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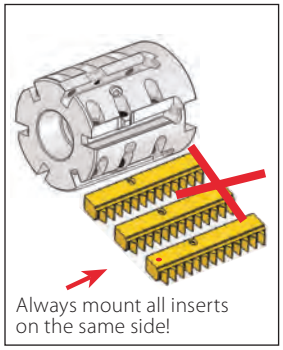
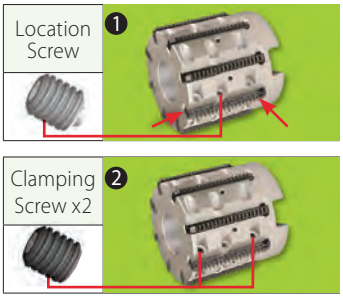
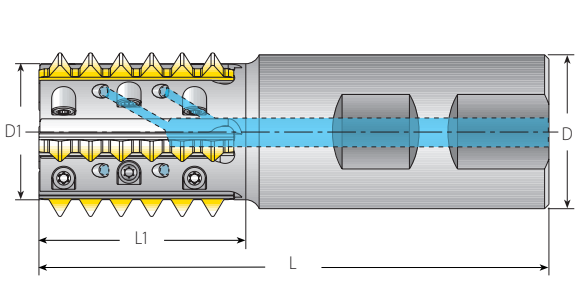
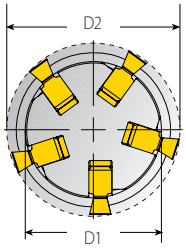

Always mount all inserts on the same side!

2 Step Clamping System



Standard Toolholders (MiTM 41)





Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

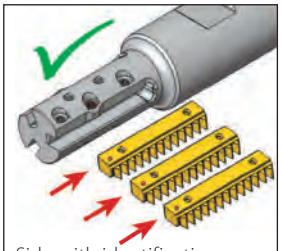
RTMC - for Standard Threads

Insert Style	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes	Spare Parts		
			L	L1	D	D1	D2*	Z	Location Screw x2	Clamping Screw	Torx+ Screwdriver
41	RTMC100083-177B1	80654	4.13	1.77	1.00	.63	.835	1	SLD4IP8A (M4x0.7) (80533)	SCD4IP8 (M4x0.7) (80622)	KIP8 •Use the included Vardex Torx+ screwdriver only. •Recommended max. torque 1.2 NxM (70231)
	RTMC100096-169B2	80864	4.13	1.69	1.00	.76	.97	2			
	RTMC125118-169B3	80865	4.13	1.69	1.25	.95	1.18	3			
	RTMC125118-256B3	80866	5.00	2.56	1.25	.95	1.18	3			
	RTMC125141-169B5	80867	4.13	1.69	1.25	1.11	1.42	5			
	RTMC125141-256B4	80868	4.98	2.56	1.25	1.11	1.42	4			

Standard Thread Application by Toolholder

Toolholder	Min. Thread Dia.							
	D2* (Inch)	ISO (coarse)	ISO (fine)	UNC	UN/UNF/UNEF/UNS	BSW/BSF	NPT	NPTF
RTMC100083-177B1	.835	M27x3; M30x3.5; M33x3.5; M36x4; M39x4	M30x3; M42x4	1-8, 1⅛-7; 1¼-7; 1⅜-6; 1½-6	1 1/16-8UN; 1 7/16-6UN	1-8BSW; 1⅛-7BSW	-	-
RTMC100096-169B2	.97	M30x3.5; M36x4	M28x3; M45x4	1⅛-7; 1⅜-6	1⅛-8UN; 1 7/16-6UN	1⅜-8BSF; 1¼-7BSW	-	-
RTMC125118-169B3	1.18	M36x4; M42x4.5	M34x3; M34x3.5; M45x4	1⅜-6	1⅜-8UN; 1 7/16-6UN	1⅜-8BSF; 1¾-7BSF; 1½-6BSW	-	-
RTMC125118-256B3	1.18	M36x4; M42x4.5	M34x3; M34x3.5; M45x4	1⅜-6	1⅜-8UN; 1 7/16-6UN	1⅜-8BSF; 1¾-7BSF; 1½-6BSW	-	-
RTMC125141-169B5	1.42	M42x4.5; M48x5; M56x5.5; M64x6	M40x3; M40x3.5; M42x4; M70x6	1¾-5; 2-4.5; 2½-4	1⅝-8UN; 1⅝-6UN	1⅝-8BSF; 1¾-7BSF; 1⅞-6BSF	2½-8	2½-8
RTMC125141-256B4	1.42	M42x4.5; M48x5; M56x5.5; M64x6	M40x3; M40x3.5; M42x4; M70x6	1¾-5; 2-4.5; 2½-4	1⅝-8UN; 1⅝-6UN	1⅝-8BSF; 1¾-7BSF; 1⅞-6BSF	2½-8	2½-8

* For external applications, inserts R41E... use for CNC program (D2 +0.024").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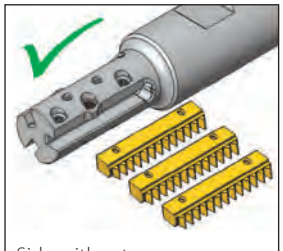
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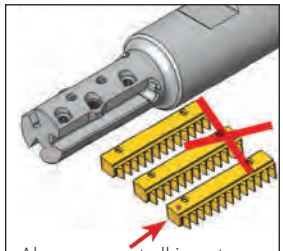
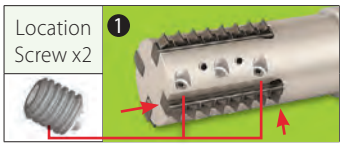
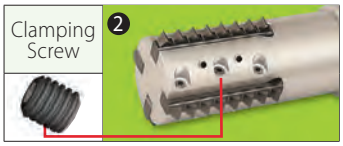
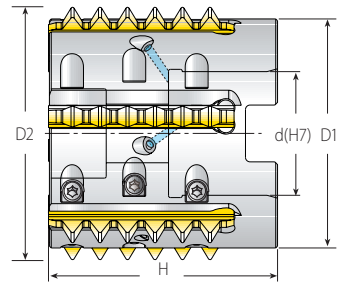

Always mount all inserts on the same side!

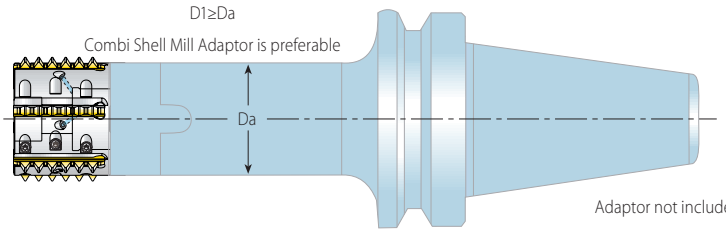
2 Step Clamping System





Shell Mill (MiTM 41)





Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

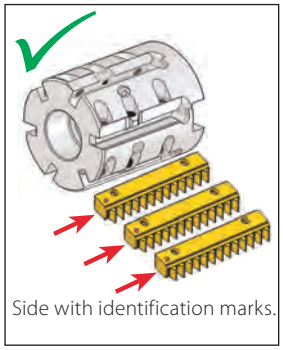
Standard Shell Mill

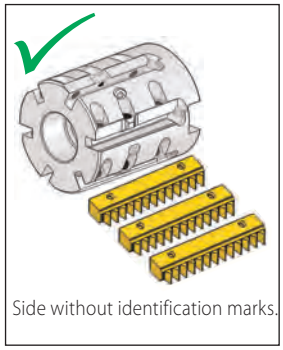
Insert Style	Ordering Code		Dimensions Inch				No. of Flutes	Spare Parts			
			D1	D2*	d(H7)	H	Z	Location Screw x2	Clamping Screw	Torx+ Screwdriver	Holder Screw
41	RTMC-D209-075-41B5	80869	1.77	2.08*	.75	2.00	5	SLD4IP8A (M4x0.7) (80533)	SCD4IP8 (M4x0.7) (80622)	KIP8 •Use the included Vardex Torx+ screwdriver only. •Recommended max. torque 1.2 NxM (70231)	3/8"-24x1.5 (70264)
	RTMC-D248-100-41B6	80870	2.17	2.48*	1.00	2.00	6				1/2"-20x1.5 (70224)

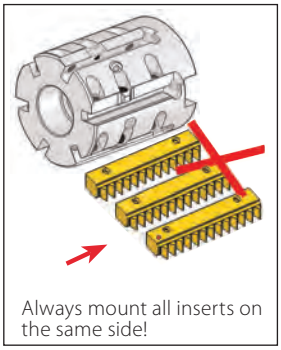
Standard Thread Application by Toolholder

Toolholder		Min. Thread Dia.						
	D2* (Inch)	ISO (coarse)	ISO (fine)	UNC	UN/UNF/UNEF/UNS	BSF	NPT	NPTF
RTMC-D209-075-41B5	2.08*	M64x6	M58x4; M70x6	2½-4	2⅜-6UN; 2⅜-8UN	2⅜-8; 2½-6	2½-8	2½-8
RTMC-D248-100-41B6	2.48*	-	M68x4; M70x6	3-4	2¾-6UN; 2¾-8UN	2¾-8; 2¾-6	2½-8	2½-8

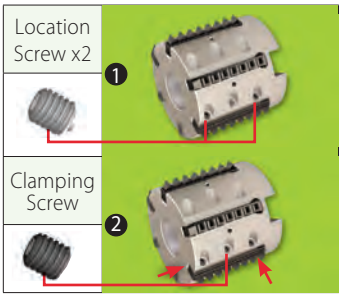
* For external applications, inserts R41E... use for CNC program (D2+.024").


Side with identification marks.


Side without identification marks.


Always mount all inserts on the same side!

2 Step Clamping System



Recommended Grades, Cutting Speeds Vc [ft/min] and Feed f [inch/tooth]

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [ft/min]		Feed f [inch/tooth]	
					VBX	VTX	(Excluding MiTM 19)	(for MiTM 19)
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	328-689	295-591	.0039-.0138	.0024-.0079
	2		Medium Carbon (C=0.25-0.55%)	150	328-591	295-558	.0039-.0157	.0024-.0098
	3		High Carbon (C=0.55-0.85%)	170	328-558	295-525	.0039-.0138	.0024-.0079
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	262-459	295-509	.0039-.0157	.0024-.0098
	5		Hardened	275	262-492	262-525	.0039-.0138	.0024-.0079
	6		Hardened	350	230-459	230-492	.0039-.0118	.0024-.0079
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	197-427	230-377	.0039-.0138	.0024-.0079
	8		Hardened	325	230-361	197-328	.0039-.0079	.0024-.0039
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	328-558	328-558	.0039-.0118	.0024-.0079
	10		High Alloy (alloying elements >5%)	225	230-394	230-427	.0039-.0079	.0024-.0039
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	328-558	394-591	.0039-.0118	.0024-.0079
	12		Hardened	330	328-558	394-591	.0039-.0079	.0024-.0039
	13	Stainless Steel Austenitic	Austenitic	180	230-459	328-459	.0039-.0118	.0024-.0079
	14		Super Austenitic	200	230-459	328-459	.0039-.0079	.0024-.0039
	15	Stainless Steel Cast Ferritic	Non Hardened	200	230-459	328-459	.0039-.0118	.0024-.0079
	16		Hardened	330	230-459	328-459	.0039-.0079	.0024-.0039
	17	Stainless Steel Cast Austenitic	Austenitic	200	230-394	328-394	.0039-.0118	.0024-.0079
	18		Hardened	330	230-394	328-394	.0039-.0079	.0024-.0039
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	197-427	328-394	.0020-.0063	.0012-.0039
	29		Pearlitic (long chips)	230	197-394	262-328	.0016-.0039	.0008-.0024
	30	Grey Cast Iron	Low Tensile Strength	180	197-427	262-328	.0039-.0118	.0024-.0079
	31		High Tensile Strength	260	197-328	262-328	.0039-.0079	.0024-.0039
	32	Nodular Sg Iron	Ferritic	160	197-410	262-328	.0039-.0118	.0024-.0079
	33		Pearlitic	260	164-295	197-295	.0039-.0079	.0024-.0039
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	328-820	-	.0059-.0217	.0035-.0118
	35		Aged	100	328-591	-	.0059-.0197	.0035-.0118
	36	Aluminium Alloys	Cast	75	492-1.312	-	.0059-.0197	.0035-.0118
	37		Cast & Aged	90	492-919	-	.0039-.0157	.0024-.0098
	38	Aluminium Alloys	Cast Si 13-22%	130	262-492	-	.0059-.0197	.0035-.0118
	39	Copper and Copper Alloys	Brass	90	394-689	328-656	.0059-.0197	.0035-.0118
	40		Bronze And Non Leaded Copper	100	394-689	328-656	.0039-.0157	.0024-.0098
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	66-148	66-131	.0039-.0079	.0024-.0039
	20		Aged (iron based)	280	66-98	66-98	.0016-.0039	.0008-.0024
	21		Annealed (nickel or cobalt based)	250	49-66	49-66	.0016-.0039	.0008-.0024
	22		Aged (nickel or cobalt based)	350	33-49	33-49	.0016-.0039	.0008-.0024
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	230-459	230-394	.0016-.0039	.0008-.0024
	24		α+β Alloys	1050Rm	66-164	66-164	.0016-.0039	.0008-.0024
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	49-148	49-148	.0024-.0047	.0016-.0028
	26			51-55HRc	49-131	49-131	.0016-.0031	.0008-.0020

Grades

Grade	Application	Sample
VBX	TiCN coated carbide grade. Excellent grade for **steels and general use**.	
VTX	TiAlN coated carbide grade. Ideal for **Stainless Steels.**	

STANDARD

Thread Milling

Inserts | Toolholders

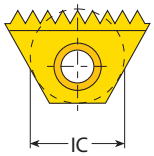
Vardex Ordering Code System

Thread Milling Inserts

3	B	I	12	UN	TM2	F	VBX	028/...
1	2	3	4	5	6	7	8	9

1- Insert Size

6.0 - 6.0 mm
2 - ¼"
3 - ⅜"
3B - ⅜"B
4 - ½"
5 - ⅝"
6B - ¾"B



2 - Cutting Edge Length

B - TMB

3 - Type of Insert

E - External
I - Internal
EI - External + Internal

4 - Pitch

80 - 4TPI
0.35 - 6.0mm

5 - Standard

ISO - ISO Metric
UN - American UN
UNJ - UNJ
W - Whitworth for BSW, BSP
NPT - NPT
NPTF- NPTF
NPS- NPS
BSPT- British Standard Pipe Thread
PG - Pg DIN 40430
ACME- ACME
TR - Trapez DIN 103

6 - System

TM2
TM

7 - Pitch Type

F = Fine Pitch

8 - Coarse Pitch Inserts

028/...

9 - Carbide Grade

VBX
VTX
VK2

Thread Milling Toolholders

B	TM	N	C	075	-	3	B		LH	-	
1	2	3	4	5		6	7	8	9		10

1 - Shank Type

B - Anti Vibration System

2 - System

TM - Thread Milling

3 - Holder Type

2 - Twin Flute
M - Mini
L - Long Tool
N - Tapered Holder
V - Vertical Holder
S - Single Point
O - Offset
W - Wide Cut. Dia.

4 - Cooling

C - Coolant Channel

5 - Shank Dia.

0375 - 3/8"
050 - 1/2"
0625 - 5/8"
075 - 3/4"
100 - 1"
125 - 1 1/4"

6 - Insert Size

6.0 - 6.0mm
2 - 1/4"
3 - 3/8"
3B - 3/8"B
4 - 1/2"
5 - 5/8"
6B - 3/4"B

7 - Cut. Edge Length

B - TMB

8 - Serial No.

(for TMO Holders)
1 - 16

9 - RH / LH Holder

None - Right Hand
LH - Left Hand

10 - Serial No.

(for Coarse Pitch Holders)
124/...

Thread Milling Shell Mill

TMSH	-	D250	-	075	-	3	B
1		2		3		4	5

1 - System

Thread Mill Shell Mill

5 - Cut. Edge Length

B - TMB

2 - Cutting Dia.

150 - 1.50"
200 - 1.97"
250 - 2.48"
300 - 3.15"
400 - 3.94"
500 - 4.92"

3 - Drive Hole Dia.

1/2", 3/4", 1", 1 1/4", 1 1/2"

4 - Insert Size

2 - 1/4"
3 - 3/8"
3B - 3/8"B
5 - 5/8"
6B - 3/4"B

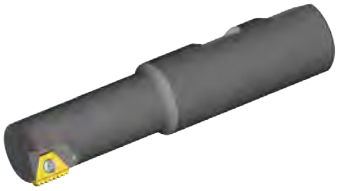
Thread Milling Standard System

VARGUS GENius™ Tool Selector and CNC Program Generator

TMMC
Miniature Applications

No. of Flutes (Z) 1
Cutting Dia. (D2) .35
Tool Overhang (L1) .57-.67

TMC
Standard Applications



No. of Flutes (Z) 1
Cutting Dia. (D2) .45-1.81
Tool Overhang (L1) .47-2.56

TMC 124/...
Coarse Pitch Thread

No. of Flutes (Z) 1
Cutting Dia. (D2) .35-.87
Tool Overhang (L1) .59-1.57

TMLC
For Long Threads

No. of Flutes (Z) 1
Cutting Dia. (D2) .45-1.81
Tool Overhang (L1) .67-3.86

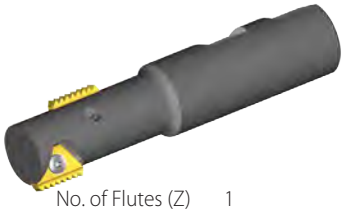
TMNC
For Conical Applications

No. of Flutes (Z) 1
Cutting Dia. (D2) .61-1.46
Tool Overhang (L1) .87-2.28

TM2C
Fast Infeed

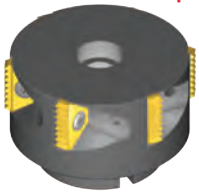
No. of Flutes (Z) 2
Cutting Dia. (D2) .67-.205
Tool Overhang (L1) .79-2.56

TMOC
For Fewer Cycles



No. of Flutes (Z) 1
Cutting Dia. (D2) .57-1.18
Tool Overhang (L1) .98-2.05

TMSH
Fast Machining in Large Diameters and Deep Holes



No. of Flutes (Z) 4-9
Cutting Dia. (D2) 1.5-4.92
Tool Overhang (L1) Max. 7.87

TMSC
For Short Threads Economical Solutions

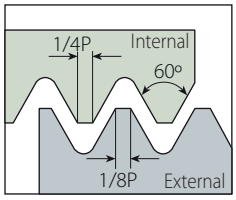
No. of Flutes (Z) 1
Cutting Dia. (D2) .49
Tool Overhang (L1) .98

TMVC
For Large Pitches

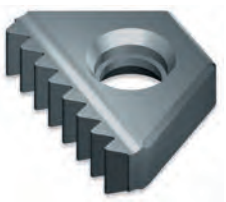
No. of Flutes (Z) 1
Cutting Dia. (D2) 1.81
Tool Overhang (L1) 2.36

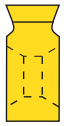
ISO Metric

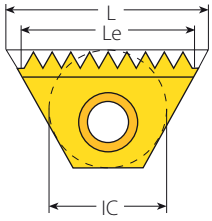
External / Internal



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







Standard TM

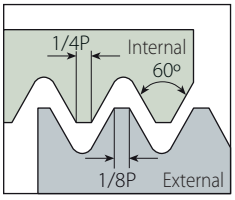
Standard TM

Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	L Inch	mm	External	Internal	Inch		Toolholder
6.0mm	.41	0.5		6.0I0.5ISOTM...	.39	20	TMMC..-6.0
		0.75		6.0I0.75ISOTM...	.38	13	
		1.0		6.0I1.0ISOTM...	.35	9	
		1.25		6.0I1.25ISOTM...	.34	7	
		1.5		6.0I1.5ISOTM...	.35	6	
1/4"	.43	0.5		2I0.5ISOTM2...	.39	20	TMC..-2 TMSH..-2
		0.75	2E0.75ISOTM2...	2I0.75ISOTM2...	.41	14	
		1.0	2E1.0ISOTM2...	2I1.0ISOTM2...	.39	10	
		1.25	2E1.25ISOTM2...		.39	8	
		1.25		2I1.25ISOTM2...	.34	7	
		1.5	2E1.5ISOTM2...		.35	6	
		1.5		2I1.5ISOTM2...	.41	7	
3/8"	.63	0.5		3I0.5ISOTM2...	.59	30	TMC..-3 TMSH..-3
		0.75	3E0.75ISOTM2...	3I0.75ISOTM2...	.59	20	
		0.8		3I0.8ISOTM2...	.57	18	
		1.0	3E1.0ISOTM2...		.55	14	
		1.0		3I1.0ISOTM2...	.59	15	
		1.25	3E1.25ISOTM2...	3I1.25ISOTM2...	.59	12	
		1.5	3E1.5ISOTM2...	3I1.5ISOTM2...	.59	10	
		1.75	3E1.75ISOTM2...	3I1.75ISOTM2...	.55	8	
		2.0	3E2.0ISOTM2...	3I2.0ISOTM2...	.55	7	
3/8"B	.87	1.0	3BE1.0ISOTM2...	3BI1.0ISOTM2...	.87	22	BTMC..-3B TMSH..-3B
		1.25	3BE1.25ISOTM2...	3BI1.25ISOTM2...	.84	17	
		1.5	3BE1.5ISOTM2...	3BI1.5ISOTM2...	.83	14	
		1.75	3BE1.75ISOTM2...	3BI1.75ISOTM2...	.83	12	
		2.0	3BE2.0ISOTM2...	3BI2.0ISOTM2...	.87	11	
5/8"	1.06	1.0	5E1.0ISOTM2...	5I1.0ISOTM2...	1.02	26	TMC..-5 TMSH..-5
		1.25	5E1.25ISOTM2...	5I1.25ISOTM2...	.98	20	
		1.5	5E1.5ISOTM2...	5I1.5ISOTM2...	1.00	17	
		1.75	5E1.75ISOTM2...	5I1.75ISOTM2...	.96	14	
		2.0	5E2.0ISOTM2...	5I2.0ISOTM2...	.94	12	
		2.5	5E2.5ISOTM2...	5I2.5ISOTM2...	.98	10	
		3.0	5E3.0ISOTM2...	5I3.0ISOTM2...	.94	8	
		3.5	5E3.5ISOTM2...	5I3.5ISOTM2...	.96	7	
		4.0	5E4.0ISOTM2...	5I4.0ISOTM2...	.94	6	
		4.5	5E4.5ISOTM2...	5I4.5ISOTM2...	.89	5	

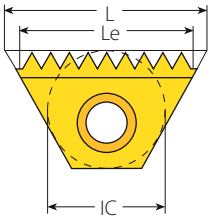
All inserts have 2 cutting edges, except **MiniTM (IC 6.0 mm)** which has one cutting edge.

ISO Metric (con't)

External / Internal



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



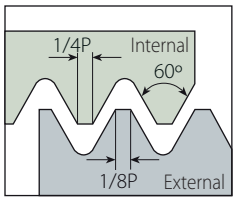
Standard TM

Standard TM

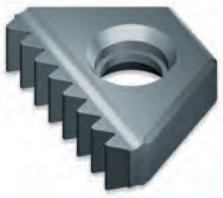
Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	L Inch	mm	External	Internal	Inch		Toolholder
3/4"B	1.52	1.5	6BE1.5ISOTM2...	6BI1.5ISOTM2...	1.42	24	TMC..-6B TMSH..-6B
		2.0	6BE2.0ISOTM2...	6BI2.0ISOTM2...	1.42	18	
		2.5	6BE2.5ISOTM2...	6BI2.5ISOTM2...	1.38	14	
		3.0	6BE3.0ISOTM2...	6BI3.0ISOTM2...	1.42	12	
		4.0	6BE4.0ISOTM2...	6BI4.0ISOTM2...	1.26	8	
		4.5	6BE4.5ISOTM2...	6BI4.5ISOTM2...	1.24	7	
		5.0	6BE5.0ISOTM2...	6BI5.0ISOTM2...	1.18	6	
		5.5	6BE5.5ISOTM2...	6BI5.5ISOTM2...	1.30	6	
		6.0	6BE6.0ISOTM2...	6BI6.0ISOTM2...	1.18	5	

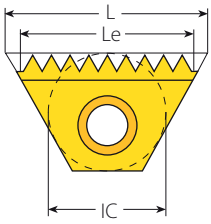
ISO Metric (con't)

Internal



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





Coarse Pitch TM

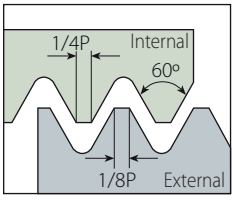
Coarse Pitch TM

Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth		Bore Dia. Range
	IC	L Inch	Internal		Inch		Toolholder	Inch
M10 X 0.75	6.0 mm	.41	6.0I0.75ISOTM028/001...	1	.38	13	TMMC050-6.0	.36 - .39
M10 X 0.75			6.0I0.75ISOTM028/001...	1	.38	13	TMMC075-6.0	.36 - .39
M12 X 1.25			6.0I1.25ISOTM028/002...	1	.34	7	TMMC050-6.0	.42 - .45
M12 X 1.25			6.0I1.25ISOTM028/002...	1	.34	7	TMMC075-6.0	.42 - .45
M12 X 1.75			6.0I1.75ISOTM028/003...	1	.34	5	TMMC075-6.0-124/203	.40 - .75
M14 X 2.0	1/4"	.43	2I2.0ISOTM028/004...	2	.39	5	TMC050-2	.46 - .77
M14 X 2.0			2I2.0ISOTM028/004...	2	.39	5	TMC075-2	.46 - .77
M16 X 2.0			2I2.0ISOTM028/004...	2	.39	5	TMC050-2	.46 - .77
M16 X 2.0			2I2.0ISOTM028/004...	2	.39	5	TMC075-2	.46 - .77
M20 X 2.5	3/8"	.63	3I2.5ISOTM028/005...	1	.49	5	TMC075-3-124/201	.68 - .76
M22 X 2.5	1/2''	.87	4I2.5ISOTM028/006...	1	.69	7	TMC100-4-124/202	.76 - 1.24
M24 X 3.0			4I3.0ISOTM028/007...	1	.71	6	TMC100-4-124/202	.81 - 1.29
M27 X 3.0			4I3.0ISOTM028/007...	1	.71	6	TMC100-4-124/202	.81 - 1.29
M30 X 3.5	5/8"	1.06	5I3.5ISOTM028/008...	2	.96	7	TMC100-5-124/204	1.03 - 1.41
M33 X 3.5			5I3.5ISOTM028/008...	2	.96	7	TMC100-5-124/204	1.03 - 1.41
M36 X 3.0			5I3.0ISOTM028/009...	2	.94	8	TMC100-5	1.29 - 1.54
M36 X 4.0			5I4.0ISOTM028/010...	2	.94	6	TMC100-5	1.24 - 1.52
M39 X 3.0			5I3.0ISOTM028/009...	2	.94	8	TMC100-5	1.29 - 1.54
M39 X 4.0			5I4.0ISOTM028/010...	2	.94	6	TMC100-5	1.24 - 1.52
M42 X 4.5			5I4.5ISOTM028/011...	2	.89	5	TMC100-5	1.46 - 1.89
M45 X 4.5			5I4.5ISOTM028/011...	2	.89	5	TMC100-5	1.46 - 1.89
M48 X 5.0			5I5.0ISOTM028/075...	2	.79	4	TMC100-5	1.53 - ∞
M52 X 5.0			5I5.0ISOTM028/075...	2	.79	4	TMC100-5	1.53 - ∞

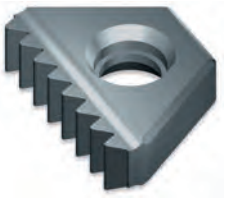
For Toolholder information, see page 282.

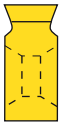
ISO Metric (con't)

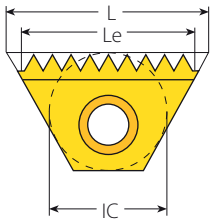
External / Internal



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



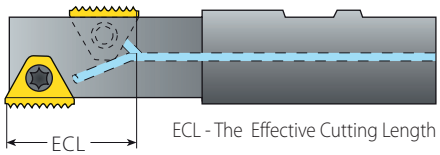




Standard TM

Standard TM Inserts for TMO Toolholders

Insert Size		Pitch	Ordering Code			ECL
IC	L Inch	mm	External	Internal	Toolholder	Inch
1/4″	.43	0.5		2I0.5ISOTM2...	TMOC075-2-8	.75
		0.75	2E0.75ISOTM2...	2I0.75ISOTM2...	TMOC075-2-9	.77
		1.0	2E1.0ISOTM2...	2I1.0ISOTM2...	TMOC075-2-8	.75
		1.25	2E1.25ISOTM2...		TMOC075-2-10	.74
		1.25		2I1.25ISOTM2...	TMOC075-2-10	.64
		1.5	2E1.5ISOTM2...		TMOC075-2-8	.71
		1.5		2I1.5ISOTM2..	TMOC075-2-8	.77
3/8″	.63	0.5		3I0.5ISOTM2....	TMOC075-3-1	1.12
		0.5		3I0.5ISOTM2....	TMOC075-3-10	1.14
		0.75	3E0.75ISOTM2...	3I0.75ISOTM2...	TMOC075-3-11	1.12
		1.0	3E1.0ISOTM2...		TMOC075-3-10	1.10
		1.0		3I1.0ISOTM2...	TMOC075-3-10	1.14
		1.25	3E1.25ISOTM2...	3I1.25ISOTM2...	TMOC075-3-7	1.13
		1.5	3E1.5ISOTM2...	3I1.5ISOTM2...	TMOC075-3-1	1.12
		1.75	3E1.75ISOTM2...	3I1.75ISOTM2...	TMOC075-3-12	1.03
		2.0	3E2.0ISOTM2...	3I2.0ISOTM2...	TMOC075-3-10	1.10
5/8″	1.06	1.0	5E1.0ISOTM2...	5I1.0ISOTM2...	TMOC100-5-12	1.81
		1.0	5E1.0ISOTM2...	5I1.0ISOTM2...	TMOC100-5-16	1.85
		1.25	5E1.25ISOTM2...	5I1.25ISOTM2...	TMOC100-5-13	1.92
		1.5	5E1.5ISOTM2...	5I1.5ISOTM2...	TMOC100-5-14	1.89
		1.5	5E1.5ISOTM2...	5I1.5ISOTM2...	TMOC100-5-16	1.83
		1.75	5E1.75ISOTM2...	5I1.75ISOTM2...	TMOC100-5-15	1.86
		2.0	5E2.0ISOTM2...	5I2.0ISOTM2...	TMOC100-5-12	1.73
		2.5	5E2.5ISOTM2...	5I2.5ISOTM2...	TMOC100-5-12	1.77
		2.5	5E2.5ISOTM2...	5I2.5ISOTM2...	TMOC100-5-14	1.87
		3.0	5E3.0ISOTM2...	5I3.0ISOTM2...	TMOC100-5-16	1.77
		3.5	5E3.5ISOTM2...	5I3.5ISOTM2...	TMOC100-5-16	1.79
		4.0	5E4.0ISOTM2...	5I4.0ISOTM2...	TMOC100-5-12	1.73
		4.5	5E4.5ISOTM2...	5I4.5ISOTM2...	TMOC100-5-14	1.77
		5.0		5I5.0ISOTM028/075...	TMOC100-5-12	1.57

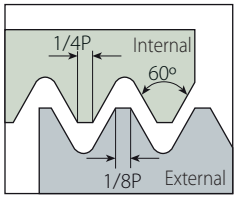


ECL - The Effective Cutting Length

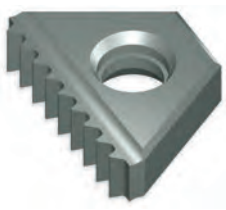
For Le and number of teeth of the above inserts, see the table for standard inserts on pages 254.
For Toolholder information, see page 287.

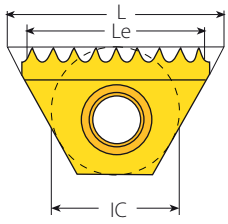
ISO Metric (con't)

External / Internal



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



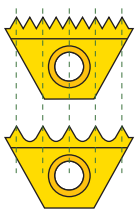


Fine Pitch TM

Fine Pitch TM

Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	L Inch	mm	External	Internal	Inch		Toolholder
6.0mm	.41	0.35	6.0E0.35ISOTMF...	6.0I0.35ISOTMF...	.37	14	TMMC..-6.0
		0.4	6.0E0.4ISOTMF...	6.0I0.4ISOTMF...	.36	12	
		0.45	6.0E0.45ISOTMF...	6.0I0.45ISOTMF...	.37	11	
		0.5	6.0E0.5ISOTMF...		.37	10	
		0.6	6.0E0.6ISOTMF...		.35	8	
		0.7	6.0E0.7ISOTMF...		.36	7	
		0.75	6.0E0.75ISOTMF...		.32	6	
		0.8	6.0E0.8ISOTMF...		.35	6	
		0.9	6.0E0.9ISOTMF...		.32	5	
1/4"	.43	0.35	2E0.35ISOTM2F...	2I0.35ISOTM2F...	.40	15	TMC..-2 TMSH..-2
		0.4	2E0.4ISOTM2F...	2I0.4ISOTM2F...	.39	13	
		0.45	2E0.45ISOTM2F...	2I0.45ISOTM2F...	.37	11	
		0.5	2E0.5ISOTM2F...		.37	10	
		0.6	2E0.6ISOTM2F...		.40	9	
		0.7	2E0.7ISOTM2F...		.36	7	
		0.8	2E0.8ISOTM2F...		.35	6	
		0.9	2E0.9ISOTM2F...		.39	6	
3/8"	.63	0.35	3E0.35ISOTM2F...	3I0.35ISOTM2F...	.56	21	TMC..-3 TMSH..-3
		0.4	3E0.4ISOTM2F...	3I0.4ISOTM2F...	.58	19	
		0.45	3E0.45ISOTM2F...	3I0.45ISOTM2F...	.58	17	
		0.5	3E0.5ISOTM2F...		.53	14	
		0.6	3E0.6ISOTM2F...		.54	12	
		0.7	3E0.7ISOTM2F...		.58	11	
		0.8	3E0.8ISOTM2F...		.54	9	
		0.9	3E0.9ISOTM2F...		.53	8	

NOTE: Two orbits are required to complete the thread. Fine Pitch TM Inserts produce partial profile thread.
Sample order: **6.0E0.35ISOTMF VBX**
All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm), which has one cutting edge.
For toolholder information, see page 278.



Fine Pitch Threads

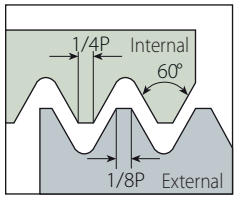
Fine pitch threads are threads with small pitches. It is difficult to produce multitooth inserts for small pitches because of the small radius between the teeth. Vargus developed inserts where every second tooth was dropped to enlarge the radius between the teeth.

Important!

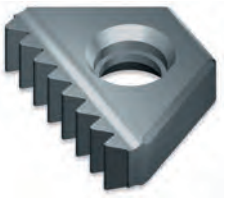
• All the fine pitch inserts are partial profile type (as a result of the enlarged radius).

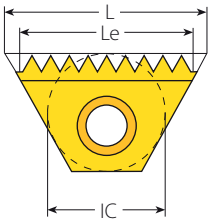
American UN

External / Internal



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





Standard TM

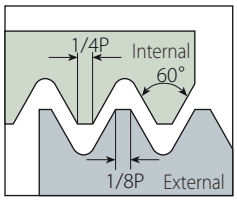
Standard TM

Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	L Inch	TPI	External	Internal	Inch		Toolholder
6.0mm	.41	32		6.0I32UNTM...	.38	12	TMMC..-6.0
		28		6.0I28UNTM...	.36	10	
		24		6.0I24UNTM...	.38	9	
		20		6.0I20UNTM...	.35	7	
		18		6.0I18UNTM...	.33	6	
		16		6.0I16UNTM...	.31	5	
1/4″	.43	48		2I48UNTM2...	.40	19	TMC..-2 TMSH..-2
		40		2I40UNTM2...	.40	16	
		32		2I32UNTM2...	.41	13	
		28	2E28UNTM2...	2I28UNTM2...	.39	11	
		27	2E27UNTM2...	2I27UNTM2...	.41	11	
		24	2E24UNTM2...	2I24UNTM2...	.38	9	
		20	2E20UNTM2...	2I20UNTM2...	.40	8	
		18	2E18UNTM2...	2I18UNTM2...	.39	7	
		16	2E16UNTM2...	2I16UNTM2...	.38	6	
		14	2E14UNTM2...	2I14UNTM2...	.36	5	
3/8″	.63	40		3I40UNTM2...	.58	23	TMC..-3 TMSH..-3
		32		3I32UNTM2...	.59	19	
		28	3E28UNTM2...	3I28UNTM2...	.57	16	
		27	3E27UNTM2...	3I27UNTM2...	.56	15	
		26	3E26UNTM2...	3I26UNTM2...	.58	15	
		24	3E24UNTM2...	3I24UNTM2...	.58	14	
		20	3E20UNTM2...	3I20UNTM2...	.55	11	
		18	3E18UNTM2...	3I18UNTM2...	.56	10	
		16	3E16UNTM2...	3I16UNTM2...	.56	9	
		14	3E14UNTM2...	3I14UNTM2...	.57	8	
		13	3E13UNTM2...	3I13UNTM2...	.54	6	
		12	3E12UNTM2...	3I12UNTM2...	.58	7	
		11.5	3E11.5UNTM2...	3I11.5UNTM2...	.52	6	
3/8″B	.87	24	3BE24UNTM2...	3BI24UNTM2...	.83	20	BTMC..-3B TMSH..-3B
		20	3BE20UNTM2...	3BI20UNTM2...	.85	17	
		18	3BE18UNTM2...	3BI18UNTM2...	.83	15	
		16	3BE16UNTM2...	3BI16UNTM2...	.81	13	
		14	3BE14UNTM2...	3BI14UNTM2...	.86	12	
		13	3BE13UNTM2...	3BI13UNTM2...	.85	11	
		12	3BE12UNTM2...	3BI12UNTM2...	.83	10	

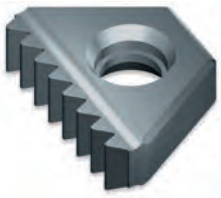
All inserts have 2 cutting edges, except Mini TM (IC 6.0 mm), which has one cutting edge.
For toolholder information, see page 278.

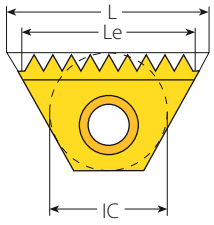
American UN (con't)

External / Internal



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





Standard TM

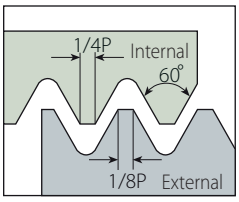
Standard TM

Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	L Inch	TPI	External	Internal	Inch		Toolholder
5/8"	1.06	24	5E24UNTM2...	5I24UNTM2...	1.00	24	TMC..-5 TMSH..-5
		20	5E20UNTM2...	5I20UNTM2...	1.00	20	
		18	5E18UNTM2...	5I18UNTM2...	1.00	18	
		16	5E16UNTM2...	5I16UNTM2...	1.00	16	
		14	5E14UNTM2...	5I14UNTM2...	1.00	14	
		13	5E13UNTM2...	5I13UNTM2...	1.00	13	
		12	5E12UNTM2...	5I12UNTM2...	1.00	12	
		11.5	5E11.5UNTM2...	5I11.5UNTM2...	0.96	11	
		11	5E11UNTM2...	5I11UNTM2...	1.00	11	
		10	5E10UNTM2...		0.90	9	
		10		5I10UNTM2...	1.00	10	
		9	5E9UNTM2...	5I9UNTM2...	0.89	8	
		8	5E8UNTM2...	5I8UNTM2...	0.88	7	
		7	5E7UNTM2...		0.86	6	
		7		5I7UNTM2...	1.00	7	
		6	5E6UNTM2...		0.83	5	
		6		5I6UNTM2...	1.00	6	
3/4"B	1.52	6	6BE6UNTM2...	6BI6UNTM2...	1.33	8	TMC..-6B TMSH..-6B
		5	6BE5UNTM2...	6BI5UNTM2...	1.20	6	
		4.5	6BE4.5UNTM2...	6BI4.5UNTM2...	1.33	6	
		4	6BE4UNTM2...	6BI4UNTM2...	1.25	5	

All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm), which has one cutting edge.
For toolholder information, see page 278.

American UN (con't)

Internal



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

Coarse Pitch TM

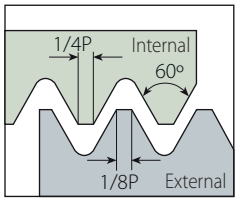
Coarse Pitch TM

Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth		Bore Dia. Range
	IC	L Inch	Internal		Inch		Toolholder	Inch
7/16"-20UNF	6.0mm	.41	6.0I20UNTM028/012...	1	.35	7	TMMC050-6.0	.38 - .45
7/16"-20UNF			6.0I20UNTM028/012...	1	.35	7	TMMC075-6.0	.38 - .45
7/16"-16UN			6.0I16UNTM028/014...	1	.31	5	TMMC050-6.0	.37 - .56
7/16"-16UN			6.0I16UNTM028/014...	1	.31	5	TMMC075-6.0	.37 - .56
7/16"-14UNC			6.0I14UNTM028/013...	1	.36	5	TMMC075-6.0-124/203	.36 - .39
1/2"-13UNC	1/4"	.43	2I13UNTM028/015...	1	.38	5	TMC075-2-124/205	.41 - .77
1/2"-16UN	6.0mm	.41	6.0I16UNTM028/014...	1	.31	5	TMMC050-6.0	.37 - .56
1/2"-16UN			6.0I16UNTM028/014...	1	.31	5	TMMC075-6.0	.37 - .56
9/16"-12UNC	1/4"	.43	2I12UNTM028/016...	1	.33	4	TMC075-2-124/205	.47 - .61
9/16"-18UNF			2I18UNTM028/017...	2	.39	7	TMC050-2	.50 - .57
9/16"-18UNF			2I18UNTM028/017...	2	.39	7	TMC075-2	.50 - .57
9/16"-16UN	6.0mm	.41	6.0I16UNTM028/014...	1	.31	5	TMMC050-6.0	.37 - .56
9/16"-16UN			6.0I16UNTM028/014...	1	.31	5	TMMC075-6.0	.37 - .56
5/8"-11UNC	1/4"	.43	2I11UNTM028/018...	1	.36	4	TMC075-2-124/206	.52 - .73
5/8"-12UN			2I12UNTM028/016...	1	.33	4	TMC075-2-124/205	.47 - .61
5/8"-16UN	6.0mm	.41	6.0I16UNTM028/014...	1	.31	5	TMMC050-6.0	.37 - .56
5/8"-16UN			6.0I16UNTM028/014...	1	.31	5	TMMC075-6.0	.37 - .56
11/16"-12UN	1/4"	.43	2I12UNTM028/016...	1	.33	4	TMC075-2-124/205	.47 - .61
3/4"-10UNC	3/8"	.63	3I10UNTM028/019...	1	.50	5	TMC0625-3-124/201	.64 - 1.24
3/4"-12UN			3I12UNTM028/020...	2	.58	7	TMNC0625-3	.66 - .72
13/16"-12UN			3I12UNTM028/020...	2	.58	7	TMC0625-3	.72 - .77
7/8"-9UNC	1/2"	.87	4I9UNTM028/021...	1	.67	6	TMC100-4-124/202	.75 - 1.28

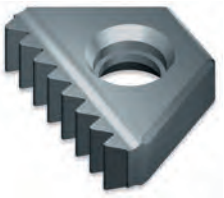
For toolholder information, see page 282.

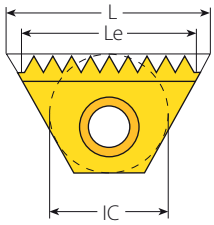
American UN (con't)

Internal



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





Coarse Pitch TM

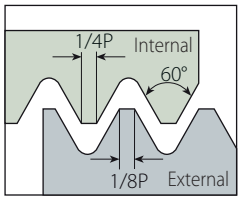
Coarse Pitch TM

Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth		Bore Dia. Range
	IC	L Inch	Internal		Inch		Toolholder	Inch
1"-8UNC	1/2"	.87	4I8UNTM028/022...	1	.75	6	TMC100 - 4 124/207	.86 - 1.11
1 1/16"-8UN			4I8UNTM028/022...	1	.75	6	TMC100-4 124/207	.86 - 1.11
1 1/8"-7UNC			4I7UNTM028/023...	1	.71	5	TMC100-4 124/202	.97 - 1.41
1 1/8"-8UN			4I8UNTM028/022...	1	.75	6	TMC100-4 124/207	.86 - 1.11
1 3/16"-8UN			4I8UNTM028/022...	1	.75	6	TMC100-4 124/207	.86 - 1.11
1 1/4"-7UNC			4I7UNTM028/023...	1	.71	5	TMC100-4 124/202	.97 - 1.41
1 1/4"-8UN	5/8"	1.06	5I8UNTM028/024...	2	.88	7	TMC100-5 124/204	1.11 - 1.30
1 5/16"-8UN			5I8UNTM028/024...	2	.88	7	TMC100-5 124/204	1.11 - 1.30
1 3/8"-6UNC			5I6UNTM028/025...	2	1.00	6	TMC100-5 124/204	1.19 - 1.44
1 3/8"-8UN			5I8UNTM028/024...	2	.88	7	TMC100-5 124/204	1.11 - 1.30
1 7/16"-6UN			5I6UNTM028/025...	2	1.00	6	TMC100-5 124/204	1.19 - 1.44
1 7/16"-8UN			5I8UNTM028/024...	2	.88	7	TMC100-5	1.30 - 1.54
1 1/2"-6UNC			5I6UNTM028/025...	2	1.00	6	TMC100-5 124/204	1.19 - 1.44
1 1/2"-8UN			5I8UNTM028/024...	2	.88	7	TMC100-5	1.30 - 1.54
1 9/16" -6UN			5I6UNTM028/025...	2	1.00	6	TMC100-5 124/204	1.19 - 1.44
1 9/16"-8UN			5I8UNTM028/024...	2	.88	7	TMC100-5	1.30 - 1.54
1 5/8"-6UN			5I6UNTM028/025...	2	1.00	6	TMC100-5	1.44 - 1.77
1 5/8"-8UN			5I8UNTM028/024...	2	.88	7	TMC100-5	1.30 - 1.54
1 11/16"-6UN			5I6UNTM028/025...	2	1.00	6	TMC100-5	1.44 - 1.77
1 3/4"-5UNC			5I5UNTM028/077...	2	.80	4	TMC100-5	1.53 - ∞
1 3/4"-6UN			5I6UNTM028/025...	2	1.00	6	TMC100-5	1.44 - 1.77
1 13/16"-6UN			5I6UNTM028/025...	2	1.00	6	TMC100-5	1.44 - 1.77
1 7/8"-6UN			5I6UNTM028/025...	2	1.00	6	TMC100-5	1.44 - 1.77
1 15/16"-6UN			5I6UNTM028/025...	2	1.00	6	TMC100-5	1.44 - 1.77

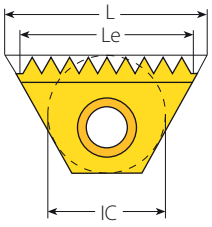
For toolholder information, see page 282.

American UN (con't)

External / Internal



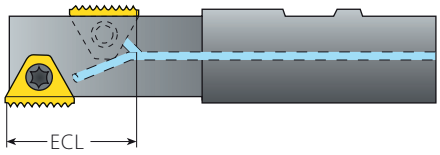
Defined by: ANSI B1.1.74
Tolerance class: Class 2A/2B



Standard TM

Standard TM Inserts for TMO Toolholders

Insert Size		Pitch	Ordering Code			ECL
IC	L Inch	TPI	External	Internal	Toolholder	Inch
1/4"	.43	48		2I48UNTM2...	TMOC075-2-1	.77
		48		2I48UNTM2...	TMOC075-2-2	.73
		48		2I48UNTM2...	TMOC075-2-9	.75
		32		2I32UNTM2...	TMOC075-2-1	.78
		28	2E28UNTM2...	2I28UNTM2...	TMOC075-2-3	.68
		24	2E24UNTM2...	2I24UNTM2...	TMOC075-2-2	.71
		20	2E20UNTM2...	2I20UNTM2...	TMOC075-2-4	.75
		18	2E18UNTM2...	2I18UNTM2...	TMOC075-2-2	.72
		16	2E16UNTM2...	2I16UNTM2...	TMOC075-2-1	.75
		14	2E14UNTM2...	2I14UNTM2...	TMOC075-2-3	.64
3/8"	.63	32		3I32UNTM2...	TMOC075-3-3	1.09
		32		3I32UNTM2...	TMOC075-3-11	1.13
		28	3E28UNTM2...	3I28UNTM2...	TMOC075-3-3	1.07
		27	3E27UNTM2...	3I27UNTM2...	TMOC075-3-4	1.07
		24	3E24UNTM2...	3I24UNTM2...	TMOC075-3-6	1.08
		20	3E20UNTM2...	3I20UNTM2...	TMOC075-3-6	1.05
		18	3E18UNTM2...	3I18UNTM2...	TMOC075-3-6	1.06
		16	3E16UNTM2...	3I16UNTM2...	TMOC075-3-6	1.06
		14	3E14UNTM2...	3I14UNTM2...	TMOC075-3-6	1.07
		13	3E13UNTM2...	3I13UNTM2...	TMOC075-3-2	1.00
		12	3E12UNTM2...	3I12UNTM2...	TMOC075-3-6	1.08
		11.5	3E11.5UNTM2...	3I11.5UNTM2...	TMOC075-3-5	.96

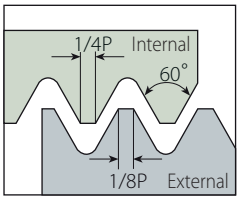


ECL - The Effective Cutting Length

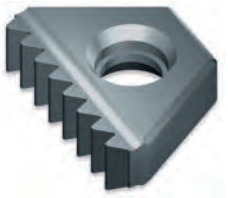
For Le and number of teeth of the above inserts, see the table for standard inserts on pages 254.
For toolholder information, see page 287.

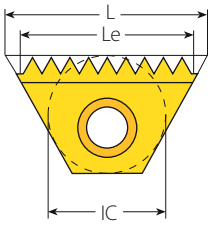
American UN (con't)

External / Internal



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

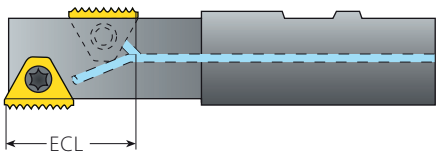




Standard TM

Standard TM Inserts for TMO Toolholders

Insert Size		Pitch	Ordering Code			ECL
IC	L Inch	TPI	External	Internal	Toolholder	Inch
		24	5E24UNTM2..	5I24UNTM2..	TMOC100-5-1	2.00
		24	5E24UNTM2...	5I24UNTM2...	TMOC100-5-2	1.83
		20	5E20UNTM2...	5I20UNTM2...	TMOC100-5-1	2.00
		18	5E18UNTM2...	5I18UNTM2...	TMOC100-5-1	2.00
		18	5E18UNTM2...	5I18UNTM2...	TMOC100-5-2	1.83
		16	5E16UNTM2...	5I16UNTM2...	TMOC100-5-3	1.88
		14	5E14UNTM2...	5I14UNTM2...	TMOC100-5-1	2.00
		14	5E14UNTM2...	5I14UNTM2...	TMOC100-5-4	1.86
		13	5E13UNTM2...	5I13UNTM2...	TMOC100-5-1	2.00
		12	5E12UNTM2...	5I12UNTM2...	TMOC100-5-2	1.83
		12	5E12UNTM2...		TMOC100-5-1	2.00
5/8"	1.06	11.5	5E11.5UNTM2...	5I11.5UNTM2...	TMOC100-5-5	1.83
		11	5E11UNTM2...	5I11UNTM2...	TMOC100-5-6	1.91
		11		5I11UNTM2...	TMOC100-5-1	1.82
		10	5E10UNTM2...		TMOC100-5-7	1.70
		10		5I10UNTM2...	TMOC100-5-7	1.80
		9	5E9UNTM2...	5I9UNTM2...	TMOC100-5-8	1.78
		8	5E8UNTM2...	5I8UNTM2...	TMOC100-5-9	1.75
		7	5E7UNTM2...		TMOC100-5-10	1.71
		7		5I7UNTM2...	TMOC100-5-10	1.86
		6	5E6UNTM2...		TMOC100-5-2	1.67
		6		5I6UNTM2...	TMOC100-5-2	1.83
		5		5I5UNTM028/077...	TMOC100-5-7	1.60

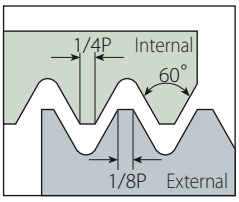


ECL - The Effective Cutting Length

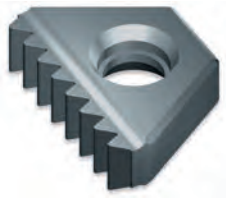
For Le and number of teeth of the above inserts, see the table for standard inserts on pages 254.
For toolholder information, see page 287.

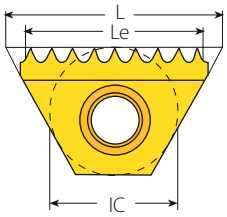
American UN (con't)

External / Internal



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



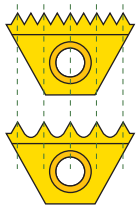


Fine Pitch TM

Fine Pitch TM

Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	L Inch	TPI	External	Internal	Inch		Toolholder
6.0mm	.41	80	6.0E80UNTMF...	6.0I80UNTMF...	.39	16	TMMC..-6.0
		72	6.0E72UNTMF...	6.0I72UNTMF...	.38	14	
		64	6.0E64UNTMF...	6.0I64UNTMF...	.36	12	
		56	6.0E56UNTMF...	6.0I56UNTMF...	.38	11	
		48	6.0E48UNTMF...		.35	9	
		44	6.0E44UNTMF...		.34	8	
		40	6.0E40UNTMF...		.33	7	
		36	6.0E36UNTMF...		.36	7	
		32	6.0E32UNTMF...		.34	6	
1/4"	.43	80	2E80UNTM2F...	2I80UNTM2F...	.39	16	TMC..-2 TMSH..-2
		72	2E72UNTM2F...	2I72UNTM2F...	.40	15	
		64	2E64UNTM2F...	2I64UNTM2F...	.39	13	
		56	2E56UNTM2F...	2I56UNTM2F...	.38	11	
		48	2E48UNTM2F...		.40	10	
		44	2E44UNTM2F...		.39	9	
		40	2E40UNTM2F...		.38	8	
		36	2E36UNTM2F...		.36	7	
		32	2E32UNTM2F...		.34	6	
3/8"	.63	80	3E80UNTM2F...	3I80UNTM2F...	.56	23	TMC..-3 TMSH..-3
		72	3E72UNTM2F...	3I72UNTM2F...	.57	21	
		64	3E64UNTM2F...	3I64UNTM2F...	.58	19	
		56	3E56UNTM2F...	3I56UNTM2F...	.55	16	
		48	3E48UNTM2F...		.56	14	
		44	3E44UNTM2F...		.57	13	
		40	3E40UNTM2F...		.58	12	
		36	3E36UNTM2F...		.58	11	
		32	3E32UNTM2F...		.53	9	

NOTE: Two orbits are required to complete the thread. Fine Pitch TM Inserts produce partial profile thread.
Sample order: **6.0E80UNTMF VBX**
All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm), which has one cutting edge.
For toolholder information, see page 278.



Fine Pitch Threads

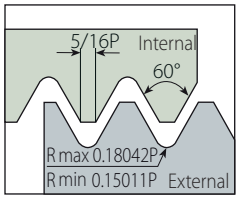
Fine pitch threads are threads with small pitches. It is difficult to produce multitooth inserts for small pitches because of the small radius between the teeth. Vargus developed inserts where every second tooth was dropped to enlarge the radius between the teeth.

Important!

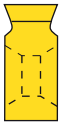
• All the fine pitch inserts are partial profile type (as a result of the enlarged radius).

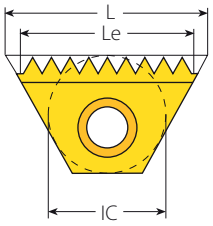
UNJ

External / Internal



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





Standard TM

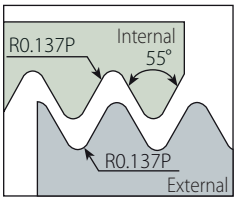
Standard TM

Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	L Inch	TPI	External	Internal	Inch		Toolholder
6.0mm	.41	24		6.0I24UNJTM...	.38	9	TMMC..-6.0
		20		6.0I20UNJTM...	.35	7	
		18		6.0I18UNJTM...	.33	6	
		16		6.0I16UNJTM...	.31	5	
1/4"	.43	24	2E24UNJTM2...	2I24UNJTM2...	.38	9	TMC..-2 TMSH..-2
		20	2E20UNJTM2...	2I20UNJTM2...	.40	8	
		18		2I18UNJTM2...	.39	7	
		16	2E16UNJTM2...	2I16UNJTM2...	.38	6	
		14	2E14UNJTM2...	2I14UNJTM2...	.36	5	
3/8"	.63	24	3E24UNJTM2...	3I24UNJTM2...	.58	14	TMC..-3 TMSH..-3
		20	3E20UNJTM2...	3I20UNJTM2...	.55	11	
		18	3E18UNJTM2...	3I18UNJTM2...	.56	10	
		16	3E16UNJTM2...	3I16UNJTM2...	.56	9	
		14	3E14UNJTM2...	3I14UNJTM2...	.57	8	
		13	3E13UNJTM2...		.54	7	
		12	3E12UNJTM2...	3I12UNJTM2...	.58	7	
5/8"	1.06	16	5E16UNJTM2...	5I16UNJTM2...	1.00	16	TMC..-5 TMSH..-5
		12	5E12UNJTM2...	5I12UNJTM2...	1.00	12	
		11	5E11UNJTM2...	5I11UNJTM2...	1.00	11	

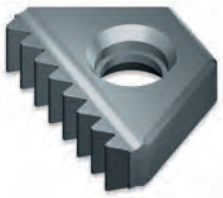
All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm), which has one cutting edge.
For toolholder information, see page 278.

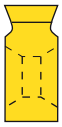
Whitworth for BSW, BSP

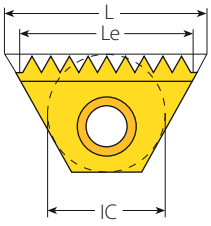
External / Internal



BSW Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
BSP Defined by: B.S.2779:1956
Tolerance class: BSW-Medium class A, BSP-Medium class







Standard TM

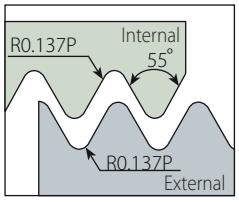
Standard TM

Insert Size		Pitch	Ordering Code	Le	Teeth	
IC	L Inch	TPI	External + Internal	Inch		Toolholder
6.0mm	.41	28	6.0EI28WTM...	.36	10	TMMC..-6.0
		26	6.0EI26WTM...	.35	9	
		24	6.0EI24WTM...	.38	9	
		20	6.0EI20WTM...	.35	7	
		19	6.0EI19WTM...	.37	7	
1/4"	.43	28	2EI28WTM2...	.39	11	TMC..-2 TMSH..-2
		26	2EI26WTM2...	.38	10	
		24	2EI24WTM2...	.38	9	
		20	2EI20WTM2...	.40	8	
		19	2EI19WTM2...	.37	7	
		14	2EI14WTM2...	.36	5	
3/8"	.63	26	3EI26WTM2...	.58	15	TMC..-3 TMSH..-3
		24	3EI24WTM2...	.58	14	
		20	3EI20WTM2...	.55	11	
		19	3EI19WTM2...	.58	11	
		18	3EI18WTM2...	.56	10	
		16	3EI16WTM2...	.56	9	
		14	3EI14WTM2...	.57	8	
		12	3EI12WTM2...	.58	7	
		11	3EI11WTM2...	.55	6	
3/8"B	.87	24	3BEI24WTM2...	.83	20	TMC..-3B TMSH..-3B
		20	3BEI20WTM2...	.85	17	
		19	3BEI19WTM2...	.84	16	
		18	3BEI18WTM2...	.83	15	
		16	3BEI16WTM2...	.81	13	
		14	3BEI14WTM2...	.86	12	
		12	3BEI12WTM2...	.83	10	
		11	3BEI11WTM2...	.82	9	
5/8"	1.06	16	5EI16WTM2...	1.00	16	TMC..-5 TMSH..-5
		14	5EI14WTM2...	1.00	14	
		12	5EI12WTM2...	.92	11	
		11	5EI11WTM2...	.91	10	
		10	5EI10WTM2...	1.00	10	
		9	5EI9WTM2...	.89	8	
		8	5EI8WTM2...	.88	7	
		7	5EI7WTM2...	.86	6	
		6	5EI6WTM2...	.83	5	
3/4"B	1.52	11	6BEI11WTM2...	1.36	15	TMC..-6B TMSH..-6B
		6	6BEI6WTM2...	1.33	8	
		5	6BEI5WTM2...	1.20	6	
		4.5	6BEI4.5WTM2...	1.33	6	

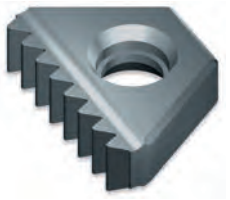
All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm) which has one cutting edge.
For toolholder information, see page 278.

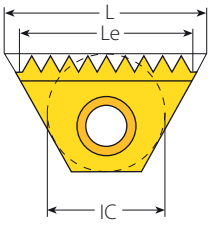
Whitworth for BSW only (con't)

Internal



Defined by: B.S.84:1956, DIN259, ISO228/1:1982
Tolerance class: Medium class A





Coarse Pitch TM

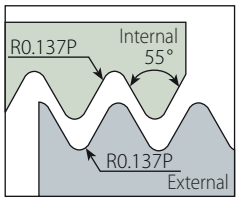
Coarse Pitch TM

Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth		Bore Dia. Range
Inch	IC	L Inch	Internal		Inch		Toolholder	Inch
7/16"-18	6.0mm	.41	6.0I18WTM028/035...	1	.33	6	TMMC050-6.0	.37 - .56
7/16"-18			6.0I18WTM028/035...	1	.33	6	TMMC075-6.0	.37 - .56
7/16"-26			6.0I26WTM028/036...	1	.35	9	TMMC050-6.0	.39 - .41
7/16"-26			6.0I26WTM028/036...	1	.35	9	TMMC075-6.0	.39 - .41
1/2"-16	1/4"	.43	2I16WTM028/051...	1	.38	6	TMC075-2 124/205	.42 - .48
1/2"-20	6.0mm	.41	6.0I20WTM028/037...	1	.35	7	TMMC050-6.0	.43 - .45
1/2"-20			6.0I20WTM028/037...	1	.35	7	TMMC075-6.0	.43 - .45
9/16"-16	1/4"	.43	2I16WTM028/038...	2	.38	6	TMC050-2	.48 - .73
9/16"-16			2I16WTM028/038...	2	.38	6	TMC075-2	.48 - .73
5/8"-14			2I14WTM028/039...	1	.36	5	TMC075-2 124/206	.53 - .75
11/16"-14			2I14WTM028/039...	1	.36	5	TMC075-2 124/206	.53 - .75
11/16"-16			2I16WTM028/038...	2	.38	6	TMC050-2	.48 - .73
11/16"-16			2I16WTM028/038...	2	.38	6	TMC075-2	.48 - .73
3/4"-12	3/8"	.63	3I12WTM028/040...	1	.58	7	TMC0625-3 124/201	.64 - .70
3/4"-16	1/4"	.43	2I16WTM028/038...	2	.38	6	TMC050-2	.48 - .73
3/4"-16			2I16WTM028/038...	2	.38	6	TMC075-2	.48 - .73
13/16"-12	3/8"	.63	3I12WTM028/041...	2	.58	7	TMC0625-3	.70 - .83
7/8"-9	1/2"	.87	4I9WTM028/042...	1	.67	6	TMC100-4 124/202	.73 - 1.28
7/8"-11			4I11WTM028/043...	1	.73	8	TMC100-4 124/202	.76 - .87
15/16"-12	3/8"	.63	3I12WTM028/041...	2	.58	7	TMC075-3	.83 - 1.20
1"-8	1/2"	.87	4I8WTM028/044...	1	.63	5	TMC100-4 124/202	.84 - 1.02
1"-10			4I10WTM028/045...	1	.70	7	TMC100-4 124/202	.87 - 1.24
1"-12	3/8"	.63	3I12WTM028/041...	2	.58	7	TMC075-3	.83 - 1.20
1 1/16"-12			3I12WTM028/041...	2	.58	7	TMC075-3	.83 - 1.20
1 1/8"-7	5/8"	1.06	5I7WTM028/046...	1	.86	6	TMC100-5 124/208	.94 - 1.07
1 1/8"-9	1/2"	.87	4I9WTM028/042...	1	.67	6	TMC100-4 124/202	.73 - 1.28
1 1/8"-12	3/8"	.63	3I12WTM028/041...	2	.58	7	TMC075-3	.83 - 1.20
1 3/16"-8	5/8"	1.06	5I8WTM028/047...	2	.88	7	TMC100-5 124/204	1.02 - 1.28
1 3/16"-12	3/8"	.63	3I12WTM028/041...	2	.58	7	TMC075-3	.83 - 1.20
1 1/4"-7	5/8"	1.06	5I7WTM028/048...	2	.86	6	TMC100-5 124/204	.85 - 1.41
1 1/4"-9	1/2"	.87	4I9WTM028/042...	1	.67	6	TMC100-4 124/202	.73 - 1.28
1 1/4"-12	3/8"	.63	3I12WTM028/041...	2	.58	7	TMC075-3	.83 - 1.20
1 5/16"-6	5/8"	1.06	5I6WTM028/049...	2	.83	5	TMC100-5 124/204	1.10 - 1.28
1 5/16"-8			5I8WTM028/047...	2	.88	7	TMC100-5 124/204	1.02 - 1.28

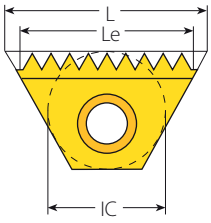
For toolholder information, see page 282.

Whitworth for BSW only (con't)

Internal



Defined by: B.S.84:1956, DIN259, ISO228/1:1982
Tolerance class: Medium class A



Coarse Pitch TM Inserts

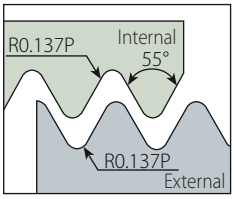
Coarse Pitch TM

Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth		Bore Dia. Range
	IC	L Inch	Internal		Inch		Toolholder	Inch
1 5/16"-12	3/8"	.63	3I12WTM028/041...	2	.58	7	TMC075-3	.83 - 1.20
1 3/8"-8	5/8"	1.06	5I8WTM028/047...	2	.88	7	TMC100-5-124/204	1.02 - 1.28
1 3/8"-6			5I6WTM028/049...	2	.83	5	TMC100-5-124/204	1.10 - 1.28
1 3/8"-12			5I12WTM028/050...	2	.92	11	TMC100-5	1.27 - 1.36
1.4-6			5I6WTM028/049...	2	.83	5	TMC100-5-124/204	1.10 - 1.28
1.4-8			5I8WTM028/047...	2	.88	7	TMC100-5-124/204	1.02 - 1.28
1.4-12			5I12WTM028/050...	2	.92	11	TMC100-5	1.27 - 1.36
1 7/16"-6			5I6WTM028/049...	2	.83	5	TMC100-5-124/204	1.10 - 1.28
1 7/16"-8			5I8WTM028/047...	2	.88	7	TMC100-5	1.28 - 1.54
1 7/16"-12			5I12WTM028/050...	2	.92	11	TMC100-5	1.27 - 1.36
1 1/2"-6			5I6WTM028/049...	2	.83	5	TMC100-5-124/204	1.10 - 1.29
1 1/2" -8			5I8WTM028/047...	2	.88	7	TMC100-5	1.28 - 1.54
1.6-6			5I6WTM028/049...	2	.83	5	TMC100-5	1.28 - 1.52
1.6-8			5I8WTM028/047...	2	.88	7	TMC100-5	1.28 - 1.54
1 5/8"-8			5I8WTM028/047...	2	.88	7	TMC100-5	1.28 - 1.54
1 5/8"-6			5I6WTM028/049...	2	.83	5	TMC100-5	1.28 - 1.52
1 3/4"-7			5I7WTM028/048...	2	.86	6	TMC100-5	1.57 - 1.65
1 7/8"-6			5I6 WTM028/049...	2	.83	5	TMC125-5	1.66 - 1.77
1.9-6			5I6 WTM028/049...	2	.83	5	TMC125-5	1.66 - 1.77

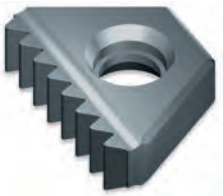
For toolholder information, see page 282.

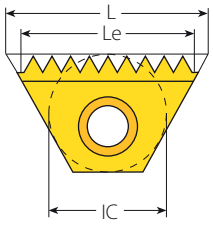
Whitworth for BSW only (con't)

External / Internal



Defined by: B.S.84:1956, DIN259, ISO228/1:1982
Tolerance class: Medium class A

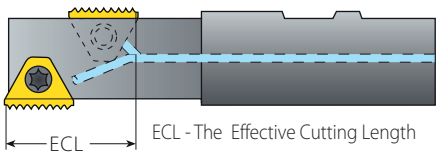




Standard TM

Standard TM Inserts for TMO Toolholders

Insert Size		Pitch	Ordering Code		ECL
IC	L Inch	TPI	External + Internal	Toolholder	Inch
1/4"	.43	28	2EI28WTM2...	TMOC075-2-3	.68
		26	2EI26WTM2...	TMOC075-2-5	.73
		24	2EI24WTM2...	TMOC075-2-2	.71
		20	2EI20WTM2...	TMOC075-2-6	.75
		19	2EI19WTM2...	TMOC075-2-7	.68
		14	2EI14WTM2...	TMOC075-2-3	.64
3/8"	.63	26	3EI26WTM2...	TMOC075-3-2	1.08
		26	3EI26WTM2...	TMOC075-3-6	1.04
		24	3EI24WTM2...	TMOC075-3-7	1.12
		20	3EI20WTM2...	TMOC075-3-6	1.05
		19	3EI19WTM2...	TMOC075-3-8	1.11
		18	3EI18WTM2...	TMOC075-3-6	1.06
		16	3EI16WTM2...	TMOC075-3-6	1.06
		14	3EI14WTM2...	TMOC075-3-6	1.07
		12	3EI12WTM2...	TMOC075-3-6	1.08
		11	3EI11WTM2...	TMOC075-3-9	1.09
5/8"	1.06	16	5EI16WTM2...	TMOC100-5-3	1.88
		14	5EI14WTM2...	TMOC100-5-1	2.00
		14	5EI14WTM2...	TMOC100-5-4	1.86
		12	5EI12WTM2...	TMOC100-5-2	1.75
		11	5EI11WTM2...	TMOC100-5-6	1.82
		10	5EI10WTM2...	TMOC100-5-7	1.8
		9	5EI9WTM2...	TMOC100-5-8	1.78
		8	5EI8WTM2...	TMOC100-5-9	1.75
		7	5EI7WTM2...	TMOC100-5-4	1.71
		6	5EI6WTM2...	TMOC100-5-11	1.67

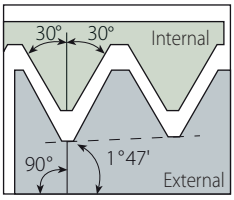


ECL - The Effective Cutting Length

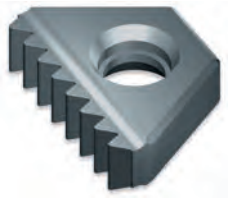
For Le and number of teeth of the above inserts, see the table for standard inserts on page 254.
For toolholder information see page 278.

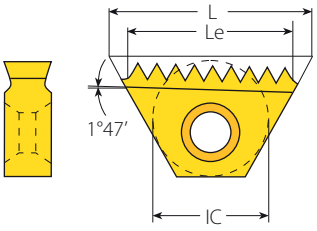
NPT

External / Internal



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





Standard TM

Standard TM

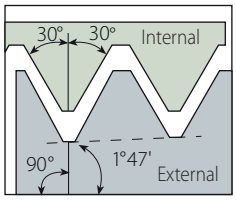
Insert Size		Pitch	Ordering Code	Le	Teeth	Toolholder	
IC	L Inch	TPI	External + Internal	Inch		RH	LH
3/8"	.63	18	3E18NPT-TM2... *	.56	10	TMNC..-3	TMNC..-3LH
		14	3EI14NPT-TM2...	.57	8		
		11.5	3EI11.5NPT-TM2...	.52	6		
3/8"B	.87	14	3BEI14NPT-TM2...	.86	12	BTMNC..-3B	BTMNC..-3BLH
		11.5	3BEI11.5NPT-TM2... **	.78	9		
5/8"	1.06	11.5	5EI11.5NPT-TM2...	.96	11	TM.C..-5	TM.C..-5LH
		8	5EI8NPT-TM2...	.88	7	TMNC..-5	TMNC..-5LH
3/4"B	1.52	11.5	6BEI11.5NPT-TM2...	1.39	16	TMC..-6B	TMC..-6BLH
		8	6BEI8NPT-TM2...	1.25	10		

* For external thread only.
To thread with insert cutting edge marked "L", use LH toolholders.
For toolholder information, see page 284.

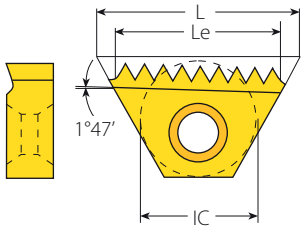
** Single sided insert - RH only.

NPT

Internal



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



Coarse Pitch TM

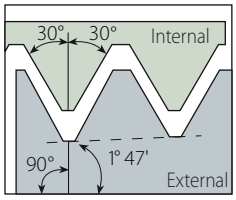
Coarse Pitch TM

Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth	
Inch	IC	L Inch	Internal		Inch		Toolholder
1/4"-18	1/4"	.43	2I18NPT-TM028/074...	1	.39	7	TMC0752-2-124/209
3/8"-18			2I18NPT-TM028/074...	1	.39	7	TMC0752-2-124/209

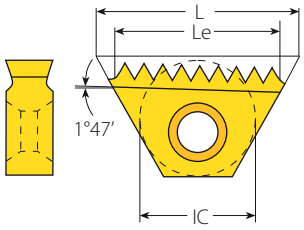
For toolholder information, see page 284.

NPTF (Dry Seal)

External / Internal



Defined by: ANSI 1.20.3-1976
Tolerance class: Standard NPTF



Standard TM

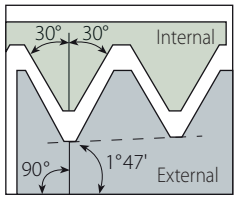
Standard TM

Insert Size		Pitch	Ordering Code	Le	Teeth	Toolholder	
IC	L Inch	TPI	External + Internal	Inch		RH	LH
3/8″	.63	14	3EI14NPTFTM2...	.57	8	TMNC..-3	TMNC..-3LH
		11.5	3EI11.5NPTFTM2...	.52	6		
3/8″B	.87	14	3BEI14NPTFTM2...	.86	12	BTMNC..-3B	BTMNC..-3BLH
		11.5	3BEI11.5NPTFTM2...	.78	9		
5/8″	1.06	11.5	5EI11.5NPTFTM2...	.96	11	TM.C..-5	TM.C..-5LH
		8	5EI8NPTFTM2...	.88	7	TMNC..-5	TMNC..-5LH
3/4″B	1.52	11.5	6BEI11.5NPTFTM2...	1.39	16	TMC..-6B	TMC..-6BLH
		8	6BEI8NPTFTM2...	1.25	10		

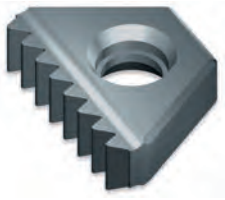
To thread with insert cutting edge marked "L", use LH toolholders.
For toolholder information, see page 284.

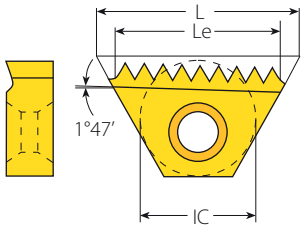
NPTF (Dry Seal)

Internal



Defined by: ANSI 1.20.3-1976
Tolerance class: Standard NPTF





Coarse Pitch TM

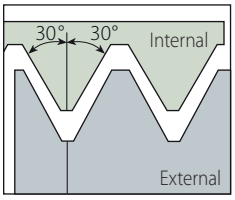
Coarse Pitch TM

Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth	
Inch	IC	L Inch	Internal		Inch		Toolholder
1/4″-18	1/4″	.43	2I18NPTFTM028/078...	1	.39	7	TMC075-2-124/209
3/8″-18			2I18NPTFTM028/078...	1	.39	7	TMC075-2-124/209

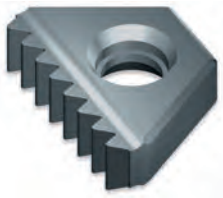
For toolholder information, see page 284.

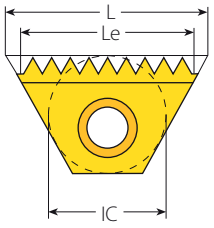
NPS

External / Internal



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





Standard TM

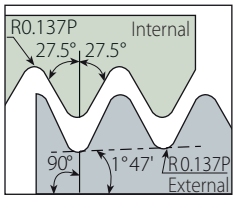
Standard TM

Insert Size		Pitch	Ordering Code	Le	Teeth	Nominal Thread Size	
IC	L Inch	TPI	External + Internal	Inch			Toolholder
3/8″	.63	14	3EI14NPSTM2...	.57	8	1/2″	TMNC0625-3
		14	3EI14NPSTM2...	.57	8	3/4″	TMNC075-3
		11.5	3EI11.5NPSTM2...	.52	6	1″, 1 1/4″	TMNC075-3
3/8″B	.87	11.5	3BEI11.5NPSTM2...*	.78	9	1″, 1 1/4″	BTMNC075-3B
5/8″	1.06	11.5	5EI11.5NPSTM2...	.96	11	1 1/2″, 2″	TMC100-5
		8	5EI8NPSTM2...	.88	7	2 1/2″ & larger	TMC125-5

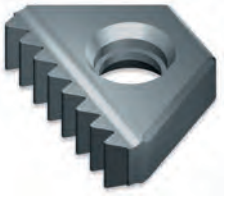
* One cutting edge.
All inserts have 2 cutting edges.
For toolholder information, see page 278.

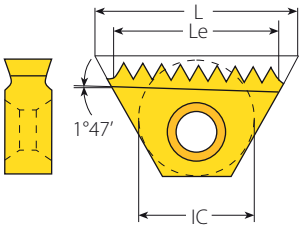
BSPT

External / Internal



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





Standard TM

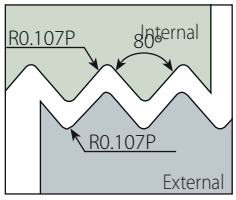
Standard TM

Insert Size		Pitch	Ordering Code	Le	Teeth	Toolholder	
IC	L Inch	TPI	External + Internal	Inch		RH	LH
1/4"	.43	19	2EI19BSPT-TM2...	.37	7	TMC..-2	TMC..-2LH
3/8"	.63	14	3EI14BSPT-TM2...	.57	8	TMNC..-3	TMNC..-3LH
		11	3EI11BSPT-TM2...	.55	6		
5/8"	1.06	11	5EI11BSPT-TM2...	.91	10	TMC..-5	TMC..-5LH

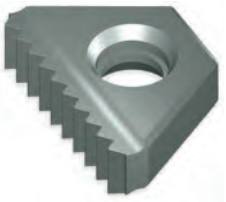
To thread with insert cutting edge marked "L", use a LH toolholder.
For toolholder information, see page 284.

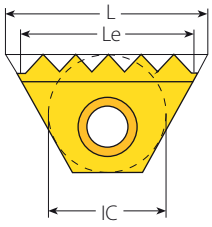
Pg

External / Internal



Defined by: DIN 40430
Tolerance class: Standard





Standard TM

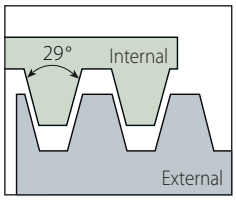
Standard TM

Insert Size		Pitch	Ordering Code	Le	Teeth	Nominal Thread Size	
IC	L Inch	TPI	External + Internal	Inch			Toolholder
6.0mm	.41	20	6.0EI20PGTM...	.35	7	Pg7	TMMC..-6.0
1/4"	.43	20	2EI20PGTM2...	.40	8	Pg7	TMC..-2 TMSH..-2
		18	2EI18PGTM2...	.39	7	Pg9, Pg11, Pg13.5, Pg16	
		16	2EI16PGTM2...	.38	6	Pg21, Pg29, Pg36, Pg42, Pg48	
3/8"	.63	20	3EI20PGTM2...	.55	11	Pg7	TMC..-3 TMSH..-3
		18	3EI18PGTM2...	.56	10	Pg9, Pg11, Pg13.5, Pg16	
		16	3EI16PGTM2...	.56	9	Pg21, Pg29, Pg36, Pg42, Pg48	
5/8"	1.06	16	5EI16PGTM2...	1.00	16	Pg21, Pg29, Pg36, Pg42, Pg48	TMC..-5, TMSH..-5

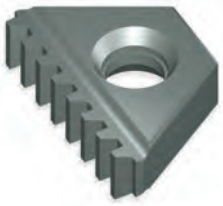
All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm) which has one edge.
For toolholder information, see page 278.

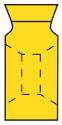
ACME

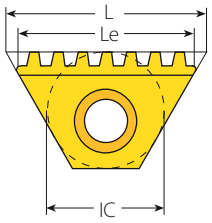
Internal



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







Coarse Pitch TM

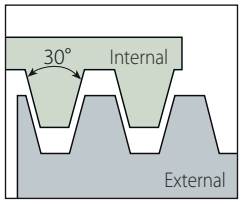
Coarse Pitch TM

Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth		Bore Dia. Range
Inch	IC	L Inch	Internal		Inch		Toolholder	Inch
1/2"-16	6.0mm	.41	6.0I16ACMETM028/052...	1	.31	5	TMMC050-6.0	.44
1/2"-16			6.0I16ACMETM028/052...	1	.31	5	TMMC075-6.0	.44
5/8"-16	1/4"	.43	2I16ACMETM028/053...	2	.38	6	TMC050-2	.56
5/8"-16			2I16ACMETM028/053...	2	.38	6	TMC075-2	.56
5/8"-14			2I14ACMETM028/054...	1	.36	5	TMC075-2-124/205	.55
3/4"-16			2I16ACMETM028/055...	2	.38	6	TMC050-2	.69
3/4"-16			2I16ACMETM028/055...	2	.38	6	TMC075-2	.69
3/4"-14			2I14ACMETM028/083...	1	.36	5	TMC075-2-124/206	.68
3/4"-12			2I12ACMETM028/056...	1	.33	4	TMC075-2-124/206	.67
7/8"-14	3/8"	.63	3I14ACMETM028/057...	2	.57	8	TMNC0625-3	.80
7/8"-12	1/4"	.43	2I12ACMETM028/058...	1	.33	4	TMC075-2-124/206	.79
1"-14	3/8"	.63	3I14ACMETM028/059...	2	.57	8	TMC0625-3	.93
1"-12			3I12ACMETM028/060...	2	.58	7	TMNC0625-3	.91
1"-10	1/2"	.87	4I10ACMETM028/061...	1	.70	7	TMC100-4-124/202	.90
1"-8			4I8ACMETM028/062...	1	.75	6	TMC100-4-124/202	.87
1 1/8"-12	3/8"	.63	3I12ACMETM028/060...	2	.58	7	TMC0625-3	1.04
1 1/8"-10	1/2"	.87	4I10ACMETM028/084...	1	.70	7	TMC100-4-124/207	1.02
1 1/8"-8			4I8ACMETM028/063...	1	.75	6	TMC100-4-124/202	1.00 - 1.12
1 1/4"-12	3/8"	.63	3I12ACMETM028/060...	2	.58	7	TMC075-3	1.17
1 1/4"-10	5/8"	1.06	5I10ACMETM.028/064...	2	.90	9	TMC100-5-124/204	1.15
1 1/4"-8	1/2"	.87	4I8ACMETM028/063...	1	.75	6	TMC100-4-124/202	1.00 - 1.12
1 3/8"-10	5/8"	1.06	5I10ACMETM028/065...	2	.90	9	TMC100-5-124/204	1.27
1 3/8"-8			5I8ACMETM028/066...	2	.88	7	TMC100-5-124/204	1.25
1 3/8"-6			5I6ACMETM028/067...	1	.83	5	TMC100-5-124/208	1.20
1 1/2"-10			5I10ACMETM028/068...	2	.90	9	TMC100-5	1.40
1 1/2"-8			5I8ACMETM028/069...	2	.88	7	TMC100-5-124/204	1.37
1 1/2"-6			5I6ACMETM028/070...	2	.83	5	TMC100-5-124/204	1.33
1 3/4"-10			5I10ACMETM028/064...	2	.90	9	TMC125-5	1.65
1 3/4"-8			5I8ACMETM028/069...	2	.88	7	TMC100-5	1.62
1 3/4"-6			5I6ACMETM028/070...	2	.83	5	TMC100-5	1.58
1 3/4"-5			5I5ACMETM028/071...	2	.80	4	TMC100-5-124/204	1.55
2"-8			5I8ACMETM028/069...	2	.88	7	TMC125-5	1.87
2"-6			5I6ACMETM028/072...	2	.83	5	TMC100-5	1.83
2"-5			5I5ACMETM028/071...	2	.80	4	TMC100-5	1.80
2 1/4"-6			5I6ACMETM028/072...	2	.83	5	TMC125-5	2.08
2 1/4"-5			5I5ACMETM028/073...	2	.80	4	TMC100-5	2.05
2 1/2"-5			5I5ACMETM028/073...	2	.80	4	TMC125-5	2.30

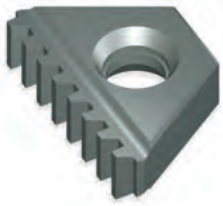
For toolholder information, see page 282.

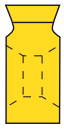
Trapez

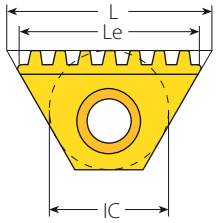
Internal



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







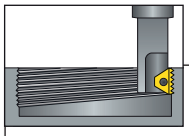
Coarse Pitch TM

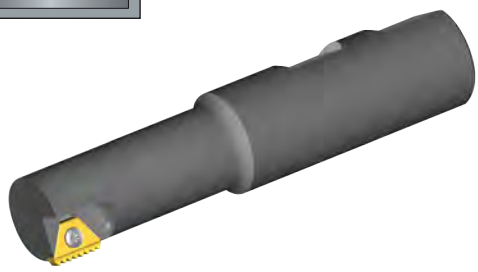
Coarse Pitch TM

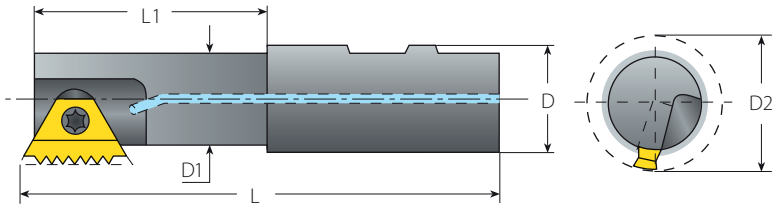
Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth		Bore Dia. Range
mm	IC	L Inch	Internal		Inch		Toolholder	Inch
TR 16X2.0	1/4"	.43	2I2.0TRTM028/028...	1	.39	5	TMC075-2-124/206	.55
TR 18X2.0			2I2.0TRTM028/029...	1	.39	5	TMC075-2-124/206	.63 - .71
TR 20X2.0			2I2.0TRTM028/029...	1	.39	5	TMC075-2-124/206	.63 - .71
TR 24X3.0	1/2"	.87	4I3.0TRTM028/030...	1	.71	6	TMC100-4-124/202	.83
TR 26X3.0			4I3.0TRTM028/031...	1	.71	6	TMC100-4-124/202	.91 - 1.06
TR 28X3.0			4I3.0TRTM028/031...	1	.71	6	TMC100-4-124/202	.91 - 1.06
TR 30X3.0			4I3.0TRTM028/031...	1	.71	6	TMC100-4-124/202	.91 - 1.06
TR 32X3.0			4I3.0TRTM028/032...	1	.71	6	TMC100-4-124/207	1.14 - 1.30
TR 34X3.0			4I3.0TRTM028/032...	1	.71	6	TMC100-4-124/207	1.14 - 1.30
TR 36X3.0			4I3.0TRTM028/032...	1	.71	6	TMC100-4-124/207	1.14 - 1.30
TR 38X3.0	5/8"	1.06	5I3.0TRTM028/033...	2	.94	8	TMC100-5-124/204	1.38 - 1.54
TR 40X3.0			5I3.0TRTM028/033...	2	.94	8	TMC100-5-124/204	1.38 - 1.54
TR 42X3.0			5I3.0TRTM028/033...	2	.94	8	TMC100-5-124/204	1.38 - 1.54
TR 44X3.0			5I3.0TRTM028/033...	2	.94	8	TMC100-5	1.61 - 1.77
TR 46X3.0			5I3.0TRTM028/033...	2	.94	8	TMC100-5	1.61 - 1.77
TR 48X3.0			5I3.0TRTM028/033...	2	.94	8	TMC100-5	1.61 - 1.77
TR 50X3.0			5I3.0TRTM028/033...	2	.94	8	TMC125-5	1.85 - 2.24
TR 52X3.0			5I3.0TRTM028/033...	2	.94	8	TMC125-5	1.85 - 2.24
TR 55X3.0			5I3.0TRTM028/033...	2	.94	8	TMC125-5	1.85 - 2.24
TR 60X3.0			5I3.0TRTM028/033...	2	.94	8	TMC125-5	1.85 - 2.24
TR 65X4.0			5I4.0TRTM028/034...	2	.94	6	TMC125-5	2.40 - 4.17
TR 70X4.0			5I4.0TRTM028/034...	2	.94	6	TMC125-5	2.40 - 4.17
TR 75X4.0			5I4.0TRTM028/034...	2	.94	6	TMC125-5	2.40 - 4.17
TR 80X4.0			5I4.0TRTM028/034...	2	.94	6	TMC125-5	2.40 - 4.17
TR 85X4.0			5I4.0TRTM028/034...	2	.94	6	TMC125-5	2.40- 4.17
TR 90X4.0			5I4.0TRTM028/034...	2	.94	6	TMC125-5	2.40 - 4.17
TR 95X4.0			5I4.0TRTM028/034...	2	.94	6	TMC125-5	2.40 - 4.17
TR 100X4.0			5I4.0TRTM028/034...	2	.94	6	TMC125-5	2.40 - 4.17
TR 105X4.0			5I4.0TRTM028/034...	2	.94	6	TMC125-5	2.40 - 4.17
TR 110X4.0			5I4.0TRTM028/034...	2	.94	6	TMC125-5	2.40 - 4.17

For toolholder information, see page 282.

External and Internal Toolholders







TM Standard

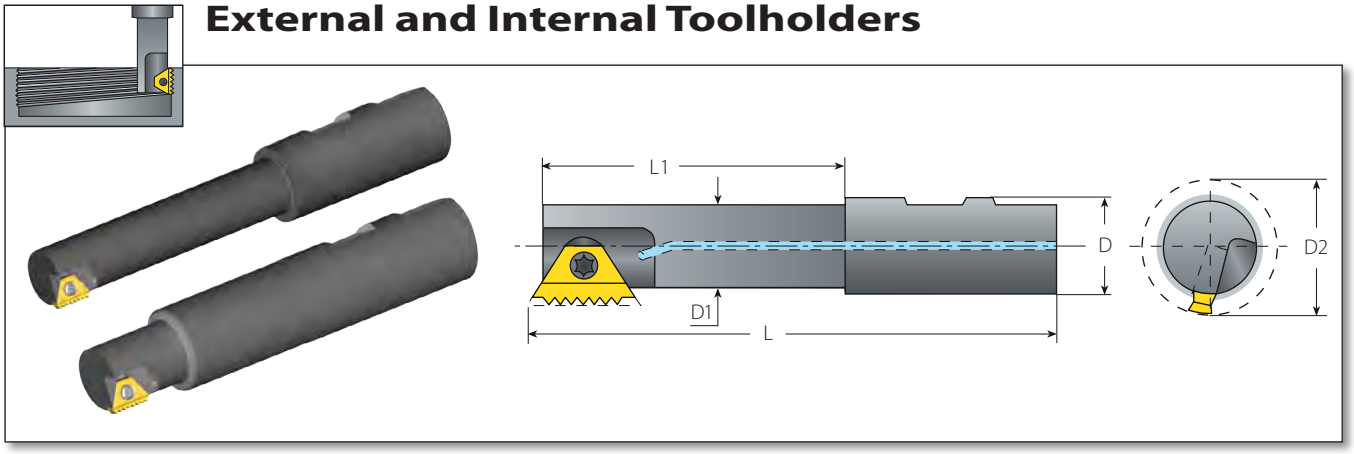
Insert Size	Ordering Code	EDP No.	Dimensions Inch					Spare Parts	
IC			L	L1	D	D1	D2	Insert Screw	Torx Key
6.0mm	TMMC050-6.0	67635	2.72	.57	.50	.27	.35	SN7T	K7T
	TMMC075-6.0	67636	3.50	.67	.75	.27	.35		
1/4"	TMC050-2	67612	2.75	.47	.50	.35	.45	SN2TM	K2T
	TMC075-2	67614	3.50	.79	.75	.35	.45		
	TMC075-2LH	66712	3.50	.79	.75	.35	.45		
3/8"	TMC0625-3	67613	3.56	.87	.625	.54	.67	SN3TM	K3T
	TMC075-3	67615	3.75	1.69	.75	.65	.79		
3/8"B	BTMC0625-3B	67600	3.15	1.14	.625	.53	.67	SN3TM	K3T
	BTMC075-3B	67601	3.27	1.14	.75	.61	.75	SN3T	K3T
	BTMC100-3B	67602	3.68	1.18	1.00	.61	.75		
	BTMWC100-3B	67609	3.62	1.18	1.00	.73	.87		
5/8"	TMC100-5	67616	4.38	2.05	1.00	.94	1.18	SN5TM	K5T
	TMC100-5LH	67617	4.38	2.05	1.00	.94	1.18		
	TMC125-5	67618	4.75	2.28	1.25	1.22	1.46		
3/4"B	TMC125-6B	67619	4.45	2.16	1.25	1.06	1.38	SM7T	K30T
	TMC150-6B	67708	5.25	2.56	1.50	1.50	1.81		

Internal Thread Application for Standard Toolholder

Toolholder	Min. Thread Dia.					
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	UNJ
TMMC050-6.0 TMMC075-6.0	.35		M10x0.75; M12x1.0; M14x1.25; M14x1.5		7/16-32UN; 7/16-28UNEF; 1/2-24UNS; 7/16-20UNF; 9/16-18UNF; 9/16-16UNF	9/16-24UNJEF; 1/2-20UNJF; 9/16-18UNJF; 9/16-16UNJF
TMC050-2 TMC075-2 TMC075-2LH	.45		M15x1.0; M16x1.5		9/16-32UN; 9/16-28UN; 9/16-24UNEF; 5/8-20UN; 9/16-18UNF; 9/16-16UNF; 7/8-14UNF	9/16-24UNJEF; 3/4-20UNJEF; 5/8-18UNJF; 5/8-16UNJF; 7/8-14UNJF
TMC0625-3	.67		M20x1.0; M22x1.5; M24x2.0		3/4-32UN; 13/16-28UN; 7/8-24UNS; 7/8-20UNEF; 7/8-18UNS 7/8-16UNS; 1-14UNS; 1 3/16-12UN	1 5/8-24UNJ; 7/8-20UNJEF; 1 1/16-18UNJEF; 7/8-16UNJ; 1 5/8-14UNJ; 15/16-12UNJ
TMC075-3	.79		M24x1.0; M25x1.5; M27x2.0		7/8-32UN; 15/16-28UN; 1-24UNS; 15/16-20UNEF; 1-18UNS; 1-16 UNS; 1 1/8-14UNS; 1 1/16-12UN	1 5/8-24 UNJ; 15/16-20UNJEF; 1 1/16-18UNJEF; 1-16UNJ; 1 5/8-14UNJ; 1 1/16-12UNJ
BTMC0625-3B	.67		M20x1.0; M22x1.5; M24x2.0		7/8-24UNS; 7/8-20UNEF; 7/8-18UNS; 7/8-16UNS; 1-14UNS; 1 3/16-12UN	
BTMC075-3B BTMC100-3B	.75		M22x1.0; M24x1.5; M25x2.0		7/8-24UNS; 15/16-20UNEF; 1-18UNS; 1-16UNS; 1-14UNS; 1-12UNF	
BTMWC100-3B	.87	M27x1.5	M25x1.0; M30x2		1-24UNS; 1 1/16-20UN; 1 1/16-18UNEF; 1 1/16-16UNEF; 1 1/8-14UNS; 1 1/8-12UNF	
TMC100-5 TMC100-5LH	1.18		M35x1.5; M39x2.0; M36x3.0; M36x4.0; M42x4.5; M48x5.0	1 3/4-5	1 3/8-24UNS; 1 3/8-20UN; 1 7/16-18UNEF; 1 7/16-16UNEF; 1 1/2-14UNS; 1 1/2-12UNF; 1 5/8-10UNS; 1 7/16-8UN; 1 5/8-6UN	1 7/16-16UNJ; 1 1/2-12UNJF
TMC125-5	1.46		M45x1.5; M45x2.0; M50x3.0; M56x4.0		1 5/8-24UNS; 1 11/16-20UN; 1 11/16-18UNEF; 1 11/16-16UNEF; 1 3/4-14UNS; 1 3/4-12 UN; 1 7/8-10UNS; 2-8 UN; 2 1/4-6UN	1 11/16-16UNJ; 1 3/4-12UNJ
TMC125-6B	1.38	M64x6.0	M42x1.5; M42x2.0; M48x3.0; M55x4.0; M48x5.0; M56x5.5	2-4.5; 2 1/2-4	2 1/4-6UN	
TMC150-6B	1.81	M64x6.0	M52x1.5; M55x2.0; M60x3.0; M60x4.0; M60x5.5	2 1/2-4	2 3/8-6UN	

	D2	BSW/BSF	BSP	BSPT	NPT	NPTF	PG	NPS	Trapez	ACME
TMMC050-6.0 TMMC075-6.0	.35	7/16-26BSF; 1/2-20BSW; 7/16-18BSF;	1/4-19				PG7			1/2-16
TMC050-2 TMC075-2 TMC075-2LH	.45	5/8-26BSF; 5/8-20BSW; 9/16-16BSF; 11/16-14BSF	3/8-19; 1/2-14	3/8-19			PG9; PG21			5/8-16;
TMC0625-3	.67	13/16-26BSF; 7/8-20BSW; 7/8-16BSW; 13/16-12BSW	5/8-14; 1 1/4-11				PG13.5; PG21	1/2-14; 1-11.5		1-14; 1 1/8-12
TMC075-3	.79	15/16-26BSF; 1-20BSW; 1 11/16-16BSW; 15/16-12BSW;	3/4-14; 1-11				PG16; PG21	3/4-14; 1-11.5		1 1/4-12
BTMC0625-3B	.67	7/8-20BSW; 7/8-16BSW; 13/16-12BSW	5/8-14; 1-11					1-11.5		
BTMC075-3B BTMC100-3B	.75	15/16-20BSW; 1-16BSW; 1 1/16-12BSW	3/4-14; 1-11					1-11.5		
BTMWC100-3B	.87	1 1/16-20BSW; 1 1/8-16BSW	7/8-14; 1-11					1-11.5		
TMC100-5 TMC100-5LH	1.18	1.4-16BSW; 1 3/8-12BSW; 1 7/16-8BSW; 1 3/4-7BSF; 1.6-6BSW	1 1/8-11	1 1/4-11	1 1/4-11.5	1 1/4-11.5	PG29	1 1/4-11.5; 2 1/2-8	TR44-3.0	1 1/2-10; 1 3/4-8; 1 3/4-6; 2-5
TMC125-5	1.46	1 3/4-16BSW; 1 7/8-12BSW; 2.1-8BSW; 1 7/8-6BSW;	1 1/2-11	1 1/2-11	1 1/2-11.5	1 1/2-11.5	PG36	1 1/2-11.5; 2 1/2-8	TR50-3.0; TR65-4.0	1 3/4-10; 2-8; 2 1/4-6; 2 1/2-5
TMC125-6B	1.38	2 1/4-6 BSF; 3-5BSF; 3 1/2-4.5BSF;	1 1/2-11		2 1/2-8	2 1/2-8				
TMC150-6B	1.81	2 5/8-6BSW; 3-5BSF; 3 1/2-4.5BSF	2-11		3-8	3-8				

External and Internal Toolholders



TML Long Tools

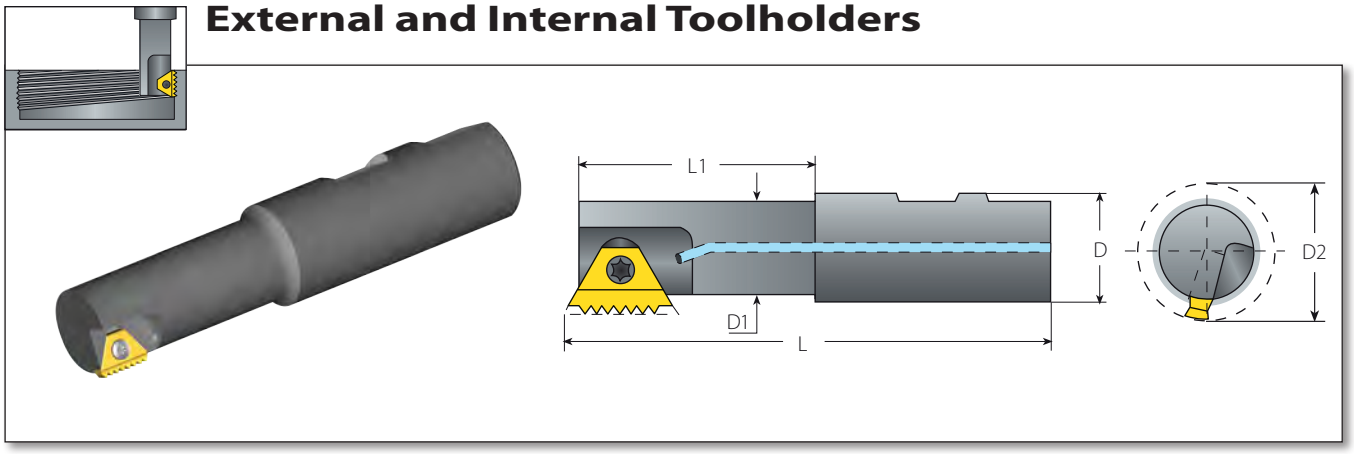
Insert Size	Ordering Code	EDP No.	Dimensions Inch					Spare Parts	
IC			L	L1	D	D1	D2	Insert Screw	Torx Key
1/4"	TMLC100-2	67719	4.95	.67	1.00	.35	.45	SN2TM	K2T
3/8"	TMLC100-3	67624	5.00	.98	1.00	.73	.87	SN3T	K3T
	BTMLC100-3	67737	4.95	2.50	1.00	.73	.87		
3/8"B	BTMLC075-3B	67603	3.86	1.73	.75	.61	.75	SN3T	K3T
	BTMLC100-3B	67604	4.95	2.50	1.00	.73	.87		
5/8"	TMLC100-5	67625	5.88	3.62	1.00	.94	1.18	SN5TM	K5T
	TMLC125-5	67628	6.33	3.86	1.25	1.22	1.46		
3/4"B	TMLC150-6B	67720	6.55	3.74	1.50	1.50	1.81	SM7T	K30T

Internal Thread Application for TML Toolholder

Toolholder		Min. Thread Dia.				
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	UNJ
TMLC100-2	.45		M15x1.0; M16x1.5		9/16-32UN; 9/16-28UN; 9/16-24UNEF; 5/8-20UN; 9/16-18UNF; 9/16-16UNF; 7/8-14UNF	9/16-24UNJEF; 3/4-20UNJEF; 5/8-18UNJF; 5/8-16UNJF; 7/8-14UNJF
TMLC100-3 BTMLC100-3	.87	M27x1.5	M25x1.0; M30x2.0		1-32UN; 1-28UN; 1-24UNS; 1 1/16-20UN; 1 1/16-18UNEF; 1 1/16-16UNEF; 1 1/8-14UNS; 1 1/8-12	1 5/8-24 UNJ; 1 1/16-20UNJ; 1 1/16-18UNJEF; 1 1/16-16; 1 1/8-12UNJF
BTMLC075-3B	.75		M22x1.0; M24x1.5; M25x2.0		7/8-24UNS; 15/16-20UNEF; 1-18UNS; 1-16UNS; 1-14UNS; 1-12UNF	
BTMLC100-3B	.87	M27x1.5	M25x1.0; M30x2.0		1-24UNS; 1 1/16-20UN; 1 1/16-18UNEF; 1 1/16-16UNEF; 1 1/8-14UNS; 1 1/8-12UNF	
TMLC100-5	1.18		M35x1.5; M39x2.0; M36x3.0; M36x4.0; M42x4.5; M48x5.0	1 3/4-5	1 3/8-24UNS; 1 3/8-20UN; 1 7/16-18UNEF; 1 7/16-16UNEF; 1 1/2-14UNS; 1 1/2-12UNF; 1 5/8-10UNS; 1 7/16-8UN; 1 5/8-6UN	1 7/16-16UNJ; 1 1/2-12UNJF
TMLC125-5	1.46		M45x1.5; M45x2.0; M50x3.0; M56x4.0		1 5/8-24UNS; 1 11/16-20UN; 1 11/16-18UNEF; 1 11/16-16UNEF; 1 3/4-14UNS; 1 3/4-12UN; 1 7/8-10UNS; 2-8 UN; 2 1/4-6UN	1 11/16-16UNJ; 1 3/4-12UNJ
TMLC150-6B	1.81	M64x6.0	M52x1.5; M55x2.0; M60x3.0; M60x4.0; M60x5.5	2 1/2-4	2 3/8-6UN	

	D2	BSW/BSF	BSP	BSPT	NPT	NPTF	PG	NPS	Trapez	ACME
TMLC100-2	.45	5/8-26BSF; 5/8-20BSW; 11/16-14BSF	3/8-19; 1/2-14	3/8-19			PG9; PG21			
TMLC100-3 BTMLC100-3	.87	1 1/16-26BSF; 1 1/16-20BSW; 1 1/8-16BSW	7/8-14; 1-11				PG21	1-11.5		
BTMLC075-3B	.75	15/16-20BSW; 1-16BSW; 1 1/16-12BSW	3/4-14; 1-11					1-11.5		
BTMLC100-3B	.87	1 1/16-20BSW; 1 1/8-16BSW	7/8-14; 1-11				PG21	1-11.5		
TMLC100-5	1.18	1 3/4-7BSF; 1 7/8-6BSW	1 1/4-11	1 1/4-11	1 1/4-11.5	1 1/4-11.5	PG29	1 1/4-11.5; 2 1/2-8	TR44-3.0	1 1/2-10; 1 3/4-8; 1 3/4-6; 2-5
TMLC125-5	1.46	1 7/8-6BSW	1 1/2-11	1 1/2-11	1 1/2-11.5	1 1/2-11.5	PG36	1 1/2-11.5; 2 1/2-8	TR50-3.0; TR65-4.0	1 3/4-10; 2-8; 2 1/4-6; 2 1/2-5
TMLC150-6B	1.81	3-5BSF; 3 1/2-4.5BSF	2-11		2 1/2-8	2 1/2-8				

External and Internal Toolholders



124/... - For Coarse Pitch Threads

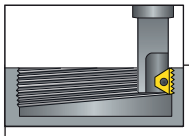
Insert Size	Ordering Code	EDP No.	Dimensions Inch					Spare Parts	
IC			L	L1	D	D1	D2	Insert Screw	Torx Key
6.0mm	TMMC075-6-124/203	67700	3.50	.59	.75	.26	.35	SN7T	K7T
1/4"	TMC075-2-124/205	67702	3.12	.61	.75	.29	.39	SN2TM	K2T
	TMC075-2-124/206	67703	3.12	.61	.75	.35	.47		
	TMC075-2-124/209	67706	3.12	.61	.75	.29	.39		
3/8"	TMC075-3-124/201	67698	3.75	.81	.75	.48	.61	SN3TM	K3T
1/2"	TMC100-4-124/202	67699	3.58	1.18	1.00	.53	.71	SN4TM	K4T
	TMC100-4-124/207	67704	3.97	1.57	1.00	.63	.79	SA4TM	
5/8"	TMC100-5-124/204	67701	3.98	1.57	1.00	.75	.98	SA5TM	K5T
	TMC100-5-124/208	67705	3.98	1.57	1.00	.65	.87	SN5TM	

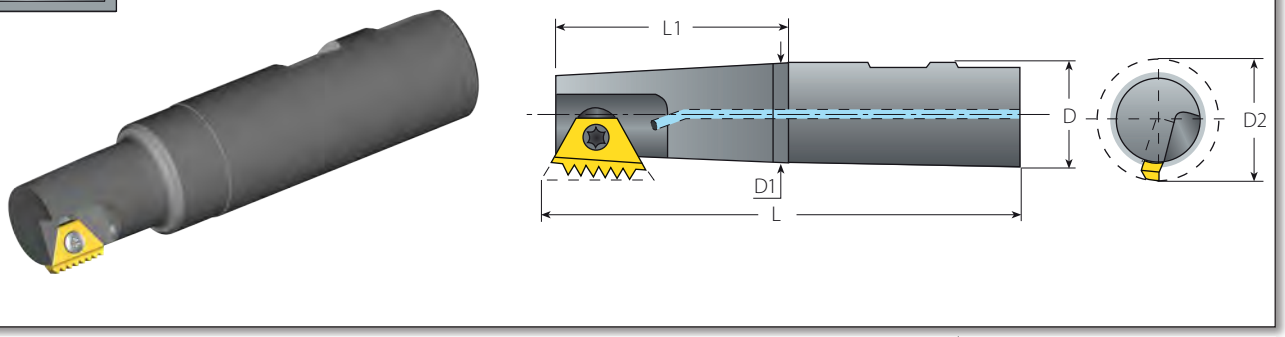
Internal Thread Application for 124/... Coarse Pitch Toolholder

Toolholder		Min. Thread Dia.					
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	UNJ	
TMMC075-6 124/203	.35	M12x1.75	M12x1.0; M22x1.5; M12x1.75	7/16-14	11/16-32UN; 1/2-24UNS; 9/16-18UNF; 9/16-16UNF	9/16-24UNJEF; 1/2-20UNJF; 9/16-18UNJF; 9/16-16UNJF	
TMC075-2 124/205	.39			1/2-13	5/8-12UN		
TMC075-2 124/206	.47			5/8-11			
TMC075-2 124/209	.39						
TMC075-3 124/201	.61	M20x2.5	M20x1.0; M22x1.5; M22x2.0	3/4-10	11/16-32UN; 3/4-28UN; 3/4-24UNS; 13/16-20UNEF; 7/8-18UNS; 7/8-16UNS; 7/8-14UNF; 7/8-12UN	1 5/8-24UNJ; 13/16-20UNJEF; 1 1/16-18UNJEF; 13/16-16UNJ; 7/8-14UNJF; 7/8-12UNJ	
TMC100-4 124/202	.71	M22x2.5; M24x3.0		7/8-9; 1 1/8-7			
TMC100-4 124/207	.79			1-8			
TMC100-5 124/204	.98	M30x3.5	M30x1.5; M33x2.0; M39x3.0; M56x4.0	1 3/8-6	1 1/8-24UNS; 1 3/16-20UN; 1 3/16-18UNEF; 1 3/16-16UNEF; 1 1/4-14UNS; 1 1/4-12UNF; 1 1/2-10UNS; 1 1/4-8UN	1 3/16-16UNJ; 1 1/4-12UNJF	
TMC100-5 124/208	.87						

	D2	BSW/BSF	BSP	BSPT	NPT	NPTF	PG	NPS	Trapez	ACME
TMMC075-6 124/203	.35	7/16-26BSF; 7/16-18BSF;	1/4-19				PG7	1/2-14; 1-11.5		
TMC075-2 124/205	.39	1/2-16BSF								5/8-14
TMC075-2 124/206	.47	5/8-14BSF							TR16-2	3/4-14; 3/4-12
TMC075-2 124/209	.39				1/4-18	1/4-18				
TMC075-3 124/201	.61	3/4-12BSF	1/2-14	3/4-14; 1-11	3/4-14; 1-11.5	3/4-14; 1-11.5	PG13.5; PG21	1-11.5		
TMC100-4 124/202	.71	7/8-11BSF; 1-10BSF; 7/8-9BSW; 1-8BSW							TR24-3.0	1-10; 1-8
TMC100-4 124/207	.79								TR32-3.0	1 1/8-10
TMC100-5 124/204	.98	1 3/16-8BSW; 1 1/4-7BSW; 1 5/16-6BSW	1-11	1-11	1 1/4-11.5; 2 1/2-8	1 1/4-11.5; 2 1/2-8	PG21	1 1/4-11.5; 2 1/2-8	TR38-3.0	1 1/4-10; 1 3/8-8; 1 1/2-6; 1 3/4-5
TMC100-5 124/208	.87	1 1/8-7BSW								1 3/8-6

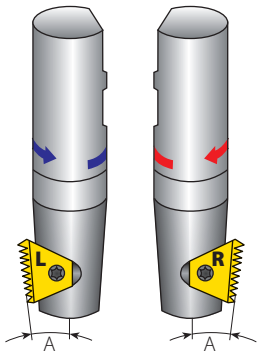
External and Internal Toolholders





TMN - For Conical Threads (NPT, NPTF, BSPT)

Insert Size	Ordering Code	EDP No.	Ordering Code	EDP No.	Dimensions Inch					Spare Parts	
IC	RH		*LH		L	L1	D	D1	D2	Insert Screw	Torx Key
3/8"	TMNC0625-3	67638	TMNC0625-3LH	67639	3.56	.87	.625	.49	.61	SN3TM	K3T
	TMNC075-3	67640	TMNC075-3LH	67641	3.38	.91	.75	.59	.75		
3/8"B	BTMNC0625-3B	67605	BTMNC0625-3BLH	67606	3.15	1.14	.625	.53	.67	SN3TM	K3T
	BTMNC075-3B	67607	BTMNC075-3BLH	67730	3.27	1.14	.75	.61	.75		
5/8"	TMNC125-5	67644	TMNC125-5LH	67645	4.75	2.28	1.25	1.22	1.46	SN5TM	K5T



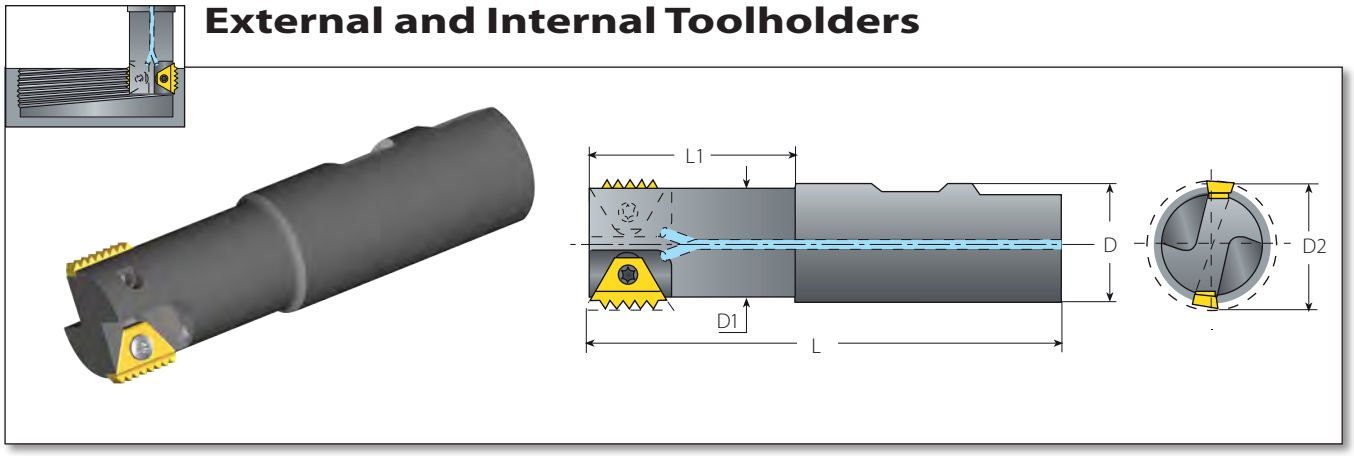
* To use the cutting edge marked "L", LH Cutter is required.

Internal Thread Application for TMN Toolholder

Toolholder		Min. Thread Dia.			
	D2	ISO Fine	UNC	UN/UNF/UNEF/UNS	UNJ
TMNC0625-3 TMNC0625-3LH	.61	M20x1.0; M22x1.5; M22x2.0		11/16-32UN; 3/4-28UN; 3/4-24UNS; 13/16-20UNEF; 7/8-18UNS; 7/8-16UNS; 7/8-14UNF; 3/4-12UN	1 5/8-24UNJ; 13/16-20UNJEF; 1 1/16-18UNJEF; 13/16-16 UNJ; 7/8-14UNJF; 7/8-12UNJ
TMNC075-3 TMNC075-3LH	.75	M22x1.0; M24x1.5; M25x2.0		7/8-32UN; 7/8-28UN; 7/8-24UNS; 15/16-20UNEF; 1-18UNS; 1-16UNS; 1-14UNS; 1-12UNF	1 5/8-24UNJ; 15/16-20UNJEF; 1 1/16-18UNJEF; 15/16-16UNJ; 1 5/8-14UNJ; 1-12UNJF
BTMNC0625-3B BTMNC0625-3BLH	.67	M20x1.0; M22x1.5; M24x2.0		7/8-24UNS; 7/8-20UNEF; 7/8-18UNS; 7/8-16UNS; 1-14UNS; 13/16-12UN	
BTMNC075-3B BTMNC075-3BLH	.75	M22x1.0; M24x1.5; M25x2.0		7/8-24UNS; 15/16-20UNEF; 1-18UNS; 1-16UNS; 1-14UNS; 1-12UNF	
TMNC125-5 TMNC125-5LH	1.46	M45x1.5; M45x2.0; M50x3.0; M56x4.0		1 5/8-24UNS; 1 11/16-20UN; 1 11/16-18UNEF; 1 11/16-16UNEF; 1 3/4-14UNS; 1 3/4-12UN; 1 7/8-10UNS; 2-8UN; 2 1/4-6UN	

	D2	BSW/BSF	BSP	BSPT	NPT	NPTF	PG	NPS	Trapez	ACME
TMNC0625-3 TMNC0625-3LH	.61	13/16-16BSW	1/2-14	1/2-14; 1-11	1/2-14; 1-11.5	1/2-14; 1-11.5	PG11; PG21	1/2-14; 1-11.5		7/8-14; 1-12
TMNC075-3 TMNC075-3LH	.75	15/16-26BSW; 15/16-20BSW; 1-16BSW; 1 1/16-12BSW	3/4-14; 1-11	3/4-14; 1-11	3/4-14; 1-11.5	3/4-14; 1-11.5	PG21	3/4-14; 1-11.5		
BTMNC0625-3B BTMNC0625-3BLH	.67	7/8-20BSW; 7/8-16BSW; 1 3/16-12BSW	5/8-14; 1-11		3/4-14; 1-11.5	3/4-14; 1-11.5		1-11.5		
BTMNC075-3B BTMNC075-3BLH	.75	15/16-20BSW; 1-16BSW; 1 1/16-12BSW	3/4-14; 1-11		3/4-14; 1-11.5	3/4-14; 1-11.5		1-11.5		
TMNC125-5 TMNC125-5LH	1.46	1 7/8-6BSW	1 1/2-11	1 1/2-11	1 1/2-11.5; 2 1/2-8	1 1/2-11.5; 2 1/2-8	PG36	1 1/2-11.5; 2 1/2-8		

External and Internal Toolholders



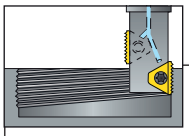
TM2 - Twin Flutes

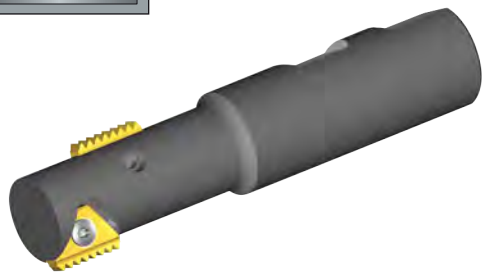
Insert Size	Ordering Code	EDP No.	Dimensions Inch					Spare Parts	
IC			L	L1	D	D1	D2	Insert Screw	Torx Key
1/4"	TM2C075-2	67685	3.42	.79	.75	.57	.67	SN2TM	K2T
3/8"	TM2C100-3	67686	4.02	1.69	1.00	.89	1.02	SN3T	K3T
3/8"B	BTM2C100-3B	67718	4.13	1.81	1.00	.89	1.02		
5/8"	TM2C125-5	67687	4.65	1.77	1.25	1.42	1.65	SN5TM	K5T
3/4"B	TM2C150-6B	67688	5.33	2.56	1.50	1.73	2.05	SM7T	K30T

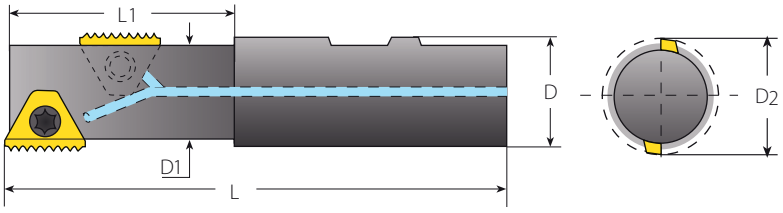
Internal Thread Application for TM2 Toolholder

Toolholder		Min. Thread Dia.										
	D2	ISO Fine	UNC	UN/UNF/UNEF/UNS	UNJ	BSW/BSF	BSP	BSPT	NPT	NPTF	PG	NPS
TM2C075-2	.67	M22x1.5		3/4-32UN; 13/16-28UN; 7/8-24UNS; 7/8-20UNEF; 7/8-18UNS; 7/8-16UNS; 1-14UNS	1 5/8-24UNJ; 7/8-20UNJEF; 1 1/16-18UNJEF; 7/8-16UNJ; 1 5/8-14UNJ		5/8-14				PG16; PG21	
TM2C100-3 BTM2C100-3B	1.02	M32x1.5; M33x2.0		1 1/4-24UNS; 1 3/16-20UN; 1 1/4-18UNEF; 1 1/4-16UNEF; 1 3/8-14UNS; 1 5/16-12UN	1 5/8-24UNJ; 1 3/16-20UNJ; 1 1/4-18UNJEF; 1 1/4-16UNJ; 1 5/16-12UNJ	1 3/16-26BSF; 1 1/4-20BSW; 1 5/16-16BSW	1 1/8-11				PG36	1 1/4-11.5
TM2C125-5	1.65	M48x1.5; M50x2.0; M55x3.0; M64x4.0		1 7/8-20UN; 2-18UNS; 2-16UNS; 2-14UNS; 2-12UN; 2 1/4-10UNS; 2 1/4-8UN; 2 1/2-6UN	1 15/16-16UNJ; 2-12UNJ	2-16BSW; 2-12BSW; 2 1/4-8BSW	2-11	2-11	2-11.5	2-11.5	PG36	2-11.5; 2 1/2-8
TM2C150-6B	2.05	M58x1.5; M68x4.0; M70x6.0	2 3/4-4	2 5/8-6UN		2 7/8-6BSW; 2 7/8-5BSW; 3 3/4-4.5BSF	2 1/4-11		2 1/2-8	2 1/2-8		

External and Internal Toolholders





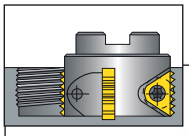


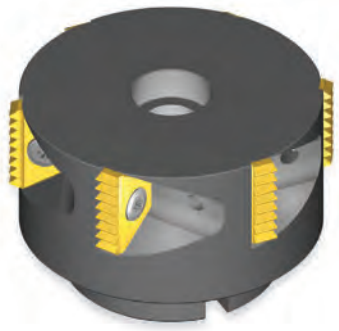
TMO - Twin Flute Offset

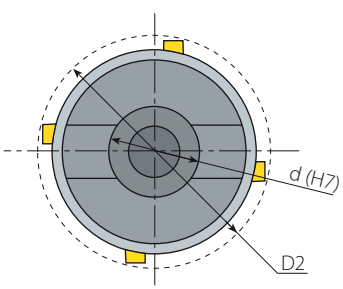
Spare Parts

Insert Size	Ordering Code EDP No.		Applicable Threads			Dimensions Inch					Spare Parts	
IC			External	Internal	External & Internal	L	L1	D	D1	D2	Insert Screw	Torx Key
1/4"	TMOC075-2-1	67655	16UN	48/32/16UN		3.50	.98	.75	.47	.57	SN2TM	K2T
	TMOC075-2-2	67657	24/18UN	48/24/18UN	24W							
	TMOC075-2-3	67658	28/14UN	28/14UN	28/14W							
	TMOC075-2-4	67659	20UN	20UN								
	TMOC075-2-5	67693			26W							
	TMOC075-2-6	67727			20W							
	TMOC075-2-7	67660			19W							
	TMOC075-2-8	67713	1.0/1.5ISO	0.5/1.0/1.5ISO								
	TMOC075-2-9	67762	0.75ISO	48UN, 0.75ISO								
	TMOC075-2-10	67656	1.25ISO	1.25ISO								
3/8"	TMOC075-3-1	67661	1.5ISO	0.5/1.5ISO		3.75	1.69	.75	.65	.79	SN3T	K3T
	TMOC075-3-2	67763	13UN	13UN	26W							
	TMOC075-3-3	67663	28UN	32/28UN								
	TMOC075-3-4	67674	27UN	27UN								
	TMOC075-3-5	67664		11.5UN	11.5NPS							
	TMOC075-3-6	67665	24/20/18/16/14/12UN	24/20/18/16/14/12UN	26/20/18/16/14/12W, 14NPS							
	TMOC075-3-7	67764	1.25ISO	1.25ISO	24W							
	TMOC075-3-8	67765			19W							
	TMOC075-3-9	67716			11W							
	TMOC075-3-10	67662	1.0/2.0ISO	0.5/1.0/2.0ISO								
	TMOC075-3-11	67766	0.75ISO	32UN, 0.75ISO								
	TMOC075-3-12	67767	1.75ISO	1.75ISO								
5/8"	TMOC100-5-1	67666	24/20/18/14/13/12UN	24/20/18/14/13/11UN	14W	4.38	2.05	1.00	.94	1.18	SN5TM	K5T
	TMOC100-5-2	67667	24/18/12UN	24/18/12/6UN	12W							
	TMOC100-5-3	67668	16UN	16UN	16W, 8NPS							
	TMOC100-5-4	67669	14/7UN	14UN	14/7W							
	TMOC100-5-5	67726		11.5UN	11.5NPS							
	TMOC100-5-6	67707	11UN	11UN	11W							
	TMOC100-5-7	67670	10UN	10/5UN	10W							
	TMOC100-5-8	67714	9UN	9UN	9W							
	TMOC100-5-9	67671	8UN	8UN	8W							
	TMOC100-5-10	67678		7UN								
	TMOC100-5-11	67768	6UN		6W							
	TMOC100-5-12	67712	1.0/2.0/2.5/4.0ISO	1.0/2.0/2.5/4.0/5.0ISO								
	TMOC100-5-13	67769	1.25ISO	1.25ISO								
	TMOC100-5-14	67770	1.5/2.5/4.5ISO	1.5/2.5/4.5/ISO								
	TMOC100-5-15	67771	1.75ISO	1.75ISO								
	TMOC100-5-16	67760	1.0/1.5/3.0/3.5ISO	1.0/1.5/3.0/3.5ISO								

External and Internal Toolholders







Cutter Drive
ANSI B94.19-1977

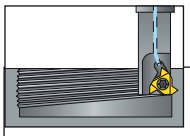
TM Shell Mill

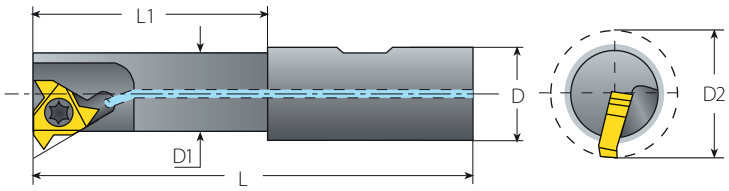
Insert Size	Ordering Code	EDP No.	No. of inserts	Dimensions Inch			Spare Parts		
IC				D2	d(H7)	H	Insert Screw	Torx Key	Holder Screw
1/4″	TMSH-D150-050-2	67100	6	1.50	1/2	1.58	SN2T	HK2T	1/4 X 28
1/4″	TMSH-D200-075-2	67101	8	1.97	3/4	1.58			3/8 X 24
3/8″	TMSH-D200-075-3	67102	6	1.97	3/4	1.58	SN3TM	HK3T	3/8 X 24
3/8B″	TMSH-D250-075-3B	67103	6	2.48	3/4	1.58			
5/8″	TMSH-D250-075-5	67104	4	2.48	3/4	1.77	SN5TM	HK5T	3/8 X 24
3/4B″	TMSH-D250-075-6B	67112	4	2.48	3/4	1.97	SM7T	HK7T	3/8 X 24
5/8″	TMSH-D300-100-5	67105	6	3.15	1	2.00	SN5TM	HK5T	1/2 X 20
3/4B″	TMSH-D300-100-6B	67106	5	3.15	1	2.00	SM7T	HK7T	1/2 X 20
5/8″	TMSH-D400-125-5	67107	7	3.94	1 1/4	2.16	SN5TM	HK5T	5/8 X 18
3/4B″	TMSH-D400-125-6B	67772	6	3.94	1 1/4	2.16	SM7T	HK7T	5/8 X 18
5/8″	TMSH-D500-150-5	67109	9	4.92	1 1/2	2.50	SN5TM	HK5T	3/4 X 16
3/4B″	TMSH-D500-150-6B	67110	8	4.92	1 1/2	2.50	SM7T	HK7T	3/4 X 16

Internal Thread Application for Shell Mill Toolholder

Toolholder		Min. Thread Dia.										
	D2	ISO Fine	UNC	UN/UNF/UNEF/UNS	UNJ	BSW/BSF	BSP	BSPT	NPT	NPTF	PG	NPS
TMSH-D150-050-2	1.50	M45x1.5		1 11/16-20UN; 1 3/4-18UNS; 1 3/4-16UNS; 1 7/8-14UNS	1 5/8-24UNJ; 1 11/16-20UNJ; 1 3/4-16UNJ	1 3/4-26BSF; 1 3/4-20BSW					PG36	
TMSH-D200-075-2	1.97	M56x1.5		2 1/4-20UN; 2 1/4-18UNS; 2 1/4-16UNS; 2 1/4-14UNS	2 1/4-20UNJ; 2 1/4-16UNJ							
TMSH-D200-075-3	1.97	M56x1.5; M58x2.0		2 1/4-20UN; 3 1/4-18UNS; 3 1/4-16UNS; 3 1/4-14UNS; 2 3/8-12UN	2 1/4-20UNJ; 2 1/4-16UNJ; 2 3/8-12UNJ	2 1/4-20BSW; 2 3/8-16BSW; 2 3/8-12BSW	2 1/4-11				PG42	2-11.5
TMSH-D250-075-3B	2.48	M70x1.5; M70x2.0		2 3/4-20UN; 2 3/4-18UNS; 2 3/4-16UNS; 2 3/4-14UNS; 2 7/8-12UN			2 1/2-11					
TMSH-D250-075-5	2.48	M70x1.5; M70x2.0; M75x3.0; M80x4.0		2 3/4-20UN; 3 3/4-18UNS; 3 3/4-16UNS; 3 3/4-14UNS; 2 7/8-12UN; 3-10UNS; 3-8UN	2 3/4-16UNJ; 2 7/8-12UNJ	2 7/8-16BSW; 2 7/8-12BSW; 3 1/8-8BSW	2 1/2-11	3-11				3-8
TMSH-D250-075-6B	2.48	M70x2.0; M80x4.0; M85x6.0	3 1/4-4	3 1/4-6UN		3 3/8-6BSW; 3 1/2-4.5BSF	2 1/2-11		3-8	3-8		
TMSH-D300-100-5	3.15	M90x2.0; M95x3.0; M95x4.0		3 1/2-18UNS; 3 1/2-16UNS; 3 1/2-14UNS; 3 1/2-12UN; 3 3/4-10UNS; 3 3/4-8UN	3 3/8-16UNJ; 3 1/2-12UNJ	3 1/2-16BSW; 3 1/2-12BSW; 3 3/4-8BSW	3 1/4-11	4 -11				3 1/2-8
TMSH-D300-100-6B	3.15	M90x2.0; M95x4.0; M105x6.0		3 7/8-6UN		4-6BSW	3 1/4-11		3 1/2-8	3 1/2-8		
TMSH-D400-125-5	3.94	M110x2.0; M115x3.0; M115x4.0			4 1/4-16UNJ; 4 3/8-12UNJ	4 1/4-16BSW; 4 1/4-12BSW; 4 5/8-8BSW	4-11	4 -11				
TMSH-D400-125-6B	3.94	M110x2.0; M115x4.0; M125x6.0				4 7/8-6BSW	4-11		5-8	5-8		
TMSH-D500-150-5	4.92	M135x2.0; M140x3.0; M140x4.0			5 1/4-16UNJ; 5 3/8-12UNJ	5 1/4-16BSW; 5 1/4-12BSW; 5 5/8-8BSW	5-11	5-11				
TMSH-D500-150-6B	4.92	M135x2.0; M140x4.0; M150x6.0				5 7/8-6BSW	5-11		5-8	5-8		

External and Internal Toolholders





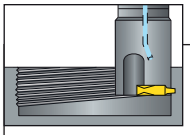
TMS - Single Point (Standard Inserts)

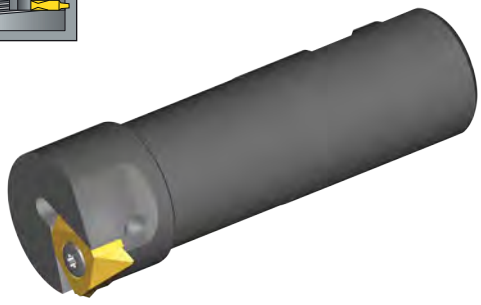
Spare Parts

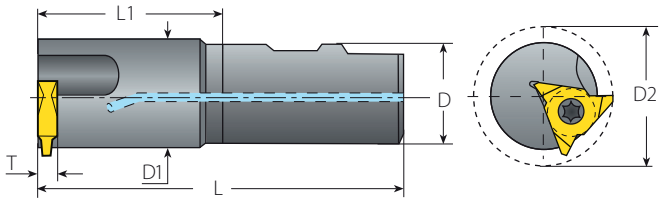
Insert Size	Ordering Code	EDP No.	Dimensions Inch					Spare Parts	
IC			L	L1	D	D1	D2	Insert Screw	Torx Key
1/4"	TMSC0375-2	67673	2.50	.98	.375	.37	.49	SN2TK	K2T

Use Standard laydown thread turning inserts. See Thread Turning Inserts section - Page 21.
Use external LH inserts for external thread and internal RH inserts for internal thread.

External and Internal Toolholders







TMV - Single Point (Vertical Insert)

Spare Parts

Insert Size	Ordering Code	EDP No.	Dimensions Inch					Spare Parts	
IC			L	L1	D	D1	D2	Insert Screw	Torx Key
5/8"V	TMVC125-5	67677	4.65	2.36	1.25	1.41	1.81	SN6T	K6T

Requires IC 5/8" Vertical thread turning inserts (width T=6). Use external LH inserts for external threads and internal RH inserts for internal threads.
See Thread Turning Inserts section - Page 21.

Recommended Grades, Cutting Speeds Vc [ft/min] and Feed f [inch/tooth]

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [ft/min]			Feed f[inch/tooth]
					Coated		Uncoated	
					VBX	VTX	VK2	
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	328-689	295-591		.002-.0118
	2		Medium Carbon (C=0.25-0.55%)	150	328-591	295-558		.002-.0098
	3		High Carbon (C=0.55-0.85%)	170	328-558	295-525		.002-.0079
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	295-525	295-509		.002-.0098
	5		Hardened	275	262-591	262-525		.002-.0079
	6		Hardened	350	230-459	230-492		.002-.0059
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	197-427	230-377		.002-.0079
	8		Hardened	325	230-361	197-328		.002-.0039
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	328-558	328-558	328-492	.002-.0059
	10		High Alloy (alloying elements >5%)	225	230-394	230-427	197-427	.002-.0039
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	328-558	394-591		.002-.0059
	12		Hardened	330	328-558	394-591		.002-.0039
	13	Stainless Steel Austenitic	Austenitic	180	230-459	328-459		.002-.0059
	14		Super Austenitic	200	230-459	328-459		.002-.0039
	15	Stainless Steel Cast Ferritic	Non Hardened	200	230-459	328-459		.002-.0059
	16		Hardened	330	230-459	328-459		.002-.0039
	17	Stainless Steel Cast Austenitic	Austenitic	200	230-394	328-394		.002-.0059
	18		Hardened	330	230-394	328-394		.002-.0039
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	197-427	328-394		.0008-.0315
	29		Pearlitic (long chips)	230	197-394	262-328		.0008-.002
	30	Grey Cast Iron	Low Tensile Strength	180	197-427	262-328		.002-.0059
	31		High Tensile Strength	260	197-328	262-328		.002-.0039
	32	Nodular Sg Iron	Ferritic	160	197-410	262-328		.002-.0059
	33		Pearlitic	260	164-295	197-295		.002-.0039
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	328-820		656-984	.0039-.0157
	35		Aged	100	328-591		197-361	.0039-.0118
	36	Aluminium Alloys	Cast	75	492-1,312		197-394	.0039-.0118
	37		Cast & Aged	90	492-919		197-328	.002-.0098
	38	Aluminium Alloys	Cast Si 13-22%	130	262-492		66-164	.0039-.0118
	39	Copper and Copper Alloys	Brass	90	394-689	328-656	164-230	.0039-.0118
	40		Bronze And Non Leaded Copper	100	394-689	328-656	164-230	.002-.0098
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	66-148	66-131	66-98	.002-.0039
	20		Aged (iron based)	280	66-98	66-98	49-82	.0008-.002
	21		Annealed (nickel or cobalt based)	250	66-164	49-66	49-66	.0008-.002
	22		Aged (nickel or cobalt based)	350	33-49	33-49	33-49	.0008-.002
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	230-459	230-394	131-197	.0008--.002
	24		α+β Alloys	1050Rm	66-164	66-164	66-131	.0008-.002
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	66-148	66-148		.0004-.0012
	26			51-55HRc	66-148	66-148		.0004-.0008

Grades

Grade	Application	Sample
VBX	First choice for steel and cast iron A tough sub-micron substrate with TiCN coating	
VTX	First choice for stainless steel A tough sub-micron substrate with TiAlN coating	
VK2	Uncoated grade for machining cast iron & nonferrous metals	

TM Standard

TMSD

Thread Milling for Deep Holes

Inserts | Toolholders

Vardex Ordering Code System

TMSD Inserts

2	U	I	DB	60	TM	VBX
1	2	3	4	5	6	7

1- Insert Size

5 - IC5.0 mm
2 - IC1/4"
3 - IC3/8"
4 - IC1/2"
5 - IC5/8"
7 - IC6.8 mm
9 - IC8.5 mm
11 - IC10.7 mm

2 - Insert Style

U -


A -


L -


V - Vertical Style 7, 9, 11


V - V Style 5/8"


3 - Type of Insert

I - Internal
EI - External + Internal

4 - Pitch

Full Profile - Pitch Range

mm	TPI
1.0-8.0	18-2.5

Partial Profile - U, A, L Styles			Partial Profile - Vertical Style		
	mm	TPI		mm	TPI
DA	0.5-1.5	48-16	VA	0.5-1.0	28-27
DB	1.5-2.0	16-12	VB	-	11-9
DC	2.5-4.0	10-6	VC	-	16-10
DD	2.0-2.5	9-12	VD	1.0-2.0	24-12
DE	2.5-3.5	10-7	VE	2.0-3.0	12-8
DH	4.0-6.0	6-4	VF	1.0-1.5	24-16
DK	6.0-8.0	4-3	VG	1.5-2.0	16-12
DL	-	11-7	VH	-	16-14
DM	2.5	10	VK	2.0-2.5	12-10
DN	1.0-2.0	24-11	VJ	-	26-19
DP	1.5-3.0	16-8	VM	-	8-7
DR	-	26-14	VN	1.5-2.5	16-11
DT	2.0-4.0	12-6			

5 - Standard

60 - Partial Profile 60°
55 - Partial Profile 55°
ISO - ISO Metric
UN - American UN
NPT - NPT
TR - Trapez DIN 103
ACME - ACME
STACME - Stub ACME
ABUT - American Buttress
APIRD - API Round Casing & Tubing

6 - System

TM - TMSD (U, A, L Styles)
TM3 - TMSD Vertical

7 - Carbide Grade

VBX, VTX

TMSD Toolholders (U, A, L Styles)

C	TM	2	S	C	056	C	068	-	235	-	2	U
1	2	3	4	5	6	7	8		9		10	11

1- Shank Style

None - Steel
C - Carbide Shank

2- System

TM

3 - No. of Flutes

1- 4

4 - Insert Type

S - Single Point

5 - Cooling

C - Coolant

6 - Shank Dia.

.3125 - 1.50

7 - Shank Type

W - Weldon
C - Cylindrical

8 - Cutting Dia.

.51 - 1.65

9 - Max. Tool Overhang

5.67

10 - Insert Size

5 - IC5.0 mm
2 - IC1/4"
3 - IC3/8"
4 - IC1/2"

11 - Insert Style

U
A
L

12 - Tool Application

ABUT - For American Buttress

TMSD Toolholders (Vertical Style)

C	GM	C	9	C	13	-	45	-	7	-	3
1	2	3	4	5	6		7		8		9

1- Holder Type

None - Steel Shank
C - Carbide Shank

2- System

GM - Groove Milling and Thread Milling

3- Cooling

C - Coolant

4 - Shank Dia.

.75 - 2.56

5 - Shank Style

C - Cylindrical
W - Weldon

6 - Cutting Dia.

.41-.87

7 - Tool Overhang

.98-2.56

8 - Insert Size

7 - IC6.8 mm
9 - IC8.5 mm
11 - IC10.7 mm

9 - Number of Flutes

3

TMSD Shell Mill (U, L, V Styles)

TM	4	S	C		D169	-	050	-	3	U	
1	2	3	4		5		6		7	8	9

1- System

TM

2 - No. of Flutes

4-7

3 - Insert Type

S - Single Point

4 - Cooling

C - Coolant

5 - Cutting Dia.

1.69-4.35

6 - Drive Hole Dia.

.50, .75, 1.00, 1.50

7 - Insert Size

3 - IC3/8"
4 - IC1/2"
5 - IC5/8"

8 - Insert Style

U, L, V

9 - Tool Application

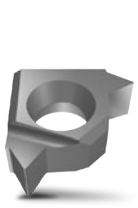
ABUT - American Buttress

TMSD
Thread Milling for Deep Holes

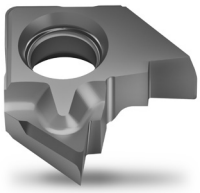
A multi-flute, highly productive and economical solution for milling threads in deep holes

VARGUS GENius™ Tool Selector and CNC Program Generator

Full Profile Inserts



ISO, American UN, NPT, API RD



American Buttress

U Style For Large Pitches

Weldon Shank

Tool Overhang (L1) 1.57-4.72
Cutting Dia. (D2) .58-1.66
No. of Flutes (Z) 1-4

Carbide Cylindrical Shank

Tool Overhang (L1) max 5.3
Cutting Dia. (D2) .58-1.24
No. of Flutes (Z) 1-4

Steel Cylindrical Shank

Tool Overhang (L1) max 5.65
Cutting Dia. (D2) .91-1.46
No. of Flutes (Z) 2-4

Shell Mill

Tool Overhang (L1) max 7.87
Cutting Dia. (D2) 1.69-4.35
No. of Flutes (Z) 4-8

L Style (Mini L) For Small Bores

Weldon Shank

Tool Overhang (L1) 1.14-1.80
Cutting Dia. (D2) .51-.72
No. of Flutes (Z) 1-3

Carbide Cylindrical Shank

Tool Overhang (L1) max 2.56
Cutting Dia. (D2) .51-.72
No. of Flutes (Z) 1-3

Vertical Style (7V, 9V, 11V)

Weldon Shank

Tool Overhang (L1) .98-1.77
Cutting Dia. (D2) .41-.82
No. of Flutes (Z) 3

Carbide Cylindrical Shank

Tool Overhang (L1) max 2.56
Cutting Dia. (D2) .41-.82
No. of Flutes (Z) 3

L Style (3/8" L) For Large Trapezoid Profiles and ABUT

Weldon Shank

Tool Overhang (L1) 2.0-4.13
Cutting Dia. (D2) .85-1.4
No. of Flutes (Z) 1-3

Carbide Cylindrical Shank

Tool Overhang (L1) max 4.43
Cutting Dia. (D2) .85-1.32
No. of Flutes (Z) 1-3

Shell Mill

Tool Overhang (L1) max 7.87
Cutting Dia. (D2) 2.28-3.15
No. of Flutes (Z) 5-7

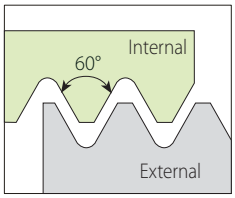
A Style For Shorter L2

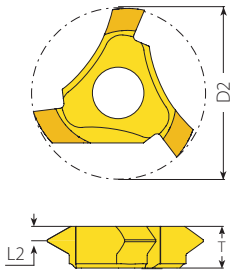
Steel Cylindrical Shank

Tool Overhang (L1) max 5.12
Cutting Dia. (D2) 1.02-1.39
No. of Flutes (Z) 3

Partial Profile 60°

Internal

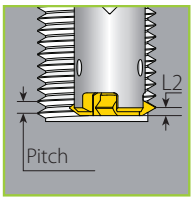




Vertical Style

Vertical Style

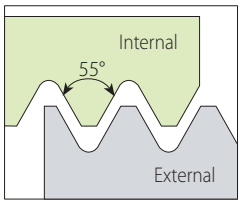
Insert Style	Pitch		Ordering Code	EDP No.		Dimensions Inch			Application (Min. Thread Size)				
	mm	TPI	Internal	VTX	VBX	D2	T	L2	ISO Coarse	ISO Fine	UNC	UN/UNF UNEF/UNS	Toolholder
7V	0.5-1.0	28-27	7VIVA60TM3...	59605	59606	.413	.11	.024	-	M11.5x0.5; M11.5x0.75; M12x1.0	-	½-28UNEF; ½-27UNS	CGMC5/16C13-40-7-3 GMC075W050-100-7-3 CGMC9C13-45-7-3
	1.0-1.5	24-16	7VIVF60TM3...	59607	59608	.437	.11	.031	-	M12.5x1; M13x1.5	-	½-24UNS; ½-20UNF; 9/16-18UNF; 9/16-16UN	
	1.5-2.0	16-12	7VIVG60TM3...	59611	59612	.465	.11	.039	M14x2.0	M14x1.5	-	9/16-16UN; 9/16-14UNS; 5/8-12UN	
	1.5-2.5	16-11	7VIVN60TM3...	30156	30157	.488	.11	.043	-	M15x1.5 M16x2 M18x2.5	5/8-11; 5/8-12	5/8-14UNS; 9/16-16UN	
9V	0.5-1.0	28-27	9VIVA60TM3...	59613	59614	.516	.17	.024	-	M14x0.5; M14x0.75; M15x1	-	9/16-28UN; 9/16-27UNS	CGMC 7/16C17-45-9-3 GMC075W066-118-9-3 CGMC11.5C17-50-9-3
	1.0-1.5	24-16	9VIVF60TM3...	59615	59616	.539	.17	.031	-	M15x1; M15.5x1.5	-	5/8-24UNEF; 5/8-20UN; 5/8-18UNF; 5/8-16UN	
	1.5-2.0	16-12	9VIVG60TM3...	59617	59618	.567	.17	.039	-	M16.5x1.5; M17x2	-	11/16-16UN; 3/4-14UNS; 11/16-12UN	
	2.0-2.5	12-10	9VIVK60TM3...	59619	59620	.594	.17	.055	-	M17.5x2; M18x2.5	3/4-10	11/16-12UN;	
11V	1.0-2.0	24-12	11VIVD60TM3...	59621	59622	.705	.22	.039	-	M19x1, M19.5x1.25; M19.5x1.5; M20x1.75; M20x2	-	3/4-24UNS; 13/16-20UNEF; 7/8-18UNS; 13/16-16UN; 7/8-14UNF; 13/16-12UN	CGMC5/8C22-65-11-3 GMC100W085-175-11-3 CGMC15C22-65-11-3
	2.0-3.0	12-8	11VIVE60TM3...	59623	59624	.768	.22	.059	M22x2.5 M24x3	M23x2	1-8	7/8-10UNS; 7/8-12UN	

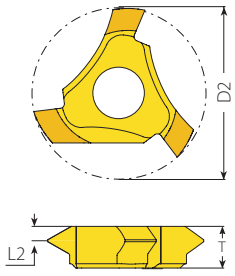


Vertical Style

Partial Profile 55°

Internal

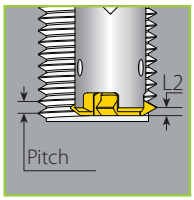




Vertical Style

Vertical Style

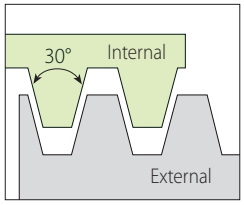
Insert Style	Pitch	Ordering Code	EDP No.		Dimensions Inch				Application (Min. Thread Size)		
	TPI	Internal	VTX	VBX	D2	T	L2	r	BSP (G)	Partial 55°	Toolholder
7V	26-19	7VIVJ55TM3...	59625	59626	.447	.11	.031	.003	¼-19 ; ⅜-19	-	CGMC5/16C13-40-7-3 GMC075W050-100-7-3 CGMC9C13-45-7-3
	16-14	7VIVH55TM3...	59627	59628	.472		.039	.005	½-14 ; ⅝-14; ¾-14; ⅞-14;	9/16-16; ⅝-14	
9V	26-19	9VIVJ55TM3...	59629	59630	.526	.17	.031	.004	⅜-19	⅝-26 ; ⅜-16	CGMC7/16C17-45-9-3 GMC075W066-118-9-3 CGMC11.5C17-50-9-3
	16-10	9VIVC55TM3...	59631	59632	.606		.047	.006	½-14	¾-16 ;11/16-14; ¾-12; ⅞-11; ¾-10	
11V	16-12	11VIVG55TM3...	59633	59634	.701	.22	.035	.006	½-14	13/16-16 ; 15/16-12	CGMC5/8C22-65-11-3 GMC100W085-175-11-3 CGMC15C22-65-11-3
	11-9	11VIVB55TM3...	59635	59636	.752		.051	.008	1-11	⅞-11; 1-10; 1⅛-9	
	8-7	11VIVM55TM3...	59637	59638	.772		.059	.014	-	1-8; 1 ⅛-7;	



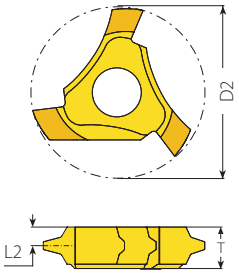
Vertical Style

Trapez

Internal



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



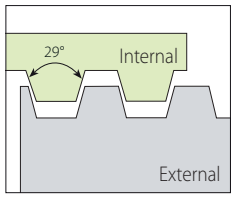
Vertical Style

Vertical Style

Insert Style	Pitch	Ordering Code	EDP No.		Dimensions Inch			Application	
	mm	Internal	VTX	VBX	D2	T	L2	Trapez	Toolholder
7V	2.0	7VI2.0TR-1TM3...	59639	59640	.484	.11	.051	TR16x2	CGMC5/16C13-40-7-3 GMC075W050-100-7-3 CGMC9C13-45-7-3
		7VI2.0TR-2TM3...	59641	59642				TR18x2	
		7VI2.0TR-3TM3...	59643	59644				TR20x2	
9V	3.0	9VI3.0TR-1TM3...	59645	59646	.606	.17	.077	TR22x3	CGMC7/16C17-45-9-3 GMC075W066-118-9-3 CGMC11.5C17-50-9-3
		9VI3.0TR-2TM3...	59647	59648				TR24x3	

Stub ACME

Internal



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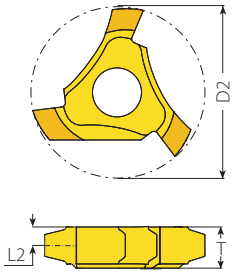
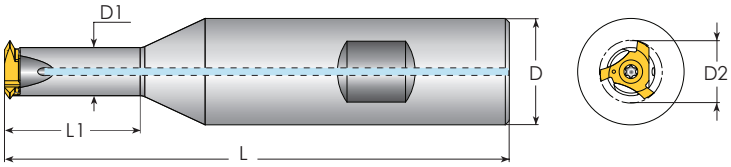


Vertical Style

Vertical Style

Insert Style	Pitch	Ordering Code	EDP No.		Dimensions Inch			Application	
	TPI	Internal	VTX	VBX	D2	T	L2	Stub ACME	Toolholder
7V	8	7VI8STACMETM3...	59649	59650	.484	.11	.051	⅝-8	CGMC5/16C13-40-7-3 GMC075W050-100-7-3 CGMC9C13-45-7-3
	6	7VI6STACME-1TM3...	59651	59652	.500			¾-6	
		7VI6STACME-2TM3...	59653	59654				⅞-6	
9V	5	9VI5STACME-1TM3...	59655	59656	.657	.17	.077	1-5	CGMC7/16C17-45-9-3 GMC075W066-118-9-3 CGMC11.5C17-50-9-3
		9VI5STACME-2TM3...	59657	59658				1⅛-5	
		9VI5STACME-3TM3...	59659	59660				1¼-5	
11V	4	11VI4STACME-1TM3...	59661	59662	.819	.22	.102	1⅜-4	CGMC5/8C22-65-11-3 GMC100W085-175-11-3 CGMC15C22-65-11-3
		11VI4STACME-2TM3...	59663	59664				1½-4	
		11VI4STACME-3TM3...	59665	59666				1¾-4	
		11VI4STACME-4TM3...	59667	59668				2-4	

Vertical Toolholders - Weldon Shank



Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Insert Style	Ordering Code	EDP No.	Dimensions Inch					Spare Parts			
	Toolholder		L	L1	D	D1	D2*	Insert Screw	Torx Key	Blade	Handle
7V	GMC075W050-100-7-3	67146	3.78	.98	.75	.35	.41-.50	SN2T8-M1 (M3.0x0.5x9) (70266)	K2T (70020)	-	-
9V	GMC075W066-118-9-3	67147	4.13	1.18	.75	.45	.51-.65	SN3T15-M2 (M4x0.7x13.5) (70267)	-	Blade T15-¼ (72009)	Smart Handle ¼x2 (72010)
11V	GMC100W085-175-11-3	67148	4.53	1.77	1.0	.63	.70-.82	SN4T20-M3 (M5x0.8x15.5) (70268)	-	Blade T20-¼ (72008)	Smart Handle ¼X2 (72010)

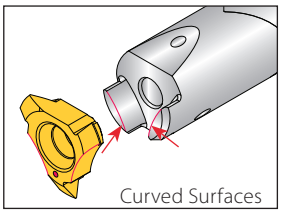
* The tool cutting diameter (D2) is defined by the insert (See pages 298-300).

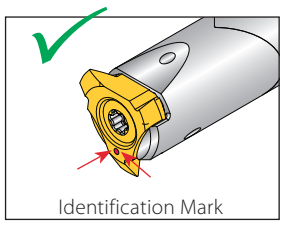
TMSD

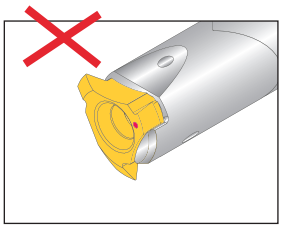
For Correct Clamping:

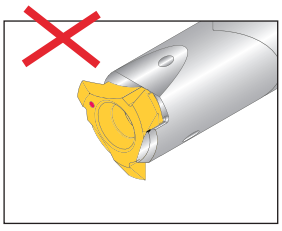
9V

11V



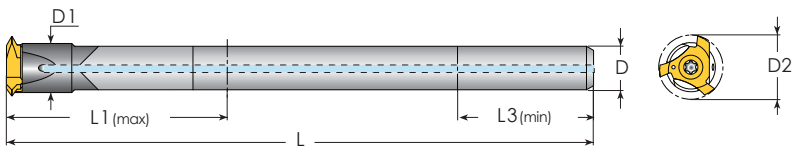




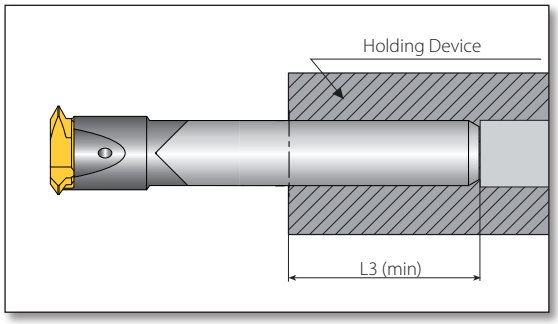


Always mount insert with the identification mark between the two curved surfaces on the toolholder.

Vertical Toolholders - Carbide Cylindrical Shank



Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter



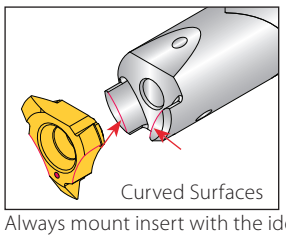
Insert Style	Ordering Code	EDP No.	Dimensions Inch						Spare Parts			
	Toolholder		L	L1	L3 (min)	D	D1	D2*	Insert Screw	Torx Key	Blade	Handle
7V	CGMC9C13-45-7-3	67140	4.53	1.77	.79	.354	.35	.41-.50	SN2T8-M1 (M3.0x0.5x9) (70266)	K2T (70020)	-	-
	CGMC5/16C13-40-7-3	67141		1.57	.71	5/16						
9V	CGMC11.5C17-50-9-3	67142	4.92	1.97	.98	.453	.45	.51-.65	SN3T15-M2 (M4x0.7x13.5) (70267)	-	Blade T15-¼ (72009)	Smart Handle ¼x2 (72010)
	CGMC7/16C17-45-9-3	67143		1.77	.98	7/16						
11V	CGMC15C22-65-11-3	67144	5.31	2.56	1.26	.591	.59	.70-.82	SN4T20-M3 (M5x0.8x15.5) (70268)	-	Blade T20-¼ (72008)	Smart Handle ¼X2 (72010)
	CGMC5/8C22-65-11-3	67145		2.56	1.34	5/8						

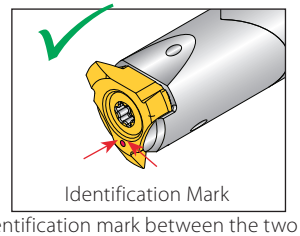
* The tool cutting diameter (D2) is defined by the insert (See pages 298-300).

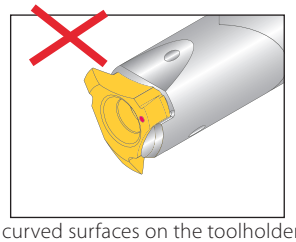
For Correct Clamping:

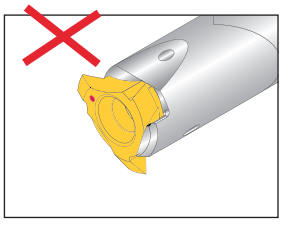
9V

11V





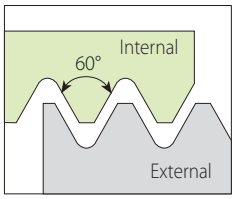


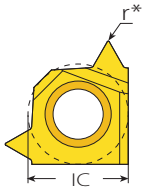


Always mount insert with the identification mark between the two curved surfaces on the toolholder.

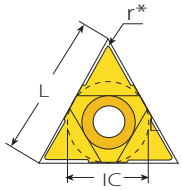
Partial Profile 60°

Internal

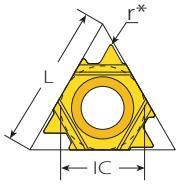




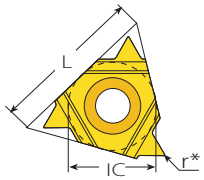
Mini L Style



U Style



U Style
2UIDM60 TM...
2UIDD60 TM...



A Style

L Style

Insert Size		Pitch		Ordering Code	EDP No.		Dimensions Inch	
IC	L	mm	TPI	Internal	VTX	VBX	r *	Toolholder
5.0L (Mini L)	-	0.5-1.5	48-16	5LIDA60TM...	50264	50263	.002	TM.SC...5L CTM. SC...5L
		1.0-2.0	24-11	5LIDN60TM...	50267	50266	.002	

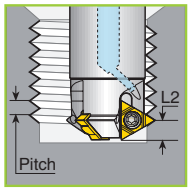
U Style

2UIDM60 TM...
2UIDD60 TM...

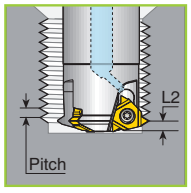
Insert Size		Pitch		Ordering Code	EDP No.		Dimensions Inch	
IC	L	mm	TPI	Internal	VTX	VBX	r *	Toolholder
1/4"U	.43	0.5-1.5	48-16	2UIDA60TM...	50305	50299	.002	TM.SC...2U CTM. SC...2U
		1.5-2.0	16-12	2UIDB60TM...	50018	50008	.002	
		2.0-2.5	9-12	2UIDD60TM...	50355	50352	.004	CTM2SC 056C068-235-2U
		2.5	10	2UIDM60TM...	50296	50291	.004	
		2.5-4.0	10-6	2UIDC60TM...	50033	50026	.006	TM.SC...2U CTM. SC...2U
3/8"U	.63	1.5-2.0	16-12	3UIDB60TM...	50040	50034	.002	TM.SC...3U
		2.5-3.5	10-7	3UIDE60TM...	50044	50041	.006	
		4.0-6.0	6-4	3UIDH60TM...	50048	50045	.001	
1/2"U	.87	6.0-8.0	4-3	4UIDK60TM...	50052	50049	.012	TM.SC D...4U

A Style

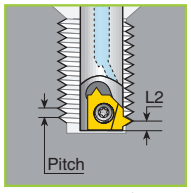
Insert Size		Pitch		Ordering Code	EDP No.		Dimensions Inch	
IC	L	mm	TPI	Internal	VTX	VBX	r *	Toolholder
1/4"A	.43	1.5-3.0	16-8	2AIDP60TM...	50219	50200	.002	TM.SC...2A
3/8"A	.63	2.0-4.0	12-6	3AIDT60TM...	50227	50226	.003	TM.SC...3A



U Style
For Large Pitches



A Style
For Shorter L2

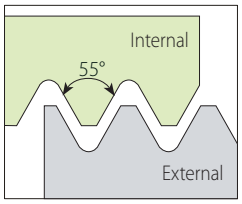


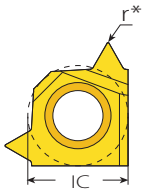
Mini-L Style
For Small Bores and Short L2

* The indicated radius (r) refers to the insert nose radius only.

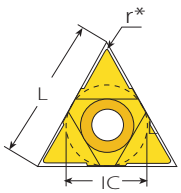
Partial Profile 55°

Internal





Mini L Style



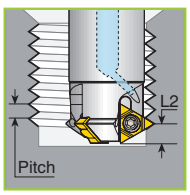
U Style

L Style

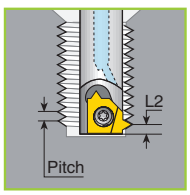
Insert Size		Pitch	Ordering Code	EDP No.		Dimensions Inch	
IC		TPI	Internal	VTX	VBX	*r	Toolholder
5.0L (Mini L)		26-14	5LIDR55TM...	50269	50269	.004	TM.SC...5L CTM. SC...5L

U Style

Insert Size		Pitch	Ordering Code	EDP No.		Dimensions Inch	
IC	L mm	TPI	Internal	VTX	VBX	*r	Toolholder
1/4"U	.43	48-16	2UIDA55TM...	50317	50309	.004	TM.SC...2U CTM. SC...2U
		16-12	2UIDB55TM...	50055	50053	.003	
		11-7	2UIDL55TM...	50061	50056	.010	
3/8"U	.63	16-12	3UIDB55TM...	50067	50062	.003	TM.SC...3U
		11-7	3UIDL55TM...	50091	50068	.009	
		6-4	3UIDH55TM...	50148	50233	.011	
1/2"U	.87	4-3	4UIDK55TM...	50190	50189	.020	TM.SC D...4U



U Style
For Large Pitches

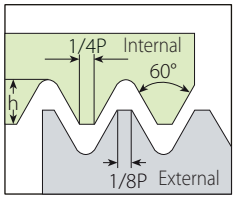


Mini-L Style
For Small Bores and Short L2

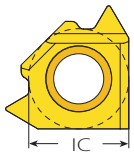
* The indicated radius (r) refers to the insert nose radius only.

ISO Metric

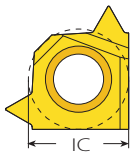
Internal



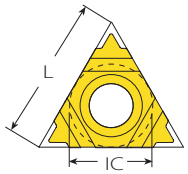
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H



Mini L Style
5LI2.0ISOTM...



Mini L Style



U Style

L Style

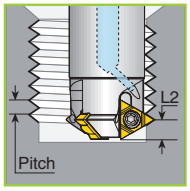
5LI2.0IS0 TM...

Insert Size	Pitch	Ordering Code	EDP No.			Toolholder Cutting Diameter D2 (Inch)
IC	mm	Internal	VTX	VBX	Toolholder	Adjusted D2
5.0L (Mini L)	1.0	5LI1.0ISOTM...	59726	59725	TM.SC...5L CTM.SC...5L	-
	1.5	5LI1.5ISOTM...	59780	59779		
	2.0	5LI2.0ISOTM...	59782	59781		-

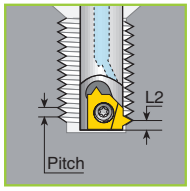
U Style

Insert Size		Pitch	Ordering Code	EDP No.			Toolholder Cutting Diameter D2 (Inch)
IC	L mm	mm	Internal	VTX	VBX	Toolholder	* Adjusted D2
1/4"U	0.43	1.5	2UI1.5ISOTM...	50419	50418	TM2SC 100W090-275-2U; TM3SC 100W102-315-2U; TM4SC 125W122-374-2U; TM2SC 062C090-300-2U; TM3SC 075C102-415-2U; TM4SC 100C122-452-2U; CTM3SC 075C102-433-2U; CTM4SC 100C124-530-2U	For 1.5ISO change D2 to D2-.039
		2.0	2UI2.0ISOTM...	50435	50427		For 2.0ISO change D2 to D2-.045

* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.



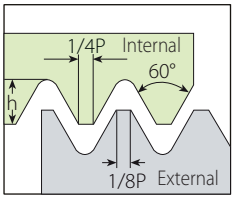
U Style
For Large Pitches



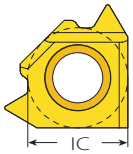
Mini-L Style
For Small Bores and Short L2

American UN - UNC; UNF; UNEF; UNS

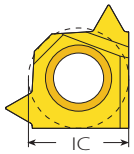
Internal



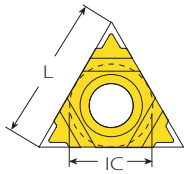
Defined by: ANSI B1.1:74
Tolerance class: 2A/2B



Mini L Style
5LI14UNTM...
5LI12UNTM...

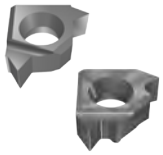


Mini L Style



U Style

L Style



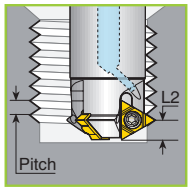
5LI14UNTM...
5LI12UNTM...

Insert Size		Pitch	Ordering Code	EDP No.			Toolholder Cutting Diameter D2 (Inch)
IC		TPI	Internal	VTX	VBX	Toolholder	Adjusted D2
5.0L (Mini L)		18	5LI18UNTM...	59722	59721	TM.SC...5L CTM.SC...5L	-
		16	5LI16UNTM...	59788	59787		
		14	5LI14UNTM...	59786	59785		
		12	5LI12UNTM...	59784	59783		

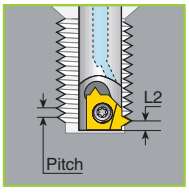
U Style

Insert Size		Pitch	Ordering Code	EDP No.			Toolholder Cutting Diameter D2 (Inch)
IC	L	TPI	Internal	VTX	VBX	Toolholder	* Adjusted D2
1/4"U	.43	14	2UI14UNTM...	50448	50447	TM2SC100W090-275-2U; TM3SC100W102-315-2U; TM4SC125W122-374-2U; TM2SC062C090-300-2U; TM3SC075C102-415-2U; TM4SC100C122-452-2U; CTM3SC075C102-433-2U; CTM4SC100C124-530-2U	For 14UN change D2 to D2-.042
		12	2UI12UNTM...	50441	50436		For 12UN change D2 to D2-.045

* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.



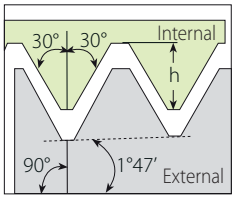
U Style
For Large Pitches



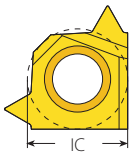
Mini-L Style
For Small Bores and Short L2

NPT

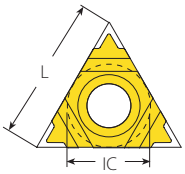
External / Internal



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



Mini L Style



U Style

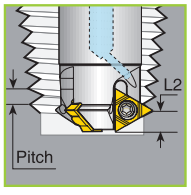
L Style

Insert Size	Pitch	Ordering Code	EDP No.			Toolholder Cutting Diameter D2 (Inch)
IC	TPI	External/Internal			Toolholder	Adjusted D2
5.0L (Mini L)	18	5LEI18NPT-TM...	59724	59723	TM.SC...5L CTM.SC...5L	-

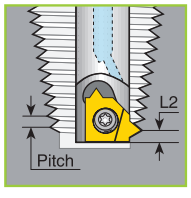
U Style

Insert Size		Pitch	Ordering Code				Toolholder Cutting Diameter D2 (Inch)
IC	L	TPI	Internal/External	VTX	VBX	Toolholder	* Adjusted D2
1/4"U	0.43	14	2UEI14NPT-TM...	50408	50404	TM1SC062W059-157-2U	.574
						CTM1SC031C059-157-2U	.574
						CTM1SC043C061-235-2U	.590
						TM2SC100W082-236-2U; CTM2SC056C082-256-2U; CTM2SC062C082-315-2U	.807
		11.5	2UEI11.5NPT-TM...	50397	50391	TM2SC100W090-275-2U; TM2SC062C090-300-2U	.891
						TM3SC100W102-315-2U; TM3SC075C102-415-2U; CTM3SC075C102-433-2U	1.009
						TM4SC125W122-374-2U; TM4SC100C122-452-2U	1.206
						CTM4SC100C124-530-2U	1.225
3/8"U	0.63	11.5	3UEI11.5NPTTM…	50461	50457	TM3SC125W143-374-3U; TM3SC125W144-570-3U; TM3SC100C143-512-3U	1.404
						TM3SC112C146-565-3U	1.429
						TM4SC 150W165-472-3U	1.620
						TM4SC D169-050-3U	1.659
						TM5SC D208-075-3U	2.053
		8	3UEI8NPTTM…	50454	50449	TM3SC125W143-374-3U	1.404
						TM3SC125W144-570-3U	
						TM3SC 100C143-512-3U	
						TM3SC 112C146-565-3U	1.429
						TM4SC 150W165-472-3U	1.620
						TM4SC D169-050-3U	1.659
						TM5SC D208-075-3U	2.053
1/2"U	0.86	8	4UEI8NPT-TM...	50468	50467	TM6SCD346-100-4U	3.467
						TM7SCD435-150-4U	4.353

* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.



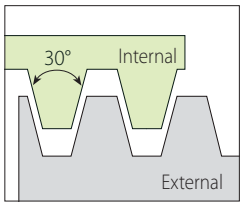
U Style
For Large Pitches



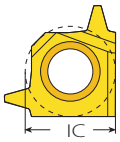
Mini-L Style
For Small Bores and Short L2

Trapez

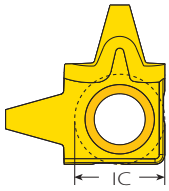
Internal



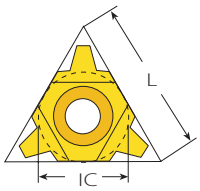
Defined by: DIN 103
Tolerance class: 7e/7H



Mini L Style



3/8" L



U Style

L Style

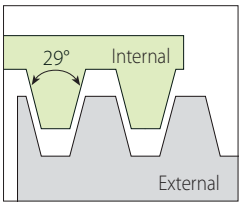
Insert Size		Pitch	Ordering Code	EDP No.		Application	
IC		mm	Internal	VTX	VBX	Internal	Toolholder
5.0L (Mini L)		2.0	5LI2.0TR-1TM...	50359	50207	TR16x2, TR20x2	TM.SC...5L CTM. SC...5L
		2.0	5LI2.0TR-2TM...	50367	50361	TR18x2	
3/8"L		6.0	3LI6.0TR-1TM...	59509	59503	(TR30-36)x6	TM1SC100W085-200-3L CTM1SC050C085-295-3L
		6.0	3LI6.0TR-2TM...	59516	59515	(TR115-130)x6	TM7SCD315-100-3L
		7.0	3LI7.0TRTM...	59518	59517	(TR38-44)x7	TM2SC100W112-275-3L CTM2SC062C112-330-3L
		8.0	3LI8.0TR-1TM...	59571	59519	(TR46-52)x8	TM3SC125W132-350-3L CTM3SC075C132-443-3L
		8.0	3LI8.0TR-2TM...	59573	59572	(TR175-240)x8	TM7SCD315-100-3L

U Style

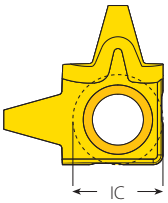
Insert Size		Pitch	Ordering Code	EDP No.		Application	
IC	L	mm	Internal	VTX	VBX	Internal	Toolholder
1/4"U	.43	3.0	2UI3.0TR-1TM...	50383	50372	(TR22-TR30)x3	See pages 310-316
			2UI3.0TR-2TM...	50389	50386	(TR32-TR60)x3	
		4.0	2UI4.0TR-1TM...	50396	50394	(TR20-TR28)x4	
			2UI4.0TR-2TM...	50415	50399	(TR65-TR110)x4	
		5.0	2UI5.0TR-1TM...	50428	50417	TR22x5; TR28x5	
			2UI5.0TR-2TM...	50438	50431	TR24x5; TR26x5	

American ACME

Internal



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



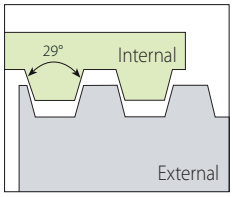
3/8" L

L Style

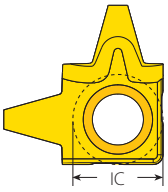
Insert Size	Pitch	Ordering Code	EDP No.		Application	
IC	TPI	Internal	VTX	VBX	Internal	Toolholder
3/8"L	5	3LI5ACMETM...	59575	59574	1¼-5ACME	TM1SC100W085-200-3L CTM1SC 050C085-295-3L
	4	3LI4ACME-1TM...	59577	59576	1⅜-4ACME	
		3LI4ACME-2TM...	59579	59578	1½-4ACME	
		3LI4ACME-3TM...	59581	59580	1¾-4ACME	TM2SC100W112-275-3L CTM2SC062C112-330-3L
		3LI4ACME-4TM...	59583	59582	2-4ACME	
	3	3LI3ACME-1TM...	59585	59584	2¼-3ACME	TM3SC125W132-350-3L CTM3SC075C132-443-3L
		3LI3ACME-2TM...	59587	59586	2½-3ACME	
		3LI3ACME-3TM...	59589	59588	2¾-3ACME	

Stub ACME

Internal



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



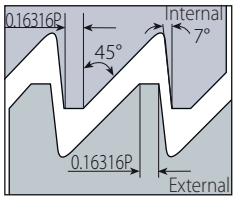
3/8" L

L Style

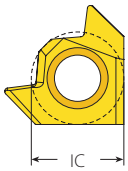
Insert Size	Pitch	Ordering Code	EDP No.		Application	
IC	TPI	Internal	VTX	VBX	Internal	Toolholder
3/8"L	5	3LI5STACMETM...	59591	59590	1¼-5STACME	TM1SC100W085-200-3L CTM1SC050C085-295-3L
	4	3LI4STACME-1TM...	59593	59592	1⅜-4STACME	
		3LI4STACME-2TM...	59595	59594	1½-4STACME	
		3LI4STACME-3TM...	59597	59596	2-4STACME	TM3SC125W132-350-3L CTM3SC075C132-443-3L
	3	3LI3STACME-1TM...	59599	59598	2¼-3STACME	
		3LI3STACME-2TM...	59601	59600	2½-3STACME	
		3LI3STACME-3TM...	59603	59602	2¾-3STACME	

American Buttress

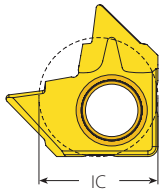
Internal



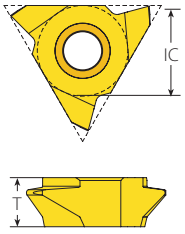
Defined by: ANSI B1.9.1973
Tolerance class: Class 2



Mini L Style

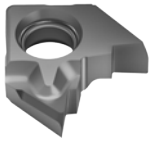


3/8" L



5/8 V

L Style



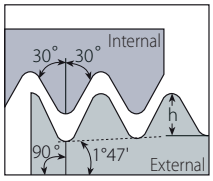
Insert Size	Pitch	Ordering Code	EDP No.		Application	
IC	TPI	Internal	VTX	VBX	Internal	Toolholder
5.0L (Mini L)	16	5LI16ABUT-TM...	59671	59670	.875"-4.0" ABUT	TM2SC 062W055-140-5L-ABUT CTM2SC 037C055-200-5L-ABUT
					1.25"-4.0" ABUT	TM3SC 075W072-180-5L-ABUT CTM3SC 055C072-256-5L-ABUT
	12	5LI12ABUT-TM...	59673	59672	.875"-6.0" ABUT	TM2SC 062W055-140-5L-ABUT CTM2SC 037C055-200-5L-ABUT
					1.25"-6.0" ABUT	TM3SC 075W072-180-5L-ABUT CTM3SC 055C072-256-5L-ABUT
	10	5LI10ABUT-TM...	59675	59674	.875"-16.0" ABUT	TM2SC 062W055-140-5L-ABUT CTM2SC 037C055-200-5L-ABUT
					1.25"-16.0" ABUT	TM3SC 075W072-180-5L-ABUT CTM3SC 055C072-256-5L-ABUT
3/8"L	16	3LI16ABUT-TM...	59677	59676	1.75"-4.0" ABUT	TM2SC 100W104-315-3L-ABUT CTM2SC 075C104-450-3L-ABUT
					2.5"-4.0" ABUT	TM3SC 125W140-413-3L-ABUT
	12	3LI12ABUT-TM...	59679	59678	1.75"-6.0" ABUT	TM2SC 100W104-315-3L-ABUT CTM2SC 075C104-450-3L-ABUT
					2.5"-6.0" ABUT	TM3SC 125W140-413-3L-ABUT
					4.0"-6.0" ABUT	TM6SC D228-075-3L-ABUT
	10	3LI10ABUT-TM...	59681	59680	1.75"-6.0" ABUT	TM2SC 100W104-315-3L-ABUT CTM2SC 075C104-450-3L-ABUT
					2.5"-6.0" ABUT	TM3SC 125W140-413-3L-ABUT
					4.0"-6.0" ABUT	TM6SC D228-075-3L-ABUT
	8	3LI8ABUT-TM...	59683	59682	1.75"-6.0" ABUT	TM2SC 100W104-315-3L-ABUT CTM2SC 075C104-450-3L-ABUT"
					2.5"-6.0" ABUT	TM3SC 125W140-413-3L-ABUT
					4.0"-6.0" ABUT	TM6SC D228-075-3L-ABUT
	6	3LI6ABUT-TM...	59685	59684	1.75"-6.0" ABUT	TM2SC 100W104-315-3L-ABUT CTM2SC 075C104-450-3L-ABUT
					2.5"-6.0" ABUT	TM3SC 125W140-413-3L-ABUT
					4.0"-6.0" ABUT	TM6SC D228-075-3L-ABUT

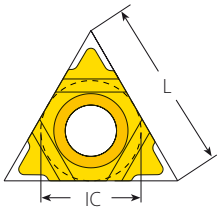
V Style

Insert Size	Pitch	Ordering Code	EDP No.			Application	
IC	TPI	Internal	VTX	VBX	T	Internal	Toolholder
5/8"V	4	5VI4ABUT-TM...	59687	59686	.24	5.5"-24.0" ABUT	TM6SC D346-125-5V6-ABUT
	3	5VI3ABUT-TM...	59689	59688	.31	6.0"-24.0" ABUT	TM6SC D346-125-5V8-ABUT
	2.5	5VI2.5ABUT-TM...	59691	59690	.39	7.0"-24.0" ABUT	

API Round Casing & Tubing

Internal





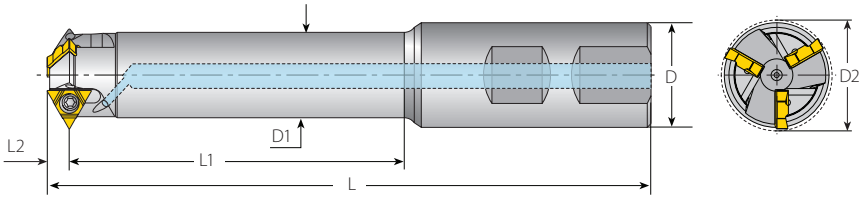
Defined by: API STD. 5B:1979
Tolerance class: Standard API RD

U Style

Insert Size		Pitch	Ordering Code	EDP No.			Toolholder Cutting Diameter D2 (Inch)
IC	L Inch	TPI	Internal	VTX	VBX	Toolholder	* Adjusted D2
1/4"U	.43	10	2UI10APIRDTM...	30158	30159	TM2SC100W090-275-2U TM2SC062C090-300-2U	.844
						TM3SC100W102-315-2U TM3SC075C102-415-2U	.962
						TM4SC125W122-374-2U TM4SC100C122-452-2U	1.159
3/8"U	.63	8	3UI8APIRDTM...	30160	30161	TM3SC125W143-374-3U TM3SC125W144-570-3U TM3SC100C143-512-3U	1.366
						TM3SC112C146-565-3U	1.389
						TM4SC150W165-472-3U	1.583
						TM4SCD169-050-3U	1.622
						TM5SCD208-075-3U	2.016

* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.

Standard Toolholders - Weldon Shank (U Style)



Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Weldon Shank for U Style Inserts

Insert Size	Ordering Code	EDP No.	Dimensions Inch						No. of Flutes	Spare Parts	
											
IC			L	L1	L2	D	D1	D2	Z	Insert Screw	Torx Key
1/4"U	TM1SC062W059-157-2U	67116	3.76	1.57	.21	.625	.42	.58*	1	SN2T (70036)	HK2T (70227)
	TM2SC100W082-236-2U	67117	4.92	2.36		1.00	.63	.81*	2		
	TM2SC100W090-275-2U	67722	5.38	2.75		1.00	.70	.91	2		
	TM3SC100W102-315-2U	67724	5.79	3.15		1.00	.80	1.02	3		
	TM4SC125W122-374-2U	67725	6.37	3.74		1.25	1.01	1.22	4		
3/8"U	TM3SC125W143-374-3U	67742	6.45	3.74	.32	1.25	1.14	1.44	3	SA3T (70028)	HK3T (70228)
	TM3SC125W144-570-3U	67763	8.80	5.70		1.25	1.10	1.44	3		
	TM4SC150W165-472-3U	67743	7.82	4.72		1.50	1.35	1.66	4	SN3T (70038)	

Weldon Shank (U Style) Applications

Thread Applications for Partial Profile Inserts

Toolholder	Min. Thread Dia.							
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	Trapez
TM1SC062W059-157-2U	.58*	M18x2.5; M24x3.0	M16x0.5; M16x0.75; M16x1.0; M17x1.25; M17x1.5; M17x2.0	¾-10	5/8-32UN; 5/8-28UN; 5/8-27UNS; 11/16-24UN; 11/16-20UN; 11/16-16UN; ¾-14UNS; ¾-12UN	3/8-19; ½-14; 1-11	11/16-14; ¾-12; 7/8-11; ¾-10; 7/8-9; 1-8; 1⅛-7	TR22x3; TR24x3
TM2SC100W082-236-2U	.81*	M24x3.0; M30x3.5	M22x0.5; M22x0.75; M22x1.0; M23x1.25; M23x1.5; M23x2.0	1-8; 1⅛-7; 1⅜-6	7/8-32UN; 7/8-28UN; 7/8-27UNS; 7/8-24UNS; 7/8-20UNEF; 1-18UNS; 15/16-16UN; 1-14UNS; 15/16-12UN; 1-10UNS	¾-14; 1-11	1-26; 1-20; 1-16; 1-12; 1-10; 1 ⅛-9; 1-8; 1 ⅛-7	(TR26-TR60)x3
TM2SC100W090-275-2U	.91	M27x3.0; M30x3.5; M36x4.0	M24x0.5; M24x0.75; M25x1.0; M25x1.25; M26x1.5; M26x2.0; M27x2.5	1⅛-7	1-32UN; 1-28UN; 1-27UNS; 1-24UNS; 1-20UNEF; 1-18UNS; 1-16UN; 1-14UNS; 1-12UNF; 1⅛-10UNS; 1⅛-8UN	¾-14; 1-11	1-26; 1-20; 1-16; 1 1/16-12; 1 1/8-9; 1⅛-7	-
TM3SC100W102-315-2U	1.02	M30x3.5; M36x4.0	M27x0.5; M27x0.75; M28x1.0; M28x1.25; M28x1.5; M29x2.0; M30x2.5; M30x3.0	1¼-7; 1⅜-6	1⅛-28UN; 1⅛-24UNS; 1⅛-20UN; 1⅛-18UNEF; 1⅛-16UN; 1⅛-14UNS; 1⅛-12UNF; 1¼-10UNS; 1 3/16-8UN	⅞-14; 1-11	1⅛-26; 1⅛-20; 1⅜-16; 1⅜-12; 1 3/16-8; 1¼-7	-
TM4SC125W122-374-2U	1.22	M36X4.0	M32x0.5; M32x0.75; M33x1.0; M33x1.25; M33x1.5; M34x2.0; M34x2.5; M35x3.0; M36x3.5	1½-6	15/16-28UN; 1⅜-24UNS; 15/16-20UN; 15/16-18UNEF; 15/16-16UN; 1⅜-14UNS; 1⅜-12UNF; 1⅜-10UNS; 1⅜-8UN	1⅛-11	1⅜-26; 1⅜-20; 1⅜-16; 1⅜-12; 1 7/16-8	-
TM3SC125W143-374-3U TM3SC125W144-570-3U	1.44	M42x4.5; M48x5.0; M56x5.5; M64x6.0	M39x1.5; M39x2.0; M40x2.5; M41x3.0; M42x3.5; M42x4.0	1¾-5; 2-4.5; 2½-4	1 9/16-16UN; 1⅝-14UNS; 1 9/16-12UN; 1⅝-10UNS; 1⅝-8UN; 1⅝-6UN	1¼-11	1⅝-16; 1⅝-12; 1⅝-8; 1⅞-6; 1¾-5	-
TM4SC150W165-472-3U	1.66	M48x5.0; M56x5.5; M64x6.0	M45x1.5; M45x2.0; M46x2.5; M48x3.0; M48x3.5; M48x4.0	2-4.5; 2½-4	1¾-16UN; 1¾-14UNS; 1 13/16-12UN; 1 13/16-8UN; 1 15/16-6UN	1½-11	1⅞-16; 1⅞-12; 1⅞-8; 2¼-6; 2-4.5	-

* For TR inserts use the CNC program (D2+.01").

Weldon Shank (U Style) Applications (con't)

Thread Applications for Full Profile Inserts (ISO & UN)

Toolholder	Toolholder Cutting Diameter D2 (Inch)	Pitch		Min. Thread Dia.	
	* Adjusted D2	mm	TPI	ISO Fine	UN/UNF/UNEF/UNS
TM2SC100W090-275-2U	.866	1.5	-	M26x1.5	-
	.860	2.0	-	M26x2.0	-
	.864	-	14	-	1-14UNS
	.860	-	12	-	1-12UNF
TM3SC100W102-315-2U	.984	1.5	-	M28x1.5	-
	.978	2.0	-	M29x2.0	-
	.982	-	14	-	1 1/8-14UNF
	.978	-	12	-	1 1/8-12UNF
TM4SC125W122-374-2U	1.181	1.5	-	M33x1.5	-
	1.175	2.0	-	M34x2.0	-
	1.179	-	14	-	1 3/8-14UNS
	1.175	-	12	-	1 3/8-12UNF

Thread Applications for Full Profile Inserts (NPT)

Toolholder	Toolholder Cutting Diameter D2 (Inch)	Pitch	Cylindrical or Conical Pre-Drilled Hole	Cylindrical Pre-Drilled Hole
	* Adjusted D2	TPI	NPT Threading by 1 Radial Pass	**NPT Threading by 2 Radial Passes (50% / 50%)
TM1SC062W059-157-2U	.574	14	1/2-14NPT; 3/4-14NPT	-
TM2SC100W082-236-2U	.807	14	3/4-14NPT	-
TM2SC100W090-275-2U	.891	11.5	1-11.5NPT; 1 1/4-11.5NPT; 1 1/2-11.5NPT; 2-11.5NPT	-
TM3SC100W102-315-2U	1.009	11.5	1-11.5NPT; 1 1/4-11.5NPT; 1 1/2-11.5NPT; 2-11.5NPT	-
TM4SC125W122-374-2U	1.206	11.5	1 1/4-11.5NPT; 1 1/2-11.5NPT; 2-11.5NPT	-
TM3SC125W143-374-3U	1.404	11.5	1 1/4-11.5NPT; 1 1/2-11.5NPT; 2-11.5NPT	-
TM3SC125W144-570-3U				
TM3SC125W143-374-3U	1.404	8	-	2 1/2...10-8NPT
TM3SC125W144-570-3U				
TM4SC150W165-472-3U	1.620	11.5	1 1/2-11.5NPT; 2-11.5NPT	-
TM4SC150W165-472-3U	1.620	8	-	2 1/2...10-8NPT

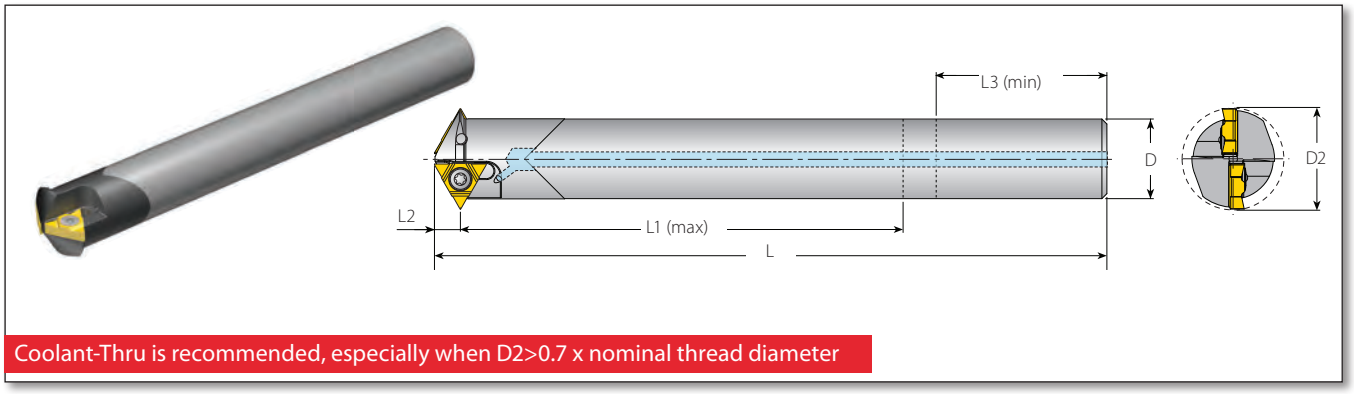
** When the pre-drilled hole for 8NPT is conical, the thread can be machined in one pass.

Thread Applications for Full Profile Inserts (API Round)

Toolholder	Toolholder Cutting Diameter D2 (Inch)	Pitch	Cylindrical or Conical Pre-Drilled Hole (for cylindrical 2 radial passes 50%/50%; for conical one radial pass)	Conical Pre-Drilled Hole only (one pass)
	* Adjusted D2	TPI	Thread Dia.	
TM2SC100W090-275-2U	.844	10	1.05x10APIRD (for UP TBG; UP TBG Long); 1.315...1.66x10APIRD (for TBG; UP TBG; UP TBG Long; Integral-Joint TBG)	-
TM3SC100W102-315-2U	.962		1.66...2.875x10APIRD (for TBG; UP TBG; UP TBG Long; Integral-Joint TBG)	
TM4SC125W122-374-2U	1.159		1.66...3.5x10APIRD (for TBG; UP TBG; UP TBG Long; Integral-Joint TBG)	
TM3SC125W143-374-3U	1.366	8	2.375...13.375x8APIRD (for CSG; TBG; UP TBG; UP TBG Long); 4.5...5.5x8APIRD (for LCSG)	-
TM3SC125W144-570-3U			2.375...20x8APIRD (for CSG; TBG; UP TBG; UP TBG Long); 4.5...7.625x8APIRD (for LCSG)	8.625...20x8APIRD (for LCSG)
TM4SC150W165-472-3U	1.583		2.875...20x8APIRD (for CSG; TBG; UP TBG; UP TBG Long); 4.5...7.625x8APIRD (for LCSG)	8.625x8APIRD (for LCSG)

* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.

Standard Toolholders - Carbide Cylindrical Shank (U Style)

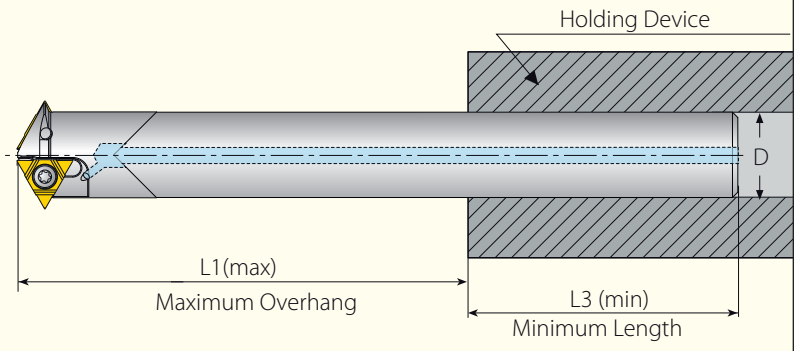


Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Carbide Cylindrical Shank for U Style Inserts

Insert Size	Ordering Code	EDP No.	Dimensions Inch						No. of Flutes	Spare Parts	
IC			L	L1 (max)	L2	L3 (min)	D	D2	Z	Insert Screw	Torx Key
1/4"U	CTM1SC031C059-157-2U	67121	4.30	1.57	.21	.65	.3125	.58*	1	SN2T (70036)	HK2T (70227)
	CTM1SC043C061-235-2U	67123	4.72	2.35		.90	.4375	.60*	1		
	CTM2SC056C068-235-2U	67125	5.35	2.35	.13	1.15	.5625	.68**	2		
	CTM2SC056C082-256-2U	67122	5.38	2.56	.21	1.15	.5625	.81*	2		
	CTM2SC062C082-315-2U	67124	5.30	3.15		1.28	.625	.81*	2		
	CTM3SC075C102-433-2U	67129	6.50	4.33		1.57	.75	1.02*	3		
	CTM4SC100C124-530-2U	67128	7.60	5.30		1.81	1.00	1.24*	4		

* For TR inserts use the CNC program (D2+.010").
** To be used only with inserts 2UIDD60TM... or 2UIDM60TM...
For insert 2UIDD60 TM... use the CNC program (D2+.028").



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 2 times the diameter of the bar shank.

Carbide Cylindrical Shank (U Style) Applications

Thread Applications for Partial Profile Inserts

Toolholder		Min. Thread Dia.						
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	Trapez
CTM1SC031C059-157-2U	.58*	M18x2.5; M24x3.0; M30x3.5; M36x4.0	M16x0.5; M16x0.75; M16x1.0; M17x1.25; M17x1.5; M17x2.0	¾-10; ⅞-9; 1-8; 1⅛-7; 1⅜-6	⅝-32UN; ⅝-28UN; ⅝-27UNS; 11/16-24UNEF; 11/16-20UN; 11/16-16UN; ¾-14UNS; 11/16-12UN	½-14; 1-11	11/16-26; 11/16-20; 11/16-16; 11/16-14; ¾-12; ⅞-11; ¾-10; ⅞-9; 1-8; 1⅛-7	TR22x3; TR24x3; TR20x4; TR22x5; TR24x5; TR26x5; TR28x5
CTM1SC043C061-235-2U	.60*	M18x2.5; M24x3.0	M16x0.5; M16x0.75; M16x1.0; M17x1.25; M17x1.5; M17x2.0	¾-10; ⅞-9; 1-8	⅝-32UN; ⅝-28UN; ⅝-27UNS; 11/16-24UNEF; 11/16-20UN; 11/16-16UN; ¾-14UNS; 11/16-12UN	½-14; 1-11	11/16-26; 11/16-20; 11/16-16; 11/16-14; ¾-12; ⅞-11; ¾-10; ⅞-9	TR22x3; TR24x3
CTM2SC056C068-235-2U	.68**	M20x2.5; M22x2.5	M21x2.0	⅞-9	⅞-10UNS; 13/16-12UN	-	-	-
CTM2SC056C082-256-2U	.81*	M24x3.0; M30x3.5; M36x4.0	M22x0.5; M22x0.75; M22x1.0; M23x1.25; M23x1.5; M23x2.0	1-8; 1⅛-7; 1⅜-6	⅞-32UN; ⅞-28UN; ⅞-27UNS; ⅞-24UNS; ⅞-20UNEF; 1-18UNS; 15/16-16UN; 1-14UNS; 15/16-12UN; 1-10UNS	¾-14; 1-11	1-26; 1-20; 1-16; 1-12; 1-10; 1⅛-9; 1-8; 1⅛-7	(TR26-TR60)x3; TR28x4; (TR65-TR110)x4; TR28x5
CTM2SC062C082-315-2U	.81*	M24x3.0; M30x3.5	M22x0.5; M22x0.75; M22x1.0; M23x1.25; M23x1.5; M23x2.0	1-8; 1⅛-7; 1⅜-6	⅞-32UN; ⅞-28UN; ⅞-27UNS; ⅞-24UNS; ⅞-20UNEF; 1-18UNS; 15/16-16UN; 1-14UNS; 15/16-12UN; 1-10UNS	¾-14; 1-11	1-26; 1-20; 1-16; 1-12; 1-10; 1⅛-9; 1-8; 1⅛-7	(TR26-TR60)x3
CTM3SC075C102-433-2U	1.02*	M30x3.5; M36x4.0	M27x0.5; M27x0.75; M28x1.0; M28x1.25; M28x1.5; M29x2.0; M30x2.5; M30x3.0	1¼-7; 1⅜-6	1⅛-28UN; 1⅛-24UNS; 1⅛-20UN; 1⅛-18UNEF; 1⅛-16UN; 1⅛-14UNS; 1⅛-12UNF; 1⅜-10UNS; 17/16-8UN	⅞-14; 1-11	1⅛-26; 1⅛-20; 13/16-16; 13/16-12; 13/16-8; 1¼-7	(TR40-TR60)x3 (TR65-TR110)x4
CTM4SC100C124-530-2U	1.24*	M36x4.0	M32x0.5; M32x0.75; M33x1.0; M33x1.25; M33x1.5; M34x2.0; M34x2.5; M35x3.0; M36x3.5	1½-6	1⅝-28UN; 1½-24UNS; 1½-20UN; 1½-18UNEF; 1⅜-16UN; 1⅜-14UNS; 1⅜-12UNF; 1⅜-10UNS; 17/16-8UN	1⅛-11	1⅝-26; 1⅝-20; 1⅜-16; 1⅜-12; 17/16-8	(TR50-TR60)x3 (TR65-TR110)x4

* For TR inserts use the CNC program (D2+.10").
** To be used only with inserts 2UIDD60TM... or 2UIDM60TM...
For insert 2UIDD60 TM... use the CNC program (D2+.028").

Thread Applications for Full Profile Inserts (ISO & UN)

Toolholder	Toolholder Cutting Diameter D2 (Inch)	Pitch		Min. Thread Dia.	
	* Adjusted D2	mm	TPI	ISO Fine	UN/UNF/UNEF/UNS
CTM3SC075C102-433-2U	.984	1.5	-	M28x1.5	-
	.978	2.0	-	M29x2.0	-
	.982	-	14	-	1 1/8-14UNS
	.978	-	12	-	1 1/8-12UNF
CTM4SC100C124-530-2U	1.181	1.5	-	M33x1.5	-
	1.175	2.0	-	M34x2.0	-
	1.179	-	14	-	1 3/8-14UNS
	1.175	-	12	-	1 3/8-12UNF

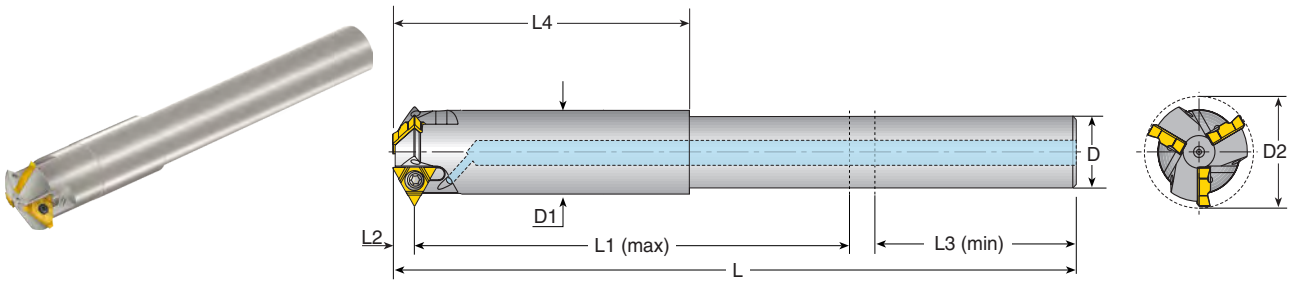
* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.

Thread Applications for Full Profile Inserts (NPT)

Toolholder	Toolholder Cutting Diameter D2 (Inch)	Pitch	Cylindrical or Conical Pre-Drilled Hole	Cylindrical Pre-Drilled Hole
	* Adjusted D2	TPI	NPT Threading by 1 Radial Pass	NPT Threading by 2 Radial Passes (50% / 50%)
CTM1SC031C059-157-2U	.574	14	½-14NPT; ¾-14NPT	-
CTM1SC043C061-235-2U				
CTM2SC056C082-256-2U	.807	14	¾-14NPT	-
CTM2SC062C082-315-2U				
CTM3SC075C102-433-2U	1.009	11.5	1-11.5NPT; 1¼-11.5NPT; 1½-11.5NPT; 2-11.5NPT	-
CTM4SC100C124-530-2U	1.206	11.5	1¼-11.5NPT; 1½-11.5NPT; 2-11.5NPT	-

* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.

Standard Toolholders - Steel Cylindrical Shank (U Style)



Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

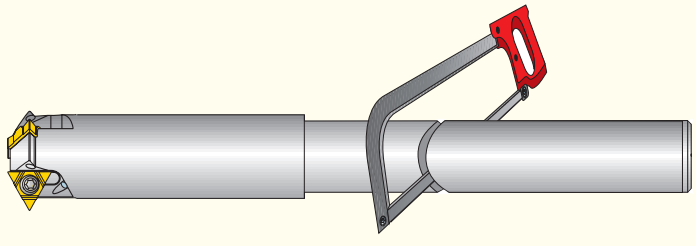
Steel Cylindrical Shank for U Style Inserts

Insert Size	Ordering Code	EDP No.	Dimensions Inch								No. of Flutes	Spare Parts	
IC			L	L1 (max)	L2	L3 (min)	L4	D	D1	D2	Z	Insert Screw	Torx Key
1/4"U	TM2SC062C090-300-2U	67744	5.60	3.00	.21	1.35	2.16	.625	.70	.91	2	SN2T (70036)	HK2T (70227)
	TM3SC075C102-415-2U	67745	7.20	4.15	.21	1.57	-	.75	.75	1.02	3		
	TM4SC100C122-452-2U	67746	7.70	4.52	.21	1.80	-	1.00	1.00	1.22	4		
3/8"U	TM3SC100C143-512-3U	67747	8.35	5.12	.31	1.80	3.08	1.00	1.14	1.44	3	SA3T (70028)	HK3T (70228)
	TM3SC112C146-565-3U	67762	8.75	5.65	.31	2.35	3.08	1.125	1.14	1.46	3		

Steel Cylindrical Shank (U Style) Applications

Thread Applications for Partial Profile Inserts

Toolholder	Min. Thread Dia.						
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°
TM2SC062C090-300-2U	.91	M27x3.0; M30x3.5; M36x4.0	M24x0.5; M25x0.75; M25x1.0; M25x1.25; M26x1.5; M26x2.0; M27x2.5	1⅛-7	1-32UN; 1-28UN; 1-27UN; 1-24UNS; 1-20UNEF; 1-18UNS; 1-16UN; 1-14UNS; 1 1/16-12UN; 1⅛-10UNS; 1⅛-8UN	¾-14; 1-11	1-26; 1-20; 1⅛-16; 1⅛-12; 1⅛-9; 1⅛-7
TM3SC075C102-415-2U	1.02	M30x3.5; M36x4.0	M27x0.5; M27x0.75; M28x1.0; M28x1.25; M28x1.5; M29x2.0; M30x2.5; M30x3.0	1¼-7; 1⅜-6	1⅛-28UN; 1⅛-24UNS; 1⅛-20UN; 1⅛-18UNEF; 1⅛-16UN; 1⅛-14UNS; 1⅛-12UNF; 1⅜-10UNS; 1 7/16-8UN	⅞-14; 1-11	1⅛-26; 1⅛-20; 1 3/16-16; 1 3/16-12; 1 3/16-8; 1¼-7
TM4SC100C122-452-2U	1.22	M36x4.0	M32x0.5; M32x0.75; M33x1.0; M33x1.25; M33x1.5; M34x2.0; M34x2.5; M35x3.0; M36x3.5	1½-6	1 5/16-28UN; 1½-24UNS; 1½-20UN; 1½-18UNEF; 1⅜-16UN; 1⅜-14UNS; 1⅜-12UNF; 1⅜-10UNS; 1 7/16-8UN	1⅛-11	1 5/16-26; 1 5/16-20; 1⅜-16; 1⅜-12; 1 7/16-8
TM3SC100C143-512-3U	1.44	M42.5x4.5; M48x5.0; M56x5.5; M64x6.0	M39x1.5; M40x2.5; M41x3.0; M42x3.5; M42x4.0	1¾-5; 2-4.5; 2½-4	1 9/16-16UN; 1⅝-14UNS; 1 9/16-12UN; 1⅝-10UNS; 1⅝-8UN; 1⅝-6UN	1¼-11	1⅝-16; 1⅝-12; 1⅝-8; 1 7/8-6; 1¾-5
TM3SC112C146-565-3U	1.46	M42.5x4.5; M48x5.0; M56x5.5; M64x6.0	M39x1.5; M40x2.5; M41x3.0; M42x3.5; M42x4.0	1¾-5; 2-4.5; 2½-4	1 9/16-16UN; 1⅝-14UNS; 1 9/16-12UN; 1⅝-10UNS; 1⅝-8UN; 1⅝-6UN	1¼-11	1⅝-16; 1⅝-12; 1⅝-8; 1 7/8-6; 1¾-5



The length of cylindrical shank toolholders can be modified to reduce chatter (vibration).
Note: The length of the shank inside the clamping device should be L3 at minimum.

Steel Cylindrical Shank (U Style) Applications (con't)

Thread Applications for Full Profile Inserts (ISO & UN)

Toolholder	Toolholder Cutting Diameter D2 (Inch)	Pitch		Min. Thread Dia.	
	* Adjusted D2	mm	TPI	ISO Fine	UN/UNF/UNEF/UNS
TM2SC062C090-300-2U	.866	1.5	-	M26x1.5	-
	.860	2.0	-	M26x2.0	-
	.864	-	14	-	1-14UNS
	.860	-	12	-	1-12UNF
TM3SC075C102-415-2U	.984	1.5	-	M28x1.5	-
	.978	2.0	-	M29x2.0	-
	.982	-	14	-	1 ⅛-14UNS
	.978	-	12	-	1 ⅛-12UNF
TM4SC100C122-452-2U	1.181	1.5	-	M33x1.5	-
	1.175	2.0	-	M34x2.0	-
	1.179	-	14	-	1 ⅜-14UNS
	1.175	-	12	-	1 ⅜-12UNF

Thread Applications for Full Profile Inserts (NPT)

Toolholder	Toolholder Cutting Diameter D2 (Inch)	Pitch	Cylindrical or Conical Pre-Drilled Hole	Cylindrical Pre-Drilled Hole
	* Adjusted D2	TPI	NPT Threading by 1 Radial Pass	**NPT Threading by 2 Radial Passes (50% / 50%)
TM2SC062C090-300-2U	.891	11.5	1-11.5NPT; 1 ¼-11.5NPT; 1 ½-11.5NPT; 2-11.5NPT	-
TM3SC075C102-415-2U	1.009	11.5	1-11.5NPT; 1 ¼-11.5NPT; 1 ½-11.5NPT; 2-11.5NPT	-
TM4SC100C122-452-2U	1.206	11.5	1 ¼-11.5NPT; 1 ½-11.5NPT; 2-11.5NPT	-
TM3SC100C143-512-3U	1.404	11.5	1 ¼-11.5NPT; 1 ½-11.5NPT; 2-11.5NPT	-
TM3SC112C146-565-3U				
TM3SC100C143-512-3U	1.404	8	-	2 ½...10-8NPT
TM3SC112C146-565-3U				

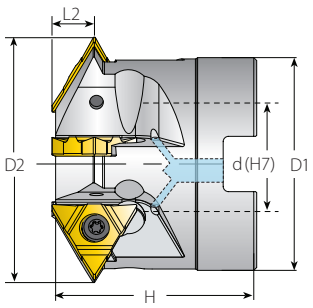
** When the pre-drilled hole for 8NPT is conical, the thread can be machined in one pass.

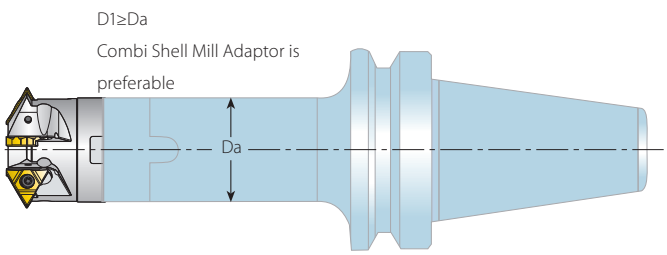
Thread Applications for Full Profile Inserts (API Round)

Toolholder	Toolholder Cutting Diameter D2 (Inch)	Pitch	Cylindrical or Conical Pre-Drilled Hole (for cylindrical 2 radial passes 50%/50%; for conical one radial pass)	Conical Pre-Drilled Hole only (one pass)
	* Adjusted D2	TPI	Thread Dia.	
TM2SC062C090-300-2U	.844	10	1.05x10APIRD (for UP TBG; UP TBG Long); 1.315...1.66x10APIRD (for TBG; UP TBG; UP TBG Long; Integral-Joint TBG)	-
TM3SC075C102-415-2U	.962		1.66...2.875x10APIRD (for TBG; UP TBG; UP TBG Long; Integral-Joint TBG)	
TM4SC100C122-452-2U	1.159		1.66...3.5x10APIRD (for TBG; UP TBG; UP TBG Long; Integral-Joint TBG)	
TM3SC100C143-512-3U	1.366	8	2.375...20x8APIRD (for CSG; TBG; UP TBG; UP TBG Long); 4.5...7.625x8APIRD (for LCSG)	8.625...9.625x8APIRD (for LCSG)
TM3SC112C146-565-3U	1.389			8.625...20x8APIRD (for LCSG)

* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.

Shell Mill (U Style)





Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Shell Mill for U Style Inserts

Insert Size	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes	Spare Parts		
IC			D1	D2	d(H7)	H	L2	Z	Insert Screw	Torx Key	Holder Screw
3/8"U	TM4SC-D169-050-3U	67750	1.38	1.69	.50	1.58	.31	4	SN3T (70038)	HK3T (70228)	1/4-28x1.25 (70222)
	TM5SC-D208-075-3U	67751	1.77	2.09	.75	1.58	.31	5			3/8-24x1.25 (70223)
1/2"U	TM6SC-D346-100-4U	67752	2.99	3.47	1.0	2.00	.39	6	SA4T (70032)	HK4T (70241)	1/2-20x1.5 (70224)
	TM8SC-D435-150-4U	67761	3.83	4.35	1.5	2.17	.39	8			3/4-16x1.75 (70226)

Shell Mill (U Style) Applications

Thread Applications for Partial Profile Inserts

Toolholder	Min. Thread Dia.						
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°
TM4SC-D169-050-3U	1.69	M56x5.5 M64x6.0	M45x1.5; M48x2.0 M48x3.0; M48x4.0	2-4.5; 2½ - 4	1 13/16-16UN; 1 7/8-14UNS; 1 13/16-12UN; 1 7/8 -10UNS; 1 7/8-8UN; 1 15/16-6UN	1½ - 11	1 7/8-16; 1 7/8-12; 1 7/8-8; 2 1/8-6; 2- 4.5; 2¼ - 4
TM5SC-D208-075-3U	2.09	M64x6.0	M55x1.5; M56x2.0; M58x3.0; M58x4.0	2½ - 4	2¼-16UN; 2¼-14UNS; 2¼-12UN; 2¼-10UNS; 2¼-8UN; 2⅜-6UN	2 - 11	2¼-16; 2¼-12; 2⅜-8; 2⅜-6; 3-5; 3½-4.5
TM6SC-D346-100-4U	3.47	-	M95x6; M125x8	4 - 4	4¼-4UN	3½ - 11	4¼-4; 4-3
TM8SC-D435-150-4U	4.35	-	M120x6; M125x8	-	4¾-4UN	-	-

Shell Mill (U Style) Applications (con't)

Thread Applications for Full Profile Inserts (NPT)

Toolholder	Toolholder Cutting Diameter D2 (Inch)	Pitch	Cylindrical or Conical Pre-Drilled Hole	Cylindrical Pre-Drilled Hole
	* Adjusted D2	TPI	NPT Threading by 1 Radial Pass	**NPT Threading by 2 Radial Passes (50% / 50%)
TM4SC-D169-050-3U	1.659	11.5	1½-11.5NPT; 2-11.5NPT	-
TM4SC-D169-050-3U	1.659	8	-	2½...10-8NPT
TM5SC-D208-075-3U	2.053	11.5	2-11.5NPT	-
TM5SC-D208-075-3U	2.053	8	-	2½...10-8NPT
TM6SC-D346-100-4U	3.467	8	3½"...160D-8NPT	160D...240D-8NPT
TM7SC-D435-150-4U	4.353	8	4"...160D-8NPT	160D...240D-8NPT

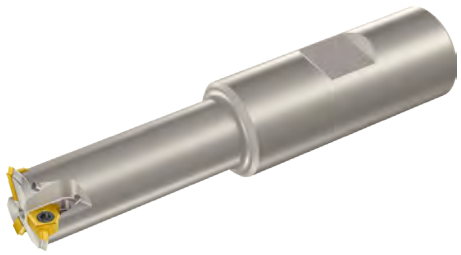
** When the pre-drilled hole for 8NPT is conical, the thread can be machined in one pass.

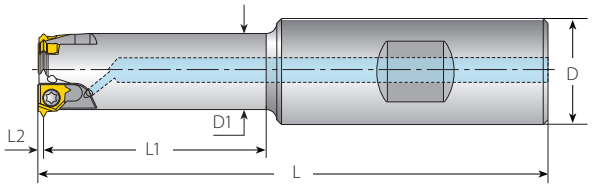
Thread Applications for Full Profile Inserts (API Round)

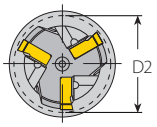
Toolholder	Toolholder Cutting Diameter D2 (Inch)	Pitch	Cylindrical or Conical Pre-Drilled Hole (for cylindrical 2 radial passes 50%/50%; for conical one radial pass)	Conical Pre-Drilled Hole only (one pass)
	* Adjusted D2	TPI	Thread Dia.	
TM4SC-D169-050-3U	1.622	8	2.875...20x8APIRD (for CSG; TBG; UP TBG; UP TBG Long); 4.5...7.625x8APIRD (for LCSG)	8.625...20x8APIRD (for LCSG)
TM5SC-D208-075-3U	2.016		3.5…20x8APIRD (for CSG; TBG; UP TBG; UP TBG Long); 4.5…7.625x8APIRD (for LCSG)	

* Correct the toolholder cutting diameter D2 according to adjustment, as indicated in the above table.

Standard Toolholders - Weldon Shank (L Style - Mini L)







Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Weldon Shank for Mini-L Style Inserts

Spare Parts

Insert Size	Ordering Code	EDP No.	Dimensions Inch						No. of Flutes		
IC mm			L	L1	L2	D	D1	D2	Z	Insert Screw	Torx Key
5.0L (Mini L)	TM1SC062W051-114-5L	67111	3.20	1.14	.04	.625	.38	.51	1	SN5LTR	K7T
	TM2SC062W054-130-5L	67114	3.40	1.30		.625	.41	.53	2		
	TM3SC075W069-165-5L	67115	3.80	1.65		.75	.56	.70	3		
	TM2SC062W055-140-5L-ABUT	67780	3.50	1.40	.074	.625	.41	.55	2		
	TM3SC075W072-180-5L-ABUT	67781	4.00	1.80		.75	.56	.72	3		

Weldon Shank (L Style - Mini L) Applications

Thread Applications for Partial Profile Inserts

Toolholder	Min. Thread Dia.							
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	Trapez
TM1SC062W051-114-5L	.51	M16x2	M14x0.5; M14x0.75; M14.5x1.0; M15x1.5; M17x2.0	5/8-11	9/16-32UN; 9/16-28UN; 9/16-27UNS; 9/16-24UNEF; 5/8-20UN; 5/8-18UNF; 5/8-16UN; 5/8-14UNS; 5/8-12UN	3/8-19	5/8-14	TR16X2; TR18X2
TM2SC062W054-130-5L	.53	M16x2	M15x0.5; M15x0.75; M15x1.0; M16x1.5; M17x2.0	-	5/8-32UN; 5/8-28UN; 5/8-27UNS; 5/8-24UNEF; 5/8-20UN; 5/8-18UNF; 5/8-16UN; 5/8-14UNS; 11/16-12UN	3/8-19	11/16-14	TR16X2; TR18X2
TM3SC075W069-165-5L	.70	-	M19x0.5; M19x0.75; M19x1.0; M20x1.5; M20x2.0	-	3/4-32UN; 3/4-28UN; 7/8-27UNS; 3/4-24UNS; 13/16-20UNEF; 7/8-18UNS; 13/16-16UN; 7/8-14UNF; 13/16-12UN	1/2-14	-	TR20X2

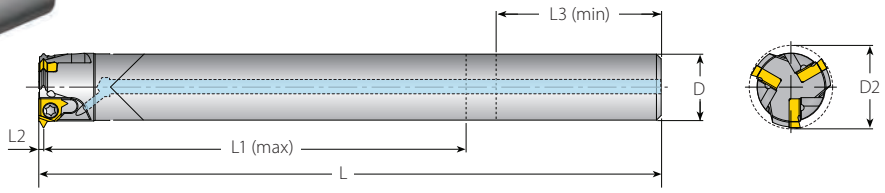
Thread Applications for Full Profile Inserts (ISO, UN, NPT)

Toolholder	Min. Thread Dia.			
	D2	ISO Fine	UN/UNF/UNEF/UNS	NPT
TM1SC062W051-114-5L	.51	M14.5x1.0; M15x1.5; M17x2.0	5/8-18UNF; 5/8-16UN; 5/8-14UNS; 5/8-12UN	3/8-18NPT
TM2SC062W054-130-5L	.53	M15x1.0; M16x1.5; M17x2.0	5/8-18UNF; 5/8-16UN; 5/8-14UNS; 11/16-12UN	3/8-18NPT
TM3SC075W069-165-5L	.70	M19x1.0; M20x1.5; M20x2.0	7/8-18UNS; 13/16-16UN; 7/8-14UNF; 13/16-12UN	-

Thread Applications for Full Profile American Buttress Inserts

Toolholder	Thread Dia.	
	D2	American Buttress
TM2SC062W055-140-5L-ABUT	.55	(0.875"-4")-16; (0.875"-6")-12; (0.875"-16")-10
TM3SC075W072-180-5L-ABUT	.72	(1.25"-4")-16; (1.25"-6")-12; (1.25"-16")-10

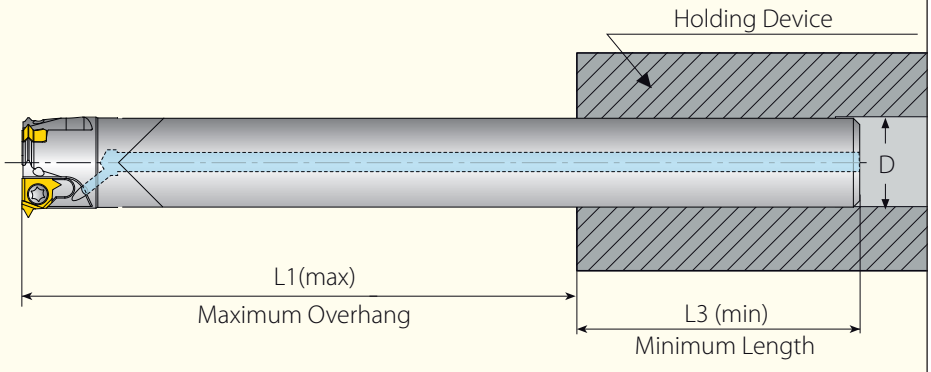
Standard Toolholders - Carbide Cylindrical Shank (L Style - Mini L)



Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Carbide Cylindrical Shank for Mini-L Style Inserts

Insert Size	Ordering Code	EDP No.	Dimensions Inch						No. of Flutes	Spare Parts	
IC			L	L1 (max)	L2	L3 (min)	D	D2	Z	Insert Screw	Torx Key
5.0L (Mini L)	CTM1SC037C051-169-5L	67118	4.30	1.69	.04	.80	.375	.51	1	SN5LTR (72007)	K7T (70026)
	CTM2SC037C053-197-5L	67119	4.30	1.97		.80	.375	.53	2		
	CTM3SC056C069-255-5L	67120	5.20	2.55		1.15	.562	.70	3		
	CTM2SC037C055-200-5L-ABUT	67784	4.30	2.00	.074	.87	.375	.55	2		
	CTM3SC055C072-256-5L-ABUT	67785	5.20	2.56		1.18	.550	.72	3		



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 2 times the diameter of the bar shank.

Carbide Cylindrical Shank (L Style - Mini L) Applications

Thread Applications for Partial Profile Inserts

Toolholder		Min. Thread Dia.						
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)	Partial 55°	Trapez
CTM1SC037C051-169-5L	.51	M16x2	M14x0.5; M14x0.75; M14.5x1.0; M15x1.5; M17x2.0	5/8-11	9/16-32UN; 9/16-28UN; 9/16-27UNS; 9/16-24UNEF; 5/8-20UN; 5/8-18UNF; 5/8-16UN; 5/8-14UNS; 5/8-12UN	3/8-19	5/8-14	TR16X2; TR18X2
CTM2SC037C053-197-5L	.53	M16x2	M15x0.5; M15x0.75; M15x1.0; M16x1.5; M17x2.0	-	5/8-32UN; 5/8-28UN; 5/8-27UNS; 5/8-24UNEF; 5/8-20UN; 5/8-18UNF; 5/8-16UN; 5/8-14UNS; 11/16-12UN	3/8-19	11/16-14	TR16X2; TR18X2
CTM3SC056C069-255-5L	.70	-	M19x0.5; M19x0.75; M19x1.0; M20x1.5; M20x2.0	-	3/4-32UN; 3/4-28UN; 7/8-27UNS; 3/4-24UNS; 13/16-20UNEF; 7/8-18UNS; 13/16-16UN; 7/8-14UNF; 13/16-12UN	1/2-14	-	TR20X2

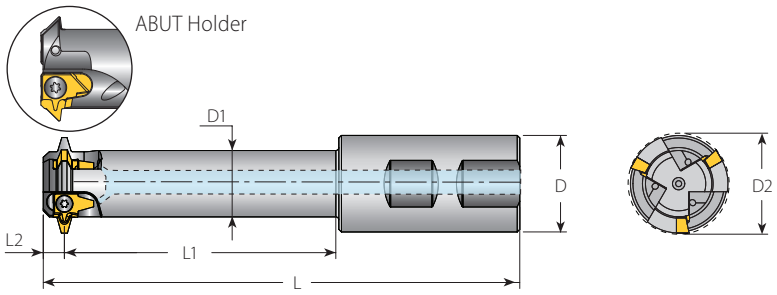
Thread Applications for Full Profile Inserts (ISO, UN, NPT)

Toolholder		Min. Thread Dia.		
	D2	ISO Fine	UN/UNF/UNEF/UNS	NPT
CTM1SC037C051-169-5L	.51	M14.5x1.0; M15x1.5; M17x2.0	5/8-18UNF; 5/8-16UN; 5/8-14UNS; 5/8-12UN	3/8-18NPT
CTM2SC037C053-197-5L	.53	M15x1.0; M16x1.5; M17x2.0	5/8-18UNF; 5/8-16UN; 5/8-14UNS; 11/16-12UN	3/8-18NPT
CTM3SC056C069-255-5L	.70	M19x1.0; M20x1.5; M20x2.0	7/8-18UNS; 13/16-16UN; 7/8-14UNF; 13/16-12UN	-

Thread Applications for Full Profile American Buttress Inserts

Toolholder		Thread Dia.
	D2	American Buttress
CTM2SC037C055-200-5L-ABUT	.55	(0.875"-4")-16; (0.875"-6")-12; (0.875"-16")-10
CTM3SC055C072-256-5L-ABUT	.72	(1.25"-4")-16; (1.25"-6")-12; (1.25"-16")-10

Standard Toolholders - Weldon Shank (L Style - 3/8" L)



Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Weldon Shank for 3/8" L Style Inserts

Insert Size	Ordering Code	EDP No.	Dimensions Inch						No. of Flutes	Spare Parts	
IC	Toolholder		L	L1	L2	D	D1	D2	Z	Insert Screw	Torx Key
3/8"L	TM1SC100W085-200-3L	67135	4.60	2.00	.276	1.00	.50	.85	1	SN3T (70038)	HK3T (70228)
	TM2SC100W112-275-3L	67136	5.32	2.75		1.00	.71	1.12	2	SA3T (70028)	
	TM3SC125W132-350-3L	67137	6.22	3.50		1.25	.87	1.32	3	SN3T (70038)	
	TM2SC100W104-315-3L-ABUT	67782	5.70	3.15	.185	1.00	.79	1.04	2	SA3T (70028)	
	TM3SC125W140-413-3L-ABUT	67783	6.75	4.13		1.25	1.10	1.40	3		

Weldon Shank (L Style - 3/8" L) Applications

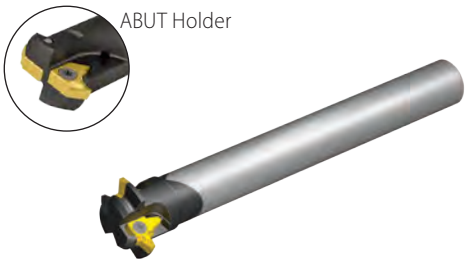
Thread Applications for Partial Profile Inserts

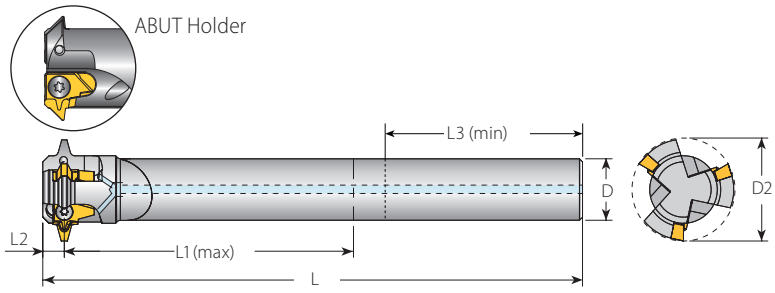
Toolholder		Min. Thread Dia.		
	D2	Trapez	American ACME	Stub ACME
TM1SC100W085-200-3L	.85	(TR30-36)x6	1¼-5; 1⅜-4; 1½-4	1¼-5; 1⅜-4; 1½-4
TM2SC100W112-275-3L	1.12	(TR38-44)x7	1¾-4	-
TM3SC125W132-350-3L	1.32	(TR46-52)x8	2-4; 2¼-3; 2½-3; 2¾-3	2-4; 2¼-3; 2½-3; 2¾-3

Thread Applications for Full Profile American Buttress Inserts

Toolholder		Thread Dia.
	D2	American Buttress
TM2SC 100W104-315-3L-ABUT	1.04	(1.75"-4")-16; (1.75"-6")-12; (1.75"-6")-10; (1.75"-6")-8; (1.75"-6")-6
TM3SC 125W140-413-3L-ABUT	1.40	(2.5"-4")-16; (2.5"-6")-12; (2.5"-6")-10; (2.5"-6")-8; (2.5"-6")-6

Standard Toolholders - Carbide Cylindrical Shank (L Style - 3/8" L)





Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Carbide Cylindrical Shank for 3/8" L Style Inserts

Insert Size	Ordering Code	EDP No.	Dimensions Inch						No. of Flutes	Spare Parts	
											
IC	Toolholder		L	L1(max)	L2	L3(min)	D	D2	Z	Insert Screw	Torx Key
3/8"L	CTM1SC050C085-295-3L	67132	4.53	2.95	.28	1.58	.50	.85	1	SN3T (70038)	HK3T (70228)
	CTM2SC062C112-330-3L	67133	6.10	3.30		1.81	.625	1.12	2	SA3T (70028)	
	CTM3SC075C132-443-3L	67134	6.60	4.43		1.81	.75	1.32	3	SN3T (70038)	
	CTM2SC075C104-450-3L-ABUT	67786	6.75	4.35	.19	1.57	.75	1.04	2	SA3T (70028)	

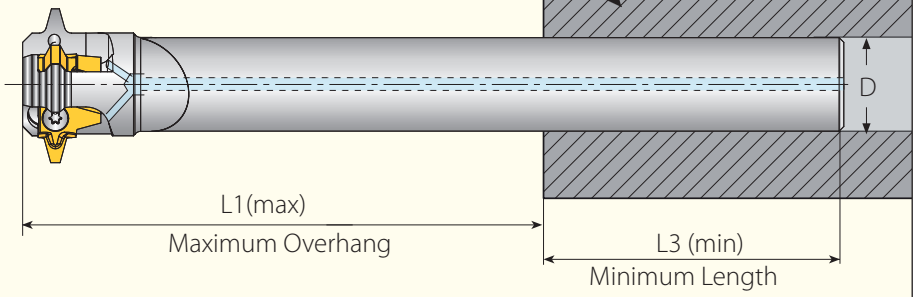
Carbide Cylindrical Shank (L Style - 3/8" L) Applications

Thread Applications for Partial Profile Inserts

Toolholder	Min. Thread Dia.			
	D2	Trapez	American ACME	Stub ACME
CTM1SC050C085-295-3L	.85	(TR30-36)x6	1¼-5; 1⅜-4; 1½-4	1¼-5; 1⅜-4; 1½-4
CTM2SC062C112-330-3L	1.12	(TR38-44)x7	1¾-4	-
CTM3SC075C132-443-3L	1.32	(TR46-52)x8	2-4; 2¼-3; 2½-3; 2¾-3	2-4; 2¼-3; 2½-3; 2¾-3

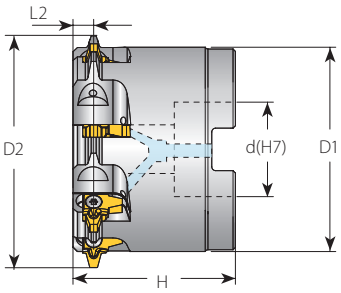
Thread Applications for Full Profile American Buttress Inserts

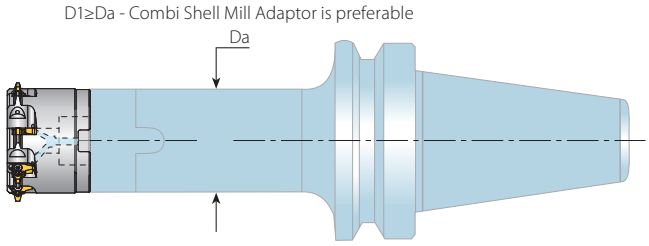
Toolholder	Thread Dia.	
	D2	American Buttress
CTM2SC075C104-450-3L-ABUT	1.04	(1.75"-4")-16; (1.75"-6")-12; (1.75"-6")-10; (1.75"-6")-8; (1.75"-6")-6



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 2 times the diameter of the bar shank.

Shell Mill (L Style - 3/8” L)





Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Shell Mill for 3/8” L Style Inserts

Insert Size	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes	Spare Parts		
IC	Toolholder		D1	D2	d(H7)	H	L2	Z	Insert Screw	Torx Key	Holder Screw
3/8”L	TM7SC-D315-125-3L	67775	2.72	3.15	1.25	2.16	.276	7	SA3T (70028)	HK3T (70228)	5/8-18UNx1 1/2 (70037)
	TM6SC-D228-075-3L-ABUT	67788	2.01	2.28	.75	1.58	.185	6			3/8-24x1.25 (70223)

Shell Mill (L Style - 3/8” L) Applications

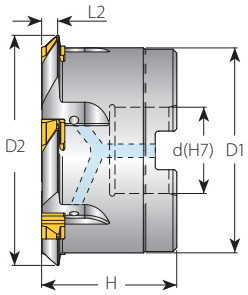
Thread Applications for Partial Profile Inserts

Toolholder		Min. Thread Dia.		
	D2	Trapez	American ACME	Stub ACME
TM7SC-D315-125-3L	3.15	(TR115-TR130)x6; (TR175-TR240)x8	-	-

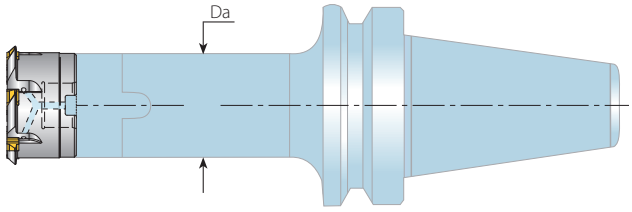
Thread Applications for Full Profile American Buttress Inserts

Toolholder		Thread Dia.
	D2	American Buttress
TM6SC-D228-075-3L-ABUT	2.28	(4.0”-6”)-12; (4.0”-6”)-10; (4.0”-6”)-8; (4.0”-6”)-6

Shell Mill (5/8”V Style)



D1≥Da - Combi Shell Mill Adaptor is preferable



Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

Shell Mill for 5/8”V Style Inserts

Insert Size	Ordering Code	EDP No.	Dimensions Inch					No. of Flutes		Spare Parts		
IC	Toolholder		D1	D2	d(H7)	H	L2	Z	Insert	Insert Screw	Torx Key	Holder Screw
5/8"V	TM6SC-D346-125-5V6-ABUT	67768	2.85	3.46	1.25	1.92	.21	6	5VI4ABUT-TM...	SA5 (70033)	HK5T (70011)	⅝-18UNx1½ (70037)
	TM6SC-D346-125-5V8-ABUT	67789	2.85	3.46	1.25	2.07	.33	6	5VI2.5ABUT-TM...			
						2.00	.28		5VI3ABUT-TM...			

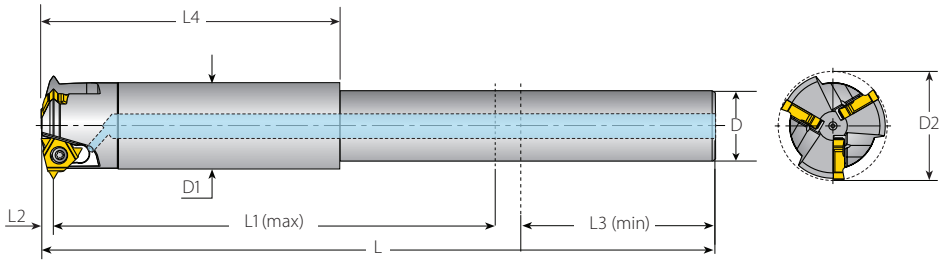
TMSD

Shell Mill (5/8”V Style) Applications

Thread Applications for Full Profile American Buttress Inserts

Toolholder	Thread Dia.
D2	American Buttress
TM6SC-D346-125-5V6-ABUT 3.46	(5.0”-24”)-4
TM6SC-D346-125-5V8-ABUT 3.46	(6.0”-24”)-3; (7.0”-24”)-2.5

Standard Toolholders - Steel Cylindrical Shank (A Style)



Coolant-Thru is recommended, especially when D2>0.7 x nominal thread diameter

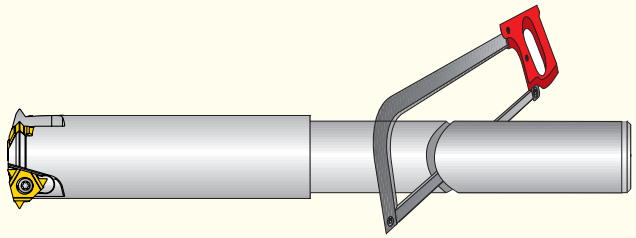
Steel Cylindrical Shank for A-Style Inserts

Insert Size	Ordering Code	EDP No.	Dimensions Inch								No. of Flutes	Spare Parts	
IC			L	L1(max)	L2	L3 (min)	L4	D	D1	D2	Z	Insert Screw	Torx Key
1/4"A	TM3SC075C102-415-2A	67748	7.20	4.15	.12	1.57	-	.75	.75	1.02	3	SN2T(70036)	HK2T (70227)
3/8"A	TM3SC100C138-512-3A	67749	8.35	5.12	.16	1.80	3.08	1.00	1.11	1.39	3	SA3T (70028)	HK3T (70228)

Steel Cylindrical Shank (A Style) Applications

Thread Applications for Partial Profile Inserts

Toolholder	Min. Thread Dia.					
	D2	ISO Coarse	ISO Fine	UNC	UN/UNF/UNEF/UNS	BSP (G)
TM3SC075C102-415-2A	1.02	-	M28x1.5; M29x2.0; M30x2.5; M30x3.0	-	1⅛-16UN; 1⅛-14UNS; 1³⁄₁₆-12UN; 1¼-10UNS; 1³⁄₁₆-8UN	-
TM3SC100C138-512-3A	1.39	-	M38x2.0; M39x2.5; M39x3.0; M40x4.0	-	1⁹⁄₁₆-12UN; 1⅝-10UNS; 1⅝-8UN; 1⅝-6UN	-



The length of cylindrical shank toolholders can be modified to reduce chatter (vibration).
Note: The length of the shank inside the clamping device should be L3 at minimum.

Recommended Grades, Cutting Speeds Vc [ft/min] and Feed f [inch/tooth]

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [ft/min]		Feed* f [inch/tooth] by Cutting Dia. (D2)		
					VBX	VTX	.51-.91	.94-1.65	Shell Mill
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	328-689	295-590	.0079-.0126	.0118-.0197	.0118-.0295
	2		Medium Carbon (C=0.25-0.55%)	150	328-590	295-558	.0079-.0126	.0118-.0197	.0118-.0295
	3		High Carbon (C=0.55-0.85%)	170	328-558	295-525	.0059-.0091	.0098-.0138	.0098-.0205
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	197-295	295-508	.0067-.011	.011-.0177	.011-.0264
	5		Hardened	275	262-492	262-525	.0059-.011	.0098-.0177	.0098-.0264
	6		Hardened	350	230-459	230-492	.0059-.0098	.0098-.0157	.0098-.0236
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	197-426	230-377	.0059-.0087	.0079-.0118	.0079-.0177
	8		Hardened	325	230-361	197-328	.0051-.0083	.0071-.0118	.0071-.0177
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	328-558	328-558	.0059-.0087	.0079-.0118	.0079-.0177
	10		High Alloy (alloying elements >5%)	225	230-394	230-426	.0047-.0087	.0067-.0118	.0067-.0177
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	328-558	394-590	.0059-.0087	.0087-.0134	.0087-.0197
	12		Hardened	330	328-558	394-590	.0063-.0091	.0083-.0126	.0083-.0189
	13	Stainless Steel Austenitic	Austenitic	180	230-459	328-459	.0059-.0098	.0098-.0157	.0098-.0236
	14		Super Austenitic	200	230-459	328-459	.0047-.0079	.0067-.0102	.0067-.0154
	15	Stainless Steel Cast Ferritic	Non Hardened	200	230-459	328-459	.0063-.0094	.0098-.0146	.0098-.0217
	16		Hardened	330	230-459	328-459	.0047-.0079	.0067-.0102	.0067-.0154
	17	Stainless Steel Cast Austenitic	Austenitic	200	230-394	328-394	.0059-.0087	.0079-.0118	.0079-.0177
	18		Hardened	330	230-394	328-394	.0047-.0079	.0067-.0102	.0067-.0154
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	197-426	328-394	.0063-.0094	.0098-.0146	.0098-.0217
	29		Pearlitic (long chips)	230	197-394	262-328	.0059-.0087	.0079-.0118	.0079-.0177
	30	Grey Cast Iron	Low Tensile Strength	180	197-426	262-328	.0059-.0087	.0087-.0134	.0087-.0197
	31		High Tensile Strength	260	197-328	262-328	.0059-.0087	.0079-.0118	.0079-.0177
	32	Nodular Sg Iron	Ferritic	160	197-410	262-328	.0039-.0079	.0059-.0098	.0059-.0146
	33		Pearlitic	260	164-295	197-295	.0059-.0087	.0079-.0118	.0079-.0177
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	328-820		.0118-.0197	.0236-.0394	.0236-.0591
	35		Aged	100	328-590		.011-.0197	.0197-.0354	.0197-.0472
	36	Aluminium Alloys	Cast	75	492-1312		.011-.0197	.0197-.0354	.0197-.0472
	37		Cast & Aged	90	492-918		.0098-.0157	.0157-.0236	.0157-.0354
	38	Aluminium Alloys	Cast Si 13-22%	130	262-492		.011-.0197	.0197-.0354	.0197-.0472
	39	Copper and Copper Alloys	Brass	90	394-689	328-656	.0118-.0197	.0236-.0394	.0236-.0591
	40		Bronze and Non Leaded Copper	100	394-689	328-656	.011-.0197	.0197-.0354	.0197-.0472
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	66-148	66-131	.0035-.0059	.0047-.0087	.0047-.013
	20		Aged (iron based)	280	66-98	66-98	.0028-.0051	.0039-.0079	.0039-.0118
	21		Annealed (nickel or cobalt based)	250	49-66	49-66	.0031-.0059	.0031-.0079	.0031-.0118
	22		Aged (nickel or cobalt based)	350	33-49	33-49	.0031-.0059	.0031-.0079	.0031-.0118
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	230-459	230-394	.0028-.0051	.0039-.0079	.0039-.0118
	24		α+β alloys	1050Rm	66-164	66-164	.0028-.0051	.0039-.0079	.0039-.0118
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	49-148	49-148	.002-.0047	.002-.0071	.002-.0106
	26			51-55HRc	49-131	49-131	.002-.0047	.002-.0071	.002-.0106

* When using a Shell Mill toolholder, the feed can be increased by 50%.
* For 3/8"L it is recommended to machine in two passes and decrease the feed by 40%.

Grades

Grade	Application
VBX	TiCN coated carbide grade. Excellent grade for **Steels and General Use.**
VTX	TiAlN coated carbide grade. Ideal for **Stainless Steels.**

U Style

A Style

Mini-L Style

3/8" L Style

Vertical Style

V Style

TM Solid

Solid Carbide Thread Milling Tools

Vardex Ordering Code System

TM Solid Carbide

HC		19	141	L03	-	I	24	UNC	TM		VTH
1	2	3	4	5		6	7	8	9	10	11

1- Line
- **HC** - Helicool
- **HCR** - Helicool R
- **HCC** - Helicool C
- **H** - Helical
- **S** - Straight Flutes
- **D** - Deep Threading or MilliPro

2 - No. of Teeth
- **1T** - 1 Tooth
- **3T** - 3 Teeth (MilliPro)
- **2L** - 2 Teeth LH (MilliPro HD)

3 - Shank Dia.
- **12** - 1/8"
- **19** - 3/16"
- **25** - 1/4"
- **31** - 5/16"
- **37** - 3/8"
- **50** - 1/2"
- **63** - 5/8"
- **75** - 3/4"

4 - Cutting Dia.
- .028-.746

5 - Tool Cutting Length
- Up to 3Do

6 - Type of Tool
- **E** - External
- **I** - Internal
- **EI** - External + Internal

7 - Pitch

Full Profile - Pitch Range

mm	TPI
0.25-6.0	80 - 4.5

Partial Profile - Pitch Range

	mm	TPI
TA	0.5-0.8	32-56
TB	0.5-1.0	24-56
TC	1.0-1.50	16-24
TD	1.0-1.75	14-24
TF	0.5-1.25	20-48

8 - Standard
- **60** - Partial Profile 60°
- **ISO** - ISO Metric
- **UN** - American UN
- **UNC** - UN Coarse
- **UNF** - UN Fine
- **UNEF** - UN Extra Fine
- **UNJ** - UNJ
- **MJ** - MJ
- **BSW** - Whitworth Coarse
- **BSP** - BSP
- **BSF** - Whitworth Fine
- **BSPT** - BSPT
- **NPT** - NPT
- **ANPT** - ANPT
- **NPTF** - NPTF
- **NPS** - NPS
- **PG** - PG
- **TP60** - Taper 60^0
- **TP55** - Taper 55^0

9 - System
- **TM**
- **TML** - Extra Long

10 - No. of Flutes
- **3** - 3 Flutes
- **5** - 5 Flutes
- * For straight flutes only.

11 - Carbide Grade
- VTS
- VTH

HTC Thriller

HTC	M6	1.0	2D	VTN
1	2	3	4	5

1 - Line
- **HTC** - Thriller

2 - Thread Diameter
- M6 - M12

3 - Pitch
- 1 - 1.75mm

4 - Thread Length
- 2D
- 2.5D

5 - Carbide Grade
- VTN
- VTS

TM Solid Carbide Program

VARGUS GENius™ Tool Selector and CNC Program Generator

Miniature Threads
MilliPro

MilliPro &
MilliPro EL
From 1-72UNF (M1.6x0.35)

MilliPro HD
Up to 62 HRc

MilliPro Dental
From 0-80UNF (M1.0x0.25)

Long Thread
Deep Threading

Full Profile

Partial Profile

Up to 3XDo

Normal Use
Straight Flutes

Taper
For Bone Plate Applications
From Pitch 0.3-0.6mm

From No.8-36UNF (M4.5x0.75)

Heavy Duty
Helicool

From No.10-32UNF (M3x0.5)

Radial Coolant
Helicool-R (HCR)

From No.10-32UNF (M6x1.0)

Helicool and Chamfer
Helicool-C (HCC)

From No.10-32UNF (M6x1.0)

Economical Tool
He-Lex

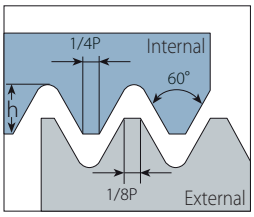
Taper
For Bone Plate Applications
From Pitch 0.3-0.6mm

From No.10-32UNF (M3x0.5)

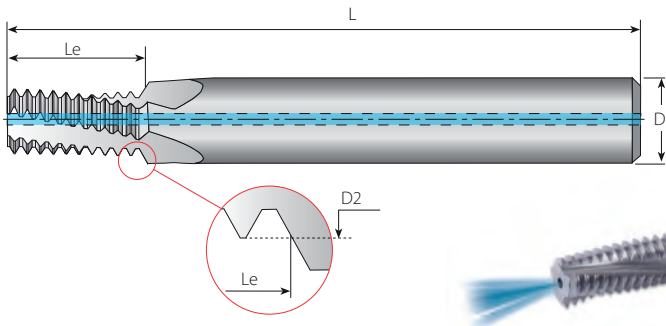
Drill, Thread and Chamfer
HTC

From M6x1.0

Internal



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



Helical Flutes with Thru-Hole Coolant

1.5 x Do (Le ≤ 1.5 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
M Coarse	M Fine	mm	Internal	VTH	D	D2	L	Le	Z	Zt	Inch
M3x0.5	M3.5-M16x0.5	0.5	HC19094L01-I0.50ISOTM...	80337	3/16	.094	1.772	.187	3	9	.098
M4x0.7		0.7	HC19124L02-I0.70ISOTM...	80355	3/16	.124	1.772	.262	3	9	.129
M5x0.8		0.8	HC19159L02-I0.80ISOTM...	80356	3/16	.159	2.244	.299	3	9	.165
M6X1.0	M8-M40x1.0	1.0	HC25189L03-I1.00ISOTM...	80343	1/4	.189	2.244	.374	3	9	.197
M8x1.25		1.25	HC31256L05-I1.25ISOTM...	80357	5/16	.256	2.402	.524	3	10	.268
M10x1.5	M12-M48x1.5	1.5	HC37323L06-I1.50ISOTM...	80346	3/8	.323	2.874	.620	3	10	.335
M12x1.75		1.75	HC37370L07-I1.75ISOTM...	80358	3/8	.370	2.874	.724	4	10	.405
M14x2.0	M17-M80x2.0	2.0	HC50457L08-I2.00ISOTM...	80351	1/2	.457	2.874	.827	4	10	.472
M16x2.0	M17-M80x2.0	2.0	HC63535L09-I2.00ISOTM...	80353	5/8	.535	3.622	.984	4	12	.551

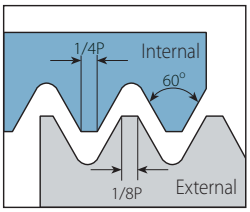
Helical Flutes with Thru-Hole Coolant

2 x Do (Le ≤ 2 x Thread Diameter)

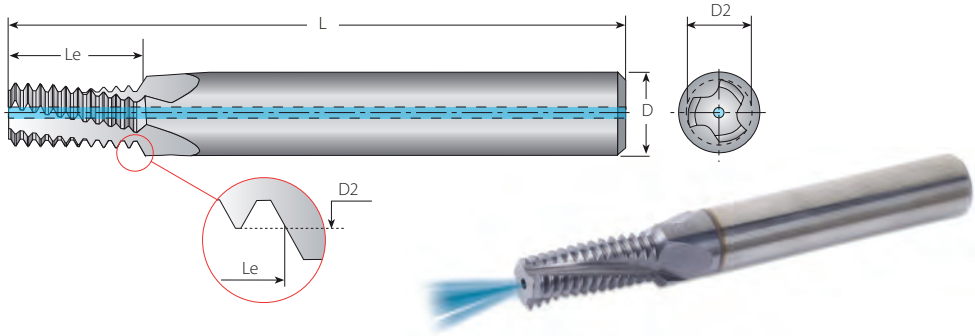
Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
M Coarse	M Fine	mm	Internal	VTH	D	D2	L	Le	Z	Zt	Inch
M3x0.5	M3.5-M16x0.5	0.5	HC19094L02-I0.50ISOTM...	80336	3/16	.094	1.772	.246	3	12	.098
	M4x0.5	0.5	HC19126L03-I0.50ISOTM...	80338	3/16	.126	1.772	.325	3	16	.138
	M5x0.5	0.5	HC25165L04-I0.50ISOTM...	80339	1/4	.165	2.244	.404	3	20	.177
M4x0.7		0.7	HC19124L03-I0.70ISOTM...	80284	3/16	.124	1.772	.344	3	12	.129
	M6x0.75	0.75	HC25197L04-I0.75ISOTM...	80340	1/4	.197	2.244	.487	3	16	.209
M5x0.8		0.8	HC19159L04-I0.80ISOTM...	80341	3/16	.159	2.244	.425	3	13	.165
M6x1.0	M8-M40x1.0	1.0	HC25189L04-I1.00ISOTM...	80342	1/4	.189	2.244	.492	3	12	.197
	M8x1.0	1.0	HC31264L06-I1.00ISOTM...	80344	5/16	.264	2.402	.650	3	16	.276
	M10x1.0	1.0	HC37343L08-I1.00ISOTM...	80285	3/8	.343	2.874	.807	3	20	.354
	M12x1.0	1.0	HC50421L09-I1.00ISOTM...	80286	1/2	.421	2.874	.965	4	24	.433
M8x1.25		1.25	HC31256L06-I1.25ISOTM...	80287	5/16	.256	2.402	.664	3	13	.268
	M10x1.25	1.25	HC37335L08-I1.25ISOTM...	80345	3/8	.335	2.874	.812	3	16	.346
M10x1.5	M12-M48x1.5	1.5	HC37323L07-I1.50ISOTM...	80288	3/8	.323	2.874	.797	3	13	.335
	M12x1.5	1.5	HC37370L09-I1.50ISOTM...	80347	3/8	.370	2.874	.974	4	16	.413
	M14x1.5	1.5	HC50469L11-I1.50ISOTM...	80348	1/2	.469	3.150	1.152	4	19	.492
	M16x1.5	1.5	HC63547L12-I1.50ISOTM...	80349	5/8	.547	3.150	1.270	4	21	.571
M12x1.75		1.75	HC37370L09-I1.75ISOTM...	80350	3/8	.370	2.874	.999	4	14	.405
M14x2.0	M17-M80x2.0	2.0	HC50457L11-I2.00ISOTM...	80289	1/2	.457	3.150	1.142	4	14	.472
M16x2.0	M17-M80x2.0	2.0	HC63535L12-I2.00ISOTM...	80352	5/8	.535	3.622	1.299	4	16	.551
M18x2.5		2.5	HC63583L14-I2.50ISOTM...	80354	5/8	.583	3.622	1.427	4	14	.598
M20x2.5		2.5	HC75673L16-I2.50ISOTM...	80290	3/4	.673	4.016	1.624	4	16	.687
M24x3.0		3.0	HC75746L19-I3.00ISOTM...	80359	3/4	.746	4.016	1.949	4	16	.827

*Bore diameter applies to smallest thread dia.

Internal



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



Helical Flutes with Thru-Hole Coolant

1.5 x Do (Le ≤ 1.5 x Thread Diameter)

Thread			Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNC	UNF	UNEF	TPI	Internal	VTH	D	D2	L	Le	Z	Zt	Inch
No.10-24	5/16"; 3/8"x24	9/16"-11/16"x24	24	HC19141L03-I24UNCTM...	80360	3/16	.141	1.772	.312	3	7	.150
No.12-24	5/16"; 3/8"x24	9/16"-11/16"x24	24	HC25163L03-I24UNCTM...	80361	1/4	.163	2.244	.354	3	8	.177
1/4"x20	7/16"; 1/2"x20	3/4"-1"x20	20	HC25192L03-I20UNCTM...	80362	1/4	.192	2.244	.375	3	7	.201
5/16"x18	9/16"; 5/8"x18	11/16"-1 11/16"x18	18	HC31242L04-I18UNCTM...	80363	5/16	.242	2.402	.472	3	8	.260
3/8"x16	3/4"x16		16	HC31301L05-I16UNCTM...	80364	5/16	.301	2.402	.594	3	9	.315
7/16"x14	7/8"x14		14	HC37354L06-I14UNCTM...	80365	3/8	.354	2.874	.678	3	9	.370
1/2"x13			13	HC50407L08-I13UNCTM...	80366	1/2	.407	3.150	.808	4	10	.429
9/16"x12	1"-1 1/2"x12		12	HC50465L08-I12UNCTM...	80367	1/2	.465	3.150	.875	4	10	.484

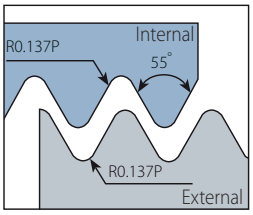
Helical Flutes with Thru-Hole Coolant

2 x Do (Le ≤ 2 x Thread Diameter)

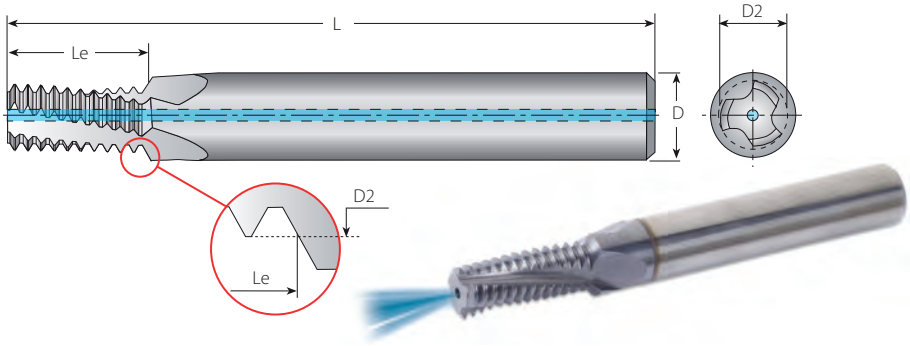
Thread			Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNC	UNF	UNEF	TPI	Internal	VTH	D	D2	L	Le	Z	Zt	Inch
	No.10-32	No.12-3/8"x32	32	HC19150L03-I32UNFTM...	80291	3/16	.150	1.772	.391	3	12	.157
		No.12-3/8"x32	32	HC25173L04-I32UNEFTM...	80292	1/4	.173	2.244	.453	3	14	.185
	No.12; 1/4"x28	7/16"; 1/2"x28	28	HC25169L04-I28UNFTM...	80293	1/4	.169	2.244	.446	3	12	.181
	1/4"x28	7/16"; 1/2"x28	28	HC25203L05-I28UNFTM...	80294	1/4	.203	2.244	.518	3	14	.216
		7/16"; 1/2"x28	28	HC37371L08-I28UNEFTM...	80295	3/8	.371	2.874	.875	3	24	.401
No.10-24	5/16"; 3/8"x24	9/16"-11/16"x24	24	HC19141L04-I24UNCTM...	80296	3/16	.141	1.772	.396	3	9	.150
No.12-24	5/16"; 3/8"x24	9/16"-11/16"x24	24	HC25163L04-I24UNCTM...	80297	1/4	.163	2.244	.437	3	10	.177
	5/16"; 3/8"x24	9/16"-11/16"x24	24	HC31263L06-I24UNFTM...	80298	5/16	.263	2.402	.646	3	15	.272
	3/8"x24	9/16"-11/16"x24	24	HC37323L07-I24UNFTM...	80299	3/8	.323	2.874	.771	3	18	.335
		9/16"-11/16"x24	24	HC50496L11-I24UNEFTM...	80300	1/2	.496	3.150	1.145	4	27	.520
1/4"x20	7/16"; 1/2"x20	3/4"-1"x20	20	HC25192L05-I20UNCTM...	80301	1/4	.192	2.244	.525	3	10	.201
	7/16"; 1/2"x20	3/4"-1"x20	20	HC37362L08-I20UNFTM...	80302	3/8	.362	2.874	.875	3	17	.390
	1/2"x20	3/4"-1"x20	20	HC50437L10-I20UNFTM...	80303	1/2	.437	3.150	1.025	4	20	.453
		3/4"-1"x20	20	HC75685L15-I20UNEFTM...	80304	3/4	.685	4.016	1.525	4	30	.701
5/16"x18	9/16"; 5/8"x18	11/16"-1 11/16"x18	18	HC31242L06-I18UNCTM...	80305	5/16	.242	2.402	.639	3	11	.260
	9/16"; 5/8"x18	11/16"-1 11/16"x18	18	HC50492L11-I18UNFTM...	80306	1/2	.492	3.150	1.139	4	20	.512
	5/8"x18	11/16"-1 11/16"x18	18	HC63555L12-I18UNFTM...	80307	5/8	.555	3.622	1.250	4	22	.575
3/8"x16	3/4"x16		16	HC31301L07-I16UNCTM...	80308	5/16	.301	2.402	.781	3	12	.315
	3/4"x16		16	HC75669L15-I16UNFTM...	80309	3/4	.669	4.016	1.528	4	24	.689
7/16"x14	7/8"x14		14	HC37354L08-I14UNCTM...	80310	3/8	.354	2.874	.893	3	12	.370
	7/8"x14		14	HC75746L17-I14UNFTM...	80311	3/4	.746	4.016	1.750	4	24	.807
1/2"x13			13	HC50407L10-I13UNCTM...	80312	1/2	.407	3.150	1.039	4	13	.430
9/16"x12	1"-1 1/2"x12		12	HC50465L11-I12UNCTM...	80313	1/2	.465	3.150	1.125	4	13	.484
	1"-1 1/2"x12		12	HC75746L20-I12UNFTM...	80314	3/4	.746	4.016	2.042	4	24	.925
5/8"x11			11	HC63516L13-I11UNCTM...	80315	5/8	.516	3.622	1.318	4	14	.539
3/4"x10			10	HC63622L15-I10UNCTM...	80316	5/8	.622	3.622	1.550	4	15	.657
7/8"x9			9	HC75746L18-I9UNCTM...	80317	3/4	.746	4.016	1.833	4	16	.768
1"x8			8	HC75746L20-I8UNCTM...	80318	3/4	.746	4.016	2.063	4	16	.866

* Bore diameter applies to smallest thread dia.

External / Internal



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



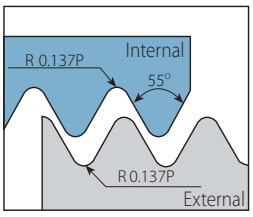
Helical Flutes with Thru-Hole Coolant

2 x Do (Le ≤ 2 x Thread Diameter)

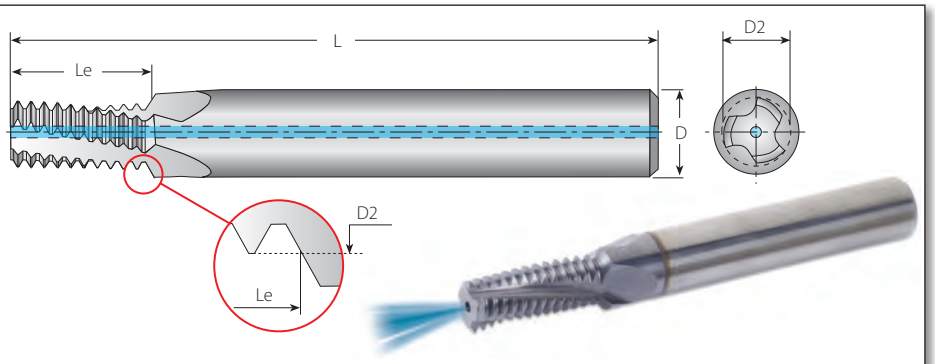
Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
BSW	BSF	TPI	External / Internal	VTH	D	D2	L	Le	Z	Zt	Inch
	1/4"x26	26	HC25197L05-EI26BSFTM...	80368	1/4	.197	2.244	.519	3	13	.209
	5/16"x22	22	HC31250L06-EI22BSFTM...	80369	5/16	.250	2.402	.659	3	14	.264
1/4"x20	3/8"x20	20	HC25175L05-EI20BSWTM...	80370	1/4	.175	2.244	.525	3	10	.197
	3/8"x20	20	HC31301L07-EI20BSFTM...	80371	5/16	.301	2.402	.775	3	15	.323
5/16"x18	7/16"x18	18	HC25230L06-EI18BSWTM...	80372	1/4	.230	2.244	.639	3	11	.256
	7/16"x18	18	HC37362L09-EI18BSFTM...	80373	3/8	.362	2.874	.917	3	16	.382
3/8"x16	1/2", 9/16"x16	16	HC31283L07-EI16BSWTM...	80374	5/16	.283	2.402	.781	3	12	.311
	1/2", 9/16"x16	16	HC50413L10-EI16BSFTM...	80375	1/2	.413	2.874	1.031	4	16	.437
	9/16"x16	16	HC50478L11-EI16BSFTM...	80376	1/2	.478	3.150	1.156	4	18	.496
7/16"x14	5/8", 11/16"x14	14	HC37335L08-EI14BSWTM...	80377	3/8	.335	2.874	.893	3	12	.362
	5/8", 11/16"x14	14	HC63528L12-EI14BSFTM...	80378	5/8	.528	3.150	1.250	4	17	.551
	11/16"x14	14	HC63591L13-EI14BSFTM...	80379	5/8	.591	3.622	1.393	4	19	.614
1/2"x12	3/4"x12	12	HC37362L10-EI12BSWTM...	80380	3/8	.362	2.874	1.042	3	12	.413
9/16"x12	3/4"x12	12	HC50444L11-EI12BSWTM...	80381	1/2	.444	3.150	1.125	4	13	.476
	3/4"x12	12	HC63622L15-EI12BSFTM...	80382	5/8	.622	3.622	1.542	4	18	.661
5/8"x11	7/8"x11	11	HC50496L13-EI11BSWTM...	80383	1/2	.496	3.150	1.318	4	14	.528
11/16"x11		11	HC63559L14-EI11BSWTM...	80384	5/8	.559	3.622	1.409	4	15	.591

* Bore diameter applies to smallest thread dia.

External / Internal



Defined by: B.S.2779:1956
Tolerance class: Medium class



Helical Flutes with Thru-Hole Coolant

1.5 x Do (Le ≤ 1.5 x Thread Diameter)

Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
Standard	TPI	External / Internal	VTH	D	D2	L	Le	Z	Zt	Inch
1/16", 1/8"x28	28	HC31252L04-EI28BSPTM...	80386	5/16	.252	2.402	.480	3	13	.264
1/8"x28	28	HC37323L05-EI28BSPTM...	80388	3/8	.323	2.874	.591	3	16	.324
1/4", 3/8"x19	19	HC50433L08-EI19BSPTM...	80389	1/2	.433	2.874	.815	4	15	.465
3/8"x19	19	HC63571L10-EI19BSPTM...	80391	5/8	.571	3.622	1.028	4	19	.602
1"-4"x11	11	HC75746L16-EI11BSPTM...	80393	3/4	.746	4.016	1.681	4	18	1.208

Helical Flutes with Thru-Hole Coolant

2 x Do (Le ≤ 2 x Thread Diameter)

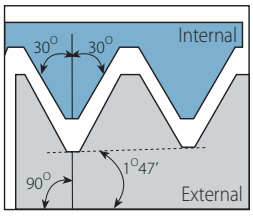
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
Standard	TPI	External / Internal	VTH	D	D2	L	Le	Z	Zt	Inch
1/16", 1/8"x28	28	HC31252L06-EI28BSPTM...	80385	5/16	.252	2.402	.625	3	17	.264
1/8"x28	28	HC37323L07-EI28BSPTM...	80387	3/8	.323	2.874	.768	3	21	.324
1/4", 3/8"x19	19	HC50433L10-EI19BSPTM...	80319	1/2	.433	3.150	1.079	4	20	.465
3/8"x19	19	HC63571L13-EI19BSPTM...	80390	5/8	.571	3.622	1.342	4	25	.602
1/2"-7/8"x14	14	HC75705L16-EI14BSPTM...	80392	3/4	.705	4.016	1.678	4	23	.752

* Bore diameter applies to smallest thread dia.

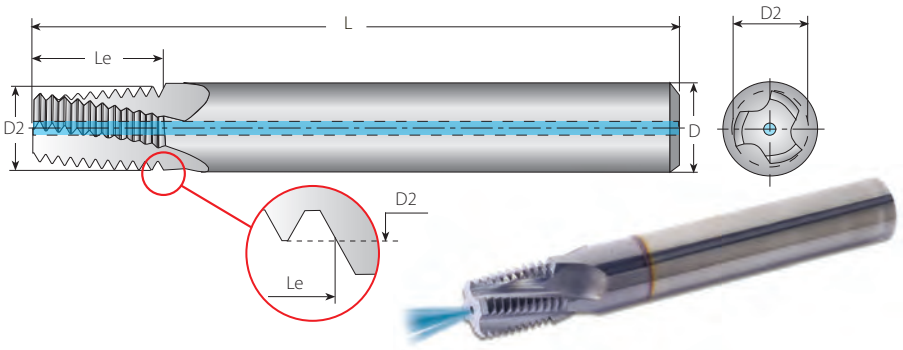
NPT

Helicool

External / Internal



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



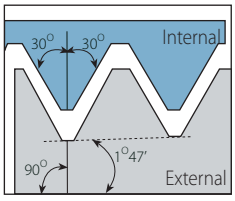
Helical Flutes with Thru-Hole Coolant

Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
Standard	TPI	External / Internal	VTH	D	D2	L	Le	Z	Zt	Inch
1/16"x27	27	HC25232L03-EI27NPT-TM...	80321	1/4	.232	2.244	.389	3	10	.244
1/8"x27	27	HC31301L03-EI27NPT-TM...	80322	5/16	.301	2.402	.389	3	10	.330
1/4"x18	18	HC37370L05-EI18NPT-TM...	80323	3/8	.370	2.874	.583	3	10	.437
3/8"x18	18	HC50439L05-EI18NPT-TM...	80324	1/2	.439	2.874	.583	4	10	.562
1/2", 3/4"x14	14	HC63561L07-EI14NPT-TM...	80325	5/8	.561	3.150	.750	4	10	.704, .905
1", 1 1/4", 1 1/2", 2"x11.5	11.5	HC75746L09-EI11.5NPT-TM...	80326	3/4	.746	4.016	.913	4	10	1.411, 1.484, 1.732, 2.204
2 1/2", 3"x8	8	HC75746L13-EI8NPT-TM...	80327	3/4	.746	4.016	1.313	4	10	2.625, 3.232

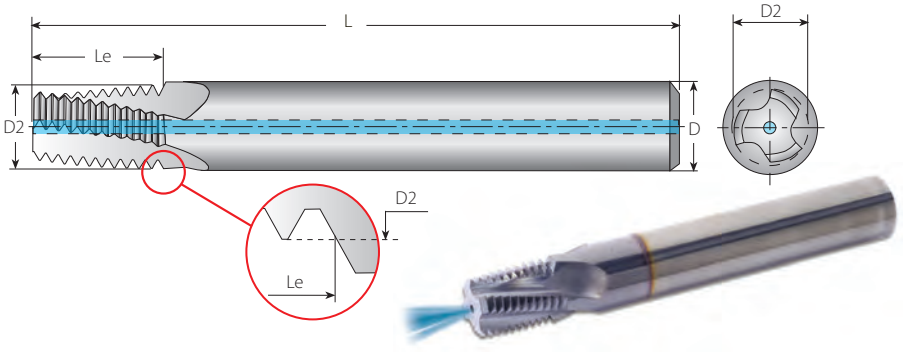
ANPT

Helicool

External / Internal



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



Helical Flutes with Thru-Hole Coolant

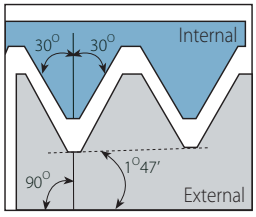
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
Standard	TPI	External / Internal	VTH	D	D2	L	Le	Z	Zt	Inch
1/4"x18	18	HC37370L05-EI18ANPT-TM...	81054	3/8	.370	2.874	.583	3	10	.437
1/2", 3/4"x14	14	HC63561L07-EI14ANPT-TM...	81055	5/8	.561	3.150	.750	4	10	.704, .905

* Bore diameter applies to smallest thread dia.

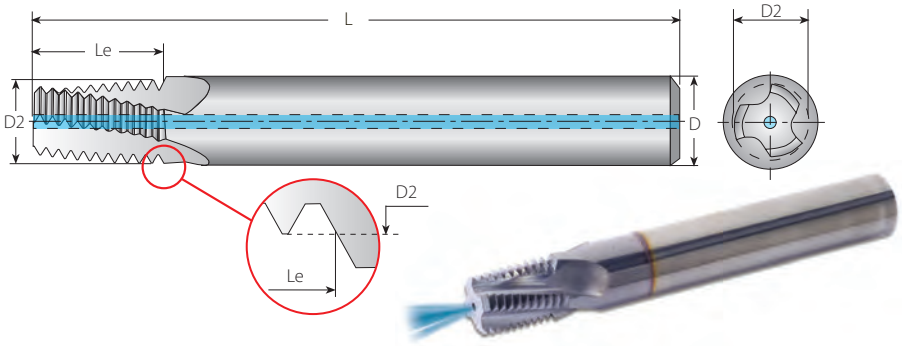
NPTF

Helicool

External / Internal



Defined by: ANSI 1.20.3-1976
Tolerance class: Standard NPTF



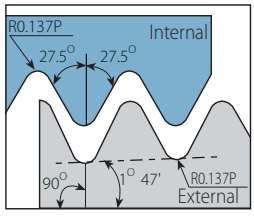
Helical Flutes with Thru-Hole Coolant

Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
Standard	TPI	External / Internal	VTH	D	D2	L	Le	Z	Zt	Inch
1/16″x27	27	HC25232L03-EI27NPTFTM...	80328	1/4	.232	2.244	.389	3	10	.240
1/8″x27	27	HC31301L03-EI27NPTFTM...	80329	5/16	.301	2.402	.389	3	10	.330
1/4″x18	18	HC37370L05-EI18NPTFTM...	80330	3/8	.370	2.874	.583	3	10	.437
3/8″x18	18	HC50439L05-EI18NPTFTM...	80331	1/2	.439	2.874	.583	4	10	.562
1/2″, 3/4″x14	14	HC63561L07-EI14NPTFTM...	80332	5/8	.561	3.150	.750	4	10	.704, .905
1″, 1 1/4″, 1 1/2″, 2″x11.5	11.5	HC75746L09-EI11.5NPTFTM...	80333	3/4	.746	4.016	.913	4	10	1.411, 1.484, 1.720, 2.188
2 1/2″x8; 3″x8	8	HC75746L13-EI8NPTFTM...	80334	3/4	.746	4.016	1.313	4	10	2.610, 3.232

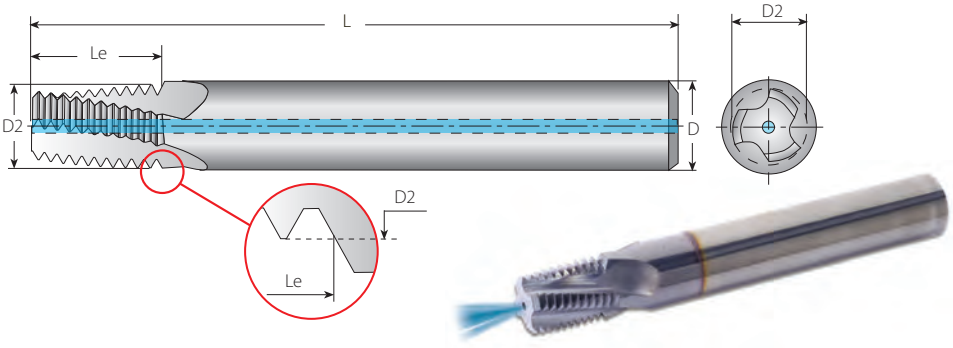
BSPT

Helicool

External / Internal



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

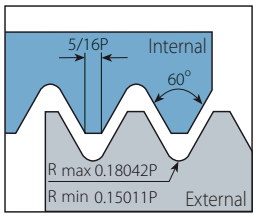


Helical Flutes with Thru-Hole Coolant

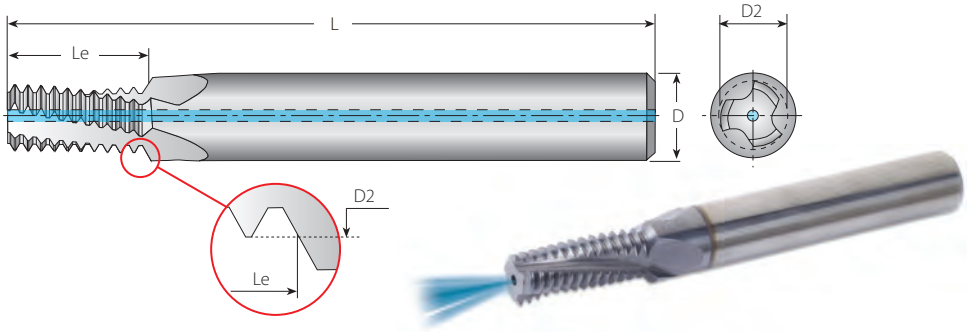
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
Standard	TPI	External / Internal	VTH	D	D2	L	Le	Z	Zt	Inch
1/16"x28	28	HC25232L03-EI28BSPT-TM...	80394	1/4	.232	2.402	.401	3	11	.264
1/8"x28	28	HC31301L03-EI28BSPT-TM...	80320	5/16	.301	2.402	.401	3	11	.342
1/4"x19	19	HC50400L05-EI19BSPT-TM...	80395	1/2	.400	2.874	.605	3	11	.464
3/8"x19	19	HC50439L05-EI19BSPT-TM...	80396	1/2	.439	2.874	.605	4	11	.598
1/2, 3/4"x14	14	HC63561L08-EI14BSPT-TM...	80397	5/8	.561	3.150	.893	4	12	.748
1", 1 1/2", 2", 2 1/2"x11	11	HC75746L10-EI11BSPT-TM...	80398	3/4	.746	4.016	1.136	4	12	1.209

* Bore diameter applies to smallest thread dia.

Internal



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



Helical Flutes with Thru-Hole Coolant

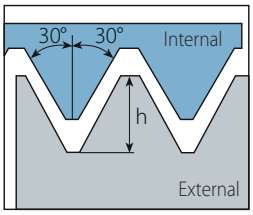
2 x Do (Le ≤ 2 x Thread Diameter)

Thread				Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNJC	UNJF	UNJEF	UNJ	TPI	Internal	VTH	D	D2	L	Le	Z	Zt	mm
0.138″(#6)	0.190″(#10)	0.216″(#12)	0.4375(7/16″)	32	HC19106L02-I32UNJTM…	80106	3/16	.106	1.772	.297	3	9	.110
-	0.250″(1/4″)	0.4375″(7/16″)	0.5625″(9/16″)	28	HC25213L05-I28UNJTM…	81110	1/4	.213	2.244	.518	3	14	.220
0.190″(#10)	0.3125″(5/16″)	0.5625″(9/16″)	-	24	HC19146L03-I24UNJTM…	80108	3/16	.146	1.772	.396	3	9	.157
-	0.3125″(5/16″)	0.5625″(9/16″)	-	24	HC31264L06-I24UNJTM…	80109	5/16	.264	2.402	.646	3	15	.276
0.250″(1/4″)	0.4375″(7/16″)	0.750″(3/4″)	0.3125″(5/16″)	20	HC25197L05-I20UNJTM…	80110	1/4	.197	2.244	.525	3	10	.209
-	0.4375″(7/16″)	0.750″(3/4″)	0.5625″(9/16″)	20	HC37371L08-I20UNJTM…	80111	3/8	.371	2.874	.875	4	17	.394
0.3125″(5/16″)	0.5625″(9/16″)	1.0625″(1 1/16″)	-	18	HC31252L06-I18UNJTM…	80112	5/16	.252	2.402	.639	3	11	.266
0.375″(3/8″)	0.750″(3/4″)	-	0.4375″(7/16″)	16	HC31303L07-I16UNJTM…	80113	5/16	.303	2.402	.781	3	12	.319
0.4375″(7/16″)	0.875″(7/8″)	-	-	14	HC37362L08-I14UNJTM…	80114	3/8	.362	2.874	.893	4	12	.374
0.500″(1/2″)	-	-	-	13	HC37371L10-I13UNJTM…	80115	3/8	.371	2.874	1.039	4	13	.433

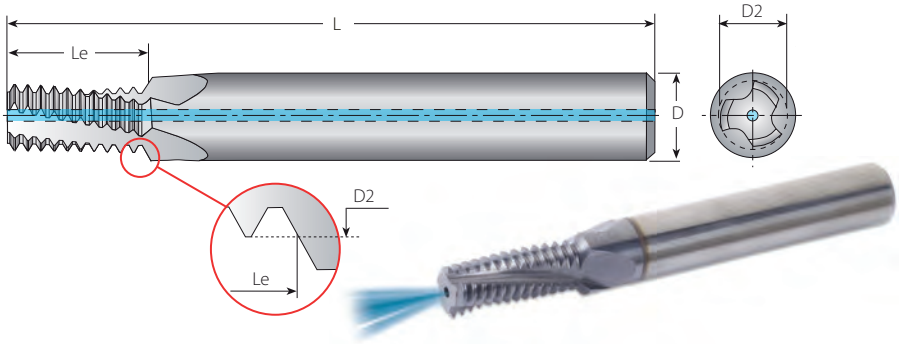
TM Solid

* Bore diameter applies to smallest thread dia.

External / Internal



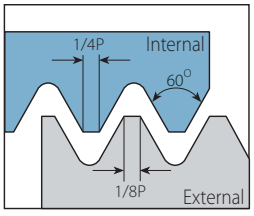
Defined by: USA NBS H28 (1957)
Tolerance class: Standard NPS



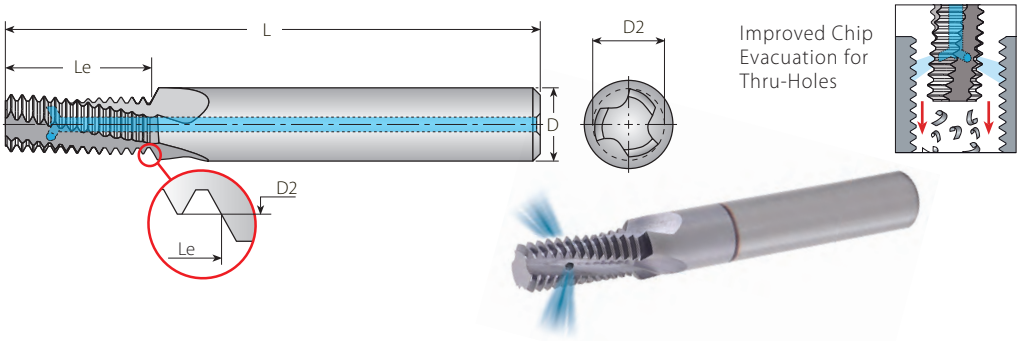
Helical Flutes with Thru-Hole Coolant

Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
Standard	TPI	External / Internal	VTH	D	D2	L	Le	Z	Zt	Inch
1/8"	27	HC31301L03-EI27NPSTM…	80116	5/16	.301	2.402	.389	3	10	.330
1/4"	18	HC37370L05-EI18NPSTM…	80117	3/8	.370	2.874	.583	3	10	.437
3/8"	18	HC50439L05-EI18NPSTM…	80118	1/2	.439	2.874	.583	4	10	.562
1/2", 3/4"	14	HC63561L07-EI14NPSTM…	80119	5/8	.561	3.150	.750	4	10	.704, .905
1", 2"	11.5	HC75746L08-EI11.5NPSTM…	80120	3/4	.746	4.016	.913	4	10	1.411, 2.204

Internal



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



HeliCool-R (HCR)

Helical Flutes with Radial Cooling

2 x Do (Le ≤ 2 x Thread Diameter)

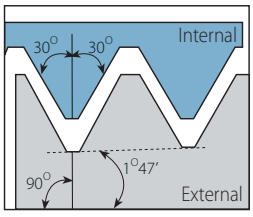
Thread			Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNC	UNF	UNEF	TPI	Internal	VTH	D	D2	L	Le	Z	Zt	Inch
	No.10-32	No.12-3/8"x32	32	HCR19150L03-I32UNFTM...	80458	3/16	.150	1.772	.391	3	12	.157
	1/4"x28	7/16", 1/2"x28	28	HCR25203L05-I28UNFTM...	80459	1/4	.203	2.244	.518	3	14	.216
No.10-24	5/16", 3/8"x24	9/16"-11/16"x24	24	HCR19141L04-I24UNCTM...	80460	3/16	.141	1.772	.396	3	9	.150
No.12-24	5/16", 3/8"x24	9/16"-11/16"x24	24	HCR19163L04-I24UNCTM...	80461	3/16	.163	1.772	.437	3	10	.177
	5/16", 3/8"x24	9/16"-11/16"x24	24	HCR31263L06-I24UNFTM...	80462	5/16	.263	2.402	.646	3	15	.272
	3/8"x24	9/16"-11/16"x24	24	HCR37323L07-I24UNFTM...	80463	3/8	.323	2.874	.771	3	18	.335
1/4"x20	7/16", 1/2"x20	3/4"-1"x20	20	HCR25192L05-I20UNCTM...	80464	1/4	.192	2.244	.525	3	10	.201
	1/2"x20	3/4"-1"x20	20	HCR50437L10-I20UNFTM...	80465	1/2	.437	3.150	1.025	4	20	.453
5/16"x18	9/16", 5/8"x18	11/16"-1 11/16"x18	18	HCR31242L06-I18UNCTM...	80466	5/16	.242	2.402	.639	3	11	.260
3/8"x16	3/4"x16		16	HCR31301L07-I16UNCTM...	80467	5/16	.301	2.402	.781	3	12	.315
7/16"x14	7/8"x14		14	HCR37354L08-I14UNCTM...	80468	3/8	.354	2.874	.893	3	12	.370
1/2"x13			13	HCR50407L10-I13UNCTM...	80469	1/2	.407	3.150	1.039	4	13	.430
9/16"x12	1"-1 1/2"x12		12	HCR50465L11-I12UNCTM...	80470	1/2	.465	3.150	1.125	4	13	.484

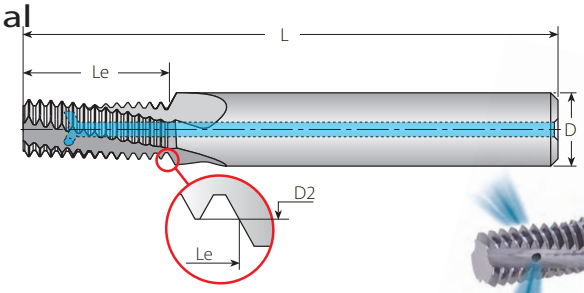
* Bore diameter applies to smallest thread dia.

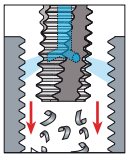
NPT

Helicool-R (HCR)

External / Internal







Improved Chip Evacuation for Thru-Holes

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

Helicool-R (HCR)

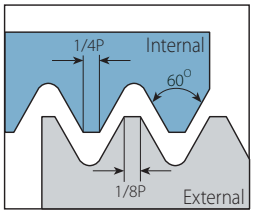
Helical Flutes with Radial Cooling

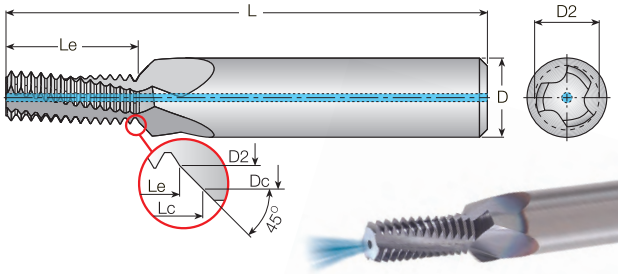
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				Flutes	Teeth	Bore Dia.*
Standard	TPI	Internal	VTH	D	D2	L	Le	Z	Zt	Inch
1/16"x27	27	HCR25232L03-EI27NPT-TM...	80573	1/4	.232	2.244	.389	3	10	.244
1/8"x27	27	HCR31301L03-EI27NPT-TM...	80574	5/16	.301	2.402	.389	3	10	.330
1/4"x18	18	HCR37370L05-EI18NPT-TM...	80575	3/8	.370	2.874	.583	3	10	.437
3/8"x18	18	HCR50439L05-EI18NPT-TM...	80576	1/2	.439	2.874	.583	4	10	.562
1/2", 3/4"x14	14	HCR63561L07-EI14NPT-TM...	80577	5/8	.561	3.150	.750	4	10	.704, .905
1", 1 1/4", 1 1/2", 2"x11.5	11.5	HCR75746L09-EI11.5NPT-TM...	80578	3/4	.746	4.016	.913	4	10	1.411, 1.484, 1.732, 2.204
2 1/2", 3"x8	8	HCR75746L13-EI8NPT-TM...	80579	3/4	.746	4.016	1.313	4	10	2.625, 3.232

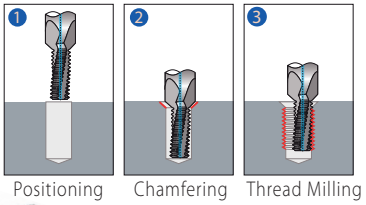
American UN

Helicool-C (HCC)

Internal







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

Dc = Minimum recommended chamfer diameter

Helicool-C (HCC)

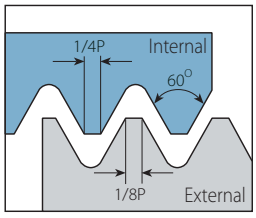
Helical Flutes with Axial Coolant - Thru & Chamfer

2 x Do (Le ≤ 2 x Thread Diameter)

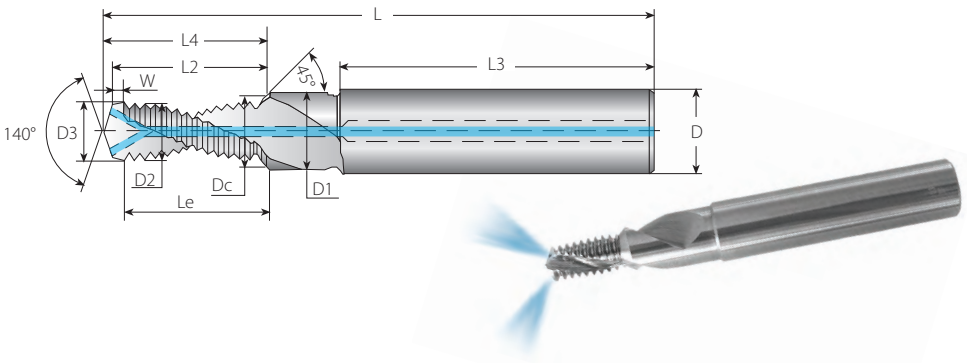
Thread			Pitch	Ordering Code	EDP No.	Dimensions Inch						No. of Flutes	Teeth	Bore Dia.*
UNC	UNF	UNEF	TPI	Internal	VTH	D	D2	Dc	L	Le	Lc	Z	Zt	inch
	No.10-32	No.12-3/8"x32	32	HCC25150L03-I32UNFTM...	80449	1/4	.150	.202	2.244	.391	.417	3	12	.157
	1/4"x28	7/16", 1/2"x28	28	HCC31203L05-I28UNFTM...	80450	5/16	.203	.262	2.402	.518	.549	3	14	.216
No.10-24	5/16", 3/8"x24	9/16"-11/16"x24	24	HCC25141L04-I24UNCTM...	80451	1/4	.141	.202	2.244	.396	.425	3	9	.150
No.12-24	5/16", 3/8"x24	9/16"-11/16"x24	24	HCC25163L04-I24UNCTM...	80452	1/4	.163	.228	2.244	.437	.468	3	10	.177
	5/16", 3/8"x24	9/16"-11/16"x24	24	HCC37263L06-I24UNFTM...	80453	3/8	.263	.324	2.874	.646	.678	3	15	.272
	3/8"x24	9/16"-11/16"x24	24	HCC50323L07-I24UNFTM...	80454	1/2	.323	.387	3.150	.771	.804	3	18	.335
1/4"x20	7/16", 1/2"x20	3/4"-1"x20	20	HCC31192L05-I20UNCTM...	80455	5/16	.192	.262	2.402	.525	.558	3	10	.201
	1/2"x20	3/4"-1"x20	20	HCC63437L10-I20UNFTM...	80456	5/8	.437	.512	3.622	1.025	1.065	3	20	.453
5/16"x18	9/16", 5/8"x18	11/16"-1 11/16"x18	18	HCC37242L16-I18UNCTM...	80457	3/8	.242	.324	2.874	.639	.676	3	11	.260
3/8"x16	3/4"x16		16	HCC50301L07-I16UNCTM...	80528	1/2	.301	.387	3.150	.781	.814	3	12	.315
7/16"x14	7/8"x14		14	HCC50354L08-I14UNCTM...	80529	1/2	.354	.449	3.150	.893	.937	3	12	.370
1/2"x13			13	HCC63407L10-I13UNCTM...	80530	5/8	.407	.512	3.622	1.039	1.087	4	13	.430
9/16"x12	1"-1 1/2"x12		12	HCC63465L11-I12UNCTM...	80531	5/8	.465	.574	3.622	1.125	1.178	4	13	.484

* Bore diameter applies to smallest thread dia.

Internal



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

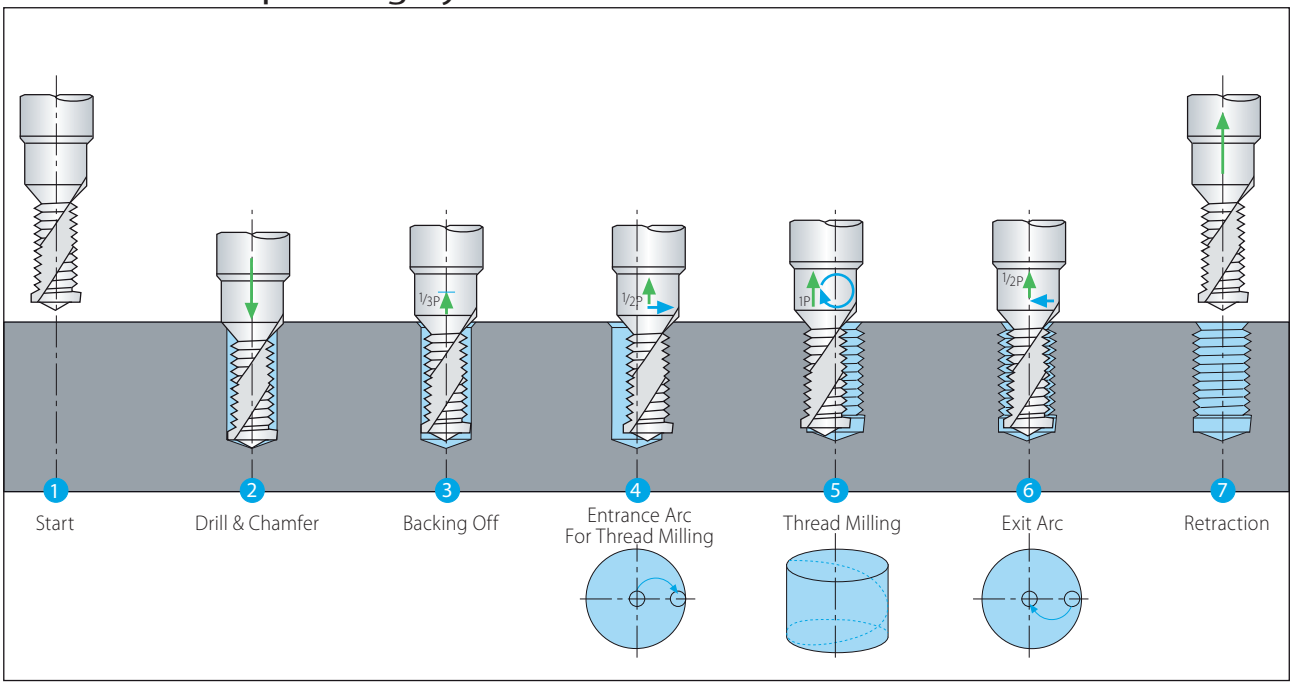


HTC (Thriller)

Drill, Chamfer & Thread with Coolant-Thru

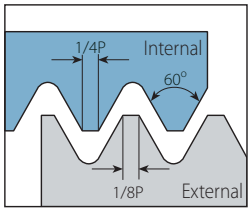
Thread	Ordering Code	EDP No.		Pitch	Dimensions Inch											No. of Flutes	Teeth
ISO 2xDo Coarse	Internal	VTS	VTN	mm	L	L4	L2	L3	W	Le	D3	D(mm)	D1	Dc	D2	Z	Zt
M6x1.0	HTCM6x1.0x2D...	80687	80680	1.00	2.441	.571	.539	1.417	.039	.500	.197	8	.260	.248	.191	2	11
M8x1.25	HTCM8x1.25x2D...	80688	80681	1.25	2.913	.717	.673	1.575	.051	.622	.268	10	.354	.327	.254	2	11
M10x1.5	HTCM10x1.5x2D...	80689	80682	1.50	3.110	.921	.870	1.772	.059	.811	.335	12	.433	.406	.318	2	12
M12x1.75	HTCM12x1.75x2D...	80690	80683	1.75	3.504	1.067	1.004	1.772	.059	.945	.406	14	.531	.484	.383	2	12
ISO 2.5xDo Coarse																	
M6x1.0	HTCM6x1.0x2.5D...	80691	80684	1.00	2.441	.650	.618	1.417	.039	.579	.197	8	.260	.248	.191	2	13
M8x1.25	HTCM8x1.25x2.5D...	80692	80685	1.25	2.913	.913	.870	1.575	.051	.819	.268	10	.354	.327	.254	2	15
M10x1.5	HTCM10x1.5x2.5D...	80693	80686	1.50	3.110	1.098	1.047	1.772	.059	.988	.335	12	.433	.406	.318	2	15

HTC - Thriller Operating Cycle



HTC line is suitable for Aluminium and Cast Iron machining only.

External / Internal



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

Helical Flutes - External (D-mm shank)

2 x Do (Le ≤ 2 x Thread Diameter)

Thread	Pitch	Ordering Code	EDP No.		Dimensions Inch			No. of Flutes	Teeth
M Coarse	mm	External	VTH	D(mm)	D2	L	Le	Z	Zt
M3x0.5	0.5	H04039L06-E0.5ISOTM...	80891	4	.154	1.772	.236	3	12
M4.5x0.75	0.75	H04039L09-E0.75ISOTM...	80892	4	.154	1.772	.354	3	12
M6x1.0	1.0	H04039L12-E1.0ISOTM...	80893	4	.154	1.772	.472	3	12
M8x1.25	1.25	H06059L16-E1.25ISOTM...	80894	6	.232	2.244	.640	3	13
M10x1.5	1.5	H08079L21-E1.5ISOTM...	80895	8	.311	2.480	.827	3	14
M14x2.0	2.0	H10099L28-E2.0ISOTM...	80896	10	.390	2.874	1.102	4	14

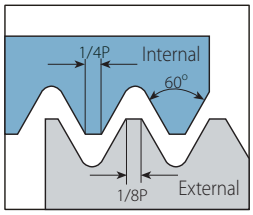
Helical Flutes - Internal (D-mm shank)

2 x Do (Le ≤ 2 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.		Dimensions Inch			No. of Flutes	Teeth	Bore Dia.*
M Coarse	M Fine	mm	Internal	VTH	D(mm)	D2	L	Le	Z	Zt	Inch
M3x0.5	M3.5-M16x0.5	0.5	H04022L06-I0.5ISOTM...	80897	4	.087	1.772	.236	3	12	.098
	M4x0.5	0.5	H04030L08-I0.5ISOTM...	80898	4	.118	1.772	.315	3	16	.138
	M5x0.5	0.5	H04039L10-I0.5ISOTM...	80899	4	.154	1.772	.394	3	20	.177
M4x0.7		0.7	H04028L08-I0.7ISOTM...	80900	4	.110	1.772	.331	3	12	.130
	M6x0.75	0.75	H04039L12-I0.75ISOTM...	80901	4	.154	1.772	.472	3	16	.209
M5x0.8		0.8	H04035L10-I0.8ISOTM...	80902	4	.138	1.772	.409	3	13	.165
M6x1.0	M8-M40x1.0	1.0	H04039L12-I1.0ISOTM...	80903	4	.154	1.772	.472	3	12	.197
	M8x1.0	1.0	H06059L16-I1.0ISOTM...	80904	6	.232	2.244	.630	3	16	.276
	M10x1.0	1.0	H08079L20-I1.0ISOTM...	80905	8	.311	2.480	.787	3	20	.354
	M12x1.0	1.0	H10099L24-I1.0ISOTM...	80801	10	.390	2.874	.945	4	24	.433
M8x1.25		1.25	H06058L16-I1.25ISOTM...	80907	6	.228	2.244	.640	3	13	.268
	M10x1.25	1.25	H08077L20-I1.25ISOTM...	80908	8	.303	2.480	.787	3	16	.346
M10x1.5	M12-M48x1.5	1.5	H08077L21-I1.5ISOTM...	80909	8	.303	2.480	.827	3	14	.335
	M12x1.5	1.5	H10094L24-I1.5ISOTM...	80910	10	.370	2.874	.945	4	16	.413
	M14x1.5	1.5	H12112L28-I1.5ISOTM...	80911	12	.441	3.268	1.122	4	19	.492
	M16x1.5	1.5	H12119L33-I1.5ISOTM...	80912	12	.469	3.268	1.299	4	22	.571
M12x1.75		1.75	H10087L24-I1.75ISOTM...	80913	10	.343	2.874	.965	4	14	.402
M14x2.0	M17-M80x2.0	2.0	H10099L28-I2.0ISOTM...	80914	10	.390	2.874	1.102	4	14	.472
M16x2.0	M17-M80x2.0	2.0	H12119L32-I2.0ISOTM...	80915	12	.469	3.268	1.260	4	16	.551
M18-M22x2.5		2.5	H16139L40-I2.5ISOTM...	80916	16	.547	3.622	1.575	5	16	.610
M24x3.0		3.0	H16159L42-I3.0ISOTM...	80917	16	.626	3.622	1.654	4	14	.827

* Bore diameter applies to smallest thread dia.

Internal



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

Helical Flutes - Internal

2 x Do (Le ≤ 2 x Thread Diameter)

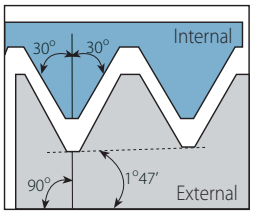
Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNC	UNF	TPI	Internal	VTH	D	D2	L	Le	Z	Zt	Inch
	No.10-32	32	HX1/8".121"-I32UNFTM...	80534	1/8	.121	2.0	.312	3	10	.157
	No.10-28	28	HX1/8".121"-I28UNFTM...	80535	1/8	.121	2.0	.321	3	9	.155
	No.12-28	28	HX3/16".150"-I28UNFTM...	80536	3/16	.150	2.5	.464	3	13	.181
	1/4"x28	28	HX3/16".181"-I28UNFTM...	80537	3/16	.181	2.5	.500	3	14	.217
No.10-24		24	HX1/8".120"-I24UNCTM...	80538	1/8	.120	2.0	.333	3	8	.150
No.12-24		24	HX3/16".138"-I24UNCTM...	80539	3/16	.138	2.5	.458	3	11	.177
	5/16"x24	24	HX1/4".232"-I24UNFTM...	80540	1/4	.232	2.5	.625	3	15	.268
	3/8"x24	24	HX5/16".291"-I24UNFTM...	80541	5/16	.291	3.0	.750	4	18	.335
1/4"x20		20	HX3/16".181"-I20UNCTM...	80542	3/16	.181	2.5	.500	3	10	.205
	1/2"x20	20	HX3/8".371"-I20UNFTM...	80543	3/8	.371	3.5	1.000	4	20	.453
	7/16"x20	20	HX3/8".335"-I20UNFTM...	80544	3/8	.335	3.5	.900	4	18	.386
5/16"x18		18	HX1/4".232"-I18UNCTM...	80545	1/4	.232	2.5	.667	3	12	.256
	9/16"x18	18	HX3/8".371"-I18UNFTM...	80546	3/8	.371	3.5	.889	4	16	.504
	5/8"x18	18	HX1/2".496"-I18UNFTM...	80547	1/2	.496	3.5	1.278	4	23	.571
3/8"x16		16	HX5/16".285"-I16UNCTM...	80548	5/16	.285	3.0	.750	4	12	.315
	3/4"x16	16	HX1/2".496"-I16UNFTM...	80549	1/2	.496	3.5	1.250	4	20	.689
7/16"x14		14	HX5/16".305"-I14UNCTM...	80550	5/16	.305	3.0	.786	4	11	.366
1/2"x13		13	HX3/8".350"-I13UNCTM...	80551	3/8	.350	3.5	.923	4	12	.425
9/16"x12		12	HX3/8".371"-I12UNCTM...	80552	3/8	.371	3.5	.917	4	11	.484
5/8"x11		11	HX1/2".469"-I11UNCTM...	80553	1/2	.469	3.5	1.273	4	14	.531
3/4"x10		10	HX1/2".496"-I10UNCTM...	80554	1/2	.496	3.5	1.300	4	13	.650
7/8"x9		9	HX5/8".621"-I9UNCTM...	80555	5/8	.621	4.0	1.444	4	13	.768
1"x8		8	HX5/8".621"-I8UNC TM...	80556	5/8	.621	4.0	1.375	4	11	.878

* Bore diameter applies to smallest thread dia.

NPT

He-Lex

External / Internal



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

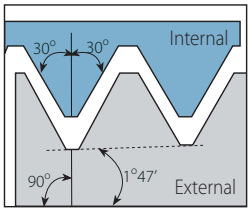
Helical Flutes

Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
Standard	TPI	External / Internal	VTH	D	D2	L	Le	Z	Zt	Inch
1/16"x27, 1/8"x27	27	HX1/4".209"-EI27NPT-TM...	80562	1/4	.209	2.5	.407	3	11	.248, .335
1/4"x18, 3/8"x18	18	HX5/16".305"-EI18NPT-TM...	80563	5/16	.305	3.0	.611	4	11	.437, .571
1/2"x14, 3/4"x14	14	HX1/2".496"-EI14NPT-TM...	80564	1/2	.496	3.5	.929	4	13	.697, .906
1"-2"x11.5	11.5	HX5/8".621"-EI11.5NPT-TM...	80565	5/8	.621	4.0	1.130	4	13	1.142-2.205
2 1/2"-6"x8	8	HX3/4".746"-EI8NPT-TM...	80566	3/4	.746	5.0	1.500	4	12	from 2.618

NPTF

He-Lex

External / Internal



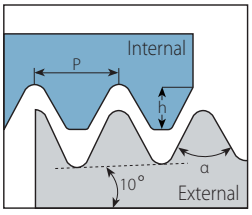
Defined by: ANSI 1.20.3-1976
Tolerance class: Standard NPTF

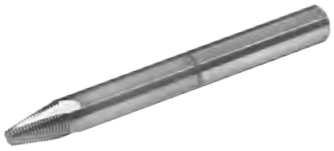
Helical Flutes

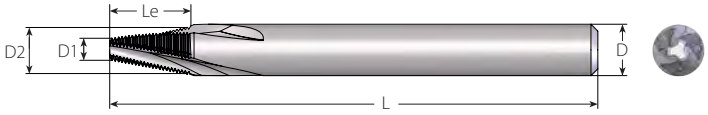
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
Standard	TPI	External / Internal	VTH	D	D2	L	Le	Z	Zt	Inch
1/16"x27, 1/8"x27	27	HX1/4".209"-EI27NPTFTM...	80557	1/4	.209	2.5	.407	3	11	.248, .331
1/4"x18, 3/8"x18	18	HX5/16".305"-EI18NPTFTM...	80558	5/16	.305	3.0	.611	4	11	.437, .579
1/2"x14, 3/4"x14	14	HX1/2".496"-EI14NPTFTM...	80559	1/2	.496	3.5	.929	4	13	.705, .921
1"-2"x11.5	11.5	HX5/8".621"-EI11.5NPTFTM...	80560	5/8	.621	4.0	1.130	4	13	1.158-2.213
2 1/2"-6"x8	8	HX3/4".746"-EI8NPTFTM...	80561	3/4	.746	5.0	1.500	4	12	from 2.638

* Bore diameter applies to smallest thread dia.

Internal







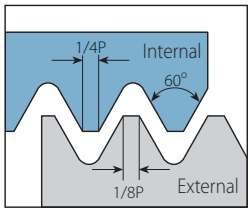
Helical Flutes - Taper 60°
TM Solid Helical Flutes for Bone Plate Applications

Pitch	Ordering Code	Taper	Thread Angle	Profile Height	Dimensions Inch				No. of Flutes	Teeth
mm	Internal		α	h	D (mm)	D2	D1	L	Le	Z	Zt
0.4	H06059L080-I0.4TAP60TM...	20°	60°	.008	6	.232	.126	2.244	.315	3	20
0.5	H06059L090-I0.5TAP60TM...	20°	60°	.010	6	.232	.114	2.244	.354	3	18

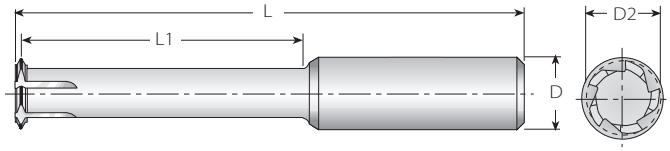
Helical Flutes - Taper 55°
TM Solid Helical Flutes for Bone Plate Applications

Pitch	Ordering Code	Taper	Thread Angle	Profile Height	Dimensions Inch				No. of Flutes	Teeth
mm	Internal		α	h	D (mm)	D2	D1	L	Le	Z	Zt
0.3	H03028L039-I0.3TAP55TM...	20°	55°	.007	3	.110	.059	1.496	.154	3	13
0.35	H04039L063-I0.35TAP55TM...	20°	55°	.008	4	.154	.071	1.772	.248	3	18
0.4	H06059L100-I0.4TAP55TM...	20°	55°	.011	6	.232	.098	2.244	.394	3	25
0.5	H06059L090-I0.5TAP55TM...	20°	55°	.013	6	.232	.114	2.244	.354	3	18
0.6	H06059L066-I0.6TAP55TM...	20°	55°	.019	6	.232	.150	2.244	.260	3	11

Internal



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



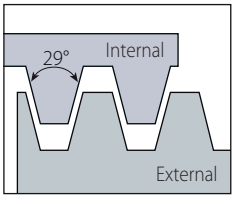
Deep Threading - Long Tools for Deep Holes

3 x Do (L1 ≤ 3 x Thread Diameter)

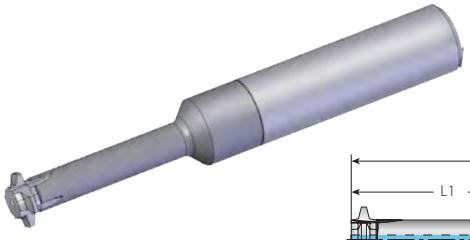
Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.
UNC	UNF	TPI	Internal	VTH	D	D2	L	L1	Z	Zt	inch
1/4"x20		20	D1T5/16".157"-I20UNCTM...	80220	5/16	.157	2.480	.787	3	1	.205
	1/4"x28	28	D1T5/16".181"-I28UNFTM...	80271	5/16	.181	2.480	.787	3	1	.217
5/16"x18		18	D1T3/8".205"-I18UNCTM...	80221	3/8	.205	2.874	.984	3	1	.256
	5/16"x24	24	D1T3/8".224"-I24UNFTM...	80272	3/8	.224	2.874	.984	3	1	.268
3/8"x16		16	D1T3/8".264"-I16UNCTM...	80222	3/8	.264	2.874	1.181	3	1	.315
	3/8"x24	24	D1T3/8".291"-I24UNFTM...	80273	3/8	.291	2.874	1.181	3	1	.335
7/16"x14		14	D1T1/2".299"-I14UNCTM...	80274	1/2	.299	3.268	1.378	4	1	.366
	7/16"x20	20	D1T1/2".335"-I20UNFTM...	80275	1/2	.335	3.268	1.378	4	1	.386
1/2"x13		13	D1T1/2".350"-I13UNCTM...	80223	1/2	.350	3.268	1.575	4	1	.425
	1/2"x20	20	D1T1/2".398"-I20UNFTM...	80276	1/2	.398	3.268	1.575	4	1	.453
9/16"x12		12	D1T5/8".406"-I12UNCTM...	80224	5/8	.406	3.780	1.772	4	1	.484
	9/16"x18	18	D1T5/8".445"-I18UNFTM...	80277	5/8	.445	3.780	1.772	4	1	.504
5/8"x11		11	D1T5/8".433"-I11UNCTM...	80225	5/8	.433	3.976	1.969	4	1	.531
	5/8"x18	18	D1T5/8".504"-I18UNFTM...	80278	5/8	.504	3.976	1.969	4	1	.571
3/4"x10		10	D1T5/8".531"-I10UNCTM...	80226	5/8	.531	4.370	2.362	5	1	.650
	3/4"x16	16	D1T5/8".610"-I16UNFTM...	80227	5/8	.610	4.370	2.362	5	1	.689

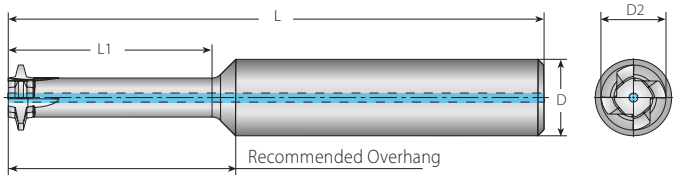
American ACME (2G)

Internal



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



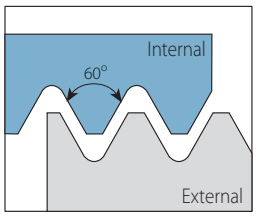


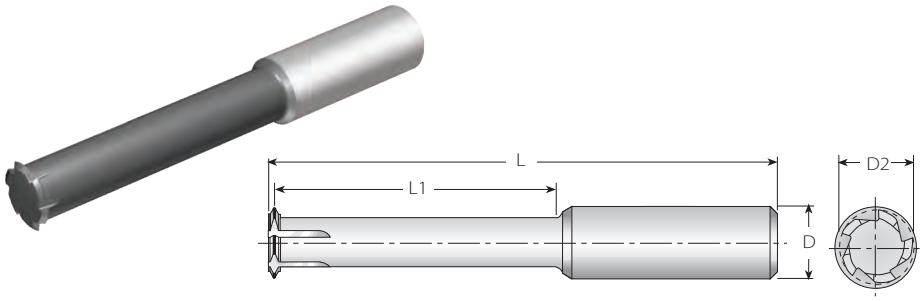
Deep Threading - Long Tools for Deep Holes

3 x Do (L1 ≤ 3 x Thread Diameter)

Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.
UNC	TPI	Internal	VTH	D	D2	L	L1	Z	Zt	inch
3/8"-12	12	S1LC25024L075-I12ACME-2G...	81058	1/4	.240	2.520	.811	3	1	.354
1/2"-10	10	S1LC37032L100-I10ACME-2G...	81059	3/8	.327	2.990	1.071	3	1	.400
5/8"-8	8	S1LC50042L125-I8ACME-2G...	81060	1/2	.425	3.500	1.330	4	1	.500
3/4"-6	6	S1LC50049L150-I6ACME-2G...	81061	1/2	.488	3.500	1.600	5	1	.583
1"-5	5	S1LC63057L200-I5ACME-2G...	81062	5/8	.571	4.015	2.110	5	1	.800

Internal

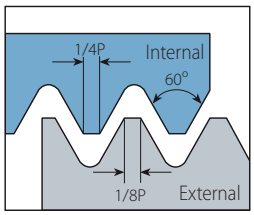




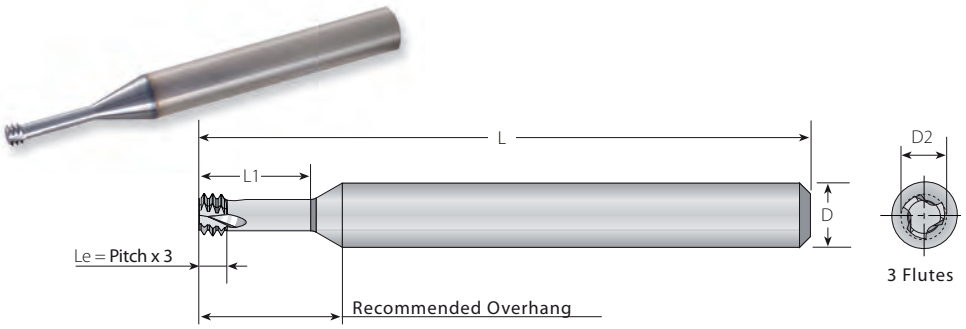
Deep Threading - Long Tools for Deep Holes

Thread		Min. Thread	Pitch		Ordering Code	EDP No.	Dimensions Inch					
M Coarse	M Fine	UN, UNS, UNF, UNEF	mm	TPI	Internal		D	D2	L	L1	Z	Zt
M5x0.8	M5x0.5, M5X0.75	No.10-56UNS, No.10-48UNS, No.10-40UNS, No.10-36UNS, No.10-32UNF	0.5-0.8	32-56	D1T19154L063-ITA60TM...	80414	3/16	.154	1.750	.63	4	1
M6x1.0	M6x0.5, M6X0.75	No.12-56UNS, No.12-48UNS, ¼-40UNS, ¼-36UNS, ¼-32UNEF, ¼-28UNF, ¼-27UNS, ¼-24UNS	0.5-1.0	24-56	D1T25191L079-ITB60TM...	80415	1/4	.191	2.000	.79	5	1
M8x1.25	M7x0.5, M7x0.75, M7.5x1.0	5/16-48UNS, 5/16-40UNS, 5/16-36UNS, 5/16-32UNEF, 5/16-28UN, 5/16-27UNS, 5/16-24UNS, 5/16-20UN	0.5-1.25	20-48	D1T25232L100-ITF60TM...	80416	1/4	.232	2.500	1.00	5	1
-	M10.5x0.5, M11x0.75, M11x1.0	7/16-32UN, 7/16-28UNEF, 7/16-27UNS, 7/16-24UNS	0.5-1.0	24-56	D1T37370L138-ITB60TM...	80417	3/8	.370	3.000	1.38	6	1
M10x1.5	M10x1.0, M10X1.25	3/8-24UNF, 3/8-20UN, 7/16-18UNS, 7/16-16UN	1.0-1.50	16-24	D1T31307L126-ITC60TM...	80423	5/16	.307	2.500	1.26	6	1
M12x1.75	M12x1.0, M12X1.25, M12x1.5	½-24UNS, ½-20UNS, ½-18UNS, ½-16UNS, ½-14UNS	1.0-1.75	14-24	D1T37370L150-ITD60TM...	80424	3/8	.370	3.000	1.50	6	1
-	M13.5x1.0, M14x1.25, M14x1.5	9/16-24UNEF	1.0-1.75	14-24	D1T50469L177-ITD60TM...	80425	1/2	.469	3.250	1.77	6	1

Internal



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



MilliPro
Miniature Thread Mills

2 x Do (L1 ≤ 2 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
M Coarse	M Fine	mm	Internal	VTH	D	D2	L	L1	Z	Zt	mm
M1.6x0.35		0.35	D3T12047L134-I0.35ISOTM…	80660	1/8	.047	1.181	.134	3	3	.049
M2x0.4		0.4	D3T25061L165-I0.4ISOTM…	80661	1/4	.061	2.244	.165	3	3	.063
M2.2x0.45		0.45	D3T25065L181-I0.45ISOTM…	80662	1/4	.065	2.244	.181	3	3	.069
M2.5x0.45		0.45	D3T25077L205-I0.45ISOTM…	80663	1/4	.077	2.244	.205	3	3	.081
M3x0.5	M3.5-M16x0.5	0.5	D3T25094L244-I0.5ISOTM…	80664	1/4	.094	2.244	.244	3	3	.098
M3.5x0.6		0.6	D3T25108L287-I0.6ISOTM…	80665	1/4	.108	2.244	.287	3	3	.114
M4x0.7		0.7	D3T25124L327-I0.7ISOTM…	80666	1/4	.124	2.244	.327	3	3	.130
M5x0.8		0.8	D3T25159L409-I0.8ISOTM…	80667	1/4	.159	2.244	.409	3	3	.165
M6x1.0	M8-M40x1.0	1.0	D3T25189L492-I1.0ISOTM…	80668	1/4	.189	2.244	.492	3	3	.197
M8x1.25		1.25	D3T31256L654-I1.25ISOTM…	80669	5/16	.256	2.480	.654	3	3	.268
M10x1.5	M12-M48x1.50	1.50	D3T37323L819-I1.50ISOTM…	80670	3/8	.323	2.874	.819	3	3	.335
M12x1.75		1.75	D3T37371L984-I1.75ISOTM…	80671	3/8	.371	2.874	.984	3	3	.406

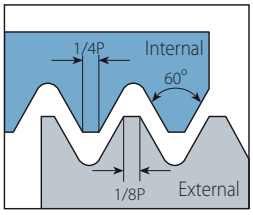
MilliPro
Miniature Thread Mills

3 x Do (L1 ≤ 3 x Thread Diameter)

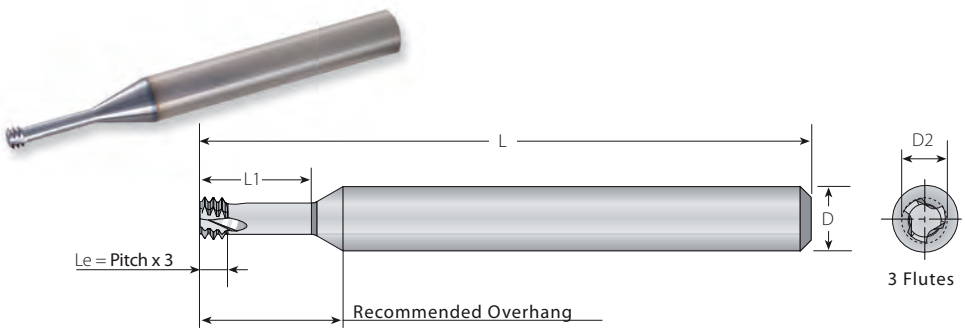
Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
M Coarse	M Fine	mm	Internal	VTH	D	D2	L	L1	Z	Zt	Inch
M1.6x0.35		0.35	D3T12047L197-I0.35ISOTM…	80672	1/8	.047	1.181	.197	3	3	.049
M2x0.4		0.4	D3T25061L244-I0.4ISOTM…	80673	1/4	.061	2.244	.244	3	3	.063
M2.5x0.45		0.45	D3T25077L276-I0.45ISOTM…	80674	1/4	.077	2.244	.276	3	3	.081
M3x0.5	M3.5-M16x0.5	0.5	D3T25094L362-I0.5ISOTM…	80675	1/4	.094	2.244	.362	3	3	.098
M4x0.7		0.7	D3T25124L484-I0.7ISOTM…	80676	1/4	.124	2.244	.484	3	3	.130
M5x0.8		0.8	D3T25159L606-I0.8ISOTM…	80677	1/4	.159	2.244	.606	3	3	.165
M6x1.0	M8-M40 x1.0	1.0	D3T25189L728-I1.0ISOTM…	80678	1/4	.189	2.244	.728	3	3	.197
M8x1.25		1.25	D3T31256L969-I1.25ISOTM…	80679	5/16	.256	2.480	.969	3	3	.268

* Bore diameter applies to smallest thread dia.

Internal



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



MilliPro (D-mm shank)
Miniature Thread Mills

2 x Do (L1 ≤ 2 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
M Coarse	M Fine	mm	Internal	VTH	D(mm)	D2	L	L1	Z	Zt	Inch
M1.6x0.35		0.35	D3T03012L034-I0.35ISOTM...	80420	3	.05	1.18	.13	3	3	.05
M2x0.4		0.4	D3T06015L042-I0.4ISOTM...	80254	6	.06	2.24	.17	3	3	.06
M2.2x0.45		0.45	D3T06016L046-I0.45ISOTM...	80255	6	.06	2.24	.18	3	3	.07
M2.5x0.45		0.45	D3T06019L052-I0.45ISOTM...	80256	6	.08	2.24	.20	3	3	.08
M3x0.5	M3.5-M16x0.5	0.5	D3T06024L062-I0.5ISOTM...	80257	6	.09	2.24	.24	3	3	.10
M3.5x0.6		0.6	D3T06027L073-I0.6ISOTM...	80258	6	.11	2.24	.29	3	3	.11
M4x0.7		0.7	D3T06031L083-I0.7ISOTM...	80259	6	.12	2.24	.33	3	3	.13
M5x0.8		0.8	D3T06040L104-I0.8ISOTM...	80260	6	.16	2.24	.41	3	3	.17
M6x1.0	M8-M40x1.0	1.0	D3T06048L125-I1.0ISOTM...	80261	6	.19	2.24	.49	3	3	.20
M8x1.25		1.25	D3T08065L166-I1.25ISOTM...	80262	8	.26	2.48	.65	3	3	.27
M10x1.5	M12-M48x1.50	1.50	D3T10082L208-I1.50ISOTM...	80418	10	.32	2.87	.82	3	3	.33
M12x1.75		1.75	D3T10099L250-I1.75ISOTM...	80419	10	.39	2.87	.98	3	3	.41
M16x2.0		2.0	D3T12119L330-I2.0ISOTM...	80963	12	.47	3.27	1.30	3	3	.55
M20x2.5		2.50	D3T16159L413-I2.5ISOTM...	80962	16	.63	3.62	1.63	3	3	.69

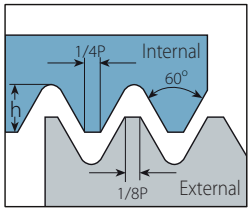
MilliPro (D-mm shank)
Miniature Thread Mills

3 x Do (L1 ≤ 3 x Thread Diameter)

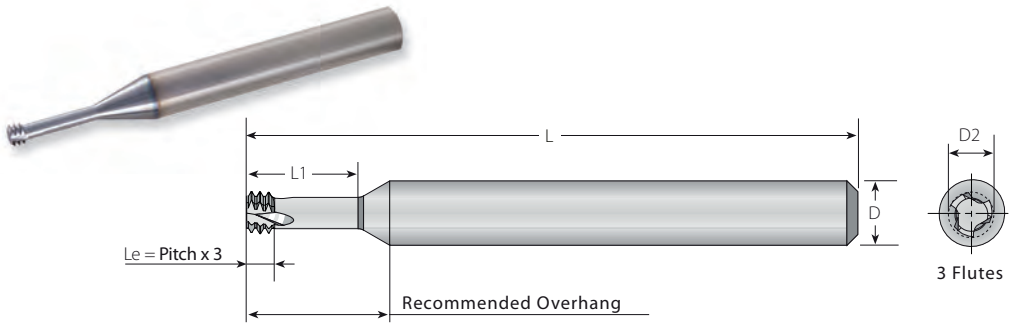
Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
M Coarse	M Fine	mm	Internal	VTH	D(mm)	D2	L	L1	Z	Zt	Inch
M1.6X0.35		0.35	D3T03012L050-I0.35ISOTM...	80421	3	.05	1.18	.20	3	3	.05
M2x0.4		0.4	D3T03015L062-I0.4IS0TM...	80966	3	.06	1.18	.24	3	3	.06
M2X0.4		0.4	D3T06015L062-I0.4ISOTM...	80422	6	.06	2.24	.24	3	3	.06
M2.5x0.45		0.45	D3T03019L077-I0.45ISOTM...	80964	3	.08	1.18	.30	3	3	.08
M2.5x0.45		0.45	D3T06019L077-I0.45ISOTM...	80265	6	.08	2.24	.30	3	3	.08
M3X0.5	M3.5-M16x0.5	0.5	D3T03024L092-I0.5ISOTM...	80965	3	.09	1.18	.36	3	3	.10
M3x0.5	M3.5-M16x0.5	0.5	D3T06024L092-I0.5ISOTM...	80266	6	.09	2.24	.36	3	3	.10
M4x0.7		0.7	D3T06031L123-I0.7ISOTM...	80267	6	.12	2.24	.48	3	3	.13
M5x0.8		0.8	D3T06040L154-I0.8ISOTM...	80268	6	.16	2.24	.61	3	3	.17
M6x1.0	M8-M40x1.0	1.00	D3T06048L185-I1.0ISOTM...	80269	6	.19	2.24	.73	3	3	.20
M8x1.25		1.25	D3T08065L246-I1.25ISOTM...	80270	8	.26	2.48	.97	3	3	.27

* Bore diameter applies to smallest thread dia.

Internal



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



MilliPro
Miniature Thread Mills

2 x Do (L1 ≤ 2 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNC	UNF	TPI	Internal	VTH	D	D2	L	L1	Z	Zt	Inch
	No.1-72	72	D3T25057L154-I72UNTM...	80215	1/4	.057	2.244	.154	3	3	.059
No.1-64	No.2-64	64	D3T25055L165-I64UNTM...	80214	1/4	.055	2.244	.165	3	3	.059
No.2-56	No.3-56	56	D3T25065L197-I56UNTM...	80216	1/4	.065	2.244	.197	3	3	.071
No.3-48	No.4-48	48	D3T25075L236-I48UNTM...	80217	1/4	.075	2.244	.236	3	3	.079
No.4, No.5-40	No.6-40	40	D3T25083L236-I40UNTM...	80218	1/4	.083	2.244	.236	3	3	.090
No.5-40	No.6-40	40	D3T25096L283-I40UNTM...	80219	1/4	.096	2.244	.283	3	3	.102
	No.8-36	36	D3T25130L343-I36UNTM...	80240	1/4	.130	2.244	.343	3	3	.138
No.6, No.8-32	No.10-32	32	D3T25100L292-I32UNTM...	80241	1/4	.100	2.244	.292	3	3	.110
No.8-32	No.10-32	32	D3T25126L394-I32UNTM...	80242	1/4	.126	2.244	.394	3	3	.134
	No.10-32	32	D3T25150L406-I32UNTM...	80694	1/4	.150	2.244	.406	3	3	.157
	1/4"x28	28	D3T25207L520-I28UNTM...	80243	1/4	.207	2.244	.520	3	3	.216
No.10-24	5/16"x24	24	D3T25141L402-I24UNTM...	80244	1/4	.141	2.244	.402	3	3	.150
	5/16"x24	24	D3T31263L650-I24UNTM...	80245	5/16	.263	2.480	.650	3	3	.272
1/4"x20	7/16"x20	20	D3T25192L528-I20UNTM...	80246	1/4	.192	2.244	.528	3	3	.201
	7/16"x20	20	D3T37375L906-I20UNTM...	80247	3/8	.375	2.874	.906	3	3	.390
5/16"x18		18	D3T31242L650-I18UNTM...	80121	5/16	.242	2.480	.650	3	3	.256
3/8"x16		16	D3T31264L752-I16UNTM...	80279	3/8	.264	2.480	.752	3	3	.315
7/16"x14		14	D3T37354L917-I14UNTM...	80248	3/8	.354	2.874	.917	3	3	.370

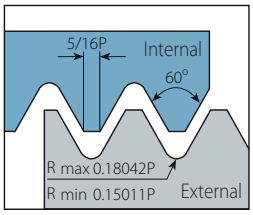
MilliPro
Miniature Thread Mills

3 x Do (L1 ≤ 3 x Thread Diameter)

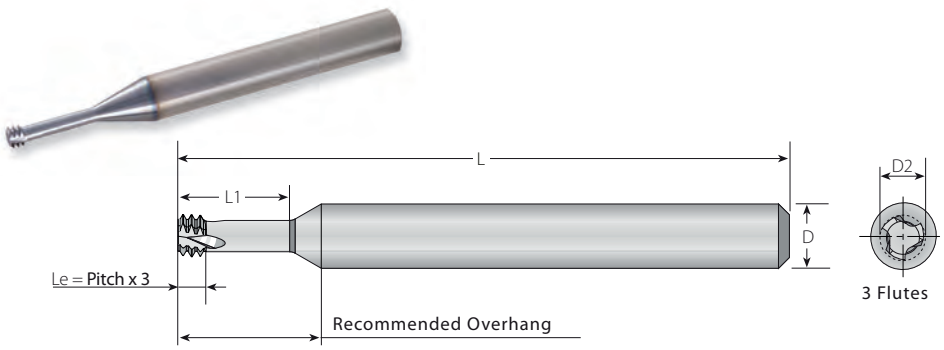
Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNC	UNF	TPI	Internal	VTH	D	D2	L	L1	Z	Zt	mm
	No.1-72	72	D3T25057L226-I72UNTM...	80443	1/4	.057	2.244	.226	3	3	.059
No.4,No.5-40	No.6-40	40	D3T25083L354-I40UNTM...	80263	1/4	.083	2.244	.354	3	3	.091
No.5-40	No.6-40	40	D3T25096L394-I40UNTM...	80249	1/4	.096	2.244	.394	3	3	.102
No.6,No.8-32	No.10-32	32	D3T25100L433-I32UNTM...	80264	1/4	.100	2.244	.433	3	3	.110
No.8-32	No.10-32	32	D3T25126L512-I32UNTM...	80250	1/4	.126	2.244	.512	3	3	.134
	No.10-32	32	D3T25150L594-I32UNTM...	80695	1/4	.150	2.244	.594	3	3	.157
	1/4"x28	28	D3T25207L772-I28UNTM...	80251	1/4	.207	2.244	.772	3	3	.216
	5/16"x24	24	D3T31263L965-I24UNTM...	80252	5/16	.263	2.480	.965	3	3	.272
1/4"x20	7/16"x20	20	D3T25192L780-I20UNTM...	80253	1/4	.192	2.244	.780	3	3	.201
5/16"x18		18	D3T31242L944-I18UNTM...	80122	5/16	.242	2.480	.944	3	3	.256

* Bore diameter applies to smallest thread dia.

Internal



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

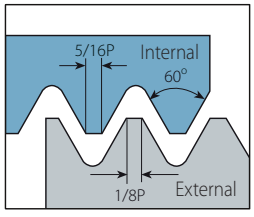


MilliPro – Miniature Thread Mills

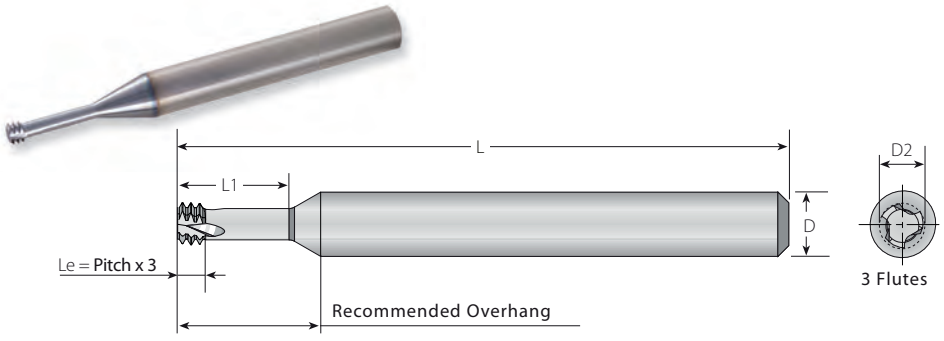
3 x Do (L1 ≤ 3 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNJC	UNJF	TPI	Internal	VTH	D	D2	L	L1	Z	Zt	Inch
0.138"(#6)	0.190"(#10)	32	D3T25106L043-I32UNJTM...	80436	1/4	.106	2.244	.433	3	3	.110
	0.250"(1/4")	28	D3T25213L076-I28UNJTM...	80437	1/4	.213	2.244	.768	3	3	.220
0.190"(#10)		24	D3T25146L058-I24UNJTM...	80438	1/4	.146	2.244	.587	3	3	.157
	0.3125"(5/16")	24	D3T31264L094-I24UNJTM...	80439	5/16	.264	2.480	.949	3	3	.276
0.250"(1/4")		20	D3T25197L076-I20UNJTM...	80445	1/4	.197	2.244	.768	3	3	.209
	0.4375"(7/16")	20	D3T37371L131-I20UNJTM...	80446	3/8	.371	2.874	1.319	3	3	.394
0.3125"(5/16")	0.5625"(9/16")	18	D3T31252L094-I18UNJTM...	80961	5/16	.252	2.480	.949	3	3	.266
0.375"(3/8")	0.750"(3/4")	16	D3T31303L114-I16UNJTM...	80879	5/16	.303	2.480	1.142	3	3	.319
0.4375"(7/16")	0.875"(7/8")	14	D3T37362L131-I14UNJTM...	80880	3/8	.362	2.874	1.319	3	3	.374
0.500"(1/2")		13	D3T37371L151-I13UNJTM...	80881	3/8	.371	2.874	1.516	3	3	.433

Internal



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



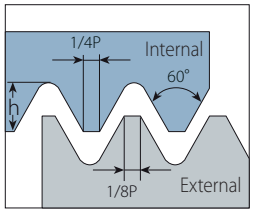
MilliPro – Miniature Thread Mills

3 x Do (L1 ≤ 3 x Thread Diameter)

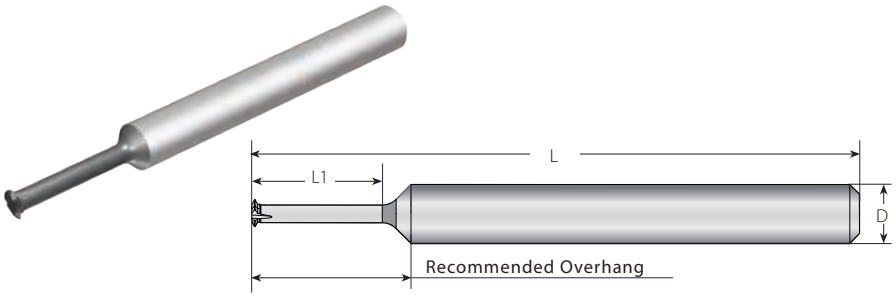
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.
MJ	mm	Internal	VTH	D	D2	L	L1	Z	Zt	Inch
MJ3x0.5	0.5	D3T25094L036-I0.5MJTM...	80882	1/4	.094	2.244	.362	3	3	.102
MJ3.5x0.6	0.6	D3T25112L043-I0.6MJTM...	80883	1/4	.112	2.244	.433	3	3	.118
MJ4x0.7	0.7	D3T25124L048-I0.7MJTM...	80884	1/4	.124	2.244	.484	3	3	.134
MJ5x0.8	0.8	D3T25159L060-I0.8MJTM...	80885	1/4	.159	2.244	.606	3	3	.169
MJ6x1.0	1.0	D3T25189L072-I1.0MJTM...	80886	1/4	.189	2.244	.728	3	3	.201
MJ8x1.25	1.25	D3T31256L096-I1.25MJTM...	80887	5/16	.256	2.480	.969	3	3	.272
MJ10x1.5	1.50	D3T37323L121-I1.50MJTM...	80888	3/8	.323	2.874	1.213	3	3	.343
MJ12x1.75	1.75	D3T37371L145-I1.75MJTM...	80889	3/8	.371	2.874	1.457	3	3	.409
MJ14x2	2.0	D3T50469L167-I2.0MJTM...	80890	1/2	.469	3.268	1.673	3	3	.482

* Bore diameter applies to smallest thread dia.

Internal



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



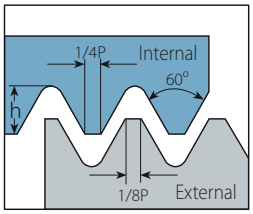
MilliPro Dental

Miniature Thread Mills for Dental Implants

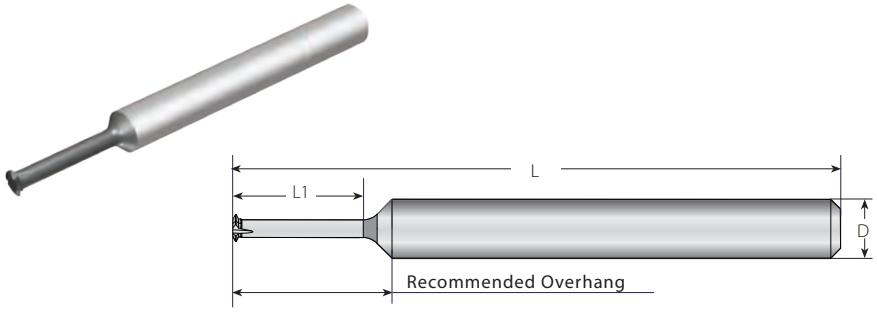
3xDo (L1≤3 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.
M Coarse	M Fine	mm	Internal	VTH	D(mm)	D2	L	L1	Z	Zt	Inch
M1.0x0.25	M1.4x0.25	0.25	D1T03007L031-I0.25ISOTM...	80210	3	.028	1.220	.122	3	1	.030
M1.2x0.25	M1.4x0.25	0.25	D1T03009L038-I0.25ISOTM...	80211	3	.035	1.220	.150	3	1	.037
M1.4x0.3	-	0.30	D1T03011L044-I0.30ISOTM...	80212	3	.041	1.220	.173	3	1	.045
M1.6x0.35	-	0.35	D1T03012L050-I0.35ISOTM...	80213	3	.047	1.220	.197	3	1	.051
M1.8x0.35	M2.0x0.35	0.35	D1T03014L056-I0.35ISOTM...	80280	3	.055	1.220	.220	3	1	.059
M2.0x0.4	-	0.40	D1T03015L062-I0.40ISOTM...	80281	3	.059	1.220	.244	3	1	.065
M2.5x0.45	-	0.45	D1T03019L077-I0.45ISOTM...	80282	3	.077	1.220	.303	3	1	.083

Internal



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



MilliPro Dental

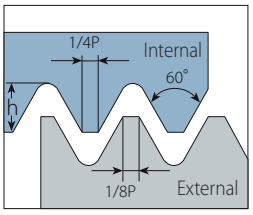
Miniature Thread Mills for Dental Implants

3xDo (L1≤3 x Thread Diameter)

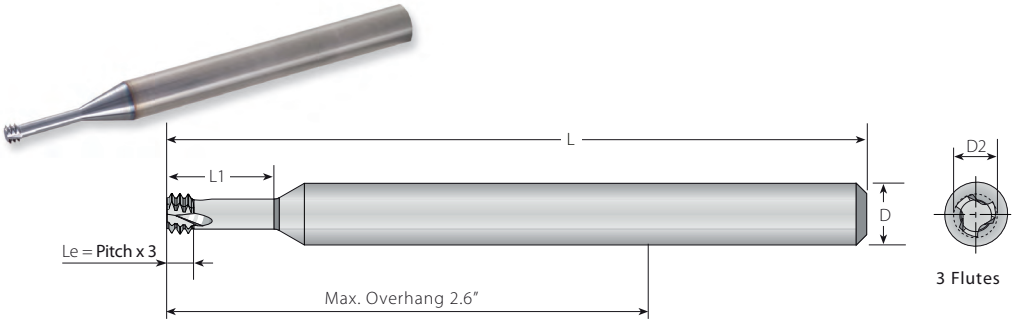
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.
UNF	TPI	Internal	VTH	D(mm)	D2	L	L1	Z	Zt	Inch
0-80	80	D1T03011L046-I80UNTM...	80283	3	.045	1.220	.181	3	1	.051
1-72	72	D1T03014L065-I72UNTM...	80413	3	.057	1.220	.256	3	1	.063

The MilliPro Dental line was specially designed for machining Titanium and Stainless Steel in high RPM.
MilliPro Dental D1T tools are also suitable for general use applications.

Internal



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



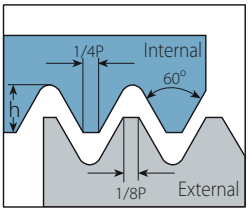
MilliPro EL

Miniature Thread Mills , Extra Long Tools

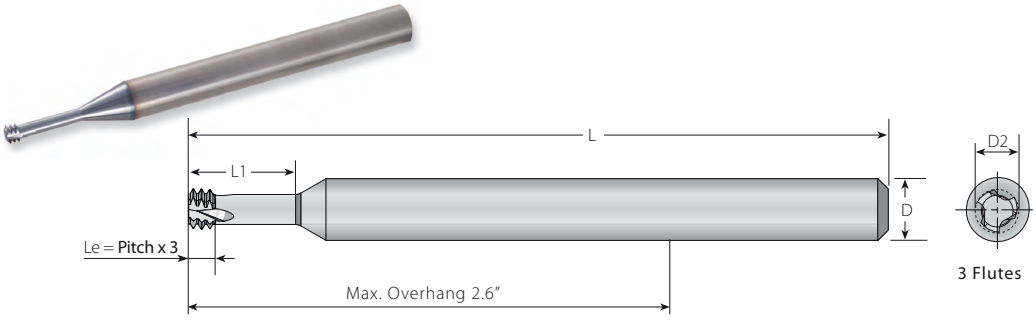
2 x Do (L1 ≤ 2 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
M Coarse	M Fine	mm	Internal	VTH	D	D2	L	L1	Z	Zt	Inch
M2x0.4		0.4	D3T25061L165-I0.4ISOTML...	80426	1/4	.061	3.937	.165	3	3	.063
M2.5x0.45		0.45	D3T25077L205-I0.45ISOTML...	80428	1/4	.077	3.937	.205	3	3	.081
M3x0.5	M3.5-M16x0.5	0.5	D3T25094L244-I0.5ISOTML...	80429	1/4	.094	3.937	.244	3	3	.098

Internal



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



MilliPro EL

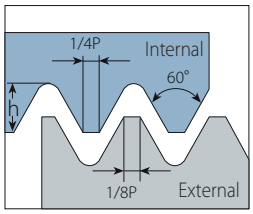
Miniature Thread Mills, Extra Long Tools

2 x Do (L1 ≤ 2 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNC	UNF	TPI	Internal	VTH	D	D2	L	L1	Z	Zt	Inch
No.2-56	No.3-56	56	D3T25065L197-I56UNTML...	80430	1/4	.065	3.937	.197	3	3	.071
No.4, No.5-40	No.6-40	40	D3T25083L236-I40UNTML...	80431	1/4	.083	3.937	.236	3	3	.091
No.6, No.8-32	No.10-32	32	D3T25100L291-I32UNTML...	80432	1/4	.100	3.937	.291	3	3	.110
No.8-32	No.10-32	32	D3T25126L394-I32UNTML...	80433	1/4	.126	3.937	.394	3	3	.134

* Bore diameter applies to smallest thread dia.

Internal



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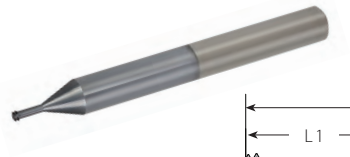
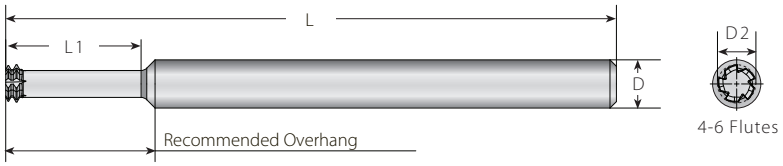




Left Hand Tool

MilliPro HD

Miniature Thread Mills for Hard Materials Up to 62HRc

2 x Do (L1 ≤ 2 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
M Coarse	M Fine	mm	Internal	VTH	D	D2	L	L1	Z	Zt	Inch
M2x0.4		0.4	S2L25061L165-I0.4ISOTM...	80918	1/4	.061	2.99	.18	4	2	.063
M2.2x0.45		0.45	S2L25065L181-I0.45ISOTM...	80919	1/4	.065	2.99	.20	4	2	.071
M2.5x0.45		0.45	S2L25077L204-I0.45ISOTM...	80920	1/4	.077	2.99	.22	4	2	.081
M3x0.5	M3.5-M16x0.5	0.5	S2L25094L244-I0.5ISOTM...	80921	1/4	.094	2.99	.27	4	2	.101
M3.5x0.6		0.6	S2L25108L287-I0.6ISOTM...	80922	1/4	.108	2.99	.31	4	2	.116
M4x0.7		0.7	S2L25124L326-I0.7ISOTM...	80923	1/4	.124	2.99	.36	4	2	.132
M5x0.8		0.8	S2L25159L409-I0.8ISOTM...	80924	1/4	.159	2.99	.44	4	2	.169
M6x1.0	M8-M40x1.0	1.0	S2L25189L492-I1.0ISOTM...	80925	1/4	.189	2.99	.53	5	2	.201
M8x1.25		1.25	S2L31256L653-I1.25ISOTM...	80926	5/16	.256	3.15	.70	5	2	.268
M10x1.5	M12-M48x1.50	1.50	S2L31308L818-I1.50ISOTM...	80927	5/16	.308	3.15	.88	6	2	.339
M12x1.75		1.75	S2L37371L984-I1.75ISOTM...	80928	3/8	.371	3.98	1.05	6	2	.409

MilliPro HD

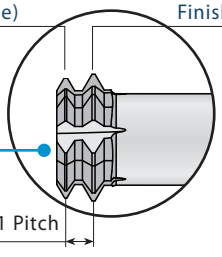
Miniature Thread Mills for Hard Materials Up to 62HRc

3 x Do (L1 ≤ 3 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions mm				No. of Flutes	Teeth	Bore Dia.*
M Coarse	M Fine	mm	Internal	VTH	D	D2	L	L1	Z	Zt	Inch
M2x0.4		0.4	S2L25061L244-I0.4ISOTM...	80929	1/4	.061	2.99	.26	4	2	.063
M2.5x0.45		0.45	S2L25077L303-I0.45ISOTM...	80930	1/4	.077	2.99	.32	4	2	.081
M3x0.5	M3.5-M16x0.5	0.5	S2L25094L362-I0.5ISOTM...	80931	1/4	.094	2.99	.38	4	2	.101
M4x0.7		0.7	S2L25124L484-I0.7ISOTM...	80932	1/4	.124	2.99	.51	4	2	.132
M5x0.8		0.8	S2L25159L606-I0.8ISOTM...	80933	1/4	.159	2.99	.64	4	2	.169
M6x1.0	M8-M40x1.0	1.0	S2L25189L728-I1.0ISOTM...	80934	1/4	.189	2.99	.77	5	2	.201
M8x1.25		1.25	S2L31256L968-I1.25ISOTM...	80935	5/16	.256	3.15	1.02	5	2	.268

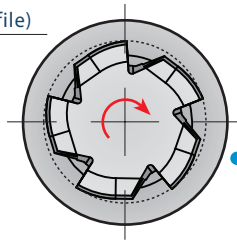
Roughing (Partial Profile)

Finish (Full Profile)



Two cutting teeth: Partial Profile for leading tooth followed by Full Profile for finishing.

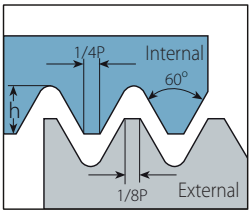
The work direction should be from the top to the bottom (Climb Milling).



MilliPro HD Tools are left handed. For CNC use M04 code.

* Bore diameter applies to smallest thread dia.

Internal



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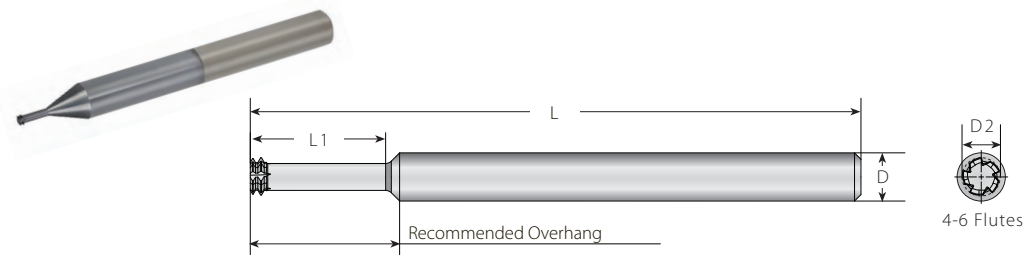
Tolerance class: 2B



Left Hand Tool

MilliPro HD
Miniature Thread Mills for Hard Materials Up to 62HRc

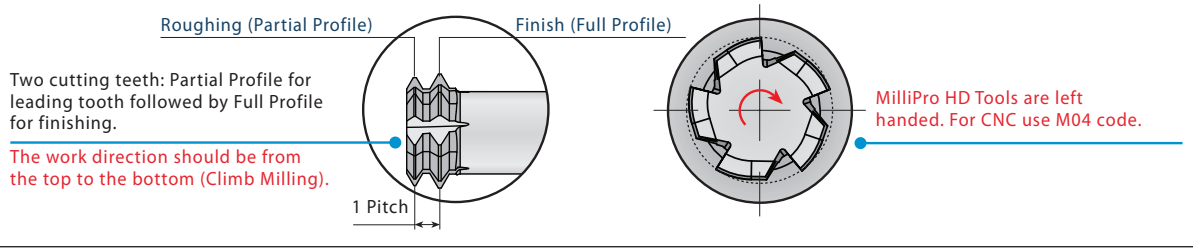
2 x Do (L1 ≤ 2 x Thread Diameter)

Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNC	UNF	TPI	Internal	VTH	D	D2	L	L1	Z	Zt	Inch
No.2-56	No.3-56	56	S2L25065L197-I56UNTM...	80936	1/4"	.065	3.00	.210	4	2	.071
No.3-48	No.4-48	48	S2L25075L236-I48UNTM...	80937	1/4"	.075	3.00	.260	4	2	.083
No.4-40, No.5-40	No.6-40	40	S2L25083L236-I40UNTM...	80938	1/4"	.083	3.00	.260	4	2	.093
No.5-40	No.6-40	40	S2L25096L283-I40UNTM...	80939	1/4"	.096	3.00	.310	4	2	.104
	No.8-36	36	S2L25130L343-I36UNTM...	80940	1/4"	.130	3.00	.370	4	2	.140
No.6-32, No.8-32	No.10-32	32	S2L25100L292-I32UNTM...	80941	1/4"	.100	3.00	.320	4	2	.112
No.8-32	No.10-32	32	S2L25126L394-I32UNTM...	80942	1/4"	.126	3.00	.420	4	2	.138
	No.10-32	32	S2L25146L394-I32UNTM...	80943	1/4"	.146	3.00	.430	4	2	.164
	1/4"x28	28	S2L25207L520-I28UNTM...	80944	1/4"	.207	3.00	.560	5	2	.219
No.10-24	5/16"x24	24	S2L25141L402-I24UNTM...	80945	1/4"	.141	3.00	.440	4	2	.154
	5/16"x24	24	S2L31263L650-I24UNTM...	80946	5/16"	.263	3.15	.690	5	2	.276
1/4"-20	7/16"x20	20	S2L25192L528-I20UNTM...	80947	1/4"	.192	3.00	.580	5	2	.205
	7/16"x20	20	S2L37372L906-I20UNTM...	80948	3/8"	.372	4.00	.960	6	2	.390
5/16"x18		18	S2L25242L630-I18UNTM...	80123	1/4"	.242	3.00	.715	4	2	.256
3/8"x16		16	S2L31301L776-I16UNTM...	80949	5/16"	.301	3.15	.840	5	2	.315
7/16"x14		14	S2L37354L917-I14UNTM...	80950	3/8"	.354	4.00	.990	6	2	.374
1/2"x13		13	S2L37372L101-I13UNTM...	80951	3/8"	.362	4.00	1.080	6	2	.429

MilliPro HD
Miniature Thread Mills for Hard Materials Up to 62HRc

3 x Do (L1 ≤ 3 x Thread Diameter)

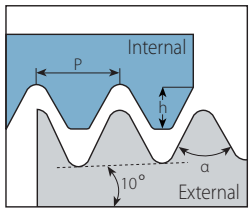
Thread		Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	Bore Dia.*
UNC	UNF	TPI	Internal	VTH	D	D2	L	L1	Z	Zt	Inch
No.4-40, No.5-40	No.6-40	40	S2L25083L354-I40UNTM...	80952	1/4"	.083	3.00	.380	4	2	.093
No.5-40	No.6-40	40	S2L25096L394-I40UNTM...	80953	1/4"	.096	3.00	.410	4	2	.104
No.6-32, No.8-32	No.10-32	32	S2L25100L433-I32UNTM...	80954	1/4"	.100	3.00	.460	4	2	.111
No.8-32	No.10-32	32	S2L25126L512-I32UNTM...	80955	1/4"	.126	3.00	.540	4	2	.136
	1/4"x28	28	S2L25207L772-I28UNTM...	80956	1/4"	.207	3.00	.810	5	2	.219
	5/16"x24	24	S2L31263L965-I24UNTM...	80957	5/16"	.263	3.15	1.010	5	2	.272
1/4"x20	7/16"x20	20	S2L25192L780-I20UNTM...	80958	1/4"	.192	3.00	.830	5	2	.204
5/16"x18		18	S2L25242L945-I18UNTM...	80124	1/4"	.242	3.00	1.030	4	2	.256
7/16"x14		14	S2L37354L131-I14UNTM...	80959	3/8"	.354	4.00	1.390	6	2	.375

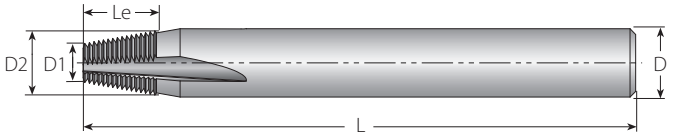


* Bore diameter applies to smallest thread dia.

TM Solid

Internal





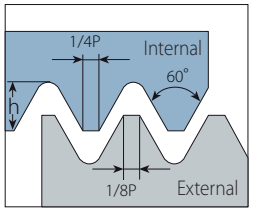
Straight Flutes - Taper 60°
TM Solid Straight Flutes for Bone Plate Applications

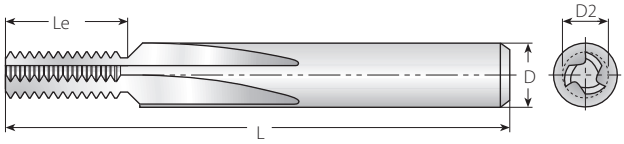
Pitch	Ordering Code	EDP No.	Taper	Thread Angle	Profile Height	Dimensions Inch					No. of Flutes	Teeth
mm	Internal	VTS		α	h	D	D2	D1	L	Le	Z	Zt
0.4	S1/4".232"L315-I0.4TAP60TM...	80975	20°	60°	.008	1/4	.232	.126	2.244	.315	3	20
0.5	S1/4".232"L354-I0.5TAP60TM...	80976	20°	60°	.010	1/4	.232	.114	2.244	.354	3	18

Straight Flutes - Taper 55°
TM Solid Straight Flutes for Bone Plate Applications

Pitch	Ordering Code	EDP No.	Taper	Thread Angle	Profile Height	Dimensions Inch					No. of Flutes	Teeth
mm	Internal	VTS		α	h	D	D2	D1	L	Le	Z	Zt
0.3	S1/8".110"L154-I0.3TAP55TM...	80977	20°	55°	.007	1/8	.110	.059	1.496	.154	3	13
0.35	S3/16".154"L248-I0.35TAP55TM...	80978	20°	55°	.008	3/16	.154	.071	1.772	.248	3	18
0.4	S1/4".232"L394-I0.4TAP55TM...	80979	20°	55°	.011	1/4	.232	.098	2.244	.394	3	25
0.5	S1/4".232"L354-I0.5TAP55TM...	80980	20°	55°	.013	1/4	.232	.114	2.244	.354	3	18
0.6	S1/4".232"L260-I0.6TAP55TM...	80981	20°	55°	.019	1/4	.232	.150	2.244	.260	3	11

External / Internal





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

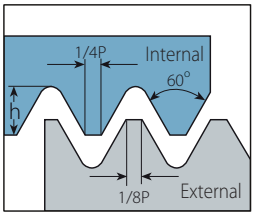
Straight Flutes - External

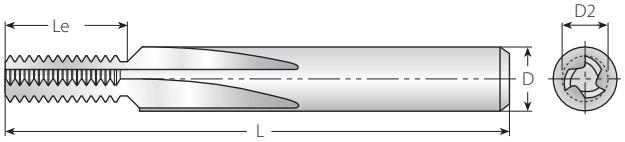
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
Min. Dia.	mm	External	VTS	D	D2	L	Le	Z	Zt	h
M3	0.50	S1/4".240"-E0.5ISOTM...	80000	1/4	.240	2.244	.591	3	30	.012
M4.5	0.75	S5/16".310"-E0.75ISOTM3...	80001	5/16	.310	2.480	.610	3	26	.019
M4.5	0.75	S5/16".310"-E0.75ISOTM5...	80444	5/16	.310	2.480	.610	5	26	.019
M6	1.00	S3/8".370"-E1.0ISOTM...	80002	3/8	.370	2.835	.945	5	24	.025
M10	1.50	S1/2".470"-E1.5ISOTM...	80003	1/2	.470	3.268	1.181	5	20	.037
M14	2.00	S1/2".470"-E2.0ISOTM...	80004	1/2	.470	3.268	1.181	5	15	.050
M24	3.00	S5/8".620"-E3.0ISOTM...	80005	5/8	.620	3.622	1.417	5	12	.075
M36	4.00	S5/8".620"-E4.0ISOTM...	80006	5/8	.620	3.622	1.575	5	10	.100
M64	6.00	S3/4".745"-E6.0ISOTM...	80007	3/4	.745	4.095	1.417	5	6	.149

Straight Flutes - Internal

Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
Min. Dia.	mm	Internal	VTS	D	D2	L	Le	Z	Zt	h
M4.5	0.75	S1/8".120"-I0.75ISOTM...	80008	1/8	.120	1.496	.270	3	9	.017
M8	0.75	S1/4".240"-I0.75ISOTM...	80009	1/4	.240	2.244	.591	3	20	.017
M5	0.80	S3/16".145"-I0.8ISOTM...	80010	3/16	.145	1.654	.315	3	10	.018
M6	1.00	S3/16".160"-I1.0ISOTM...	80011	3/16	.160	1.654	.354	3	9	.023
M12	1.00	S5/16".310"-I1.0ISOTM3...	80012	5/16	.310	2.480	.787	3	20	.023
M12	1.00	S5/16".310"-I1.0ISOTM5...	80239	5/16	.310	2.480	.787	5	20	.023
M8	1.25	S1/4".200"-I1.25ISOTM...	80013	1/4	.200	2.244	.492	3	10	.029
M10	1.50	S1/4".240"-I1.5ISOTM...	80014	1/4	.240	2.244	.591	3	10	.035
M14	1.50	S3/8".370"-I1.5ISOTM...	80015	3/8	.370	2.835	.945	5	16	.035
M18	1.50	S1/2".470"-I1.5ISOTM...	80016	1/2	.470	3.268	1.181	5	20	.035
M12	1.75	S5/16".310"-I1.75ISOTM3...	80017	5/16	.310	2.480	.758	3	11	.040
M12	1.75	S5/16".310"-I1.75ISOTM5...	80236	5/16	.310	2.480	.758	5	11	.040
M16	2.00	S3/8".370"-I2.0ISOTM...	80018	3/8	.370	2.835	.944	5	12	.046
M18	2.00	S1/2".470"-I2.0ISOTM...	80019	1/2	.470	3.268	1.181	5	15	.046
M20	2.50	S1/2".470"-I2.5ISOTM...	80020	1/2	.470	3.268	1.181	5	12	.058
M24	3.00	S5/8".620"-I3.0ISOTM...	80021	5/8	.620	3.622	1.417	5	12	.069
M30	3.50	S5/8".620"-I3.5ISOTM...	80022	5/8	.620	3.622	1.516	5	11	.081
M36	4.00	S5/8".620"-I4.0ISOTM...	80023	5/8	.620	3.622	1.575	5	10	.092
M48	5.00	S3/4".745"-I5.0ISOTM...	80024	3/4	.745	4.095	1.575	5	8	.116
M64	6.00	S3/4".745"-I6.0ISOTM...	80025	3/4	.745	4.095	1.417	5	6	.139

External / Internal





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

Straight Flutes - External

Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
Min. Dia.	TPI	External	VTS	D	D2	L	Le	Z	Zt	h
No.6	32	S1/4".240"-E32UNTM...	80026	1/4	.240	2.244	.562	3	18	.019
No.12	28	S5/16".310"-E28UNTM3...	80027	5/16	.310	2.480	.786	3	22	.022
No.12	28	S5/16".310"-E28UNTM5...	80408	5/16	.310	2.480	.786	5	22	.022
1/4"	20	S3/8".370"-E20UNTM...	80028	3/8	.370	2.835	.900	5	18	.031
5/16"	18	S3/8".370"-E18UNTM...	80029	3/8	.370	2.835	.944	5	17	.034
3/8"	16	S1/2".470"-E16UNTM...	80030	1/2	.470	3.268	1.125	5	18	.038
9/16"	12	S1/2".470"-E12UNTM...	80031	1/2	.470	3.268	1.167	5	14	.051
1"	8	S5/8".620"-E8UNTM...	80032	5/8	.620	3.622	1.500	5	12	.077
1 3/8"	6	S5/8".620"-E6UNTM...	80033	5/8	.620	3.622	1.500	5	9	.102

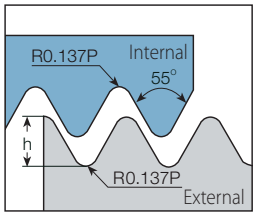
Straight Flutes - Internal

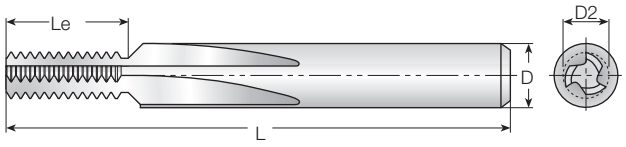
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
Min. Dia.	TPI	Internal	VTS	D	D2	L	Le	Z	Zt	h
No.8	36	S1/8".120"-I36UNTM...	80034	1/8	.120	1.654	.250	3	9	.016
No.8	32	S1/8".120"-I32UNTM...	80035	1/8	.120	1.654	.250	3	8	.018
5/16"	32	S1/4".240"-I32UNTM...	80036	1/4	.240	2.244	.562	3	18	.018
No.12	28	S3/16".145"-I28UNTM...	80037	3/16	.145	1.654	.321	3	9	.021
7/16"	28	S5/16".310"-I28UNTM3...	80038	5/16	.310	2.480	.786	3	22	.021
7/16"	28	S5/16".310"-I28UNTM5...	80441	5/16	.310	2.480	.786	5	22	.021
No.12	24	S3/16".160"-I24UNTM...	80039	3/16	.160	2.244	.333	3	8	.024
1/4"	20	S3/16".160"-I20UNTM...	80040	3/16	.160	2.244	.400	3	8	.029
9/16"	20	S3/8".370"-I20UNTM...	80041	3/8	.370	2.835	.900	5	18	.029
5/16"	18	S1/4".200"-I18UNTM...	80440	1/4	.200	2.244	.500	3	9	.033
9/16"	18	S3/8".370"-I18UNTM...	80043	3/8	.370	2.835	.944	5	17	.033
3/8"	16	S1/4".240"-I16UNTM...	80044	1/4	.240	2.244	.562	3	9	.037
13/16"	16	S1/2".470"-I16UNTM...	80045	1/2	.470	3.268	1.125	5	18	.037
7/16"	14	S5/16".310"-I14UNTM3...	80046	5/16	.310	2.480	.714	3	10	.042
7/16"	14	S5/16".310"-I14UNTM5...	80238	5/16	.310	2.480	.714	5	10	.042
1/2"	13	S5/16".310"-I13UNTM3...	80047	5/16	.310	2.480	.769	3	10	.045
1/2"	13	S5/16".310"-I13UNTM5...	80237	5/16	.310	2.480	.769	5	10	.045
9/16"	12	S3/8".370"-I12UNTM...	80048	3/8	.370	2.835	.917	5	11	.049
1"	12	S1/2".470"-I12UNTM...	80049	1/2	.470	3.268	1.167	5	14	.049
5/8"	11	S3/8".370"-I11UNTM...	80050	3/8	.370	2.835	.909	5	10	.053
3/4"	10	S1/2".470"-I10UNTM...	80051	1/2	.470	3.268	1.100	5	11	.059
7/8"	9	S5/8".620"-I9UNTM...	80442	5/8	.620	3.622	1.333	5	12	.065
1"	8	S5/8".620"-I8UNTM...	80053	5/8	.620	3.622	1.500	5	12	.073
1 1/8"	7	S5/8".620"-I7UNTM...	80054	5/8	.620	3.622	1.429	5	10	.084
1 3/8"	6	S3/4".745"-I6UNTM...	80055	3/4	.745	4.095	1.500	5	9	.098
1 3/4"	5	S3/4".745"-I5UNTM...	80057	3/4	.745	4.095	1.600	5	8	.117
2"	4.5	S3/4".745"-I4.5UNTM...	80058	3/4	.745	4.095	1.555	5	7	.130

BSW

Straight

External / Internal





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

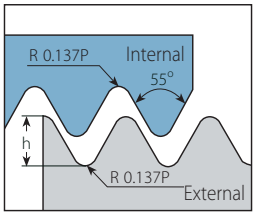
Straight Flutes

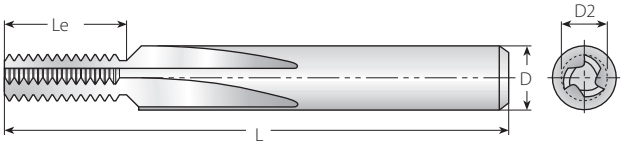
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
Min. Dia.	TPI	External / Internal	VTS	D	D2	L	Le	Z	Zt	h
1/4"	20	S3/16".160"-EI20BSWTM...	80059	3/16	.160	1.654	.400	3	8	.032
5/16"	18	S1/4".200"-EI18BSWTM...	80060	1/4	.200	2.244	.444	3	8	.035
3/8"	16	S1/4".240"-EI16BSWTM...	80061	1/4	.240	2.244	.562	3	9	.040
7/16"	14	S5/16".310"-EI14BSWTM3...	80062	5/16	.310	2.480	.714	3	10	.046
7/16"	14	S5/16".310"-EI14BSWTM5...	80232	5/16	.310	2.480	.714	5	10	.046
1/2"	12	S5/16".310"-EI12BSWTM3...	80063	5/16	.310	2.480	.750	3	9	.053
1/2"	12	S5/16".310"-EI12BSWTM5...	80447	5/16	.310	2.480	.750	5	9	.053
5/8"	11	S3/8".370"-EI11BSWTM...	80064	3/8	.370	2.835	.909	5	10	.058
3/4"	10	S1/2".470"-EI10BSWTM...	80065	1/2	.470	3.268	1.100	5	11	.064
7/8"	9	S1/2".470"-EI9BSWTM...	80066	1/2	.470	3.268	1.111	5	10	.071
1"	8	S5/8".620"-EI8BSWTM...	80067	5/8	.620	3.622	1.500	5	12	.080
1 1/8"	7	S5/8".620"-EI7BSWTM...	80068	5/8	.620	3.622	1.429	5	10	.091
1 3/8"	6	S5/8".620"-EI6BSWTM...	80069	5/8	.620	3.622	1.500	5	9	.107
1 5/8"	5	S3/4".745"-EI5BSWTM...	80070	3/4	.745	4.095	1.600	5	8	.128
1 7/8"	4.5	S3/4".745"-EI4.5BSWTM...	80071	3/4	.745	4.095	1.555	5	7	.142

BSP

Straight

External / Internal





Defined by: B.S.2779:1956
Tolerance class: Medium class

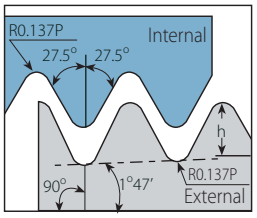
Straight Flutes

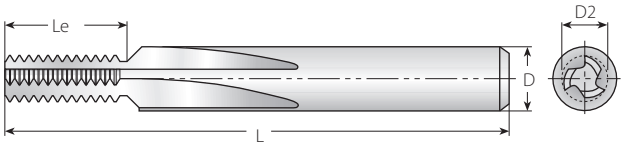
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
Min. Dia.	TPI	External / Internal	VTS	D	D2	L	Le	Z	Zt	h
1/16"	28	S1/4".240"-EI28BSPTM...	80076	1/4	.240	2.244	.571	3	16	.023
1/4"	19	S5/16".310"-EI19BSPTM3...	80073	5/16	.310	2.480	.737	3	14	.034
1/4"	19	S5/16".310"-EI19BSPTM5...	80234	5/16	.310	2.480	.737	5	14	.034
1/2"	14	S1/2".470"-EI14BSPTM...	80074	1/2	.470	3.268	1.143	5	16	.046
1"	11	S5/8".620"-EI11BSPTM...	80075	5/8	.620	3.622	1.364	5	15	.058

BSPT

Straight

External / Internal





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

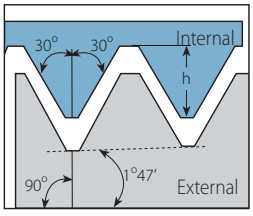
Straight Flutes

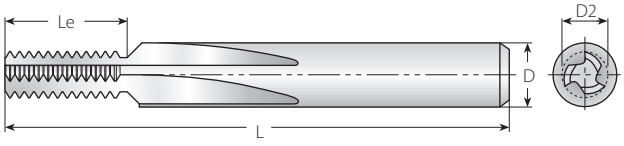
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
Min. Dia.	TPI	External / Internal	VTS	D	D2	L	Le	Z	Zt	h
1/16"	28	S1/4".240"-EI28BSPT-TM...	80072	1/4	.240	2.244	.393	3	11	.023
1/4"	19	S5/16".310"-EI19BSPT-TM3...	80077	5/16	.310	2.480	.579	3	11	.034
1/4"	19	S5/16".310"-EI19BSPT-TM5...	80235	5/16	.310	2.480	.579	5	11	.034
1/2"	14	S1/2".470"-EI14BSPT-TM...	80078	1/2	.470	3.268	.786	5	11	.046
1"	11	S5/8".620"-EI11BSPT-TM...	80079	5/8	.620	3.622	1.545	5	17	.058

NPT

Straight

External / Internal



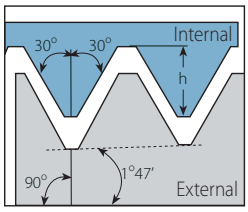


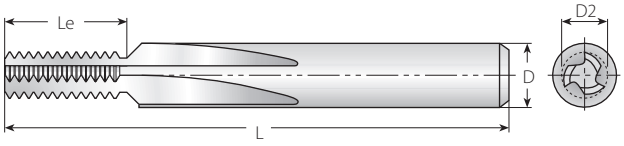
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT

Straight Flutes

Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
Min. Dia.	TPI	External / Internal	VTS	D	D2	L	Le	Z	Zt	h
1/16"	27	S1/4".240"-EI27NPT-TM...	80080	1/4	.240	2.244	.370	3	10	.030
1/4"	18	S5/16".310"-EI18NPT-TM3...	80081	5/16	.310	2.480	.555	3	10	.044
1/4"	18	S5/16".310"-EI18NPT-TM5...	80190	5/16	.310	2.480	.555	5	10	.044
1/2"	14	S1/2".470"-EI14NPT-TM...	80082	1/2	.470	3.268	.786	5	11	.057
1"	11.5	S5/8".620"-EI11.5NPT-TM...	80083	5/8	.620	3.622	1.043	5	12	.070
2 1/2"	8	S5/8".620"-EI8NPT-TM...	80084	5/8	.620	3.622	1.500	5	12	.100

External / Internal





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

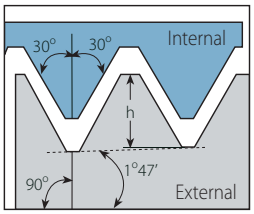
Straight Flutes

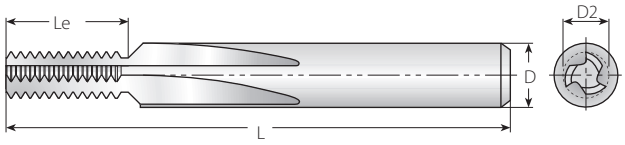
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
Min. Dia.	TPI	External / Internal		D	D2	L	Le	Z	Zt	h
1/4"	18	S5/16".310"-EI18ANPT-TM5...	81056	5/16	.310	2.480	.555	5	10	.044
1/2"	14	S1/2".470"-EI14ANPT-TM...	81057	1/2	.470	3.268	.786	5	11	.057

NPTF

Straight

External / Internal





Defined by: ANSI 1.20.3-1976
Tolerance class: Standard NPTF

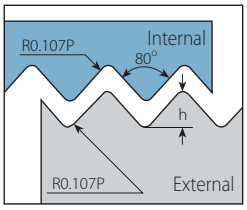
Straight Flutes

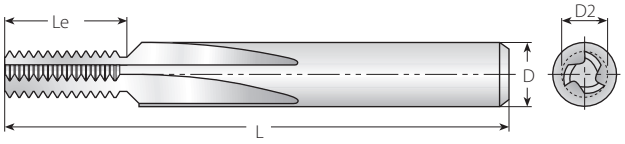
Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
Min. Dia.	TPI	External / Internal	VTS	D	D2	L	Le	Z	Zt	h
1/16"	27	S1/4".240"-EI27NPTFTM...	80085	1/4	.240	2.244	.370	3	10	.030
1/4"	18	S5/16".310"-EI18NPTFTM3...	80086	5/16	.310	2.480	.555	3	10	.044
1/4"	18	S5/16".310"-EI18NPTFTM5...	80233	5/16	.310	2.480	.555	5	10	.044
1/2"	14	S1/2".470"-EI14NPTFTM...	80087	1/2	.470	3.268	.786	5	11	.057
1"	11.5	S5/8".620"-EI11.5NPTFTM...	80088	5/8	.620	3.622	1.043	5	12	.070
2 1/2"	8	S5/8".620"-EI8NPTFTM...	80089	5/8	.620	3.622	1.500	5	12	.100

Pg

Straight

External / Internal





Defined by: DIN 40430
Tolerance class: Standard

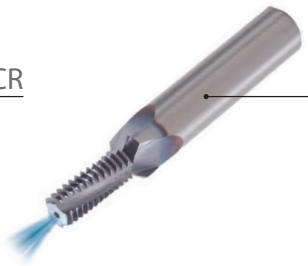
Straight Flutes

Thread	Pitch	Ordering Code	EDP No.	Dimensions Inch				No. of Flutes	Teeth	
	TPI	External / Internal	VTS	D	D2	L	Le	Z	Zt	h
Pg7	20	S5/16".310"-EI20PGTM3...	80090	5/16	.310	2.480	.750	3	15	.024
Pg7	20	S5/16".310"-EI20PGTM5...	80448	5/16	.310	2.480	.750	5	15	.024
Pg9, 11, 13.5, 16	18	S3/8".370"-EI18PGTM...	80091	3/8	.370	2.835	.944	5	17	.026
Pg21, 29, 36, 42, 48	16	S1/2".470"-EI16PGTM...	80092	1/2	.470	3.268	1.125	5	18	.030

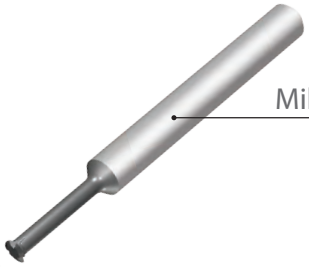
VTH


Helicool


HCR


HCC


MilliPro


MilliPro Dental


MilliPro HD


MilliPro EL


Deep Threading


Helical

- A general-purpose, heavy duty thread milling grade
- TiCN coated for high resistance to wear

VTS


Straight

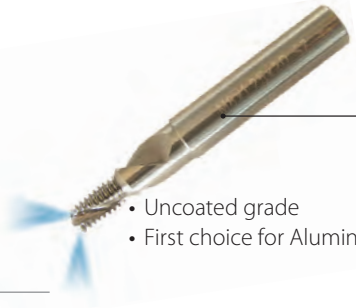
- A general-purpose grade, specially designed for TM Solid Straight Flute cutters
- TiAlN coated for high resistance to wear

VTS


HTC (Thriller)

- TiAlN coated grade
- First choice for Cast Iron and general use

VTN


HTC (Thriller)

- Uncoated grade
- First choice for Aluminium and general use

VARGUS GENius™ Tool Selector and CNC Program Generator

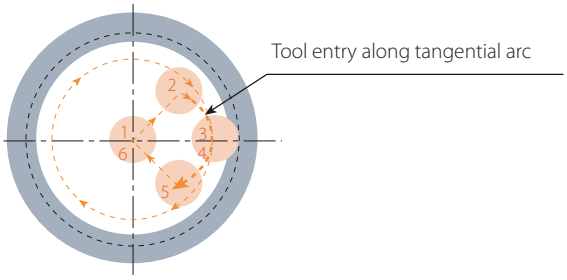
TM Solid

Recommended Cutting Speeds Vc [ft/min] and Feed f [inch/tooth] (Not Including HTC & MilliPro HD)

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [ft/min]			Feed [inch/tooth]				
					Helicool, HCR, HCC, Helical, Sraight, Deep Threading		MilliPro	He-Lex	Straight	Deep Threading	Helicool HCC HCR	MilliPro
					VTH	VTS	VTH					
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	262-820	164-590	197-393	.0012-.0031	.0012-.0031	.0039-.0138	.0012-.0031	.0008-.0063
	2		Medium Carbon (C=0.25-0.55%)	150	262-754	164-459	197-393	.0012-.0031	.0012-.0031	.0031-.0118	.0012-.0031	.0008-.0063
	3		High Carbon (C=0.55-0.85%)	170	262-656	164-393	197-295	.0012-.0031	.0012-.0024	.0031-.0118	.0012-.0031	.0008-.0063
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	197-590	197-557	197-295	.0012-.0031	.0012-.0028	.0031-.0118	.0012-.0031	.0008-.0063
	5		Hardened	275	197-557	197-525	164-262	.0012-.0028	.0012-.0028	.0031-.0118	.0012-.0028	.0008-.0028
	6		Hardened	350	197-525	197-492	164-262	.0008-.002	.0008-.0016	.002-.0059	.0008-.0024	.0008-.0012
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	131-328	131-295	164-262	.0012-.0028	.0012-.0028	.0039-.0094	.0012-.0028	.0008-.0035
	8		Hardened	325	98-262	98-230	164-262	.0008-.0016	.0008-.002	.002-.0059	.0012-.0024	.0008-.0012
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	262-820	230-656	230-295	.0012-.0031	.0012-.0024	.0031-.0118	.0012-.0028	.0008-.0063
	10		High Alloy (alloying elements >5%)	225	197-557	197-492	197-262	.0012-.002	.0012-.0024	.002-.0059	.0012-.0028	.0008-.0012
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	197-492	164-459	197-295	.0016-.0028	.0008-.002	.0043-.0138	.0012-.0031	.0008-.0063
	12		Hardened	330	197-393	164-361	164-262	.0008-.0024	.0004-.0012	.002-.0094	.0012-.0024	.0008-.0012
	13	Stainless Steel Austenitic	Austenitic	180	197-459	197-426	197-295	.0012-.0031	.0008-.002	.0043-.0138	.0012-.0031	.0008-.0063
	14		Super Austenitic	200	197-426	164-393	164-262	.0012-.0031	.0008-.002	.0043-.0138	.0012-.0024	.0008-.0063
	15	Stainless Steel Cast Ferritic	Non Hardened	200	197-525	164-492	197-295	.0012-.0031	.0008-.002	.0043-.0138	.0012-.0024	.0008-.0063
	16		Hardened	330	197-361	164-328	164-262	.0008-.002	.0008-.0012	.0039-.0094	.0008-.002	.0008-.0012
	17	Stainless Steel Cast Austenitic	Austenitic	200	197-492	164-459	197-295	.0012-.0031	.0008-.0024	.0043-.0138	.0008-.002	.0008-.0063
	18		Hardened	330	197-328	164-295	164-262	.0008-.002	.0004-.0012	.0039-.0094	.0008-.0016	.0008-.0012
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	197-230	197-492	164-262	.0012-.0031	.0012-.0031	.002-.0059	.0012-.0031	.0008-.0012
	29		Pearlitic (long chips)	230	197-492	262-328	197-295	.0012-.0031	.0012-.0024	.0039-.0094	.0012-.0028	.0008-.0047
	30	Grey Cast Iron	Low Tensile Strength	180	230-525	164-459	230-328	.0012-.0031	.0012-.0024	.0035-.0098	.0012-.0028	.0008-.0063
	31		High Tensile Strength	260	131-393	131-361	197-295	.0008-.0024	.0008-.002	.0039-.0094	.0012-.0028	.0008-.0047
	32	Nodular Sg Iron	Ferritic	160	131-361	131-328	230-328	.0012-.0031	.0012-.0028	.0035-.0098	.0012-.0031	.0008-.0063
	33		Pearlitic	260	131-328	131-295	197-295	.0008-.0024	.0008-.002	.0039-.0094	.0012-.0028	.0008-.0047
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	656-984	492-820	197-820	.002-.0047	.002-.0059	.0047-.0157	.0016-.0039	.0012-.0059
	35		Aged	100	492-820	328-721	197-492	.002-.0047	.0012-.0039	.0039-.0126	.0012-.0039	.0012-.0063
	36	Aluminium Alloys	Cast	75	328-656	262-492	197-820	.002-.0047	.002-.0059	.0039-.0126	.0012-.0039	.0012-.0063
	37		Cast & Aged	90	393-721	295-525	197-492	.002-.0047	.0012-.0039	.0039-.0118	.0024-.0047	.0008-.0063
	38	Aluminium Alloys	Cast Si 13-22%	130	656-984	492-820	820	.002-.0047	.002-.0059	.0039-.0126	.002-.0047	.0012-.0059
	39	Copper and Copper Alloys	Brass	90	656-984	492-820	197-820	.0024-.0051	.002-.0059	.0047-.0157	.002-.0047	.0012-.0063
	40		Bronze And Non Leaded Copper	100	492-820	328-721	197-492	.002-.0047	.0012-.0039	.0039-.0126	.002-.0047	.0012-.0059
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	98-197	98-164	197	.0012-.0028	.0008-.0016	.0043-.0138	.0012-.0276	.0008-.0063
	20		Aged (iron based)	280	66-164	66-131	164	.0008-.0016	.0004-.0012	.002-.0059	.0012-.0024	.0008-.0012
	21		Annealed (nickel or cobalt based)	250	49-115	49-98	115	.0008-.0016	.0004-.0012	.002-.0059	.0012-.0024	.0008-.0012
	22		Aged (nickel or cobalt based)	350	49-98	49-82	98	.0008-.0016	.0004-.0012	.002-.0059	.0008-.002	.0008-.0012
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	131-262	98-230	98-164	.0008-.0016	.0004-.0012	.0039-.0094	.0008-.002	.0008-.0028
	24		α+β Alloys	1050Rm	66-164	66-148	82-115	.0008-.0016	.0004-.0008	.0039-.0094	.0008-.0016	.0008-.0028
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	49-148	49-115	148	.0008-.0012	.0008	.0012-.0024	.0008-.0012	-
	26			51-55HRc	49-131	49-98	98	.0008-.0012	.0004	.0012-.0024	.0008-.0012	-

Recommendation:
At tool entry, set the Feed f [inch/tooth] to 70% lower than the threading Feed.

Example:
Threading Feed: .012[inch/tooth]
Tool entry Feed: .0035[inch/tooth]



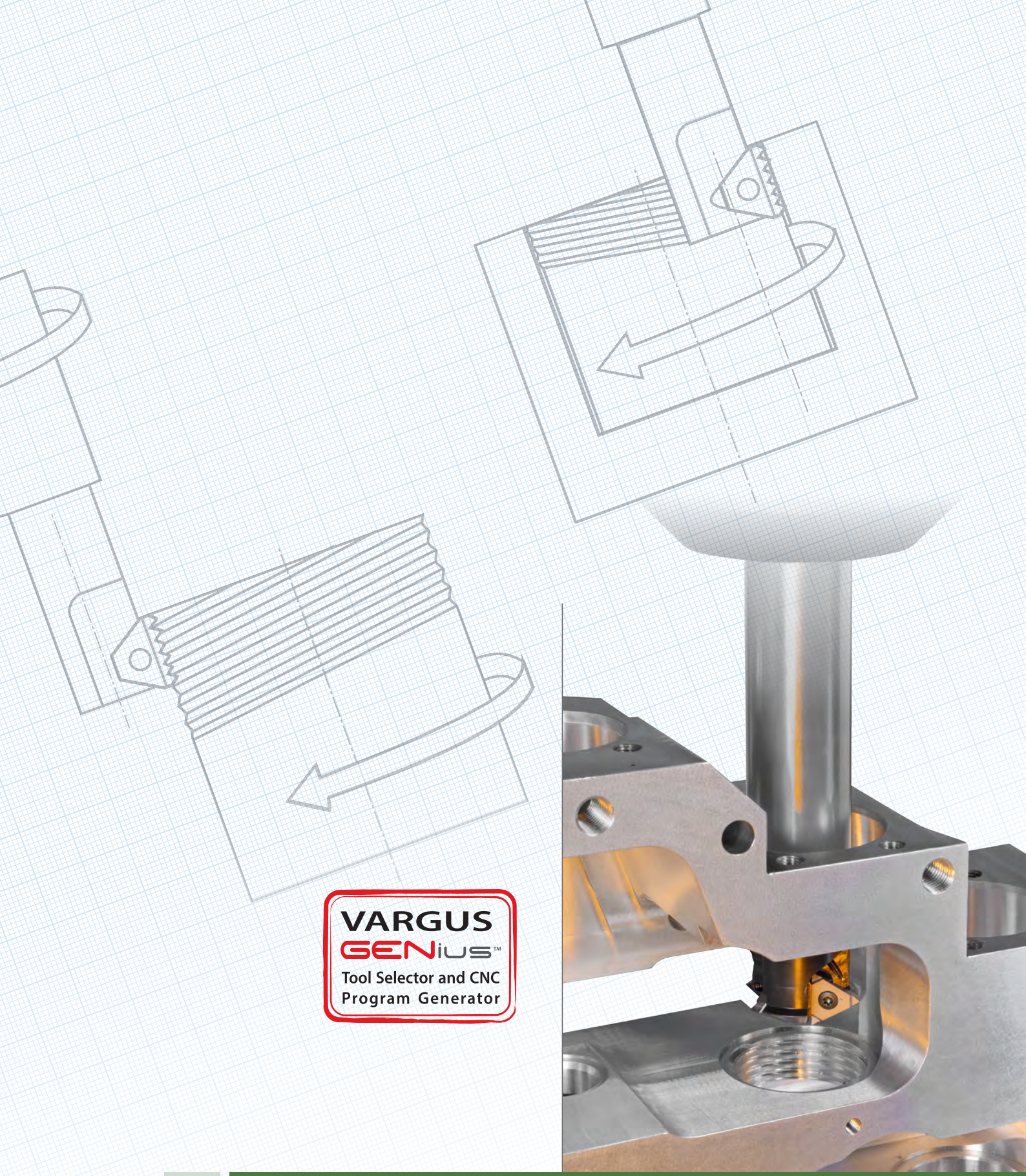
MilliPro HD
Cutting Speeds Vc [ft/min] and Feed f [inch/tooth]

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [ft/min]	Feed f [inch/tooth] by Cutting Dia.=D2				
					VTH	.06-.10	.10-.20	.20-.30	.30-.35	.35-.45
P Steel	6	Low Alloy Steel (alloying elements≤5%)	Hardened	350	82-525	.0016	.0020	.0024	.0028	.0031
	8	High Alloy Steel (alloying elements>5%)	Hardened	325	82-591					
M Stainless Steel	12	Stainless Steel Ferritic	Hardened	330	82-394	.0016	.0020	.0024	.0028	.0031
	16	Stainless Steel Cast Ferritic	Hardened	330	82-361					
	18	Stainless Steel Cast Austenitic	Hardened	330	82-328					
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	82-525	.0020	.0024	.0028	.0031	.0039
	29		Pearlitic (long chips)	230	82-492	.0016	.0020	.0024	.0028	.0031
	30	Grey Cast Iron	Low Tensile Strength	180	82-427	.0020	.0024	.0028	.0031	.0039
	31		High Tensile Strength	260	82-328	.0016	.0020	.0024	.0028	.0031
	32	Nodular Sg Iron	Ferritic	160	82-410	.0016	.0020	.0024	.0028	.0035
	33		Pearlitic	260	82-295	.0012	.0016	.0020	.0024	.0028
S Heat Resistant Material	21	High Temperature Alloys	Annealed (nickel or cobalt based)	250	49-115	.0012	.0016	.0020	.0024	.0028
	22		Aged (nickel or cobalt based)	350	49-98					
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	82-230					
	24		α+β alloys	1050Rm	82-164					
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	82-230	.0016	.0020	.0024	.0028	.0031
	26			51-55HRc	82-197	.0012	.0016	.0020	.0024	.0028
	27			56-62HRc	82-164	.0008	.0012	.0016	.0020	.0024

HTC Recommended Grades, Cutting Speed and Feed

Material Group	Material		Hardness Brinell HB	Strength (N-mm2)	Vc[ft/min]		fb[Inch/rev]		fz[inch/tooth]	
					VTN	VTS	≤.24 inch	≤.47 inch	≤.24 inch	≤.47 inch
K Cast Iron	Cast Iron	Grey Cast Iron	≤150	≤500	164-262	262-394	.004-.006	.006-.009	.001-.002	.002-.004
		Grey Cast Iron, Heat Treated	150-300	500-1000	164-262	262-394	.004-.006	.006-.009	.001-.002	.002-.004
		Spher. Graph. Cast Iron	≤200	≤700	164-262	262-394	.004-.006	.006-.009	.001-.002	.002-.004
	Copper	Short Chips, Brass, Bronze, Red Brass	≤200	≤700	328-984	—	.002-.004	.004-.012	.001-.002	.002-.004
N Non-Ferrous Metals	Aluminium/ Magnesium	Aluminium, Magnesium Non-Alloy	≤100	≤350	328-1,312	328-1,312	.004-.010	.010-.012	.001-.002	.002-.004
		Aluminium, Wrought Alloy, Breaking Strain (A5) < 14%	≤180	≤600	328-1,312	328-1,312	.004-.010	.010-.012	.001-.002	.002-.004
		Aluminium, Wrought Alloy, Breaking Strain (A5) ≥ 14%	≤180	≤600	328-1,312	328-1,312	.001-.002	.002-.005	.001-.002	.002-.004
		Aluminium, Cast Alloy, Si<10%	≤180	≤600	328-984	328-1,312	.004-.010	.010-.012	.001-.002	.002-.004
		Aluminium, Cast Alloy, Si≥10%	≤180	≤600	—	328-984	.004-.010	.010-.012	.001-.002	.002-.004
K	Plastic	Thermo Plastics	—	—	197-394	197-394	.004-.010	.010-.012	.001-.002	.002-.004
		Thermosetting Plastic	—	—	197-328	197-328	.004-.010	.010-.012	.001-.002	.002-.004
		Fiber Reinforced Plastic	—	—	131-197	197-262	.004-.006	.006-.009	.001-.002	.002-.004

Vc - Cutting Speed [ft/min]
fb - (Drilling) - Feed per Revolution [inch/rev]
fz - (Threading) - Feed per Tooth [inch/tooth]



VARGUS
GENius™
Tool Selector and CNC
Program Generator

Thread Milling Technical Data

About Thread Milling

To perform a thread milling operation, a milling machine with three-axis control capable of helical interpolation is required. Helical interpolation is a CNC function producing tool movement along a helical path. This helical motion combines circular movement in one plane with a simultaneous linear motion in a plane perpendicular to the first. For example, the path from point A to point B (Fig. A) on the envelope of the cylinder combines a circular movement in the xy plane with a linear displacement in the z direction.
On most CNC systems this function can be executed in two different ways:

G02: Helical interpolation in a clockwise direction
G03: Helical interpolation in a counter-clockwise direction

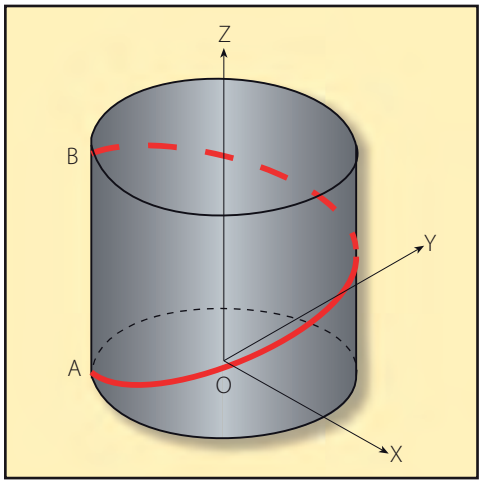
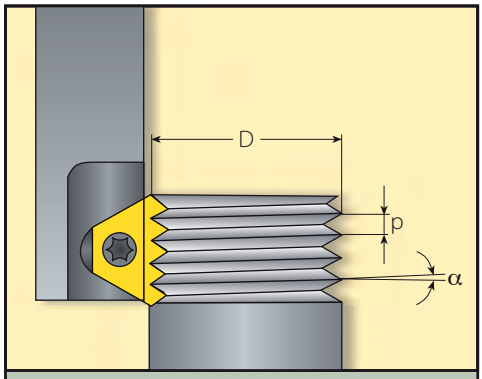


Fig. A



α: Helix angle
D: External diameter
p: Pitch

Fig. B

The thread milling operation (Fig. B) consists of circular rotation of the tool around its own axis together with an orbiting motion along the bore or workpiece circumference.
During one such orbit, the tool will shift vertically one pitch length. These movements combined with the insert geometry create the required thread form.
There are three acceptable ways of approaching the workpiece with the tool to initiate production of the thread:

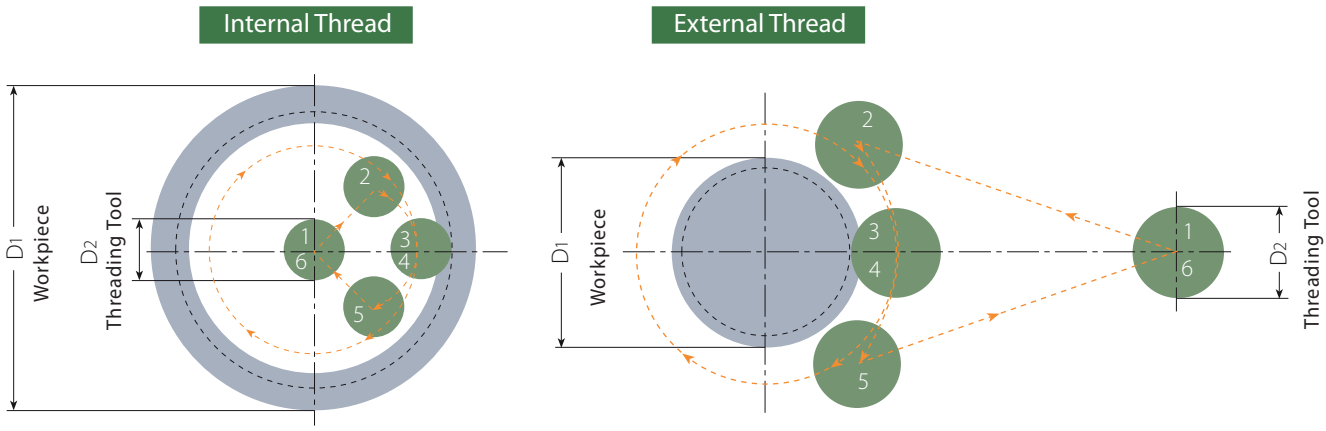
1 **Tangential Arc Approach**

2 **Radial Approach**

3 **Tangential Line Approach**

1 Tangential Arc Approach

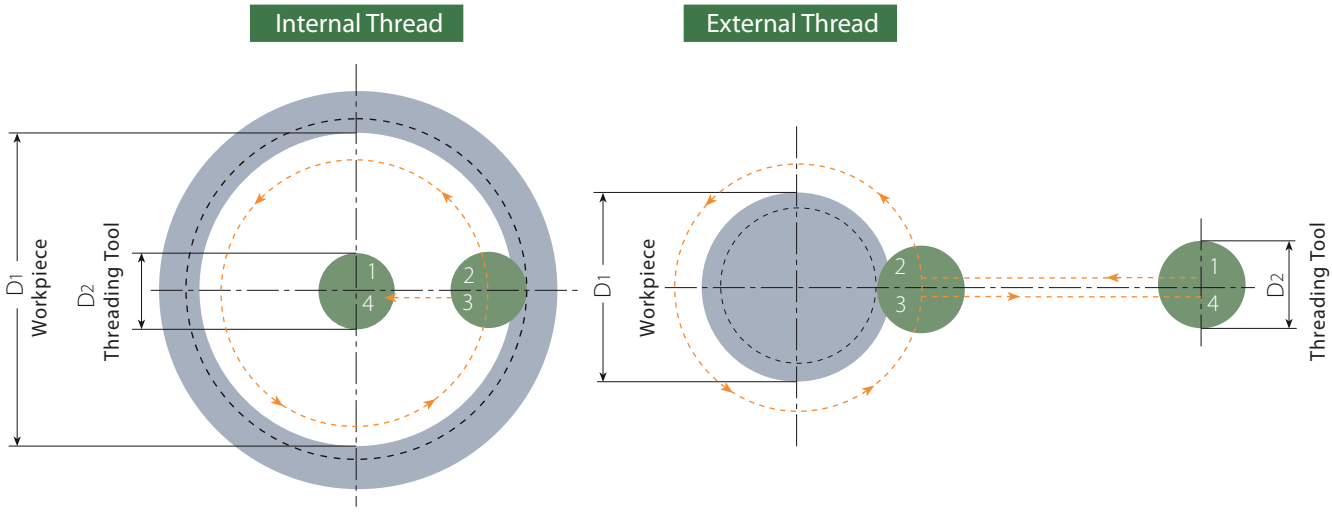
With this method, the tool enters and exits the workpiece smoothly. No marks are left on the workpiece and there is no vibration, even with harder materials.
Although it requires slightly more complex programming than the radial approach (see below), this is the method recommended for machining the highest quality threads.



1-2: Rapid approach
2-3: Tool entry along tangential arc, with simultaneous feed along z-axis
3-4: Helical movement during one full orbit (360°)
4-5: Tool exit along tangential arc, with continuing feed along z-axis
5-6: Rapid return

2 Radial Approach

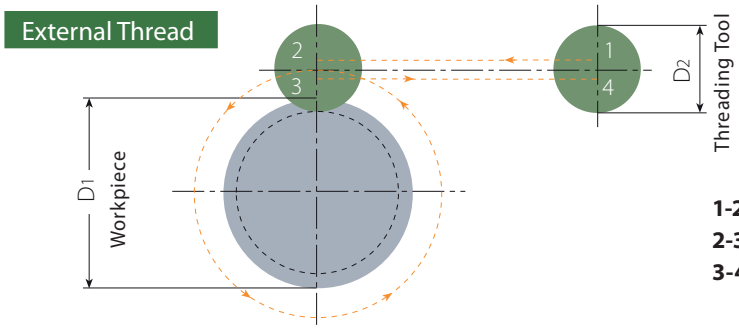
This is the simplest method. There are two characteristics worth noting about the radial approach:
1. A small vertical mark may be left at the entry (and exit) point. This is of no significance to the thread itself.
2. When using this method with very hard materials, there may be a tendency of the tool to vibrate as it approaches the full cutting depth.
Note: Radial feed during entry to the full profile depth should only be ⅓ of the subsequent circular feed.



1-2: Radial entry
2-3: Helical movement during one full orbit (360°)
3-4: Radial exit

3 Tangential Line Approach

This method is very simple, and has all of the advantages of the tangential arc method. However, it is applicable only with external threads.



1-2: Radial entry with simultaneous feed along z axis
2-3: Helical movement during one full orbit (360°)
3-4: Radial exit

Preparing for the Thread Milling Operation

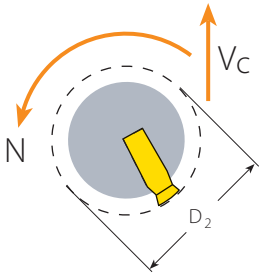
1 Calculation of Rotational Velocity and Feed at the Cutting Edge

$$N = \frac{12 \times V}{\pi \times D_2}$$

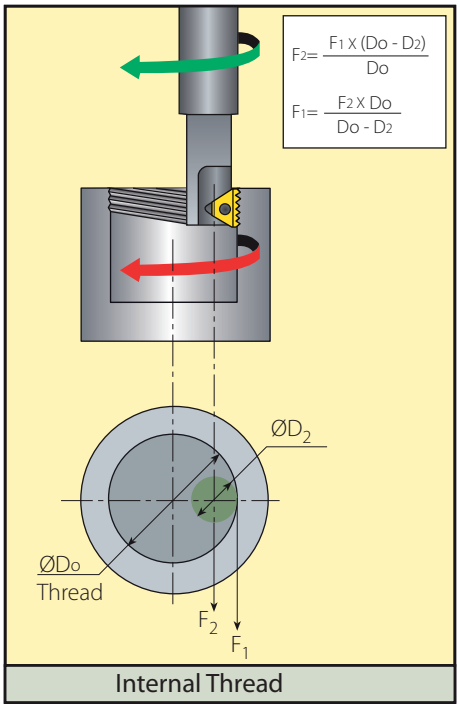
$$V = \frac{N \times \pi \times D_2}{12}$$

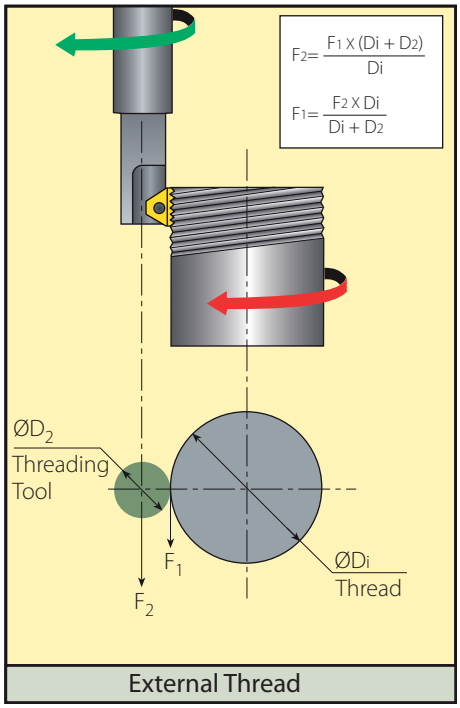
$$F_1 = N \times z \times f$$

N - Rotational Velocity [R.P.M.]
V - Cutting Speed [ft/min]
D_2 - Toolholder Cutting Dia. [Inch]
F_1 - Tool Feed Rate at the Cutting Edge [Inch/min]
z - No. of Cutting Edges
f - Feed per Tooth per Rotation [inch/tooth]



2 Calculation of Feed Rates at the Tool Center Line





The equations define the relationship between feed rates at the cutting edge and at the tool center line.
On most CNC machines the feed rate required for programming is that of the center-line of the tool. When dealing with linear tool movement the feed rate at the cutting edge and the center line are identical. This is not the case with circular tool movement.

List of "G" Codes (ISO) for CNC Program

Code	Description
%	Recognition code (ISO or EIA) + End of tape
G00	Fast feed linear positioning
G01	Linear interpolation
G02	Circular/Helical interpolation CW
G03	Circular/Helical interpolation CCW
G40	Cutter radius compensation cancel
G41	Cutter radius compensation left
G42	Cutter radius compensation right
G43	Tool length compensation +
G49	Tool length compensation cancel
G57	Work coordinate system selection
G90	Absolute command relative to work coordinate origin
G91	Incremental command relative to tool position
F	Feed Inch/min
S	Spindle speed RPM

Code	Description
H	Tool length compensation number
D	Tool radius compensation number
X	X coordinate
Y	Y coordinate
Z	Z coordinate
R	Radius of travel
I	X coordinate to center of starting arc travel
J	Y coordinate to center of starting arc travel
M3	Spindle forward rotation
M5	Spindle stop
M30	Program end & rewind
O	Program number
N	Block number (can be avoided)
(	Start of comment
)	End of comment

CNC Program Sample (Thread: M60 x 1.5 x 20)

%

O0001 (TMINRH CLIMB CYCLES = 1)..... Program no.

(Fanuc 11M Controller.) ..... Remark

G90 G00 G57 X0 Y0..... Home (origin) set

G43 H10 Z0 M3 S946 ..... Tool length compensation-on and RPM set

G91 G00 X0 Y0 Z-0.7981 ..... Go down in Z-axis

G41 D60 X0.3724 Y-0.8108 Z0..... Tool diameter compensation-on

G91 G03 X0.8108 Y0.8108 Z0.0107 R0.8108 F1.4173 ..... Entrance by tangential arc

G91 G03 X0 Y0 Z0.0591 I-1.1832 J0 ..... Thread machining-HELICAL interpolation movement

G91 G03 X-0.8108 Y0.8108 Z0.0107 R0.8108 ..... Exit by tangential arc

G00 G40 X-0.3724 Y-0.8108 Z0 ..... Tool diameter compensation-off

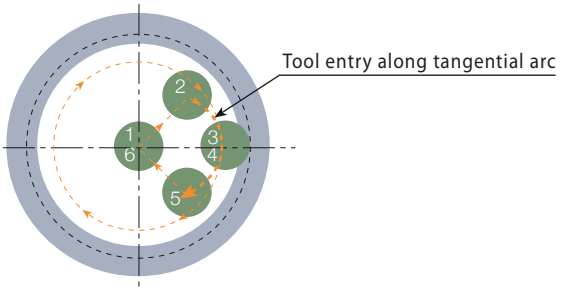
G90 G49 G57 G00 Z7.874 M5..... Tool length compensation-off and RPM close

M30 ..... End of program

%

Recommendation:
At tool entry, set the Feed f [inch/tooth] to 70% lower than the threading Feed.

Example:
Threading Feed: .0012[inch/tooth]
Tool entry Feed: .0036[inch/tooth]



Minimum Bore Diameters for TM Standard line

Pitch mm		0.5	0.6	0.7	0.75 0.80	0.9	1.0	1.25	1.5	1.75	2.0		2.5	3.0	3.5	4.0	4.5	5.0	5.5		6.0	
Pitch TPI		48	44	36	32	28	26 24	20 19	18 16	14	13 12	11.5 11	10	9 8	7	6		5		4.5		4
Toolholder Ordering Code	D2	Minimum Bore Diameter Di Inch																				
TMMC050-6.0	.35	.37	.38	.39	.39	.41	.42	.45	.47													
TMMC075-6.0	.35	.37	.38	.39	.39	.41	.42	.45	.47													
TMMC075-6.0124/203	.35	.37	.38	.39	.39	.41	.42	.45	.47													
TMC050-2	.45	.47	.48	.49	.49	.51	.52	.55	.57	.59												
TMC075-2	.45	.47	.48	.49	.49	.51	.52	.55	.57	.59												
TMLC100-2	.45	.47	.48	.49	.49	.51	.52	.55	.57	.59												
TMSC0375-2	.49	.51	.50	.54	.53	.55	.56	.59	.61	.63												
TMOC075-2	.57	.59	.60	.6	.61	.63	.65	.67	.70	.73												
TMNC0625-3	.61	.63	.64	.65	.65	.67	.68	.70	.73	.75	.77	.79										
TMC075-3124/201	.61	.63	.64	.65	.65	.67	.68	.70	.73	.75	.77	.79										
TMC0625-3	.67	.69	.70	.71	.72	.74	.75	.77	.79	.81	.83	.85										
BTMC0625-3B	.67	.69	.70	.71	.72	.74	.75	.77	.79	.81	.83	.85										
TM2C075-2	.67	.69	.70	.71	.72	.74	.75	.77	.79	.81												
BTMC075-3B	.75	.78	.79	.80	.80	.82	.83	.85	.87	.89	.91	.93										
TMNC075-3	.75	.78	.79	.80	.80	.82	.83	.85	.87	.89	.91	.93										
TMC075-3	.79	.81	.83	.83	.84	.86	.87	.89	.91	.93	.94	.96										
TMOC075-3	.79	.81	.83	.83	.84	.86	.87	.89	.91	.93	.94	.96										
BTMWC100-3B	.87	.89	.91	.91	.92	.94	.94	.97	.98	1.00	1.02	1.04										
BTMLC100-3B	.87	.89	.91	.91	.92	.94	.94	.97	.98	1.00	1.02	1.04										
TMLC100-3	.87	.89	.91	.91	.92	.94	.94	.97	.98	1.00	1.02	1.04										
TMC100-5124/204	.98	1.01	1.02	1.03	1.04	1.06	1.06	1.09	1.11	1.13	1.15	1.17	1.23	1.33	1.44	1.56	1.68					
TM2C100-3	1.02	1.05	1.06	1.07	1.08	1.09	1.10	1.13	1.15	1.17	1.19	1.21										
BTM2C100-3B	1.02	1.05	1.06	1.07	1.08	1.09	1.10	1.13	1.15	1.17	1.19	1.21										
TMC100-5	1.18	1.21	1.22	1.23	1.24	1.25	1.26	1.29	1.32	1.34	1.36	1.40	1.44	1.54	1.65	1.77	1.89					
TMLC100-5	1.18	1.21	1.22	1.23	1.24	1.25	1.26	1.29	1.32	1.34	1.36	1.40	1.44	1.54	1.65	1.77	1.89					
TMOC100-5	1.18	1.21	1.22	1.23	1.24	1.25	1.26	1.29	1.32	1.34	1.36	1.40	1.44	1.54	1.65	1.77	1.89					
TMC125-6B	1.38								1.52	1.54	1.56	1.60	1.65	1.73	1.85	1.97	2.10	1.67	1.97	1.76	2.26	2.23
TMC125-5	1.46	1.50	1.50	1.51	1.52	1.54	1.56	1.59	1.61	1.63	1.65	1.69	1.73	1.83	1.93	2.05	2.19					
TMLC125-5	1.46	1.50	1.50	1.51	1.52	1.54	1.56	1.59	1.61	1.63	1.65	1.69	1.73	1.83	1.93	2.05	2.19					
TMNC125-5	1.46	1.50	1.50	1.51	1.52	1.54	1.56	1.57	1.61	1.63	1.65	1.69	1.73	1.83	1.93	2.05	2.19					
TMSHD150-050-2	1.50	1.52	1.52	1.53	1.54	1.56	1.57	1.61	1.65	1.69												
TM2C125-5	1.65	1.70	1.71	1.72	1.72	1.75	1.77	1.81	1.83	1.85	1.87	1.90	1.93	2.05	2.15	2.26	2.40					
TMVC125-5	1.81																				2.46	
TMC150-6B	1.81								1.95	1.97	1.99	2.03	2.09	2.17	2.17	2.19	2.17	2.07	2.13	2.15	2.26	2.23
TMLC150-6B	1.81								1.95	1.97	1.99	2.03	2.09	2.17	2.17	2.19	2.17	2.07	2.13	2.15	2.26	2.23
TMSHD200-075-2	1.97	1.99	2.00	2.00	2.01	2.03	2.05	2.09	2.13	2.15												
TMSHD200-075-3	1.97	1.99	2.00	2.00	2.01	2.03	2.05	2.09	2.13	2.15	2.17	2.19										

Minimum Bore Diameters for TM Standard line (con't)

Pitch mm		0.5	0.6	0.7	0.75 0.80	0.9	1.0	1.25	1.5	1.75	2.0		2.5	3.0	3.5	4.0	4.5	5.0	5.5		6.0	
Pitch TPI		48	44	36	32	28	26 24	20 19	18 16	14	13 12	11.5 11	10	9 8	7	6		5		4.5		4
Toolholder Ordering Code	D2									Minimum Bore Diameter Di Inch												
TM2C150-6B	2.05								2.20	2.21	2.22	2.24	2.32	2.42		2.48	2.52	2.60	2.64	2.66	2.72	2.76
TMSHD250-075-3B	2.48	2.5	2.51	2.52	2.52	2.54	2.56	2.6	2.64	2.66	2.68	2.72										
TMSHD250-075-5	2.48	2.5	2.51	2.52	2.52	2.54	2.56	2.6	2.64	2.66	2.68	2.72	2.76	2.83	2.87	2.91	2.95					
TMSHD250-075-6B	2.48								2.64	2.66	2.68	2.72	2.76	2.83	2.87	2.91	2.95	3.03	3.07	3.09	3.15	3.19
TMSHD300-100-5	3.15	3.17	3.18	3.19	3.19	3.21	3.23	3.27	3.31	3.33	3.35	3.39	3.43	3.50	3.54	3.58	3.62					
TMSHD300-100-6B	3.15								3.31	3.33	3.35	3.39	3.43	3.50	3.54	3.58	3.62	3.70	3.74	3.76	3.82	3.86
TMSHD400-125-5	3.94	3.96	3.96	3.97	3.98	4.00	4.02	4.06	4.09	4.11	4.13	4.17	4.21	4.29	4.33	4.37	4.41					
TMSHD400-125-6B	3.94								4.09	4.11	4.13	4.17	4.21	4.29	4.33	4.37	4.41	4.49	4.53	4.55	4.61	4.65
TMSHD500-150-5	4.92	4.94	4.95	4.96	4.96	4.98	5.00	5.04	5.08	5.10	5.12	5.16	5.20	5.28	5.31	5.35	5.39					
TMSHD500-50-6B	4.92								5.08	5.10	5.12	5.16	5.20	5.28	5.31	5.35	5.39	5.47	5.51	5.54	5.59	5.63

Coarse Pitch Tooling:

This table is not applicable to the Coarse Pitch system, which can thread mill bores smaller than those listed above.

See the Coarse Pitch section of the various thread standards.

Spare Parts for TM Standard Line




Insert Screw


IC	Holder	Holder Screw	Designation	Thread	Torx Key	Torx Size
6.0mm	TMMC..-6.0		SN7T	M2.2x0.45x5.0	K7T	T7
1/4"	TM.C..-2		SN2TM	M2.6x0.45x5.9	K2T	T8
3/8"	TM.C..-3, TMC..-3 124/...		SN3T, SN3TM	5-40UNCx8.8, 7.3	K3T	T10
3/8"B	BTM.C..-3B		SN3T	5-40UNCx8.8	K3T	T10
1/2"	TMC..-4 124/...		SN4TM, SA4TM	8-32UNCx9.8, 10.7	K4T	T20
5/8"	TM.C..-5, TMC..-5 124/...		SN5TM, SA5TM	M5x0.8x15.0	K5T	T25
3/4"B	TM.C..-6B		SM7T	M7x1.0x15.0	K30T	T30
1/4"	TMSH-D150-050-2	1/4 X 28	SN2T	M2.6x0.45x6.5	HK2T	T8
1/4"	TMSH-D200-075-2	3/8 X 24	SN2T	M2.6x0.45x6.5	HK2T	T8
3/8"	TMSH-D200-075-3		SN3TM	5-40UNCx7.3	HK3T	T10
3/8"B	TMSH-D250-075-3B		SN3TM	5-40UNCx7.3	HK3T	T10
5/8"	TMSH-D250-075-5		SN5TM	M5x0.8x15.0	HK5T	T25
3/4"B	TMSH-D250-075-6B		SM7T	M7x1.0x15.0	HK7T	T30
5/8"	TMSH-D300-100-5	1/2 X 20	SN5TM	M5x0.8x15.0	HK5T	T25
3/4"B	TMSH-D300-100-6B		SM7T	M7x1.0x15.0	HK7T	T30
5/8"	TMSH-D400-125-5	5/8 X 18	SN5TM	M5x0.8x15.0	HK5T	T25
3/4"B	TMSH-D400-125-6B		SM7T	M7x1.0x15.0	HK7T	T30
5/8"	TMSH-D500-150-5	3/4 X 16	SN5TM	M5x0.8x15.0	HK5T	T25
3/4"B	TMSH-D500-150-6B		SM7T	M7x1.0x15.0	HK7T	T30
1/4"	TMSC0375-2		SN2TK	M2.6x0.45x5.9	K2T	T8
5/8"V	TMVC125-5		SN6T	M6x1.0x29.0	K6T	T20

Spare Parts for MiTM Line





Insert Screw


Insert Size	Holder	Holder Screw	Designation	Thread	Torx Key	Torx Size
19	RTMC...A		SLD3IP6	M3x0.5	KIP6	Torx+6
24	RTMC...M		SLD4IP8	M4x0.7	KIP8	Torx+8
25	RTMC...S RTMC-D...S		SLD4IP8	M4x0.7	KIP8	Torx+8
40	RTMC...L RTMC-D...L		SLD4IP8A SCD4IP8	M4x0.7	KIP8	Torx+8
41	RTMC...B RTMC-D...B		SLD4IP8A SCD4IP8	M4x0.7	KIP8	Torx+8
25	RTMC-D150-050-25S5	1/4"-28x1.25	SLD4IP8	M4x0.7	KIP8	Torx+8
	RTMC-D190-075-25S7	3/8"-24x1.25				
	RTMC-D230-100-25S9	1/2"-20x1.50				
	RTMNC-D150-050-25S5	1/4"-28x1.25				
40	RTMCD190-075-40L7	3/8"-24x1.25	SLD4IP8A SCD4IP8	M4x0.7	KIP8	Torx+8
	RTMCD230-100-40L9	1/2"-20x1.50				
	RTMNCD190-075-40L7	3/8"-24x1.25				
41	RTMCD209-075-41B5	3/8"-24x1.5	SLD4IP8A SCD4IP8	M4x0.7	KIP8	Torx+8
	RTMCD248-100-41B6	1/2"-20x1.5				

Spare Parts for TMSD Line

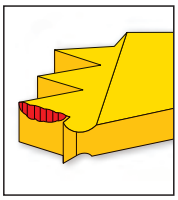
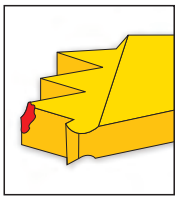
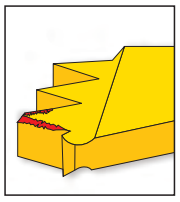
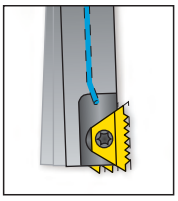
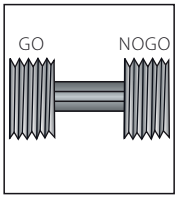




Insert Screw


IC	Holder	Holder Screw	Designation	Thread	Torx Key	Blade	Handle	Torx Size
7V	GMC...-7-3 CGMC...-7-3		SN2T8-M1	M3.0x0.5x9	K2T			T8
9V	GMC...-9-3 CGMC...-9-3		SN2T15-M2	M4x0.7x13.5	-	Blade T15-1/4	Smart Handle 1/4x2	T15
11V	GMC...-11-3 CGMC...-11-3		SN4T20-M3	M55x0.8x15.5	-	Blade T20-1/4	Smart Handle 1/4x2	T20
1/4"U, 1/4"A	TM.C....-2U CTMC...-2U or 2A		SN2T	M2.6x0.45x6.5	HK2T			T8
3/8"U, 3/8"A	TM.C....-3U TM.C-D...-3U or 3A		SN3T	5-40UNCx8.8	HK3T			T10
1/2"U	TM.C....-4U TM.C-D...-4U		SA4T	8-32UNCX14.0	HK4T			T20
5.0L	TM.C....-5L CTMC...-5L		SN5LTR	M2.2X0.45X5.0	K7T			T7
3/8"L	TM.C....-3 CTMC...-3L		SN3T SA3T	5-40UNCx8.8 5-40UNCx11.3	HK3T			T10
5/8"V	TM.SC-D...-5V..		SA5T	M5x0.8x22.0	HK5T			T25
3/8"U	TM4SC D169-050-3U	1/4-28x1.25	SN3T	5-40UNCx8.8	HK3T			T10
	TM5SC D208-075-3U	3/8-24x1.25						
1/2"U	TM6SC D346-100-4U	1/2-20x1.5	SA4T	8-32UNCX14.0	HK4T			T20
	TM8SC D435-150-4U	3/4-16x1.75						
3/8"L	TM7SC-D315-125-3L	5/8-18UNx11/2	SA3T	5-40UNCx11.3	HK3T			T10
	TM6SC-D228-075-3L-ABUT	3/8-24x1.25						
5/8"V	TM6SC D346-125-5V6-ABUT	5/8-18UNx11/2	SA5T	M5x0.8x22.0	HK5T			T25
	TM6SC D346-125-5V8-ABUT							

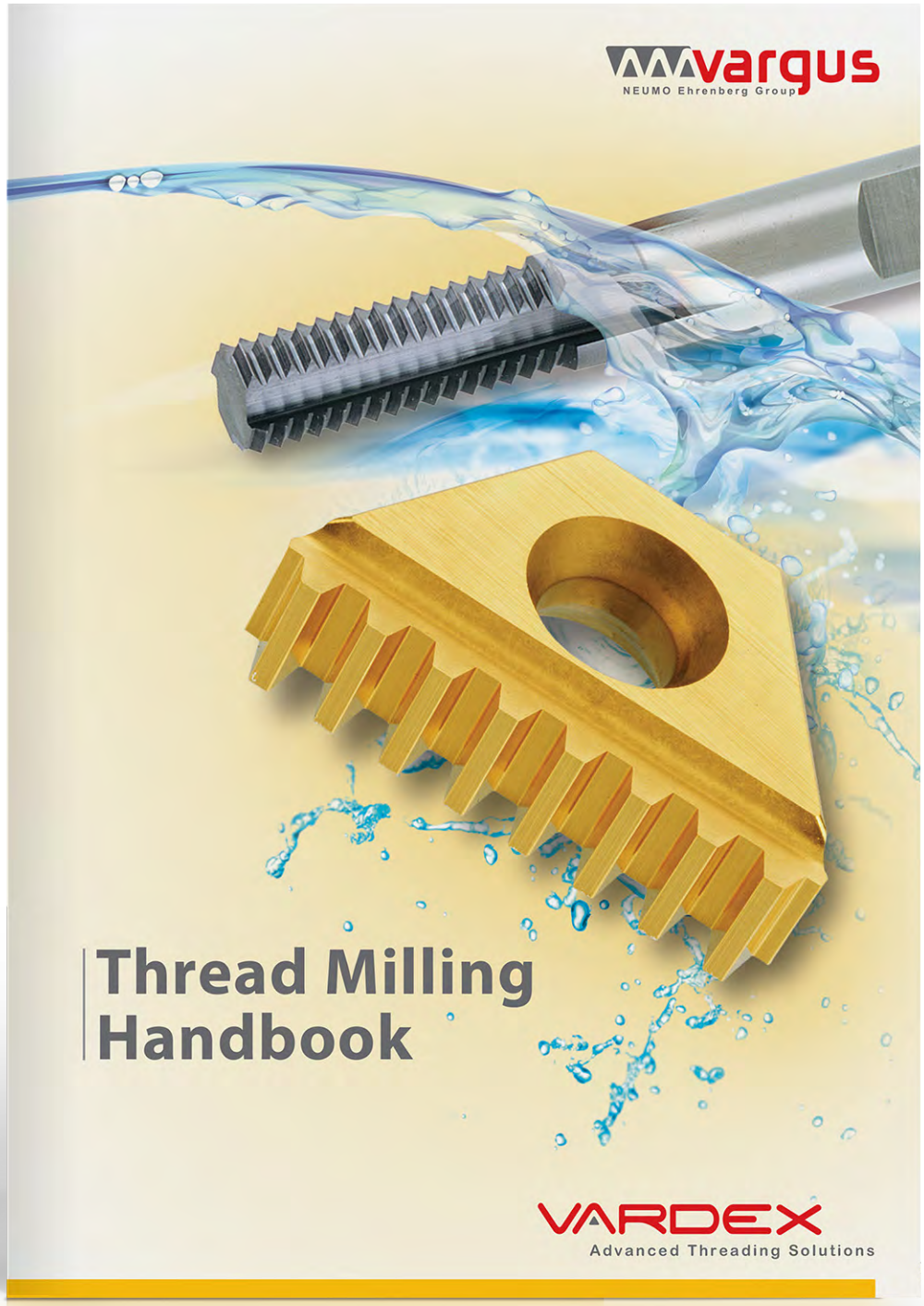
Troubleshooting

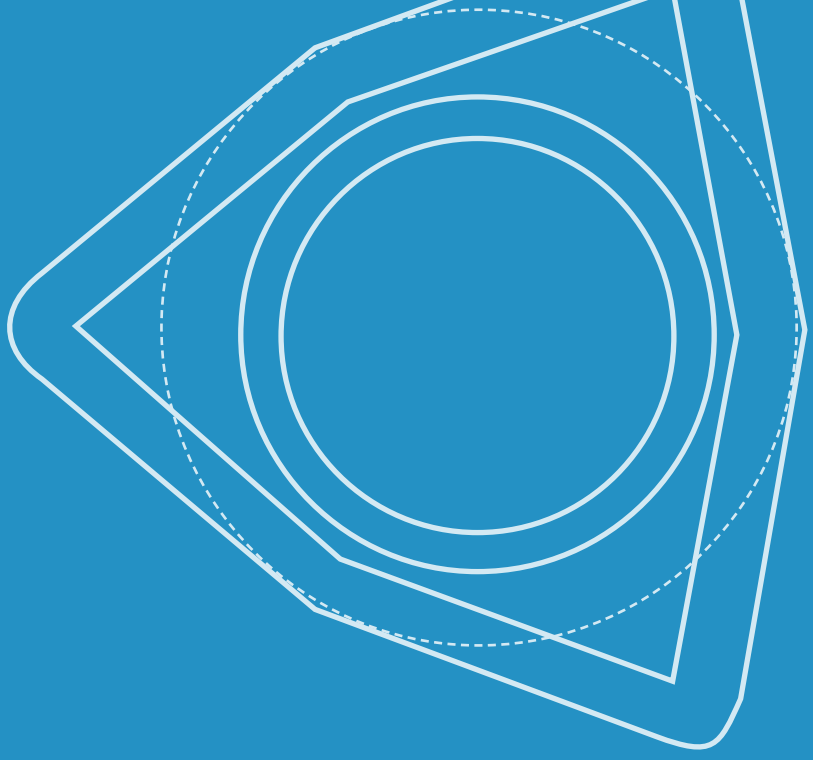
	Problem	Possible Cause	Solution
	Increased insert flank wear	Cutting speed too high ----------➤ Chip is too thin ----------➤ Insufficient coolant ----------➤	Reduce cutting speed/use coated insert Increase feed rate Increase coolant flow rate
	Chipping of cutting edge	Chip is too thick ----------➤ Vibration ----------➤	Reduce feed rate Use the tangential arc method Increase RPM Check stability
	Material build up on the cutting edge	Incorrect cutting speed ----------➤ Unsuitable carbide grade ----------➤	Change cutting speed Use a coated carbide grade
	Chatter / Vibration	Feed rate is too high ----------➤ Profile is too deep ----------➤ Thread length is too long ----------➤	Reduce the feed Execute two passes, each with increased cutting depth Execute two passes, each cutting only half the thread length Execute two passes, each cutting only half the thread length
	Insufficient thread accuracy	Tool deflection ----------➤	Reduce feed rate Execute a "zero" cut

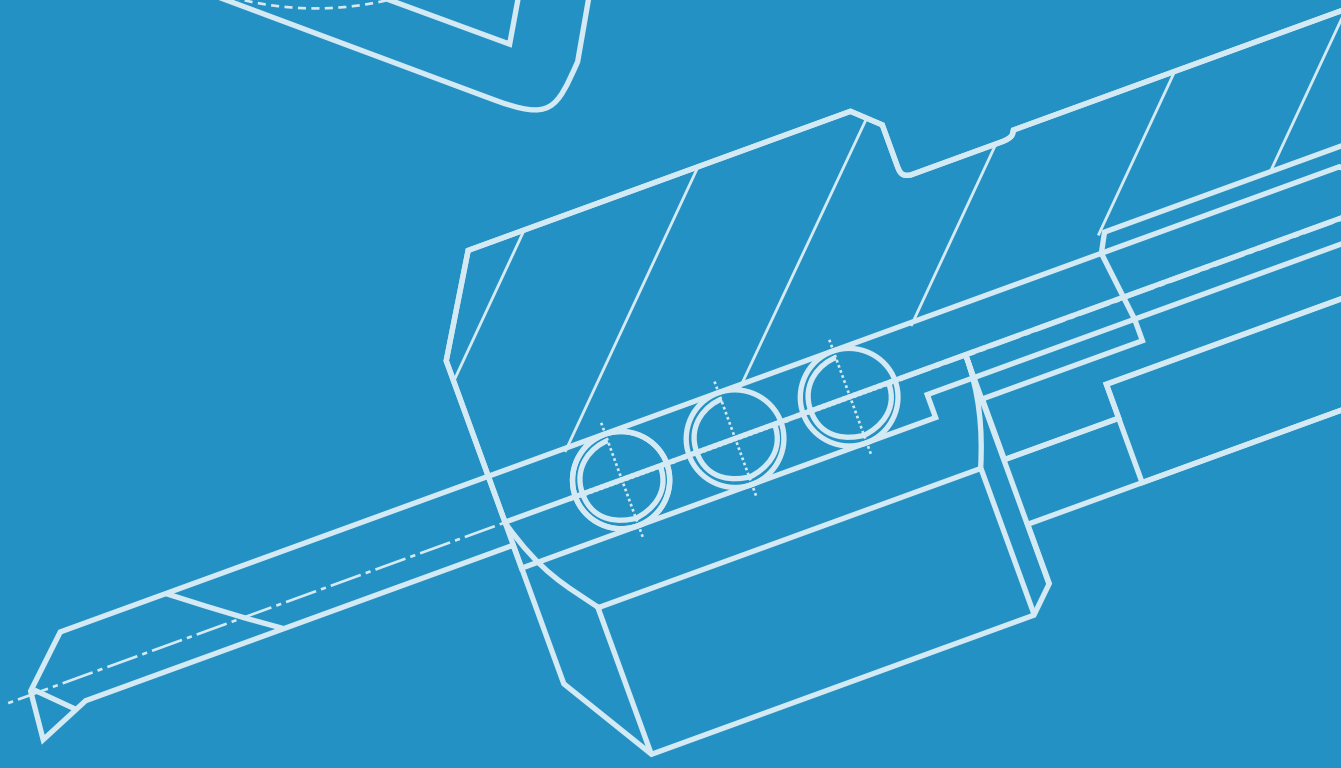
The Thread Milling Handbook

The Thread Milling Handbook:
Your everyday guide to the theory and implementation of the thread milling system.

Download at www.vargususa.com







MINIPRO

Vardex Ordering Code System

PowerBore Inserts

T	D	0	W	41	14	VTX
1	2	3	4	5	6	7

1- Insert Shape
C - Diamond 80 deg.
T - Triangle
W - Trigon 80 deg.

2 - Clearance Angle
C - 7 deg.
D - 15 deg.

3 - Tolerance Class
0 - Special Tolerance Class

4 - Insert Type
W - Hole + Countersink

5 - Insert Dimension
40 - IC .156" - Thickness-.040"
41 - IC .160" - Thickness-.047"
42 - IC .156" - Thickness-.062"
50 - IC .187" - Thickness-.096"

6 - Corner Radius
11- R.002
12- R.007
13- R.008
14- R.015

7 - Carbide Grade
VTX

Micro Boring Inserts - Double Ended

6.0	S	I	R	0.2	M	-	Bore	-	1	VMX
1	2	3	4	5	6		7		8	9

1- Insert Dia.
3.0 - 3.0mm
4.0 - 4.0mm
6.0 - 6.0mm
8.0 - 8.0mm
10.0 - 10.0mm

2 - Insert Style
S - Micro Insert

3 - Type of Insert
I - Internal

4 - RH or LH
R - Right Hand Insert
L - Left Hand Insert

5 - Corner Radius (mm)
0.2

6 - Tool Length
U - Ultra Short
S - Short
M - Medium
L - Long

7 - Tool Application
Bore - Boring
Copy - Boring Copy
Chamfer - Boring Chamfer
Back - Back Edge
3527, 3537, 3547 - Long Nose
BD - Bore Drill

8 - Front Relief
1 - With Relief
0 - Without Relief

9 - Carbide Grade
VMX

Micro Grooving Inserts - Double Ended

4.0	S	I	R	090	S	-	D472	-	1.1	VMX
1	2	3	4	5	6		7		8	9

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 -Groove Std. Width
.027 - .078 (inch)
0.90 - 2.15 (mm)

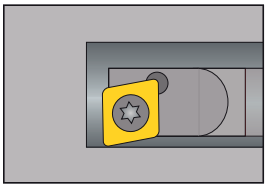
6 - Insert Length
A - Axially
S - Short
M - Medium
L - Long

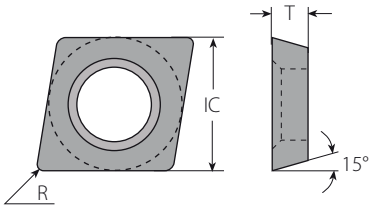
7 - Groove Standard
DIN 471
DIN 472
CIRCLIP
DIN 7993
DIN 76SH, DIN 76ST
DIN 3770S, DIN 3770D
SNAP RING
CIRCLIP - Face Grooving

8 - Groove Depth
.02" - .06"

9 - Carbide Grade
VMX

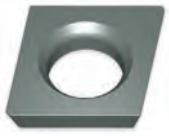
Internal





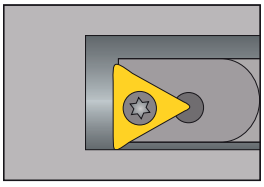
CD0W

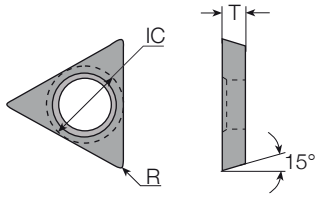
CD0W Inserts



Insert Size	Ordering Code	Dimensions Inch		Spare Parts
IC		R	T	Insert Screw
.156"	CD0W4011...	.002	.040	VS01
	CD0W4012...	.007	.040	
	CD0W4014...	.015	.040	

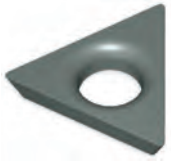
Internal





TD0W

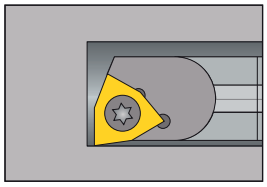
TD0W Inserts

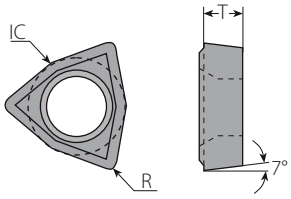


Insert Size	Ordering Code	Dimensions Inch		Spare Parts
IC		R	T	Insert Screw
.160"	TD0W4111...	.002	.047	VS01, VS40
	TD0W4112...	.007	.047	
	TD0W4114...	.015	.047	

Boring

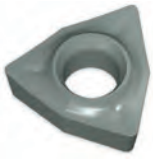
Internal





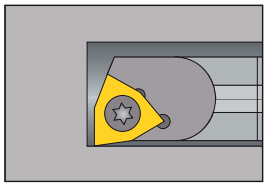
WC0W 4213, 4214

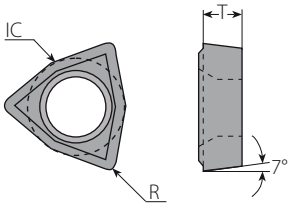
WC0W Inserts



Insert Size	Ordering Code	Dimensions Inch		Spare Parts
IC		R	T	Insert Screw
.156″	WC0W4213...	.008	.062	VS40
	WC0W4214...	.015	.062	

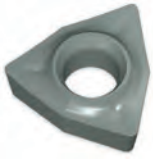
Internal





WC0W 5013, 5014

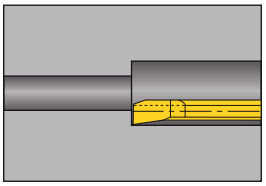
WC0W Inserts

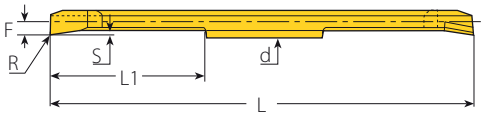


Insert Size	Ordering Code	Dimensions Inch		Spare Parts
IC		R	T	Insert Screw
.187″	WC0W5013...	.008	.096	VS41
	WC0W5014...	.015	.096	

Micro Boring - Boring

Internal





RH-Double Ended

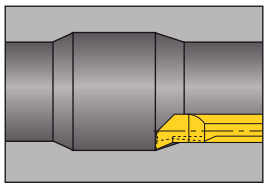
Micro - Double Ended

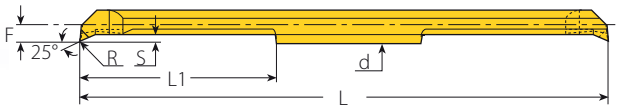
Insert Dia.	Ordering Code	Dimensions Inch					Min. Bore Dia.	Toolholder
d mm	RH	R	L1	L	S	F	Inch	
3.0	3.0SIR0.1U-Bore-1...	.004	.24	1.417	.022	.054	.126	SMC..-3.0
	3.0SIR0.1S-Bore-1...	.004	.35	1.417	.022	.054		
	3.0SIR0.2S-Bore-1...	.008	.35	1.417	.026	.056		
	3.0SIR0.2M-Bore-1...	.008	.63	1.969	.026	.056		
4.0	4.0SIR0.2S-Bore-1...	.008	.35	1.417	.026	.076	.165	SMC..-4.0
	4.0SIR0.2M-Bore-1...	.008	.63	1.969	.026	.076		
	4.0SIR0.2L-Bore-1...	.008	.83	2.362	.026	.076		
6.0	6.0SIR0.2S-Bore-1...	.008	.35	1.417	.030	.115	.244	SMC..-6.0
	6.0SIR0.2M-Bore-1...	.008	.63	1.969	.030	.115		
	6.0SIR0.2L-Bore-1...	.008	.83	2.362	.030	.115		
8.0	8.0SIR0.2S-Bore-1...	.008	.47	2.126	.032	.154	.323	SMC..-8.0
	8.0SIR0.2M-Bore-1...	.008	.79	2.756	.032	.154		
	8.0SIR0.2L -Bore-1...	.008	1.10	3.386	.032	.154		
10.0	10.0SIR0.2S-Bore-1...	.008	.59	2.362	.039	.194	.402	SMC..-10.0
	10.0SIR0.2M-Bore-1...	.008	.98	3.150	.039	.194		
	10.0SIR0.2L-Bore-1...	.008	1.38	3.937	.039	.194		

Micro Boring - Copy

MINIPRO

Internal





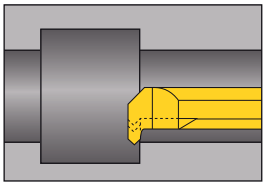
RH-Double Ended

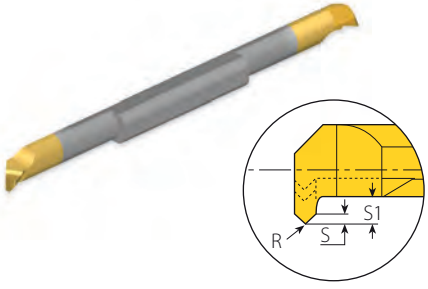
Micro - Double Ended

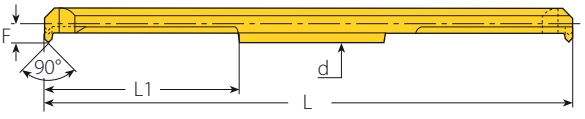
Insert Dia.	Ordering Code	Dimensions Inch					Min. Bore Dia.	Toolholder
d mm	RH	R	L1	L	S	F	Inch	
4.0	4.0SIR0.2S-Copy-1...	.008	.35	1.417	.039	.076	165	SMC..-4.0
	4.0SIR0.2M-Copy-1...	.008	.63	1.969	.039	.076		
	4.0SIR0.2L-Copy-1...	.008	.83	2.362	.039	.076		
6.0	6.0SIR0.2S-Copy-1...	.008	.35	1.417	.051	.115	.276	SMC..-6.0
	6.0SIR0.2M-Copy-1...	.008	.63	1.969	.051	.115		
	6.0SIR0.2L-Copy-1...	.008	.83	2.362	.051	.115		

Micro Boring - Chamfer

Internal







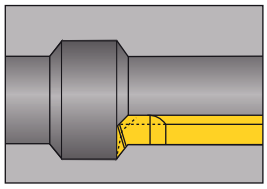
RH-Double Ended

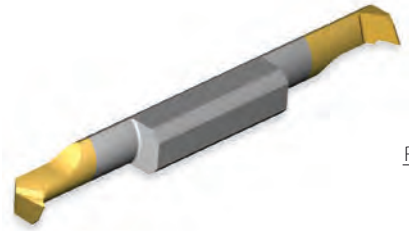
Micro - Double Ended

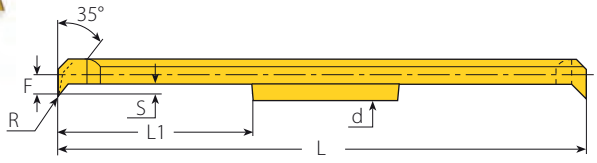
Insert Dia.	Ordering Code	Dimensions Inch						Min. Bore Dia.	Toolholder
d mm	RH	R	L1	L	F	S1	S	mm	
4.0	4.0SIR0.2S-Chamfer-0...	.008	.35	1.417	.076	.039	.016	.165	SMC...-4.0
	4.0SIR0.2M-Chamfer-0...	.008	.63	1.969	.076	.039	.016		
	4.0SIR0.2L-Chamfer-0...	.008	.83	2.362	.076	.039	.016		
6.0	6.0SIR0.2S-Chamfer-0...	.008	.35	1.417	.115	.047	.028	.244	SMC...-6.0
	6.0SIR0.2M-Chamfer-0...	.008	.63	1.969	.115	.047	.028		
	6.0SIR0.2L-Chamfer-0...	.008	.83	2.362	.115	.047	.028		

Micro Boring - Long Nose

Internal







RH-Double Ended

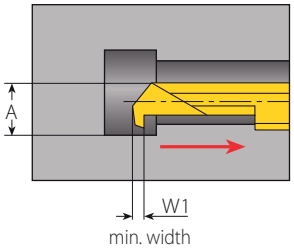
Micro - Double Ended

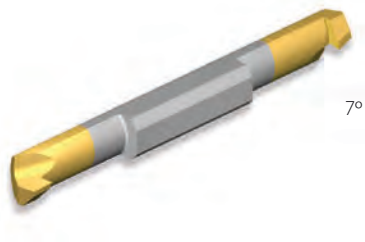
Insert Dia.	Ordering Code	Dimensions Inch					Min. Bore Dia.	Toolholder
d mm	RH	R	L1	L	S	F	Inch	
6.0	6.0SIR0.2S-3527-1...	.008	.35	1.417	.106	.115	.272	SMC...-6.0
	6.0SIR0.2M-3527-1...	.008	.63	1.969	.106	.115		
	6.0SIR0.2L-3527-1...	.008	.83	2.362	.106	.115		
8.0	8.0SIR0.2S-3537-1...	.008	.47	2.126	.146	.154	.350	SMC...-8.0
	8.0SIR0.2M-3537-1...	.008	.79	2.756	.146	.154		
	8.0SIR0.2L-3537-1...	.008	1.10	3.386	.146	.154		
10.0	10.0SIR0.2S-3547-1...	.008	.59	2.362	.185	.194	.425	SMC...-10.0
	10.0SIR0.2M-3547-1...	.008	.98	3.150	.185	.194		
	10.0SIR0.2L-3547-1...	.008	1.38	3.937	.185	.194		

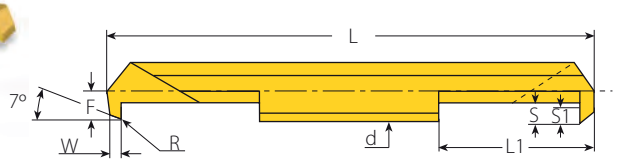
Micro Boring - Back Boring

MINIPRO

Internal







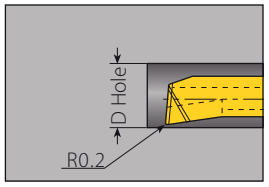
RH-Double Ended

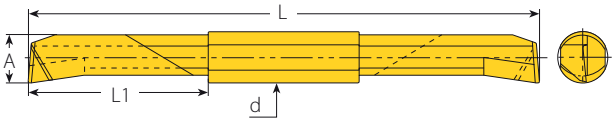
Micro - Double Ended

Insert Dia.	Ordering Code	Dimensions Inch									Min. Bore Dia.	Toolholder
d mm	RH	R	L1	L	A	W	W1	S	S1	F	Inch	
3.0	3.0SIR0.2S-Back-1...	.002	.35	1.417	.135	.059	.071	.031	.024	.056	.126	SMC...-3.0
	3.0SIR0.2M-Back-1...	.002	.63	1.969								
4.0	4.0SIR0.2S-Back-1...	.002	.35	1.417	.175	.079	.092	.051	.039	.076	.165	SMC...-4.0
	4.0SIR0.2M-Back-1...	.002	.63	1.969								
	4.0SIR0.2L-Back-1...	.002	.83	2.362								
6.0	6.0SIR0.2S-Back-1...	.002	.35	1.417	.254	.079	.097	.075	.063	.115	.244	SMC...-6.0
	6.0SIR0.2M-Back-1...	.002	.63	1.969								
	6.0SIR0.2L-Back-1...	.002	.83	2.362								

Micro Boring - Boredrill

Internal





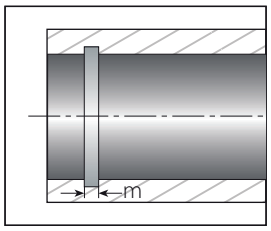
RH-Double Ended

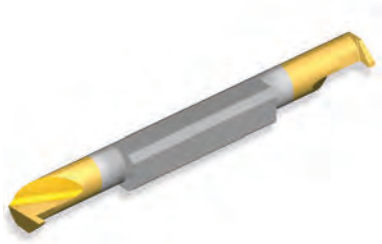
Micro - Double Ended

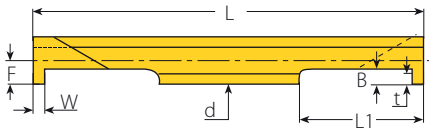
Insert Dia.	Ordering Code	Dimensions Inch			Min. Bore Dia.	Toolholder
d mm	RH	L1	L	A	Inch	
4.0	4.0SIR0.2M-BD-1...	.63	1.969	.139	.147	SMC...-4.0
6.0	6.0SIR0.2M-BD-1...	.63	1.969	.205	.228	SMC...-6.0
	6.0SIR0.2L-BD-1...	.83	2.362			
8.0	8.0SIR0.2S-BD-1...	.47	2.126	.272	.307	SMC...-8.0
	8.0SIR0.2M-BD-1...	.79	2.756			
	8.0SIR0.2L-BD-1...	1.10	3.386			

DIN 472 Retaining Ring Grooves for Bores

Internal





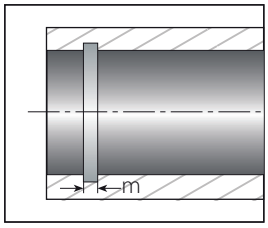


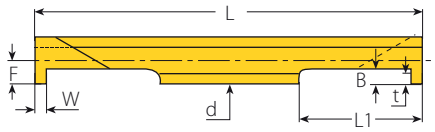
RH-Double Ended

Micro - Double Ended

Insert Dia.	Ordering Code	Groove Std.			Dimensions Inch				Min. Bore Dia.	Toolholder
d mm	RH	m (H13)	W	L1	L	B	t	F	Inch	
3.0	3.0SIR0.90S-D472-0.5...	.035	.039	.35	1.417	.031	.02	.055	.126	SMC..-3.0
	3.0SIR0.90M-D472-0.5...	.035	.039	.63	1.969					
	3.0SIR1.10S-D472-0.5...	.043	.047	.35	1.417					
	3.0SIR1.10M-D472-0.5...	.043	.047	.63	1.969					
4.0	4.0SIR0.90S-D472-1.1...	.035	.039	.35	1.417	.055	.043	.075	.161	SMC..-4.0
	4.0SIR0.90M-D472-1.1...	.035	.039	.63	1.969					
	4.0SIR0.90L-D472-1.1...	.035	.039	.83	2.362					
	4.0SIR1.10S-D472-1.1...	.043	.047	.35	1.417					
	4.0SIR1.10M-D472-1.1...	.043	.047	.63	1.969					
	4.0SIR1.10L-D472-1.1...	.043	.047	.83	2.362					
	4.0SIR1.30S-D472-1.1...	.051	.055	.35	1.417					
	4.0SIR1.30M-D472-1.1...	.051	.055	.63	1.969					
	4.0SIR1.30L-D472-1.1...	.051	.055	.83	2.362					
	4.0SIR1.60S-D472-1.1...	.063	.067	.35	1.417					
	4.0SIR1.60M-D472-1.1...	.063	.067	.63	1.969					
	4.0SIR1.60L-D472-1.1...	.063	.067	.83	2.362					
6.0	6.0SIR0.90S-D472-1.5...	.035	.039	.35	1.417	.071	.059	.114	.240	SMC..-6.0
	6.0SIR0.90M-D472-1.5...	.035	.039	.63	1.969					
	6.0SIR0.90L-D472-1.5...	.035	.039	.83	2.362					
	6.0SIR1.10S-D472-1.5...	.043	.047	.35	1.417					
	6.0SIR1.10M-D472-1.5...	.043	.047	.63	1.969					
	6.0SIR1.10L-D472-1.5...	.043	.047	.83	2.362					
	6.0SIR1.30S-D472-1.5...	.051	.055	.35	1.417					
	6.0SIR1.30M-D472-1.5...	.051	.055	.63	1.969					
	6.0SIR1.30L-D472-1.5...	.051	.055	.83	2.362					
	6.0SIR1.60S-D472-1.5...	.063	.067	.35	1.417					
	6.0SIR1.60M-D472-1.5...	.063	.067	.63	1.969					
	6.0SIR1.60L-D472-1.5...	.063	.067	.83	2.362					
	6.0SIR1.85S-D472-1.5...	.073	.076	.35	1.417					
	6.0SIR1.85M-D472-1.5...	.073	.076	.63	1.969					
	6.0SIR1.85L-D472-1.5...	.073	.076	.83	2.362					
	6.0SIR2.15S-D472-1.5...	.085	.088	.35	1.417					
	6.0SIR2.15M-D472-1.5...	.085	.088	.63	1.969					
	6.0SIR2.15L-D472-1.5...	.085	.088	.83	2.362					

Internal



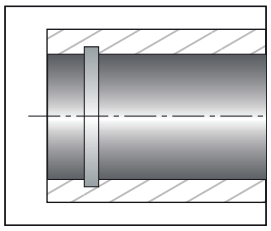


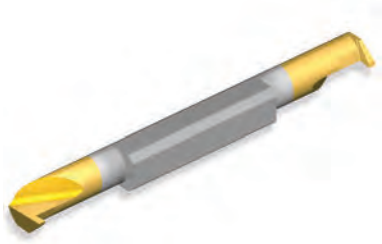
RH-Double Ended

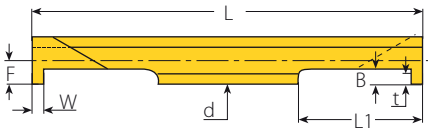
Micro - Double Ended

Insert Dia.	Ordering Code	Groove Std.	Dimensions Inch						Min. Bore Dia.	Toolholder
d mm	RH	m (H13)	W	L1	L	B	t	F	Inch	
8.0	8.0SIR1.10M-D472-2.0...	.043	.047	.79	2.76	.098	.079	.154	.331	SMC..-8.0
	8.0SIR1.30M-D472-2.0...	.051	.055	.79	2.76	.098	.079			
	8.0SIR1.60M-D472-2.5...	.063	.067	.79	2.76	.118	.098			
	8.0SIR1.85M-D472-2.5...	.073	.076	.79	2.76	.118	.098			
	8.0SIR2.15M-D472-3.0...	.085	.088	.79	2.76	.138	.118			
	8.0SIR2.65M-D472-3.5...	.104	.108	.79	2.76	.157	.138			
	8.0SIR3.15M-D472-3.5...	.124	.129	.79	2.76	.157	.138			
10.0	10.0SIR1.30M-D472-3.5...	.051	.055	.98	3.15	.157	.138	.193	.409	SMC..-10.0
	10.0SIR1.60M-D472-3.5...	.063	.067	.98	3.15					
	10.0SIR1.85M-D472-3.5...	.073	.076	.98	3.15					
	10.0SIR2.15M-D472-3.5...	.085	.088	.98	3.15					
	10.0SIR2.65M-D472-3.5...	.104	.108	.98	3.15					
	10.0SIR3.15M-D472-3.5...	.124	.129	.98	3.15					
	10.0SIR4.15M-D472-3.5...	.163	.169	.98	3.15					
	10.0SIR5.15M-D472-3.5...	.203	.208	.98	3.15					

Internal





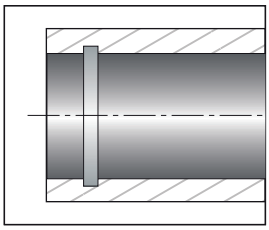


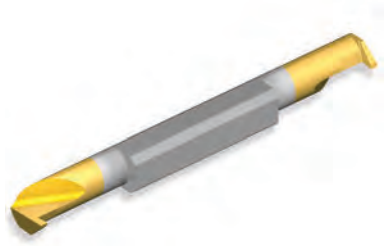
RH-Double Ended

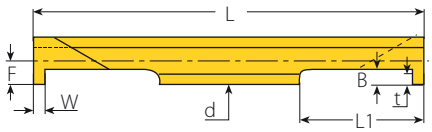
Micro (Partial Profile)

Insert Dia.	Ordering Code	Dimensions Inch						Min. Bore Dia.	Toolholder
d mm	RH	W	L1	L	B	t	F	Inch	
3.0	3.0SIR.027S-CIRC-.02...	.027	.35	1.42	.035	.023	.055	.126	SMC...-3.0
	3.0SIR.027M-CIRC-.02...	.027	.63	1.97					
	3.0SIR.031S-CIRC-.02...	.031	.35	1.42					
	3.0SIR.031M-CIRC-.02...	.031	.63	1.97					
	3.0SIR.041S-CIRC-.02...	.041	.35	1.42					
	3.0SIR.041M-CIRC-.02...	.041	.63	1.97					
	3.0SIR.046S-CIRC-.04...	.046	.35	1.42	.055	.043			
	3.0SIR.046M-CIRC-.04...	.046	.63	1.97					
4.0	4.0SIR.027S-CIRC-.04...	.027	.35	1.42	.055	.043	.074	.165	SMC...-4.0
	4.0SIR.027M-CIRC-.04...	.027	.63	1.97					
	4.0SIR.027L-CIRC-.04...	.027	.83	2.36					
	4.0SIR.031S-CIRC-.04...	.031	.35	1.42					
	4.0SIR.031M-CIRC-.04...	.031	.63	1.97					
	4.0SIR.031L-CIRC-.04...	.031	.83	2.36					
	4.0SIR.041S-CIRC-.04...	.041	.35	1.42					
	4.0SIR.041M-CIRC-.04...	.041	.63	1.97					
	4.0SIR.041L-CIRC-.04...	.041	.83	2.36					
	4.0SIR.047S-CIRC-.04...	.046	.35	1.42					
	4.0SIR.047M-CIRC-.04...	.046	.63	1.97					
	4.0SIR.047L-CIRC-.04...	.046	.83	2.36					
	4.0SIR.058S-CIRC-.04...	.058	.35	1.42					
	4.0SIR.058M-CIRC-.04...	.058	.63	1.97					
	4.0SIR.058L-CIRC-.04...	.058	.83	2.36					
	4.0SIR.062S-CIRC-.06...	.062	.35	1.42	.071	.059			
	4.0SIR.062M-CIRC-.06...	.062	.63	1.97					
	4.0SIR.062L-CIRC-.06...	.062	.83	2.36					
	4.0SIR.078S-CIRC-.06...	.078	.35	1.42					
	4.0SIR.078M-CIRC-.06...	.078	.63	1.97					
	4.0SIR.078L-CIRC-.06...	.078	.83	2.36					

Internal







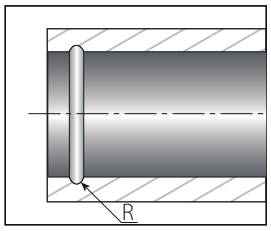
RH-Double Ended

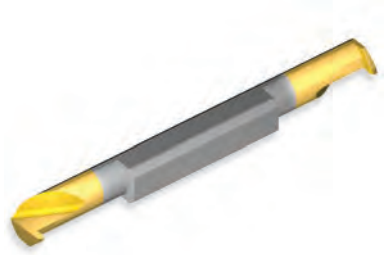
Micro (Partial Profile)

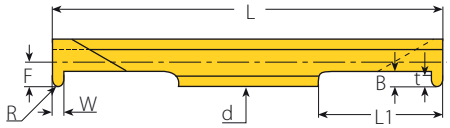
Insert Dia.	Ordering Code			Dimensions Inch				Min. Bore Dia.	Toolholder
d mm	RH	W	L1	L	B	t	F	Inch	
6.0	6.0SIR.046S-CIRC-.06...	.046	.35	1.42	.071	.059	.114	.244	SMC...-6.0
	6.0SIR.046M-CIRC-.06...	.046	.63	1.97					
	6.0SIR.046L-CIRC-.06...	.046	.83	2.36					
	6.0SIR.058S-CIRC-.06...	.058	.35	1.42					
	6.0SIR.058M-CIRC-.06...	.058	.63	1.97					
	6.0SIR.058L-CIRC-.06...	.058	.83	2.36					
	6.0SIR.062S-CIRC-.06...	.062	.35	1.42					
	6.0SIR.062M-CIRC-.06...	.062	.63	1.97					
	6.0SIR.062L-CIRC-.06...	.062	.83	2.36					
	6.0SIR.072S-CIRC-.06...	.072	.35	1.42					
	6.0SIR.072M-CIRC-.06...	.072	.63	1.97					
	6.0SIR.072L-CIRC-.06...	.072	.83	2.36					
	6.0SIR.078S-CIRC-.06...	.078	.35	1.42					
	6.0SIR.078M-CIRC-.06...	.078	.63	1.97					
	6.0SIR.078L-CIRC-.06...	.078	.83	2.36					
	6.0SIR.088S-CIRC-.06...	.088	.35	1.42					
	6.0SIR.088M-CIRC-.06...	.088	.63	1.97					
	6.0SIR.088L-CIRC-.06...	.088	.83	2.36					
	6.0SIR.094S-CIRC-.07...	.094	.35	1.42					
	6.0SIR.094M-CIRC-.07...	.094	.63	1.97					
	6.0SIR.094L-CIRC-.07...	.094	.83	2.36	.079	.069			
	6.0SIR.097S-CIRC-.07...	.097	.35	1.42					
	6.0SIR.097M-CIRC-.07...	.097	.63	1.97					
	6.0SIR.097L-CIRC-.07...	.097	.83	2.36					
	6.0SIR.105S-CIRC-.07...	.105	.35	1.42					
	6.0SIR.105M-CIRC-.07...	.105	.63	1.97					
	6.0SIR.105L-CIRC-.07..	.105	.83	2.36					

DIN 7993 Snap Ring Grooves

Internal





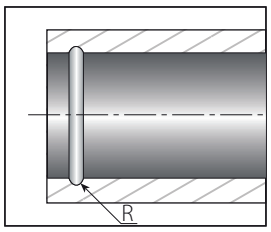


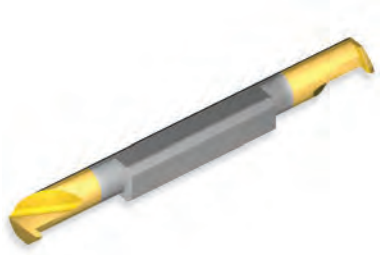
RH-Double Ended

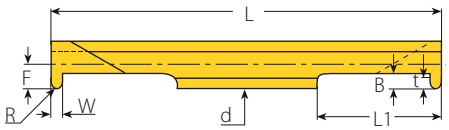
Micro (Partial Profile) - Double Ended

Insert Dia.	Ordering Code	Groove Std.	Dimensions Inch						Min. Bore Dia.	Toolholder
d mm	RH	m (H13)	W	L1	L	B	t	F	Inch	
3.0	3.0SIR0.4S-D7993-0.6...	.016	.031	.36	1.42	.031	.024	.055	.126	SMC..-3.0
	3.0SIR0.4M-D7993-0.6...	.016	.031	.64	1.97					
4.0	4.0SIR0.4S-D7993-0.6...	.016	.031	.36	1.42	.035	.024	.075	.161	SMC..-4.0
	4.0SIR0.4M-D7993-0.6...	.016	.031	.64	1.97					
	4.0SIR0.4L-D7993-0.8...	.016	.031	.84	2.36	.043	.031			
	4.0SIR0.6S-D7993-0.8...	.024	.047	.36	1.42					
	4.0SIR0.6M-D7993-0.8...	.024	.047	.64	1.97					
	4.0SIR0.6L-D7993-0.8...	.024	.047	.84	2.36					
	4.0SIR0.9S-D7993-1.1...	.035	.071	.36	1.42	.055	.043			
	4.0SIR0.9M-D7993-1.1...	.035	.071	.64	1.97					
	4.0SIR0.9L-D7993-1.1...	.035	.071	.84	2.36					
6.0	6.0SIR0.9S-D7993-1.1...	.035	.071	.36	1.42	.055	.043	.114	.24	SMC..-6.0
	6.0SIR0.9M-D7993-1.1...	.035	.071	.64	1.97					
	6.0SIR0.9L-D7993-1.1...	.035	.071	.84	2.36					
	6.0SIR1.0S-D7993-1.2...	.039	.079	.36	1.42	.059	.047			
	6.0SIR1.0M-D7993-1.2...	.039	.079	.64	1.97					
	6.0SIR1.0L-D7993-1.2...	.039	.079	.84	2.36					
	6.0SIR1.1S-D7993-1.3...	.043	.087	.36	1.42	.063	.051			
	6.0SIR1.1M-D7993-1.3...	.043	.087	.64	1.97					
	6.0SIR1.1L-D7993-1.3...	.043	.087	.84	2.36					
8.0	8.0SIR0.9M-D7993-2.0...	.035	.071	.79	2.76	.098	.079	.154	.331	SMC..-8.0
	8.0SIR1.1M-D7993-2.0...	.043	.087	.79	2.76					
	8.0SIR1.4M-D7993-2.0...	.055	.110	.79	2.76					
10.0	10.0SIR1.4M-D7993-2.9...	.055	.110	.99	3.15	.134	.114	.193	.409	SMC..-10.0
	10.0SIR1.8M-D7993-2.9...	.071	.142	.99	3.15					

Internal







RH-Double Ended

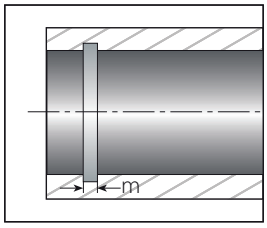
Micro (Partial Profile) - Double Ended

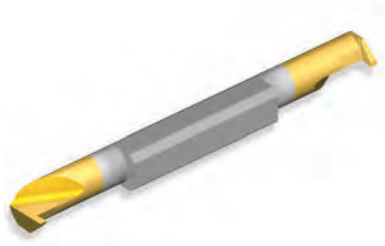
Insert Dia.	Ordering Code	Groove Std.			Dimensions Inch				Min. Bore Dia.	Toolholder
d mm	RH	R	W	L1	L	B	t	F	Inch	
3.0	3.0SIR.015S-SNAP-.02...	.015	.030	.35	1.42	.035	.024	.055	.126	SMC...-3.0
	3.0SIR.015M-SNAP-.02...	.015	.030	.63	1.97					
4.0	4.0SIR.015S-SNAP-.02...	.015	.030	.35	1.42	.035	.024	.075	.161	SMC..-4.0
	4.0SIR.015M-SNAP-.02...	.015	.030	.63	1.97					
	4.0SIR.015L-SNAP-.02...	.015	.030	.83	2.36					
	4.0SIR.023S-SNAP-.03...	.023	.047	.35	1.42	.047	.035			
	4.0SIR.023M-SNAP-.03...	.023	.047	.63	1.97					
	4.0SIR.023L-SNAP-.03...	.023	.047	.83	2.36					
	4.0SIR.031S-SNAP-.05...	.031	.062	.35	1.42	.059	.047			
	4.0SIR.031M-SNAP-.05...	.031	.062	.63	1.97					
	4.0SIR.031L-SNAP-.05...	.031	.062	.83	2.36					
6.0	6.0SIR.031S-SNAP-.05...	.031	.062	.35	1.42	.063	.051	.114	.240	SMC...-6.0
	6.0SIR.031M-SNAP-.05...	.031	.062	.63	1.97					
	6.0SIR.031L-SNAP-.05...	.031	.062	.83	2.36					
	6.0SIR.036S-SNAP-.05...	.036	.072	.35	1.42					
	6.0SIR.036M-SNAP-.05...	.036	.072	.63	1.97					
	6.0SIR.036L-SNAP-.05...	.036	.072	.83	2.36					
	6.0SIR.039S-SNAP-.05...	.039	.078	.35	1.42					
	6.0SIR.039M-SNAP-.05...	.039	.078	.63	1.97					
	6.0SIR.039L-SNAP-.05...	.039	.078	.83	2.36					
	6.0SIR.047S-SNAP-.05...	.047	.094	.35	1.42					
	6.0SIR.047M-SNAP-.05...	.047	.094	.63	1.97					
	6.0SIR.047L-SNAP-.05...	.047	.094	.83	2.36					
	6.0SIR.062S-SNAP-.07...	.062	.125	.35	1.42	.079	.067			
	6.0SIR.062M-SNAP-.07...	.062	.125	.63	1.97					
	6.0SIR.062L-SNAP-.07...	.062	.125	.83	2.36					

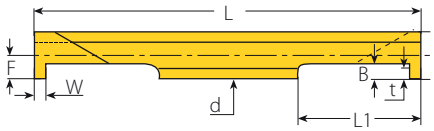
DIN 3770 - Grooves

MINIPRO

Internal







RH-Double Ended

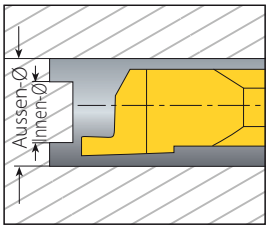
Micro - Double Ended

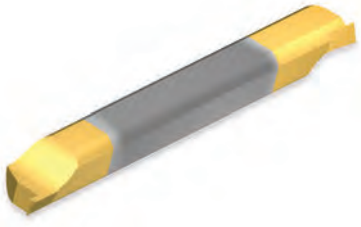
Insert Dia.	Ordering Code	Groove Std.	Dimensions Inch						Min. Bore Dia.	Toolholder
d mm	RH	m (H13)	W	L1	L	B	t	F	Inch	
6.0	6.0SIR1.6S-D3770S-1.5...	.063	.078	.35	1.42	.071	.059	.114	.24	SMC..-6.0
	6.0SIR1.6M-D3770S-1.5...	.063	.078	.63	1.97					
	6.0SIR1.6L-D3770S-1.5...	.063	.078	.83	2.36					
	6.0SIR2.0S-D3770D-1.8...	.079	.094	.35	1.42	.079	.071	.114		
	6.0SIR2.0M-D3770D-1.8...	.079	.094	.63	1.97					
	6.0SIR2.0L-D3770D-1.8...	.079	.094	.83	2.36					

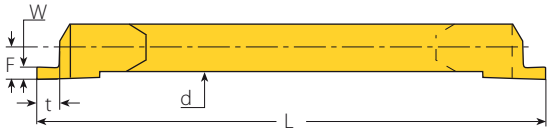
CIRCLIP - Face Grooves

MINIPRO

Internal







RH-Double Ended

Micro (Partial Profile) - Double Ended

Insert Dia.	Ordering Code	Dimensions Inch					Inner Groove Ø	Outer Groove Ø
d mm	RH	W	t	L	F	Sleeve		
4.0	4.0SIR.031A-CIRC-.055...	.031	.043	1.969	.076	SMC...-4.0	.138	.198
	4.0SIR.041A-CIRC-.063...	.041	.051				.130	.212
	4.0SIR.047A-CIRC-.071...	.047	.059				.122	.216
	4.0SIR.058A-CIRC-.082...	.058	.075				.110	.226
	4.0SIR.062A-CIRC-.086...	.062	.083				.106	.230
6.0	6.0SIR.031A-CIRC-.055...	.031	.043	1.969	.126	SMC...-6.0	.216	.276
	6.0SIR.041A-CIRC-.063...	.041	.051				.209	.291
	6.0SIR.047A-CIRC-.071...	.047	.059				.200	.294
	6.0SIR.058A-CIRC-.082...	.058	.075				.189	.305
	6.0SIR.062A-CIRC-.086...	.062	.083				.185	.309
	6.0SIR.072A-CIRC-.094...	.072	.087				.177	.321
	6.0SIR.078A-CIRC-.088...	.078	.087				.169	.325
	6.0SIR.088A-CIRC-.110...	.088	.088				.161	.337

For Grooving and Turning Solutions visit

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Innovative Grooving & Turning Solutions

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MINIPRO

MiniPro Toolholders

PowerBore Toolholders | Micro Toolholders

Vardex Ordering Code System

PowerBore Toolholders

C	06	-	23	C	40	5
1	2		3	4	5	6

1- Shank Style

C - Carbide
S - Steel

2 - Shank Dia.

05 - 5/32" - .156
06 - 3/16" - .187
08 - 1/4" - .250
10 - 5/16" - .312
12 - 3/8" - .375
16 - 1/2" - .500

3 - Bar Dia. [D_1]

21 - .165
23 - .180
24 - .187
26 - .203
32 - .250
40 - .312

4 - Insert Shape

C - Diamond 80 Deg.

T - Triangle

W- Trigon 80 Deg.

5 - Holder Length [L_2]

23 - 2.25
25 - 2.50
27 - 2.75
30 - 3.00
35 - 3.50
40 - 4.00
45 - 4.50
50 - 5.00
60 - 6.00

6 - Front Relief Angle

0, 5, 7

Micro Toolholders (Sleeves)

S	M	C	0625	-	3
1	2	3	4		5

1 - Holder Shape

S - Sleeve (Double Ended)

2 - Holder Type

M - Micro (Double Ended)

3 - Cooling

C - Coolant Channel

4 - Holder Dia.

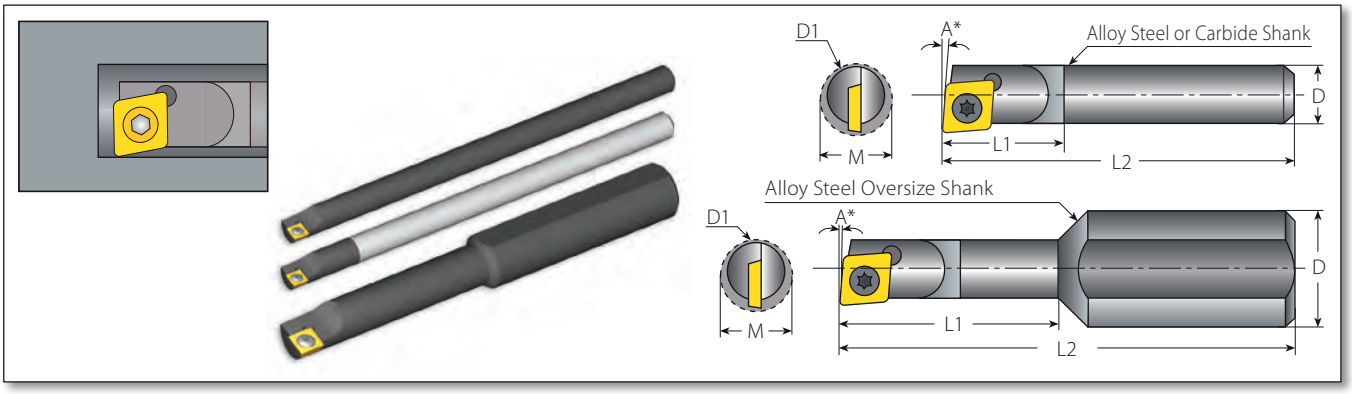
050 - 1/2"
0625 - 5/8"
075 - 3/4"

5 - Bore Size

Micro Size (mm)
3, 4, 6, 8, 10

PowerBore Boring Bars for CD0W Inserts

POWERBORE



Alloy Steel Shanks - Standard Size

Shank	Ordering Code	EDP No.	Dimensions Inch						Spare Parts		
			A	D	D1	M	L2	L1			
			Angle	Shank Dia.	Bar Dia.	Min. Bore	Overall Length	Bar Length	Insert Type	Screw	Torx Key
3/16"	S06-21C257	41546	7°	.187	.165	.180	2.500	.500	CD0W	VS01	VT51
	S06-23C255	41547	5°	.187	.180	.208	2.500				
	S06-24C255	41548	5°	.187	.187	.230	2.500	D1=D			
	S06-24C250	41543	0°	.187	.187	.244	2.500				
1/4"	S08-32C305	41550	5°	.250	.250	.290	3.000				
	S08-32C300	41551	0°	.250	.250	.300	3.000				

Solid Carbide Shank - Standard Size

Shank	Ordering Code	EDP No.	Dimensions Inch						Spare Parts		
			A	D	D1	M	L2	L1			
			Angle	Shank Dia.	Bar Dia.	Min. Bore	Overall Length	Bar Length	Insert Type	Screw	Torx Key
5/32"	C05-21C607	41552	7°	.156	.165	.180	6.000	.500	CD0W	VS01	VT51
3/16"	C06-23C405	41553	5°	.187	.180	.208	4.000				
	C06-24C405	41554	5°	.187	.187	.230	4.000	D1=D			
	C06-24C400	41555	0°	.187	.187	.244	4.000				
1/4"	C08-32C405	41556	5°	.250	.250	.290	4.000				
	C08-32C400	41557	0°	.250	.250	.300	4.000				

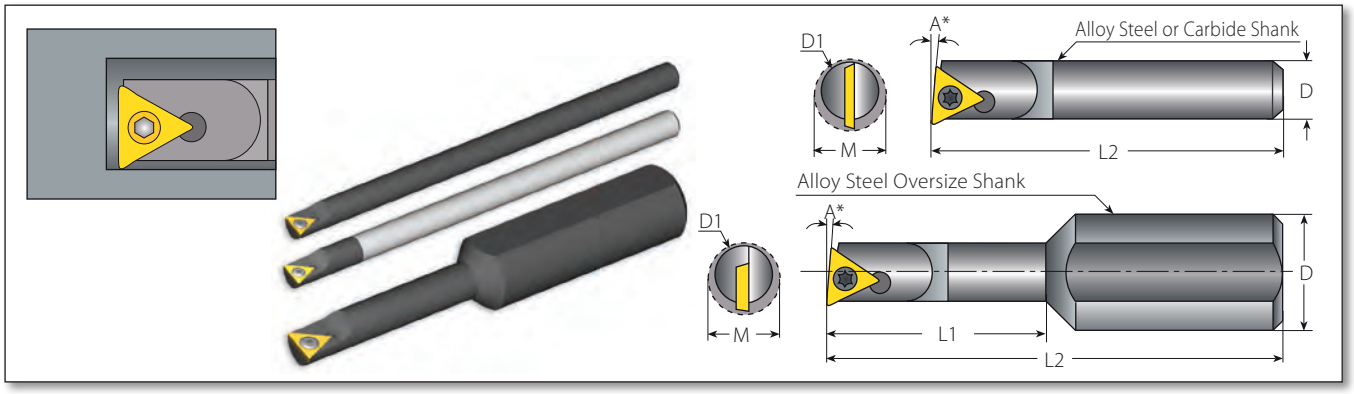
Alloy Steel Shanks - Oversize

Shank	Ordering Code	EDP No.	Dimensions Inch						Spare Parts		
			A	D	D1	M	L2	L1			
			Angle	Shank Dia.	Bar Dia.	Min. Bore	Overall Length	Bar Length	Insert Type	Screw	Torx Key
3/8"	S12-23C235	41558	5°	.375	.180	.208	2.250	1.000	CD0W	VS01	VT51
	S12-26C235	41559	5°	.375	.203	.230	2.250				
	S12-26C230	41560	0°	.375	.203	.244	2.250				
	S12-32C255	41561	5°	.375	.250	.290	2.500	1.250			
	S12-32C250	41562	0°	.375	.250	.300	2.500				

* 5° angle for facing and thru-hole boring.
* 0° angle for thru-hole boring and boring to a shoulder.

PowerBore Boring Bars for TD0W Inserts

POWERBORE



Alloy Steel Shanks - Standard Size

Shank	Ordering Code	EDP No.	Dimensions Inch				Spare Parts		
			A	D=D1	M	L2			
			Angle	Bar Dia.	Min. Bore	Overall Length	Insert Type	Screw	Torx Key
3/16″	S06-24T355	41563	5°	.187	.270	3.500	TD0W	VS01	VT51
	S06-24T350	41564	0°	.187	.270	3.500			
1/4″	S08-32T405	41565	5°	.250	.300	4.000		VS40	
	S08-32T400	41566	0°	.250	.300	4.000			
5/16″	S10-40T405	41567	5°	.312	.360	4.000			
	S10-40T400	41568	0°	.312	.360	4.000			

Solid Carbide Shank - Standard Size

Shank	Ordering Code	EDP No.	Dimensions Inch				Spare Parts		
			A	D=D1	M	L2			
			Angle	Bar Dia.	Min. Bore	Overall Length	Insert Type	Screw	Torx Key
3/16″	C06-24T405	41569	5°	.187	.270	4.000	TD0W	VS01	VT51
	C06-24T400	41570	0°	.187	.270	4.000			
1/4″	C08-32T405	41571	5°	.250	.300	4.000		VS40	
	C08-32T400	41572	0°	.250	.300	4.000			
5/16″	C10-40T405	41573	5°	.312	.360	4.000			
	C10-40T400	41574	0°	.312	.360	4.000			

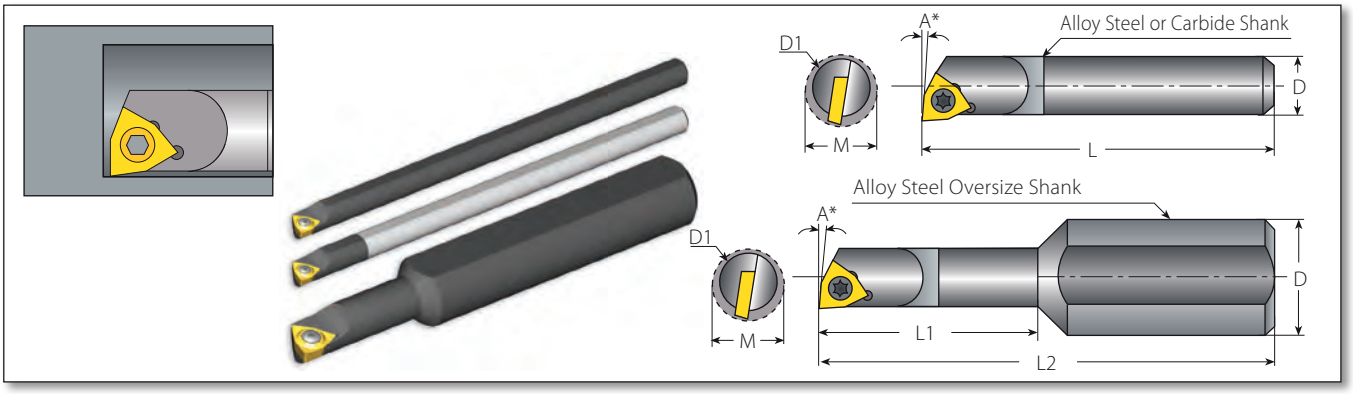
Alloy Steel Shanks - Oversize

Shank	Ordering Code	EDP No.	Dimensions Inch						Spare Parts		
			A	D	D1	M	L2	L1			
			Angle	Shank Dia.	Bar Dia.	Min. Bore	Overall Length	Bar Length	Insert Type	Screw	Torx Key
3/8″	S12-26T255	41575	5°	.375	.203	.270	2.500	1.000	TD0W	VS01	VT51
	S12-26T250	41576	0°	.375	.203	.270	2.500				
	S12-32T275	41577	5°	.375	.250	.300	2.750	1.250		VS40	
	S12-32T270	41578	0°	.375	.250	.300	2.750				
	S12-40T305	41579	5°	.375	.312	.360	3.000	1.500			
	S12-40T300	41580	0°	.375	.312	.360	3.000				

* 5° angle for facing and thru-hole boring.
* 0° angle for thru-hole boring and boring to a shoulder.

PowerBore Boring Bars for WC0W Inserts (4213, 4214)

POWERBORE



Alloy Steel Shanks - Standard Size

Shank	Ordering Code	EDP No.	Dimensions Inch				Spare Parts		
			A	D=D1	M	L			
			Angle	Bar Dia.	Min. Bore	Bar Length	Insert Type	Screw	Torx Key
3/16"	S06-24W255	41581	5°	.187	.230	2.500	WC0W4213 WC0W4214	VS40	VT51
	S06-24W250	41582	0°	.187	.244				
1/4"	S08-32W405	41583	5°	.250	.300	4.000			
	S08-32W400	41584	0°	.250	.300				

Solid Carbide Shank - Standard Size

Shank	Ordering Code	EDP No.	Dimensions Inch				Spare Parts		
			A	D=D1	M	L			
			Angle	Bar Dia.	Min. Bore	Bar Length	Insert Type	Screw	Torx Key
3/16"	C06-24W405	41585	5°	.187	.230	4.000	WC0W4213 WC0W4214	VS40	VT51
	C06-24W400	41586	0°	.187	.244				
1/4"	C08-32W405	41587	5°	.250	.290				
	C08-32W400	41588	0°	.250	.300				

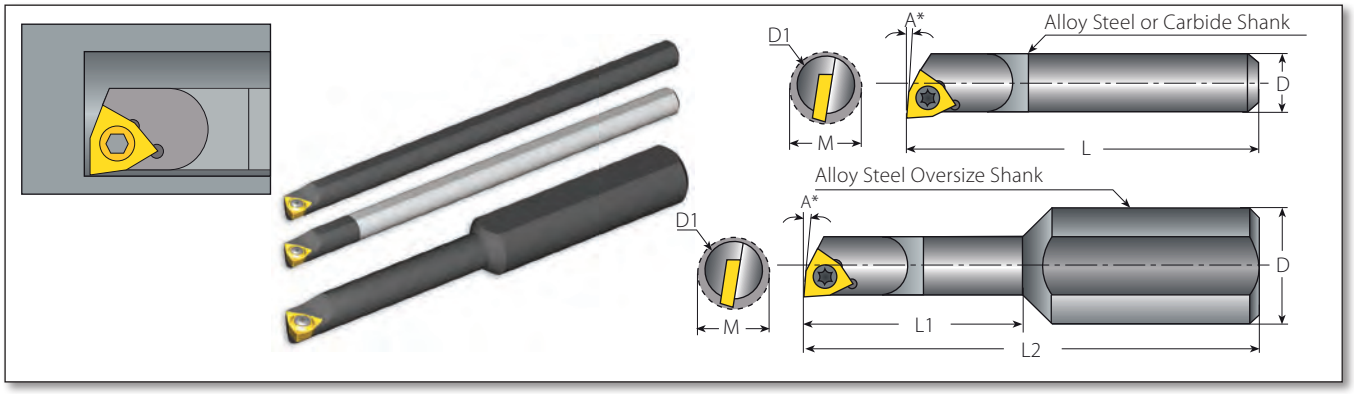
Alloy Steel Shanks - Oversize

Shank	Ordering Code	EDP No.	Dimensions Inch						Spare Parts		
			A	D	D1	M	L2	L1			
			Angle	Shank Dia.	Bar Dia.	Min. Bore	Overall Length	Bar Length	Insert Type	Screw	Torx Key
3/8"	S12-26W235	41589	5°	.375	.203	.230	2.250	.500	WC0W4213 WC0W4214	VS40	VT51
	S12-26W230	41590	0°	.375	.203	.244	2.250				
	S12-32W255	41591	5°	.375	.250	.290	2.500	.750			
	S12-32W250	41592	0°	.375	.250	.300	2.500				

* 5° angle for facing and thru-hole boring.
* 0° angle for thru-hole boring and boring to a shoulder.

PowerBore Boring Bars for WC0W Inserts (5013, 5014)

POWERBORE



Alloy Steel Shanks - Standard Size

Shank	Ordering Code	EDP No.	Dimensions Inch				Spare Parts		
			A	D=D1	M	L			
			Angle	Bar Dia.	Min. Bore	Bar Length	Insert Type	Screw	Torx Key
5/16"	S10-40W405	41593	5°	.312	.360	4.000	WC0W5013 WC0W5014	VS41	VT51
	S10-40W400	41594	0°	.312	.360				

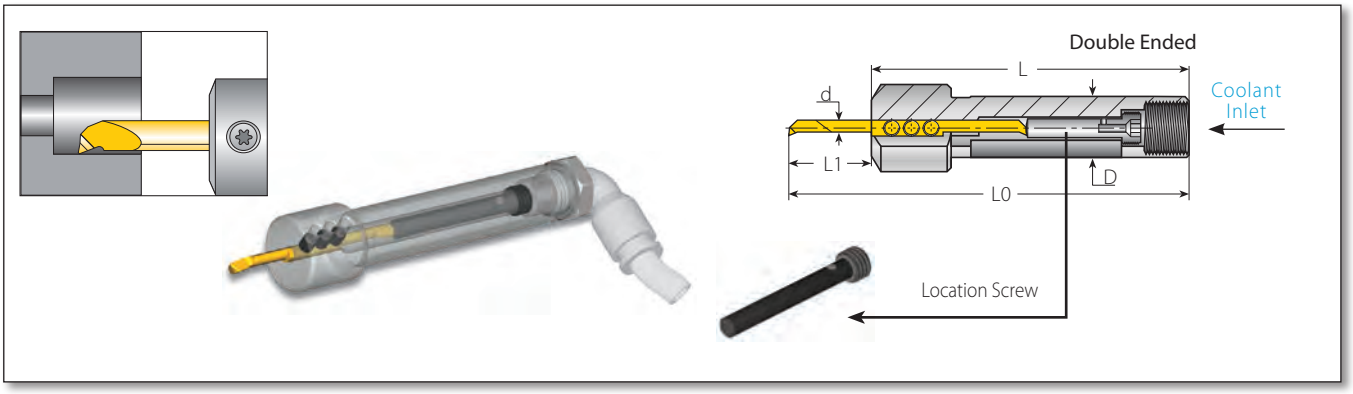
Solid Carbide Shank - Standard Size

Shank	Ordering Code	EDP No.	Dimensions Inch				Spare Parts		
			A	D=D1	M	L			
			Angle	Bar Dia.	Min. Bore	Bar Length	Insert Type	Screw	Torx Key
5/16"	C10-40W405	41597	5°	.312	.360	4.000	WC0W5013 WC0W5014	VS41	VT51
	C10-40W400	41598	0°	.312	.360				

Alloy Steel Shanks - Oversize

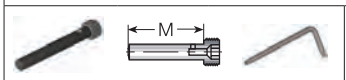
Shank	Ordering Code	EDP No.	Dimensions Inch						Spare Parts		
			A	D	D1	M	L2	L1			
			Angle	Shank Dia.	Bar Dia.	Min. Bore	Overall Length	Bar Length	Insert Type	Screw	Torx Key
3/8"	S12-40W305	41599	5°	.375	.312	.360	3.000	1.500	WC0W5013 WC0W5014	VS41	VT51
	S12-40W300	41600	0°	.375	.312	.360	3.000				

* 5° angle for facing and thru-hole boring.
* 0° angle for thru-hole boring and boring to a shoulder.



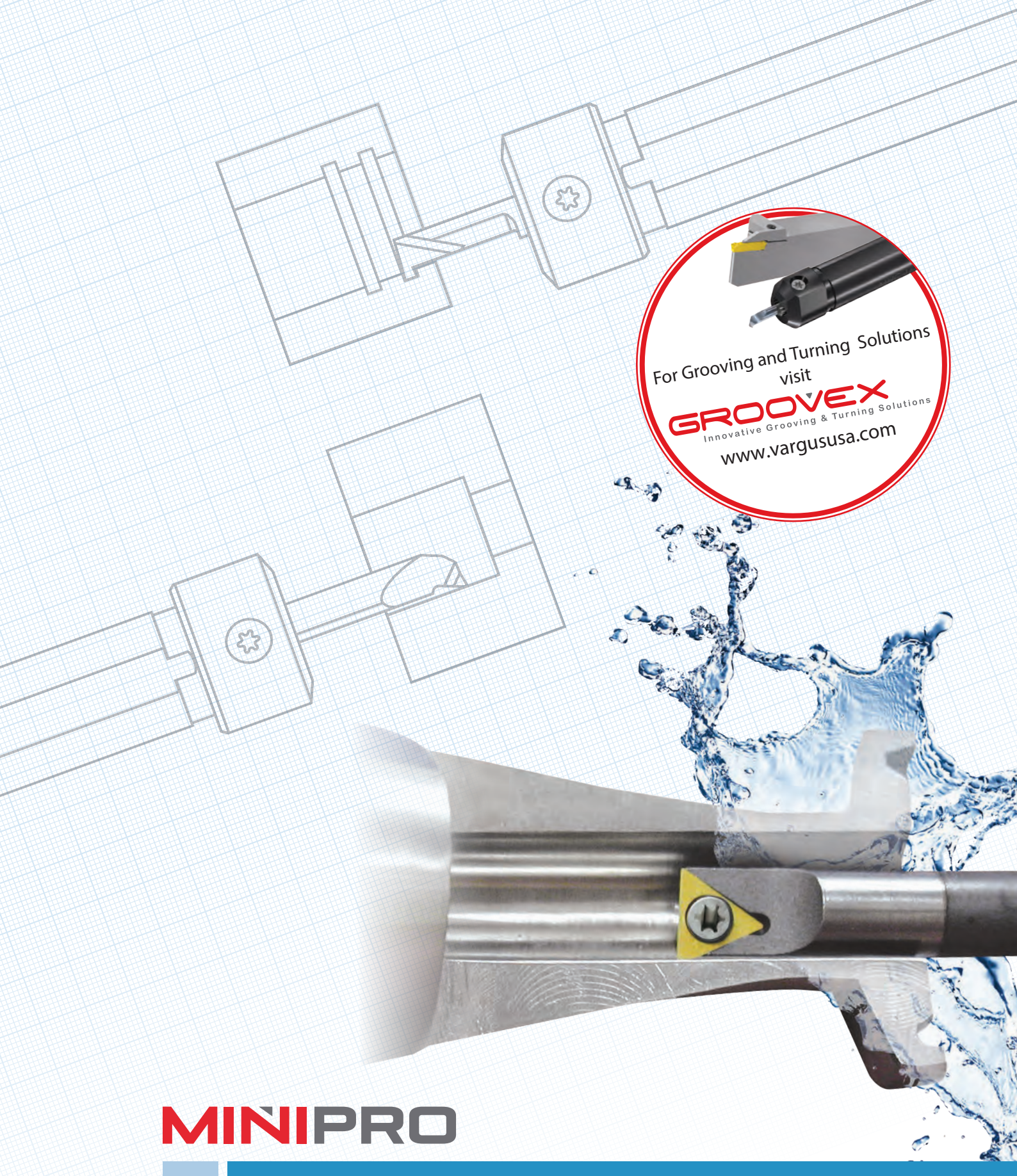
Micro - Double Ended

Spare Parts



Micro Insert Dia.	Shank Dia.	Ordering Code	EDP No.	Dimensions Inch			Location Screw*			Clamping Screw x 3	
d mm	D			L	L1	L0	Screw	M	Key	Screw	Key
3	.50	SMC050-3.0	41075	3.15	.35 - Short	3.50	4GISM8X28	1.10	K4.0	M4X.7X4.0	K2.0
					.63 - Medium	3.78	4GISM8X21	.83			
	.63	SMC0625-3.0	40210	3.74	.35 - Short	4.09	4GISM8X49	1.93			
	.75	SMC075-3.0	41080		.63 - Medium	4.37	4GISM8X42	1.65			
4	.50	SMC050-4.0	41092	3.15	.35 - Short	3.50	4GISM8X28	1.10			
					.63 - Medium	3.78	4GISM8X21	.83			
					.83 - Long	3.98	4GISM8X16	.63			
	.63	SMC0625-4.0	40212	3.74	.35 - Short	4.09	4GISM8X49	1.93			
	.75	SMC075-4.0	41081		.63 - Medium	4.37	4GISM8X42	1.65			
					.83 - Long	4.57	4GISM8X37	1.46			
6	.50	SMC050-6.0	41517	3.15	.35 - Short	3.50	4GISM8X28	1.10			
					.63 - Medium	3.78	4GISM8X21	.83			
					.83 - Long	3.98	4GISM8X16	.63			
	.63	SMC0625-6.0	40214	3.74	.35 - Short	4.09	4GISM8X49	1.93			
	.75	SMC075-6.0	41082		.63 - Medium	4.37	4GISM8X42	1.65			
					.83 - Long	4.57	4GISM8X37	1.46			
8	.63	SMC0625-8.0	40248	3.74	.47 - Short	4.21	4GISM8X33	1.30		M6X1.0X5.0	K3.0
	.75	SMC075-8.0	40184		.79 - Medium	4.53	4GISM8X25	.98			
					1.10 - Long	4.84	4GISM8X17	.67			
10	.63	SMC0625-10.0	41093	3.74	.59 - Short	4.33	4GISM8X30	1.18			
	.75	SMC075-10.0	41083		.98 - Medium	4.72	4GISM8X20	.79			
					1.38 - Long	5.12	4GISM8X10	.39			

* Every toolholder package contains the full range of location screws needed.



MINIPRO

MiniPro Technical Data

Recommended Grades, Cutting Speeds Vc [ft/min], Feed f [Inch/rev] and Max Depth [Inch]

MINIPRO

Material Group	Vargus No.	Material		Hardness Brinell HB	Vc [ft/min] Coated		Feed [Inch/rev]			Max Depth [Inch] PowerBore		
					VTX (PowerBore)	VMX (Micro)	Power Bore	Micro Boring	Micro Grooving	TD0W CD0W	WD0W	Micro Boring
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	377-623	164-394	.0098	.0020	.0012	.018	.024	.016
	2		Medium Carbon (C=0.25-0.55%)	150	328-574	131-328	.0079	.0016	.0008	.018	.024	.016
	3		High Carbon (C=0.55-0.85%)	170	295-541	98-262	.0059	.0012	.0004	.018	.024	.016
	4	Low Alloy Steel (alloying elements≤5%)	Non Hardened	180	279-476	164-230	.0079	.0016	.0008	.014	.020	.012
	5		Hardened	275	246-459	131-197	.0059	.0016	.0004	.014	.020	.012
	6		Hardened	350	230-443	98-164	.0039	.0012	.0004	.014	.020	.012
	7	High Alloy Steel (alloying elements>5%)	Annealed	200	230-361	98-164	.0039	.0016	.0008	.007	.016	.006
	8		Hardened	325	164-328	82-131	.0020	.0012	.0004	.007	.016	.006
	9	Cast Steel	Low Alloy (alloying elements<5%)	200	246-459	98-164	.0098	.0016	.0008	.007	.016	.006
	10		High Alloy (alloying elements>5%)	225	197-394	82-131	.0039	.0016	.0008	.007	.016	.006
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	230-427	197-328	.0079	.0016	.0004	.009	.020	.008
	12		Hardened	330	197-377	131-197	.0031	.0012	.0004	.007	.016	.006
	13	Stainless Steel Austenitic	Austenitic	180	295-459	164-295	.0079	.0016	.0004	.009	.020	.008
	14		Super Austenitic	200	131-361	131-197	.0031	.0016	.0004	.007	.016	.006
	15	Stainless Steel Cast Ferritic	Non Hardened	200	295-394	131-197	.0079	.0016	.0008	.009	.020	.008
	16		Hardened	330	213-361	98-164	.0031	.0012	.0004	.007	.016	.006
	17	Stainless Steel Cast Austenitic	Austenitic	200	279-361	131-197	.0079	.0016	.0008	.009	.020	.008
	18		Hardened	330	197-328	98-164	.0031	.0012	.0004	.007	.016	.006
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	230-525	164-230	.0059	.0008	.0008	.012	.016	.010
	29		Pearlitic (long chips)	230	197-476	164-230	.0039	.0004	.0004	.012	.016	.010
	30	Grey Cast Iron	Low Tensile Strength	180	230-427	164-230	.0059	.0008	.0008	.018	.024	.016
	31		High Tensile Strength	260	197-377	131-197	.0039	.0004	.0059	.018	.024	.016
	32	Nodular Sg Iron	Ferritic	160	410-525	164-230	.0059	.0008	.0008	.018	.024	.016
	33		Pearlitic	260	295-394	197-262	.0039	.0004	.0004	.018	.024	.016
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	328-1,198	328-984	.0118	.0012	.0012	.025	.039	.020
	35		Aged	100	262-722	328-492	.0079	.0012	.0012	.025	.039	.020
	36	Aluminium Alloys	Cast	75	656-1,312	328-492	.0118	.0012	.0012	.025	.039	.020
	37		Cast & Aged	90	656-919	197-328	.0079	.0012	.0012	.025	.039	.020
	38	Aluminium Alloys	Cast Si 13-22%	130	197-591	328-492	.0118	.0008	.0008	.025	.039	.020
	39	Copper and Copper Alloys	Brass	90	262-738	197-328	.0118	.0012	.0012	.025	.039	.020
	40		Bronze And Non Leaded Copper	100	262-837	197-328	.0079	.0012	.0012	.025	.039	.020
S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	148-197	82-148	.0079	.0016	.0004	.009	.020	.008
	20		Aged (iron based)	280	98-164	66-98	.0031	.0012	.0004	.007	.016	.006
	21		Annealed (nickel or cobalt based)	250	66-98	49-66	.0031	.0004	.0004	.007	.016	.006
	22		Aged (nickel or cobalt based)	350	49-82	33-49	.0020	.0004	.0004	.007	.016	.006
	23	Titanium Alloys	Pure 99.5 Ti	400Rm	459-558	197-328	.0020	.0008	.0008	.007	.016	.006
	24		α+β Alloys	1050Rm	164-230	131-164	.0020	.0008	.0008	.007	.016	.006
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRc	148-213	66-148	.0008	.0004	.0004	.002	.008	.002
	26			51-55HRc	148-197	66-131	.0004	.0004	.0004	.002	.004	.002

Grades

VTX

General use carbide grade.
TiAlN coated.

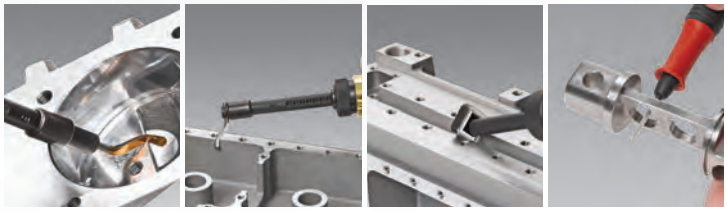
VMX

General use carbide grade
for Micro inserts. TiN coated.

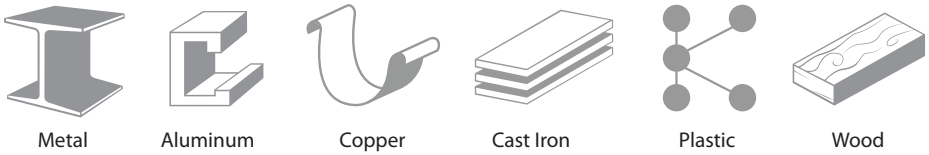
Spare Parts for PowerBore line						
Insert	Boring Bar	Insert	Torx Screw	Screw Description	Torx Key	Torx Size
	A	CD0W	VS01	1-72 Oval X .109LG.	VT51	T6
	B	TD0W Min. Bore .28 > Bore .28	VS01 VS40	1-72 Oval X .109LG. M2 X 0.4 X .152LG.		
	E	WC0W4213, WC0W4214	VS40	M2 X 0.4 X .152LG.		
	F	WC0W5013, WC0W5014	VS41	M2 X 0.4 X .193LG.		

SHAVIV
Leading Deburring Solutions

The Finishing Touch



SHAVIV hand deburring tools offer a range of cost-effective and efficient solutions to companies across all industry sectors that need to remove burrs from different materials. The tools are renowned for providing "the finishing touch" in a host of applications, such as hole edges, straight edges, flat surfaces, keyways and corners.



GROOVEX

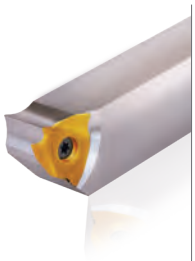
Innovative Grooving & Turning Solutions

The increasingly popular and rapidly growing **GROOVEX** line, established in 2011, provides a comprehensive line of products for grooving, boring, turning and mico-machining solutions across all industry sectors.

VG-Cut

micrOscope

Mini-V



GrooVical

Notes

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