VARGUS

Turning and Milling Catalog

TURNING

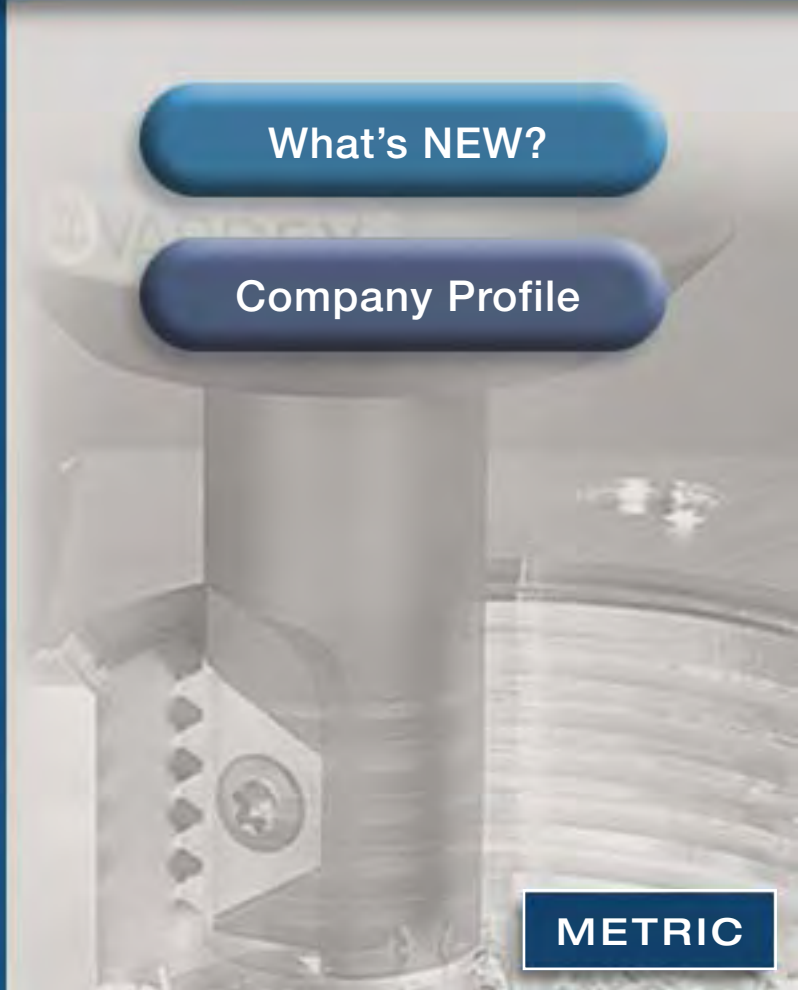
MILLING

VARDEX

VARDEX Threading Solutions

What's NEW?

Company Profile



METRIC

What's New?

New Grades in this Catalog

Thread Turning

VTX

1st Choice for General Use! TiAlN Coated

VK2P

Polished Chipbreaker. for Nonferrous. Uncoated

Thread Milling

VBX

First Choice for Steel and Cast Iron. TiCN Coated

VTX

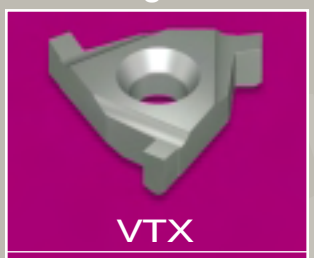
First Choice for Stainless Steel. TiAlN Coated

Boring - PowerBore

VTX

General Use. TiAlN Coated

Grooving



VTX

General Use. TiAlN Coated

New Products in this Catalog

TM Solid Carbide

Straight Flute

Thread Milling Solid Tool for Small Bores. Normal Use

Micro

Micro Holders

Now Available in Shank Diameters 10, 12, 16, 20mm

TM Solid Carbide

Helical Flute

Thread Milling Solid Tool for Small Bores. Heavy Duty

Chipbreaker

SCB

Sintered Chipbreaker for Better Chip Control

Micro

Single Ended Micro

Double-Ended Micro Product Line has been Extended to include Single Ended Micro

Thread Turning

Coarse Pitch

Thread Turning Tools for Coarse Pitch Applications

More VARDEX precision tooling solutions

START CATALOG

VARGUS
Number one in threading

VARGUS is a world leading developer, manufacturer and supplier of high-quality, precision cutting and deburring tools. The company's VARDEX product line is the number one source for threading solutions worldwide and includes the largest range of thread turning and thread milling solutions as well as an extensive range of solutions for micro-machining.

Established in 1960, VARGUS is a member of the EHRENBERG GROUP, a diversified multi-national organization headquartered in Knittlingen, Germany. With a network of international distributors, warehouses and certified ISO 9001 manufacturing facilities, VARGUS serves customers in more than 100 countries around the globe, providing fast delivery and dedicated customer service.

Vargus is a customer-focused organization, committed to providing innovative products of the highest quality, excellent value and top service & technical expertise. These key values have helped Vargus remain the market leader in threading solutions and will continue to guide our approach to business in the future.

IQNet
THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFIED QMS
SI
ISO 9001:
2000
THE STANDARDS INSTITUTION OF ISRAEL

START CATALOG

VARDEX Special Tools

VARDEX engineers and toolmakers have the know-how and experience to design special cutting tools tailored to customer requirements. Whether it's a special, complex shape or a non-standard size, our Special Tools service can quickly produce the tool you need using the latest techniques and technology.

For specific details, contact your nearest VARDEX sales representative.

- Fast quotation
- Competitive delivery
- VARDEX expertise

Tailor Made

Get a quotation

START CATALOG

TURNING

Contents

THREAD TURNING

GROOVING

BORING

Thread Turning System - External

Standard

Standard

Standard
with Clamp

Miniature
Square Shank

SCB

Off-Set Qualified

Drop
Head-Qualified

Miniature
Round Shank

U Style

U Style

U Style
with Clamp

V Style

V Style

Slim Throat

M Style

M Style

Z Style

Z Style

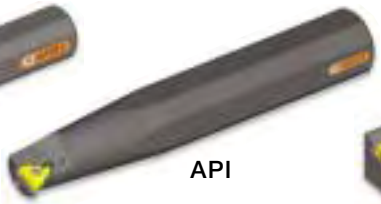
T Style

T Style

Thread Turning System - Internal

Standard

Standard



API

Miniature Square Shank

SCB

Standard with Clamp

Carbide Shank

Miniature Round Shank

U Style

U Style

U Style with Clamp

M Style

M Style

V Style

V Style

T Style

T Style

Z Style

Z Style

Mini-3

Mini-3

Mini-3 Adjustable

Mini-L

Mini-L

Mini-L Adjustable

Micro

Micro Single-Ended

Micro Double-Ended

Tooling recommendation for a given **Internal** thread specification

ISO Metric

Pitch mm	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
0.70	4	Micro 3.0	3.0SIR0.7ISO	SMC..-3	-
0.75	6	Micro 4.0	4.0SIR0.75ISO	SMC..-4	-
	8	Micro 6.0	6.0SIR0.75ISO	SMC..-6	-
	10	IC 5.0 L	5LIR0.75ISO	.NVR10.-5L	-
0.80	5	Micro 3.0	3.0SIR0.8ISO	SMC..-3	-
1.00	M6	Micro 4.0	4.0SIR1.0ISO	SMC..-4	-
	8	Micro 6.0	6.0SIR1.0ISO	SMC..-6	-
	10	IC 5.0 L	5LIR1.0ISO	.NVR10.-5L	-
	12-14	IC 6.0	6.0IR1.0ISO	.NVR1..-6.0	-
	15-17	IC 1/4"	2IR1.0ISO	NVR10-2	-
	18	IC 1/4"	2IR1.0ISO	NVR13-2	-
	20-24	IC 3/8"	3IR1.0ISO	NVR13-3	-
1.25	M8	Micro 6.0	6.0SIR1.25ISO	SMC..-6.0	-
	10	IC 5.0 L	5LIR1.25ISO	.NVR10.-5L	-
	12-14	IC 6.0	6.0IR1.25ISO	.NVR1..-6.0	-
1.50	M10	IC 5.0 L	5LIR1.5ISO	.NVR10.-5L	-
	12-14	IC 6.0	6.0IR1.5ISO	.NVR1..-6.0	-
	15-18	IC 1/4"	2IR1.5ISO	NVR10-2	-
	20-25	IC 3/8"	3IR1.5ISO	NVR13-3	-
	26-28	IC 3/8"	3IR1.5ISO	AVR20-3	YI3
	30-36	IC 3/8"	3IR1.5ISO	AVR20-3	YI3-1N
	38-45	IC 3/8"	3IR1.5ISO	AVR32-3	YI3-1N
	48-68	IC 3/8"	3IR1.5ISO	AVR40-3	YI3-1N
1.75	M12	IC 6.0	6.0IR1.75ISO	.NVR1..-6.0	-
2.00	M14	IC 6.0	6.0IR2.0ISO	.NVR1..-6.0	-
	M16-18	IC 1/4"	2IR2.0ISO	NVR10-2	-
	20-22	IC 3/8"	3IR2.0ISO	NVR13-3	-
	24	IC 3/8"	3IR2.0ISO	NVR16-3	-
	27-30	IC 3/8"	3IR2.0ISO	AVR20-3	YI3
	33-36	IC 3/8"	3IR2.0ISO	AVR25-3	YI3
	39-45	IC 3/8"	3IR2.0ISO	AVR32-3	YI3-1N
	48-68	IC 3/8"	3IR2.0ISO	AVR40-3	YI3-1N
2.50	M18	IC 1/4"	2IR2.5ISO	NVR10-2	-
	M20-M22	IC 3/8"	3IR2.5ISO	NVR13-3	-
3.00	M24-M27	IC 3/8"	3IR3.0ISO	NVR16-3	-
	36-45	IC 3/8"	3IR3.0ISO	AVR25-3	YI3
	48-68	IC 3/8"	3IR3.0ISO	AVR40-3	YI3
3.50	M30-M33	IC 1/2"	4IR3.5ISO	NVR20-4	-
4.00	M36	IC 1/2"	4IR4.0ISO	NVR20-4	-
	M39	IC 1/2"	4IR4.0ISO	AVR25-4	YI4
	56-68	IC 1/2"	4IR4.0ISO	AVR40-4	YI4
4.50	M42	IC 1/2"	4IR4.5ISO	AVR25-4	YI4-1P
	M45	IC 1/2"	4IR4.5ISO	AVR32-4	YI4
5.00	M48	IC 1/2"	4IR5.0ISO	AVR32-4	YI4-1P
	M52	IC 1/2"	4IR5.0ISO	AVR32-4	YI4
5.50	M56-60	IC 5/8"	5IR5.5ISO	AVR40-5	YI5
6.00	M64-68	IC 5/8"	5IR6.0ISO	AVR40-5	YI5

Tooling recommendation for a given **Internal** thread specification

American UN

Pitch tpi	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
56	10 - 1/4	Micro 4.0	Special	SMC..-4.0	-
48	10 - 5/16	Micro 4.0	Special	SMC..-4.0	-
40	10 - 3/8	Micro 4.0	4.0SIR40UN	SMC..-4.0	-
36	12 - 3/8	Micro 4.0	4.0SIR36UN	SMC..-4.0	-
32	12 - 1/4	Micro 4.0	4.0SIR32UN	SMC..-4.0	-
	5/16 - 3/8	Micro 6.0	6.0SIR32UN	SMC..-6.0	-
	7/16 - 1/2	IC 6.0	6.0IR32UN	.NVR 1..-6.0	-
	9/16 - 11/16	IC 1/4"	2IR32UN	NVR10-2	-
	3/4 - 15/16	IC 3/8""	3IR32UN	NVR13-3	-
	7/8 - 15/16	IC 3/8"	3IR32UN	NVR16-3	-
	1	IC 3/8"	3IR32UN	AVR20-3	YI3 - 1N
28	12 - 1/4	Micro 4.0	4.0SIR28UN	SMC..-4.0	-
	5/16 - 3/8	Micro 6.0	6.0SIR28UN	SMC..-6.0	-
	7/16 - 1/2	IC 6.0	6.0IR28UN	.NVR 1..-6.0	-
	5/8 - 11/16	IC 1/4"	2IR28UN	NVR10-2	-
	3/4 - 13/16	IC 3/8"	3IR28UN	NVR13-3	-
	7/8 - 15/16	IC 3/8"	3IR28UN	NVR16-3	-
	1 - 1 1/8	IC 3/8"	3IR28UN	AVR20-3	YI3 - 1N
	1 3/16	IC 3/8"	3IR28UN	AVR25-3	YI3 - 1N
27	1/4	Micro 4.0	4.0SIR27UN	SMC..-4.0	-
	5/16 - 3/8	Micro 6.0	6.0SIR27UN	SMC..-6.0	-
	7/16 - 1/2	IC 6.0	Special	.NVR 1..-6.0	-
	9/16 - 5/8	IC 1/4"	2IR27UN	NVR10-2	-
	3/4	IC 3/8"	3IR27UN	NVR13-3	-
	7/8	IC 3/8"	3IR27UN	NVR16-3	-
	1	IC 3/8"	3IR27UN	AVR20-3	YI3 - 1N
24	12 - 1/4	Micro 4.0	4.0SIR24UN	SMC..-4.0	-
	5/16 - 3/8	Micro 6.0	6.0SIR24UN	SMC..-6.0	-
	7/16	IC 5.0 L	5LIR24UN	.NVR10.-5L	-
	1/2	IC 6.0	6.0IR24UN	.NVR 1..-6.0	-
	9/16 - 11/16	IC 1/4"	2IR24UN	NVR10-2	-
	3/4	IC 3/8"	3IR24UN	NVR13-3	-
	7/8	IC 3/8"	3IR24UN	NVR16-3	-
	1 - 1 1/8	IC 3/8"	3IR24UN	AVR20-3	YI3 - 1N
	1 1/4 - 1 1/2	IC 3/8"	3IR24UN	AVR25-3	YI3 - 1N
	1 5/8 - 24	IC 3/8"	3IR24UN	AVR32-3	YI3 - 1N
20	5/16 - 3/8	Micro 6.0	6.0SIR20UN	SMC..-6.0	-
	7/16	IC 5.0 L	5LIR20UN	.NVR10.-5L	-
	1/2 - 9/16	IC 6.0	6.0IR20UN	.NVR 1..-6.0	-
	5/8 - 11/16	IC 1/4"	2IR20UN	NVR10-2	-
	3/4 - 13/16	IC 3/8"	3IR20UN	NVR13-3	-
	7/8 - 15/16	IC 3/8"	3IR20UN	NVR16-3	-
	1 - 1 3/16	IC 3/8"	3IR20UN	AVR20-3	YI3 - 1N
	1 1/4 - 1 1/2	IC 3/8"	3IR20UN	AVR25-3	YI3 - 1N
	1 9/16 - 1 13/16	IC 3/8"	3IR20UN	AVR32-3	YI3 - 1N
	1 7/8 - 2 1/8	IC 3/8"	3IR20UN	AVR40-3	YI3 - 1N

Tooling recommendation for a given **Internal** thread specification

American UN

Pitch tpi	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
18	5/16 - 3/8	Micro 6.0	6.0SIR18UN	SMC..-6.0	-
	7/16	IC 5.0 L	5LIR18UN	.NVR10.-5L	-
	1/2 - 9/16	IC 6.0	6.0IR18UN	.NVR 1..-6.0	-
	5/8	IC 1/4"	2IR18UN	NVR10-2	-
	3/4	IC 3/8"	3IR18UN	NVR13-3	-
	7/8 - 1	IC 3/8"	3IR18UN	NVR16-3	-
	1 1/16 - 1 3/16	IC 3/8"	3IR18UN	AVR20-3	YI3 - 1N
	1 1/4 - 1 1/2	IC 3/8"	3IR18UN	AVR25-3	YI3 - 1N
	1 9/16 - 1 3/4	IC 3/8"	3IR18UN	AVR32-3	YI3 - 1N
	1 7/8 - 2	IC 3/8"	3IR18UN	AVR40-3	YI3 - 1N
16	3/8	Micro 6.0	6.0SIR16UN	SMC..-6.0	-
	7/16	IC 5.0 L	5LIR16UN	.NVR10.-5L	-
	1/2 - 9/16	IC 6.0	6.0IR16UN	.NVR 1..-6.0	-
	5/8 - 11/16	IC 1/4"	2IR16UN	NVR10-2	-
	3/4 - 13/16	IC 3/8"	3IR16UN	NVR13-3	-
	7/8 - 1	IC 3/8"	3IR16UN	NVR16-3	-
	1 1/16 - 1 1/8	IC 3/8"	3IR16UN	AVR20-3	YI3
	1 3/16	IC 3/8"	3IR16UN	AVR20-3	YI3 - 1N
	1 1/4 - 1 1/2	IC 3/8"	3IR16UN	AVR25-3	YI3 - 1N
	1 9/16 - 1 13/16	IC 3/8"	3IR16UN	AVR32-3	YI3 - 1N
	1 7/8 - 2 1/8	IC 3/8"	3IR16UN	AVR40-3	YI3 - 1N
14	7/16	IC 5.0 L	5LIR14UN	.NVR10.-5L	-
	1/2 - 9/16	IC 6.0	6.0IR14UN	.NVR 1..-6.0	-
	5/8	IC 1/4"	2IR14UN	NVR10-2	-
	3/4	IC 3/8"	3IR14UN	NVR13-3	-
	7/8 - 1	IC 3/8"	3IR14UN	NVR16-3	-
	1 1/8	IC 3/8"	3IR14UN	AVR20-3	YI3
	1 1/4	IC 3/8"	3IR14UN	AVR25-3	YI3
	1 3/8 - 1 1/2	IC 3/8"	3IR14UN	AVR25-3	YI3 - 1N
	1 5/8 - 1 3/4	IC 3/8"	3IR14UN	AVR32-3	YI3 - 1N
	1 7/8 - 2	IC 3/8"	3IR14UN	AVR40-3	YI3 - 1N
13	1/2 - 13	IC 6.0	6.0I13UN...158/001	BNVR 10S-6.0	-
12	9/16 - 11/16	IC 1/4"	2I12UN...158/002	NVRC10-2 156/001	-
	3/4 - 7/8	IC 3/8"	3IR12UN	NVR13-3	-
	15/16 - 1	IC 3/8"	3IR12UN	NVR16-3	-
	1 1/16 - 1 3/16	IC 3/8"	3IR12UN	AVR20-3	YI3
	1 1/4 - 1 1/2	IC 3/8"	3IR12UN	AVR25-3	YI3
	1 9/16 - 1 13/16	IC 3/8"	3IR12UN	AVR32-3	YI3
	1 7/8 - 2 1/8	IC 3/8"	3IR12UN	AVR40-3	YI3 - 1N
11	5/8 - 11	IC 1/4U"	2URI11UN...158/003	NVRC11-U 156/002	-
10	3/4 - 7/8	IC 3/8"	3IR10UN	NVR13-3	-
	1 - 10	IC 3/8"	3IR10UN	NVR16-3	-
	1 1/8 - 10	IC 3/8"	3IR10UN	AVR20-3	YI3
	1 1/4 - 1 1/2	IC 3/8"	3IR10UN	AVR25-3	YI3
	1 5/8 - 1 3/4	IC 3/8"	3IR10UN	AVR32-3	YI3
	1 7/8 - 2	IC 3/8"	3IR10UN	AVR40-3	YI3

Tooling recommendation for a given **Internal** thread specification

American UN (Con't)

Pitch tpi	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
9	7/8 - 9	IC 3/8"	3IR9UN	NVR13-3	-
8	1	IC 3/8"	3IR8UN	NVR16-3	-
	1 1/16 - 1 3/16	IC 3/8"	3IR8UN	AVR20-3	YI3 - 1P
	1 1/4	IC 3/8"	3IR8UN	AVR20-3	YI3
	1 5/16 - 1 1/2	IC 3/8"	3IR8UN	AVR25-3	YI3
	1 9/16 - 1 13/16	IC 3/8"	3IR8UN	AVR32-3	YI3
	1 7/8 - 2 1/8	IC 3/8"	3IR8UN	AVR40-3	YI3
7	1 1/8 - 1 1/4	IC 1/2"	4IR7UN	NVR20-4	-
6	1 3/8 - 1 7/16	IC 1/2"	4IR6UN	NVR20-4	-
	1 1/2 - 1 5/8	IC 1/2"	4IR6UN	AVR25-4	YI4 - 1P
	1 11/16	IC 1/2"	4IR6UN	AVR25-4	YI4
	1 3/4 - 2	IC 1/2"	4IR6UN	AVR32-4	YI4
	2 1/8 - 6	IC 1/2"	4IR6UN	AVR40-4	YI4
5	1 3/4 - 5	IC 1/2"	4IR5UN	AVR25-4	YI4 - 1P
4.5	2 - 4 1/2	IC 5/8"	5IR4.5UN	AVR32-5	YI5 - 1P

Tooling recommendation for a given **Internal** thread specification

Whitworth

Pitch tpi	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
26	1/4	Micro 4.0	4.0SIR26W	SMC..-4.0	-
	5/16 - 1/2	Micro 6.0	6.0SIR26W	SMC..-6.0	-
	9/16 - 5/8	IC 1/4"	2IR26W	NVR10-2	-
	11/16	IC 1/4"	2IR26W	NVR13-2	-
	3/4 - 13/16	IC 3/8"	3IR26W	NVR13-3	-
	7/8 - 15/16	IC 3/8"	3IR26W	NVR16-3	-
	1 - 1 3/16	IC 3/8"	3IR26W	AVR20-3	YI3 - 1N
	1 1/4 - 1 7/16	IC 3/8"	3IR26W	AVR25-3	YI3 - 1N
	1 1/2 - 1 3/4	IC 3/8"	3IR26W	AVR32-3	YI3 - 1N
	1 7/8 - 2	IC 3/8"	3IR26W	AVR40-3	YI3 - 1N
22	5/16	Micro 6.0	6.0SIR22W	SMC..-6.0	-
20	3/8 - 9/16	Micro 6.0	6.0SIR20W	SMC..-6.0	-
	5/8 - 11/16	IC 1/4"	2IR20W	NVR10-2	-
	3/4 - 13/16	IC 3/8"	3IR20W	NVR13-3	-
	7/8 - 1	IC 3/8"	3IR20W	NVR16-3	-
	1 1/16 - 1 3/16	IC 3/8"	3IR20W	AVR20-3	YI3 - 1N
	1 1/4 - 1 7/16	IC 3/8"	3IR20W	AVR25-3	YI3 - 1N
	1 1/2 - 1 3/4	IC 3/8"	3IR20W	AVR32-3	YI3 - 1N
	1 7/8 - 3	IC 3/8"	3IR20W	AVR40-3	YI3 - 1N
16	11/16	IC 1/4"	2IR16W	NVR10-2	-
	3/4 - 11/16	IC 3/8"	3IR16W	NVR13-3	-
	7/8 - 1	IC 3/8"	3IR16W	NVR16-3	-
	1 1/16 - 1 1/8	IC 3/8"	3IR16W	AVR20-3	YI3
	1 3/16	IC 3/8"	3IR16W	AVR20-3	YI3 - 1N
	1 1/4 - 1 7/16	IC 3/8"	3IR16W	AVR25-3	YI3 - 1N
	1 1/2 - 1 3/4	IC 3/8"	3IR16W	AVR32-3	YI3 - 1N
	1 7/8 - 4 5/8	IC 3/8"	3IR16W	AVR40-3	YI3 - 1N
	4 3/4 - 7	IC 3/8"	3IR16W	AVR40-3	YI3 - 1.5N
14	7/16	IC 5.0 L	5LIR14W	.NVR10.-5L	-
	5/8 - 11/16	IC 1/4"	2IR14W	NVR10-2	-
12	13/16	IC 3/8"	3IR12W	NVR13-3	-
	15/16 - 1	IC 3/8"	3IR12W	NVR16-3	-
	1 1/16 - 1 3/16	IC 3/8"	3IR12W	AVR20-3	YI3
	1 1/4 - 1 1/2	IC 3/8"	3IR12W	AVR25-3	YI3
	1.6 - 1 3/4	IC 3/8"	3IR12W	AVR32-3	YI3 - 1N
	1 7/8 - 6	IC 3/8"	3IR12W	AVR40-3	YI3 - 1N
	6 1/4 - 7	IC 3/8"	3IR12W	AVR40-3	YI3 - 1.5N
11	7/8	IC 3/8"	3IR11W	NVR13-3	-
10	1	IC 3/8"	3IR10W	NVR16-3	-

Tooling recommendation for a given **Internal** thread specification

Whitworth (Con't)

Pitch tpi	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
9	7/8	IC 3/8"	3IR9W	NVR13-3	-
	1 1/8 - 1 1/4	IC 3/8"	3IR9W	AVR20-3	YI3
8	1	IC 3/8"	3IR8W	NVR16-3	-
	1 3/16	IC 3/8"	3IR8W	AVR20-3	YI3 - 1P
	1 5/16 - 1 1/2	IC 3/8"	3IR8W	AVR25-3	YI3
	1.6 - 1 7/8	IC 3/8"	3IR8W	AVR32-3	YI3
	1.9 - 2 1/4	IC 3/8"	3IR8W	AVR40-3	YI3
	2.4 - 7	IC 3/8"	3IR8W	AVR40-3	YI3 - 1N
7	1 1/4	IC 1/2"	4IR7W	NVR20-4	-
	1 3/4 - 2	IC 1/2"	4IR7W	AVR32-4	YI4
6	1 5/16 - 1 7/16	IC 1/2"	4IR6W	NVR20-4	-
	1 1/2 - 1 5/8	IC 1/2"	4IR6W	AVR25-4	YI4 - 1P
	1 7/8 - 1.9	IC 1/2"	4IR6W	AVR32-4	YI4
	2.1 - 3.1	IC 1/2"	4IR6W	AVR40-4	YI4
	3 1/4 - 7	IC 1/2"	4IR6W	AVR40-4	YI4 - 1N
5	1 3/4	IC 1/2"	4IR5W	AVR25-4	YI4 - 1P
	3 - 3 1/4	IC 1/2"	4IR5W	AVR40-4	YI4
4.5	2	IC 5/8"	5IR4.5W	AVR32-5	YI5 - 1P
	3 1/2 - 4	IC 5/8"	5IR4.5W	AVR60-5	YI5
4	2 1/4	IC 5/8"	5IR4W	AVR40-5	YI5 - 1P
	2 1/2	IC 5/8"	5IR4W	AVR40-5	YI5
	4 1/4 - 4 3/4	IC 5/8"	5IR4W	AVR60-5	YI5
	4 7/8 - 7	IC 5/8"	5IR4W	AVR60-5	YI5 - 1N
3.5	2 3/4	IC 5/8" U	5UEI3.5W	AVR40-5U	YI5U - 1P
	3	IC 5/8" U	5UEI3.5W	AVR50-5U	YI5U
3.25	3 1/4	IC 5/8" U	5UEI3.25W	AVR50-5U	YI5U
	3 1/2	IC 5/8" U	5UEI3.25W	AVR60-5U	YI5U
3	3 3/4 - 4	IC 5/8" U	5UEI3W	AVR60-5U	YI5U
2.75	5	IC 5/8" U	5UEI2.75W	AVR60-5U	YI5U
2.5	6	IC 5/8" V	5VIR2.5W	NVR60-5V	-

Tooling recommendation for a given **Internal** thread specification

BSP (55°)

Pitch tpi	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
28	G1/16	Micro 6.0	6.0SIR28W	SMC..-6.0	-
	G1/8	IC 5.0 L	5LIR28W	.NVR10.-5L	-
19	G1/4	IC 6.0	6.0IR19W	.NVR1..-6.0	-
	G3/8	IC 1/4"	2IR19W	NVR10-2	-
14	G1/2 & G5/8	IC 3/8"	3IR14W	NVR13-3	-
	G3/4 & G7/8	IC 3/8"	3IR14W	AVR20-3	YI3
11	G1 & G1 1/8 & 1 1/4	IC 3/8"	3IR11W	AVR25-3	YI3
	G1 1/2	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G1 3/4	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G2	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G2 1/4	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G2 1/2	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G2 3/4	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G3	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G3 1/2	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G4	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G4 1/2	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G5	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G5 1/2	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N
	G6	IC 3/8"	3IR11W	AVR40-3	YI3 - 1N

BSPT

Pitch tpi	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
28	1/8	IC 5.0 L	5LIR28BSPT	.NVR1..-5.0L	-
19	1/4	IC 6.0	6.0IR19BSPT	.NVR1..-6.0	-
	3/8	IC 1/4"	2IR19BSPT	NVR10-2	-
14	1/2	IC 3/8"	3IR14BSPT	NVR13-3	-
	3/4	IC 3/8"	3IR14BSPT	AVR20-3	YI3
11	1	IC 3/8"	3IR11BSPT	AVR25-3	YI3
	1 1/4	IC 3/8"	3IR11BSPT	AVR32-3	YI3
	1 1/2	IC 3/8"	3IR11BSPT	AVR40-3	YI3 - 1N
	2	IC 3/8"	3IR11BSPT	AVR40-3	YI3 - 1N
	2 1/2	IC 3/8"	3IR11BSPT	AVR40-3	YI3 - 1N
	3	IC 3/8"	3IR11BSPT	AVR40-3	YI3 - 1N
	4	IC 3/8"	3IR11BSPT	AVR40-3	YI3 - 1N
	5	IC 3/8"	3IR11BSPT	AVR40-3	YI3 - 1N
	6	IC 3/8"	3IR11BSPT	AVR40-3	YI3 - 1N

Tooling recommendation for a given **Internal** thread specification

NPT

Pitch tpi	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
27	1/8	Micro 6.0	6.0SIR27NPT	SMC..-6.0	-
18	1/4	Micro 6.0	6.0SIR18NPT	SMC..-6.0	-
	3/8	Micro 6.0	6.0SIR18NPT	SMC..-6.0	-
14	1/2	IC 3/8"	3IR14NPT	NVR13-3	-
	3/4	IC 3/8"	3IR14NPT	NVR13-3	-
11.5	1	IC 3/8"	3IR11.5NPT	AVR20-3	YI3
	1 1/4	IC 3/8"	3IR11.5NPT	AVR32-3	YI3
	1 1/2	IC 3/8"	3IR11.5NPT	AVR32-3	YI3 - 1N
	2	IC 3/8"	3IR11.5NPT	AVR40-3	YI3 - 1N
8	2 1/2	IC 3/8"	3IR8NPT	AVR40-3	YI3 - 1N
	3	IC 3/8"	3IR8NPT	AVR40-3	YI3 - 1N
	3 1/2	IC 3/8"	3IR8NPT	AVR40-3	YI3 - 1N
	4	IC 3/8"	3IR8NPT	AVR40-3	YI3 - 1N
	5	IC 3/8"	3IR8NPT	AVR40-3	YI3 - 1N
	6	IC 3/8"	3IR8NPT	AVR40-3	YI3 - 1N
	8	IC 3/8"	3IR8NPT	AVR40-3	YI3 - 1N
	10	IC 3/8"	3IR8NPT	AVR40-3	YI3 - 1N
	12	IC 3/8"	3IR8NPT	AVR40-3	YI3 - 1N

NPTF

Pitch tpi	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
27	1/8	IC 5.0 L	5LIR27NPTF	.NVR1..-5.0L	-
18	1/4	IC 6.0	6.0IR18NPTF	.NVR1..-6.0	-
	3/8	IC 1/4"	2IR18NPTF	NVR10-2	-
14	1/2	IC 3/8"	3IR14NPTF	NVR13-3	-
	3/4	IC 3/8"	3IR14NPTF	NVR16-3	-
11.5	1	IC 3/8"	3IR11.5NPTF	AVR20-3	YI3
	1 1/4	IC 3/8"	3IR11.5NPTF	AVR32-3	YI3
	1 1/2	IC 3/8"	3IR11.5NPTF	AVR32-3	YI3 - 1N
	2	IC 3/8"	3IR11.5NPTF	AVR40-3	YI3 - 1N
8	2 1/2	IC 3/8"	3IR8NPTF	AVR40-3	YI3 - 1N
	3	IC 3/8"	3IR8NPTF	AVR40-3	YI3 - 1N

PG

Pitch tpi	Thread	Insert Size	Ordering Code		
			Insert	Holder	Anvil
20	Pg 7	IC 6.0	6.0IR20PG	.NVR 1..6.0	-
18	Pg 9	IC 1/4"	2IR18PG	NVR10-2	-
	Pg 11 & Pg 13.5	IC 3/8"	3IR18PG	NVR13-3	-
	Pg 16	IC 3/8"	3IR18PG	NVR16-3	-
16	Pg 21	IC 3/8"	3IR16PG	AVR20-3	YI3
	Pg 29	IC 3/8"	3IR16PG	AVR25-3	YI3 - 1N
	Pg 36 & Pg 42 & Pg 48	IC 3/8"	3IR16PG	AVR40-3	YI3 - 1N

THREAD TURNING INSERTS

Contents

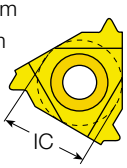
Vardex Ordering Code System

Threading Inserts (Not Including Micro System)

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

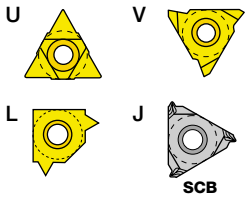
1 - Insert size

5L -IC5.0L mm
6.0 -IC6.0 mm
2 -IC1/4"
3 -IC 3/8"
4 -IC 1/2"
5 -IC5/8"



2 - Insert style

U V L J



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 Hand Insert

5 - Pitch

Full Profile - Pitch Range

mm	tpi
0.35-12.0	72-2

Partial Profile - Pitch Range

	mm	tpi
A	0.5 - 1.5	48 - 16
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 1/ 2 - 3 1/ 2
Q	5.5 - 6.0	4 1/ 2 - 4
U	6.5 - 9.0	4 - 2 3/ 4
V	6.0 - 10.0	4 - 2 1/ 2

6 - Standard

60° - Partial profile 60°
55° - Partial profile 55°
ISO - ISO Metric
UN - American UN
W - Whitworth for BSW, BSP
BSPT - British Standard Pipe Thread
NPT - NPT
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
EL - Extreme Line Casing
H90 - H90
PG - Pg DIN 40430

7 - API Form

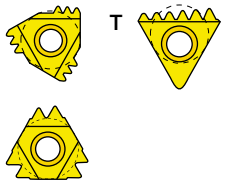
382	2
383	3
403	15
502	75
503	125

8 - No. of Teeth

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

9 - Multitooth style

M T Z



10 - Carbide Grade

VTX, VCB, VM7, VKX, VSX, VK2, VK2P, VHX, VKP

11-Coarse Pitch Inserts

158/...

Micro Threading Inserts

3	S	I	R	0.5	ISO	VMX	1- SIDE
1	2	3	4	5	6	7	8

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	48 - 16
F	0.25 - 1.0	72 - 24

6 - Standard

55° - Partial profile 55°
60° - Partial profile 60°
ISO - ISO Metric
MJ - ISO 5855
NPT - NPT
NPTF - NPTF
UN - American UN
W - British Standard Whitworth

7 - Carbide Grade

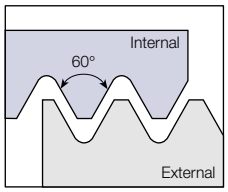
VMX

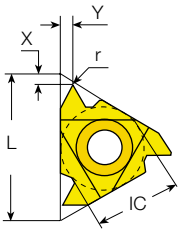
8 - Micro Ended

1- SIDE - Single Ended
None - Double Ended

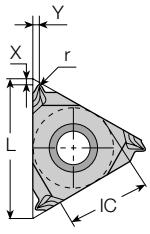
Partial Profile 60°

External

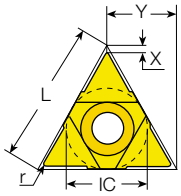




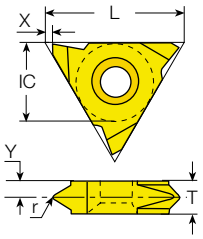
Standard



SCB
Sintered Chipbreaker



U Style



V Style / Slim Throat

Standard

SCB

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

U Style

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

Slim Throat

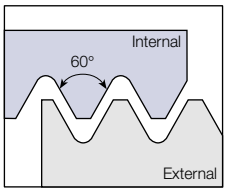
Insert Size		Pitch		Ordering Code		Dimensions mm				
IC	L mm	mm	tpi	RH	LH	r	X	Y	T	Toolholder
1/4"V	11	0.5-1.5	48-16	2VERA60...	2VELA60...	0.05	0.69	2.3	3.2	NL..-2V (LH)
3/8"V	16	0.5-1.5	48-16	3VERA60...	3VELA60...	0.05	1.10	2.7	3.6	NL..-3V (LH)
		1.75-3.0	14-8	3VERG60...	3VELG60...	0.27	1.10	1.9	3.6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

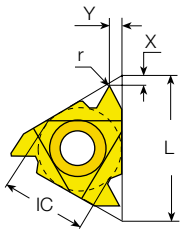
V Style

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

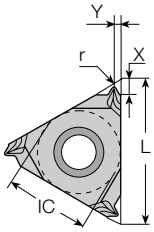
Partial Profile 60° (con't)

Internal

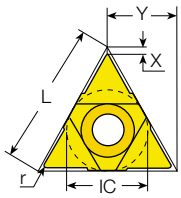




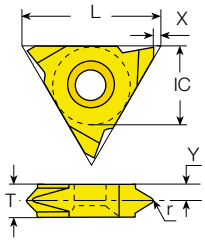
Standard



SCB
Sintered Chipbreaker



U Style



V Style

Standard

SCB

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

U Style

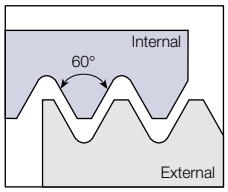
Insert Size		Pitch		Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	tpi	RH+LH	r	X	Y	RH	LH	Toolholder
1/2"U	22	5.5-8.0	4.5-3.25	4UEIU60...	0.30	0.6	11.0	YI4U	YE4U	AVR..-4U (LH)
5/8"U	27	6.5-9.0	4-2.75	5UEIU60...	0.37	1.0	13.7	YI5U	YE5U	AVR..-5U (LH)

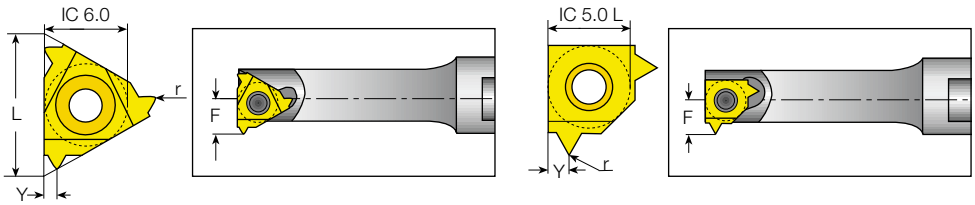
V Style

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

Partial Profile 60° (con't)

Internal





Mini-3 Mini-L

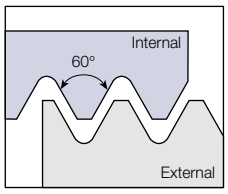
Mini-3

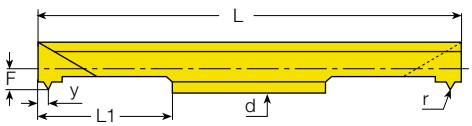
Insert Size		Pitch		Ordering Code		Dimensions mm		Min. Bore dia.	
IC	**L** mm	**mm**	**tpi**	**RH**	**r**	**Y**	**F**	**mm**	**Toolholder**
6.0	10	0.5-1.5	48-16	6.0IRA60...	0.05	0.9	5.3	10.0	.NVR 1..-6.0

Mini-L

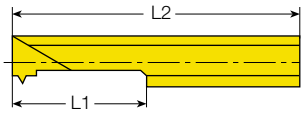
Insert Size		Pitch		Ordering Code		Dimensions mm		Min Bore dia.	
IC		**mm**	**tpi**	**RH**	**r**	**Y**	**F**	**mm**	**Toolholder**
5.0L		0.5-1.5	48-16	5LIRA60...	0.05	0.9	4.65	8.0	.NVR 10.-5L

Internal





RH-Double Ended



RH-Single Ended

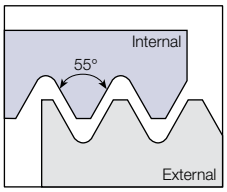
Micro

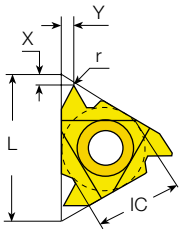
Insert dia.	Pitch		Ordering Code		Dimensions mm						Min. Bore dia.	
d mm	**mm**	**tpi**	**RH-**Single Ended	**RH-**Double Ended	**r**	**L1**	**L2**	**L**	**F**	**Y**	**mm**	**Toolholder**
3.0	0.5-1.0	48-24	3.0SIRF60...1-SIDE	3.0SIRF60...	0.05	16	43	50	1.46	0.9	3.3	SMC..-3.0
4.0	0.5-1.0	48-24	4.0SIRF60...1-SIDE	4.0SIRF60...	0.05	16	43	50	1.96	0.9	4.3	SMC..-4.0
6.0	0.5-1.5	48-16	6.0SIRA60...1-SIDE	6.0SIRA60...	0.05	16	43	50	2.50	0.9	6.0	SMC..-6.0

Left Handed Tool Supplied by Request. **(Example:** 6.0SI**L**A60...1-SIDE)

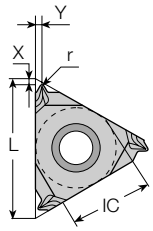
Partial Profile 55°

External

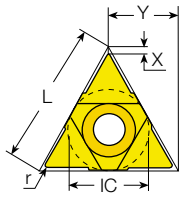




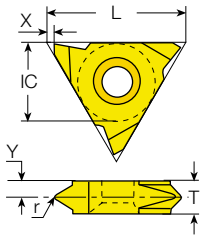
Standard



SCB
Sintered Chipbreaker



U Style



V Style / Slim Throat

Standard

SCB

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

U Style

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

Slim Throat

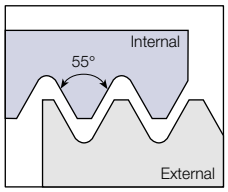
Insert Size		Pitch		Ordering Code		Dimensions mm				
IC	L mm	mm	tpi	RH	LH	r	X	Y	T	Toolholder
1/4"V	11	0.5-1.5	48-16	2VERA55...	2VELA55...	0.05	0.8	2.7	3.2	NL..-2V (LH)
3/8"V	16	0.5-1.5	48-16	3VERA55...	3VELA55...	0.05	1.1	2.7	3.6	NL..-3V (LH)
		1.75-3.0	14-8	3VERG55...	3VELG55...	0.21	1.1	1.9	3.6	
	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

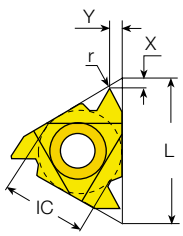
V Style

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

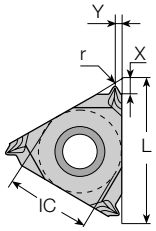
Partial Profile 55° (con't)

Internal

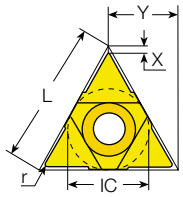




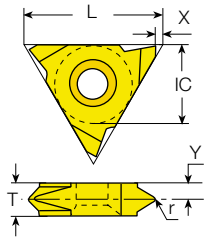
Standard



SCB
Sintered Chipbreaker



U Style



V Style

Standard

SCB

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

U Style

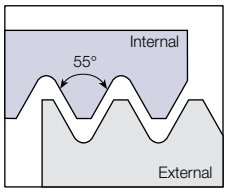
Insert Size		Pitch		Ordering Code	Dimensions mm			Anvil		
IC	**L** mm	**mm**	**tpi**	**RH+LH**	**r**	**X**	**Y**	**RH**	**LH**	**Toolholder**
1/2"U	22	5.5-8.0	4.5-3.25	4UEIU55...	0.60	0.9	11.0	YI4U	YE4U	AVR..-4U (LH)
5/8"U	27	6.5-9.0	4-2.75	5UEIU55...	0.80	1.2	13.7	YI5U	YE5U	AVR..-5U (LH)

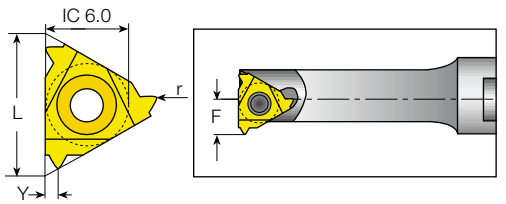
V Style

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

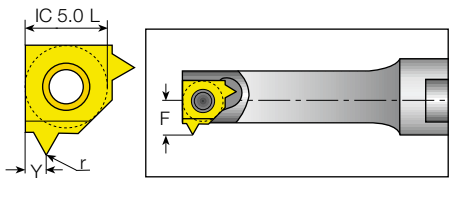
Partial Profile 55° (con't)

Internal





Mini-3



Mini-L

Mini-3

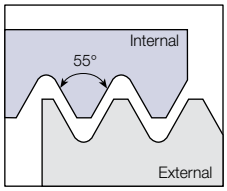
Insert Size		Pitch		Ordering Code		Dimensions mm		Min Bore dia.	
IC	**L** mm	**mm**	**tpi**	**RH**	**r**	**Y**	**F**	**mm**	**Toolholder**
6.0	10	0.5-1.5	48-16	6.0IRA55...	0.05	0.9	5.3	10.0	.NVR 1..-6.0

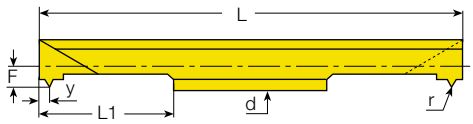
Mini-L

Insert Size		Pitch		Ordering Code		Dimensions mm		Min. Bore dia.	
IC		**mm**	**tpi**	**RH**	**r**	**Y**	**F**	**mm**	**Toolholder**
5.0L		0.5-1.5	48-16	5LIRA55...	0.05	0.9	4.65	8.0	.NVR 10.-5L

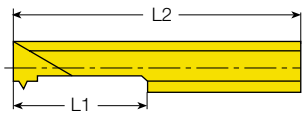
Partial Profile 55°

Internal





RH-Double Ended



RH-Single Ended

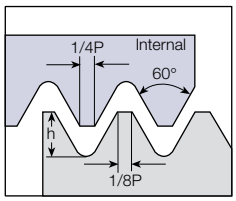
Micro

Insert dia.	Pitch		Ordering Code		Dimensions mm					Min. Bore dia.	
d mm	**mm**	**tpi**	**RH-**Single Ended	**RH-**Double Ended	**r**	**L1**	**L2**	**L**	**F**	**Y**	**mm**	**Toolholder**
3.0	0.5-1.0	48-24	3.0SIRF55...1-SIDE	3.0SIRF55...	0.05	16	43	50	1.46	0.9	3.3	SMC..-3.0
4.0	0.5-1.0	48-24	4.0SIRF55...1-SIDE	4.0SIRF55...	0.05	16	43	50	1.96	0.9	4.3	SMC..-4.0
6.0	0.5-1.5	48-16	6.0SIRA55...1-SIDE	6.0SIRA55...	0.05	16	43	50	2.50	0.9	6.0	SMC..-6.0

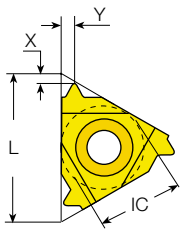
Left Handed Tool Supplied by Request. **(Example:** 6.0SI**L**A55...1-SIDE)

ISO Metric

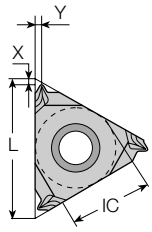
External



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



Standard



SCB
Sintered Chipbreaker

Standard

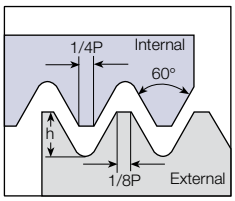
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	0.35	2ER0.35ISO...	2EL0.35ISO...	0.21	0.8	0.4	-	-	NL..-2 (LH)
		0.4	2ER0.4ISO...	2EL0.4ISO...	0.25	0.7	0.4			
		0.45	2ER0.45ISO...	2EL0.45ISO...	0.28	0.7	0.4			
		0.5	2ER0.5ISO...	2EL0.5ISO...	0.31	0.6	0.4			
		0.6	2ER0.6ISO...	2EL0.6ISO...	0.37	0.6	0.6			
		0.7	2ER0.7ISO...	2EL0.7ISO...	0.43	0.6	0.6			
		0.75	2ER0.75ISO...	2EL0.75ISO...	0.46	0.6	0.6			
		0.8	2ER0.8ISO...	2EL0.8ISO...	0.49	0.6	0.6			
		1.0	2ER1.0ISO...	2EL1.0ISO...	0.61	0.7	0.7			
		1.25	2ER1.25ISO...	2EL1.25ISO...	0.77	0.8	0.9			
		1.5	2ER1.5ISO...	2EL1.5ISO...	0.92	0.8	1.0			
		1.75	2ER1.75ISO...	2EL1.75ISO...	1.07	0.8	1.1			
3/8"	16	0.35	3ER0.35ISO...	3EL0.35ISO...	0.21	0.8	0.4	YE3	YI3	AL..-3 (LH)
		0.4	3ER0.4ISO...	3EL0.4ISO...	0.25	0.7	0.4			
		0.45	3ER0.45ISO...	3EL0.45ISO...	0.28	0.7	0.4			
		0.5	3ER0.5ISO...	3EL0.5ISO...	0.31	0.6	0.4			
		0.6	3ER0.6ISO...	3EL0.6ISO...	0.37	0.6	0.6			
		0.7	3ER0.7ISO...	3EL0.7ISO...	0.43	0.6	0.6			
		0.75	3ER0.75ISO...	3EL0.75ISO...	0.46	0.6	0.6			
		0.8	3ER0.8ISO...	3EL0.8ISO...	0.49	0.6	0.6			
		1.0	3ER1.0ISO...	3EL1.0ISO...	0.61	0.7	0.7			
		1.25	3ER1.25ISO...	3EL1.25ISO...	0.77	0.8	0.9			
		1.5	3ER1.5ISO...	3EL1.5ISO...	0.92	0.8	1.0			
		1.75	3ER1.75ISO...	3EL1.75ISO...	1.07	0.9	1.2			
		2.0	3ER2.0ISO...	3EL2.0ISO...	1.23	1.0	1.3			
		2.5	3ER2.5ISO...	3EL2.5ISO...	1.53	1.1	1.5			
		3.0	3ER3.0ISO...	3EL3.0ISO...	1.84	1.2	1.6			
3/8" SCB	16	0.5	3JER0.5ISO...		0.31	1.2	0.5	YE3	-	AL..-3
		0.75	3JER0.75ISO...		0.46	1.2	0.5			
		0.8	3JER0.8ISO...		0.49	1.2	0.5			
		1.0	3JER1.0ISO...		0.61	0.7	0.8			
		1.25	3JER1.25ISO...		0.77	0.7	0.8			
		1.5	3JER1.5ISO...		0.92	0.7	0.8			
		1.75	3JER1.75ISO...		1.07	1.2	1.5			
		2.0	3JER2.0ISO...		1.23	1.2	1.5			
		2.5	3JER2.5ISO...		1.53	1.2	1.5			
		3.0	3JER3.0ISO...		1.84	1.3	1.5			

SCB

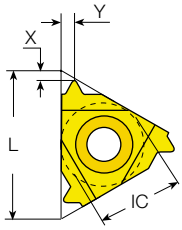
continued on next page ▸

ISO Metric (con't)

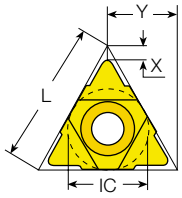
External



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



Standard



U Style

Standard (con't)

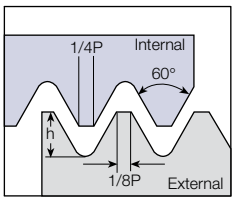
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2"	22	3.5	4ER3.5ISO...	4EL3.5ISO...	2.15	1.6	2.3	YE4	YI4	AL..-4 (LH)
		4.0	4ER4.0ISO...	4EL4.0ISO...	2.45	1.6	2.3			
		4.5	4ER4.5ISO...	4EL4.5ISO...	2.76	1.7	2.4			
		5.0	4ER5.0ISO...	4EL5.0ISO...	3.07	1.7	2.5			
5/8"	27	5.5	5ER5.5ISO...	5EL5.5ISO...	3.37	1.9	2.7	YE5	YI5	AL..-5 (LH)
		6.0	5ER6.0ISO...	5EL6.0ISO...	3.68	2.0	2.9			

U Style

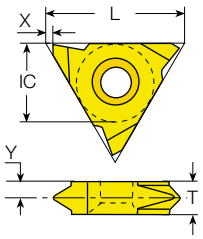
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	5.5	4UE5.5ISO...	3.37	2.3	11.0	YE4U	YI4U	AL..-4U (LH)
		6.0	4UE6.0ISO...	3.68	2.6	11.0			
5/8"U	27	8.0	5UE8.0ISO...	4.91	2.4	13.7	YE5U	YI5U	AL..-5U (LH)

ISO Metric (con't)

External



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



V Style / Slim Throat

Slim Throat

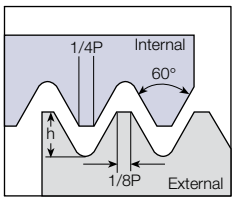
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	mm	RH	LH	h min	X	Y	T	Toolholder
1/4"V	11	0.75	2VER0.75ISO...	2VEL0.75ISO...	0.46	0.69	2.6	3.2	NL..-2V (LH)
		1.0	2VER1.0ISO...	2VEL1.0ISO...	0.61	0.69	2.5	3.2	
		1.5	2VER1.5ISO...	2VEL1.5ISO...	0.92	0.69	2.2.	3.2	
		1.75	2VER1.75ISO...	2VEL1.75ISO...	1.07	0.69	2.1	3.2	
		2.0	2VER2.0ISO...	2VEL2.0ISO...	1.23	0.69	1.9	3.2	
3/8"V	16	0.35	3VER0.35ISO...	3VEL0.35ISO...	0.20	1.1	3.25	3.6	NL..-3V (LH)
		0.4	3VER0.4ISO...	3VEL0.4ISO...	0.25	1.1	3.20	3.6	
		0.5	3VER0.5ISO...	3VEL0.5ISO...	0.31	1.1	3.0	3.6	
		0.75	3VER0.75ISO...	3VEL0.75ISO...	0.46	1.1	3.0	3.6	
		1.0	3VER1.0ISO...	3VEL1.0ISO...	0.61	1.1	2.9	3.6	
		1.25	3VER1.25ISO...	3VEL1.25ISO...	0.77	1.1	2.7	3.6	
		1.5	3VER1.5ISO...	3VEL1.5ISO...	0.92	1.1	2.6	3.6	
		1.75	3VER1.75ISO...	3VEL1.75ISO...	1.07	1.1	2.45	3.6	
		2.0	3VER2.0ISO...	3VEL2.0ISO...	1.23	1.1	2.3	3.6	
		2.5	3VER2.5ISO...	3VEL2.5ISO...	1.53	1.1	2.1	3.6	
		3.0	3VER3.0ISO...	3VEL3.0ISO...	1.84	1.1	2.0	3.6	

V Style

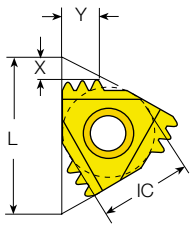
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	mm	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	6.0	5VER6.0ISO...	5VEL6.0ISO...	3.68	1.0	3.3	6	NL..-5V-6 (LH)
		8.0	5VER8.0ISO...	5VEL8.0ISO...	4.91	1.0	4.3	8	NL..-5V-8 (LH)
		10.0	5VER10.0ISO...	5VEL10.0ISO...	6.13	1.0	5.2	10	NL..-5V-10 (LH)

ISO Metric (con't)

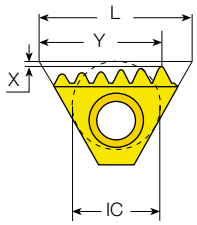
External



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



M Style



T Style

M Style

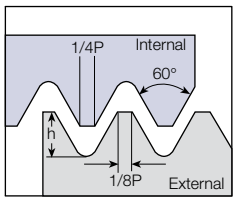
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	**L** mm	**mm**		**RH**	**h** min	**X**	**Y**	**RH**	**Toolholder**
3/8"	16	1.0	3	3ER1.0ISO3M...	0.61	1.8	2.6	YE3M	AL..-3
		1.5	2	3ER1.5ISO2M...	0.92	1.6	2.4		
1/2"	22	1.5	3	4ER1.5ISO3M...	0.92	2.5	3.8	YE4M	AL..-4
		2.0	2	4ER2.0ISO2M...	1.23	2.1	3.1		
		2.0	3	4ER2.0ISO3M...	1.23	3.2	5.1		
5/8"	27	3.0	2	5ER3.0ISO2M...	1.84	3.0	4.6	YE5M	AL..-5M

T Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	**L** mm	**mm**		**RH**	**h** min	**X**	**Y**	**RH**	**Toolholder**
1/2"T	22	1.5	8	4ER1.5ISO8T...	0.92	0.1	11.7	Y4T	AL..-4T
		2.0	6	4ER2.0ISO6T...	1.23	0.1	11.8		
		2.0	8	4ER2.0ISO8T...	1.23	0.1	15.8		

ISO Metric (con't)

Internal



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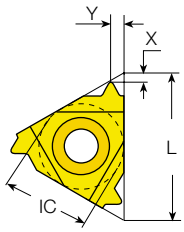
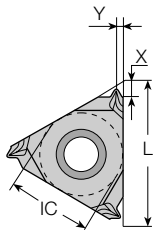
Tolerance class: 6g/6H



Standard



SCB
Sintered Chipbreaker

Standard

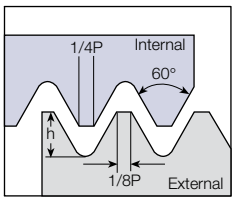
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	0.35	2IR0.35ISO...	2IL0.35ISO...	0.20	0.8	0.3	-	-	NVR..-2 (LH)
		0.4	2IR0.4ISO...	2IL0.4ISO...	0.23	0.8	0.4			
		0.45	2IR0.45ISO...	2IL0.45ISO...	0.26	0.8	0.4			
		0.5	2IR0.5ISO...	2IL0.5ISO...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

SCB

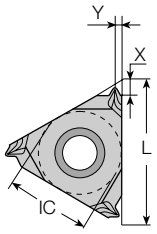
continued on next page ▸

ISO Metric (con't)

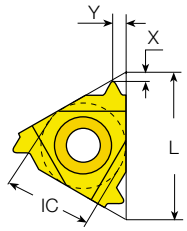
Internal



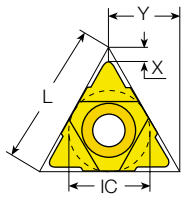
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H



SCB
Sintered Chipbreaker



Standard



U Style

Standard (con't)

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	**L** mm	**mm**	**RH**	**LH**	**h** min	**X**	**Y**	**RH**	**LH**	**Toolholder**
3/8" SCB	16	0.5	3JIR0.5ISO...		0.29	1.2	0.5	YI3	-	AVR..-3
		0.75	3JIR0.75ISO...		0.43	1.1	0.5			
		0.8	3JIR0.8ISO...		0.46	1.2	0.5			
		1.0	3JIR1.0ISO...		0.58	0.7	0.8			
		1.25	3JIR1.25ISO...		0.72	0.7	0.8			
		1.5	3JIR1.5ISO...		0.87	0.7	0.8			
		1.75	3JIR1.75ISO...		1.01	1.1	1.5			
		2.0	3JIR2.0ISO...		1.15	1.1	1.5			
		2.5	3JIR2.5ISO...		1.44	1.1	1.5			
		3.0	3JIR3.0ISO...		1.73	1.1	1.5			
1/2"	22	3.5	4IR3.5ISO...	4IL3.5ISO...	2.02	1.6	2.3	YI4	YE4	AVR..-4 (LH)
		4.0	4IR4.0ISO...	4IL4.0ISO...	2.31	1.6	2.3			
		4.5	4IR4.5ISO...	4IL4.5ISO...	2.60	1.6	2.4			
		5.0	4IR5.0ISO...	4IL5.0ISO...	2.89	1.6	2.3			
5/8"	27	5.5	5IR5.5ISO...	5IL5.5ISO...	3.17	1.6	2.3	YI5	YE5	AVR..-5 (LH)
		6.0	5IR6.0ISO...	5IL6.0ISO...	3.46	1.8	2.5			

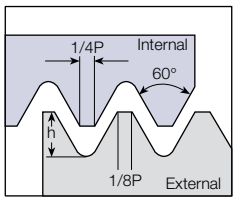
SCB

U Style

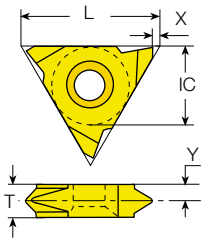
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	**L** mm	**mm**	**RH+LH**	**h** min.	**X**	**Y**	**RH**	**LH**	**Toolholder**
1/2"U	22	5.5	4UI5.5ISO...	3.17	2.4	11.0	YI4U	YE4U	AVR..-4U (LH)
		6.0	4UI6.0ISO...	3.46	2.1	11.0			
5/8"U	27	8.0	5UI8.0ISO...	4.62	2.4	13.7	YI5U	YE5U	AVR..-5U (LH)

ISO Metric (con't)

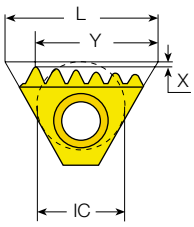
Internal



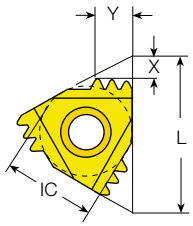
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H



V Style



T Style



M Style

V Style

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

T Style

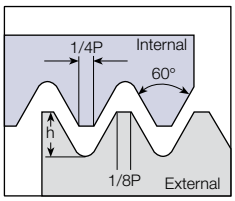
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	mm		RH	h min	X	Y	RH	Toolholder
1/2"T	22	1.5	8	4IR1.5ISO8T...	0.87	0.1	11.6	Y4T	AVR..-4T
		2.0	6	4IR2.0ISO6T...	1.15	0.1	11.4		
		2.0	8	4IR2.0ISO8T...	1.15	0.1	15.4		

M Style

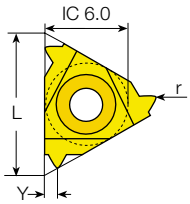
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	mm		RH	h min	X	Y	RH	Toolholder
3/8"	16	1.0	3	3IR1.0ISO3M...	0.58	1.7	2.6	YI3M	AVR..-3
		1.5	2	3IR1.5ISO2M...	0.87	1.6	2.4		
1/2"	22	1.5	3	4IR1.5ISO3M...	0.87	2.4	3.8		
		2.0	2	4IR2.0ISO2M...	1.15	2.0	3.0	YI4M	AVR..-4
		2.0	3	4IR2.0ISO3M...	1.15	3.1	4.9		
5/8"	27	3.0	2	5IR3.0ISO2M...	1.73	2.7	4.3	YI5M	AVR..-5M

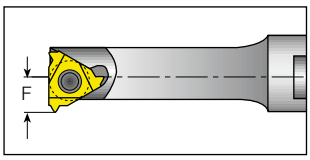
ISO Metric (con't)

Internal

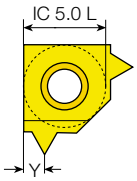


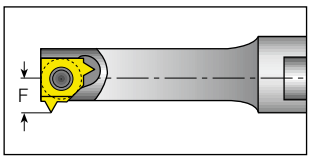
Defined by: R262 (DIN 13)
Tolerance class: 6g/6H





Mini-3





Mini-L

Mini-3

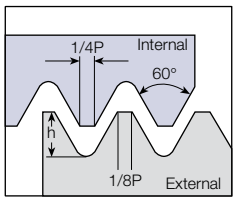
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC	L mm	mm	RH	h min	Y	F	mm	Toolholder
6.0	10	0.5	6.0IR0.5ISO...	0.29	0.6	4.4	9.3	.NVR1..-6.0
		0.75	6.0IR0.75ISO...	0.43	0.6	4.6	9.5	
		1.0	6.0IR1.0ISO...	0.58	0.7	4.7	9.6	
		1.25	6.0IR1.25ISO...	0.72	0.9	4.9	9.8	
		1.5	6.0IR1.5ISO...	0.87	1.0	5.0	9.9	
		1.75	6.0IR1.75ISO...	1.01	1.05	5.2	10.0	
		2.0	6.0IR2.0ISO...	1.15	1.05	5.3	10.0	

Mini-L

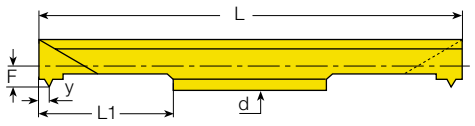
Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC mm	mm	RH	h min	Y	F	mm	Toolholder
5.0L	0.5	5LIR0.5ISO...	0.29	0.6	3.75	7.3	.NVR10.-5L
	0.75	5LIR0.75ISO...	0.43	0.6	3.91	7.5	
	1.0	5LIR1.0ISO...	0.58	0.7	4.06	7.7	
	1.25	5LIR1.25ISO...	0.72	0.9	4.21	7.8	
	1.5	5LIR1.5ISO...	0.87	1.0	4.35	7.9	
	1.75	5LIR1.75ISO...	1.01	1.05	4.51	8.0	
	2.0	5LIR2.0ISO...	1.15	1.05	4.65	8.0	

ISO Metric (con't)

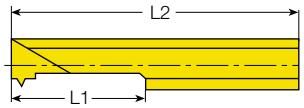
Internal



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



RH-Double Ended



RH-Single Ended

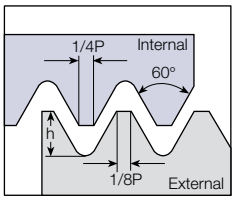
Micro

Insert dia.	Pitch	Ordering Code		Dimensions mm					Min. Bore dia.		
d mm	**mm**	**RH-**Single Ended	**RH-**Double Ended	**L1**	**L2**	**L**	**F**	**Y**	**h** min	**mm**	**Toolholder**
	0.3	3.0SIR0.3ISO...1-SIDE	3.0SIR0.3ISO...	16	43	50	1.31	0.20	0.10	3.2	
	0.4	3.0SIR0.4ISO...1-SIDE	3.0SIR0.4ISO...	16	43	50	1.31	0.35	0.22	3.2	
	0.5	3.0SIR0.5ISO...1-SIDE	3.0SIR0.5ISO...	16	43	50	1.31	0.40	0.29	3.2	
3.0	0.6	3.0SIR0.6ISO...1-SIDE	3.0SIR0.6ISO...	16	43	50	1.34	0.60	0.35	3.2	SMC..-3.0
	0.7	3.0SIR0.7ISO...1-SIDE	3.0SIR0.7ISO...	16	43	50	1.43	0.60	0.40	3.3	
	0.75	3.0SIR0.75ISO...1-SIDE	3.0SIR0.75ISO...	16	43	50	1.45	0.60	0.43	3.3	
	0.8	3.0SIR0.8ISO...1-SIDE	3.0SIR0.8ISO...	16	43	50	1.46	0.60	0.46	3.3	
	0.4	4.0SIR0.4ISO...1-SIDE	4.0SIR0.4ISO...	16	43	50	1.65	0.35	0.22	4.0	
	0.5	4.0SIR0.5ISO...1-SIDE	4.0SIR0.5ISO...	16	43	50	1.65	0.40	0.29	4.0	
	0.6	4.0SIR0.6ISO...1-SIDE	4.0SIR0.6ISO...	16	43	50	1.68	0.60	0.35	4.0	
4.0	0.7	4.0SIR0.7ISO...1-SIDE	4.0SIR0.7ISO...	16	43	50	1.77	0.60	0.40	4.1	SMC..-4.0
	0.75	4.0SIR0.75ISO...1-SIDE	4.0SIR0.75ISO...	16	43	50	1.81	0.60	0.43	4.2	
	0.8	4.0SIR0.8ISO...1-SIDE	4.0SIR0.8ISO...	16	43	50	1.80	0.60	0.46	4.2	
	1.0	4.0SIR1.0ISO...1-SIDE	4.0SIR1.0ISO...	16	43	50	1.96	0.90	0.58	4.3	
	0.5	6.0SIR0.5ISO...1-SIDE	6.0SIR0.5ISO...	16	43	50	1.90	0.60	0.29	5.4	
	0.75	6.0SIR0.75ISO...1-SIDE	6.0SIR0.75ISO...	16	43	50	2.06	0.60	0.43	5.6	
6.0	1.0	6.0SIR1.0ISO...1-SIDE	6.0SIR1.0ISO...	16	43	50	2.21	0.70	0.58	5.7	SMC..-6.0
	1.25	6.0SIR1.25ISO...1-SIDE	6.0SIR1.25ISO...	16	43	50	2.36	0.90	0.72	5.9	
	1.5	6.0SIR1.5ISO...1-SIDE	6.0SIR1.5ISO...	16	43	50	2.50	1.00	0.87	6.0	

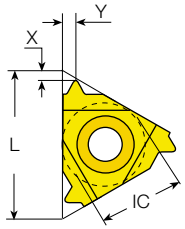
Left Handed Tool Supplied by Request. **(Example:** 6.0SI**L**1.5ISO...1-SIDE)

American UN

External



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



Standard

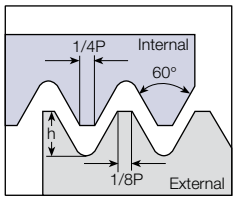
Standard

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

continued on next page

American UN (con't)

External



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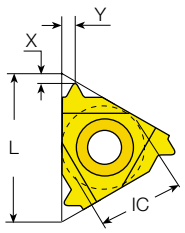
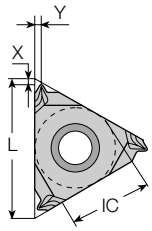
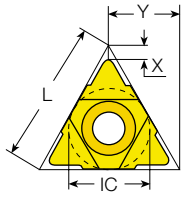
Tolerance class: 2A/2B



Standard



SCB
Sintered Chipbreaker



U Style

Standard (con't)

SCB

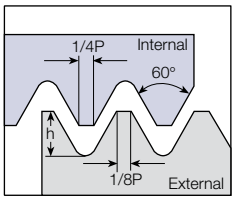
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" SCB	16	36	3JER36UN...		0.43	1.2	0.5	YE3	-	AL..-3
		32	3JER32UN...		0.49	1.2	0.5			
		28	3JER28UN...		0.56	0.7	0.8			
		24	3JER24UN...		0.65	0.7	0.8			
		20	3JER20UN...		0.78	0.7	0.8			
		18	3JER18UN...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

U Style

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

American UN (con't)

External



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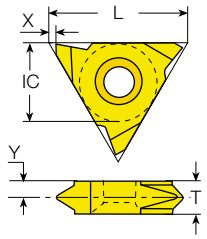
Tolerance class: 2A/2B



V Style / Slim Throat

Slim Throat

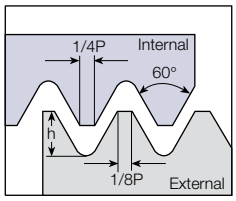
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	tpi	RH	LH	h min	X	Y	T	Toolholder
1/4"V	11	20	2VER20UN...	2VEL20UN...	0.78	0.69	2.3	3.2	NL..-2V (LH)
		18	2VER18UN...	2VEL18UN...	0.87	0.69	2.2	3.2	
		16	2VER16UN...	2VEL16UN...	0.97	0.69	2.2	3.2	
		14	2VER14UN...	2VEL14UN...	1.11	0.69	2.0	3.2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

V Style

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

American UN (con't)

External



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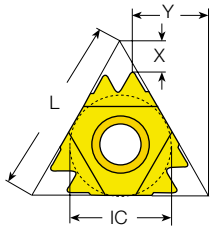
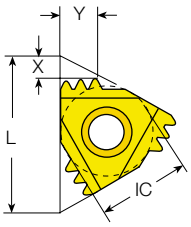


Z Style



M Style

Z Style

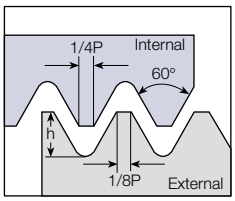
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	22	8	2	4ER8UN2Z...	1.95	3.7	9.6	YE4Z	AL..-4Z

M Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
3/8"	16	16	2	3ER16UN2M...	0.97	1.7	2.5	YE3M	AL..-3
1/2"	22	16	3	4ER16UN3M...	0.97	2.6	4.1	YE4M	AL..-4
		12	2	4ER12UN2M...	1.30	2.1	3.2		
		12	3	4ER12UN3M...	1.30	3.4	5.3		
5/8"	27	8	2	5ER8UN2M...	1.95	3.2	5.0	YE5M	AL..-5M

American UN (con't)

Internal



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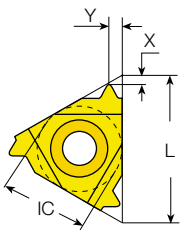
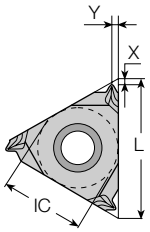
Tolerance class: 2A/2B



Standard



SCB
Sintered Chipbreaker

Standard (con't)

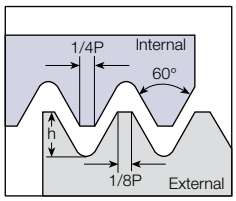
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	72	2IR72UN...	2IL72UN...	0.20	0.8	0.3	-	-	NVR..-2 (LH)
		64	2IR64UN...	2IL64UN...	0.23	0.8	0.4			
		56	2IR56UN...	2IL56UN...	0.26	0.7	0.4			
		48	2IR48UN...	2IL48UN...	0.31	0.6	0.6			
		44	2IR44UN...	2IL44UN...	0.33	0.6	0.6			
		40	2IR40UN...	2IL40UN...	0.37	0.6	0.6			
		36	2IR36UN...	2IL36UN...	0.41	0.6	0.6			
		32	2IR32UN...	2IL32UN...	0.46	0.6	0.6			
		28	2IR28UN...	2IL28UN...	0.52	0.6	0.7			
		27	2IR27UN...	2IL27UN...	0.54	0.7	0.8			
		24	2IR24UN...	2IL24UN...	0.61	0.7	0.8			
		20	2IR20UN...	2IL20UN...	0.73	0.8	0.9			
		18	2IR18UN...	2IL18UN...	0.81	0.8	1.0			
		16	2IR16UN...	2IL16UN...	0.92	0.9	1.1			
		14	2IR14UN...	2IL14UN...	1.05	0.9	1.1			
		12	2IR12UN...	2IL12UN...	1.22	0.8	1.1			
		11	2IR11UN...	2IL11UN...	1.33	0.8	1.1			
1/4" SCB	11	36	2JIR36UN...		0.43	1.1	0.5			NVR..-2
		32	2JIR32UN...		0.49	1.2	0.5			
		28	2JIR28UN...		0.56	0.6	0.8			
		24	2JIR24UN...		0.65	0.7	0.8			
		20	2JIR20UN...		0.78	0.6	0.8			
		18	2JIR18UN...		0.87	0.6	0.8			
		16	2JIR16UN...		0.97	0.7	0.8			
3/8"		72	3IR72UN...	3IL72UN...	0.20	0.8	0.3	YI3	YE3	AVR..-3 (LH)
		64	3IR64UN...	3IL64UN...	0.23	0.8	0.4			
		56	3IR56UN...	3IL56UN...	0.26	0.7	0.4			
		48	3IR48UN...	3IL48UN...	0.31	0.6	0.6			
		44	3IR44UN...	3IL44UN...	0.33	0.6	0.6			
		40	3IR40UN...	3IL40UN...	0.37	0.6	0.6			
		36	3IR36UN...	3IL36UN...	0.41	0.6	0.6			
		32	3IR32UN...	3IL32UN...	0.51	0.6	0.6			
		28	3IR28UN...	3IL28UN...	0.52	0.6	0.7			
		27	3IR27UN...	3IL27UN...	0.54	0.7	0.8			

SCB

continued on next page

American UN (con't)

Internal



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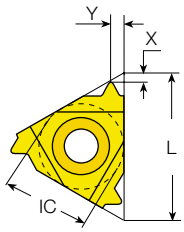
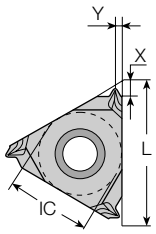


Standard



SCB
Sintered Chipbreaker

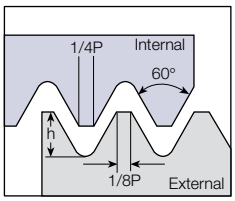
Standard (con't)

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	24	3IR24UN...	3IL24UN...	0.61	0.7	0.8	YI3	YE3	AVR..-3 (LH)
		20	3IR20UN...	3IL20UN...	0.73	0.8	0.9			
		18	3IR18UN...	3IL18UN...	0.81	0.8	1.0			
		16	3IR16UN...	3IL16UN...	0.92	0.9	1.1			
		14	3IR14UN...	3IL14UN...	1.05	0.9	1.2			
		13	3IR13UN...	3IL13UN...	1.13	1.0	1.3			
		12	3IR12UN...	3IL12UN...	1.22	1.1	1.4			
		11.5	3IR11.5UN...	3IL11.5UN...	1.28	1.1	1.5			
		11	3IR11UN...	3IL11UN...	1.33	1.1	1.5			
		10	3IR10UN...	3IL10UN...	1.47	1.1	1.5			
		9	3IR9UN...	3IL9UN...	1.63	1.2	1.7			
		8	3IR8UN...	3IL8UN...	1.83	1.1	1.5			
3/8" SCB	16	36	3JIR36UN...		0.43	1.1	0.5	YI3	-	AVR..-3
		32	3JIR32UN...		0.49	1.1	0.5			
		28	3JIR28UN...		0.56	0.6	0.8			
		24	3JIR24UN...		0.65	0.7	0.8			
		20	3JIR20UN...		0.78	0.6	0.8			
		18	3JIR18UN...		0.87	0.6	0.8			
		16	3JIR16UN...		0.97	0.7	0.8			
		14	3JIR14UN...		1.11	1.1	1.5			
		13	3JIR13UN...		1.13	1.1	1.5			
		12	3JIR12UN...		1.30	1.1	1.5			
		10	3JIR10UN...		1.56	1.1	1.5			
		9	3JIR9UN...		1.63	1.0	1.5			
		8	3JIR8UN...		1.95	1.1	1.5			
1/2"	22	7	4IR7UN...	4IL7UN...	2.09	1.6	2.3	YI4	YE4	AVR..-4 (LH)
		6	4IR6UN...	4IL6UN...	2.44	1.6	2.3			
		5	4IR5UN...	4IL5UN...	2.93	1.6	2.3			
5/8"	27	4.5	5IR4.5UN...	5IL4.5UN...	3.26	1.7	2.4	YI5	YE5	AVR..-5 (LH)
		4	5IR4UN...	5IL4UN...	3.67	1.8	2.7			

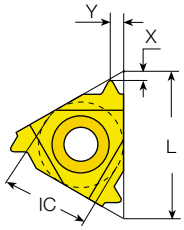
SCB

American UNC (con't)

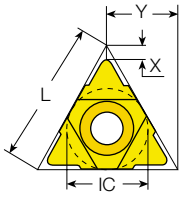
Internal



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



Standard



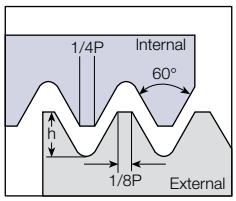
U Style

Coarse Pitch

Thread	Insert Size		Ordering Code	Dimensions mm					Min Bore dia.
	IC	L mm	RH	h min	X	Y	Toolholder		mm
1/2 x 13UN	6.0	10	6.0IR13UN...158/001	1.13	0.82	0.95	BNVR10S-6.0		10.6
9/16 x 12UN	1/4	11	2IR12UN...158/002	1.22	0.86	1.00	NVRC10-2	156/001	12.0
5/8 x 11UN	1/4U		2UIR11UN...158/003	1.33	1.20	5.50	NVRC11-2U	156/002	13.4
3/4 x 10UN	3/8	16	3IR10UN...	1.47	1.10	1.50	NVRC13-3	156/016	16.3
7/8 x 9UN			3IR9UN...	1.63	1.20	1.70	NVRC13-3	156/016	19.2
1 x 8UN			3IR8UN...	1.83	1.10	1.50	NVRC16-3		22.0
1 1/8 x 7UN	1/2	22	4IR7UN...	2.09	1.60	2.30	NVRC20-4		24.6
1 1/4 x 7UN			4IR7UN...	2.09	1.60	2.30	NVRC20-4		27.8
1 3/8 x 6UN			4IR6UN...	2.44	1.60	2.30	NVRC20-4		30.3

American UN (con't)

Internal



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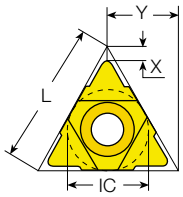
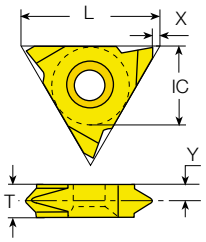
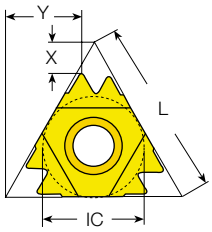


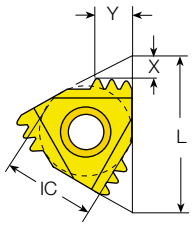
U Style



V Style



Z Style



M Style

U Style

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

V Style

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

Z Style

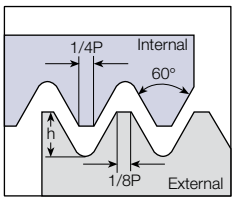
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	**L** mm	**tpi**		**RH**	**h** min	**X**	**Y**	**RH**	**Toolholder**
1/2"	22	8	2	4IR8UN2Z...	1.83	3.5	9.6	YI4Z	AVR..-4Z

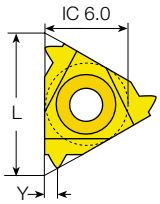
M Style

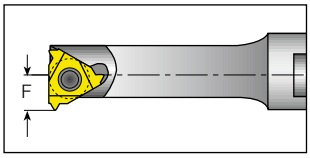
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	**L** mm	**tpi**		**RH**	**h** min	**X**	**Y**	**RH**	**Toolholder**
3/8"	16	16	2	3IR16UN2M...	0.92	1.7	2.4	YI3M	AVR..-3
1/2"	22	16	3	4IR16UN3M...	0.92	2.5	4.0	YI4M	AVR..-4
		12	2	4IR12UN2M...	1.22	2.1	3.2		
		12	3	4IR12UN3M...	1.22	3.3	5.2		
5/8"	27	8	2	5IR8UN2M...	1.83	3.0	4.8	YI5M	AVR..-5M

American UN (con't)

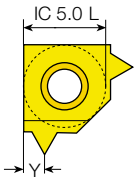
Internal

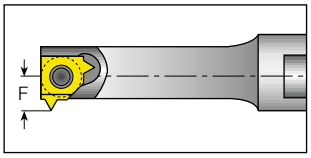






Mini-3





Mini-L

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

Mini-3

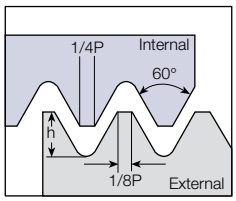
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC	**L** mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
6.0	10	32	6.0IR32UN...	0.46	0.6	4.60	9.5	.NVR1..-6.0
		28	6.0IR28UN...	0.52	0.65	4.70	9.6	
		24	6.0IR24UN...	0.61	0.75	4.80	9.7	
		20	6.0IR20UN...	0.73	0.9	4.90	9.8	
		18	6.0IR18UN...	0.81	1.0	5.00	9.9	
		16	6.0IR16UN...	0.92	1.05	5.10	10.0	
		14	6.0IR14UN...	1.05	1.05	5.20	10.0	

Mini-L

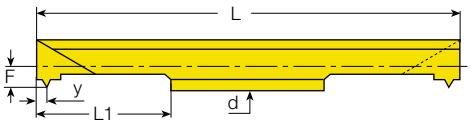
Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
5.0L	32	5LIR32UN...	0.46	0.6	3.92	7.5	.NVR10.-5L
	28	5LIR28UN...	0.52	0.65	3.99	7.6	
	24	5LIR24UN...	0.61	0.75	4.09	7.7	
	20	5LIR20UN...	0.73	0.9	4.21	7.8	
	18	5LIR18UN...	0.81	1.0	4.30	7.9	
	16	5LIR16UN...	0.92	1.05	4.41	8.0	
	14	5LIR14UN...	1.05	1.05	4.54	8.0	

American UN (con't)

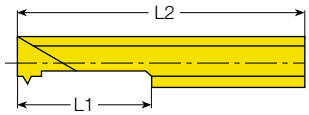
Internal



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



RH-Double Ended



RH-Single Ended

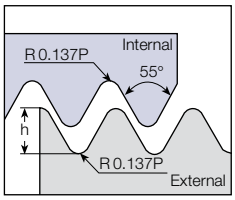
Micro Thread

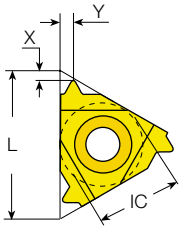
Insert dia.	Pitch	Ordering Code		Dimensions mm						Min. Bore dia.	
d mm	**tpi**	**RH-**Single Ended	**RH-**Double Ended	**L1**	**L2**	**L**	**F**	**Y**	**h** min	**mm**	**Toolholder**
3.0	40	3.0SIR40UN...1-SIDE	3.0SIR40UN...	16	43	50	1.35	0.60	0.37	3.2	SMC..-3.0
	36	3.0SIR36UN...1-SIDE	3.0SIR36UN...	16	43	50	1.46	0.60	0.41	3.2	
	32	3.0SIR32UN...1-SIDE	3.0SIR32UN...	16	43	50	1.40	0.60	0.46	3.3	
4.0	40	4.0SIR40UN...1-SIDE	4.0SIR40UN...	16	43	50	1.65	0.60	0.37	4.0	SMC..-4.0
	36	4.0SIR36UN...1-SIDE	4.0SIR36UN...	16	43	50	1.70	0.60	0.41	4.1	
	32	4.0SIR32UN...1-SIDE	4.0SIR32UN...	16	43	50	1.76	0.60	0.46	4.1	
	28	4.0SIR28UN...1-SIDE	4.0SIR28UN...	16	43	50	1.83	0.65	0.52	4.2	
	27	4.0SIR27UN...1-SIDE	4.0SIR27UN...	16	43	50	1.85	0.75	0.54	4.2	
	24	4.0SIR24UN...1-SIDE	4.0SIR24UN...	16	43	50	1.93	0.75	0.61	4.3	
6.0	32	6.0SIR32UN...1-SIDE	6.0SIR32UN...	16	43	50	2.01	0.60	0.46	5.5	SMC..-6.0
	28	6.0SIR28UN...1-SIDE	6.0SIR28UN...	16	43	50	2.08	0.65	0.52	5.6	
	27	6.0SIR27UN...1-SIDE	6.0SIR27UN...	16	43	50	2.10	0.75	0.54	5.6	
	24	6.0SIR24UN...1-SIDE	6.0SIR24UN...	16	43	50	2.18	0.75	0.61	5.7	
	20	6.0SIR20UN...1-SIDE	6.0SIR20UN...	16	43	50	2.30	0.90	0.73	5.8	
	18	6.0SIR18UN...1-SIDE	6.0SIR18UN...	16	43	50	2.39	1.00	0.81	5.9	
	16	6.0SIR16UN...1-SIDE	6.0SIR16UN...	16	43	50	2.50	1.05	0.92	6.0	

Left Handed Tool Supplied by Request. **(Example:** 6.0SI**L**16UN...1-SIDE)

Whitworth for BSW, BSP

External





Standard

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

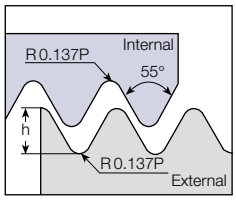
Standard

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

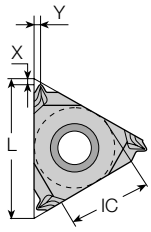
continued on next page ▸

Whitworth for BSW, BSP (con't)

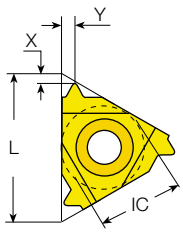
External



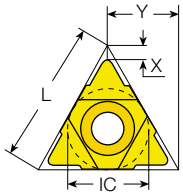
Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
Tolerance class: Medium Class A



SCB
Sintered Chipbreaker



Standard



U Style

Standard (con't)

SCB

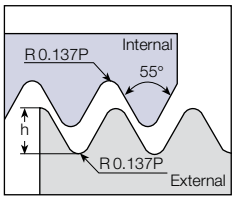
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" SCB	16	36	3JER36W...		0.45	1.2	0.5	YE3	-	AL..-3
		32	3JER32W...		0.51	1.2	0.5			
		28	3JER28W...		0.58	0.7	0.8			
		24	3JER24W...		0.68	0.7	0.8			
		20	3JER20W...		0.81	0.7	0.8			
		19	3JER19W...		0.86	0.7	0.8			
		18	3JER18W...		0.90	0.8	0.8			
		16	3JER16W...		1.02	0.8	0.8			
		14	3JER14W...		1.16	1.3	1.5			
		12	3JER12W...		1.36	1.3	1.5			
		11	3JER11W...		1.48	1.3	1.5			
		10	3JER10W...		1.63	1.3	1.5			
		8	3JER8W...		2.03	1.3	1.5			
1/2"	22	7	4ER7W...	4EL7W...	3.32	1.6	2.3	YE4	YI4	AL..-4 (LH)
		6	4ER6W...	4EL6W...	2.71	1.6	2.3			
		5	4ER5W...	4EL5W...	3.25	1.7	2.4			
5/8"	27	4.5	5ER4.5W...	5EL4.5W...	3.61	1.8	2.6	YE5	YI5	AL..-5 (LH)
		4	5ER4W...	5EL4W...	4.07	2.0	2.9			

U Style

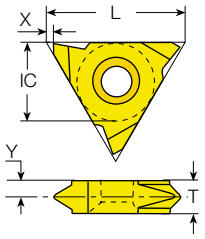
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	tpi	RH+LH	h min.	X	Y	RH	LH	Toolholder
1/2"U	22	4.5	4UEI4.5W...	3.61	2.3	11.0	YE4U	YI4U	AL..-4U (LH)
		4	4UEI4W...	4.07	1.8	11.0			
		3.5	4UEI3.5W...	4.65	2.1	11.0			
		3.25	4UEI3.25W...	5.00	2.0	11.0			
5/8"U	27	3.5	5UEI3.5W...	4.65	2.1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

Whitworth for BSW, BSP (con't)

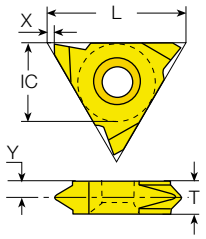
External



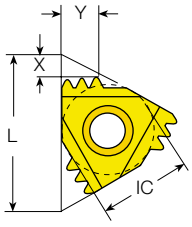
Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
Tolerance class: Medium class A



Slim Throat



V Style



M Style

Slim Throat

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

V Style

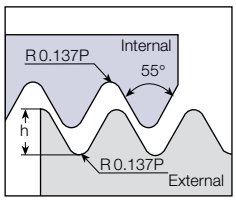
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	tpi	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VER4W...	5VEL4W...	4.07	1.0	3.3	6	NL..-5V-6 (LH)
		3	5VER3W...	5VEL3W...	5.42	1.0	4.3	8	NL..-5V-8 (LH)
		2.5	5VER2.5W...	5VEL2.5W...	6.51	1.0	5.2	10	NL..-5V-10 (LH)

M Style

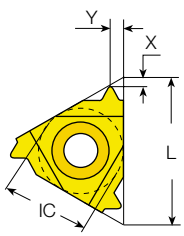
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
3/8"	16	14	2	3ER14W2M...	1.16	1.9	2.8	YE3M	AL..-3
1/2"	22	14	3	4ER14W3M...	1.16	2.9	4.6	YE4M	AL..-4
		11	2	4ER11W2M...	1.48	2.3	3.5		

Whitworth for BSW, BSP (con't)

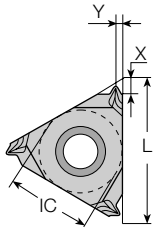
Internal



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



Standard



SCB
Sintered Chipbreaker

Standard

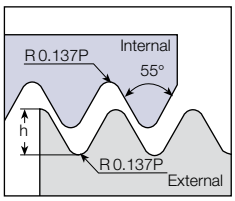
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	72	2IR72W...	2IL72W...	0.23	0.7	0.4	-	-	NVR..-2 (LH)
		60	2IR60W...	2IL60W...	0.27	0.7	0.4			
		56	2IR56W...	2IL56W...	0.29	0.7	0.4			
		48	2IR48W...	2IL48W...	0.34	0.6	0.6			
		40	2IR40W...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

SCB

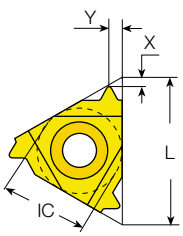
continued on next page ▸

Whitworth for BSW, BSP (con't)

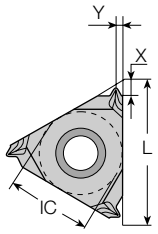
Internal



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



Standard



SCB
Sintered Chipbreaker

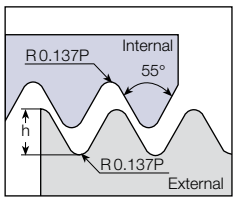
Standard (con't)

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	28	3IR28W...	3IL28W...	0.58	0.6	0.7	YI3	YE3	AVR..-3 (LH)
		26	3IR26W...	3IL26W...	0.63	0.7	0.8			
		24	3IR24W...	3IL24W...	0.68	0.7	0.8			
		22	3IR22W...	3IL22W...	0.74	0.8	0.9			
		20	3IR20W...	3IL20W...	0.81	0.8	0.9			
		19	3IR19W...	3IL19W...	0.86	0.8	1.0			
		18	3IR18W...	3IL18W...	0.90	0.8	1.0			
		16	3IR16W...	3IL16W...	1.02	0.9	1.1			
		14	3IR14W...	3IL14W...	1.16	1.0	1.2			
		12	3IR12W...	3IL12W...	1.36	1.1	1.4			
		11	3IR11W...	3IL11W...	1.48	1.1	1.5			
		10	3IR10W...	3IL10W...	1.63	1.1	1.5			
		9	3IR9W...	3IL9W...	1.81	1.2	1.7			
		8	3IR8W...	3IL8W...	2.03	1.2	1.5			
3/8" SCB	16	36	3JIR36W...		0.45	1.2	0.5	YI3	-	AVR...-3
		32	3JIR32W...		0.51	1.2	0.5			
		28	3JIR28W...		0.58	0.7	0.8			
		24	3JIR24W...		0.68	0.7	0.8			
		20	3JIR20W...		0.81	0.7	0.8			
		19	3JIR19W...		0.86	0.6	0.5			
		18	3JIR18W...		0.90	0.8	0.8			
		16	3JIR16W...		1.02	0.8	0.8			
		14	3JIR14W...		1.16	1.3	1.5			
		12	3JIR12W...		1.36	1.3	1.5			
		11	3JIR11W...		1.48	1.3	1.5			
		10	3JIR10W...		1.63	1.3	1.5			
		8	3JIR8W...		2.03	1.3	1.5			
1/2"	22	7	4IR7W...	4IL7W...	3.32	1.6	2.3	YI4	YE4	AVR..-4 (LH)
		6	4IR6W...	4IL6W...	2.71	1.6	2.3			
		5	4IR5W...	4IL5W...	3.25	1.7	2.4			
5/8"	27	4.5	5IR4.5W...	5IL4.5W...	3.61	1.8	2.6	YI5	YE5	AVR..-5 (LH)
		4	5IR4W...	5IL4W...	4.07	2.0	2.9			

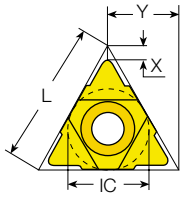
SCB

Whitworth for BSW, BSP (con't)

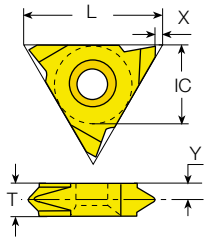
Internal



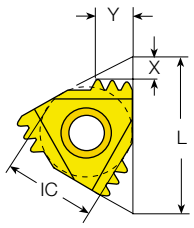
Defined by: B.S.84:1956, DIN 259, ISO228/1:1982
Tolerance class: Medium Class A



U Style



V Style



M Style

U Style

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

V Style

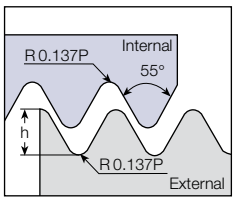
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	tpi	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VIR4W...	5VIL4W...	4.07	1.0	3.3	6	NVR..-5V (LH)
		3	5VIR3W...	5VIL3W...	5.42	1.0	4.3	8	
		2.5	5VIR2.5W...	5VIL2.5W...	6.51	1.0	5.2	10	

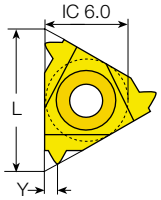
M Style

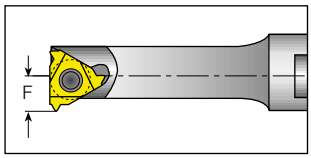
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
3/8"	16	14	2	3IR14W2M...	1.16	1.9	2.8	YI3M	AVR..-3
1/2"	22	14	3	4IR14W3M...	1.16	2.9	4.6	YI4M	AVR..-4
		11	2	4IR11W2M...	1.48	2.3	3.5		

Whitworth for BSW, BSP (con't)

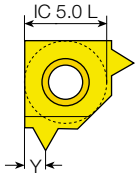
Internal

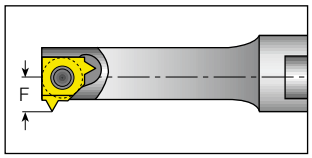






Mini-3





Mini-L

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

Mini-3

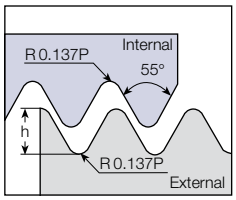
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC	**L** mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
6.0	10	28	6.0IR28W...	0.58	0.7	4.7	9.6	.NVR1..-6.0
		19	6.0IR19W...	0.86	1.0	5.0	9.9	
		14	6.0IR14W...	1.16	1.1	5.3	10.0	

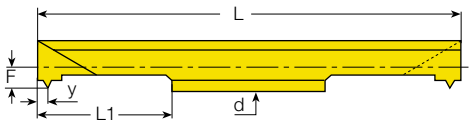
Mini-L

Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
5.0 L	28	5LIR28W...	0.58	0.7	4.05	7.6	.NVR 10. -5L
	19	5LIR19W...	0.86	1.0	4.35	7.9	
	14	5LIR14W...	1.16	1.1	4.68	8.0	

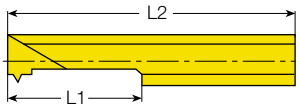
Whitworth for BSW, BSP

Internal





RH-Double Ended



RH-Single Ended

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

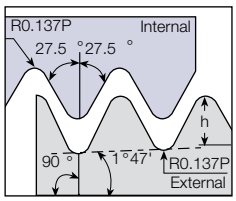
Micro

Insert dia.	Pitch	Ordering Code		Dimensions mm						Min. Bore dia.	
d mm	**tpi**	**RH**-Single Ended	**RH**-Double Ended	**L1**	**L2**	**L**	**F**	**Y**	**h**min	**mm**	**Toolholder**
4.0	28	4.0SIR28W...1-SIDE	4.0SIR28W...	16	43	50	1.86	0.65	0.58	4.2	SMC..-4.0
	26	4.0SIR26W...1-SIDE	4.0SIR26W...	16	43	50	1.93	0.75	0.63	4.2	
	24	4.0SIR24W...1-SIDE	4.0SIR24W...	16	43	50	1.96	0.75	0.68	4.3	
6.0	28	6.0SIR28W...1-SIDE	6.0SIR28W...	16	43	50	2.50	0.65	0.58	6.0	SMC..-6.0
	26	6.0SIR26W...1-SIDE	6.0SIR26W...	16	43	50	2.50	0.75	0.63	6.0	
	24	6.0SIR24W...1-SIDE	6.0SIR24W...	16	43	50	2.50	0.75	0.68	6.0	
	22	6.0SIR22W...1-SIDE	6.0SIR22W...	16	43	50	2.50	0.90	0.74	6.0	
	20	6.0SIR20W...1-SIDE	6.0SIR20W...	16	43	50	2.50	0.90	0.86	6.0	
	19	6.0SIR19W...1-SIDE	6.0SIR19W...	16	43	50	2.50	0.95	0.86	6.0	

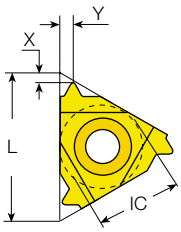
Left Handed Tool Supplied by Request. **(Example:** 6.0SI**L**19W...1-SIDE)

BSPT

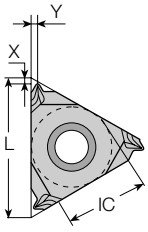
External



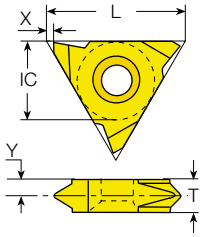
Defined by: B.S. 21:1985
Tolerance class: Standard BSPT



Standard



SCB
Sintered Chipbreaker



Slim Throat

Standard

SCB

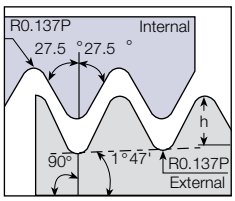
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	28	2ER28BSPT...	2EL28BSPT...	0.58	0.6	0.6	-	-	NL ..-2 (LH)
		19	2ER19BSPT...	2EL19BSPT...	0.86	0.8	0.9			
		14	2ER14BSPT...	2EL14BSPT...	1.16	0.9	1.0			
3/8"	16	28	3ER28BSPT...	3EL28BSPT...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

Slim Throat

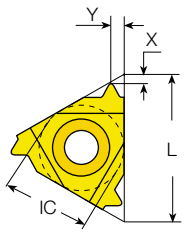
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	tpi	RH	LH	h min	X	Y	T	Toolholder
3/8"V	16	28	3VER28BSPT...	3VEL28BSPT...	0.58	1.1	3.0	3.6	NL..-3V (LH)
		19	3VER19BSPT...	3VEL19BSPT...	0.86	1.1	2.7	3.6	
		14	3VER14BSPT...	3VEL14BSPT...	1.16	1.1	2.4	3.6	
		11	3VER11BSPT...	3VEL11BSPT...	1.48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

BSPT (con't)

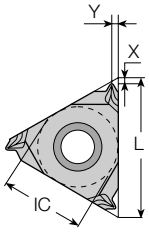
Internal



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



Standard



SCB
Sintered Chipbreaker

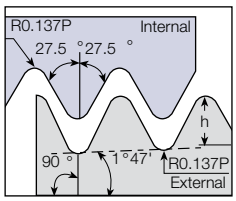
Standard

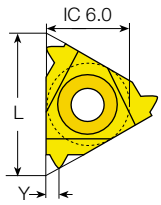
SCB

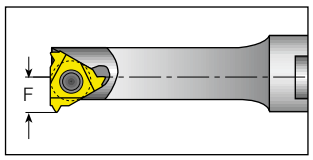
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	28	2IR28BSPT...	2IL28BSPT...	0.58	0.6	0.6	-	-	NVR..-2 (LH)
		19	2IR19BSPT...	2IL19BSPT...	0.86	0.8	0.9			
		14	2IR14BSPT...	2IL14BSPT...	1.16	0.9	1.0			
1/4" SCB	11	28	2JIR28BSPT...		0.58	0.7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

BSPT (con't)

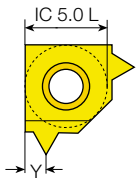
Internal

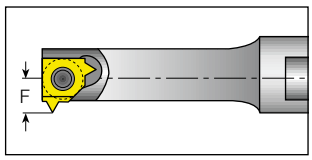






Mini-3





Mini-L

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

Mini-3

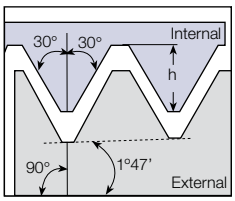
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC	**L** mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
6.0	10	28	6.0IR28BSPT...	0.58	0.6	4.7	9.6	.NVR1..-6.0
		19	6.0IR19BSPT...	0.86	0.9	5.0	9.9	
		14	6.0IR14BSPT...	1.16	1.2	5.3	10.0	

Mini-L

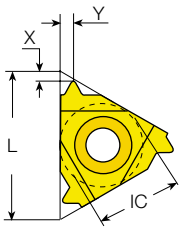
Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
5.0L	28	5LIR28BSPT...	0.58	0.6	4.05	7.6	.NVR10. -5L
	19	5LIR19BSPT...	0.86	0.9	4.35	7.9	
	14	5LIR14BSPT...	1.16	1.2	4.68	8.0	

NPT

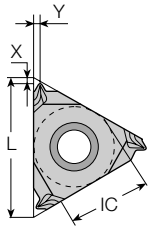
External



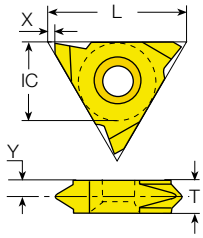
Defined by: USAS B2.1:1968
Tolerance class: Standard NPT



Standard



SCB
Sintered Chipbreaker



Slim Throat

Standard

SCB

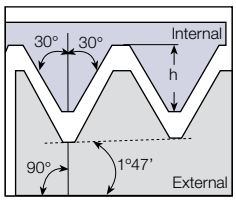
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	27	2ER27NPT...	2EL27NPT...	0.66	0.7	0.8	-	-	NL..-2 (LH)
		18	2ER18NPT...	2EL18NPT...	1.01	0.8	1.0			
		14	2ER14NPT...	2EL14NPT...	1.33	0.8	1.0			
3/8"	16	27	3ER27NPT...	3EL27NPT...	0.66	0.7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

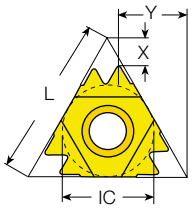
Slim Throat

Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	tpi	RH	LH	h min	X	Y	T	Toolholder
1/4"V	11	27	2VER27NPT...	2VEL27NPT...	0.66	0.69	2.0	3.2	NL..-2V (LH)
		18	2VER18NPT...	2VEL18NPT...	1.01	0.69	1.8	3.2	
		14	2VER14NPT...	2VEL14NPT...	1.33	0.69	1.8	3.2	
		11.5	2VER11.5NPT...	2VEL11.5NPT...	1.64	0.69	2.1	3.2	
3/8"V	16	27	3VER27NPT...	3VEL27NPT...	0.66	1.1	2.9	3.6	NL..-3V (LH)
		18	3VER18NPT...	3VEL18NPT...	1.01	1.1	2.6	3.6	
		11.5	3VER11.5NPT...	3VEL11.5 NPT...	1.64	1.1	2.1	3.6	

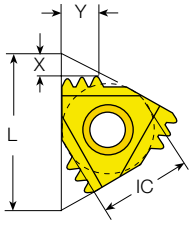
NPT (con't)

External

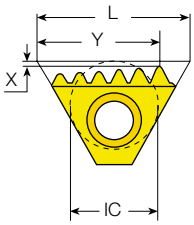




Z Style



M Style



T Style

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

Z Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	**L** mm	**tpi**		**RH**	**h** min	**X**	**Y**	**RH**	**Toolholder**
1/2"	22	11.5	2	4ER11.5NPT2Z...	1.64	2.3	10.0	YE4Z	AVR..-4Z
		8	2	4ER8NPT2Z...	2.42	3.4	9.6		

M Style

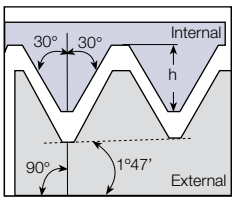
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	**L** mm	**tpi**		**RH**	**h** min	**X**	**Y**	**RH**	**Toolholder**
1/2"	22	11.5	2	4ER11.5NPT2M...	1.64	3.4	2.2	YE4M	AL..-4
5/8"	27	11.5	3	5ER11.5NPT3M...	1.64	3.5	5.6	YE5M	AL..-5M
		8	2	5ER8NPT2M...	2.42	2.9	4.7		

T Style

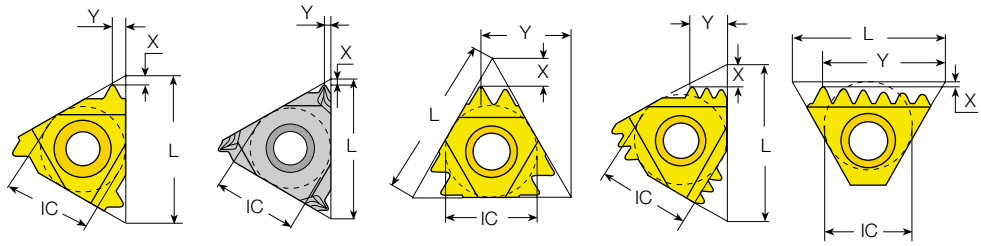
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	**L** mm	**tpi**		**RH**	**h** min	**X**	**Y**	**RH**	**Toolholder**
1/2"T	22	11.5	6	4ER11.5NPT6T...	1.64	0.1	13.4	Y4T	AL..-4T
		8	5	4ER8NPT5T...	2.42	0.1	15.7		

NPT (con't)

Internal



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



Standard | SCB Sintered Chipbreaker | Z Style | M Style | T Style

Standard

SCB

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

Z Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	22	11.5	2	4IR11.5NPT2Z...	1.64	2.3	10.0	YI4Z	AVR..-4Z
		8	2	4IR8NPT2Z...	2.42	3.4	9.6		

M Style

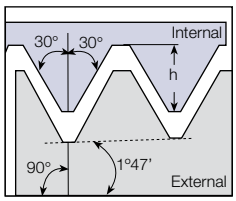
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	22	11.5	2	4IR11.5NPT2M...	1.64	3.4	2.2	YI4M	AVR..-4
5/8"	27	11.5	3	5IR11.5NPT3M...	1.64	3.5	5.6	YI5M	AVR..-5M
		8	2	5IR8NPT2M...	2.42	2.9	4.7		

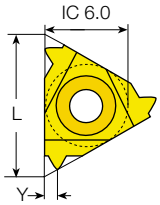
T Style

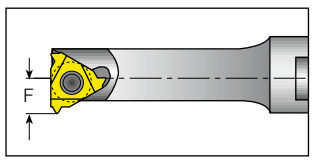
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"T	22	11.5	6	4IR11.5NPT6T...	1.64	0.1	13.4	Y4T	AVR..-4T
		8	5	4IR8NPT5T...	2.42	0.1	15.7		

NPT (con't)

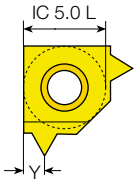
Internal

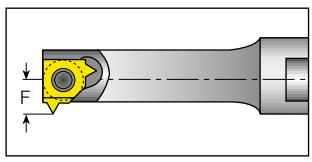






Mini-3





Mini-L

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

Mini-3

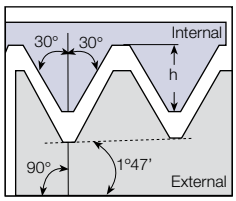
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC	**L** mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
6.0	10	27	6.0IR27NPT...	0.66	0.8	5.3	10.0	.NVR1..-6.0
		18	6.0IR18NPT...	1.01	1.0	5.3		
		14	6.0IR14NPT...	1.33	1.1	5.3		

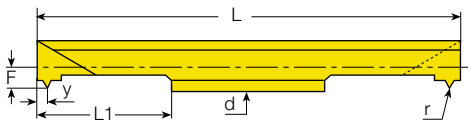
Mini-L

Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
5.0L	27	5LIR27NPT...	0.66	0.8	4.65	8.0	.NVR10.-5L
	18	5LIR18NPT...	1.01	1.0	4.65		
	14	5LIR14NPT...	1.33	1.1	4.65		

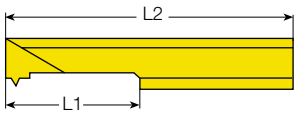
NPT

Internal





RH-Double Ended



RH-Single Ended

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

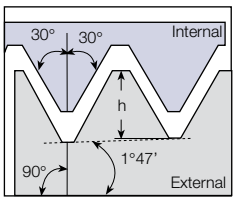
Micro

Insert dia.	Pitch	Ordering Code		Dimensions mm						Min. Bore dia.	
d mm	**tpi**	**RH**-Single Ended	**RH**-Double Ended	**L1**	**L2**	**L**	**F**	**Y**	**h** min	**mm**	**Toolholder**
6.0	27	6.0SIR27NPT...1-SIDE	6.0SIR27NPT...	16	43	50	2.50	1.00	0.66	6.0	SMC..-6.0
	18	6.0SIR18NPT...1-SIDE	6.0SIR18NPT...	16	43	50	2.50	0.80	1.01		

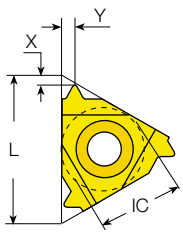
Left Handed Tool Supplied by Request. **(Example:** 6.0SI**L**18NPT...1-SIDE)

NPTF

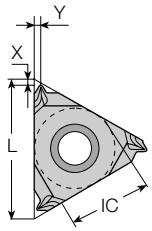
External



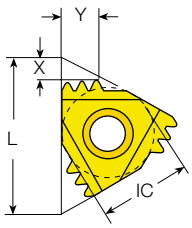
Defined by: ANSI B1.20.3-1976
Tolerance class: Class 2



Standard



SCB
Sintered Chipbreaker



M Style

Standard

SCB

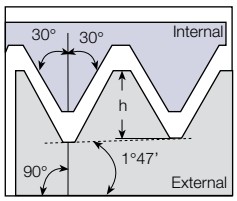
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	27	2ER27NPTF...	2EL27NPTF...	0.64	0.7	0.8	-	-	NL..-2 (LH)
		18	2ER18NPTF...	2EL18NPTF...	1.00	0.8	1.0			
		14	2ER14NPTF...	2EL14NPTF...	1.35	0.8	1.0			
3/8"	16	27	3ER27NPTF...	3EL27NPTF...	0.64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

M Style

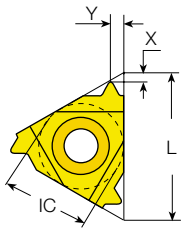
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	22	11.5	2	4ER11.5NPTF2M...	1.64	3.4	2.2	YE4M	AL..-4

NPTF (con't)

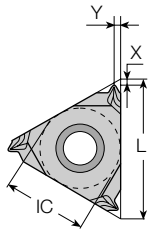
Internal



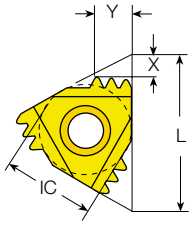
Defined by: ANSI B1.20.3-1976
Tolerance class: Class 2



Standard



SCB
Sintered Chipbreaker



M Style

Standard

SCB

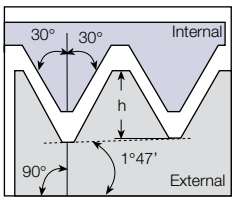
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	27	2IR27NPTF...	2IL27NPTF...	0.64	0.7	0.8	-	-	NVR..-2 (LH)
		18	2IR18NPTF...	2IL18NPTF...	1.00	0.8	1.0			
		14	2IR14NPTF...	2IL14NPTF...	1.35	0.8	1.0			
1/4" SCB	11	27	2JIR27NPTF...		0.64	0.7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

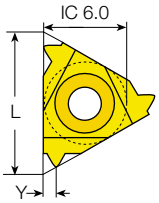
M Style

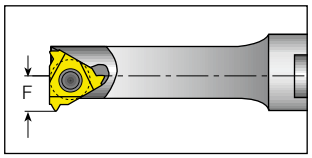
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	22	11.5	2	4IR11.5NPTF2M...	1.63	3.4	2.2	YI4M	AVR..-4
5/8"	27	11.5	3	5IR11.5NPTF3M...	1.63	3.5	5.6	YI5M	AVR..-5M

NPTF (con't)

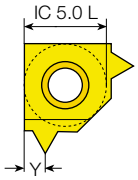
Internal

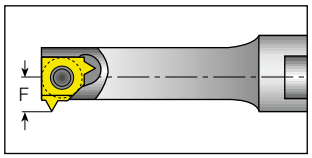






Mini-3





Mini-L

Defined by: ANSI B1.20.3-1976
Tolerance class: Class 2

Mini-3

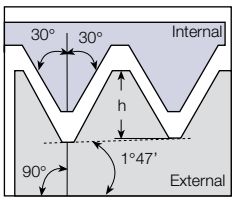
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC	**L** mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
6.0	10	27	6.0IR27NPTF...	0.64	0.8	5.3	10.0	.NVR1..-6.0
		18	6.0IR18NPTF...	1.00	1.0	5.3		
		14	6.0IR14NPTF...	1.35	1.1	5.3		

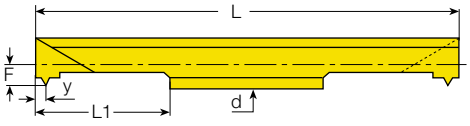
Mini-L

Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
5.0L	27	5LIR27NPTF...	0.64	0.8	4.65	8.0	.NVR 10.-5L
	18	5LIR18NPTF...	1.00	1.0	4.65		
	14	5LIR14NPTF...	1.35	1.1	4.65		

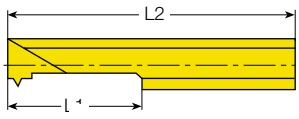
NPTF

Internal





RH-Double Ended



RH-Single Ended

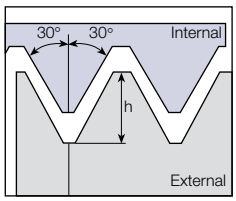
Defined by: ANSI B1.20.3-1976
Tolerance class: Class 2

Micro

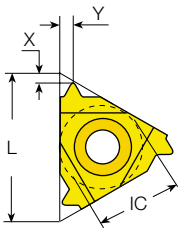
Insert dia.	Pitch	Ordering Code		Dimensions mm						Min. Bore dia.	
d mm	**tpi**	**RH**-Single Ended	**RH**-Double Ended	**L1**	**L2**	**L**	**F**	**Y**	**h** min	**mm**	**Toolholder**
6.0	27	6.0SIR27NPTF...1-SIDE	6.0SIR27NPTF...	16	43	50	0.64	0.80	0.80	6.0	SMC..-6.0
	18	6.0SIR18NPTF...1-SIDE	6.0SIR18NPTF...	16	43	50	1.00	1.00	1.00		

Left Handed Tool Supplied by Request. **(Example:** 6.0SI**L**18NPTF...1-SIDE)

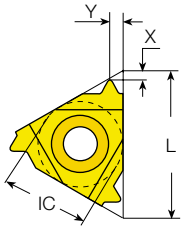
NPS



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



External - Standard



Internal - Standard

External

Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	9	3ER9NPS...	3EL9NPS...	2.2	1.2	1.6	YE3	YI3	AL..-3 (LH)
		11.5	3ER11.5NPS...	3EL11.5NPS...	1.71	1.1	1.5			
		12	3ER12NPS...	3EL12NPS...	1.63	1.1	1.4			
		16	3ER16NPS...	3EL16NPS...	1.21	0.8	1.1			
		24	3ER24NPS...	3EL24NPS...	0.79	0.7	0.8			
1/2"	22	6	4ER6NPS...	4EL6NPS...	3.31	1.6	2.3	YE4	YI4	AL..-4 (LH)
		7	4ER7NPS...	4EL7NPS...	2.82	1.6	2.3			
5/8"	27	5	5ER5NPS...	5EL5NPS...	3.98	1.9	2.8	YE5	YI5	AL..-5 (LH)

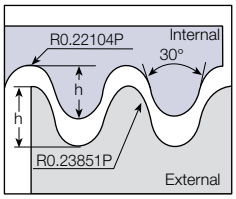
Internal

Standard

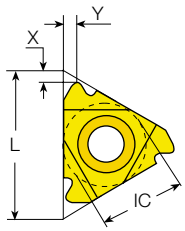
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	9	3IR9NPS...	3IL9NPS...	2.20	1.2	1.6	YI3	YE3	AVR..-3 (LH)
		11.5	3IR11.5NPS...	3IL11.5NPS...	1.71	1.1	1.5			
		12	3IR12NPS...	3IL12NPS...	1.63	1.1	1.4			
		24	3IR24NPS...	3IL24NPS...	0.79	0.7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

Round (DIN 405)

External



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

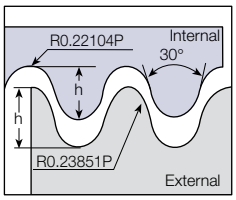


Standard

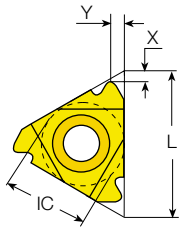
Standard

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

Internal



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



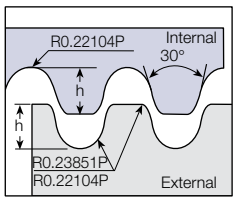
Standard

Standard

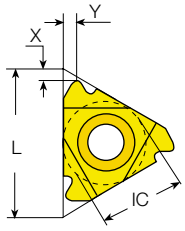
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	10	3IR10RD...	3IL10RD...	1.27	1.1	1.2	YI3	YE3	AVR..-3 (LH)
		8	3IR8RD...	3IL8RD...	1.59	1.4	1.4			
		6	3IR6RD...	3IL6RD...	2.12	1.4	1.5			
1/2"	22	6	4IR6RD...	4IL6RD...	2.12	1.5	1.7	YI4	YE4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

Round (DIN 20400)

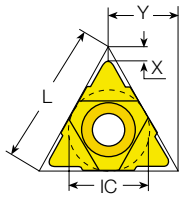
External



Defined by: DIN 20400
Tolerance class: Standard



Standard



U Style

Standard

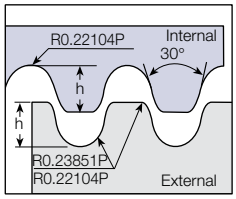
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2"	22	3.0	4ER3.0RD20400...	4EL3.0RD20400...	1.65	1.28	1.70	YE4	YI4	AL..-4 (LH)
		4.0	4ER4.0RD20400...	4EL4.0RD20400...	2.20	1.60	2.20			
		5.0	4ER5.0RD20400...	4EL5.0RD20400...	2.75	1.36	1.75			
		6.0	4ER6.0RD20400...	4EL 6.0RD20400...	3.30	1.70	2.10			

U Style

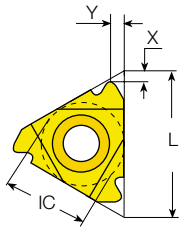
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
5/8"U	27	8.0	5UEI8.0RD20400...	4.4	2.95	13.5	YE5U	YI5U	AL..-5U (LH)

Round (DIN 20400)

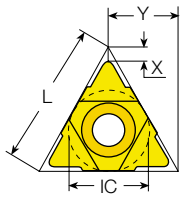
Internal



Defined by: DIN 20400
Tolerance class: Standard



Standard



U Style

Standard

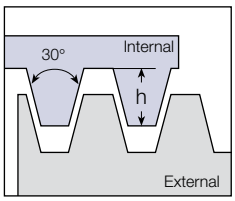
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2"	22	3.0	4IR3.0RD20400...	4IL3.0RD20400...	1.65	1.32	1.70	YI4	YE4	AVR..-4 (LH)
		4.0	4IR4.0RD20400...	4IL4.0RD20400...	2.20	1.64	2.20			
		5.0	4IR5.0RD20400...	4IL5.0RD20400...	2.75	1.41	1.75			
		6.0	4IR6.0RD20400...	4IL 6.0RD20400...	3.30	1.75	2.10			

U Style

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
5/8"U	27	8.0	5UEI8.0RD20400...	4.4	2.95	13.5	YI5U	YE5U	AVR..-5U (LH)

Trapez

External



Defined by: DIN 103
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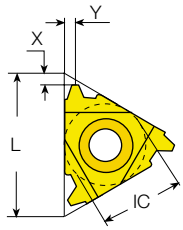
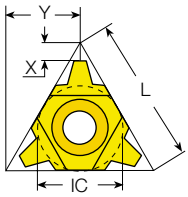
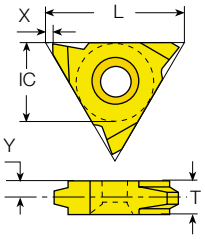


Standard



U Style



V Style

Standard

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

U Style

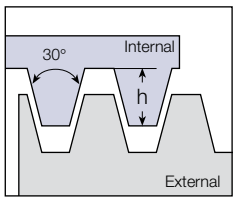
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	mm	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	6.0	4UE6.0TR...	3.50	2.0	11.0	YE4U	YI4U	AL..-4U (LH)
		7.0	4UE7.0TR...	4.00	2.3	11.0			
		8.0	4UE8.0TR...	4.50	2.6	11.0			
5/8"U	27	8.0	5UE8.0TR...	4.50	2.6	13.7	YE5U	YI5U	AL..-5U (LH)
		9.0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

V Style

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

Trapez (con't)

Internal



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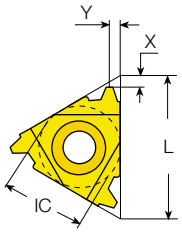
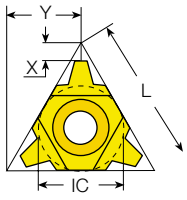
Tolerance class: 7e/7H



Standard



U Style

Standard

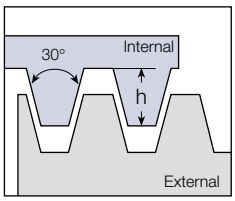
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	1.5	2IR1.5TR...	2IL1.5TR...	0.90	0.8	0.9	-	-	NVR 8-2 (LH)
3/8"	16	1.5	3IR1.5TR...	3IL1.5TR...	0.90	1.0	1.1	YI3	YE3	AVR..-3 (LH)
		2.0	3IR2.0TR...	3IL2.0TR...	1.25	1.1	1.3			
		2.5	3IR2.5TR...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

Coarse Pitch

Thread	Insert Size		Ordering Code	Dimensions mm				Min Bore dia.
	IC	L mm	RH	h min	X	Y	Toolholder	mm
TR18x4	3/8"U	16	3UIR4.0TR...158/013	2.25	2.10	8.0	NVRC11-3U 156/020	14.0
TR20x4	3/8"	16	3IR4.0TR...158/012	2.25	1.53	1.9	NVRC13-3 156/006	16.0
TR22x5	3/8"U	16	3UIR5.0TR...158/011	2.75	1.56	8.0	NVRC14-3U 156/018	17.0
TR24x5	3/8"U	16	3UIR5.0TR...158/011	2.75	1.56	8.0	NVRC15-3U 156/019	19.0
TR26x5	3/8"U	16	3UIR5.0TR...158/011	2.75	1.56	8.0	NVRC15-3U 156/019	21.0
TR28x5	1/2"	22	4IR5.0TR...	2.75	2.30	2.7	NVRC20-4 156/008	23.0
TR30x6	1/2"U	22	4UIR6.0TR...158/007	3.50	1.94	11.0	NVRC20-4U 156/011	24.0
TR36x6	5/8"	27	5IR6.0TR...	3.50	2.30	2.7	NVRC25-5 156/012	30.0
TR38x7	1/2"U	22	4UIR7.0TR...158/008	4.00	2.27	11.0	NVRC25-4U 156/013	31.0
TR40x7			4UIR7.0TR...158/008	4.00	2.27	11.0	NVRC25-4U 156/013	33.0
TR42x7			4UIR7.0TR...158/008	4.00	2.27	11.0	NVRC32-4U 156/014	35.0
TR44x7			4UIR7.0TR...158/008	4.00	2.27	11.0	NVRC32-4U 156/014	37.0
TR46x8	5/8"U	27	5UIR8.0TR...158/010	4.50	2.59	13.5	NVRC32-5U 156/015	38.0
TR48x8			5UIR8.0TR...158/010	4.50	2.59	13.5	NVRC32-5U 156/015	40.0
TR50x8			5UIR8.0TR...158/010	4.50	2.59	13.5	NVRC32-5U 156/015	42.0
TR52x8			5UIR8.0TR...158/010	4.50	2.59	13.5	NVRC32-5U 156/015	44.0

Trapez (con't)

Internal



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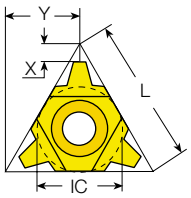
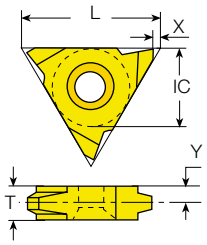


U Style



V Style

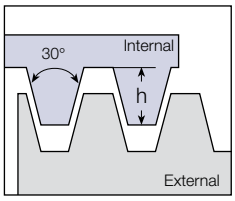
U Style

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

V Style

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

Internal



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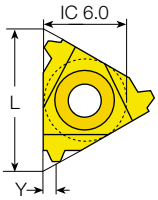
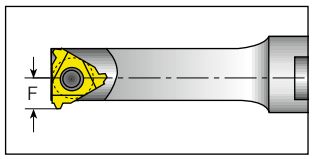
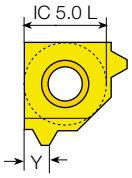
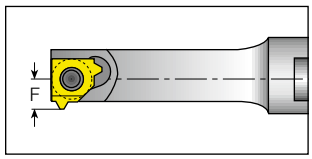




Mini-3





Mini-L

Mini-3

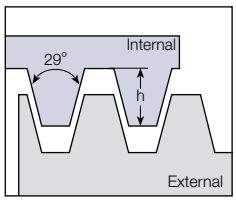
Insert Size		Pitch	Ordering Code		Dimensions mm		Min. Bore dia.	
IC	L mm	mm	RH	h min	Y	F	mm	Toolholder
6.0	10	1.5	6.0IR1.5TR...	0.85	0.85	5.3	10.0	.NVR1..-6.0
		2.0	6.0IR2.0TR...	1.25	1.30	5.3	10.0	

Mini-L

Insert Size		Pitch	Ordering Code		Dimensions mm		Min. Bore dia.	
IC mm		mm	RH	h min	Y	F	mm	Toolholder
5.0L		1.5	5LIR1.5TR...	0.85	0.85	4.65	8.0	.NVR 10. -5L
		2.0	5LIR2.0TR...	1.25	1.30	4.65	8.0	

American ACME

External



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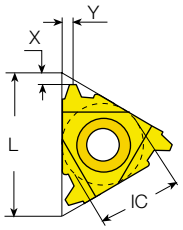
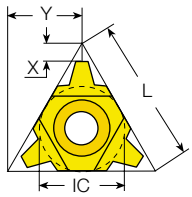
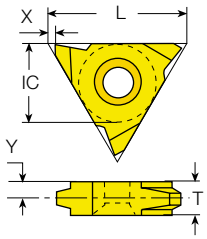


Standard



U Style



V Style

Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	**L** mm	**tpi**	**RH**	**LH**	**h** min	**X**	**Y**	**RH**	**LH**	**Toolholder**
1/4"	11	16	2ER16ACME...	2EL16ACME...	0.92	1.0	1.1	-	-	NL..-2 (LH)
3/8"	16	16	3ER16ACME...	3EL16ACME...	0.92	1.0	1.1	YE3	YI3	AL..-3 (LH)
		14	3ER14ACME...	3EL14ACME...	1.03	1.0	1.2			
		12	3ER12ACME...	3EL12ACME...	1.19	1.1	1.2			
		10	3ER10ACME...	3EL10ACME...	1.52	1.3	1.4			
		8	3ER8ACME...	3EL8ACME...	1.84	1.4	1.5			
		6	3ER6ACME...	3EL6ACME...	2.37	1.7	1.9	YE3AC6	YI3AC6	
1/2"	22	6	4ER6ACME...	4EL6ACME...	2.37	1.8	2.1	YE4	YI4	AL..-4 (LH)
		5	4ER5ACME...	4EL5ACME...	2.79	2.0	2.3			
5/8"	27	4	5ER4ACME...	5EL4ACME...	3.43	2.4	2.7	YE5	YI5	AL..-5 (LH)

U Style

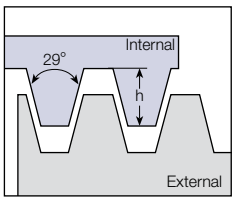
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	**L** mm	**tpi**	**RH+LH**	**h** min	**X**	**Y**	**RH**	**LH**	**Toolholder**
1/2"U	22	3	4UE3ACME...	4.49	3.0	11.0	YE4U	YI4U	AL..-4U (LH)
		4	4UE4ACME...	3.43	2.3	11.0			
5/8"U	27	3	5UE3ACME...	4.49	3.0	13.7	YE5U	YI5U	AL..-5U (LH)

V Style

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

American ACME (con't)

Internal



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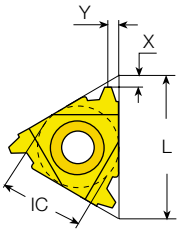
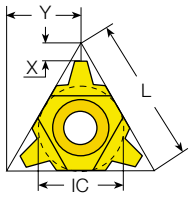
Tolerance class: 3G



Standard



U Style

Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	16	2IR16ACME...	2IL16ACME...	0.92	0.9	0.9	-	-	NVR..-2 (LH)
3/8"	16	16	3IR16ACME...	3IL16ACME...	0.92	1.0	1.1	YI3	YE3	AVR..-3 (LH)
		14	3IR14ACME...	3IL14ACME...	1.03	1.1	1.2			
		12	3IR12ACME...	3IL12ACME...	1.19	1.2	1.3			
		10	3IR10ACME...	3IL10ACME...	1.52	1.2	1.3			
		8	3IR8ACME...	3IL8ACME...	1.84	1.4	1.5			
		6	3IR6ACME...	3IL6ACME...	2.37	1.7	1.9	YI3AC6	YE3AC6	
1/2"	22	6	4IR6ACME...	4IL6ACME...	2.37	1.8	2.1	YI4	YE4	AVR..-4 (LH)
		5	4IR5ACME...	4IL5ACME...	2.79	2.0	2.3			
5/8"	27	4	5IR4ACME...	5IL4ACME...	3.43	2.3	2.6	YI5	YE5	AVR..-5 (LH)

Coarse Pitch

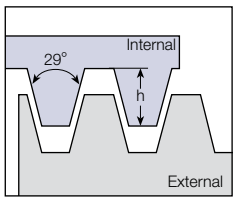
Thread	Insert Size		Ordering Code	Dimensions mm			Anvil			Min Bore dia.
tpi	IC	L mm	RH	h min	X	Y	RH	Toolholder		mm
1/2 x 10	6.0U	10	6.0UIR10ACME...158/005	1.52	1.04	5.20	-	NVRC 8-6.0U	156/003	10.16
5/8 x 8	1/4"U	11	2UIR8ACME...158/006	1.84	1.00	5.50	-	NVRC 10-2U	156/004	12.70
3/4 x 6	3/8"	16	3IR6ACME...	2.37	1.67	1.85	-	NVRC 11-3	156/005	14.82
7/8 x 6			3IR6ACME...	2.37	1.67	1.85	-	NVRC 13-3	156/006	18.42
1 x 5	1/2"	22	4IR5ACME...	2.79	2.00	2.30	-	NVRC 17-4	156/007	20.32
1 1/8 x 5			4IR5ACME...	2.79	2.00	2.30	-	NVRC 20-4	156/008	24.00
1 1/4 x 5			4IR5ACME...	2.79	2.00	2.30	-	NVRC 20-4	156/009	27.18
1 1/2 x 4	5/8"	27	5IR4ACME...	3.43	2.30	2.60	-	NVRC 28-5	156/010	32.38
1 3/4 x 4			5IR4ACME...	3.43	2.30	2.60	YI5-1P	AVRC 32-5		38.74

U Style

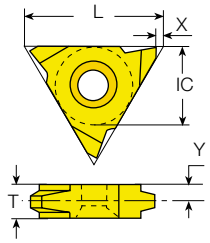
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	tpi	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4	4UI4ACME...	3.43	2.3	11.0	YI4U	YE4U	AVR..-4U (LH)
		3	4UI3ACME...	4.49	2.9	11.0			
5/8"U	27	3	5UI3ACME...	4.49	2.9	13.7	YI5U	YE5U	AVR..-5U(LH)

American ACME (con't)

Internal



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

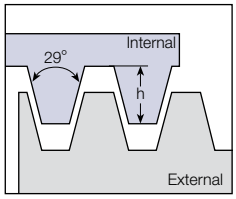


V Style

V Style

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

Internal



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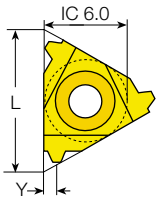
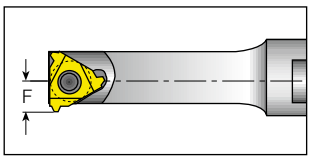
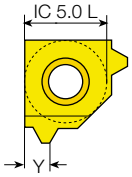
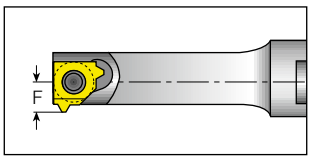




Mini-3





Mini-L

Mini-3

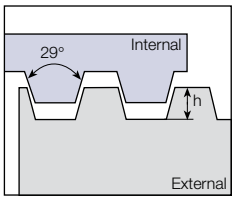
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC	**L** mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
6.0	10	12	6.0IR12ACME...	1.19	1.1	5.1	10.0	.NVR1..-6.0

Mini-L

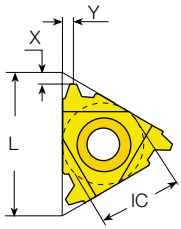
Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
5.0L	12	5LIR12ACME...	1.19	1.1	4.42	8.0	.NVR 10. -5L

Stub ACME

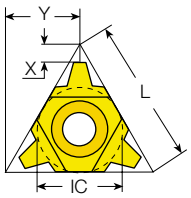
External



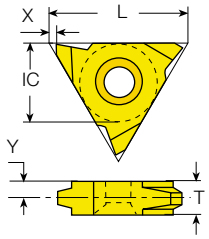
Defined by: ANSI B1.8:1988
Tolerance class: 2G



Standard



U Style



V Style

Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	16	2ER16STACME...	2EL16STACME...	0.60	1.0	1.0	-	-	NL8-2 (LH)
3/8"	16	16	3ER16STACME...	3EL16STACME...	0.60	1.0	1.0	YE3	YI3	AL..-3 (LH)
		14	3ER14STACME...	3EL14STACME...	0.67	1.1	1.1			
		12	3ER12STACME...	3EL12STACME...	0.76	1.2	1.2			
		10	3ER10STACME...	3EL10STACME...	1.02	1.2	1.3			
		8	3ER8STACME...	3EL8STACME...	1.21	1.4	1.5			
		6	3ER6STACME...	3EL6STACME...	1.52	1.7	1.8			
1/2"	22	6	4ER6STACME...	4EL6STACME...	1.52	1.7	1.8	YE4	YI4	AL..-4 (LH)
		5	4ER5STACME...	4EL5STACME...	1.78	2.1	2.3			
5/8"	27	4	5ER4STACME...	5EL4STACME...	2.16	2.3	2.4	YE5	YI5	AL..-5 (LH)
		3	5ER3STACME...	5EL3STACME...	2.79	2.9	2.9			

U Style

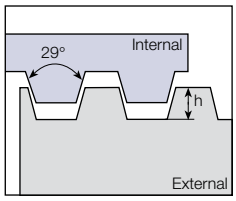
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	tpi	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4	4UE4STACME...	2.16	2.6	11.0	YE4U	YI4U	AL..-4U (LH)
		3	4UE3STACME...	2.79	3.4	11.0			

V Style

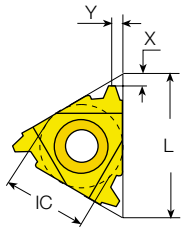
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	tpi	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VER4STACME...	5VEL4STACME...	2.16	1.0	3.3	6	NL..-5V-6 (LH)
		3	5VER3STACME...	5VEL3STACME...	2.79	1.0	3.3	6	
		2	5VER2STACME...	5VEL2STACME...	4.06	1.0	4.3	8	NL..-5V-8 (LH)

Stub ACME (con't)

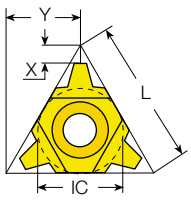
Internal



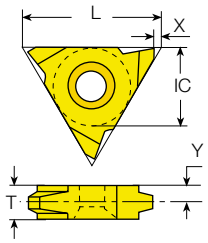
Defined by: ANSI B1.8:1988
Tolerance class: 2G



Standard



U Style



V Style

Standard

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

U Style

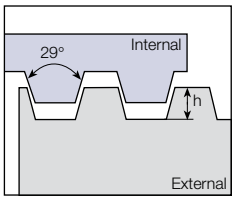
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	tpi	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4	4UI4STACME...	2.16	2.5	11.0	YI4U	YE4U	AVR..-4U (LH)
		3	4UI3STACME...	2.79	3.3	11.0			

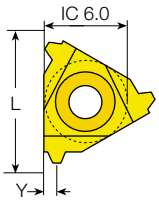
V Style

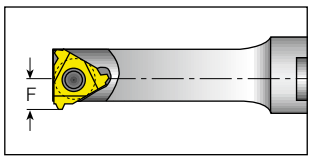
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	tpi	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VIR4STACME...	5VIL4STACME...	2.16	1.0	3.3	6	NVR..-5V (LH)
		3	5VIR3STACME...	5VIL3STACME...	2.79	1.0	3.3	6	
		2	5VIR2STACME...	5VIL2STACME...	4.06	1.0	4.3	8	

Stub ACME (con't)

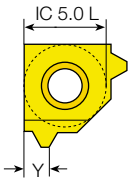
Internal

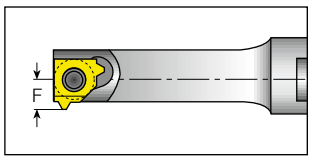






Mini-3





Mini-L

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

Mini-3

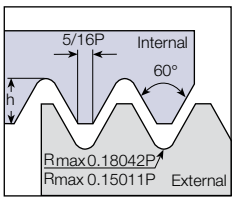
Insert Size		Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC	**L** mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
6.0	10	12	6.0IR12STACME...	0.76	1.2	5.1	10.0	.NVR1..-6.0

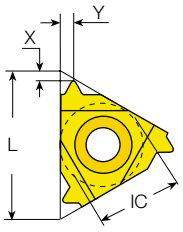
Mini-L

Insert Size	Pitch	Ordering Code	Dimensions mm			Min. Bore dia.	
IC mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
5.0L	12	5LIR12STACME...	0.76	1.2	4.42	8.0	.NVR 10. -5L

UNJ

External





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

Standard

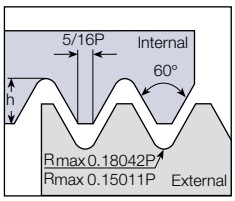
Standard

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

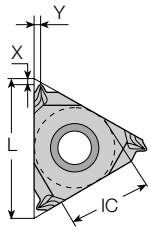
continued on next page ▸

UNJ (con't)

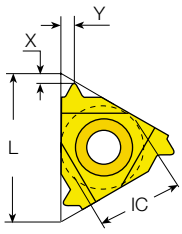
External



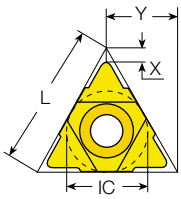
Defined by: MIL-S-8879C
Tolerance class: 3A/3B



SCB
Sintered Chipbreaker



Standard



U Style

Standard (con't)

SCB

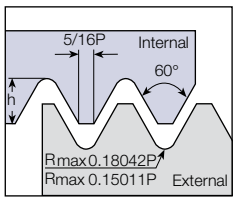
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8" SCB	16	36	3JER36UNJ...		0.41	1.3	0.5	YE3	-	AL..-3
		32	3JER32UNJ...		0.46	1.2	0.5			
		28	3JER28UNJ...		0.52	0.7	0.8			
		24	3JER24UNJ...		0.61	0.7	0.8			
		20	3JER20UNJ...		0.73	0.7	0.8			
		18	3JER18UNJ...		0.81	0.7	0.8			
		16	3JER16UNJ...		0.92	0.8	0.8			
		14	3JER14UNJ...		1.05	1.3	1.5			
		12	3JER12UNJ...		1.22	1.3	1.5			
		10	3JER10UNJ...		1.47	1.3	1.5			
		8	3JER8UNJ...		1.83	1.4	1.5			
1/2"	22	7	4ER7UNJ...	4EL7UNJ...	2.09	1.7	2.3	YE4	YI4	AL..-4 (LH)
		6	4ER6UNJ...	4EL6UNJ...	2.44	1.7	2.3			
		5	4ER5UNJ...	4EL5UNJ...	2.93	1.8	2.5			
5/8"	27	4.5	5ER4.5UNJ...	5EL4.5UNJ...	3.26	2.0	2.7	YE5	YI5	AL..-5 (LH)
		4	5ER4UNJ...	5EL4UNJ...	3.67	2.2	3.0			

U Style

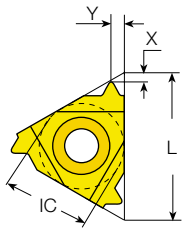
Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil		
IC	L mm	tpi	RH+LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4.5	4UE4.5UNJ...	3.26	2.1	11.0	YE4U	YI4U	AL..-4U (LH)
		4	4UE4 UNJ...	3.67	2.2	11.0			

UNJ (con't)

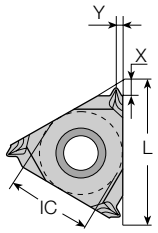
Internal



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



Standard



SCB
Sintered Chipbreaker

Standard

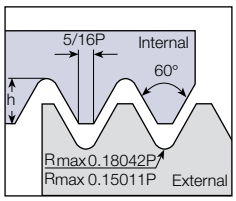
SCB

continued on next page ▸

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

UNJ (con't)

Internal



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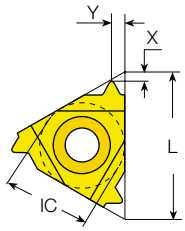
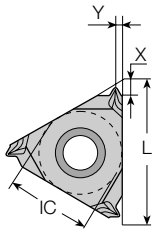
Tolerance class: 3A/3B



Standard



SCB
Sintered Chipbreaker

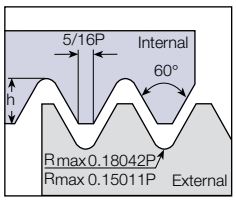
Standard (con't)

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	48	3IR48UNJ...	3IL48UNJ...	0.28	0.6	0.5	YI3	YE3	AVR..-3 (LH)
		44	3IR44UNJ...	3IL44UNJ...	0.30	0.6	0.6			
		40	3IR40UNJ...	3IL40UNJ...	0.33	0.6	0.6			
		36	3IR36UNJ...	3IL36UNJ...	0.37	0.6	0.6			
		32	3IR32UNJ...	3IL32UNJ...	0.42	0.6	0.7			
		28	3IR28UNJ...	3IL28UNJ...	0.47	0.7	0.7			
		24	3IR24UNJ...	3IL24UNJ...	0.55	0.7	0.8			
		20	3IR20UNJ...	3IL20UNJ...	0.66	0.8	0.9			
		18	3IR18UNJ...	3IL18UNJ...	0.74	0.8	1.0			
		16	3IR16UNJ...	3IL16UNJ...	0.83	0.9	1.1			
		14	3IR14UNJ...	3IL14UNJ...	0.95	1.0	1.2			
		13	3IR13UNJ...	3IL13UNJ...	1.02	1.0	1.3			
		12	3IR12UNJ...	3IL12UNJ...	1.11	1.1	1.3			
		11	3IR11UNJ...	3IL11UNJ...	1.21	1.2	1.5			
		10	3IR10UNJ...	3IL10UNJ...	1.33	1.2	1.5			
		9	3IR9UNJ...	3IL9UNJ...	1.48	1.3	1.7			
		8	3IR8UNJ...	3IL8UNJ...	1.66	1.2	1.6			
3/8" SCB	16	36	3JIR36UNJ...		0.37	1.1	0.5	YI3	-	AVR..-3
		32	3JIR32UNJ...		0.42	1.1	0.5			
		28	3JIR28UNJ...		0.47	0.6	0.8			
		24	3JIR24UNJ...		0.55	0.6	0.8			
		20	3JIR20UNJ...		0.66	0.6	0.8			
		18	3JIR18UNJ...		0.74	0.6	0.8			
		16	3JIR16UNJ...		0.83	0.6	0.8			
		14	3JIR14UNJ...		0.95	1.1	1.5			
		12	3JIR12UNJ...		1.11	1.1	1.5			
		10	3JIR10UNJ...		1.33	1.1	1.5			
		8	3JIR8UNJ...		1.66	1.0	1.5			
1/2"	22	7	4IR7UNJ...	4IL7UNJ...	1.90	1.7	2.3	YI4	YE4	AVR..-4 (LH)
		6	4IR6UNJ...	4IL6UNJ...	2.21	1.7	2.3			
		5	4IR5UNJ...	4IL5UNJ...	2.66	1.8	2.5			
5/8"	27	4.5	5IR4.5UNJ...	5IL4.5UNJ...	2.95	2.0	2.7	YI5	YE5	AVR..-5 (LH)
		4	5IR4UNJ...	5IL4UNJ...	3.32	2.2	3.0			

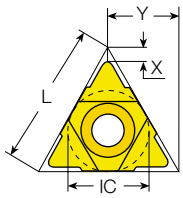
SCB

UNJ (con't)

Internal



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



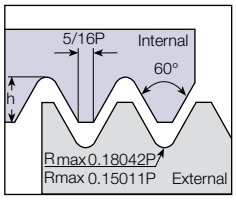
U Style

U Style

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

UNJ

Internal



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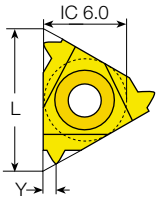
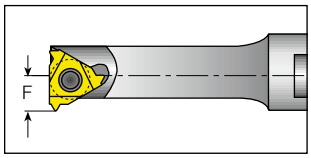
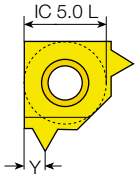
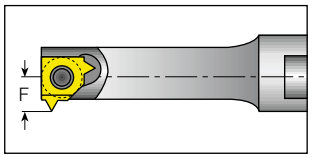




Mini-3





Mini-L

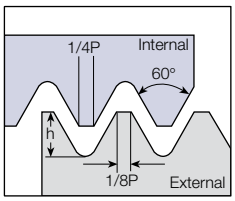
Mini-3

Insert Size		Pitch	Ordering Code		Dimensions mm		Min. Bore dia.	
IC	**L** mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
6.0	10	20	6.0IR20UNJ...	0.66	0.9	4.9	9.8	.NVR1..-6.0

Mini-L

Insert Size	Pitch	Ordering Code		Dimensions mm		Min. Bore dia.	
IC mm	**tpi**	**RH**	**h** min	**Y**	**F**	**mm**	**Toolholder**
5.0L	20	5LIR20UNJ...	0.66	0.9	4.21	7.8	.NVR 10. -5L

MJ



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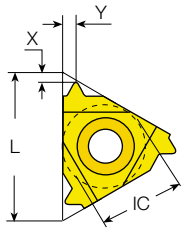
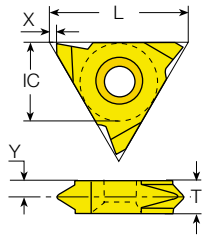
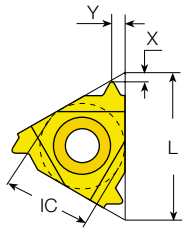


External - Standard



Slim Throat



Internal - Standard

External

Standard

Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	1.0	2ER1.0MJ...	2EL1.0MJ...	0.58	0.66	0.7	-	-	NL..-2 (LH)
		1.25	2ER1.25MJ...	2EL1.25MJ...	0.72	0.78	0.9			
		1.5	2ER1.5MJ...	2EL1.5MJ...	0.87	0.85	1.0			
3/8"	16	1.0	3ER1.0MJ...	3EL1.0MJ...	0.58	0.66	0.7	YE3	YI3	AL..-3 (LH)
		1.25	3ER1.25MJ...	3EL1.25MJ...	0.72	0.78	0.9			
		1.5	3ER1.5MJ...	3EL1.5MJ...	0.87	0.85	1.0			
		2.0	3ER2.0MJ...	3EL2.0MJ...	1.15	1.03	1.3			
		2.5	3ER2.5MJ...	3EL2.5MJ...	1.49	1.10	1.5			
		3.0	3ER3.0MJ...	3EL3.0MJ...	1.73	1.23	1.6			

Slim Throat

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

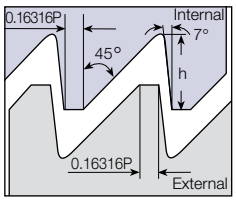
Internal

Standard

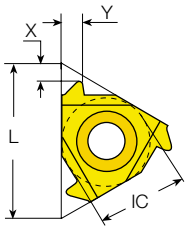
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
1/4"	11	1.0	2IR1.0MJ...	2IL1.0MJ...	0.49	0.64	0.70	-	-	NVR..-2 (LH)
		1.25	2IR1.25MJ...	2IL1.25MJ...	0.61	0.76	0.90			
		1.5	2IR1.5MJ...	2IL1.5MJ...	0.73	0.82	1.00			
		2.0	2IR2.0MJ...	2IL2.0MJ...	0.97	0.85	1.05			
3/8"	16	0.75	3IR0.75MJ...	3IL0.75MJ...	0.37	0.60	0.60	YI3	YE3	AVR..-3 (LH)
		1.0	3IR1.0MJ...	3IL1.0MJ...	0.49	0.64	0.70			
		1.25	3IR1.25MJ...	3IL1.25MJ...	0.61	0.76	0.90			
		1.5	3IR1.5MJ...	3IL1.5MJ...	0.73	0.82	1.00			
		2.0	3IR2.0MJ...	3IL2.0MJ...	0.97	0.82	1.30			
		2.5	3IR2.5MJ...	3IL2.5MJ...	1.23	1.10	1.50			
		3.0	3IR3.0MJ...	3IL3.0MJ...	1.46	1.19	1.60			

American Buttress

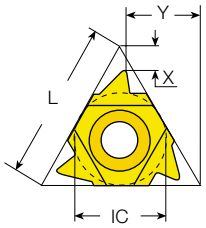
External



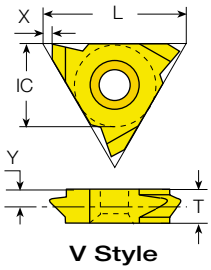
Defined by: ANSI B1.9.1973
Tolerance class: Class 2



Standard



U Style



V Style

Standard

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

U Style

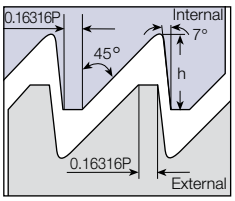
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4	4UER4ABUT...	4UEL4ABUT...	4.21	2.4	9.8	YE4U-BUT4	YI4U-BUT4	AL..-4U (LH)
5/8"U	27	3	5UER3ABUT...	5UEL3ABUT...	5.61	3.1	12.1	YE5U-BUT3	YI5U-BUT3	AL..-5U (LH)

V Style

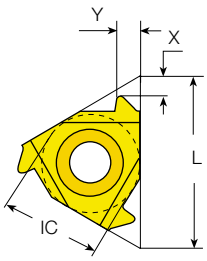
Insert Size		Pitch	Ordering Code		Dimensions mm				
IC	L mm	tpi	RH	LH	h min	X	Y	T	Toolholder
5/8"V	27	4	5VER4ABUT...	5VEL4ABUT...	4.21	0.6	1.8	6	NL..-5V-6 (LH)
		3	5VER3ABUT...	5VEL3ABUT...	5.61	0.6	2.2	8	NL..-5V-8 (LH)
		2.5	5VER2.5ABUT...	5VEL2.5ABUT...	6.73	0.6	2.7	10	NL..-5V-10 (LH)

American Buttress (con't)

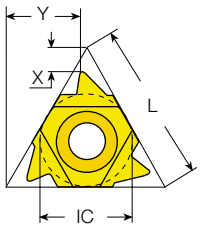
Internal



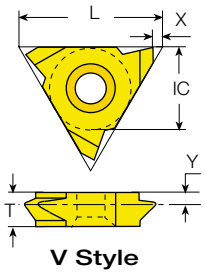
Defined by: ANSI B1.9.1973
Tolerance class: Class 2



Standard



U Style



V Style

Standard

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

U Style

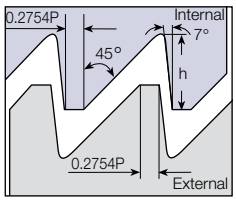
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	tpi	RH	LH	h min	X	Y	RH	LH	Toolholder
1/2"U	22	4	4UIR4ABUT...	4UIL4ABUT...	4.21	2.4	9.8	YI4U-4B	YE4U-4B	AVR..-4U (LH)
5/8"U	27	3	5UIR3ABUT...	5UIL3ABUT...	5.61	3.1	12.1	YI5U-3B	YE5U-3B	AVR..-5U (LH)

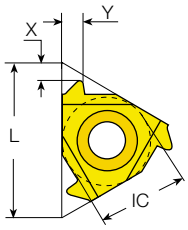
V Style

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

British Buttress

External





Standard

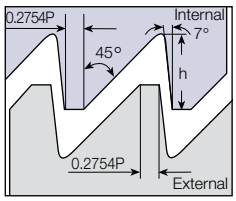
Defined by: B.S. 1657: 1950
Tolerance class: Medium Class

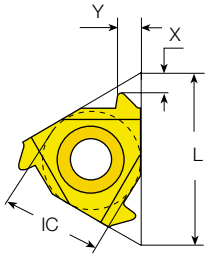
Standard

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

British Buttress

Internal





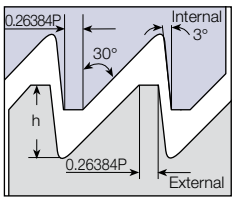
Standard

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

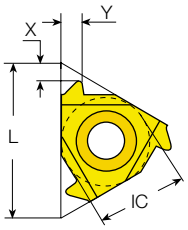
Standard

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

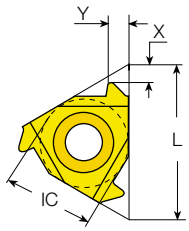
Metric Buttress (Sägengewinde)



Defined by: DIN 513
Tolerance class: Medium Class



External - Standard



Internal - Standard

External

Standard

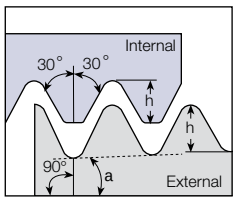
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	2.0	3ER2.0SAGE...	3EL2.0SAGE...	1.74	1.47	2.08	YE3	YI3	AL..-3 (LH)
1/2"	22	2.0	4ER2.0SAGE...	4EL2.0SAGE...	1.74	1.47	2.08	YE4	YI4	AL..-4 (LH)
		3.0	4ER3.0SAGE...	4EL3.0SAGE...	2.60	1.79	2.60			
5/8"	27	4.0	5ER4.0SAGE...	5EL4.0SAGE...	3.55	1.93	3.20	YE5 082/038	YI5 082/039	AL..-5 (LH)

Internal

Standard

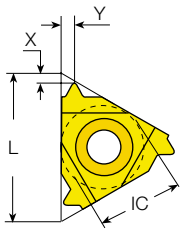
Insert Size		Pitch	Ordering Code		Dimensions mm			Anvil		
IC	L mm	mm	RH	LH	h min	X	Y	RH	LH	Toolholder
3/8"	16	2.0	3IR2.0SAGE...	3IL2.0SAGE...	1.50	1.52	2.2	YI3	YE3	AVR..-3 (LH)
1/2"	22	3.0	4IR3.0SAGE...	4IL3.0SAGE...	2.25	1.66	2.9	YI4	YE4	AVR..-4 (LH)
5/8"	27	4.0	5IR4.0SAGE...	5IL4.0SAGE...	3.09	2.12	3.2	YI5 082/039	YE5 082/038	AVR..-5 (LH)

API

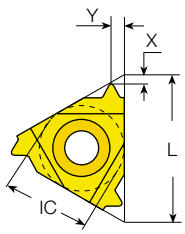


a = arctg (IPF/24)

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



External - Standard



Internal - Standard

External

Standard

Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	tpi		IPF	RH		h min	X	Y	RH	Toolholder
1/2"	22	4	V-0.38R	2	4ER4API382...	NC23-NC50	3.09	2.1	2.8	YE4	AL..-4 (LH)
		4	V-0.38R	3	4ER4API383...	NC56-NC77	3.08	2.1	2.8		
		4	V-0.050	2	4ER4API502...	6 5/8" REG	3.75	2.0	2.9		
		4	V-0.050	3	4ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	3.74	2.0	2.9		
		5	V-0.040	3	4ER5API403...	2 3/8"-4 1/2" REG	2.99	1.8	2.6		
		6	V-0.055	1.5	4ER6API551...	NC10-NC16	1.41	2.6	2.0		
5/8"	27	4	V-0.038R	2	5ER4API382...	NC23-NC50	3.09	2.1	2.8	YE50IL	AL..-5 OIL (LH)
		4	V-0.038R	3	5ER4API383...	NC56-NC77	3.08	2.1	2.8		
		4	V-0.050	2	5ER4API502...	6 5/8" REG	3.75	2.1	3.1		
		4	V-0.050	3	5ER4API503...	5 1/2", 7 5/8", 8 5/8" REG	3.74	2.1	3.1		
		5	V-0.040	3	5ER5API403...	2 3/8"-4 1/2" REG	2.99	1.9	2.7		

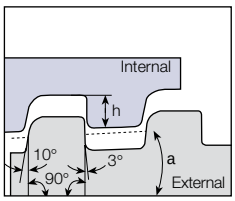
Internal

Standard

Insert Size		Pitch	Thread	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	tpi		IPF	RH		h min	X	Y	RH	Toolholder
1/2"	22	4	V-0.38R	2	4IR4API382...	NC23-NC50	3.09	2.1	2.8	YI4	AVR..-4 (LH)
		4	V-0.38R	3	4IR4API383...	NC56-NC77	3.08	2.1	2.8		
		4	V-0.050	2	4IR4API502...	6 5/8" REG	3.75	2.1	3.1		
		4	V-0.050	3	4IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	3.74	2.0	2.9		
		5	V-0.040	3	4IR5API403...	2 3/8"-4 1/2" REG	2.99	1.8	2.6		
		6	V-0.055	1.5	4IR6API551...	NC10-NC16	1.41	2.6	2.0		
5/8"	27	4	V-0.038R	2	5IR4API382...	NC23-NC50	3.09	2.1	2.8	YI50IL	AVR..-5 OIL (LH)
		4	V-0.038R	3	5IR4API383...	NC56-NC77	3.08	2.1	2.8		
		4	V-0.050	2	5IR4API502...	6 5/8" REG	3.75	2.1	3.1		
		4	V-0.050	3	5IR4API503...	5 1/2", 7 5/8", 8 5/8" REG	3.74	2.1	3.1		
		5	V-0.040	3	5IR5API403...	2 3/8"-4 1/2" REG	2.99	1.9	2.7		

API Buttress Casing

External



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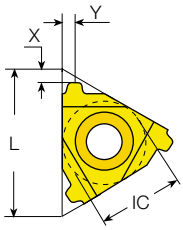
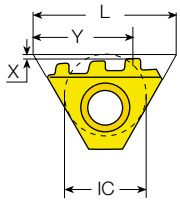


Standard



T Style

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

Standard

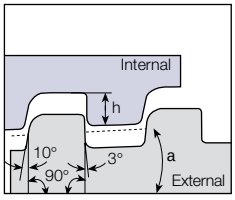
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	tpi	IPF	RH		h min	X	Y	RH	Toolholder
1/2”	22	5	0.75	4ER5BUT75...	4 1/2”-13 3/8”	1.55	3.1	1.9	YE4	AL..-4
		5	1	4ER5BUT1...	16”-20”	1.55	3.1	1.9		

T Style

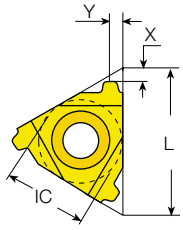
Insert Size		Pitch	Taper	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi	IPF		RH	h min	X	Y	RH	Toolholder
1/2”T	22	5	0.75	3	4ER5BUT753T...	1.55	0.1	16.1	Y4T	AL..-4T

API Buttress Casing

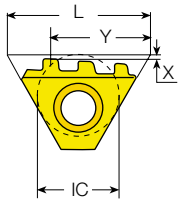
Internal



a = arctg (IPF/24)



Standard



T Style

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

Standard

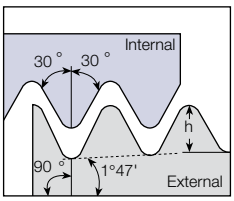
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	L mm	tpi	IPF	RH		h min	X	Y	RH	Toolholder
1/2”	22	5	0.75	4IR5BUT75...	4 1/2”-13 3/8”	1.55	2.8	1.9	YI4	AVR..-4
		5	1	4IR5BUT1...	16”-20”	1.55	2.8	1.9		

T Style

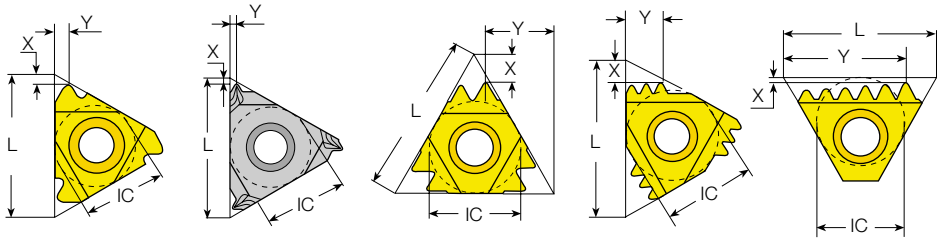
Insert Size		Pitch	Taper	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi	IPF		RH	h min	X	Y	RH	Toolholder
1/2”T	22	5	0.75	3	4IR5BUT753T...	1.55	0.1	16.1	Y4T	AVR..-4T

API Round Casing & Tubing

External



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



Standard | SCB Sintered Chipbreaker | Z Style | M Style | T Style

Standard

SCB

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

Z Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	22	10	2	4ER10APIRD2Z...	1.41	3.1	9.9	YE4Z	AL..-4Z
		8	2	4ER8APIRD2Z...	1.81	3.7	9.6		

M Style

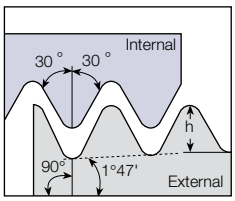
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	22	10	2	4ER10APIRD2M...	1.41	2.4	3.7	YE4M	AL..-4
5/8"	27	10	3	5ER10APIRD3M...	1.41	3.8	6.2	YE5M	AL..-5M
		8	2	5ER8APIRD2M...	1.81	2.9	4.5		

T Style

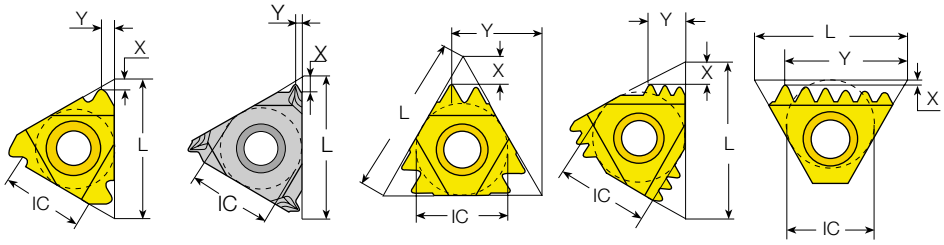
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"T	22	10	6	4ER10APIRD6T...	1.41	0.1	16.3	Y4T	AL..-4T
		8	3	4ER8APIRD3T...	1.81	0.1	14.2		
		8	5	4ER8APIRD5T...	1.81	0.1	16.7		

API Round Casing & Tubing (con't)

Internal



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



Standard | SCB Sintered Chipbreaker | Z Style | M Style | T Style

Standard

SCB

Insert Size		Pitch	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi	RH	h min	X	Y	RH	Toolholder
3/8"	16	10	3IR10APIRD...	1.41	1.2	1.4	YI3	AVR..-3
		8	3IR8APIRD...	1.81	1.3	1.5		
3/8" SCB	16	10	3JIR10APIRD...	1.41	1.2	1.5	YI3	AVR..-3
		8	3JIR8APIRD...	1.81	1.3	1.5		

Z Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	22	10	2	4IR10APIRD2Z...	1.41	3.1	9.9	YI4Z	AVR..-4Z
		8	2	4IR8APIRD2Z...	1.81	3.7	9.6		

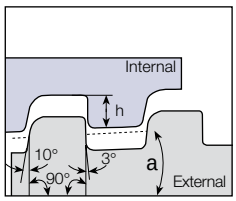
M Style

Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"	22	10	2	4IR10APIRD2M...	1.41	2.4	3.7	YI4M	AVR..-4
5/8"	27	10	3	5IR10APIRD3M...	1.41	3.8	6.2	YI5M	AVR..-5M
		8	2	5IR8APIRD2M...	1.81	2.9	4.5		

T Style

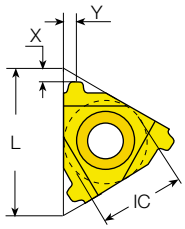
Insert Size		Pitch	Teeth	Ordering Code	Dimensions mm			Anvil	
IC	L mm	tpi		RH	h min	X	Y	RH	Toolholder
1/2"T	22	10	6	4IR10APIRD6T...	1.41	0.1	16.3	Y4T	AVR..-4T
		8	3	4IR8APIRD3T...	1.81	0.1	14.2		
		8	5	4IR8APIRD5T...	1.81	0.1	16.7		

VAM

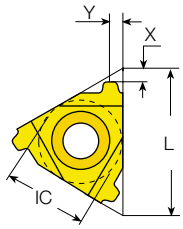


a = arctg (IPF/24)

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



External - Standard



Internal - Standard

External

Standard

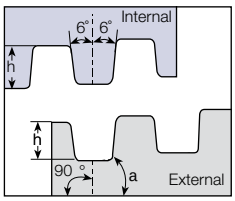
Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	**L** mm	**tpi**	**IPF**	**RH**		**h** min	**X**	**Y**	**RH**	**Toolholder**
3/8”	16	8	0.75	3ER8VAM...	2 3/8” ,2 7/8”	0.97	1.7	1.8	YE3	AL..-3
1/2”	22	6	0.75	4ER6VAM...	3 1/2”	0.97	2.4	2.4	YE4	AL..-4
		5	0.75	4ER5VAM...	5”-9 5/8”	1.54	2.4	2.7		

Internal

Standard

Insert Size		Pitch	Taper	Ordering Code	Size	Dimensions mm			Anvil	
IC	**L** mm	**tpi**	**IPF**	**RH**		**h** min	**X**	**Y**	**RH**	**Toolholder**
3/8”	16	8	0.75	3IR8VAM...	2 3/8” ,2 7/8”	0.97	1.7	1.8	YI3	AVR..-3
1/2”	22	6	0.75	4IR6VAM...	3 1/2”	0.97	2.5	2.5	YI4	AVR..-4
		5	0.75	4IR5VAM...	5”-9 5/8”	1.54	2.4	2.5		

EL-Extreme Line



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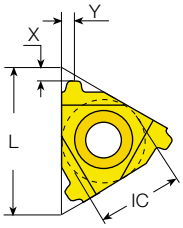
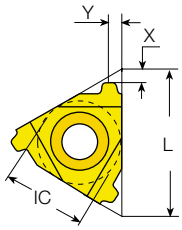
Defined by: API STD,5B:1979
Tolerance class: Standard



External - Standard



Internal - Standard

External

Standard

Insert Size		Pitch	Taper	Ordering Code	Connection No. or Size	Dimensions mm			Anvil	
IC	L mm	tpi	IPF	RH		h min	X	Y	RH	Toolholder
1/2"	22	6	1.5	4ER6EL15...	5"-7 5/8"	1.21	1.9	1.9	YE4	AL..-4 (LH)
		5	1.25	4ER5EL125...	8 5/8"-10 3/4"	1.71	2.3	2.4		

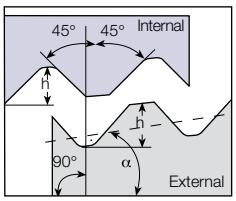
Internal

Standard

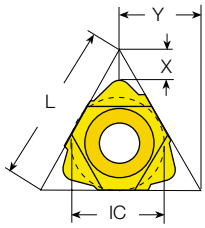
Insert Size		Pitch	Taper	Ordering Code	Connection No. or Size	Dimensions mm			Anvil	
IC	L mm	tpi	IPF	RH		h min	X	Y	RH	Toolholder
1/2"	22	6	1.5	4IR6EL15...	5"-7 5/8"	1.39	1.8	1.9	YI4	AVR..-4 (LH)
		5	1.25	4IR5EL125...	8 5/8"-10 3/4"	1.91	2.2	2.4		

Hughes H-90

Internal



a = arctg (IPF/24)



U Style

External

U Style

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

* H-90 Slimline

Internal

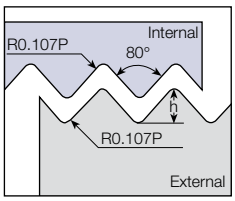
U Style

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

* H-90 Slimline

Pg

External



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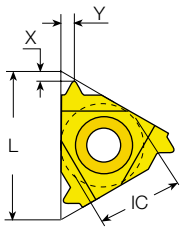
Tolerance class: Standard



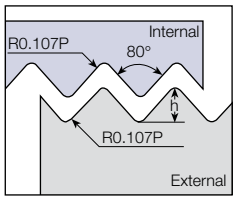
Standard

Standard

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

Pg (con't)

Internal



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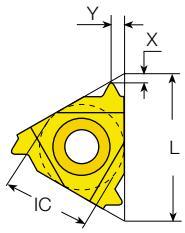
Tolerance class: Standard



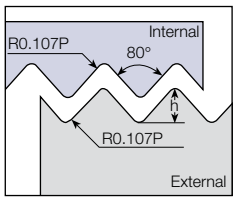
Standard

Standard

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

Pg

Internal



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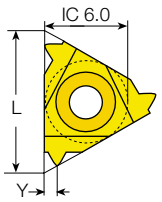
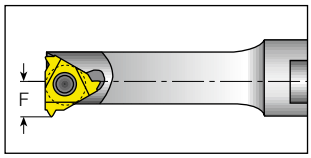
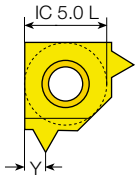
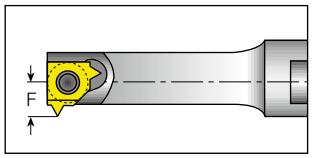




Mini-3





Mini-L

Mini-3

Insert Size		Pitch	Ordering Code	Ordering Code	Dimensions mm			Min. Bore dia.	
IC	L mm	tpi		RH	h min	Y	F	mm	Toolholder
6.0	10	20	Pg7	6.0IR20PG...	0.61	0.8	5.3	10.0	.NVR1..-6.0
		18	Pg9/11/13.5/16	6.0IR18PG...	0.67	0.9	5.3		

Mini-L

Insert Size	Pitch	Ordering Code	Ordering Code	Dimensions mm			Min. Bore dia.	
IC	tpi		RH	h min	Y	F	mm	Toolholder
5.0L	20	Pg7	5LIR20PG...	0.61	0.8	4.65	8.0	.NVR10..-5L
	18	Pg9/11/13.5/16	5LIR18PG...	0.67	0.9	4.65		

TURNING TOOLHOLDERS

Contents










Vardex Ordering Code System

External Toolholders

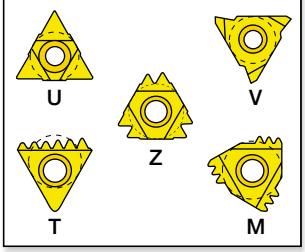
A	L	32	-	4	U	C			
1	2	3		4	5	6	7	8	9

1 - Anvil
A - Anvil required
N - No Anvil required
O - Miniature holder

2 - Holder Type
L - External
V - Miniature Square Shank
VR - Miniature Round Shank

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

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

5 - Insert Style


6 - Clamping
C - with Clamping

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

8 - Holder Type
CQ - Drop Head
FQ - Off-Set
Oil - For API Inserts

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

Internal Toolholders

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

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

2 - Anvil
A - Anvil required
N - No Anvil required
O - Miniature holder

3 - Tool Type
VR - Internal Round Shank

4 - Cooling
C - with Coolant Channel

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

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

7 - Insert Size
5L - IC5.0L
6.0 - IC6.0
2 - IC1/4”
3 - IC3/8”
4 - IC1/2”
5 - IC5/8”

8 - Insert Style
U
V
T
M
Z
L

9 - Clamping
C - with Clamp

10 - Oil Field
OIL - For API Inserts

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

12 - Coarse Pitch Holder
156/...

Micro & Adjustable Toolholders (Sleeves)

S	M	C	16	-	3
1	2	3	4		5

1 - Holder Shape
S - Sleeve

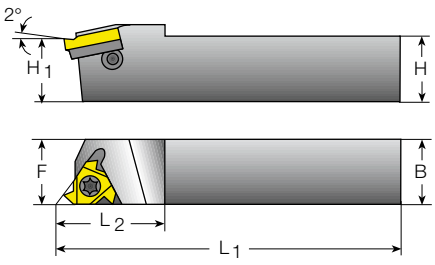
2 - Holder Type
V - Adjustable Holders for Mini
M - Micro

3 - Cooling
C - with Coolant Channel

4 - Holder Dia.
10, 12, 16, 20

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

External Toolholders



Standard

Insert Size	Ordering Code	Dimensions mm				Spare Parts				
IC		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/4”	NL8-2	8	11	136.4	17.5	SN2T	-	K2T	-	-
	NL10-2	10	11	70.0	17.5					
	NL12-2	12	12	80.0	17.5					
3/8”	NL12-3	12	16	83.2	22	SA3T	SY3T	K3T	YE3	YI3
	AL3/8-3	9.52	16	63.6	20.5					
	AL12-3	12	16	83.2	22					
	AL16-3	16	16	100.0	20.5					
	AL20-3	20	20	128.6	30					
	AL25-3	25	25	153.6	30					
	AL32-3	32	32	173.6	30					
1/2”	AL25-4	25	25	155.7	36	SA4T	SY4T	K4T	YE4	YI4
	AL32-4	32	32	175.7	36					
	AL40-4	40	40	205.7	36					
5/8”	AL25-5	25	32	151.6	35	SA5T	SY5T	K5T	YE5	YI5
	AL32-5	32	32	176.6	40					
	AL40-5	40	40	206.6	40					
	AL50-5	50	50	256.6	40					

The above toolholders have a 1.5° helix angle. For other helix angles, see page 122.
Toolholders with prefix “N” cannot be used with an anvil.

 The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder’s ordering code.

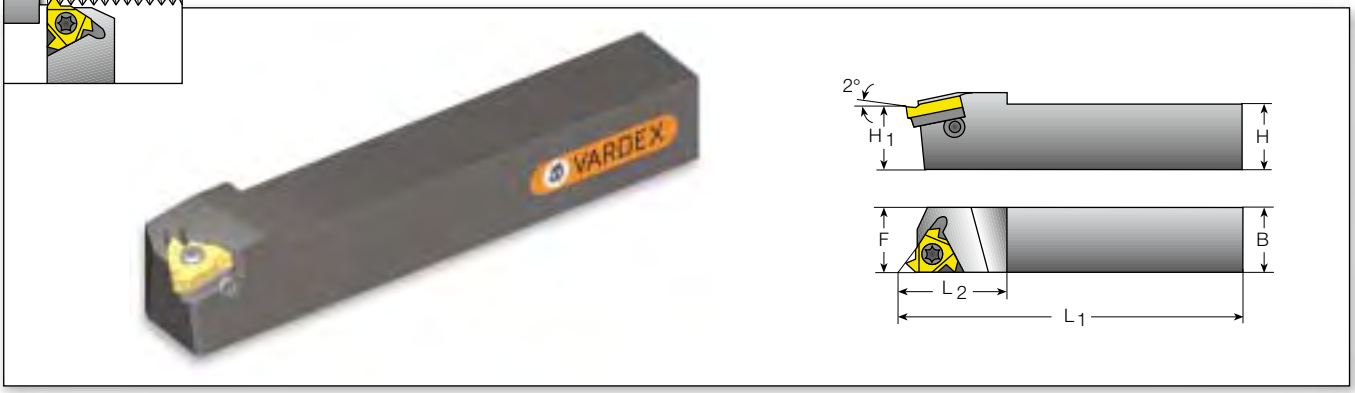
External Toolholders

Standard with Clamp
(Dual System, Screw or Clamp)

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

The above toolholders have a 1.5° helix angle. For other helix angles, see page 122.

External Toolholders



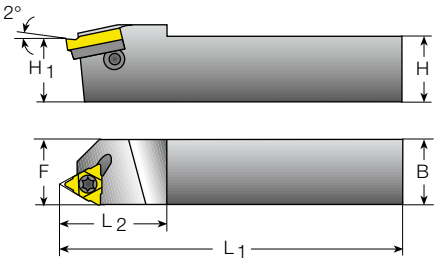
Standard for API

Insert Size	Ordering Code	Thread Form		Connection no. or size	Dimensions mm			Spare Parts				
IC					H=H1=B=F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
5/8"	AL32-5OIL	V0.038R	V0.050	NC23-NC77 all sizes	32	175.9	40	SA5T	SY5T	K5T	YE5OIL	YI5OIL
	AL40-5OIL	V0.038R	V0.050	NC23-NC77 all sizes	40	205.9	40					

The above toolholders have a 1.5° helix angle. For other helix angles, see page 122.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.

External Toolholders

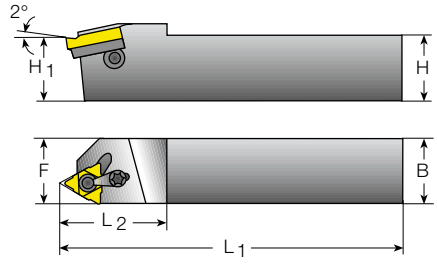


U Style

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

All U Style Toolholders have a 1.5° helix angle. For other helix angles see page 122.

External Toolholders



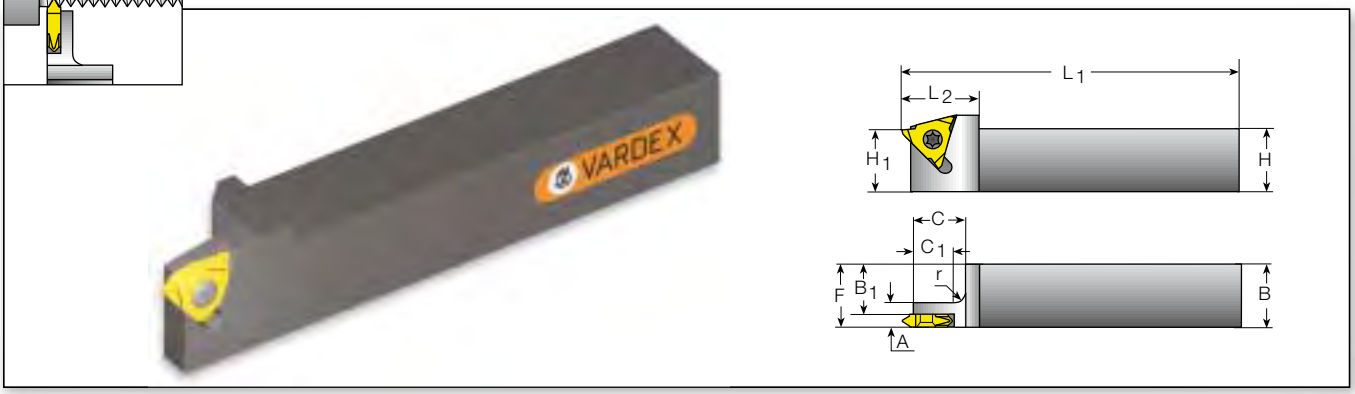
U Style with Clamp

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

All U Style Toolholders have a 1.5° helix angle. For other helix angles see page 122.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.

External Toolholders



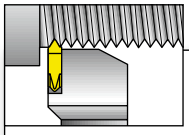
Slim Throat

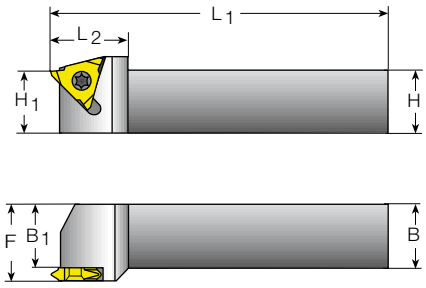
Insert Size	Ordering Code	Dimensions mm									Spare Parts	
IC		H=B=F	H1	A	B1	C	C1	L1	L2	r	Insert Screw	Torx Key
1/4"V	NL8-2V	8	10	7	4.8	12.5	11.5	60	14.0	1	SN2T	K2T
	NL10-2V	10	10	7	6.8	12.5	11.5	70	14.0	1		
	NL12-2V	12	12	7	8.8	14.5	11.5	80	14.0	3		
	NL16-2V	16	16	7	12.8	14.5	11.5	100	14.0	3		
3/8"V	NL10-3V	10	14	7	6.4	14.5	11.5	70	18.5	3	SN3T	K3T
	NL12-3V	12	14	7	8.4	14.5	11.5	80	18.5	3		
	NL16-3V	16	16	7	12.4	14.5	11.5	100	25.0	3		
	NL20-3V	20	20	7	16.4	16.5	11.5	125	30.0	3		
	NL25-3V	25	25	7	21.4	16.5	11.5	150	30.0	5		
	NL32-3V	32	32	7	28.4	16.5	11.5	170	30.0	5		
	NL40-3V	40	40	7	36.4	16.5	11.5	200	30.0	5		
1/2"V	NL25-4V	25	25	12	20.2	16.5	11.5	150	30.0	5	SN4T	K4T
	NL32-4V	32	32	12	27.2	16.5	11.5	170	30.0	5		
	NL40-4V	40	40	12	35.2	16.5	11.5	200	30.0	5		

All Slim Throat toolholders have a 1.5° helix angle.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.

External Toolholders



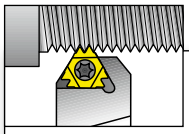


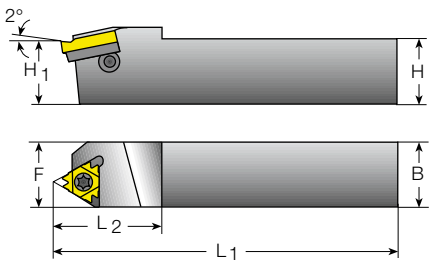
V Style

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

All V Style toolholders have a 1° helix angle.

External Toolholders





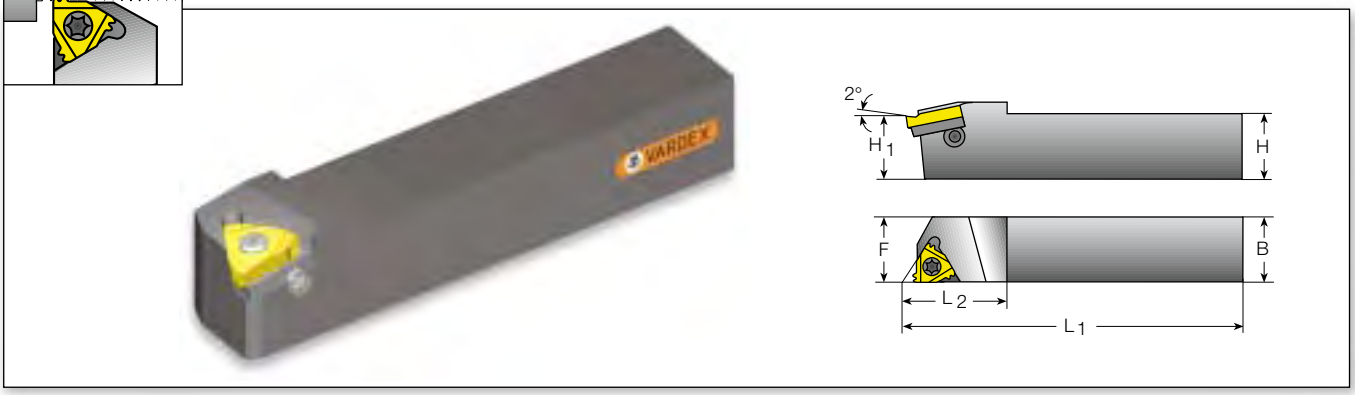
Z Style

Insert Size	Ordering Code	Dimensions mm				Spare Parts				
IC		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/2"Z	AL32-4Z	32	32	178.4	38	SA4T	SY4T	K4T	YE4Z	YI4Z
	AL40-4Z	40	40	208.4	38					
5/8"Z	AL32-5Z	32	32	179.1	40	SA5T	SY5T	K5T	YE5Z	YI5Z
	AL40-5Z	40	40	209.1	40					
	AL50-5Z	50	50	259.1	40					

All Z Style toolholders have a 1.5° helix angle.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.

External Toolholders

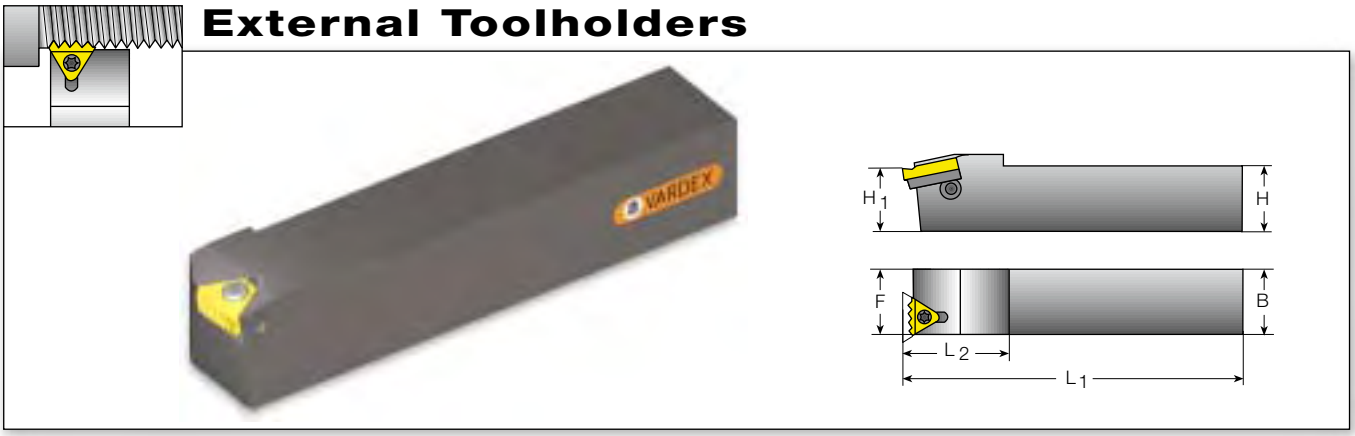


M Style

Insert Size	Ordering Code	Dimensions mm				Spare Parts				
IC		H=H1=B	F	L1	L2	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
5/8"M	AL32-5M	32	32	176.6	40	SA5T	SY5T	K5T	YE5M	YI5M
	AL40-5M	40	40	206.6	40					
	AL50-5M	50	50	256.6	40					

All M Style toolholders have a 1.5° helix angle.

External Toolholders



T Style

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

All T Style toolholders have a 0° helix angle.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.

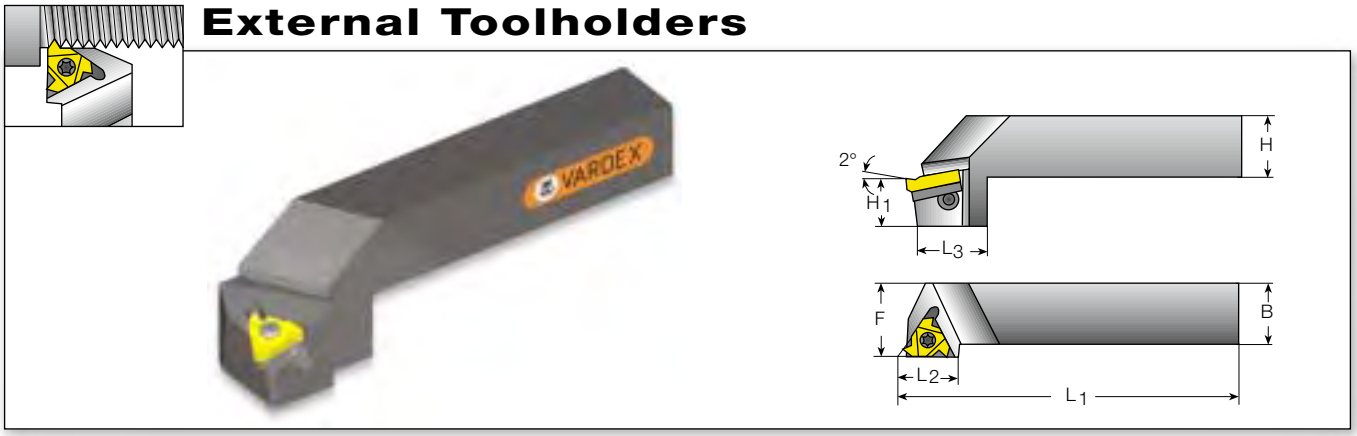
External Toolholders

Off-Set Qualified (FQ)

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

The above toolholders have a 1.5° helix angle.

External Toolholders

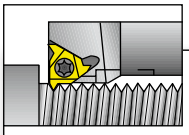


Drop Head-Qualified (CQ)

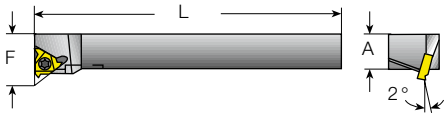
Insert Size	Ordering Code	Dimensions mm						Spare Parts				
IC		H=H1=B	F	L1	L2	L3	H1	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
3/8"	AL20-3CQ	20	25	125	24	38	17.5	SA3T	SY3T	K3T	YE3	YI3
	AL25-3CQ	25	32	150	24	38	22.2					
	AL32-3CQ	32	40	170	24	38	22.2					
1/2"	AL25-4CQ	25	32	150	30	38	22.2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

The above toolholders have a 1.5° helix angle.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.



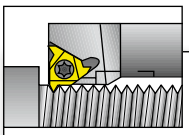
External + Internal Toolholders



Miniature Square Shank*

Insert Size	Ordering Code	Dimensions mm			Spare Parts	
IC		A	L	F	Insert Screw	Torx Key
1/4"	OV 8-2	8	100	12	SN2T	K2T
	OV 10-2	10	100	14		

Miniature toolholders have a 0.5° helix angle.



External + Internal Toolholders

Miniature Round Shank*

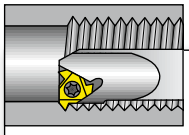
Insert Size	Ordering Code	Dimensions mm					Spare Parts	
IC		L	L1	D	D1	F	Insert Screw	Torx Key
1/4"	OVR 12-2	100	25	12	10	7.4	SN2T	K2T
	OVR 15-2	100	32	15	13	8.9		
	OVR 16D-2	100	32	16	13	8.9		

Miniature toolholders have a 0.5° helix angle.
Toolholders shown are RH. For LH toolholders, add LH to ordering code.

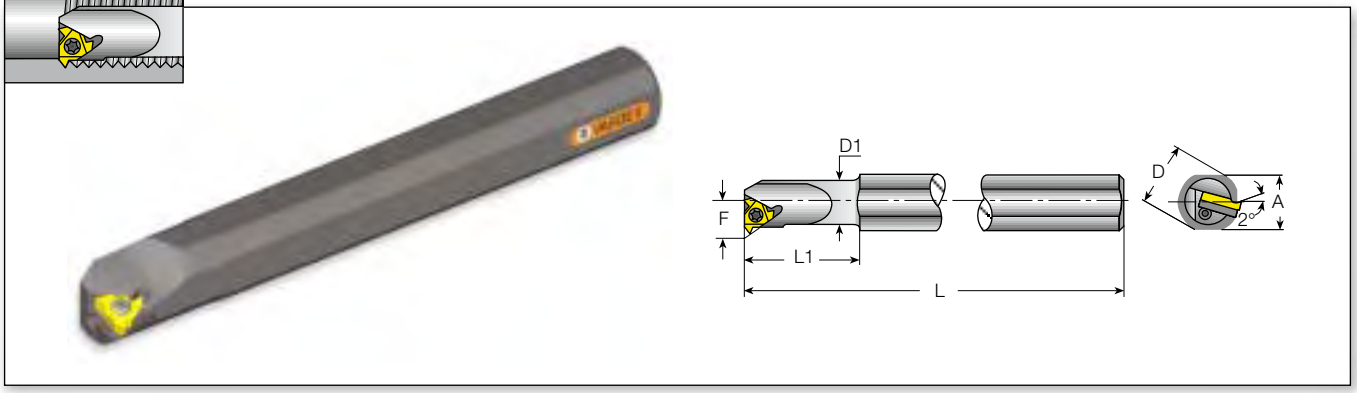
*Miniature square and round toolholders are designed for use on automatic lathes for the optical and other precision industries. They can be used for both external and internal threading, as follows:

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

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.



Internal Toolholders



Standard

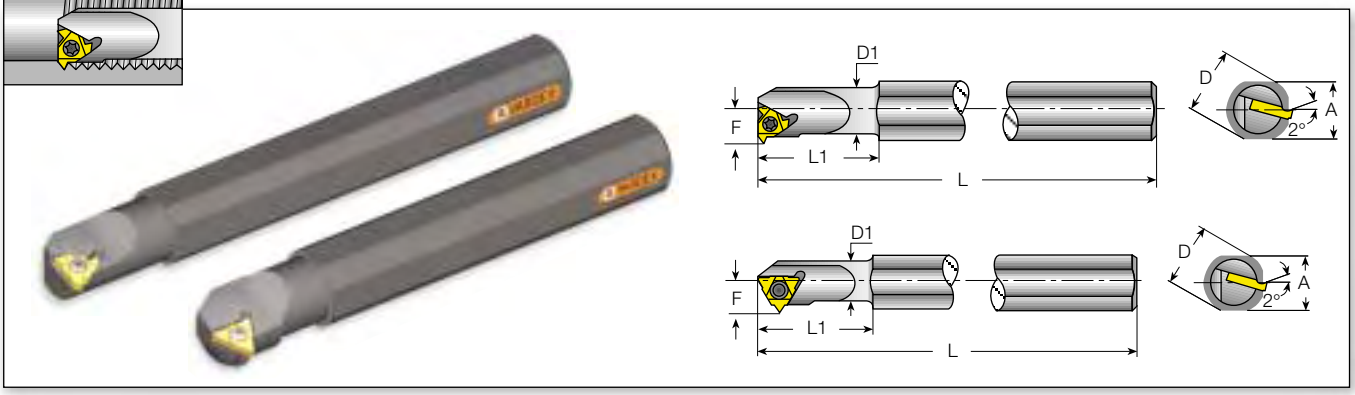
Insert Size	Ordering Code	Dimensions mm						Min. Bore dia.	Spare Parts				
IC		A	L	L1	D	D1	F	mm	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
1/4"	NVR10D-2		100		10	10.0	7.3	13	SN2T	-	K2T	-	-
	NVR10-2	18.0	180	25	20	10.0	7.3	13					
	NVR13-2	18.0	180	32	20	13.0	8.9	16					
3/8"	NVR13-3	18.0	180	32	20	12.7	10.3	17	SN3T	-	K3T	-	-
	NVR16-3	18.0	180	40	20	16.0	11.5	20					
	NVR16D-3	15.2	150	32	16	16.0	11.3	20					
	AVR20-3	18.0	180	40	20	20.0	13.4	24	SA3T	SY3T	K3T	YI3	YE3
	AVR25-3	29.0	250	60	32	25.0	16.3	29					
	AVR25D-3	22.6	200	45	25	24.6	16.1	29					
	AVR32-3	29.0	250	60	32	32.0	19.6	36					
	AVR40-3	36.0	300	60	40	40.0	23.8	44					
1/2"	NVR20-4	18.0	180	50	20	20.0	15.6	27	SN4T	-	K4T	-	-
	AVR25-4	29.0	250	60	32	25.0	17.4	32	SA4T	SY4T	K4T	YI4	YE4
	AVR25D-4	22.6	200	45	25	24.6	17.2	32					
	AVR32-4	29.0	250	60	32	32.0	21.5	39					
	AVR40-4	36.0	300	60	40	40.0	25.8	47					
5/8"	AVR32-5	29.0	250	60	32	32.0	22.4	40	SA5T	SY5T	K5T	YI5	YE5
	AVR40-5	36.0	300	60	40	40.0	26.4	48					
	AVR50-5	45.0	350	75	50	50.0	31.4	58					
	AVR60-5	54.0	400	75	60	60.0	36.4	69					

The above toolholders have a 1.5° helix angle. For other helix angles, see page 122.
Toolholders with prefix "N" cannot be used with an anvil.

Holders with coolant channel are available as standard. For ordering code, see page 95.

 The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.

Internal Toolholders



Standard for Coarse Pitch

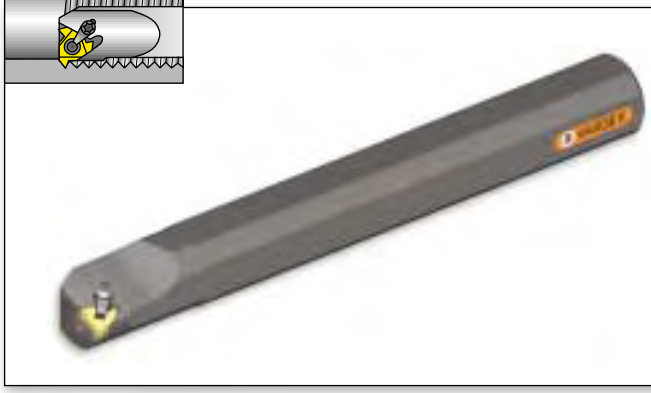
Insert Size	Ordering Code	Dimensions mm					F to Insert	Holder Helix	Spare Parts	
IC		A	L	L1	D	D1	mm	Deg.	Insert Screw	Torx Key
1/4"	NVRC10-2 156/001	18.0	180	25.0	20	10.1	6.53	3.0	SN2T	K2T
3/8"	NVRC11-3 156/005	18.0	180	25.4	20	11.2	8.30	4.5	SN2T	K2T
	NVRC13-3 156/006	18.0	180	32.0	20	13.0	9.05	4.0	SN3TM	K3T
	NVRC13-3 156/016	18.0	180	32.0	20	12.7	5.86	2.5	SN3T	K3T
1/2"	NVRC17-4 156/007	18.0	180	40.0	20	16.7	11.45	4.0	SN4TM	K4T
	NVRC20-4 156/008	18.0	180	50.0	20	19.6	12.55	3.5	SN4T	K4T
	NVRC20-4 156/009	18.0	180	50.0	20	19.6	12.55	3.0		
5/8"	NVRC25-5 156/012	29.0	250	60.0	32	25.0	16.78	3.3	SN5TM	K5T
	NVRC28-5 156/010	29.0	250	50.0	32	28.0	17.80	3.5		

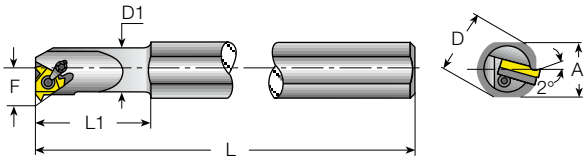
U Style for Coarse Pitch

Insert Size	Ordering Code	Dimensions mm					F to Insert	Holder Helix	Spare Parts	
IC		A	L	L1	D	D1	mm	Deg.	Insert Screw	Torx Key
6.0U	NVRC8-6.0U 156/003	18.0	180	24.0	20	8.0	5.86	4.0	SN6M7	K6MT
1/4"U	NVRC10-2U 156/004	18.0	180	32.0	20	10.0	7.40	4.0	SM2T8	K2T
	NVRC11-2U 156/002	18.0	180	32.0	20	11.2	7.30	3.0		
3/8"U	NVRC11-3U 156/020	18.0	180	32.0	20	11.0	8.23	4.5	SN3TM	K3T
	NVRC14-3U 156/018	18.0	180	38.0	20	13.4	9.99	4.5		
	NVRC15-3U 156/019	18.0	180	38.0	20	15.4	10.99	4.0		
1/2"U	NVRC20-4U 156/011	18.0	180	40.0	20	19.2	13.68	4.0	SN4T	K4T
	NVRC25-4U 156/013	29.0	250	60.0	32	25.0	17.63	3.5		
	NVRC32-4U 156/014	29.0	250	60.0	32	29.7	18.76	3.3	SA4T	K4T
5/8"U	NVRC32-5U 156/015	29.0	250	60.0	32	31.6	20.96	3.2	SA5T	K5T

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.

Internal Toolholders





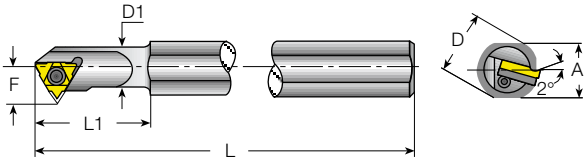
Standard with Clamp

Insert Size	Ordering Code	Dimensions mm						Min. bore dia.
IC		A	L	L1	D	D1	F	mm
3/8"	AVR20-3C	18.0	180	50	20	20.0	13.4	24
	AVR25-3C	28.0	250	60	32	25.0	16.3	29
	AVR25D-3C	22.6	200	45	25	24.6	16.1	29
	AVR32-3C	29.0	250	60	32	32.0	19.6	36
	AVR40-3C	36.0	300	60	40	40.0	23.8	44
1/2"	AVR25-4C	29.0	250	60	32	25.0	17.4	32
	AVR25D-4C	22.6	200	45	25	24.6	17.2	32
	AVR32-4C	29.0	250	60	32	32.0	21.5	39
	AVR40-4C	36.0	300	60	40	40.0	25.8	47
5/8"	AVR32-5C	29.0	250	60	32	32.0	22.4	40
	AVR40-5C	36.0	300	60	40	40.0	26.4	48
	AVR50-5C	45.0	350	75	50	50.0	31.4	58
	AVR60-5C	54.0	400	75	60	60.0	36.4	69

Spare Parts

Insert Screw	Anvil Screw	Clamp	Torx Key	Anvil RH	Anvil LH
SA3T	SY3T	C3	K3CT	YI3	YE3
SA4T	SY4T	C4	K4T	YI4	YE4
SA5T	SY5T	C5	K5T	YI5	YE5

Internal Toolholders



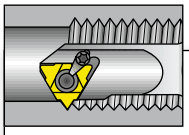
U Style

Insert Size	Ordering Code	Dimensions mm						Min. bore dia.
IC		A	L	L1	D	D1	F	mm
1/2"U	AVR32-4U	29	250	60	32	32	25.5	42
	AVR40-4U	36	300	60	40	40	29.5	51
5/8"U	NVR32-5U	29	250	60	32	32	24.7	42
	AVR40-5U	36	300	60	40	40	29.4	53
	AVR50-5U	45	350	75	50	50	34.3	63
	AVR60-5U	54	400	75	60	60	39.3	74

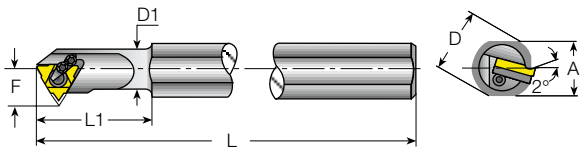
Spare Parts

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

The above toolholders have a 1.5° helix angle. For other helix angles, see page 122. Toolholders with prefix "N" cannot be used with an anvil. Holders with coolant channel available as standard. For ordering code, see page 95.
The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.



Internal Toolholders



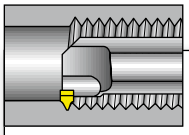
U style with Clamp

Insert Size	Ordering Code	Dimensions mm						Min. bore dia.
IC		A	L	L1	D	D1	F	mm
1/2"U	AVR32-4UC	29.0	250	60	32	32.0	25.5	42
	AVR40-4UC	36.0	300	60	40	40.0	29.5	51
5/8"U	AVR40-5UC	36.0	300	60	40	40.0	29.4	53
	AVR50-5UC	45.0	350	75	50	50.0	34.4	63
	AVR60-5UC	54.0	400	75	60	60.0	39.3	74

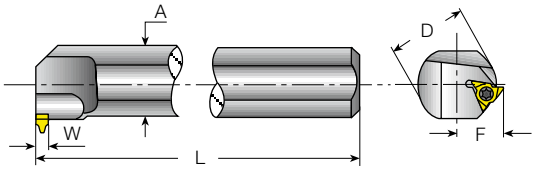
Spare Parts

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 122.
Holders with coolant channel available as standard. For ordering code see page 95.



Internal Toolholders



V Style

Insert Size	Ordering Code	Dimensions mm				
IC		A	L	D	F	W
5/8"V	NVR40-5V	36	300	40	28.4	6.5
	NVR50-5V	45	350	50	33.4	6.5
	NVR60-5V	54	400	60	38.0	6.5

Spare Parts

Insert Screw	Torx Key
SN6T	K6T

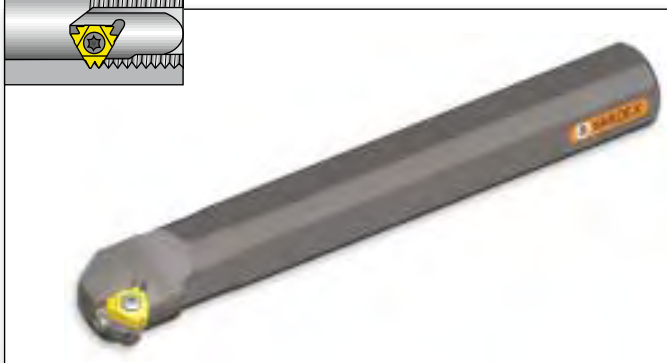
The above toolholders have a 1.0° helix angle.

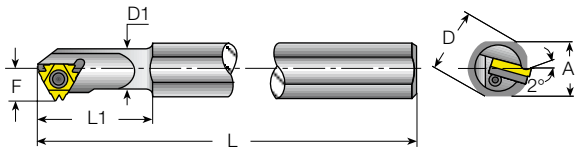
Minimum Bore Dia - ISO, UN

	Pitch mm	6	8	10	
	Pitch tpi	4	3		2.5
NVR40-5V		50	55	70	80
NVR50-5V		60	60	70	80
NVR60-5V		70	70	70	80

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.

Internal Toolholders





Z Style

Insert Size	Ordering Code	Dimensions mm						Min. bore dia
IC		A	L	L1	D	D1	F	mm
1/2"Z	AVR32-4Z	29	250	60	32	32	25.5	42
	AVR40-4Z	36	300	60	40	40	29.5	51
5/8"Z	NVR32-5Z	29	250	60	32	32	24.7	42
	AVR40-5Z	36	300	60	40	40	29.4	53
	AVR50-5Z	45	350	75	50	50	34.3	63
	AVR60-5Z	54	400	75	60	60	39.3	74

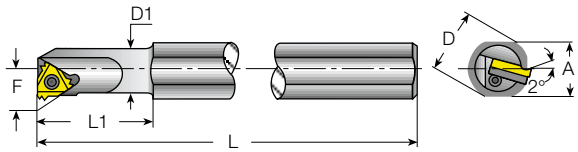
Spare Parts

Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
SA4T	SY4T	K4T	YI4Z	YE4Z
SA5T	SY5T	K5T	YI5Z	YE5Z

All Z style toolholders have a 1.5° helix angle.

Holders with coolant channel available as standard. For ordering code see page 95.

Internal Toolholders



M Style

Insert Size	Ordering Code	Dimensions mm						Min. bore dia
IC		A	L	L1	D	D1	F	mm
5/8"M	AVR32-5M	29	250	60	32	32	22.4	40
	AVR40-5M	36	300	60	40	40	26.4	48
	AVR50-5M	45	350	75	50	50	31.4	58
	AVR60-5M	54	400	75	60	60	36.4	69

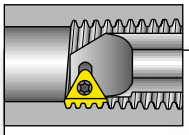
Spare Parts

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

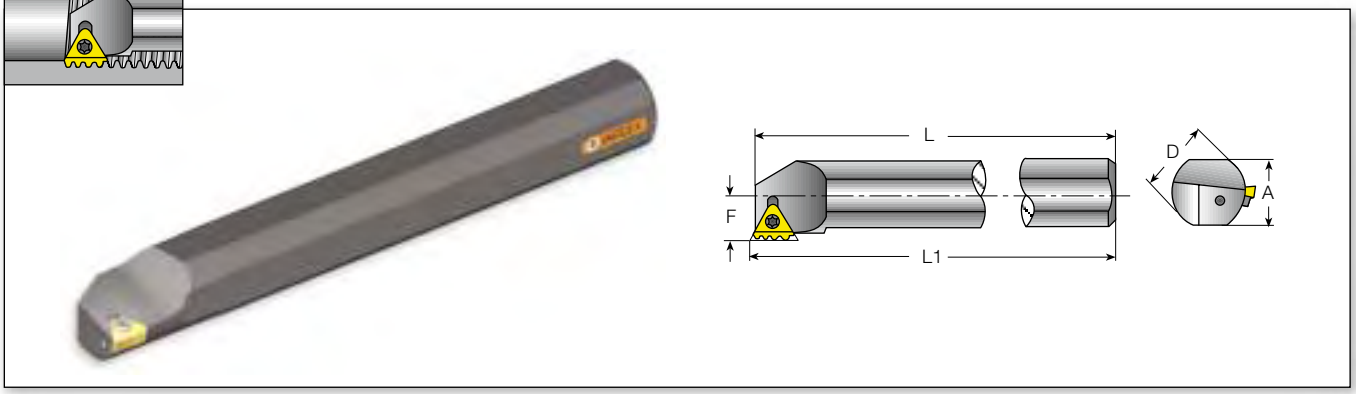
All M style toolholders have a 1.5° helix angle.

Holders with coolant channel available as standard. For ordering code see page 95.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.



Internal Toolholders



T Style

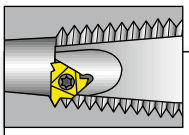
Insert Size	Ordering Code	Dimensions mm					Min. bore dia
IC		A	L	L1	D	F	mm
1/2"T	AVR40-4T	36	300	302	40	23.3	60
	AVR50-4T	45	350	352	50	28.3	70
	AVR60-4T	54	400	402	60	33.3	80

Spare Parts

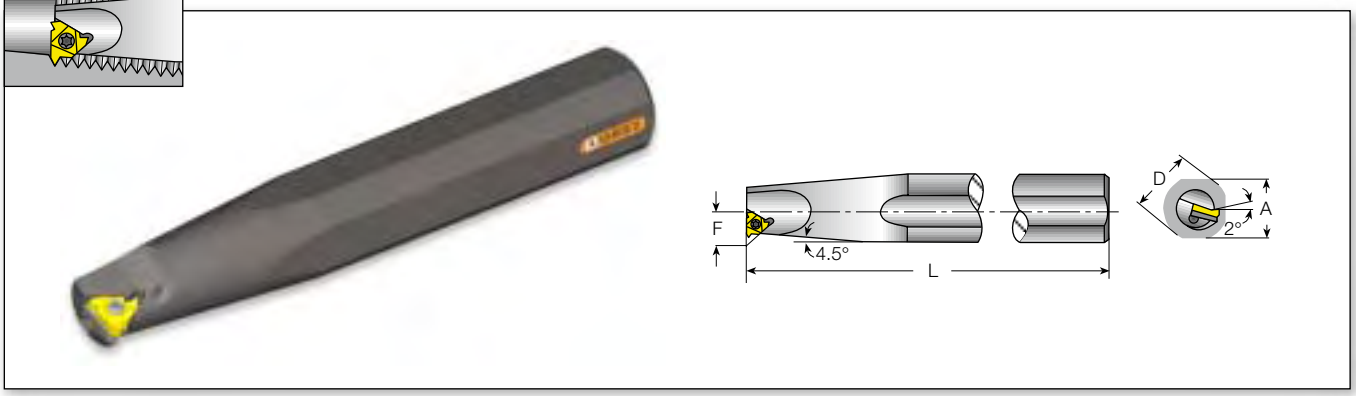
Insert Screw	Anvil Screw	Torx Key	Anvil Torx Key	Anvil RH/LH
SA4T	SY4K2	K4T	K2	Y4T

All toolholders have a 0° helix angle.

Holders with coolant channel available as standard. For ordering code, see page 95.



Internal Toolholders



API

Insert Size	Ordering Code	Thread Form	Connection no. or size	Dimensions mm			
IC				A	L	D	F
5/8"	AVR50-5OIL	V0.038R	NC23-NC38	45	300	50	22.6
	AVRC50-5OIL	V0.038R	NC23-NC38				
	AVR80-5OIL	V0.050R	NC40-NC77	72	400	80	39.7
	AVRC80-5OIL	V0.050R	NC40-NC77				

Spare Parts

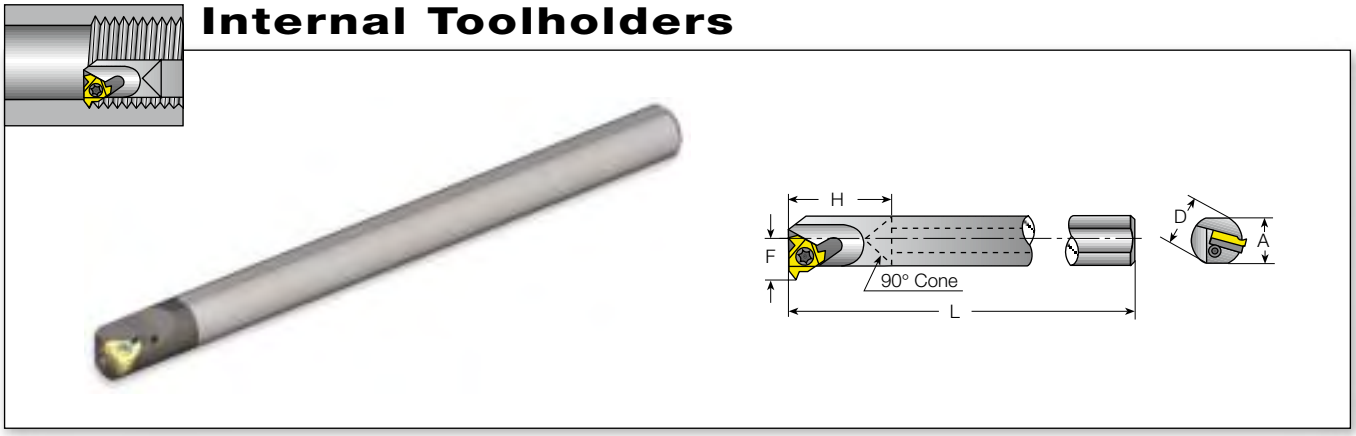
Insert Screw	Anvil Screw	Torx Key	Anvil RH	Anvil LH
SA5T	SY5T	K5T	YI5OIL	YE5OIL

The above toolholders have a 1.5° helix angle.
Toolholders ordered with an internal coolant channel have an internal BSP 1/2" thread for connection to the flexible coolant pipe.

Holders with coolant channel available as standard. For ordering code, see page 95.

The above toolholders are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.

Internal Toolholders



Standard with Carbide Shank

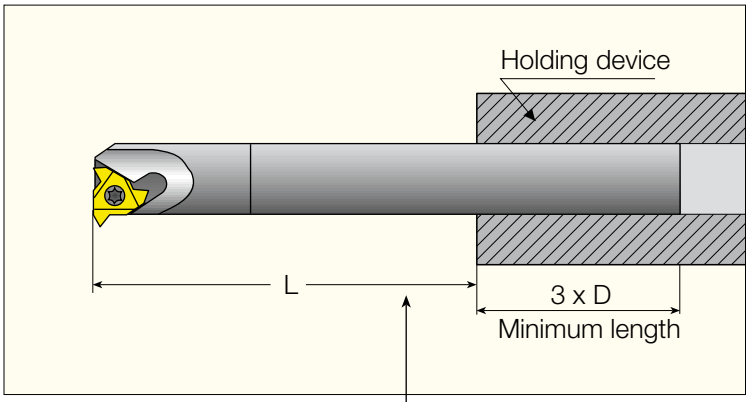
Insert Size	Ordering Code	Dimensions mm					Min.Bore Dia.
IC		H	D	A	F	L	mm
1/4"	CNVRC10-2	19	10	9.5	7.3	150	13
	CNVRC12-2	25	12	11.7	8.3	180	15
3/8"	CNVRC16-3	27	16	15.6	11.5	200	20
	CAVRC20-3	35	20	19.5	13.4	250	24
1/2"	CNVRC20-4	38	20	19.5	13.8	250	25

Spare Parts

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

The above toolholders have 1.5° helix angle. For other helix angles see page 122.
Toolholders with prefix "CN" cannot be used with an anvil.
The above Toolholders have coolant channel as standard.

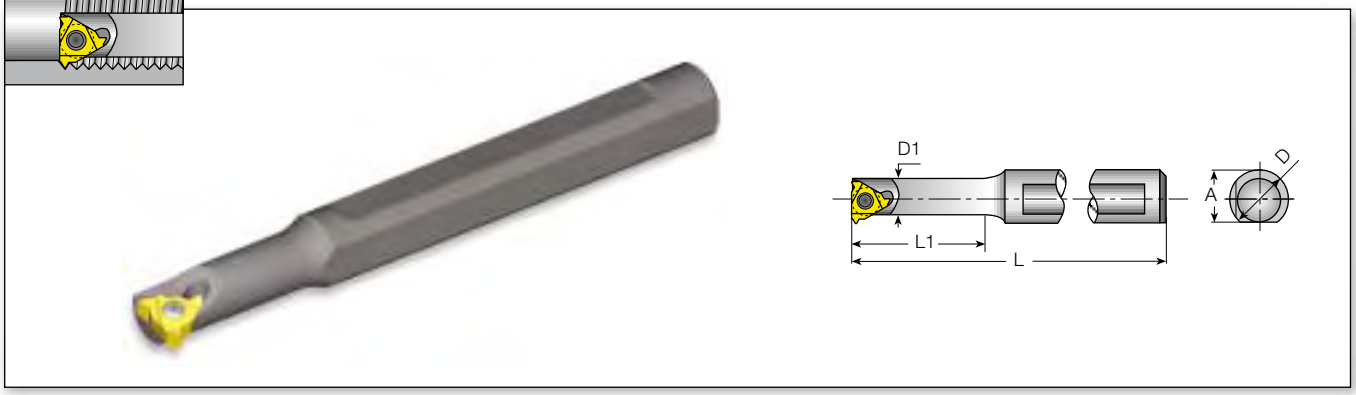
Carbide Shank toolholders should be used when extra accuracy is required or when the bar length to bar diameter ratio exceeds 3:1.



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 are for RH inserts. For LH inserts, add LH to the toolholder's ordering code.

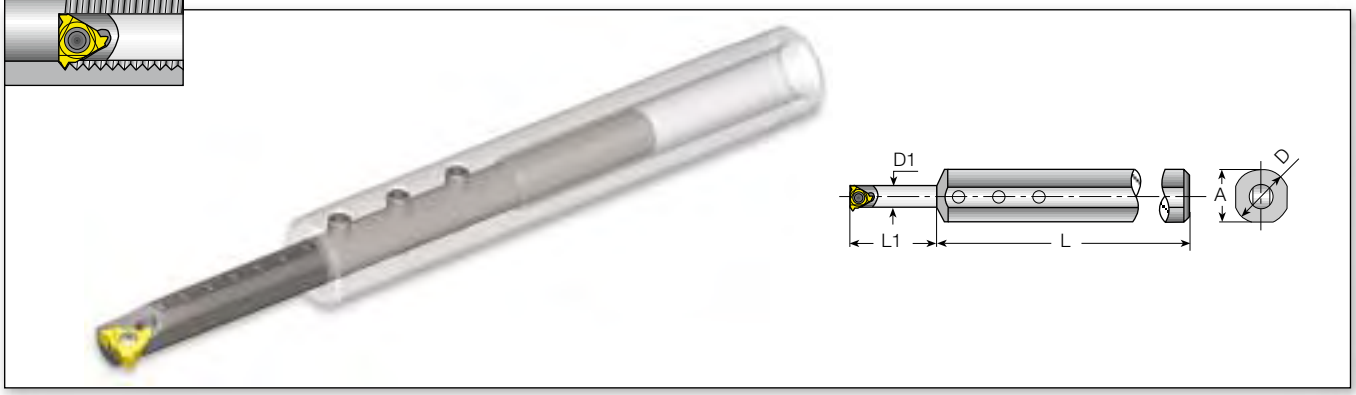
Internal Toolholders



Mini-3

Insert Size	Ordering Code	Dimensions mm					Anti-Vibration System	Spare Parts	
IC		A	L	L1	D	D1		Insert Screw	Torx Key
6.0	SNVR 12U-6.0	11.4	82	16	12	8	No	SN6MT	K6MT
	BNVR 10S-6.0	9.4	89	22	10	8	Yes		
	BNVR 10M-6.0	9.4	98	31	10	8	Yes		
	BNVR 10L-6.0	9.4	110	43	10	8	Yes		

Internal Toolholders

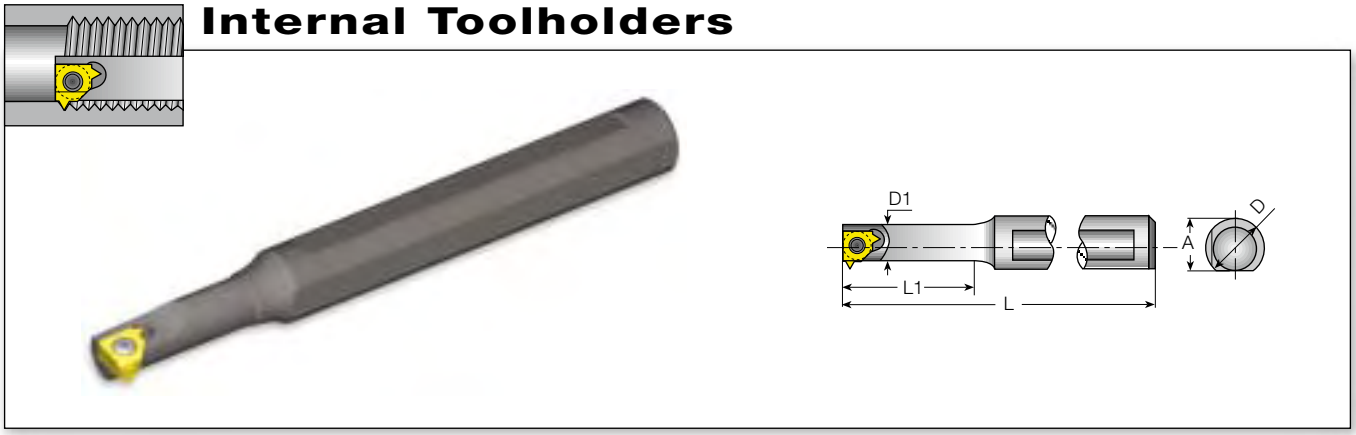


Mini-3-Adjustable

Insert Size	Ordering Code		Dimensions mm					Spare Parts			
IC	Sleeve	Holder	A	L	L1	D	D1	Insert Screw	Torx Key for Insert Screw	Holder Screw x3	Key for Holder Screw
6.0	SV16-8.0	BNVR8.0T-6.0	15.6	100	8-56	16	8	SN6MT	K6MT	S4.0	K4.0

The above toolholders have 2.5° helix angle.

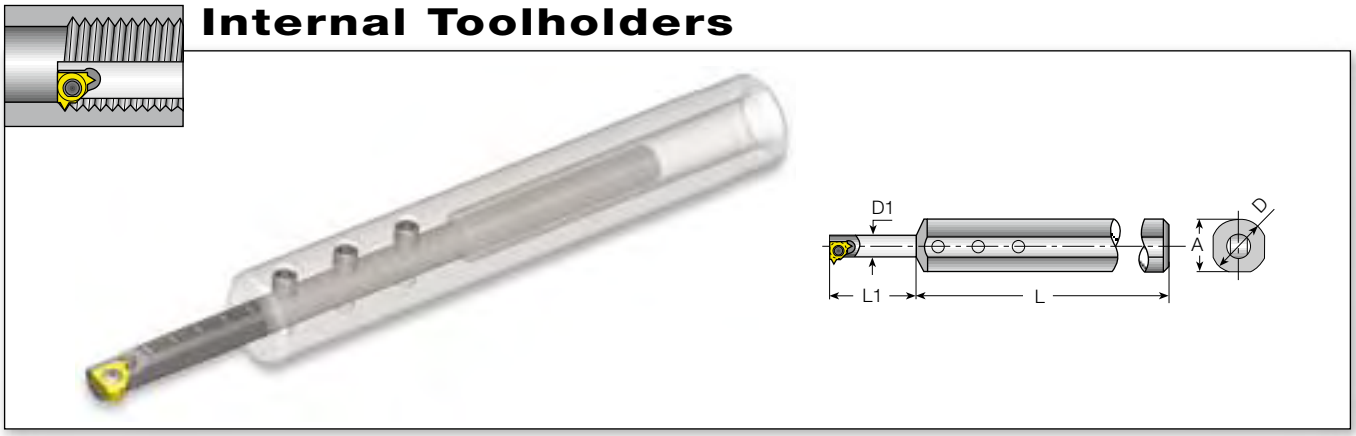
Internal Toolholders



Mini-L

Insert Size	Ordering Code	Dimensions mm					Anti-Vibration System	Spare Parts	
IC		A	L	L1	D	D1		Insert Screw	Torx Key
5.0L	SNVR 10U-5L	9.4	81	16	10	6.2	No	SN5LT	K5LT
	BNVR 10S-5L	9.4	87	22	10	6.2	Yes		
	BNVR 10M-5L	9.4	97	31	10	6.2	Yes		
	BNVR 10L-5L	9.4	109	43	10	6.2	Yes		

Internal Toolholders



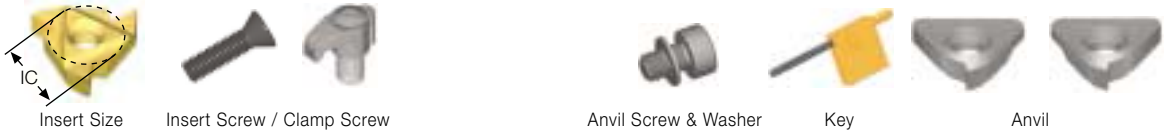
Mini-L-Adjustable

Insert Size	Ordering Code		Dimensions mm					Spare Parts			
IC	Sleeve	Holder	A	L	L1	D	D1	Insert Screw	Torx Key for Insert Screw	Holder Screw x3	Key for Holder Screw
5.0L	SV16-6.2	BNVR6.2T-5L	15.6	100	8-44	16	6.2	SN5LT	K5LT	S4.0	K4.0

The above toolholders have 2.5° helix angle.

Spare Parts

External and Internal Toolholders (not including Micro)



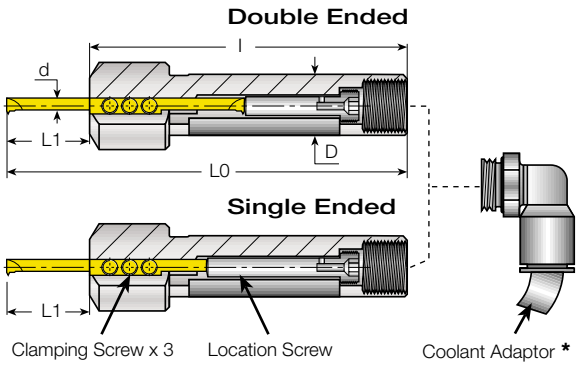
Insert Size | Insert Screw / Clamp Screw | Anvil Screw & Washer | Key | Anvil

Toolholder	IC	Designation	Thread	Designation	Thread		EX RH / IN LH	IN RH / EX LH
Standard	1/4"	SN2T	M2.6x0.45x6.5	-	-	K2T	-	-
	3/8"*	SA3T	UNC5x12.0	SY3T	UNC5x7.3	K3T	YE3	YI3
	1/2"**	SA4T	UNC8x15.2	SY4T	UNC8x9.3	K4T	YE4	YI4
	5/8"	SA5T	M5x0.8x22.0	SY5T	M5x0.8x9.5	K5T	YE5	YI5
Standard with Clamp	3/8"	SA3T/C3	UNC5x12.0/M5x0.8x22.0	SY3T	UNC5x7.3	K3CT	YE3	YI3
	1/2"	SA4T/C4	UNC8x15.2/M6x1.0x29.5	SY4T	UNC8x9.3	K4T	YE4	YI4
	5/8"	SA5T/C5	M5x0.8x22.0/M8x1.25x28.0	SY5T	M5x0.8x9.5	K5T	YE5	YI5
U Style	1/2"U	SA4T	UNC8x15.2	SY4T	UNC8x9.3	K4T	YE4U	YI4U
	5/8"U	SA5T	M5x0.8x22.0	SY5T	M5x0.8x9.5	K5T	YE5U	YI5U
U Style with clamp	1/2"	SA4T/C4	UNC8x15.2/M6x1.0x29.5	SY4T	UNC8x9.3	K4T	YE4U	YI4U
	5/8"	SA5T/C5	M5x0.8x22.0/M8x1.25x28.0	SY5T	M5x0.8x9.5	K5T	YE5U	YI5U
V Style	1/4"V	SN2T	M2.6x0.45x6.5	-	-	K2T	-	-
	3/8"V	SN3T	UNC5x9.9	-	-	K3T	-	-
	1/2"V	SN4T	UNC8x15.2	-	-	K4T	-	-
	5/8"V	SN6T	M6x1.0x29.5	-	-	K6T	-	-
Z Style	1/2"Z	SA4T	UNC8x15.2	SY4T	UNC8x9.3	K4T	YE4Z	YI4Z
	5/8"Z	SA5T	M5x0.8x22.0	SY5T	M5x0.8x9.5	K5T	YE5Z	YI5Z
M Style	3/8"M	SA3T	UNC5x12.0	SY3T	UNC5x7.3	K3T	YE3M	YI3M
	1/2"M	SA4T	UNC8x15.2	SY4T	UNC8x9.3	K4T	YE4M	YI4M
	5/8"M	SA5T	M5x0.8x22.0	SY5T	M5x0.8x9.5	K5T	YE5M	YI5M
T Style	1/2"T	SA4T	UNC8x15.2	SY4K2	UNC8x7.3	K4T/K2	Y4T	Y4T
API	5/8"	SA5T/C5	M5x0.8x22.0/M8x1.25x28.0	SY5T	M5x0.8x9.5	K5T	YE5OIL	YI5OIL
Mini-L-Thread	5.0L	SN5LT	M2x0.4x4.1	-	-	K5LT	-	-
Mini-3-Thread	6.0mm	SN6MT	M1.8x0.35x4.5	-	-	K6MT	-	-
Mini Adjustable Holder	-	S4.0	M4x0.7x4.0	-	-	K4.0	-	-

* NVR16-3 requires insert screw SN3T ** NVR20-4 requires insert screw SN4T

For Micro Toolholders see next page

Internal Toolholders



Micro

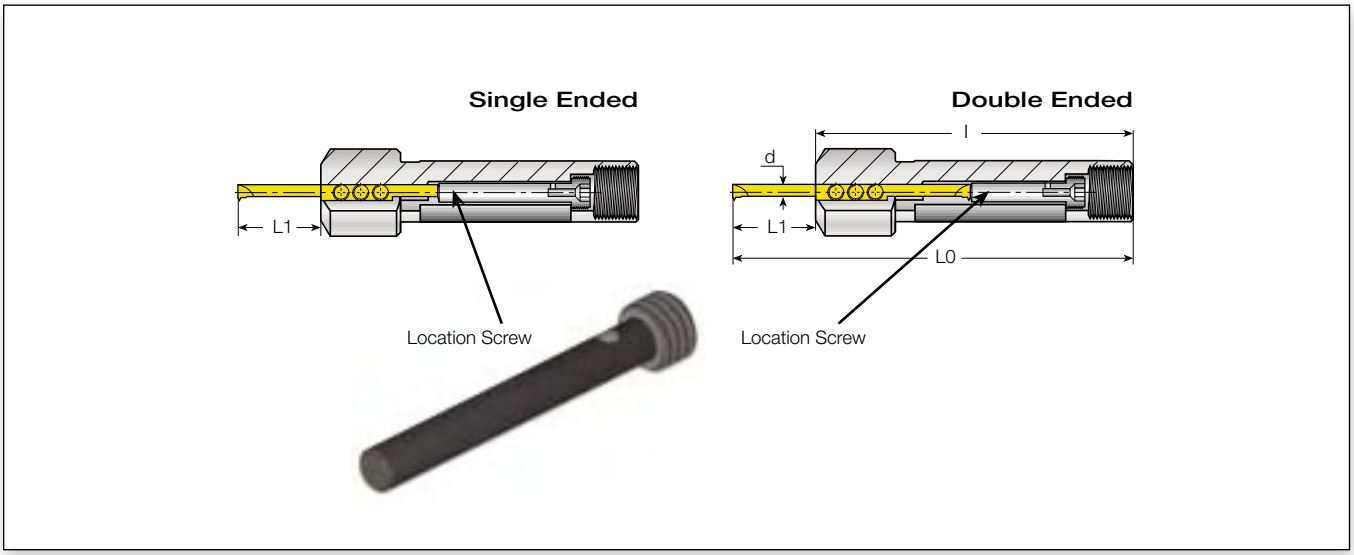
Micro Insert Dia.	Ordering Code	Dimensions		Spare Parts: Coolant Adaptor	Location Screw: Screw	Location Screw: Key	Clamping Screw x 3: Screw	Clamping Screw x 3: Key
d (mm)		D	l					
3.0	SMC10-3.0	10	80	-	see on next page	K4.0	M4X0.7X4.0	K2.0
	SMC12-3.0	12		-				
	SMC16-3.0	16	95	G1/4A				
	SMC20-3.0	20		G1/4A				
4.0	SMC10-4.0	10	80	-	see on next page	K4.0	M4X0.7X4.0	K2.0
	SMC12-4.0	12		-				
	SMC16-4.0	16	95	G1/4A				
	SMC20-4.0	20		G1/4A				
6.0	SMC12-6.0	12	80	-	see on next page	K4.0	M4X0.7X4.0	K2.0
	SMC16-6.0	16	95	G1/4A				
	SMC20-6.0	20		G1/4A				

* Coolant Adaptor is optional

continued on next page

NOTE: All Holders can be used for all single ended and double ended.

Internal Toolholders (con't)



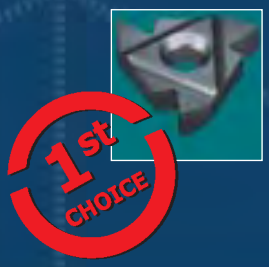
Spare Parts - Location Screws for Micro Toolholders*

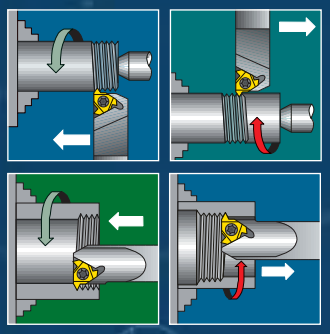
Micro Insert Dia.	Toolholder	Dimensions mm			Location Screw			
d [mm]		**l**	**L1**	**L0**	**Single Ended**	**M**	**Double Ended**	**M**
3	SMC10-3.0 SMC12-3.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
		80	16 - Medium	96			4GISM8X21	21
	SMC16-3.0 SMC20-3.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
		95	16 - Medium	111			4GISM8X42	42
4	SMC10-4.0 SMC12-4.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
		80	16 - Medium	96			4GISM8X21	21
		80	21 - Long	101			4GISM8X16	16
	SMC16-4.0 SMC20-4.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
		95	16 - Medium	111			4GISM8X42	42
		95	21 - Long	116			4GISM8X37	37
6	SMC12-6.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
		80	16 - Medium	96			4GISM8X21	21
		80	21 - Long	101			4GISM8X16	16
	SMC16-6.0 SMC20-6.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
		95	16 - Medium	111			4GISM8X42	42
		95	21 - Long	116			4GISM8X37	37

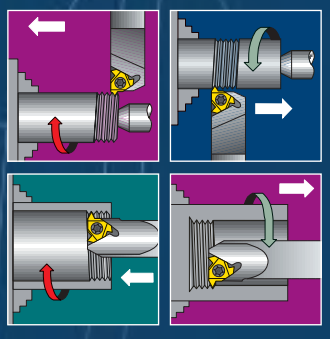
* Every toolholder package contains the full range of location screws needed.

THRAED TURNING TECHNICAL DATA

Contents







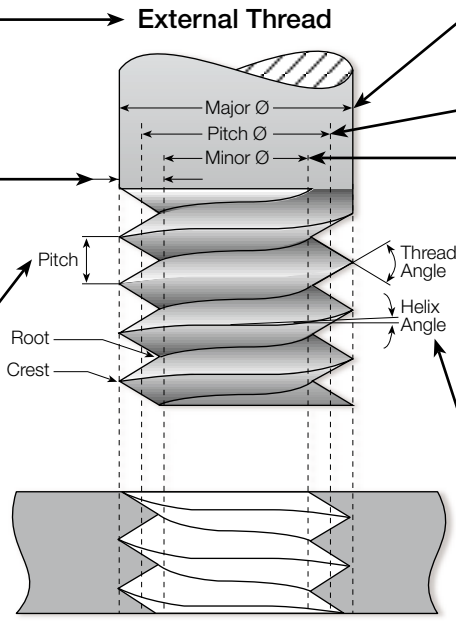
Thread Terminology

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 corresponding points on adjacent thread forms measured parallel to the axis. This distance can be defined in millimeters or by the tpi (threads per inch), which is the reciprocal of the pitch.

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



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

Major Diameter
The largest diameter of a screw thread.

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

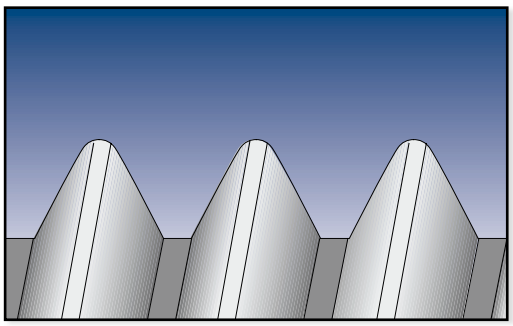
Minor Diameter
The smallest diameter of a screw thread.

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

Straight Thread
A thread formed on a cylinder

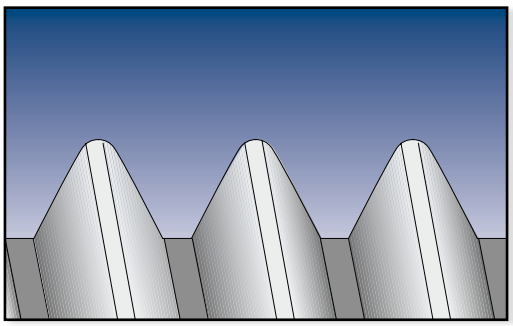
Taper Thread
A thread formed on a cone

Left-hand thread



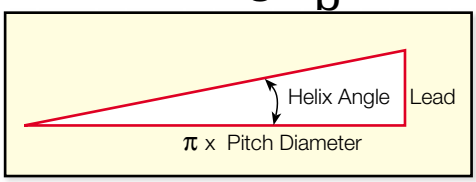
A thread which, when viewed axially, winds in a counterclockwise and receding direction. All left-hand threads are designated LH.

Right-hand thread



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

The Helix Angle b

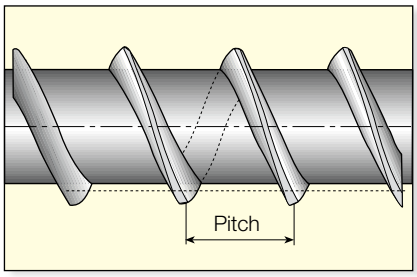


Lead
The distance a threaded part moves axially, with respect to a fixed mating part, in one complete revolution. The lead is equal to the pitch multiplied by the number of thread starts.

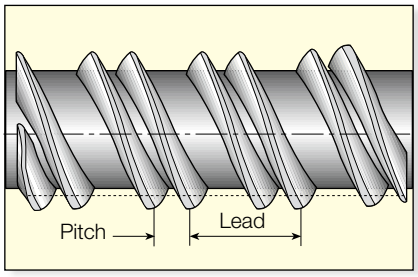
Machining a Multi-Start Thread

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.

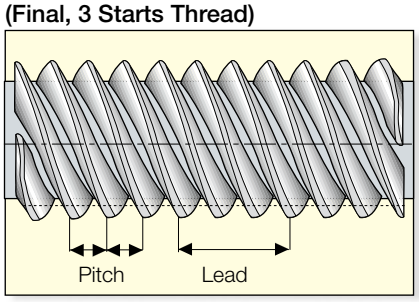
First Start Machined



Second Start Machined



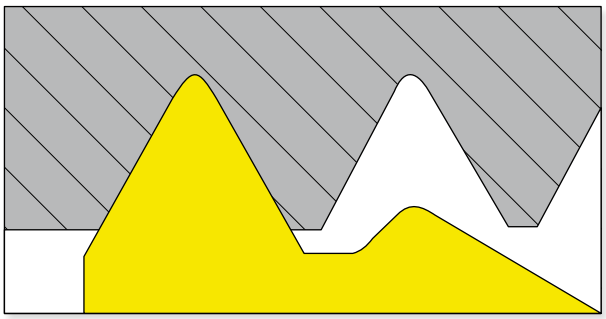
Third Start Machined (Final, 3 Starts Thread)



Lead = 3 x Pitch

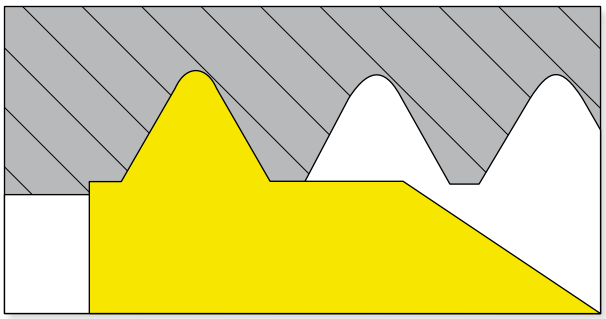
Insert Profile Styles

Partial Profile



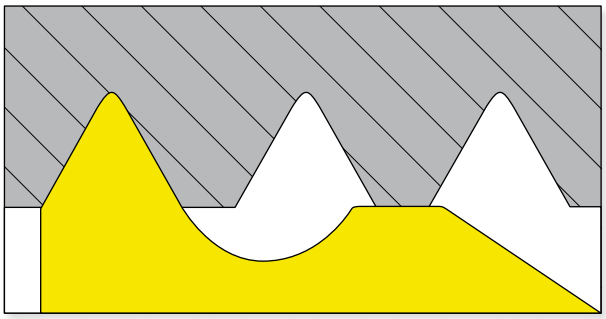
The V partial profile insert cuts without topping the outer diameter of the thread. The same insert can be used for a range of different thread pitches which have a common thread angle.

Full Profile



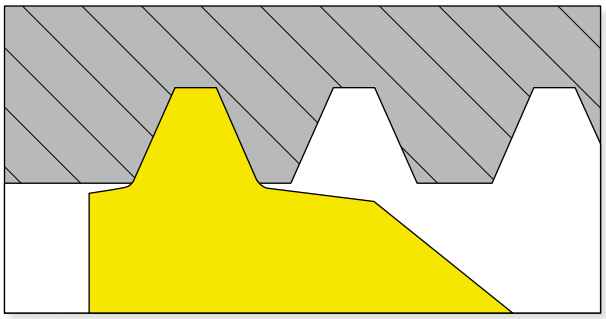
The full profile insert will form a complete thread profile including the crest. For every thread pitch and standard, a separate insert is required.

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 second tooth.

Semi Full

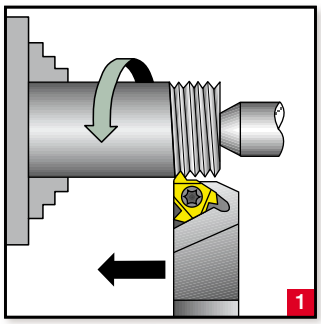


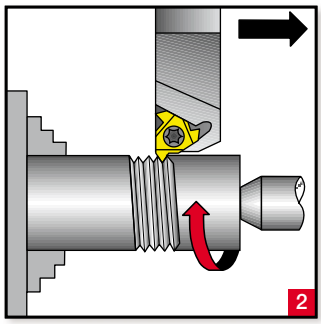
The Semi profile insert will form a complete thread including crest radius but without topping the outer diameter.
Mainly used for trapezoidal profiles.

Thread Turning Methods

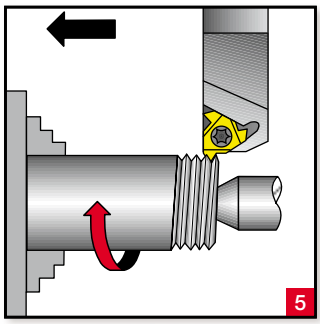
Thread	Inserts & Toolholder	Rotation	Feed Direction	Helix Method	Drawing No.
Right Hand External	EX RH	Anticlockwise	Towards chuck	Regular	1
	EX LH	Clockwise	From chuck	Reversed	2
Right Hand Internal	IN RH	Anticlockwise	Towards chuck	Regular	3
	IN LH	Clockwise	From chuck	Reversed	4
Left Hand External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

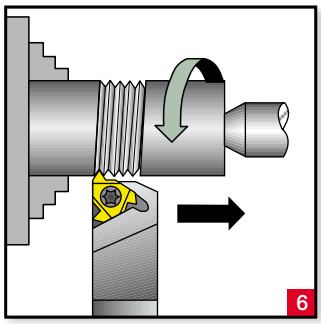
External RH Thread



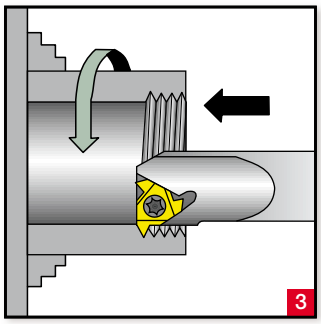


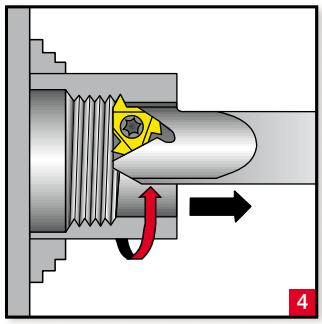
External LH Thread



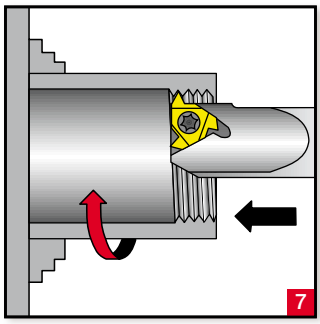


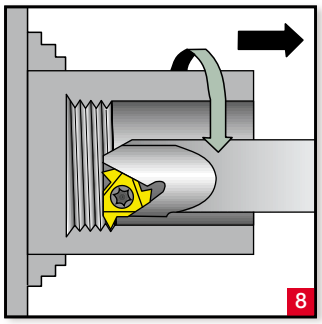
Internal RH Thread





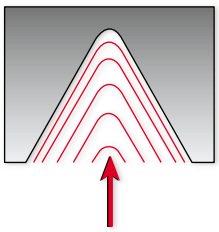
Internal LH Thread





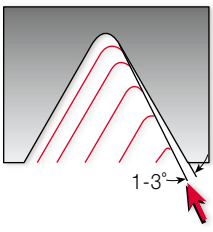
Thread Infead Methods

Radial Infead



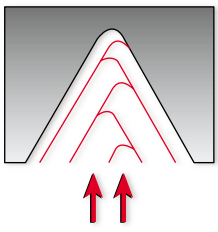
Radial infeed is the simplest and quickest method.
The feed is perpendicular to the turning axis, and both flanks of the insert perform the cutting operation.
Radial infeed is recommended in 3 cases:
- when the pitch is smaller than 16 tpi
- for material with short chips
- for work with hardened material

Flank Infead (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.

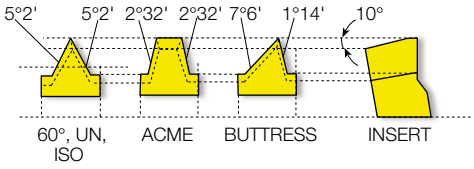
Alternate Flank Infeed



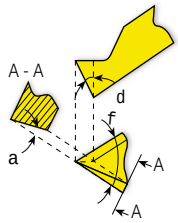
Use of the alternate flank method is recommended especially in large pitches and for materials with long cihps.
This method divides the load equally on both flanks, resulting in equal wear along the cutting edges. Alternate flank infeed requires more complicated programming, and is not available on all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

Calculating the Helix Angle and Choosing The Right Anvil

Flank Clearance Angle a



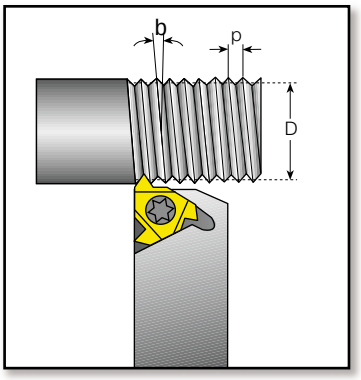
Vardex toolholders are designed to tilt the insert when seated in the toolholder (10° for external, 15° for internal tooling). This results in the differing flank clearance angles, based on the geometry of insert. To ensure that the side of the insert cutting edge will not rub on the workpiece, it is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



$a = \arctan(\tan Ø/2 \times \tan d)$

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

Calculating the Helix Angle b



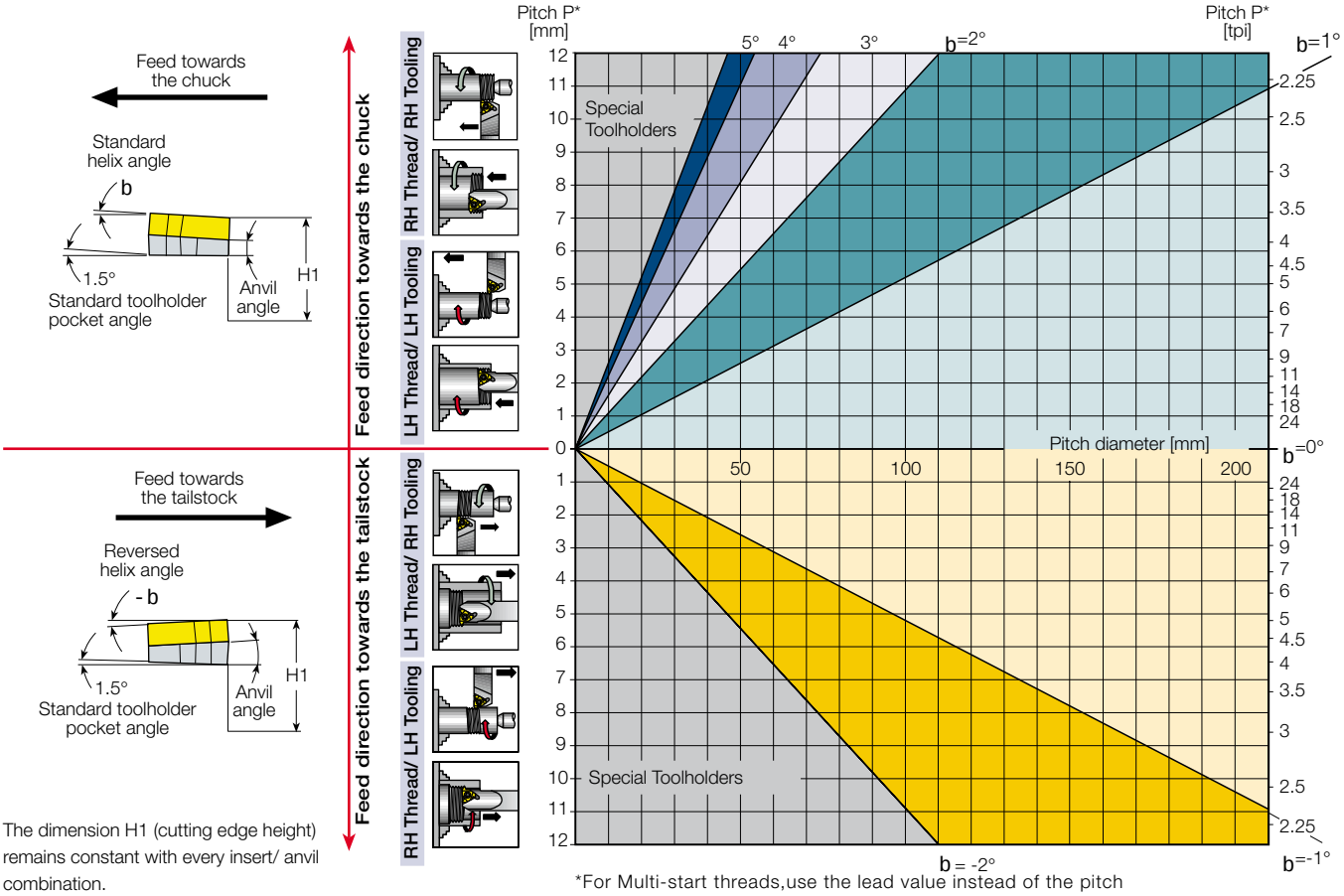
The helix angle is calculated by the following formula:

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

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

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

Helix Angle Diagram



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

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

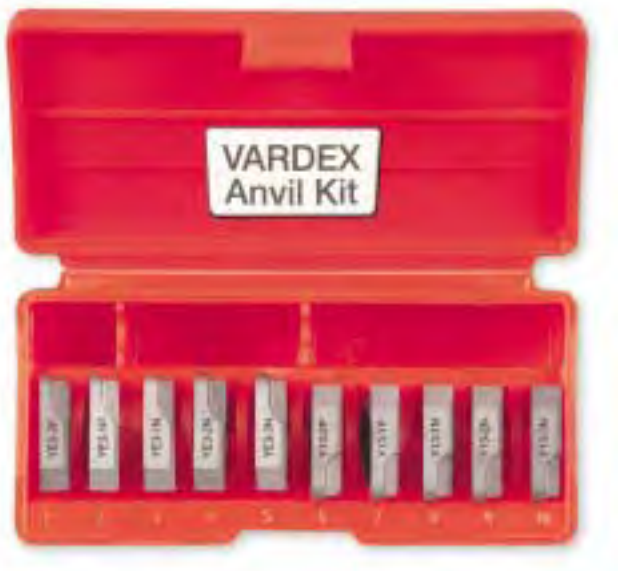
Anvils

Resultant Helix Angle			4.5°	3.5°	2.5°	1.5°	0.5°	0°	-0.5°	-1.5°
Insert Size		Holder	Ordering Code							
IC	L mm									
3/8"	16	ER / IL	YE3-3P	YE3-2P	YE3-1P	YE3	YE3-1N	YE3-1.5N	YE3-2N	YE3-3N
		EL / IR	YI3-3P	YI3-2P	YI3-1P	YI3	YI3-1N	YI3-1.5N	YI3-2N	YI3-3N
1/2"	22	ER / IL	YE4-3P	YE4-2P	YE4-1P	YE4	YE4-1N	YE4-1.5N	YE4-2N	YE4-3N
		EL / IR	YI4-3P	YI4-2P	YI4-1P	YI4	YI4-1N	YI4-1.5N	YI4-2N	YI4-3N
1/2"U	22	ER / IL	YE4U-3P	YE4U-2P	YE4U-1P	YE4U	YE4U-1N	YE4U-1.5N	YE4U-2N	YE4U-3N
		EL / IR	YI4U-3P	YI4U-2P	YI4U-1P	YI4U	YI4U-1N	YI4U-1.5N	YI4U-2N	YI4U-3N
5/8"	27	ER / IL	YE5-3P	YE5-2P	YE5-1P	YE5	YE5-1N	YE5-1.5N	YE5-2N	YE5-3N
		EL / IR	YI5-3P	YI5-2P	YI5-1P	YI5	YI5-1N	YI5-1.5N	YI5-2N	YI5-3N
5/8"U	27	ER / IL	YE5U-3P	YE5U-2P	YE5U-1P	YE5U	YE5U-1N	YE5U-1.5N	YE5U-2N	YE5U-3N
		EL / IR	YI5U-3P	YI5U-2P	YI5U-1P	YI5U	YI5U-1N	YI5U-1.5N	YI5U-2N	YI5U-3N
3/8"M	16	ER / IL			YE3M-1P	YE3M	YE3M-1N	YE3M-1.5N	YE3M-2N	
		EL / IR			YI3M-1P	YI3M	YI3M-1N	YI3M-1.5N		
1/2"M	22	ER / IL			YE4M-1P	YE4M	YE4M-1N	YE4M-1.5N	YE4M-2N	
		EL / IR			YI4M-1P	YI4M	YI4M-1N	YI4M-1.5N		
5/8"M	27	ER / IL				YE5M	YE5M-1N	YE5M-1.5N		
		EL / IR				YI5M	YI5M-1N	YI5M-1.5N		
1/2"Z	22	ER / IL			YE4Z-1P	YE4Z	YE4Z-1N			
		EL / IR			YI4Z-1P	YI4Z	YI4Z-1N			
5/8"Z	27	ER / IL				YE5Z				
		EL / IR				YI5Z				
1/2"T	22	ER / IL EL / IR				Y4T				

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

Anvil Kits

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



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

Grades and their Applications

Grade	Application	Sample
VTX	**First Choice grade for general use.** A tough sub-micron substrate with TiAlN coating. Provides good fracture toughness and excellent wear resistance.	
VCB	Vardex Sintered chipbreaker for general use. The combination of sintered chipbreaker with ground profile provides excellent chip control and high quality of thread. TiAlN coating.	
VM7	Premium grade for stainless steel. Extra tough coating. Special multi-layer PVD coating guaranteeing higher resistance to wear in Stainless Steel application.	
VKX	High hardness substrate for steels, stainless steel, non ferrous & aluminium. Recommended for rigid machine conditions. TiN coating.	
VSX	For machining steels at low cutting speed. TiN coating.	
VK2	The uncoated grade for nonferrours, aluminium, high temperature and titanium alloys.	
VK2P	The uncoated grade for nonferrours, aluminium, high temperature and titanium alloys. VK2P - with polished chipbreaker for high quality surface finish on aluminium.	
VKP	General use carbide grade for Mini inserts. TiN coated	
VHX	General use HSS grade for Mini inserts. For machining at low cutting speed. TiN coated	
VMX	General use carbide grade for Micro inserts. TiN coated	

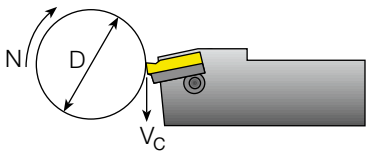
Recommended Grades and Cutting Speeds Vc [m/min]
(Not including Mini & Micro)

	Material		Hardness Brinell HB	Vc[m/min]					
				1st CHOICE	Coated				Uncoated
				First choice VTX	VCB	VM7	VKX	VSX	VK2 / VK2P
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	115-190	115-190		140-200	80-150	
		Medium carbon (C=0.25-0.55 %)	150	100-175	100-165		120-180	80-140	
		High carbon (C=0.55-0.85 %)	170	90-165	90-155		110-180	80-140	
	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	85-145	100-180		100-155	70-130	
		Hardened	275	75-140	75-140		90-145	70-120	
		Hardened	350	70-135	70-135		80-135	70-115	
	High alloy steel (alloying elements > 5%)	Annealed	200	70-110	80-120		70-115	60-110	
		Hardened	325	50-100	50-100		50-100	50-90	
	Cast steel	Low alloy (alloying elements <5%)	200	75-140	70-130				
		High alloy (alloying elements >5%)	225	60-120	60-120				
M	Stainless steel Feritic	Non hardened	200	70-130	70-130	70-150	70-120		
		Hardened	330	60-115	50-95	60-125	60-95		
	Stainless steel Austenitic	Austenitic	180	90-140	80-120	90-160	70-100		
		Super austenitic	200	40-110	30-100	40-120	40-90		
	Stainless steel Cast feritic	Non hardened	200	90-120	90-120	90-150	80-110		
		Hardened	330	65-110	65-110	65-120	65-110		
	Stainless steel Cast austenitic	Austenitic	200	85-110	85-110	85-120	85-100		
		Hardened	330	60-100	60-100	60-110	60-100		
	High temperature alloys	Annealed (Iron based)	200	45-60	45-60				30-50
		Aged (Iron based)	280	30-50	30-50				25-40
		Annealed (Nickel or Cobalt based)	250	20-30	20-30				20-30
		Aged (Nickel or Cobalt based)	350	15-25	15-25				15-25
	Titanium alloys	Pure 99.5 Ti	400Rm	140-170	140-170				60-100
		a+b alloys	1050Rm	50-70	50-70				40-60
K	Extra hard steel	Hardened & tempered	55HRc	45-60	45-60		45-60		
	Malleable cast iron	Ferritic (short chips)	130	70-160	70-120				
		Pearlitic (long chips)	230	60-145	70-120				
	Grey cast iron	Low tensile strength	180	70-130	70-130				
		High tensile strength	260	60-115	60-100				
	Nodular SG iron	Feritic	160	125-160	125-160				
		Pearlitic	260	90-120	90-120				
	Aluminium alloys Wrought	non aging	60	100-365	100-250		100-240		100-250
		Aged	100	80-220	80-180		80-170		80-160
	Aluminium alloys	Cast	75	200-400	200-400				80-120
		Cast & aged	90	200-280	200-280				70-100
	Aluminium alloys	Cast Si 13-22%	130	60-180	60-150				50-120
	Copper and copper alloys	Brass	90	80-225	80-210		80-200		70-170
		Bronze and non leaded copper	100	80-255	80-210		80-200		70-170

Calculation of N [RPM]

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

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



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

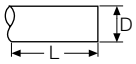
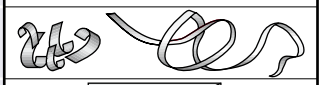
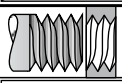
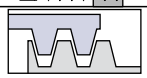
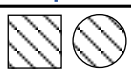
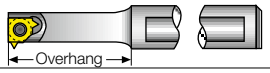
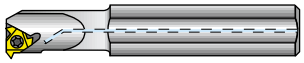
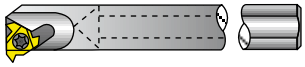
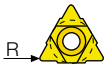
Recommended Grades and Cutting Speeds Vc [m/min]
Mini and Micro

	Material		Hardness Brinell HB	Vc[m/min]		
				Coated		
				VMX Micro Inserts	VKP Mini Inserts	VHX Mini Inserts
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	50-120	140-200	20-50
		Medium carbon (C=0.25-0.55 %)	150	40-100	120-180	15-40
		High Carbon (C=0.55-0.85 %)	170	30-80	110-180	15-30
	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	50-70	100-155	20-45
		Hardened	275	40-60	90-145	10-25
		Hardened	350	30-50	80-135	10-25
	High alloy steel (alloying elements > 5%)	Annealed	200	30-50	65-115	
		Hardened	325	25-40	50-100	
	Cast steel	Low alloy (alloying elements <5%)	200	30-50	30-50	25-50
		High alloy (alloying elements >5%)	225	25-40	25-40	20-40
M	Stainless steel Feritic	Non hardened	200	60-100	80-120	
		Hardened	330	40-60	55-95	
	Stainless steel Austenitic	Austenitic	180	50-90	60-100	
		Super austenitic	200	40-60	50-90	
	Stainless steel Cast feritic	Non hardened	200	40-60	60-80	
		Hardened	330	30-50	45-65	
	Stainless steel Cast austenitic	Austenitic	200	40-60	50-70	
		Hardened	330	30-50	40-60	
	High temperature alloys	Annealed (Iron based)	200	25-45	25-45	
		Aged (Iron based)	280	20-30	20-30	
		Annealed (Nickel or Cobalt based)	250	15-20	15-20	
		Aged (Nickel or Cobalt based)	350	10-15	10-15	
	Titanium alloys	Pure 99.5 Ti	400Rm	60-100	60-100	
		a+b alloys	1050Rm	40-50	40-50	
K	Extra hard steel	Hardened & tempered	55HRc	20-40	20-40	
	Malleable cast iron	Ferritic (short chips)	130	50-70	60-80	
		Pearlitic (long chips)	230	50-70	60-80	
	Grey cast iron	Low tensile strength	180	50-70	60-80	
		High tensile strength	260	40-60	40-70	
	Nodular SG iron	Feritic	160	50-70	60-80	
		Pearlitic	260	60-80	70-90	
	Aluminium alloys Wrought	non aging	60	100-300	80-240	30-60
		Aged	100	100-150	100-170	25-50
	Aluminium alloys	Cast	75	100-150	100-150	25-50
		Cast & aged	90	60-100	60-100	20-40
	Aluminium alloys	Cast Si 13-22%	130	100-150	100-150	15-30
	Copper and copper alloys	Brass	90	60-100	80-200	15-35
		Bronze and non leaded copper	100	60-100	80-200	15-35

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								
No. of passes (Micro&Mini)		6-9	6-11	6-12	8-14	9-15	11-18	11-18									

Cutting Conditions Depends on:

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 and Depth of Cut per Pass for Multi Tooth Inserts

Standard	Insert Type	Insert Size		Pitch	Teeth	Ordering Code	Passes	Depth of cut per pass			
		IC	L mm			RH		1	2	3	4
ISO External	M	3/8"	16	1.0 mm	3	3ER1.0ISO3M ...	2	0.38	0.25		
				1.5 mm	2	3ER1.5ISO2M ...	3	0.42	0.30	0.20	
	M	1/2"	22	1.5 mm	3	4ER1.5ISO3M ...	2	0.55	0.37		
				2.0 mm	2	4ER2.0ISO2M ...	3	0.57	0.40	0.28	
				2.0 mm	3	4ER2.0ISO3M ...	2	0.76	0.49		
	M	5/8"	27	3.0 mm	2	5ER3.0ISO2M ...	4	0.59	0.51	0.42	0.32
	T	1/2"T	22	1.5 mm	8	4ER1.5ISO8T ...	1	0.92			
				2.0 mm	6	4ER2.0ISO6T ...	2	1.00	0.23		
				2.0 mm	8	4ER2.0ISO8T ...	1	1.23			
ISO Internal	M	3/8"	16	1.0 mm	3	3IR1.0ISO3M ...	2	0.33	0.25		
				1.5 mm	2	3IR1.5ISO2M ...	3	0.38	0.29	0.20	
	M	1/2"	22	1.5 mm	3	4IR1.5ISO3M ...	2	0.50	0.37		
				2.0 mm	2	4IR2.0ISO2M ...	3	0.52	0.37	0.26	
				2.0 mm	3	4IR2.0ISO3M ...	2	0.70	0.45		
	M	5/8"	27	3.0 mm	2	5IR3.0ISO2M ...	4	0.58	0.46	0.39	0.30
	T	1/2"T	22	1.5 mm	8	4IR1.5ISO8T ...	1	0.87			
				2.0 mm	6	4IR2.0ISO6T ...	2	0.95	0.20		
				2.0 mm	8	4IR2.0ISO8T ...	1	1.15			
UN External	M	3/8"	16	16 tpi	2	3ER16UN2M ...	3	0.44	0.31	0.22	
	M	1/2"	22	16 tpi	3	4ER16UN3M ...	2	0.58	0.39		
				12 tpi	2	4ER12UN2M ...	3	0.58	0.42	0.30	
				12 tpi	3	4ER12UN3M ...	2	0.78	0.52		
	M	5/8"	27	8 tpi	2	5ER8UN2M ...	4	0.62	0.54	0.45	0.35
	Z	1/2"	22	8 tpi	2	4ER8UN2Z ...	4	0.62	0.54	0.45	0.35
UN Internal	M	3/8"	16	16 tpi	2	3IR16UN2M ...	3	0.42	0.28	0.22	
	M	1/2"	22	16 tpi	3	4IR16UN3M ...	2	0.55	0.37		
				12 tpi	2	4IR12UN2M ...	3	0.53	0.38	0.31	
				12 tpi	3	4IR12UN3M ...	2	0.74	0.48		
	M	5/8"	27	8 tpi	2	5IR8UN2M ...	4	0.63	0.50	0.40	0.30
	Z	1/2"	22	8 tpi	2	4IR8UN2Z ...	4	0.63	0.50	0.40	0.30
BSW External	M	3/8"	16	14 tpi	2	3ER14W2M ...	3	0.52	0.37	0.27	
	M	1/2"	22	14 tpi	3	4ER14W3M ...	2	0.70	0.46		
				11 tpi	2	4ER11W2M ...	3	0.67	0.47	0.34	
BSW Internal	M	3/8"	16	14 tpi	2	3IR14W2M ...	3	0.52	0.37	0.27	
	M	1/2"	22	14 tpi	3	4IR14W3M ...	2	0.70	0.46		
				11 tpi	2	4IR11W2M ...	3	0.67	0.47	0.34	

M Style Insert

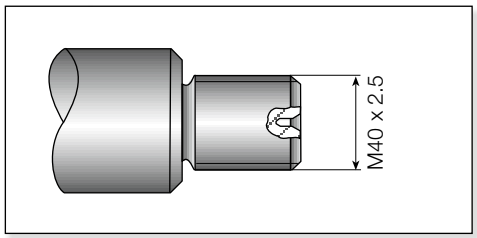
T Style Insert

Z Style Insert

Number of Passes and Depth of Cut per Pass for Multi Tooth Inserts (con't)

Standard	Insert Type	Insert Size		Pitch	Teeth	Ordering Code	Passes	Depth of cut per pass			
		IC	L mm			RH		1	2	3	4
NPT External	M	1/2"	22	11.5 tpi	2	4ER11.5NPT2M ...	4	0.54	0.47	0.37	0.30
	M	5/8"	27	11.5 tpi	3	5 ER11.5NPT3M ...	3	0.76	0.54	0.38	
				8 tpi	2	5ER8NPT2M ...	4	0.81	0.60	0.55	0.45
	Z	1/2"	22	11.5 tpi	2	4ER11.5NPT2Z ...	4	0.54	0.47	0.37	0.30
				8 tpi	2	4ER8NPT2Z ...	4	0.81	0.60	0.55	0.45
	T	1/2"T	22	11.5 tpi	6	4ER11.5NPT6T ...	2	1.00	0.68		
				8 tpi	5	4ER8NPT5T ...	3	1.09	0.77	0.55	
NPT Internal	M	1/2"	22	11.5 tpi	2	4IR11.5NPT2M ...	4	0.54	0.47	0.37	0.30
	M	5/8"	27	11.5 tpi	3	5IR11.5NPT3M ...	3	0.76	0.54	0.38	
				8 tpi	2	5IR8NPT2M ...	4	0.81	0.60	0.55	0.45
	Z	1/2"	22	11.5 tpi	2	4IR11.5NPT2Z ...	4	0.54	0.47	0.37	0.30
				8 tpi	2	4IR8NPT2Z ...	4	0.81	0.60	0.55	0.45
	T	1/2"T	22	11.5 tpi	6	4IR11.5NPT6T ...	2	1.00	0.68		
				8 tpi	5	4IR8NPT5T ...	3	1.09	0.77	0.55	
NPTF External	M	1/2"	22	11.5 tpi	2	4ER11.5NPTF2M ...	4	0.53	0.46	0.37	0.30
NPTF Internal	M	1/2"	22	11.5 tpi	2	4IR11.5NPTF2M ...	4	0.53	0.46	0.37	0.30
	M	5/8"	27	11.5 tpi	3	5IR11.5NPTF3M ...	3	0.75	0.54	0.37	
APIBUT External	M	1/2"	22	5 tpi	3	4ER5BUT753T ...	3	0.80	0.67	0.10	
APIBUT Internal	M	1/2"	22	5 tpi	3	4IR5BUT753T ...	3	0.80	0.67	0.10	
APIRD External	M	1/2"	22	10 tpi	2	4ER10APIRD2M ...	3	0.60	0.50	0.31	
	M	5/8"	27	10 tpi	3	5ER10APIRD3M ...	2	1.00	0.41		
				8 tpi	2	5ER8APIRD2M ...	3	0.80	0.60	0.41	
	Z	1/2"	22	10 tpi	2	4ER8APIRD2Z ...	3	0.60	0.50	0.31	
				8 tpi	2	4ERAPIRD2Z ...	3	0.80	0.60	0.41	
	T	1/2"T	22	10 tpi	6	4ER10APIRD6T ...	1	1.41			
				8 tpi	3	4ER8APIRD3T ...	2	1.10	0.71		
				8 tpi	5	4ER8APIRD5T ...	2	1.30	0.52		
APIRD Internal	M	1/2"	22	10 tpi	2	4IR10APIRD2M ...	3	0.60	0.50	0.31	
	M	5/8"	27	10 tpi	3	5IR10APIRD3M ...	2	1.00	0.41		
				8 tpi	2	5IR8APIRD2M ...	3	0.80	0.60	0.41	
	Z	1/2"	22	10 tpi	2	4IR10APIRD2Z ...	3	0.60	0.50	0.31	
				8 tpi	2	4IR8APIRD2Z ...	3	0.80	0.60	0.41	
	T	1/2"T	22	10 tpi	6	4IR10APIRD6T ...	1	1.41			
				8 tpi	3	4IR8APIRD3T ...	2	1.10	0.71		
				8 tpi	5	4ER8APIRD5T ...	2	1.30	0.52		

Step by Step Thread Turning - Example 1

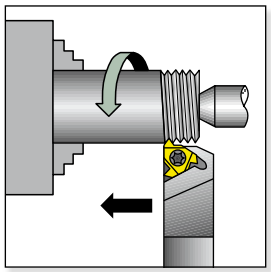


Application:

Thread: External Right Hand
ISO Metric M40x2.5

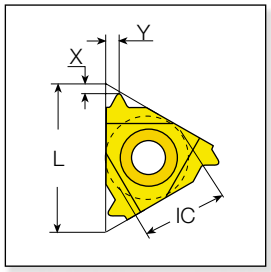
Material: 4140 (25 HRc)

1 Choose the Thread Turning Method (see page 121)



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

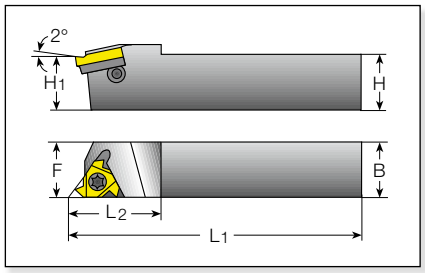
2 Choose the Insert Size (see page 26)



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

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

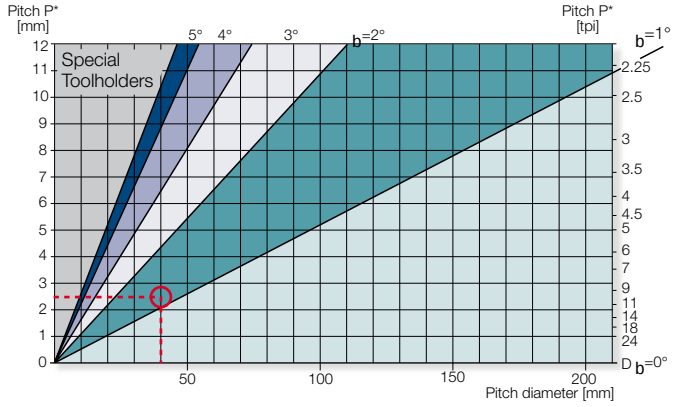
3 Choose the Toolholder (see page 96)



Chosen toolholder: **AL 25-3**

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

4 Determine the Helix Angle (see page 122)



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 (see page 123)

Anvil chosen: **YE3**

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

6 Choose the Carbide Grade and Cutting Speed (see page 125)

Carbide grade chosen: **VTX**

Cutting speed: **140 m /min**

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

7 Determine the Number of Passes (see page 127)

Number of passes: **10**

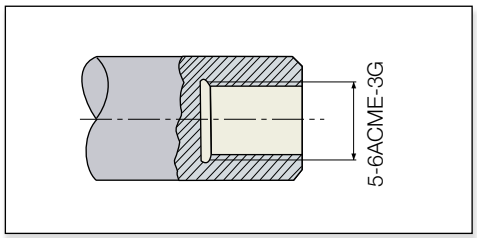
ISO External

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

Summary

	Thread Type	ISO M40x2.5 External Right Hand
1	Feed Direction:	Towards the chuck
2	Insert and Grade:	3ER2.5ISO VTX
3	Toolholder:	AL 25 - 3
4	Helix Angle:	1.5°
5	Anvil	YE3
6	Cutting Speed:	140 m/min
7	Number of Passes:	10

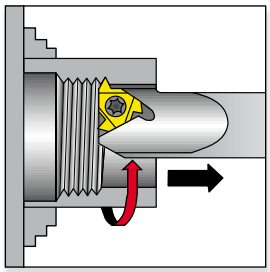
Step by Step Thread Turning - Example 2



Application:

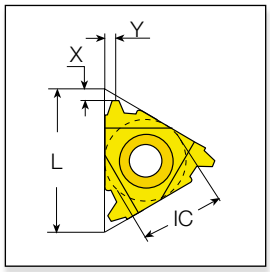
Thread: Internal Right Hand ACME
Pitch: 6 tpi
Bore dia: 5”
Material: Stainless Steel Austemitic

1 Choose the Thread Turning Method (see page 121)



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.

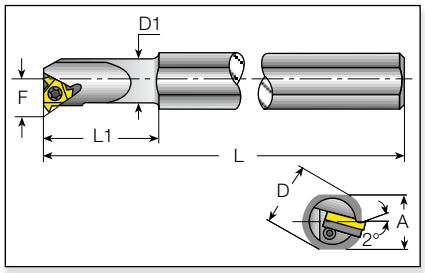
2 Choose the Insert Size (see page 69)



Chosen insert: **4IL6ACME**

Insert Size		Pitch	Ordering Code	Anvil	Toolholder
IC	**L** mm	**tpi**	**RH**	**LH**	
1/2”	22	6	4IL6ACME...	YE4	AVR..-4(LH)

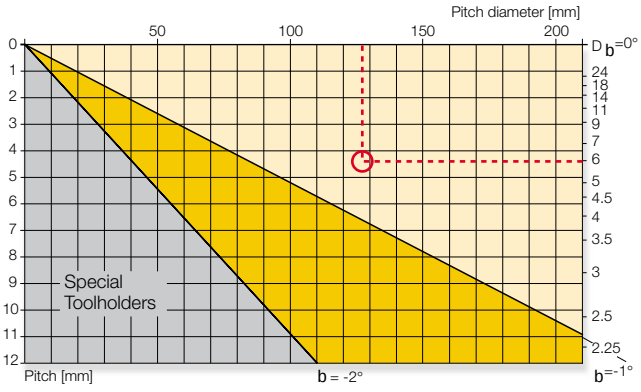
3 Choose the Toolholder (see page 104)



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

Insert Size	Ordering Code	Dimensions mm						Min Bore
IC	**RH**	**A**	**L**	**L1**	**D**	**D1**	**F**	**mm**
1/2”	AVR 40-4	36.0	300	60	40	40.0	25.8	47

4 Determine the Helix Angle (see page 122)



In this case, a right hand thread is being turned with a left hand toolholder. The reverse helix method is used. From the lower part of the table, using a pitch of 6 tpi and a bore diameter of 127mm, we obtain a helix angle of **-0.65**°.

5 Choose the Correct Anvil (see page 123)

Anvil chosen: **YE4-2N**

Resultant Helix Angle			1.5	0.5	0	-0.5	-1.5
Insert Size		Ordering Code					
IC	L mm						
1/2"	22	ER/IL	YE4	YE4-1N	YE4-1.5N	**YE4-2N**	YE4-3N

6 Choose the Carbide Grade and Cutting Speed (see page 125)

Carbide grade chosen: **VTX**

Cutting speed: **140 m /min**

	Material:		Hardness Brinell HB	First choice VTX	VCB
M	Stainless steel Austenitic	Austenitic	180	**90-140**	80-120
		Super austenitic	200	40-110	30-100

7 Determine the Number of Passes (see page 127)

Number of passes: **18**

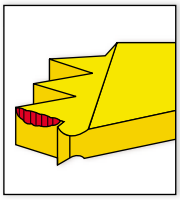
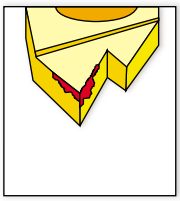
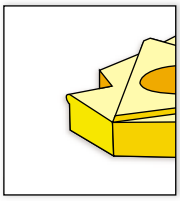
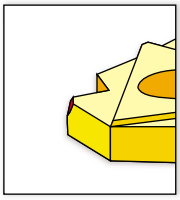
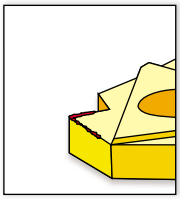
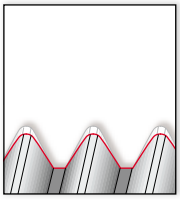
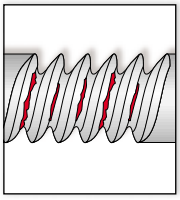
ACME External & Internal

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	American AMCE Internal Right Hand
1	Feed Direction:	Away from the chuck
2	Insert and Grade:	4IL6ACME VTX
3	Toolholder:	AVR 40-4LH
4	Helix Angle:	-0.65°
5	Anvil	YE4-2N
6	Cutting Speed:	140 m/min
7	Number of Passes:	18

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

GROOVING INSERTS

Contents





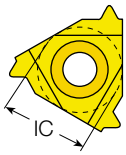

Vardex Ordering Code System

Grooving Insert

5	L	I	R	1.1	-	D472	-	1.3	VKP
1	2	3	4	5	6	7		8	9

1 - Insert Size

5.0 L - IC5.0L
2 - IC1/4"
3 - IC3/8"
4 - IC1/2"
5 - IC5/8"



2 - Insert Style

L

3 - Type of Insert

E - External
I - Internal

4 - RH / LH Insert

R - Right Hand Insert
L - Left Hand Insert

5 - Groove Std. Width

0.8 - 2.15 (mm)

6 - Profile Style

C - Full profile

7 - Groove Standard

DIN 472 Partial
DIN 472
DIN 7993 Partial
DIN 7993
DIN 76 ST, DIN 76 SH

8 - Groove Depth

0.33 - 2.0 (mm)

9 - Carbide Grade

VTX
VKP (for Mini)
VHX (for Mini)

Grooving Micro Insert

4.0	S	I	R	0.7	A	-	D471/D472	-	1.4	VMX	1-Side
1	2	3	4	5	6		7		8	9	10

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

5 - Groove std. Width

0.9 - 2.15 (mm)

6 - Insert Length

A - Axially
S - Short
M - Medium
L - Long

7 - Groove Standard

DIN 471
DIN 472
DIN 7993
DIN 76SH, DIN76ST
DIN3770S, DIN3770S
DIN 471/472- Face Grooving

8 - Groove Depth

0.5 - 1.5 (mm)

9 - Carbide Grade

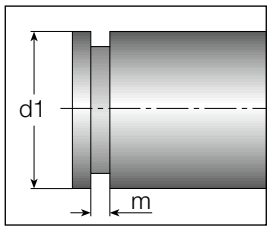
VMX

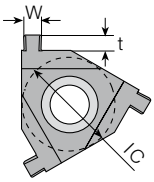
10 - Micro Ended

1-Side Single Ended
None - Double Ended

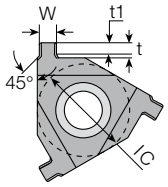
DIN 471 Retaining Ring Grooves for Shafts

External





Standard (Partial Profile)



Standard (Full Profile)

Standard (Partial Profile)

Insert Size	Ordering Code	Groove Std.	Dimensions mm		Anvil	Holder
IC	**RH**	**m (H13)**	**W**	**t**		
3/8”	3ER1.10-D471-1.30...	1.10	1.19	1.3	YE3M-1.5N	AL..-3
	3ER1.30-D471-1.50...	1.30	1.39	1.5		
	3ER1.60-D471-1.85...	1.60	1.69	1.8		
	3ER1.85-D471-2.00...	1.85	1.94	2.0		

Range of profiles also available on IC 1/4”, 1/2” and 5/8”, inserts on request.

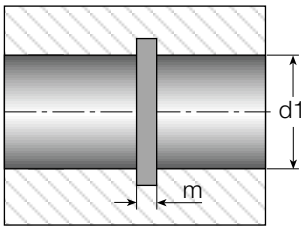
Standard (Full Profile)

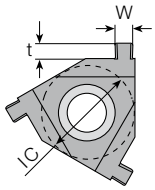
Insert Size	Ordering Code	Groove Std.	Dimensions mm				Anvil	Holder
IC	**RH**	**m (H13)**	**d1**	**W**	**t1**	**t**		
3/8”	3ER1.10C-D471-0.35...	1.10	15	1.19	0.33	0.35	YE3M-1.5N	AL..-3
	3ER1.10C-D471-0.40...	1.10	16-17	1.19	0.36	0.40		
	3ER1.30C-D471-0.50...	1.30	18-22	1.39	0.44	0.50		
	3ER1.30C-D471-0.55...	1.30	24-26	1.39	0.45	0.55		
	3ER1.60C-D471-0.70...	1.60	28-30	1.69	0.60	0.70		
	3ER1.60C-D471-0.85...	1.60	32-34	1.69	0.75	0.85		
	3ER1.60C-D471-1.00...	1.60	35	1.69	0.85	1.00		
	3ER1.85C-D471-1.00...	1.85	36-38	1.94	0.85	1.00		
	3ER1.85C-D471-1.25...	1.85	40-48	1.94	1.10	1.25		
	3ER2.15C-D471-1.50...	2.15	50-63	2.24	1.35	1.50		

Range of profiles also available on IC 1/4”, 1/2” and 5/8”, inserts on request.

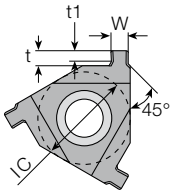
DIN 472 Retaining Ring Grooves for Bores

Internal

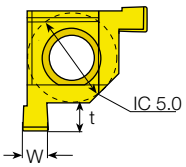




Standard (Partial Profile)



Standard (Full Profile)



Mini-L (Partial Profile)

Standard (Partial Profile)

Insert Size	Ordering Code	Groove Std.	Dimensions mm		Anvil	Holder
IC		**m (H13)**	**W**	**t**		
3/8"	3IR1.10-D472-1.30...	1.10	1.19	1.30	YI3M-1.5N	AVR..-3
	3IR1.30-D472-1.50...	1.30	1.39	1.50		
	3IR1.60-D472-1.80...	1.60	1.69	1.80		
	3IR1.85-D472-2.00...	1.85	1.94	2.00		

Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request.
For minimum bore diameters, refer to page 149.

Standard (Full Profile)

Insert Size	Ordering Code	Groove Std.	Dimensions mm				Anvil	Holder
IC		**m (H13)**	**d1**	**W**	**t1**	**t**		
3/8"	3IR1.10C-D472-0.50	1.10	18-22	1.19	0.44	0.50	YI3M-1.5N	AVR..-3
	3IR1.30C-D472-0.60	1.30	24-26	1.39	0.50	0.60		
	3IR1.30C-D472-0.70	1.30	28-30	1.39	0.60	0.70		
	3IR1.30C-D472-0.85	1.30	31-34	1.39	0.75	0.85		
	3IR1.60C-D472-0.85	1.60	34	1.69	0.75	0.85		
	3IR1.60C-D472-1.00	1.60	35-38	1.69	0.85	1.00		
	3IR1.85C-D472-1.25	1.85	40-48	1.94	1.10	1.25		
	3IR2.15C-D472-1.50	2.15	50-63	2.24	1.35	1.50		

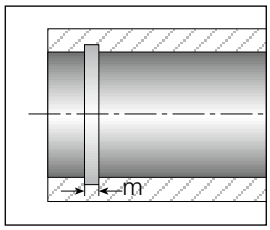
Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request.
For minimum bore diameters, refer to page 149.

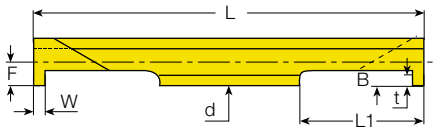
Mini-L (Partial Profile)

Insert Size	Ordering Code	Groove Std.	Dimensions mm		Minimum Bore dia (mm)	Holder
IC		**m (H13)**	**W**	**t**		
5.0L	5LIR0.9-D472-0.7	0.9	0.99	0.7	8.0	.NVR10..-5L
	5LIR1.1-D472-1.0	1.1	1.19	1.0		
	5LIR1.3-D472-1.5	1.3	1.39	1.5		

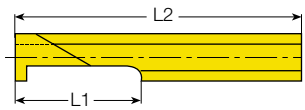
DIN 472 Retaining Ring Grooves for Bores

Internal





RH-Double Ended



RH-Single Ended

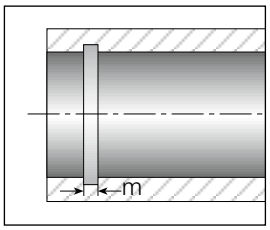
Micro

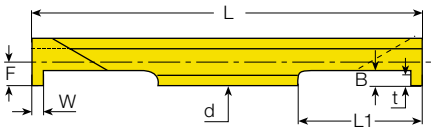
Insert dia.			Groove Std.		Dimensions mm							Min.
d mm	**RH-**Single Ended	**RH-**Double Ended	**m (H13)**	**W**	**L1**	**L2**	**L**	**B**	**t**	**F**	**Holder**	Bore dia.
3.0	3.0SIR0.90S-D472-0.5...1-SIDE	3.0SIR0.90S-D472-0.5...	0.90	0.99	9.0	36	36.0	0.8	0.5	1.40	SMC..-3.0	3.2
	3.0SIR0.90M-D472-0.5...1-SIDE	3.0SIR0.90M-D472-0.5...	0.90	0.99	16.0	43	50.0					
	3.0SIR1.10S-D472-0.5...1-SIDE	3.0SIR1.10S-D472-0.5...	1.10	1.19	9.0	36	36.0					
	3.0SIR1.10M-D472-0.5...1-SIDE	3.0SIR1.10M-D472-0.5...	1.10	1.19	16.0	43	50.0					
4.0	4.0SIR0.90S-D472-1.1...1-SIDE	4.0SIR0.90S-D472-1.1...	0.90	0.99	9.0	36	36.0	1.4	1.1	1.90	SMC..-4.0	4.1
	4.0SIR0.90M-D472-1.1...1-SIDE	4.0SIR0.90M-D472-1.1...	0.90	0.99	16.0	43	50.0					
	4.0SIR0.90L-D472-1.1...1-SIDE	4.0SIR0.90L-D472-1.1...	0.90	0.99	21.0	50	60.0					
	4.0SIR1.10S-D472-1.1...1-SIDE	4.0SIR1.10S-D472-1.1...	1.10	1.19	9.0	36	36.0					
	4.0SIR1.10M-D472-1.1...1-SIDE	4.0SIR1.10M-D472-1.1...	1.10	1.19	16.0	43	50.0					
	4.0SIR1.10L-D472-1.1...1-SIDE	4.0SIR1.10L-D472-1.1...	1.10	1.19	21.0	50	60.0					
	4.0SIR1.30S-D472-1.1...1-SIDE	4.0SIR1.30S-D472-1.1...	1.30	1.39	9.0	36	36.0					
	4.0SIR1.30M-D472-1.1...1-SIDE	4.0SIR1.30M-D472-1.1...	1.30	1.39	16.0	43	50.0					
	4.0SIR1.30L-D472-1.1...1-SIDE	4.0SIR1.30L-D472-1.1...	1.30	1.39	21.0	50	60.0					
	4.0SIR1.60S-D472-1.1...1-SIDE	4.0SIR1.60S-D472-1.1...	1.60	1.69	9.0	36	36.0					
	4.0SIR1.60M-D472-1.1...1-SIDE	4.0SIR1.60M-D472-1.1...	1.60	1.69	16.0	43	50.0					
	4.0SIR1.60L-D472-1.1...1-SIDE	4.0SIR1.60L-D472-1.1...	1.60	1.69	21.0	50	60.0					
6.0	6.0SIR0.90S-D472-1.5...1-SIDE	6.0SIR0.90S-D472-1.5...	0.90	0.99	9.0	36	36.0	2.0	1.5	2.90	SMC..-6.0	6.1
	6.0SIR0.90M-D472-1.5...1-SIDE	6.0SIR0.90M-D472-1.5...	0.90	0.99	16.0	43	50.0					
	6.0SIR0.90L-D472-1.5...1-SIDE	6.0SIR0.90L-D472-1.5...	0.90	0.99	21.0	50	60.0					
	6.0SIR1.10S-D472-1.5...1-SIDE	6.0SIR1.10S-D472-1.5...	1.10	1.19	9.0	36	36.0					
	6.0SIR1.10M-D472-1.5...1-SIDE	6.0SIR1.10M-D472-1.5...	1.10	1.19	16.0	43	50.0					
	6.0SIR1.10L-D472-1.5...1-SIDE	6.0SIR1.10L-D472-1.5...	1.10	1.19	21.0	50	60.0					
	6.0SIR1.30S-D472-1.5...1-SIDE	6.0SIR1.30S-D472-1.5...	1.30	1.39	9.0	36	36.0					
	6.0SIR1.30M-D472-1.5...1-SIDE	6.0SIR1.30M-D472-1.5...	1.30	1.39	16.0	43	50.0					
	6.0SIR1.30L-D472-1.5...1-SIDE	6.0SIR1.30L-D472-1.5...	1.30	1.39	21.0	50	60.0					
	6.0SIR1.60S-D472-1.5...1-SIDE	6.0SIR1.60S-D472-1.5...	1.60	1.69	9.0	36	36.0					
	6.0SIR1.60M-D472-1.5...1-SIDE	6.0SIR1.60M-D472-1.5...	1.60	1.69	16.0	43	50.0					
	6.0SIR1.60L-D472-1.5...1-SIDE	6.0SIR1.60L-D472-1.5...	1.60	1.69	21.0	50	60.0					
	6.0SIR1.85S-D472-1.5...1-SIDE	6.0SIR1.85S-D472-1.5...	1.85	1.94	9.0	36	36.0					
	6.0SIR1.85M-D472-1.5...1-SIDE	6.0SIR1.85M-D472-1.5...	1.85	1.94	16.0	43	50.0					
	6.0SIR1.85L-D472-1.5...1-SIDE	6.0SIR1.85L-D472-1.5...	1.85	1.94	21.0	50	60.0					
	6.0SIR2.15S-D472-1.5...1-SIDE	6.0SIR2.15S-D472-1.5...	2.15	2.24	9.0	36	36.0					
	6.0SIR2.15M-D472-1.5...1-SIDE	6.0SIR2.15M-D472-1.5...	2.15	2.24	16.0	43	50.0					
	6.0SIR2.15L-D472-1.5...1-SIDE	6.0SIR2.15L-D472-1.5...	2.15	2.24	21.0	50	60.0					

continued on next page ▸

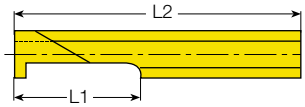
DIN 472 Retaining Rings Grooves for Bores (con't)

Internal





RH-Double Ended



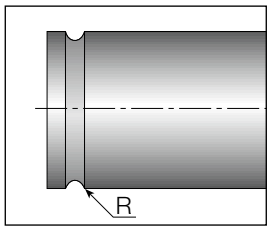
RH-Single Ended

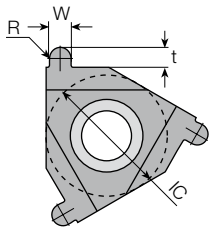
Micro (con't)

Insert dia.			Groove Std.	Dimensions mm								Min.
d mm	**RH-**Single Ended	**RH-**Double Ended	**m (H13)**	**W**	**L1**	**L2**	**L**	**B**	**t**	**F**	**Holder**	Bore dia.
8.0	8.0SIR1.10M-D472-2.0...1-SIDE	8.0SIR1.10M-D472-2.0...	1.10	1.19	20	63	70	2.5	2.0	3.9	SMC..-8.0	8.4
	8.0SIR1.30M-D472-2.0...1-SIDE	8.0SIR1.30M-D472-2.0...	1.30	1.39	20	63	70	2.5	2.0			
	8.0SIR1.60M-D472-2.5...1-SIDE	8.0SIR1.60M-D472-2.5...	1.60	1.69	20	63	70	3.0	2.5			
	8.0SIR1.85M-D472-2.5...1-SIDE	8.0SIR1.85M-D472-2.5...	1.85	0.94	20	63	70	3.0	2.5			
	8.0SIR2.15M-D472-3.0...1-SIDE	8.0SIR2.15M-D472-3.0...	2.15	2.24	20	63	70	3.5	3.0			
	8.0SIR2.65M-D472-3.5...1-SIDE	8.0SIR2.65M-D472-3.5...	2.65	2.74	20	63	70	4.0	3.5			
	8.0SIR3.15M-D472-3.5...1-SIDE	8.0SIR3.15M-D472-3.5...	3.15	3.28	20	63	70	4.0	3.5			
10.0	10.0SIR1.30M-D472-3.5...1-SIDE	10.0SIR1.30M-D472-3.5...	1.30	1.39	25	71	80	4.0	3.5	4.9	SMC..-10.0	10.4
	10.0SIR1.60M-D472-3.5...1-SIDE	10.0SIR1.60M-D472-3.5...	1.60	1.69	25	71	80					
	10.0SIR1.85M-D472-3.5...1-SIDE	10.0SIR1.85M-D472-3.5...	1.85	1.94	25	71	80					
	10.0SIR2.15M-D472-3.5...1-SIDE	10.0SIR2.15M-D472-3.5...	2.15	2.24	25	71	80					
	10.0SIR2.65M-D472-3.5...1-SIDE	10.0SIR2.65M-D472-3.5...	2.65	2.74	25	71	80					
	10.0SIR3.15M-D472-3.5...1-SIDE	10.0SIR3.15M-D472-3.5...	3.15	3.28	25	71	80					
	10.0SIR4.15M-D472-3.5...1-SIDE	10.0SIR4.15M-D472-3.5...	4.15	4.28	25	71	80					
	10.0SIR5.15M-D472-3.5...1-SIDE	10.0SIR5.15M-D472-3.5...	5.15	5.28	25	71	80					

DIN 7993 Snap Ring Grooves

External





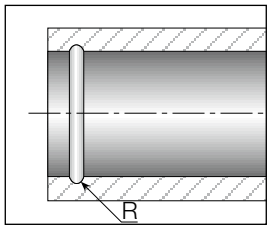
Standard (Partial Profile)

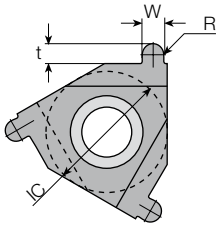
Standard (Partial Profile for Shafts)

Insert Size	Ordering Code	Dimensions mm			Anvil	Holder
IC	RH	R	W	t		
3/8"	3ER0.40-D7993-0.60	0.40	0.80	0.60	YE3M-1.5N	AL..-3
	3ER0.60-D7993-0.80	0.60	1.20	0.80		
	3ER0.90-D7993-1.10	0.90	1.80	1.10		
	3ER1.00-D7993-1.20	1.00	2.00	1.20		

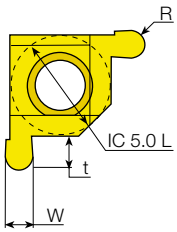
Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request.

Internal





Standard (Partial Profile)



Mini-L (Partial Profile)

Standard (Partial Profile for Bores)

Insert Size	Ordering Code	Dimensions mm			Anvil	Holder
IC	RH	R	W	t		
3/8"	3IR0.60-D7993-0.80	0.60	1.20	0.80	YI3M-1.5N	AVR..-3
	3IR0.90-D7993-1.10	0.90	1.80	1.10		
	3IR1.00-D7993-1.20	1.00	2.00	1.20		

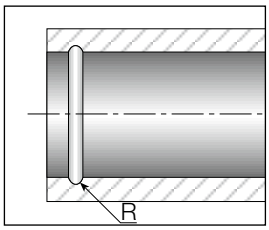
Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request
For minimum bore diameters, refer to page 149.

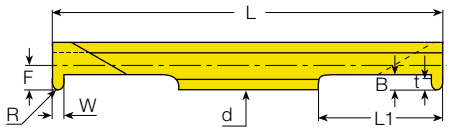
Mini-L (Partial Profile for Bores)

Insert Size	Ordering Code	Dimensions mm			Minimum Bore dia (mm)	Holder
IC	RH	R	W	t		
5.0L	5LIR0.4-D7993-0.8	0.4	0.8	0.8	8.0	.NVR10.-5L
	5LIR0.6-D7993-1.0	0.6	1.2	1.0		

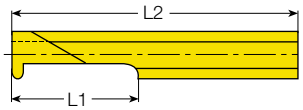
DIN 7993 Snap Ring Grooves

Internal





RH-Double Ended



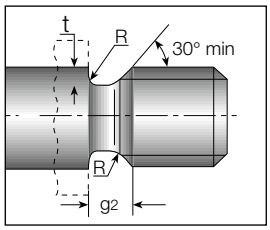
RH-Single Ended

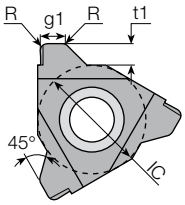
Micro (Partial Profile)

Insert Dia.			Groove Std.		Dimensions mm							Min.
d mm	**RH-**Single Ended	**RH-**Double Ended	**R**	**W**	**L1**	**L2**	**L**	**B**	**t**	**F**	**Holder**	Bore dia.
3.0	3.0SIR0.4S-D7993-0.6...1-SIDE	3.0SIR0.4S-D7993-0.6...	0.40	0.80	9.0	36	36.0	0.8	0.6	1.40	SMC..-3.0	3.2
	3.0SIR0.4M-D7993-0.6...1-SIDE	3.0SIR0.4M-D7993-0.6...	0.40	0.80	16.0	43	50.0					
4.0	4.0SIR0.4S-D7993-0.6...1-SIDE	4.0SIR0.4S-D7993-0.6...	0.40	0.80	9.0	36	36.0	1.4	1.1	1.90	SMC..-4.0	4.1
	4.0SIR0.4M-D7993-0.6...1-SIDE	4.0SIR0.4M-D7993-0.6...	0.40	0.80	16.0	43	50.0					
	4.0SIR0.4L-D7993-0.8...1-SIDE	4.0SIR0.4L-D7993-0.8...	0.40	0.80	21.0	50	60.0					
	4.0SIR0.6S-D7993-0.8...1-SIDE	4.0SIR0.6S-D7993-0.8...	0.60	1.20	9.0	36	36.0					
	4.0SIR0.6M-D7993-0.8...1-SIDE	4.0SIR0.6M-D7993-0.8...	0.60	1.20	16.0	43	50.0					
	4.0SIR0.6L-D7993-0.8...1-SIDE	4.0SIR0.6L-D7993-0.8...	0.60	1.20	21.0	50	60.0					
	4.0SIR0.9S-D7993-1.1...1-SIDE	4.0SIR0.9S-D7993-1.1...	0.90	1.80	9.0	36	36.0					
	4.0SIR0.9M-D7993-1.1...1-SIDE	4.0SIR0.9M-D7993-1.1...	0.90	1.80	16.0	43	50.0					
	4.0SIR0.9L-D7993-1.1...1-SIDE	4.0SIR0.9L-D7993-1.1...	0.90	1.80	21.0	50	60.0					
6.0	6.0SIR0.9S-D7993-1.1...1-SIDE	6.0SIR0.9S-D7993-1.1...	0.90	1.80	9.0	36	36.0	2.0	1.5	2.90	SMC..-6.0	6.1
	6.0SIR0.9M-D7993-1.1...1-SIDE	6.0SIR0.9M-D7993-1.1...	0.90	1.80	16.0	43	50.0					
	6.0SIR0.9L-D7993-1.1...1-SIDE	6.0SIR0.9L-D7993-1.1...	0.90	1.80	21.0	50	60.0					
	6.0SIR1.0S-D7993-1.2...1-SIDE	6.0SIR1.0S-D7993-1.2...	1.00	2.00	9.0	36	36.0					
	6.0SIR1.0M-D7993-1.2...1-SIDE	6.0SIR1.0M-D7993-1.2...	1.00	2.00	16.0	43	50.0					
	6.0SIR1.0L-D7993-1.2...1-SIDE	6.0SIR1.0L-D7993-1.2...	1.00	2.00	21.0	50	60.0					
	6.0SIR1.1S-D7993-1.3...1-SIDE	6.0SIR1.1S-D7993-1.3...	1.10	2.20	9.0	36	36.0					
	6.0SIR1.1M-D7993-1.3...1-SIDE	6.0SIR1.1M-D7993-1.3...	1.10	2.20	16.0	43	50.0					
	6.0SIR1.1L-D7993-1.3...1-SIDE	6.0SIR1.1L-D7993-1.3...	1.10	2.20	21.0	50	60.0					
8.0	8.0SIR0.9M-D7993-2.0...1-SIDE	8.0SIR0.9M-D7993-2.0...	0.90	1.80	20.0	63	70.0	2.5	2.0	3.90	SMC..-8.0	8.4
	8.0SIR1.1M-D7993-2.0...1-SIDE	8.0SIR1.1M-D7993-2.0...	1.10	2.20	20.0	63	70.0					
	8.0SIR1.4M-D7993-2.0...1-SIDE	8.0SIR1.4M-D7993-2.0...	1.40	2.80	20.0	63	70.0					
10.0	10.0SIR1.4M-D7993-2.9...1-SIDE	10.0SIR1.4M-D7993-2.9...	1.40	2.80	25.0	71	80.0	3.4	2.9	4.90	SMC..-10.0	10.4
	10.0SIR1.8M-D7993-2.9...1-SIDE	10.0SIR1.8M-D7993-2.9...	1.80	3.60	25.0	71	80.0					

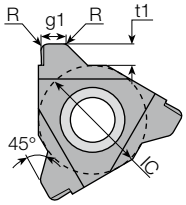
DIN 76 Thread Undercuts (For ISO Metric Threads in Accordance with DIN 13)

External





Normal - Type A



Short - Type B

Standard (Normal -Type A)

Insert Size	Ordering Code	Pitch	Dimensions mm					Anvil	Holder
IC	RH	mm	R	g1	g2	t	t1		
3/8”	3ER0.50-D76ST-0.40	0.50	0.2	1.10	1.50	0.40	2.50	YE3M-1.5N	AL..-3
	3ER0.60-D76ST-0.50	0.60	0.4	1.30	1.80	0.50	2.40		
	3ER0.70-D76ST-0.55	0.70	0.4	1.55	2.10	0.55	2.20		
	3ER0.80-D76ST-0.65	0.80	0.4	1.75	2.40	0.65	2.10		
	3ER1.00-D76ST-0.80	1.00	0.6	2.20	3.00	0.80	1.90		
5/8”	5ER1.25-D76ST-1.00	1.25	0.6	2.80	3.80	1.00	3.60	YE5M-1.5N	AL..-5
	5ER1.50-D76ST-1.15	1.50	0.8	3.35	4.50	1.15	3.30		
	5ER1.75-D76ST-1.30	1.75	1.0	4.00	5.30	1.30	3.00		
	5ER2.00-D76ST-1.50	2.00	1.0	4.50	6.00	1.50	2.70		

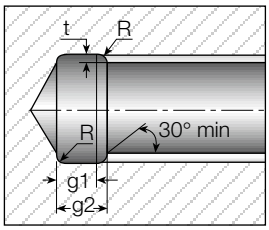
Standard (Short - Type B)

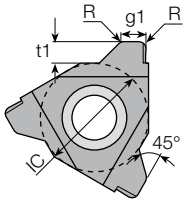
Insert Size	Ordering Code	Pitch	Dimensions mm					Anvil	Holder
IC	RH	mm	R	g1	g2	t	t1		
3/8”	3ER1.00-D76SH-0.80	1.00	0.6	1.20	2.00	0.80	2.50	YE3M-1.5N	AL..-3
	3ER1.25-D76SH-1.00	1.25	0.6	1.50	2.50	1.00	2.30		
	3ER1.50-D76SH-1.15	1.50	0.8	1.85	3.00	1.15	2.10		
	3ER1.75-D76SH-1.30	1.75	1.0	2.20	3.50	1.30	1.90		
5/8”	5ER2.00-D76SH-1.50	2.00	1.0	2.50	4.00	1.50	3.80	YE5M-1.5N	AL..-5
	5ER2.50-D76SH-1.80	2.50	1.2	3.20	5.00	1.80	3.50		
	5ER3.00-D76SH-2.20	3.00	1.6	3.80	6.00	2.20	3.10		

Range of profiles also available on IC 1/4” and 1/2” inserts on request.

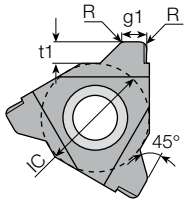
DIN 76 Thread Undercuts (For ISO Metric Threads in Accordance with DIN 13)

Internal





Normal - Type C



Short - Type D

Standard (Normal - Type C)

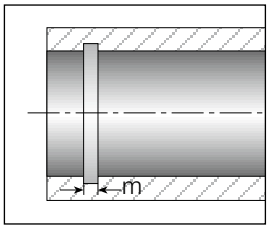
Insert Size	Ordering Code	Pitch	Dimensions mm					Anvil	Holder
IC		mm	R	g1	g2	t	t1		
3/8"	3IR0.50-D76ST-0.40	0.50	0.2	1.10	1.50	0.40	2.50	YI3M-1.5N	AVR..-3
	3IR0.60-D76ST-0.50	0.60	0.4	1.30	1.80	0.50	2.40		
	3IR0.70-D76ST-0.55	0.70	0.4	1.55	2.10	0.55	2.20		
	3IR0.80-D76ST-0.65	0.80	0.4	1.75	2.40	0.65	2.10		
	3IR1.00-D76ST-0.80	1.00	0.6	2.20	3.00	0.80	1.90		

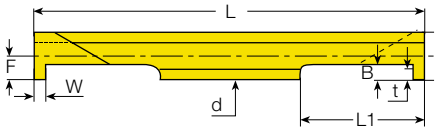
Standard (Short - Type D)

Insert Size	Ordering Code	Pitch	Dimensions mm					Anvil	Holder
IC		mm	R	g1	g2	t	t1		
3/8"	3IR1.00-D76SH-0.80	1.00	0.6	1.20	2.00	0.80	2.50	YI3M-1.5N	AVR..-3
	3IR1.25-D76SH-1.00	1.25	0.6	1.50	2.50	1.00	2.30		
	3IR1.50-D76SH-1.15	1.50	0.8	1.85	3.00	1.15	2.10		
	3IR1.75-D76SH-1.30	1.75	1.0	2.20	3.50	1.30	1.90		

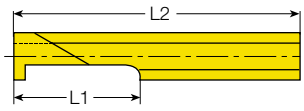
DIN 3770 - Grooves

Internal





RH-Double Ended



RH-Single Ended

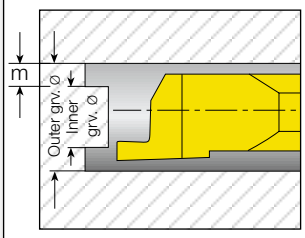
Micro

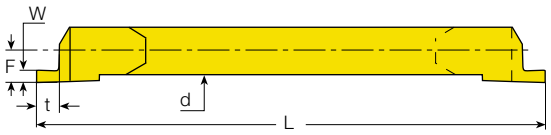
Insert dia.			Groove Std.		Dimensions mm							Min.
d mm	RH-Single Ended	RH-Double Ended	m (H13)	W	L1	L2	L	B	t	F	Holder	Bore dia.
6.0	6.0SIR1.6S-D3770S-1.5...1-SIDE	6.0SIR1.6S-D3770S-1.5...	1.6	1.98	9.0	36.0	36.0	2.0	1.5	2.9	SMC..-6.0	6.1
	6.0SIR1.6M-D3770S-1.5...1-SIDE	6.0SIR1.6M-D3770S-1.5...	1.6	1.98	16.0	43.0	50.0					
	6.0SIR1.6L-D3770S-1.5...1-SIDE	6.0SIR1.6L-D3770S-1.5...	1.6	1.98	21.0	50.0	60.0					
	6.0SIR2.0S-D3770D-1.8...1-SIDE	6.0SIR2.0S-D3770D-1.8...	2.0	2.38	9.0	36.0	36.0	2.0	1.8	2.9		
	6.0SIR2.0M-D3770D-1.8...1-SIDE	6.0SIR2.0M-D3770D-1.8...	2.0	2.38	16.0	43.0	50.0					
	6.0SIR2.0L-D3770D-1.8...1-SIDE	6.0SIR2.0L-D3770D-1.8...	2.0	2.38	21.0	50.0	60.0					

Range of profiles also available on IC 1/4", 1/2" and 5/8", inserts on request.
For minimum bore diameters, refer to page 149.

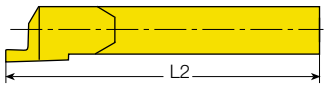
DIN 471 DIN 472 - Face Grooves

Internal





RH-Double Ended



RH-Single Ended

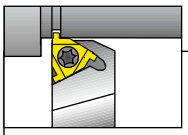
Micro (Partial Profile)

Insert Dia.			Groove Std.		Dimensions mm					Inner	Outer
d (mm)	**RH-**Single Ended	**RH-**Double Ended	**m (H13)**	**W**	**t**	**L**	**L2**	**F**	**Sleeve**	Groove Ø	Groove Ø
4.0	4.0SIR0.7A-D471/472-1.4...1-SIDE	4.0SIR0.7A-D471/472-1.4...	0.70	0.77	1.4	50	43	1.40	SMC..-4.0	3.50	5.00
	4.0SIR0.8A-D471/472-1.5...1-SIDE	4.0SIR0.8A-D471/472-1.5...	0.80	0.87	1.5					3.40	5.20
	4.0SIR0.9A-D471/472-1.6...1-SIDE	4.0SIR0.9A-D471/472-1.6...	0.90	0.97	1.6					3.30	5.30
	4.0SIR1.1A-D471/472-1.8...1-SIDE	4.0SIR1.1A-D471/472-1.8...	1.10	1.19	1.8					3.10	5.50
	4.0SIR1.3A-D471/472-2.0...1-SIDE	4.0SIR1.3A-D471/472-2.0...	1.30	1.39	2.0					2.90	5.70
	4.0SIR1.6A-D471/472-2.3...1-SIDE	4.0SIR1.6A-D471/472-2.3...	1.60	1.69	2.3					2.60	6.00
6.0	6.0SIR0.7A-D471/472-1.4...1-SIDE	6.0SIR0.7A-D471/472-1.4...	0.70	0.77	1.4	50	43	1.90	SMC..-6.0	5.50	7.00
	6.0SIR0.8A-D471/472-1.5...1-SIDE	6.0SIR0.8A-D471/472-1.5...	0.80	0.87	1.5					5.40	7.20
	6.0SIR0.9A-D471/472-1.6...1-SIDE	6.0SIR0.9A-D471/472-1.6...	0.90	0.97	1.6					5.30	7.30
	6.0SIR1.1A-D471/472-1.8...1-SIDE	6.0SIR1.1A-D471/472-1.8...	1.10	1.19	1.8					5.10	7.50
	6.0SIR1.3A-D471/472-2.0...1-SIDE	6.0SIR1.3A-D471/472-2.0...	1.30	1.39	2.0					4.90	7.70
	6.0SIR1.6A-D471/472-2.3...1-SIDE	6.0SIR1.6A-D471/472-2.3...	1.60	1.69	2.3					4.60	8.00
	6.0SIR1.85A-D471/472-2.5...1-SIDE	6.0SIR1.85A-D471/472-2.5...	1.85	1.94	2.5					4.40	8.20
	6.0SIR2.15A-D471/472-2.8...1-SIDE	6.0SIR2.15A-D471/472-2.8...	2.15	2.24	2.8					4.10	8.50
8.0	8.0SIR1.1A-D471/472-1.8...1-SIDE	8.0SIR1.1A-D471/472-1.8...	1.10	1.19	1.8	70	63	3.95	SMC..-8.0	8.06	10.44
	8.0SIR1.3A-D471/472-2.0...1-SIDE	8.0SIR1.3A-D471/472-2.0...	1.30	1.39	2.0					7.66	10.44
	8.0SIR1.6A-D471/472-2.3...1-SIDE	8.0SIR1.6A-D471/472-2.3...	1.60	1.69	2.3					7.06	10.44
	8.0SIR1.85A-D471/472-2.5...1-SIDE	8.0SIR1.85A-D471/472-2.5...	1.85	1.94	2.5					6.56	10.44
	8.0SIR2.15A-D471/472-2.8...1-SIDE	8.0SIR2.15A-D471/472-2.8...	2.15	2.24	2.8					5.96	10.44
	8.0SIR2.65A-D471/472-3.3...1-SIDE	8.0SIR2.65A-D471/472-3.3...	2.65	2.74	3.3					4.96	10.44
10.0	10.0SIR1.1A-D471/472-1.8...1-SIDE	10.0SIR1.1A-D471/472-1.8...	1.30	1.39	1.8	80	71	4.95	SMC..-10.0	9.66	12.44
	10.0SIR1.6A-D471/472-2.3...1-SIDE	10.0SIR1.6A-D471/472-2.3...	1.60	1.69	2.3					9.06	12.44
	10.0SIR1.85A-D471/472-2.5...1-SIDE	10.0SIR1.85A-D471/472-2.5...	1.85	1.94	2.5					8.56	12.44
	10.0SIR2.15A-D471/472-2.8...1-SIDE	10.0SIR2.15A-D471/472-2.8...	2.15	2.24	2.8					7.96	12.44
	10.0SIR2.65A-D471/472-3.3...1-SIDE	10.0SIR2.65A-D471/472-3.3...	2.65	2.74	3.3					6.96	12.44
	10.0SIR3.15A-D471/472-3.8...1-SIDE	10.0SIR3.15A-D471/472-3.8...	3.15	3.24	3.8					5.96	12.44
	10.0SIR4.15A-D471/472-4.8...1-SIDE	10.0SIR4.15A-D471/472-4.8...	4.15	4.24	4.8					3.96	12.44

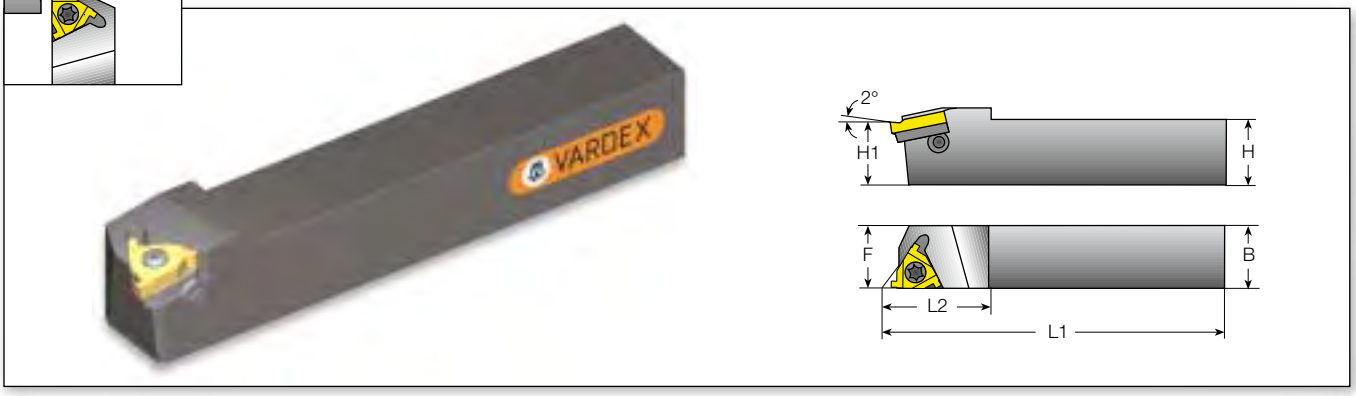
VARGUS

GROOVING TOOLHOLDERS

Contents



External Toolholders

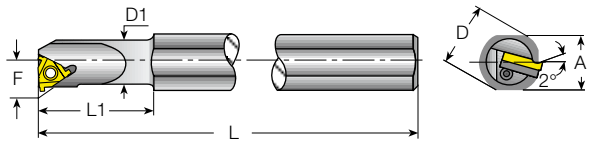


Standard

Insert Size	Ordering Code	Dimensions mm				Spare Parts			
									 *
IC		**H=H1=B**	**F**	**L1**	**L2**	Insert Screw	Anvil Screw	Torx Key	Anvil RH
1/4"	NL8-2	8	11	136.4	17.5	SN2T	-	K2T	**-**
	NL10-2	10	11	70.0	17.5				
	NL12-2	12	12	80.0	17.5				
3/8"	NL12-3	12	16	83.2	22.0	SA3T	SY3T	K3T	**YE3M-1.5N**
	AL3/8-3	9.52	16	63.6	20.5				
	AL12-3	12	16	100.0	22.0				
	AL16-3	16	16	82.3	20.5				
	AL20-3	20	20	128.6	30.0				
	AL25-3	25	25	153.6	30.0				
	AL32-3	32	32	173.6	30.0				
1/2"	AL25-4	25	25	155.7	36.0	SA4T	SY4T	K4T	**YE4M-1.5N**
	AL32-4	32	32	175.7	36.0				
	AL40-4	40	40	205.7	36.0				
5/8"	AL25-5	25	32	151.6	35.0	SA5T	SY5T	K5T	**YE5M-1.5N**
	AL32-5	32	32	176.6	40.0				
	AL40-5	40	40	206.6	40.0				
	AL50-5	50	50	256.6	40.0				

*** The toolholders are supplied with standard anvils. For Grooving, please use the anvils indicated in the table above.**

Internal Toolholders

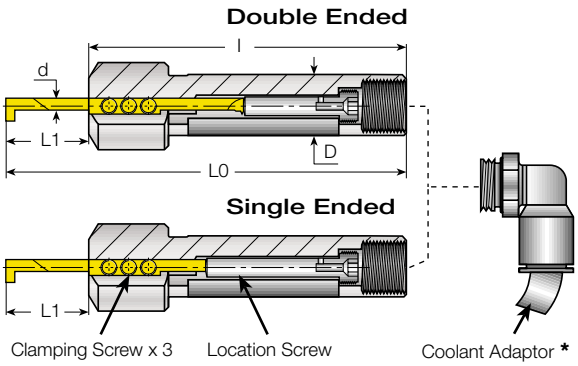


Standard

Insert Size	Ordering Code	Dimensions mm						Min. Bore dia.	Spare Parts			
IC		A	L	L1	D	D1	F	mm	Insert Screw	Anvil Screw	Torx Key	Anvil RH *
1/4"	NVR10D-2		100		10	10.0	7.3	13	SN2T	-	K2T	-
	NVR10-2	18.0	180	25	20	10.0	7.3	13				
	NVR13-2	18.0	180	32	20	13.0	8.9	16				
3/8"	NVR13-3	18.0	180	32	20	12.7	10.3	17	SN3T	-	K3T	-
	NVR16-3	18.0	180	40	20	16.0	11.5	20				
	NVR16D-3	15.2	150	32	16	16.0	11.3	20				
	AVR20-3	18.0	180	40	20	20.0	13.4	24	SA3T	SY3T	K3T	**YI3M-1.5N**
	AVR25-3	29.0	250	60	32	25.0	16.3	29				
	AVR25D-3	22.6	200	45	25	24.6	16.1	29				
	AVR32-3	29.0	250	60	32	32.0	19.6	36				
	AVR40-3	36.0	300	60	40	40.0	23.8	44				
1/2"	NVR20-4	18.0	180	50	20	20.0	15.6	27	SN4T	-	K4T	-
	AVR25-4	29.0	250	60	32	25.0	17.4	32	SA4T	SY4T	K4T	**YI4M-1.5N**
	AVR25D-4	22.6	200	45	25	24.6	17.2	32				
	AVR32-4	29.0	250	60	32	32.0	21.5	39				
	AVR40-4	36.0	300	60	40	40.0	25.8	47				
5/8"	AVR32-5	29.0	250	60	32	32.0	22.4	40	SA5T	SY5T	K5T	**YI5M-1.5N**
	AVR40-5	36.0	300	60	40	40.0	26.4	48				
	AVR50-5	45.0	350	75	50	50.0	31.4	58				
	AVR60-5	54.0	400	75	60	60.0	36.4	69				

***The toolholders are supplied with standard anvils. For Grooving, please use the anvils indicated in the table above.**
Holders with coolant channel available as standard. For ordering code see page 95.

Internal Toolholders



Micro

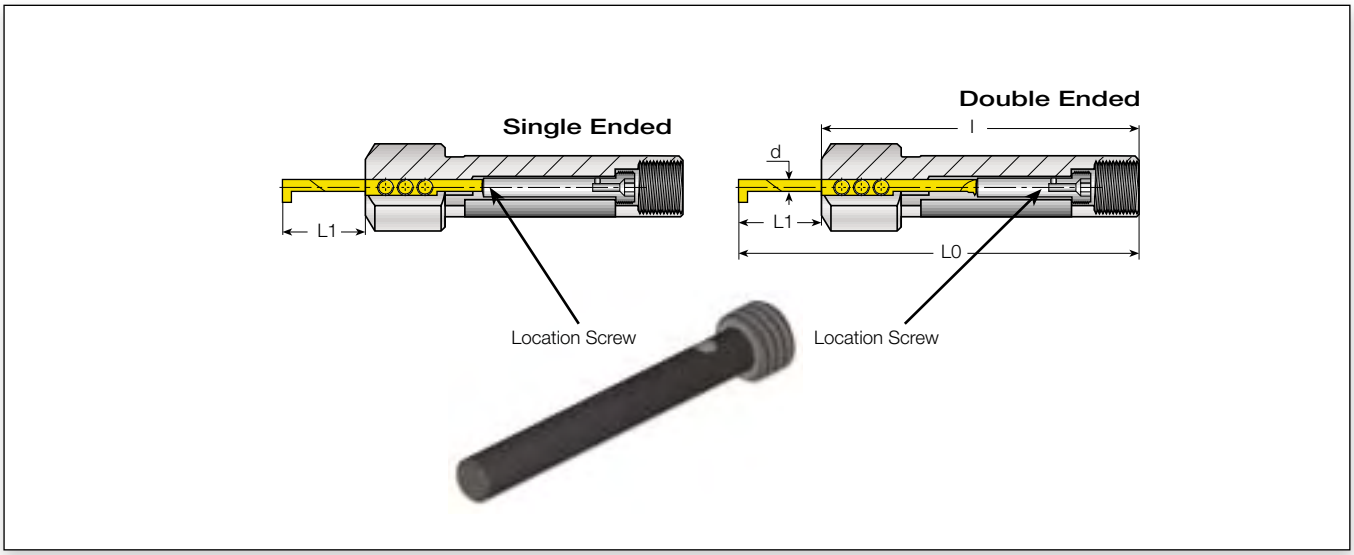
Micro Insert Dia.	Ordering Code	Dimensions		Spare Parts: Coolant Adaptor	Location Screw: Screw	Location Screw: Key	Clamping Screw x 3: Screw	Clamping Screw x 3: Key
d (mm)		**D**	**l**					
3.0	SMC10-3.0	10	80	-	see on next page	K4.0	M4X0.7X4.0	K2.0
	SMC12-3.0	12		-				
	SMC16-3.0	16	95	G1/4A				
	SMC20-3.0	20		G1/4A				
4.0	SMC10-4.0	10	80	-	see on next page	K4.0	M4X0.7X4.0	K2.0
	SMC12-4.0	12		-				
	SMC16-4.0	16	95	G1/4A				
	SMC20-4.0	20		G1/4A				
6.0	SMC12-6.0	12	80	-	see on next page	K4.0	M4X0.7X4.0	K2.0
	SMC16-6.0	16	95	G1/4A				
	SMC20-6.0	20		G1/4A				
8.0	SMC16-8.0	16	95	G1/4A	see on next page	K4.0	M6X1.0X5.0	K3.0
	SMC20-8.0	20		G1/4A				
10.0	SMC16-10.0	16	95	G1/4A	see on next page	K4.0	M6X1.0X5.0	K3.0
	SMC20-10.0	20		G1/4A				

* Coolant Adaptor is optional

continued on next page

NOTE: All Holders can be used for all single ended and double ended.

Internal Toolholders (con't)

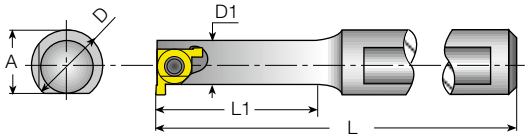


Spare Parts - Location Screws for Micro Toolholders*

Micro Insert Dia.	Toolholder	Dimensions mm			Location Screw			
d [mm]		**l**	**L1**	**L0**	**Single Ended**	**M**	**Double Ended**	**M**
3	SMC10-3.0 SMC12-3.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
		80	16 - Medium	96			4GISM8X21	21
	SMC16-3.0 SMC20-3.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
		95	16 - Medium	111			4GISM8X42	42
4	SMC10-4.0 SMC12-4.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
		80	16 - Medium	96			4GISM8X21	21
		80	21 - Long	101			4GISM8X16	16
	SMC16-4.0 SMC20-4.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
		95	16 - Medium	111			4GISM8X42	42
		95	21 - Long	116			4GISM8X37	37
6	SMC12-6.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
		80	16 - Medium	96			4GISM8X21	21
		80	21 - Long	101			4GISM8X16	16
	SMC16-6.0 SMC20-6.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
		95	16 - Medium	111			4GISM8X42	42
		95	21 - Long	116			4GISM8X37	37
8	SMC16-8.0 SMC20-8.0	95	12 - Short	107	4GISM8X33	33	4GISM8X33	33
		95	20 - Medium	115			4GISM8X25	25
		95	28 - Long	123			4GISM8X17	17
10	SMC16-10.0 SMC20-10.0	95	15 - Short	110	4GISM8X30	30	4GISM8X30	30
		95	25 - Medium	120			4GISM8X20	20
		95	35 - Long	130			4GISM8X10	10

* Every toolholder package contains the full range of location screws needed.

Internal Toolholders

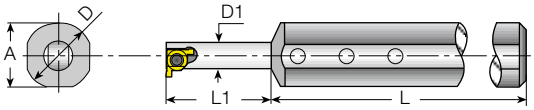


Mini-L

Insert Size	Ordering Code	Dimensions mm					Anti-Vibration System
IC		A	L	L1	D	D1	
5.0L	SNVR 10U-5L	9.4	81	16	10	6.2	N
	BNVR 10S-5L	9.4	87	22	10	6.2	Y
	BNVR 10M-5L	9.4	97	31	10	6.2	Y
	BNVR 10L-5L	9.4	109	43	10	6.2	Y

Spare Parts

Insert Screw	Torx Key
SN5LT	K5LT



Mini-L-Adjustable

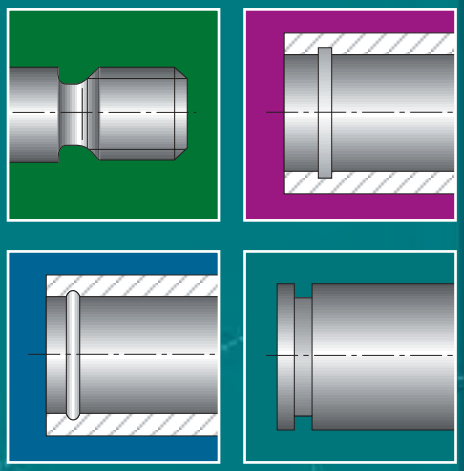
Insert Size	Ordering Code		Dimensions mm				
IC	Sleeve	Holder	A	L	L1	D	D1
5.0L	SV16-6.2	BNVR6.2T-5L	15.6	100	8-44	16	6.2

Spare Parts

Insert Screw	Torx Key for Insert Screw	Holder Screw x 3	Key for Holder Screw
SN5LT	K5LT	S4.0	K4.0

GROOVING TECHNICAL DATA

Contents



Recommended Grades, Cutting Speeds Vc [m/min] and Feed f [mm/rev]

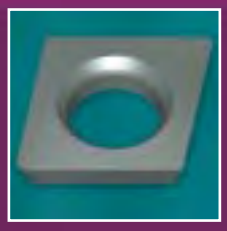
	Material		Hardness Brinell HB	Vc[m/min] Coated				Feed f [mm/rev]	
				Laydown Grooving VTX	Micro Grooving VMX	Mini Grooving VKP	Mini Grooving VHX	Laydown & Mini, Grooving	Micro Grooving
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	140-200	50-120	140-200	20-50	0.3	0.03
		Medium carbon (C=0.25-0.55 %)	150	120-180	40-100	120-180	15-40	0.15	0.02
		High carbon (C=0.55-0.85 %)	170	110-180	30-80	110-180	15-30	0.05	0.015
	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	100-155	50-70	100-155	20-45	0.25	0.02
		Hardened	275	90-145	40-60	90-145	10-25	0.1	0.015
		Hardened	350	80-135	30-50	80-135	10-25	0.05	0.01
	High alloy steel (alloying elements > 5%)	Annealed	200	70-115	30-50	65-115		0.2	0.02
		Hardened	325	50-100	25-40	50-100		0.05	0.01
	Cast steel	Low alloy (alloying elements <5%)	200	30-50	30-50	30-50	25-50	0.2	0.02
		High alloy (alloying elements >5%)	225	20-40	25-40	25-40	20-40	0.05	0.02
M	Stainless steel Feritic	Non hardened	200	70-120	60-100	80-120		0.2	0.015
		Hardened	330	60-95	40-60	55-95		0.05	0.01
	Stainless steel Austenitic	Austenitic	180	70-100	50-90	60-100		0.2	0.015
		Super austenitic	200	40-90	40-60	50-90		0.05	0.015
	Stainless steel Cast feritic	Non hardened	200	80-110	40-60	60-80		0.2	0.02
		Hardened	330	65-110	30-50	45-65		0.05	0.01
	Stainless steel Cast austenitic	Austenitic	200	85-100	40-60	50-70		0.2	0.02
		Hardened	330	60-100	30-50	40-60		0.05	0.01
	High temperature alloys	Annealed (Iron based)	200	45-60	25-45	25-45		0.2	0.015
		Aged (Iron based)	280	30-50	20-30	20-30		0.05	0.01
		Annealed (Nickel or Cobalt based)	250	20-30	15-20	15-20		0.05	0.015
		Aged (Nickel or Cobalt based)	350	15-25	10-15	10-15		0.05	0.01
	Titanium alloys	Pure 99.5 Ti	400Rm	140-170	60-100	60-100		0.1	0.02
		a+b alloys	1050Rm	50-70	40-50	40-50		0.05	0.02
K	Extra hard steel	Hardened & tempered	55HRc	45-60	20-40	20-40		0.02	0.01
	Malleable cast iron	Ferritic (short chips)	130	70-120	50-70	60-80		0.2	0.02
		Pearlitic (long chips)	230	70-120	50-71	60-80		0.15	0.01
	Grey cast iron	Low tensile strength	180	70-120	50-72	60-80		0.2	0.02
		High tensile strength	260	60-100	40-60	40-70		0.1	0.015
	Nodular SG iron	Feritic	160	50-80	50-70	60-80		0.2	0.02
		Pearlitic	260	60-90	60-80	70-90		0.1	0.015
	Aluminium alloys Wrought	non aging	60	100-240	100-300	80-240	30-60	0.4	0.03
		Aged	100	80-170	100-150	100-170	25-50	0.1	0.03
	Aluminium alloys	Cast	75	100-150	100-150	100-150	25-50	0.25	0.03
		Cast & aged	90	80-120	60-100	60-100	20-40	0.15	0.03
	Aluminium alloys	Cast Si 13-22%	130	100-150	100-150	100-150	15-30	0.15	0.02
	Copper and copper alloys	Brass	90	80-200	60-100	80-200	15-35	0.2	0.03
		Bronze and non leaded copper	100	80-200	60-100	80-200	15-35	0.15	0.03

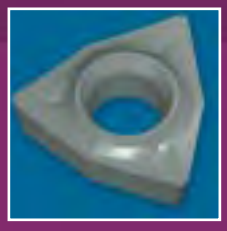
Grades and Their Application

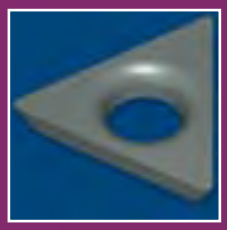
Grade	Application Type	Sample	Grade	Application Type	Sample
VTX	**General use carbide grade.** A tough sub-micron substrate with TiAlN coating Provides good fracture toughness and excellent wear resistance.		VKP	General use carbide grade for Mini inserts. TiN coated	
VMX	General use carbide grade for Micro inserts. TiN coated		VHX	General use HSS grade for Mini inserts. For machining at low cutting speed. TiN coated.	

BORING INSERTS

Contents







Vardex Ordering Code System
PowerBore Insert

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 0.156"** - Thickness-1.02mm
- **41-IC 0.160"** - Thickness-1.19mm
- **42-IC 0.156"** - Thickness-1.57mm
- **50-IC 0.187"** - Thickness-2.44mm

6 - Corner Radius
- **11- R 0.05**
- **12- R 0.18**
- **13- R 0.20**
- **14- R 0.38**

7 - Carbide Grade
- **VTX**

Vardex Ordering Code System
Micro Boring Insert

6.0	S	I	R	0.2	M		Bore		1	VMX	1-Side
1	2	3	4	5	6		7		8	9	10

1 - Insert Dia.
- **3.0**
- **4.0**
- **6.0**
- **8.0**
- **10.0**

2 - Tool Group
- **S** - Solid Carbide

3 - Type of Insert
- **I** - Internal

4 - Hand of Insert
- **R** - Right Hand Insert
- **L** - Left Hand Insert

5 - Corner Radius
- **0.2**

6 - Tool Length
- **S** - Short
- **M** - Medium
- **L** - Long

7 - Tool Application
- **Bore**
- **Copy**
- **Chamfer**
- **Back**
- **3527, 3537, 3547-Long Nose**
- **BD_Bore Drill**

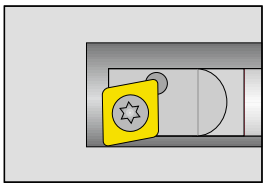
8 - Front Relief
- **1** - With Relief
- **0** - Without Relief

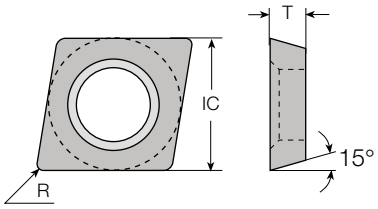
9 - Carbide Grade
- **VMX**

10 - Micro Ended
- **1-Side** - Single Ended
- **None** - Double Ended

Power Bore

Internal





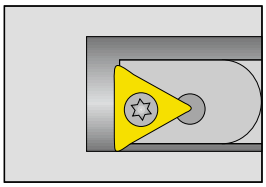
CD0W inserts for Series A Toolholders

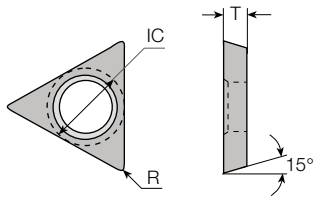
CD0W Inserts for Series A Toolholders

Insert Size	Ordering Code	Dimensions [mm]		Insert Screw
IC		R	T	
.156"	CD0W4011...	0.05	1.02	VS01
	CD0W4012...	0.18	1.02	
	CD0W4014...	0.38	1.02	

Power Bore

Internal





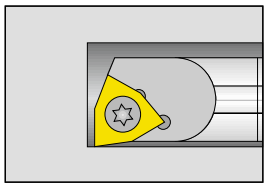
TD0W inserts for Series B Toolholders

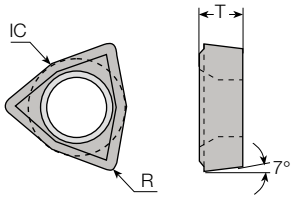
TD0W Inserts for Series B Toolholders

Insert Size	Ordering Code	Dimensions [mm]		Insert Screw
IC		R	T	
.160"	TD0W4111...	0.05	1.19	VS01, VS40
	TD0W4112...	0.18	1.19	
	TD0W4114...	0.38	1.19	

Power Bore

Internal





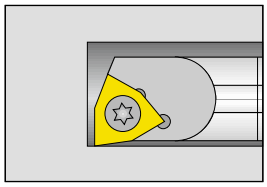
WC0W inserts for Series E Toolholders

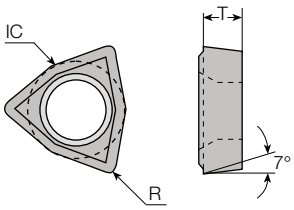
WC0W Inserts for Series E Toolholders

Insert Size	Ordering Code	Dimensions mm		Insert Screw
IC		R	T	
.156"	WC0W4213...	0.20	1.57	VS40
	WC0W4214...	0.38	1.57	

Power Bore

Internal





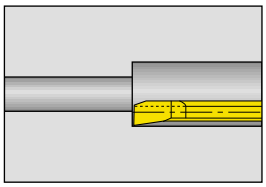
WC0W inserts for Series F Toolholders

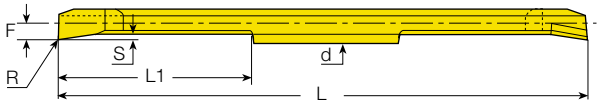
WC0W Inserts for Series F Toolholders

Insert Size	Ordering Code	Dimensions mm		Insert Screw
IC		R	T	
.187"	WC0W5013...	0.20	2.44	VS41
	WC0W5014...	0.38	2.44	

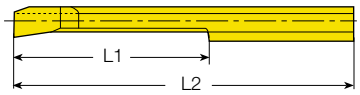
Micro Tooling

Internal





RH-Double Ended



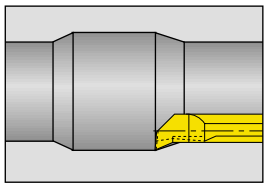
RH-Single Ended

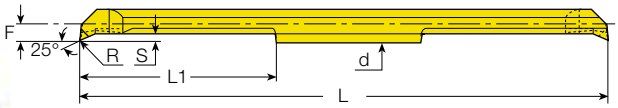
MicroBoring

Insert dia.			Dimensions mm						Holder	Min. Bore Ø
d mm	**RH-**Single Ended	**RH-**Double Ended	**R**	**L**	**L1**	**L2**	**F**	**S**		
3.0	3.0SIR0.2S-Bore-1...1-SIDE	3.0SIR0.2S-Bore-1...	0.2	36	9	36	1.42	0.66	SMC..-3.0	3.2
	3.0SIR0.2M-Bore-1...1-SIDE	3.0SIR0.2M-Bore-1...	0.2	50	16	43	1.42	0.66		
4.0	4.0SIR0.2S-Bore-1...1-SIDE	4.0SIR0.2S-Bore-1...	0.2	36	9	36	1.92	0.66	SMC..-4.0	4.2
	4.0SIR0.2M-Bore-1...1-SIDE	4.0SIR0.2M-Bore-1...	0.2	50	16	43	1.92	0.66		
	4.0SIR0.2L-Bore-1...1-SIDE	4.0SIR0.2L-Bore-1...	0.2	60	21	50	1.92	0.66		
6.0	6.0SIR0.2S-Bore-1...1-SIDE	6.0SIR0.2S-Bore-1...	0.2	36	9	36	2.92	0.77	SMC..-6.0	6.2
	6.0SIR0.2M-Bore-1...1-SIDE	6.0SIR0.2M-Bore-1...	0.2	50	16	43	2.92	0.77		
	6.0SIR0.2L-Bore-1...1-SIDE	6.0SIR0.2L-Bore-1...	0.2	60	21	50	2.92	0.77		
8.0	8.0SIR0.2S-Bore-1...1-SIDE	8.0SIR0.2S-Bore-1...	0.2	54	12	54	3.92	0.82	SMC..-8.0	8.2
	8.0SIR0.2M-Bore-1...1-SIDE	8.0SIR0.2M-Bore-1...	0.2	70	20	63	3.92	0.82		
	8.0SIR0.2L -Bore-1...1-SIDE	8.0SIR0.2L -Bore-1...	0.2	86	28	70	3.92	0.82		
10.0	10.0SIR0.2S-Bore-1...1-SIDE	10.0SIR0.2S-Bore-1...	0.2	60	15	60	4.92	1.00	SMC..-10.0	10.2
	10.0SIR0.2M-Bore-1...1-SIDE	10.0SIR0.2M-Bore-1...	0.2	80	25	71	4.92	1.00		
	10.0SIR0.2L-Bore-1...1-SIDE	10.0SIR0.2L-Bore-1...	0.2	100	35	80	4.92	1.00		

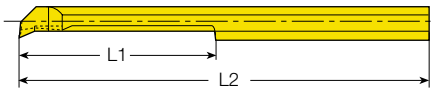
Micro Tooling

Internal





RH-Double Ended



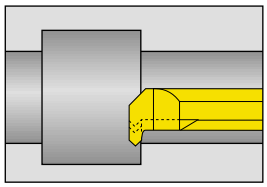
RH-Single Ended

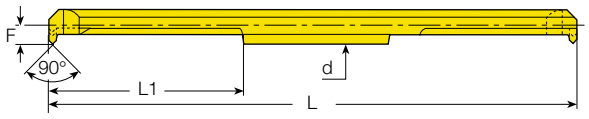
Micro Copy

Insert dia.			Dimensions mm						Holder	Min. Bore Ø
d (mm)	**RH-**Single Ended	**RH-**Double Ended	**R**	**L**	**L1**	**L2**	**F**	**S**		
4.0	4.0SIR0.2S-Copy-1...1-SIDE	4.0SIR0.2S-Copy-1...	0.2	36	9	36	1.92	1.0	SMC..-4.0	4.2
	4.0SIR0.2M-Copy-1...1-SIDE	4.0SIR0.2M-Copy-1...	0.2	50	16	43	1.92	1.0		
	4.0SIR0.2L-Copy-1...1-SIDE	4.0SIR0.2L-Copy-1...	0.2	60	21	50	1.92	1.0		
6.0	6.0SIR0.2S-Copy-1...1-SIDE	6.0SIR0.2S-Copy-1...	0.2	36	9	36	2.92	1.3	SMC..-6.0	7.0
	6.0SIR0.2M-Copy-1...1-SIDE	6.0SIR0.2M-Copy-1...	0.2	50	16	43	2.92	1.3		
	6.0SIR0.2L-Copy-1...1-SIDE	6.0SIR0.2L-Copy-1...	0.2	60	21	50	2.92	1.3		

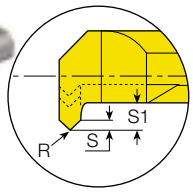
Micro Tooling

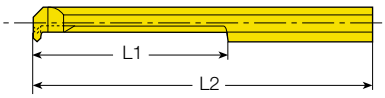
Internal





RH-Double Ended





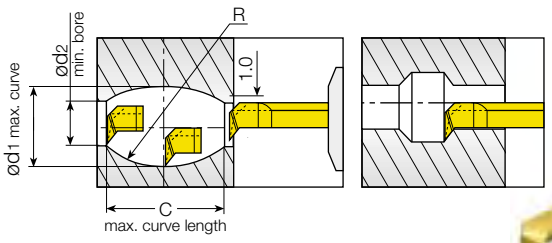
RH-Single Ended

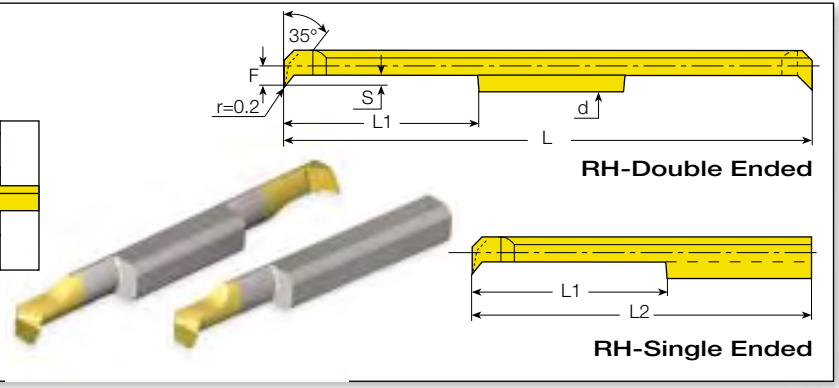
Micro Chamfer

Insert dia.			Dimensions mm							Holder	Min. Bore Ø
d (mm)	**RH-**Single Ended	**RH-**Double Ended	**R**	**L**	**L1**	**L2**	**F**	**S1**	**S**		
4.0	4.0SIR0.2S-Chamfer-0...1-SIDE	4.0SIR0.2S-Chamfer-0...	0.2	36	9	36	1.92	1.0	0.40	SMC...-4.0	4.2
	4.0SIR0.2M-Chamfer-0...1-SIDE	4.0SIR0.2M-Chamfer-0...	0.2	50	16	43	1.92	1.0	0.40		
	4.0SIR0.2L-Chamfer-0...1-SIDE	4.0SIR0.2L-Chamfer-0...	0.2	60	21	50	1.92	1.0	0.40		
6.0	6.0SIR0.2S-Chamfer-0...1-SIDE	6.0SIR0.2S-Chamfer-0...	0.2	36	9	36	2.92	1.2	0.70	SMC...-6.0	7.0
	6.0SIR0.2M-Chamfer-0...1-SIDE	6.0SIR0.2M-Chamfer-0...	0.2	50	16	43	2.92	1.2	0.70		
	6.0SIR0.2L-Chamfer-0...1-SIDE	6.0SIR0.2L-Chamfer-0...	0.2	60	21	50	2.92	1.2	0.70		

Micro Tooling

Internal





Micro Copy Long Nose

Insert dia.	Ordering Code		Dimensions mm					Holder	Max.Curve	Min.Bore
d (mm)	**RH-**Single Ended	**RH-**Double Ended	**L**	**L1**	**L2**	**F**	**S**		**d1**	**d2**
6.0	6.0SIR0.2S-3527-1...1-SIDE	6.0SIR0.2S-3527-1...	36	9	36	2.92	2.7	SMC...-6.0	12.3	6.9
	6.0SIR0.2M-3527-1...1-SIDE	6.0SIR0.2M-3527-1...	50	16	43	2.92	2.7			
	6.0SIR0.2L-3527-1...1-SIDE	6.0SIR0.2L-3527-1...	60	21	50	2.92	2.7			
8.0	8.0SIR0.2S-3537-1...1-SIDE	8.0SIR0.2S-3537-1...	54	12	54	3.92	3.7	SMC...-8.0	16.1	8.9
	8.0SIR0.2M-3537-1...1-SIDE	8.0SIR0.2M-3537-1...	70	20	63	3.92	3.7			
	8.0SIR0.2L-3537-1...1-SIDE	8.0SIR0.2L-3537-1...	86	28	70	3.92	3.7			
10.0	10.0SIR0.2S-3547-1...1-SIDE	10.0SIR0.2S-3547-1...	60	15	60	4.92	4.7	SMC...-10.0	20.2	10.8
	10.0SIR0.2M-3547-1...1-SIDE	10.0SIR0.2M-3547-1...	80	25	71	4.92	4.7			
	10.0SIR0.2L-3547-1...1-SIDE	10.0SIR0.2L-3547-1...	100	35	80	4.92	4.7			

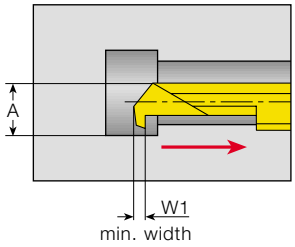
Note:

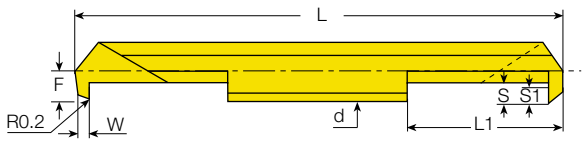
1.Radius R can be calculated using formula $R=(4S1^2+C^2)/8S1$.

2.Chord length can be calculated using formula $C=2\sqrt{2S1 \text{ X } R-S1^2}$

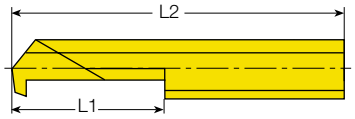
Micro Tooling

Internal





RH-Double Ended



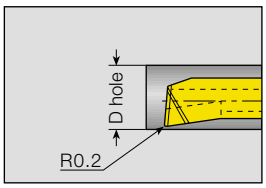
RH-Single Ended

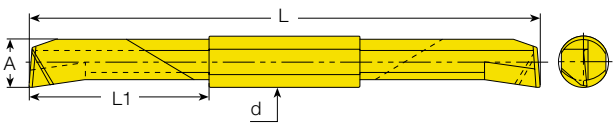
Micro - Back Edge

Insert dia.	Ordering Code		Dimensions mm								
d (mm)	**RH-**Single Ended	**RH-**Double Ended	**L**	**L1**	**L2**	**A**	**W**	**W1**	**F**	**S**	**S1**
3.0	3.0SIR0.2S-Back-1...1-SIDE	3.0SIR0.2S-Back-1...	36	9.0	36	3.42	1.5	1.81	1.42	0.8	0.6
	3.0SIR0.2M-Back-1...1-SIDE	3.0SIR0.2M-Back-1...	50	16.0	43						
4.0	4.0SIR0.2S-Back-1...1-SIDE	4.0SIR0.2S-Back-1...	36	9.0	36	4.44	2.0	2.34	1.92	1.3	1.0
	4.0SIR0.2M-Back-1...1-SIDE	4.0SIR0.2M-Back-1...	50	16.0	43						
	4.0SIR0.2L-Back-1...1-SIDE	4.0SIR0.2L-Back-1...	60	21.0	50						
6.0	6.0SIR0.2S-Back-1...1-SIDE	6.0SIR0.2S-Back-1...	36	9.0	36	6.44	2.0	2.46	2.92	1.9	1.6
	6.0SIR0.2M-Back-1...1-SIDE	6.0SIR0.2M-Back-1...	50	16.0	43						
	6.0SIR0.2L-Back-1...1-SIDE	6.0SIR0.2L-Back-1...	60	21.0	50						

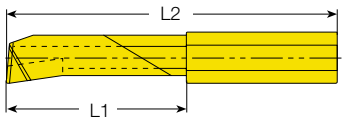
Micro Tooling

Internal





RH-Double Ended



RH-Single Ended

Micro Boredrill

Insert dia.	Ordering Code		Dimensions mm				Min.Bore dia.(mm)
d (mm)	**RH-**Single Ended	**RH-**Double Ended	**L**	**L1**	**L2**	**A**	**D**
4.0	4.0SIR0.2M-BD-1...1-SIDE	4.0SIR0.2M-BD-1...	50	16	43	3.53	3.74
6.0	6.0SIR0.2M-BD-1...1-SIDE	6.0SIR0.2M-BD-1...	50	16	43	5.20	5.80
	6.0SIR0.2L-BD-1...1-SIDE	6.0SIR0.2L-BD-1...	60	21	50		
8.0	8.0SIR0.2S-BD-1...1-SIDE	8.0SIR0.2S-BD-1...	54	12	54	6.90	7.80
	8.0SIR0.2M-BD-1...1-SIDE	8.0SIR0.2M-BD-1...	70	20	63		
	8.0SIR0.2L-BD-1...1-SIDE	8.0SIR0.2L-BD-1...	86	28	70		

VARGUS

BORING TOOLHOLDERS

Contents

Vardex Ordering Code System

PowerBore Holders

C	05	D	T	J		5
1	2	3	4	5		6

1 - Shank Style
C - Carbide
S - Steel

2 - Shank Dia.
04 - 4.0 mm
05 - 5.0 mm
06 - 6.0 mm
08 - 8.0 mm
10 - 10.0 mm
12 - 12.0 mm

3 - Bar Dia. [D1]
A - 4.2
B - 4.6
C - 4.8
D - 5.0
E - 5.2
F - 6.0
G - 6.4
H - 7.9
J - 8.0

4 - Insert Shape
C - Diamond 80 Deg.

T - Triangle

W- Trigon 80 Deg.

5 - Holder Length [L2]
A - 57
C - 64
D - 70
E - 76
G - 89
J - 102
P - 152

6 - Front Relief Angle
0, 5, 7

Micro & Adjustable Toolholders (Sleeves)

S	M	C	16	-	3
1	2	3	4		5

1 - Holder Shape
S - Sleeve

2 - Holder Type
V - Adjustable Holders for Mini
M - Micro

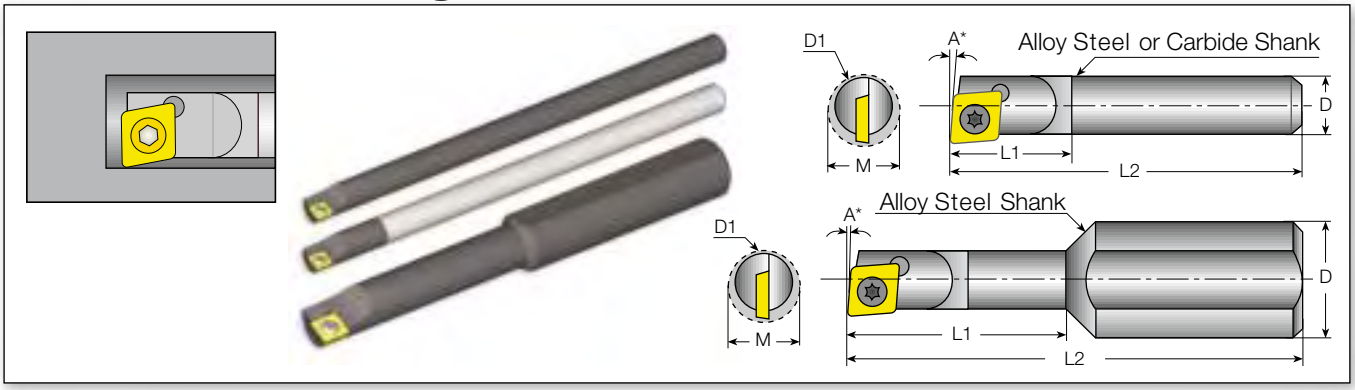
3 - Cooling
C - Coolant Channel

4 - Holder Dia.
10, 12, 16, 20

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

Power Bore

Series A - Boring Bars



Alloy Steel Shanks - Standard Size

Spare Parts

Shank	Ordering Code	A	D	D1	M	L2	L1			
		angle	shank dia	bar dia	min.bore	overall length	bar length	Insert Type	Screw	Torx Key
5.0	S05-ACC--7	7°	5.0	4.2	4.6	64	12	CD0W	VS01	VT51
	S05-BCC--5	5°	5.0	4.6	5.3	64				
	S05-DCC--5	5°	5.0	5.0	6.1	64	D1=D			
	S05-DCC--0	0°	5.0	5.0	6.4	64				
6.0	S06-FCE--5	5°	6.0	6.0	7.0	76				
	S06-FCE--0	0°	6.0	6.0	7.3	76				

Solid Carbide Shank with Alloy Steel Head - Standard Size

Spare Parts

Shank	Ordering Code	A	D	D1	M	L2	L1			
		angle	shank dia	bar dia	min.bore	overall length	bar length	Insert Type	Screw	Torx Key
4.0	C04-ACP--7	7°	4.0	4.2	4.6	152	12	CD0W	VS01	VT51
5.0	C05-CCJ--5	5°	5.0	4.8	5.5	102				
	C05-DCJ--5	5°	5.0	5.0	6.1	102	D1=D			
	C05-DCJ--0	0°	5.0	5.0	6.5	102				
6.0	C06-FCJ--5	5°	6.0	6.0	7.0	102				
	C06-FCJ--0	0°	6.0	6.0	7.3	102				

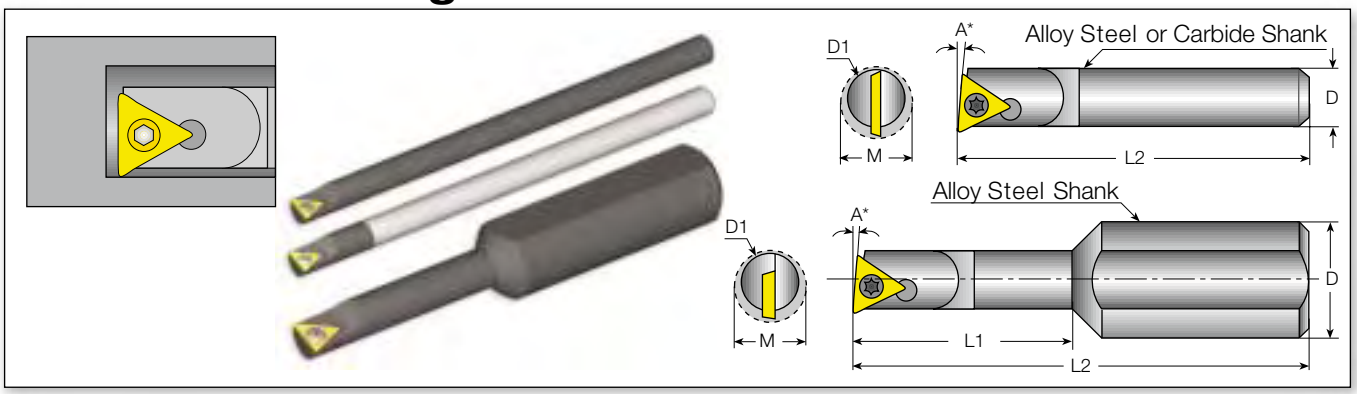
Alloy Steel Shanks - Oversize

Spare Parts

Shank	Ordering Code	A	D	D1	M	L2	L1			
		angle	shank dia	bar dia	min.bore	overall length	bar length	Insert Type	Screw	Torx Key
8.0	S08-BCA--5	5°	8.0	4.6	5.5	57	25	CD0W	VS01	VT51
	S08-ECA--5	5°	8.0	5.2	5.8	57				
	S08-ECA--0	0°	8.0	5.2	6.2	57				
	S08-GCC--5	5°	8.0	6.4	7.4	64	32			
	S08-GCC--0	0°	8.0	6.4	7.6	64				

* 5° angle for facing and through hole boring
* 0° angle for through hole boring and boring to a shoulder

Series B - Boring Bars



Alloy Steel Shanks - Standard Size

Spare Parts

Shank	Ordering Code	A	D = D1	M	L2	Insert Type	Screw	Torx Key
		angle	bar dia	min.bore	overall length			
5.0	S05-DTG--5	5°	5.0	7.1	89	TD0W	VS01	VT51
	S05-DTG--0	0°	5.0	7.1	89			
6.0	S06-FTJ--5	5°	6.0	7.3	102		VS40	
	S06-FTJ--0	0°	6.0	7.3	102			
8.0	S08-JTJ--5	5°	8.0	9.2	102			
	S08-JTJ--0	0°	8.0	9.2	102			

Solid Carbide Shank with Alloy Steel Head - Standard Size

Spare Parts

Shank	Ordering Code	A	D = D1	M	L2	Insert Type	Screw	Torx Key
		angle	bar dia	min.bore	overall length			
5.0	C05-DTJ--5	5°	5.0	7.1	102	TD0W	VS01	VT51
	C05-DTJ--0	0°	5.0	7.1	102			
6.0	C06-FTJ--5	5°	6.0	7.3	102		VS40	
	C06-FTJ--0	0°	6.0	7.3	102			
8.0	C08-JTJ--5	5°	8.0	9.2	102			
	C08-JTJ--0	0°	8.0	9.2	102			

Alloy Steel Shanks - Oversize

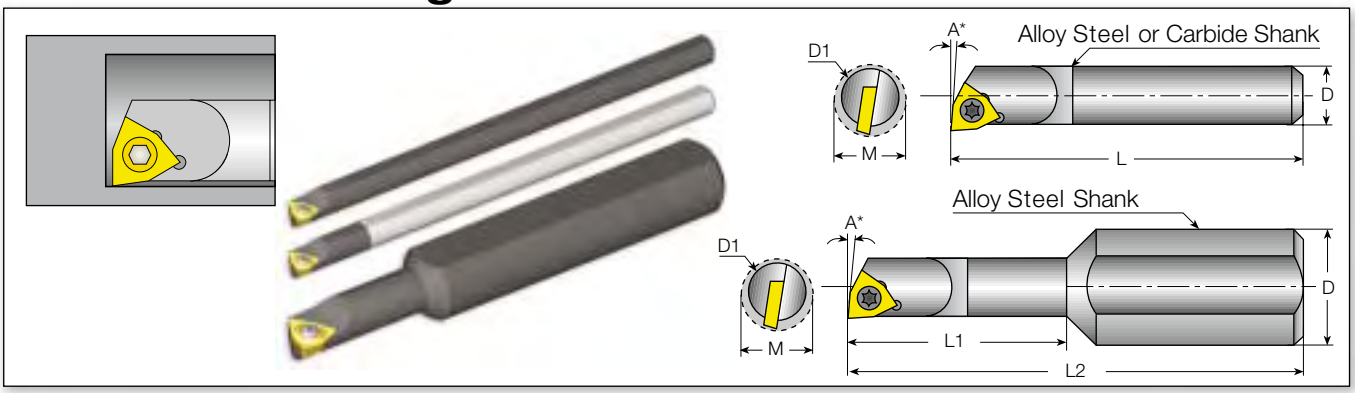
Spare Parts

Shank	Ordering Code	A	D	D1	M	L2	L1	Insert Type	Screw	Torx Key
		angle	shank dia	bar dia	min.bore	overall length	bar length			
12.0	S12-ETC--5	5°	12.0	5.2	6.9	64	25	TD0W	VS01	VT51
	S12-ETC--0	0°	12.0	5.2	6.9	64				
	S12-GTD--5	5°	12.0	6.4	7.6	70	32		VS40	
	S12-GTD--0	0°	12.0	6.4	7.6	70				
	S12-HTE--5	5°	12.0	7.9	9.1	76	38			
	S12-HTE--0	0°	12.0	7.9	9.1	76				

* 5° angle for facing and through hole boring
* 0° angle for through hole boring and boring to a shoulder

Power Bore

Series E - Boring Bars



Alloy Steel Shanks - Standard Size

Spare Parts

Shank	Ordering Code	A	D = D1	M	L	Insert Type	Screw	Torx Key
		angle	bar dia.	min.bore	bar length			
5.0	S05-DWC--5	5°	5.0	6.1	64	WC0W4213 WC0W4214	VS40	VT51
	S05-DWC--0	0°	5.0	6.4	64			
6.0	S06-FWJ--5	5°	6.0	7.0	102			
	S06-FWJ--0	0°	6.0	7.3	102			

Solid Carbide Shank with Alloy Steel Head - Standard Size

Spare Parts

Shank	Ordering Code	A	D = D1	M	L	Insert Type	Screw	Torx Key
		angle	bar dia.	min.bore	bar length			
5.0	C05-DWJ--5	5°	5.0	6.1	102	WC0W4213 WC0W4214	VS40	VT51
	C05-DWJ--0	0°	5.0	6.4	102			
6.0	C06-FWJ--5	5°	6.0	7.0	102			
	C06-FWJ--0	0°	6.0	7.3	102			

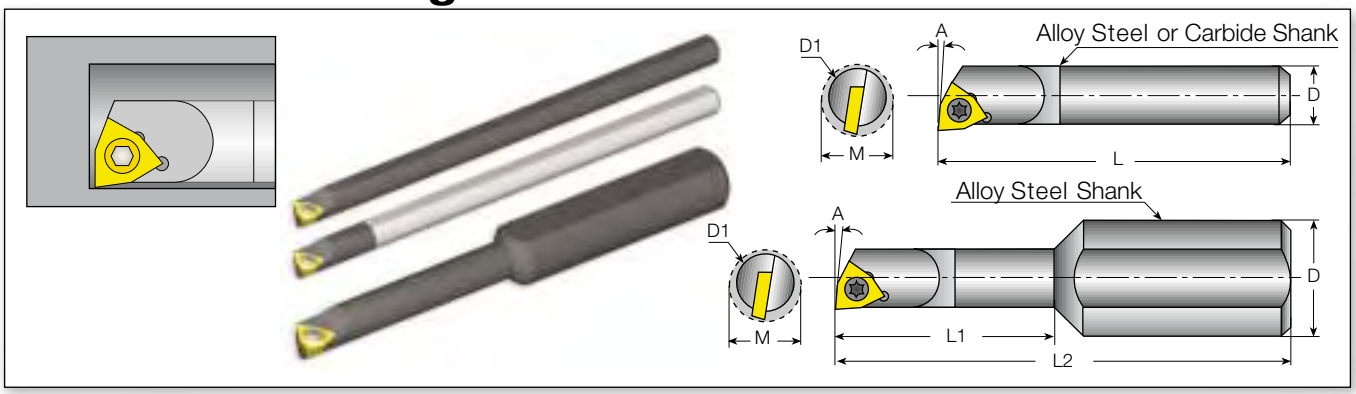
Alloy Steel Shanks - Oversize

Spare Parts

Shank	Ordering Code	A	D	D1	M	L2	L1	Insert Type	Screw	Torx Key
		angle	shank dia	bar dia	min.bore	overall length	bar length			
10.0	S10-EWA--5	5°	10.0	5.2	5.8	57	13	WC0W4213 WC0W4214	VS40	VT51
	S10-EWA--0	0°	10.0	5.2	6.2	57				
	S10-GWC--5	5°	10.0	6.4	7.4	64	19			
	S10-GWC--0	0°	10.0	6.4	7.6	64				

* 5° angle for facing and through hole boring
* 0° angle for through hole boring and boring to a shoulder

Series F - Boring Bars



Alloy Steel Shanks - Standard Size

Shank	Ordering Code	A	D=D1	M	L	Spare Parts		
		angle	bar dia	min.bore	bar length	Insert Type	Screw	Torx Key
8.0	S08-JWJ--5	5°	8.0	9.2	102	WCOW5013	VS41	VT51
	S08-JWJ--0	0°	8.0	9.2	102	WCOW5014		

Solid Carbide Shank with Alloy Steel Head - Standard Size

Shank	Ordering Code	A	D=D1	M	L	Spare Parts		
		angle	bar dia	min.bore	bar length	Insert Type	Screw	Torx Key
8.0	C08-JWJ--5	5°	8.0	9.2	102	WC0W5013	VS41	VT51
	C08-JWJ--0	0°	8.0	9.2	102	WC0W5014		

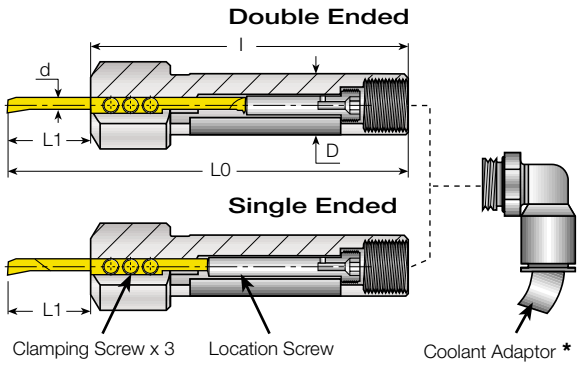
Alloy Steel Shanks - Oversize

Shank	Ordering Code	A	D	D1	M	L2	L1	Spare Parts		
		angle	shank dia	bar dia	min.bore	overall length	bar length	Insert Type	Screw	Torx Key
10.0	S10-HWE--5	5°	10.0	7.9	9.2	76	38	WC0W5013	VS41	VT51
	S10-HWE--0	0°	10.0	7.9	9.2	76	38	WC0W5014		

* 5° angle for facing and through hole boring
* 0° angle for through hole boring and boring to a shoulder

Power Bore

Internal Toolholders



Micro

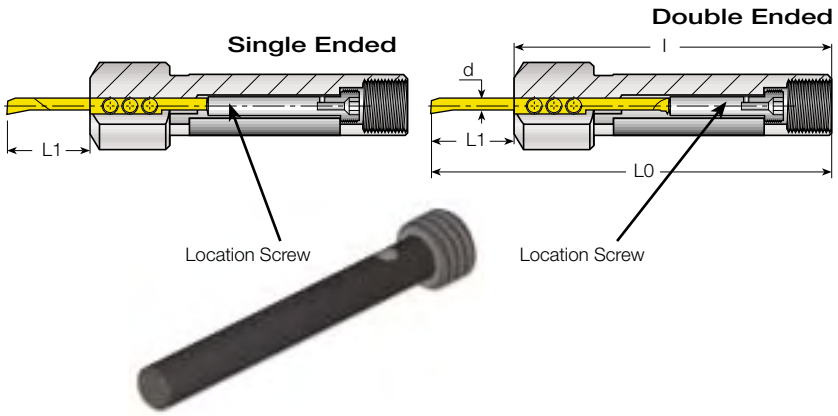
Micro Insert Dia.	Ordering Code	Dimensions		Spare Parts: Coolant Adaptor	Location Screw: Screw	Location Screw: Key	Clamping Screw x 3: Screw	Clamping Screw x 3: Key
d (mm)		**D**	**l**					
3.0	SMC10-3.0	10	80	-	see on next page	K4.0	M4X0.7X4.0	K2.0
	SMC12-3.0	12		-				
	SMC16-3.0	16	95	G1/4A				
	SMC20-3.0	20		G1/4A				
4.0	SMC10-4.0	10	80	-	see on next page	K4.0	M4X0.7X4.0	K2.0
	SMC12-4.0	12		-				
	SMC16-4.0	16	95	G1/4A				
	SMC20-4.0	20		G1/4A				
6.0	SMC12-6.0	12	80	-	see on next page	K4.0	M4X0.7X4.0	K2.0
	SMC16-6.0	16	95	G1/4A				
	SMC20-6.0	20		G1/4A				
8.0	SMC16-8.0	16	95	G1/4A	see on next page	K4.0	M6X1.0X5.0	K3.0
	SMC20-8.0	20		G1/4A				
10.0	SMC16-10.0	16	95	G1/4A	see on next page	K4.0	M6X1.0X5.0	K3.0
	SMC20-10.0	20		G1/4A				

* Coolant Adaptor is optional

continued on next page

NOTE: All Holders can be used for all single ended and double ended.

Internal Toolholders (con't)



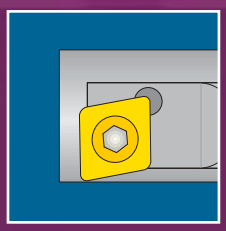
Spare Parts - Location Screws for Micro Toolholders*

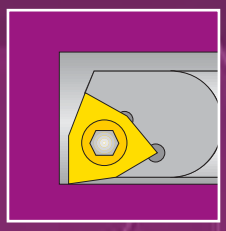
Micro Insert Dia.	Toolholder	Dimensions mm			Location Screw			
d [mm]		**l**	**L1**	**L0**	**Single Ended**	**M**	**Double Ended**	**M**
3	SMC10-3.0 SMC12-3.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
		80	16 - Medium	96			4GISM8X21	21
	SMC16-3.0 SMC20-3.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
		95	16 - Medium	111			4GISM8X42	42
4	SMC10-4.0 SMC12-4.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
		80	16 - Medium	96			4GISM8X21	21
		80	21 - Long	101			4GISM8X16	16
	SMC16-4.0 SMC20-4.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
		95	16 - Medium	111			4GISM8X42	42
		95	21 - Long	116			4GISM8X37	37
6	SMC12-6.0	80	9 - Short	89	4GISM8X28	28	4GISM8X28	28
		80	16 - Medium	96			4GISM8X21	21
		80	21 - Long	101			4GISM8X16	16
	SMC16-6.0 SMC20-6.0	95	9 - Short	104	4GISM8X49	49	4GISM8X49	49
		95	16 - Medium	111			4GISM8X42	42
		95	21 - Long	116			4GISM8X37	37
8	SMC16-8.0 SMC20-8.0	95	12 - Short	107	4GISM8X33	33	4GISM8X33	33
		95	20 - Medium	115			4GISM8X25	25
		95	28 - Long	123			4GISM8X17	17
10	SMC16-10.0 SMC20-10.0	95	15 - Short	110	4GISM8X30	30	4GISM8X30	30
		95	25 - Medium	120			4GISM8X20	20
		95	35 - Long	130			4GISM8X10	10

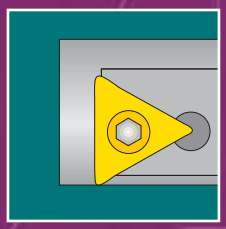
* Every toolholder package contains the full range of location screws needed.

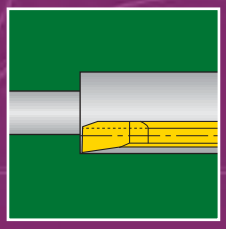
BORING TECHNICAL DATA

Contents









Spare Parts PowerBore

Insert	Boring Bar	Insert	Torx Screw	Screw Description	Torx Key
	A	CD0W	VS01	1-72 Oval X 2.77LG.	VT51
	B	TD0W Min. Bore 7.1 > Bore 7.1	VS01 VS40	1-72 Oval X 2.77LG. M2 X .4 I.S.O. X 3.86LG.	
	E	WC0W4213, WC0W4214	VS40	M2 X .4 I.S.O. X 3.86LG.	
	F	WC0W5013, WC0W5014	VS41	M2 X .4 I.S.O. X 4.90LG.	

Recommended Grades, Cutting Speeds Vc [m/min], Feed f [mm/rev] and Max Depth [mm]

	Material		Hardness Brinell HB	Vc[m/min] Coated PowerBore VTX	Vc[m/min] Coated Micro VMX	Feed f [mm/rev] PowerBore	Feed f [mm/rev] Micro	Max. depth [mm] PowerBore CD0W	Max. depth [mm] PowerBore TD0W	Max. depth [mm] PowerBore WD0W	Max. depth [mm] Micro
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	115-190	50-120	0.25	0.055	0.5	0.45	0.6	0.4
		Medium carbon (C=0.25-0.55 %)	150	100-175	40-100	0.2	0.04	0.5	0.45	0.6	0.4
		High carbon (C=0.55-0.85 %)	170	90-165	30-80	0.15	0.03	0.5	0.45	0.6	0.4
	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	85-145	50-70	0.2	0.04	0.4	0.35	0.5	0.3
		Hardened	275	75-140	40-60	0.15	0.04	0.4	0.35	0.5	0.3
		Hardened	350	70-135	30-50	0.1	0.03	0.4	0.35	0.5	0.3
	High alloy steel (alloying elements > 5%)	Annealed	200	70-110	30-50	0.1	0.04	0.2	0.18	0.4	0.15
		Hardened	325	50-100	25-40	0.05	0.03	0.2	0.18	0.4	0.15
	Cast steel	Low alloy (alloying elements <5%)	200	75-140	30-50	0.25	0.04	0.2	0.18	0.4	0.15
		High alloy (alloying elements >5%)	225	60-120	25-40	0.1	0.04	0.2	0.18	0.4	0.15
M	Stainless steel Feritic	Non hardened	200	70-130	60-100	0.2	0.04	0.25	0.22	0.5	0.2
		Hardened	330	60-115	40-60	0.08	0.03	0.2	0.18	0.4	0.15
	Stainless steel Austenitic	Austenitic	180	90-140	50-90	0.2	0.04	0.25	0.22	0.5	0.2
		Super austenitic	200	40-110	40-60	0.08	0.04	0.2	0.18	0.4	0.15
	Stainless steel Cast feritic	Non hardened	200	90-120	40-60	0.2	0.04	0.25	0.22	0.5	0.2
		Hardened	330	65-110	30-50	0.08	0.03	0.2	0.18	0.4	0.15
	Stainless steel Cast austenitic	Austenitic	200	85-110	40-60	0.2	0.04	0.25	0.22	0.5	0.2
		Hardened	330	60-100	30-50	0.08	0.03	0.2	0.18	0.4	0.15
	High temperature alloys	Annealed (Iron based)	200	45-60	25-45	0.2	0.04	0.25	0.22	0.5	0.2
		Aged (Iron based)	280	30-50	20-30	0.08	0.03	0.2	0.18	0.4	0.15
		Annealed (Nickel or Cobalt based)	250	20-30	15-20	0.08	0.015	0.2	0.18	0.4	0.15
		Aged (Nickel or Cobalt based)	350	15-25	10-15	0.05	0.01	0.2	0.18	0.4	0.15
	Titanium alloys	Pure 99.5 Ti	400Rm	140-170	60-100	0.05	0.02	0.2	0.18	0.4	0.15
		a+b alloys	1050Rm	50-70	40-50	0.05	0.02	0.2	0.18	0.4	0.15
K	Extra hard steel	Hardened & tempered	55HRc	45-60	20-40	0.02	0.01	0.1	0.05	0.2	0.05
	Malleable cast iron	Ferritic (short chips)	130	70-160	50-70	0.15	0.02	0.3	0.3	0.4	0.25
		Pearlitic (long chips)	230	60-145	50-70	0.1	0.01	0.3	0.3	0.4	0.25
	Grey cast iron	Low tensile strength	180	70-130	50-72	0.15	0.02	0.5	0.45	0.6	0.4
		High tensile strength	260	60-115	40-60	0.1	0.015	0.5	0.45	0.6	0.4
	Nodular SG iron	Feritic	160	125-160	50-70	0.15	0.02	0.5	0.45	0.6	0.4
		Pearlitic	260	90-120	60-80	0.1	0.015	0.5	0.45	0.6	0.4
	Aluminium alloys Wrought	non aging	60	100-365	100-300	0.3	0.03	0.76	0.63	1.0	0.5
		Aged	100	80-220	100-150	0.2	0.03	0.76	0.63	1.0	0.5
	Aluminium alloys	Cast	75	200-400	100-150	0.3	0.03	0.76	0.63	1.0	0.5
		Cast & aged	90	200-280	60-100	0.2	0.03	0.76	0.63	1.0	0.5
	Aluminium alloys	Cast Si 13-22%	130	60-180	100-150	0.3	0.02	0.76	0.63	1.0	0.5
	Copper and copper alloys	Brass	90	80-225	60-100	0.3	0.03	0.76	0.63	1.0	0.5
		Bronze and non leaded copper	100	80-255	60-100	0.2	0.03	0.76	0.63	1.0	0.5

Grades and Their Applications

Grade	Application	Sample
VTX	**General use carbide grade.** A tough sub-micron substrate with TiAlN coating Provides good fracture toughness and excellent wear resistance.	
VMX	General use carbide grade for Micro inserts. TiN coated	

VARGUS

MILLING

Contents

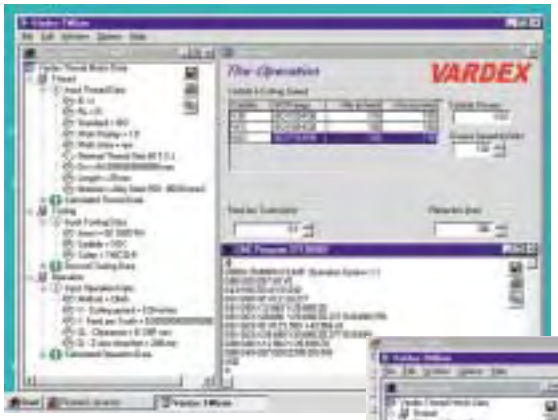
THREAD MILLING

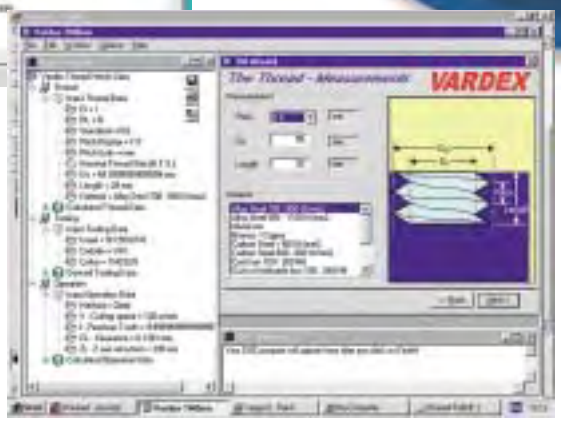
GROOVE MILLING

VARGUS TM Gen CD for CNC Programming (Compatible with Windows 95 and Up, Windows NT)

Thread Milling Software

Using VARDEX Thread Milling system is simple. Vargus has developed a CD for CNC programming. All the operator has to do is enter the basic thread parameters and then follow the computer instructions, which lead the operator to the correct choice of tool for the job on hand. The software will then generate the helical interpolation for the CNC program. It couldn't be simpler!





Ask your dealer for a free copy of the VARGUS TM CD!

The Right Tool for the Job

Toolholder: TMC Insert: TM2
For standard length threads

Toolholder: TMLC Insert: TM2
For long or remote threads

Toolholder: TMNC Insert: TM (BSPT, NPT, NPTF)
For tapered threads

Toolholder: TM2C Insert: TM2
TM2 twin flute tool with two inserts
for faster feed rates and tough materials

Toolholder: TMC or 124/... Insert: Coarse Pitch 028/...TM2
For thread milling large pitch to bore diameter ratio

Toolholder: TMC Insert: TM2F
For fine thread pitches

Toolholder: BTMC...-B Insert: TM2 IC $^{3}/_{8}$"B, IC $^{3}/_{4}$"B
For long threads extra vibration resistant

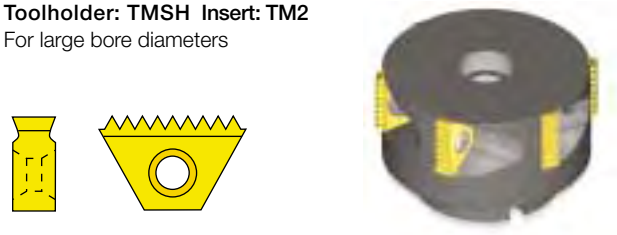
Toolholder: TMOC Insert: TM2
For long threads with two offset inserts

Toolholder: TMMC Insert: TM IC 6.0 mm
For small bore diameters down to 9.5mm

Toolholder: TMSC Insert: IC 1/4" Laydown Thread Turning
Single point thread milling with laydown
thread turning inserts

Toolholder: TMVC
Insert: 5/8"V (T=6) Vertical Thread Turning
Single point thread milling with vertical
thread turning inserts,
for large pitches

Toolholder: TMSH Insert: TM2
For large bore diameters



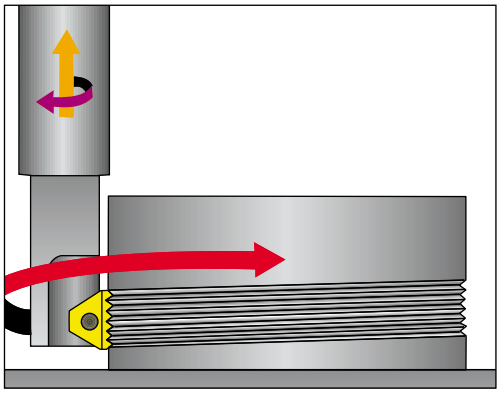
TM Solid Carbide Straight Flute
For small bores diameters.
Normal use.

TM Solid Carbide Helical Flute
For small bores diameters.
Heavy duty.

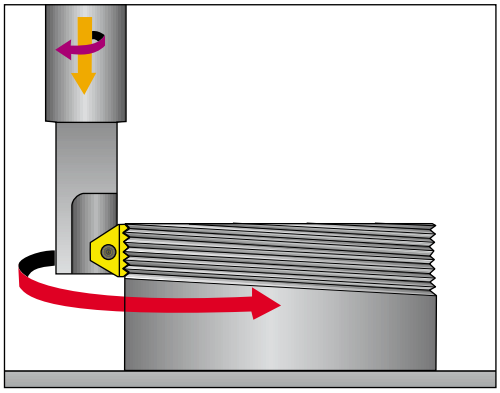
Thread Milling Methods

External

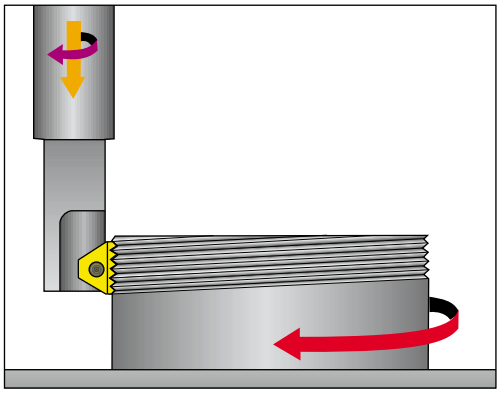
Right Hand Thread - Conventional Milling



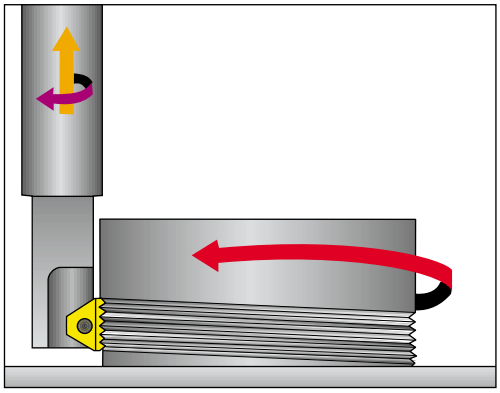
Left Hand Thread - Conventional Milling



Right Hand Thread - Climb Milling

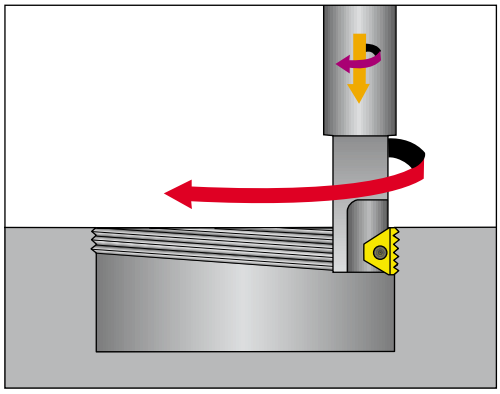


Left Hand Thread - Climb Milling

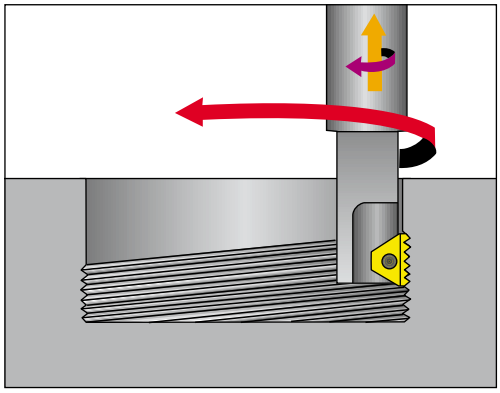


Internal

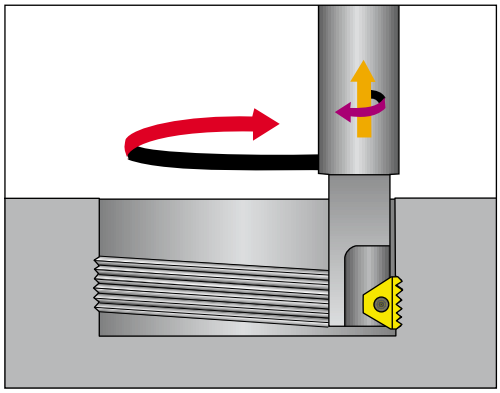
Right Hand Thread - Conventional Milling



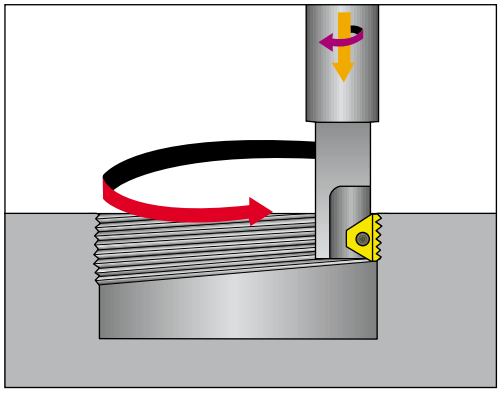
Left Hand Thread - Conventional Milling



Right Hand Thread - Climb Milling



Left Hand Thread - Climb Milling



Tooling recommendation*
for given **Internal** thread specification

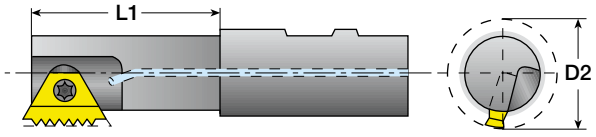
(For TM Solid Carbide tools see pages 226-237)

Vargus TM GEN CD
for Tool Selection
and CNC programming

ISO

Pitch mm	Nominal Dia. mm	Holder	Insert	L_1-Toolholder Overhang	D_2-Tool Cutting dia.*	$h_{min.}$ - Thread Profile depth
0.75	10	TMMC12-6.0	6.0I0.75ISOTM...028/001	12.0	9.0	0.43
	11	TMMC12-6.0	6.0I0.75ISOTM...	12.0	9.0	
1.0	12-14	TMMC12-6.0	6.0I1.0ISOTM..	12.0	9.0	0.58
	15-18	TMMC12-2	2I1.0ISOTM2...	12.0	11.5	
	20	TMC16-3	3I1.0ISOTM2...	22.0	17.0	
	22	BTMC20-3B	3BI1.0ISOTM2...	29.0	19.0	
	24	TMC20-3	3I1.0ISOTM2...	43.0	20.0	
	25-28	TMLC25-3	3I1.0ISOTM2...	25.0	22.0	
	30	TM2C25-3	3I1.0ISOTM2...	43.0	26.0	
1.25	12	TMMC12-6.0	6.0I1.25ISOTM...028/002	12.0	9.0	0.72
	14	TMMC12-6.0	6.0I1.25ISOTM...	12.0	9.0	
1.5	14-15	TMMC12-6.0	6.0I1.5ISOTM...	12.0	9.0	0.87
	16-20	TMC12-2	2I1.5ISOTM2...	12.0	11.5	
	22	TMC16-3	3I1.5ISOTM2...	22.0	17.0	
	24	BTMC20-3B	3BI1.5ISOTM2...	29.0	19.0	
	25-26	TMC20-3	3I1.5ISOTM2...	43.0	20.0	
	27-30	TMLC25-3	3I1.5ISOTM2...	25.0	22.0	
	32-33	TM2C25-3	3I1.5ISOTM2...	43.0	26.0	
	35-42	TMC25-5	5I1.5ISOTM2...	52.0	30.0	
	45	TMC32-5	5I1.5ISOTM2...	58.0	37.0	
	48-55	TM2C32-5	5I1.5ISOTM2...	45.0	42.0	
	56-68	TMSH-D50-22-3	3I1.5ISOTM2...		50.0	
	70-80	TMSH-D63-22-5	5I1.5ISOTM2...		63.0	
1.75	12	TMMC20-6.0 124/003	6.0I1.75ISOTM...028/003	15.0	9.0	1.01
2.0	14-20	TMC12-2	2I2.0ISOTM...028/004	12.0	11.5	1.15
	22	TMNC16-3	3I2.0ISOTM2...	22.0	15.5	
	24	TMC16-3	3I2.0ISOTM2...	22.0	17.0	
	25	BTMC20-3B	3BI2.0ISOTM2...	29.0	19.0	
	27	TMC20-3	3I2.0ISOTM2...	43.0	20.0	
	28-32	TMLC25-3	3I2.0ISOTM2...	25.0	22.0	
	33-36	TM2C25-3	3I2.0ISOTM2...	43.0	26.0	
	39-42	TMC25-5	5I2.0ISOTM2...	52.0	30.0	
	45-48	TMC32-5	5I2.0ISOTM2...	58.0	37.0	
	50-56	TM2C32-5	5I2.0ISOTM2...	45.0	42.0	
	58-68	TMSH-D50-22-3	3I2.0ISOTM2...		50.0	
	70-85	TMSH-D63-22-5	5I2.0ISOTM2...		63.0	
	90-105	TMSH-D80-27-5	5I2.0ISOTM2...		80.0	
	110-130	TMSH-D100-32-5	5I2.0ISOTM2...		100.0	
	135-150	TMSH-D125-40-5	5I2.0ISOTM2...		125.0	
2.5	20	TMC16-3 124/001	3I2.5ISOTM...028/005	20.5	15.50	1.44
	22	TMC25-4 124/002	4I2.5ISOTM...028/006	30.0	18.0	

* **The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**



Tooling recommendation*
for given **Internal** thread specification

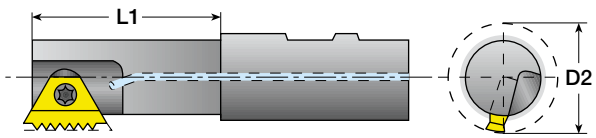
(For TM Solid Carbide tools see pages 226-237)

Vargus TM GEN CD
for Tool Selection
and CNC programming

ISO

Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
mm	mm			Overhang	Cutting dia.*	Profile depth
3.0	24-33	TMC25-4 124/002	4I3.0ISOTM...028/007	30.0	18.0	1.73
	36-40	TMC25-5	5I3.0ISOTM...028/009	52.0	30.0	
	42-48	TMC25-5	5I3.0ISOTM2...	52.0	30.0	
	50-52	TMC32-5	5I3.0ISOTM2...	58.0	37.0	
	55-72	TM2C32-5	5I3.0ISOTM2...	45.0	42.0	
	75-90	TMSH-D63-22-5	5I3.0ISOTM2...		63.0	
	95-110	TMSH-D80-27-5	5I3.0ISOTM2...		80.0	
	115-135	TMSH-D100-32-5	5I3.0ISOTM2...		100.0	
	140-250	TMSH-D125-40-5	5I3.0ISOTM2...		125.0	
3.5	30-33	TMC25-5 124/004	5I3.5ISOTM...028/008	40.0	25.0	2.02
4.0	36-42	TMC25-5	5I4.0ISOTM...028/010	52.0	30.0	2.31
	45-52	TMC25-5	5I4.0ISOTM2...	52.0	30.0	
	55	TMC32-6B	6BI4.0ISOTM2...	55.0	35.0	
	56-58	TMC32-5	5I4.0ISOTM2...	58.0	37.0	
	60-65	TMC40-6B	6BI4.0ISOTM2...	65.0	46.0	
	68-76	TM2C40-6B	6BI4.0ISOTM2...	65.0	52.0	
	80-90	TMSH-D63-22-6B	6BI4.0ISOTM2...		63.0	
	95-110	TMSH-D80-27-6B	6BI4.0ISOTM2...		80.0	
	115-135	TMSH-D100-32-6B	6BI4.0ISOTM2...		100.0	
	140-300	TMSH-D125-40-6B	6BI4.0ISOTM2...		125.0	
4.5	42-45	TMC25-5	5I4.5ISOTM...028/011	52.0	30.0	2.60
5.0	48-52	TMC25-5	5I5.0ISOTM...028/075	52.0	30.0	2.89
		TMC32-6B	6BI5.0ISOTM2...	55.0	35.0	
5.5	56	TMC32-6B	6BI5.5ISOTM2...	55.0	35.0	3.17
	60	TMC40-6B	6BI5.5ISOTM2...	65.0	46.0	
6.0	64-68	TMC40-6B	6BI6.0ISOTM2...	65.0	46.0	3.46
	70-80	TM2C40-6B	6BI6.0ISOTM2...	65.0	52.0	
	85-100	TMSH-D63-22-6B	6BI6.0ISOTM2...		63.0	
	105-120	TMSH-D80-27-6B	6BI6.0ISOTM2...		80.0	
	125-145	TMSH-D100-32-6B	6BI6.0ISOTM2...		100.0	
	150-300	TMSH-D125-40-6B	6BI6.0ISOTM2...		125.0	

* **The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**



Tooling recommendation*
for given **Internal** thread specification

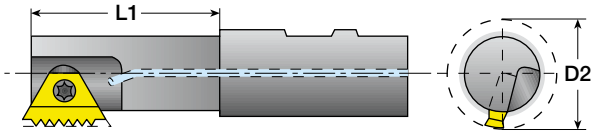
(For TM Solid Carbide tools see pages 226-237)

Vargus TM GEN CD for Tool Selection and CNC programming

UN

Pitch tpi	Nominal Dia. Inch	Holder	Insert	L_1-Toolholder Overhang	D_2-Tool Cutting dia.*	$h_{min.}$ - Thread Profile depth
32	7/16-1/2	TMMC12-6.0	6.0I32UNTM...	12.0	9.0	0.46
	9/16-11/16	TMC12-2	2I32UNTM2...	12.0	11.5	
	3/4-13/16	TMC16-3	3I32UNTM2...	22.0	17.0	
	7/8-15/16	TMC20-3	3I32UNTM2...	43.0	20.0	
	1	TMLC25-3	3I32UNTM2...	25.0	22.0	
28	7/16-1/2	TMMC12-6.0	6.0I28UNTM...	12.0	9.0	0.52
	9/16-3/4	TMC12-2	2I28UNTM2...	12.0	11.5	
	13/16-7/8	TMC16-3	3I28UNTM2...	22.0	17.0	
	15/16	TMC20-3	3I28UNTM2...	43.0	20.0	
	1-1 1/8	TMLC25-3	3I28UNTM2...	25.0	22.0	
	1 3/16-1 1/2	TM2C25-3	3I28UNTM2...	43.0	26.0	
24	9/16-11/16	TMC12-2	2I24UNTM2...	12.0	11.5	0.61
20	7/16	TMMC12-6.0	6.0I20UNTM...028/012	12.0	9.0	0.73
	1/2-9/16	TMMC12-6.0	6.0I20UNTM...	12.0	9.0	
	5/8-13/16	TMC12-2	2I20UNTM2...	12.0	11.5	
	7/8	TMC16-3	3I20UNTM2...	22.0	17.0	
	15/16-1	TMC20-3	3I20UNTM2...	43.0	20.0	
	1 1/16-1 1/8	TMLC25-3	3I20UNTM2...	25.0	22.0	
	1 3/16-1 5/16	TM2C25-3	3I20UNTM2...	43.0	26.0	
	1 3/8-1 5/8	TMC25-5	5I20UNTM2...	52.0	30.0	
	1 11/16-1 13/16	TMC32-5	5I20UNTM2...	58.0	37.0	
	1 7/8-2 1/8	TM2C32-5	5I20UNTM2...	45.0	42.0	
	2 1/4-2 5/8	TMSH-D50-22-3	3I20UNTM2...		50.0	
	2 3/4-3	TMSH-D63-22-5	5I20UNTM2...		63.0	
18	9/16	TMC12-2	2I18UNTM...028/017	12.0	11.5	0.81
	5/8	TMC12-2	2I18UNTM2...	12.0	11.5	
	1 1/16-1 3/16	TMLC25-3	3I18UNTM2...	25.0	22.0	
	1 1/4-1 3/8	TM2C25-3	3I18UNTM2...	43.0	26.0	
	1 7/16-1 5/8	TMC25-5	5I18UNTM2...	52.0	30.0	
	1 11/16	TMC32-5	5I18UNTM2...	58.0	37.0	
16	7/16-5/8	TMMC12-6.0	6.0I16UNTM...028/014	12.0	9.0	0.92
	11/16-13/16	TMC12-2	2I16UNTM2...	12.0	11.5	
	7/8-15/16	TMC16-3	3I16UNTM2...	22.0	17.0	
	1	TMC20-3	3I16UNTM2...	43.0	20.0	
	1 1/16-1 3/16	TMLC25-3	3I16UNTM2...	25.0	22.0	
	1 1/4-1 3/8	TM2C25-3	3I16UNTM2...	43.0	26.0	
	1 7/16-1 5/8	TMC25-5	5I16UNTM2...	52.0	30.0	
	1 11/16-1 7/8	TMC32-5	5I16UNTM2...	58.0	37.0	
	1 15/16-2 3/16	TM2C32-5	5I16UNTM2...	45.0	42.0	
	2 1/4-2 5/8	TMSH-D50-22-3	3I16UNTM2...		50.0	
	2 3/4-3 3/8	TMSH-D63-22-5	5I16UN TM2...		63.0	

* The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used



Tooling recommendation*
for given **Internal** thread specification

(For TM Solid Carbide tools see pages 226-237)

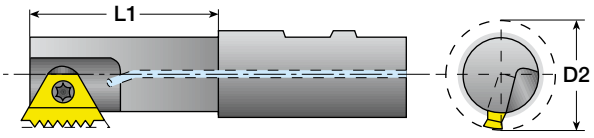
VARDEX

Vargus TM GEN CD
for Tool Selection
and CNC programming

UN

Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
tpi	Inch			Overhang	Cutting dia.*	Profile depth
16	3 1/2-4	TMSH-D80-27-5	5I16UNTM2...		80.0	0.92
14	7/16	TMC20-6.0 124/003	6.0I14UNTM...028/013	15.0	9.0	1.05
	7/8	TMC12-2	2I14UNTM2...	12.0	11.5	
13	1/2	TMC20-2 124/005	2I13UNTM...028/015	15.5	10.0	1.13
12	9/16-11/16	TMC20-2 124/005	2I12UNTM...028/016	15.5	10.0	1.22
	3/4	TMNC16-3	3I12UNTM...028/020	22.0	15.5	
	13/16	TMC16-3	3I12UNTM...028/020	22.0	17.0	
	7/8	TMNC16-3	3I12UNTM2...	22.0	15.5	
	15/16	TMC16-3	3I12UNTM2...	22.0	17.0	
	1	BTMC20-3B	3BI12UNTM2...	29.0	19.0	
	1 1/16	TMC20-3	3 I12UNTM2...	43.0	20.0	
	1 1/8-1 1/4	TMLC25-3	3I12UNTM2...	25.0	22.0	
	1 5/16-1 7/16	TM2C25-3	3 I12UNTM2...	43.0	26.0	
	1 1/2-1 11/16	TMC25-5	5I12UNTM2...	52.0	30.0	
	1 3/4-1 15/16	TMC32-5	5I12UNTM2...	58.0	37.0	
	2-2 1/4	TM2C32-5	5I12UNTM2...	45.0	42.0	
	2 3/8-2 3/4	TMSH-D50-22-3	3I12UNTM2...		50.0	
	2 7/8-3 3/8	TMSH-D63-22-5	5I12UNTM2...		63.0	
	3 1/2-4	TMSH-D80-27-5	5I12UNTM2...		80.0	
11	5/8	TMC20-2 124/006	2I11UNTM...028/018	15.5	12.0	1.33
10	3/4	TMC16-3 124/001	3I10UNTM...028/019	20.5	15.5	1.47
9	7/8	TMC25-4 124/002	4I9UNTM...028/021	30.0	18.0	1.63
8	1-1 3/16	TMC25-4 124/007	4I8UNTM...028/022	40.0	20.0	1.83
	1 1/4-1 3/8	TMC25-5 124/004	5I8UNTM...028/024	40.0	25.0	
	1 7/16-1 5/8	TMC25-5	5I8UNTM...028/024	52.0	30.0	
	1 11/16-1 15/16	TMC25-5	5I8UNTM2...	52.0	30.0	
	2-2 1/8	TMC32-5	5I8UNTM2...	58.0	37.0	
	2 1/4-2 7/8	TM2C32-5	5I8UNTM2...	45.0	42.0	
	3-3 5/8	TMSH-D63-22-5	5I8UNTM2...		63.0	
	3 3/4-4	TMSH-D80-27-5	5I8UNTM2...		80.0	
7	1 1/8-1 1/4	TMC25-4 124/002	4I7UNTM...028/023	30.0	18.0	2.09
6	1 3/8-1 9/16	TMC25-5 124/004	5I6UNTM...028/025	40.0	25.0	2.44
	1 5/8-1 15/16	TMC25-5	5I6UNTM...028/025	52.0	30.0	
	2-2 1/8	TMC25-5	5I6UNTM2...	52.0	30.0	
	2 1/4	TMC32-5	5I6UNTM2...	58.0	37.0	
	2 3/8-2 1/2	TMC40-6B	6BI6UNTM2...	65.0	46.0	
	2 5/8-3 1/8	TM2C40-6B	6BI6UNTM2...	65.0	52.0	
	3 1/4-3 3/4	TMSH-D63-22-6B	6BI6UNTM2...		63.0	
	3 7/8-4	TMSH-D80-27-6B	6BI6UNTM2...		80.0	
5	1 3/4	TMC25-5	5I5UNTM...028/077	52.0	30.0	2.93
4.5	2-2 1/4	TMC32-6B	6BI4.5UNTM2...	55.0	35.0	3.26
4	2 1/2	TMC40-6B	6BI4UNTM2...	65.0	46.0	3.67
	2 3/4-3	TM2C40-6B	6BI4UNTM2...	65.0	52.0	
	3 1/4-4	TMSH-D63-22-6B	6BI4UNTM2...		63.0	

* **The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**



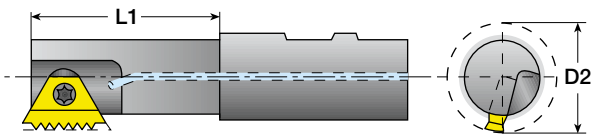
Tooling recommendation*
for given **Internal** thread specification

Vargus TM GEN CD
for Tool Selection
and CNC programming

UNJ

Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
tpi	Inch			Overhang	Cutting dia.*	Profile depth
24	9/16-11/16	TMC12-2	2I24UNJTM2...	12.0	11.5	0.55
20	1/2	TMMC12-6.0	6.0I20UNJTM...	12.0	9.0	0.66
	3/4-13/16	TMC12-2	2I20UNJTM2...	12.0	11.5	
	7/8	TMC16-3	3I20UNJTM2...	22.0	17.0	
	15/16-1	TMC20-3	3I20UNJTM2...	43.0	20.0	
18	5/8	TMC12-2	2I18UNJTM2...	12.0	11.5	0.74
	1 1/16-1 3/16	TMLC25-3	3I18UNJTM2...	25.0	22.0	
	1 1/4-1 11/16	TM2C25-3	3I18UNJTM2...	43.0	26.0	
16	11/16-13/16	TMC12-2	2I16UNJTM2...	12.0	11.5	0.83
	7/8-15/16	TMC16-3	3I16UNJTM2...	22.0	17.0	
	1	TMC20-3	3I16UNJTM2...	43.0	20.0	
	1 1/16-1 3/16	TMLC25-3	3I16UNJTM2...	25.0	22.0	
	1 1/4-1 3/8	TM2C25-3	3I16UNJTM2...	43.0	26.0	
	1 7/16-1 5/8	TMC25-5	5I16UNJTM2...	52.0	30.0	
	1 11/16-1 7/8	TMC32-5	5I16UNJTM2...	58.0	37.0	
	1 15/16-2 1/8	TM2C32-5	5I16UNJTM2...	45.0	42.0	
	2 1/4-2 3/8	TMSH-D50-22-3	3I16UNJTM2...		50.0	
14	7/8	TMC12-2	2I14UNJTM2...	12.0	11.5	0.95
12	7/8	TMNC16-3	3I12UNJTM2...	22.0	15.5	1.11
	15/16-1	TMC16-3	3I12UNJTM2...	22.0	17.0	
	1 1/16	TMC20-3	3I12UNJTM2...	43.0	20.0	
	1 1/8-1 1/4	TMLC25-3	3I12UNJTM2...	25.0	22.0	
	1 5/16-1 7/16	TM2C25-3	3I12UNJTM2...	43.0	26.0	
	1 1/2-1 11/16	TMC25-5	5I12UNJTM2...	52.0	30.0	
	1 3/4-1 15/16	TMC32-5	5I12UNJTM2...	58.0	37.0	
	2-2 1/4	TM2C32-5	5I12UNJTM2...	45.0	42.0	
	2 3/8-2 3/4	TMSH-D50-22-3	3I12UNJTM2...		50.0	
	2 7/8-3 3/8	TMSH-D63-22-5	5I12UNJTM2...		63.0	
	3 1/2-4 1/4	TMSH-D80-27-5	5I12UNJTM2...		80.0	
	4 3/8-5 1/4	TMSH-D100-32-5	5I12UNJTM2...		100.0	
	5 3/8-6	TMSH-D125-40-5	5I12UNJTM2...		125.0	

* The recommended holder is the largest for the given thread specification.
Holder with smaller or equal cutting diameters (D_2) can also be used



Tooling recommendation*
for given **Internal** thread specification

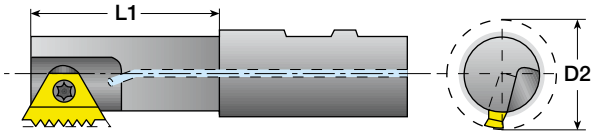
(For TM Solid Carbide tools see pages 226-237)

Vargus TM GEN CD for Tool Selection and CNC programming

W

Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
tpi	Inch			Overhang	Cutting dia.*	Profile depth
	7/16	TMMC12-6.0	6.0I26WTM...028/036	12.0	9.0	
	1/2-9/16	TMMC12-6.0	6.0EI26WTM...	12.0	9.0	
	5/8-3/4	TMC12-2	2EI26WTM2...	12.0	11.5	
26	13/16-7/8	TMC16-3	3EI26WTM2...	22.0	17.0	0.63
	15/16-1	TMC20-3	3EI26WTM2...	43.0	20.0	
	1 1/16-1 1/8	TMLC25-3	3EI26WTM2...	25.0	22.0	
	1 3/16-1 5/8	TM2C25-3	3EI26WTM2...	43.0	26.0	
	1 3/4-2	TMSH-D38-16-2	2EI26WTM2...		38.0	
	1/2	TMMC12-6.0	6.0I20WTM...028/037	12.0	9.0	
	9/16	TMMC12-6.0	6.0EI20WTM2...	12.0	9.0	
	5/8-13/16	TMC12-2	2EI20WTM2...	12.0	11.5	
	7/8-15/16	TMC16-3	3EI20WTM2...	22.0	17.0	
20	1	TMC20-3	3EI20WTM2...	43.0	20.0	0.81
	1 1/16-1 3/16	TMLC25-3	3EI20WTM2...	25.0	22.0	
	1 1/4-1 5/8	TM2C25-3	3EI20WTM2...	43.0	26.0	
	1 3/4-2 1/8	TMSH-D38-16-2	2EI20WTM2...		38.0	
	2 1/4-3	TMSH-D50-22-3	3EI20WTM2...		50.0	
18	7/16	TMMC12-6.0	6.0I18WTM...028/035	12.0	9.0	0.90
	1/2	TMC20-2 124/005	2I16WTM...028/051	15.5	10.0	
	9/16-3/4	TMC12-2	2I16WTM...028/038	12.0	11.5	
	13/16	TMNC16-3	3EI16WTM2...	22.0	15.5	
	7/8-15/16	TMC16-3	3EI16WTM2...	22.0	17.0	
	1-1 1/16	TMC20-3	3EI16WTM2...	43.0	20.0	
	1 1/8-1 1/4	TMLC25-3	3EI16WTM2...	25.0	22.0	
	1 5/16-1 3/8	TM2C25-3	3EI16WTM2...	43.0	26.0	
16	1.4-1 5/8	TMC25-5	5EI16WTM2...	52.0	30.0	1.02
	1 3/4-1.9	TMC32-5	5EI16WTM2...	58.0	37.0	
	2 -2 1/4	TM2C32-5	5EI16WTM2...	45.0	42.0	
	2 3/8-2 3/4	TMSH-D50-22-3	3EI16WTM2...		50.0	
	2 7/8-3 3/8	TMSH-D63-22-5	5EI16WTM2...		63.0	
	3 1/2-4 1/8	TMSH-D80-27-5	5EI16WTM2...		80.0	
	4 1/4-5 1/8	TMSH-D100-32-5	5EI16WTM2...		100.0	
	5 1/4-7	TMSH-D125-40-5	5EI16WTM2...		125.0	
14	5/8-11/16	TMC20-2 124/006	2I14WTM..028/039	15.5	12.0	1.16
	3/4	TMC16-3 124/001	3I12WTM...028/040	20.5	15.5	
	13/16	TMC16-3	3I12WTM...028/041	22.0	17.0	
	15/16-1 5/16	TMC20-3	3I12WTM...028/041	43.0	20.0	
12	1 3/8-1 7/16	TMC25-5	5I12WTM...028/050	52.0	30.0	1.36
	1 1/2-1 3/4	TMC25-5	5EI12WTM2...	52.0	30.0	
	1 7/8	TMC32-5	5EI12WTM2...	58.0	37.0	
	2-2 1/4	TM2C32-5	5EI12WTM2...	45.0	42.0	

* **The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**



Tooling recommendation*
for given **Internal** thread specification

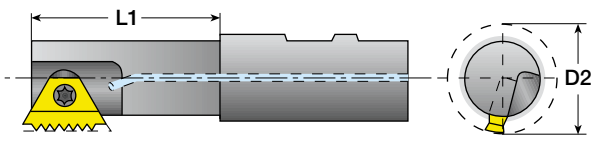
(For TM Solid Carbide tools see pages 226-237)

Vargus TM GEN CD
for Tool Selection
and CNC programming

W

Pitch tpi	Nominal Dia. Inch	Holder	Insert	L_1-Toolholder Overhang	D_2-Tool Cutting dia.*	$h_{min.}$ - Thread Profile depth
12	2 3/8 -2 3/4	TMSH-D50-22-3	3EI12WTM2...		50.0	1.36
	2 7/8-3 3/8	TMSH-D63-22-5	5EI12WTM2...		63.0	
	3 1/2-4 1/8	TMSH-D80-27-5	5EI12WTM2...		80.0	
	4 1/4-5 1/8	TMSH-D100-32-5	5EI12WTM2...		100.0	
	5 1/4-7	TMSH-D125-40-5	5EI12WTM2...		125.0	
11	7/8	TMC25-4 124/002	4I11WTM...028/043	30.0	18.0	1.48
10	1	TMC25-4 124/002	4I10WTM...028/045	30.0	18.0	1.63
9	7/8-1 1/4	TMC25-4 124/002	4I9WTM...028/042	30.0	18.0	1.81
8	1	TMC25-4 124/002	4I8WTM...028/044	30.0	18.0	2.03
	1 3/16-1.4	TMC25-5 124/004	5I8WTM...028/047	40.0	25.0	
	1 7/16-1 5/8	TMC25-5	5I8WTM...028/047	52.0	30.0	
	1 7/8-1.9	TMC25-5	5EI8WTM2...	52.0	30.0	
	2.1-2 1/8	TMC32-5	5EI8WTM2...	58.0	37.0	
	2 1/4-3	TM2C32-5	5EI8WTM2...	45.0	42.0	
	3 1/8-3 5/8	TMSH-D63-22-5	5EI8WTM2...		63.0	
	3 3/4-4 3/8	TMSH-D80-27-5	5EI8WTM2...		80.0	
	4 5/8-5 1/2	TMSH-D100-32-5	5EI8WTM2...		100.0	
	5 5/8-7	TMSH-D125-40-5	5EI8WTM2...		125.0	
7	1 1/8	TMC25-5 124/008	5I7WTM...028/046	40.0	22.0	2.32
	1 1/4	TMC25-5 124/004	5I7WTM...028/048	40.0	25.0	
	1 3/4	TMC25-5	5I7WTM...028/048	52.0	30.0	
	2	TMC25-5	5EI7WTM2...	52.0	30.0	
6	1 5/16-1 1/2	TMC25-5 124/004	5I6WTM...028/049	40.0	25.0	2.71
	1.6-1 5/8	TMC25-5	5I6WTM...028/049	52.0	30.0	
	1 7/8-1.9	TMC32-5	5I6WTM...028/049	58.0	37.0	
	2.1-2 1/8	TMC25-5	5EI6WTM2...	52.0	30.0	
	2 1/4	TMC32-6B	6BEI6WTM2...	55.0	35.0	
	2 3/8-2.6	TMC32-5	5EI6WTM2...	58.0	37.0	
	2 5/8-2 3/4	TMC40-6B	6BEI6WTM2...	65.0	46.0	
	2 7/8-3 1/4	TM2C40-6B	6BEI6WTM2...	65.0	52.0	
	3 3/8-3 7/8	TMSH-D63-22-6B	6BEI6WTM2...		63.0	
	4-4 3/4	TMSH-D80-27-6B	6BEI6WTM2...		80.0	
	4 7/8-5 3/4	TMSH-D100-32-6B	6BEI6WTM2...		100.0	
	5 7/8-7	TMSH-D125-40-6B	6BEI6WTM2...		125.0	
5	3	TMC40-6B	6BEI5WTM2...	65.0	46.0	3.25
	3 1/4	TM2C40-6B	6BEI5WTM2...	65.0	52.0	
4.5	3 1/2	TMC40-6B	6BEI4.5WTM2...	65.0	46.0	3.61
	3 3/4-4	TM2C40-6B	6BEI4.5WTM2...	65.0	52.0	

* **The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**



Tooling recommendation*
for given **Internal** thread specification

BSP (For TM Solid Carbide tools see pages 226-237)

Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
tpi	Inch			Overhang	Cutting dia.*	Profile depth
19	1/4	TMMC20-6.0	6.0EI19WTM...	17.0	9.0	0.86
	3/8	TMC20-2	2EI19WTM2...	20.0	11.5	
14	1/2-5/8	TMC20-2	2EI14WTM2...	20.0	11.5	1.16
	3/4-7/8	TMC16-3	3EI14WTM2...	22.0	17.0	
11	1	TMC25-5 124/004	5EI11WTM2...	40.0	25.0	1.48
	1 1/4-1 1/2	TMC25-5	5EI11WTM2...	52.0	30.0	
	1 3/4	TMC32-5	5EI11WTM2...	58.0	37.0	
	2-2 1/4	TM2C32-5	5EI11WTM2...	45.0	42.0	
	2 1/2-3	TMSH-D63-22-5	5EI11WTM2...		63.0	
	3 1/2	TMSH-D80-27-5	5EI11WTM2...		80.0	
	4	TMSH-D100-32-5	5EI11WTM2...		100.0	
	5-6	TMSH-D125-40-5	5EI11WTM2...		125.0	

* **The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**

BSPT (For TM Solid Carbide tools see pages 226-237)

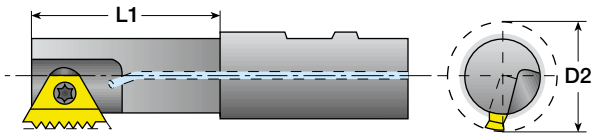
Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
tpi	Inch			Overhang	Cutting dia.*	Profile depth
19	3/8	TMC20-2	2EI19BSPTTM...	20.0	11.5	0.86
14	1/2-3/4	TMNC16-3	3EI14BSPTTM...	22.0	15.5	1.16
11	1-1 1/4	TMNC20-3	3EI11BSPTTM...	23.0	19.0	1.48
	1 1/2	TMC25-5	5EI11BSPTTM...	52.0	30.0	
	2-6	TMNC32-5	5EI11BSPTTM...	58.0	37.0	

* **The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**

NPT (For TM Solid Carbide tools see pages 226-237)

Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
tpi	Inch			Overhang	Cutting dia.*	Profile depth
18	1/4-3/8	TMC20-2 124/009	2I18NPTTM...028/074	15.5	10.0	1.01
14	1/2	TMNC16-3	3EI14NPTTM...	22.0	15.5	1.33
	3/4	TMNC20-3	3EI14NPTTM...	23.0	19.0	
11.5	1	TMNC20-3	3EI11.5NPTTM...	23.0	19.0	1.64
	1 1/4	TMC25-5	5EI11.5NPTTM...	52.0	30.0	
	1 1/2-2	TMNC32-5	5EI11.5NPTTM...	58.0	37.0	
8	2 1/2	TMNC32-5	5EI8NPTTM...	58.0	37.0	2.42
	3-24	TMC40-6B	6BEI8NPTTM...	65.0	46.0	

* **The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**



Tooling recommendation* for given **Internal** thread specification

Vargus TM GEN CD for Tool Selection and CNC programming

NPTF (For TM Solid Carbide tools see pages 226-237)

Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
tpi	Inch			Overhang	Cutting dia.*	Profile depth
18	1/4-3/8	TMC20-2 124/009	2I18NPTFTM...028/078	15.5	10.0	1.00
14	1/2	TMNC16-3	3EI14NPTFTM..	22.0	15.5	1.35
	3/4	TMNC20-3	3EI14NPTFTM...	23.0	19.0	
11.5	1	TMNC20-3	3EI11.5NPTFTM...	23.0	19.0	1.63
	1 1/4	TMC25-5 124/004	5EI11.5NPTFTM...	40.0	25.0	
	1 1/2	TMC25-5	5EI11.5NPTFTM...	52.0	30.0	
	2	TMNC32-5	5EI11.5NPTFTM...	58.0	37.0	
8	2 1/2	TMNC32-5	5EI8NPTFTM...	58.0	37.0	2.38
	3	TMC40-6B	6BEI8NPTFTM...	65.0	46.0	

*** The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**

PG (For TM Solid Carbide tools see pages 226-237)

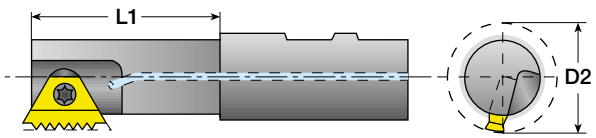
Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
tpi	Inch			Overhang	Cutting dia.*	Profile depth
20	PG7	TMMC12-6.0	6.0EI20PGTM...	12.0	9.0	0.61
18	PG9	TMC12-2	2EI18PGTM2...	12.0	11.5	0.67
	PG11	TMNC16-3	3EI18PGTM2...	22.0	15.5	
	PG13.5	TMC16-3	3EI18PGTM2...	22.0	17.0	
	PG16	TMC20-3	3EI18PGTM2...	43.0	20.0	
16	PG21	TMC25-5 124/004	5EI16PGTM2...	40.0	25.0	0.76
	PG29	TMC25-5	5EI16PGTM2...	52.0	30.0	
	PG36	TM2C32-5	5EI16PGTM2...	45.0	42.0	
	PG42-PG48	TMSH-D50-22-3	3EI16PGTM2...		50.0	

*** The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**

TR

Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
mm	mm			Overhang	Cutting dia.*	Profile depth
2.0	TR16	TMC20-2 124/006	2I2.0TRTM...028/028	15.5	12.0	1.25
	TR18-TR20	TMC20-2 124/006	2I2.0TRTM...028/029	15.5	12.0	
3.0	TR24	TMC25-4 124/002	4I3.0TRTM...028/030	30.0	18.0	1.75
	TR26-TR30	TMC25-4 124/002	4I3.0TRTM...028/031	30.0	18.0	
	TR32-TR36	TMC25-4 124/007	4I3.0TRTM...028/032	40.0	20.0	
	TR38-TR42	TMC25-5 124/004	5I3.0TRTM...028/033	40.0	25.0	
	TR44-TR48	TMC25-5	5I3.0TRTM...028/033	52.0	30.0	
	TR50-TR60	TMC32-5	5I3.0TRTM...028/033	58.0	37.0	
4.0	TR65-TR110	TMC32-5	5I4.0TRTM...028/034	58.0	37.0	2.25

*** The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**

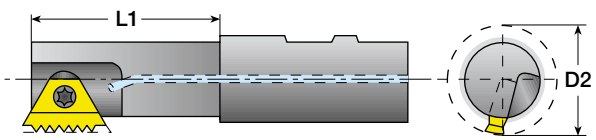


Tooling recommendation*
for given **Internal** thread specification

ACME

Pitch	Nominal Dia.	Holder	Insert	L_1-Toolholder	D_2-Tool	$h_{min.}$ - Thread
tpi	Inch			Overhang	Cutting dia.*	Profile depth
16	1/2	TMMC12-6.0	6.0I16ACMETM...028/052	12.0	9.0	0.92
	5/8	TMC12-2	2I16ACMETM...028/053	12.0	11.5	
	3/4	TMC12-2	2I16ACMETM...028/055	12.0	11.5	
14	5/8	TMC20-2 124/005	2I14ACMETM...028/054	15.5	10.0	1.03
	3/4	TMC20-2 124/006	2I14ACMETM...028/083	15.5	12.0	
	7/8	TMNC16-3	3I14ACMETM...028/057	22.0	15.5	
	1	TMC16-3	3I14ACMETM...028/059	22.0	17.0	
12	3/4	TMC20-2 124/006	2I12ACMETM...028/056	15.5	12.0	1.19
	7/8	TMC20-2 124/006	2I12ACMETM...028/058	15.5	12.0	
	1	TMNC16-3	3I12ACMETM...028/060	22.0	15.5	
	1 1/8	TMC16-3	3I12ACMETM...028/060	22.0	17.0	
	1 1/4	TMC20-3	3I12ACMETM...028/060	43.0	20.0	
10	1	TMC25-4 124/002	4I10ACMETM...028/061	30.0	18.0	1.52
	1 1/8	TMC25-4 124/007	4I10ACMETM...028/084	40.0	20.0	
	1 1/4	TMC25-5 124/004	5I10ACMETM...028/064	40.0	25.0	
	1 3/8	TMC25-5 124/004	5I10ACMETM...028/065	40.0	25.0	
	1 1/2	TMC25-5	5I10ACMETM...028/068	52.0	30.0	
	1 3/4	TMC32-5	5I10ACMETM...028/064	58.0	37.0	
8	1	TMC25-4 124/002	4I8ACMETM...028/062	30.0	18.0	1.84
	1 1/8-1 1/4	TMC25-4 124/002	4I8ACMETM...028/063	30.0	18.0	
	1 3/8	TMC25-5 124/004	5I8ACMETM...028/066	40.0	25.0	
	1 1/2	TMC25-5 124/004	5I8ACMETM...028/069	40.0	25.0	
	1 3/4	TMC25-5	5I8ACMETM...028/069	52.0	30.0	
	2	TMC32-5	5I8ACMETM...028/069	58.0	37.0	
6	1 3/8	TMC25-5 124/008	5I6ACMETM...028/067	40.0	22.0	2.37
	1 1/2	TMC25-5 124/004	5I6ACMETM...028/070	40.0	25.0	
	1 3/4	TMC25-5	5I6ACMETM...028/070	52.0	30.0	
	2	TMC25-5	5I6ACMETM...028/072	52.0	30.0	
	2 1/4	TMC32-5	5I6ACMETM...028/072	58.0	37.0	
5	1 3/4	TMC25-5 124/004	5I5ACMETM...028/071	40.0	25.0	2.79
	2	TMC25-5	5I5ACMETM...028/071	52.0	30.0	
	2 1/4	TMC25-5	5I5ACMETM...028/073	52.0	30.0	
	2 1/2	TMC32-5	5I5ACMETM...028/073	58.0	37.0	

* **The recommended holder is the largest for the given thread specification. Holder with smaller or equal cutting diameters (D_2) can also be used**



VARGUS

THREAD MILLING INSERTS

Contents

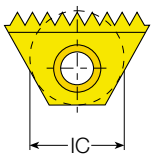
Vardex Ordering Code System

Thread Milling Inserts

3	B	I	1.5	ISO	TM2	F	VBX	028/...
1	2	3	4	5	6	7	8	9

1 - Insert size

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



2 - Cutting Edge Length

B - TMB

3 - Type of Insert

E - External
I - Internal
EI - External + Internal

4 - Pitch

0.35 - 6.0

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 - Carbide Grade

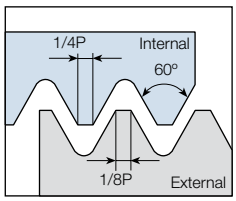
VBX
VTX
VK2

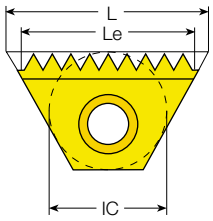
9 - Coarse Pitch Inserts

028/...

ISO Metric

External / Internal





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

Standard TM

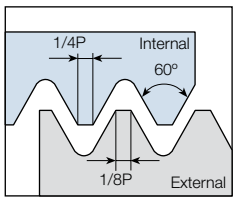
Standard TM

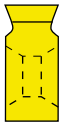
Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	**L** mm	**mm**	**External**	**Internal**	**mm**		**Toolholder**
6.0mm	10.4	0.5		6.0I0.5ISOTM...	10.0	20	TMMC..-6.0
		0.75		6.0I0.75ISOTM...	9.75	13	
		1.0		6.0I1.0ISOTM...	9.0	9	
		1.25		6.0I1.25ISOTM...	8.75	7	
		1.5		6.0I1.5ISOTM...	9.0	6	
1/4"	11	0.5		2I0.5ISOTM2...	10.0	20	TMC..-2 TMSH..-2
		0.75	2E0.75ISOTM2...	2I0.75ISOTM2...	10.5	14	
		1.0	2E1.0ISOTM2...	2I1.0ISOTM2...	10.0	10	
		1.25	2E1.25ISOTM2...		10.0	8	
		1.25		2I1.25ISOTM2...	8.75	7	
		1.5	2E1.5ISOTM2...		9.0	6	
		1.5		2I1.5ISOTM2...	10.5	7	
3/8"	16	0.5		3I0.5ISOTM2...	15.0	30	TMC..-3 TMSH..-3
		0.75	3E0.75ISOTM2...	3I0.75ISOTM2...	15.0	20	
		0.8		3I0.8ISOTM2...	14.4	18	
		1.0	3E1.0ISOTM2...		14.0	14	
		1.0		3I1.0ISOTM2...	15.0	15	
		1.25	3E1.25ISOTM2...	3I1.25ISOTM2...	15.0	12	
		1.5	3E1.5ISOTM2...	3I1.5ISOTM2...	15.0	10	
		1.75	3E1.75ISOTM2...	3I1.75ISOTM2...	14.0	8	
		2.0	3E2.0ISOTM2...	3I2.0ISOTM2...	14.0	7	
3/8"B	22	1.0	3BE1.0ISOTM2...	3BI1.0ISOTM2...	22.0	22	BTMC..-3B TMSH..-3B
		1.25	3BE1.25ISOTM2...	3BI1.25ISOTM2...	21.25	17	
		1.5	3BE1.5ISOTM2...	3BI1.5ISOTM2...	21.0	14	
		1.75	3BE1.75ISOTM2...	3BI1.75ISOTM2...	21.0	12	
		2.0	3BE2.0ISOTM2...	3BI2.0ISOTM2...	22.0	11	
5/8"	27	1.0	5E1.0ISOTM2...	5I1.0ISOTM2...	26.0	26	TMC..-5 TMSH..-5
		1.25	5E1.25ISOTM2...	5I1.25ISOTM2...	25.0	20	
		1.5	5E1.5ISOTM2...	5I1.5ISOTM2...	25.5	17	
		1.75	5E1.75ISOTM2...	5I1.75ISOTM2...	24.5	14	
		2.0	5E2.0ISOTM2...	5I2.0ISOTM2...	24.0	12	
		2.5	5E2.5ISOTM2...	5I2.5ISOTM2...	25.0	10	
		3.0	5E3.0ISOTM2...	5I3.0ISOTM2...	24.0	8	
		3.5	5E3.5ISOTM2...	5I3.5ISOTM2...	24.5	7	
		4.0	5E4.0ISOTM2...	5I4.0ISOTM2...	24.0	6	
		4.5	5E4.5ISOTM2...	5I4.5ISOTM2...	22.5	5	

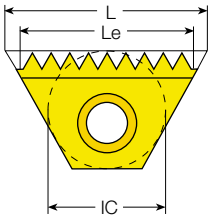
continued on next page

ISO Metric (Con't)

External / Internal







Standard TM

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

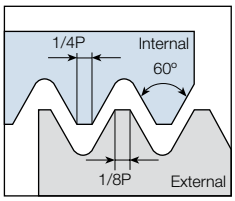
Standard TM (con't)

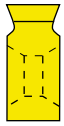
Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	**L** mm	**mm**	**External**	**Internal**	**mm**		**Toolholder**
3/4"B	38.5	1.5	6BE1.5ISOTM2...	6BI1.5ISOTM2...	36.0	24	TMC..-6B TMSH..-6B
		2.0	6BE2.0ISOTM2...	6BI2.0ISOTM2...	36.0	18	
		3.0	6BE3.0ISOTM2...	6BI3.0ISOTM2...	36.0	12	
		4.0	6BE4.0ISOTM2...	6BI4.0ISOTM2...	32.0	8	
		4.5	6BE4.5ISOTM2...	6BI4.5ISOTM2...	31.5	7	
		5.0	6BE5.0ISOTM2...	6BI5.0ISOTM2...	30.0	6	
		5.5	6BE5.5ISOTM2...	6BI5.5ISOTM2...	33.0	6	
		6.0	6BE6.0ISOTM2...	6BI6.0ISOTM2...	30.0	5	

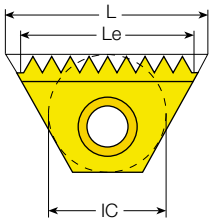
Sample order: **5I2.0ISOTM2 VBX**
All inserts have 2 cutting edges, except **MiniTM (IC 6.0 mm)** which has one cutting edge.
For toolholder information, see page 216.

ISO Metric (Con't)

Internal







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

Coarse Pitch TM

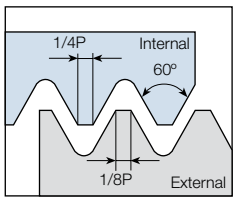
Coarse Pitch TM

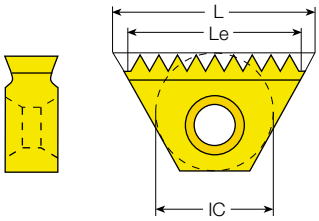
Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth	Toolholder	Bore Dia. Range
	IC	**L** mm	**Internal**		**mm**			**mm**
M10 X 0.75	6.0 mm	10.4	6.0I0.75ISOTM...028/001	1	9.75	13	TMMC12-6.0	9.1-10
M10 X 0.75	6.0 mm	10.4	6.0I0.75ISOTM...028/001	1	9.75	13	TMMC20-6.0	9.1-10
M12 X 1.25	6.0 mm	10.4	6.0I1.25ISOTM...028/002	1	8.75	7	TMMC12-6.0	10.6-11.4
M12 X 1.25	6.0 mm	10.4	6.0I1.25ISOTM...028/002	1	8.75	7	TMMC20-6.0	10.6-11.4
M12 X 1.75	6.0 mm	10.4	6.0I1,75ISOTM...028/003	1	8.75	5	TMMC20-6.0 124/003	10.1-19
M14 X 2.0	1/4"	11	2I2.0ISOTM...028/004	2	10.0	5	TMC12-2	11.8-19.5
M14 x 2.0	1/4"	11	2I2.0ISOTM...028/004	2	10.0	5	TMC20-2	11.8-19.5
M16 X 2.0	1/4"	11	2I2.0ISOTM....028/004	2	10.0	5	TMC12-2	11.8-19.5
M16 X 2.0	1/4"	11	2I2.0ISOTM...028/004	2	10.0	5	TMC20-2	11.8-19.5
M20 X 2.5	3/8"	16	3I2.5ISOTM...028/005	1	12.5	5	TMC16-3 124/001	17.2-19.2
M22 X 2.5	1/2''	22	4I2.5ISOTM...028/006	1	17.5	7	TMC25-4 124/002	19.2-31.6
M24 X 3.0	1/2''	22	4I3.0ISOTM...028/007	1	18.0	6	TMC25-4 124/002	20.7-32.7
M27 X 3.0	1/2''	22	4I3.0ISOTM...028/007	1	18.0	6	TMC25-4 124/002	20.7-32.7
M30 X 3.5	5/8"	27	5I3.5ISOTM...028/008	2	24.5	7	TMC25-5 124/004	26.2-35.9
M33 X 3.5	5/8"	27	5I3.5ISOTM...028/008	2	24.5	7	TMC25-5 124/004	26.2-35.9
M36 X 3.0	5/8"	27	5I3.0ISOTM...028/009	2	24.0	8	TMC25-5	32.7-39
M36 X 4.0	5/8"	27	5I4.0ISOTM...028/010	2	24.0	6	TMC25-5	31.6-38.5
M39 X 3.0	5/8"	27	5I3.0ISOTM...028/009	2	24.0	8	TMC25-5	32.7-39
M39 X 4.0	5/8"	27	5I4.0ISOTM...028/010	2	24.0	6	TMC25-5	31.6-38.5
M42 X 4.5	5/8"	27	5I4.5ISOTM...028/011	2	22.5	5	TMC25-5	37.1-48
M45 X 4.5	5/8"	27	5I4.5ISOTM...028/011	2	22.5	5	TMC25-5	37.1-48
M48 X 5.0	5/8"	27	5I5.0ISOTM...028/075	2	20.0	4	TMC25-5	38.9-∞
M52 X 5.0	5/8"	27	5I5.0ISOTM...028/075	2	20.0	4	TMC25-5	38.9-∞

Sample tool requirement for thread **M14x2.0**.
Ordering code:
Insert: **2I2.0ISOTMVBX028/004**
Toolholder: **TMC20-2**
For toolholder information, see page 216.

ISO Metric (Con't)

External / Internal





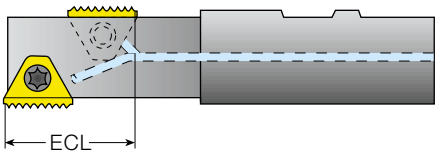
Standard TM

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

Standard TM Inserts for TMO Toolholders

Insert Size		Pitch	Ordering Code		Toolholder	ECL
IC	**L** mm	**mm**	**External**	**Internal**	**TMO**	**mm**
1/4"	11	0.5		2I0.5ISOTM2...	TMOC20-2-8	19
		0.75	2E0.75ISOTM2...	2I0.75ISOTM2...	TMOC20-2-9	19.5
		1.0	2E1.0ISOTM2...	2I1.0ISOTM2...	TMOC20-2-8	19
		1.25	2E1.25ISOTM2...		TMOC20-2-10	18.75
		1.25		2I1.25ISOTM2...	TMOC20-2-10	16.25
		1.5	2E1.5ISOTM2...		TMOC20-2-8	18
		1.5		2I1.5ISOTM2..	TMOC20-2-8	19.5
3/8"	16	0.5		3I0.5ISOTM2....	TMOC20-3-1	28.5
		0.5		3I0.5ISOTM2....	TMOC20-3-10	29
		0.75	3E0.75ISOTM2...	3I0.75ISOTM2...	TMOC20-3-11	28.5
		1.0	3E1.0ISOTM2...		TMOC20-3-10	28
		1.0		3I1.0ISOTM2...	TMOC20-3-10	29
		1.25	3E1.25ISOTM2...	3I1.25ISOTM2...	TMOC20-3-7	28.75
		1.5	3E1.5ISOTM2...	3I1.5ISOTM2...	TMOC20-3-1	28.5
		1.75	3E1.75ISOTM2...	3I1.75ISOTM2...	TMOC20-3-12	26.25
		2.0	3E2.0ISOTM2...	3I2.0ISOTM2...	TMOC20-3-10	28
5/8"	27	1.0	5E1.0ISOTM2...	5I1.0ISOTM2...	TMOC25-5-12	46
		1.0	5E1.0ISOTM2...	5I1.0ISOTM2...	TMOC25-5-16	47
		1.25	5E1.25ISOTM2...	5I1.25ISOTM2...	TMOC25-5-13	48.75
		1.5	5E1.5ISOTM2...	5I1.5ISOTM2...	TMOC25-5-14	48
		1.5	5E1.5ISOTM2...	5I1.5ISOTM2...	TMOC25-5-16	46.5
		1.75	5E1.75ISOTM2...	5I1.75ISOTM2...	TMOC25-5-15	47.25
		2.0	5E2.0ISOTM2...	5I2.0ISOTM2...	TMOC25-5-12	44
		2.5	5E2.5ISOTM2...	5I2.5ISOTM2...	TMOC25-5-12	45
		2.5	5E2.5ISOTM2...	5I2.5ISOTM2...	TMOC25-5-14	47.5
		3.0	5E3.0ISOTM2...	5I3.0ISOTM2...	TMOC25-5-16	45
		3.5	5E3.5ISOTM2...	5I3.5ISOTM2...	TMOC25-5-16	45.5
		4.0	5E4.0ISOTM2...	5I4.0ISOTM2...	TMOC25-5-12	44
		4.5	5E4.5ISOTM2...	5I4.5ISOTM2...	TMOC25-5-14	45
		5.0		5I5.0ISOTM...028/075	TMOC25-5-12	40

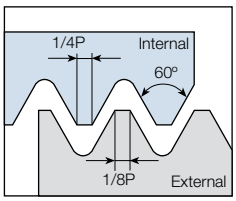
Sample order: **2E0.75ISOTM2 VBX**
For Le and number of teeth of the above inserts,
see the table for standard inserts on pages 191-192.
For Toolholder information see page 221.

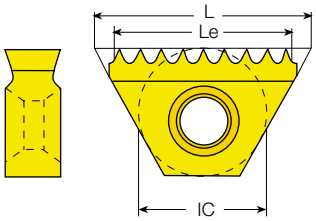


ECL - The Effective Cutting Length

ISO Metric (Con't)

External / Internal





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

Fine Pitch TM

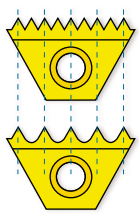
Fine Pitch TM

Insert Size		Pitch	Ordering Code		Le	Teeth	Toolholder
IC	**L** mm	**mm**	**External**	**Internal**	**mm**		
6.0mm	10.4	0.35	6.0E0.35ISOTMF...	6.0I0.35ISOTMF...	9.45	14	TMMC..-6.0
		0.4	6.0E0.4ISOTMF...	6.0I0.4ISOTMF...	9.2	12	
		0.45	6.0E0.45ISOTMF...	6.0I0.45ISOTMF...	9.45	11	
		0.5	6.0E0.5ISOTMF...		9.5	10	
		0.6	6.0E0.6ISOTMF...		9.0	8	
		0.7	6.0E0.7ISOTMF...		9.1	7	
		0.75	6.0E0.75ISOTMF...		8.25	6	
		0.8	6.0E0.8ISOTMF...		8.8	6	
		0.9	6.0E0.9ISOTMF...		8.1	5	
1/4"	11	0.35	2E0.35ISOTM2F...	2I0.35ISOTM2F...	10.15	15	TMC..-2 TMSH..-2
		0.4	2E0.4ISOTM2F...	2I0.4ISOTM2F...	10.0	13	
		0.45	2E0.45ISOTM2F...	2I0.45ISOTM2F...	9.45	11	
		0.5	2E0.5ISOTM2F...		9.5	10	
		0.6	2E0.6ISOTM2F...		10.2	9	
		0.7	2E0.7ISOTM2F...		9.1	7	
		0.75	2E0.75ISOTM2F...		9.75	7	
		0.8	2E0.8ISOTM2F...		8.8	6	
		0.9	2E0.9ISOTM2F...		9.9	6	
3/8"	27	0.35	3E0.35ISOTM2F...	3I0.35ISOTM2F...	14.35	21	TMC..-3 TMSH..-3
		0.4	3E0.4ISOTM2F...	3I0.4ISOTM2F...	14.8	19	
		0.45	3E0.45ISOTM2F...	3I0.45ISOTM2F...	14.85	17	
		0.5	3E0.5ISOTM2F...		13.5	14	
		0.6	3E0.6ISOTM2F...		13.8	12	
		0.7	3E0.7ISOTM2F...		14.7	11	
		0.75	3E0.75ISOTM2F...		14.25	10	
		0.8	3E0.8ISOTM2F...		13.6	9	
		0.9	3E0.9ISOTM2F...		13.5	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 toolholders information, see page 216.

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.

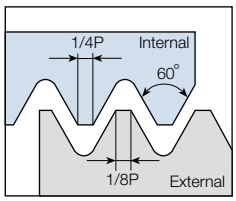


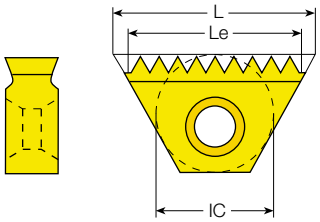
Important!

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

American UN

External / Internal





Standard TM

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

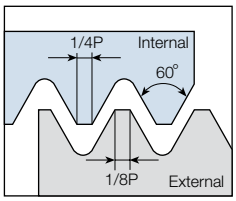
Standard TM

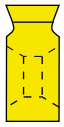
Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	**L** mm	**tpi**	**External**	**Internal**	**mm**		**Toolholder**
6.0mm	10.4	32		6.0I32UNTM...	9.53	12	TMMC..-6.0
		28		6.0I28UNTM...	9.07	10	
		24		6.0I24UNTM...	9.53	9	
		20		6.0I20UNTM...	8.89	7	
		18		6.0I18UNTM...	8.47	6	
		16		6.0I16UNTM...	7.94	5	
1/4"	11	48		2I48UNTM2...	10.05	19	TMC..-2 TMSH..-2
		40		2I40UNTM2...	10.16	16	
		32		2I32UNTM2...	10.32	13	
		28	2E28UNTM2...	2I28UNTM2...	9.98	11	
		27	2E27UNTM2...	2I27UNTM2...	10.35	11	
		24	2E24UNTM2...	2I24UNTM2...	9.53	9	
		20	2E20UNTM2...	2I20UNTM2...	10.16	8	
		18	2E18UNTM2...	2I18UNTM2...	9.88	7	
		16	2E16UNTM2...	2I16UNTM2...	9.53	6	
		14	2E14UNTM2...	2I14UNTM2...	9.07	5	
3/8"	16	40		3I40UNTM2...	14.61	23	TMC..-3 TMSH..-3
		32		3I32UNTM2...	15.08	19	
		28	3E28UNTM2...	3I28UNTM2...	14.51	16	
		27	3E27UNTM2...	3I27UNTM2...	14.11	15	
		24	3E24UNTM2...	3I24UNTM2...	14.82	14	
		20	3E20UNTM2...	3I20UNTM2...	13.97	11	
		18	3E18UNTM2...	3I18UNTM2...	14.11	10	
		16	3E16UNTM2...	3I16UNTM2...	14.29	9	
		14	3E14UNTM2...	3I14UNTM2...	14.51	8	
		13	3E13UNTM2...	3I13UNTM2...	13.68	6	
		12	3E12UNTM2...	3I12UNTM2...	14.82	7	
		11.5	3E11.5UNTM2...	3I11.5UNTM2...	13.25	6	
3/8"B	22	24	3BE24UNTM2...	3BI24UNTM2...	21.16	20	BTMC..-3B TMSH..-3B
		20	3BE20UNTM2...	3BI20UNTM2...	21.59	17	
		18	3BE18UNTM2...	3BI18UNTM2...	21.17	15	
		16	3BE16UNTM2...	3BI16UNTM2...	20.64	13	
		14	3BE14UNTM2...	3BI14UNTM2...	21.77	12	
		13	3BE13UNTM2...	3BI13UNTM2...	21.49	11	
		12	3BE12UNTM2...	3BI12UNTM2...	21.17	10	

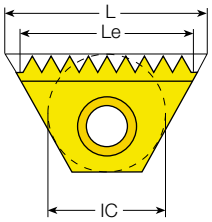
Sample order: **3E24UNTM2 VBX**
All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm), which has one cutting edge. For toolholder information, see page 216.

American UN (Con't)

External / Internal







Standard TM

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

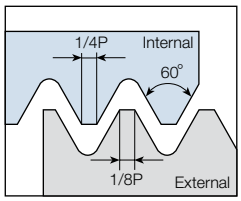
Standard TM

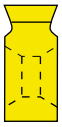
Insert Size		Pitch	Ordering Code		Le	Teeth	Toolholder
IC	**L** mm	**tpi**	**External**	**Internal**	**mm**		
5/8"	27	24	5E24UNTM2...	5I24UNTM2...	25.40	24	TMC..-5 TMSH..-5
		20	5E20UNTM2...	5I20UNTM2...	25.40	20	
		18	5E18UNTM2...	5I18UNTM2...	25.40	18	
		16	5E16UNTM2...	5I16UNTM2...	25.40	16	
		14	5E14UNTM2...	5I14UNTM2...	25.40	14	
		13	5E13UNTM2...	5I13UNTM2...	25.40	13	
		12	5E12UNTM2...	5I12UNTM2...	25.40	12	
		11.5	5E11.5UNTM2...	5I11.5UNTM2...	24.30	11	
		11	5E11UNTM2...	5I11UNTM2...	25.40	11	
		10	5E10UNTM2...		22.86	9	
		10		5I10UNTM2...	25.40	10	
		9	5E9UNTM2...	5I9UNTM2...	22.58	8	
		8	5E8UNTM2...	5I8UNTM2...	22.23	7	
		7	5E7UNTM2...		21.77	6	
		7		5I7UNTM2...	25.40	7	
		6	5E6UNTM2...		21.17	5	
		6		5I6UNTM2...	25.40	6	
3/4"B	38.5	6	6BE6UNTM2...	6BI6UNTM2...	38.87	8	TMC..-6B TMSH..-6B
		5	6BE5UNTM2...	6BI5UNTM2...	30.48	6	
		4.5	6BE4.5UNTM2...	6BI4.5UNTM2...	33.87	6	
		4	6BE4UNTM2...	6BI4UNTM2...	31.75	5	

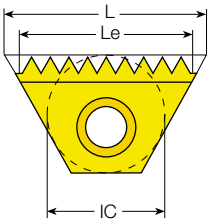
Sample order: **5E24UNTM2 VBX**
All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm), which has one cutting edge.
For toolholder information, see page 216.

American UN (Con't)

Internal







Coarse Pitch TM

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

Coarse Pitch TM

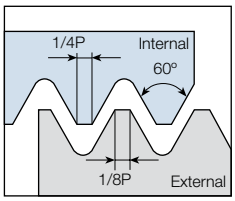
Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth	Toolholder	Bore Dia. Range
	IC	**L** mm	**Internal**		**mm**			**mm**
7/16-20 UNF	6.0mm	10.4	6.0I20UNTM...028/012	1	8.89	7	TMMC12-6.0	9.7-11.4
7/16-20 UNF	6.0mm	10.4	6.0I20UNTM...028/012	1	8.89	7	TMMC20-6.0	9.7-11.4
7/16-16 UN	6.0 mm	10.4	6.0I16UNTM...028/014	1	7.94	5	TMMC12-6.0	9.3-14.1
7/16-16 UN	6.0 mm	10.4	6.0I16UNTM...028/014	1	7.94	5	TMMC20-6.0	9.3-14.1
7/16-14 UNC	6.0mm	10.4	6.0I14UNTM...028/013	1	9.07	5	TMMC20-6.0 124/003	9.1-9.9
1/2-13 UNC	1/4"	11	2I13UNTM...028/015	1	9.77	5	TMC20-2 124/005	10.5-19.5
1/2-16 UN	6.0 mm	10.4	6.0I16UNTM...028/014	1	7.94	5	TMMC12-6.0	9.3-14.1
1/2-16 UN	6.0 mm	10.4	6.0I16UNTM...028/014	1	7.94	5	TMMC20-6.0	9.3-14.1
9/16-12 UNC	1/4"	11	2I12UNTM...028/016	1	8.47	4	TMC20-2 124/005	11.9-15.6
9/16-18 UNF	1/4"	11	2I18UNTM...028/017	2	9.88	7	TMC12-2	12.7-14.5
9/16-18 UNF	1/4"	11	2I18UNTM...028/017	2	9.88	7	TMC20-2	12.7-14.5
9/16-16 UN	6.0 mm	10.4	6.0I16UNTM...028/014	1	7.94	5	TMMC12-6.0	9.3-14.1
9/16-16 UN	6.0 mm	10.4	6.0I16UNTM...028/014	1	7.94	5	TMMC20-6.0	9.3-14.1
5/8-11 UNC	1/4"	11	2I11UNTM...028/018	1	9.24	4	TMC20-2 124/006	13.3-18.5
5/8-12 UN	1/4"	11	2I12UNTM...028/016	1	8.47	4	TMC20-2 124/005	11.9-15.6
5/8-16 UN	6.0 mm	10.4	6.0I16UNTM...028/014	1	7.94	5	TMMC12-6.0	9.3-14.1
5/8-16 UN	6.0 mm	10.4	6.0I16UNTM...028/014	1	7.94	5	TMMC20-6.0	9.3-14.1
11/16-12 UN	1/4"	11	2I12UNTM...028/016	1	8.47	4	TMC20-2 124/005	11.9-15.6
3/4-10 UNC	3/8"	16	3I10UNTM...028/019	1	12.70	5	TMC16-3 124/001	16.3-31.6
3/4-12 UN	3/8"	16	3I12UNTM...028/020	2	14.82	7	TMNC16-3	16.7-18.3
13/16-12 UN	3/8"	16	3I12UNTM...028/020	2	14.82	7	TMC16-3	18.3-19.5
7/8-9 UNC	1/2"	22	4I9UNTM...028/021	1	16.93	6	TMC25-4 124/002	19.1-32.5

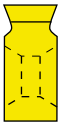
continued on next page

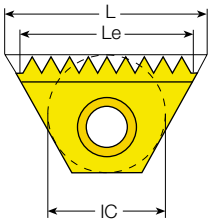
Sample tool requirement for thread 9/16-12 UNC
Ordering codes:
Insert: **2I12UNTM VBX 028/016**
Toolholder: **TMC20-2 124/005**
For toolholder information, see page 216.

American UN (Con't)

Internal







Coarse Pitch TM

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

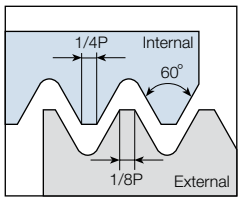
Coarse Pitch TM (con't)

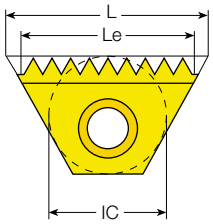
Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth	Toolholder	Bore Dia. Range
	IC	**L** mm	**Internal**		**mm**			**mm**
1-8 UNC	1/2"	22	4I8UNTM...028/022	1	19.05	6	TMC25-4 124/007	21.9-28.3
1 1/16-8 UN	1/2"	22	4I8UNTM...028/022	1	19.05	6	TMC25-4 124/007	21.9-28.3
1 1/8-7UNC	1/2"	22	4I7UNTM...028/023	1	18.14	5	TMC25-4 124/002	24.6-35.9
1 1/8-8 UN	1/2"	22	4I8UNTM...028/022	1	19.05	6	TMC25-4 124/007	21.9-28.3
1 3/I6-8 UN	1/2"	22	4I8UNTM...028/022	1	19.05	6	TMC25-4 124/007	21.9-28.3
1 1/4-7 UNC	1/2"	22	4I7UNTM...028/023	1	18.14	5	TMC25-4 124/002	24.6-35.9
1 1/4-8 UN	5/8"	27	5I8UNTM...028/024	2	22.23	7	TMC25-5 124/004	28.3-33.0
1 5/16-8 UN	5/8"	27	5I8UNTM...028/024	2	22.23	7	TMC25-5 124/004	28.3-33.0
1 3/8-6 UNC	5/8"	27	5I6UNTM...028/025	2	25.40	6	TMC25-5 124/004	30.3-36.7
1 3/8-8 UN	5/8"	27	5I8UNTM...028/024	2	22.23	7	TMC25-5 124/004	28.3-33.0
1 7/16-6 UN	5/8"	27	5I6UNTM...028/025	2	25.40	6	TMC25-5 124/004	30.3-36.7
1 7/16-8 UN	5/8"	27	5I8UNTM...028/024	2	22.23	7	TMC25-5	33.0-39.0
1 1/2-6 UNC	5/8"	27	5I6UNTM...028/025	2	25.40	6	TMC25-5 124/004	30.3-36.7
1 1/2-8 UN	5/8"	27	5I8UNTM...028/024	2	22.23	7	TMC25-5	33.0-39.0
1 9/16 -6 UN	5/8"	27	5I6UNTM...028/025	2	25.40	6	TMC25-5 124/004	30.3-36.7
1 9/16-8 UN	5/8"	27	5I8UNTM...028/024	2	22.23	7	TMC25-5	33.0-39.0
1 5/8-6 UN	5/8"	27	5I6UNTM...028/025	2	25.40	6	TMC25-5	36.7-45.0
1 5/8-8 UN	5/8"	27	5I8UNTM...028/024	2	22.23	7	TMC25-5	33.0-39.0
1 11/16-6 UN	5/8"	27	5I6UNTM...028/025	2	25.40	6	TMC25-5	36.7-45.0
1 3/4-5 UNC	5/8"	27	5I5UNTM...028/077	2	20.32	4	TMC25-5	38.9-∞
1 3/4-6 UN	5/8"	27	5I6UNTM...028/025	2	25.40	6	TMC25-5	36.7-45.0
1 13/16-6UN	5/8"	27	5I6UNTM...028/025	2	25.40	6	TMC25-5	36.7-45.0
1 7/8-6 UN	5/8"	27	5I6UNTM...028/025	2	25.40	6	TMC25-5	36.7-45.0
1 15/16-6 UN	5/8"	27	5I6UNTM...028/025	2	25.40	6	TMC25-5	36.7-45.0

Sample tool requirement for thread 1 9/16-6 UN
Ordering codes:
Insert: **5I6UNTM VBX 028/025**
Toolholder: **TMC 25-5 124/004**
For toolholder information, see page 216.

American UN (Con't)

External / Internal





Standard TM

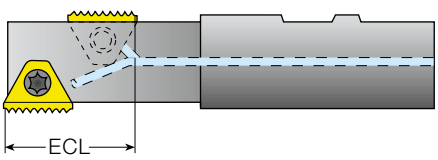
Defined by: ANSI B1.1.74
Tolerance class: Class 2A/2B

Standard TM Inserts for TMO Toolholders

Insert Size		Pitch	Ordering Code		Toolholder	ECL
IC	**L** mm	**tpi**	**External**	**Internal**	**TMO**	**mm**
1/4"	11	48		2I48UNTM2...	TMOC20-2-1	19.58
		48		2I48UNTM2...	TMOC20-2-2	18.52
		48		2I48UNTM2...	TMOC20-2-9	19.05
		32		2I32UNTM2...	TMOC20-2-1	19.85
		28	2E28UNTM2...	2I28UNTM2...	TMOC20-2-3	17.24
		24	2E24UNTM2...	2I24UNTM2...	TMOC20-2-2	17.99
		20	2E20UNTM2...	2I20UNTM2...	TMOC20-2-4	19.05
		18	2E18UNTM2...	2I18UNTM2...	TMOC20-2-2	18.34
		16	2E16UNTM2...	2I16UNTM2...	TMOC20-2-1	19.05
		14	2E14UNTM2...	2I14UNTM2...	TMOC20-2-3	16.33
3/8"	16	32		3I32UNTM2...	TMOC20-3-3	27.78
		32		3I32UNTM2...	TMOC20-3-11	28.58
		28	3E28UNTM2...	3I28UNTM2...	TMOC20-3-3	27.21
		27	3E27UNTM2...	3I27UNTM2...	TMOC20-3-4	27.28
		24	3E24UNTM2...	3I24UNTM2...	TMOC20-3-6	27.52
		20	3E20UNTM2...	3I20UNTM2...	TMOC20-3-6	26.67
		18	3E18UNTM2...	3I18UNTM2...	TMOC20-3-6	26.82
		16	3E16UNTM2...	3I16UNTM2...	TMOC20-3-6	26.99
		14	3E14UNTM2...	3I14UNTM2...	TMOC20-3-6	27.21
		13	3E13UNTM2...	3I13UNTM2...	TMOC20-3-2	25.4
		12	3E12UNTM2...	3I12UNTM2...	TMOC20-3-6	27.52
		11.5	3E11.5UNTM2...	3I11.5UNTM2...	TMOC20-3-5	24.3

continued on next page

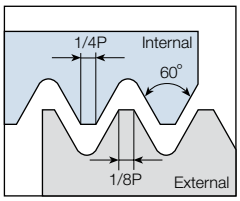
Sample order: **2E16UNTM2 VBX**
For Le and number of teeth of the above inserts,
see the table for standard inserts on page 196-197.
For toolholder intormation, see page 216.

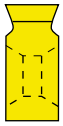


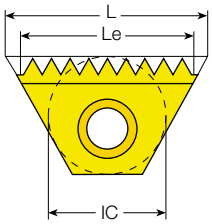
ECL - The Effective Cutting Length

American UN (Con't)

External / Internal







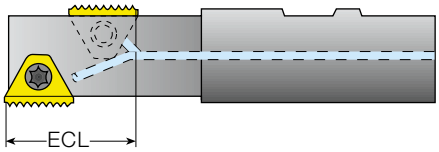
Standard TM

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

Standard TM Inserts for TMO Toolholders (Con't)

Insert Size		Pitch	Ordering Code		Toolholder	ECL
IC	**L** mm	**tpi**	**External**	**Internal**	**TMO**	**mm**
5/8"	27	24	5E24UNTM2..	5I24UNTM2..	TMOC25-5-1	50.80
		24	5E24UNTM2...	5I24UNTM2...	TMOC25-5-2	46.57
		20	5E20UNTM2...	5I20UNTM2...	TMOC25-5-1	50.80
		18	5E18UNTM2...	5I18UNTM2...	TMOC25-5-1	50.80
		18	5E18UNTM2...	5I18UNTM2...	TMOC25-5-2	46.57
		16	5E16UNTM2...	5I16UNTM2...	TMOC25-5-3	47.63
		14	5E14UNTM2...	5I14UNTM2...	TMOC25-5-1	50.80
		14	5E14UNTM2...	5I14UNTM2...	TMOC25-5-4	47.17
		13	5E13UNTM2...	5I13UNTM2...	TMOC25-5-1	50.80
		12	5E12UNTM2...	5I12UNTM2...	TMOC25-5-2	46.57
		12	5E12UNTM2...		TMOC25-5-1	50.80
		11.5	5E11.5UNTM2...	5I11.5UNTM2...	TMOC25-5-5	46.38
		11	5E11UNTM2...	5I11UNTM2...	TMOC25-5-6	48.49
		11		5I11UNTM2...	TMOC25-5-1	46.18
		10	5E10UNTM2...		TMOC25-5-7	43.18
		10		5I10UNTM2...	TMOC25-5-7	45.72
		9	5E9UNTM2...	5I9UNTM2...	TMOC25-5-8	45.16
		8	5E8UNTM2...	5I8UNTM2...	TMOC25-5-9	44.45
		7	5E7UNTM2...		TMOC25-5-10	43.54
		7		5I7UNTM2...	TMOC25-5-10	47.17
		6	5E6UNTM2...		TMOC25-5-2	42.33
		6		5I6UNTM2...	TMOC25-5-2	46.57
		5		5I5UNTM...028/077	TMOC25-5-7	40.64

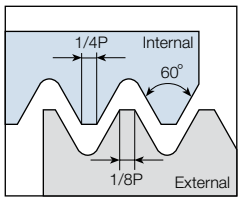
Sample order: **5E16UNTM2 VBX**
For Le and number of teeth of the above inserts, see table for standard inserts on page 196-197.
For toolholder information, see page 216.

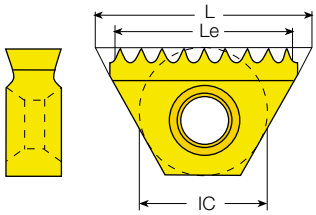


ECL - The Effective Cutting Length

American UN (Con't)

External / Internal





Fine Pitch TM

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

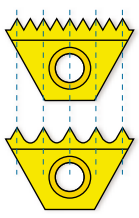
Fine Pitch TM

Insert Size		Pitch	Ordering Code		Le	Teeth	
IC	**L** mm	**tpi**	**External**	**Internal**	**mm**		**Toolholder**
6.0mm	10.4	80	6.0E80UNTMF...	6.0I80UNTMF...	9.84	16	TMMC..-6.0
		72	6.0E72UNTMF...	6.0I72UNTMF...	9.53	14	
		64	6.0E64UNTMF...	6.0I64UNTMF...	9.13	12	
		56	6.0E56UNTMF...	6.0I56UNTMF...	9.53	11	
		48	6.0E48UNTMF...		9.00	9	
		44	6.0E44UNTMF...		8.66	8	
		40	6.0E40UNTMF...		8.26	7	
		36	6.0E36UNTMF...		9.17	7	
		32	6.0E32UNTMF...		8.73	6	
1/4"	11	80	2E80UNTM2F...	2I80UNTM2F...	9.84	16	TMC..-2 TMSH..-2
		72	2E72UNTM2F...	2I72UNTM2F...	10.23	15	
		64	2E64UNTM2F...	2I64UNTM2F...	9.92	13	
		56	2E56UNTM2F...	2I56UNTM2F...	9.53	11	
		48	2E48UNTM2F...		10.05	10	
		44	2E44UNTM2F...		9.81	9	
		40	2E40UNTM2F...		9.53	8	
		36	2E36UNTM2F...		9.17	7	
		32	2E32UNTM2F...		8.73	6	
3/8"	16	80	3E80UNTM2F...	3I80UNTM2F...	14.29	23	TMC..-3 TMSH..-3
		72	3E72UNTM2F...	3I72UNTM2F...	14.46	21	
		64	3E64UNTM2F...	3I64UNTM2F...	14.68	19	
		56	3E56UNTM2F...	3I56UNTM2F...	14.06	16	
		48	3E48UNTM2F...		14.29	14	
		44	3E44UNTM2F...		14.43	13	
		40	3E40UNTM2F...		14.61	12	
		36	3E36UNTM2F...		14.82	11	
		32	3E32UNTM2F...		13.49	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 216.

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.

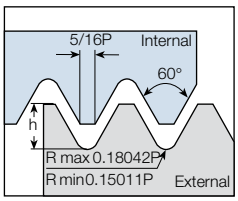


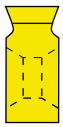
Important!

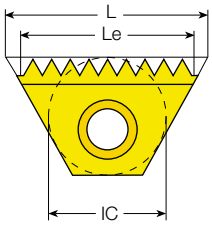
- All the fine pitch inserts are partial profile type (as a result of the enlarged radius).

UNJ

External / Internal







Standard TM

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

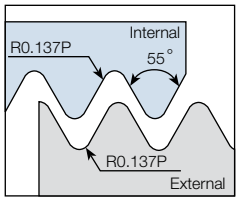
Standard TM

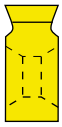
Insert Size		Pitch	Ordering Code		Le	Teeth	Toolholder
IC	**L** mm	**tpi**	**External**	**Internal**	**mm**		
6.0mm	10.4	24		6.0I24UNJTM...	9.53	9	TMMC..-6.0
		20		6.0I20UNJTM...	8.89	7	
		18		6.0I18UNJTM...	8.47	6	
		16		6.0I16UNJTM...	9.53	6	
1/4"	11	24	2E24UNJTM2...	2I24UNJTM2...	9.53	9	TMC..-2 TMSH..-2
		20	2E20UNJTM2...	2I20UNJTM2...	10.16	8	
		18		2I18UNJTM2...	9.88	7	
		16	2E16UNJTM2...	2I16UNJTM2...	9.53	6	
		14	2E14UNJTM2...	2I14UNJTM2...	9.07	5	
3/8"	16	24	3E24UNJTM2...	3I24UNJTM2...	14.82	14	TMC..-3 TMSH..-3
		20	3E20UNJTM2...	3I20UNJTM2...	13.97	11	
		18	3E18UNJTM2...	3I18UNJTM2...	14.11	10	
		16	3E16UNJTM2...	3I16UNJTM2...	14.29	9	
		14	3E14UNJTM2...	3I14UNJTM2...	14.51	8	
		13	3E13UNJTM2...		13.68	7	
		12	3E12UNJTM2...	3I12UNJTM2...	14.82	7	
5/8"	27	16	5E16UNJTM2...	5I16UNJTM2...	25.40	16	TMC..-5 TMSH..-5
		12	5E12UNJTM2...	5I12UNJTM2...	25.40	12	
		11	5E11UNJTM2...	5I11UNJTM2...	25.40	11	

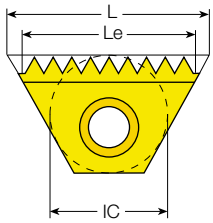
Insert ordering code: **3E16UNJTM2 VBX**
All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm), which has one cutting edge.
For toolholder information, see page 216.

W for BSW, BSP

External / Internal







Standard TM

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

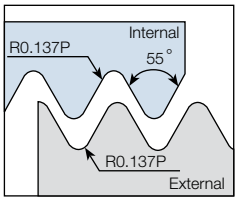
Standard TM

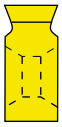
Insert Size		Pitch	Ordering Code	Le	Teeth	
IC	**L mm**	**tpi**	**External + Internal**	**mm**		**Toolholder**
6.0mm	10.4	28	6.0EI28WTM...	9.07	10	TMMC..-6.0
		26	6.0EI26WTM...	8.79	9	
		24	6.0EI24WTM...	9.53	9	
		20	6.0EI20WTM...	8.89	7	
		19	6.0EI19WTM...	9.36	7	
1/4"	11	28	2EI28WTM2...	9.98	11	TMC..-2 TMSH..-2
		26	2EI26WTM2...	9.77	10	
		24	2EI24WTM2...	9.53	9	
		20	2EI20WTM2...	10.16	8	
		19	2EI19WTM2...	9.36	7	
		14	2EI14WTM2...	9.07	5	
3/8"	16	26	3EI26WTM2...	14.65	15	TMC..-3 TMSH..-3
		24	3EI24WTM2...	14.82	14	
		20	3EI20WTM2...	13.97	11	
		19	3EI19WTM2...	14.71	11	
		18	3EI18WTM2...	14.11	10	
		16	3EI16WTM2...	14.29	9	
		14	3EI14WTM2...	14.51	8	
		12	3EI12WTM2...	14.82	7	
		11	3EI11WTM2...	13.85	6	
3/8"B	22	24	3BEI24WTM2...	21.17	20	TMC..-3B TMSH..-3B
		20	3BEI20WTM2...	21.59	17	
		19	3BEI19WTM2...	21.39	16	
		18	3BEI18WTM2...	21.17	15	
		16	3BEI16WTM2...	20.64	13	
		14	3BEI14WTM2...	21.77	12	
		12	3BEI12WTM2...	21.17	10	
		11	3BEI11WTM2...	20.78	9	
5/8"	27	16	5EI16WTM2...	25.4	16	TMC..-5 TMSH..-5
		14	5EI14WTM2...	25.4	14	
		12	5EI12WTM2...	23.28	11	
		11	5EI11WTM2...	23.09	10	
		10	5EI10WTM2...	25.40	10	
		9	5EI9WTM2...	22.58	8	
		8	5EI8WTM2...	22.23	7	
		7	5EI7WTM2...	21.77	6	
		6	5EI6WTM2...	21.17	5	
3/4"B	38.5	11	6BEI11WTM2...	34.64	15	TMC..-6B TMSH..-6B
		6	6BEI6WTM2...	33.87	8	
		5	6BEI5WTM2...	30.48	6	
		4.5	6BEI4.5WTM2...	33.87	6	

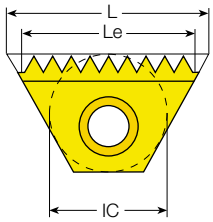
Insert ordering code: **3EI14WTM2 VBX**
All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm) which has one cutting edge.
For toolholder information, see page 216.

W for BSW only (Con't)

Internal







Coarse Pitch TM

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

Coarse Pitch TM

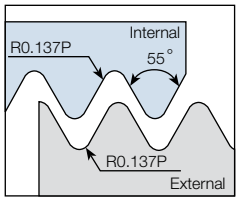
Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth	Toolholder	Bore Dia. Range
	IC	L mm	Internal		mm			mm
7/16-18	6.0 mm	10.4	6.0I18WTM...028/035	1	8.47	6	TMMC12-6.0	9.3-14.2
7/16-18	6.0 mm	10.4	6.0I18WTM...028/035	1	8.47	6	TMMC20-6.0	9.3-14.2
7/16-26	6.0 mm	10.4	6.0I26WTM... 028/036	1	8.79	9	TMMC12-6.0	9.8-10.5
7/16-26	6.0 mm	10.4	6.0I26WTM... 028/036	1	8.79	9	TMMC20-6.0	9.8-10.5
1/2 - 16	1/4"	11	2I16WTM... 028/051	1	9.53	6	TMC20-2 124/005	10.6-12.2
1/2 - 20	6.0 mm	10.4	6.0I20WTM...028/037	1	8.89	7	TMMC12-6.0	11.0-11.4
1/2 - 20	6.0 mm	10.4	6.0I20WTM...028/037	1	8.89	7	TMMC20-6.0	11.0-11.4
9/16-16	1/4"	11	2I16WTM...028/038	2	9.53	6	TMC12-2	12.2-18.5
9/16-16	1/4"	11	2I16WTM...028/038	2	9.53	6	TMC20-2	12.2-18.5
5 /8-14	1/4"	11	2I14WTM...028/039	1	9.07	5	TMC20-2 124/006	13.5-19.0
11 /16-14	1/4"	11	2I14WTM...028/039	1	9.07	5	TMC20-2 124/006	13.5-19.0
11 /16-16	1/4"	11	2I16WTM...028/038	2	9.53	6	TMC12-2	12.2-18.5
11/16-16	1/4"	11	2I16WTM...028/038	2	9.53	6	TMC20-2	12.2-18.5
3/4 - 12	3/8"	16	3I12WTM...028/040	1	14.82	7	TMC16-3 124/001	16.3-17.9
3/4 - 16	1/4"	11	2I16WTM...028/038	2	9.53	6	TMC12-2	12.2-18.5
3/4 - 16	1/4"	11	2I16WTM...028/038	2	9.53	6	TMC20-2	12.2-18.5
13/16-12	3/8"	16	3I12WTM...028/041	2	14.82	7	TMC16-3	17.9-21.0
7/8-9	1/2"	22	4I9WTM...028/042	1	16.93	6	TMC25-4 124/002	18.6-32.5
7/8-11	1/2"	22	4I11WTM...028/043	1	18.47	8	TMC25-4 124/002	19.2-22.0
15/16-12	3/8"	16	3I12WTM...028/041	2	14.82	7	TMC20-3	21.0-30.6
1-8	1/2"	22	4I8WTM...028/044	1	15.88	5	TMC25-4 124/002	21.3-26.0
1-10	1/2"	22	4I10WTM...028/045	1	17.78	7	TMC25-4 124/002	22.1-31.6
1-12	3/8"	16	3I12WTM...028/041	2	14.82	7	TMC20-3	21.0-30.6
1 1/16-12	3/8"	16	3I12WTM...028/041	2	14.82	7	TMC20-3	21.0-30.6
1 1/8-7	5/8"	27	5I7WTM...028/046	1	21.77	6	TMC25-5 124/008	23.9-27.1
1 1/8-9	1/2"	22	4I9WTM...028/042	1	16.93	6	TMC25-4 124/002	18.6-32.5
1 1/8-12	3/8"	16	3I12WTM...028/041	2	14.82	7	TMC20-3	21.0-30.6
1 3/16-8	5/8"	27	5I8WTM...028/047	2	22.23	7	TMC25-4 124/004	26.0-32.4
1 3/16-12	3/8"	16	3I12WTM...028/041	2	14.82	7	TMC20-3	21.0-30.6
1 1/4-7	5/8"	27	5I7WTM...028/048	2	21.77	6	TMC25-5 124/004	21.7-35.9
1 1/4-9	1/2"	22	4I9WTM...028/042	1	16.93	6	TMC25-4 124/002	18.6-32.5
1 1/4-12	3/8"	16	3I12WTM...028/041	2	14.82	7	TMC20-3	21.0-30.6
1 5/16-6	5/8"	27	5I6WTM...028/049	2	21.17	5	TMC25-5 124/004	27.9-32.6
1 5/16-8	5/8"	27	5I8WTM...028/047	2	22.23	7	TMC25-5 124/004	26.0-32.4

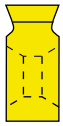
continued on next page

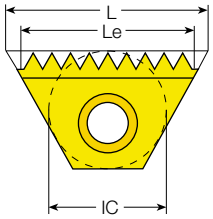
Sample tool requirement for thread 7/16"-18 BSW
Ordering codes: Insert: **6.0I18WTM VBX 028/035** Toolholder: **TMMC 20-6.0**
For toolholder information, see page 216.

W 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

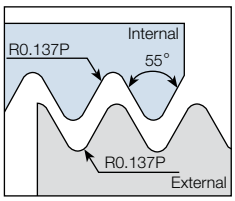
Coarse Pitch TM

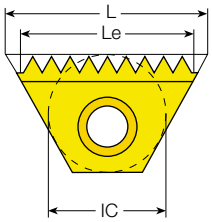
Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth	Toolholder	Bore Dia. Range
	IC	**L** mm	**Internal**		**mm**			**mm**
1 5/16-12	3/8"	16	3I12WTM...028/041	2	14.82	7	TMC20-3	21.0-30.6
1 3/8-8	5/8"	27	5I8WTM...028/047	2	22.23	7	TMC25-5 124/004	26.0-32.4
1 3/8-6	5/8"	27	5I6WTM...028/049	2	21.17	5	TMC25-5 124/004	27.9-32.6
1 3/8-12	5/8"	27	5I12WTM...028/050	2	23.28	11	TMC25-5	32.2-34.6
1.4-6	5/8 "	27	5I6WTM...028/049	2	21.17	5	TMC25-5 124/004	27.9-32.6
1.4-8	5/8"	27	5I8WTM...028/047	2	22.23	7	TMC25-5124/004	26.0-32.4
1.4-12	5/8"	27	5I12WTM...028/050	2	23.28	11	TMC25-5	32.2-34.6
1 7/16-6	5/8"	27	5I6WTM...028/049	2	21.17	5	TMC25-5 124/004	27.9-32.6
1 7/16-8	5/8"	27	5I8WTM...028/047	2	22.23	7	TMC25-5	32.4-39.0
1 7/16-12	5/8"	27	5I12WTM...028/050	2	23.28	11	TMC25-5	32.2-34.6
1 1/2-6	5/8"	27	5I6WTM...028/049	2	21.17	5	TMC25-5 124/004	27.9-32.6
1 1/2 -8	5/8"	27	5I8WTM...028/047	2	22.23	7	TMC25-5	32.4-39.0
1.6-6	5/8"	27	5I6WTM...028/049	2	21.17	5	TMC25-5	32.6-38.5
1.6-8	5/8"	27	5I8WTM...028/047	2	22.23	7	TMC25-5	32.4-39.0
1 5/8-8	5/8"	27	5I8WTM...028/047	2	22.23	7	TMC25-5	32.4-39.0
1 5/8-6	5/8"	27	5I6WTM...028/049	2	21.17	5	TMC25-5	32.6-38.5
1 3/4-7	5/8"	27	5I7WTM...028/048	2	21.77	6	TMC25-5	39.8-42.0
1 7/8-6	5/8"	27	5I6 WTM...028/049	2	21.17	5	TMC32-5	42.2-45.0
1.9-6	5/8"	27	5I6 WTM...028/049	2	21.17	5	TMC32-5	42.2-45.0

Sample tool requirement for thread 1 5/16"-12 BSW
Ordering codes: Insert: **3I12WTM VBX 028/041**
Toolholder: **TMC 20-3**
For toolholder information, see page 216.

W for BSW, BSP (Con't)

External / Internal





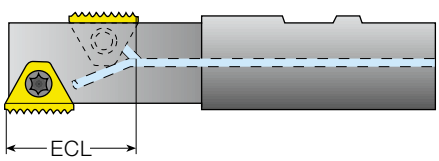
Standard TM

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 Inserts for TMO Toolholders

Insert Size		Pitch	Ordering Code		ECL
IC	**L** mm	**tpi**	**External + Internal**	**TMO**	**mm**
1/4"	11	28	2EI28WTM2...	TMOC20-2-3	17.24
		26	2EI26WTM2...	TMOC20-2-5	18.56
		24	2EI24WTM2...	TMOC20-2-2	17.99
		20	2EI20WTM2...	TMOC20-2-6	19.05
		19	2EI19WTM2...	TMOC20-2-7	17.38
		14	2EI14WTM2...	TMOC20-2-3	16.33
3/8"	16	26	3EI26WTM2...	TMOC20-3-2	27.35
		26	3EI26WTM2...	TMOC20-3-6	26.38
		24	3EI24WTM2...	TMOC20-3-7	28.57
		20	3EI20WTM2...	TMOC20-3-6	26.67
		19	3EI19WTM2...	TMOC20-3-8	28.07
		18	3EI18WTM2...	TMOC20-3-6	26.81
		16	3EI16WTM2...	TMOC20-3-6	26.99
		14	3EI14WTM2...	TMOC20-3-6	27.21
		12	3EI12WTM2...	TMOC20-3-6	27.52
		11	3EI11WTM2...	TMOC20-3-9	27.71
5/8"	27	16	5EI16WTM2...	TMOC25-5-3	47.63
		14	5EI14WTM2...	TMOC25-5-1	50.8
		14	5EI14WTM2...	TMOC25-5-4	47.17
		12	5EI12WTM2...	TMOC25-5-2	44.45
		11	5EI11WTM2...	TMOC25-5-6	46.18
		10	5EI10WTM2...	TMOC25-5-7	45.72
		9	5EI9WTM2...	TMOC25-5-8	45.16
		8	5EI8WTM2...	TMOC25-5-9	44.45
		7	5EI7WTM2...	TMOC25-5-4	43.54
		6	5EI6WTM2...	TMOC25-5-11	42.33

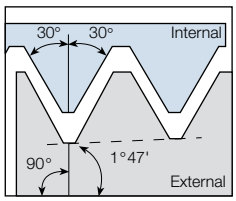
Sample order: **3EI19WTM2 VBX**
For Le and number of teeth of the above inserts, see the table for standard inserts on page 204.
For toolholders information see page 216.

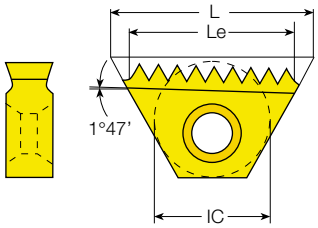


ECL - The Effective Cutting Length

NPT

External / Internal





Standard TM

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

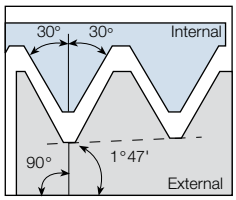
Standard TM

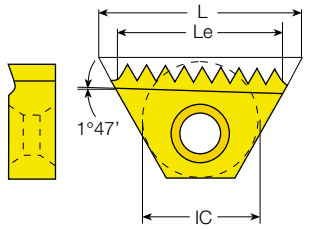
Insert Size		Pitch	Ordering Code	Le	Teeth	Toolholder	
IC	**L** mm	**tpi**	**External + Internal**	**mm**		**RH**	**LH**
3/8"	16	18	3E18NPTTM2... **	14.11	10	TMNC..-3	TMNC..-3LH
		14	3EI14NPTTM2...	14.51	8		
		11.5	3EI11.5NPTTM2...	13.25	6		
3/8"B	22	14	3BEI14NPTTM2...	21.77	12	BTMNC..-3B	BTMNC..-3BLH
		11.5	3BEI11.5NPTTM2... *	19.88	9		
5/8"	27	11.5	5EI11.5NPTTM2...	24.30	11	TM.C..-5	TM.C..-5LH
		8	5EI8NPTTM2...	22.23	7		
3/4"B	38.5	11.5	6BEI11.5NPTTM2...	35.34	16	TMC..-6B	TMC..-6BLH
		8	6BEI8NPTTM2...	31.75	10		

* Single sided insert - RH only
** For external thread only
Sample order: **3EI14NPTTM VBX**
NOTE: To thread with insert cutting edge marked "L", use LH toolholders.
For toolholder information, see page 216.

NPT

Internal





Coarse Pitch TM

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

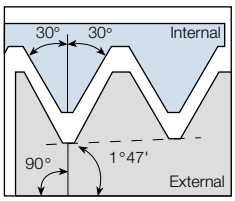
Coarse Pitch TM

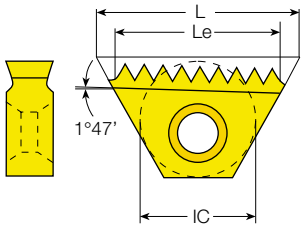
Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth	Toolholder
	IC	**L** mm	**Internal**		**mm**		
1/4"-18	1/4"	11	2I18NPTTM...028/074	1	9.88	7	TMC 20-2 124/009
3/8"-18	1/4"	11	2I18NPTTM...028/074	1	9.88	7	TMC 20-2 124/009

Sample order: **2I18NPTTM VBX 028/074**
NOTE: To thread with insert cutting edge marked "L", use LH toolholders.
For toolholder information, see page 216.

NPTF (Dry Seal)

External / Internal





Standard TM

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

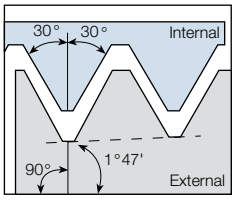
Standard TM

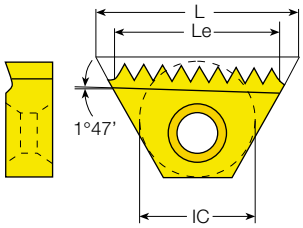
Insert Size		Pitch	Ordering Code	Le	Teeth	Toolholder	
IC	**L** mm	**tpi**	**External + Internal**	**mm**		**RH**	**LH**
3/8"	16	14	3EI14NPTFTM2...	14.51	8	TMNC..-3	TMNC..-3LH
		11.5	3EI11.5NPTFTM2...	13.25	6		
3/8"B	22	14	3BEI14NPTFTM2...	21.77	12	BTMNC..-3B	BTMNC..-3BLH
		11.5	3BEI11.5NPTFTM2...	19.88	9		
5/8"	27	11.5	5EI11.5NPTFTM2...	24.30	11	TM.C..-5	TM.C..-5LH
		8	5EI8NPTFTM2...	22.23	7		
3/4"B	38.5	11.5	6BEI11.5NPTFTM2...	35.34	16	TMC..-6B	TMC..-6BLH
		8	6BEI8NPTFTM2...	31.75	10		

Sample order: **3EI14NPTFTM VBX**
NOTE: To thread with insert cutting edge marked "L", use LH toolholders.
For toolholder information, see page 216.

NPTF (Dry Seal)

Internal





Coarse Pitch TM

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

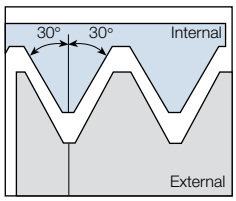
Coarse Pitch TM

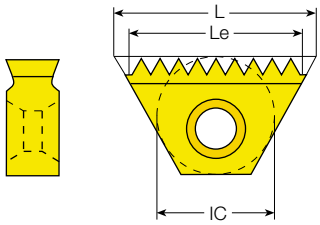
Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth	Toolholder
	IC	**L** mm	**Internal**		**mm**		
1/4"-18	1/4"	11	2I18NPTFTM...028/078	1	9.88	7	TMC20-2 124/009
3/8"-18	1/4"	11	2I18NPTFTM...028/078	1	9.88	7	TMC20-2 124/009

Sample tool requirement for thread 1/4" - 18NPTF
Ordering Codes Insert: **2I18NPTFTM VBX 028/078**
Toolholders: **TMC20-2 124/009**

NPS

External / Internal





Standard TM

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

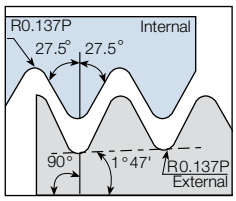
Standard TM

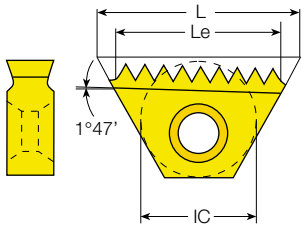
Insert Size		Pitch	Ordering Code	Le	Teeth	Nominal Thread Size	Toolholder
IC	**L** mm	**tpi**	**External + Internal**	**mm**			
3/8”	16	14	3EI14NPSTM2...	14.11	8	1/2”	TMNC16-3
		14	3EI14NPSTM2...	14.51	8	3/4”	TMNC20-3
		11.5	3EI11.5NPSTM2...	13.25	6	1”, 1 1/4”	TMNC20-3
3/8”B	22	11.5	3BEI11.5NPSTM2...*	19.88	9	1”, 1 1/4”	BTMNC20-3B
5/8”	27	11.5	5EI11.5NPSTM2...	24.30	11	1 1/2”, 2”	TMC25-5
		8	5EI8NPSTM2...	22.23	7	2 1/2” & larger	TMC32-5

Sample Order: **5EI11.5NPSTM2VBX**
All inserts have 2 cutting edges.
For toolholder information, see page 216.
* One cutting edge.

BSPT

External / Internal





Standard TM

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

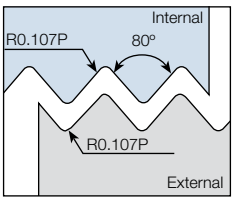
Standard TM

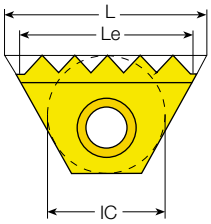
Insert Size		Pitch	Ordering Code	Le	Teeth	Toolholder	
IC	**L** mm	**tpi**	**External + Internal**	**mm**		**RH**	**LH**
1/4”	11	19	2EI19BSPTTM2...	9.36	7	TMC..-2	TMC..-2LH
3/8”	16	14	3EI14BSPTTM2...	14.51	8	TMNC..-3	TMNC..-3LH
		11	3EI11BSPTTM2...	13.85	6		
5/8”	27	11	5EI11BSPTTM2...	23.09	10	TMC..-5	TMC..-5LH

Sample Order: **5EI11BSPTTM VBX**
NOTE: To thread with insert cutting edge marked “L”, use a LH toolholders.
For toolholders information, see page 216.

Pg

External / Internal





Standard TM

Defined by: DIN 40430
Tolerance class: Standard

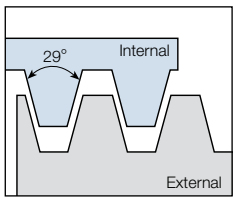
Standard TM

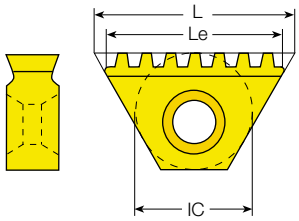
Insert Size		Pitch	Ordering Code	Le	Teeth	Nominal Thread Size	Toolholder
IC	**L** mm	**tpi**	**External + Internal**	**mm**			
6.0mm	10.4	20	6.0EI20PGTM...	8.99	7	Pg7	TMMC..-6.0
1/4"	11	20	2EI20PGTM2...	10.16	8	Pg7	TMC..-2 TMSH..-2
		18	2EI18PGTM2...	9.88	7	Pg9, Pg11, Pg13.5, Pg16	
		16	2EI16PGTM2...	9.53	6	Pg21, Pg29, Pg36, Pg42, Pg48	
3/8"	16	20	3EI20PGTM2...	13.97	11	Pg7	TMC..-3 TMSH..-3
		18	3EI18PGTM2...	14.11	10	Pg9, Pg11, Pg13.5, Pg16	
		16	3EI16PGTM2...	14.29	9	Pg21, Pg29, Pg36, Pg42, Pg48	
5/8"	27	16	5EI16PGTM2...	25.40	16	Pg21, Pg29, Pg36, Pg42, Pg48	TMC..-5, TMSH..-5

Insert Ordering Code: **5EI16PGTM2VBX**
All inserts have 2 cutting edges, except MiniTM (IC 6.0 mm) which has one edge.
For toolholder information, see page 216.

ACME

Internal





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

Coarse Pitch TM

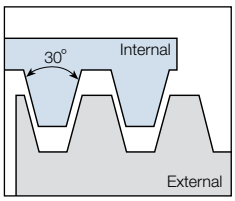
Coarse Pitch TM

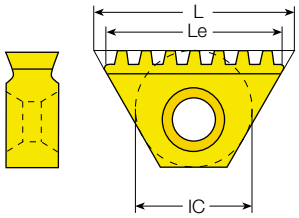
Thread	Insert Size		Ordering Code	Cutting Edge	Le	Teeth	Toolholder	Bore Dia. Range
	IC	**L** mm	**Internal**		**mm**			**mm**
1/2-16	6.0 mm	10.4	6.0I16ACMETM...028/052	1	7.94	5	TMMC12-6.0	11.1
1/2-16	6.0 mm	10.4	6.0I16ACMETM...028/052	1	7.94	5	TMMC20-6.0	11.1
5/8-16	1/4"	11	2I16ACMETM...028/053	2	9.53	6	TMC12-2	14.2
5/8"-16	1/4"	11	2I16ACMETM...028/053	2	9.53	6	TMC20-2	14.2
5/8"-14	1/4"	11	2I14ACMETM...028/054	1	9.07	5	TMC20-2 124/005	14.0
3/4"-16	1/4"	11	2I16ACMETM...028/055	2	9.53	6	TMC12-2	17.4
3/4-16	1/4"	11	2I16ACMETM...028/055	2	9.53	6	TMC20-2	17.4
3/4-14	1/4"	11	2I14ACMETM...028/083	1	9.07	5	TMC20-2 124/006	17.2
3/4-12	1/4"	11	2I12ACMETM...028/056	1	8.47	4	TMC20-2 124/006	16.9
7/8-14	3/8"	16	3I14ACMETM...028/057	2	14.51	8	TMNC16-3	20.4
7/8-12	1/4"	11	2I12ACMETM...028/058	1	8.47	4	TMC20-2 124/006	20.1
1-14	3/8"	16	3I14ACMETM...028/059	2	14.51	8	TMC16-3	23.5
1-12	3/8"	16	3I12ACMETM...028/060	2	14.82	7	TMNC16-3	23.2
1-10	1/2"	22	4I10ACMETM...028/061	1	17.78	7	TMC25-4 124/002	22.8
1-8	1/2"	22	4I8ACMETM...028/062	1	19.05	6	TMC25-4 124/002	22.2
1 1/8-12	3/8"	16	3I12ACMETM...028/060	2	14.82	7	TMC16-3	26.4
1 1/8-10	1/2"	22	4I10ACMETM...028/084	1	17.78	7	TMC25-4 124/007	26.0
1 1/8-8	1/2"	22	4I8ACMETM...028/063	1	19.05	6	TMC25-4 124/002	25.4-28.5
1 1/4-12	3/8"	16	3I12ACMETM...028/060	2	14.82	7	TMC20-3	29.6
1 1/4-10	5/8"	27	5I10ACMETM....028/064	2	22.86	9	TMC25-5 124/004	29.2
1 1/4-8	1/2"	22	4I8ACMETM...028/063	1	19.05	6	TMC25-4 124/002	25.4-28.5
1 3/8-10	5/8"	27	5I10ACMETM...028/065	2	22.86	9	TMC25-5 124/004	32.3
1 3/8-8	5/8"	27	5I8ACMETM...028/066	2	22.23	7	TMC25-5 124/004	31.7
1 3/8-6	5/8"	27	5I6ACMETM...028/067	1	21.17	5	TMC25-5 124/008	30.6
1 1/2 - 10	5/8"	27	5I10ACMETM...028/068	2	22.86	9	TMC25-5	35.5
1 1/2 - 8	5/8"	27	5I8ACMETM...028/069	2	22.23	7	TMC25-5 124/004	34.9
1 1/2 - 6	5/8"	27	5I6ACMETM...028/070	2	21.17	5	TMC25-5 124/004	33.8
1 3/4 - 10	5/8"	27	5I10ACMETM...028/064	2	22.86	9	TMC32-5	41.9
1 3/4 - 8	5/8"	27	5I8ACMETM...028/069	2	22.23	7	TMC25-5	41.2
1 3/4 - 6	5/8"	27	5I6ACMETM...028/070	2	21.17	5	TMC25-5	40.2
1 3/4 - 5	5/8"	27	5I5ACMETM...028/071	2	20.32	4	TMC25-5 124/004	39.3
2-8	5/8"	27	5I8ACMETM...028/069	2	22.23	7	TMC32-5	47.6
2-6	5/8"	27	5I6ACMETM...028/072	2	21.17	5	TMC25-5	46.5
2-5	5/8"	27	5I5ACMETM...028/071	2	20.32	4	TMC25-5	45.7
2 1/4 - 6	5/8"	27	5I6ACMETM...028/072	2	21.17	5	TMC32-5	52.9
2 1/4 - 5	5/8"	27	5I5ACMETM...028/073	2	20.32	4	TMC25-5	52.0
2 1/2 - 5	5/8"	27	5I5ACMETM...028/073	2	20.32	4	TMC32-5	58.4

Sample tool requirement for thread TR 1 3/4-5
Ordering Codes: Insert: **5I5ACME VBX 028/071** Toolholder: **TMC25-5 124/004** For toolholder information, see page 216.

TR

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	Toolholder	Bore Dia. Range
	IC	**L** mm	**Internal**		**mm**			**mm**
TR 16X2.0	1/4"	11	2I2.0TRTM...028/028	1	10	5	TMC20-2 124/006	14.0
TR 18X2.0	1/4"	11	2I2.0TRTM...028/029	1	10	5	TMC20-2 124/006	16.0-18.0
TR 20X2.0	1/4"	11	2I2.0TRTM...028/029	1	10	5	TMC20-2 124/006	16.0-18.0
TR 24X3.0	1/2"	22	4I3.0TRTM...028/030	1	18	6	TMC25-4 124/002	21.0
TR 26X3.0	1/2"	22	4I3.0TRTM...028/031	1	18	6	TMC25-4 124/002	23.0-27.0
TR 28X3.0	1/2"	22	4I3.0TRTM...028/031	1	18	6	TMC25-4 124/002	23.0-27.0
TR 30X3.0	1/2"	22	4I3.0TRTM...028/031	1	18	6	TMC25-4 124/002	23.0-27.0
TR 32X3.0	1/2"	22	4I3.0TRTM...028/032	1	18	6	TMC25-4 124/007	29.0-33.0
TR 34X3.0	1/2"	22	4I3.0TRTM...028/032	1	18	6	TMC25-4 124/007	29.0-33.0
TR 36X3.0	1/2"	22	4I3.0TRTM...028/032	1	18	6	TMC25-4 124/007	29.0-33.0
TR 38X3.0	5/8"	27	5I3.0TRTM...028/033	2	24	8	TMC25-5 124/004	35.0-39.0
TR 40X3.0	5/8"	27	5I3.0TRTM...028/033	2	24	8	TMC25-5 124/004	35.0-39.0
TR 42X3.0	5/8"	27	5I3.0TRTM...028/033	2	24	8	TMC25-5 124/004	35.0-39.0
TR 44X3.0	5/8"	27	5I3.0TRTM...028/033	2	24	8	TMC25-5	41.0-45.0
TR 46X3.0	5/8"	27	5I3.0TRTM...028/033	2	24	8	TMC25-5	41.0-45.0
TR 48X3.0	5/8"	27	5I3.0TRTM...028/033	2	24	8	TMC25-5	41.0-45.0
TR 50X3.0	5/8"	27	5I3.0TRTM...028/033	2	24	8	TMC32-5	47.0-57.0
TR 52X3.0	5/8"	27	5I3.0TRTM...028/033	2	24	8	TMC32-5	47.0-57.0
TR 55X3.0	5/8"	27	5I3.0TRTM...028/033	2	24	8	TMC32-5	47.0-57.0
TR 60X3.0	5/8"	27	5I3.0TRTM...028/033	2	24	8	TMC32-5	47.0-57.0
TR 65X4.0	5/8"	27	5I4.0TRTM...028/034	2	24	6	TMC32-5	61.0-106.0
TR 70X4.0	5/8"	27	5I4.0TRTM...028/034	2	24	6	TMC32-5	61.0-106.0
TR 75X4.0	5/8"	27	5I4.0TRTM...028/034	2	24	6	TMC32-5	61.0-106.0
TR 80X4.0	5/8"	27	5I4.0TRTM...028/034	2	24	6	TMC32-5	61.0-106.0
TR 85X4.0	5/8"	27	5I4.0TRTM...028/034	2	24	6	TMC32-5	61.0-106.0
TR 90X4.0	5/8"	27	5I4.0TRTM...028/034	2	24	6	TMC32-5	61.0-106.0
TR 95X4.0	5/8"	27	5I4.0TRTM...028/034	2	24	6	TMC32-5	61.0-106.0
TR 100X4.0	5/8"	27	5I4.0TRTM...028/034	2	24	6	TMC32-5	61.0-106.0
TR 105X4.0	5/8"	27	5I4.0TRTM...028/034	2	24	6	TMC32-5	61.0-106.0
TR110X4.0	5/8"	27	5I4.0TRTM...028/034	2	24	6	TMC32-5	61.0-106.0

Sample tool requirement for thread TR 38x3.0
Ordering Codes: Insert: **5I3.0TRTM VSX 028/033** Toolholder: **TMC25-5 124/004**
For toolholder information, see page 216.

VARGUS









THREAD MILLING TOOLHOLDERS Contents

Vardex Ordering Code System

Thread Milling Toolholders

B	TM	N	C	20	-	3	B		CW	LH	
1	2	3	4	5		6	7	8	9	10	11

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.
10, 12, 16, 20, 25, 32, 40

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 - Shank Std.
none - Weldon
CW - Clarkson Weldon

10 - RH / LH Holder
None - Right Hand
LH - Left Hand

11 - Serial No.
(for Coarse Pitch holders)
124/...

Thread Milling Shell Mill

TMSH	-	D63	-	22	-	3	B
1		2		3		4	5

1 - System
Thread Mill Shell Mill

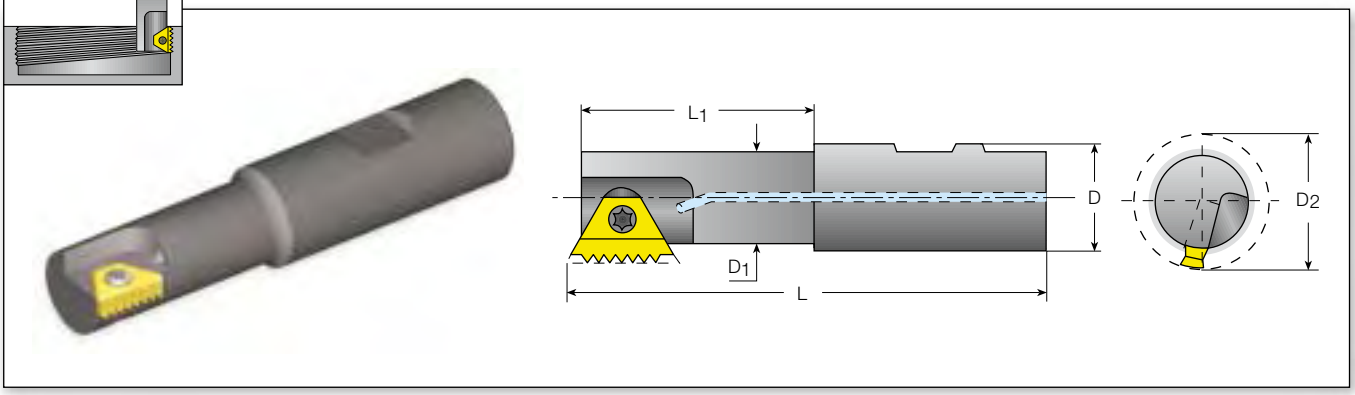
2 - Cutting Dia.
38, 50, 63, 80, 100, 125

3 - Drive Hole Dia.
16, 22, 27, 32, 40

4 - Insert Size
2 - 1/4”
3 - 3/8”
3B - 3/8”B
5 - 5/8”
6B - 3/4”B

5 - Cut. Edge Length
B - TMB

External and Internal Toolholders

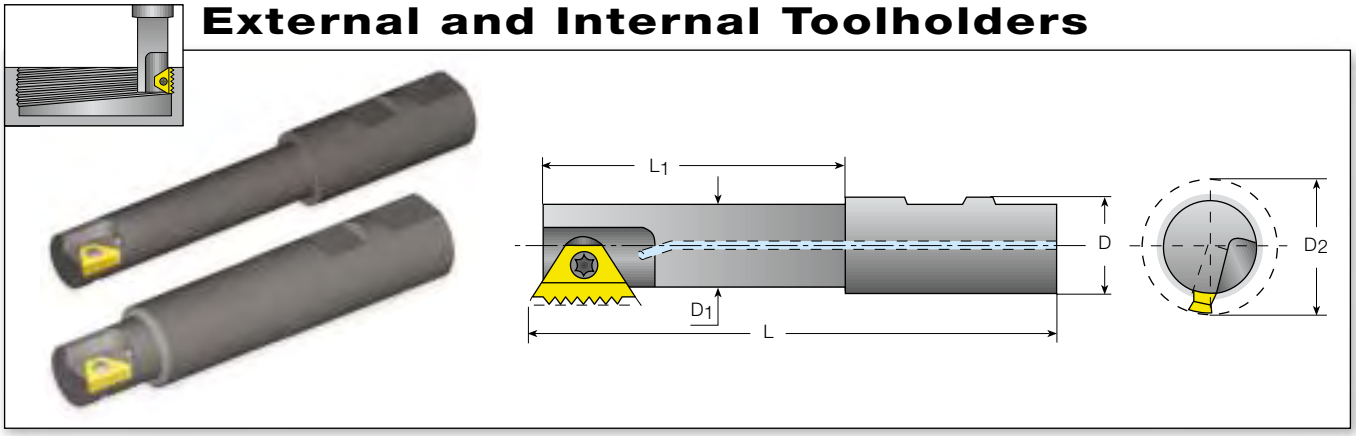


TM Standard

Insert Size	Ordering Code	Dimensions mm					Spare Parts	
IC		L	L1	D	D1	D2	Insert Screw	Torx Key
6.0mm	TMMC12-6.0	69.0	12.0	12	6.8	9.0	SN7T	K7T
	TMMC20-6.0	84.0	17.0	20	6.8	9.0		
1/4"	TMC12-2	70.0	12.0	12	8.9	11.5	SN2TM	K2T
	TMC20-2	85.0	20.0	20	8.9	11.5		
3/8"	TMC16-3	90.0	22.0	16	13.6	17.0	SN3T	K3T
	TMC20-3	95.0	43.0	20	16.6	20.0		
3/8"B	BTMC16-3B	79.5	29.0	16	13.5	17.0	SN3T	K3T
	BTMC20-3B	81.5	29.0	20	15.5	19.0		
	BTMC25-3B	92.3	30.0	25	15.5	19.0		
	BTMWC25-3B	90.8	30.0	25	18.5	22.0		
5/8"	TMC25-5	110.0	52.0	25	24.0	30.0	SN5TM	K5T
	TMC25-5LH	110.0	52.0	25	24.0	30.0		
	TMC32-5	120.0	58.0	32	31.0	37.0		
3/4"B	TMC32-6B	115.0	53.0	32	27.0	35.0	SM7T	K30T
	TMC40-6B	135.0	63.0	40	38.0	46.0		

Sample Order: **TMC12-2**

External and Internal Toolholders

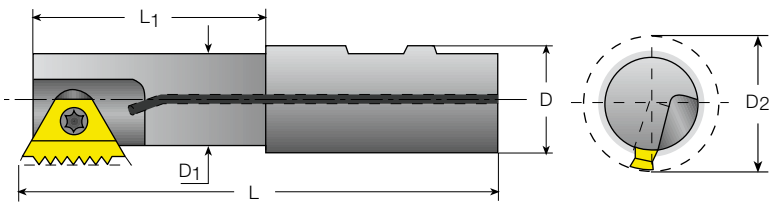


TML Long Tools

Insert Size	Ordering Code	Dimensions mm					Spare Parts	
IC		L	L1	D	D1	D2	Insert Screw	Torx Key
1/4"	TMLC25-2	125.0	17.0	25	8.9	11.5	SN2TM	K2T
3/8"	TMLC25-3	125.0	25.0	25	18.6	22.0	SN3T	K3T
	BTMLC25-3	125.0	63.5	25	18.6	22.0		
3/8"B	BTMLC20-3B	96.5	44.0	20	15.5	19.0	SN3T	K3T
	BTMLC25-3B	125.0	63.5	25	18.6	22.0		
5/8"	TMLC25-5	150.0	92.0	25	24.0	30.0	SN5TM	K5T
	TMLC32-5	160.0	98.0	32	31.0	37.0		
3/4"B	TMLC40-6B	168.0	93.0	40	38.0	46.0	SM7T	K30T

Sample Order: **TMLC25-3**

External and Internal Toolholders

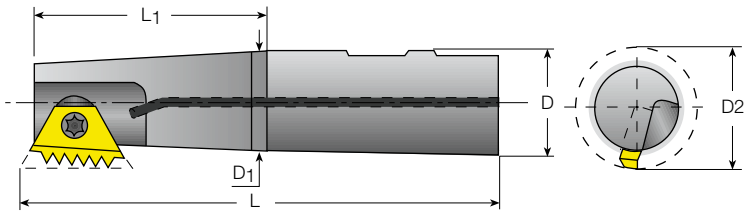


124/.. - For Coarse Pitch Threads

Insert Size	Ordering Code	Dimensions mm					Spare Parts	
IC		L	L1	D	D1	D2	Insert Screw	Torx Key
6.0mm	TMMC20-6.0 124/003	85	15.0	20	6.7	9.0	SN7T	K7T
1/4"	TMC20-2 124/005	77	15.5	20	7.4	10.0	SN2TM	K2T
	TMC20-2 124/006	77	15.5	20	9.0	12.0		
	TMC20-2 124/009	77	15.5	20	7.4	10.0		
3/8"	TMC16-3 124/001	91	20.5	16	12.2	15.5	SN3TM	K3T
1/2"	TMC25-4 124/002	88	30.0	25	13.4	18.0	SN4TM	K4T
	TMC25-4 124/007	98	40.0	25	16.0	20.0	SA4TM	
5/8"	TMC25-5 124/004	98	40.0	25	19.0	25.0	SA5TM	K5T
	TMC25-5 124/008	98	40.0	25	16.4	22.0	SN5TM	

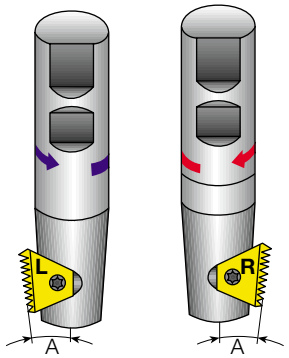
Sample Order: **TMMC 20-6 124/003**

External and Internal Toolholders



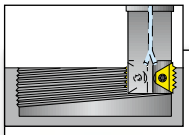
TMN - For Conical Threads (NPT, NPTF, BSPT)

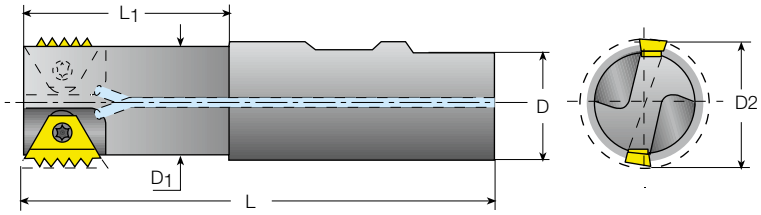
Insert Size	Ordering Code	Dimensions mm					Spare Parts	
IC	for RH Toolholder	L	L1	D	D1	D2	Insert Screw	Torx Key
3/8"	TMNC16-3	90.0	22.0	16	12.5	15.5	SN3T	K3T
	TMNC20-3	85.0	23.0	20	15.0	19.0	SN3TM	
3/8"B	BTMNC16-3B	79.5	29.0	16	13.5	17.0	SN3T	K3T
	BTMNC20-3B	81.5	29.0	20	15.5	19.0		
5/8"	TMNC32-5	120.0	58.0	32	31.0	37.0	SN5TM	K5T



Sample Order: **TMNC20-3**
NOTE: To use the cutting edge marked "L", LH Cutter is required.
Add LH to the ordering code.

External and Internal Toolholders

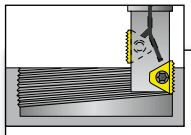




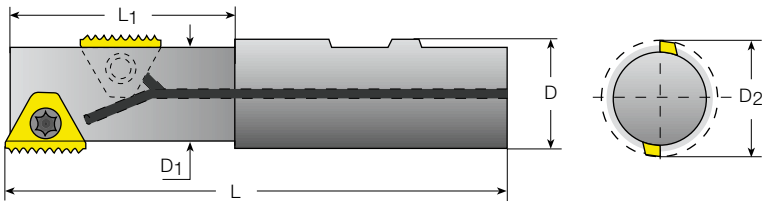
TM2 - Twin Flutes

Insert Size	Ordering Code	Dimensions mm					Spare Parts	
IC		L	L1	D	D1	D2	Insert Screw	Torx Key
1/4"	TM2C20-2	85	20.0	20	14.4	17	SN7TM	K2T
3/8"	TM2C25-3	100	43.0	25	22.5	26	SN3T	K3T
3/8"B	BTM2C25-3B	104.2	46.0	25	22.5	26		
5/8"	TM2C32-5	120	45.0	32	36.0	42	SN5TM	K5T
3/4"B	TM2C40-6B	137.2	65.0	40	44.0	52	SM7T	K30T

Sample Order: **TM2C32-5**



External and Internal Toolholders

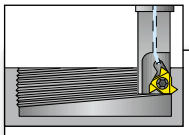


TMO - Twin Flute Offset

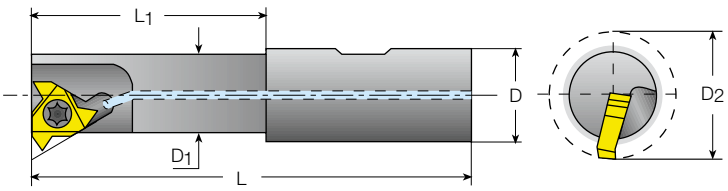
Spare Parts

Insert Size	Ordering Code	Applicable Threads			D	L1	D	D1	D2	Spare Parts	
IC		External	Internal	External & Internal						Insert Screw	Torx Key
1/4"	TMOC20-2-1	16 UN	48/32/16 UN		90	25	20	11.9	14.5	SN2TM	K2T
	TMOC20-2-2	24/18UN	48/24/18UN	24W							
	TMOC20-2-3	28/14UN	28/14UN	28/14W							
	TMOC20-2-4	20UN	20UN								
	TMOC20-2-5			26W							
	TMOC20-2-6			20W							
	TMOC20-2-7			19W							
	TMOC20-2-8	1.0/1.5ISO	0.5/1.0/1.5ISO								
	TMOC20-2-9	0.75ISO	48UN, 0.75ISO								
	TMOC20-2-10	1.25ISO	1.25ISO								
3/8"	TMOC20-3-1	1.5ISO	0.5/1.5ISO		95	43	20	16.6	20	SN3T	K3T
	TMOC20-3-2	13UN	13UN	26W							
	TMOC20-3-3	28UN	32/28UN								
	TMOC20-3-4	27UN	27UN								
	TMOC20-3-5		11.5UN	11.5NPS							
	TMOC20-3-6	24/20/18/16/14/12UN	24/20/18/16/14/12UN	26/20/18/16/14/12W, 14NPS							
	TMOC20-3-7	1.25ISO	1.25ISO	24W							
	TMOC20-3-8			19W							
	TMOC20-3-9			11W							
	TMOC20-3-10	1.0/2.0ISO	0.5/1.0/2.0ISO								
	TMOC20-3-11	0.75ISO	32UN, 0.75ISO								
	TMOC20-3-12	1.75ISO	1.75ISO								
5/8"	TMOC25-5-1	24/20/18/14/13/12UN	24/20/18/14/13/11UN	14W	110	52	25	24	30	SN5TM	K5T
	TMOC25-5-2	24/18/12UN	24/18/12/6UN	12W							
	TMOC25-5-3	16UN	16UN	16W, 8NPS							
	TMOC25-5-4	14/7UN	14UN	14/7W							
	TMOC25-5-5		11.5UN	11.5NPS							
	TMOC25-5-6	11UN	11UN	11W							
	TMOC25-5-7	10UN	10/5UN*	10W							
	TMOC25-5-8	9UN	9UN	9W							
	TMOC25-5-9	8UN	8UN	8W							
	TMOC25-5-10		7UN								
	TMOC25-5-11	6UN		6W							
	TMOC25-5-12	1.0/2.0/2.5/4.0ISO	1.0/2.0/2.5/4.0/5.0ISO**								
	TMOC25-5-13	1.25ISO	1.25ISO								
	TMOC25-5-14	1.5/2.5/4.5ISO	1.5/2.5/4.5/ISO								
	TMOC25-5-15	1.75ISO	1.75ISO								
	TMOC25-5-16	1.0/1.5/3.0/3.5ISO	1.0/1.5/3.0/3.5ISO								

Sample Order: **TMOC20-3-7** * Insert **5I5UNTM VBX 028/077** ** Insert **5I5.0ISOTMVBX 028/075**



External and Internal Toolholders



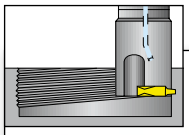
TMS - Single Point (Standard Inserts)

Insert Size	Ordering Code	Dimensions mm					Spare Parts	
IC		L	L1	D	D1	D2	Insert Screw	Torx Key
1/4"	TMSC10-2	65	25	10	9.3	12.5	SA3T	K3T

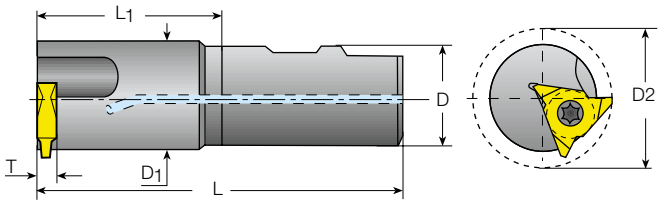
Sample Order: **TMSC10-2**

NOTE: Use Standard laydown thread turning inserts. See Thread Turning Inserts section - pages 20-92

Use external LH inserts for external thread and internal RH inserts for internal thread.



External and Internal Toolholders

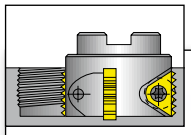


TMV - Single Point (Vertical Insert)

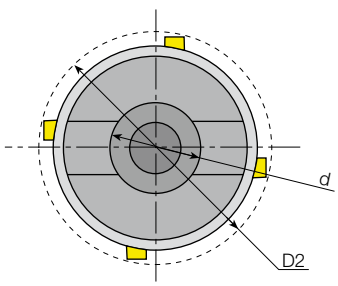
Insert Size	Ordering Code	Dimensions mm					Spare Parts	
IC		L	L1	D	D1	D2	Insert Screw	Torx Key
5/8"V	TMVC32-5	120	60	32	35.6	46	SN6T	K6T

Sample Order: **TMVC32-5**

NOTE: 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 - pages 20-92



External and Internal Toolholders

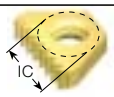


Cutter Drive
ISO 240-1975 (mm)

TM Shell Mill

Insert Size	Ordering Code	No. of inserts	Dimensions mm			Spare Parts		
IC			D2	dH7	H	Insert Screw	Torx key	Holder Screw
1/4"	TMSH-D38-16-2	6	38.0	16.0	40.0	SN2TM	HK2T	M8 X 35
1/4"	TMSH-D50-22-2	8	50.0	22.0	40.0			M10 X 35
3/8"	TMSH-D50-22-3	6	50.0	22.0	40.0	SN3TM	HK3T	M10 X 35
3/8B"	TMSH-D63-22-3B	6	63.0	22.0	40.0			M10 X 35
5/8"	TMSH-D63-22-5	4	63.0	22.0	45.0	SN5TM	HK5T	M10 X 35
3/4B"	TMSH-D63-22-6B	4	63.0	22.0	50.0	SM7T	HK7T	M10 X 35
5/8"	TMSH-D80-27-5	6	80.0	27.0	50.0	SN5TM	HK5T	M12 X 40
3/4B"	TMSH-D80-27-6B	5	80.0	27.0	50.0	SM7T	HK7T	M12 X 40
5/8"	TMSH-D100-32-5	7	100.0	32.0	55.0	SN5TM	HK5T	M16 X 40
3/4B"	TMSH-D100-32-6B	6	100.0	32.0	55.0	SM7T	HK7T	M16 X 40
5/8"	TMSH-D125-40-5	9	125.0	40.0	63.0	SN5TM	HK5T	M20 X 50
3/4B"	TMSH-D125-40-6B	8	125.0	40.0	63.0	SM7T	HK7T	M20 X 50

Spare Parts
For VARDEX TM and TMSH Toolholders



Insert IC


Holder


Holder Screw


Insert Screw


Torx Key

			Designation	Thread	
6.0mm	TMMC..-6.0		SN7T	M2.2x0.45x5.0	K7T
1/4”	TM.C..-2		SN2TM	M2.6x0.45x6.5	K2T
3/8”	TM.C..-3		SN3T*	UNC5x.374	K3T
3/8”B	BTM.C..-3B		SN3T	UNC5x.374	K3T
1/2”	TMC..-4 124/...		SN4TM**	UNC8x.421	K4T
5/8”	TM.C..-5		SN5TM***	M5x0.8x15.0	K5T
3/4”B	TM.C..-6B		SM7T	M7x1.0x15	K30T
1/4”	TMSH-D38-16-2	M8 X 35	SN2TM	M2.6x.45x6.5	HK2T
1/4”	TMSH-D50-22-2	M10 X 35	SN2TM	M2.6x.45x6.5	HK2T
3/8”	TMSH-D50-22-3	M10 X 35	SN3TM	UNC5x.315	HK3T
3/8B”	TMSH-D63-22-3B	M10 X 35	SN3TM	UNC5x.315	HK3T
5/8”	TMSH-D63-22-5	M10 X 35	SN5TM	M5x0.8x15.0	HK5T
3/4 B	TMSH-D63-22-6B	M10 X 35	SM7T	M7x1.0x15.0	HK7T
5/8”	TMSH-D80-27-5	M12 X 40	SN5TM	M5x0.8x15.0	HK5T
3/4B”	TMSH-D80-27-6B	M12 X 40	SM7T	M7x1.0x15.0	HK7T
5/8”	TMSH-D100-32-5	M16 X 40	SN5TM	M5x0.8x15.0	HK5T
3/4B”	TMSH-D100-32-6B	M16 X 40	SM7T	M7x1.0x15.0	HK7T
5/8”	TMSH-D125-40-5	M20 X 50	SN5TM	M5x0.8x15.0	HK5T
3/4B”	TMSH-D125-40-6B	M20 X 50	SM7T	M7x1.0x15.0	HK7T

All Vargus toolholders have a Weldon shank. If you require a Clarkson/Weldon combination, add CW to your toolholder’s ordering code.

* For TMC 16-3 124/001 and TMNC 20-3 toolholders, use screw SN3TM.

** For TMC 25-4 124/007 toolholder, use screw SA4TM.

*** For TMC 25-5 124/004 toolholder, use screw SA5TM.

THREAD MILLING SOLID CARBIDE Contents

Vardex Ordering Code System

TM Solid Carbide

Helical and Straight Flutes

H	10	077		I	1.50	ISO	TM		VTS
1	2	3		4	5	6	7	8	9

1 - Flutes Style

H - Helical Flutes
S - Straight Flutes

2 - Shank Dia.

04 - 4.0
06 - 6.0
08 - 8.0
10 - 10.0
12 - 12.0
16 - 16.0
20 - 20.0

3 - Cutting Dia.

3.6 - 19.9

4 - Type of Tool

E - External
I - Internal
EI - External + Internal

5 - Pitch

Full Profile - Pitch Range

mm	tpi
0.50 - 6.0	32 - 4.5

6 - Standard

ISO - ISO Metric
UN - American UN
BSW - BSW
BSP - BSP
BSPT - BSPT
NPT - NPT
NPTF - NPTF
PG - PG

7 - System

TM

8 - No. of Flutes

3 - 3 Flutes
5 - 5 Flutes

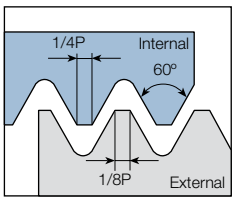
Only noted when two options are available

9 - Carbide Grade

VTS
VTH

ISO Metric

Internal



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

TM Solid Carbide - Helical Flutes

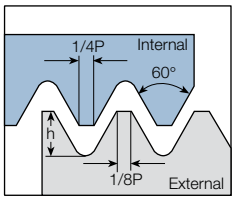
Coarse and Fine Pitch - Helical Flutes

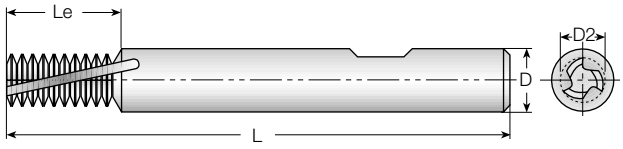
Thread		Pitch	Ordering Code	Dimensions mm				No. of Flutes	Teeth	Bore Dia.
Coarse	**Fine**	**mm**	**Internal**	**D**	**D2**	**L**	**Le***	**z**		**mm**
	M5x0.75	0.75	H06036-I0.75ISOTM...	6.0	3.6	57	10.5	3	14	4.2
M5x0.8		0.8	H06035-I0.80ISOTM...	6.0	3.5	57	10.4	3	13	4.2
M6x1.0		1.00	H08041-I1.0ISOTM...	8.0	4.1	63	12.0	3	12	5.0
	M8x1.0	1.00	H10060-I1.0ISOTM...	10.0	6.0	73	16.0	3	16	7.0
M8x1.25		1.25	H10058-I1.25ISOTM...	10.0	5.8	73	16.3	3	13	6.8
	M10x1.0	1.00	H10079-I1.0ISOTM...	10.0	7.9	73	20.0	3	20	9.0
	M10x1.25	1.25	H10077-I1.25ISOTM...	10.0	7.7	73	20.0	3	16	8.8
M10x1.5		1.50	H10077-I1.5ISOTM...	10.0	7.7	73	21.0	3	14	8.5
	M12x1.0	1.00	H12096-I1.0ISOTM...	12.0	9.6	83	24.0	4	24	11.0
	M12x1.25	1.25	H12094-I1.25ISOTM...	12.0	9.4	83	25.0	4	20	10.8
	M12x1.5	1.50	H12094-I1.5ISOTM...	12.0	9.4	83	24.0	4	16	10.5
M12x1.75		1.75	H12087-I1.75ISOTM...	12.0	8.7	83	24.5	4	14	10.2
	M14x1.0	1.00	H16115-I1.0ISOTM...	16.0	11.5	92	28.0	4	28	13.0
	M14x1.5	1.50	H16112-I1.5ISOTM...	16.0	11.2	92	28.5	4	19	12.5
M14x2.0		2.00	H16102-I2.0ISOTM...	16.0	10.2	92	28.0	4	14	12.0
	M16x1.5	1.50	H16130-I1.5ISOTM...	16.0	13.0	92	33.0	4	22	14.5
M16x2.0		2.00	H16122-I2.0ISOTM...	16.0	12.2	92	32.0	4	16	14.0
	M18x1.5	1.50	H16148-I1.5ISOTM...	16.0	14.8	92	36.0	4	24	16.5
M18x2.50		2.50	H20129-I2.5ISOTM...	20.0	12.9	104	37.5	5	15	15.5
	M20x1.5	1.50	H20165-I1.5ISOTM...	20.0	16.5	104	40.5	5	27	18.5
M20x2.5		2.50	H20148-I2.5ISOTM...	20.0	14.8	104	40.0	5	16	17.5
M24x3.0		3.00	H20162-I3.0ISOTM...	20.0	16.2	104	42.0	4	14	21.0

*** Le ≥ 2 x Thread Diameter**

American UNC, UNF

Internal





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

TM Solid Carbide - Helical Flutes

Coarse and Fine Pitch - Helical Flutes

Thread		Pitch	Ordering Code	Dimensions mm				No. of Flutes	Teeth	Bore Dia.
Coarse-UNC	**Fine-UNF**	**tpi**	**Internal**	**D**	**D2**	**L**	**Le***	**z**		**mm**
	No.10x32	32	H06033-I32UNFTM...	6.0	3.3	57	10.3	3	13	4.0
No.10x24		24	H06029-I24UNCTM...	6.0	2.9	57	10.6	3	10	3.8
	No.12x28	28	H08038-I28UNFTM...	8.0	3.8	63	11.8	3	13	4.6
No.12x24		24	H08035-I24UNCTM...	8.0	3.5	63	11.6	3	11	4.5
	1/4"x28	28	H08046-I28UNFTM...	8.0	4.6	63	12.7	3	14	5.5
1/4"x20		20	H08040-I20UNCTM...	8.0	4.0	63	12.7	3	10	5.2
	5/16"x24	24	H10057-I24UNFTM...	10.0	5.7	73	15.9	3	15	6.8
5/16"x18		18	H10052-I18UNCTM...	10.0	5.2	73	16.9	3	12	6.5
	3/8"x24	24	H10074-I24UNFTM...	10.0	7.4	73	19.1	3	18	8.5
3/8"x16		16	H10067-I16UNCTM...	10.0	6.7	73	19.1	3	12	8.0
7/16"x14		14	H12076-I14UNCTM...	12.0	7.6	83	23.6	4	13	9.3
	7/16"x20	20	H12085-I20UNFTM...	12.0	8.5	83	22.9	4	18	9.8
1/2"x13		13	H12089-I13UNCTM...	12.0	8.9	83	25.4	4	13	10.8
	1/2"x20	20	H12101-I20UNFTM...	12.0	10.1	83	25.4	4	20	11.5
9/16"x12		12	H16103-I12UNCTM...	16.0	10.3	92	29.6	4	14	12.3
	9/16"x18	18	H16113-I18UNFTM...	16.0	11.3	92	29.6	4	21	12.8
5/8"x11		11	H16110-I11UNCTM...	16.0	11.0	92	32.3	4	14	13.5
	5/8"x18	18	H16128-I18UNFTM...	16.0	12.8	92	32.5	4	23	14.5
3/4"x10		10	H20135-I10UNCTM...	20.0	13.5	104	38.1	5	15	16.5
7/8"x9		9	H20152-I9UNCTM...	20.0	15.2	104	42.3	4	15	19.5
1"x8		8	H20170-I8UNCTM...	20.0	17.0	104	41.3	4	13	22.3

* Le ≥ 2 x Thread Diameter

American UNEF

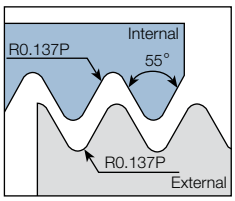
Extra Fine Pitch - Helical Flutes

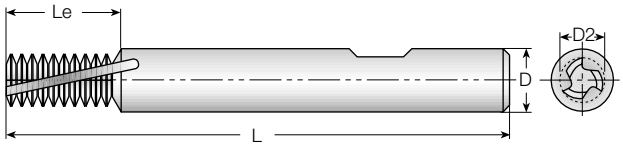
Thread	Pitch	Ordering Code	Dimensions mm				No. of Flutes	Teeth	Bore Dia.
Extra fine-UNEF	**tpi**	**Internal**	**D**	**D2**	**L**	**Le***	**z**		**mm**
1/4"x32	32	H08048-I32UNEFTM...	8.0	4.8	63	12.7	3	16	5.6
5/16"x32	32	H10062-I32UNEFTM...	10.0	6.2	73	15.9	3	20	7.1
3/8"x32	32	H10078-I32UNEFTM...	10.0	7.8	73	19.1	3	24	8.7
7/16"x28	28	H12092-I28UNEFTM...	12.0	9.2	83	22.7	4	25	10.2
1/2"x28	28	H12108-I28UNEFTM...	12.0	10.8	83	25.4	4	28	11.8
9/16"x24	24	H16121-I24UNEFTM...	16.0	12.1	92	28.6	4	27	13.2
5/8"x24	24	H16127-I24UNEFTM...	16.0	12.7	92	31.8	4	30	14.8
3/4"x20	20	H20163-I20UNEFTM...	20.0	16.3	104	38.1	5	30	17.8

* Le ≥ 2 x Thread Diameter

Whitworth

External / Internal





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

TM Solid Carbide - Helical Flutes

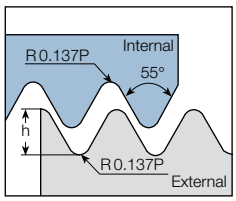
Coarse and Fine Pitch - Helical Flutes

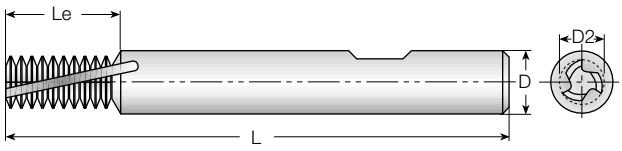
Thread		Pitch	Ordering Code	Dimensions mm				No. of Flutes	Teeth	Bore Dia.
BSW(Coarse)	BSF(fine)	tpi	Internal+External	D	D2	L	Le*	z		mm
	1/4"x26	26	H08042-EI26BSFTM...	8.0	4.2	63	12.7	3	13	5.2
1/4"x20		20	H08038-EI20BSWTM...	8.0	3.8	63	12.7	3	10	5.1
	5/16"x22	22	H10053-EI22BSFTM...	10.0	5.3	73	16.2	3	14	6.6
5/16"x18		18	H10050-EI18BSWTM...	10.0	5.0	73	16.9	3	12	6.5
	3/8"x20	20	H10066-EI20BSFTM...	10.0	6.6	73	19.1	3	15	8.1
3/8"x16		16	H10062-EI16BSWTM...	10.0	6.2	73	19.1	3	12	7.9
	7/16"x18	18	H12078-EI18BSFTM...	12.0	7.8	83	22.6	4	16	9.5
7/16"x14		14	H12071-EI14BSWTM...	12.0	7.1	83	23.6	4	13	9.2
	1/2"x16	16	H12091-EI16BSFTM...	12.0	9.1	83	25.4	4	16	11.0
1/2"x12		12	H12082-EI12BSWTM...	12.0	8.2	83	25.4	4	12	10.5
	9/16"x16	16	H16106-EI16BSFTM...	16.0	10.6	92	28.6	4	18	12.5
9/16"x12		12	H16096-EI12BSWTM...	16.0	9.6	92	29.6	4	14	12.0
	5/8"x14	14	H16111-EI14BSFTM...	16.0	11.1	92	32.7	4	18	14.0
5/8"x11		11	H16103-EI11BSWTM...	16.0	10.3	92	32.3	4	14	13.2
	11/16"x14	14	H20126-EI14BSFTM...	20.0	12.6	104	36.3	5	20	15.5
11/16"x11		11	H20117-EI11BSWTM...	20.0	11.7	104	36.9	5	16	14.8
	3/4"x12	12	H20140-EI12BSFTM...	20.0	14.0	104	38.1	5	18	16.5

*** Le ≥ 2 x Thread Diameter**

BSP(G)

Internal / External





Defined by :B.S.2779:1956
Tolerance class : Medium class

TM Solid Carbide - Helical Flutes

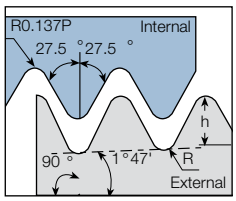
Standard - Helical Flutes

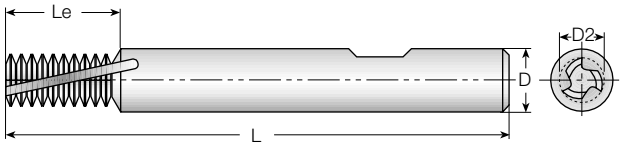
Thread	Pitch	Ordering Code	Dimensions mm				No. of Flutes	Teeth	Bore Dia.
	tpi	Internal + External	D	D2	L	Le*	z		mm
1/16"x28	28	H10058-EI28BSPTM...	10.0	5.8	73	16.3	3	18	6.7
1/8"x28	28	H10077-EI28BSPTM...	10.0	7.7	73	20.0	3	22	8.7
1/4"x19	19	H12102-EI19BSPTM...	12.0	10.2	83	26.7	4	20	11.8
3/8"x19	19	H16134-EI19BSPTM...	16.0	13.4	92	33.4	4	25	15.2
1/2"x14	14	H20157-EI14BSPTM...	20.0	15.7	104	43.5	5	24	19.0
1"x11	11	H20199-EI11BSPTM...	20.0	19.9	104	41.6	5	18	30.7

* Le ≥ 2 x Thread Diameter

BSPT

Internal / External





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

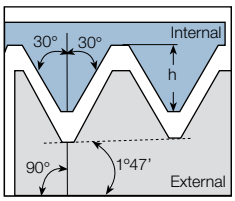
TM Solid Carbide - Helical Flutes

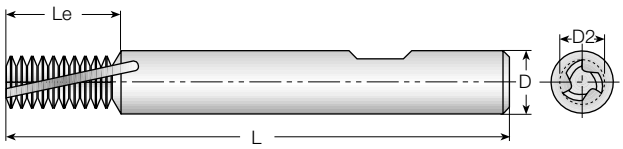
Standard - Helical Flutes

Thread	Pitch	Ordering Code	Dimensions mm				No. of Flutes	Teeth	Bore Dia.
	tpi	Internal + External	D	D2	L	Le	z		mm
1/16"x28	28	H10058-EI28BSPTTM...	10.0	5.8	73	16.3	3	18	6.7
1/8"x28	28	H10077-EI28BSPTTM...	10.0	7.7	73	20.0	3	22	8.7
1/4"x19	19	H12102-EI19BSPTTM...	12.0	10.2	83	26.7	4	20	11.8
3/8"x19	19	H16134-EI19BSPTTM...	16.0	13.4	92	33.4	4	25	15.2
1/2"x14	14	H20157-EI14BSPTTM...	20.0	15.7	104	43.5	5	24	19.0
1"x11	11	H20199-EI11BSPTTM...	20.0	19.9	104	41.6	5	18	30.7

NPT

Internal / External





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

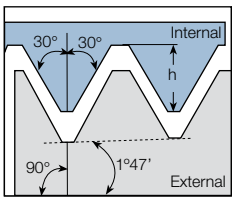
TM Solid Carbide - Helical Flutes

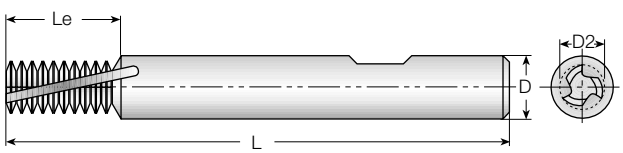
Standard - Helical Flute

Thread	Pitch	Ordering Code	Dimensions mm				No. of Flutes	Teeth	Bore Dia.
	tpi	Internal + External	D	D2	L	Le	z		mm
1/16"X27	27	H10053-EI27NPTTM...	10.0	5.3	73	9.4	3	10	6.3
1/8"X27	27	H12075-EI27NPTTM...	12.0	7.5	83	9.4	4	10	8.5
1/4"X18	18	H16094-EI18NPTTM...	16.0	9.4	92	14.1	4	10	11.1
3/8"X18	18	H16127-EI18NPTTM...	16.0	12.7	92	14.1	4	10	14.5
1/2"X14,3/4"X14	14	H20155-EI14NPTTM...	20.0	15.5	104	25.4	5	14	17.7,23.0
1"-2"X11.5	11.5	H20199-EI11.5NPTTM...	20.0	19.9	104	33.1	5	15	29.0 - 56.0
2 1/2"X8	8	H20199-EI8NPTTM...	20.0	19.9	104	38.1	4	12	66.5

NPTF (Dry Seal)

Internal / External





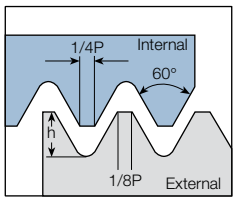
Defined by: ANSI 1.20.3-1976
Tolerance class : Standard NPTF

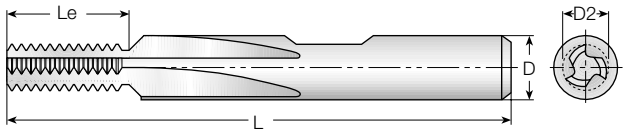
TM Solid Carbide - Helical Flutes

Standard - Helical Flute

Thread	Pitch	Ordering Code	Dimensions mm				No. of Flutes	Teeth	Bore Dia.
	tpi	Internal + External	D	D2	L	Le	z		mm
1/16"X27	27	H10053-EI27NPTFTM...	10.0	5.3	73	9.4	3	10	6.3
1/8"X27	27	H12075-EI27NPTFTM...	12.0	7.5	83	9.4	4	10	8.4
1/4"X18	18	H16094-EI18NPTFTM...	16.0	9.4	92	14.1	4	10	11.1
3/8"X18	18	H16127-EI18NPTFTM...	16.0	12.7	92	14.1	4	10	14.7
1/2"X14,3/4"X14	14	H20155-EI14NPTFTM...	20.0	15.5	104	25.4	5	14	17.9, 23.4
1"-2"X11.5	11.5	H20199-EI11.5NPTFTM...	20.0	19.9	104	33.1	5	15	29.4 - 56.2
2 1/2"X8	8	H20199-EI8NPTFTM...	20.0	19.9	104	38.1	4	12	67.0

ISO Metric





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

TM Solid Carbide - Straight Flutes

External, Standard - Straight Flutes

Pitch	Thread	Ordering Code	Dimensions mm				No. of Flutes	Teeth	
mm	Min. Dia.		**D**	**D2**	**L**	**Le**			**h** mm
0.50	M 3	S06059-E0.5ISOTM...	6.0	5.90	57	15.0	3	30	0.31
0.75	M 4.5	S08079-E0.75ISOTM...	8.0	7.90	63	19.5	3, 5 *	26	0.46
1.00	M 6	S10099-E1.0ISOTM...	10.0	9.90	72	24.0	5	24	0.61
1.50	M 10	S12119-E1.5ISOTM...	12.0	11.90	83	30.0	5	20	0.92
2.00	M 14	S12119-E2.0ISOTM...	12.0	11.90	83	30.0	5	15	1.23
3.00	M 24	S16159-E3.0ISOTM...	16.0	15.90	92	36.0	5	12	1.84
4.00	M 36	S16159-E4.0ISOTM...	16.0	15.90	92	40.0	5	10	2.45
6.00	M 64	S20199-E6.0ISOTM...	20.0	19.90	104	36.0	5	6	3.68

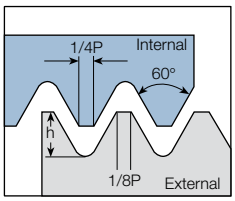
* Available with 3 and 5 flutes. Add 3 or 5 to the ordering code (TM3.../TM5...)

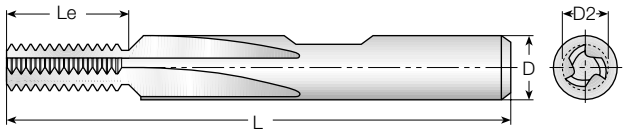
Internal, Standard - Straight Flutes

Pitch	Thread	Ordering Code	Dimensions mm				No. of Flutes	Teeth	
mm	Min. Dia.		**D**	**D2**	**L**	**Le**			**h** mm
0.75	M 4.5	S04030-I0.75ISOTM...	4.0	3.0	42	6.7	3	9	0.43
	M 8	S06059-I0.75ISOTM...	6.0	5.9	57	15.0	3	20	0.43
0.80	M 5	S04036-I0.8ISOTM...	4.0	3.6	42	8.0	3	10	0.46
1.00	M 6	S06040-I1.0ISOTM...	6.0	4.0	57	9.0	3	9	0.58
	M 12	S08079-I1.0ISOTM...	8.0	7.9	63	20.0	3.5 *	20	0.58
1.25	M 8	S06050-I1.25ISOTM...	6.0	5.0	57	12.5	3	10	0.72
1.50	M 10	S06059-I1.5ISOTM...	6.0	5.9	57	15.0	3	10	0.87
	M 14	S10099-I1.5ISOTM...	10.0	9.9	72	24.0	5	16	0.87
	M 18	S12119-I1.5ISOTM...	12.0	11.9	83	30.0	5	20	0.87
1.75	M 12	S08079-I1.75ISOTM...	8.0	7.9	63	19.2	3.5 *	11	1.01
2.00	M 16	S10099-I2.0ISOTM...	10.0	9.9	72	24.0	5	12	1.15
	M 18	S12119-I2.0ISOTM...	12.0	11.9	83	30.0	5	15	1.15
2.50	M 20	S12119-I2.5ISOTM...	12.0	11.9	83	30.0	5	12	1.44
3.00	M 24	S16159-I3.0ISOTM...	16.0	15.9	92	36.0	5	12	1.73
3.50	M 30	S16159-I3.5ISOTM...	16.0	15.9	92	38.5	5	11	2.02
4.00	M 36	S16159-I4.0ISOTM...	16.0	15.9	92	40.0	5	10	2.31
5.00	M 48	S20199-I5.0ISOTM...	20.0	19.9	104	40.0	5	8	2.89
6.00	M 64	S20199-I6.0ISOTM...	20.0	19.9	104	36.0	5	6	3.46

* Available with 3 and 5 flutes. Add 3 or 5 to the ordering code (TM3.../TM5...)

American UN





Defined by: ANSI B1.174
Tolerance class: 2B

TM Solid Carbide - Straight Flutes

External, Standard - Straight Flutes

Pitch	Thread	Ordering Code	Dimensions mm				No. of Flutes	Teeth	
tpi	Min. Dia.		**D**	**D2**	**L**	**Le**			**h** mm
32	No. 6	S06059-E32UNTM...	6.0	5.9	57	14.3	3	18	0.49
28	No. 12	S08079-E28UNTM...	8.0	7.9	63	19.9	3.5 *	22	0.56
20	1/4”	S10099-E20UNTM...	10.0	9.9	72	22.9	5	18	0.78
18	5/16”	S10099-E18UNTM...	10.0	9.9	72	24.0	5	17	0.87
16	3/8”	S12119-E16UNTM...	12.0	11.9	83	28.6	5	18	0.97
12	9/16”	S12119-E12UNTM...	12.0	11.9	83	29.6	5	14	1.30
8	1”	S16159-E8UNTM...	16.0	15.9	92	38.1	5	12	1.95
6	1 3/8”	S20199-E6UNTM...	20.0	19.9	104	38.1	5	9	2.60

* Available with 3 and 5 flutes. Add 3 or 5 to the ordering code (TM3.../TM5...)

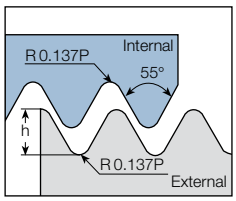
Internal, Standard - Straight Flutes

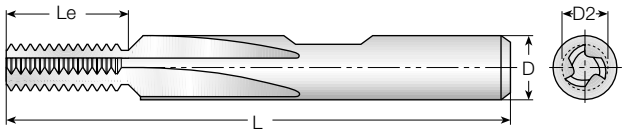
Pitch	Thread	Ordering Code	Dimensions mm				No. of Flutes	Teeth	
tpi	Min. Dia.		**D**	**D2**	**L**	**Le**			**h** mm
36	No. 8	S04030-I36UNTM...	4.0	3.0	42	6.3	3	9	0.41
32	No. 8	S04030-I32UNTM...	4.0	3.0	42	6.3	3	8	0.46
	5/16”	S06059-I32UNTM...	6.0	5.9	57	14.3	3	18	0.46
28	No. 12	S04036-I28UNTM...	4.0	3.6	42	8.2	3	9	0.52
	7/16”	S08079-I28UNTM...	8.0	7.9	63	19.9	3.5*	22	0.52
24	No. 12	S06040-I24UNTM...	6.0	4.0	57	8.5	3	8	0.61
20	1/4”	S06040-I20UNTM...	6.0	4.0	57	10.2	3	8	0.73
	9/16”	S10099-I20UNTM...	10.0	9.9	72	22.9	5	18	0.73
18	5/16”	S06050-I18UNTM...	6.0	5.0	57	12.7	3	9	0.81
	9/16”	S10099-I18UNTM...	10.0	9.9	72	24.0	5	17	0.81
16	3/8”	S06059-I16UNTM...	6.0	5.9	57	14.3	3	9	0.92
	13/16”	S12119-I16UNTM...	12.0	11.9	83	28.6	5	18	0.92
14	7/16”	S08079-I14UNTM...	8.0	7.9	63	18.1	3.5*	10	1.05
13	1/2”	S08079-I13UNTM...	8.0	7.9	63	19.5	3.5*	10	1.13
12	9/16”	S10099-I12UNTM...	10.0	9.9	72	23.3	5	11	1.22
	1”	S12119-I12UNTM...	12.0	11.9	83	29.6	5	14	1.22
11	5/8”	S10099-I11UNTM...	10.0	9.9	72	23.1	5	10	1.33
10	3/4”	S12119-I10UNTM...	12.0	11.9	83	27.9	5	11	1.47
9	7/8”	S16159-I9UNTM...	16.0	15.9	92	33.3	5	12	1.63
8	1”	S16159-I8UNTM...	16.0	15.9	92	38.1	5	12	1.83
7	1 1/8”	S16159-I7UNTM...	16.0	15.9	92	36.3	5	10	2.09
6	1 3/8”	S20199-I6UNTM...	20.0	19.9	104	38.1	5	9	2.44
5	1 3/4”	S20199-I5UNTM...	20.0	19.9	104	40.6	5	8	2.93
4.5	2”	S20199-I4.5UNTM...	20.0	19.9	104	39.5	5	7	3.26

* Available with 3 and 5 flutes. Add 3 or 5 to the ordering code (TM3.../TM5...)

BSW

External / Internal





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

TM Solid Carbide - Straight Flutes

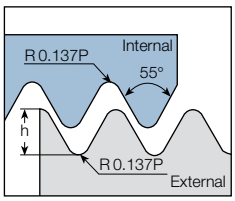
Standard - Straight Flutes

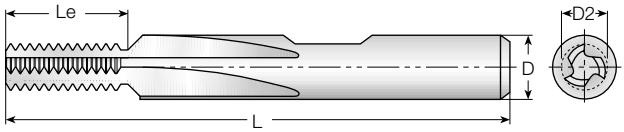
Pitch	Thread	Ordering Code	Dimensions mm				No. of Flutes	Teeth	
tpi	Min. Dia.		**D**	**D2**	**L**	**Le**			**h** mm
20	1/4”	S06040-EI20BSWTM...	6.0	4.0	57	10.16	3	8	0.81
18	5/16”	S06050-EI18BSWTM...	6.0	5.0	57	11.29	3	8	0.90
16	3/8”	S06059-EI16BSWTM...	6.0	5.9	57	14.29	3	9	1.02
14	7/16”	S08079-EI14BSWTM...	8.0	7.9	63	18.14	3.5*	10	1.16
12	1/2”	S08079-EI12BSWTM...	8.0	7.9	63	19.05	3.5*	9	1.36
11	5/8”	S10099-EI11BSWTM...	10.0	9.9	72	23.09	5	10	1.48
10	3/4”	S12119-EI10BSWTM...	12.0	11.9	83	27.94	5	11	1.63
9	7/8”	S12119-EI9BSWTM...	12.0	11.9	83	28.22	5	10	1.81
8	1”	S16159-EI8BSWTM...	16.0	15.9	92	38.10	5	12	2.03
7	1 1/8”	S16159-EI7BSWTM...	16.0	15.9	92	36.29	5	10	2.32
6	1 3/8”	S16159-EI6BSWTM...	16.0	15.9	92	38.10	5	9	2.71
5	1 5/8”	S20199-EI5BSWTM...	20.0	19.9	104	40.64	5	8	3.25
4.5	1 7/8”	S20199-EI4.5BSWTM...	20.0	19.9	104	39.51	5	7	3.61

* Available with 3 and 5 flutes. Add 3 or 5 to the ordering code (TM3.../TM5...)

BSP

External / Internal





TM Solid Carbide - Straight Flutes

Defined by: B.S.2779:1956
Tolerance class: Medium class

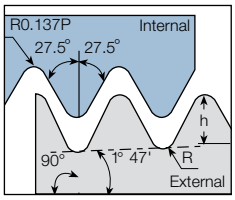
Standard - Straight Flutes

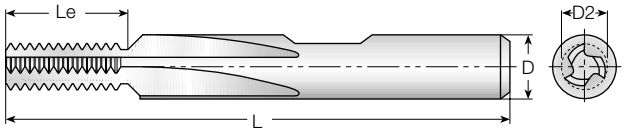
Pitch	Thread	Ordering Code	Dimensions mm				No. of Flutes	Teeth	
tpi	Min. Dia.		**D**	**D2**	**L**	**Le**			**h** mm
28	1/16"	S06059-EI28BSPTM...	6.0	5.9	57	14.51	3	16	0.58
19	1/4"	S08079-EI19BSPTM...	8.0	7.9	63	18.72	3.5*	14	0.86
14	1/2"	S12119-EI14BSPTM...	12.0	11.9	83	29.03	5	16	1.16
11	1"	S16159-EI11BSPTM...	16.0	15.9	92	34.64	5	15	1.48

* Available with 3 and 5 flutes. Add 3 or 5 to the ordering code (TM3.../TM5...)

BSPT

External / Internal





TM Solid Carbide - Straight Flutes

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

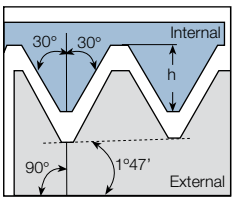
Standard - Straight Flutes

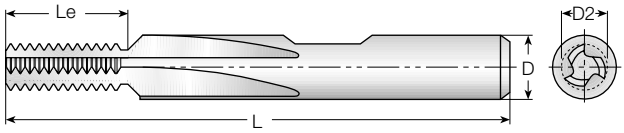
Pitch	Thread	Ordering Code	Dimensions mm				No. of Flutes	Teeth	
tpi	Min. Dia.		**D**	**D2**	**L**	**Le**			**h** mm
28	1/16"	S06059-EI28BSPTTM...	6.0	5.90	57	9.98	3	11	0.58
19	1/4"	S08079-EI19BSPTTM...	8.0	7.90	63	14.71	3.5*	11	0.86
14	1/2"	S12119-EI14BSPTTM...	12.0	11.90	83	19.96	5	11	1.16
11	1"	S16159-EI11BSPTTM...	16.0	15.90	92	39.25	5	17	1.48

* Available with 3 and 5 flutes. Add 3 or 5 to the ordering code (TM3.../TM5...)

NPT

External / Internal





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

TM Solid Carbide - Straight Flutes

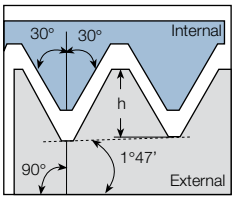
Standard - Straight Flutes

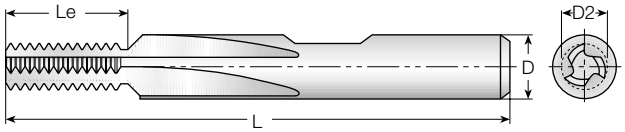
Pitch	Thread	Ordering Code	Dimensions mm				No. of Flutes	Teeth	
tpi	Min. Dia.		**D**	**D2**	**L**	**Le**			**h** mm
27	1/16"	S06059-EI27NPTTM...	6.0	5.9	57	9.41	3	10	0.66
18	1/4"	S08079-EI18NPTTM...	8.0	7.9	63	14.11	3.5*	10	1.01
14	1/2"	S12119-EI14NPTTM...	12.0	11.9	83	19.96	5	11	1.33
11.5	1"	S16159-EI11.5NPTTM...	16.0	15.9	92	26.51	5	12	1.64
8	2 1/2"	S16159-EI8NPTTM...	16.0	15.9	92	38.10	5	12	2.42

* Available with 3 and 5 flutes. Add 3 or 5 to the ordering code (TM3.../TM5...)

NPTF

External / Internal





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

TM Solid Carbide - Straight Flutes

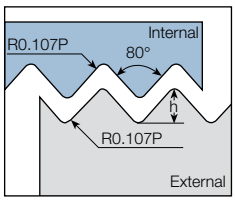
Standard - Straight Flutes

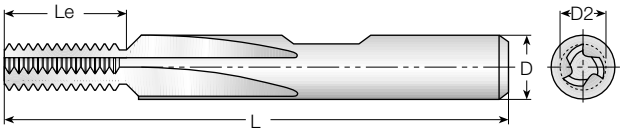
Pitch	Thread	Ordering Code	Dimensions mm				No. of Flutes	Teeth	
tpi	Min. Dia.		**D**	**D2**	**L**	**Le**			**h** mm
27	1/16"	S06059-EI27NPTFTM...	6.0	5.9	57	9.41	3	10	0.64
18	1/4"	S08079-EI18NPTFTM...	8.0	7.9	63	14.11	3.5*	10	1.0
14	1/2"	S12119-EI14NPTFTM...	12.0	11.9	83	19.96	5	11	1.35
11.5	1"	S16159-EI11.5NPTFTM...	16.0	15.9	92	26.51	5	12	1.63
8	2 1/2"	S16159-EI8NPTFTM...	16.0	15.9	92	38.10	5	12	2.38

* Available with 3 and 5 flutes. Add 3 or 5 to the ordering code (TM3.../TM5...)

Pg

External / Internal





Defined by: DIN 40430
Tolerance class: Standard

TM Solid Carbide - Straight Flutes

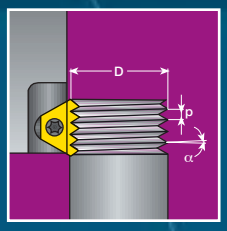
Standard - Straight Flutes

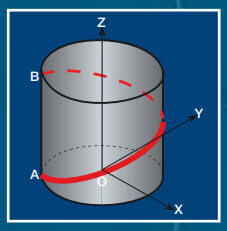
Pitch	Thread	Ordering Code	Dimensions mm				No. of Flutes	Teeth	
tpi	Min. Dia.		**D**	**D2**	**L**	**Le**			**h** mm
20	Pg7	S08079-EI20PGTM...	8.0	7.9	63	19.05	3.5*	15	0.61
18	Pg9, 11, 13.5, 16	S10099-EI18PGTM...	10.0	9.9	72	23.99	5	17	0.67
16	Pg21, 29, 36, 42, 48	S12119-EI16PGTM...	12.0	11.9	83	28.58	5	18	0.76

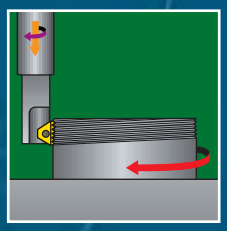
* Available with 3 and 5 flutes. Add 3 or 5 to the ordering code (TM3.../TM5...)

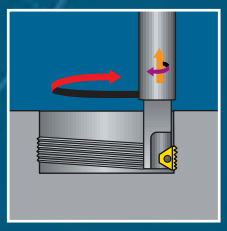
THREAD MILLING TECHNICAL DATA

Contents









For more Technical Data see our TM Handbook

About Thread Milling

In order 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

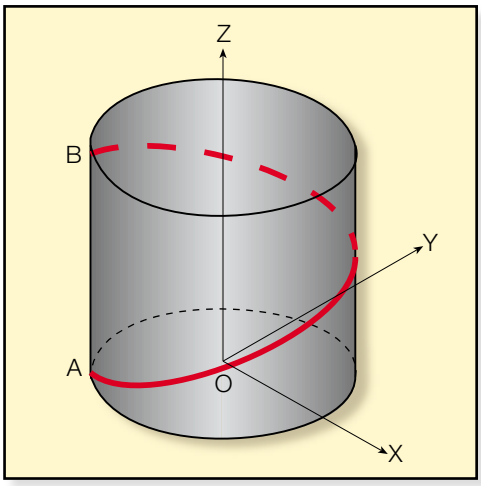


Fig. A

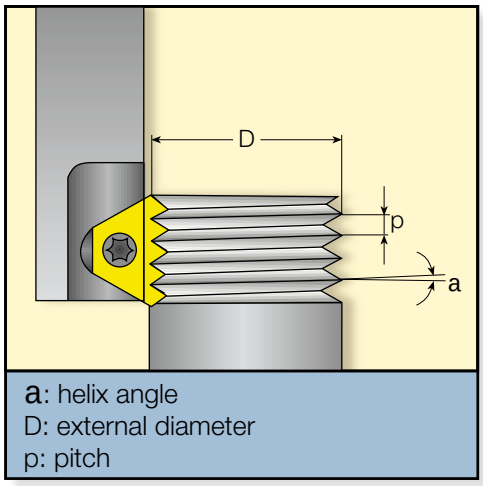


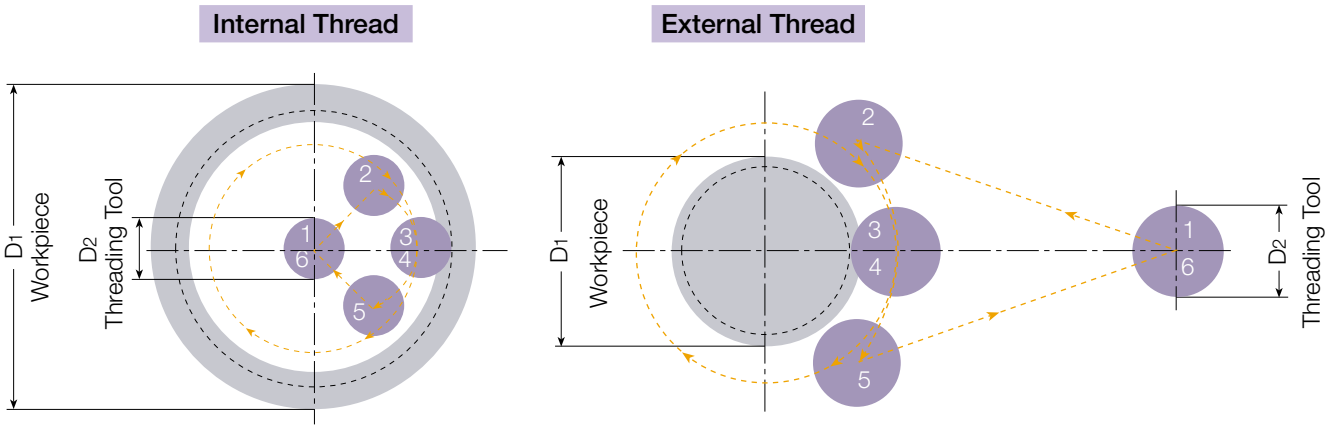
Fig. B

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

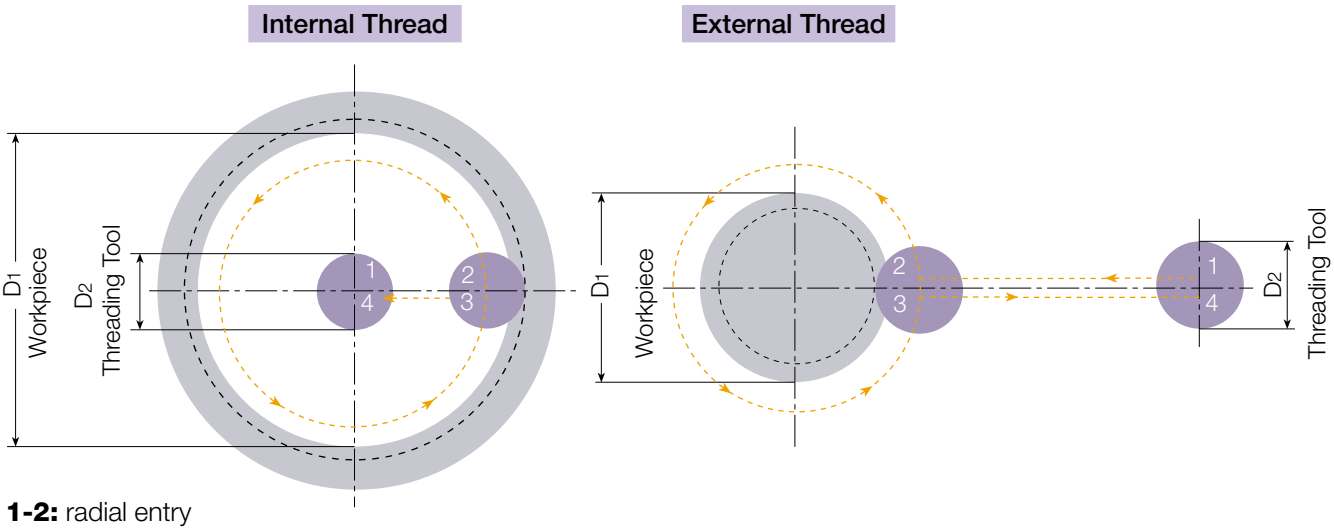
With this method, the tool enters and exits the workpiece smoothly. No marks are left on the workpiece and there is no vibration, even with harder materials.
Although it requires slightly more complex programming than the radial approach (see below), this is the method recommended for machining the highest 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 (360º).
4-5: tool exit along tangential arc, with continuing feed along z-axis
5-6: rapid return

2. Radial Approach

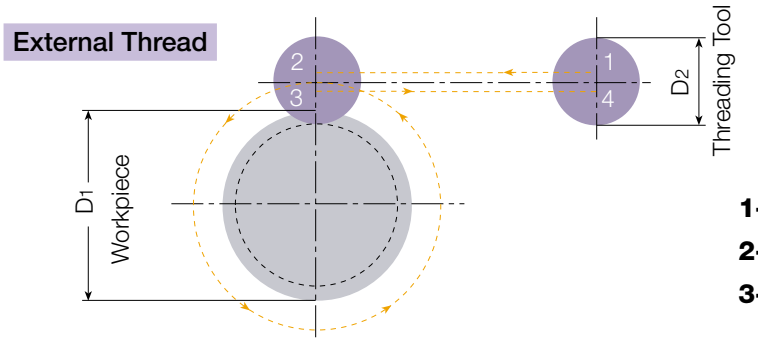
This is the simplest method. There are two characteristics worth noting about the radial approach:
A. a small vertical mark may be left at the entry (and exit) point. This is of no significance to the thread itself.
B. when using this method with very hard materials, there may be a tendency of the tool to vibrate as it approaches the full cutting depth.
Note: Radial feed during entry to the full profile depth should only be 1/3 of the subsequent circular feed !



1-2: radial entry
2-3: helical movement during one full orbit (360º)
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 (360º)
3-4: radial exit

Preparing for the Thread Milling Operation

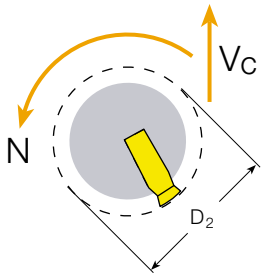
1. Calculation of Rotational Velocity and Feed at the Cutting Edge

$$N = \frac{1000 \times V}{\pi \times D_2}$$

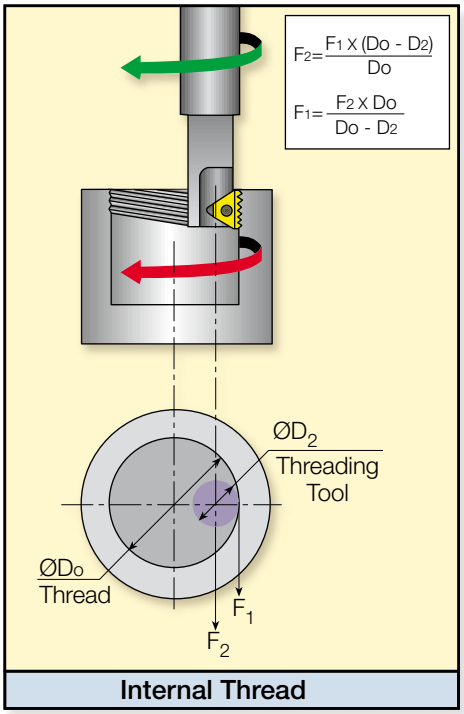
$$V = \frac{N \times \pi \times D_2}{1000}$$

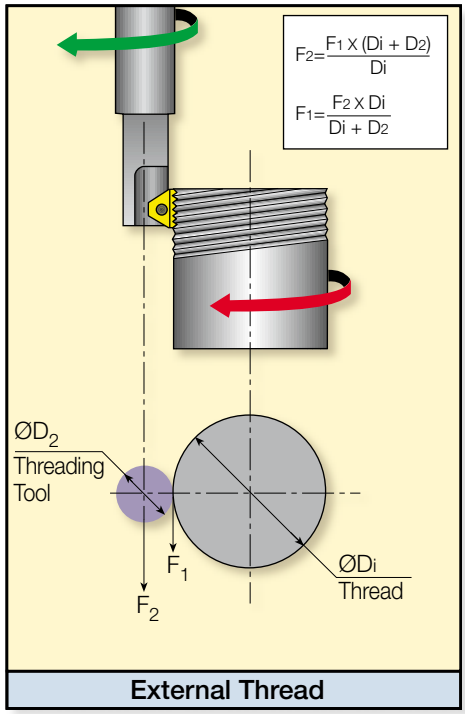
$$F_1 = N \times z \times f$$

N - Rotational Velocity [R.P.M.]
V - Cutting Speed [m/min]
D_2 - Toolholder Cutting Dia. [mm]
F_1 - Tool Feed Rate at the Cutting Egde [mm/min]
z - No. of Cutting Edges
f - Feed per Tooth per Rotation [mm/rev]



2. Calculation of Feed Rates 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, but with circular tool movement such is not the case.
The equations define the relationship between feed rates at the cutting edge and at the tool center line.

Appendix C

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 mm/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

Grades and their Applications

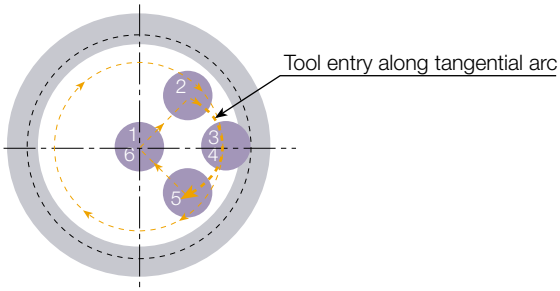
Grade	Application	Sample
VBX	**First Choice for steel and cast iron.** A tough sub-micron substrate with TiCN coating. Provides good fracture toughness and excellent wear resistance.	
VTX	**First Choice for stainless steel.** A tough sub-micron substrate with TiAlN coating. Provides good fracture toughness and excellent wear resistance.	
VK2	Uncoated grade for machining cast iron & nonferrous metals.	
VTS	TM Solid, straight flute grade. Excellent for general use. TiAlN coated.	
VTH	TM Solid, helical flute grade. Excellent for general use. TiCN coated.	

Recommended Grades, Cutting Speeds Vc [m/min] and Feed f [mm/tooth]

	Material		Hardness Brinell HB	Vc[m/min]					Feed f [mm/tooth] *		
				Indexable Inserts			Solid carbide		Indexable Inserts	Solid Helical Flute	Solid Straight Flute
				Coated		Uncoated	Coated				
				VBX	VTX	VK2	VTH	VTS			
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	100-210	90-180		80-250	50-180	0.05-0.3	0.03-0.15	0.01-0.1
		Medium carbon (C=0.25-0.55 %)	150	100-180	90-170		80-230	50-140	0.05-0.25	0.03-0.1	0.01-0.08
		High carbon (C=0.55-0.85 %)	170	100-170	90-160		80-200	50-120	0.05-0.2	0.03-0.08	0.01-0.05
	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	90-160	90-155		60-180	60-170	0.05-0.25	0.03-0.1	0.03-0.07
		Hardened	275	80-150	80-160		60-170	60-160	0.05-0.2	0.03-0.07	0.03-0.07
		Hardened	350	70-140	70-150		60-160	60-150	0.05-0.15	0.01-0.03	0.005-0.01
	High alloy steel (alloying elements > 5%)	Annealed	200	60-130	70-115		40-100	40-90	0.05-0.2	0.03-0.05	0.01-0.03
		Hardened	325	70-110	60-100		30-80	30-70	0.05-0.1	0.01-0.03	0.005-0.01
	Cast steel	Low alloy (alloying elements <5%)	200	100-170	100-170	100-150	80-250	70-200	0.05-0.15	0.03-0.1	0.01-0.03
		High alloy (alloying elements >5%)	225	70-120	70-130	60-130	60-170	60-150	0.05-0.1	0.01-0.03	0.005-0.01
M	Stainless steel Feritic	Non hardened	200	100-170	120-180		60-150	50-140	0.05-0.15	0.04-0.1	0.01-0.05
		Hardened	330	100-170	120-180		60-120	50-110	0.05-0.1	0.01-0.05	0.005-0.01
	Stainless steel Austenitic	Austenitic	180	70-140	100-140		60-140	60-130	0.05-0.15	0.04-0.1	0.007-0.02
		Super austenitic	200	70-140	100-140		60-130	50-120	0.05-0.1	0.04-0.1	0.007-0.02
	Stainless steel Cast feritic	Non hardened	200	70-140	100-140		60-160	50-150	0.05-0.15	0.04-0.1	0.01-0.03
		Hardened	330	70-140	100-140		60-110	50-100	0.05-0.1	0.03-0.05	0.005-0.01
	Stainless steel Cast austenitic	Austenitic	200	70-120	100-120		60-150	50-140	0.05-0.15	0.04-0.1	0.01-0.03
		Hardened	330	70-120	100-120		60-100	50-90	0.05-0.1	0.03-0.05	0.005-0.01
	High temperature alloys	Annealed (Iron based)	200	20-45	20-40	20-30	30-60	30-50	0.05-0.1	0.04-0.1	0.007-0.02
		Aged (Iron based)	280	20-30	20-30	15-25	20-50	20-40	0.02-0.05	0.01-0.03	0.005-0.01
		Annealed (Nickel or Cobalt based)	250	15-20	15-20	15-20	15-35	15-30	0.02-0.05	0.01-0.03	0.005-0.01
		Aged (Nickel or Cobalt based)	350	10-15	10-15	10-15	15-30	15-25	0.02-0.05	0.01-0.03	0.005-0.01
	Titanium alloys	Pure 99.5 Ti	400Rm	70-140	70-120	40-60	40-80	30-70	0.02-0.05	0.03-0.05	0.007-0.02
		a+b alloys	1050Rm	20-50	20-50	20-40	20-50	20-45	0.02-0.05	0.03-0.05	0.007-0.02
K	Extra hard steel	Hardened & tempered	55HRc	20-45	20-45		15-45	15-35	0.01-0.03	0.005-0.01	0.003-0.006
	Malleable cast iron	Ferritic (short chips)	130	60-130	100-120		70-160	60-150	0.02-0.08	0.01-0.03	0.007-0.02
		Pearlitic (long chips)	230	60-120	80-100		60-150	100	0.02-0.05	0.03-0.05	0.005-0.01
	Grey cast iron	Low tensile strength	180	60-130	80-100		70-160	50-140	0.05-0.15	0.05-0.1	0.007-0.02
		High tensile strength	260	60-100	80-100		40-120	40-110	0.05-0.1	0.03-0.05	0.005-0.01
	Nodular SG iron	Feritic	160	60-125	80-100		40-110	40-100	0.05-0.15	0.05-0.1	0.007-0.02
		Pearlitic	260	50-90	60-90		40-100	40-90	0.05-0.1	0.03-0.05	0.005-0.01
	Aluminium alloys Wrought	non aging	60	100-250		200-300	200-300	150-250	0.1-0.4	0.1-0.25	0.05-0.15
		Aged	100	100-180		60-110	150-250	100-220	0.1-0.3	0.1-0.2	0.03-0.1
	Aluminium alloys	Cast	75	150-400		60-120	100-200	80-150	0.1-0.3	0.1-0.2	0.05-0.15
		Cast & aged	90	150-280		60-100	120-220	90-160	0.05-0.25	0.1-0.15	0.03-0.1
	Aluminium alloys	Cast Si 13-22%	130	80-150		20-50	200-300	150-250	0.1-0.3	0.1-0.2	0.05-0.15
	Copper and copper alloys	Brass	90	120-210	100-200	50-70	200-300	150-250	0.1-0.3	0.1-0.25	0.05-0.15
		Bronze and non leaded copper	100	120-210	100-200	50-70	150-250	100-220	0.05-0.25	0.1-0.2	0.03-0.1

Recommendation:

At tool entry, set the Feed f [mm/tooth] to 70% lower than the threading Feed.



Example:

Threading Feed: 0.3[mm/tooth]

Tool entry Feed: 0.09[mm/tooth]

Minimum Bore Diameters for Thread Milling

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 mm																				
TMMC 12-6.0	9.0	9.5	9.7	9.9	10.0	10.4	10.7	11.4	12.0													
TMMC 20-6.0	9.0	9.5	9.7	9.9	10.0	10.4	10.7	11.4	12.0													
TMMC 20-6.0 124/003	9.0	9.5	9.7	9.9	10.0	10.4	10.7	11.4	12.0													
TMC 12-2	11.5	12.0	12.2	12.4	12.5	12.9	13.2	13.9	14.5	15.1												
TMC 20-2	11.5	12.0	12.2	12.4	12.5	12.9	13.2	13.9	14.5	15.1												
TMLC 25-2	11.5	12.0	12.2	12.4	12.5	12.9	13.2	13.9	14.5	15.1												
TMSC 10-2	12.5	13.0	12.6	13.6	13.5	13.9	14.2	14.9	15.5	16.1												
TMOC 20-2	14.5	15.1	15.2	15.3	15.4	16.0	16.4	17.0	17.8	18.6												
TMNC 16-3	15.5	16.0	16.2	16.4	16.5	16.9	17.2	17.9	18.5	19.0	19.5	20.0										
TMC 16-3 124/001	15.5	16.0	16.2	16.4	16.5	16.9	17.2	17.9	18.5	19.0	19.5	20.0										
TMC 16-3	17.0	17.6	17.8	18.0	18.2	18.70	19.0	19.6	20.0	20.5	21.0	21.5										
BTMC 16-3B	17.0	17.6	17.8	18.0	18.2	18.7	19.0	19.6	20.0	20.5	21.0	21.5										
TM2C 20-2	17.0	17.6	17.8	18.0	18.2	18.7	19.0	19.6	20.0	20.5												
BTMC 20-3B	19.0	19.7	20.0	20.2	20.4	20.8	21.0	21.6	22.0	22.5	23.0	23.5										
TMNC 20-3	19.0	19.7	20.0	20.2	20.4	20.8	21.0	21.6	22.0	22.5	23.0	23.5										
TMC 20-3	20.0	20.7	21.0	21.2	21.4	21.8	22.0	22.6	23.0	23.5	24.0	24.5										
TMOC 20-3	20.0	20.7	21.0	21.2	21.4	21.8	22.0	22.6	23.0	23.5	24.0	24.5										
BTMWC 25-3B	22.0	22.7	23.0	23.2	23.4	23.8	24.0	24.6	25.0	25.5	26.0	26.5										
BTMLC 25-3B	22.0	22.7	23.0	23.2	23.4	23.8	24.0	24.6	25.0	25.5	26.0	26.5										
TMLC 25-3	22.0	22.7	23.0	23.2	23.4	23.8	24.0	24.6	25.0	25.5	26.0	26.5										
TMC 25-5 124/004	25.0	25.7	26.0	26.2	26.4	26.8	27.0	27.7	28.2	28.7	29.2	29.7	31.3	33.7	36.7	39.7	42.7					
TM2C 25-3	26.0	26.7	27.0	27.2	27.4	27.8	28.0	28.7	29.3	29.8	30.3	30.8										
BTM2C 25-3B	26.0	26.7	27.0	27.2	27.4	27.8	28.0	28.7	29.3	29.8	30.3	30.8										
TMC 25-5	30.0	30.7	31.0	31.2	31.4	31.8	32.0	32.8	33.5	34.1	34.6	35.6	36.6	39.0	42.0	45.0	48.0					
TMLC 25-5	30.0	30.7	31.0	31.2	31.4	31.8	32.0	32.8	33.5	34.1	34.6	35.6	36.6	39.0	42.0	45.0	48.0					
TMOC 25-5	30.0	30.7	31.0	31.2	31.4	31.8	32.0	32.8	33.5	34.1	34.6	35.6	36.6	39.0	42.0	45.0	48.0					
TMC 32-6B	35.0								38.5	39.1	39.6	40.6	42.0	44.0	47.0	50.0	53.4	42.5	50.0	44.6	57.5	56.6
TMC 32-5	37.0	38.0	38.2	38.4	38.6	39.1	39.5	40.4	41.0	41.5	42.0	43.0	44.0	46.5	49.0	52.0	55.5					
TMLC 32-5	37.0	38.0	38.2	38.4	38.6	39.1	39.5	40.4	41.0	41.5	42.0	43.0	44.0	46.5	49.0	52.0	55.5					
TMNC 32-5	37.0	38.0	38.2	38.4	38.6	39.1	39.5	40.0	41.0	41.5	42.0	43.0	44.0	46.5	49.0	52.0	55.5					
TMSH D38-16-2	38.0	38.5	38.7	38.9	39.0	39.6	40.0	41.0	42.0	43.0												
TM2C 32-5	42.0	43.2	43.4	43.6	43.8	44.5	45.0	46.0	46.5	47.0	47.4	48.2	49.0	52.0	54.5	57.5	61.0					
TMVC 32-5	46.0																				62.5	
TMC 40-6B	46.0								49.5	50.1	50.6	51.6	53.0	55.0	55.2	55.6	55.0	52.5	54.0	54.5	57.5	56.6
TMLC 40-6B	46.0								49.5	50.1	50.6	51.6	53.0	55.0	55.2	55.6	55.0	52.5	54.0	54.5	57.5	56.6
TMSH D50-22-2	50.0	50.5	50.7	50.9	51.0	51.6	52.0	53.0	54.0	54.5												
TMSH D50-22-3	50.0	50.5	50.7	50.9	51.0	51.6	52.0	53.0	54.0	54.5	55.0	55.5										

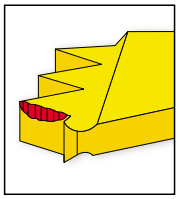
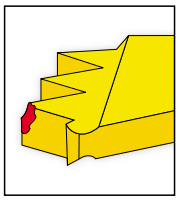
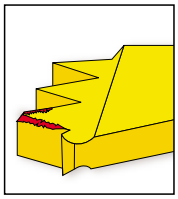
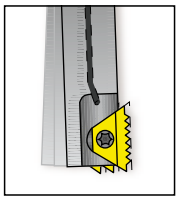
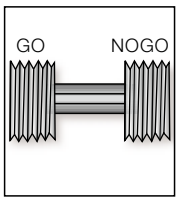
Minimum Bore Diameters for Thread Milling (Con't)

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 mm**																				
TM2C 40-6B	52.0								56.0	56.2	56.5	57.0	59.0	61.5		63.0	64.0	66.0	67.0	67.6	69.0	70.0
TMSH D63-22-3B	63.0	63.5	63.7	63.9	64.0	64.6	65.0	66.0	67.0	67.5	68.0	69.0										
TMSH D63-22-5	63.0	63.5	63.7	63.9	64.0	64.6	65.0	66.0	67.0	67.5	68.0	69.0	70.0	72.0	73.0	74.0	75.0					
TMSH D63-22-6B	63.0								67.0	67.5	68.0	69.0	70.0	72.0	73.0	74.0	75.0	77.0	78.0	78.6	80.0	81.0
TMSH D80-27-5	80.0	80.5	80.7	80.9	81.0	81.6	82.0	83.0	84.0	84.5	85.0	86.0	87.0	89.0	90.0	91.0	92.0					
TMSH D80-27-6B	80.0								84.0	84.5	85.0	86.0	87.0	89.0	90.0	91.0	92.0	94.0	95.0	95.6	97.0	98.0
TMSH D100-32-5	100.0	100.5	100.7	100.9	101.0	101.6	102.0	103.0	104.0	104.5	105.0	106.0	107.0	109.0	110.0	111.0	112.0					
TMSH D100-32-6B	100.0								104.0	104.5	105.0	106.0	107.0	109.0	110.0	111.0	112.0	114.0	115.0	115.6	117.0	118.0
TMSH D125-40-5	125.0	125.5	125.7	125.9	126.0	126.6	127.0	128.0	129.0	129.5	130.0	131.0	132.0	134.0	135.0	136.0	137.0					
TMSH D125-40-6B	125.0								129.0	129.5	130.0	131.0	132.0	134.0	135.0	136.0	137.0	139.0	140.0	140.6	142.0	143.0

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.

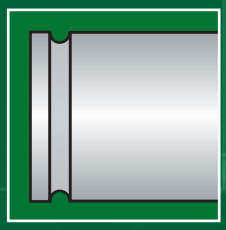
Troubleshooting

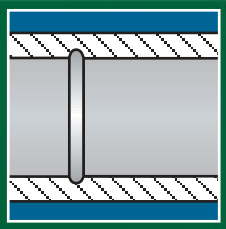
	Problem	Possible Cause	Solution
	**Increased insert flank wear**	Cutting speed too high	Reduce cutting speed/use coated insert
		Chip is too thin	Increase feed rate
		Insufficient coolant	Increase coolant flow rate
	**Chipping of cutting edge**	Chip is too thick	Reduce feed rate/ Use the tangential arc method/ Increase RPM
		Vibration	Check stability
	**Material Build up on the Cutting edge**	Incorrect cutting speed	Change cutting speed
		Unsuitable carbide grade	Use a coated carbide grade
	**Chatter / Vibration**	Feed rate is too high	Reduce the feed
		Profile is too deep	Execute two passes, each with increased cutting depth/ Execute two passes, each cutting only half the thread length
		Thread length is too long	Execute two passes, each cutting only half the thread length
	**Insufficient thread accuracy**	Tool deflection	Reduce feed rate/ Execute a “zero” cut

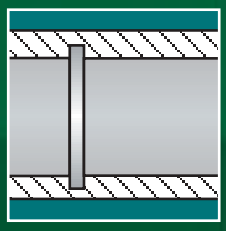
VARGUS

GROOVE MILLING INSERTS Contents

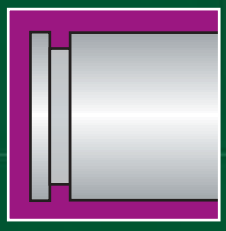
GROOVE MILLING TOOLHOLDERS Contents







GROOVE MILLING TECHNICAL DATA Contents



Vardex Ordering Code System

Shell Mill Groove Inserts

4	W	GM	1.6	C	-	D3770	S	-	1.38	VKX
1	2	3	4	5		6	7		8	9

1 - Insert size	2 - Insert Style	3 - System	4 - Groove std. Width
4 - IC1/2”	W - Vertical Wide Inserts	GM - Groove Milling	1.1 - 3.15

5 - Profile Shape	6 - Groove Standard	7 - Groove Type	8 - Groove Depth
C - With Chamfer	CIRC - Circlip DIN471/472 DIN3770D DIN3770S BS1806 BS4518	D - Dynamic S - Static DP- Dynamic pneumatic DH- Dynamic hydraulic	0.3 - 3.8

9 - Carbide Grade
VKX

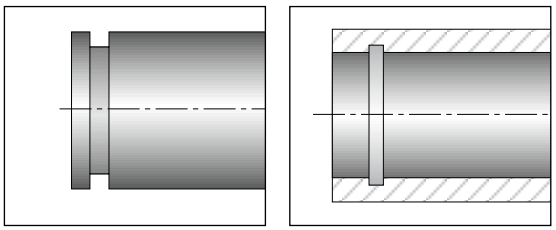
Shell Mill Groove Holders

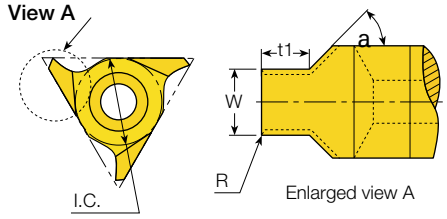
SGM	-	D48	-	25	-	4
1		2		3		4

1 - System	2 - Cutting Dia.	3 - Drive Hole dia.	4 - Insert Size
SGM - Shell Groove Milling	48, 63, 80	22, 25, 27	4 - IC1/2”

Circlip Non Standard

External / Internal





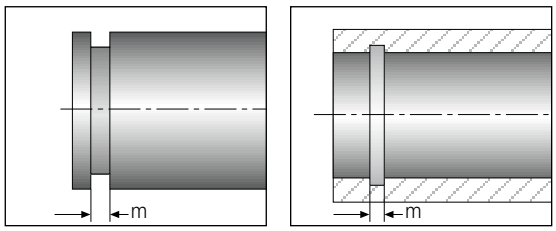
Vertical SGM

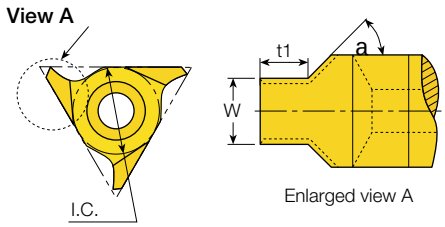
Vertical SGM

Insert Size		Ordering Code	Dimensions mm			a	
IC	L mm		W	R	t1		Toolholder
1/2"	22	4WGM1.25C-CIRC-1.5...	1.25	0.2	1.3	45°	SGM-D..-..-4
		4WGM1.35C-CIRC-1.5...	1.35	0.2	1.3		
		4WGM1.45C-CIRC-1.5...	1.45	0.2	1.3		
		4WGM1.50C-CIRC-1.5...	1.50	0.2	1.3		
		4WGM1.65C-CIRC-2.0...	1.65	0.2	1.8		
		4WGM1.75C-CIRC-2.0...	1.75	0.2	1.8		
		4WGM1.85C-CIRC-2.50...	1.85	0.2	2.3		
		4WGM2.00C-CIRC-2.50...	2.00	0.2	2.3		
		4WGM2.20C-CIRC-3.50...	2.20	0.2	3.3		
		4WGM2.30C-CIRC-3.50...	2.30	0.2	3.3		
		4WGM2.50C-CIRC-3.50...	2.50	0.3	3.3		
		4WGM2.65C-CIRC-3.50...	2.65	0.3	3.3		
		4WGM2.70C-CIRC-3.50...	2.70	0.3	3.3		
		4WGM2.80C-CIRC-3.50...	2.80	0.3	3.3		
		4WGM3.00C-CIRC-3.50...	3.00	0.3	3.3		
		4WGM3.20C-CIRC-3.50...	3.20	0.3	3.3		
		4WGM3.30C-CIRC-3.50...	3.30	0.3	3.3		
		4WGM3.50C-CIRC-4.00...	3.50	0.3	3.8		
		4WGM3.70C-CIRC-4.00...	3.70	0.3	3.8		
		4WGM3.90C-CIRC-4.00...	3.90	0.3	3.8		
		4WGM4.00C-CIRC-4.00...	4.00	0.3	3.8		

Circlip DIN 471/472

External / Internal





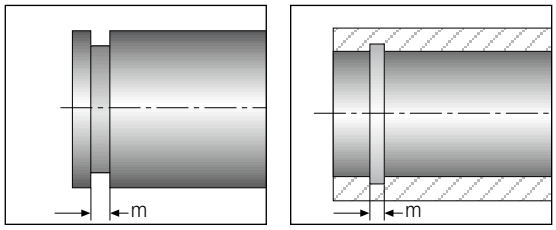
Vertical SGM

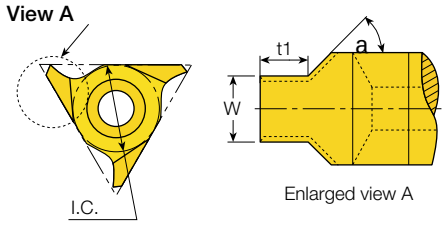
Vertical SGM

Insert Size		Ordering Code	Groove Std.			a	
IC	L mm		*m(H13)	W	t1		Toolholder
1/2"	22	4WGM1.1C-D471/472-0.35...	1.10	1.19	0.3	45°	SGM-D..-..-4
		4WGM1.1C-D471/472-0.40...	1.10	1.19	0.4		
		4WGM1.3C-D471/472-0.50...	1.30	1.39	0.4		
		4WGM1.3C-D471/472-0.55...	1.30	1.39	0.5		
		4WGM1.6C-D471/472-0.70...	1.60	1.69	0.6		
		4WGM1.6C-D471/472-0.85...	1.60	1.69	0.8		
		4WGM1.6C-D471/472-1.00...	1.60	1.69	0.9		
		4WGM1.85C-D471/472-1.25...	1.85	1.94	1.1		
		4WGM1.85C-D471/472-1.00...	1.85	1.94	0.9		
		4WGM2.15C-D471/472-1.50...	2.15	2.24	1.4		
		4WGM2.65C-D471/472-1.50...	2.65	2.74	1.4		
		4WGM2.65C-D471/472-1.75...	2.65	2.74	1.6		
		4WGM3.15C-D471/472-1.75...	3.15	3.24	1.6		

O Ring DIN 3770

External / Internal





Vertical SGM

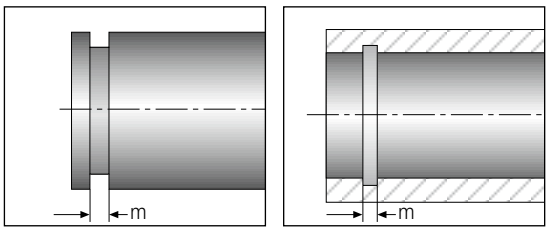
Vertical SGM

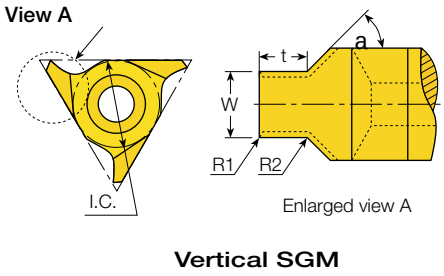
Insert Size			Ordering Code	Groove Std.					a	
IC	L mm	St.Dy		*m(H13)	W	t	R1	R2		Toolholder
1/2"	22	St.	4WGM1.6C-D3770S-1.38...	1.60	1.97	1.38	0.25	0.10	15°	SGM-D..-..-4
			4WGM2.0C-D3770S-1.72...	2.00	2.37	1.72	0.25	0.10		
			4WGM2.5C-D3770S-2.15...	2.50	3.02	2.15	0.25	0.10		
			4WGM3.15C-D3770S-2.70...	3.15	3.77	2.70	0.60	0.20		
		Dy.	4WGM1.6C-D3770D-1.47...	1.60	1.97	1.47	0.25	0.10		
			4WGM2.0C-D3770D-1.83...	2.00	2.37	1.83	0.25	0.10		

St. = Static Dy. = Dynamic

O Ring BS 1806, DIN3601, DIN 3771

External / Internal





Vertical SGM

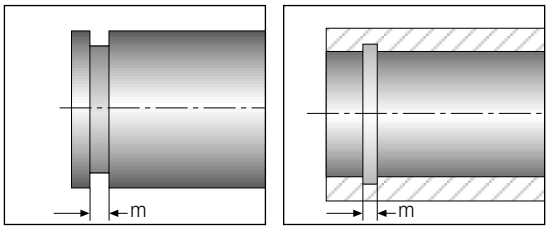
Vertical SGM

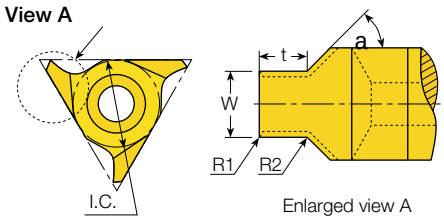
Insert Size			Ordering Code	Groove Std.					a	
IC	L mm	St.Dy		*m(H13)	W	t	R_1	R_2		Toolholder
1/2"	22	St.	4WGM1.80C-BS1806S-1.3...	1.80	2.37	1.30	0.2	0.6	15°	SGM-D..-..-4
			4WGM2.65C-BS1806S-2.0...	2.65	3.57	2.00	0.2	0.6		
		Dy.	4WGM1.80C-BS1806D-1.57...	1.80	2.37	1.55	0.2	0.6		
			4WGM2.65C-BS1806D-2.38...	2.65	3.57	2.30	0.2	0.6		

St. = Static
Dy. = Dynamic

BS 4518

External / Internal





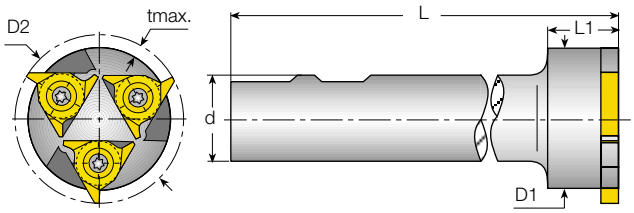
Vertical SGM

Vertical SGM

Insert Size			Ordering Code	Groove Std.					a	
IC	L mm	St.Dy		*m(H13)	W	t	R_1	R_2		Toolholder
1/2"	22	St.	4WGM1.6C-BS4518S-1.25...	1.60	2.37	1.25	0.5	0.2	15°	SGM-D..-..-4
			4WGM2.4C-BS4518S-1.95...	2.40	3.17	1.95	0.5	0.2		
			4WGM3.0C-BS4518S-2.51...	3.00	3.77	2.51	1.0	0.2		
		DyP	4WGM2.4C-BS4518DP-2.20...	2.40	3.27	2.20	0.5	0.2		
			4WGM3.0C-BS4518DP-2.77...	3.00	4.07	2.77	1.0	0.2		
		DyH	4WGM2.4C-BS4518DH-2.09...	2.40	3.27	2.09	0.5	0.2		
			4WGM3.0C-BS4518DH-2.60...	3.00	4.07	2.60	1.0	0.2		

St. = Static
DyP = Dynamic pneumatic
DyH = Dynamic hydraulic

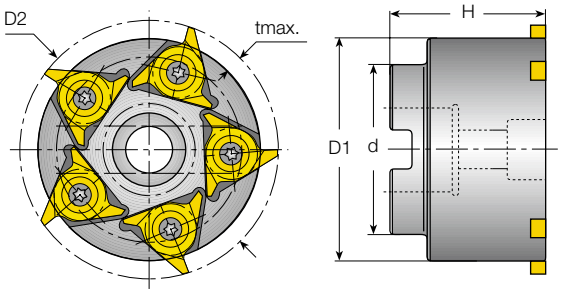
Toolholders



Multi Insert Holders (3)

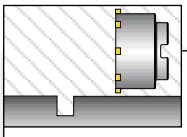
Insert Size	Ordering Code	Dimensions mm						Spare Parts	
IC		**D2**	**t** max	**L**	**L1**	**d**	**D1**	Insert Screw	Torx Key
1/2"	SGM-D48-25-4	48	3.5	125	20	25	40	SN4T-90	HK4T

Toolholders

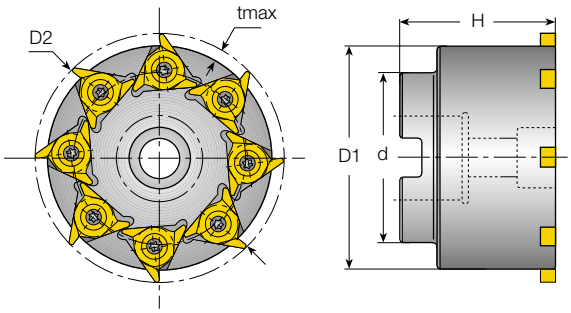


Multi Insert Holders (5)

Insert Size	Ordering Code	Dimensions mm					Spare Parts		
IC		**D2**	**t** max	**d**	**D1**	**H**	Insert Screw	Torx Key	Holder Screw
1/2"	SGM-D63-22-4	63	3.5	45	59.51	41	SN4T-90	HK4T	M10x35



Toolholders



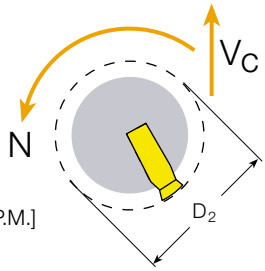
Multi Insert Holders (8)

Insert Size	Ordering Code	Dimensions mm					Spare Parts		
IC		D2	t max	d	D1	H	Insert Screw	Torx Key	Holder Screw
1/2"	SGM-D80-27-4	80	3.5	55	72	50	SN4T-90	HK4T	M12x40

Recommended Grades, Cutting Speeds Vc [m/min], Feed f [mm/tooth].

	Material		Hardness Brinell HB	V_c [m/min] Coated VKX	Feed f [mm/tooth]
P	Unalloyed steel	Low carbon (C=0.1-0.25 %)	125	100-210	0.05-0.1
		Medium carbon (C=0.25-0.55 %)	150	100-170	0.03-0.07
		High carbon (C=0.55-0.85 %)	170	100-160	0.02-0.05
	Low alloy steel (alloying elements ≤ 5%)	Non hardened	180	80-150	0.05-0.09
		Hardened	275	70-140	0.03-0.07
		Hardened	350	70-130	0.02-0.05
	High alloy steel (alloying elements > 5%)	Annealed	200	70-120	0.03-0.07
		Hardened	325	70-100	0.03-0.05
	Cast steel	Low alloy (alloying elements <5%)	200	70-110	0.03-0.07
		High alloy (alloying elements >5%)	225	50-80	0.02-0.05
M	Stainless steel Feritic	Non hardened	200	80-150	0.03-0.07
		Hardened	330	80-150	0.03-0.05
	Stainless steel Austenitic	Austenitic	180	60-120	0.03-0.07
		Super austenitic	200	60-120	0.03-0.05
	Stainless steel Cast feritic	Non hardened	200	60-120	0.02-0.05
		Hardened	330	60-120	0.01-0.03
	Stainless steel Cast austenitic	Austenitic	200	50-100	0.03-0.05
		Hardened	330	50-100	0.01-0.03
	High temperature alloys	Annealed (Iron based)	200	20-45	0.01-0.03
		Aged (Iron based)	280	20-30	0.01-0.03
		Annealed (Nickel or Cobalt based)	250	10-20	0.01-0.03
		Aged (Nickel or Cobalt based)	350	10-15	0.01-0.03
	Titanium alloys	Pure 99.5 Ti	400Rm	60-120	0.02-0.05
		a+b alloys	1050Rm	20-50	0.01-0.03
K	Extra hard steel	Hardened & tempered	55HRc	20-45	0.005-0.01
	Malleable cast iron	Ferritic (short chips)	130	60-110	0.02-0.05
		Pearlitic (long chips)	230	50-100	0.01-0.03
	Grey cast iron	Low tensile strength	180	60-110	0.03-0.07
		High tensile strength	260	50-80	0.03-0.05
	Nodular SG iron	Feritic	160	50-100	0.03-0.05
		Pearlitic	260	40-70	0.03-0.05
	Aluminium alloys Wrought	non aging	60	100-200	0.07-0.15
		Aged	100	100-150	0.03-0.05
	Aluminium alloys	Cast	75	100-180	0.07-0.15
		Cast & aged	90	60-120	0.05-0.1
	Aluminium alloys	Cast Si 13-22%	130	100-150	0.05-0.1
	Copper and copper alloys	Brass	90	60-120	0.05-0.1
		Bronze and non leaded copper	100	50-100	0.03-0.08

* Peripheral feed



Grades and their Application

Grade	Application Type	Sample
VKX	Excellent for general use. TiN coated.	

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

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

N - Rotational Velocity [R.P.M.]
V - Cutting Speed [m/min]
D_2 - Toolholder Cutting Dia. [mm]
F_1 - Tool Feed Rate at the Cutting Egde [mm/min]
z - No. of Cutting Edges
f - Feed per Tooth per Rotation [mm/rev]

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