Carmex
Precision Tools Ltd.

Metric 2015-16

Company Profile

Carmex Precision Tools Ltd. is a leading manufacturer of high quality cutting tools. The company was founded in 1988 in Maalot, located in the beautiful North West region of Israel.

Product Lines

Carmex specializes in the production of threading tools for turning and milling. Our product lines include Thread Turning inserts and toolholders, Mill-Thread inserts and toolholders, Mill-Thread Solid Carbide and Spiral Mill-Thread. In addition to threading, we produce Grooving tools, Mini Chamfer mills, Swiss Tools and the Tiny Tools line of small boring bars for threading, turning and grooving of small parts. The company's different product lines are recognized worldwide for their advanced technology, reliable full range lines that offer accurate geometry, excellent cutting performance and extended tool life. Our products and service we provide live up to the highest standards and outperform them. Carmex also produces special tools in accordance with the customer's requirements.

Quality Assurance

In addition to our unyielding strive for high quality, speedy service and reliability, Carmex is certified by ISO 9001:2008, ISO 13485:2003, ISO 14001:2004, OHSAS 18001 and CE. Most of our customers' requirements are supplied immediately from our readily available wide range of inventory as well as from our agents and distributor's stocks around the world. In August 2008 Carmex completed its transfer to the new, state-of-the-art modern building. In addition to the construction we invested in advanced machinery and equipment as part of our strategy to keep our position in the first line of high technology.

Carmex Branches

In addition to its distributor's chain, Carmex has three independent sales branches. Each of them keeps Carmex's wide range of stock and employs talented, service oriented managers, engineers, technicians and administrators willing to fulfill the customers' needs.

2003 - C.P.T. GmbH, *a sales branch in Stuttgart Germany serving Europe.*

2004 - Carmex Precision Tools, LLC, *a sales branch in Wisconsin USA serving North America and Mexico.*

2008 - Carmex Italia Srl, *a sales branch in Modena, Italy.*

In addition to our customers' recognition of our high quality tools, we are well known as a service oriented company and as a very competitive supplier that pledge for customer satisfaction.

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

ISO 9001-2008
Quality Management Systems

APPROVED MEDICAL DEVICES QMS
ISO 13485: 2003
THE STANDARDS INSTITUTION OF ISRAEL

ISO 13485:2003
Medical Devices
Quality Management
Systems

CERTIFIED EMS
SI
ISO 14001: 2004
THE STANDARDS INSTITUTION OF ISRAEL

ISO 14001
Environmental
Management
Systems

CERTIFIED OHS SYSTEM
SI
OHSAS 18001
THE STANDARDS INSTITUTION OF ISRAEL

OHSAS 18001
Occupational
Health and Safety
Management Systems

CE 0470
European Conformity

EU consumer safety,
health and
environmental
requirements

Carmex Precision Tools Ltd.

New Products

Thread - Turning

New HBA Grade

A new extra-fine sub-micron grade with high toughness, for optimized performance on hardened steels and cast iron up to 62HRc, titanium alloys and super alloys (hastelloy, inconel and nickel based alloys).
Available for inserts sizes: 11, 16, 22, 27.

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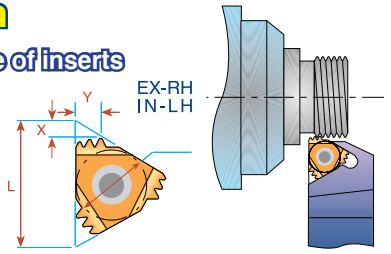
Multitooth

Extended range of inserts



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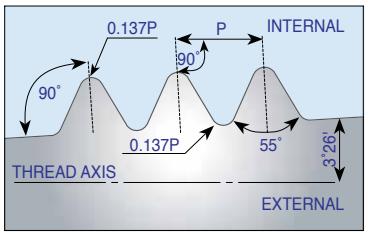
Thread Turning inserts for DIN 477 profile



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Type B

Ground Profile with Sintered Chip breaker

- Size 11 mm inserts

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Quick Change

Polygon Threading Toolholders

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Tiny Tools

MZL Bars - Face Grooving

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CMR - Carmex Multi-Task Tiny Tools

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HK - Broaching Tools for Hexagon Keys

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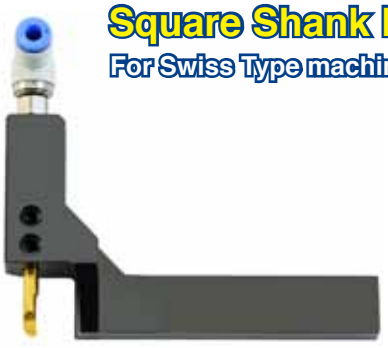
Square Shank Holders

For Swiss Type machines



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New Products for MTR, MPR, MIR, MCR, MGR, MKR.

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Mini Tools

- Carmex presents Mini Tools, a new generation of vertical inserts and toolholders for threading, chamfering, grooving and turning, from 8 mm min. diameter.
- Steel holders are also available

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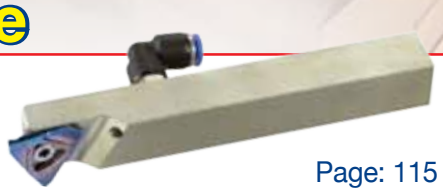
New Products

Carmex Precision Tools Ltd.

Swiss Line

- Carmex is introducing a new line of inserts and toolholders, developed for automatic lathes and Swiss Type machines.
- Designed for economic parting, grooving, profiling and chamfering mass production.



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Mill - Thread

CMT - Vertical Mill - Thread

- Spiral multi flute inserts
- CMT multi inserts milling cutters

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Mini Spiral Mill - Thread

- Spiral fluted toolholders hold 1 to 3 inserts.
- Comparatively small cutting diameters.
- Toolholders with internal coolant bore.
- Smooth cutting operation at a high feed rate.
- Reduced machining time.
- Spiral design reduces vibrations and chatter.
- High grade surface finish.

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FMT

Carmex has designed a unique line of solid carbide thread milling tools FMT for increased productivity and high performance.

Large number of flutes achieve significant shorter machining time.

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DMTH

The new DMTH tools expand the range of the existing DMT line providing the ability to cut steels, hardened materials, stainless steels and super alloys.

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Groove Milling

- With internal coolant through the flutes
- Same tool for Internal and External Grooving

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Mini Chamfer - 150°

- Optimal for deburring, back chamfering and grooving
- Double side cutting
- Spiral flutes allows smooth cutting action
- General purpose for all materials

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Carmex Precision Tools Ltd.

Main Content

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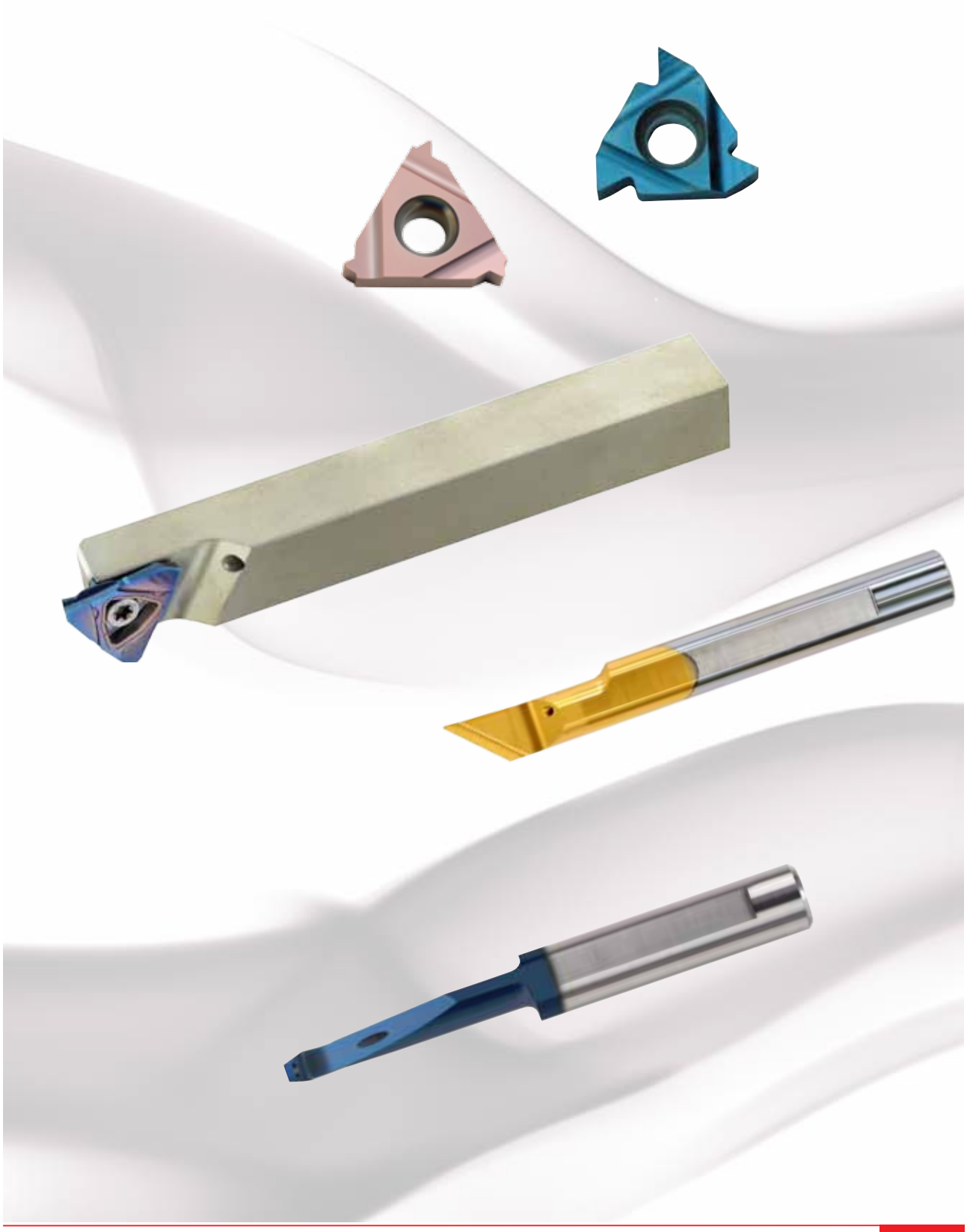
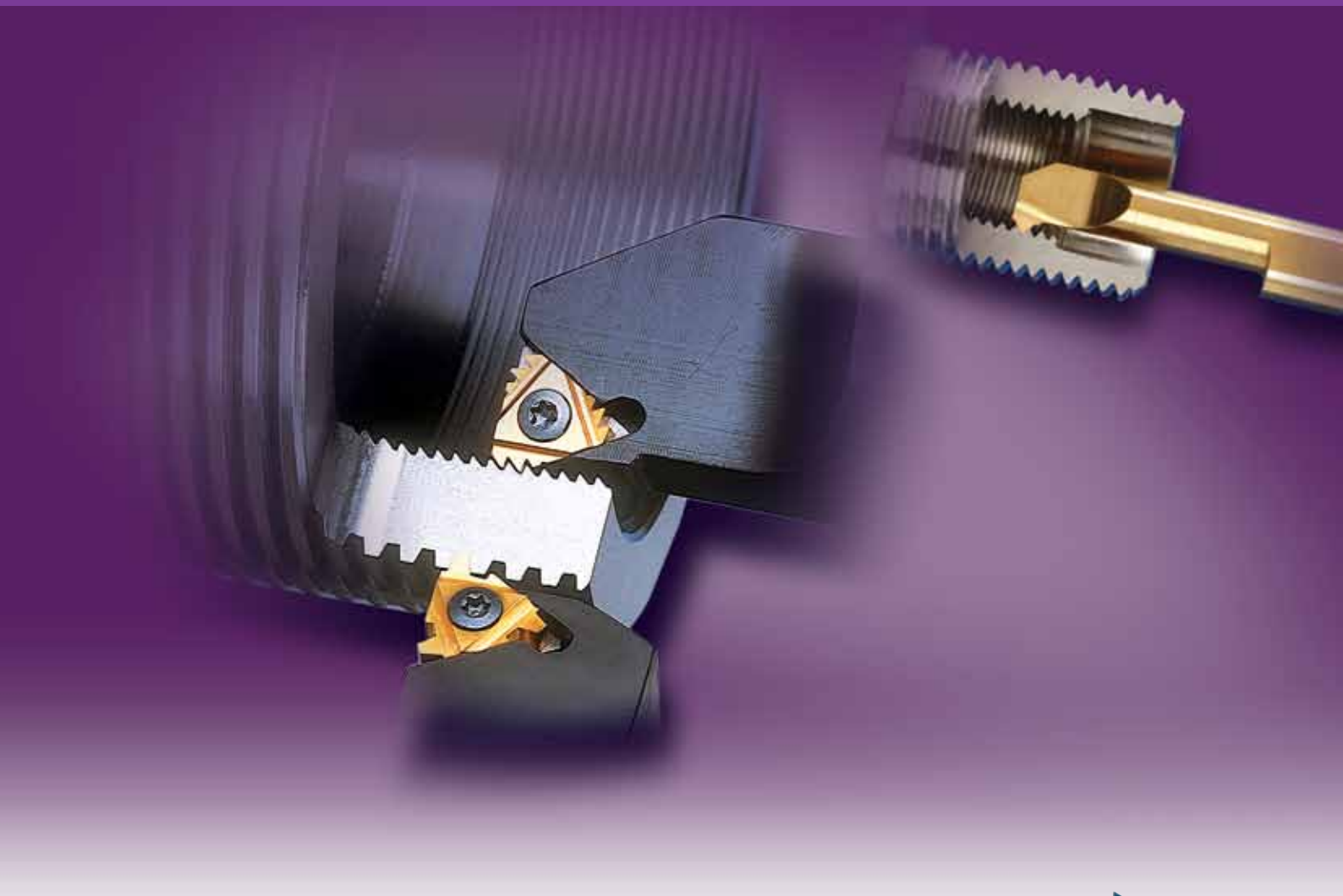
Carmex Precision Tools Ltd.

Turning Tools

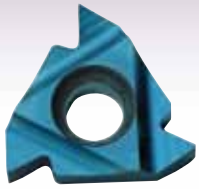


CONTENTS:

Thread Turning Inserts



BLU Grade



A sub-micrograin grade with PVD triple layer coating.
The BLU grade provides a combination of very high strength with high wear resistance.

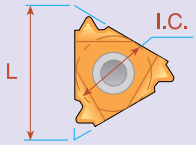
HBA Grade

An extra-fine sub-micron grade with high toughness, for optimized performance on Hardened Steels and Cast Iron up to 62HRc, Titanium Alloys and Super Alloys (Hastelloy, Inconel, and Nickel based alloys).

Product Identification

Thread Turning Inserts Ordering Codes

16	E	R		12	UN		BMA



L	I.C.
06	5/32″
08	3/16″
08U	3/16″U
11	1/4″
16	3/8″
16V	3/8″
22	1/2″
22U	1/2″U
22V	1/2″
27	5/8″
27U	5/8″U
27V	5/8″
33U	3/4″U

E = External
I = Internal

R = Right Hand
L = Left Hand

B = Type B

Pitch
in mm:
0.35-12

or TPI
(Threads
per Inch)
72-2

Full Profiles:
ISO
UN
WHIT
NPT
NPTF
BSPT
DIN 477
ACME
ST.ACME
TRAPEZ
ROUND
UNJ
MJ
PG
AM. BUTT.
SAGE
API
VAM

Partial Profiles:

A	60°
G	55°

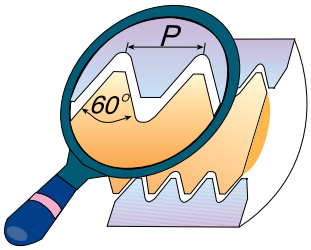
AG
N
Q
U

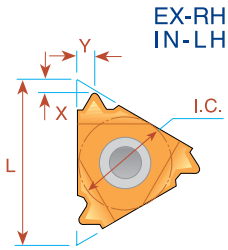
Multitooth style & number of teeth

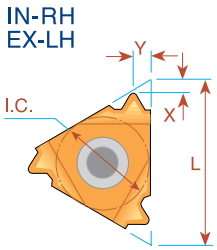
API size & taper

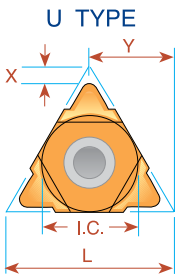
Carbide Grade:
P30
K20
BMA
MXC
P25C
BXC
BLU
HBA

Partial Profile 60°







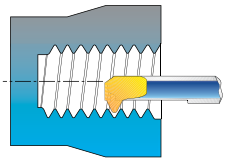


L	I.C. in	Pitch Range mm	Pitch Range TPI	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
6	5/32	0.5 -1.25	48-20	*ULTRA MINIATURE* →		*06 IR A60	*06 IL A60	0.6	0.6
8	3/16	0.5 -1.5	48-16	*MINIATURE* →		*08 IR A60	*08 IL A60	0.6	0.7
8U	3/16U	1.75-2.0	14-11	*"U" MINIATURE* →		*08U IR/L U60		0.8	4.0
11	1/4	0.5 -1.5	48-16	11 ER A60	11 EL A60	11 IR A60	11 IL A60	0.8	0.9
16	3/8	0.5 -1.5	48-16	16 ER A60	16 EL A60	16 IR A60	16 IL A60	0.8	0.9
16	3/8	1.75-3.0	14- 8	16 ER G60	16 EL G60	16 IR G60	16 IL G60	1.2	1.7
16	3/8	0.5 -3.0	48- 8	16 ER AG60	16 EL AG60	16 IR AG60	16 IL AG60	1.2	1.7
22	1/2	3.5 -5.0	7- 5	22 ER N60	22 EL N60	22 IR N60	22 IL N60	1.7	2.5
22U	1/2U	5.5 -8.0	4.5- 3.25	22U E/I/R/L U60				0.6	11.0
27	5/8	5.5 -6.0	4.5- 4	27 ER Q60	27 EL Q60	27 IR Q60	27 IL Q60	2.1	3.1
27U	5/8U	6.5 -9.0	4- 2.75	27U E/I/R/L U60				1.0	13.7

Order example: 16 ER G60 MXC

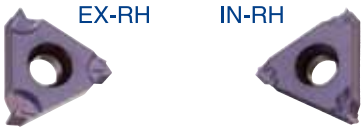
For small bore threading see page 82

* Available only in BXC and BMA grades



Type B

Ground Profile with Sintered Chip-breaker

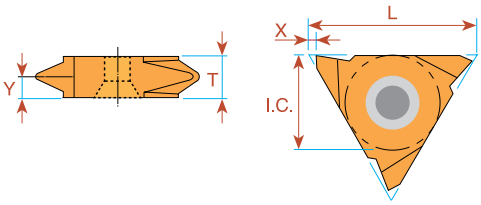


L	I.C. in	Pitch Range mm	Pitch Range TPI	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
16	3/8	0.5 -1.5	48-16	16 ER B A60	16 IR B A60	0.8	0.9
16	3/8	1.75-3.0	14- 8	16 ER B G60	16 IR B G60	1.2	1.7
16	3/8	0.5 -3.0	48- 8	16 ER B AG60	16 IR B AG60	1.2	1.7

Order example: 16 ER B G60 BMA

For Carbide Grade and Cutting Speed see page 60-61

Partial Profile 60°
Vertical

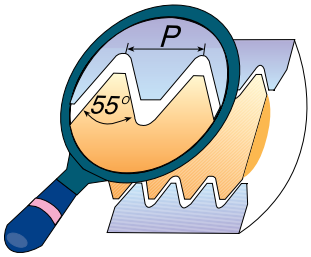


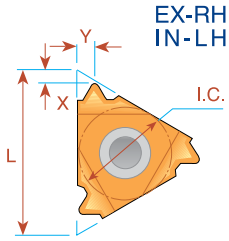
L	I.C.	Pitch Range		EXTERNAL Ordering Code		INTERNAL Ordering Code		X	Y	T
	in	mm	TPI	Right Hand	Left Hand	Right Hand	Left Hand			
16	3/8	0.5 - 1.5	48-16	**16V ER A60**	**16V EL A60**			1.0	0.9	3.6
16	3/8	1.75- 3.0	14- 8	**16V ER G60**	**16V EL G60**			1.0	1.8	3.6
16	3/8	0.5 - 3.0	48- 8	**16V ER AG60**	**16V EL AG60**			1.0	1.8	3.6
22	1/2	1.75- 3.0	14- 8	**22V ER G60**	**22V EL G60**			1.2	1.7	4.0
22	1/2	0.5 - 5.0	7- 5	**22V ER N60**	**22V EL N60**			1.2	2.5	4.8
27	5/8	6.0 -10.0	4- 2.5	**27V ER V60**	**27V EL V60**	**27V IR V60**	**27V IL V60**	1.8	5.2	10.4

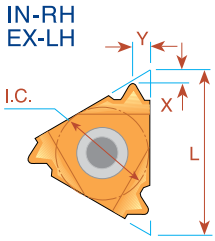
Order example: 16V ER G60 BMA

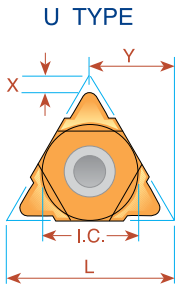
For Carbide Grade and Cutting Speed see page 60-61

Partial Profile 55°







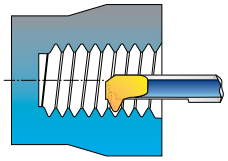


L	I.C. in	Pitch Range mm	Pitch Range TPI	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
6	5/32	0.5 -1.25	48-20	*ULTRA MINIATURE* →		*06 IR A55	*06 IL A55	0.5	0.6
8	3/16	0.5 -1.5	48-16	*MINIATURE* →		*08 IR A55	*08 IL A55	0.6	0.7
8U	3/16U	1.75-2.0	14-11	*"U" MINIATURE* →		*08U IR/L U55		0.9	4.0
11	1/4	0.5 -1.5	48-16	11 ER A55	11 EL A55	11 IR A55	11 IL A55	0.8	0.9
16	3/8	0.5 -1.5	48-16	16 ER A55	16 EL A55	16 IR A55	16 IL A55	0.8	0.9
16	3/8	1.75-3.0	14- 8	16 ER G55	16 EL G55	16 IR G55	16 IL G55	1.2	1.7
16	3/8	0.5 -3.0	48- 8	16 ER AG55	16 EL AG55	16 IR AG55	16 IL AG55	1.2	1.7
22	1/2	3.5 -5.0	7- 5	22 ER N55	22 EL N55	22 IR N55	22 IL N55	1.7	2.5
22U	1/2U	5.5 -8.0	4.5- 3.25	22U E/I/R/L U55				0.9	11.0
27	5/8	5.5 -6.0	4.5- 4	27 ER Q55	27 EL Q55	27 IR Q55	27 IL Q55	2.0	2.9
27U	5/8U	6.5 -9.0	4 - 2.75	27U E/I/R/L U55				1.2	13.7

Order example: 16 ER G55 MXC

For small bore threading see page 82

* Available only in BXC and BMA grades



Type B

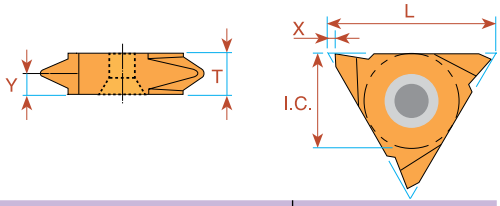
Ground Profile with Sintered Chip-breaker

L	I.C. in	Pitch Range mm	Pitch Range TPI	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y
16	3/8	1.75-3.0	14-8	16 ER B G55	16 IR B G55	1.2	1.7
16	3/8	0.5-3.0	48-8	16 ER B AG55	16 IR B AG55	1.2	1.7

Order example: 16 ER B G55 BMA

For Carbide Grade and Cutting Speed see page 60-61

Partial Profile 55°
Vertical

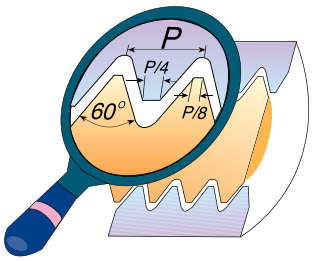


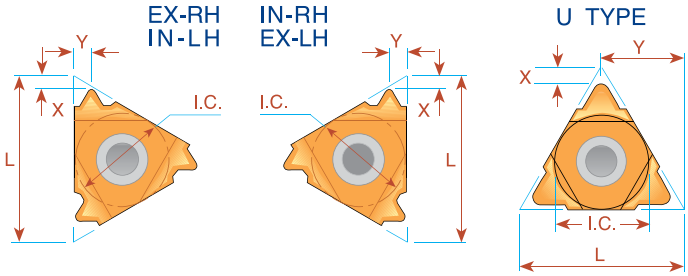
L	I.C. in	Pitch Range mm	Pitch Range TPI	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y	T
16	3/8	0.5 - 1.5	48-16	**16V ER A55**	**16V EL A55**			1.0	0.9	3.6
16	3/8	1.75- 3.0	14- 8	**16V ER G55**	**16V EL G55**			1.0	1.7	3.6
16	3/8	0.5 - 3.0	48- 8	**16V ER AG55**	**16V EL AG55**			1.0	1.8	3.6
22	1/2	3.5 - 5.0	7- 5	**22V ER N55**	**22V EL N55**			1.2	2.5	4.8
27	5/8	6.0 -10.0	4- 2.5	**27V ER V55**	**27V EL V55**	**27V IR V55**	**27V IL V55**	1.8	5.2	10.4

Order example: 22V ER N55 BMA

For Carbide Grade and Cutting Speed see page 60-61

ISO - metric

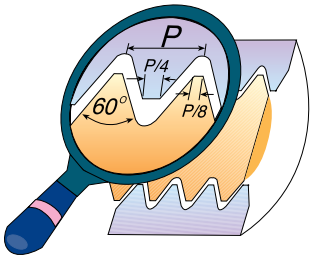


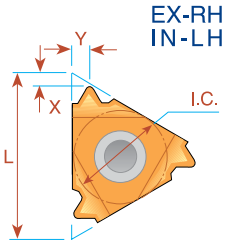


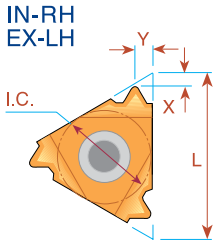
Pitch mm	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X	Y	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
0.5	6	5/32					*06 IR 0.5 ISO	*06 IL 0.5 ISO	0.9	0.5
0.75	6	5/32	*ULTRA MINIATURE* →				*06 IR 0.75 ISO	*06 IL 0.75 ISO	0.8	0.5
1.0	6	5/32					*06 IR 1.0 ISO	*06 IL 1.0 ISO	0.7	0.6
1.25	6	5/32					*06 IR 1.25 ISO	*06 IL 1.25 ISO	0.6	0.6
0.5	8	3/16					*08 IR 0.5 ISO	*08 IL 0.5 ISO	0.6	0.5
0.75	8	3/16					*08 IR 0.75 ISO	*08 IL 0.75 ISO	0.6	0.5
1.0	8	3/16	*MINIATURE* →				*08 IR 1.0 ISO	*08 IL 1.0 ISO	0.6	0.6
1.25	8	3/16					*08 IR 1.25 ISO	*08 IL 1.25 ISO	0.6	0.7
1.5	8	3/16					*08 IR 1.5 ISO	*08 IL 1.5 ISO	0.6	0.7
1.75	8	3/16					*08 IR 1.75 ISO	*08 IL 1.75 ISO	0.6	0.8
2.0	8U	3/16U	*"U" MINIATURE* →				*08U IR/L 2.0 ISO		0.9	4.0
0.35	11	1/4	11 ER 0.35 ISO	11 EL 0.35 ISO	0.8	0.4	11 IR 0.35 ISO	11 IL 0.35 ISO	0.8	0.3
0.4	11	1/4	11 ER 0.4 ISO	11 EL 0.4 ISO	0.7	0.4	11 IR 0.4 ISO	11 IL 0.4 ISO	0.8	0.4
0.45	11	1/4	11 ER 0.45 ISO	11 EL 0.45 ISO	0.7	0.4	11 IR 0.45 ISO	11 IL 0.45 ISO	0.8	0.4
0.5	11	1/4	11 ER 0.5 ISO	11 EL 0.5 ISO	0.6	0.6	11 IR 0.5 ISO	11 IL 0.5 ISO	0.6	0.6
0.6	11	1/4	11 ER 0.6 ISO	11 EL 0.6 ISO	0.6	0.6	11 IR 0.6 ISO	11 IL 0.6 ISO	0.6	0.6
0.7	11	1/4	11 ER 0.7 ISO	11 EL 0.7 ISO	0.6	0.6	11 IR 0.7 ISO	11 IL 0.7 ISO	0.6	0.6
0.75	11	1/4	11 ER 0.75 ISO	11 EL 0.75 ISO	0.6	0.6	11 IR 0.75 ISO	11 IL 0.75 ISO	0.6	0.6
0.8	11	1/4	11 ER 0.8 ISO	11 EL 0.8 ISO	0.6	0.6	11 IR 0.8 ISO	11 IL 0.8 ISO	0.6	0.6
1.0	11	1/4	11 ER 1.0 ISO	11 EL 1.0 ISO	0.7	0.7	11 IR 1.0 ISO	11 IL 1.0 ISO	0.6	0.7
1.25	11	1/4	11 ER 1.25 ISO	11 EL 1.25 ISO	0.8	0.9	11 IR 1.25 ISO	11 IL 1.25 ISO	0.8	0.8
1.5	11	1/4	11 ER 1.5 ISO	11 EL 1.5 ISO	0.8	1.0	11 IR 1.5 ISO	11 IL 1.5 ISO	0.8	1.0
1.75	11	1/4	11 ER 1.75 ISO	11 EL 1.75 ISO	0.8	1.1	11 IR 1.75 ISO	11 IL 1.75 ISO	0.8	1.1
2.0	11	1/4	11 ER 2.0 ISO	11 EL 2.0 ISO	0.8	1.1	11 IR 2.0 ISO	11 IL 2.0 ISO	0.8	0.9
2.5	11	1/4					11 IR 2.5 ISO	11 IL 2.5 ISO	0.8	1.2
0.35	16	3/8	16 ER 0.35 ISO	16 EL 0.35 ISO	0.8	0.4	16 IR 0.35 ISO	16 IL 0.35 ISO	0.8	0.3
0.4	16	3/8	16 ER 0.4 ISO	16 EL 0.4 ISO	0.7	0.4	16 IR 0.4 ISO	16 IL 0.4 ISO	0.8	0.4
0.45	16	3/8	16 ER 0.45 ISO	16 EL 0.45 ISO	0.7	0.4	16 IR 0.45 ISO	16 IL 0.45 ISO	0.8	0.4
0.5	16	3/8	16 ER 0.5 ISO	16 EL 0.5 ISO	0.6	0.6	16 IR 0.5 ISO	16 IL 0.5 ISO	0.6	0.6
0.6	16	3/8	16 ER 0.6 ISO	16 EL 0.6 ISO	0.6	0.6	16 IR 0.6 ISO	16 IL 0.6 ISO	0.6	0.6
0.7	16	3/8	16 ER 0.7 ISO	16 EL 0.7 ISO	0.6	0.6	16 IR 0.7 ISO	16 IL 0.7 ISO	0.6	0.6
0.75	16	3/8	16 ER 0.75 ISO	16 EL 0.75 ISO	0.6	0.6	16 IR 0.75 ISO	16 IL 0.75 ISO	0.6	0.6
0.8	16	3/8	16 ER 0.8 ISO	16 EL 0.8 ISO	0.6	0.6	16 IR 0.8 ISO	16 IL 0.8 ISO	0.6	0.6
1.0	16	3/8	16 ER 1.0 ISO	16 EL 1.0 ISO	0.7	0.7	16 IR 1.0 ISO	16 IL 1.0 ISO	0.6	0.7
1.25	16	3/8	16 ER 1.25 ISO	16 EL 1.25 ISO	0.8	0.9	16 IR 1.25 ISO	16 IL 1.25 ISO	0.8	0.9
1.5	16	3/8	16 ER 1.5 ISO	16 EL 1.5 ISO	0.8	1.0	16 IR 1.5 ISO	16 IL 1.5 ISO	0.8	1.0
1.75	16	3/8	16 ER 1.75 ISO	16 EL 1.75 ISO	0.9	1.2	16 IR 1.75 ISO	16 IL 1.75 ISO	0.9	1.2
2.0	16	3/8	16 ER 2.0 ISO	16 EL 2.0 ISO	1.0	1.3	16 IR 2.0 ISO	16 IL 2.0 ISO	1.0	1.3
2.5	16	3/8	16 ER 2.5 ISO	16 EL 2.5 ISO	1.1	1.5	16 IR 2.5 ISO	16 IL 2.5 ISO	1.1	1.5
3.0	16	3/8	16 ER 3.0 ISO	16 EL 3.0 ISO	1.2	1.6	16 IR 3.0 ISO	16 IL 3.0 ISO	1.1	1.5
3.5	16	3/8	16 ER 3.5 ISO	16 EL 3.5 ISO	1.2	1.7	16 IR 3.5 ISO	16 IL 3.5 ISO	1.2	1.7

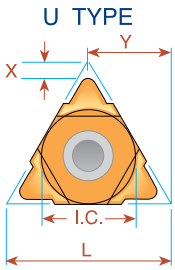
* Available only in BXC and BMA grades

ISO - metric





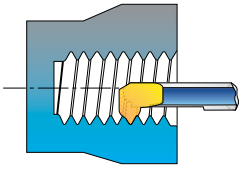


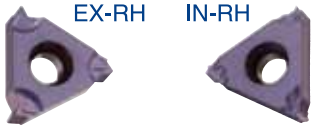


Pitch mm	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X	Y	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
3.5	22	1/2	22 ER 3.5 ISO	22 EL 3.5 ISO	1.6	2.3	22 IR 3.5 ISO	22 IL 3.5 ISO	1.6	2.3
4.0	22	1/2	22 ER 4.0 ISO	22 EL 4.0 ISO	1.6	2.3	22 IR 4.0 ISO	22 IL 4.0 ISO	1.6	2.3
4.5	22	1/2	22 ER 4.5 ISO	22 EL 4.5 ISO	1.7	2.4	22 IR 4.5 ISO	22 IL 4.5 ISO	1.6	2.4
5.0	22	1/2	22 ER 5.0 ISO	22 EL 5.0 ISO	1.7	2.5	22 IR 5.0 ISO	22 IL 5.0 ISO	1.6	2.3
5.5	22	1/2	22 ER 5.5 ISO	22 EL 5.5 ISO	1.7	2.6	22 IR 5.5 ISO	22 IL 5.5 ISO	1.6	2.3
6.0	22	1/2	**22 ER 6.0 ISO	**22 EL 6.0 ISO	1.9	2.7	22 IR 6.0 ISO	22 IL 6.0 ISO	1.6	2.4
5.5	22U	1/2U	22U ER/L 5.5 ISO		2.3	11.0	22U IR/L 5.5 ISO		2.4	11.0
6.0	22U	1/2U	22U ER/L 6.0 ISO		2.6	11.0	22U IR/L 6.0 ISO		2.1	11.0
5.5	27	5/8	27 ER 5.5 ISO	27 EL 5.5 ISO	1.9	2.7	27 IR 5.5 ISO	27 IL 5.5 ISO	1.6	2.3
6.0	27	5/8	27 ER 6.0 ISO	27 EL 6.0 ISO	2.0	2.9	27 IR 6.0 ISO	27 IL 6.0 ISO	1.8	2.5
8.0	27U	5/8U	27U ER/L 8.0 ISO		2.4	13.7	27U IR/L 8.0 ISO		2.4	13.7
12.0	33U	3/4U	33U ER/L 12.0 ISO		2.5	16.5	33U IR/L 12.0 ISO		3.5	16.9

Order example: 22 IR 3.5 ISO BMA

For small bore threading see page 83
** Special holder required





Type B

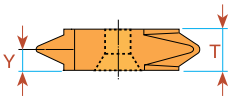
Ground Profile with Sintered Chip-breaker

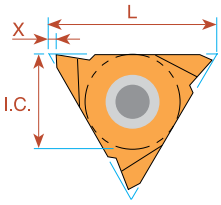
Pitch mm	L	I.C. in	EXTERNAL Ordering Code Right Hand	X	Y	INTERNAL Ordering Code Right Hand	X	Y
0.5	11	1/4				11 IR B 0.5 ISO	0.6	0.6
0.75	11	1/4				11 IR B 0.75 ISO	0.6	0.6
0.8	11	1/4				11 IR B 0.8 ISO	0.6	0.6
1.0	11	1/4				11 IR B 1.0 ISO	0.6	0.6
1.25	11	1/4				11 IR B 1.25 ISO	0.8	0.9
1.5	11	1/4				11 IR B 1.5 ISO	0.8	0.9
1.75	11	1/4				11 IR B 1.75 ISO	0.8	0.9
2.0	11	1/4				11 IR B 2.0 ISO	0.8	0.9
0.8	16	3/8	16 ER B 0.8 ISO	0.6	0.6			
1.0	16	3/8	16 ER B 1.0 ISO	0.7	0.7	16 IR B 1.0 ISO	0.6	0.7
1.25	16	3/8	16 ER B 1.25 ISO	0.8	0.9	16 IR B 1.25 ISO	0.8	0.9
1.5	16	3/8	16 ER B 1.5 ISO	0.8	1.0	16 IR B 1.5 ISO	0.8	1.0
1.75	16	3/8	16 ER B 1.75 ISO	0.9	1.2	16 IR B 1.75 ISO	0.9	1.2
2.0	16	3/8	16 ER B 2.0 ISO	1.0	1.3	16 IR B 2.0 ISO	1.0	1.3
2.5	16	3/8	16 ER B 2.5 ISO	1.1	1.5	16 IR B 2.5 ISO	1.1	1.5
3.0	16	3/8	16 ER B 3.0 ISO	1.2	1.6	16 IR B 3.0 ISO	1.1	1.5

Order example: 16 IR B 1.5 ISO BMA

For Carbide Grade and Cutting Speed see page 60-61

ISO - metric
Vertical



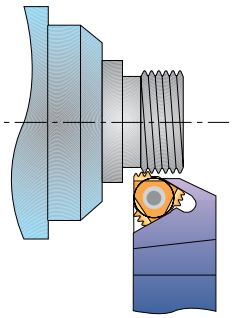


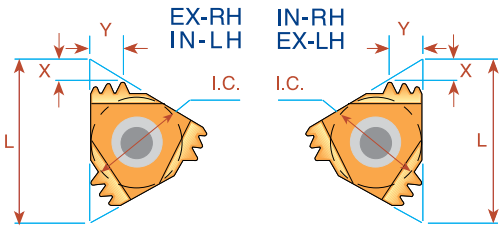
Pitch mm	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y	T
0.5	16	3/8	16V ER 0.5 ISO	16V EL 0.5 ISO			1.0	0.6	3.6
0.75	16	3/8	16V ER 0.75 ISO	16V EL 0.75 ISO			1.0	0.6	3.6
0.8	16	3/8	16V ER 0.8 ISO	16V EL 0.8 ISO			1.0	0.6	3.6
1.0	16	3/8	16V ER 1.0 ISO	16V EL 1.0 ISO			1.0	0.7	3.6
1.25	16	3/8	16V ER 1.25 ISO	16V EL 1.25 ISO			1.0	0.9	3.6
1.5	16	3/8	16V ER 1.5 ISO	16V EL 1.5 ISO			1.0	0.9	3.6
1.75	16	3/8	16V ER 1.75 ISO	16V EL 1.75 ISO			1.0	1.2	3.6
2.0	16	3/8	16V ER 2.0 ISO	16V EL 2.0 ISO			1.0	1.3	3.6
2.5	16	3/8	16V ER 2.5 ISO	16V EL 2.5 ISO			1.0	1.5	3.6
3.0	16	3/8	16V ER 3.0 ISO	16V EL 3.0 ISO			1.0	1.7	3.6
* 8.0	27	5/8	27V ER 8.0 ISO	27V EL 8.0 ISO	27V IR 8.0 ISO	27 IL 8.0 ISO	1.8	5.2	10.4
** 10.0	27	5/8	27V ER 10.0 ISO	27V EL 10.0 ISO	27V IR 10.0 ISO	27 IL 10.0 ISO	1.8	5.2	10.4

Order example: 16V ER 1.5 ISO BMA

* Minimum bore: Ø60 mm
** Minimum bore: Ø72 mm

Multitooth



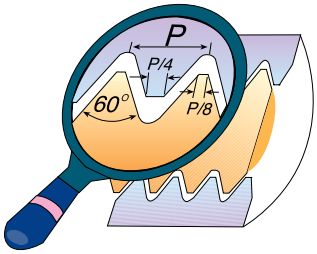


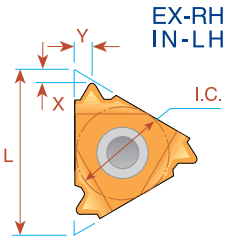
Pitch mm	L	I.C. in	Number of Teeth	EXTERNAL Ordering Code	Anvil	INTERNAL Ordering Code	Anvil	X	Y
1.0	16	3/8	3	16 ER 1.0 ISO 3M	AE16M	16 IR 1.0 ISO 3M	AI16M	1.7	2.5
1.5	16	3/8	2	16 ER 1.5 ISO 2M	AE16M	16 IR 1.5 ISO 2M	AI16M	1.5	2.3
1.5	22	1/2	3	22 ER 1.5 ISO 3M	AE22M	22 IR 1.5 ISO 3M	AI22M	2.3	3.7
2.0	22	1/2	2	22 ER 2.0 ISO 2M	AE22M	22 IR 2.0 ISO 2M	AI22M	2.0	3.0
2.0	22	1/2	3	22 ER 2.0 ISO 3M	AE22M	22 IR 2.0 ISO 3M	AI22M	3.1	5.0
3.0	27	5/8	2	27 ER 3.0 ISO 2M	AE27M	27 IR 3.0 ISO 2M	AI27M	2.9	4.6

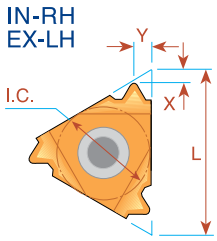
Order example: 22 IR 2.0 ISO 2M BMA
For recommended number of passes see page 62

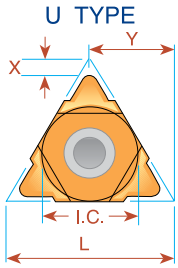
For Carbide Grade and Cutting Speed see page 60-61

UN - Unified UNC, UNF, UNEF, UNS







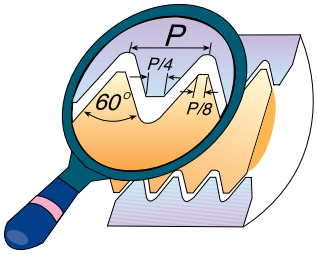


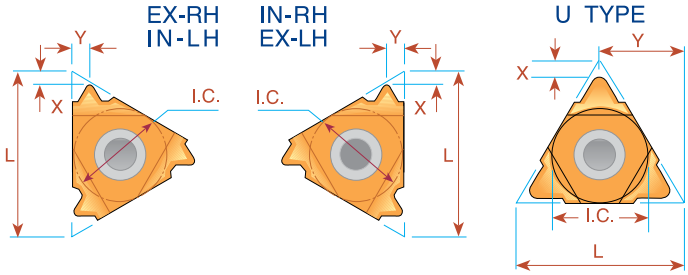
Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X	Y	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
32	6	5/32					*06 IR 32 UN	*06 IL 32 UN	0.8	0.5
28	6	5/32					*06 IR 28 UN	*06 IL 28 UN	0.8	0.6
24	6	5/32	*ULTRA MINIATURE* →				*06 IR 24 UN	*06 IL 24 UN	0.7	0.6
20	6	5/32					*06 IR 20 UN	*06 IL 20 UN	0.6	0.6
18	6	5/32					*06 IR 18 UN	*06 IL 18 UN	0.6	0.7
32	8	3/16					*08 IR 32 UN	*08 IL 32 UN	0.6	0.5
28	8	3/16					*08 IR 28 UN	*08 IL 28 UN	0.6	0.6
24	8	3/16					*08 IR 24 UN	*08 IL 24 UN	0.6	0.6
20	8	3/16	*MINIATURE* →				*08 IR 20 UN	*08 IL 20 UN	0.6	0.7
18	8	3/16					*08 IR 18 UN	*08 IL 18 UN	0.6	0.7
16	8	3/16					*08 IR 16 UN	*08 IL 16 UN	0.6	0.7
14	8	3/16					*08 IR 14 UN	*08 IL 14 UN	0.6	0.8
13	8	3/16					**08 IR 13 UN		0.8	0.9
13	8U	3/16U					*08U IR/L 13 UN		1.0	4.0
12	8U	3/16U	*"U" MINIATURE* →				*08U IR/L 12 UN		0.9	4.0
11	8U	3/16U					*08U IR/L 11 UN		0.9	4.0
72	11	1/4	11 ER 72 UN	11 EL 72 UN	0.8	0.4	11 IR 72 UN	11 IL 72 UN	0.8	0.3
64	11	1/4	11 ER 64 UN	11 EL 64 UN	0.8	0.4	11 IR 64 UN	11 IL 64 UN	0.8	0.4
56	11	1/4	11 ER 56 UN	11 EL 56 UN	0.7	0.4	11 IR 56 UN	11 IL 56 UN	0.7	0.4
48	11	1/4	11 ER 48 UN	11 EL 48 UN	0.6	0.6	11 IR 48 UN	11 IL 48 UN	0.6	0.6
44	11	1/4	11 ER 44 UN	11 EL 44 UN	0.6	0.6	11 IR 44 UN	11 IL 44 UN	0.6	0.6
40	11	1/4	11 ER 40 UN	11 EL 40 UN	0.6	0.6	11 IR 40 UN	11 IL 40 UN	0.6	0.6
36	11	1/4	11 ER 36 UN	11 EL 36 UN	0.6	0.6	11 IR 36 UN	11 IL 36 UN	0.6	0.6
32	11	1/4	11 ER 32 UN	11 EL 32 UN	0.6	0.6	11 IR 32 UN	11 IL 32 UN	0.6	0.6
28	11	1/4	11 ER 28 UN	11 EL 28 UN	0.6	0.7	11 IR 28 UN	11 IL 28 UN	0.6	0.7
27	11	1/4	11 ER 27 UN	11 EL 27 UN	0.7	0.8	11 IR 27 UN	11 IL 27 UN	0.7	0.8
24	11	1/4	11 ER 24 UN	11 EL 24 UN	0.7	0.8	11 IR 24 UN	11 IL 24 UN	0.7	0.8
20	11	1/4	11 ER 20 UN	11 EL 20 UN	0.8	0.9	11 IR 20 UN	11 IL 20 UN	0.8	0.9
18	11	1/4	11 ER 18 UN	11 EL 18 UN	0.8	1.0	11 IR 18 UN	11 IL 18 UN	0.8	1.0
16	11	1/4	11 ER 16 UN	11 EL 16 UN	0.9	1.1	11 IR 16 UN	11 IL 16 UN	0.9	1.1
14	11	1/4	11 ER 14 UN	11 EL 14 UN	0.9	1.1	11 IR 14 UN	11 IL 14 UN	0.9	1.1
13	11	1/4					11 IR 13 UN	11 IL 13 UN	0.8	1.0
12	11	1/4					11 IR 12 UN	11 IL 12 UN	0.9	1.1
11	11	1/4					11 IR 11 UN	11 IL 11 UN	0.8	1.1
72	16	3/8	16 ER 72 UN	16 EL 72 UN	0.8	0.4	16 IR 72 UN	16 IL 72 UN	0.8	0.3
64	16	3/8	16 ER 64 UN	16 EL 64 UN	0.8	0.4	16 IR 64 UN	16 IL 64 UN	0.8	0.4
56	16	3/8	16 ER 56 UN	16 EL 56 UN	0.7	0.4	16 IR 56 UN	16 IL 56 UN	0.7	0.4
48	16	3/8	16 ER 48 UN	16 EL 48 UN	0.6	0.6	16 IR 48 UN	16 IL 48 UN	0.6	0.6
44	16	3/8	16 ER 44 UN	16 EL 44 UN	0.6	0.6	16 IR 44 UN	16 IL 44 UN	0.6	0.6
40	16	3/8	16 ER 40 UN	16 EL 40 UN	0.6	0.6	16 IR 40 UN	16 IL 40 UN	0.6	0.6
36	16	3/8	16 ER 36 UN	16 EL 36 UN	0.6	0.6	16 IR 36 UN	16 IL 36 UN	0.6	0.6

* Available only in BXC and BMA grades

** To be used with Holder SIR 0009 K08 on page 47

UN - Unified UNC, UNF, UNEF, UNS

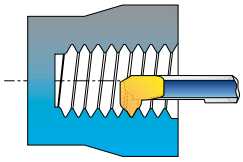




Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X	Y	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
32	16	3/8	16 ER 32 UN	16 EL 32 UN	0.6	0.6	16 IR 32 UN	16 IL 32 UN	0.6	0.6
28	16	3/8	16 ER 28 UN	16 EL 28 UN	0.6	0.7	16 IR 28 UN	16 IL 28 UN	0.6	0.7
27	16	3/8	16 ER 27 UN	16 EL 27 UN	0.7	0.8	16 IR 27 UN	16 IL 27 UN	0.7	0.8
24	16	3/8	16 ER 24 UN	16 EL 24 UN	0.7	0.8	16 IR 24 UN	16 IL 24 UN	0.7	0.8
20	16	3/8	16 ER 20 UN	16 EL 20 UN	0.8	0.9	16 IR 20 UN	16 IL 20 UN	0.8	0.9
18	16	3/8	16 ER 18 UN	16 EL 18 UN	0.8	1.0	16 IR 18 UN	16 IL 18 UN	0.8	1.0
16	16	3/8	16 ER 16 UN	16 EL 16 UN	0.9	1.1	16 IR 16 UN	16 IL 16 UN	0.9	1.1
14	16	3/8	16 ER 14 UN	16 EL 14 UN	1.0	1.2	16 IR 14 UN	16 IL 14 UN	0.9	1.2
13	16	3/8	16 ER 13 UN	16 EL 13 UN	1.0	1.3	16 IR 13 UN	16 IL 13 UN	1.0	1.3
12	16	3/8	16 ER 12 UN	16 EL 12 UN	1.1	1.4	16 IR 12 UN	16 IL 12 UN	1.1	1.4
11.5	16	3/8	16 ER 11.5 UN	16 EL 11.5 UN	1.1	1.5	16 IR 11.5 UN	16 IL 11.5 UN	1.1	1.5
11	16	3/8	16 ER 11 UN	16 EL 11 UN	1.1	1.5	16 IR 11 UN	16 IL 11 UN	1.1	1.5
10	16	3/8	16 ER 10 UN	16 EL 10 UN	1.1	1.5	16 IR 10 UN	16 IL 10 UN	1.1	1.5
9	16	3/8	16 ER 9 UN	16 EL 9 UN	1.2	1.7	16 IR 9 UN	16 IL 9 UN	1.2	1.7
8	16	3/8	16 ER 8 UN	16 EL 8 UN	1.2	1.6	16 IR 8 UN	16 IL 8 UN	1.1	1.5
7	22	1/2	22 ER 7 UN	22 EL 7 UN	1.6	2.3	22 IR 7 UN	22 IL 7 UN	1.6	2.3
6	22	1/2	22 ER 6 UN	22 EL 6 UN	1.6	2.3	22 IR 6 UN	22 IL 6 UN	1.6	2.3
5	22	1/2	22 ER 5 UN	22 EL 5 UN	1.7	2.5	22 IR 5 UN	22 IL 5 UN	1.6	2.3
4.5	22U	1/2U	22U ER/L 4.5 UN		2.0	11.0	22U IR/L 4.5 UN		2.4	11.0
4	22U	1/2U	22U ER/L 4 UN		2.0	11.0	22U IR/L 4 UN		2.4	11.0
4.5	27	5/8	27 ER 4.5 UN	27 EL 4.5 UN	1.9	2.7	27 IR 4.5 UN	27 IL 4.5 UN	1.7	2.4
4	27	5/8	27 ER 4 UN	27 EL 4 UN	2.1	3.0	27 IR 4 UN	27 IL 4 UN	1.8	2.7
3	27U	5/8U	27U ER/L 3 UN		2.5	13.7	27U IR/L 3 UN		2.7	13.7
2	33U	3/4U	33U ER/L 2 UN		2.8	16.5	27U IR/L 2 UN		3.6	16.9

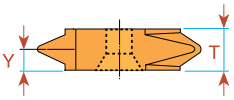
Order example: 22ER 7 UN BMA

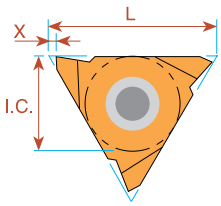
For small bore threading see page 83



For Carbide Grade and Cutting Speed see page 60-61

UN - Unified
Vertical



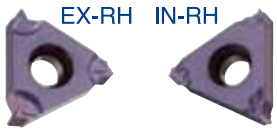


Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y	T
32	16	3/8	16V ER 32 UN	16V EL 32 UN			1.0	0.6	3.6
28	16	3/8	16V ER 28 UN	16V EL 28 UN			1.0	0.7	3.6
24	16	3/8	16V ER 24 UN	16V EL 24 UN			1.0	0.8	3.6
20	16	3/8	16V ER 20 UN	16V EL 20 UN			1.0	0.9	3.6
18	16	3/8	16V ER 18 UN	16V EL 18 UN			1.0	1.0	3.6
16	16	3/8	16V ER 16 UN	16V EL 16 UN			1.0	1.1	3.6
14	16	3/8	16V ER 14 UN	16V EL 14 UN			1.0	1.2	3.6
12	16	3/8	16V ER 12 UN	16V EL 12 UN			1.0	1.4	3.6
10	16	3/8	16V ER 10 UN	16V EL 10 UN			1.0	1.5	3.6
8	16	3/8	16V ER 8 UN	16V EL 8 UN			1.0	1.6	3.6
7	22	1/2	22V ER 7 UN	22V EL 7 UN			1.2	2.3	4.8
* 3	27	5/8	27V ER 3 UN	27V EL 3 UN	27V IR 3 UN	27 IL 3 UN	1.8	5.2	10.4

Order example: 22V ER 7UN MXC

* Minimum bore: Ø65 mm

UN - Unified UNC, UNF, UNEF, UNS
Type B

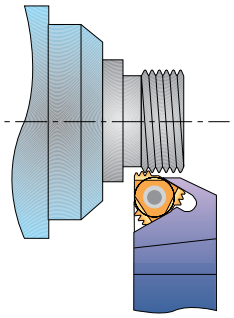


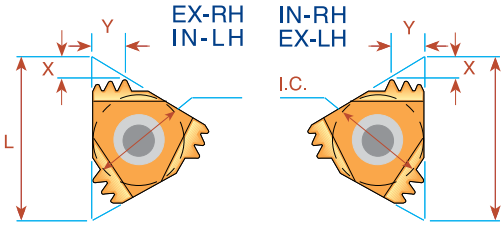
Ground Profile with Sintered Chip-breaker

Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	X	Y	INTERNAL Ordering Code Right Hand	X	Y
32	11	1/4				11 IR B 32 UN	0.6	0.6
28	11	1/4				11 IR B 28 UN	0.6	0.6
24	11	1/4				11 IR B 24 UN	0.6	0.6
20	11	1/4				11 IR B 20 UN	0.8	0.9
18	11	1/4				11 IR B 18 UN	0.8	0.9
16	11	1/4				11 IR B 16 UN	0.8	0.9
14	11	1/4				11 IR B 14 UN	0.8	0.9
12	11	1/4				11 IR B 12 UN	0.8	0.9
24	16	3/8	16 ER B 24 UN	0.7	0.8	16 IR B 24 UN	0.7	0.8
20	16	3/8	16 ER B 20 UN	0.8	0.9	16 IR B 20 UN	0.8	0.9
18	16	3/8	16 ER B 18 UN	0.8	1.0	16 IR B 18 UN	0.8	1.0
16	16	3/8	16 ER B 16 UN	0.9	1.1	16 IR B 16 UN	0.9	1.1
14	16	3/8	16 ER B 14 UN	1.0	1.2	16 IR B 14 UN	0.9	1.2
13	16	3/8	16 ER B 13 UN	1.0	1.3			
12	16	3/8	16 ER B 12 UN	1.1	1.4	16 IR B 12 UN	1.1	1.4
11	16	3/8	16 ER B 11 UN	1.1	1.5			
10	16	3/8	16 ER B 10 UN	1.1	1.5	16 IR B 10 UN	1.1	1.5
9	16	3/8	16 ER B 9 UN	1.2	1.7			
8	16	3/8	16 ER B 8 UN	1.2	1.6	16 IR B 8 UN	1.1	1.1

Order example: 16 IR B 12 UN BMA

Multitooth





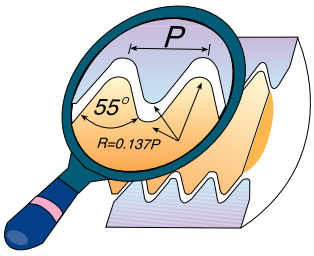
Pitch TPI	L	I.C. in	Number of Teeth	EXTERNAL Ordering Code	Anvil	INTERNAL Ordering Code	Anvil	X	Y
24	16	3/8	2	**16 ER 24 UN 2M**	AE16M	**16 IR 24 UN 2M**	AI16M	1.1	1.7
20	16	3/8	2	**16 ER 20 UN 2M**	AE16M	**16 IR 20 UN 2M**	AI16M	1.4	2.0
18	16	3/8	2	**16 ER 18 UN 2M**	AE16M	**16 IR 18 UN 2M**	AI16M	1.5	2.2
16	16	3/8	2	**16 ER 16 UN 2M**	AE16M	**16 IR 16 UN 2M**	AI16M	1.5	2.3
14	16	3/8	2	**16 ER 14 UN 2M**	AE16M	**16 IR 14 UN 2M**	AI16M	1.7	2.7
12	16	3/8	2	**16 ER 12 UN 2M**	AE16M	**16 IR 12 UN 2M**	AI16M	2.0	3.1
16	22	1/2	3	**22 ER 16 UN 3M**	AE22M	**22 IR 16 UN 3M**	AI22M	2.5	4.0
13	22	1/2	3	**22 ER 13 UN 3M**	AE22M	-		3.0	4.9
12	22	1/2	2	**22 ER 12 UN 2M**	AE22M	**22 IR 12 UN 2M**	AI22M	2.2	3.4
12	22	1/2	3	**22 ER 12 UN 3M**	AE22M	**22 IR 12 UN 3M**	AI22M	3.3	5.3
8	27	5/8	2	**27 ER 8 UN 2M**	AE27M	**27 IR 8 UN 2M**	AI27M	3.1	4.9

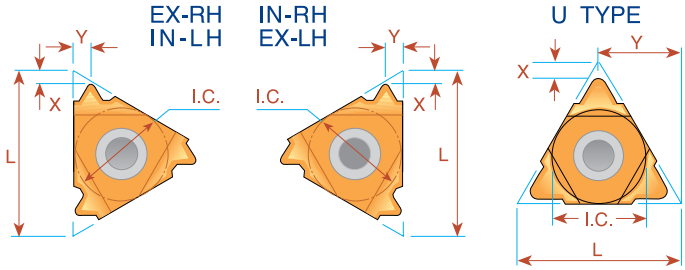
Order example: 22 IR 16 UN 3M BMA

For recommended number of passes see page 62

For Carbide Grade and Cutting Speed see page 60-61

Whitworth - 55° BSW, BSF, BSP, BSB



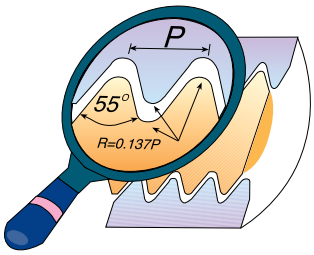


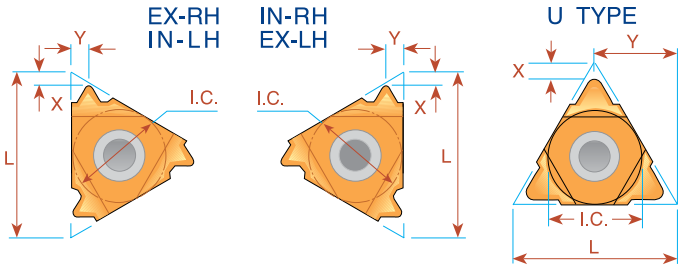
Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
26	6	5/32			*06 IR 26 W	*06 IL 26 W	0.7	0.6
22	6	5/32	*ULTRA MINIATURE* →		*06 IR 22 W	*06 IL 22 W	0.6	0.6
20	6	5/32			*06 IR 20 W	*06 IL 20 W	0.6	0.7
18	6	5/32			*06 IR 18 W	*06 IL 18 W	0.6	0.7
28	8	3/16			*08 IR 28 W	*08 IL 28 W	0.6	0.6
24	8	3/16			*08 IR 24 W	*08 IL 24 W	0.6	0.6
20	8	3/16			*08 IR 20 W	*08 IL 20 W	0.6	0.7
19	8	3/16	*MINIATURE* →		*08 IR 19 W	*08 IL 19 W	0.6	0.7
18	8	3/16			*08 IR 18 W	*08 IL 18 W	0.6	0.7
16	8	3/16			*08 IR 16 W	*08 IL 16 W	0.6	0.7
14	8U	3/16U			*08U IR/L 14 W		1.0	4.0
12	8U	3/16U	*"U" MINIATURE* →		*08U IR/L 12 W		0.9	4.0
11	8U	3/16U			*08U IR/L 11 W		0.9	4.0
72	11	1/4	11 ER 72 W	11 EL 72 W	11 IR 72 W	11 IL 72 W	0.7	0.4
60	11	1/4	11 ER 60 W	11 EL 60 W	11 IR 60 W	11 IL 60 W	0.7	0.4
56	11	1/4	11 ER 56 W	11 EL 56 W	11 IR 56 W	11 IL 56 W	0.7	0.4
48	11	1/4	11 ER 48 W	11 EL 48 W	11 IR 48 W	11 IL 48 W	0.6	0.6
40	11	1/4	11 ER 40 W	11 EL 40 W	11 IR 40 W	11 IL 40 W	0.6	0.6
36	11	1/4	11 ER 36 W	11 EL 36 W	11 IR 36 W	11 IL 36 W	0.6	0.6
32	11	1/4	11 ER 32 W	11 EL 32 W	11 IR 32 W	11 IL 32 W	0.6	0.6
28	11	1/4	11 ER 28 W	11 EL 28 W	11 IR 28 W	11 IL 28 W	0.6	0.7
26	11	1/4	11 ER 26 W	11 EL 26 W	11 IR 26 W	11 IL 26 W	0.7	0.7
24	11	1/4	11 ER 24 W	11 EL 24 W	11 IR 24 W	11 IL 24 W	0.7	0.8
22	11	1/4	11 ER 22 W	11 EL 22 W	11 IR 22 W	11 IL 22 W	0.8	0.9
20	11	1/4	11 ER 20 W	11 EL 20 W	11 IR 20 W	11 IL 20 W	0.8	0.9
19	11	1/4	11 ER 19 W	11 EL 19 W	11 IR 19 W	11 IL 19 W	0.8	1.0
18	11	1/4	11 ER 18 W	11 EL 18 W	11 IR 18 W	11 IL 18 W	0.8	1.0
16	11	1/4	11 ER 16 W	11 EL 16 W	11 IR 16 W	11 IL 16 W	0.9	1.1
14	11	1/4	11 ER 14 W	11 EL 14 W	11 IR 14 W	11 IL 14 W	0.9	1.1
12	11	1/4			11 IR 12 W	11 IL 12 W	0.1	1.1
11	11	1/4			(1) 11 IR 11 W	(1) 11 IL 11 W	0.9	1.2
72	16	3/8	16 ER 72 W	16 EL 72 W	16 IR 72 W	16 IL 72 W	0.7	0.4
60	16	3/8	16 ER 60 W	16 EL 60 W	16 IR 60 W	16 IL 60 W	0.7	0.4
56	16	3/8	16 ER 56 W	16 EL 56 W	16 IR 56 W	16 IL 56 W	0.7	0.4
48	16	3/8	16 ER 48 W	16 EL 48 W	16 IR 48 W	16 IL 48 W	0.6	0.6
40	16	3/8	16 ER 40 W	16 EL 40 W	16 IR 40 W	16 IL 40 W	0.6	0.6
36	16	3/8	16 ER 36 W	16 EL 36 W	16 IR 36 W	16 IL 36 W	0.6	0.6
32	16	3/8	16 ER 32 W	16 EL 32 W	16 IR 32 W	16 IL 32 W	0.6	0.6
28	16	3/8	16 ER 28 W	16 EL 28 W	16 IR 28 W	16 IL 28 W	0.6	0.7
26	16	3/8	16 ER 26 W	16 EL 26 W	16 IR 26 W	16 IL 26 W	0.7	0.7
24	16	3/8	16 ER 24 W	16 EL 24 W	16 IR 24 W	16 IL 24 W	0.7	0.8

* Available only in BXC and BMA grades

(1) Special holder is required or standard holder can be amended by customer.

Whitworth - 55° BSW, BSF, BSP, BSB





Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
22	16	3/8	16 ER 22 W	16 EL 22 W	16 IR 22 W	16 IL 22 W	0.8	0.9
20	16	3/8	16 ER 20 W	16 EL 20 W	16 IR 20 W	16 IL 20 W	0.8	0.9
19	16	3/8	16 ER 19 W	16 EL 19 W	16 IR 19 W	16 IL 19 W	0.8	1.0
18	16	3/8	16 ER 18 W	16 EL 18 W	16 IR 18 W	16 IL 18 W	0.8	1.0
16	16	3/8	16 ER 16 W	16 EL 16 W	16 IR 16 W	16 IL 16 W	0.9	1.1
14	16	3/8	16 ER 14 W	16 EL 14 W	16 IR 14 W	16 IL 14 W	1.0	1.2
12	16	3/8	16 ER 12 W	16 EL 12 W	16 IR 12 W	16 IL 12 W	1.1	1.4
11	16	3/8	16 ER 11 W	16 EL 11 W	16 IR 11 W	16 IL 11 W	1.1	1.5
10	16	3/8	16 ER 10 W	16 EL 10 W	16 IR 10 W	16 IL 10 W	1.1	1.5
9	16	3/8	16 ER 9 W	16 EL 9 W	16 IR 9 W	16 IL 9 W	1.2	1.7
8	16	3/8	16 ER 8 W	16 EL 8 W	16 IR 8 W	16 IL 8 W	1.2	1.5
7	22	1/2	22 ER 7 W	22 EL 7 W	22 IR 7 W	22 IL 7 W	1.6	2.3
6	22	1/2	22 ER 6 W	22 EL 6 W	22 IR 6 W	22 IL 6 W	1.6	2.3
5	22	1/2	22 ER 5 W	22 EL 5 W	22 IR 5 W	22 IL 5 W	1.7	2.4
4.5	22U	1/2U	22U E/I/R/L 4.5 W				2.3	11.0
4	22U	1/2U	22U E/I/R/L 4 W				2.8	11.0
4.5	27	5/8	27 ER 4.5 W	27 EL 4.5 W	27 IR 4.5 W	27 IL 4.5 W	1.8	2.6
4	27	5/8	27 ER 4 W	27 EL 4 W	27 IR 4 W	27 IL 4 W	2.0	2.9
3.5	27U	5/8U	27U E/I/R/L 3.5 W				2.1	13.7
3.25	27U	5/8U	27U E/I/R/L 3.25 W				2.0	13.7
3	27U	5/8U	27U E/I/R/L 3 W				2.3	13.7
2.75	27U	5/8U	27U E/I/R/L 2.75 W				2.4	13.7

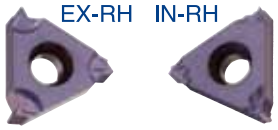
Order example: 16 IR 18 W BMA

For Carbide Grade and Cutting Speed see page 60-61

Whitworth - 55° BSW, BSF, BSP, BSB

Type B

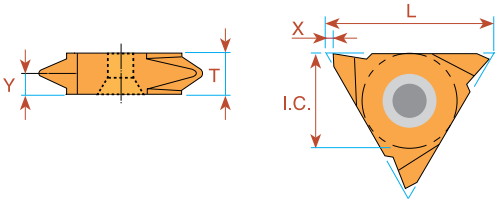
Ground Profile with Sintered Chip-breaker



Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y
28	11	1/4		11 IR B 28 W	0.6	0.6
24	11	1/4		11 IR B 24 W	0.6	0.6
20	11	1/4		11 IR B 20 W	0.8	0.9
19	11	1/4		11 IR B 19 W	0.8	0.9
18	11	1/4		11 IR B 18 W	0.8	0.9
16	11	1/4		11 IR B 16 W	0.8	0.9
14	11	1/4		11 IR B 14 W	0.8	0.9
19	16	3/8	16 ER B 19 W	16 IR B 19 W	0.8	1.0
16	16	3/8	16 ER B 16 W	16 IR B 16 W	0.9	1.1
14	16	3/8	16 ER B 14 W	16 IR B 14 W	1.0	1.2
11	16	3/8	16 ER B 11 W	16 IR B 11 W	1.1	1.5
10	16	3/8	16 ER B 10 W	16 IR B 10 W	1.1	1.5

Order example: 16 IR B 10 W BMA

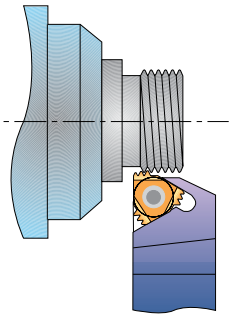
Vertical

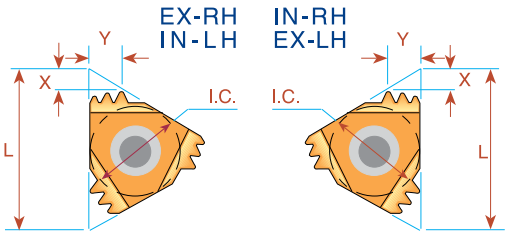


Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X	Y	T
20	16	3/8	16V ER 20 W	16V EL 20 W	1.0	0.9	3.6
19	16	3/8	16V ER 19 W	16V EL 19 W	1.0	0.9	3.6
18	16	3/8	16V ER 18 W	16V EL 18 W	1.0	1.0	3.6
16	16	3/8	16V ER 16 W	16V EL 16 W	1.0	1.0	3.6
14	16	3/8	16V ER 14 W	16V EL 14 W	1.0	1.2	3.6
12	16	3/8	16V ER 12 W	16V EL 12 W	1.0	1.4	3.6
11	16	3/8	16V ER 11 W	16V EL 11 W	1.0	1.5	3.6

Order example: 16V ER 14 W MXC

Multitooth





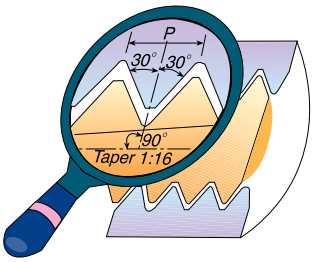
Pitch TPI	L	I.C. in	Number of Teeth	EXTERNAL Ordering Code	Anvil	INTERNAL Ordering Code	Anvil	X	Y
14	16	3/8	2	**16 ER 14 W 2M**	AE16M	**16 IR 14 W 2M**	AI16M	1.7	2.7
14	22	1/2	3	**22 ER 14 W 3M**	AE22M	**22 IR 14 W 3M**	AI22M	2.8	4.5
11	22	1/2	2	**22 ER 11 W 2M**	AE22M	**22 IR 11 W 2M**	AI22M	2.3	3.4

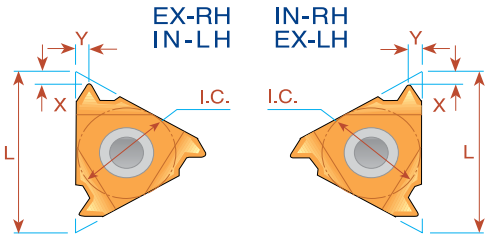
Order example: 16 ER 14 W 2M MXC

For recommended number of passes see page 62

For Carbide Grade and Cutting Speed see page 60-61

NPT



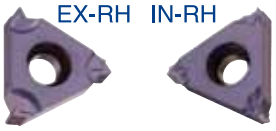


Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
27	6	5/32	*ULTRA MINIATURE* →		*06 IR 27 NPT	*06 IL 27 NPT	0.6	0.6
27	8	3/16			*08 IR 27 NPT	*08 IL 27 NPT	0.6	0.6
18	8	3/16	*MINIATURE* →		*08 IR 18 NPT	*08 IL 18 NPT	0.6	0.6
27	11	1/4	11 ER 27 NPT	11 EL 27 NPT	11 IR 27 NPT	11 IL 27 NPT	0.7	0.8
18	11	1/4	11 ER 18 NPT	11 EL 18 NPT	11 IR 18 NPT	11 IL 18 NPT	0.8	1.0
14	11	1/4	11 ER 14 NPT	11 EL 14 NPT	11 IR 14 NPT	11 IL 14 NPT	0.8	1.0
27	16	3/8	16 ER 27 NPT	16 EL 27 NPT	16 IR 27 NPT	16 IL 27 NPT	0.7	0.8
18	16	3/8	16 ER 18 NPT	16 EL 18 NPT	16 IR 18 NPT	16 IL 18 NPT	0.8	1.0
14	16	3/8	16 ER 14 NPT	16 EL 14 NPT	16 IR 14 NPT	16 IL 14 NPT	0.9	1.2
11.5	16	3/8	16 ER 11.5 NPT	16 EL 11.5 NPT	16 IR 11.5 NPT	16 IL 11.5 NPT	1.1	1.5
8	16	3/8	16 ER 8 NPT	16 EL 8 NPT	16 IR 8 NPT	16 IL 8 NPT	1.3	1.8

Order example: 16 ER 14 NPT MXC
* Available only in BXC and BMA grades

Type B

Ground Profile with Sintered Chip-breaker

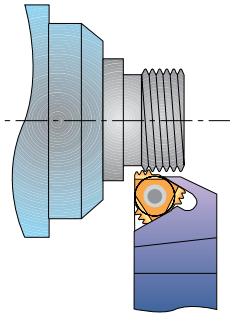


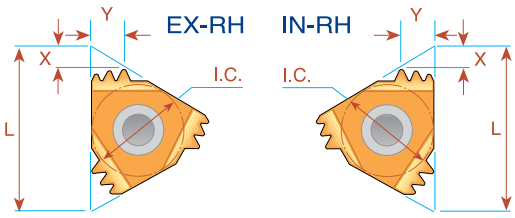
Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y
18	11	1/4		11 IR B 18 NPT	0.8	0.9
18	16	3/8	16 ER B 18 NPT	16 IR B 18 NPT	0.8	1.0
14	16	3/8	16 ER B 14 NPT	16 IR B 14 NPT	0.9	1.2
11.5	16	3/8	16 ER B 11.5 NPT	16 IR B 11.5 NPT	1.1	1.5
8	16	3/8	16 ER B 8 NPT	16 IR B 8 NPT	1.3	1.8

Order example: 16 IR B 11.5 NPT BMA

For Carbide Grade and Cutting Speed see page 60-61

NPT
Multitooth



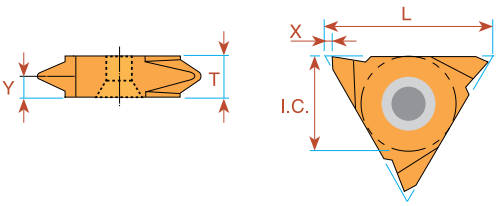


Pitch TPI	L	I.C. in	Number of Teeth	EXTERNAL Ordering Code	Anvil	INTERNAL Ordering Code	Anvil	X	Y
14	16	3/8	2	**16 ER 14 NPT 2M**	AE16M	**16 IR 14 NPT 2M**	AI16M	1.7	2.8
11.5	22	1/2	2	**22 ER 11.5 NPT 2M**	AE22M	**22 IR 11.5 NPT 2M**	AI22M	2.3	3.5
11.5	27	5/8	3	**27 ER 11.5 NPT 3M**	AE27M	**27 IR 11.5 NPT 3M**	AI27M	3.3	5.5
8	27	5/8	2	**27 ER 8 NPT 2M**	AE27M	**27 IR 8 NPT 2M**	AI27M	3.1	5.0

Order example: 22 ER 11.5 NPT 2M MXC

For recommended number of passes see page 62

NPT
Vertical

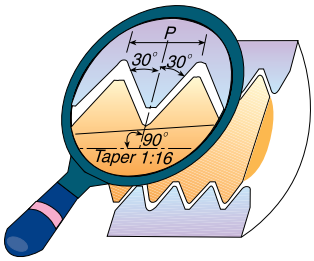


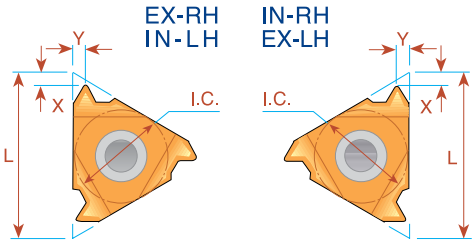
Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X	Y	T
27	16	3/8	**16V ER 27 NPT**	**16V EL 27 NPT**	1.0	0.8	3.6
18	16	3/8	**16V ER 18 NPT**	**16V EL 18 NPT**	1.0	1.0	3.6
14	16	3/8	**16V ER 14 NPT**	**16V EL 14 NPT**	1.0	1.2	3.6
11.5	16	3/8	**16V ER 11.5 NPT**	**16V EL 11.5 NPT**	1.0	1.5	3.6

Order example: 16V ER 14 NPT BMA

For Carbide Grade and Cutting Speed see page 60-61

NPTF - Dryseal





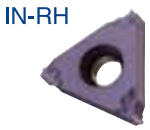
Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
27	6	5/32	ULTRA MINIATURE →		*06 IR 27 NPTF	*06 IL 27 NPTF	0.7	0.6
27	8	3/16			*08 IR 27 NPTF	*08 IL 27 NPTF	0.6	0.6
18	8	3/16	MINIATURE →		*08 IR 18 NPTF	*08 IL 18 NPTF	0.6	0.6
27	11	1/4	11 ER 27 NPTF	11 EL 27 NPTF	11 IR 27 NPTF	11 IL 27 NPTF	0.7	0.7
18	11	1/4	11 ER 18 NPTF	11 EL 18 NPTF	11 IR 18 NPTF	11 IL 18 NPTF	0.8	1.0
14	11	1/4	11 ER 14 NPTF	11 EL 14 NPTF	11 IR 14 NPTF	11 IL 14 NPTF	0.8	1.0
27	16	3/8	16 ER 27 NPTF	16 EL 27 NPTF	16 IR 27 NPTF	16 IL 27 NPTF	0.7	0.7
18	16	3/8	16 ER 18 NPTF	16 EL 18 NPTF	16 IR 18 NPTF	16 IL 18 NPTF	0.8	1.0
14	16	3/8	16 ER 14 NPTF	16 EL 14 NPTF	16 IR 14 NPTF	16 IL 14 NPTF	0.9	1.2
11.5	16	3/8	16 ER 11.5 NPTF	16 EL 11.5 NPTF	16 IR 11.5 NPTF	16 IL 11.5 NPTF	1.1	1.5
8	16	3/8	16 ER 8 NPTF	16 EL 8 NPTF	16 IR 8 NPTF	16 IL 8 NPTF	1.3	1.8

Order example: 11 ER 27 NPTF MXC
* Available only in BXC and BMA grades

Type B

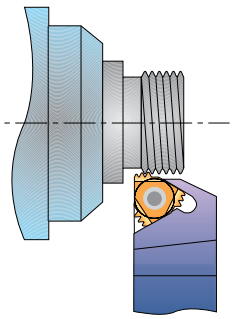
Ground Profile with Sintered Chip-breaker

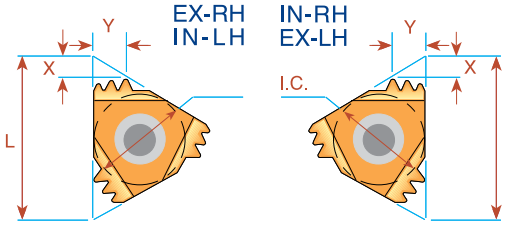
Pitch TPI	L	I.C. in	INTERNAL Ordering Code Right Hand	X	Y
18	11	1/4	11 IR B 18 NPTF	0.8	0.9



For Carbide Grade and Cutting Speed see page 60-61

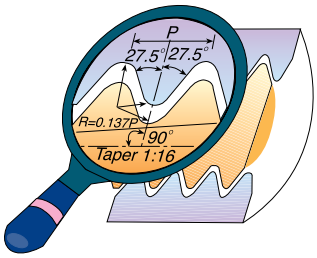
Multitooth

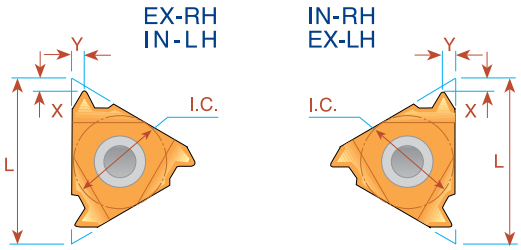




Pitch TPI	L	I.C. in	Number of Teeth	EXTERNAL Ordering Code	Anvil	INTERNAL Ordering Code	Anvil	X	Y
11.5	22	1/2	2	22 ER 11.5 NPTF 2M	AE22M	22 IR 11.5 NPTF 2M	AI22M	2.3	3.5

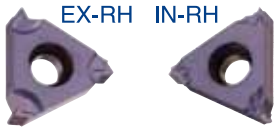
BSPT





Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
28	6	5/32	*ULTRA MINIATURE* →		*06 IR 28 BSPT	*06 IL 28 BSPT	0.7	0.6
28	8	3/16			*08 IR 28 BSPT	*08 IL 28 BSPT	0.6	0.6
19	8	3/16	*MINIATURE* →		*08 IR 19 BSPT	*08 IL 19 BSPT	0.6	0.6
28	11	1/4			11 IR 28 BSPT	11 IL 28 BSPT	0.6	0.6
19	11	1/4			11 IR 19 BSPT	11 IL 19 BSPT	0.8	0.9
14	11	1/4			11 IR 14 BSPT	11 IL 14 BSPT	0.9	1.0
11	11	1/4			(1) 11 IR 11 BSPT	(1) 11 IL 11 BSPT	0.9	1.2
28	16	3/8	16 ER 28 BSPT	16 EL 28 BSPT	16 IR 28 BSPT	16 IL 28 BSPT	0.6	0.6
19	16	3/8	16 ER 19 BSPT	16 EL 19 BSPT	16 IR 19 BSPT	16 IL 19 BSPT	0.8	0.9
14	16	3/8	16 ER 14 BSPT	16 EL 14 BSPT	16 IR 14 BSPT	16 IL 14 BSPT	1.0	1.2
11	16	3/8	16 ER 11 BSPT	16 EL 11 BSPT	16 IR 11 BSPT	16 IL 11 BSPT	1.1	1.5

Order example: 11 IR 14 BSPT BMA
* Available only in BXC and BMA grades
(1) Special holder is required or standard holder can be ammended by customer.



Type B

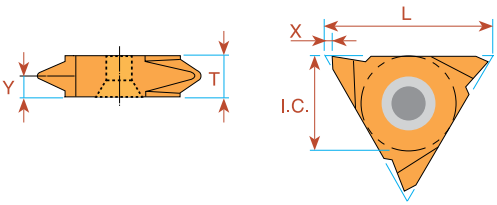
Ground Profile with Sintered Chip-breaker

Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y
19	11	1/4		11 IR B 19 BSPT	0.8	0.9
19	16	3/8	16 ER B 19 BSPT		1.0	1.1
14	16	3/8	16 ER B 14 BSPT	16 IR B 14 BSPT	1.2	1.0
11	16	3/8	16 ER B 11 BSPT	16 IR B 11 BSPT	1.5	1.1

Order example: 16 ER B 11BSPT BMA

For Carbide Grade and Cutting Speed see page 60-61

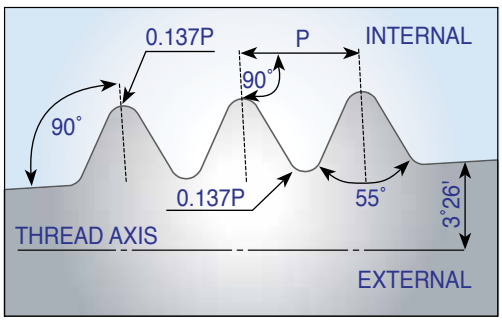
BSPT
Vertical



Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X	Y	T
28	16	3/8	**16V ER 28 BSPT**	**16V EL 28 BSPT**	1.0	0.6	3.6
19	16	3/8	**16V ER 19 BSPT**	**16V EL 19 BSPT**	1.0	0.9	3.6
14	16	3/8	**16V ER 14 BSPT**	**16V EL 14 BSPT**	1.0	1.2	3.6
11	16	3/8	**16V ER 11 BSPT**	**16V EL 11 BSPT**	1.0	1.5	3.6

Order example: 16V ER 19 BSPT BMA

DIN 477

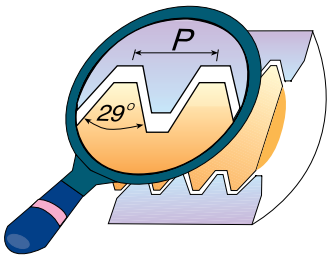


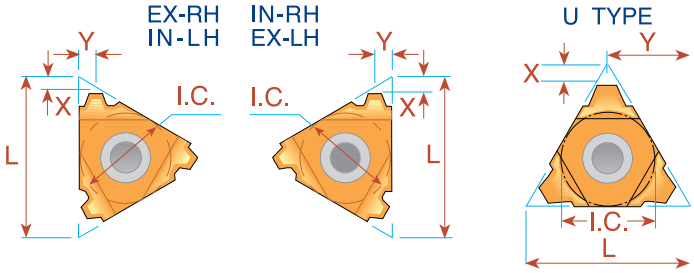
Pitch TPI	L	I.C. in	Taper Ratio	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y	Thread Designation
14	16	3/8	3/25	**16 ER 14 DIN477**		1.0	1.2	W19.8x1/14 keg(Ext.)
14	11	1/4	3/25	———	*11 IR 14 DIN477	0.9	1.0	W19.8x1/14 keg(Int.)
14	16	3/8	3/25	**16 ER 14 DIN477**	**16 IR 14 DIN477	1.0	1.2	W28.8x1/14 keg
14	16	3/8	3/25	**16 ER 14 DIN477**	***16 IR 14 DIN477	1.0	1.2	W31.3x1/14 keg

* Holder to use: SIR0010H11/SIR0010K11
** Holder to use: SIR0016P16
*** Holder to use: SIR0020P16

For Carbide Grade and Cutting Speed see page 60-61

Acme

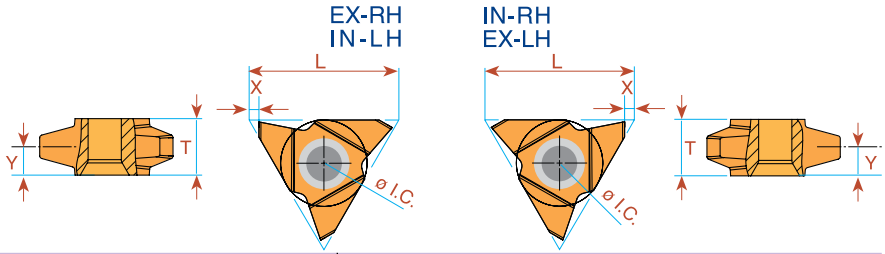




Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
16	8	3/16	*MINIATURE* →		**08 IR 16 ACME	**08 IL 16 ACME	0.6	0.6
14	8U	3/16U	*"U" MINIATURE* →		*08U IR/L 14 ACME		0.8	4.0
12	8U	3/16U			*08U IR/L 12 ACME		0.8	4.0
10	8U	3/16U			*08U IR/L 10 ACME		0.8	4.0
16	11	1/4	11 ER 16 ACME	11 EL 16 ACME	11 IR 16 ACME	11 IL 16 ACME	0.9	1.0
16	16	3/8	16 ER 16 ACME	16 EL 16 ACME	16 IR 16 ACME	16 IL 16 ACME	0.9	1.0
14	16	3/8	16 ER 14 ACME	16 EL 14 ACME	16 IR 14 ACME	16 IL 14 ACME	1.0	1.2
12	16	3/8	16 ER 12 ACME	16 EL 12 ACME	16 IR 12 ACME	16 IL 12 ACME	1.1	1.2
10	16	3/8	16 ER 10 ACME	16 EL 10 ACME	16 IR 10 ACME	16 IL 10 ACME	1.3	1.3
8	16	3/8	16 ER 8 ACME	16 EL 8 ACME	16 IR 8 ACME	16 IL 8 ACME	1.5	1.5
6	16	3/8	(1) 16 ER 6 ACME	(1) 16 EL 6 ACME	(1) 16 IR 6 ACME	(1) 16 IL 6 ACME	1.7	1.8
6	22	1/2	22 ER 6 ACME	22 EL 6 ACME	22 IR 6 ACME	22 IL 6 ACME	1.8	2.1
5	22	1/2	22 ER 5 ACME	22 EL 5 ACME	22 IR 5 ACME	22 IL 5 ACME	2.0	2.3
4	22	1/2	(1) 22 ER 4 ACME	(1) 22 EL 4 ACME	(1) 22 IR 4 ACME	(1) 22 IL 4 ACME	2.1	2.2
4	22U	1/2U	22U ER/L 4 ACME		22U IR/L 4 ACME		2.3	11.0
4	27	5/8	27 ER 4 ACME	27 EL 4 ACME	27 IR 4 ACME	27 IL 4 ACME	2.3	2.7
3	27U	5/8U	27U ER/L 3 ACME		27U IR/L 3 ACME		2.8	13.7
2	33U	3/4U	33U ER/L 2 ACME		33U IR/L 2 ACME		4.3	16.9

Order example: 16 ER 16 ACME MXC
* Available only in BXC and BMA grades
** One cutting edge
(1) Special holder is required or standard holder can be amended by customer.

Acme
Vertical

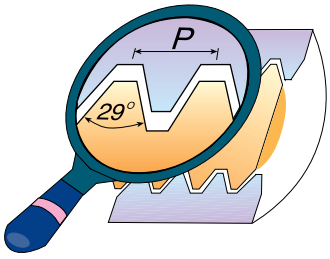


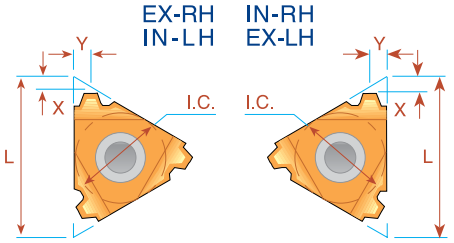
Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X	Y	T	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y	T
* 3.5	27	5/8	27V ER 3.5 ACME	———	1.8	5.0	10.4	27V IR 3.5 ACME	———	1.8	4.0	10.4
* 3	27	5/8	27V ER 3 ACME	———	1.8	5.0	10.4	27V IR 3 ACME	———	1.8	4.6	10.4
** 2	27	5/8	27V ER 2 ACME	27V EL 2 ACME	1.8	5.0	10.4	27V IR 2 ACME	27V IL 2 ACME	1.8	5.0	10.4

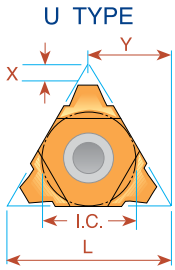
Order example: 27V ER 2 ACME BMA
* Minimum bore: Ø55 mm ** Minimum bore: Ø76 mm

For Carbide Grade and Cutting Speed see page 60-61

Stub Acme





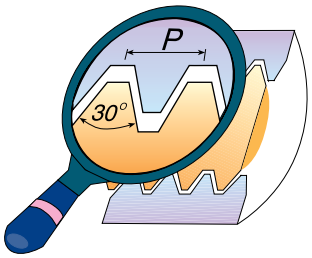


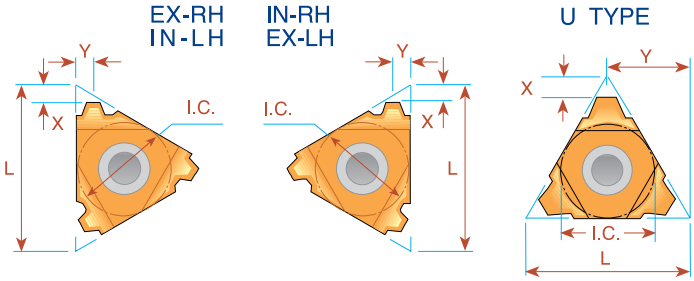
Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
16	8	3/16	*MINIATURE* →		**08 IR 16 STACME	**08 IL 16 STACME	0.6	0.6
14	8U	3/16U	*"U" MINIATURE* →		*08U IR/L 14 STACME		0.8	4.0
12	8U	3/16U			*08U IR/L 12 STACME		0.9	4.0
10	8U	3/16U			*08U IR/L 10 STACME		1.0	4.0
16	11	1/4	11 ER 16 STACME	11 EL 16 STACME			1.0	1.0
16	16	3/8	16 ER 16 STACME	16 EL 16 STACME	16 IR 16 STACME	16 IL 16 STACME	1.0	1.0
14	16	3/8	16 ER 14 STACME	16 EL 14 STACME	16 IR 14 STACME	16 IL 14 STACME	1.1	1.1
12	16	3/8	16 ER 12 STACME	16 EL 12 STACME	16 IR 12 STACME	16 IL 12 STACME	1.2	1.2
10	16	3/8	16 ER 10 STACME	16 EL 10 STACME	16 IR 10 STACME	16 IL 10 STACME	1.3	1.3
8	16	3/8	16 ER 8 STACME	16 EL 8 STACME	16 IR 8 STACME	16 IL 8 STACME	1.5	1.5
6	16	3/8	16 ER 6 STACME	16 EL 6 STACME	16 IR 6 STACME	16 IL 6 STACME	1.8	1.8
5	22	1/2	22 ER 5 STACME	22 EL 5 STACME	22 IR 5 STACME	22 IL 5 STACME	2.0	2.3
4	22	1/2	22 ER 4 STACME	22 EL 4 STACME	22 IR 4 STACME	22 IL 4 STACME	2.3	2.4
4	22U	1/2U	22U ER/L 4 STACME		22U IR/L 4 STACME		2.5	11.0
3	22U	1/2U	22U ER/L 3 STACME		22U IR/L 3 STACME		3.3	11.0
4	27	5/8	27 ER 4 STACME	27 EL 4 STACME	27 IR 4 STACME	27 IL 4 STACME	2.3	2.4
3	27	5/8	27 ER 3 STACME	27 EL 3 STACME	27 IR 3 STACME	27 IL 3 STACME	2.8	2.9
2	33U	3/4U	33U ER/L 2 STACME		33U IR/L 2 STACME		5.0	16.9

Order example: 22 IR 5 STACME MXC
* Available only in BXC and BMA grades
** One cutting edge

For Carbide Grade and Cutting Speed see page 60-61

Trapez - DIN 103





Pitch mm	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
1.5	8	3/16	*MINIATURE* →		**08 IR 1.5 TR	**08 IL 1.5 TR	0.6	0.6
2.0	8U	3/16U	*"U" MINIATURE* →		*08U IR/L 2 TR		0.9	4.0
1.5	16	3/8	16 ER 1.5 TR	16 EL 1.5 TR			1.0	1.1
2.0	16	3/8	16 ER 2 TR	16 EL 2 TR	16 IR 2 TR	16 IL 2 TR	1.0	1.3
3.0	16	3/8	16 ER 3 TR	16 EL 3 TR	16 IR 3 TR	16 IL 3 TR	1.3	1.5
4.0	16	3/8	(1)16 ER 4 TR	(1)16 EL 4 TR	(2)16 IR 4 TR	(2)16 IL 4 TR	1.3	1.5
5.0	16	3/8U			***16U IR/L 5 TR		2.3	8.2
4.0	22	1/2	22 ER 4 TR	22 EL 4 TR	22 IR 4 TR	22 IL 4 TR	1.8	1.9
5.0	22	1/2	22 ER 5 TR	22 EL 5 TR	22 IR 5 TR	22 IL 5 TR	2.0	2.4
6.0	22	1/2	(1)22 ER 6 TR	(1)22 EL 6 TR	(1)22 IR 6 TR	(1)22 IL 6 TR	2.0	2.4
6.0	22U	1/2U	22U ER/L 6 TR		22U IR/L 6 TR		2.0	11.0
7.0	22U	1/2U	22U ER/L 7 TR		22U IR/L 7 TR		2.3	11.0
(3) 7.0	22U	1/2U			(3)22U IR/L 7 TR40		2.6	11.0
8.0	22U	1/2U	22U ER/L 8 TR		22U IR/L 8 TR		2.5	11.0
6.0	27	5/8	27 ER 6 TR	27 EL 6 TR	27 IR 6 TR	27 IL 6 TR	2.3	2.7
7.0	27	5/8	27 ER 7 TR	27 EL 7 TR	27 IR 7 TR	27 IL 7 TR	2.2	2.6
8.0	27U	5/8U	27U ER/L 8 TR		27U IR/L 8 TR		2.5	13.7
9.0	27U	5/8U	27U ER/L 9 TR		27U IR/L 9 TR		3.0	13.7
10.0	27U	5/8U	**27U ER/L 10 TR		**27U IR/L 10 TR		3.2	13.7
12.0	33U	3/4U	33U ER/L 12 TR		33U IR/L 12 TR		3.9	16.9

Order example: 22 IR 5 TR MXC

* Available only in BXC and BMA grades

** One cutting edge

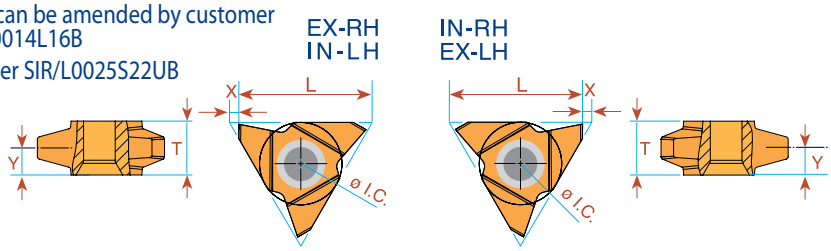
*** To be used only with holder SIR/L0014M16UB on page 47

(1) Special holder is required or standard holder can be amended by customer.

(2) Special holder is required or standard holder can be amended by customer or to used with holders: SIR/L0012L16B; SIR/L0014L16B

(3) Only for Tr 40 x 7.0. To be used only with holder SIR/L0025S22UB

Trapez - DIN 103
Vertical



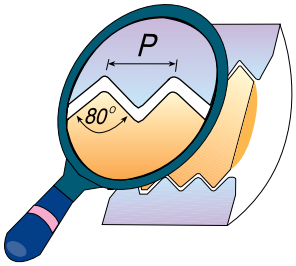
Pitch mm	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y	T
* 9	27	5/8	27V ER 9 TR	27V EL 9 TR	27V IR 9 TR	27V IL 9 TR	1.8	5.2	10.4
* 10	27	5/8	27V ER 10 TR	27V EL 10 TR	27V IR 10 TR	27V IL 10 TR	1.8	5.2	10.4
** 12	27	5/8	27V ER 12 TR	27V EL 12 TR	27V IR 12 TR	27V IL 12 TR	1.8	5.2	10.4

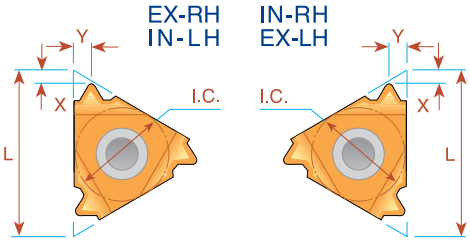
Order example: 27V ER 10 TR BMA

* Minimum bore: Ø65 mm ** Minimum bore: Ø73 mm

For Carbide Grade and Cutting Speed see page 60-61

PG - DIN 40430

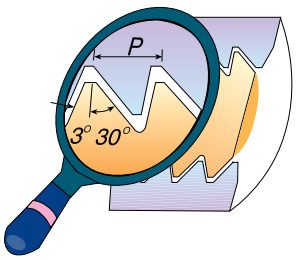




Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Standard	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Standard	X	Y
20	8	3/16	*MINIATURE* →		*08 IR 20 PG	(PG 7)	0.6	0.7
18	11	1/4			11 IR 18 PG	(PG 9)	0.8	0.9
20	16	3/8	16 ER 20 PG	(PG 7)			0.7	0.8
18	16	3/8	16 ER 18 PG	(PG 9, 11, 13.5, 16)	16 IR 18 PG	(PG 11, 13.5, 16)	0.8	0.9
16	16	3/8	16 ER 16 PG	(PG 21, 29, 36, 42, 48)	16 IR 16 PG	(PG 21, 29, 36, 42, 48)	0.8	1.0

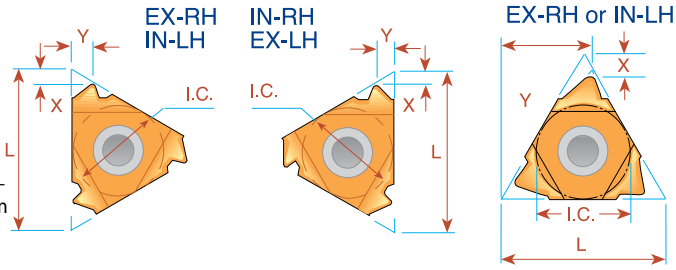
Order example: 16 ER 16 PG BMA
* Available only in BXC and BMA grades

Sagengewinde- DIN 513



IMPORTANT NOTE:
In Carmex standard execution, the flank with the large angle is the leading edge. If otherwise required, please specify in your order.

Working direction ←

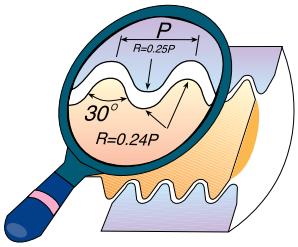


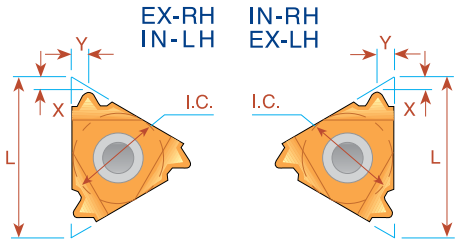
Pitch mm	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X	Y	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
2.0	16	3/8	16 ER 2 SAGE	16 EL 2 SAGE	1.1	1.6	16 IR 2 SAGE	16 IL 2 SAGE	1.2	1.7
3.0	22	1/2	22 ER 3 SAGE	22 EL 3 SAGE	1.5	2.4	22 IR 3 SAGE	22 IL 3 SAGE	1.9	2.9
4.0	22	1/2	22 ER 4 SAGE	22 EL 4 SAGE	1.9	3.1	22 IR 4 SAGE	22 IL 4 SAGE	2.3	3.5
*5.0	22U	1/2U	22U ER 5 SAGE	22U EL 5 SAGE	1.2	11.6	22U IR 5 SAGE	22U IL 5 SAGE	1.9	11.7
*6.0	22U	1/2U	22U ER 6 SAGE	22U EL 6 SAGE	1.2	11.7	22U IR 6 SAGE	22U IL 6 SAGE	2.1	11.9

Order example: 22 IR 4 SAGE BMA
* Requires a special anvil AER 22U-1.5 SAGE 5/6, AEL 22U-1.5 SAGE 5/6, AIR 22U-1.5 SAGE 5/6, AIL 22U-1.5 SAGE 5/6.

For Carbide Grade and Cutting Speed see page 60-61

Round - DIN 405

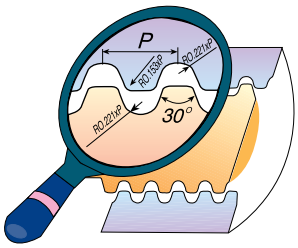


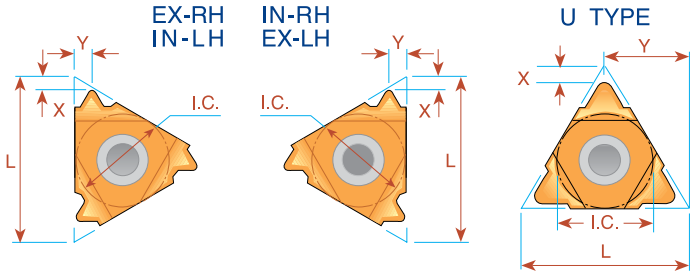


Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X	Y	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
10	16	3/8	16 ER 10 RD	16 EL 10 RD	1.1	1.2	16 IR 10 RD	16 IL 10 RD	1.1	1.2
8	16	3/8	16 ER 8 RD	16 EL 8 RD	1.4	1.3	16 IR 8 RD	16 IL 8 RD	1.4	1.4
6	16	3/8	16 ER 6 RD	16 EL 6 RD	1.5	1.7	16 IR 6 RD	16 IL 6 RD	1.4	1.5
6	22	1/2	22 ER 6 RD	22 EL 6 RD	1.5	1.7	22 IR 6 RD	22 IL 6 RD	1.5	1.7
4	22	1/2	22 ER 4 RD	22 EL 4 RD	2.2	2.3	22 IR 4 RD	22 IL 4 RD	2.2	2.3
4	27	5/8	27 ER 4 RD	27 EL 4 RD	2.2	2.3	27 IR 4 RD	27 IL 4 RD	2.2	2.3

Order example: 27 IL 4 RD BMA

Round - DIN 20400





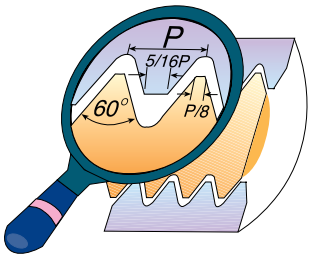
Pitch mm	L	I.C. in	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y
4.0	22	1/2	22 ER 4.0 RD 20400	22 IR 4.0 RD 20400	1.4	1.4
5.0	22	1/2	22 ER 5.0 RD 20400	22 IR 5.0 RD 20400	1.7	1.8
6.0	22	1/2	22 ER 6.0 RD 20400	22 IR 6.0 RD 20400	1.7	2.0
8.0	27U	5/8U	*27U - 8.0 RD 20400		3.0	13.7
10.0	27U	5/8U	*27U - 10.0 RD 20400		3.4	13.7

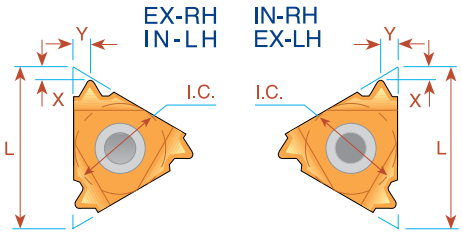
Order example: 22 ER 4.0 RD 20400 MXC

* Same insert for Internal and External Right Hand Thread

For Carbide Grade and Cutting Speed see page 60-61

UNJ UNJC, UNJF, UNJEF, UNJS





Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
48	11	1/4	11 ER 48 UNJ	11 EL 48 UNJ	11 IR 48 UNJ	11 IL 48 UNJ	0.6	0.6
44	11	1/4	11 ER 44 UNJ	11 EL 44 UNJ	11 IR 44 UNJ	11 IL 44 UNJ	0.6	0.6
40	11	1/4	11 ER 40 UNJ	11 EL 40 UNJ	11 IR 40 UNJ	11 IL 40 UNJ	0.6	0.6
36	11	1/4	11 ER 36 UNJ	11 EL 36 UNJ	11 IR 36 UNJ	11 IL 36 UNJ	0.6	0.6
32	11	1/4	11 ER 32 UNJ	11 EL 32 UNJ	11 IR 32 UNJ	11 IL 32 UNJ	0.6	0.6
28	11	1/4	11 ER 28 UNJ	11 EL 28 UNJ	11 IR 28 UNJ	11 IL 28 UNJ	0.6	0.6
24	11	1/4	11 ER 24 UNJ	11 EL 24 UNJ	11 IR 24 UNJ	11 IL 24 UNJ	0.7	0.8
20	11	1/4	11 ER 20 UNJ	11 EL 20 UNJ	11 IR 20 UNJ	11 IL 20 UNJ	0.8	0.9
18	11	1/4	11 ER 18 UNJ	11 EL 18 UNJ	11 IR 18 UNJ	11 IL 18 UNJ	0.8	1.0
16	11	1/4	11 ER 16 UNJ	11 EL 16 UNJ	11 IR 16 UNJ	11 IL 16 UNJ	0.8	1.0
14	11	1/4	11 ER 14 UNJ	11 EL 14 UNJ	11 IR 14 UNJ	11 IL 14 UNJ	0.9	1.0
48	16	3/8	16 ER 48 UNJ	16 EL 48 UNJ	16 IR 48 UNJ	16 IL 48 UNJ	0.6	0.6
44	16	3/8	16 ER 44 UNJ	16 EL 44 UNJ	16 IR 44 UNJ	16 IL 44 UNJ	0.6	0.6
40	16	3/8	16 ER 40 UNJ	16 EL 40 UNJ	16 IR 40 UNJ	16 IL 40 UNJ	0.6	0.6
36	16	3/8	16 ER 36 UNJ	16 EL 36 UNJ	16 IR 36 UNJ	16 IL 36 UNJ	0.6	0.6
32	16	3/8	16 ER 32 UNJ	16 EL 32 UNJ	16 IR 32 UNJ	16 IL 32 UNJ	0.6	0.6
28	16	3/8	16 ER 28 UNJ	16 EL 28 UNJ	16 IR 28 UNJ	16 IL 28 UNJ	0.6	0.6
24	16	3/8	16 ER 24 UNJ	16 EL 24 UNJ	16 IR 24 UNJ	16 IL 24 UNJ	0.7	0.8
20	16	3/8	16 ER 20 UNJ	16 EL 20 UNJ	16 IR 20 UNJ	16 IL 20 UNJ	0.8	0.9
18	16	3/8	16 ER 18 UNJ	16 EL 18 UNJ	16 IR 18 UNJ	16 IL 18 UNJ	0.8	1.0
16	16	3/8	16 ER 16 UNJ	16 EL 16 UNJ	16 IR 16 UNJ	16 IL 16 UNJ	0.8	1.0
14	16	3/8	16 ER 14 UNJ	16 EL 14 UNJ	16 IR 14 UNJ	16 IL 14 UNJ	1.0	1.2
13	16	3/8	16 ER 13 UNJ	16 EL 13 UNJ	16 IR 13 UNJ	16 IL 13 UNJ	1.0	1.3
12	16	3/8	16 ER 12 UNJ	16 EL 12 UNJ	16 IR 12 UNJ	16 IL 12 UNJ	1.1	1.4
11	16	3/8	16 ER 11 UNJ	16 EL 11 UNJ	16 IR 11 UNJ	16 IL 11 UNJ	1.1	1.5
10	16	3/8	16 ER 10 UNJ	16 EL 10 UNJ	16 IR 10 UNJ	16 IL 10 UNJ	1.1	1.5
9	16	3/8	16 ER 9 UNJ	16 EL 9 UNJ	16 IR 9 UNJ	16 IL 9 UNJ	1.2	1.6
8	16	3/8	16 ER 8 UNJ	16 EL 8 UNJ	16 IR 8 UNJ	16 IL 8 UNJ	1.2	1.6

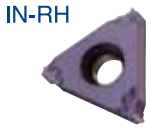
Order example: 16 IR 16 UNJ MXC

For Carbide Grade and Cutting Speed see page 60-61

UNJ UNJC, UNJF, UNJEF, UNJS

Type B

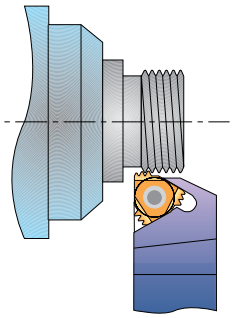
Ground Profile with Sintered Chip-breaker

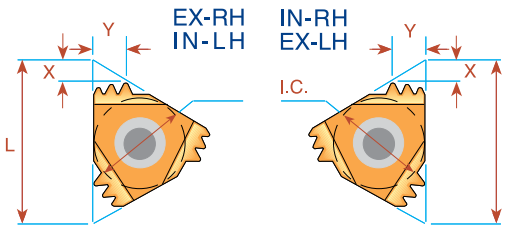


Pitch TPI	L	I.C. in	INTERNAL Ordering Code Right Hand	X	Y
32	11	1/4	11 IR B 32 UNJ	0.6	0.6
28	11	1/4	11 IR B 28 UNJ	0.6	0.6
24	11	1/4	11 IR B 24 UNJ	0.6	0.6
20	11	1/4	11 IR B 20 UNJ	0.8	0.9
18	11	1/4	11 IR B 18 UNJ	0.8	0.9
16	11	1/4	11 IR B 16 UNJ	0.8	0.9
14	11	1/4	11 IR B 14 UNJ	0.8	0.9

Order example: 11 IR B 20 UNJ BMA

Multitooth



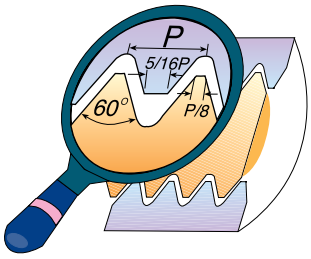


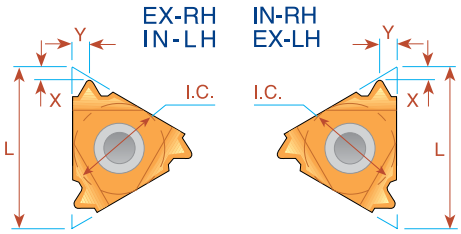
Pitch TPI	L	I.C. in	Number of Teeth	EXTERNAL Ordering Code	Anvil	INTERNAL Ordering Code	Anvil	X	Y
16	16	3/8	2	16 ER 16 UNJ 2M	AE16M	-	-	1.6	2.4
16	22	1/2	3	22 ER 16 UNJ 2M	AE22M	-	-	2.3	3.8

Order example: 22 ER 16 UNJ 2M BMA

For Carbide Grade and Cutting Speed see page 60-61

MJ - ISO 5855





Pitch mm	L	I.C. in	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y
1.0	11	1/4		11 IR 1.0 MJ	0.7	0.8
1.25	11	1/4		11 IR 1.25 MJ	0.8	0.9
1.5	11	1/4		11 IR 1.5 MJ	0.8	1.0
2.0	11	1/4		11 IR 2.0 MJ	0.9	1.0
1.0	16	3/8	16 ER 1.0 MJ	16 IR 1.0 MJ	0.7	0.8
1.25	16	3/8	16 ER 1.25 MJ	16 IR 1.25 MJ	0.8	0.9
1.5	16	3/8	16 ER 1.5 MJ	16 IR 1.5 MJ	0.8	1.0
2.0	16	3/8	16 ER 2.0 MJ	16 IR 2.0 MJ	1.0	1.3

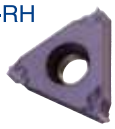
Order example: 16 ER 1.5 MJ BMA

Type B

Ground Profile with Sintered Chip-breaker

Pitch mm	L	I.C. in	INTERNAL Ordering Code Right Hand	X	Y
1.0	11	1/4	11 IR B 1.0 MJ	0.6	0.6
1.5			11 IR B 1.5 MJ	0.8	0.9

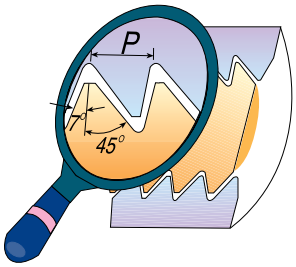
IN-RH



Order example: 11 IR B 1.5 MJ BMA

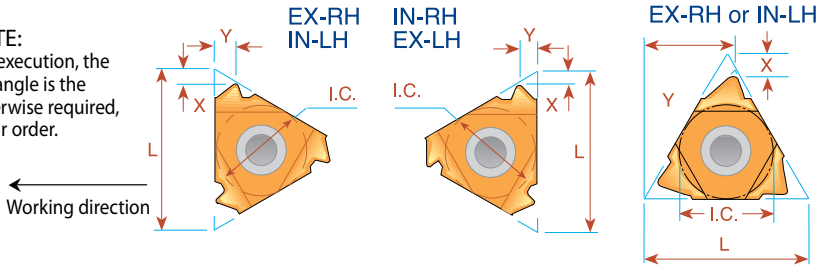
For Carbide Grade and Cutting Speed see page 60-61

American Buttress



IMPORTANT NOTE:
In Carmex standard execution, the flank with the large angle is the leading edge. If otherwise required, please specify in your order.

Working direction

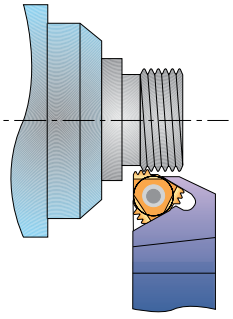


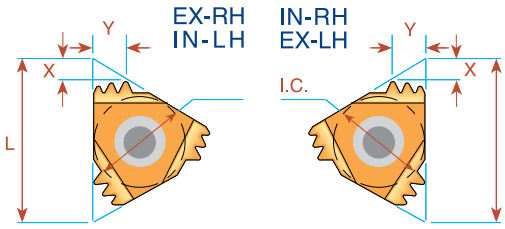
Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X	Y
20	11	1/4	11 ER 20 ABUT	11 EL 20 ABUT	11 IR 20 ABUT	11 IL 20 ABUT	1.0	1.3
16	11	1/4	11 ER 16 ABUT	11 EL 16 ABUT	11 IR 16 ABUT	11 IL 16 ABUT	1.0	1.5
20	16	3/8	16 ER 20 ABUT	16 EL 20 ABUT	16 IR 20 ABUT	16 IL 20 ABUT	1.0	1.3
16	16	3/8	16 ER 16 ABUT	16 EL 16 ABUT	16 IR 16 ABUT	16 IL 16 ABUT	1.0	1.5
12	16	3/8	16 ER 12 ABUT	16 EL 12 ABUT	16 IR 12 ABUT	16 IL 12 ABUT	1.4	2.0
10	16	3/8	16 ER 10 ABUT	16 EL 10 ABUT	16 IR 10 ABUT	16 IL 10 ABUT	1.5	2.3
8	22	1/2	22 ER 8 ABUT	22 EL 8 ABUT	22 IR 8 ABUT	22 IL 8 ABUT	2.1	3.3
6	22	1/2	22 ER 6 ABUT	22 EL 6 ABUT	22 IR 6 ABUT	22 IL 6 ABUT	2.1	3.4
4	22U	1/2U	22U ER 4 ABUT	22U EL 4 ABUT	22U IR 4 ABUT	22U IL 4 ABUT	2.3	9.5
3	27U	5/8U	27U ER 3 ABUT	27U EL 3 ABUT	27U IR 3 ABUT	27U IL 3 ABUT	3.1	11.7

Order example: 16 IL 12 ABUT MXC

Most applications requires anvil change in toolholder see page 65

Multitooth





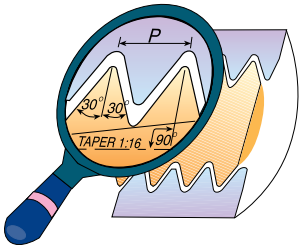
Pitch TPI	L	I.C. in	Number of Teeth	EXTERNAL Ordering Code	Anvil	INTERNAL Ordering Code	Anvil	X	Y
12	22	1/2	2	22 ER 12 ABUT 2M	AE22M	22 IR 16 ABUT 2M	AI22M	2.5	4.0

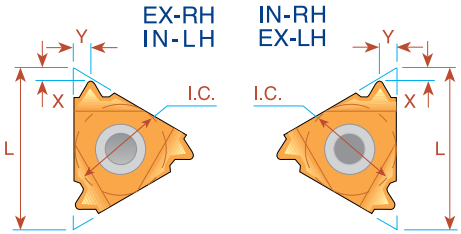
Order example: 22 IR 16 ABUT 2M BMA

For Carbide Grade and Cutting Speed see page 60-61

OIL Threads

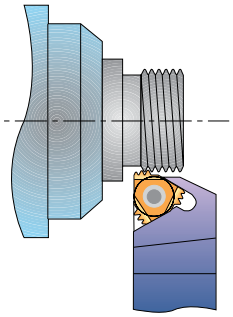
API Round

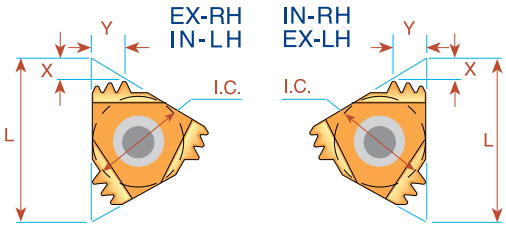




Pitch TPI	L	I.C. in	Taper IPF	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y
10	16	3/8	0.75	**16 ER 10 API RD**	**16 IR 10 API RD**	1.5	1.4
8	16	3/8	0.75	**16 ER 8 API RD**	**16 IR 8 API RD**	1.3	1.6

Multitooth





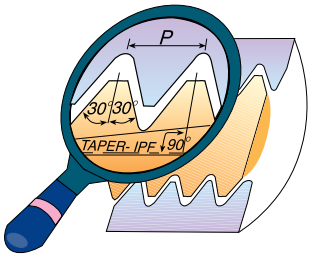
Pitch TPI	L	I.C. in	Number of Teeth	EXTERNAL Ordering Code	Anvil	INTERNAL Ordering Code	Anvil	X	Y
10	22	1/2	2	**22 ER 10API RD 2M**	AE22M	**22 IR 10API RD 2M**	AI22M	2.4	3.7
10	27	5/8	3	**27 ER 10API RD 3M**	AE27M	**27 IR 10API RD 3M**	AI27M	3.8	6.2
8	27	5/8	2	**27 ER 8API RD 2M**	AE27M	**27 IR 8API RD 2M**	AI27M	3.0	4.5

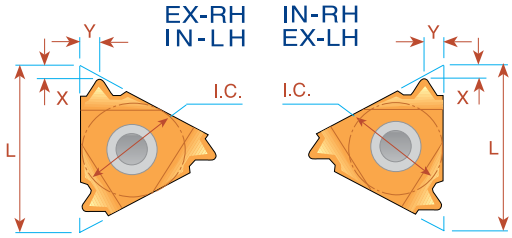
Order example: 27 IR 10 API RD 3M MXC

For recommended number of passes see page 62

For Carbide Grade and Cutting Speed see page 60-61

OIL Threads





V-0.040

Pitch TPI	L	I.C. in	Taper IPF	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y	Connection No. or Size
5	22	1/2	3	**22 ER 5 API 403**	**22 IR 5 API 403**	1.8	2.5	2 3/8-4 1/2 REG

V-0.038R

Pitch TPI	L	I.C. in	Taper IPF	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y	Connection No. or Size
4	27	5/8	2	**27 ER 4 API 382**	**27 IR 4 API 382**	2.1	2.8	NC23-NC50
4	27	5/8	3	**27 ER 4 API 383**	**27 IR 4 API 383**	2.1	2.8	NC56-NC77

V-0.050

Pitch TPI	L	I.C. in	Taper IPF	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y	Connection No. or Size
4	27	5/8	2	**27 ER 4 API 502**	**27 IR 4 API 502**	2.0	3.0	6 5/8 REG
4	27	5/8	3	**27 ER 4 API 503**	**27 IR 4 API 503**	2.0	3.0	5 1/2, 7 5/8, 8 5/8 REG

V-0.055

Macaroni Tubing (MT)
American Macaroni Tubing (AMT)
American Mining Macaroni Tubing (AMMT)

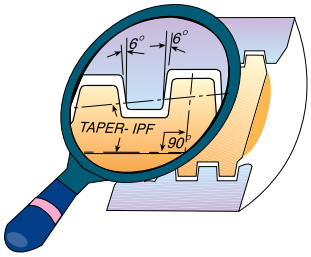
Pitch TPI	L	I.C. in	Taper IPF	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y	Connection No. or Size
6	22	1/2	1.5	**22 ER 6 API 551.5**	-	2.0	1.7	NC10,NC12,NC13,NC16
6	16	3/8	1.5	-	**16 IR 6 API 551.5**	2.0	1.7	NC10,NC12,NC13 *
6	22	1/2	1.5	-	**22 IR 6 API 551.5**	2.0	1.7	NC16 **

* For NC10,NC12 use holder SIR0016P16CB
For NC13 use holders SIR0020P16/SIR0020P16B/SIR0020S16CB

** For NC16 use holder SIR0025R22

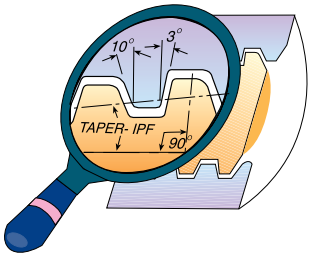
For Carbide Grade and Cutting Speed see page 60-61

OIL Threads Extreme - Line Casing



Pitch TPI	L	I.C. in	Taper IPF	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y	Connection No. or Size
6	22	1/2	1.50	**22 ER 6 EL 1.5**	**22 IR 6 EL 1.5**	1.9	1.9	5-7 5/8
5	22	1/2	1.25	**22 ER 5 EL 1.25**	**22 IR 5 EL 1.25**	2.4	2.3	8 5/8-10 3/4

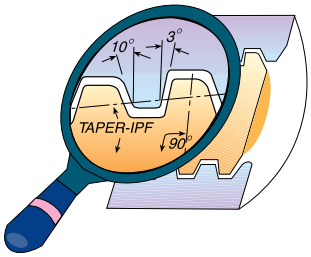
Buttress Casing

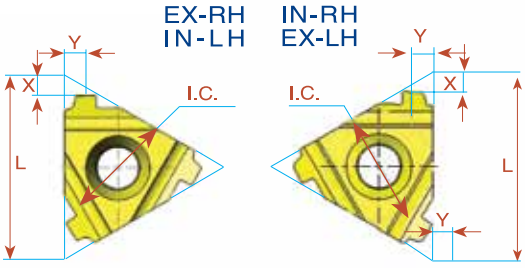


Pitch TPI	L	I.C. in	Taper IPF	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Right Hand	X	Y	Connection No. or Size
5	22	1/2	0.75	**22 ER 5 BUT 0.75**	**22 IR 5 BUT 0.75**	2.2	2.4	4 1/2-13 3/8
5	22	1/2	1.00	**22 ER 5 BUT 1.0**	**22 IR 5 BUT 1.0**	2.3	2.4	16-20

Order example: 22 ER 5 BUT 0.75 MXC

VAM





Pitch TPI	L	I.C. in	Taper IPF	EXTERNAL Ordering Code Right Hand	X	Y	INTERNAL Ordering Code Right Hand	X	Y	Connection No. or Size
8	16	3/8	0.75	**16 ER 8 VAM**	1.7	1.8	**16 IR 8 VAM**	1.7	1.8	2 3/8" - 2 7/8"
6	22	1/2	0.75	**22 ER 6 VAM**	2.4	2.4	**22 IR 6 VAM**	2.5	2.5	3 1/2" - 4 1/2"
5	22	1/2	0.75	**22 ER 5 VAM**	2.4	2.7	**22 IR 5 VAM**	2.4	2.5	5" - 13 3/8"

Order example: 16 ER 8 VAM BMA

For Carbide Grade and Cutting Speed see page 60-61

Thread Turning Toolholders and Kits

Product Identification

Threading Toolholders Ordering Codes

S E R 2020 K 16 [ ]

S — Clamping Method
D = Clamp
S = Screw

E —
E = External
I = Internal

R —
R = Right Hand
L = Left Hand

2020 — Shank Cross Section:
External toolholders square shank

2020 = 20 mm x 20 mm

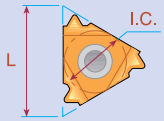
Internal toolholders & boring bars round shank

0020 = Diam. of 20 mm

K — Length of Toolholder: mm

D	= 60
F	= 80
H	= 100
K	= 125
L	= 140
M	= 150
P	= 170
R	= 200
S	= 250
T	= 300
U	= 350
V	= 400

16 — Insert Pocket Size

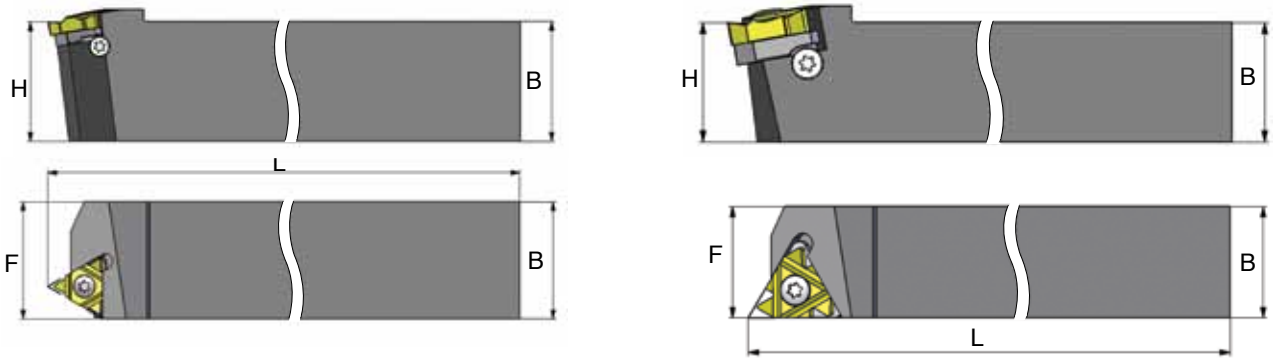


L	I.C.
06	5/32″
08	3/16″
08U	3/16″U
11	1/4″
16	3/8″
22	1/2″
22U	1/2″U
27	5/8″
27U	5/8″U
33U	3/4″U

[ ] —
B - With coolant bore
CB - Carbide shank
V - Vertical (on edge)
O - Offset style
D - Drop head
G - Gang tool
U - U-TYPE

External Toolholders

U-TYPE



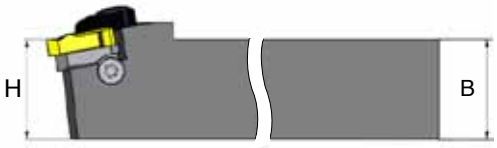
Ordering Code Right Hand	L	B=H	L	F	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
*SER 8 8 H11	11	8	100	11	S11	-	K11	-	-
*SER 10 10 H11	11	10	100	11	S11	-	K11	-	-
*SER 10 10 M11	11	10	150	11	S11	-	K11	-	-
*SER 12 12 K11	11	12	125	12	S11	-	K11	-	-
*SER 12 12 M11	11	12	150	12	S11	-	K11	-	-
SER 12 12 F16	16	12	80	16	S16	A16	K16	AE16	AI16
SER 16 16 H16	16	16	100	16	S16	A16	K16	AE16	AI16
SER 20 20 K16	16	20	125	20	S16	A16	K16	AE16	AI16
SER 25 25 M16	16	25	150	25	S16	A16	K16	AE16	AI16
SER 32 32 P16	16	32	170	32	S16	A16	K16	AE16	AI16
SER 25 25 M22	22	25	150	25	S22	A22	K22	AE22	AI22
SER 32 32 P22	22	32	170	32	S22	A22	K22	AE22	AI22
SER 40 40 R22	22	40	200	40	S22	A22	K22	AE22	AI22
SER 25 25 M22U	22U	25	150	28	S22	A22	K22	AE22U	AI22U
SER 32 32 P22U	22U	32	170	32	S22	A22	K22	AE22U	AI22U
SER 40 40 R22U	22U	40	200	40	S22	A22	K22	AE22U	AI22U
SER 25 25 M27	27	25	150	32	S27	A27	K27	AE27	AI27
SER 32 32 P27	27	32	170	32	S27	A27	K27	AE27	AI27
SER 40 40 R27	27	40	200	40	S27	A27	K27	AE27	AI27
SER 25 25 M27U	27U	25	150	32	S27	A27	K27	AE27U	AI27U
SER 32 32 P27U	27U	32	170	32	S27	A27	K27	AE27U	AI27U
SER 40 40 R27U	27U	40	200	40	S27	A27	K27	AE27U	AI27U
*SER 25 25 M33U	33U	25	150	32	S33	-	K33	-	-
*SER 32 32 P33U	33U	32	170	32	S33	-	K33	-	-

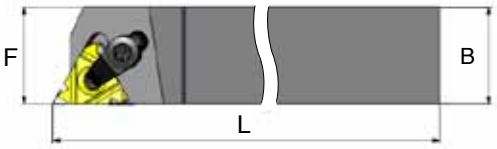
*Toolholders with no anvil
For **LEFT HAND** toolholders specify SE**L** instead of SE**R**

Toolholders are made with a **1.5˚ Helix Angle.** For other Helix Angles please see helix angle chart (page 65) in the technical section of this catalog.

Thread Turning Toolholders

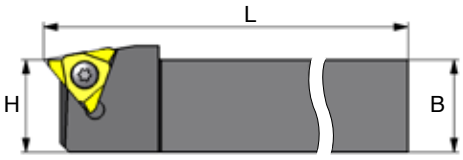
External toolholders with top clamp





Ordering Code Right Hand	L	B=H	L	F	Insert Screw	Clamp	Anvil Screw	Torx Key	RH Anvil	LH Anvil
DER 2020 K16	16	20	125	20	S16	C16	A16S	K16	AE16	AI16
DER 2525 M16	16	25	150	25	S16	C16	A16S	K16	AE16	AI16
***DER 2525 M22**	22	25	150	25	S22	C22	A22	K22	AE22	AI22

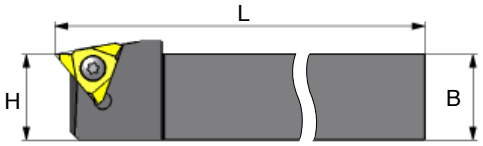
For **LEFT HAND** toolholders specify DEL instead of DER
Toolholders are made with a **1.5° Helix Angle.** For other Helix Angles please see helix angle chart in the technical section of this catalog.
Two clamping methods can be used: screw or top clamp.
*Use K21 torx key for C22 clamp



Vertical toolholders

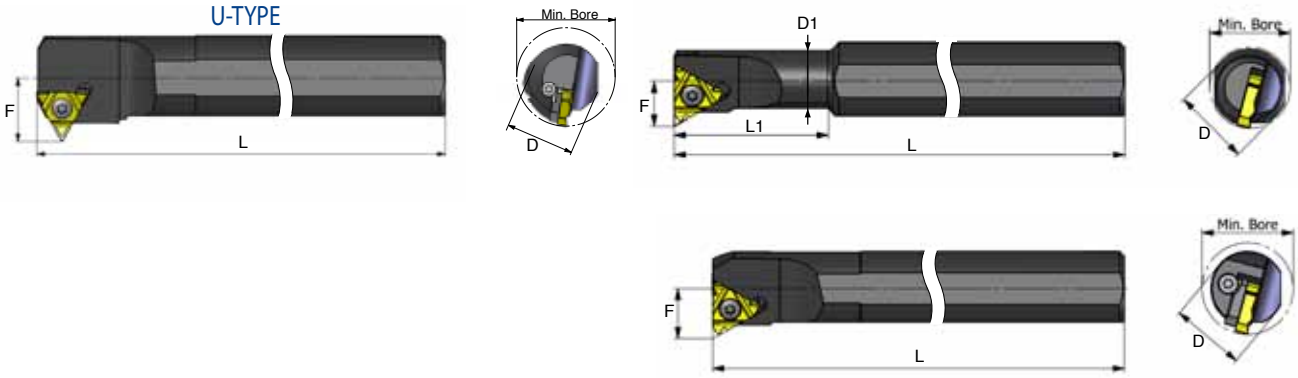
Ordering Code Right Hand		B=H	L	F	Insert Screw	Torx Key
SER 2020 K16V	16	20	125	22	S16S	K16
SER 2525 M16V	16	25	150	27	S16S	K16
SER 2525 M22V	22	25	150	27.5	S22S	K22
SER 3232 P27V-T10	27	32	170	36	S27	K27

Slim Throat toolholders



Ordering Code Right Hand		B=H	L	F	Insert Screw	Torx Key
SER 1616 H16VS	16	16	100	18	S16S	K16
SER 2020 K16VS	16	20	125	22	S16S	K16
SER 2525 M16VS	16	25	150	27	S16S	K16

Internal Toolholders

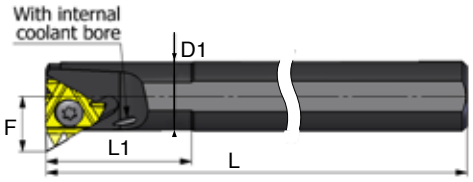


Ordering Code Right Hand	L	D	D1	Min Bore Diam.	L	L1	F	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
*SIR 0005 H06	6	12	5.1	6.0	100	12	4.3	S06	-	K06	-	-
*SIR 0007 K08	8	16	6.6	7.8	125	18	5.3	S08	-	K08	-	-
*SIR 0008 K08U	8U	16	7.3	9.0	125	21	6.6	S08	-	K08	-	-
*SIR 0010 H11	11	10	10	12	100	-	7.4	S11	-	K11	-	-
*SIR 0010 K11	11	16	10	12	125	25	7.4	S11	-	K11	-	-
*SIR 0013 L11	11	16	13	15	140	32	8.9	S11	-	K11	-	-
*SIR 0013 M16	16	16	13	16	150	32	10.2	S16S	-	K16	-	-
*SIR 0016 P16	16	20	16	19	170	40	11.7	S16S	-	K16	-	-
SIR 0020 P16	16	20	20	24	170	-	13.7	S16	A16	K16	AI16	AE16
SIR 0025 R16	16	25	25	29	200	-	16.2	S16	A16	K16	AI16	AE16
SIR 0032 S16	16	32	32	36	250	-	19.7	S16	A16	K16	AI16	AE16
SIR 0040 T16	16	40	40	44	300	-	23.7	S16	A16	K16	AI16	AE16
*SIR 0020 P22	22	20	20	24	170	-	15.6	S22S	-	K22	-	-
SIR 0025 R22	22	25	25	29	200	-	18.1	S22	A22	K22	AI22	AE22
SIR 0032 S22	22	32	32	38	250	-	21.6	S22	A22	K22	AI22	AE22
SIR 0040 T22	22	40	40	46	300	-	25.6	S22	A22	K22	AI22	AE22
SIR 0050 U22	22	50	50	56	350	-	30.6	S22	A22	K22	AI22	AE22
SIR 0032 S22U	22U	32	32	38	250	-	24.4	S22	A22	K22	AI22U	AE22U
SIR 0040 T22U	22U	40	40	46	300	-	28.1	S22	A22	K22	AI22U	AE22U
SIR 0032 S27	27	32	32	40	250	-	22.6	S27	A27	K27	AI27	AE27
SIR 0040 T27	27	40	40	48	300	-	26.6	S27	A27	K27	AI27	AE27
SIR 0050 U27	27	50	50	58	350	-	31.6	S27	A27	K27	AI27	AE27
SIR 0060 V27	27	60	60	68	400	-	36.6	S27	A27	K27	AI27	AE27
SIR 0032 S27U	27U	32	32	40	250	-	25.8	S27	A27	K27	AI27U	AE27U
SIR 0040 T27U	27U	40	40	48	300	-	29.4	S27	A27	K27	AI27U	AE27U
SIR 0050 U27U	27U	50	50	58	350	-	34.4	S27	A27	K27	AI27U	AE27U
SIR 0060 V27U	27U	60	60	68	400	-	39.7	S27	A27	K27	AI27U	AE27U
*SIR 0050 U33U	33U	50	50	62	350	-	37.5	S33	-	K33	-	-

*Toolholders with no anvil
For **LEFT HAND** toolholders specify SI**L** instead of SI**R**

Toolholders are made with a **1.5˚ Helix Angle.** For other Helix Angles please see helix angle chart (page 65) in the technical section of this catalog.

Internal toolholders with coolant bore

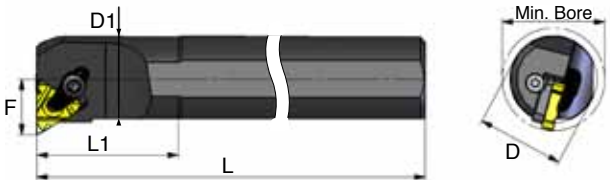


Ordering Code Right Hand	L	D	D1	Min Bore Diam.	L	L1	F	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
***SIR 0010 K11B**	11	16	10	12	125	25	7.4	S11	-	K11	-	-
***SIR 0013 M16B**	16	16	13	16	150	32	10.2	S16S	-	K16	-	-
***SIR 0016 P16B**	16	20	16	19	170	40	11.7	S16S	-	K16	-	-
SIR 0020 P16B	16	20	20	24	170	-	13.7	S16	A16	K16	AI16	AE16
SIR 0025 R16B	16	25	25	29	200	-	16.2	S16	A16	K16	AI16	AE16
SIR 0025 R22B	22	25	25	29	200	-	18.1	S22	A22	K22	AI22	AE22

*Toolholders without anvil
For **LEFT HAND** toolholders specify SI**L** instead of SI**R**

Toolholders are made with a **1.5˚ Helix Angle.** For other Helix Angles
please see helix angle chart (page 65) in the technical section of this catalog.

Internal toolholders with top clamp



Ordering Code Right Hand	L	D	D1	Min Bore Diam.	L	L1	F	Insert Screw	Clamp	Anvil Screw	Torx Key	RH Anvil	LH Anvil
DIR 0020 P16	16	20	20	24	170	-	13.7	S16	C16	A16S	K16	AI16	AE16
DIR 0025 R16	16	25	25	29	200	-	16.2	S16	C16	A16S	K16	AI16	AE16
DIR 0032 S16	16	32	32	36	250	-	19.7	S16	C16	A16S	K16	AI16	AE16
*** DIR 0025 R22**	22	25	25	29	200	-	18.1	S22	C22	A22	K22	AI22	AE22

For **LEFT HAND** toolholders specify DI**L** instead of DI**R**
Two clamping methods can be used: screw or top clamp.
*Use K21 torx key for C22 clamp

Toolholders with 3.5˚ Helix Angle

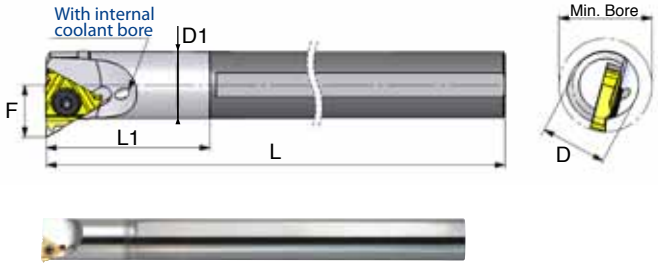
Ordering Code Right Hand	L	D	D1	Min Bore Diam. mm	L	L1	F	Insert Screw	Torx Key
SIR 0016 P16B-3.5	16	20	16	19	170	40	13.7	S16S	K16
SIR 0020 P22B-3.5	22	20	20	24	170	-	15.6	S22S	K22

For **LEFT HAND** toolholders specify SI**L** instead of SI**R**

Carbide Shank Threading Bars

With coolant bore

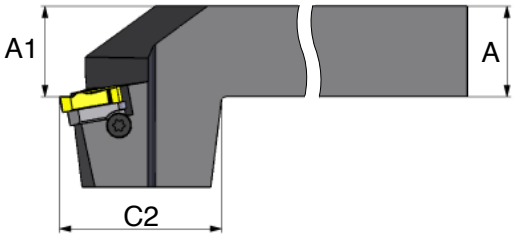
Carbide Shank Threading Bars are used when chatter and deflection are expected due to long overhang in deep small bores.

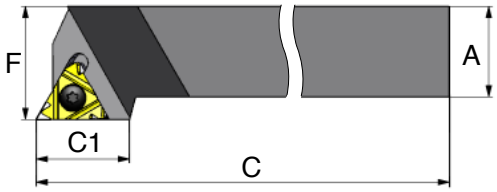


Ordering Code Right Hand	L	D	D1	Min Bore Diam.	L	L1	F	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
SIR 0005 H06CB	6	6	5.1	6.0	100	26	4.3	S06	-	K06	-	-
SIR 0007 K08CB	8	8	6.6	7.8	125	31	5.3	S08	-	K08	-	-
SIR 0008 K08UCB	8U	8	7.3	90	125	35	6.6	S08	-	K08	-	-
SIR 0010 M11CB	11	10	10	12	150	-	7.4	S11	-	K11	-	-
SIR 0012 P11CB	11	12	12	15	170	-	8.4	S11	-	K11	-	-
SIR 0016 R16CB	16	16	16	19	200	-	11.7	S16S	-	K16	-	-
*SIR 0020 S16CB	16	20	20	24	250	-	13.7	S16	A16	K16	AI16	AE16
*SIR 0025 S16CB	16	25	25	29	250	-	16.2	S16	A16	K16	AI16	AE16
SIR 0020 S22CB	22	20	20	24.5	250	-	15.6	S22	-	K22	-	-

*Carbide shank Threading bars with anvil
For **LEFT HAND** toolholders specify SI**L** instead of SI**R**

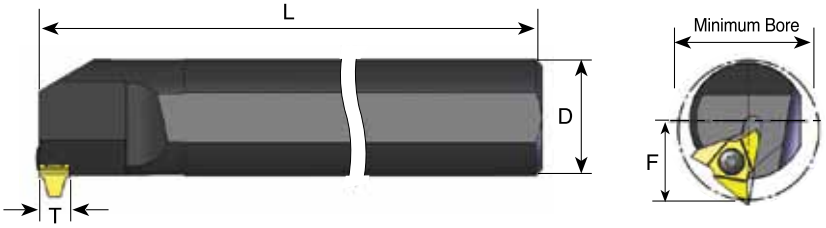
Drophead Toolholders





Ordering Code Right Hand	L	A	A1	C	C1	F	C2	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
SER 2020 K16D	16	20	20	125	21.0	25	38	S16	A16	K16	AE16	AI16
SER 2525 M16D	16	25	25	150	21.0	32	38	S16	A16	K16	AE16	AI16
SER 2525 M22D	22	25	25	150	21.0	32	38	S22	A22	K22	AE22	AI22

Vertical Toolholders



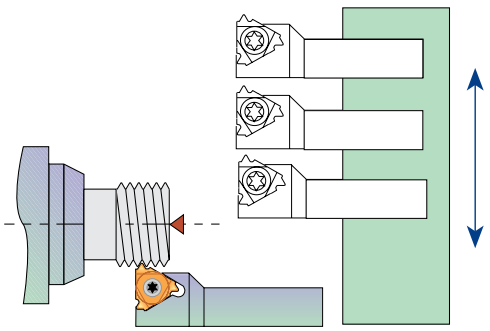
Ordering Code Right Hand	L	D	* Min Bore Diam.	L	F	Insert Screw	Torx Key
SIR 0040T27V-T10	27	40	48	300	29	S27	K27
SIR 0050U27V-T10	27	50	58	350	34	S27	K27

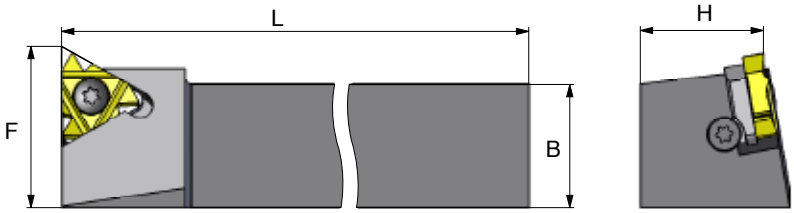
For **LEFT HAND** toolholders specify SI**L** instead of SI**R**

* To be compare with given minimum bore profile.

Gang Toolholders

Gang Toolholders are External Holders, used in small automatic machines with a gang tool post.





RIGHT HAND SHOWN

Ordering Code Right Hand	L	B=H	L	F	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
***SER 8 8 H11G**	11	8	100	12.0	S11	-	K11	-	-
***SER 10 10 H11G**	11	10	100	14.0	S11	-	K11	-	-
SER 16 16 K16G	16	16	125	21.7	S16	A16	K16	AE16	AI16
SER 20 20 K16G	16	20	125	26.2	S16	A16	K16	AE16	AI16

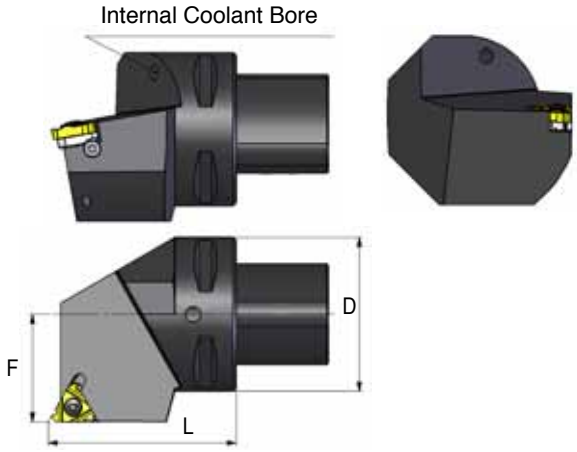
*Toolholders with no anvil

For **LEFT HAND** toolholders specify SE**L** instead of SE**R**

Quick Change *Polygon Threading Toolholders*

- Polygon shank
- ISO standard (26623) compliant for toolholding systems
- Polygon taper ensures automatic radial centering and even pressure around the coupling
- Enable quick tool changes ISO standard coupling system with a 1.4 degree tapered polygon shank design
- Interchangeable with leading manufacturers

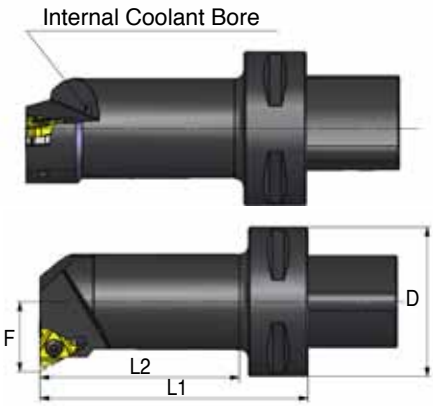
External Toolholders

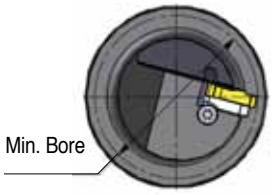


Equivalent to...	Ordering Code		D	F	L	Insert Screw	Anvil Screw	Torx key	RH Anvil	LH Anvil
C4	**P40-SER 27050-16**	16	40	27	50	S16	A16	K16	AE16	AI16
C5	**P50-SER 35060-16**	16	50	35	60	S16	A16	K16	AE16	AI16
C6	**P63-SER 45065-16**	16	63	45	65	S16	A16	K16	AE16	AI16
C4	**P40-SER 27050-22**	22	40	27	50	S22	A22	K22	AE22	AI22
C5	**P50-SER 35060-22**	22	50	35	60	S22	A22	K22	AE22	AI22
C6	**P63-SER 45065-22**	22	63	45	65	S22	A22	K22	AE22	AI22
C8	**P80-SER 55080-22**	22	80	55	80	S22	A22	K22	AE22	AI22

For **LEFT HAND** toolholders specify SE**L** instead of SE**R**

Internal Toolholders



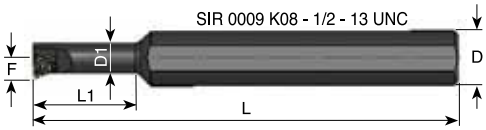


Equivalent to...	Ordering Code		D	F	Min. Bore Dia.	L1	L2	Insert Screw	Anvil Screw	Torx key	RH Anvil	LH Anvil
C4	* P40-SIR 12060-16	16	40	11.7	20	60	37	S16	-	K16	-	-
	P40-SIR 14060-16	16	40	13.5	25	60	38	S16	A16	K16	AI16	AE16
	P40-SIR 17070-16	16	40	16.0	29	70	48	S16	A16	K16	AI16	AE16
	P40-SIR 22090-16	16	40	19.5	36	90	69	S16	A16	K16	AI16	AE16
	P40-SIR 27080-16	16	40	23.5	44	80	60	S16	A16	K16	AI16	AE16
C5	* P50-SIR 12060-16	16	50	11.7	20	60	35	S16	-	K16	-	-
	P50-SIR 14060-16	16	50	13.5	25	60	36	S16	A16	K16	AI16	AE16
	P50-SIR 17070-16	16	50	16.0	29	70	47	S16	A16	K16	AI16	AE16
	P50-SIR 22090-16	16	50	19.5	36	90	68	S16	A16	K16	AI16	AE16
	P50-SIR 27105-16	16	50	23.5	44	105	84	S16	A16	K16	AI16	AE16
C6	P63-SIR 14070-16	16	63	13.5	25	70	42	S16	A16	K16	AI16	AE16
	P63-SIR 17075-16	16	63	16.0	29	75	48	S16	A16	K16	AI16	AE16
	P63-SIR 22090-16	16	63	19.5	36	90	64	S16	A16	K16	AI16	AE16
	P63-SIR 27105-16	16	63	23.5	44	105	80	S16	A16	K16	AI16	AE16
C4	* P40-SIR 15065-22	22	40	15.4	25	65	42	S22	-	K22	-	-
	P40-SIR 19070-22	22	40	17.9	29	70	48	S22	A22	K22	AI22	AE22
	P40-SIR 22090-22	22	40	21.4	38	90	69	S22	A22	K22	AI22	AE22
	P40-SIR 27080-22	22	40	25.4	46	80	60	S22	A22	K22	AI22	AE22
C5	* P50-SIR 15065-22	22	50	15.4	25	65	41	S22	-	K22	-	-
	P50-SIR 19070-22	22	50	17.9	29	70	47	S22	A22	K22	AI22	AE22
	P50-SIR 22090-22	22	50	21.4	38	90	68	S22	A22	K22	AI22	AE22
	P50-SIR 27105-22	22	50	25.4	46	105	84	S22	A22	K22	AI22	AE22
C6	P63-SIR 19075-22	22	63	17.9	29	75	48	S22	A22	K22	AI22	AE22
	P63-SIR 22090-22	22	63	21.4	38	90	64	S22	A22	K22	AI22	AE22
	P63-SIR 27105-22	22	63	25.4	46	105	80	S22	A22	K22	AI22	AE22

For **LEFT HAND** toolholders specify SI**L** instead of SI**R**

* Holders without anvil

Special Thread Turning Applications



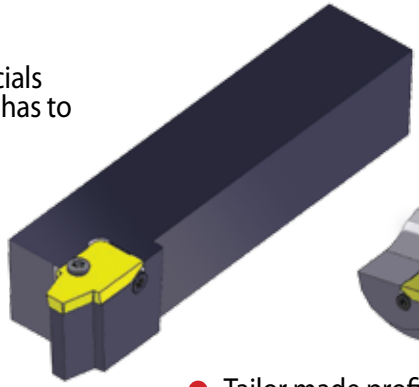
Ordering Code Right Hand		D	D1	L	L1	F	Thread	Insert Screw	Torx Key
***SIR 0009 K08**	8	16	8.7	125	30	6.5	**1/2 - 13UNC**	S08	K08
SIR 0012 L16B	16	20	11.5	140	33	10.5	**TR18x4**	S16S	K16
SIR 0014 L16B	16	20	12.5	140	36	21.1	**TR20x4**	S16S	K16
SIR 0014 M16UB	16	20	13.5	150	40	13.2	**TR22x5**	S16S	K16
SIR 0025 S22UB	22	25	-	250	-	19.5	**TR40x7**	S22S	K22

For LH holders call Carmex
* Only right hand available

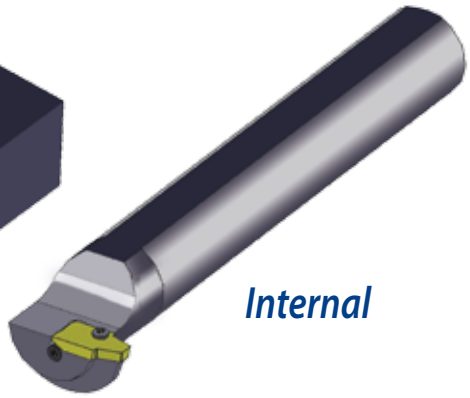
Large Profile Range

- Pitch Range: 14mm up to 24 mm.
- Tools and inserts are offered as specials (non catalog), because each holder has to be modified to fit the profile shape.
- Rigid Clamping

External



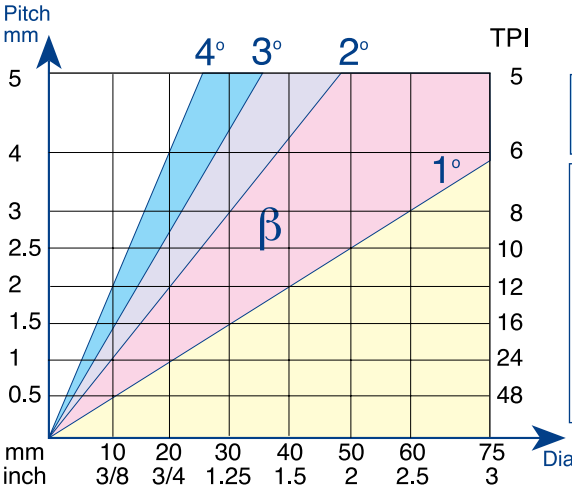
Internal



- Tailor made profiles according to customer's request

Available Profile	**Round (DIN 20400)**	**Trapez (DIN 103)**	**Acme, Stub Acme**	**American Buttress**
Pitch	16 mm	14-24 mm	1.0 - 1.5 TPI	1.5 - 2.0 TPI

Thread Helix Angle

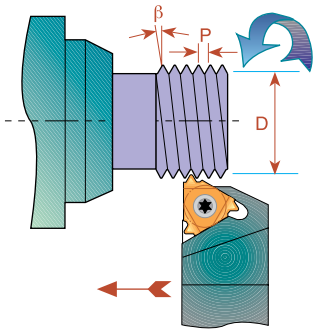


$$\tan\beta = \frac{P}{\pi \times D}$$

Simplified formula
$\beta = 20P/D$

Example:
D = 30 mm (1.18")
P = 1.5 mm (16 TPI)

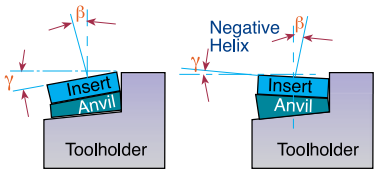
$$\beta = \frac{20 \times 15}{30} = 1^{\circ}$$



Standard and Slanted Anvils

CARMEX Toolholder Pockets have a built in 1.5° helix angle. This angle may be adjusted to better match the thread helix angle by simply changing the anvil.

Negative helix is usually used when threading RH thread with LH Holder or LH thread with RH Holder.



L	IC	Pocket Angle γ →	4.5˚	3.5˚	2.5˚	1.5˚ Standard	0.5˚	-0.5˚	-1.5˚
16	3/8	EX-RH OR IN-LH	AE16+4.5	AE16+3.5	AE16+2.5	**AE16**	AE16+0.5	AE16-0.5	AE16-1.5
16	3/8	EX-LH OR IN-RH	AI 16+4.5	AI 16+3.5	AI 16+2.5	**AI 16**	AI 16+0.5	AI 16-0.5	AI 16-1.5
22	1/2	EX-RH OR IN-LH	AE22+4.5	AE22+3.5	AE22+2.5	**AE22**	AE22+0.5	AE22-0.5	AE22-1.5
22	1/2	EX-LH OR IN-RH	AI 22+4.5	AI 22+3.5	AI 22+2.5	**AI 22**	AI 22+0.5	AI 22-0.5	AI 22-1.5
22U	1/2U	EX-RH OR IN-LH	AE22U+4.5	AE22U+3.5	AE22U+2.5	**AE22U**	AE22U+0.5	AE22U-0.5	AE22U-1.5
22U	1/2U	EX-LH OR IN-RH	AI 22U+4.5	AI 22U+3.5	AI 22U+2.5	**AI 22U**	AI 22U+0.5	AI 22U-0.5	AI 22U-1.5
27	5/8	EX-RH OR IN-LH	AE27+4.5	AE27+3.5	AE27+2.5	**AE27**	AE27+0.5	AE27-0.5	AE27-1.5
27	5/8	EX-LH OR IN-RH	AI 27+4.5	AI 27+3.5	AI 27+2.5	**AI 27**	AI 27+0.5	AI 27-0.5	AI 27-1.5
27U	5/8U	EX-RH OR IN-LH	AE27U+4.5	AE27U+3.5	AE27U+2.5	**AE27U**	AE27U+0.5	AE27U-0.5	AE27U-1.5
27U	5/8U	EX-LH OR IN-RH	AI 27U+4.5	AI 27U+3.5	AI 27U+2.5	**AI 27U**	AI 27U+0.5	AI 27U-0.5	AI 27U-1.5

Anvil Kits

5 AE and 5 AI anvils with various helix angles

AE (FOR EX.RH. & IN.LH.)

AI (FOR IN.RH. & EX.LH.)

Ordering Code	Contents				
KA16	AE16+4.5 AI 16+4.5	AE16+3.5 AI 16+3.5	AE16+2.5 AI 16+2.5	AE16+0.5 AI 16+0.5	AE16-1.5 AI 16-1.5
KA22	AE22+4.5 AI 22+4.5	AE22+3.5 AI 22+3.5	AE22+2.5 AI 22+2.5	AE22+0.5 AI 22+0.5	AE22-1.5 AI 22-1.5
KA22U	AE22U+4.5 AI 22U+4.5	AE22U+3.5 AI 22U+3.5	AE22U+2.5 AI 22U+2.5	AE22U+0.5 AI 22U+0.5	AE22U-1.5 AI 22U-1.5
KA27	AE27+4.5 AI 27+4.5		AE27+2.5 AI 27+2.5		AE27-1.5 AI 27-1.5
KA27U	AE27U+4.5 AI 27U+4.5		AE27U+2.5 AI 27U+2.5		AE27U-1.5 AI 27U-1.5

Standard Kits

Threading Kits are a versatile solution for users that cut a variety of thread types in limited quantity and do not want to sacrifice thread quality.

External ISO Kit
Ordering Code:KEG

INSERTS
16 ER A60 P25C
16 ER G60 P25C
16 ER 0.75 ISO P25C
16 ER 1.0 ISO P25C
16 ER 1.25 ISO P25C
16 ER 1.5 ISO P25C
16 ER 1.75 ISO P25C
16 ER 2.0 ISO P25C
16 ER 2.5 ISO P25C
16 ER 3.0 ISO P25C
TOOLHOLDERS
SER 2020 K16
KEY
K16
SCREW
S16

Internal ISO Kit
Ordering Code:KIG

INSERTS
16 IR A60 P25C
16 IR G60 P25C
16 IR 0.75 ISO P25C
16 IR 1.0 ISO P25C
16 IR 1.25 ISO P25C
16 IR 1.5 ISO P25C
16 IR 1.75 ISO P25C
16 IR 2.0 ISO P25C
16 IR 2.5 ISO P25C
16 IR 3.0 ISO P25C
TOOLHOLDERS
SIR 0020 K16
KEY
K16
SCREW
S16

If a larger toolholders with a 25 mm shank is required, add to the kit 25. For example: KIG - 25

Miniature & Ultra-Miniature Kits

Ordering Code	Type	No. of Inserts	Contents Inserts	Contents Boring Bar	Contents Key
KU60M - BXC	ULTRA	10	06 IR A60 BXC	SIR 0005 H06	K6
KM60M - BXC	MINI	10	08 IR A60 BXC	SIR 0007 K08	K8

Inserts' Kits

Type B Kits

Type B threading inserts.
A combination of ground profile and sintered chip-breaker threading inserts.
BMA Grade: Sub-Micron carbide grade with TiAlN multi-layer Coating.

EXTERNAL ISO KIT
KEMB - BMA

16 ER B 1.0 ISO BMA-2 Pcs
16 ER B 1.25 ISO BMA-2 Pcs
16 ER B 1.5 ISO BMA-2 Pcs
16 ER B 1.75 ISO BMA-2 Pcs
16 ER B 2.0 ISO BMA-2 Pcs

EX-RH

INTERNAL ISO KIT
KIMB - BMA

16 IR B 1.0 ISO BMA-2 Pcs
16 IR B 1.25 ISO BMA-2 Pcs
16 IR B 1.5 ISO BMA-2 Pcs
16 IR B 1.75 ISO BMA-2 Pcs
16 IR B 2.0 ISO BMA-2 Pcs

IN-RH

Standard Inserts' Kits

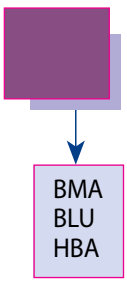
EXTERNAL ISO KIT

16 ER 1.0 ISO-2 Pcs
16 ER 1.25 ISO-2 Pcs
16 ER 1.5 ISO-2 Pcs
16 ER 1.75 ISO-2 Pcs
16 ER 2.0 ISO-2 Pcs

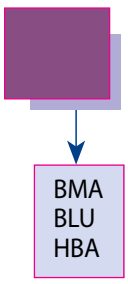
INTERNAL ISO KIT

16 IR 1.0 ISO-2 Pcs
16 IR 1.25 ISO-2 Pcs
16 IR 1.5 ISO-2 Pcs
16 IR 1.75 ISO-2 Pcs
16 IR 2.0 ISO-2 Pcs

Ordering Code: KEM



Ordering Code: KIM



Threading & Boring Combination Kit

A practical and convenient combination kit for Ultra Miniature Threading and Boring. It enables Boring and Threading of mini bores as small as 6 mm diameter (1/4") with just one deep reaching CARBIDE shank ultra mini Boring Bar.

Ordering Code	Contents			
	Threading Insert	Turning Inserts	Boring Bar	Key
KC6TM	06 IR A60 BXC 10Pcs	06 IR TURN BMA 10Pcs	SIR 0005 H06CB	K6

BMA - Coated carbide grade for medium to high cutting speeds
BXC - Coated carbide grade for low cutting speed - 40 to 90 m/min
CB - Carbide shank boring bar with coolant bore

Double Sided Thread Turning Inserts

A unique line of 2 sided inserts including 6 cutting edges, a cost saving tool.

Advantages of DSI-Thread Turning Inserts

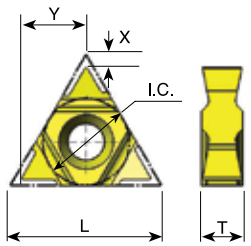
- Increased productivity thanks to the six cutting edges.
- U-Style inserts for a wide range of full or partial profile standard threads.
- Same insert for right hand or left hand thread.
- Saving on tooling costs.
- Unique anti-vibration anvil designed for clamping the insert and supporting the cutting edge.
- Simple insert's mounting and cutting edge indexing.
- Heavy duty toolholders designed specially for this line.

Contents: Page:

Product Identification

DSI Ordering Code

16U



L 16U — I.C. 3.8"U

E

E=External
I = Internal

R/L

R = Right Hand
L = Left Hand

1.5

Pitch mm:
1.5-5.0
inch - TPI:
16-5

ISO

Full Profiles:
ISO
UN
WHIT
NPT

Partial Profiles:

G60	G55
AG60	AG55
N60	N55

6

Inserts with 6 cutting edges

BMA

Grade:
MXC
BMA

S

Clamping Method
S = Screw

E

E = External
I = Internal

R

R = Right Hand
L = Left Hand

2020

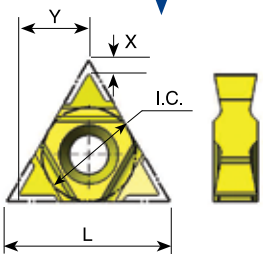
Shank Cross Section:
External toolholders square shank
2020= 20 mm x 20 mm

Internal toolholders & boring bars round shank
0020 = Diam. of 20 mm

K

Length of Toolholders:
K = 125mm
M = 150mm
P = 170mm
R = 200mm

16U

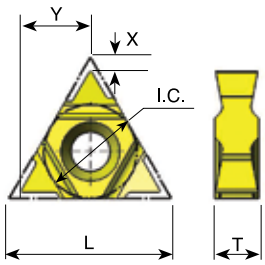


L 16U — I.C. 3.8"U

B: with internal coolant bore

6 - for DSI Thread Turning Insert

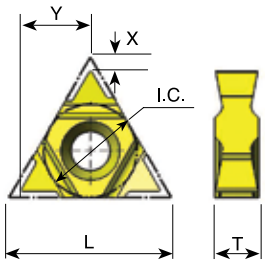
Partial Profile 60°



Pitch Range mm	Pitch Range TPI	L	I.C. in	EXTERNAL Ordering Code	INTERNAL Ordering Code	X	Y	T
1.75 - 3.0	14-8	16U	3/8U	16U ER/L G60-6	16U IR/L G60-6	1.4	7.1	4.5
0.5 - 3.0	48-8	16U	3/8U	16U ER/L AG60-6	16U IR/L AG60-6	1.4	7.1	4.5
3.5 - 5.0	7-5	16U	3/8U	16U ER/L N60-6	16U IR/L N60-6	1.2	7.3	4.5

Available grades: BMA or MXC

Partial Profile 55°

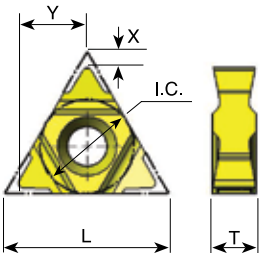


Pitch Range mm	Pitch Range TPI	L	I.C. in	EXTERNAL Ordering Code	INTERNAL Ordering Code	X	Y	T
1.75 - 3.0	14-8	16U	3/8U	16U ER/L G55-6	16U IR/L G55-6	1.4	7.1	4.5
0.5 - 3.0	48-8	16U	3/8U	16U ER/L AG55-6	16U IR/L AG55-6	1.4	7.1	4.5
3.5 - 5.0	7-5	16U	3/8U	16U ER/L N55-6	16U IR/L N55-6	1.2	7.3	4.5

Available grades: BMA or MXC

For Carbide Grade and Cutting Speed see page 60-61

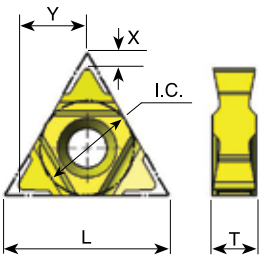
ISO



Pitch mm	L	I.C. in	EXTERNAL Ordering Code	INTERNAL Ordering Code	X	Y	T
1.5	16U	3/8U	16U ER/L 1.5 ISO-6	16U IR/L 1.5 ISO-6	1.6	6.9	4.5
1.75	16U	3/8U	16U ER/L 1.75 ISO-6	16U IR/L 1.75 ISO-6	1.6	6.9	4.5
2.0	16U	3/8U	16U ER/L 2.0 ISO-6	16U IR/L 2.0 ISO-6	1.6	6.9	4.5
2.5	16U	3/8U	16U ER/L 2.5 ISO-6	16U IR/L 2.5 ISO-6	1.6	6.9	4.5
3.0	16U	3/8U	16U ER/L 3.0 ISO-6	16U IR/L 3.0 ISO-6	1.6	6.9	4.5
3.5	16U	3/8U	16U ER/L 3.5 ISO-6	16U IR/L 3.5 ISO-6	1.6	6.9	4.5
4.0	16U	3/8U	16U ER/L 4.0 ISO-6	16U IR/L 4.0 ISO-6	1.6	6.9	4.5
4.5	16U	3/8U	16U ER/L 4.5 ISO-6	16U IR/L 4.5 ISO-6	1.6	6.9	4.5
5.0	16U	3/8U	16U ER/L 5.0 ISO-6	16U IR/L 5.0 ISO-6	1.6	6.9	4.5

Available grades: BMA or MXC

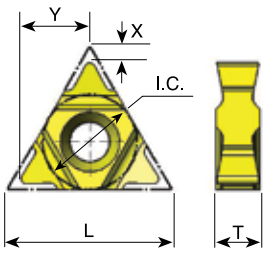
UN - Unified UNC, UNF, UNEF, UNS



Pitch TPI	L	I.C. in	EXTERNAL Ordering Code	INTERNAL Ordering Code	X	Y	T
16	16U	3/8U	16U ER/L 16 UN-6	16U IR/L 16 UN-6	1.6	6.9	4.5
14	16U	3/8U	16U ER/L 14 UN-6	16U IR/L 14 UN-6	1.6	6.9	4.5
13	16U	3/8U	16U ER/L 13 UN-6	16U IR/L 13 UN-6	1.6	6.9	4.5
12	16U	3/8U	16U ER/L 12 UN-6	16U IR/L 12 UN-6	1.6	6.9	4.5
11.5	16U	3/8U	16U ER/L 11.5 UN-6	16U IR/L 11.5 UN-6	1.6	6.9	4.5
11	16U	3/8U	16U ER/L 11 UN-6	16U IR/L 11 UN-6	1.6	6.9	4.5
10	16U	3/8U	16U ER/L 10 UN-6	16U IR/L 10 UN-6	1.6	6.9	4.5
9	16U	3/8U	16U ER/L 9 UN-6	16U IR/L 9 UN-6	1.6	6.9	4.5
8	16U	3/8U	16U ER/L 8 UN-6	16U IR/L 8 UN-6	1.6	6.9	4.5
7	16U	3/8U	16U ER/L 7 UN-6	16U IR/L 7 UN-6	1.6	6.9	4.5
6	16U	3/8U	16U ER/L 6 UN-6	16U IR/L 6 UN-6	1.6	6.9	4.5
5	16U	3/8U	16U ER/L 5 UN-6	16U IR/L 5 UN-6	1.6	6.9	4.5

Available grades: BMA or MXC
For Carbide Grade and Cutting Speed see page 60-61

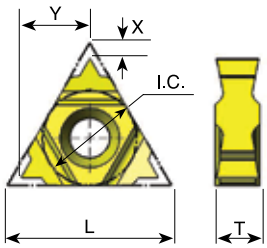
Whitworth 55° BSW, BSF, BSP, BSB



Pitch TPI	L	I.C. in	EXTERNAL Ordering Code	INTERNAL Ordering Code	X	Y	T
16	16U	3/8U	16U ER/L 16 W-6	16U IR/L 16 W-6	1.6	6.9	4.5
14	16U	3/8U	16U ER/L 14 W-6	16U IR/L 14 W-6	1.6	6.9	4.5
12	16U	3/8U	16U ER/L 12 W-6	16U IR/L 12 W-6	1.6	6.9	4.5
11	16U	3/8U	16U ER/L 11 W-6	16U IR/L 11 W-6	1.6	6.9	4.5
10	16U	3/8U	16U ER/L 10 W-6	16U IR/L 10 W-6	1.6	6.9	4.5
9	16U	3/8U	16U ER/L 9 W-6	16U IR/L 9 W-6	1.6	6.9	4.5
8	16U	3/8U	16U ER/L 8 W-6	16U IR/L 8 W-6	1.6	6.9	4.5
7	16U	3/8U	16U ER/L 7 W-6	16U IR/L 7 W-6	1.6	6.9	4.5
6	16U	3/8U	16U ER/L 6 W-6	16U IR/L 6 W-6	1.6	6.9	4.5
5	16U	3/8U	16U ER/L 5 W-6	16U IR/L 5 W-6	1.4	7.2	4.5

Available grades: BMA or MXC

NPT



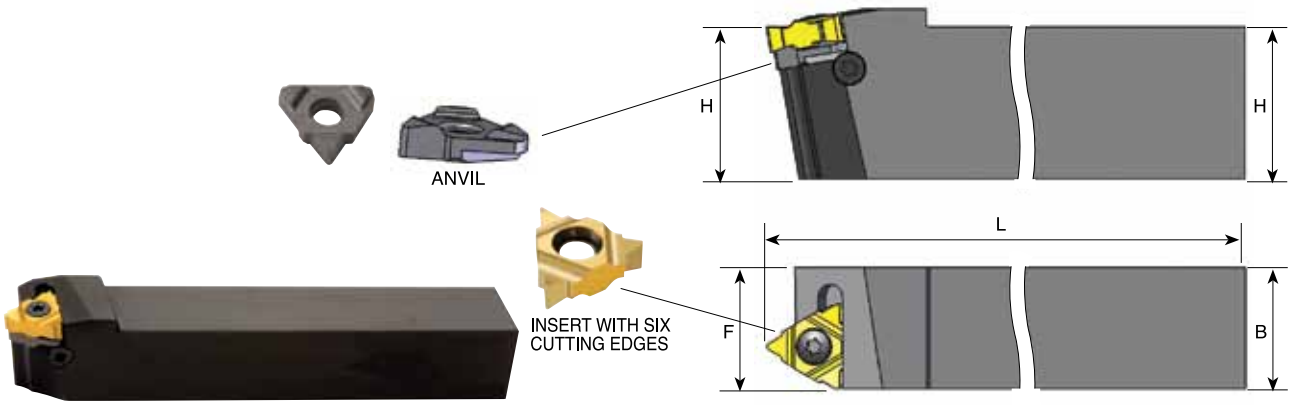
Pitch TPI	L	I.C. in	EXTERNAL Ordering Code	INTERNAL Ordering Code	X	Y	T
14	16U	3/8U	16U ER/L 14 NPT-6	16U IR/L 14 NPT-6	1.6	6.9	4.5
11.5	16U	3/8U	16U ER/L 11.5 NPT-6	16U IR/L 11.5 NPT-6	1.6	6.9	4.5
8	16U	3/8U	16U ER/L 8 NPT-6	16U IR/L 8 NPT-6	1.6	6.9	4.5

Available grades: BMA or MXC

For Carbide Grade and Cutting Speed see page 60-61

Heavy Duty Thread Turning Toolholders

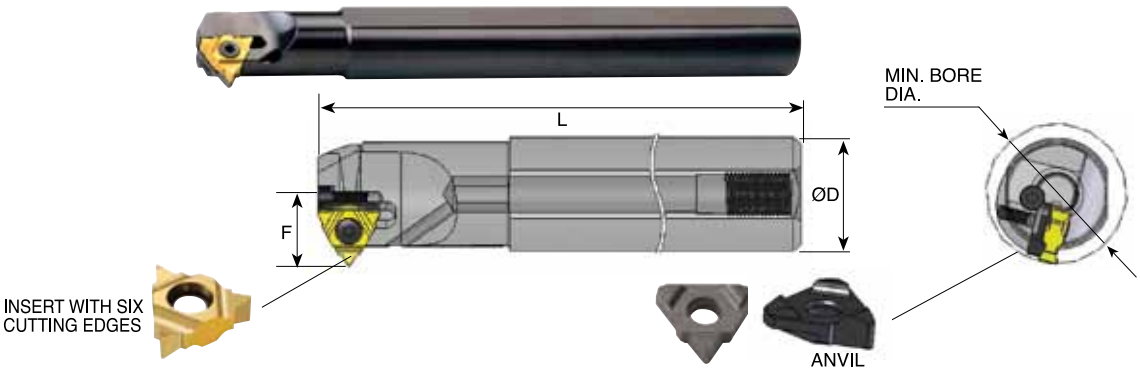
External



Ordering Code Right Hand	H	B	L	F	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
SER 2020 K16U-6	20	20	125	20	S16	A16	K16	AER 16U-6	AEL 16U-6
SER 2520 M16U-6	25	20	150	20	S16	A16	K16	AER 16U-6	AEL 16U-6

For **LEFT HAND** toolholders specify SE**L** instead of SE**R**

Internal with coolant bore



Ordering Code Right Hand	ØD	Min. bore dia.	L	F	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
SIR 0020 P16UB-6	20	24	170	14.9	S16	A16	K16	AIR 16U-6	AIL 16U-6
SIR 0025 R16UB-6	25	29	200	17.4	S16	A16	K16	AIR 16U-6	AIL 16U-6

For **LEFT HAND** toolholders specify SI**L** instead of SI**R**

Thread Turning Technical Section

Carbide Grade Selection

Choose the Carmex grade specifically formulated for your application from the following list:

Coated Grades

HBA (H10-H25) (S10-S25)	Extra-fine sub-micron grade with high toughness, for optimized performance on hardened steels and cast iron up to 62HRc, titanium alloys and super alloys (hastelloy, inconel and nickel based alloys).
BLU (M10-M20) (K05-K20) (N10-N20) (S10-S20)	PVD triple layer coated sub-micron grade for stainless steels, cast iron, titanium, non ferrous metals and most of the high temperature alloys.
BMA (P20-P40) (K20-K30)	PVD TiAlN coated sub-micrograin grade for stainless steels and exotic materials at medium to high cutting speeds.
P25C (P15-P35)	PVD TiN coated grade for treated and hard alloy steels (25 HRc & up) at medium to low cutting speeds.
MXC (K10-K20) (P10-P25)	PVD TiN coated micrograin for free cutting untreated alloy steels (below 30 HRc), for stainless steels and cast iron.
BXC (P30-P50) (K25-K40)	PVD TiN coated grade for low cutting speed. Works well with wide range of stainless steels.

Uncoated Grades

P30* (P20-P30)	Carbide grade for carbon and cast steels, works well at medium to low cutting speeds.
K20* (K10-K30)	Carbide grade for non ferrous metals, aluminum and cast iron.

* Upon request

Note: Due to our unique and specialized production techniques, Carmex coated inserts provide superior cutting performance and exceptionally long tool life.

Grade availability per inserts size

Grade	HBA	BLU	BMA	P25C	MXC	BXC	P30	K20
Insert sizes	11, 16, 22, 27	11, 16, 22	06, 08, 11, 16, 22, 27, 33U,	11, 16, 22, 27, 33U	11, 16, 22, 27, 33U	06, 08	11, 16, 22, 27, 33U	06, 08 11, 16, 22, 27, 33U
			Type-B 11, 16					

Type B - Threading Inserts

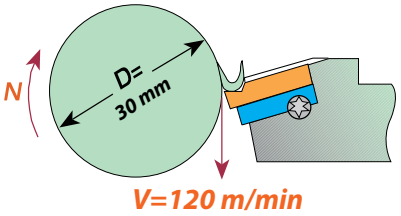
A combination of ground profile, and sintered chip-breaker threading inserts.
Unlike most other manufacturers inserts, this combination ensures a consistent high quality thread, with precise shape and dimensions.
Two different unique styles of chip-breaker were designed to suit the different specific requirements of Internal threads and External threads.
All of Carmex Type B inserts are made of BMA Sub-Micrograin grade.

Recommended cutting speed (m/min) for thread turning inserts

ISO Standard	Material		Condition	HBA	BLU	BMA	P25C	MXC	BXC	K20	P30
P	Non-Alloy Steel and Cast Steel, Free Cutting Steel	<0.25%C	Annealed		110-210	120-180	100-180	100-180	70-150		50-130
		≥0.25%C	Annealed								
		<0.55%C	Quenched & Tempered								
		≥0.55%C	Annealed								
			Quenched & Tempered								
	Low Alloy Steel and Cast Steel (less than 5% alloying elements)		Annealed		90-140	80-130	70-120	70-120	60-90		50-80
			Quenched & Tempered								
	High Alloy Steel, Cast Steel, and Tool Steel		Annealed		70-90	60-80	50-60	55-70	50-60		40-50
			Quenched & Tempered								
M	Stainless Steel and Cast Steel		Ferritic / Martensitic		110-160	90-130	60-90	60-90	50-80	50-80	
			Martensitic								
			Austenitic								
K	Cast Iron Nodular (GGG)		Ferritic / Pearlitic		120-150	100-130		80-110	60-90		
			Pearlitic								
	Grey Cast Iron (GG)		Ferritic		140-150	120-130		90-100	65-85		
			Pearlitic								
	Malleable Cast Iron		Ferritic		110-140	100-130		80-100	60-85		
			Pearlitic								
N	Aluminum-Wrought Alloy		Not Cureable		700-1000			600-800	450-600	600-800	350-500
			Cured								
	Aluminum-Cast, Alloyed	<=12% Si	Not Cureable		280-750			200-550	150-350	200-550	110-300
			Cured								
		>12% Si	High Temperature								
	Copper Alloys	>1% Pb	Free Cutting		190-350			150-250	110-180	150-250	90-150
			Brass								
			Electrolytic Copper								
	Non Metallic		Duroplastics, Fiber Plastics					200-300	150-210	100-200	110-150
			Hard Rubber								
S	High Temp. Alloys, Super Alloys	Fe based	Annealed	20-80	30-65	25-60					
			Cured								
		Ni or Co based	Annealed								
			Cured								
			Cast								
	Titanium Alloys		Alpha +Beta Alloys Cured	30-60	40-50	35-45				35-45	
H	Hardened Steel		Hardened 45-50 HRc	30-60	40-50	35-45					
			Hardened 51-55 HRc								
			Hardened 56-62 HRc								
	Chilled Cast Iron		Cast	20-50	30-40	25-35					
	Cast Iron		Hardened	20-40	20-30	15-25					

Conversion of Cutting Speed to Rotational Speed

Conversion of a selected cutting speed to rotational speed is calculated by the following formula:



Example

$$N = \frac{V \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 30} = 1274 \text{ RPM}$$

Number of passes and depth of cut per pass for multitooth insert

	Pitch mm	Insert Size		No. of Teeth	Ordering Code	No. of Passes	Depth of Cut per pass			
		L	I.C. (in)				1	2	3	4
ISO External	1.00	16	3/8	3	16 ER 1.0 ISO 3M	2	0.38	0.25		
	1.50	16	3/8	2	16 ER 1.5 ISO 2M	3	0.42	0.30	0.20	
	1.50	22	1/2	3	22 ER 1.5 ISO 3M	2	0.55	0.37		
	2.00	22	1/2	2	22 ER 2.0 ISO 2M	3	0.57	0.40	0.28	
	2.00	22	1/2	3	22 ER 2.0 ISO 3M	2	0.76	0.49		
	3.00	27	5/8	2	27 ER 3.0 ISO 2M	4	0.59	0.51	0.42	0.32
ISO Internal	1.00	16	3/8	3	16 IR 1.0 ISO 3M	2	0.33	0.25		
	1.50	16	3/8	2	16 IR 1.5 ISO 2M	3	0.38	0.29	0.20	
	1.50	22	1/2	3	22 IR 1.5 ISO 3M	2	0.50	0.37		
	2.00	22	1/2	2	22 IR 2.0 ISO 2M	3	0.52	0.37	0.26	
	2.00	22	1/2	3	22 IR 2.0 ISO 3M	2	0.70	0.45		
	3.00	27	5/8	2	27 IR 3.0 ISO 2M	4	0.58	0.46	0.39	0.30
UN External	16	16	3/8	2	16 ER 16 UN 2M	3	0.44	0.31	0.22	
	16	22	1/2	3	22 ER 16 UN 3M	2	0.58	0.39		
	12	22	1/2	2	22 ER 12 UN 2M	3	0.59	0.42	0.30	
	12	22	1/2	3	22 ER 12 UN 3M	2	0.78	0.52		
	8	27	5/8	2	27 ER 8 UN 2M	4	0.62	0.54	0.45	0.35
UN Internal	16	16	3/8	2	16 IR 16 UN 2M	3	0.42	0.28	0.22	
	16	22	1/2	3	22 IR 16 UN 3M	2	0.55	0.37		
	12	22	1/2	2	22 IR 12 UN 2M	3	0.53	0.38	0.31	
	12	22	1/2	3	22 IR 12 UN 3M	2	0.74	0.48		
	8	27	5/8	2	27 IR 8 UN 2M	4	0.63	0.50	0.40	0.30
Whitworth 55° External	14	16	3/8	2	16 ER 14 W 2M	3	0.52	0.37	0.27	
	14	22	1/2	3	22 ER 14 W 3M	2	0.70	0.46		
	11	22	1/2	2	22 ER 11 W 2M	3	0.67	0.47	0.34	
Whitworth 55° Internal	14	16	3/8	2	16 IR 14 W 2M	3	0.52	0.37	0.27	
	14	22	1/2	3	22 IR 14 W 3M	2	0.70	0.46		
	11	22	1/2	2	22 IR 11 W 2M	2	0.67	0.47	0.34	
NPT External	14	16	3/8	2	16 ER 14 NPT 2M	3				
	11.5	22	1/2	2	22 ER 11.5 NPT 2M	4	0.54	0.47	0.37	0.30
	11.5	27	5/8	3	27 ER 11.5 NPT 3M	4	0.76	0.54	0.38	
	8	27	5/8	2	27 ER 8 NPT 2M	4	0.81	0.60	0.55	0.45
NPT Internal	14	16	3/8	2	16 IR 14 NPT 2M	3				
	11.5	22	1/2	2	22 IR 11.5 NPT 2M	4	0.54	0.47	0.37	0.30
	11.5	27	5/8	3	27 IR 11.5 NPT 3M	4	0.76	0.54	0.38	
	8	27	5/8	2	27 IR 8 NPT 2M	4	0.81	0.60	0.55	0.45
API Round External	10	22	1/2	2	22 ER 10 APIRD 2M	3	0.60	0.50	0.31	
	10	27	5/8	3	27 ER 10 APIRD 3M	2	1.00	0.41		
	8	27	5/8	2	27 ER 8 APIRD 2M	3	0.80	0.60	0.41	
API Round Internal	10	22	1/2	2	22 IR 10 APIRD 2M	3	0.60	0.50	0.31	
	10	27	5/8	3	27 IR 10 APIRD 3M	2	1.00	0.41		
	8	27	5/8	2	27 IR 8 APIRD 2M	3	0.80	0.60	0.41	

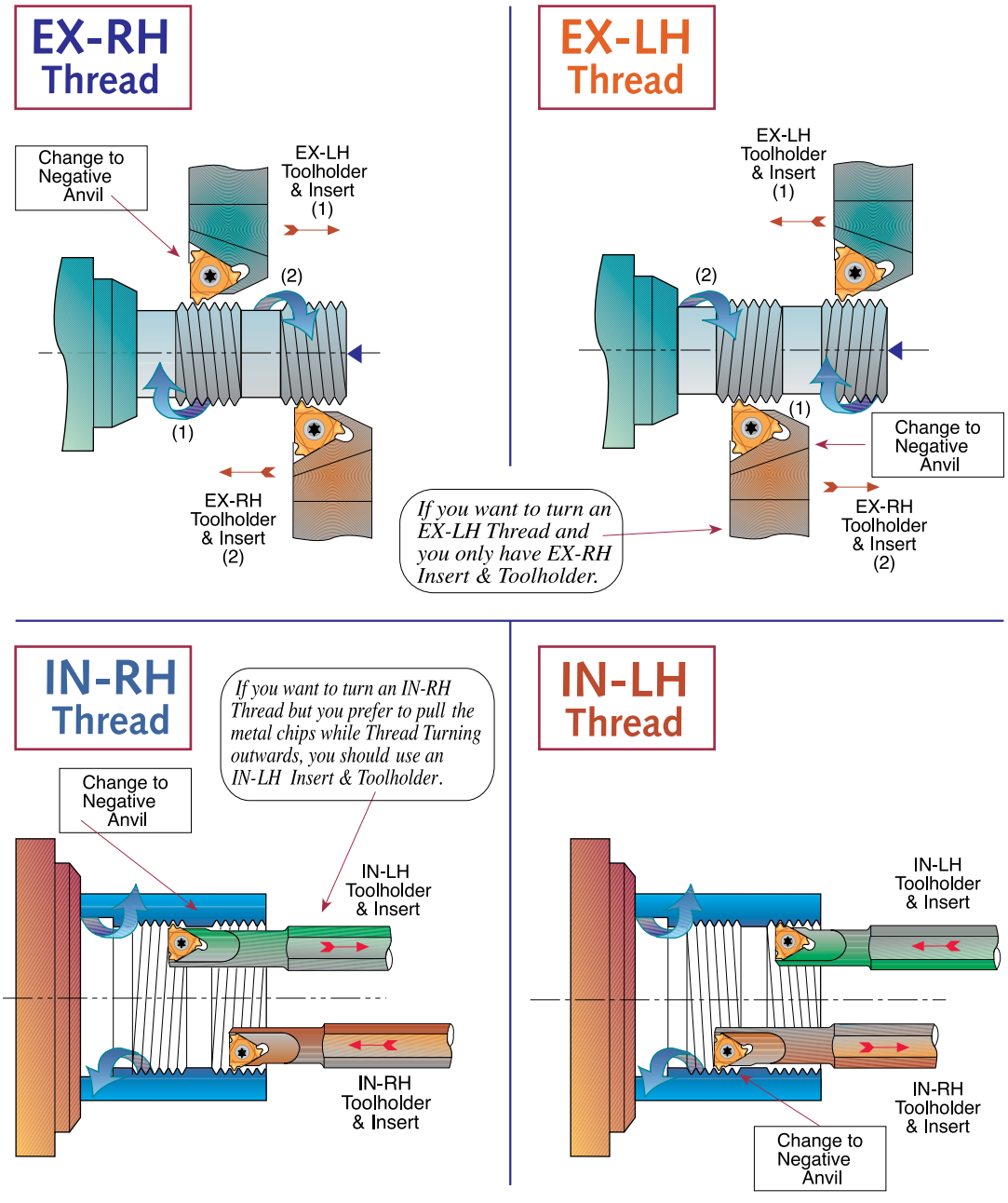
Number of threading passes selection for single point inserts

Pitch:	mm TPI	0.5 48	0.8 32	1.0 24	1.25 20	1.5 16	1.75 14	2.0 12	2.5 10	3.0 8	4.0 6	6.0 4
Number of Passes		3-6	4-7	4-9	6-10	5-11	9-12	6-13	7-15	8-17	10-20	11-22

NOTES:

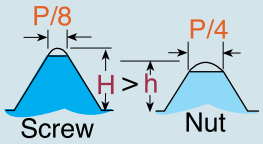
1. For most standard applications the middle of the range is a good starting point.
2. For most materials, the tougher the material, the higher the number of cutting passes you should select.
3. As a general rule of thumb, fewer passes are better than more speed.

Thread Turning Methods

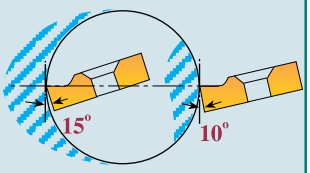


Important Points about Carmex Threading Inserts

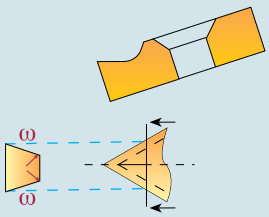
1. In most thread forms internal and external threads have different depth and radii, thus tools are not interchangeable



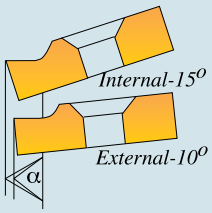
2. The Insert relief angle of a standard Carmex external toolholder is 10°; for an internal toolholder it is 15°. This 5° difference is to provide additional necessary radial clearance.



3. Our built-in relief angles ensure automatic insert flank angle clearance.



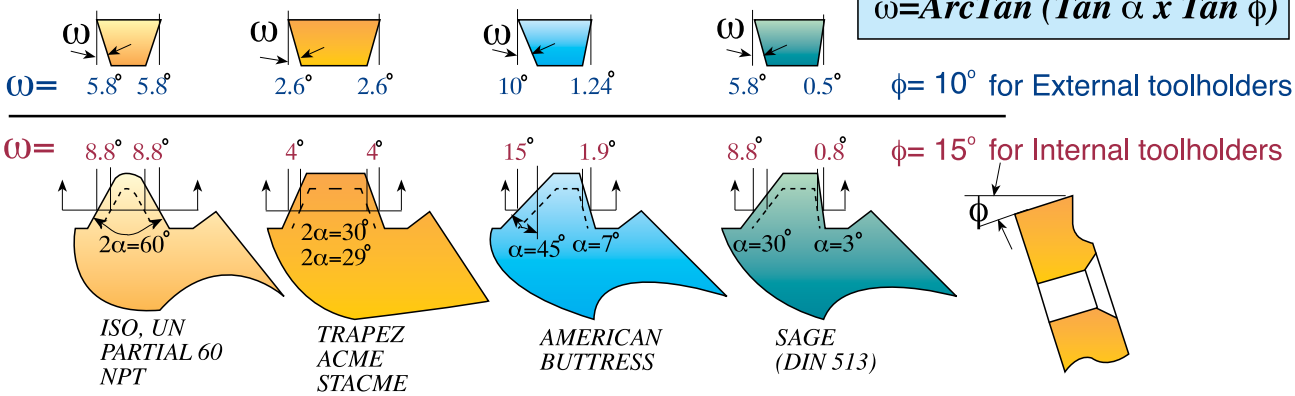
4. Profiles of Carmex internal & external threading inserts are precision ground to ensure accurate thread geometry when used in their corresponding toolholders.
Using internal inserts with an external holder will result in distortion of angle and insert geometry.



5. Insert and toolholder should always match.
An IN-RH insert must be used with an IN-RH toolholder.
No mismatch is allowed.

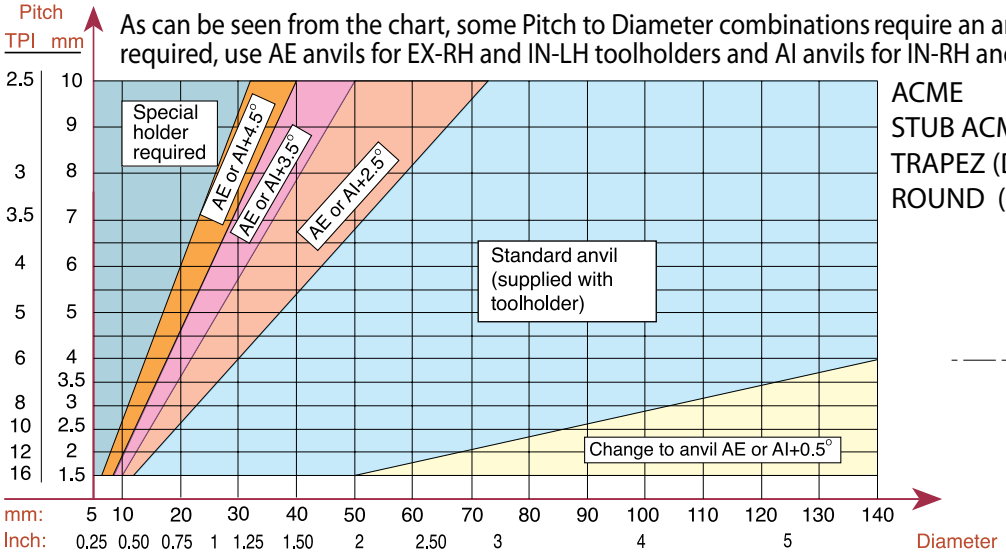
Flank Clearance Angle ω

$$\omega = ArcTan\ (Tan\ \alpha \times Tan\ \phi)$$

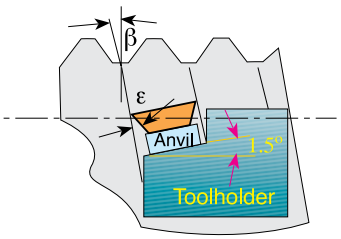


Anvil Change Recommendation

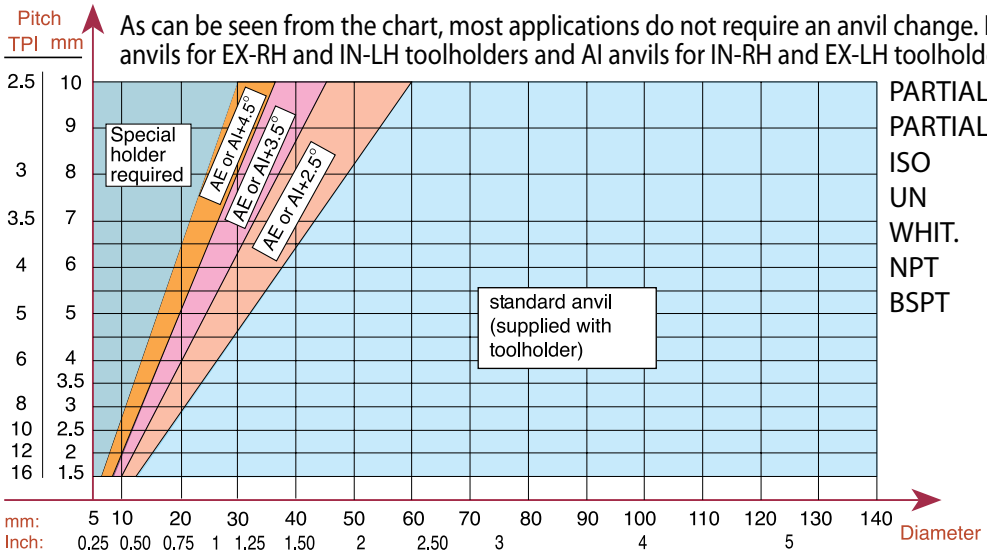
As can be seen from the chart, some Pitch to Diameter combinations require an anvil change. If change is required, use AE anvils for EX-RH and IN-LH toolholders and AI anvils for IN-RH and EX-LH toolholders.



ACME
STUB ACME
TRAPEZ (DIN 103)
ROUND (DIN 405)

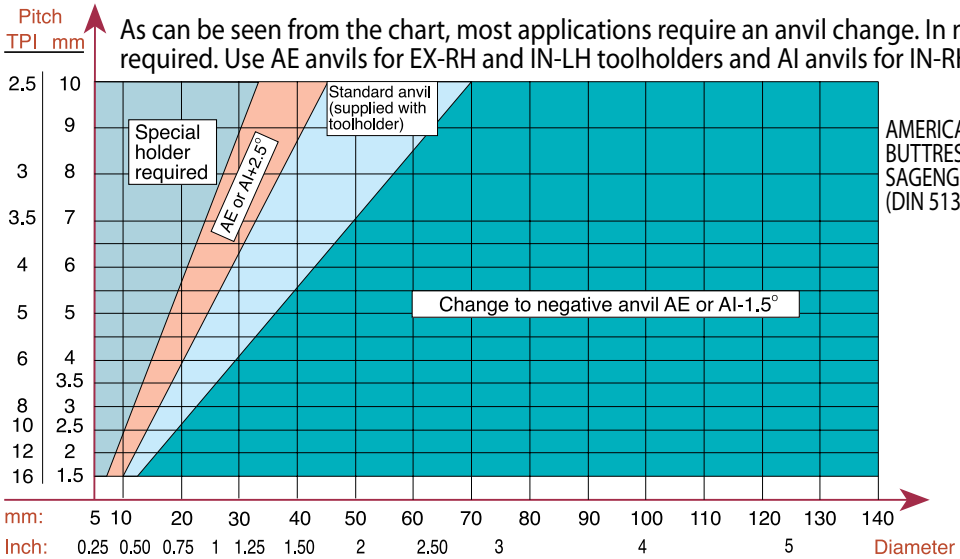


As can be seen from the chart, most applications do not require an anvil change. If change is required, use AE anvils for EX-RH and IN-LH toolholders and AI anvils for IN-RH and EX-LH toolholders.

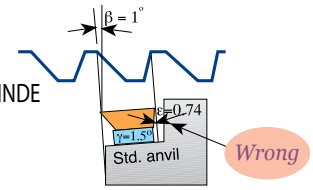


PARTIAL PROFILE 60°
PARTIAL PROFILE 55°
ISO
UN
WHIT.
NPT
BSPT

As can be seen from the chart, most applications require an anvil change. In most cases a negative anvil is required. Use AE anvils for EX-RH and IN-LH toolholders and AI anvils for IN-RH and EX-LH toolholders.

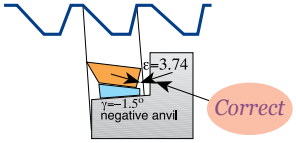


AMERICAN BUTTRESS
SAGENGEWINDE (DIN 513)



Before Anvil change

Replacing the standard anvil with an anvil with negative angle, will eliminate side rubbing



After Anvil Change

Thread Turning - Step by Step

Step 1 : Choose Thread Turning Method from page 63
Step 2 : Choose Insert
Step 3 : Choose Toolholder
Step 4 : Choose Insert Grade
Step 5 : Choose Thread Turning Speed
Step 6 : Choose Number of Threading Passes

In most cases the above mentioned 6 steps would be the steps needed to ensure a good thread. When cutting more complicated threads such as TRAPEZ, ACME, BUTTRESS or SAGE, it is advisable to check the effect of the thread "HELIX ANGLE" β on the "RESULTANT FLANK CLEARANCE" ε. If ε is smaller than 2°, an anvil change is required.

Step 7 : Find Thread Helix Angle
Step 8 : Choose Correct Anvil

EXAMPLES:

Example No. 1:

Step 1: Choose Thread Turning Method from page 63, we chose **EX - RH Insert & Toolholder**

Step 2: Choose Insert from page 9: **16 ER 1.5 ISO**

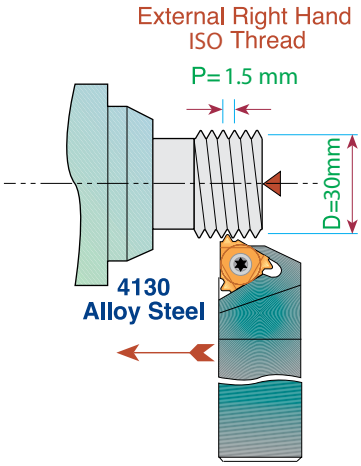
Step 3: Choose Toolholder from page 39: **SER 2020 K16**

Step 4: Choose Insert Grade from selection on page 60
Our choice for Alloy Steel is Grade **P25C**

Step 5: Choose Thread Turning Speed from chart on page 61, we chose **100 m/min**

Rotational Speed calculation: $N = \frac{100 \times 1000}{\pi \times 30} = 1065$ rpm

Step 6: Choose Number of Threading passes from table on page 63, we chose **8 passes**



Example No. 2:

Step 1: Choose Thread Turning Method from page 63
Usually, an IN-RH Toolholder and Insert will be chosen, however, in this particular case we prefer to pull the metal chips while thread turning outward, thus we chose to work with **IN-LH Insert & Toolholder**

Step 2: Choose Insert from page 13: **16 IL 12 UN**

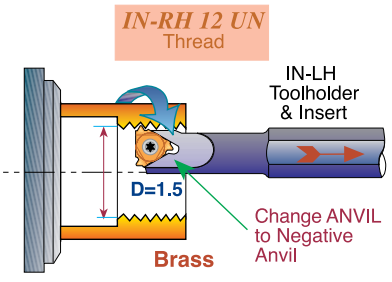
Step 3: Choose Toolholder from page 41: **SIL 0025 R16**
Note: since we thread cut IN-RH thread outward with an IN-LH tool, do not forget to replace the standard anvil (supplied with the holder) with a negative anvil **AE16-1.5**

Step 4: Choose Insert Grade from selection on page 60
Our choice for Brass is Grade **K20**

Step 5: Choose Thread Turning Speed from chart on page 61, we chose **150 m/min**

Rotational Speed calculation: $N = \frac{150 \times 1000}{\pi \times 38.1} = 1254$ RPM

Step 6: Choose Number of Threading passes from table on page 63, we chose **9 passes**



Example No. 3:

Step 1: Choose Thread Turning Method from page 63
We chose EX-RH Insert & Toolholder.

Step 2: Choose Insert from page 33: **16 ER 12 ABUT**

Step 3: Choose Toolholder from page 39: **SER 2525 M16**

Step 4: Choose Insert Grade from selection on page 60
Our choice for Stainless Steel is Grade **BMA**

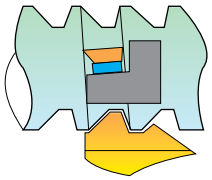
Step 5: Choose Thread Turning Speed from chart on page 61
We chose 120 m/min.
Rotational Speed calculation: $N = \frac{120 \times 1000}{\pi \times 40} = 954$ RPM

Step 6: Choose Number of Threading passes
from table on page 63. We chose **13 passes**

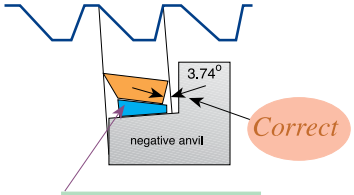
Step 7: Find Thread Helix Angle: on page 48
for Pitch of 12 TPI and 40 Diameter
Helix Angle as shown in the chart is 1°

Step 8: Choose correct Anvil: As can be seen
from the chart on page 65, for AMERICAN
BUTTRESS Thread, for 12 TPI and 40 Diameter
a negative anvil **AE16-1.5** should replace the
standard anvil supplied with the toolholder

EX-RH. AMERICAN BUTTRESS
12 TPI on 40 mm diameter.
Stainless Steel 304



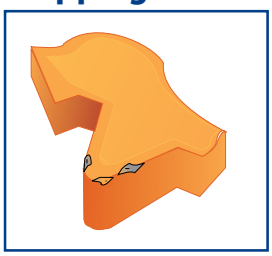
Replacing the standard anvil with an anvil with negative angle will eliminate side rubbing



Anvil chosen: AE16-1.5

Troubleshooting

Chipping



1. Use a tougher carbide grade
2. Eliminate tool overhang
3. Check if insert is correctly clamped
4. Eliminate vibration

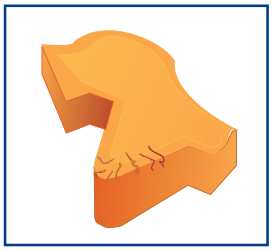
Crater Wear

1. Reduce cutting speed
2. Apply coolant fluid
3. Use a harder carbide grade

Build-up Edge

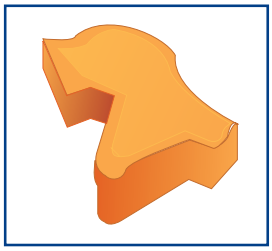
1. Increase cutting speed
2. Use a tougher carbide grade

Thermal Cracking



1. Reduce cutting speed
2. Apply coolant fluid
3. Use a tougher carbide grade

Deformation



1. Use a harder carbide grade
2. Reduce cutting speed
3. Reduce depth of cut
4. Apply coolant fluid

Fracture

1. Use a tougher carbide grade
2. Reduce depth of cut
3. Index insert sooner
4. Check machine and tool stability

Threading Inserts Standards

Thread Profile	Standard	Thread Class
ISO	DIN 13	6g / 6H
UN	ANSI B1.1-1989	2A / 2B
WHITWORTH	B.S. 84: 1956	Medium Class
NPT	ANSI B1.20.1-1983	-
NPTF	ANSI B1.20.3-1976	-
BSPT	B.S. 21: 1957	-
DIN 477	DIN 477	-
ACME	ANSI B1.5-1988	3G
STUB ACME	ANSI B1.5-1988	2G
TRAPEZ	DIN 103	7e / 7H
ROUND	DIN 405	Class 7
UNJ	MIL-S-8879C	3A / 3B
MJ	ISO 5855	4h/6h 4H/5H
AMERICAN BUTTRESS	ANSI B1.9-1973	Class 2
SAGENGEWINDE	DIN 513	-
PG	DIN 40430	-
V-0.040	API Spec7	-
V-0.038R	API Spec7	-
V-0.050	API Spec7	-
V-0.055	API Spec7	-
API ROUND	API Spec Standard 5B	-
EXTREME – LINE CASING	API Spec Standard 5B	-
BUTTRESS CASING	API Spec Standard 5B	-
VAM	VAM	-

DIN: **Deutsches Institut für Normung**
ANSI: **American National Standards Institute**
API: **American Petroleum Institute**
B.S.: **British Standards**
ISO: **International Organisation for Standardisation**
MIL-S: **Military Specification**

Grooving Tools

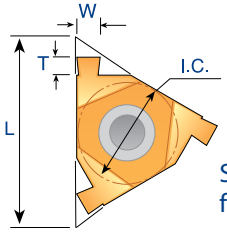
A combination of ground profile and sintered chip - breaker

Advantages:

- Same Toolholder for Grooving and Threading
- Minimum Investment in Tooling
- Three Cutting Edges
- Precision Ground

Contents: Page:

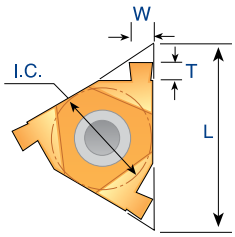
Grooving Inserts



External & Internal

ER / IL
Same insert can be used for EX.RH and for IN.LH.

IR / EL
Same insert can be used for IN.RH and for EX.LH.

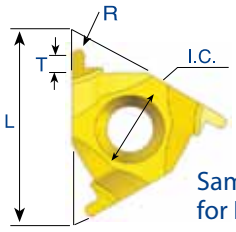


W ±0.02	T	I.C. in	L mm	Ordering Code ER/IL Inserts	Ordering Code Anvil	Ordering Code IR/EL Inserts	Ordering Code Anvil
0.50	1.4	1/4	11	**11 ER/IL 0.50**	-	**11 IR/EL 0.50**	-
0.60	1.4	1/4	11	**11 ER/IL 0.60**	-	**11 IR/EL 0.60**	-
0.70	1.4	1/4	11	**11 ER/IL 0.70**	-	**11 IR/EL 0.70**	-
0.80	1.4	1/4	11	**11 ER/IL 0.80**	-	**11 IR/EL 0.80**	-
1.00	1.4	1/4	11	**11 ER/IL 1.00**	-	**11 IR/EL 1.00**	-
1.20	1.4	1/4	11	**11 ER/IL 1.20**	-	**11 IR/EL 1.20**	-
0.50	1.4	3/8	16	**16 ER/IL 0.50**	AE 16-0	**16 IR/EL 0.50**	AI 16-0
1.00	1.4	3/8	16	**16 ER/IL 1.00**	AE 16-0	**16 IR/EL 1.00**	AI 16-0
1.20	1.6	3/8	16	**16 ER/IL 1.20**	AE 16-0	**16 IR/EL 1.20**	AI 16-0
1.40	1.8	3/8	16	**16 ER/IL 1.40**	AE 16-0	**16 IR/EL 1.40**	AI 16-0
1.70	2.0	3/8	16	**16 ER/IL 1.70**	AE 16-0	**16 IR/EL 1.70**	AI 16-0
1.95	2.0	3/8	16	**16 ER/IL 1.95**	AE 16-0	**16 IR/EL 1.95**	AI 16-0
2.25	2.25	3/8	16	**16 ER/IL 2.25**	AE 16-0	**16 IR/EL 2.25**	AI 16-0

Order example: 16 ER/IL 1.20 BXC
* The inserts should be used with our standard threading toolholders
* The anvil must be changed to AE 16-0 or AI 16-0 before using size 16mm (3/8") inserts
* Size 16 internal holders without anvil can't be used

Grooving Inserts for Snap Ring

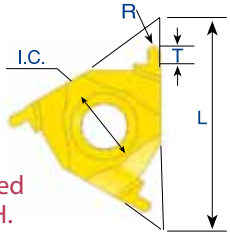
Carbide Grade: BXC



External & Internal Partial Profile Inserts

ER / IL
Same insert can be used for EX.RH and for IN.LH.

IR / EL
Same insert can be used for IN.RH and for EX.LH.



R ±0.04	T	I.C. in	L mm	Ordering Code ER/IL Inserts	Ordering Code Anvil	Ordering Code IR/EL Inserts	Ordering Code Anvil
0.5	1.4	3/8	16	**16 ER/IL R0.50**	AE 16 - 0	**16 IR/EL R0.50**	AI 16 - 0
0.6	1.6	3/8	16	**16 ER/IL R0.60**	AE 16 - 0	**16 IR/EL R0.60**	AI 16 - 0
0.9	2.0	3/8	16	**16 ER/IL R0.90**	AE 16 - 0	**16 IR/EL R0.90**	AI 16 - 0
1.0	2.0	3/8	16	**16 ER/IL R1.00**	AE 16 - 0	**16 IR/EL R1.00**	AI 16 - 0
1.1	2.15	3/8	16	**16 ER/IL R1.10**	AE 16 - 0	**16 IR/EL R1.10**	AI 16 - 0
1.2	2.25	3/8	16	**16 ER/IL R1.20**	AE 16 - 0	**16 IR/EL R1.20**	AI 16 - 0

Order example: 16ER/IL R1.20 BXC
* The inserts should be used with our standard threading toolholders
* The anvil must be changed to AE 16-0 or AI 16-0 before using size 16mm (3/8") inserts
* Size 16 internal holders without anvil can't be used

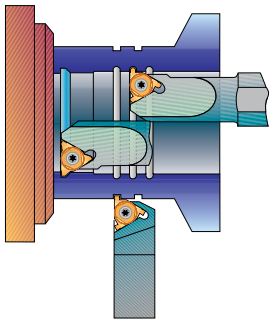
Grooving Kits

ER / IL INSERT **KGRO - EXTERNAL**		
16 ER / IL 1.0	BXC	1 unit
16 ER / IL 1.2	BXC	1 unit
16 ER / IL 1.4	BXC	1 unit
16 ER / IL 1.7	BXC	1 unit
16 ER / IL 1.95	BXC	1 unit
16 ER / IL 2.25	BXC	1 unit
ANVIL AE 16 - 0		1 unit

IR / EL INSERT **KGRO - INTERNAL**		
16 IR / EL 1.0	BXC	1 unit
16 IR / EL 1.2	BXC	1 unit
16 IR / EL 1.4	BXC	1 unit
16 IR / EL 1.7	BXC	1 unit
16 IR / EL 1.95	BXC	1 unit
16 IR / EL 2.25	BXC	1 unit
ANVIL AI 16 - 0		1 unit

Technical Section

Cutting Speeds for Grooving Tools



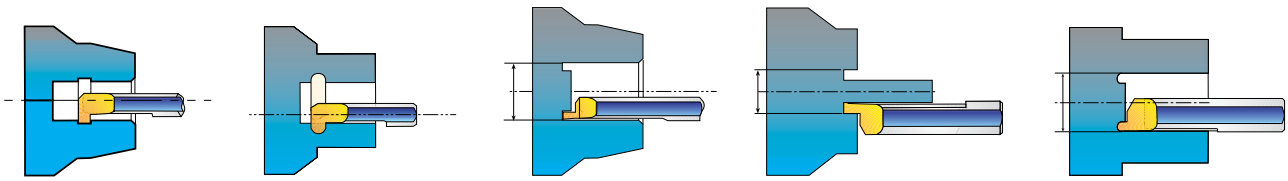
Carbide Grades:

BXC (P30 - P50, K25 - K40)
PVD TiN coated grade for low cutting speed. Works well with a wide range of stainless steels.

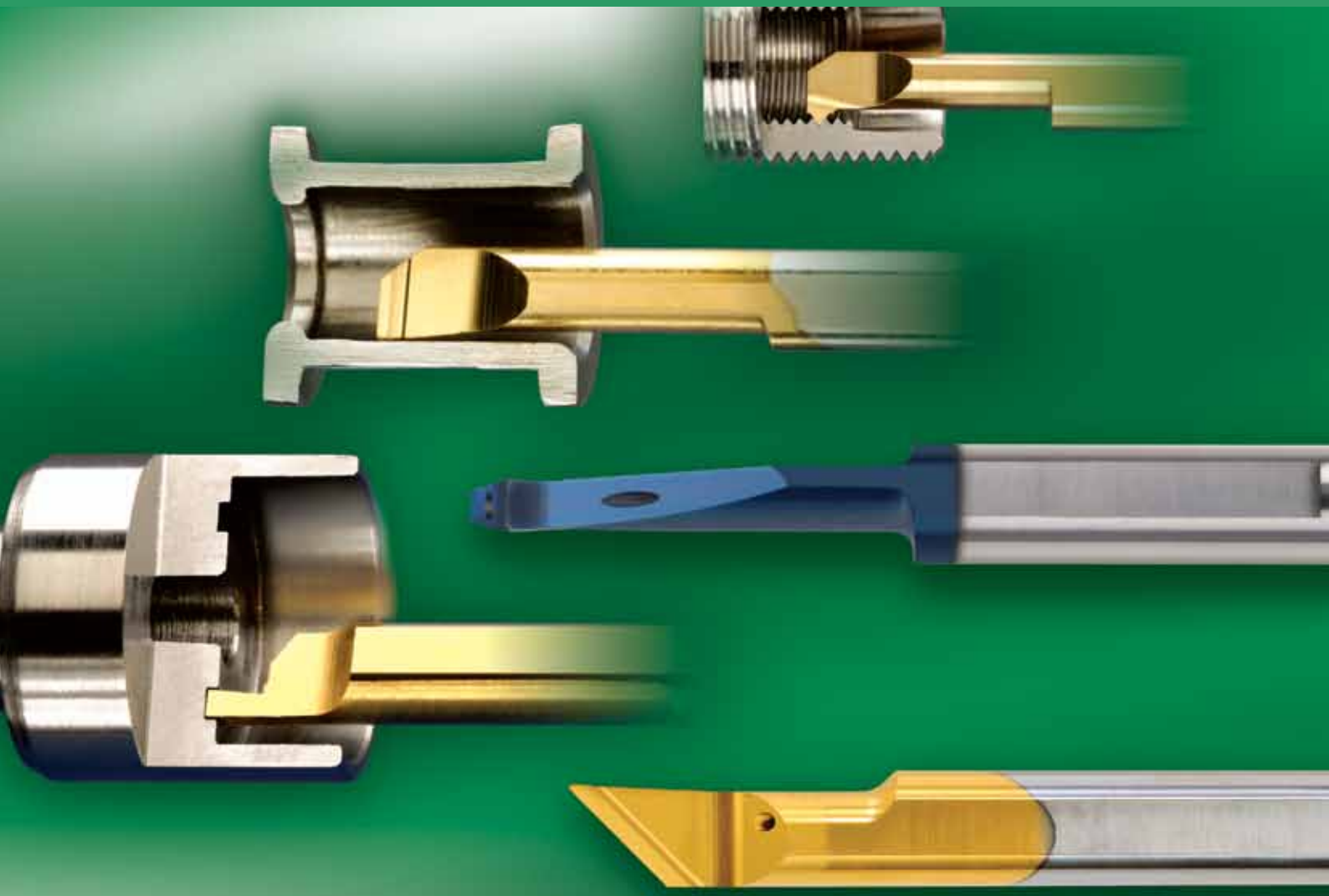
BMA (P20 - P40, K20 - K30)
PVD TiAlN coated sub-micrograin grade for stainless steels and exotic materials at medium to high cutting speeds.

ISO Standard	Materials	Cutting Speed m/min
P	Low & Medium Carbon Steel	20-100
	High Carbon Steel	30- 80
	Alloy Steels and Treated Steels	40- 90
M	Stainless Steels	30- 80
	Cast Steels	30- 90
K	Cast Iron	30- 90
N	Non-Ferrous and Aluminum	20-200

For grooving small bores see pages 89-95



Tiny Tools

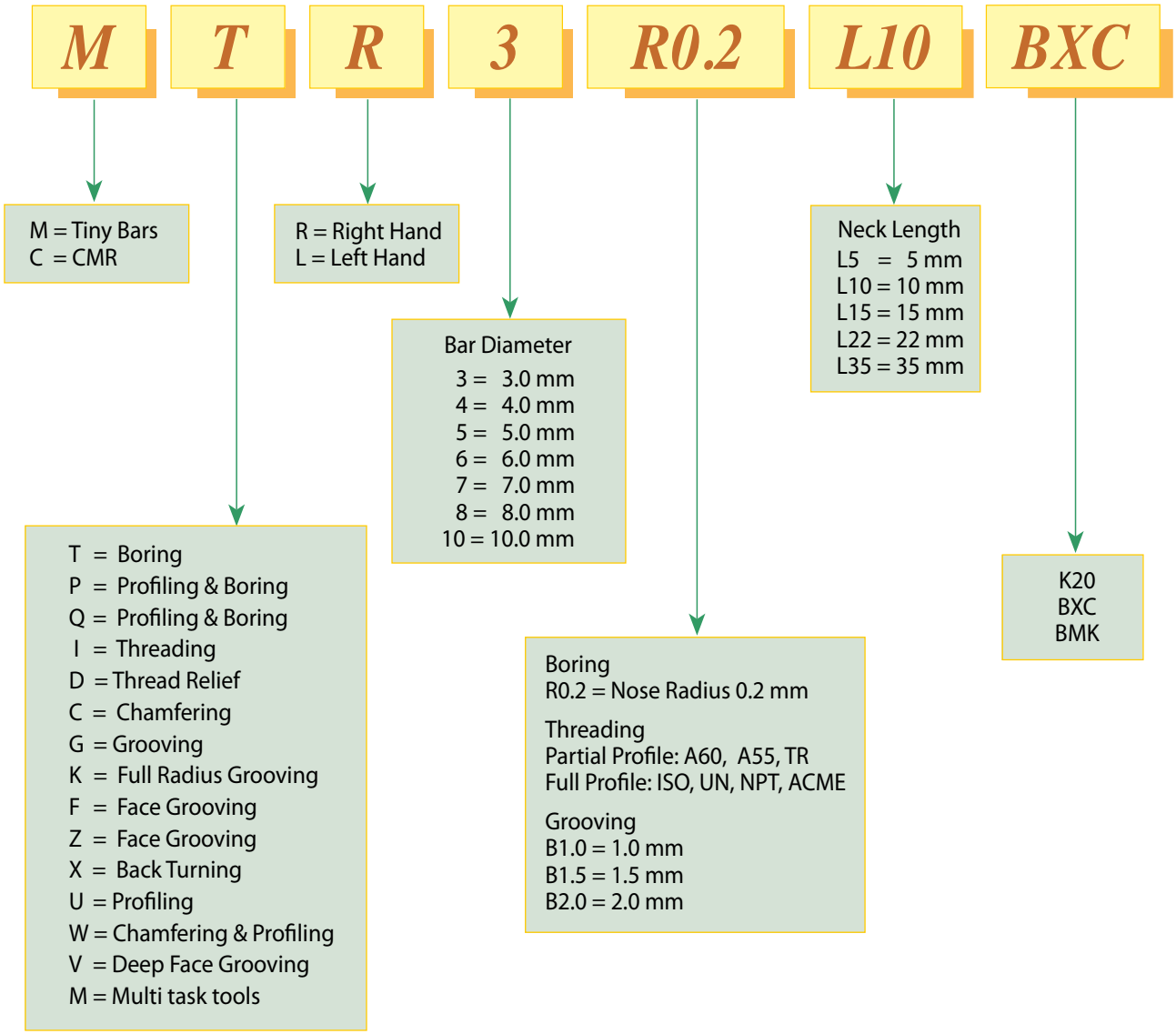


Solid Carbide tools for working in small bores

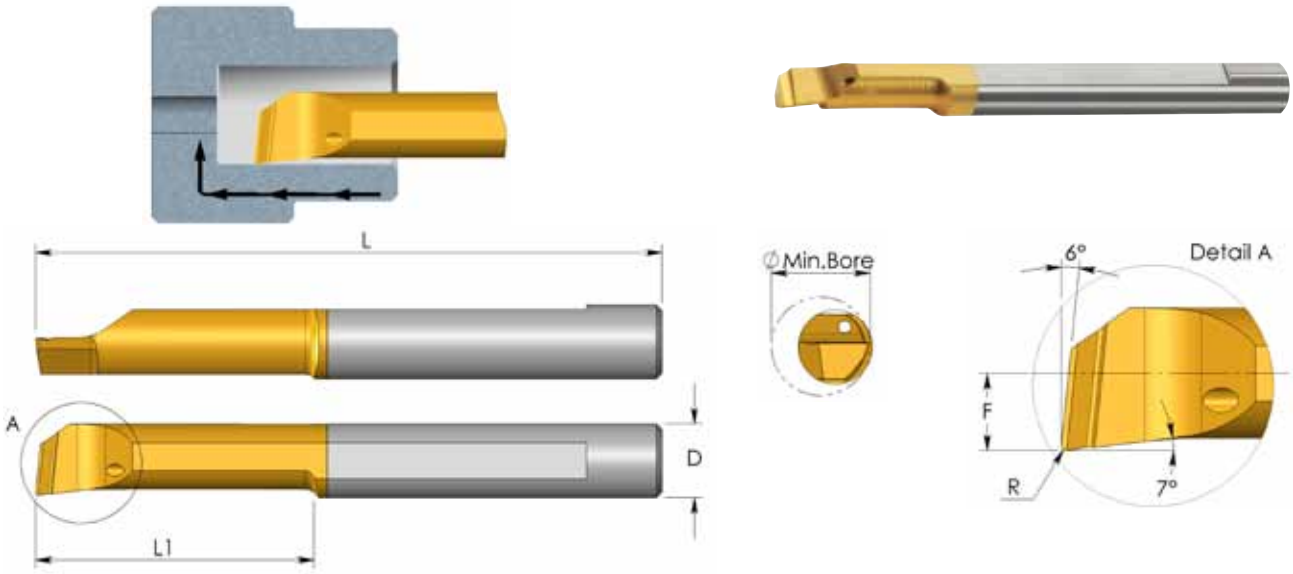
These tools are made for the high-tech, medical and small component industry. All tools include through coolant enabling the cooling fluid to reach the cutting edge efficiently, for easy chip removal and smooth cutting operations.

Product Identification

Tiny Bars Ordering Codes



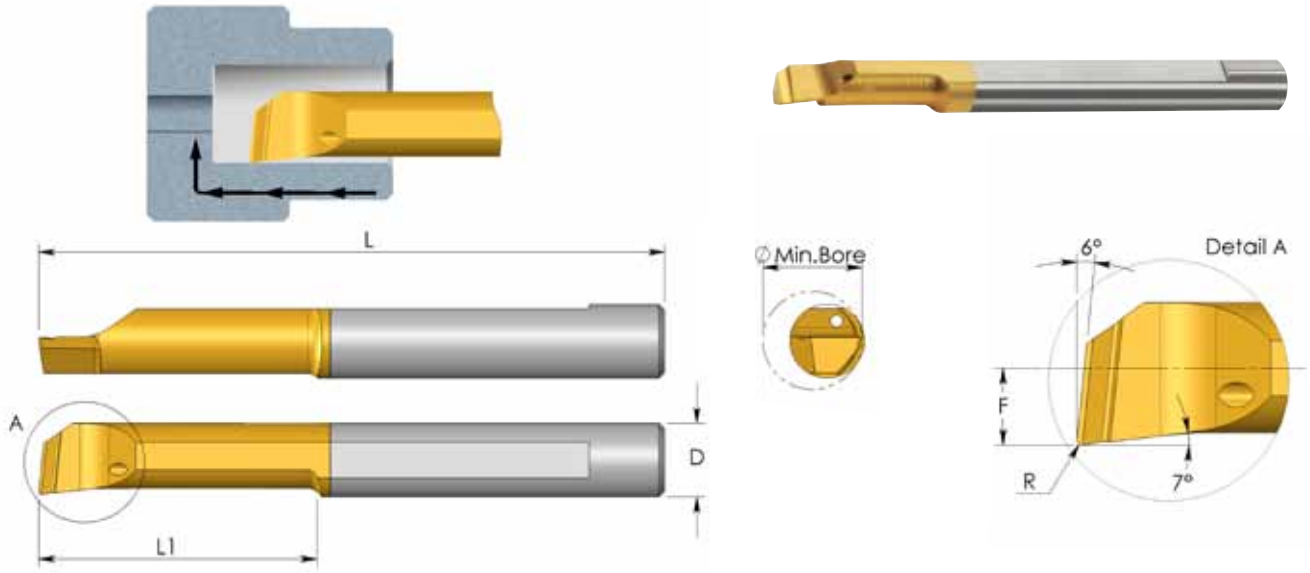
MTR Bars Boring



D	Ordering Code	L	L1	R	F	Min. Bore Dia.	Holder*
3.0	MTR 1 R0.05 L4	39	4	0.05	0.5	1.0	SIM ... H3
	MTR 1 R0.05 L6	39	6	0.05	0.5	1.0	
	MTR 1.5 R0.1 L6	39	6	0.10	0.7	1.5	
3.0	MTR 2 R0.05 L10	39	10	0.05	0.8	2.1	SIM ... H3
	MTR 2 R0.15 L5	39	5	0.15	0.8	2.1	
	MTR 2 R0.15 L10	39	10	0.15	0.8	2.1	
3.0	MTR 3 R0.05 L10	39	10	0.05	1.3	3.1	SIM ... H3
	MTR 3 R0.05 L15	39	15	0.05	1.3	3.1	
	MTR 3 R0.1 L10	39	10	0.10	1.3	3.1	
	MTR 3 R0.1 L15	39	15	0.10	1.3	3.1	
	MTR 3 R0.2 L10	39	10	0.20	1.3	3.1	
	MTR 3 R0.2 L15	39	15	0.20	1.3	3.1	
4.0	MTR 4 R0.05 L15	51	15	0.05	1.7	4.1	SIM ... H4
	MTR 4 R0.1 L10	51	10	0.10	1.7	4.1	
	MTR 4 R0.1 L15	51	15	0.10	1.7	4.1	
	MTR 4 R0.1 L22	51	22	0.10	1.7	4.1	
	MTR 4 R0.2 L10	51	10	0.20	1.7	4.1	
	MTR 4 R0.2 L15	51	15	0.20	1.7	4.1	
	MTR 4 R0.2 L22	51	22	0.20	1.7	4.1	
	MTR 4 R0.2 L30	59	30	0.20	1.7	4.1	

* For additional holders see page 100

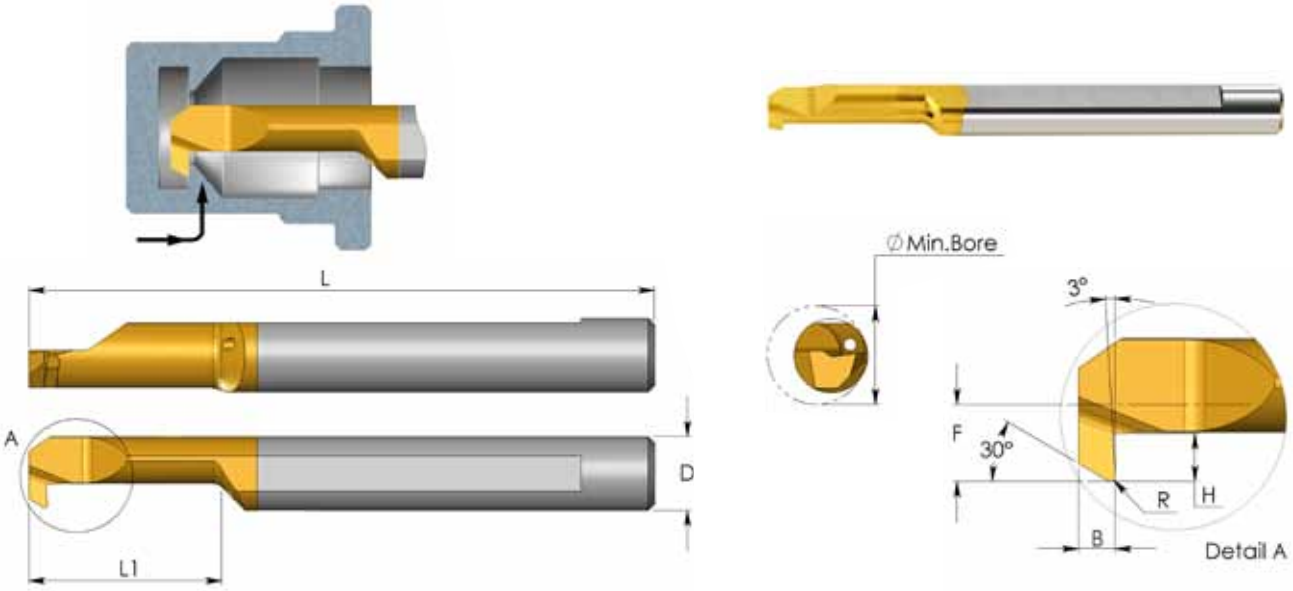
MTR Bars Boring



D	Ordering Code	L	L1	R	F	Min. Bore Dia.	Holder*
5.0	MTR 5 R0.05 L15	51	15	0.05	2.1	5.1	SIM ... H5
	MTR 5 R0.1 L15	51	15	0.10	2.1	5.1	
	MTR 5 R0.1 L22	51	22	0.10	2.1	5.1	
	MTR 5 R0.1 L30	76	30	0.10	2.1	5.1	
	MTR 5 R0.2 L15	51	15	0.20	2.1	5.1	
	MTR 5 R0.2 L22	51	22	0.20	2.1	5.1	
	MTR 5 R0.2 L30	76	30	0.20	2.1	5.1	
6.0	MTR 6 R0.05 L15	51	15	0.05	2.8	6.1	SIM ... H6
	MTR 6 R0.05 L22	51	22	0.05	2.8	6.1	
	MTR 6 R0.1 L15	51	15	0.10	2.8	6.1	
	MTR 6 R0.1 L22	51	22	0.10	2.8	6.1	
	MTR 6 R0.2 L15	51	15	0.20	2.8	6.1	
	MTR 6 R0.2 L22	51	22	0.20	2.8	6.1	
	MTR 6 R0.2 L30	58	30	0.20	2.8	6.1	
	MTR 6 R0.2 L35	76	35	0.20	2.8	6.1	
7.0	MTR 7 R0.2 L22	62	22	0.20	3.3	7.1	SIM ... H7
	MTR 7 R0.2 L30	62	30	0.20	3.3	7.1	
8.0	MTR 8 R0.2 L15	64	15	0.20	3.8	8.1	SIM ... H8
	MTR 8 R0.2 L22	64	22	0.20	3.8	8.1	
	MTR 8 R0.2 L35	76	35	0.20	3.8	8.1	
10.0	MTR10R0.2 L35	73	35	0.20	4.8	10.1	SIM ... H10

Order example: MTR 4 R0.2 L15 BXC
For L.H. bars specify MTL instead of MTR
* For additional holders see page 100

MXR Bars Back Turning



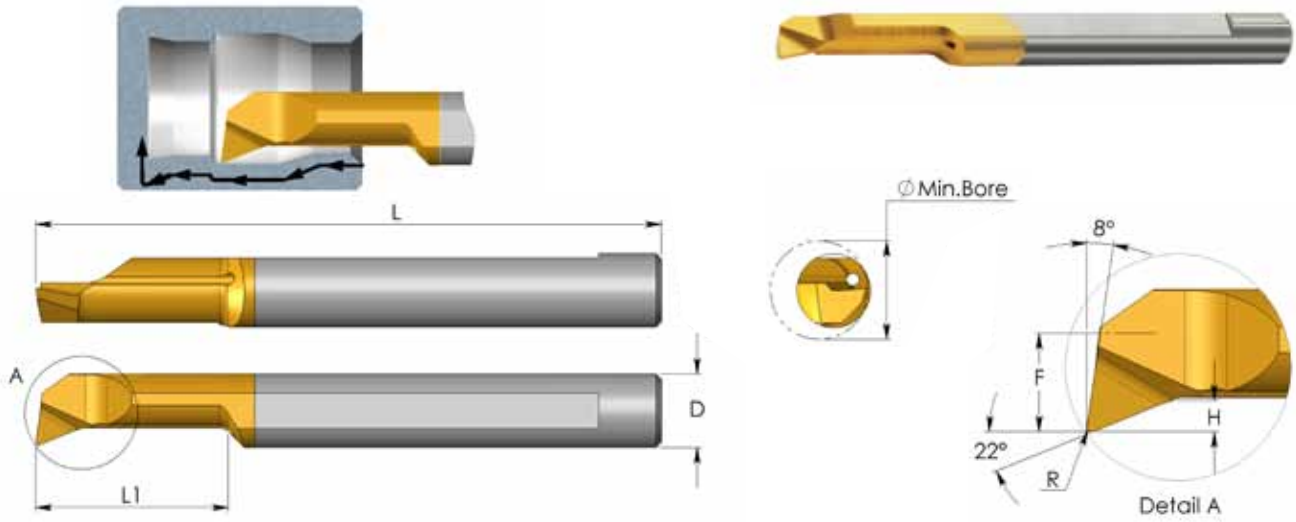
D	Ordering Code	L	L1	B	R	H	F	Min. Bore Dia.	Holder*
4.0	**MXR 4 R0.1 L10**	51	10	1.3	0.10	0.5	1.3	3.1	SIM ... H4
4.0	**MXR 4 R0.15 L10**	51	10	1.3	0.15	0.8	1.7	4.1	SIM ... H4
	MXR 4 R0.15 L15	51	15	1.3	0.15	0.8	1.7	4.1	
5.0	**MXR 5 R0.2 L15**	51	15	1.5	0.20	1.0	2.3	5.1	SIM ... H5
	MXR 5 R0.2 L22	51	22	1.5	0.20	1.0	2.3	5.1	
6.0	**MXR 6 R0.2 L15**	51	15	1.5	0.20	1.8	2.8	6.1	SIM ... H6
	MXR 6 R0.2 L22	51	22	1.5	0.20	1.8	2.8	6.1	

Order example: MXR 4 R0.15 L15 BXC

For L.H. bars specify MXL instead of MXR

* For additional holders see page 100

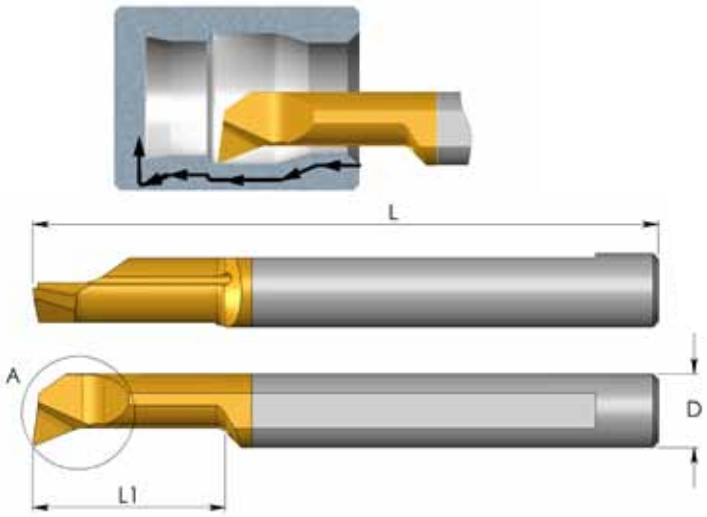
MPR Bars *Profiling and Boring*

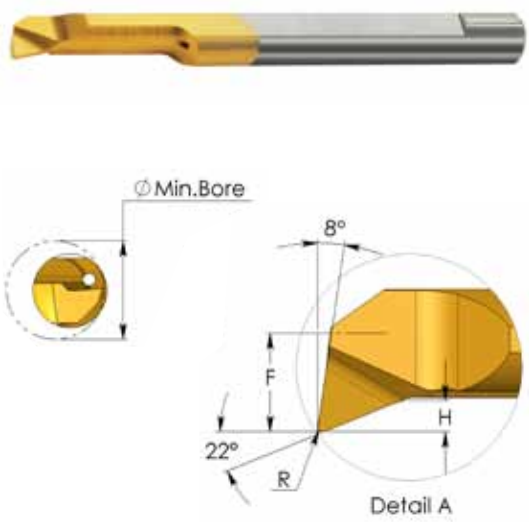


D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
3.0	MPR 1 R0.05 L4	39	4	0.05	0.2	0.5	1.0	SIM ... H3
	MPR 1 R0.05 L8	39	8	0.05	0.2	0.5	1.0	
3.0	MPR 1.5 R0.05 L10	39	10	0.05	0.3	0.7	1.5	SIM ... H3
	MPR 1.5 R0.1 L6	39	6	0.10	0.3	0.7	1.5	
	MPR 1.5 R0.1 L10	39	10	0.10	0.3	0.7	1.5	
3.0	MPR 2 R0.05 L10	39	10	0.05	0.5	0.8	2.1	SIM ... H3
	MPR 2 R0.1 L10	39	10	0.10	0.5	0.8	2.1	
	MPR 2 R0.15 L5	39	5	0.15	0.5	0.8	2.1	
	MPR 2 R0.15 L10	39	10	0.15	0.5	0.8	2.1	
	MPR 2 R0.15 L15	39	15	0.15	0.5	0.8	2.1	
3.0	MPR 3 R0.05 L10	39	10	0.05	0.7	1.3	3.1	SIM ... H3
	MPR 3 R0.05 L15	39	15	0.05	0.7	1.3	3.1	
	MPR 3 R0.1 L15	39	15	0.10	0.7	1.3	3.1	
	MPR 3 R0.1 L22	47	22	0.10	0.7	1.3	3.1	
	MPR 3 R0.2 L10	39	10	0.20	0.7	1.3	3.1	
	MPR 3 R0.2 L15	39	15	0.20	0.7	1.3	3.1	
	MPR 3 R0.2 L22	47	22	0.20	0.7	1.3	3.1	
4.0	MPR 4 R0.1 L10	51	10	0.10	0.8	1.7	4.1	SIM ... H4
	MPR 4 R0.1 L15	51	15	0.10	0.8	1.7	4.1	
	MPR 4 R0.1 L22	51	22	0.10	0.8	1.7	4.1	
	MPR 4 R0.2 L10	51	10	0.20	0.8	1.7	4.1	
	MPR 4 R0.2 L15	51	15	0.20	0.8	1.7	4.1	
	MPR 4 R0.2 L22	51	22	0.20	0.8	1.7	4.1	

* For additional holders see page 100

MPR Bars *Profiling and Boring*





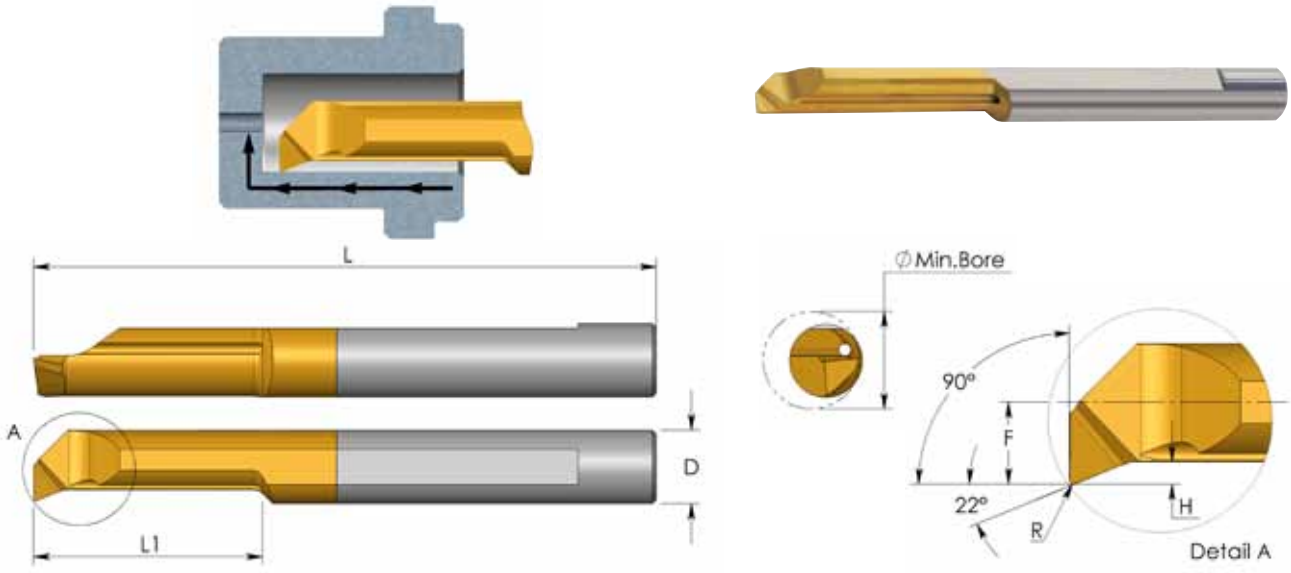
D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
5.0	**MPR 5 R0.1 L22**	51	22	0.10	1.2	2.1	5.1	SIM ... H5
	MPR 5 R0.1 L30	76	30	0.10	1.2	2.1	5.1	
	MPR 5 R0.2 L10	51	10	0.20	1.2	2.1	5.1	
	MPR 5 R0.2 L15	51	15	0.20	1.2	2.1	5.1	
	MPR 5 R0.2 L22	51	22	0.20	1.2	2.1	5.1	
	MPR 5 R0.2 L30	76	30	0.20	1.2	2.1	5.1	
6.0	**MPR 6 R0.2 L15**	51	15	0.20	1.4	2.8	6.1	SIM ... H6
	MPR 6 R0.2 L22	51	22	0.20	1.4	2.8	6.1	
	MPR 6 R0.2 L30	76	30	0.20	1.4	2.8	6.1	
7.0	**MPR 7 R0.2 L22**	62	22	0.20	1.5	3.3	7.1	SIM ... H7
	MPR 7 R0.2 L30	62	30	0.20	1.5	3.3	7.1	
	MPR 7 R0.2 L35	62	35	0.20	1.5	3.3	7.1	
8.0	**MPR 8 R0.2 L15**	64	15	0.20	1.6	3.8	8.1	SIM ... H8
	MPR 8 R0.2 L22	64	22	0.20	1.6	3.8	8.1	
	MPR 8 R0.2 L35	76	35	0.20	1.6	3.8	8.1	
10.0	**MPR 10 R0.2 L35**	73	35	0.20	2.0	4.8	10.1	SIM ... H10

Order example: MPR 4 R0.2 L15 BXC

For L.H. Bars specify MPL instead of MPR

* For additional holders see page 100

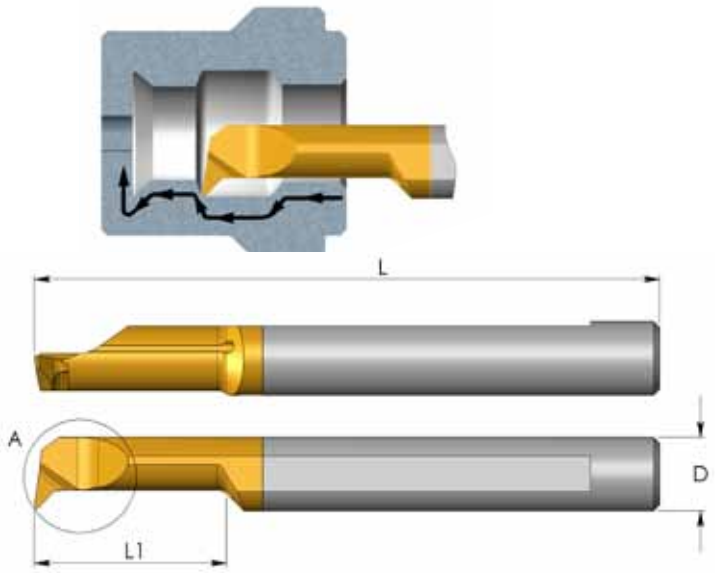
MUR Bars *Profiling, 90° Face Cutting*

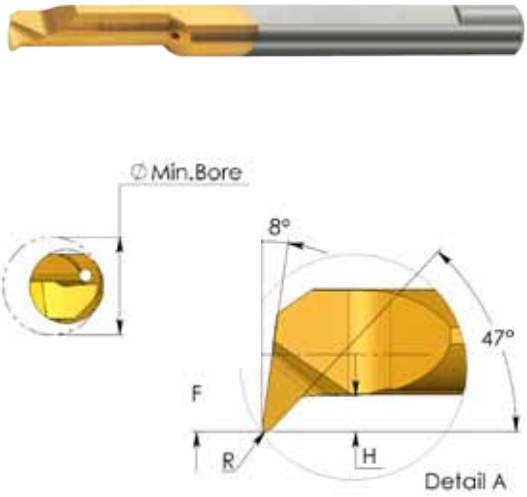


D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
3.0	**MUR 3 R0.05 L10**	39	10	0.05	0.4	1.3	3.1	SIM ... H3
	MUR 3 R0.05 L15	39	15	0.05	0.4	1.3	3.1	
4.0	**MUR 4 R0.1 L10**	51	10	0.10	0.5	1.7	4.1	SIM ... H4
	MUR 4 R0.1 L15	51	15	0.10	0.5	1.7	4.1	
5.0	**MUR 5 R0.15 L15**	51	15	0.15	0.7	2.1	5.1	SIM ... H5
	MUR 5 R0.15 L22	51	22	0.15	0.7	2.1	5.1	
6.0	**MUR 6 R0.15 L15**	51	15	0.15	0.9	2.8	6.1	SIM ... H6
	MUR 6 R0.15 L22	51	22	0.15	0.9	2.8	6.1	
8.0	**MUR 8 R0.2 L22**	64	22	0.20	1.1	3.8	8.1	SIM ... H8

Order example: MUR 5 R0.15 L15 BXC
For L.H. bars specify MUL instead of MUR
* For additional holders see page 100

MQR Bars *Profiling and Boring*





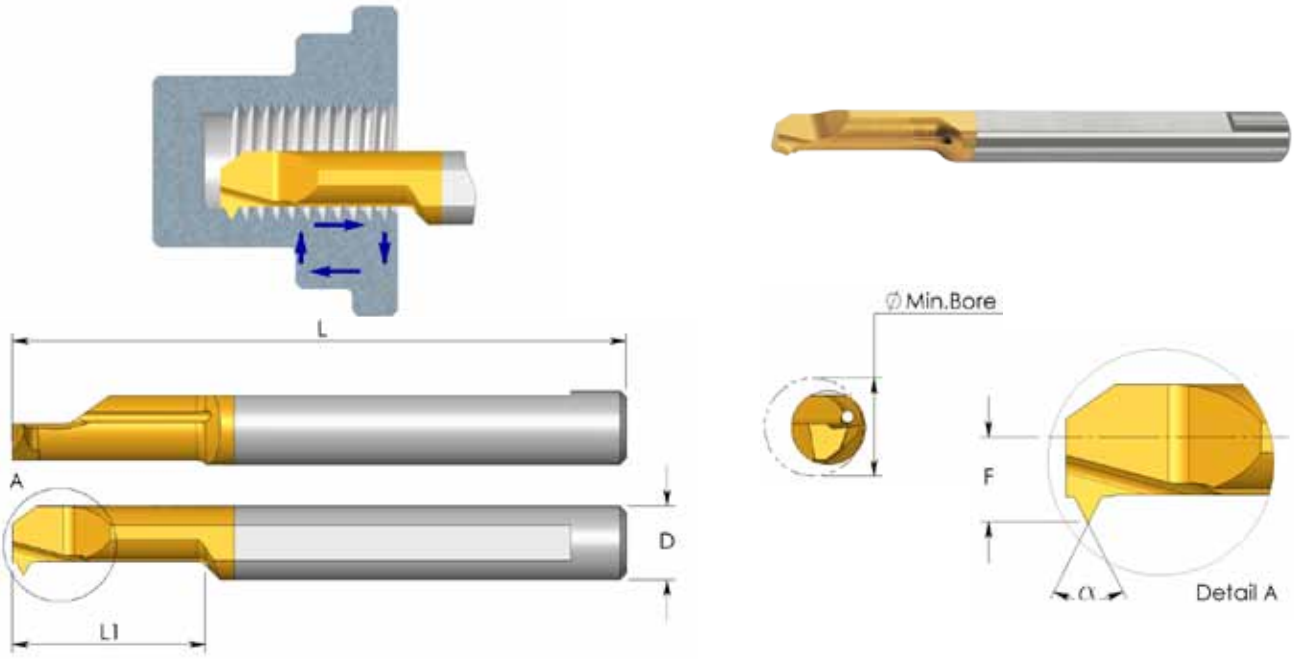
D	Ordering Code	L	L1	R	H	F	Min. Bore Dia.	Holder*
4.0	**MQR 4 R0.1 L22**	51	22	0.10	0.8	1.8	4.1	SIM ... H4
	MQR 4 R0.2 L10	51	10	0.20	0.8	1.8	4.1	
	MQR 4 R0.2 L15	51	15	0.20	0.8	1.8	4.1	
	MQR 4 R0.2 L22	51	22	0.20	0.8	1.8	4.1	
5.0	**MQR 5 R0.2 L15**	51	15	0.20	1.0	2.3	5.1	SIM ... H5
	MQR 5 R0.2 L22	51	22	0.20	1.0	2.3	5.1	
6.0	**MQR 6 R0.2 L15**	51	15	0.20	1.4	2.8	6.1	SIM ... H6
	MQR 6 R0.2 L22	51	22	0.20	1.4	2.8	6.1	
	MQR 6 R0.2 L30	58	30	0.20	1.4	2.8	6.1	
8.0	**MQR 8 R0.2 L22**	64	22	0.20	1.6	3.8	8.1	SIM ... H8
	MQR 8 R0.2 L27	64	27	0.20	2.0	3.8	8.1	

Order example: MQR 5 R0.2 L15 BXC

For L.H. bars specify MQR instead of MQL

* For additional holders see page 100

MIR Bars *Threading*



Partial Profile 55°

D	Ordering Code	L	L1	α	Pitch Range mm	Pitch Range TPI	F	Min. Bore Dia.	Holder*
3.0	**MIR 3 L15 A55**	39	15	55	0.5 - 1.0	48 - 24	1.4	3.2	SIM ... H3
4.0	**MIR 4 L15 A55**	51	15	55	0.5 - 1.0	48 - 24	1.8	4.1	SIM ... H4
5.0	**MIR 5 L15 A55**	51	15	55	0.5 - 1.25	48 - 20	2.3	5.1	SIM ... H5
	MIR 5 L22 A55	51	22	55	0.5 - 1.25	48 - 20	2.3	5.1	
6.0	**MIR 6 L15 A55**	51	15	55	0.5 - 1.5	48 - 16	2.6	6.0	SIM ... H6
	MIR 6 L22 A55	51	22	55	0.5 - 1.5	48 - 16	2.6	6.0	

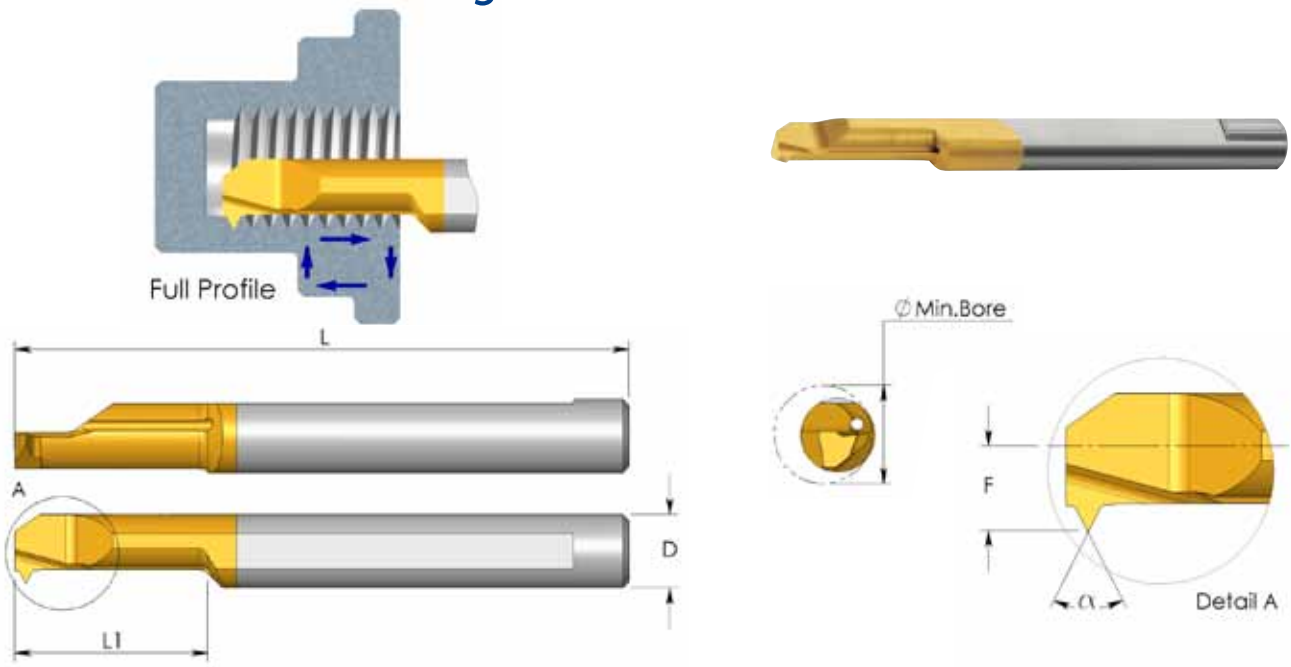
Order example: MIR 5 L15 A55 BXC

Partial Profile 60°

D	Ordering Code	L	L1	α	Pitch Range mm	Pitch Range TPI	F	Min. Bore Dia.	Holder*
3.0	**MIR 1 L5 A60**	39	4.8	60	0.25 - 0.35	100 - 72	0.55	1.2	SIM ... H3
	MIR 1.5 L6 A60	39	6.3	60	0.35 - 0.45	72 - 56	0.65	1.4	
3.0	**MIR 2 L8 A60**	39	8	60	0.45 - 0.7	56 - 32	1.0	2.1	SIM ... H3
3.0	**MIR 3 L15 A60**	39	15	60	0.7 - 1.0	32 - 24	1.4	3.2	SIM ... H3
4.0	**MIR 4 L15 A60**	51	15	60	0.8 - 1.0	32 - 24	1.8	4.1	SIM ... H4
5.0	**MIR 5 L15 A60**	51	15	60	1.0 - 1.25	24 - 20	2.3	5.1	SIM ... H5
	MIR 5 L22 A60	51	22	60	1.0 - 1.25	24 - 20	2.3	5.1	
6.0	**MIR 6 L15 A60**	51	15	60	1.0 - 1.5	24 - 16	2.6	6.0	SIM ... H6
	MIR 6 L22 A60	51	22	60	1.0 - 1.5	24 - 16	2.6	6.0	
8.0	**MIR 8 L22 A60**	64	22	60	1.0 - 2.0	24 - 13	3.6	8.0	SIM ... H8

Order example: MIR 5 L15 A60 BXC
For L.H. bars specify MIL instead of MIR
* For additional holders see page 100

MIR Bars Threading



Full Profile - ISO 60°

D	Ordering Code	Thread	L	L1	F	Min. Bore Dia.	Holder*
3.0	**MIR 3 L10 0.5ISO**	M3x0.5	39	10	1.0	2.4	SIM ... H3
3.0	**MIR 3 L15 0.5 ISO**	M4 x 0.5	39	15	1.4	3.2	
	MIR 3 L15 0.7 ISO	M4 x 0.7	39	15	1.4	3.2	
	MIR 3 L15 0.75 ISO	M4.5 x 0.75	39	15	1.4	3.2	
4.0	**MIR 4 L15 0.5 ISO**	M5 x 0.5	51	15	1.8	4.1	SIM ... H4
	MIR 4 L15 0.75 ISO	M5 x 0.75	51	15	1.8	4.1	
	MIR 4 L15 0.8 ISO	M5 x 0.8	51	15	1.8	4.1	
5.0	**MIR 5 L15 1.0 ISO**	M6 x 1.0	51	15	2.2	4.9	SIM ... H5
6.0	**MIR 6 L22 1.25 ISO**	M8 x 1.25	51	22	2.8	6.1	SIM ... H6

Order example: MIR 5 L15 1.0 ISO BXC

Full Profile - UN 60°

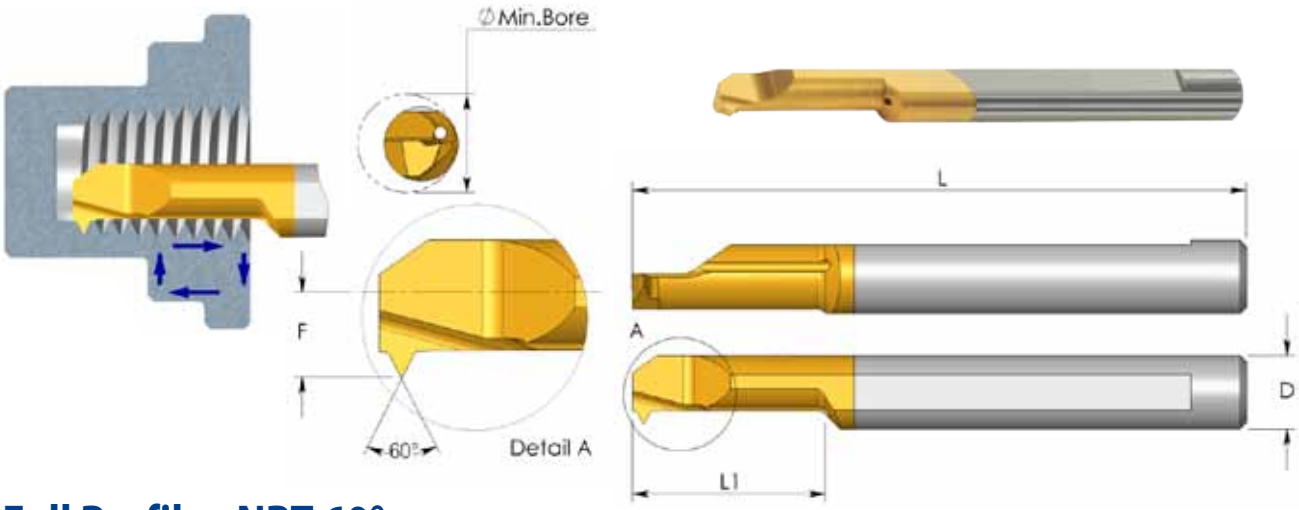
D	Ordering Code	Thread	L	L1	F	Min. Bore Dia.	Holder*
3.0	**MIR 3 L10 32 UN**	6-32 UNC	39	10	1.0	2.7	SIM ... H3
3.0	**MIR 3 L15 36 UN**	8-36 UNF	39	15	1.4	3.2	
	MIR 3 L15 32 UN	8-32 UNC	39	15	1.4	3.2	
4.0	**MIR 4 L15 36 UN**	12-36 UNS	51	15	1.8	4.1	SIM ... H4
	MIR 4 L15 32 UN	12-32 UNEF	51	15	1.8	4.1	
5.0	**MIR 5 L15 28 UN**	1/4-28 UNF	51	15	2.2	4.9	SIM ... H5
	MIR 5 L18 20 UN	1/4-20 UNC	51	18	2.3	5.0	
6.0	**MIR 6 L18 24 UN**	5/16-24UNF	51	18	2.8	6.5	SIM ... H6
	MIR 6 L18 18 UN	5/16-18UNC	51	18	2.8	6.2	

Order example: MIR 4 L15 36 UN BXC

For L.H. bars specify MIL instead of MIR

* For additional holders see page 100

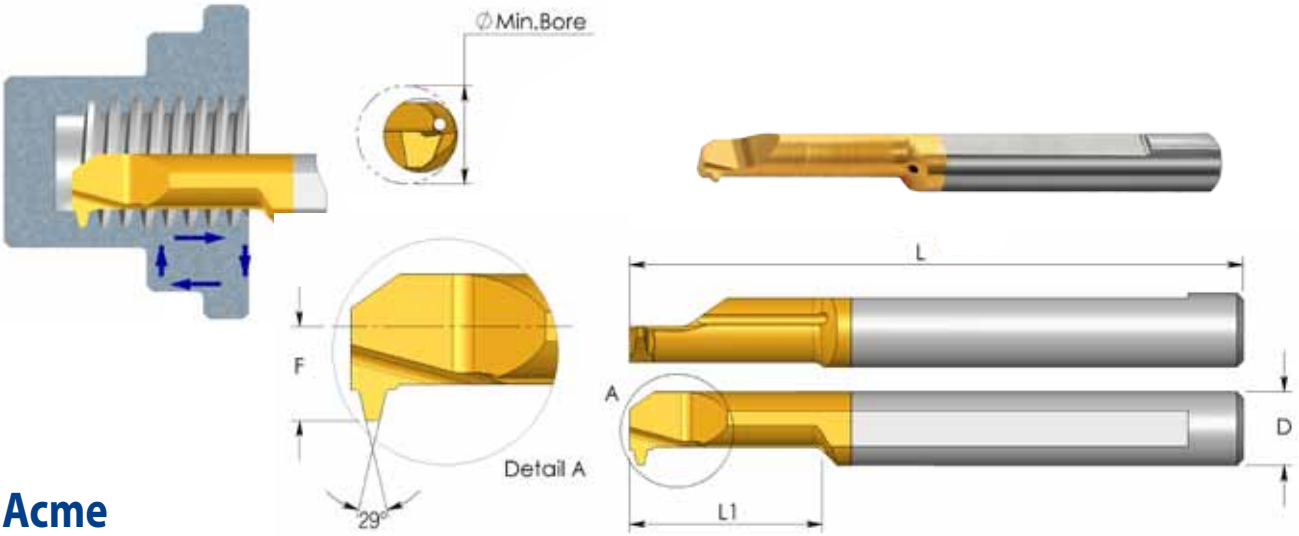
MIR Bars *Threading*



Full Profile - NPT 60°

D	Ordering Code	Pitch TPI	Thread Size	L	L1	F	Min. Bore Dia.	Holder*
6.0	**MIR 6 L15 27 NPT**	27	1/16 x 27 NPT 1/8 x 27 NPT	51	15	2.8	5.9	SIM ... H6

Order example: MIR 6 L15 27 NPT BXC



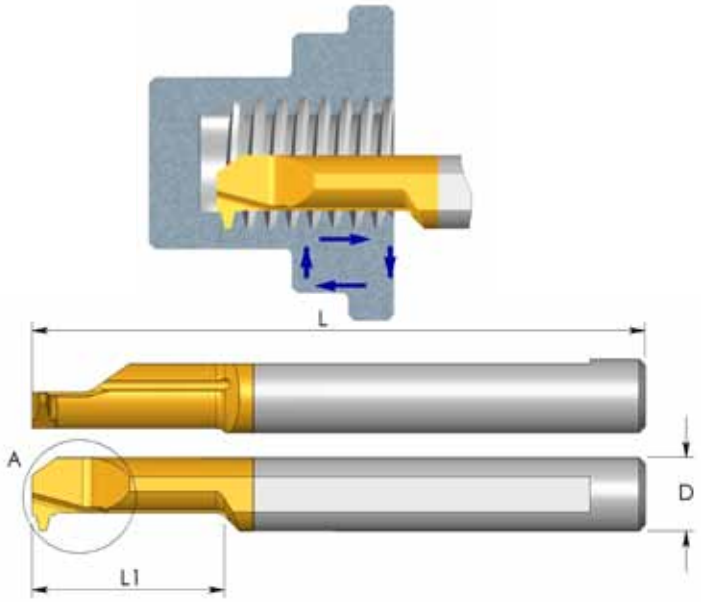
Acme

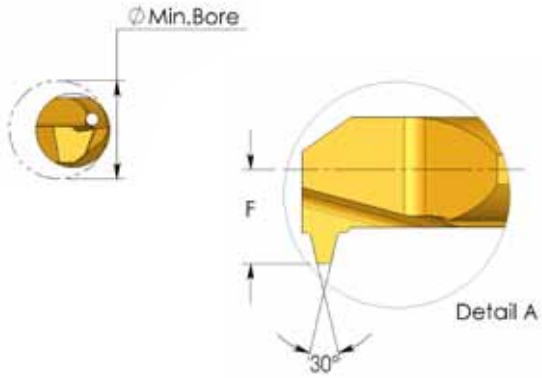
D	Ordering Code	Pitch TPI	Thread Size	L	L1	F	Min. Bore Dia.	Holder*
4.0	**MIR 4 L15 16 ACME**	16	1/4 x 16	51	15	1.8	4.6	SIM ... H4
6.0	**MIR 6 L20 14 ACME**	14	5/16 x 14	51	20	2.8	6.0	SIM ... H6
7.0	**MIR 7 L22 12 ACME**	12	3/8 x 12 7/16 x 12	62	22	3.3	7.2	SIM ... H7
8.0	**MIR 8 L30 10 ACME**	10	1/2 x 10	76	30	3.8	10.0	SIM ... H8
10.0	**MIR 10 L35 8 ACME**	8	5/8 x 8	73	35	4.8	12.5	SIM ... H10
10.0	**MIR 10 L45 6 ACME**	6	3/4 x 6 7/8 x 6	105	45	4.8	14.6	SIM ... H10
10.0	**MIR 10 L52 5 ACME**	5	1x5	105	52	4.8	20.0	SIM ... H10

Order example: MIR 6 L 20 14 ACME BXC

* For additional holders see page 100

MIR Bars *Threading*



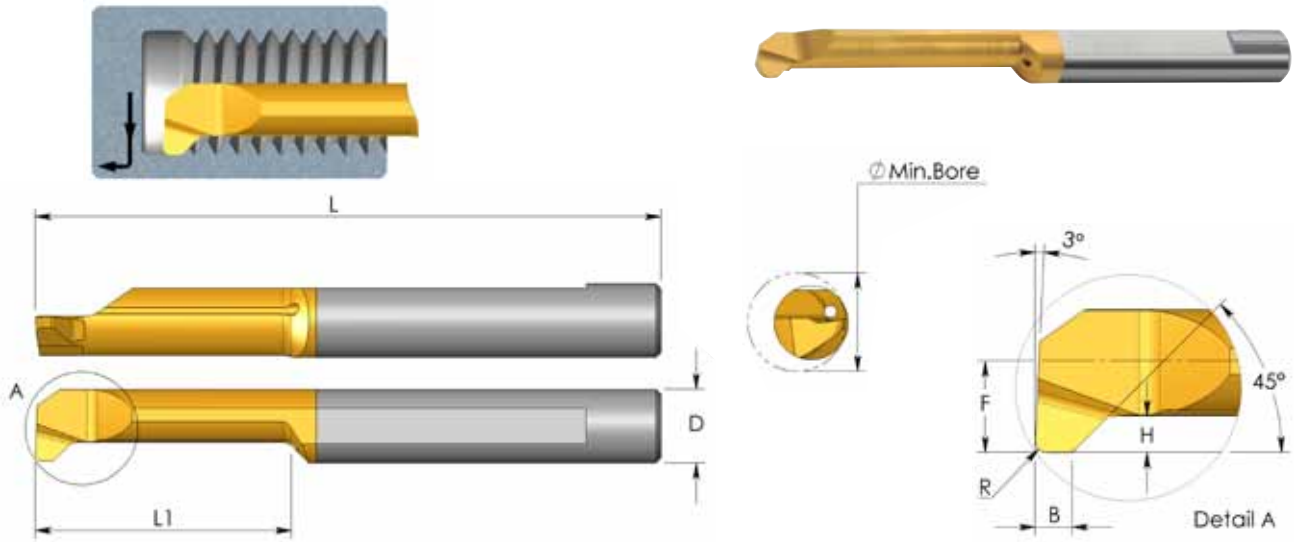


Partial Profile Trapez - DIN 103

D	Ordering Code	Pitch mm	Thread Size	L	L1	F	Min. Bore Dia.	Holder*
6.0	**MIR 6 L22 1.5 TR**	1.5	Tr8x1.5 Tr9x1.5 Tr10x1.5	51	22	2.8	6.4	SIM ... H6
7.0	**MIR 7 L25 2 TR**	2	Tr 9 x 2 Tr10 x 2 Tr11 x 2 Tr12 x 2	62	25	3.2	6.9	SIM ... H7
10.0	**MIR 10 L35 2 TR**	2	Tr14 x 2 Tr16 x 2 Tr18 x 2 Tr20 x 2	73	35	4.8	11.0	SIM ... H10
7.0	**MIR 7 L35 3 TR**	3	Tr11 x 3 Tr12 x 3	62	35	3.3	7.5	SIM ... H7
10.0	**MIR 10 L35 3 TR**	3	Tr14 x 3 Tr22 x 3 Tr24 x 3 Tr26 x 3 Tr28 x 3	73	35	4.8	10.5	SIM ... H10
10.0	**MIR 10 L45 4 TR**	4	Tr16 x 4 Tr18 x 4 Tr20 x 4	105	45	4.8	11.5	SIM ... H10
10.0	**MIR 10 L55 5 TR**	5	Tr22 x 5 Tr24 x 5 Tr28 x 5	105	55	4.8	11.0	SIM ... H10

Order example: MIR 10 L35 3 TR BXC
For L.H. bars specify MIL instead of MIR
* For additional holders see page 100

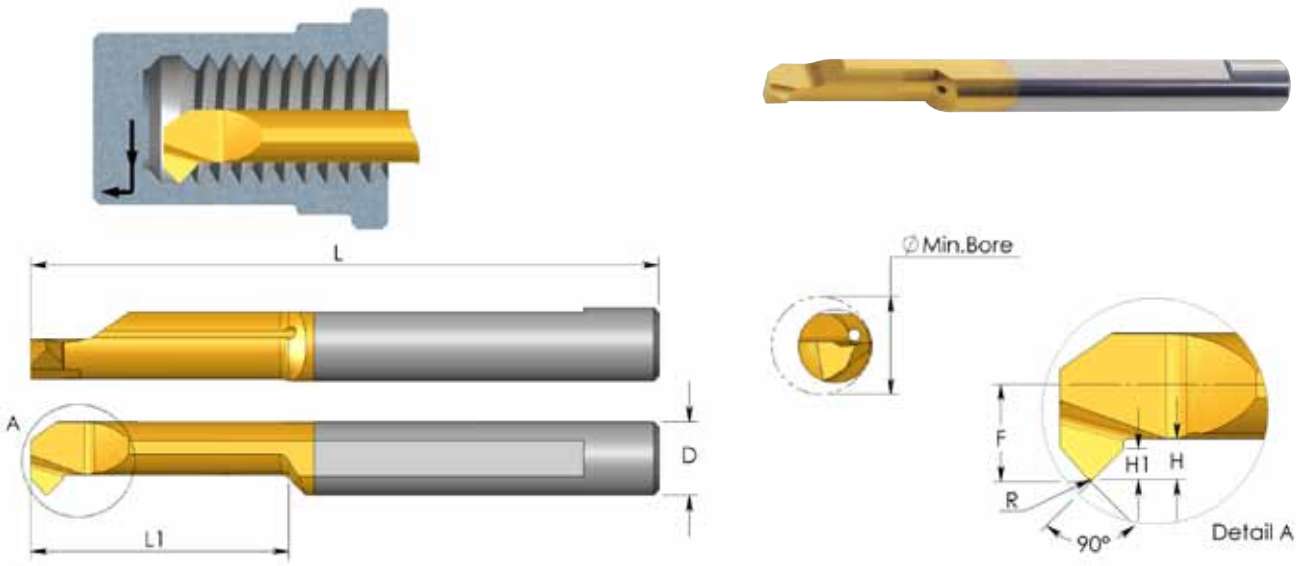
MDR Bars *Thread Relief, Chamfering and Grooving*



D	Ordering Code	L	L1	B	R	H	F	Min. Bore Dia.	Holder*
4.0	**MDR 4 R0.5 L18**	51	18	1.5	0.5	0.8	1.8	4.1	SIM ... H4
5.0	**MDR 5 R0.5 L24**	51	24	1.5	0.5	1.2	2.3	5.1	SIM ... H5
6.0	**MDR 6 R0.5 L27**	58	27	1.5	0.5	1.4	2.8	6.1	SIM ... H6

Order example: MDR 5 R0.5 L24 BXC
For L.H. bars specify MDL instead of MDR
* For additional holders see page 100

MCR Bars *Chamfering and Boring*



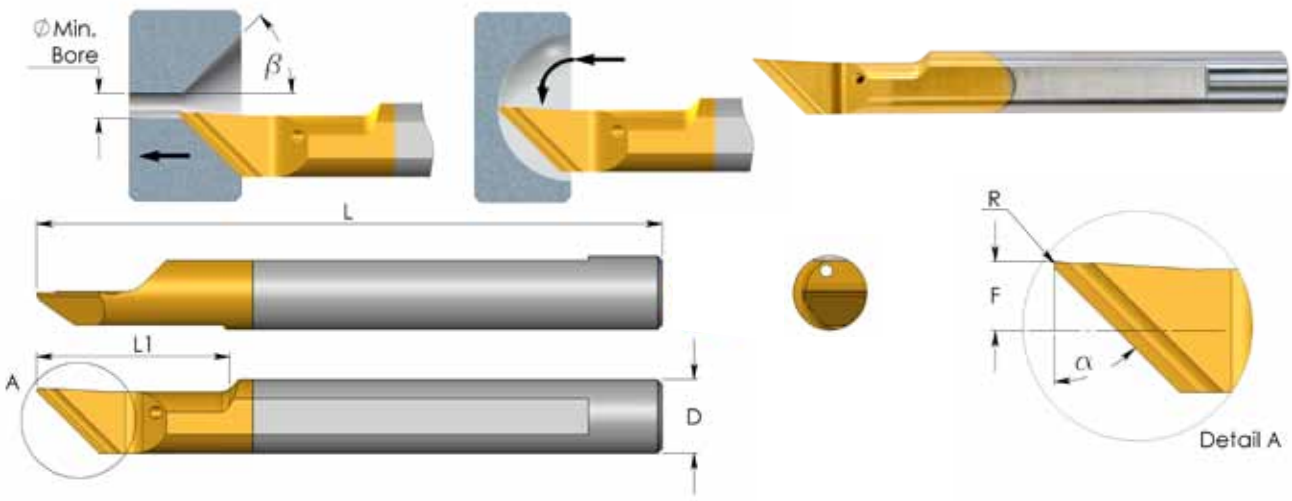
D	Ordering Code	L	L1	R	H	H1	F	Min. Bore Dia.	Holder*
3.0	**MCR 3 R0.2 L10**	39	10	0.2	0.7	0.3	1.3	3.1	SIM ... H3
4.0	**MCR 4 R0.2 L15**	51	15	0.2	0.8	0.4	1.7	4.1	SIM ... H4
5.0	**MCR 5 R0.2 L15**	51	15	0.2	1.2	0.7	2.1	5.1	SIM ... H5
6.0	**MCR 6 R0.2 L15**	51	15	0.2	1.4	0.7	2.8	6.1	SIM ... H6
7.0	**MCR 7 R0.2 L20**	62	20	0.2	1.5	0.8	3.3	7.1	SIM ... H7

Order example: MCR 4 R0.2 L15 BXC

For L.H. bars specify MCL instead of MCR

* For additional holders see page 100

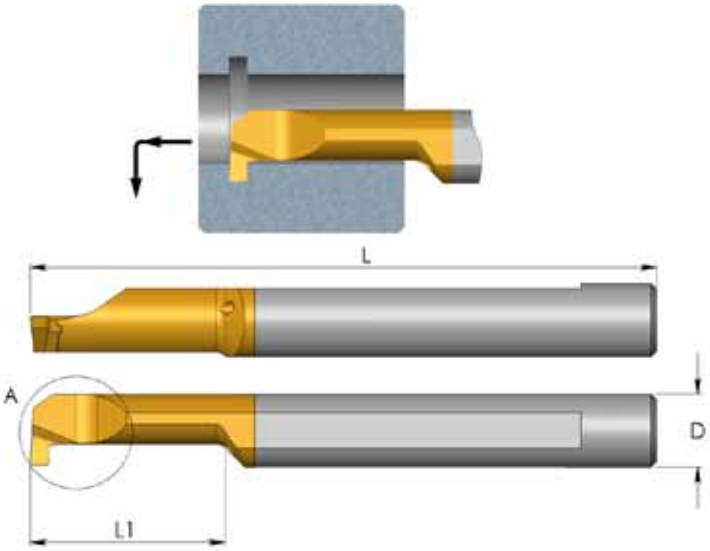
MWR Bars *Chamfering and Profiling*

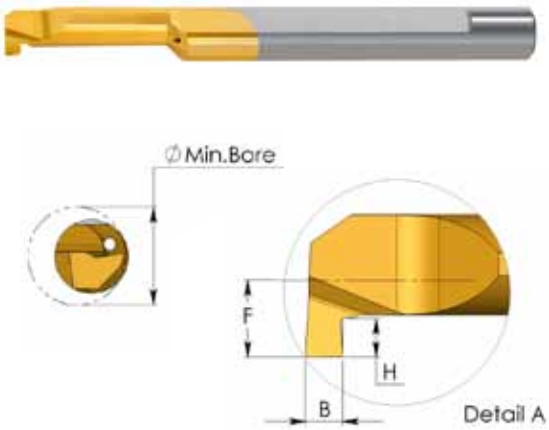


D	Ordering Code	L	L1	R			F	Min. Bore Dia.	Holder*
6.0	**MWR 6 R0.2 A90**	51	15.0	0.2	45°	45°	2.3	1.0	SIM ... H6
	MWR 6 R0.2 A60	51	15.0	0.2	60°	30°	2.3	1.0	
	*** MWR 6 R0.4 A90**	51	22.0	0.4	45°	45°	2.3	6.0	
	*** MWR 6 R0.4 A60**	51	22.0	0.4	60°	30°	2.3	6.0	

Order example: MWR 6 R0.2 A90 BXC
For L.H. bars specify MWL instead of MWR
*Can be used also for boring
** For additional holders see page 100

MGR Bars Grooving





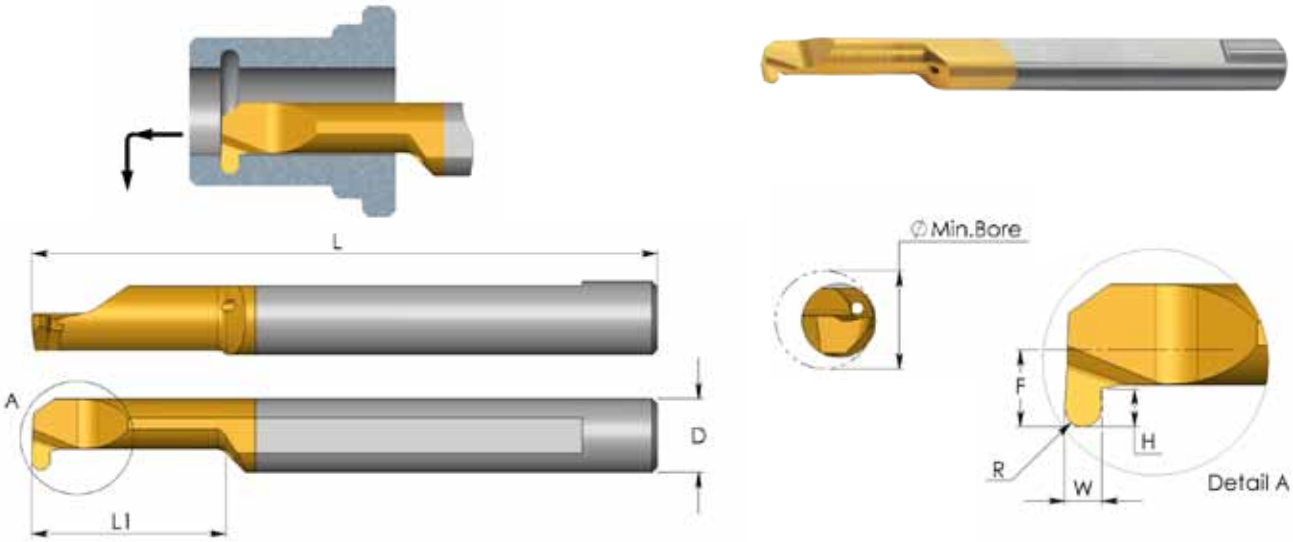
D	Ordering Code	L	L1	B	H	F	Min. Bore Dia.	Holder*
3.0	MGR 3 B0.7 L10	39	10	0.7	0.6	1.3	3.1	SIM ... H3
4.0	MGR 4 B0.5 L10	51	10	0.5	0.5	1.7	4.1	SIM ... H4
	MGR 4 B0.7 L10	51	10	0.7	0.6	1.7	4.1	
	MGR 4 B1.0 L10	51	10	1.0	1.0	1.7	4.1	
	MGR 4 B1.0 L15	51	15	1.0	1.0	1.7	4.1	
	MGR 4 B1.5 L10	51	10	1.5	1.0	1.7	4.1	
5.0	MGR 5 B1.0 L15	51	15	1.0	1.2	2.3	5.1	SIM ... H5
	MGR 5 B1.0 L22	51	22	1.0	1.2	2.3	5.1	
	MGR 5 B1.5 L15	51	15	1.5	1.2	2.3	5.1	
	MGR 5 B1.5 L22	51	22	1.5	1.2	2.3	5.1	
	MGR 5 B2.0 L15	51	15	2.0	1.2	2.3	5.1	
	MGR 5 B2.0 L22	51	22	2.0	1.2	2.3	5.1	
6.0	MGR 6 B1.0 L15	51	15	1.0	1.4	2.8	6.1	SIM ... H6
	MGR 6 B1.0 L22	51	22	1.0	1.4	2.8	6.1	
	MGR 6 B1.5 L15	51	15	1.5	1.4	2.8	6.1	
	MGR 6 B1.5 L22	51	22	1.5	1.4	2.8	6.1	
	MGR 6 B2.0 L15	51	15	2.0	1.4	2.8	6.1	
	MGR 6 B2.0 L22	51	22	2.0	1.4	2.8	6.1	
6.0	MGR 6 B1.0 L17	51	17	1.0	1.8	2.8	6.1	SIM ... H6
	MGR 6 B1.5 L17	51	17	1.5	1.8	2.8	6.1	
	MGR 6 B2.0 L17	51	17	2.0	1.8	2.8	6.1	
7.0	MGR 7 B1.0 L15	62	15	1.0	2.5	3.3	7.1	SIM ... H7
	MGR 7 B1.0 L22	62	22	1.0	2.5	3.3	7.1	
	MGR 7 B1.0 L30	62	30	1.0	2.5	3.3	7.1	
	MGR 7 B1.5 L15	62	15	1.5	2.5	3.3	7.1	
	MGR 7 B1.5 L22	62	22	1.5	2.5	3.3	7.1	
	MGR 7 B1.5 L30	62	30	1.5	2.5	3.3	7.1	
	MGR 7 B2.0 L15	62	15	2.0	2.5	3.3	7.1	
	MGR 7 B2.0 L22	62	22	2.0	2.5	3.3	7.1	
	MGR 7 B2.0 L30	62	30	2.0	2.5	3.3	7.1	
8.0	MGR 8 B1.0 L22	64	22	1.0	1.7	3.8	8.1	SIM ... H8
	MGR 8 B1.5 L22	64	22	1.5	1.7	3.8	8.1	
	MGR 8 B2.0 L22	64	22	2.0	2.6	3.8	8.1	

Order example: MGR 5 B1.5 L15 BXC

For L.H. bars specify MGL instead of MGR

* For additional holders see page 100

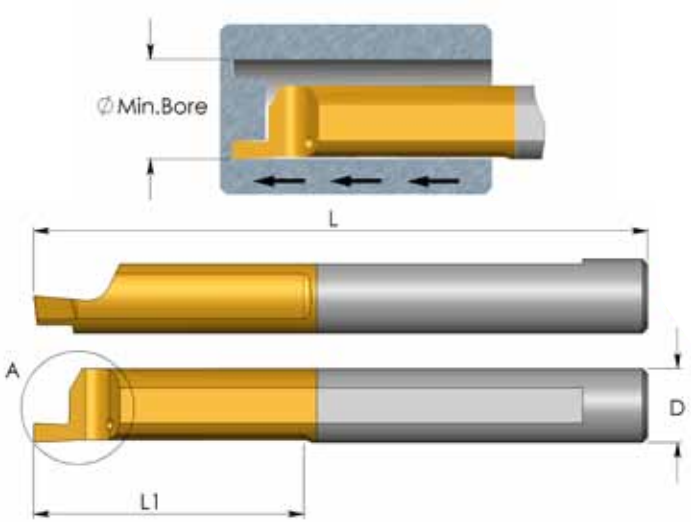
MKR Bars Full Radius Grooving

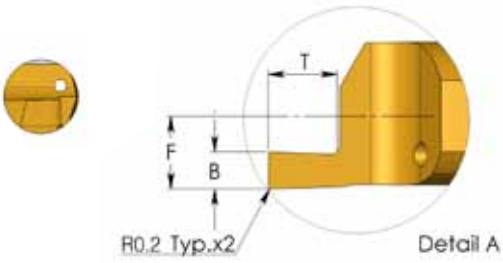


D	Ordering Code	L	L1	R	W	H	F	Min. Bore Dia.	Holder*
4.0	**MKR 4 R0.5 L10**	51	10	0.50	1.0	1.0	1.7	4.1	SIM ... H4
	MKR 4 R0.75 L10	51	10	0.75	1.5	1.0	1.7	4.1	
5.0	**MKR 5 R0.5 L15**	51	15	0.50	1.0	1.2	2.3	5.1	SIM ... H5
	MKR 5 R0.75 L15	51	15	0.75	1.5	1.2	2.3	5.1	
	MKR 5 R1.0 L15	51	15	1.00	2.0	1.2	2.3	5.1	
6.0	**MKR 6 R0.5 L15**	51	15	0.50	1.0	1.6	2.8	6.1	SIM ... H6
	MKR 6 R0.75 L15	51	15	0.75	1.5	1.6	2.8	6.1	
	MKR 6 R1.0 L15	51	15	1.00	2.0	1.6	2.8	6.1	
7.0	**MKR 7 R0.5 L22**	62	22	0.50	1.0	2.5	3.3	7.1	SIM ... H7
	MKR 7 R0.75 L22	62	22	0.75	1.5	2.5	3.3	7.1	
	MKR 7 R1.0 L22	62	22	1.00	2.0	2.5	3.3	7.1	

Order example: MKR 5 R1.0 L15 BXC
For L.H. bars specify MKL instead of MKR
* For additional holders see page 100

MFR Bars Face Grooving



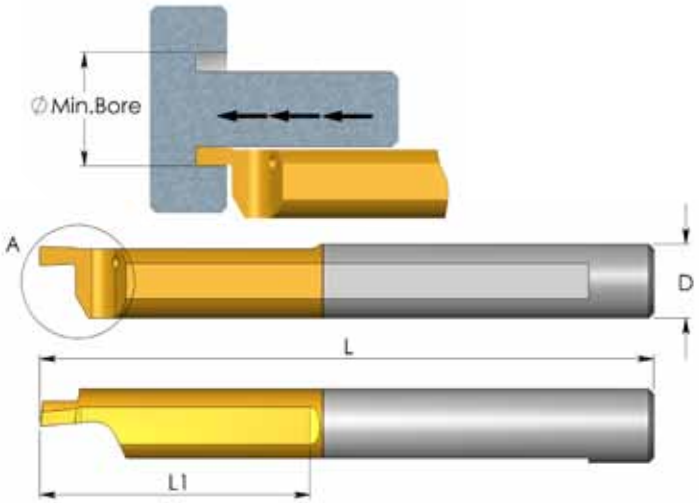


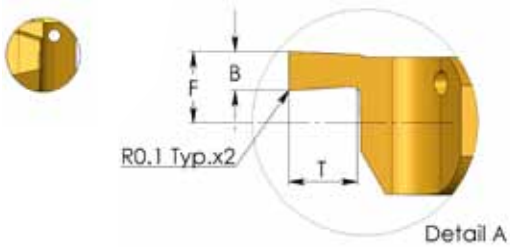
D	Ordering Code	L	L1	B	T	F	Min. Bore Dia.	Holder*
4.0	**MFR 4 B0.75 L15**	51	15	0.75	1.2	1.95	5.0	SIM ... H4
	MFR 4 B1.0 L15	51	15	1.0	1.5	1.95	5.0	
	MFR 4 B1.5 L15	51	15	1.5	2.8	1.95	5.0	
5.0	**MFR 5 B0.75 L22**	51	22	0.75	1.2	2.45	6.0	SIM ... H5
	MFR 5 B1.0 L22	51	22	1.0	1.5	2.45	6.0	
	MFR 5 B1.5 L22	51	22	1.5	2.5	2.45	6.0	
	MFR 5 B2.0 L22	51	22	2.0	3.8	2.45	6.0	
6.0	**MFR 6 B1.0 L22**	51	22	1.0	1.5	2.95	8.0	SIM ... H6
	MFR 6 B1.5 L22	51	22	1.5	2.5	2.95	8.0	
	MFR 6 B2.0 L22	51	22	2.0	3.0	2.95	8.0	
	MFR 6 B2.5 L22	51	22	2.5	4.8	2.95	8.0	
	MFR 6 B3.0 L30	58	30	3.0	6.0	2.95	8.0	
8.0	**MFR 8 B2.5 L22**	64	22	2.5	3.5	3.95	10.0	SIM ... H8

Order example: MFR 5 B1.0 L22 BXC

* For additional holders see page 100

MFL Bars Face Grooving



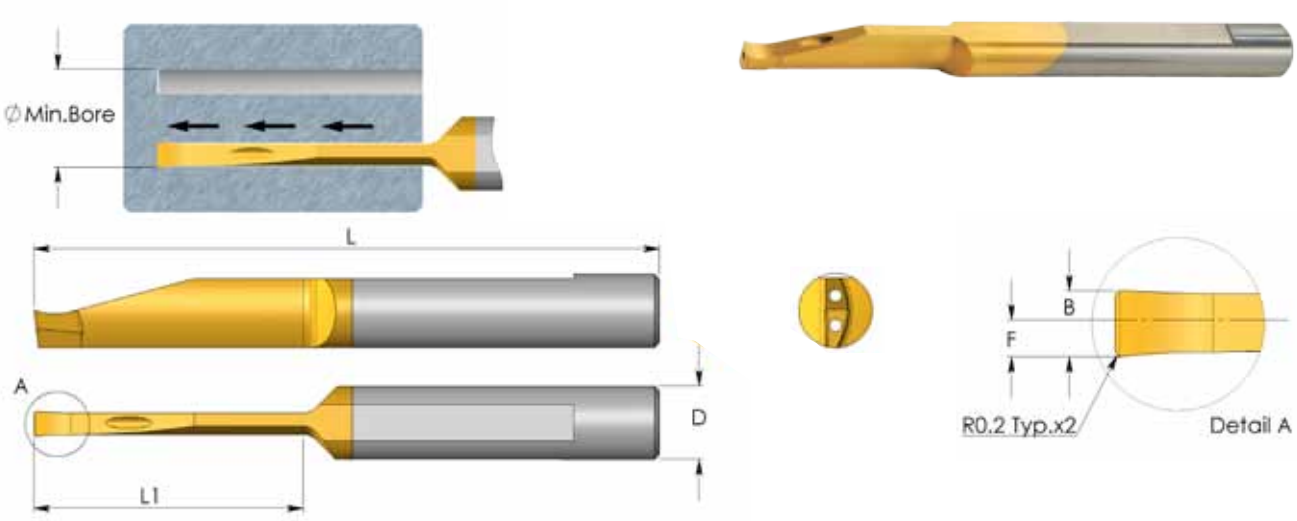


D	Ordering Code	L	L1	B	T	F	Min. Bore Dia.	Holder*
4.0	**MFL 4 B0.75 L15**	51	15	0.75	1.2	1.75	5.0	SIM ... H4
	MFL 4 B1.0 L15	51	15	1.0	1.5	1.75	5.0	
	MFL 4 B1.5 L15	51	15	1.5	2.8	1.75	5.0	
5.0	**MFL 5 B0.75 L22**	51	22	0.75	1.2	2.25	6.0	SIM ... H5
	MFL 5 B1.0 L22	51	22	1.0	1.5	2.25	6.0	
	MFL 5 B1.5 L22	51	22	1.5	2.5	2.25	6.0	
	MFL 5 B2.0 L22	51	22	2.0	3.8	2.25	6.0	
6.0	**MFL 6 B1.0 L22**	51	22	1.0	1.5	2.75	8.0	SIM ... H6
	MFL 6 B1.5 L22	51	22	1.5	2.5	2.75	8.0	
	MFL 6 B2.0 L22	51	22	2.0	3.0	2.75	8.0	
	MFL 6 B2.5 L22	51	22	2.5	4.8	2.75	8.0	
	MFL 6 B3.0 L30	58	30	3.0	6.0	2.75	8.0	
8.0	**MFL 8 B2.5 L22**	64	22	2.5	3.5	3.75	10.0	SIM ... H8

Order example: MFL 6 B1.0 L22 BXC

* For additional holders see page 100

MVR Bars Deep Face Grooving - with 2 Coolant Bores

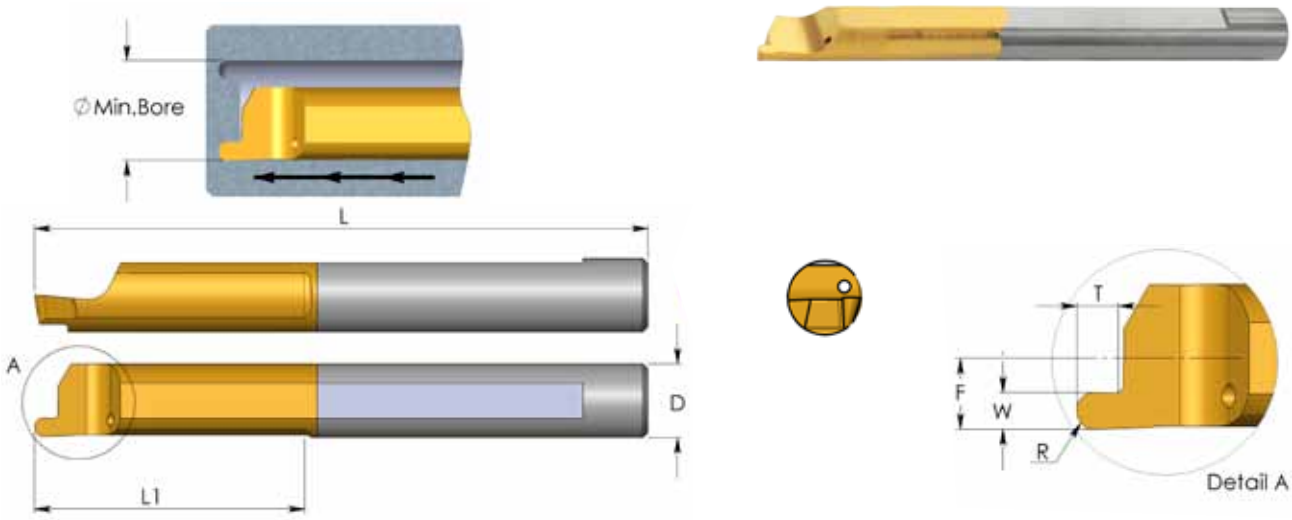


D	Ordering Code	L	L1	B	F	Min. Bore Dia.	Holder*
6.0	**MVR 6 B2.0 L15**	64	15	2.0	1.1	12.0	SIM ... H6
	MVR 6 B2.0 L22	64	22	2.0	1.1	12.0	
	MVR 6 B2.5 L22	64	22	2.5	1.4	12.0	
8.0	**MVR 8 B3.0 L27**	64	27	3.0	1.6	15.0	SIM ... H8
	MVR 8 B3.0 L43	80	43	3.0	1.6	15.0	
8.0	**MVR 8 B4.0 L43**	80	43	4.0	2.1	20.0	SIM ... H8

Order example: MVR 6 B2.0 L22 BXC

* For additional holders see page 100

MZR Bars Face Grooving

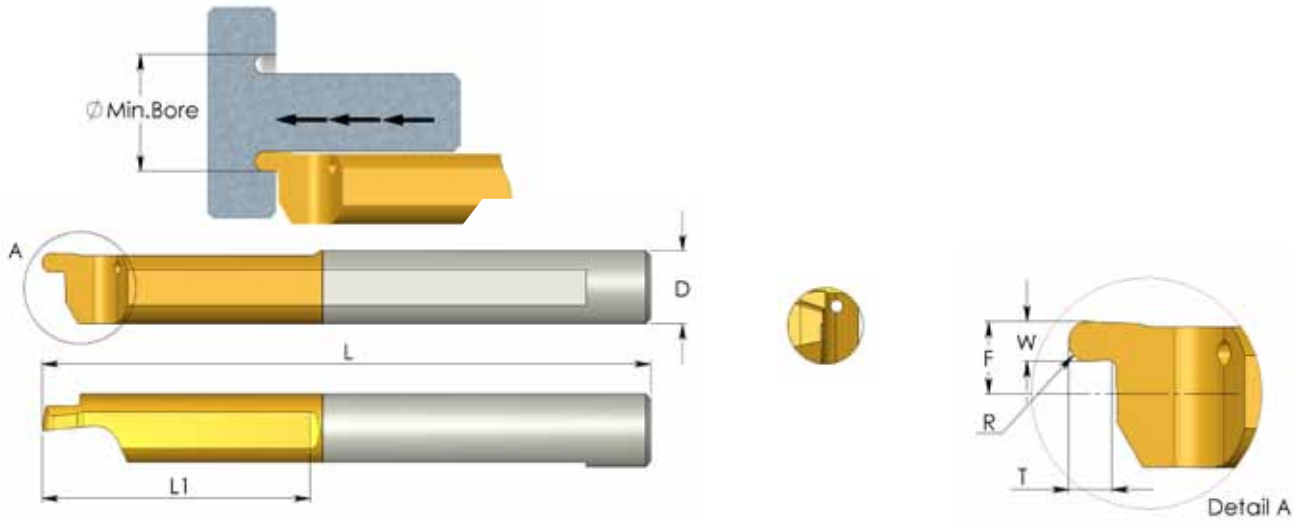


D	Ordering Code	L	L1	R	W	T	F	Min. Bore Dia.	Holder*
4.0	**MZR 4 R0.5 L15**	51	15	0.50	1.0	1.2	1.95	5.0	SIM ... H4
	MZR 4 R0.75 L15	51	15	0.75	1.5	1.5	1.95	5.0	
5.0	**MZR 5 R0.5 L22**	51	22	0.50	1.0	1.2	2.45	6.0	SIM ... H5
	MZR 5 R0.75 L22	51	22	0.75	1.5	1.5	2.45	6.0	
	MZR 5 R1.0 L22	51	22	1.00	2.0	2.5	2.45	6.0	
6.0	**MZR 6 R0.5 L22**	51	22	0.50	1.0	1.2	2.95	8.0	SIM ... H6
	MZR 6 R0.75 L22	51	22	0.75	1.5	1.5	2.95	8.0	
	MZR 6 R1.0 L22	51	22	1.00	2.0	2.5	2.95	8.0	

Order example: MZR 5 R0.5 L22 BXC

* For additional holders see page 100

MZL Bars Face Grooving

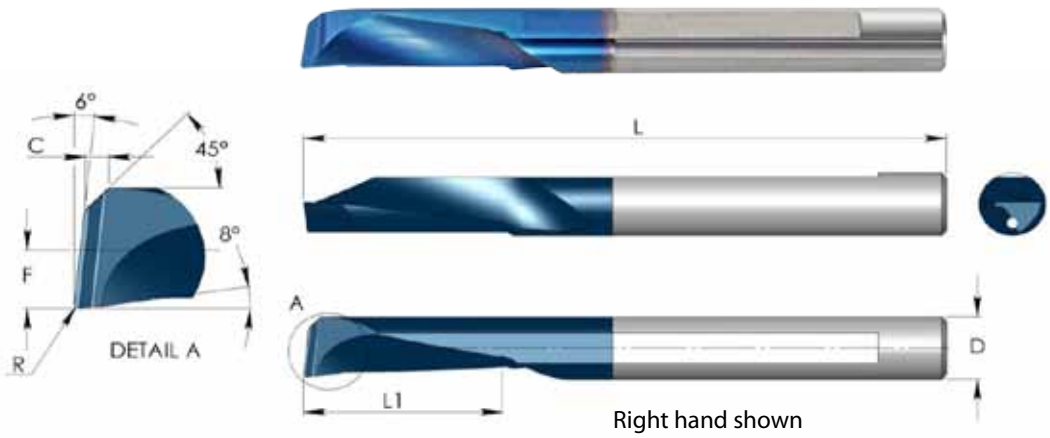


D	Ordering Code	L	L1	R	W	T	F	Min. Bore Dia.	Holder*
4.0	**MZL 4 R0.5 L15**	51	15	0.50	1.0	1.2	1.75	5.0	SIM ... H4
	MZL 4 R0.75 L15	51	15	0.75	1.5	1.5	1.75	5.0	
5.0	**MZL 5 R0.5 L22**	51	22	0.50	1.0	1.2	2.25	6.0	SIM ... H5
	MZL 5 R0.75 L22	51	22	0.75	1.5	1.5	2.25	6.0	
	MZL 5 R1.0 L22	51	22	1.00	2.0	2.5	2.25	6.0	
6.0	**MZL 6 R0.5 L22**	51	22	0.50	1.0	1.2	2.75	8.0	SIM ... H6
	MZL 6 R0.75 L22	51	22	0.75	1.5	1.5	2.75	8.0	
	MZL 6 R1.0 L22	51	22	1.00	2.0	2.5	2.75	8.0	

Order example: MZL 5 R0.5 L22 BXC

* For additional holders see page 100

CMR Carmex Multi-Task Tiny Tools



Right hand shown

Right hand

D	Ordering Code	L	L1	R	F	C	Hole Dia.*	Holder **
4	**CMR 4 R0.1 L10**	51	10	0.1	1.8	1.1	4	SIM...H4
	CMR 4 R0.1 L15	51	15	0.1	1.8	1.1	4	
5	**CMR 5 R0.2 L10**	51	10	0.2	2.3	1.3	5	SIM...H5
	CMR 5 R0.2 L15	51	15	0.2	2.3	1.3	5	
6	**CMR 6 R0.2 L12**	58	12	0.2	2.8	1.5	6	SIM...H6
	CMR 6 R0.2 L18	58	18	0.2	2.8	1.5	6	

BMK	
P	*
M	*
K	*
N	*
S	*
H	

* The minimum diameter the tool can produce from full material

Left hand

D	Ordering Code	L	L1	R	F	C	Hole Dia.*	Holder **
4	**CML 4 R0.1 L10**	51	10	0.1	1.8	1.1	4	SIM...H4
	CML 4 R0.1 L15	51	15	0.1	1.8	1.1	4	
5	**CML 5 R0.2 L10**	51	10	0.2	2.3	1.3	5	SIM...H5
	CML 5 R0.2 L15	51	15	0.2	2.3	1.3	5	
6	**CML 6 R0.2 L12**	58	12	0.2	2.8	1.5	6	SIM...H6
	CML 6 R0.2 L18	58	18	0.2	2.8	1.5	6	

BMK	
P	*
M	*
K	*
N	*
S	*
H	

* The minimum diameter the tool can produce from full material
** For additional holders see page 100

Product Identification

HK → Hexagon Keys

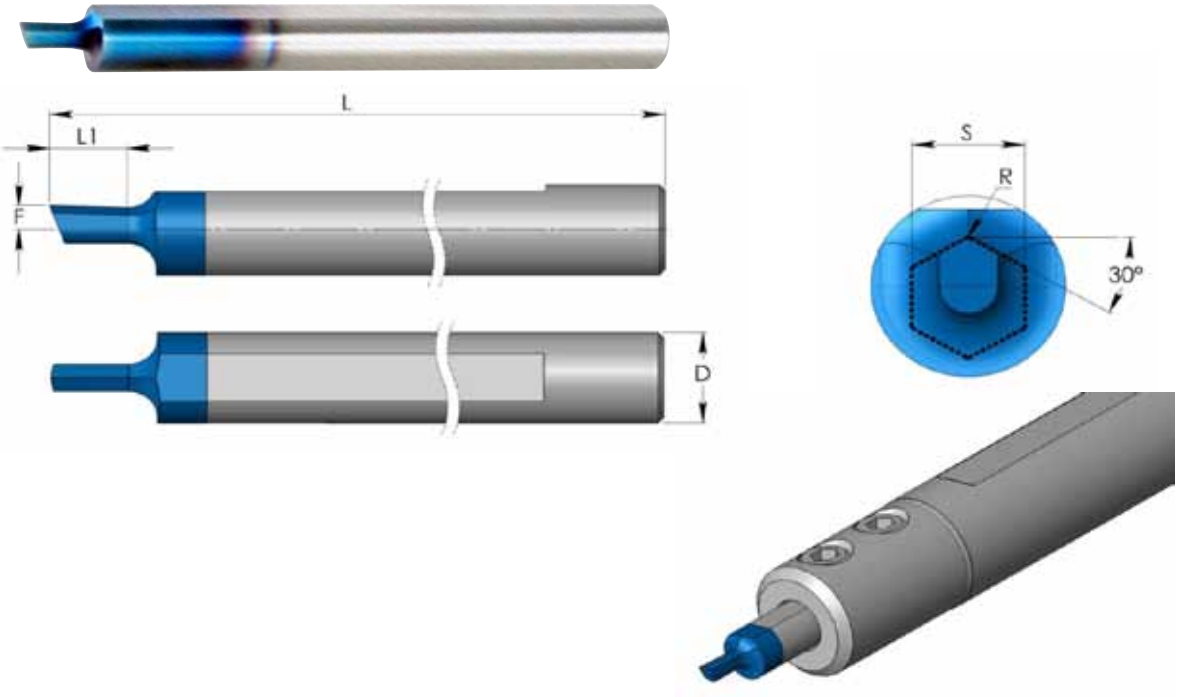
3 → Min. Bore Dia.
2 = 2.2 mm
3 = 2.9 mm
4 = 3.9 mm
5 = 4.9 mm

S30 → Socket Size
S23 = 2.3 - 2.9 mm
S30 = 3.0 - 4.0 mm
S40 = 4.0 - 5.0 mm
S50 = 5.0 - 8.0 mm

L5 → Maximum Cutting depth
L4 = 4.0 mm
L5 = 5.5 mm
L6 = 6.5 mm
L9 = 9.5 mm

BMK → Grade

HK *Broaching Tools for Hexagon Keys*



D	S	Ordering Code	L	L1	R	F	Min. Bore Dia.	Holder *
5.0	2.3-2.9	**HK 2 S23 L4**	51	4.0	0.05	1.35	2.2	SIM...H5
	3.0-4.0	**HK 3 S30 L5**	51	5.5	0.05	1.35	2.9	
	4.0-5.0	**HK 4 S40 L6**	51	6.5	0.10	1.35	3.9	
7.0	5.0-8.0	**HK 5 S50 L9**	62	9.5	0.10	1.35	4.9	SIM...H7

BMK	
P	*
M	*
K	*
N	*
S	*
H	

S = Socket Size

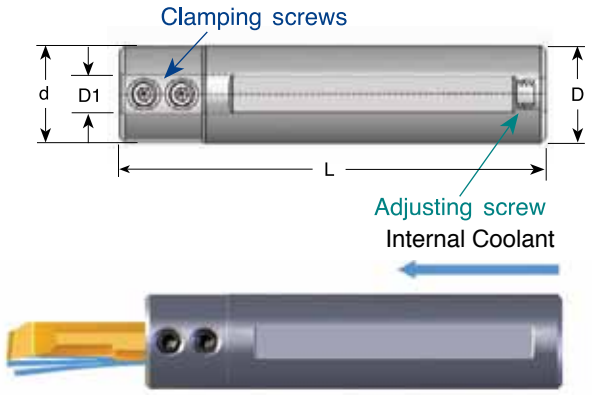
* For additional holders see page 100

Product Identification

Tiny Bar Holders Ordering Codes

S	I	M	0020	H3	S
Clamping Method S = Screw	I = Internal	M = Tiny Bars	Shank Cross Section Metric 0012 = 12 mm 0016 = 16 mm 0020 = 20 mm 0022 = 22 mm 0025 = 25 mm	Bar Diameter 3 = 3.0 mm 4 = 4.0 mm 5 = 5.0 mm 6 = 6.0 mm 7 = 7.0 mm 8 = 8.0 mm 10 = 10.0 mm	Swiss Type

Tiny Tools Bar Holders

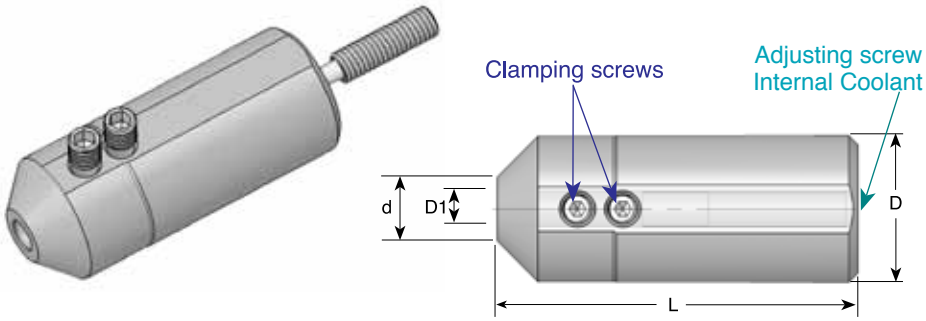


D1	Ordering Code	L	D	d	Key	Clamping Screw	Adjusting Screw
3.0	SIM 0012 H3	88	12	12	K25	S24	S35
	SIM 0016 H3S	75	16	20	K25	S25	S35S
	SIM 0016 H3	88	16	20	K25	S25	S35
	SIM 0020 H3	88	20	20	K25	S25	S35
	SIM 0022 H3	88	22	22	K25	S25	S35
4.0	SIM 0012 H4	88	12	12	K25	S24	S35
	SIM 0016 H4S	75	16	20	K25	S25	S35S
	SIM 0016 H4	88	16	20	K25	S25	S35
	SIM 0020 H4	88	20	20	K25	S25	S35
	SIM 0022 H4	88	22	22	K25	S25	S35

Tiny Tools Bar Holders

D1	Ordering Code	L	D	d	Key	Clamping Screw	Adjusting Screw
5.0	SIM 0012 H5	88	12	12	K25	S24	S35
	SIM 0016 H5S	75	16	20	K25	S25	S35S
	SIM 0016 H5	88	16	20	K25	S25	S35
	SIM 0020 H5	88	20	20	K25	S25	S35
	SIM 0022 H5	88	22	22	K25	S25	S35
6.0	SIM 0016 H6S	75	16	20	K25	S25	S35S
	SIM 0016 H6	88	16	20	K25	S25	S35
	SIM 0020 H6	88	20	20	K25	S25	S35
	SIM 0022 H6	88	22	22	K25	S25	S35
7.0	SIM 0016 H7	88	16	20	K25	S25	S35
	SIM 0020 H7	88	20	20	K25	S25	S35
	SIM 0022 H7	88	22	22	K25	S25	S35
8.0	SIM 0016 H8	88	16	20	K25	S25	S35
	SIM 0020 H8	88	20	20	K25	S25	S35
	SIM 0022 H8	88	22	22	K25	S25	S35
10.0	SIM 0016 H10	88	16	20	K25	S25S	S35
	SIM 0020 H10	88	20	20	K25	S25S	S35
	SIM 0022 H10	88	22	22	K25	S25	S35

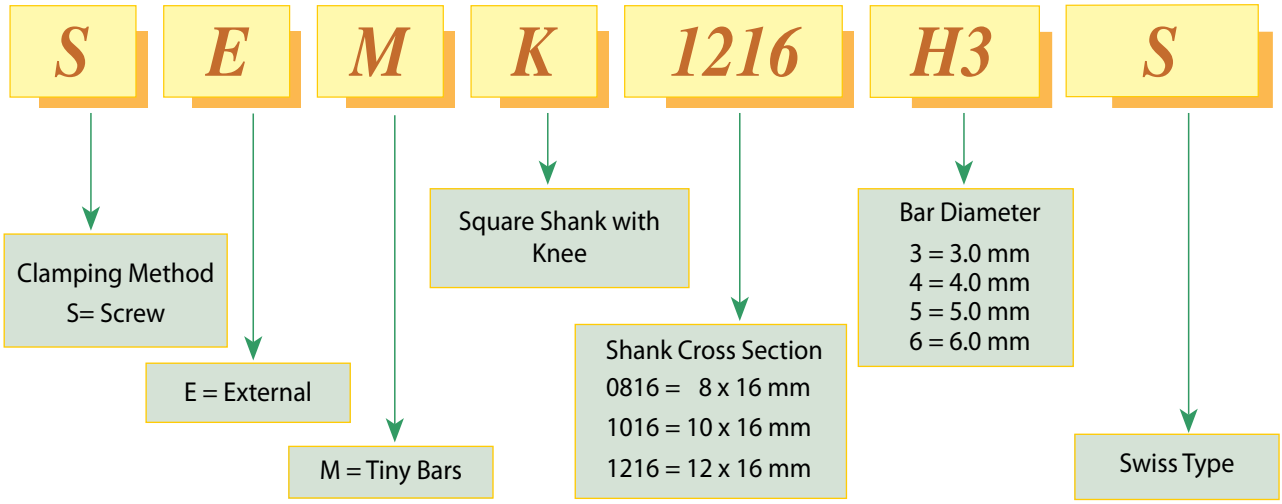
Tiny Tools Bar Holders



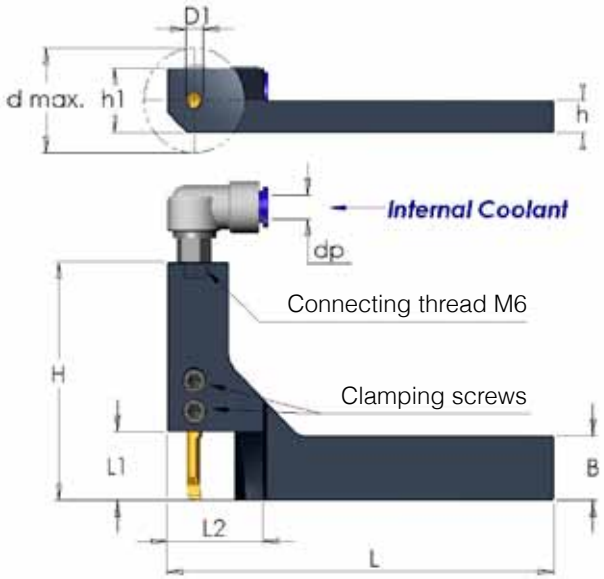
D1	Ordering Code	D	d	L	Key	Clamping Screw	Adjusting Screw
3.0	SIM 0025 H3	25	10.8	62	K25	S25	S35M
4.0	SIM 0025 H4	25	10.8	62	K25	S25	S35M
5.0	SIM 0025 H5	25	10.8	62	K25	S25	S35M
6.0	SIM 0025 H6	25	10.8	62	K25	S25	S35M
8.0	SIM 0025 H8	25	10.8	62	K25	S25	S35M

Product Identification

Tiny Bar Holders Ordering Codes



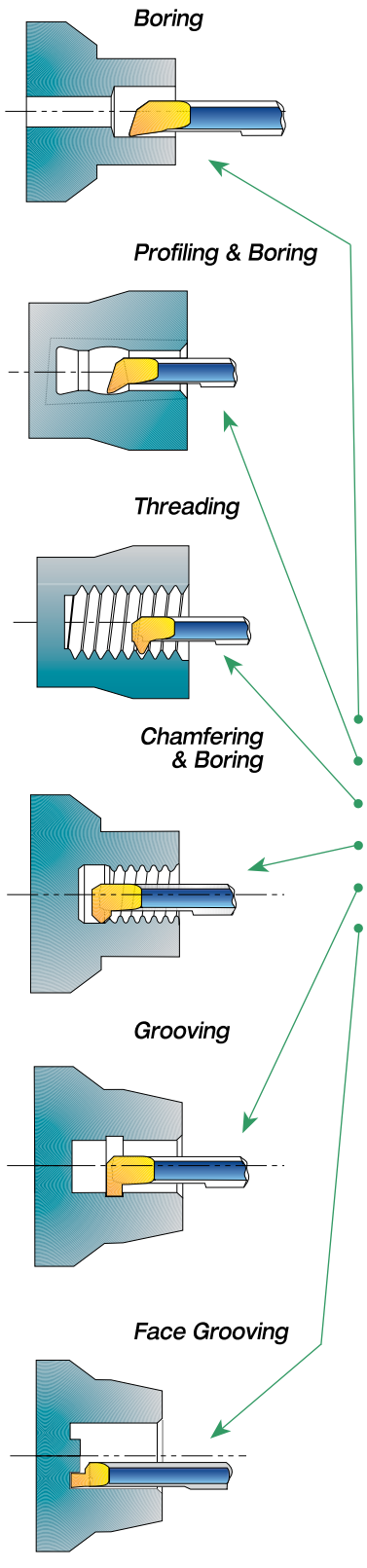
Square Shank Holders



D1	Ordering Code	B	L	L1	L2	H	h	h1	d max.	*dp	Key	Clamping Screw
3.0	SEMK 0816 H3S	16	100	17	25	46	8	16	26	4/6	K25	S25
	SEMK 1016 H3S	16	100	17	25	46	10	18	26	4/6	K25	
	SEMK 1216 H3S	16	100	17	25	46	12	20	26	4/6	K25	
4.0	SEMK 0816 H4S	16	100	17	25	58	8	16	26	4/6	K25	S25
	SEMK 1016 H4S	16	100	17	25	58	10	18	26	4/6	K25	
	SEMK 1216 H4S	16	100	17	25	58	12	20	26	4/6	K25	
5.0	SEMK 0816 H5S	16	100	17	25	58	8	16	26	4/6	K25	S25
	SEMK 1016 H5S	16	100	17	25	58	10	18	26	4/6	K25	
	SEMK 1216 H5S	16	100	17	25	58	12	20	26	4/6	K25	
6.0	SEMK 0816 H6S	16	100	17	25	58	8	16	26	4/6	K25	S25
	SEMK 1016 H6S	16	100	17	25	58	10	18	26	4/6	K25	
	SEMK 1216 H6S	16	100	17	25	58	12	20	26	4/6	K25	

* Optional

Tiny Tools Kits

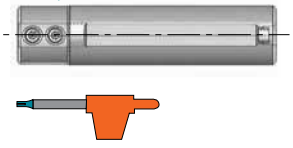


KT4-20	KT5-20
MTR 4 R0.2 L10	MTR 5 R0.2 L15
MPR 4 R0.2 L10	MPR 5 R0.2 L15
MIR 4 L15 A60	MIR 5 L15 A60
MCR 4 R0.2 L15	MCR 5 R0.2 L15
MGR 4 B1.5 L10	MGR 5 B1.5 L15
MFR 4 B1.0 L15	MFR 5 B1.0 L22
SIM 0020 H4	SIM 0020 H5
K25	K25

Order example: KT4-20

Also available are kits with a
16mm or 22mm shank diameter bar holder.
Order example: KT4-16

Tiny Tools Bar Holder



Technical Section

Carbide Grades:

BXC (P30 - P50, K25 - K40)
PVD TiN coated grade for low cutting speed.
Works well with a wide range of stainless steels.

BMK (K10 - K20)
Sub-micron grade with advanced PVD triple coating. Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions.
General purpose for all materials.

K20 (K10 - K30)
Uncoated Carbide grade for non ferrous metals, aluminum and cast iron.

Cutting speed for Tiny Tools*

ISO Standard	Material		Condition	Cutting Speed m/min		
				BXC	BMK	K20
P	Non-Alloy steel and cast steel, free cutting steel	<0.25%C	Annealed	25-70	30-80	15-30
		≥0.25%C	Annealed			
		< 0.55%C	Quenched and tempered			
		≥0.55%C	Annealed			
		≥0.55%C	Quenched and tempered			
	Low alloy steel and cast steel (less than 5% alloying elements)		Annealed	20-40	25-50	10-20
			Quenched and tempered			
	High alloy steel, cast steel, and tool steel		Annealed	20-40	25-50	10-20
			Quenched and tempered			
M	Stainless steel and cast steel		Ferritic/martensitic	25-40	30-60	15-25
			Martensitic			
			Austenitic			
K	Cast iron nodular (GGG)		Ferritic/pearlitic	25-60	30-80	15-30
			Pearlitic			
	Grey cast iron (GG)		Ferritic	30-70	30-80	20-40
			Pearlitic			
	Malleable cast iron		Ferritic	20-40	20-50	10-20
			Pearlitic			
N	Aluminum-wrought alloy		Not cureable	50-100	60-120	30-50
			Cured			
	Aluminum-cast, alloyed	<=12% Si	Not cureable	40-80	50-90	20-40
			Cured			
		>12% Si	High temperature			
	Copper alloys	>1% Pb	Free cutting	30-60	30-70	20-40
			Brass			
			Electrolytic copper			
	Non metalic		Duroplastics, fiber plastics	40-80		20-40
			Hard rubber			
S	High temp. alloys, Super alloys	Fe based	Annealed	15-30	15-40	10-20
			Cured			
		Ni or Co based	Annealed			
			Cured			
			Cast			
	Titanium alloys		Alpha+beta alloys cured	10-30	10-30	5-15
H	Hardened steel		Hardened 45-50 HRc	10-30	15-40	5-15
			Hardened 51-55 HRc			
			Hardened 56-62 HRc			
	Chilled cast iron		Cast	10-30	10-30	5-15
	Cast iron		Hardened	10-20	10-20	5-15

* For CMR see page 104

Recommended Feed Rate: 0.01 - 0.03 mm/rev

Threading Passes

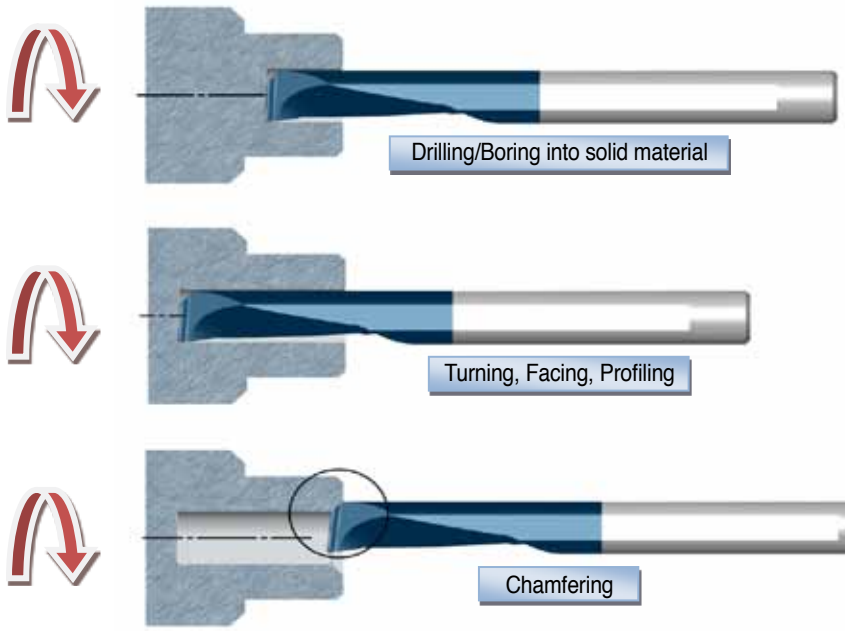
Pitch:	mm TPI	0.5 48	0.7 36	0.8 32	1.0 24	1.25 20	1.5 16	2-5 14-5
Number of Passes		6-12	7-14	7-16	8-18	8-20	10-22	20-38

CMR Carmex Multi-Task Tiny Tools

- Carmex is introducing a new and innovative Multi-Task Tiny Tool **CMR** for Boring, Turning, Facing and Chamfering with a single tool.
- The unique design enables machining of the material without the need for a pilot hole.
- The new tool shortens the machining cycle time and the number of tools required - providing **High Productivity**.
- Effective through coolant hole with a spiral flute, evacuates the chips out of the hole uninterruptedly.
- Unique chip breaker and flute design.
- To use with standard SIM toolholders on Swiss Type or CNC lathe machines.
- Available in **BMK** Grade only.

Working Method

- The tool penetrates the work piece and produces the hole compliant with the minimum diameter the tool allows.
- The tool can penetrate the material in one pass or several passes depending on the work piece material, coolant pressure, machine power etc.
- The hole can be enlarged by multi radial passes.



Rear view of the cutting chamfer

The tool is equipped with an additional cutting edge, which is located across the main front edge. This allows production of an additional 45° chamfer on the work piece without the need to stop the spindle or processing operation.

CMR Cutting Data and General Recommendations

Coolant fluid

Dry machining should not be performed under any circumstances.
It is necessary to use an internal coolant in all applications.
Oil or Emulsion lubricants are recommended for best performance.
In the event of low coolant pressure, adding an external coolant can improve the tool operation.

The cooling stream is designed to provide three benefits:
1. Cooling the cutting edge of the tool, and the contact area.
2. Pushing the chip away from the tool quickly, thereby reducing wear of the edge.
3. Helping to break the chip into smaller pieces and evacuating them from the cutting area.

ISO Standard	Materials	Cutting Speed m/min
P	Low and Medium Carbon Steels <0.55%C	20- 75
	High Carbon Steels ≥0.55%C	20- 75
	Alloy Steels, Treated Steels	20- 60
M	Stainless Steels - Free Cutting	20- 60
	Stainless Steels - Austenitic	20- 50
	Cast Steels	20- 70
K	Cast Iron	20- 90
N	Aluminum ≤12%Si, Copper	40-150
	Aluminum >12% Si	20-100
	Synthetics, Duroplastics, Thermoplastics	40-150
S	Nickel Alloys, Titanium Alloys	15- 60
H	Hardened Steels	

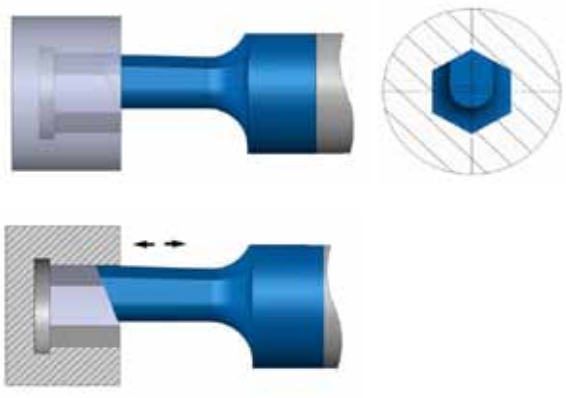
Recommended Feed Rate: 0.01 - 0.03 mm/rev

HK *Broaching Tools for Hexagon Keys*

The HK broaching system have been developed to machine internal keyways inside blind or through holes, using CNC machines.

- To use with Carmex standard SIM Bar Holders
- The holder can be located directly in the turret or the machine spindle
- Holder with rear clamping screw for full support during operation
- Available in **BMK** Grade only.

Working Demo



Mini Tools

Vertical Inserts and Toolholders for threading, chamfering, grooving and turning

Advantages

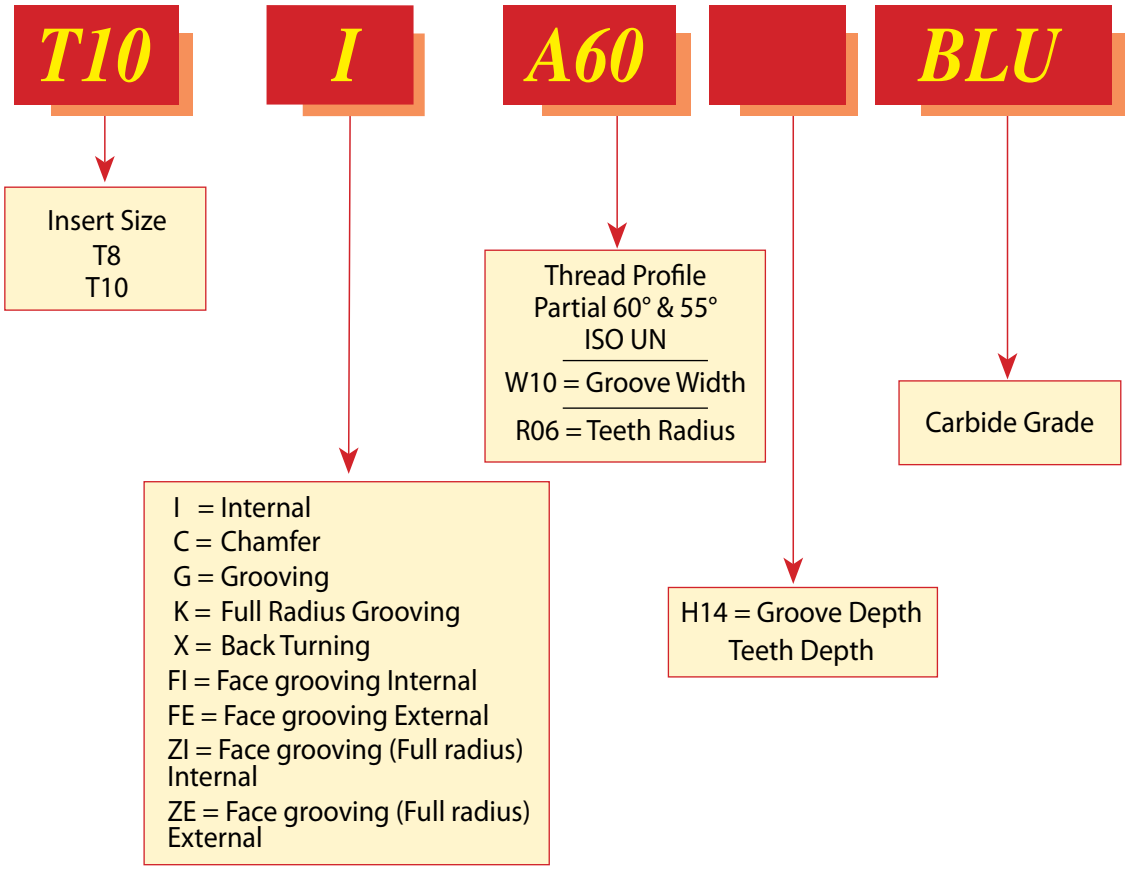
Carbide grade: BLU-Sub-micron grade with advanced PVD triple layer coating delivering high heat resistance and smooth cutting operation.

- Carbide shank toolholder provides excellent vibration resistance.
- Long reach.
- Through coolant.
- For threading, grooving, boring and chamfering.
- Quick indexing.

Typical Applications:

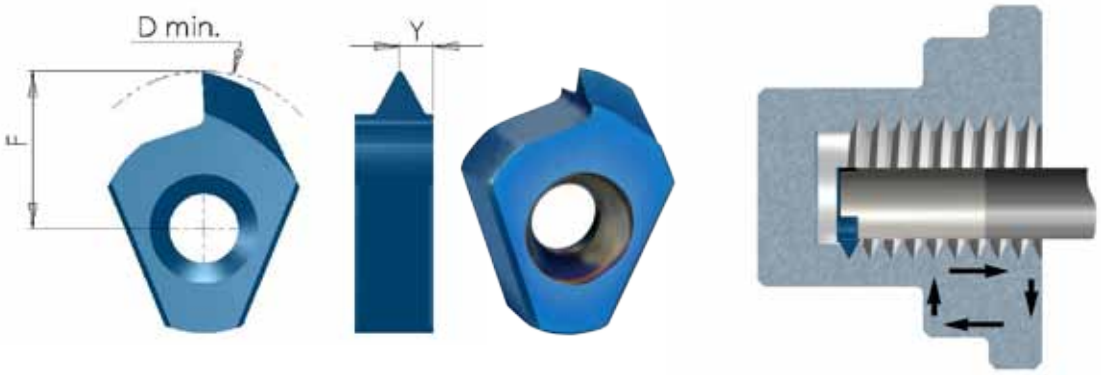
- Long threads or applications requiring over-hang.
- Enables production of threads with large pitch/profile.
- Threading, grooving, boring, profiling and chamfering - It's possible to offer most of the Tiny Tools profiles on the insert.

Product Identification



Partial Profile 60°

Same insert for internal and external thread



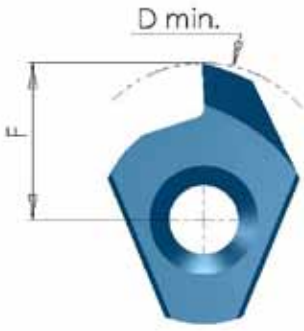
Insert Type	Ordering Code	Pitch Range mm	Pitch Range TPI	D min	F	Y
T8	**T8 A60**	Int 0.5-0.75 Ex 0.4- 0.75	56-32 64-32	8.0	3.7	0.6
	T8 G60	Int 1.0-1.25 Ex 0.8- 1.0	28-20 32-28	8.4	4.1	0.8
T10	**T10 A60**	Int 0.5-0.8 Ex 0.4-0.8	56-28 64-32	11.6	6.4	0.6
	T10 G60	Int 1.0-2.0 Ex 0.8-1.75	28-13 32-15	12.3	7.1	1.3
	T10 D60	Int 2.0-3.0 Ex 1.75-2.5	13-8 15-10	13.1	7.9	1.5

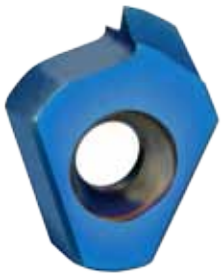
Partial Profile 55°

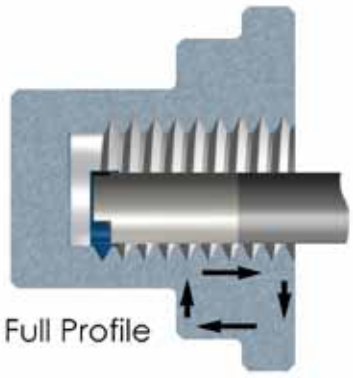
Same insert for internal and external thread

Insert Type	Ordering Code	Pitch Range mm	Pitch Range TPI	D min	F	Y
T8	**T8 G55**	1.25-1.5	19-18	9.1	4.8	1.0
	T8 U55	1.75-2.0	16-14	8.7	4.4	1.2
T10	**T10 G55**	1.25-2.0	19-14	12.4	7.2	1.2

Full Profile







ISO

Inserts for internal thread

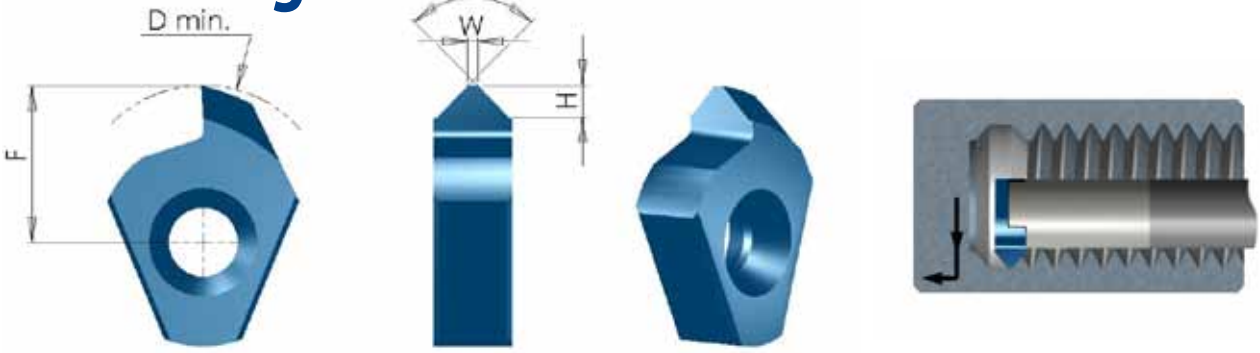
Insert Type	Ordering Code	Pitch mm	M coarse	M fine	D min	F	Y
T8	**T8 I 0.5 ISO**	0.5		M8.5	8.0	3.6	0.5
	T8 I 0.75 ISO	0.75		M9	8.1	3.8	0.6
	T8 I 1.0 ISO	1.0		M9	8.0	3.7	0.7
	T8 I 1.25 ISO	1.25		M10	8.2	3.9	0.8
	T8 I 1.5 ISO	1.5	M10	M12	8.4	4.1	1.0
	T8 I 1.75 ISO	1.75	M12	-	8.6	4.3	1.1
	T8 I 2.0 ISO	2.0	M14	M17	8.8	4.5	1.3
T10	**T10 I 0.5 ISO**	0.5		M12	11.3	6.1	0.5
	T10 I 0.75 ISO	0.75		M12	11.3	6.1	0.6
	T10 I 1.0 ISO	1.0		M13	11.7	6.5	0.7
	T10 I 1.5 ISO	1.5		M14	11.7	6.5	1.0
	T10 I 2.0 ISO	2.0	M16	M17	12.0	6.8	1.3
	T10 I 2.5 ISO	2.5	M18, M20	-	12.6	7.4	1.4
	T10 I 3.0 ISO	3.0	M24	M28	12.6	7.4	1.6

UN

Inserts for internal thread

Insert Type	Ordering Code	Pitch TPI	Nominal size	UNC	UNF	UNEF	D min	F	Y
T8	**T8 I 32UN**	32	7/16, 1/2			3/8	8.3	4.0	0.6
	T8 I 28UN	28	3/8			7/16, 1/2	8.3	4.0	0.7
	T8 I 24UN	24			3/8		8.3	4.0	0.7
	T8 I 20UN	20	3/8		7/16, 1/2		8.2	3.9	0.9
	T8 I 16UN	16	7/16, 1/2				8.7	4.4	1.0
	T8 I 14UN	14		7/16			8.8	4.5	1.2
T10	**T10 I 20UN**	20	9/16, 5/8, 11/16			3/4	12.0	6.8	0.9
	T10 I 18UN	18			9/16, 5/8		12.0	6.8	1.0
	T10 I 16UN	16	9/16, 5/8, 11/16		3/4		12.0	6.8	1.1
	T10 I 14UN	14			7/8		12.1	6.9	1.2
	T10 I 12UN	12	5/8, 11/16, 3/4	9/16			12.1	6.9	1.4
	T10 I 11UN	11		5/8			12.5	7.3	1.5

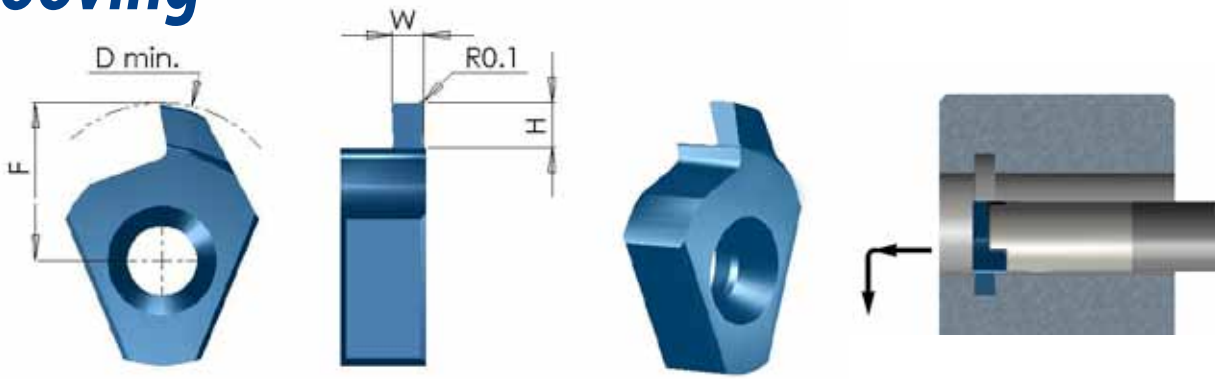
Chamfering



Insert Type	Ordering Code	W	H max	α	D min	F
T8	**T8 C90**	0.2	1.4	90°	8.8	4.5
T10	**T10 C90**	0.2	1.8	90°	12.7	7.5

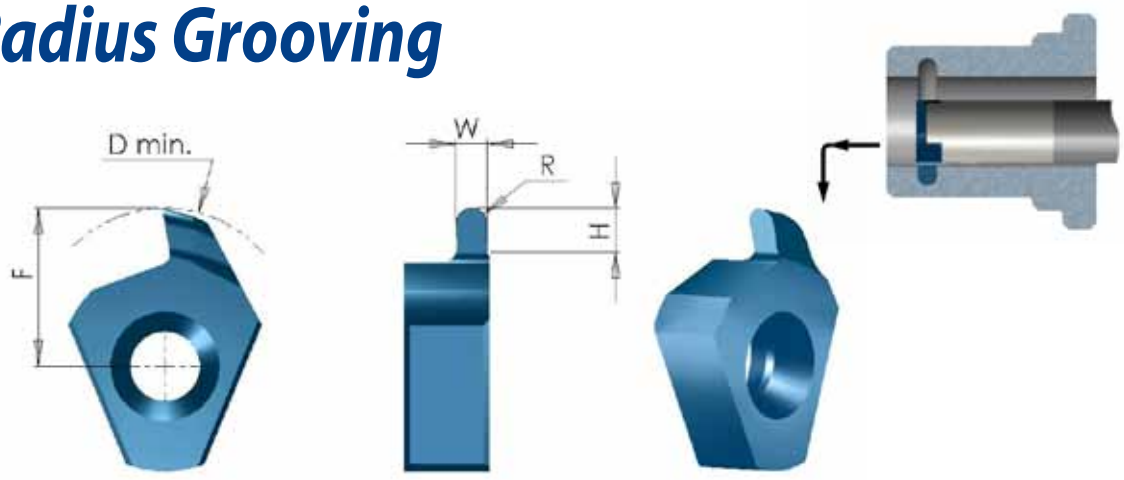
Same insert for right and left hand chamfers

Grooving



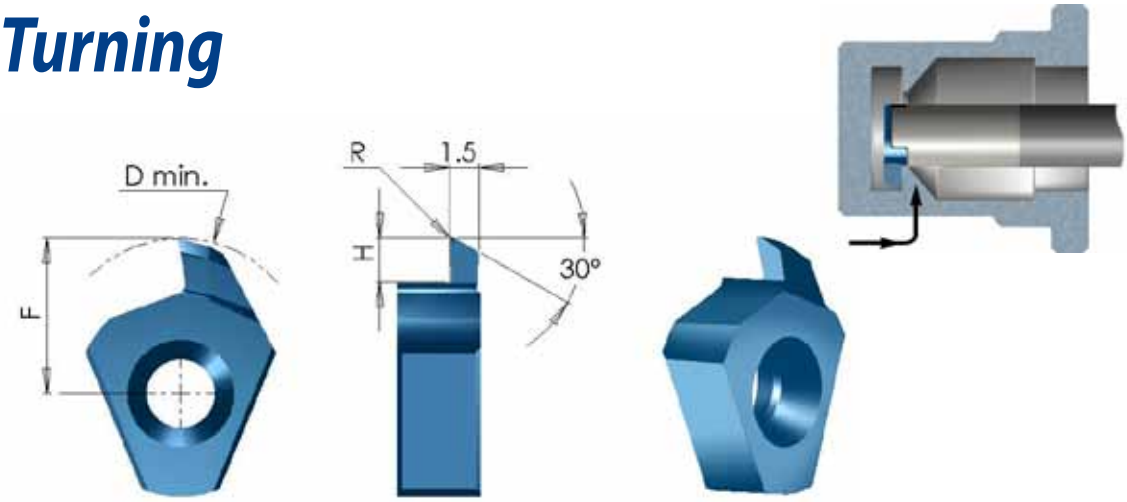
Insert Type	Ordering Code	W ±0.02	H max	D min	F
T8	**T8 G W10 H20**	1.0	2.0	9.4	5.1
	T8 G W15 H20	1.5			
	T8 G W20 H20	2.0			
	T8 G W25 H20	2.5			
	T8 G W30 H20	3.0			
T10	**T10 G W10 H14**	1.0	1.4	12.3	7.1
	T10 G W15 H14	1.5			
	T10 G W20 H14	2.0			
T10	**T10 G W10 H23**	1.0	2.3	13.1	7.9
	T10 G W15 H23	1.5			
	T10 G W20 H23	2.0			
	T10 G W25 H23	2.5			
	T10 G W30 H23	3.0			

Full Radius Grooving



Insert Type	Ordering Code	W ±0.02	R	H max	D min	F
T8	T8 K R04 H10	0.8	0.4	1.0	8.4	4.1
	T8 K R06 H10	1.2	0.6			
	T8 K R09 H10	1.8	0.9			
T10	T10 K R04 H22	0.8	0.4	2.2	13.1	7.9
	T10 K R06 H22	1.2	0.6			
	T10 K R09 H22	1.8	0.9			
	T10 K R10 H22	2.0	1.0			

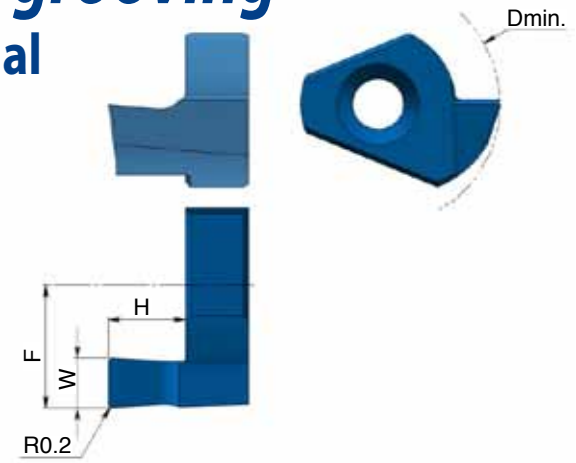
Back Turning

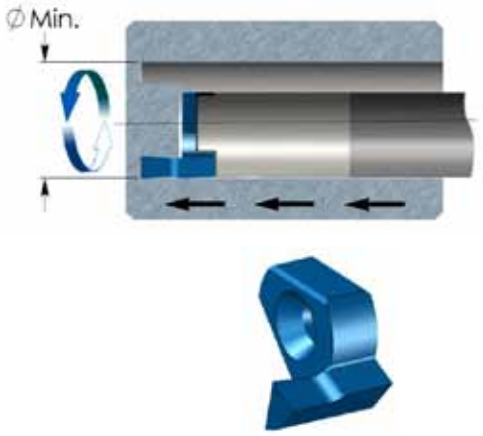


Insert Type	Ordering Code	R	H max	D min	F
T8	T8 X R02 H20	0.2	2.0	9.4	5.1
T10	T10 X R02 H23	0.2	2.3	13.1	7.9
	T10 X R04 H23	0.4			

Face grooving

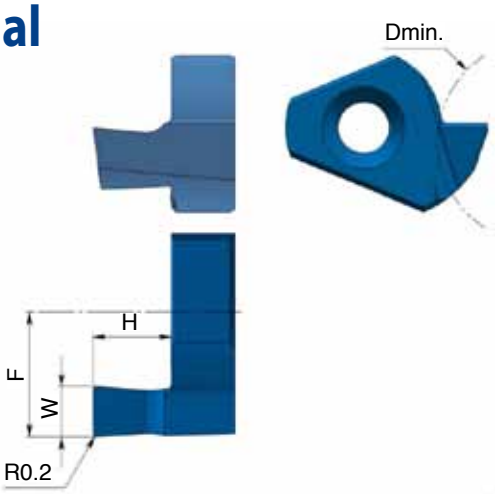
Internal

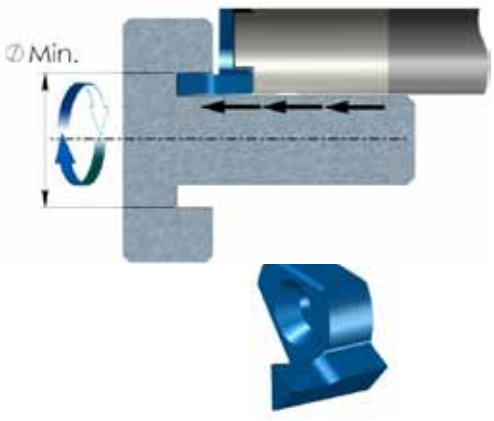




Insert Type	Ordering Code	W ±0.02	H max	D min	F
T10	**T10 FI W10 H15**	1.0	1.5	14.0	8.0
	T10 FI W15 H25	1.5	2.5		
	T10 FI W20 H30	2.0	3.0		
	T10 FI W20 H50	2.0	5.0		
	T10 FI W25 H30	2.5	3.0		
	T10 FI W25 H50	2.5	5.0		
	T10 FI W30 H30	3.0	3.0		
	T10 FI W30 H50	3.0	5.0		

External

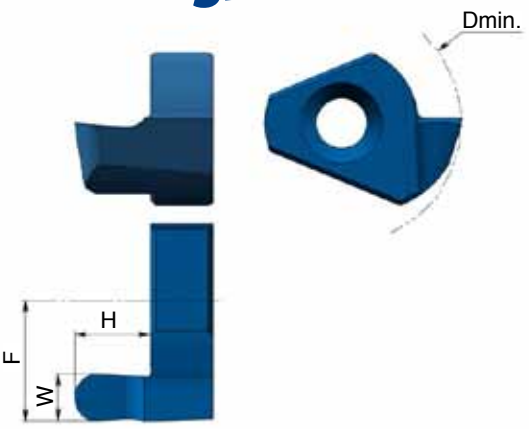


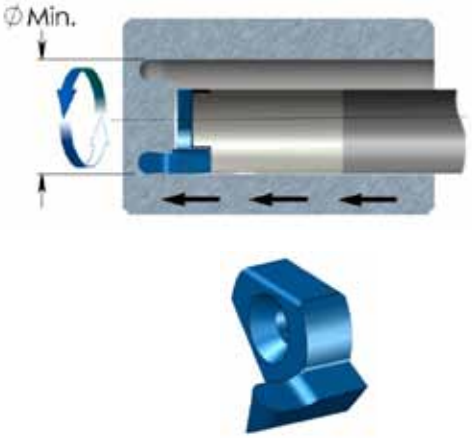


Insert Type	Ordering Code	W ±0.02	H max	D min	F
T10	**T10 FE W10 H15**	1.0	1.5	12.0	8.0
	T10 FE W15 H25	1.5	2.5		
	T10 FE W20 H30	2.0	3.0		
	T10 FE W20 H50	2.0	5.0		
	T10 FE W25 H30	2.5	3.0		
	T10 FE W25 H50	2.5	5.0		
	T10 FE W30 H30	3.0	3.0		
	T10 FE W30 H50	3.0	5.0		

Face grooving, Full radius

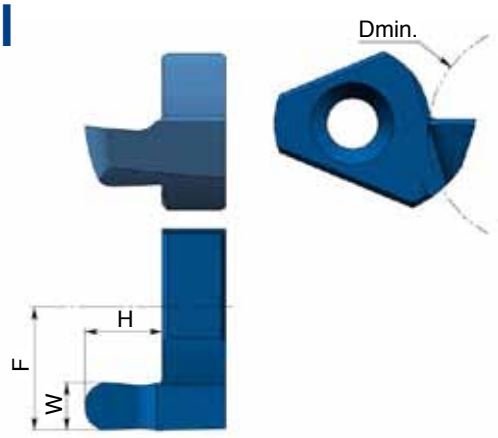
Internal

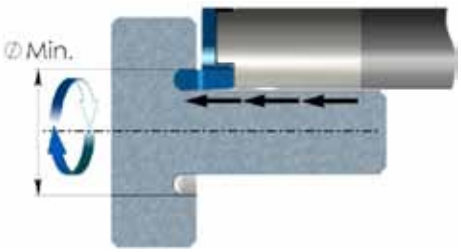




Insert Type	Ordering Code	W ±0.02	R	H max	D min	F
T10	**T10 ZI R05 H15**	1.0	0.5	1.5	14.0	8.0
	T10 ZI R08 H25	1.6	0.8	2.5		
	T10 ZI R10 H30	2.0	1.0	3.0		
	T10 ZI R125 H30	2.5	1.25	3.0		
	T10 ZI R15 H30	3.0	1.5	3.0		

External

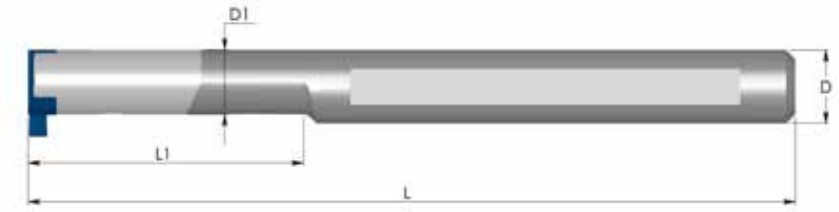




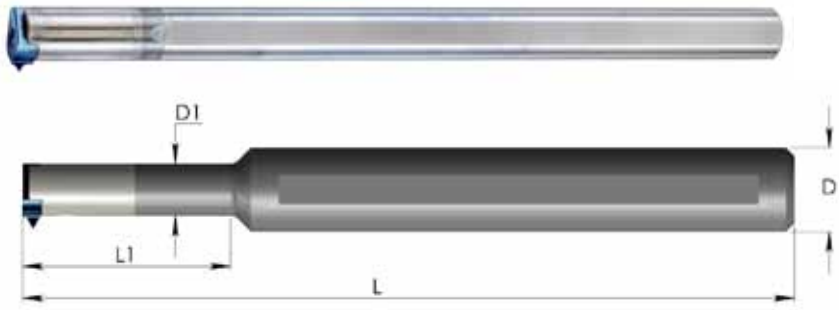
Insert Type	Ordering Code	W ±0.02	R	H max	D min	F
T10	**T10 ZE R05 H15**	1.0	0.5	1.5	12.0	8.0
	T10 ZE R08 H25	1.6	0.8	2.5		
	T10 ZE R10 H30	2.0	1.0	3.0		
	T10 ZE R125 H30	2.5	1.25	3.0		
	T10 ZE R15 H30	3.0	1.5	3.0		

Carbide Shank Toolholders

With through coolant



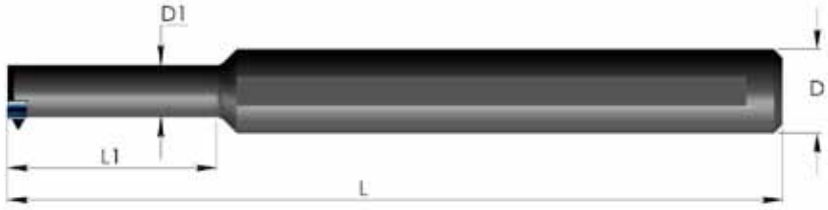
Insert Type	Ordering Code	D	D1	L1	L	Insert Screw	Torx Key
T8	**ST 0008 L20 F08C**	8	7	20	80	S5	K5
	ST 0008 L30 G08C	8	7	30	95	S5	K5
	ST 0008 L40 H08C	8	7	40	105	S5	K5



Insert Type	Ordering Code	D	D1	L1	L	Insert Screw	Torx Key
T10	**ST 0010 M10C**	10	10	-	150	S11	K11
	ST 0012 L40 J10C	12	10	40	110	S11	K11
	ST 0012 L55 K10C	12	10	55	125	S11	K11

Steel Toolholders

With through coolant



Insert Type	Ordering Code	D	D1	L1	L	Insert Screw	Torx Key
T10	**ST 0012 L25 E10**	12	10	25	70	S11	K11
	ST 0016 L25 G10	16	10	25	90	S11	K11
	ST 0016 L35 H10	16	10	35	100	S11	K11

Technical Section

Cutting Data

ISO	Materials	Cutting Speed m/min	Recommended feed rate mm/rev
P	Low and Medium Carbon Steels <0.55%C	25 - 70	Grooving: 0.01-0.03 Back turning: 0.03-0.10 Face grooving: 0.01-0.08 Chamfering: 0.02-0.08
	High Carbon Steels ≥0.55%C	20 - 50	
	Alloy Steels, Treated Steels	15 - 30	
M	Stainless Steels - Free Cutting	25 - 70	
	Stainless Steels - Austenitic	20 - 40	
	Cast Steels	30 - 70	
K	Cast Iron	15 - 30	
N	Aluminum ≤12%Si, Copper	30 - 90	
	Aluminum >12% Si	20 - 70	
	Synthetics, Duroplastics, Thermoplastics	20 - 70	
S	Nickel Alloys, Titanium Alloys	20 - 50	
H	Hardened Steel 45 - 50HRc	10 - 40	

Threading Passes

Pitch:	mm TPI	0.5 48	0.7 36	0.8 32	1.0 24	1.25 20	1.5 16	2-5 14-5
Number of Passes		6-12	7-14	7-16	8-18	8-20	10-22	20-38

Swiss-Line

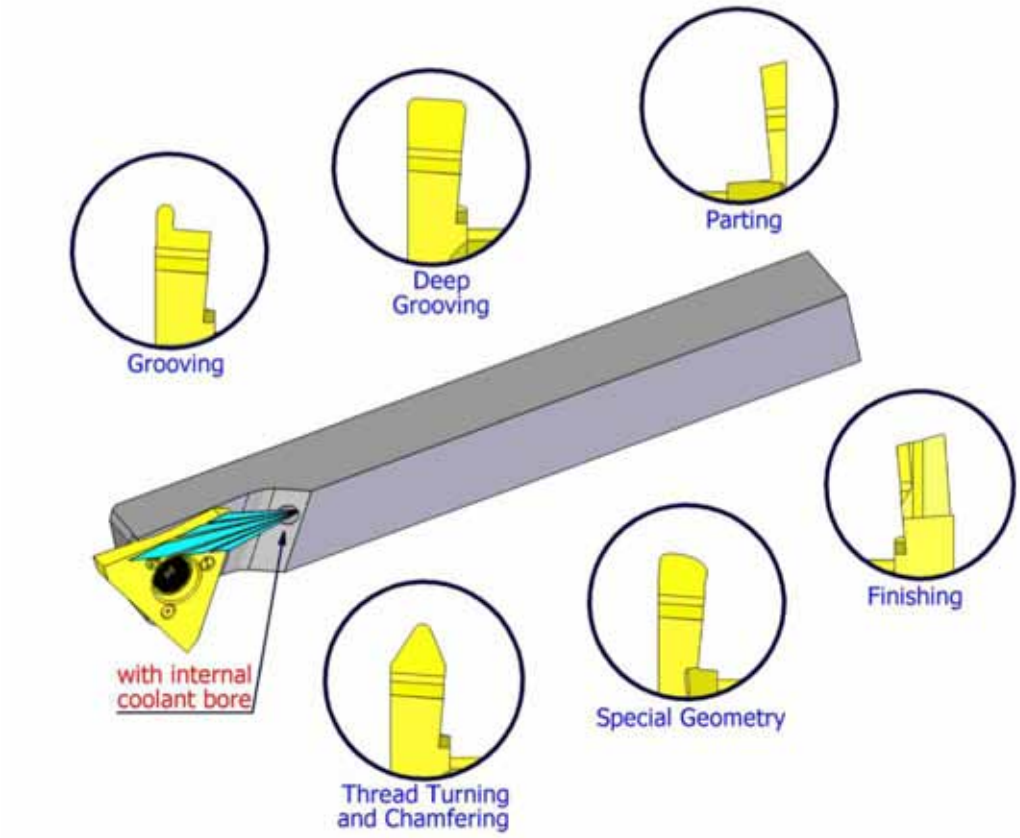
Swiss-Line

- **Swiss style lathes are becoming a popular alternative to large lathes and machining centers in many companies.**
- **Carmex is introducing Swiss line of inserts and toolholders, developed for automatic and Swiss style lathes.**
- **Designed for economic production of parting, grooving, profiling and chamfering.**

Advantages

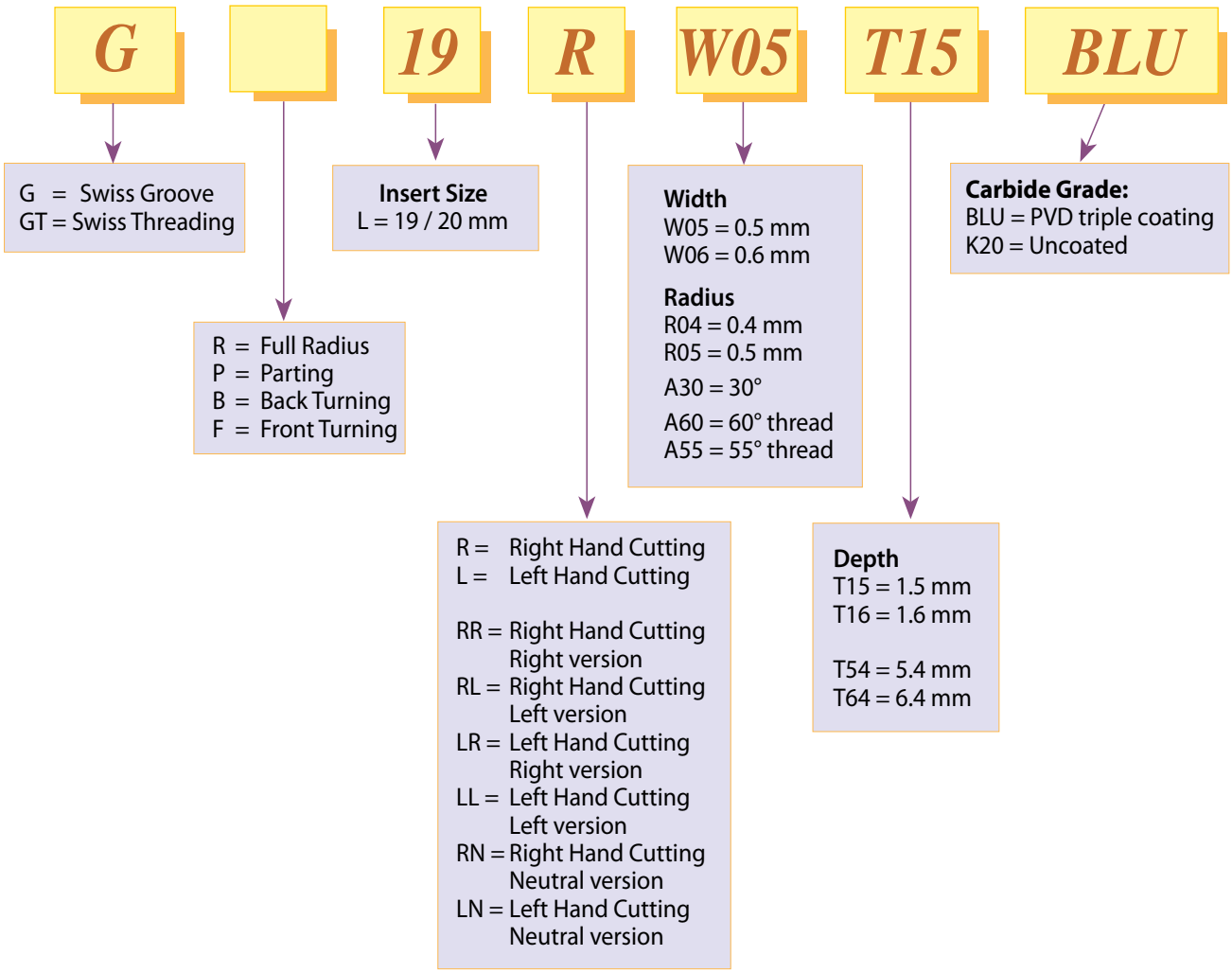
Advanced sub-micron grade (K10-K30) - a combination of strength, toughness, wear resistance and edge sharpness.

- Grounded cutting edges.
- Advanced and unique PVD triple coating, for high wear and heat resistance.
- For most types of material, including Stainless Steels, Titanium and Super Alloys.

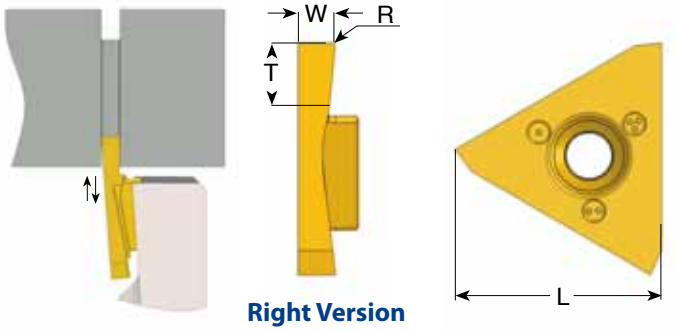


- Three cutting edges.
- The insert can be indexed directly on the machine.
- Internal coolant to the cutting edge.

Product Identification - Inserts



Grooving



Right Version

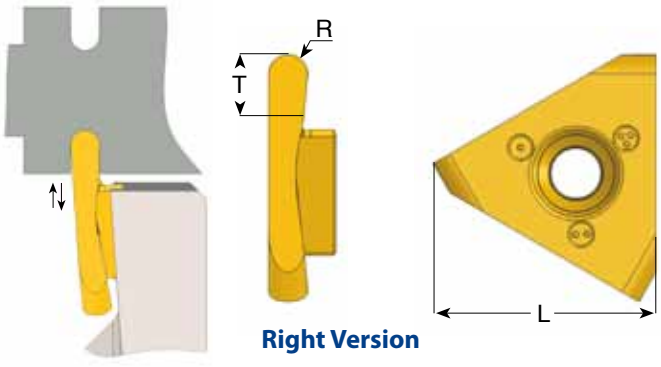
Right hand cutting

L	Ordering Code	W ±0.02	T max	R	Feed mm/rev	
					Radial	Axial
19	G19 R W05 T15	0.5	1.5	0	0.01-0.06	0.02-0.10
	G19 R W06 T16	0.6	1.6	0	0.01-0.06	0.02-0.10
	G19 R W07 T17	0.75	1.7	0	0.01-0.06	0.02-0.10
	G19 R W08 T18	0.8	2.0	0.05	0.01-0.06	0.02-0.10
	G19 R W10 T22	1.0	2.5	0.05	0.02-0.07	0.02-0.10
	G19 R W12 T24	1.2	3.0	0.05	0.02-0.07	0.02-0.10
	G19 R W14 T28	1.4	3.0	0.05	0.03-0.08	0.02-0.10
	G19 R W15 T30	1.5	3.0	0.05	0.03-0.08	0.02-0.10
	G19 R W17 T34	1.7	4.0	0.05	0.04-0.09	0.02-0.20
20	G20 R W20 T40	2.0	4.0	0.1	0.05-0.10	0.02-0.20
	G20 R W22 T45	2.25	5.0	0.1	0.05-0.10	0.02-0.20
	G20 R W25 T50	2.5	6.0	0.1	0.05-0.10	0.02-0.20
	G20 R W30 T60	3.0	6.0	0.1	0.05-0.10	0.02-0.20

Left hand cutting

L	Ordering Code	W ±0.02	T max	R	Feed mm/rev	
					Radial	Axial
19	G19 L W05 T15	0.5	1.5	0	0.01-0.06	0.02-0.10
	G19 L W06 T16	0.6	1.6	0	0.01-0.06	0.02-0.10
	G19 L W07 T17	0.75	1.7	0	0.01-0.06	0.02-0.10
	G19 L W08 T18	0.8	2.0	0.05	0.01-0.06	0.02-0.10
	G19 L W10 T22	1.0	2.5	0.05	0.02-0.07	0.02-0.10
	G19 L W12 T24	1.2	3.0	0.05	0.02-0.07	0.02-0.10
	G19 L W14 T28	1.4	3.0	0.05	0.03-0.08	0.02-0.10
	G19 L W15 T30	1.5	3.0	0.05	0.03-0.08	0.02-0.10
	G19 L W17 T34	1.7	4.0	0.05	0.04-0.09	0.02-0.20
20	G20 L W20 T40	2.0	4.0	0.1	0.05-0.10	0.02-0.20
	G20 L W22 T45	2.25	5.0	0.1	0.05-0.10	0.02-0.20
	G20 L W25 T50	2.5	6.0	0.1	0.05-0.10	0.02-0.20
	G20 L W30 T60	3.0	6.0	0.1	0.05-0.10	0.02-0.20

Grooving and Profiling (full radius)



Right Version

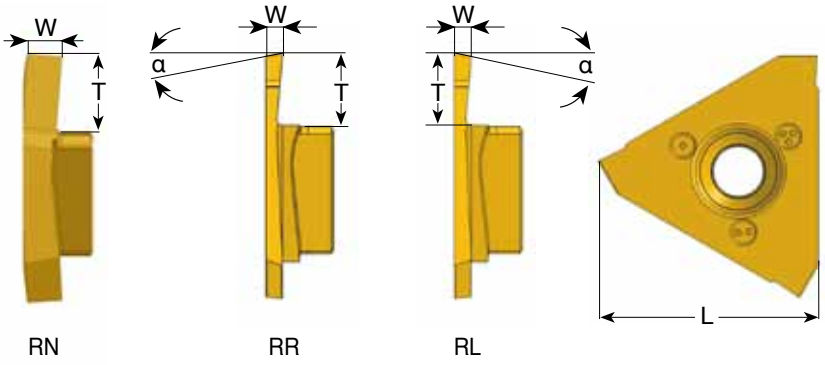
Right hand cutting

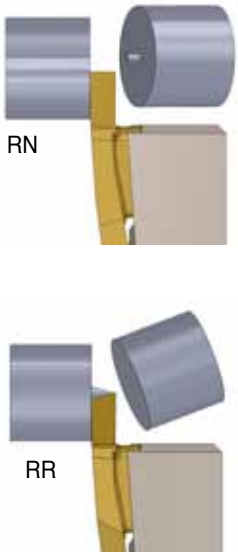
L	Ordering Code	R ±0.03	T max	Feed mm/rev	
				Radial	Axial
19	GR19 R R02 T15	0.25	1.5	0.01-0.06	0.02-0.10
	GR19 R R04 T18	0.40	2.0	0.01-0.06	0.02-0.10
	GR19 R R05 T22	0.50	2.5	0.02-0.07	0.02-0.10
	GR19 R R06 T26	0.60	3.0	0.02-0.07	0.02-0.10
	GR19 R R08 T33	0.80	3.5	0.04-0.09	0.02-0.20
	GR19 R R10 T40	1.00	4.0	0.05-0.10	0.02-0.20
20	GR20 R R12 T50	1.25	6.0	0.05-0.10	0.02-0.20
	GR20 R R15 T60	1.50	6.0	0.05-0.10	0.02-0.20

Left hand cutting

L	Ordering Code	R ±0.03	T max	Feed mm/rev	
				Radial	Axial
19	GR19 L R02 T15	0.25	1.5	0.01-0.06	0.02-0.10
	GR19 L R04 T18	0.40	2.0	0.01-0.06	0.02-0.10
	GR19 L R05 T22	0.50	2.5	0.02-0.07	0.02-0.10
	GR19 L R06 T26	0.60	3.0	0.02-0.07	0.02-0.10
	GR19 L R08 T33	0.80	3.5	0.04-0.09	0.02-0.20
	GR19 L R10 T40	1.00	4.0	0.05-0.10	0.02-0.20
20	GR20 L R12 T50	1.25	6.0	0.05-0.10	0.02-0.20
	GR20 L R15 T60	1.50	6.0	0.05-0.10	0.02-0.20

Parting Off





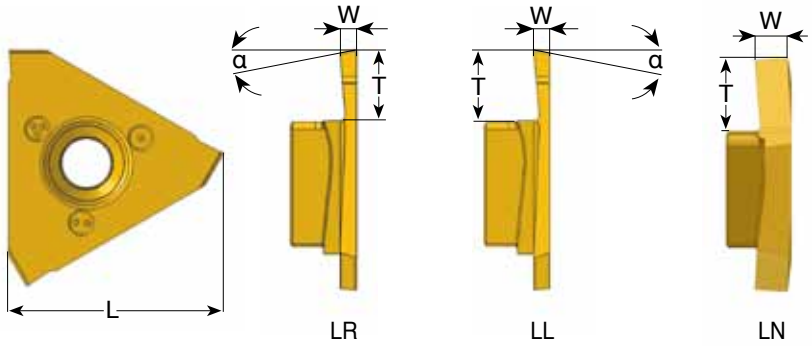
Right Version

Right hand cutting

L	Ordering Code	W	α°	T max	Feed mm/rev Radial
19	GP19 RR W10 T54	1.0	15	5.4	0.02-0.09
	GP19 RL W10 T54	1.0	15	5.4	0.02-0.09
	GP19 RN W10 T54	1.0	0	5.4	0.02-0.09
	GP19 RR W12 T54	1.2	15	5.4	0.02-0.09
	GP19 RL W12 T54	1.2	15	5.4	0.02-0.09
	GP19 RN W12 T54	1.2	0	5.4	0.02-0.09
20	GP20 RR W15 T64	1.5	15	6.4	0.04-0.10
	GP20 RL W15 T64	1.5	15	6.4	0.04-0.10
	GP20 RN W15 T64	1.5	0	6.4	0.04-0.10
	GP20 RR W18 T64	1.8	15	6.4	0.04-0.10
	GP20 RL W18 T64	1.8	15	6.4	0.04-0.10
	GP20 RN W18 T64	1.8	0	6.4	0.04-0.10
	GP20 RR W20 T64	2.0	15	6.4	0.05-0.12
	GP20 RL W20 T64	2.0	15	6.4	0.05-0.12
	GP20 RN W20 T64	2.0	0	6.4	0.05-0.12
	GP20 RR W25 T64	2.5	15	6.4	0.05-0.12
	GP20 RL W25 T64	2.5	15	6.4	0.05-0.12
	GP20 RN W25 T64	2.5	0	6.4	0.05-0.12
	GP20 RR W30 T64	3.0	15	6.4	0.05-0.12
	GP20 RL W30 T64	3.0	15	6.4	0.05-0.12
	GP20 RN W30 T64	3.0	0	6.4	0.05-0.12

* Corner Radius RO

Parting Off



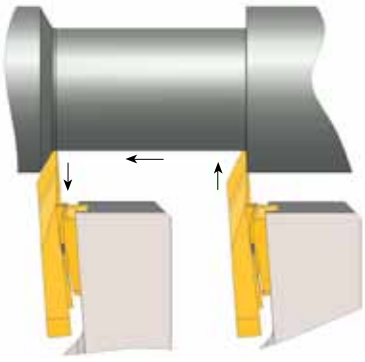
Left Version

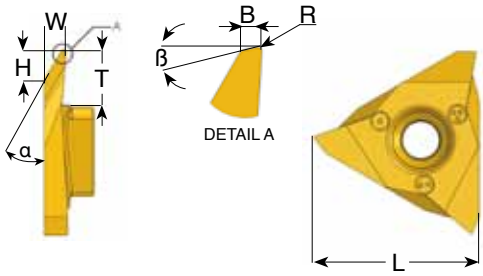
Left hand cutting

L	Ordering Code	W	α°	T max	Feed mm/rev Radial
19	GP19 LR W10 T54	1.0	15	5.4	0.02-0.09
	GP19 LL W10 T54	1.0	15	5.4	0.02-0.09
	GP19 LN W10 T54	1.0	0	5.4	0.02-0.09
	GP19 LR W12 T54	1.2	15	5.4	0.02-0.09
	GP19 LL W12 T54	1.2	15	5.4	0.02-0.09
	GP19 LN W12 T54	1.2	0	5.4	0.02-0.09
20	GP20 LR W15 T64	1.5	15	6.4	0.04-0.10
	GP20 LL W15 T64	1.5	15	6.4	0.04-0.10
	GP20 LN W15 T64	1.5	0	6.4	0.04-0.10
	GP20 LR W18 T64	1.8	15	6.4	0.04-0.10
	GP20 LL W18 T64	1.8	15	6.4	0.04-0.10
	GP20 LN W18 T64	1.8	0	6.4	0.04-0.10
	GP20 LR W20 T64	2.0	15	6.4	0.05-0.12
	GP20 LL W20 T64	2.0	15	6.4	0.05-0.12
	GP20 LN W20 T64	2.0	0	6.4	0.05-0.12
	GP20 LR W25 T64	2.5	15	6.4	0.05-0.12
	GP20 LL W25 T64	2.5	15	6.4	0.05-0.12
	GP20 LN W25 T64	2.5	0	6.4	0.05-0.12
	GP20 LR W30 T64	3.0	15	6.4	0.05-0.12
	GP20 LL W30 T64	3.0	15	6.4	0.05-0.12
	GP20 LN W30 T64	3.0	0	6.4	0.05-0.12

* Corner Radius RO

Back Turning





Right Version

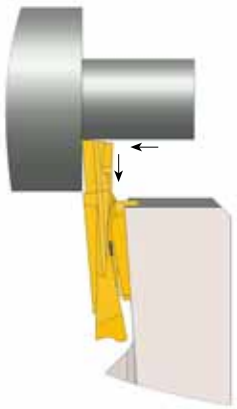
Right hand cutting

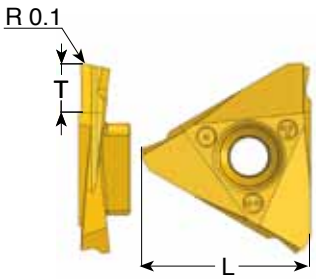
L	Ordering Code	α°	ß°	R	W	H	B	T	Feed mm/rev
19	GB19 R A30	30	12	0.1	3.4	4.3	0.5	5.4	0.05-0.15
20	GB20 R A30	30	12	0.1	3.4	4.3	0.5	6.4	0.05-0.15

Left hand cutting

L	Ordering Code	α°	ß°	R	W	H	B	T	Feed mm/rev
19	GB19 L A30	30	12	0.1	3.4	4.3	0.5	5.4	0.05-0.15
20	GB20 L A30	30	12	0.1	3.4	4.3	0.5	6.4	0.05-0.15

Front Turning





Right Version

Right hand cutting

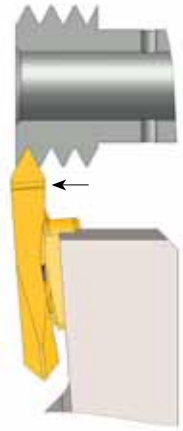
L	Ordering Code	T	Feed mm/rev
19	GF19 R T54	5.4	0.05-0.15
20	GF20 R T64	6.4	0.05-0.15

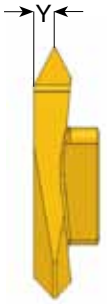
Left hand cutting

L	Ordering Code	T	Feed mm/rev
19	GF19 L T54	5.4	0.05-0.15
20	GF20 L T64	6.4	0.05-0.15

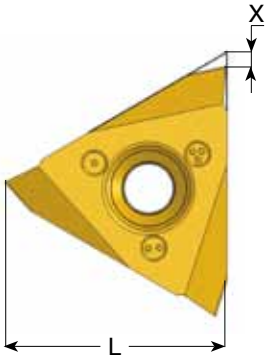
Threading - Partial Profile 60°

External Thread





Right Version



Right hand cutting

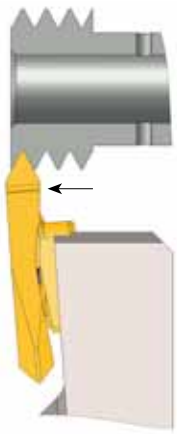
L	mm	TPI	Ordering Code	X	Y
19	0.5-1.5	48-16	**GT19 R A60**	2.8	1.1
	1.75-3.0	14-8	**GT19 R G60**	2.8	1.7
	0.5-3.0	48-8	**GT19 R AG60**	2.8	1.7

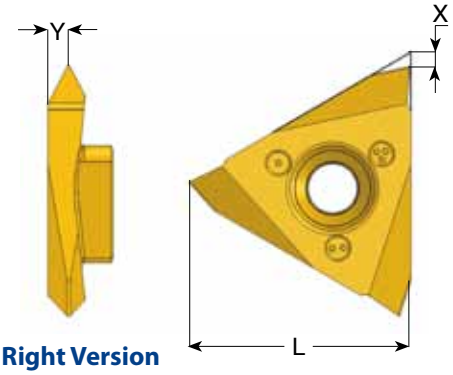
Left hand cutting

L	mm	TPI	Ordering Code	X	Y
19	0.5-1.5	48-16	**GT19 L A60**	2.8	1.1
	1.75-3.0	14-8	**GT19 L G60**	2.8	1.7
	0.5-3.0	48-8	**GT19 L AG60**	2.8	1.7

Threading - Partial Profile 55°

External Thread





Right Version

Right hand cutting

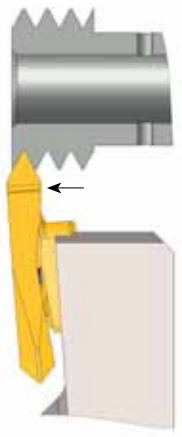
L	mm	TPI	Ordering Code	X	Y
19	0.5-1.5	48-16	**GT19 R A55**	2.8	1.0
	1.75-3.0	14-8	**GT19 R G55**	2.8	1.7
	0.5-3.0	48-8	**GT19 R AG55**	2.8	1.7

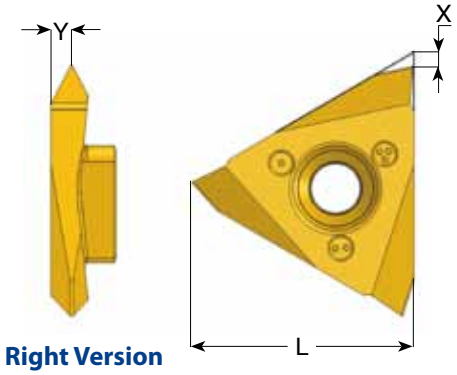
Left hand cutting

L	mm	TPI	Ordering Code	X	Y
19	0.5-1.5	48-16	**GT19 L A55**	2.8	1.0
	1.75-3.0	14-8	**GT19 L G55**	2.8	1.7
	0.5-3.0	48-8	**GT19 L AG55**	2.8	1.7

Threading - ISO metric 60°

External Thread





Right Version

Right hand cutting

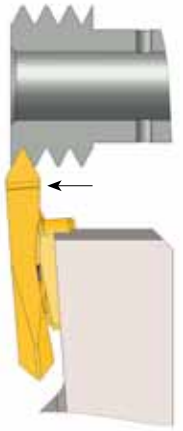
L	mm	Ordering Code	X	Y
19	0.5	GT19 R 0.5 ISO	2.8	0.6
	0.7	GT19 R 0.7 ISO	2.8	0.7
	0.75	GT19 R 0.75 ISO	2.8	0.7
	0.8	GT19 R 0.8 ISO	2.8	0.7
	1.0	GT19 R 1.0 ISO	2.8	0.8
	1.25	GT19 R 1.25 ISO	2.8	1.0
	1.5	GT19 R 1.5 ISO	2.8	1.1
	1.75	GT19 R 1.75 ISO	2.8	1.3

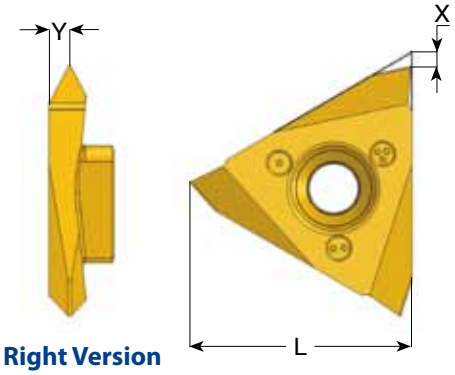
Left hand cutting

L	mm	Ordering Code	X	Y
19	0.5	GT19 L 0.5 ISO	2.8	0.6
	0.7	GT19 L 0.7 ISO	2.8	0.7
	0.75	GT19 L 0.75 ISO	2.8	0.7
	0.8	GT19 L 0.8 ISO	2.8	0.7
	1.0	GT19 L 1.0 ISO	2.8	0.8
	1.25	GT19 L 1.25 ISO	2.8	1.0
	1.5	GT19 L 1.5 ISO	2.8	1.1
	1.75	GT19 L 1.75 ISO	2.8	1.3

Threading - UN unified 60°

External Thread





Right Version

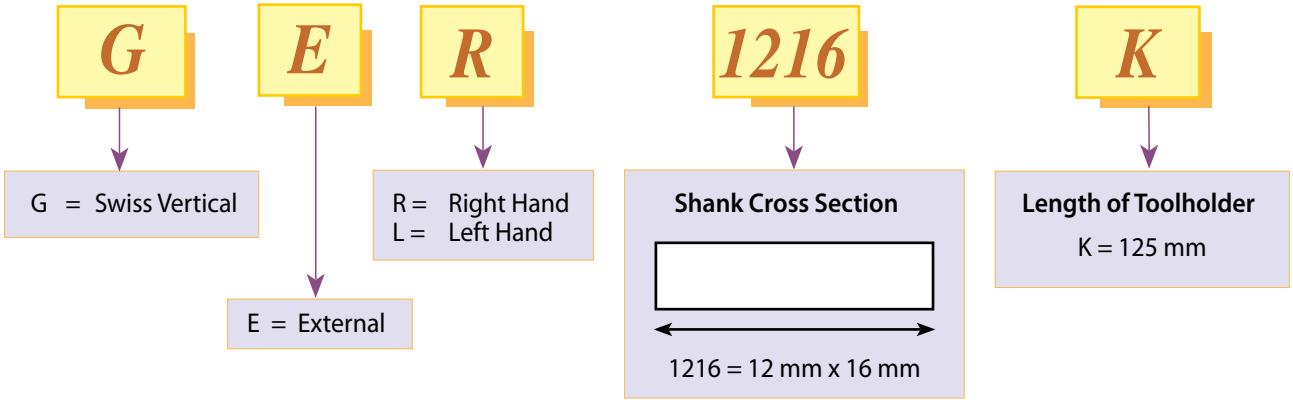
Right hand cutting

L	TPI	Ordering Code	X	Y
19	72	GT19 R 72UN	2.8	0.4
	56	GT19 R 56UN	2.8	0.6
	40	GT19 R 40UN	2.8	0.7
	32	GT19 R 32UN	2.8	0.7
	24	GT19 R 24UN	2.8	0.8
	20	GT19 R 20UN	2.8	1.0

Left hand cutting

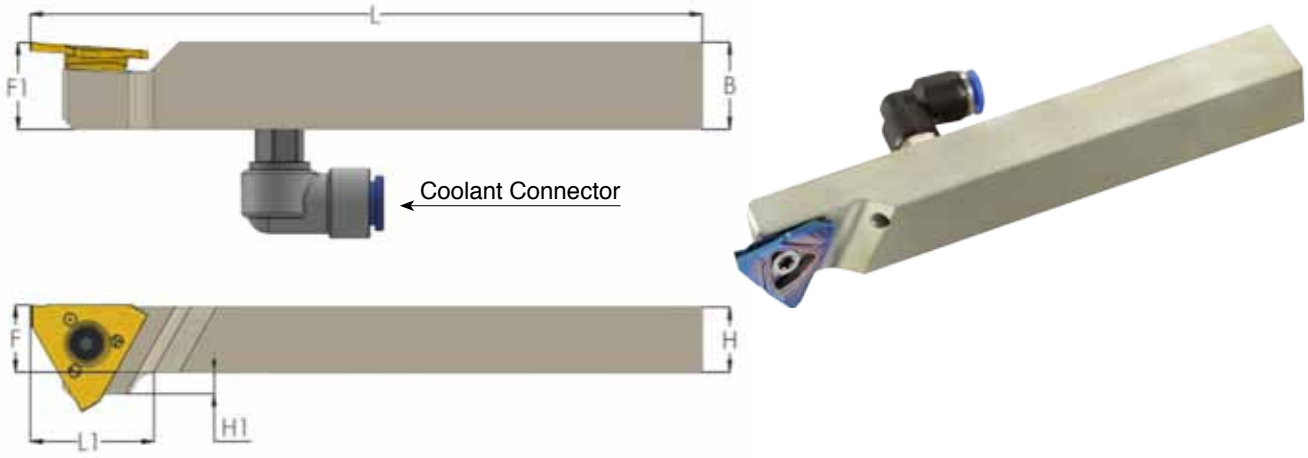
L	TPI	Ordering Code	X	Y
19	72	GT19 L 72UN	2.8	0.4
	56	GT19 L 56UN	2.8	0.6
	40	GT19 L 40UN	2.8	0.7
	32	GT19 L 32UN	2.8	0.7
	24	GT19 L 24UN	2.8	0.8
	20	GT19 L 20UN	2.8	1.0

Product Identification - Toolholders



External Toolholders

- Coolant through toolholders, for external turning in Swiss style lathes.
- The high pressure coolant is directed towards the insert cutting edge in order to evacuate the chips created and avoid build up edge.
- Including a coolant connector for a quick setup on the machine.



Right hand

Ordering Code	B	H	L1	L	F	F1	H1	Insert Screw	Torx Key	*Coolant connector
** GER 0816 K	16	8	17	125	8	16	8	S21	K21	-
GER 1016 K	16	10	17	125	10	16	6	S21	K21	Ø4 / Ø6
GER 1216 K	16	12	17	125	12	16	4	S21	K21	Ø4 / Ø6
GER 1616 K	16	16	-	125	16	16	0	S21	K21	Ø4 / Ø6
GER 2020 K	20	20	-	125	20	20	0	S21	K21	Ø4 / Ø6
GER 2525 M	25	25	-	150	25	25	0	S21	K21	Ø4 / Ø6

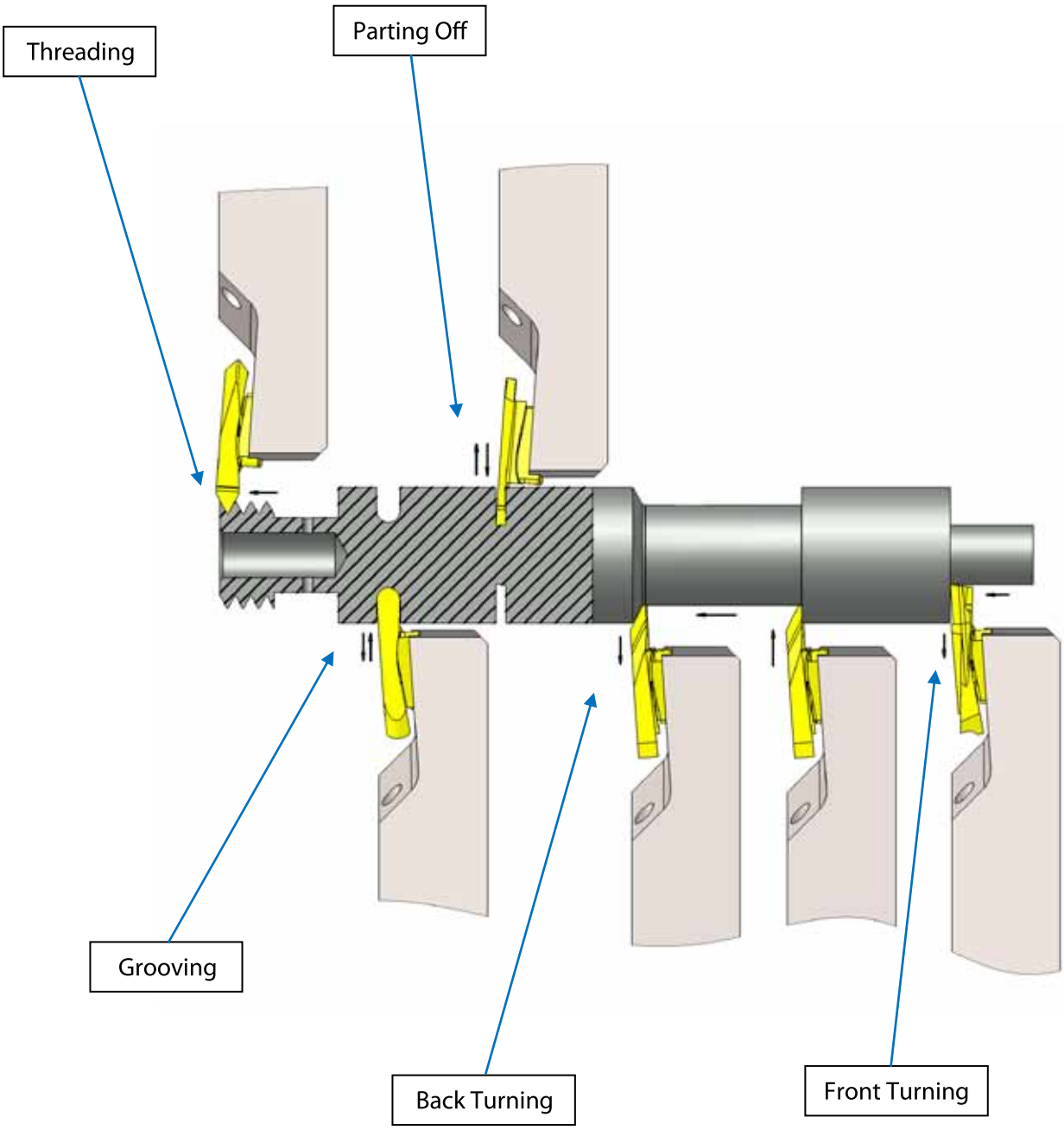
* Diameter of coolant pipe
** Without coolant

Left hand

Ordering Code	B	H	L1	L	F	F1	H1	Insert Screw	Torx Key	*Coolant connector
** GEL 0816 K	16	8	17	125	8	16	8	S21	K21	-
GEL 1016 K	16	10	17	125	10	16	6	S21	K21	Ø4 / Ø6
GEL 1216 K	16	12	17	125	12	16	4	S21	K21	Ø4 / Ø6
GEL 1616 K	16	16	-	125	16	16	0	S21	K21	Ø4 / Ø6
GEL 2020 K	20	20	-	125	20	20	0	S21	K21	Ø4 / Ø6
GEL 2525 M	25	25	-	150	25	25	0	S21	K21	Ø4 / Ø6

* Diameter of coolant pipe
** Without coolant

Grooving - Parting Off - Turning - Profiling - Threading
Working Method



Carbide Grades

BLU
PVD triple layer coated Sub-Micron grade for Steel, Stainless Steels, Titanium and hard materials.

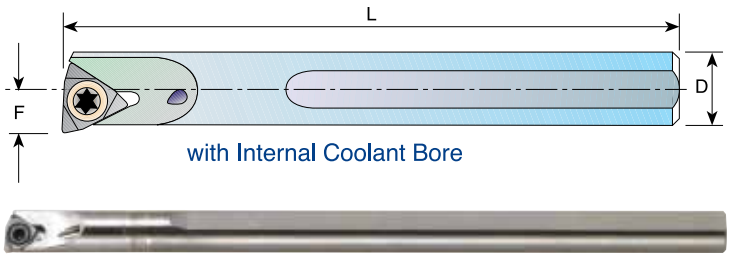
K20
Uncoated Sub-Micron carbide grade for Aluminum and non-ferrous materials, Stainless Steels and Titanium.

ISO Standard	Materials	Cutting Speed m/min	
		K20	BLU
P	Low & Medium Carbon Steels <0.55%C	-	80-150
	High Carbon Steels ≥0.55%C	-	70-120
	Alloy Steels, Treated Steels	-	40- 80
M	Stainless Steel-Free Cutting	30- 80	60-120
	Stainless Steel-Austenitic	20- 70	30- 90
	Cast Steels	30- 80	50-120
K	Cast Iron	50-120	-
N	Aluminum ≤12%Si, Copper	120-250	-
	Aluminum >12%Si	90-200	-
	Synthetics, Duroplastics, Thermoplastics	70-150	-
S	Nickel Alloys, Titanium Alloys	20- 50	30- 70
H	Hardened Steel, 45-50HRc	-	20- 50

Carbide Shank Turning Tool Holders and Insert

Contents: Page:

Carbide Shank Turning Tool Holders and Insert



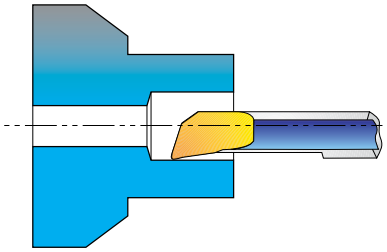
with Internal Coolant Bore

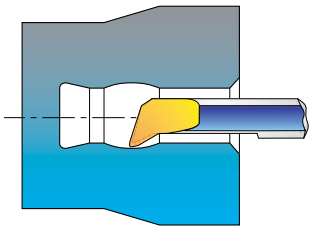
D	Ordering Code	L	F	Min. Bore Dia.	Screw	Key
6	**SIR 0006 H06CT**	100	3.3	6.5	S6	K6
8	**SIR 0008 K06CT**	125	4.3	8.6	S6	K6
10	**SIR 0010 M06CT**	150	5.3	10.6	S6	K6

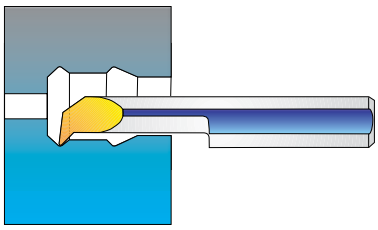
Insert Ordering Code: 06 IR TURN BMA

Nose radius R= 0.2mm

For turning small bores see pages 75-81







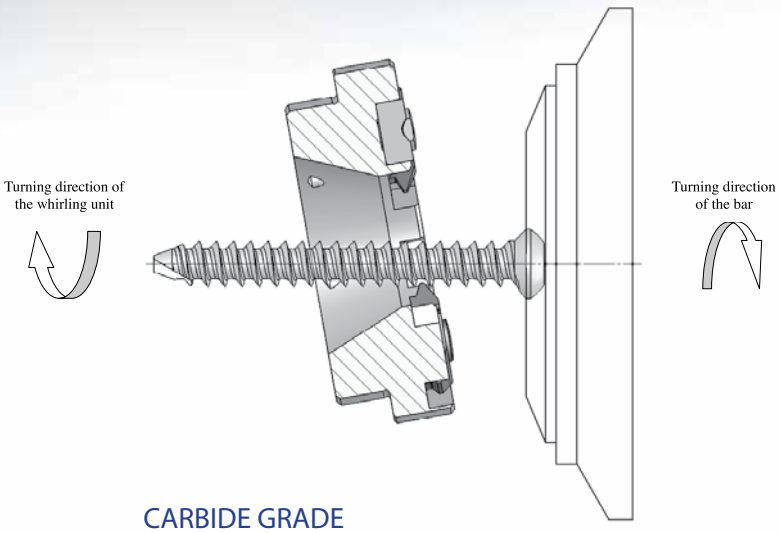
Thread Whirling Tools

For Perfect Long Threads on Swiss Type Machines

Thread Whirling is a fast and accurate way to thread long, small diameter parts in exotic materials such as titanium, stainless steel and Inconel.

Whirling inserts and holders can produce a wide range of medical parts such as dental implants and bone screws, automotive parts and semiconductor small parts.

Cutting is the result of the whirling ring rotating eccentrically at high speed about the slowly rotating workpiece. The advancement of the workpiece rotationally and the advancement of the tool head longitudinally correspond to the thread pitch required.



CARBIDE GRADE

BMA - PVD TiALN coated submicrograin for stainless steel, exotic materials.

Thread Whirling Advantages

Thread Whirling offers several advantages over single point threading:

Enabling production of small diameter long threads when used on Swiss type machines, the thread whirling spindle works close to the guide bushing for increased support and rigidity.

Increased Productivity:

Thread Whirling is performed in a single pass, resulting in a shorter machining time.
This eliminates multiple passes required for a single point threading.
Thread whirling allows working at high feed rates and consequently short cycle times.

Very high surface quality and accurate geometry:

The use of up to 8 cutting edges, higher concentricity, special cutting edge geometry and ideal chip removal, enable top quality surfaces to be produced without burr.

Long tool life:

Whirling inserts have a stronger cutting edge than single point tools, because cutter side clearance is achieved by rotating the whirling spindle, not by relieving material under the cutting edge.

Faster Setup:

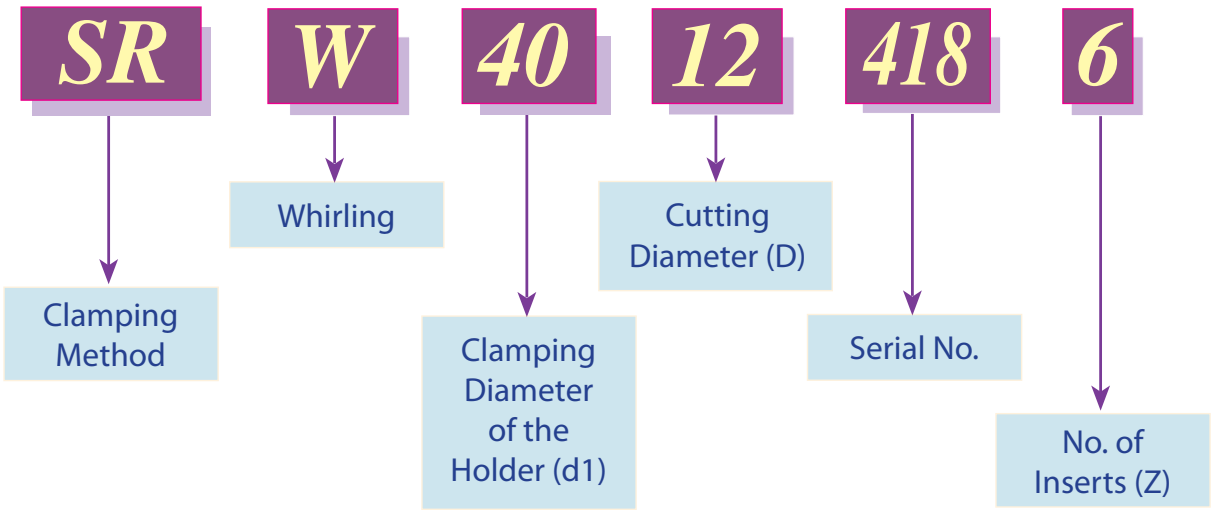
Thread whirling eliminates special support devices and expensive startup development costs.

Compensation of large helix angles:

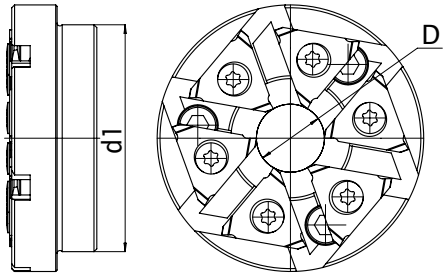
Large helix angles can be compensated by adjusting the whirling unit.

- One toolholder can be used for various applications.
- All toolholders are standard stock items.
- Inserts are made for each application as a special item.
- The toolholders are designed according to different machine types and manufacturers.
- Special adaptors for machine heads are available as stock items.

Product Identification



Toolholders

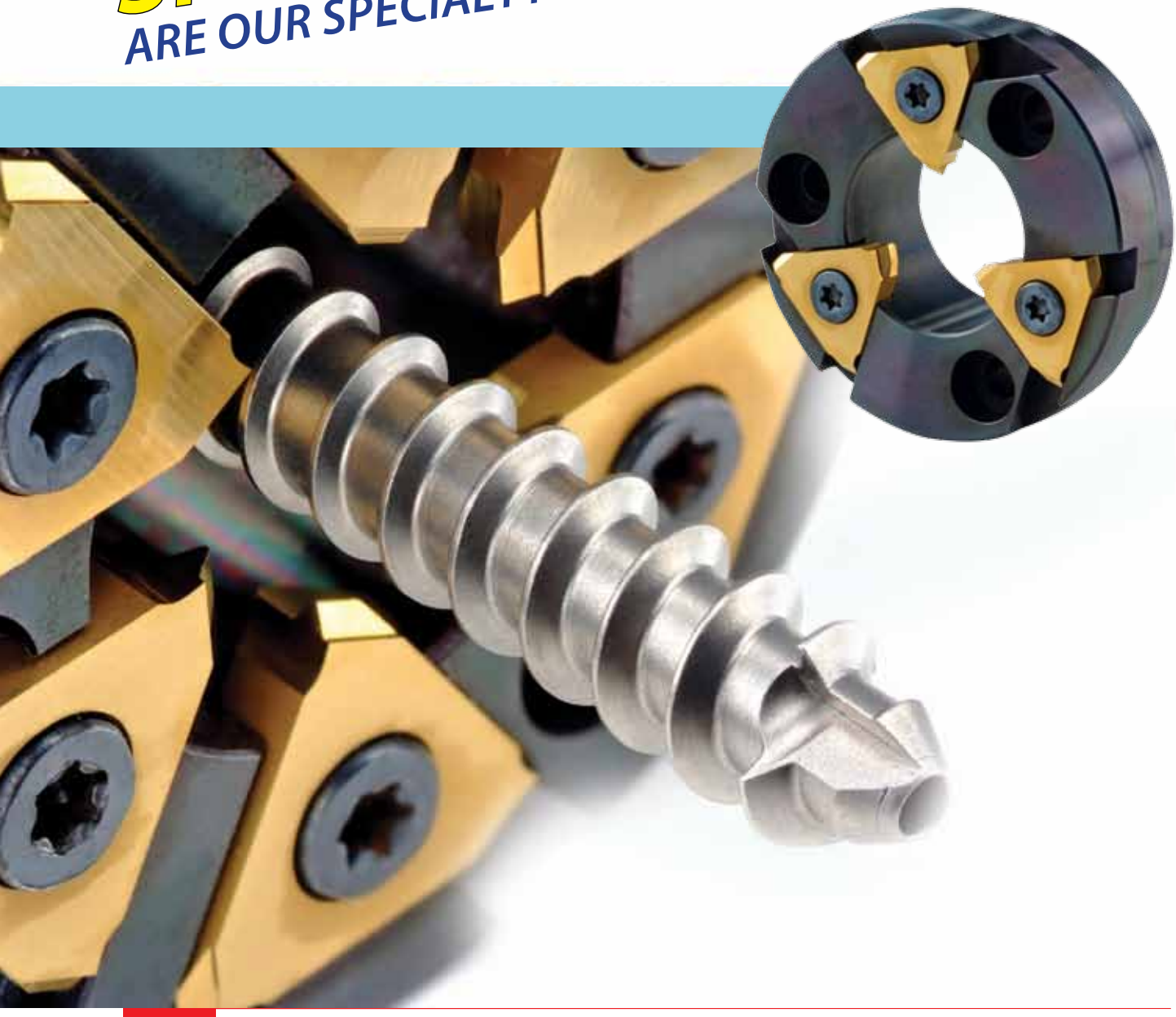


Machine		Drive Unit	Whirling Head Ordering Code	Z	D	d1	Insert Size	Insert Screw	Torx Key
Type	Model								
Star	SV12 / SV20	Star	SRW4012 418 - 6	6	12	40	16	SW16	KW16
			SRW4012 424 - 8	8			11	SW11	KW11
	SR20 / ECAS20		SRW4012 419 - 6	6	12	40	16	SW16	KW16
			SRW4012 425 - 8	8			11	SW11	KW11
Citizen	M12 / M16	PCM	SRW4512 422 - 6	6	12	45	16	SW16	KW16
			SRW4512 426 - 8	8			11	SW11	KW11
	M20 / M32		SRW4512 423 - 6	6	12	45	16	SW16	KW16
			SRW4512 427 - 8	8			11	SW11	KW11
Tornos	Deco 13 / 20	Tornos	SRW4012 420 - 6	6	12	40	16	SW16	KW16
	Evo Deco 16 / Deco 13	W & F	SRW4012 419 - 6						
Traub	TNL26 / TNK36	Traub	SRW4116 421 - 6	6	16	41	16	SW16	KW16
Hanwha	XD20	Maduala	SRW4012 604 - 6	6	12	40	16	SW16	KW16
Maier	ML20D	PCM	SRW4012 417 - 5	5	12	40	16	SW16	KW16
Nexturn	SA20	PCM	SRW4512 642 - 6	6	12	45	16	SW16	KW16
	SA20	WTO	SRW4212 557 - 6	6	12	45	16	SW16	KW16

Case Study

Machine:	Nexturn SA-20
Drive unit:	WTO
Application:	Bone screw
Material:	Ti-6Al-4V ELI
Carmex holder:	SRW4212 557-6
Vc [m/min]:	38
Tooth load [mm/tooth]:	0.04
No. of parts:	806

SPECIALS ARE OUR SPECIALTY



Milling Tools

CONTENTS:

Mill - Thread Inserts and Kits

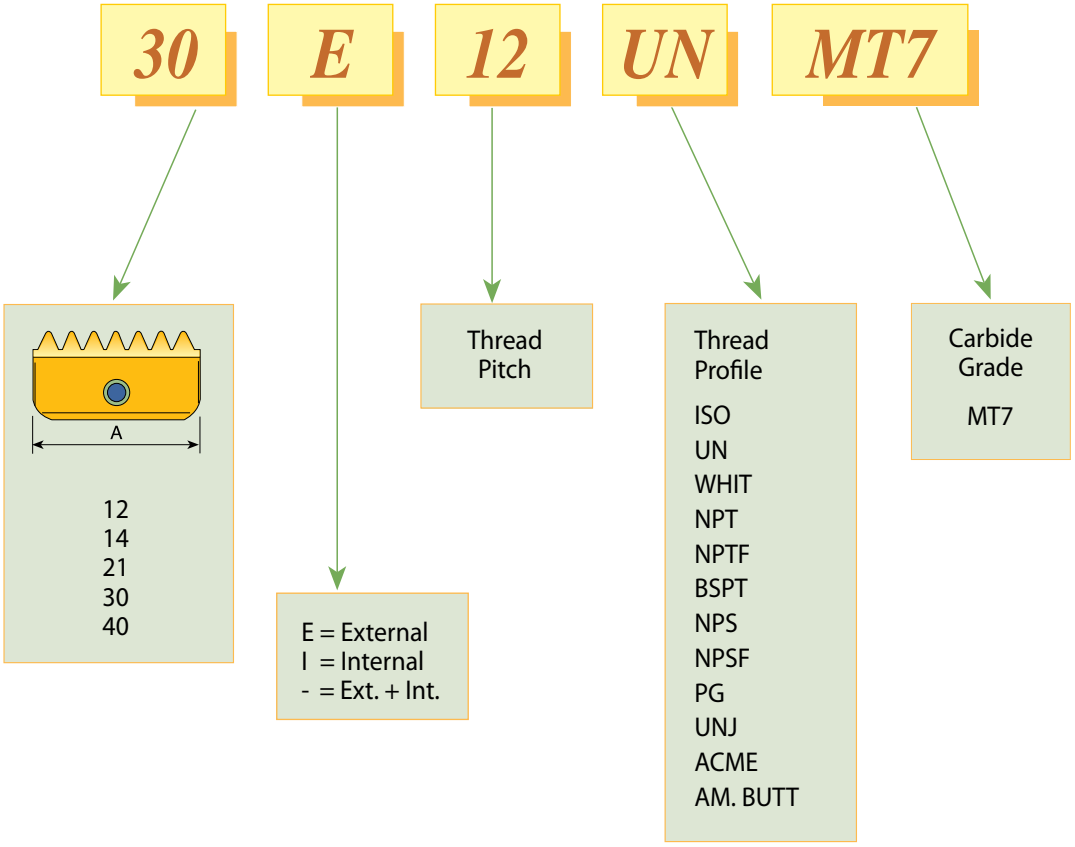
Mill-Thread tools for threading on CNC milling machines by using helical interpolation programs

Advantages of Mill-Thread Tools

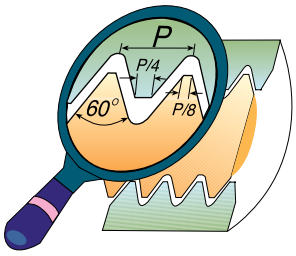
- Same toolholder and insert can produce both right-hand and left-hand threads.
- A single insert & toolholder can produce a given thread on many diameters (External & Internal).
- Prismatic shape of insert's tail ensures exact and reliable clamping in the toolholder.
- Most inserts are double sided, having two cutting edges.
- Thread is produced in one tool pass.
- MT tools can produce tapered threads.
- Improved productivity thanks to increased cutting speeds and multitooth type carbide inserts.
- Threading to one pitch of a shoulder in a blind hole.
- Longer tool life thanks to a special multilayer coating process.
- Lower tooling costs, considerably less expensive than using taps and dies.
- Since lower machine power is required, a smaller machine can produce larger threads in a single operation with less idle time and tool changes.

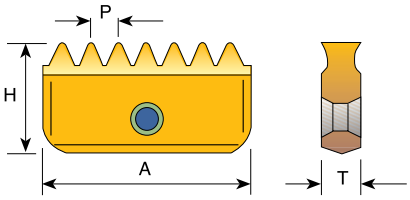
Product Identification

Mill-Thread Inserts Ordering Codes



ISO





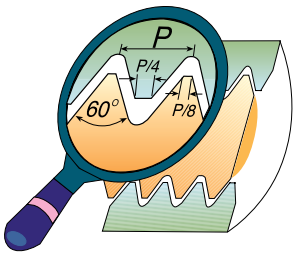
Pitch mm		Insert Size = A 12	14	21	30	40
0.5	Ext.					
0.5	Int.	* 12 I 0.5 ISO	14 I 0.5 ISO			
0.75	Ext.		14 E 0.75 ISO			
0.75	Int.	* 12 I 0.75 ISO	14 I 0.75 ISO			
1.0	Ext.		14 E 1.0 ISO	21 E 1.0 ISO		
1.0	Int.	* 12 I 1.0 ISO	14 I 1.0 ISO	21 I 1.0 ISO		
1.25	Ext.		14 E 1.25 ISO			
1.25	Int.	* 12 I 1.25 ISO	14 I 1.25 ISO			
1.5	Ext.		14 E 1.5 ISO	21 E 1.5 ISO	30 E 1.5 ISO	40 E 1.5 ISO
1.5	Int.	* 12 I 1.5 ISO	14 I 1.5 ISO	21 I 1.5 ISO	30 I 1.5 ISO	40 I 1.5 ISO
1.75	Ext.		14 E 1.75 ISO			
1.75	Int.		14 I 1.75 ISO	21 I 1.75 ISO		
2.0	Ext.		14 E 2.0 ISO	21 E 2.0 ISO	30 E 2.0 ISO	40 E 2.0 ISO
2.0	Int.		14 I 2.0 ISO	21 I 2.0 ISO	30 I 2.0 ISO	40 I 2.0 ISO
2.5	Ext.		14 E 2.5 ISO	21 E 2.5 ISO		
2.5	Int.		14 I 2.5 ISO	21 I 2.5 ISO		
3.0	Ext.			21 E 3.0 ISO	30 E 3.0 ISO	40 E 3.0 ISO
3.0	Int.			21 I 3.0 ISO	30 I 3.0 ISO	40 I 3.0 ISO
3.5	Ext.				30 E 3.5 ISO	
3.5	Int.			21 I 3.5 ISO	30 I 3.5 ISO	40 I 3.5 ISO
4.0	Ext.				30 E 4.0 ISO	40 E 4.0 ISO
4.0	Int.				30 I 4.0 ISO	40 I 4.0 ISO
4.5	Ext.					
4.5	Int.				30 I 4.5 ISO	40 I 4.5 ISO
5.0	Ext.					40 E 5.0 ISO
5.0	Int.				30 I 5.0 ISO	40 I 5.0 ISO
5.5	Ext.					
5.5	Int.				30 I 5.5 ISO	40 I 5.5 ISO
6.0	Ext.					40 E 6.0 ISO
6.0	Int.					40 I 6.0 ISO

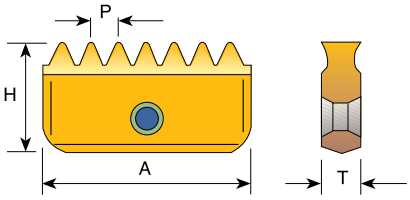
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

Order example: 14 I 1.5 ISO MT7

* One cutting edge

UN UNC, UNF, UNEF, UNS





Pitch TPI		Insert Size = A 12	14	21	30	40
32	Ext.		14 E 32 UN			
32	Int.	* 12 I 32 UN	14 I 32 UN			
28	Ext.		14 E 28 UN			
28	Int.	* 12 I 28 UN	14 I 28 UN			
27	Ext.					
27	Int.		14 I 27 UN			
24	Ext.		14 E 24 UN	21 E 24 UN		
24	Int.	* 12 I 24 UN	14 I 24 UN	21 I 24 UN		
20	Ext.		14 E 20 UN	21 E 20 UN	30 E 20 UN	
20	Int.	* 12 I 20 UN	14 I 20 UN	21 I 20 UN	30 I 20 UN	
18	Ext.		14 E 18 UN	21 E 18 UN	30 E 18 UN	
18	Int.	* 12 I 18 UN	14 I 18 UN	21 I 18 UN	30 I 18 UN	
16	Ext.		14 E 16 UN	21 E 16 UN	30 E 16 UN	40 E 16 UN
16	Int.	* 12 I 16 UN	14 I 16 UN	21 I 16 UN	30 I 16 UN	40 I 16 UN
14	Ext.		14 E 14 UN	21 E 14 UN	30 E 14 UN	40 E 14 UN
14	Int.		14 I 14 UN	21 I 14 UN	30 I 14 UN	40 I 14 UN
12	Ext.		14 E 12 UN	21 E 12 UN	30 E 12 UN	40 E 12 UN
12	Int.		14 I 12 UN	21 I 12 UN	30 I 12 UN	40 I 12 UN
11	Ext.		14 E 11 UN	21 E 11 UN		
11	Int.		14 I 11 UN			
10	Ext.		14 E 10 UN	21 E 10 UN	30 E 10 UN	40 E 10 UN
10	Int.		14 I 10 UN	21 I 10 UN	30 I 10 UN	40 I 10 UN
9	Ext.					
9	Int.		** 14 I 9 UN			
8	Ext.				30 E 8 UN	40 E 8 UN
8	Int.			21 I 8 UN	30 I 8 UN	40 I 8 UN
7	Ext.					
7	Int.			21 I 7 UN		
6	Ext.				30 E 6 UN	40 E 6 UN
6	Int.				30 I 6 UN	40 I 6 UN
5	Ext.					
5	Int.				30 I 5 UN	
4.5	Ext					
4.5	Int.					40 I 4.5UN
4	Ext					
4	Int.					40 I 4 UN
H		6.3	7.5	12	16	20
T		2.9	3.1	4.7	5.5	6.3

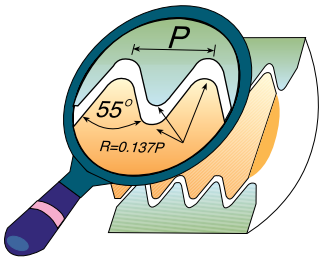
Order example: 21 I 18 UN MT7

* One cutting edge

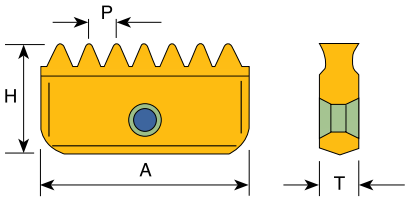
** Cannot be used with carbide shank Toolholders.

Carmex Precision Tools Ltd.

WHIT BSW, BSF, BSP



Same Insert for External and Internal thread.

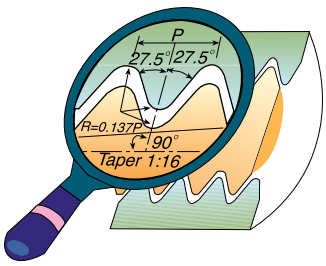


Pitch TPI	Insert Size = A 12	14	21	30	40
24		14-24 W			
20		14-20 W	21-20 W		
19	* 12 - 19 W	14-19 W	21-19 W		
16		14-16 W	21-16 W	30-16 W	
14		14-14 W	21-14 W	30-14 W	
11		14-11 W	21-11 W	30-11 W	40-11 W
8					40- 8 W
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

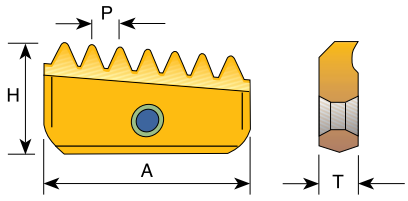
* One cutting edge

Order example: 21-11 W MT7

BSPT



Conical pipe thread inserts are one-sided and may be used for both External and Internal threading.

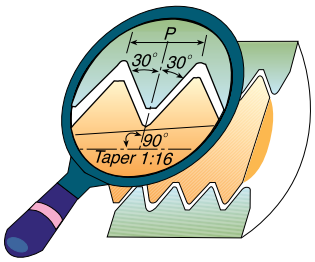


Pitch TPI	Insert Size = A 12	14	21	30	40
19	12-19 BSPT	14-19 BSPT			
14		14-14 BSPT	21-14 BSPT		
11			21-11 BSPT	30-11 BSPT	40-11 BSPT
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

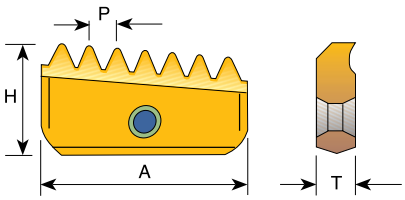
Order example: 14-19 BSPT MT7

For conical preparation end mills see page 221

NPT



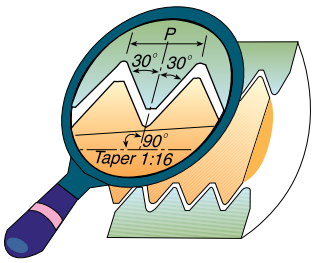
Conical pipe thread inserts are one-sided and may be used for both External and Internal threading.



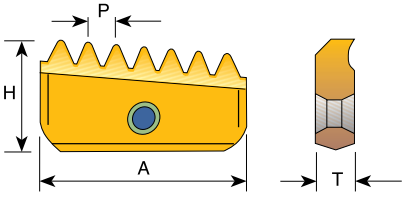
Pitch TPI	Insert Size = A				
	12	14	21	30	40
18	12-18 NPT	14-18 NPT			
14		14-14 NPT	21-14 NPT		
11.5			21-11.5 NPT	30-11.5 NPT	40-11.5 NPT
8				30- 8 NPT	40- 8 NPT
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

Order example: 30-11.5 NPT MT7

NPTF



Conical pipe thread inserts are one-sided and may be used for both External and Internal threading.

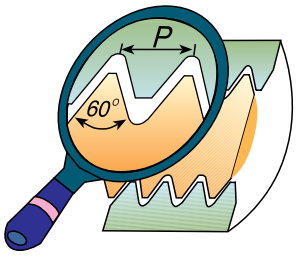


Pitch TPI	Insert Size = A				
	12	14	21	30	40
18	12-18 NPTF	14-18 NPTF			
14		14-14 NPTF	21-14 NPTF		
11.5			21-11.5 NPTF	30-11.5 NPTF	40-11.5 NPTF
8				30- 8 NPTF	40- 8 NPTF
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

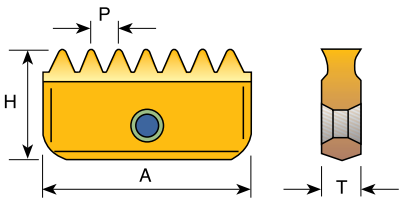
Order example: 21-14 NPTF MT7

For conical preparation end mills see page 221

NPS



Same Insert for External and Internal thread

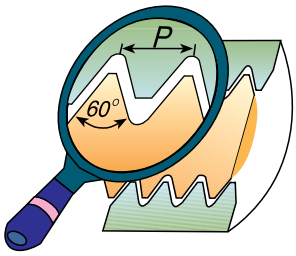


Pitch TPI	Insert Size = A 12	14	21	30	40
18	* 12-18 NPS	14-18 NPS			
14		14-14 NPS	21-14 NPS		
11.5			21-11.5 NPS	30-11.5 NPS	40-11.5 NPS
8				30- 8 NPS	40- 8 NPS
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

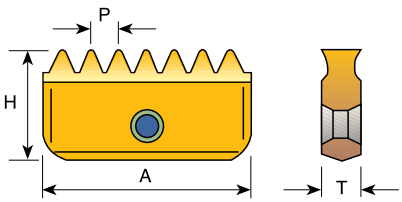
Order example: 30-11.5 NPS MT7

* One cutting edge

NPSF



Same Insert for External and Internal thread

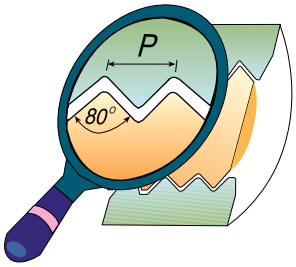


Pitch TPI	Insert Size = A 12	14	21	30	40
18	* 12-18 NPSF	14-18 NPSF			
14		14-14 NPSF	21-14 NPSF		
11.5			21-11.5 NPSF	30-11.5 NPSF	40-11.5 NPSF
8				30- 8 NPSF	40- 8 NPSF
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

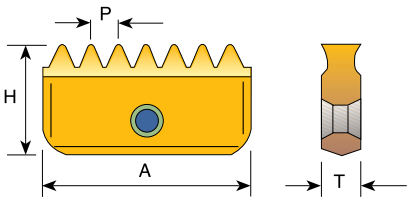
Order example: 21-14 NPSF MT7

* One cutting edge

PG - DIN 40430



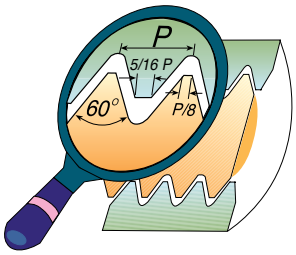
Same Insert for External and Internal thread



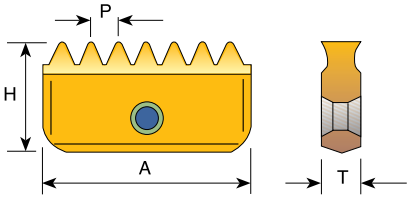
Pitch TPI	Insert Size = A 14	21	30
18	14-18 PG (PG 9, 11, 13.5, 16)	21-18 PG (PG 16)	
16		21-16 PG (PG 21, 29, 36, 42, 48)	30-16 PG (PG 36, 42, 48)
H	7.5	12	16
T	3.1	4.7	5.6

Order example: 21-18 PG MT7

UNJ



Inserts for External thread

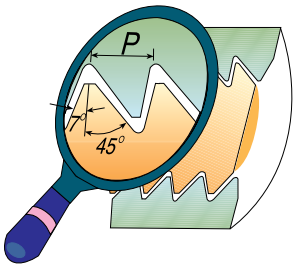


Pitch TPI		Insert Size = A 14	21
24	Ext.	14 E 24 UNJ	21 E 24 UNJ
20	Ext.	14 E 20 UNJ	21 E 20 UNJ
18	Ext.	14 E 18 UNJ	21 E 18 UNJ
16	Ext.	14 E 16 UNJ	21 E 16 UNJ
14	Ext.	14 E 14 UNJ	21 E 14 UNJ
12	Ext.	14 E 12 UNJ	21 E 12 UNJ
H		7.5	12
T		3.1	4.7

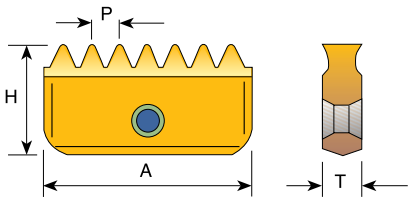
Order example: 21E 16 UNJ MT7

For internal UNJ threads it is common to use UN inserts as partial profile.

American Buttress



ABUT thread inserts are one-sided and may be used for both External and Internal threading

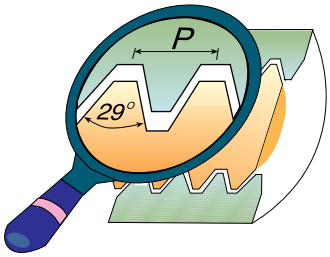


Pitch TPI	Insert Size = A 21	30	40
16	21 - 16 ABUT	30 - 16 ABUT	
12	21 - 12 ABUT	30 - 12 ABUT	
10	21 - 10 ABUT	30 - 10 ABUT	
8	21 - 8 ABUT	30 - 8 ABUT	
6		30 - 6 ABUT	
4		* 30 - 4 ABUT	40 - 4 ABUT
H	12	16	20
T	4.7	5.6	6.3

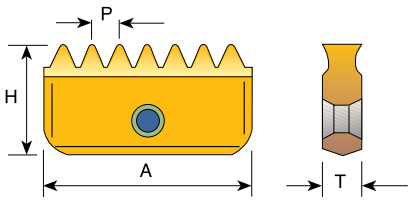
Order example: 30 - 6 ABUT MT7

* Inserts to be used only on Multi-Insert toolholders see page 155

ACME



Inserts for Internal threads



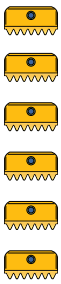
Pitch TPI		Insert Size = A 21	30	40
12	Int.	21 I 12 ACME	30 I 12 ACME	
10	Int.	21 I 10 ACME	30 I 10 ACME	
8	Int.	21 I 8 ACME	30 I 8 ACME	
6	Int.		30 I 6 ACME	
5	Int.		30 I 5 ACME	
4	Int.		* 30 I 4 ACME	40 I 4 ACME
3.5	Int.			40 I 3.5 ACME
3	Int.			** 40 I 3 ACME
H		12	16	20
T		4.7	5.6	6.3

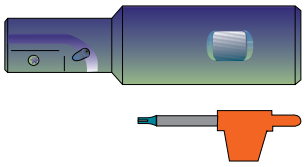
Order example: 21 I 8 ACME MT7

* Inserts to be used only on Multi-Insert toolholders see page 155

** One cutting edge

Internal ISO Kits



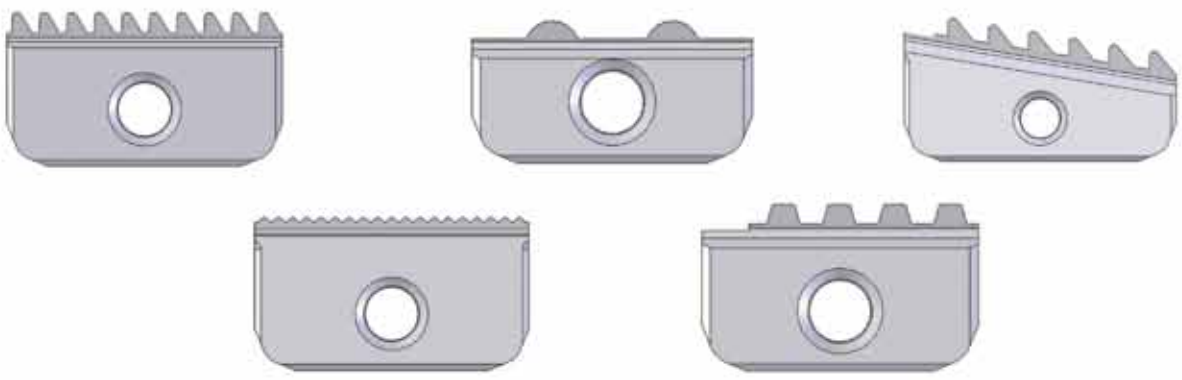


MTK 12 I ISO	MTK 14 I ISO
INSERTS	INSERTS
12 I 0.75 ISO 12 I 1.0 ISO 2 Pcs 12 I 1.25 ISO 12 I 1.5 ISO 2 Pcs	14 I 1.0 ISO 2 Pcs 14 I 1.5 ISO 2 Pcs 14 I 2.0 ISO 2 Pcs
TOOLHOLDER	TOOLHOLDER
SR 0009 H12	SR 0017 H14
KEY	KEY
K12	K14
SCREW	SCREW
S12	S14

Order example : MTK 14 I ISO

Special Tools

In addition to standard products,
Carmex manufactures special tools and inserts
according to customers' requests.
Special tools are supplied in short delivery times.

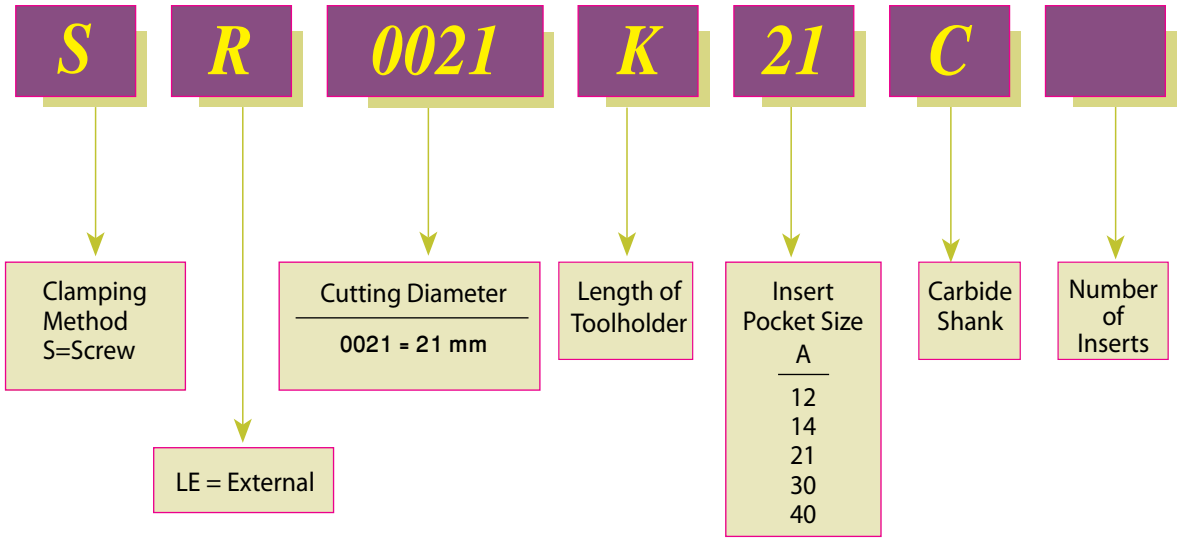


Mill-Thread Toolholders

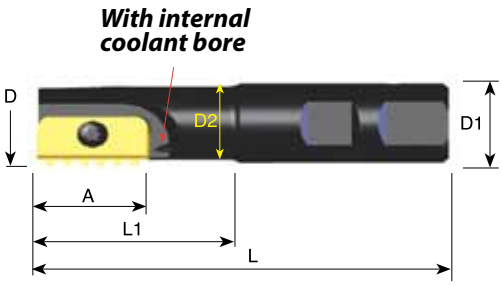
Contents: Page:

Product Identification

Mill-Thread Toolholders Ordering Codes



Single Insert Toolholders



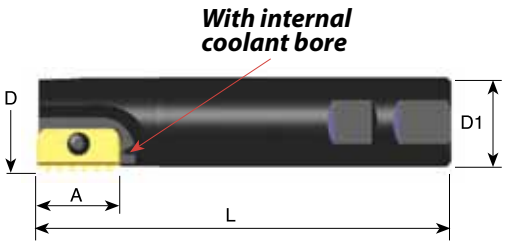
Ordering Code	A	D	D1	D2	L	L1	Insert Screw	Torx Key
* SR0009H12	12	9.5	20	7.5	85	14	S12	K12
SR0010H12	12	9.9	20	7.6	85	16	S12	K12
SR0012F14	14	12.0	20	8.9	75	20	S14	K14
SR0014H14	14	14.5	20	11.2	85	25	S14	K14
SR0017H14	14	17.0	20	13.4	85	30	S14	K14
** SR0018H21	21	18.0	20	14.4	85	30	S21	K21
SR0021H21	21	21.0	20	16.5	94	40	S21	K21
SR0029J30	30	29.0	25	22.4	110	50	S30	K30
SR0048M40	40	48.0	40	35.0	153	78	S40	K40

Order example: SR0029J30

* Not for conical inserts: 12-18 NPT, 12-18 NPTF, 12-19 BSPT

** Cannot be used with the following inserts:
21 I 3.5 ISO, 21 I 8 UN, 21 I 7 UN, 21-11 BSPT, 21-11.5 NPT, 21-11.5 NPTF

Long Shank Toolholders

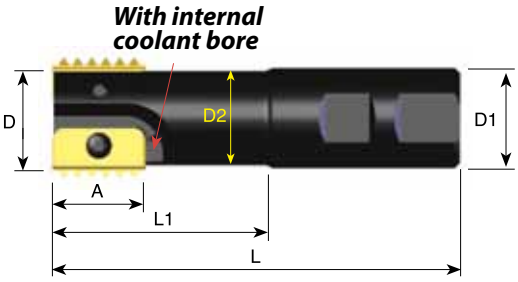


Ordering Code	A	D	D1	L	Insert Screw	Torx Key
SR0025K21	21	25	20	125	S21	K21
SR0031M30	30	31	25	150	S30	K30
SR0038M30	30	38	32	150	S30	K30
SR0048R40	40	48	40	210	S40	K40

Order example: SR0031M30

For holders with long overhang reduce the cutting speed and feed rate between 20% to 40% (depends on workpiece material, pitch and overhang)

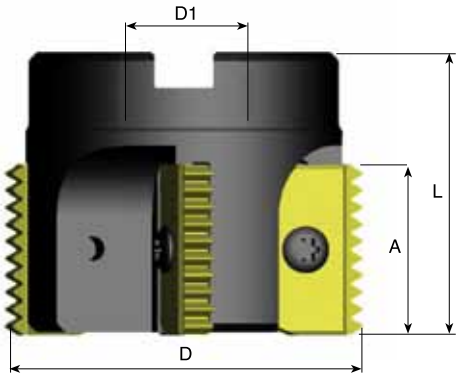
Twin Insert Toolholders



Ordering Code	A	D	D1	D2	L	L1	No. of Inserts	Insert Screw	Torx Key
SR0020H14-2	14	20	20	16	93	41	2	S14	K14
SR0030J21-2	21	30	25	24	108	52	2	S21	K21
SR0040L30-2	30	40	32	30	130	70	2	S30	K30
SR0050M40-2	40	50	40	38	153	78	2	S40	K40

Order example: SR0040L30-2

Multi Insert Toolholders

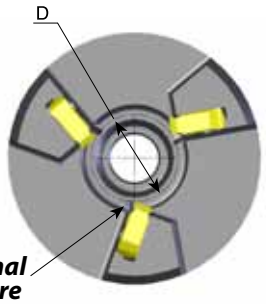


Ordering Code	A	D	D1	L	No. of Inserts	Insert Screw	Torx Key
SR0063C21-5	21	63	22	50	5	S21	K21
SR0063C30-4	30	63	22	50	4	S30	K30
SR0080D30-4	30	80	27	55	4	S30	K30
SR0100D30-4	30	100	32	60	4	S30	K30
SR0100D30-8	30	100	32	60	8	S30	K30
SR0080D40-4	40	80	27	65	4	S40	K40
SR0100E40-4	40	100	32	70	4	S40	K40
SR0100E40-6	40	100	32	70	6	S40	K40

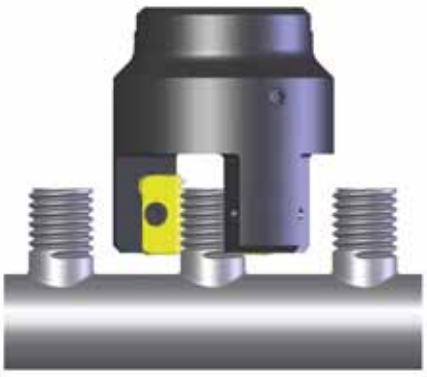
Order example: SR0080D30-4

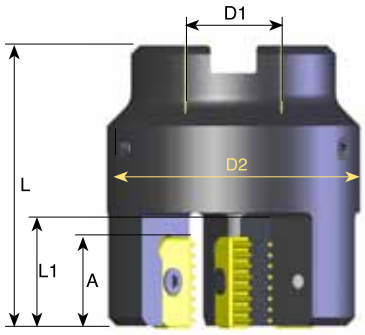
External Multi Insert Toolholder

- Reduced machining time
- Optimal coolant supply



With internal coolant bore

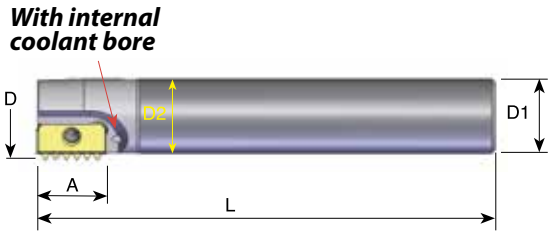




Ordering Code	A	D	D1	D2	L	L1	No. of Inserts	Insert Screw	Torx Key
SLE0020D21-3	21	20	22	58	65	25	3	S21	K21
SLE0030D21-3	21	30	22	68	65	25	3	S21	K21
SLE0045E21-4	21	45	27	83	70	25	4	S21	K21

Order example: SLE0030D21-3

Long Carbide Shank Toolholders

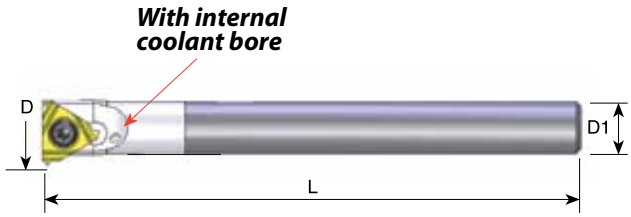


Ordering Code	A	D	D1	D2	L	Insert Screw	Torx Key
SR0010K12C	12	9.9	8	8	125	S12	K12
SR0013H14C	14	13.2	10	10	110	S14	K14
SR0013J14C	14	13.2	10	10	155	S14	K14
SR0015K14C	14	15.2	12	12	175	S14	K14
SR0021K21C	21	21.0	16	16	130	S21	K21
SR0021M21C	21	21.0	16	16	200	S21	K21
SR0027S30C	30	27.0	20	20	270	S30	K30

Order example: SR0015K14C

For holders with long overhang reduce the cutting speed and feed rate between 20% to 40% (depends on workpiece material, pitch and overhang)

Carbide Shank Toolholders for Single Point Threading



Ordering Code		Pitch Range		D	D1	L	Insert Screw	Torx Key
		mm	TPI					
SR0005D06C	6	0.5-1.25	48-20	6.8	5.0	63	S06	K06
SR0006H08C	8	0.5-1.75	48-14	8.8	6.0	100	S08	K08
*** SR0010M11C**	11	0.5-2.00	48-11	13.2	10.0	150	S11	K11

For Inserts see the Thread Turning Tools section of this catalog
For an internal application use an internal R.H. insert.

* For an external application use an external L.H. insert.

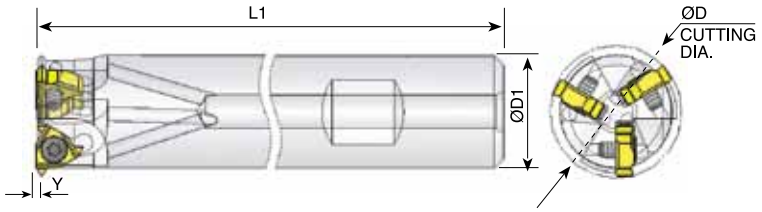
D-Thread

Mill-Thread Inserts and Toolholders for machining deep threads

- Improved productivity due to multi-insert toolholders.
- Partial Profile, standard or U-type inserts for a wide range of threads.
- Inserts with three cutting edges, reduces tooling costs.
- Low cutting resistance due to the single point inserts.
- Holder allows for a long overhang and includes internal coolant.
- Same insert and toolholder for both external and internal thread.

Contents: Page:

D-Thread Mill-Thread Inserts & Toolholders for machining deep threads



Ordering Code	Insert Size		Y	D	D1	L1	No. of Inserts	Insert Screw	Torx Key
	L	I.C							
SR0023Q11	11	1/4	1	23.5	20	190	3	SE11	K11

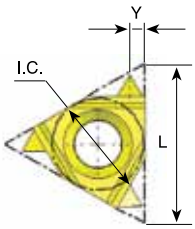
Partial 60˚ Size 11

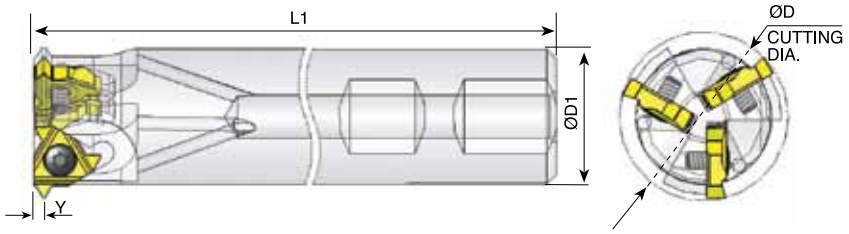
Ordering Code		Pitch	
		mm	TPI
11 60D	**INT.**	1.0 - 2.0	24 - 12
	EX.	0.75 - 1.5	32 - 14

Coated Grade: BMA

Partial 55˚ Size 11

Ordering Code		Pitch TPI
11 55D	**INT./EX.**	24 - 14





Ordering Code	Insert Size		Y	D	D1	L1	No. of Inserts	Insert Screw	Torx Key
	L	I.C							
SR0031R16	16	3/8	1.8	31	25	225	3	SE16	K16

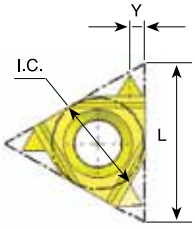
Partial 60˚ Size 16

Ordering Code		Pitch	
		mm	TPI
16 60D	**INT.**	2.5 - 3.5	10 - 7
	EX.	2.0 - 3.0	12 - 8

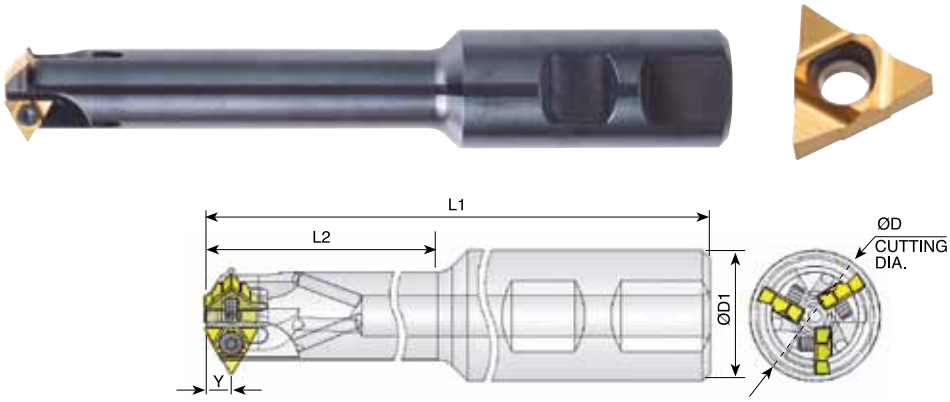
Coated Grade: BMA

Partial 55˚ Size 16

Ordering Code		Pitch TPI
16 55D	**INT./EX.**	12 - 8



D-Thread *Mill-Thread Inserts & Toolholders for machining deep threads*



Ordering Code	Insert Size		Y	D	D1	L1	L2	No. of Inserts	Insert Screw	Torx Key
	L	I.C								
SR0023M11U	11U	1/4U	5	23	25	150	88	3	SE11	K11

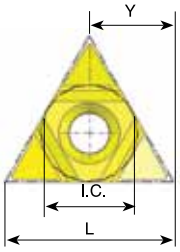
Partial 60° Size 11U

Ordering Code		Pitch	
		mm	TPI
11U 60D	**INT.**	2.5 - 4.0	10 - 6
	EX.	2.0 - 3.0	12 - 8
11U 60D-18-12	**INT.**	1.5 - 2.0	18 - 12
	EX.	1.25 - 1.75	20 - 14

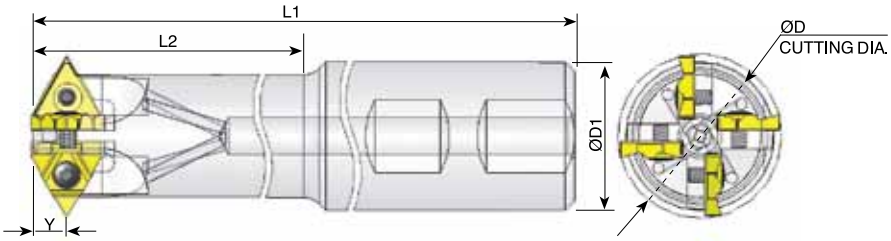
Coated Grade: BMA

Partial 55° Size 11U

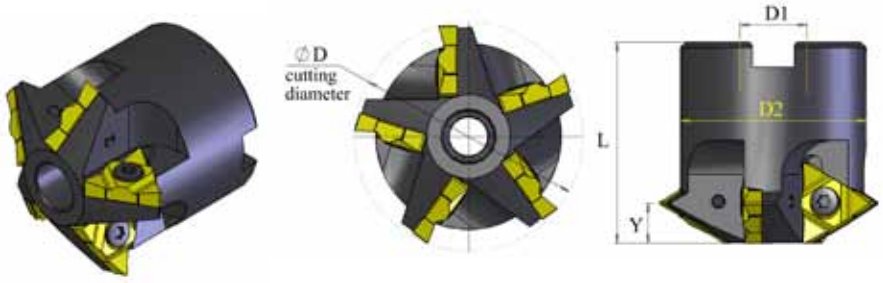
Ordering Code		Pitch TPI
11U 55D	**INT./EX.**	12 - 7



D-Thread *Mill-Thread Inserts & Toolholders for machining deep threads*



Ordering Code	Insert Size		Y	D	D1	L1	L2	No. of Inserts	Insert Screw	Torx Key
	L	I.C								
SR0035R16U	16U	3/8U	7.6	35.5	32	220	155	4	SE16	K16



Ordering Code	Insert Size		Y	D	D1	D2	L	No. of Inserts	Insert Screw	Torx Key
	L	I.C								
SR0043B16U-5	16U	3/8U	7.6	43.4	16	35.3	38.1	5	SE16	K16

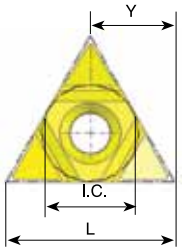
Partial 60˚ Size 16U

Ordering Code		Pitch	
		mm	TPI
16U 60D	**INT.**	4.0 - 6.0	6 - 4
	EX.	3.0 - 5.0	8 - 5
16U 60D-16-8	**INT.**	1.5 - 3.0	16 - 8
	EX.	1.5 - 2.5	18 - 10

Coated Grade: BMA

Partial 55˚ Size 16U

Ordering Code		Pitch TPI
16U 55D	**INT./EX.**	6 - 4.5



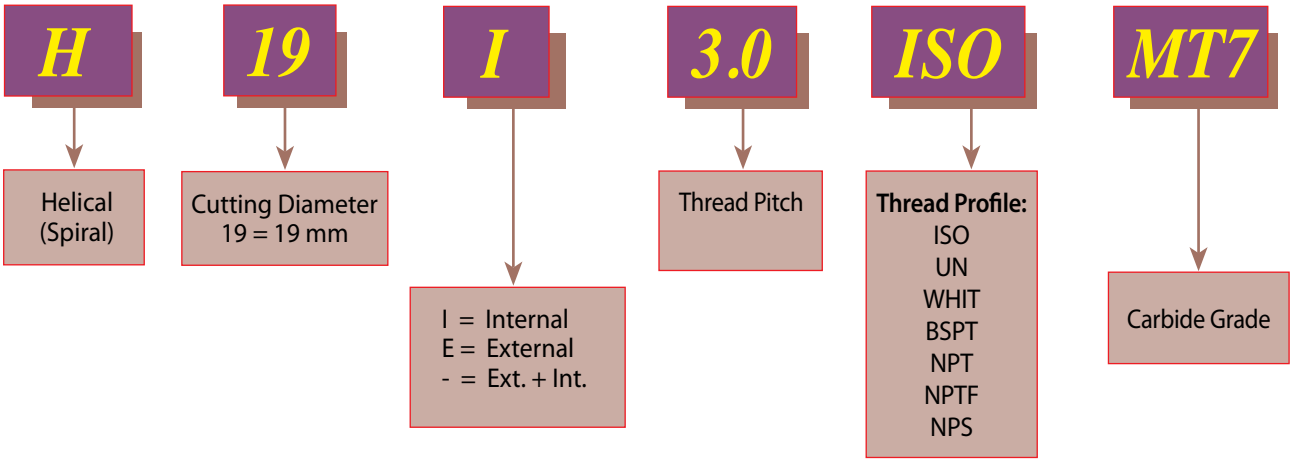
Spiral Mill-Thread

Advantages of Spiral Mill-Thread Tools

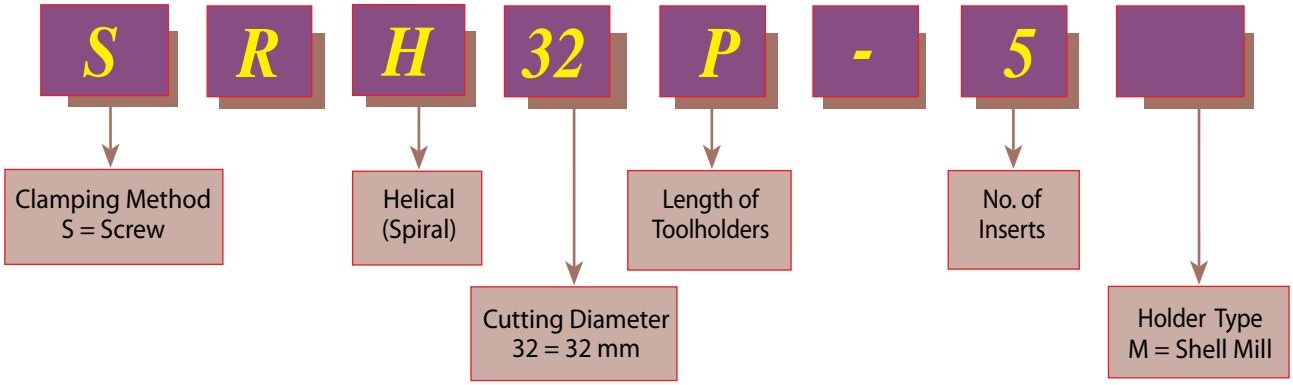
- The spiral designed tools enable a smooth cutting operation at a high feed rate and reduced machining time.
- The tools suit a wide range of applications, from machining small components in small machining centers to heavy-duty applications in high power milling machines.
- Spiral fluted toolholders hold 1 to 9 inserts in a comparatively small cutting diameter.
- The unique clamping method enables optimal indexability.
- Spiral tools reduce vibration and chatter.
- High grade finish is achieved in all applications: threading, end milling roughing and finishing.
- Inserts are available in MT7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials.

Product Identification - Ordering Codes

Spiral Mill - Thread Inserts



Spiral Mill - Thread Toolholders



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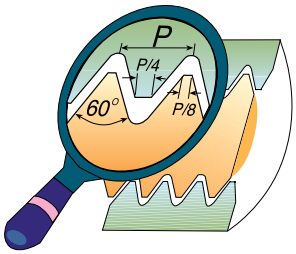

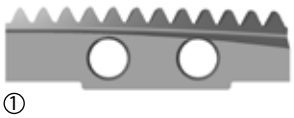
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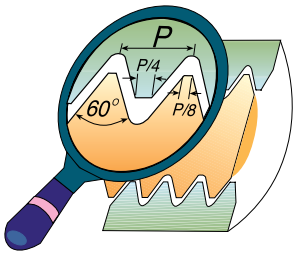
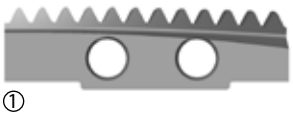
Insert Size	Fig.	Pitch mm	Ext./ Int.	M coarse	M fine	Ordering code	Toolholder
H13	1	1.0	Int.		≥ 15	H13 I 1.0 ISO	SRH13…
		1.5	Int.		≥ 16	H13 I 1.5 ISO	
		2.0	Int.	M16	≥ 17	H13 I 2.0 ISO	
H15	1	1.0	Int.		≥ 17	H15 I 1.0 ISO	SRH15…
		1.5	Int.		≥ 18	H15 I 1.5 ISO	
		2.0	Int.		≥ 19	H15 I 2.0 ISO	
		2.5	Int.	M18	≥ 20	H15 I 2.5 ISO	
H17	1	1.0	Int.		≥ 19	H17 I 1.0 ISO	SRH17…
		1.5	Int.		≥ 20	H17 I 1.5 ISO	
		2.0	Int.		≥ 21	H17 I 2.0 ISO	
		2.5	Int.	M20, M22	≥ 22	H17 I 2.5 ISO	
H19	1	2.0	Int.		≥ 23	H19 I 2.0 ISO	SRH19…
		3.0	Int.	M24	≥ 25	H19 I 3.0 ISO	
H23	2	1.0	Ext.			H23 E 1.0 ISO	SRH23…
		1.0	Int.		≥ 25	H23 I 1.0 ISO	
		1.5	Ext.			H23 E 1.5 ISO	
		1.5	Int.		≥ 26	H23 I 1.5 ISO	
		2.0	Ext.			H23 E 2.0 ISO	
		2.0	Int.		≥ 27	H23 I 2.0 ISO	
		3.0	Ext.			H23 E 3.0 ISO	
		3.0	Int.	M27	≥ 29	H23 I 3.0 ISO	
		3.5	Int.	M30, M33	≥ 30	H23 I 3.5 ISO	
		4.0	Int.	M36	≥ 31	H23 I 4.0 ISO	
H32	2	1.0	Int.		≥ 34	H32 I 1.0 ISO	SRH32...
		1.5	Ext.			H32 E 1.5 ISO	
		1.5	Int.		≥ 35	H32 I 1.5 ISO	
		2.0	Ext.			H32 E 2.0 ISO	
		2.0	Int.		≥ 36	H32 I 2.0 ISO	
		3.0	Ext.			H32 E 3.0 ISO	
		3.0	Int.		≥ 38	H32 I 3.0 ISO	
		3.5	Int.		≥ 39	H32 I 3.5 ISO	
		4.0	Ext.			H32 E 4.0 ISO	
		4.0	Int.	M39	≥ 40	H32 I 4.0 ISO	
		4.5	Int.	M42, M45	≥ 41	H32 I 4.5 ISO	
		5.0	Int.	M48	≥ 42	H32 I 5.0 ISO	
H45	2	1.5	Ext.			H45 E 1.5 ISO	SRH45...
		1.5	Int.		≥ 48	H45 I 1.5 ISO	
		2.0	Ext.			H45 E 2.0 ISO	
		2.0	Int.		≥ 49	H45 I 2.0 ISO	
		3.0	Int.		≥ 51	H45 I 3.0 ISO	
		3.5	Int.		≥ 52	H45 I 3.5 ISO	
		4.0	Int.		≥ 53	H45 I 4.0 ISO	
		4.5	Int.		≥ 54	H45 I 4.5 ISO	
		5.0	Int.	M52	≥ 55	H45 I 5.0 ISO	
		5.5	Int.	M56, M60	≥ 56	H45 I 5.5 ISO	
		6.0	Int.	M64, M68	≥ 57	H45 I 6.0 ISO	
H63	2	1.5	Int.		≥ 66	H63 I 1.5 ISO	SRH63...
		2.0	Int.		≥ 67	H63 I 2.0 ISO	
		3.0	Int.		≥ 69	H63 I 3.0 ISO	
		4.0	Int.		≥ 71	H63 I 4.0 ISO	
		6.0	Int.		≥ 75	H63 I 6.0 ISO	

UN





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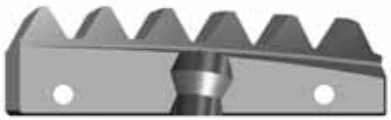

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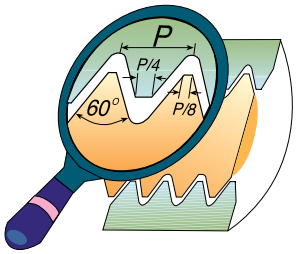
Insert Size	Fig.	Pitch TPI	Ext./ Int.	UN	UNC	UNF	UNS	Ordering code	Toolholder
H13	1	16	Int.	5/8, 11/16				H13 I 16 UN	SRH13...
		14	Int.				5/8	H13 I 14 UN	
		12	Int.	11/16				H13 I 12 UN	
H15	1	16	Int.			3/4		H15 I 16 UN	SRH15...
		14	Int.				3/4	H15 I 14 UN	
		12	Int.	3/4, 13/16				H15 I 12 UN	
		10	Int.		3/4		7/8 , 1	H15 I 10 UN	
H17	1	16	Int.	13/16 - 1				H17 I 16 UN	SRH17...
		14	Int.			7/8 , 1		H17 I 14 UN	
		12	Int.	7/8				H17 I 12 UN	
		9	Int.		7/8			H17 I 9 UN	
H19	1	12	Int.	15/16		1		H19 I 12 UN	SRH19...
		8	Int.	1 1/16, 1 1/8	1			H19 I 8 UN	
H23	2	32	Int.	1			1 - 1 1/4	H23 I 32 UN	SRH23...
		24	Int.					H23 I 24 UN	
		20	Ext.					H23 E 20 UN	
		20	Int.	1 1/16 - 1 5/16				H23 I 20 UN	
		18	Ext.					H23 E 18 UN	
		18	Int.				1	H23 I 18 UN	
		16	Ext.					H23 E 16 UN	
		16	Int.	1 1/16 - 1 5/16				H23 I 16 UN	
		14	Ext.					H23 E 14 UN	
		14	Int.				≥1 1/8	H23 I 14 UN	
		12	Ext.					H23 E 12 UN	
		12	Int.	1 1/16 - 1 3/16		1 1/8		H23 I 12 UN	
		10	Ext.					H23 E 10 UN	
		10	Int.				≥1 1/8	H23 I 10 UN	
		8	Ext.					H23 E 8 UN	
		8	Int.	1 3/16 - 1 5/16				H23 I 8 UN	
		7	Ext.					H23 E 7 UN	
		7	Int.		1 1/4			H23 I 7 UN	
H28	2	12	Int.	1 5/16		1 1/4, 1 3/8		H28 I 12 UN	SRH28...
		8	Int.	1 3/8 - 1 7/16				H28 I 8 UN	
		6	Int.	1 3/8 - 1 9/16	1 1/2			H28 I 6 UN	
H32	2	24	Ext.				≥1 3/8	H32 E 24 UN	SRH32...
		20	Ext.					H32 E 20 UN	
		20	Int.	≥1 3/8				H32 I 20 UN	
		18	Ext.					H32 E 18 UN	
		18	Int.				≥1 3/4	H32 I 18 UN	
		16	Ext.					H32 E 16 UN	
		16	Int.	1 3/8 - 1 7/8				H32 I 16 UN	
		12	Ext.					H32 E 12 UN	
		12	Int.	1 7/16 - 1 7/8		1 1/2		H32 I 12 UN	
		8	Ext.					H32 E 8 UN	
		8	Int.	1 1/2 - 2				H32 I 8 UN	
		6	Ext.					H32 E 6 UN	
		6	Int.	1 5/8 - 1 7/8				H32 I 6 UN	
		5	Int.		1 3/4			H32 I 5 UN	
H40	2	6	Int.	1 15/16, 2				H40 I 6 UN	SRH40...
		4.5	Int.		2			H40 I 4.5 UN	

UN

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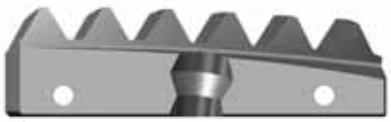
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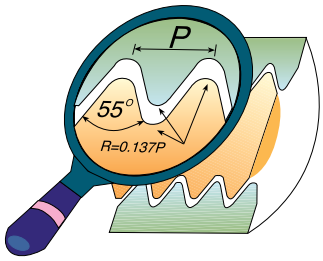
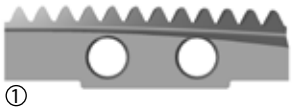
Insert Size	Fig.	Pitch TPI	Ext./ Int.	UN	UNC	UNF	UNS	Ordering code	Toolholder
H45	2	16	Int.	1 15/16 - 2 1/2			2 1/16 - 2	H45 I 16 UN	SRH45...
		12	Int.	1 15/16 - 2 5/8				H45 I 12 UN	
		8	Int.	2 1/8- 2 5/8				H45 I 8 UN	
		6	Int.	2 1/8- 2 3/4				H45 I 6 UN	
		4.5	Int.		2 1/4			H45 I 4.5 UN	
		4	Int.		2 1/2- 2 3/4			H45 I 4 UN	
H63	2	16	Int.	≥2 5/8				H63 I 16 UN	SRH63...
		12	Int.	≥2 3/4				H63 I 12 UN	
		8	Int.	≥2 3/4				H63 I 8 UN	
		6	Int.	≥2 7/8				H63 I 6 UN	
		4	Int.		≥3			H63 I 4 UN	

Whitworth

Same insert for internal and external thread

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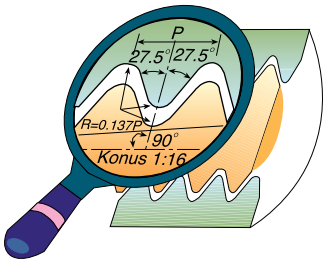
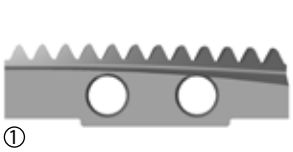
Insert Size	Fig.	Pitch TPI	Ordering code	Thread Size	Toolholder
H13	1	19	H13- 19 W	G 3/8	SRH13...
H15	1	14	H15- 14 W	G 1/2	SRH15...
H17	1	14	H17- 14 W	G 1/2 - 5/8	SRH17...
		11	H17- 11 W	G ≥ 1"	
H19	1	14	H19- 14 W	G 3/4 - 7/8	SRH19...
		11	H19- 11 W	G ≥ 1"	
H23	2	14	H23-14 W	Int. G 7/8" Ext. ≥ G 1/2"	SRH23...
		11	H23-11 W	≥ G1"	
H32	2	14	H32-14 W	Ext. ≥ G 1/2"	SRH32...
		11	H32-11 W	Int. ≥ G 1 1/8" Ext. ≥ G 1"	
H45	2	11	H45-11 W	Int. ≥ G 1 5/8" Ext. ≥ G 1"	SRH45...
H63	2	11	H63-11 W	Int. ≥ G 2 3/8" Ext. ≥ G 1"	SRH63...

BSPT

Same insert for internal and external thread

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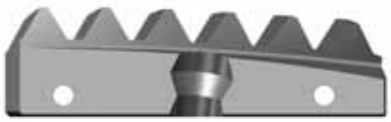
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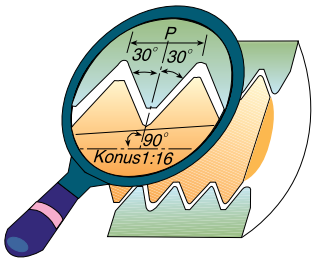
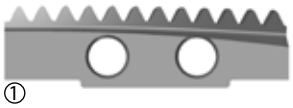
Insert Size	Fig.	Pitch TPI	Ordering code	Thread Size	Toolholder
H13	1	19	**H13-19 BSPT**	3/8	SRH13...
H15	1	14	**H15-14 BSPT**	1/2 - 3/4	SRH15...
H17	1	14	**H17-14 BSPT**	1/2 - 3/4	SRH17...
H23	2	11	**H23-11 BSPT**	≥ 1"	SRH23...
H32	2	11	**H32-11 BSPT**	Int. ≥ 1 1/8" Ext. ≥ 1"	SRH32...
H45	2	11	**H45-11 BSPT**	Int. ≥ 1 3/4" Ext. ≥ 1"	SRH45...
H63	2	11	**H63-11 BSPT**	Int. ≥ 2 1/2" Ext. ≥ 1"	SRH63...

NPT

Same insert for internal and external thread

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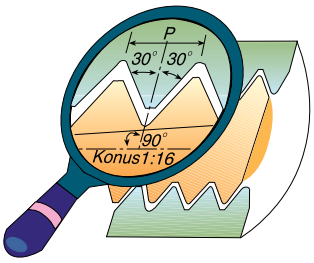
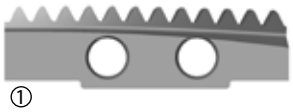
Insert Size	Fig.	Pitch TPI	Ordering code	Thread Size	Toolholder
H13	1	18	**H13-18 NPT**	3/8	SRH13...
H15	1	14	**H15-14 NPT**	1/2 - 3/4	SRH15...
H17	1	14	**H17-14 NPT**	1/2 - 3/4	SRH17...
H23	2	11.5	**H23-11.5 NPT**	1"-2"	SRH23...
H32	2	11.5	**H32-11.5 NPT**	Int. 1 1/4"-2" Ext. 1"- 2"	SRH32...
H45	2	11.5	**H45-11.5 NPT**	Int. ≥ 1 5/8" Ext. ≥ 1"	SRH45...
		8	**H45- 8 NPT**	≥ 2 1/2"	
H63	2	11.5	**H63-11.5 NPT**	Ext. 1-2"	SRH63...
		8	**H63- 8 NPT**	≥ 3"	

NPTF

Same insert for internal and external thread





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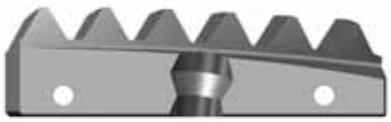

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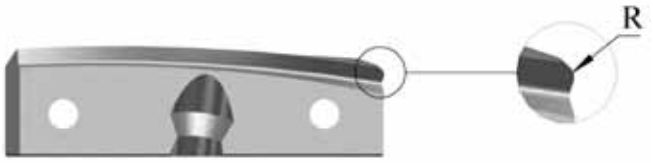
Insert Size	Fig.	Pitch TPI	Ordering code	Thread Size	Toolholder
H13	1	18	**H13-18 NPTF**	3/8	SRH13...
H15	1	14	**H15-14 NPTF**	1/2 - 3/4	SRH15...
H17	1	14	**H17-14 NPTF**	1/2 - 3/4	SRH17...
H23	2	11.5	**H23-11.5 NPTF**	1"-2"	SRH23...
H32	2	11.5	**H32-11.5 NPTF**	Int. 1 1/4"-2" Ext. 1" -2"	SRH32...

NPS

Same insert for internal and external thread

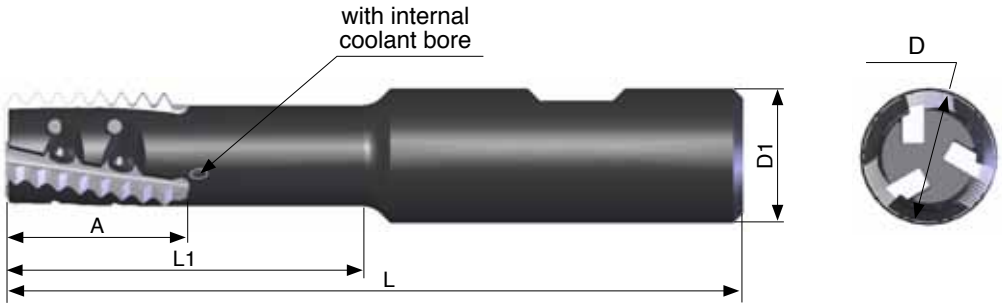
Insert Size	Pitch TPI	Ordering code	Thread Size	Toolholder
H13	18	**H13- 18 NPS**	3/8	SRH13...
H15	14	**H15- 14 NPS**	1/2 - 3/4	SRH15...
H17	14	**H17- 14 NPS**	1/2 - 3/4	SRH17...

Spiral Finishing Inserts



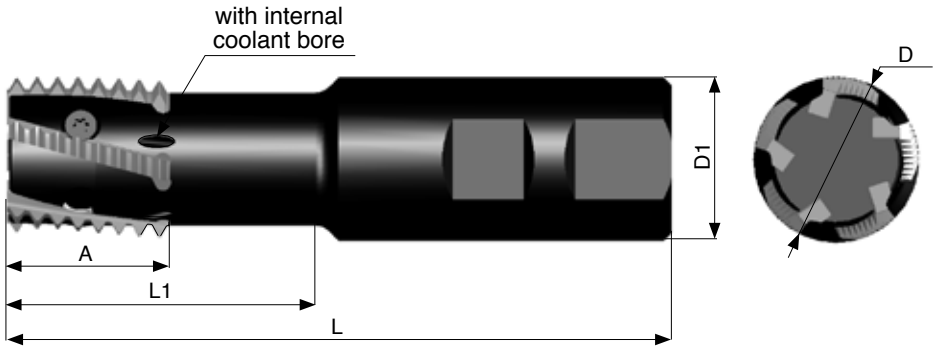
Insert Size	R	Ordering code	Toolholder
H23	0.2	H23 F R 0.2	SRH23...
	0.5	H23 F R 0.5	
	1.0	H23 F R 1.0	
H32	0.2	H32 F R 0.2	SRH32...
	0.5	H32 F R 0.5	
	1.0	H32 F R 1.0	
H45	0.2	H45 F R 0.2	SRH45...
	0.5	H45 F R 0.5	
	1.0	H45 F R 1.0	
	1.5	H45 F R 1.5	
	2.0	H45 F R 2.0	
H63	0.2	H63 F R 0.2	SRH63...
	0.5	H63 F R 0.5	
	1.0	H63 F R 1.0	
	1.5	H63 F R 1.5	
	2.0	H63 F R 2.0	

Toolholders



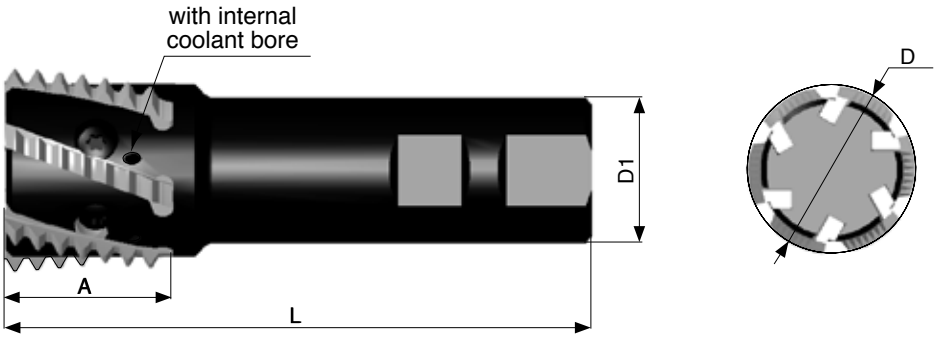
Ordering Code	Insert Type	Insert size A	D	D1	L	L1	No. of Inserts	Screw	Key
SRH13-1	H13	27	13	20	90	35	1	S13	K11
SRH15-1	H15	27	15	20	95	40	1	S15	K11
*** SRH17-2**	H17	27	17	20	85	30	2	S17	K11
*** SRH17J-2**	H17	27	17	20	100	45	2	S17	K11
SRH19-3	H19	27	19	20	85	30	3	S19	K11
SRH19J-3	H19	27	19	20	110	55	3	S19	K11

* When using NPT, NPTF, BSPT inserts the cutting diameter D = 18 mm

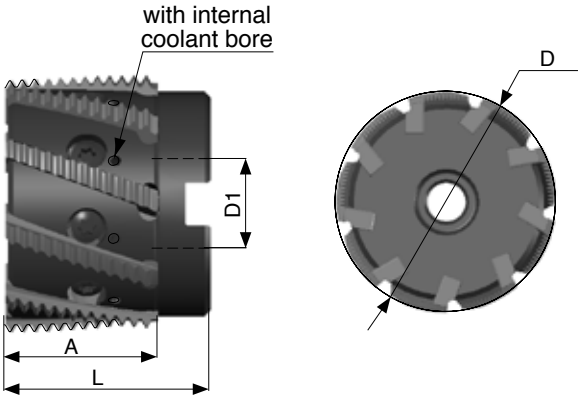


Ordering Code	Insert Type	Insert size A	D	D1	L	L1	No. of Inserts	Screw	Key
SRH23-2	H23	27	23	25	110	50	2	S23	K21
SRH23M-2	H23	27	23	25	150	75	2	S23	K21
SRH28-3	H28	32	28	32	150	75	3	S32S	K22
SRH32-5	H32	32	32	32	130	60	5	S32	K22
SRH32P-5	H32	32	32	32	180	90	5	S32	K22

Spiral Mill - Thread Toolholders



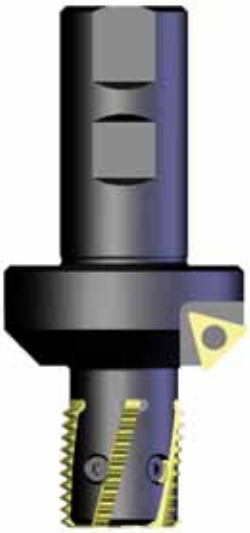
Ordering Code	Insert Type	Insert size A	D	D1	L	No. of Inserts	Screw	Key
SRH40-4	H40	37	40	32	180	4	S45S	K40
SRH45-6	H45	37	45	32	130	6	S45	K40

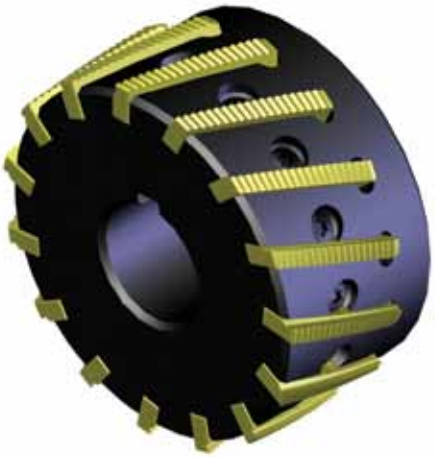


Ordering Code	Insert Type	Insert size A	D	D1	L	No. of Inserts	Screw	Key
SRH32-5M	H32	32	32	16	52	5	S32S	K22
SRH45-6M	H45	37	45	22	60	6	S45S	K40
SRH63-9	H63	38	63	22	50	9	S63	K40

Special Tools

In addition to standard products, Carmex manufactures special tools and inserts according to customers' requests. The toolholders are multi-purpose, making them suitable for both roughing and finishing inserts. Special tools are supplied in short delivery times.





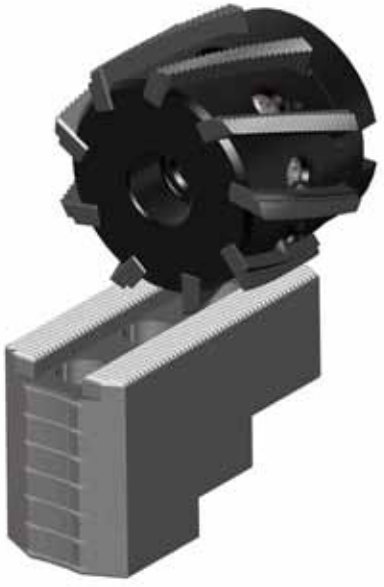
Case Studies

Case Study no. 1

Thread	M56x1.5
Internal/External	Internal
Thread Length	33.0
Raw Material	Ductile Iron
Cutting Speed – Vc	130 m/min
Tooth Load – Fz	0.15 mm/tooth
Toolholder	SRH45 – 6
Insert	H45 I 1.5 ISO MT7
Result	600 pcs with 0.02 offset (Competitor – 40 pcs with 0.15 offset)

Case Study no. 2

Application	Grooves Milling
Internal/External	External
Raw Material	Cast Steel
Cutting Speed – Vc	195 m/min
Tooth Load – Fz	0.10 mm/tooth
Toolholder	SRH63 – 9
Insert	Taylor Made H63
Result	1350 pcs (Competitor – 540 pcs)



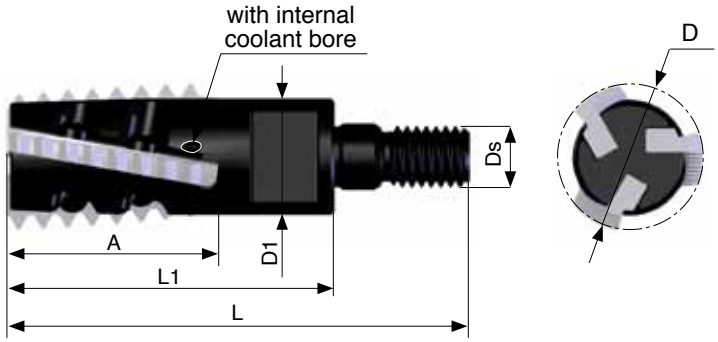
Deep Reach Mill-Thread

Contents: Page:

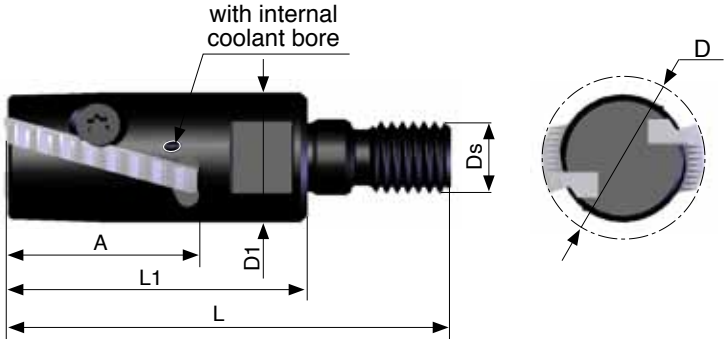
Carmex presents a modular line of Mill-Thread toolholders

- Carmex modular holders are ideal for deep reach applications.
- Unique clamping method enables optimal strength and indexability.
- Cost saving - Same shank can hold different heads.
- Toolholders with internal coolant bore.
- Screw connection allows long overhang.
- Carmex standard thread milling inserts fit these toolholders.
- Different steel extensions are available.
- Toolholders are compatible with common toolholding systems.

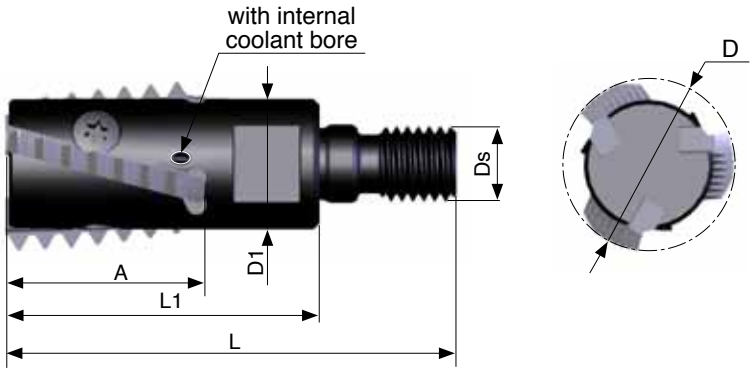
Toolholders



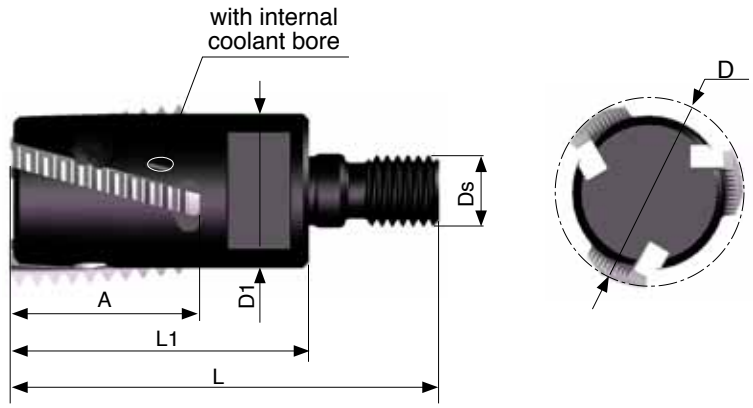
Ordering Code	Insert size A	D	D1	Ds	L1	L	No. of Inserts	Screw	Key
SRH19-3 S	27	19	15	M8	42.5	60	3	S19	K11



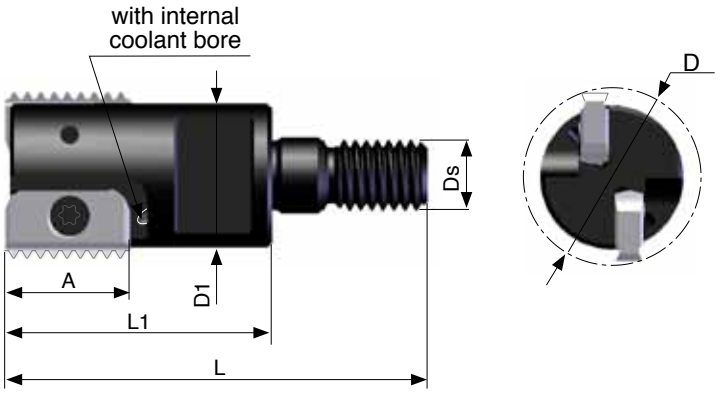
Ordering Code	Insert size A	D	D1	Ds	L1	L	No. of Inserts	Screw	Key
SRH23-2 S	27	23	18	M10	42.5	62.5	2	S23	K16



Ordering Code	Insert size A	D	D1	Ds	L1	L	No. of Inserts	Screw	Key
SRH28-3 S	32	28	21	M12	50	72	3	S28	K16

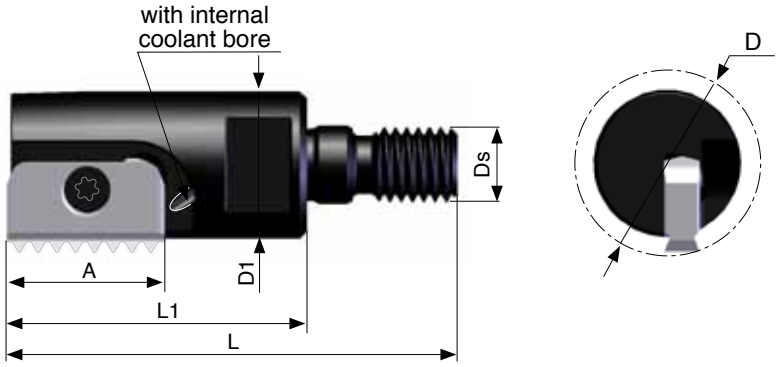


Ordering Code	Insert size A	D	D1	Ds	L1	L	No. of Inserts	Screw	Key
SRH32-3 S	32	32	26	M12	50	72	3	S32S	K16

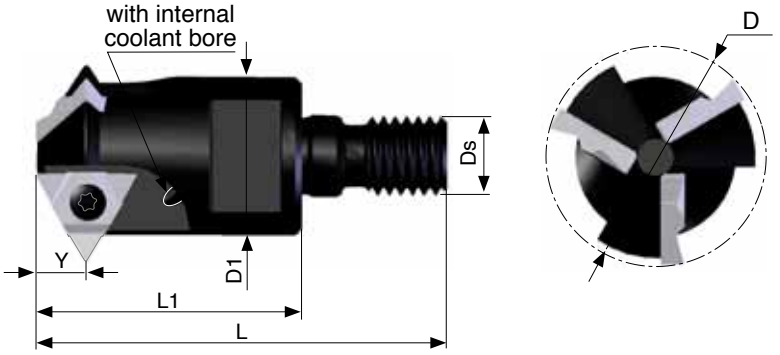


Ordering Code	Insert size A	D	D1	Ds	L1	L	No. of Inserts	Screw	Key
SR0020C14-2 S	14	20	16	M8	30.5	48	2	S14	K14

Toolholders

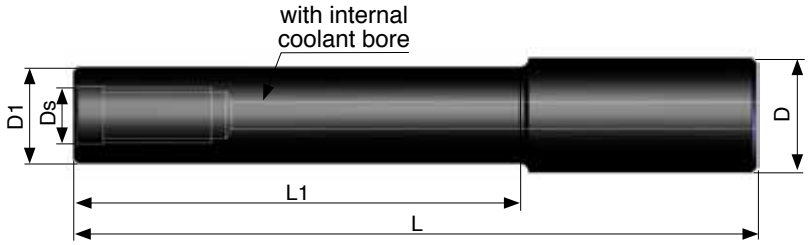


Ordering Code	Insert size A	D	D1	Ds	L1	L	No. of Inserts	Screw	Key
SR0025D21-1 S	21	25	19.7	M10	40	60	1	S21	K21



Ordering Code	Insert size		Y	D	D1	Ds	L1	L	No. of Inserts	Screw	Key
	L	I.C.									
SR0033D16U-3 S	16U	3/8U	7.6	33	24	M12	40	60	3	S16	K16

Extensions



Ordering Code	D	D1	Ds	L	L1
E16 M08 L80	16	15	M08	80	30
E20 M10 L80	20	18	M10	80	30
E20 M10 L130	20	18	M10	130	80
E25 M12 L100	25	21	M12	100	50
E25 M12 L150	25	21	M12	150	100

CMT Vertical Mill-Thread

Vertical milling indexable inserts and toolholders to perform a wide variety of threads, grooves, chamfers and more.

Advantages of CMT - Vertical Mill-Thread

- Ground profile inserts for high precision and excellent performance.
- Working at high machining parameters, with high surface quality.
- Solid and accurate clamping method enables full repeatability.
- Same insert for right-hand or left-hand threads.
- Toolholders include weldon shank and coolant bore.
- Chamfer inserts are also available.

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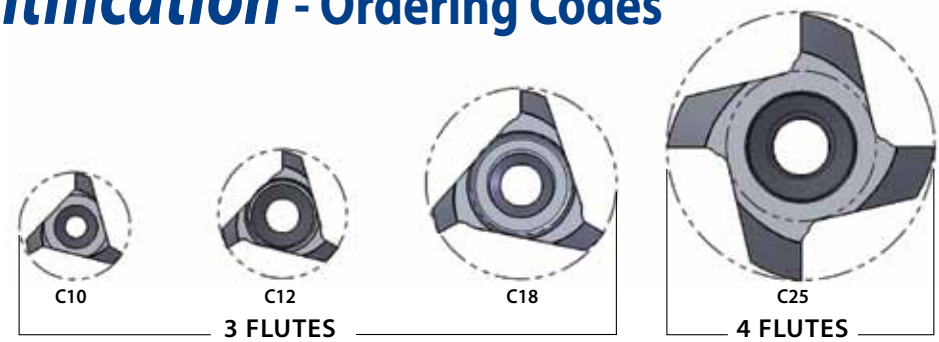
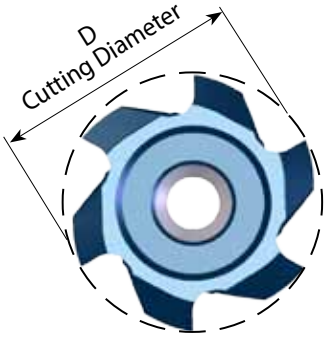
Contents: Page:

Product Identification - Ordering Codes



C	18	I	I2	UN	MT7
CMT Line	Cutting Diameter 10 = 10.0 mm 12 = 12.0 mm 18 = 17.8 mm 25 = 25.0 mm	I = Internal	Thread Pitch A, D, G, N, Q = Partial Profile C = Chamfering and Grooving CR = Corner Rounding F = Face Milling and Finishing W = Grooving	Thread Profile 60° & 55° ISO UN Whitworth Trapez Acme Chamfering	Carbide Grade

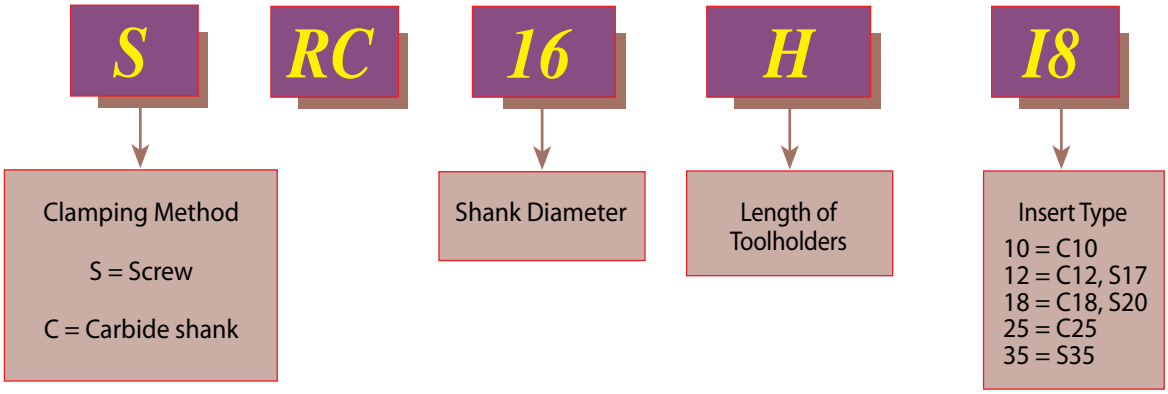
CMT Spiral Multi Flute Inserts



S	178	H	1.0	ISO	MT8
Spiral CMT line Multi flute	Cutting Diameter 178 = Ø17.8 mm 189 = Ø18.9 mm 200 = Ø20.0 mm 350 = Ø35.5 mm	Number of Flutes D = 4 E = 5 F = 6 H = 8	Thread Pitch G, N = Partial Profile H = Chamfering, Grooving and Boring W = Grooving R = Radius Groove Milling CR = Corner Rounding	Thread Profile Partial 60° & 55° ISO UN	Carbide Grade

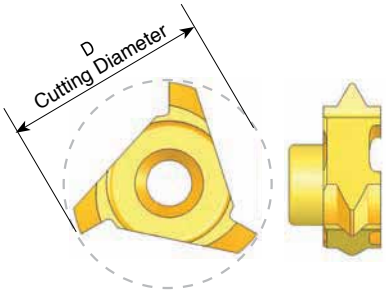
Product Identification - Ordering Codes

CMT Toolholders



Partial Profile 60° - ISO, UN

Same insert for internal and external thread



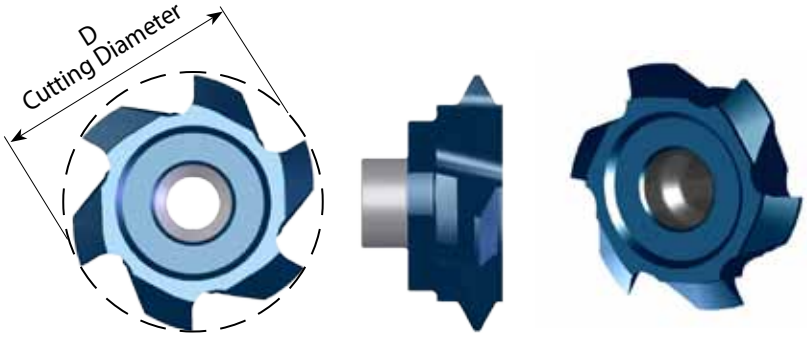
Insert Type	Pitch Range mm	Pitch Range TPI	Ordering Code	D	Thread Diameter (min) Pitch Low Range	Thread Diameter (min) Pitch High Range	Holder Code
C10	Int. 0.5 - 0.8	56 - 28	C10 A60	10.0	Ø ≥ 11	Ø ≥ 12	H1, 2, 12, 13
	Ex. 0.4 - 0.8	64 - 32					
	Int. 1.0 - 2.0	28 - 13	C10 G60		Ø ≥ 12	Ø ≥ 14	H1, 2, 12
	Ex. 0.8 - 1.75	32 - 15					
C12	Int. 0.5 - 0.8	56 - 28	C12 A60	12.0	Ø ≥ 13	Ø ≥ 14	H3, 4, 5, 14, 15
	Ex. 0.4 - 0.8	64 - 32					
	Int. 1.0 - 2.0	28 - 13	C12 G60	12.4	Ø ≥ 14	Ø ≥ 16	
	Ex. 0.8 - 1.75	32 - 15					
C18	Int. 0.5 - 0.8	56 - 28	C18 A60	17.8	Ø ≥ 19		H6, 7, 8, 9, 16
	Ex. 0.4 - 0.8	64 - 32					
	Int. 1.0 - 1.75	28 - 14	C18 G60		Ø ≥ 20	Ø ≥ 21	
	Ex. 0.8 - 1.5	32 - 16					
	Int. 2.0 - 3.0	13 - 8	C18 D60		Ø ≥ 21	Ø ≥ 23	
	Ex. 1.75 - 2.5	15 - 10					
C25	Int. 1.5 - 2.5	16 - 10	C25 G60	25.0	Ø ≥ 28	Ø ≥ 30	H10, 11, 17, 18
	Ex. 1.0 - 2.0	28 - 13					
	Int. 3.0 - 5.0	8 - 5	C25 N60		Ø ≥ 30	Ø ≥ 34	
	Ex. 2.5 - 4.5	10 - 6					
	Int. 5.0 - 6.0	5 - 4	C25 Q60		Ø ≥ 34	Ø ≥ 35	
	Ex. 4.5 - 5.0	6 - 5					

* For complete toolholder description see pages 193 and 194

Partial Profile 60° - ISO, UN

Same insert for internal and external thread

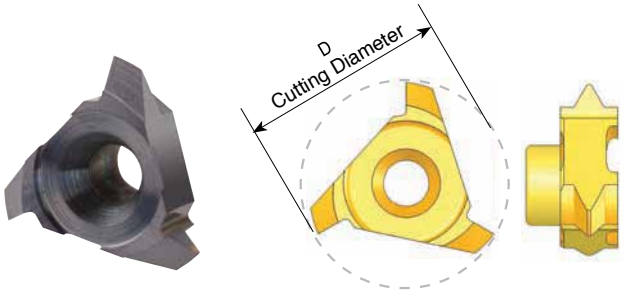
Multi Flute



Insert Type	Ordering Code	Pitch Range mm	Pitch Range TPI	D	No. of Flutes	Thread Dia (min) Pitch Low range	Thread Dia (min) Pitch High range	Holder Code
S20	S200 F G60	Int. 1.5-2.5	16-10	20.0	6	Ø ≥ 23	Ø ≥ 25	H6, 7, 8, 9, 16
		Ex. 1.0-2.0	28-13	20.0	6	Ø ≥ 23	Ø ≥ 25	
	S200 D N60	Int. 3.0-5.0	8- 5	20.0	4	Ø ≥ 25	Ø ≥ 29	H16
		Ex. 2.5-4.5	10-6	20.0	4	Ø ≥ 25	Ø ≥ 29	

Partial Profile 60° - NPT

Same insert for internal and external thread

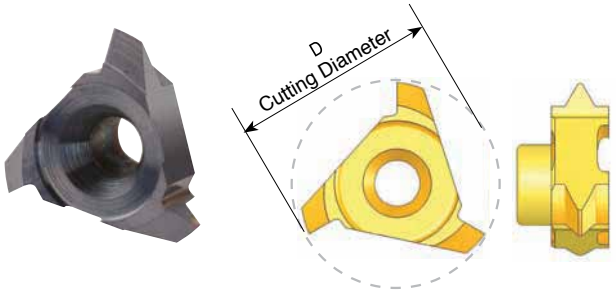


Insert Type	Pitch TPI	Standard	Ordering Code	D	Holder Code
C10	18	1/4 - 3/8	C10 18 NPT	10.0	H1, 2, 12
C18	14	1/2 - 3/4	C18 14 NPT	15.8	H16
C25	11.5	1-2	C25 11.5NPT	25.0	H10, 11, 17, 18
	8	≥ 2 1/2	C25 8 NPT	25.0	

* For complete toolholder description see pages 193 and 194

Partial Profile 55° - BSP(G), BSF, BSW

Same insert for internal and external thread

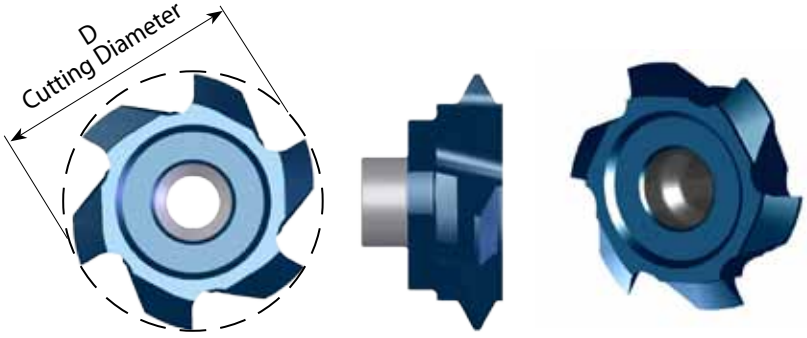


Insert Type	Pitch Range TPI	Ordering Code	D	Thread Dia. (min)	Holder Code
C10	19-14	**C10 G55**	10.0	Ø ≥ 13	H1, 2, 12
C12	28-19	**C12 G55**	12.0	Ø ≥ 14	H3, 4, 5, 14, 15
	14- 11	**C12 N55**	12.2	Ø ≥ 16	H3, 4, 5, 14
C18	14- 8	**C18 G55**	18.0	Ø ≥ 23	H6, 7, 8, 9, 16
C25	7- 5	**C25 N55**	25.0	Ø ≥ 31	H10, 11, 17, 18

Partial Profile 55° - BSP(G), BSF, BSW

Same insert for internal and external thread

Multi Flute

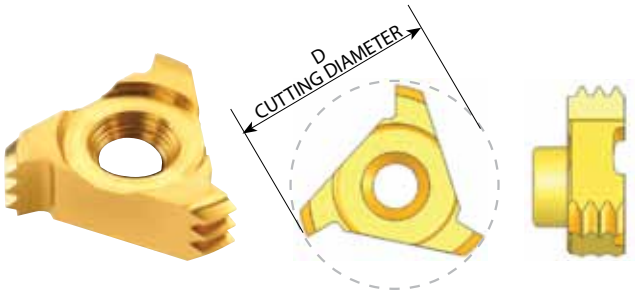


Insert Type	Ordering Code	Pitch Range TPI	D	No. of Flutes	Thread Dia (min)	Holder Code
S20	**S195 F G55**	14	19.5	6	Ø ≥ 23	H6, 7, 8, 9, 16
	S200 D N55	8-6	20.0	4	Ø ≥ 25	H16

* For complete toolholder description see pages 193 and 194

Full Profile - ISO

Inserts for internal thread



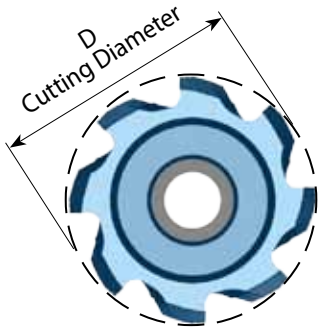
Insert Type	Pitch mm	M coarse	M fine	Ordering Code	Number of Teeth	D	Holder Code
C10	0.5		Ø ≥ 10	C10 I 0.5 ISO	6	9.0	H1, 2, 12, 13
	1.0		Ø ≥ 12	C10 I 1.0 ISO	3	10.0	
	1.5		Ø ≥ 13	C10 I 1.5 ISO	2	10.0	
	1.75	M12	Ø ≥ 13	C10 I 1.75ISO	1	9.6	H1, 2, 12
	2.0	M14	Ø ≥ 14	C10 I 2.0 ISO	1	10.0	
C12	0.5		Ø ≥ 13	C12 I 0.5 ISO	6	12.0	H3, 4, 5, 14, 15
	0.75		Ø ≥ 13	C12 I 0.75ISO	4	12.0	
	1.0		Ø ≥ 14	C12 I 1.0 ISO	3	12.0	
	1.5		Ø ≥ 15	C12 I 1.5 ISO	2	12.0	
	2.0	M16	Ø ≥ 16	C12 I 2.0 ISO	1	12.4	
	2.5	M18, M20	Ø ≥ 17	C12 I 2.5 ISO	1	12.0	H3, 4, 5, 14
	3.0		Ø ≥ 17	C12 I 3.0 ISO	1	12.4	
C18	0.5		Ø ≥ 19	C18 I 0.5 ISO	9	17.8	H6, 7, 8, 9, 16
	0.75		Ø ≥ 19	C18 I 0.75ISO	6	17.8	
	1.0		Ø ≥ 20	C18 I 1.0 ISO	5	17.8	
	1.5		Ø ≥ 20	C18 I 1.5 ISO	3	17.8	
	2.0		Ø ≥ 21	C18 I 2.0 ISO	2	17.8	
	2.5	M22	Ø ≥ 22	C18 I 2.5 ISO	2	17.8	
	3.0	M24, M27	Ø ≥ 23	C18 I 3.0 ISO	1	17.8	
	3.5	M30, M33	Ø ≥ 24	C18 I 3.5 ISO	1	17.8	
C25	3.0	M32, M33	Ø ≥ 30	C25 I 3.0 ISO	2	25.0	H10, 11, 17, 18
	4.0	M36, M39	Ø ≥ 32	C25 I 4.0 ISO	1	25.0	
	4.5	M45	Ø ≥ 33	C25 I 4.5 ISO	1	25.0	
	5.0	M48, M52	Ø ≥ 34	C25 I 5.0 ISO	1	25.0	
	5.5	M60	Ø ≥ 35	C25 I 5.5 ISO	1	25.0	
	6.0	M64, M68	Ø ≥ 36	C25 I 6.0 ISO	1	25.0	

* For complete toolholder description see pages 193 and 194

Full Profile - ISO

Inserts for internal thread

Multi Flute

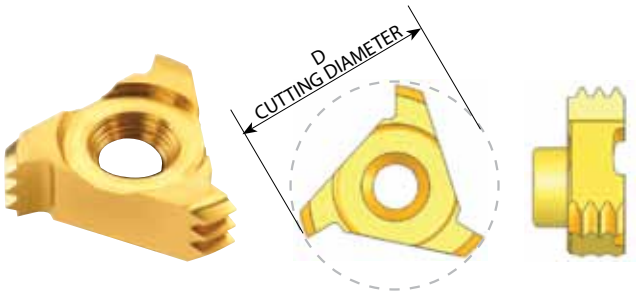


Insert Type	Ordering Code	Pitch mm	M coarse	M fine	Number of Teeth	D	No. of Flutes	Holder Code
S20	**S163 H 1.0 ISO**	1.0		Ø ≥ 18	5	16.3	8	H6, 7, 8, 9, 16
	S175 H 1.5 ISO	1.5		Ø ≥ 20	3	17.5	8	
	S186 F 2.0 ISO	2.0		Ø ≥ 22	2	18.6	6	
S17	**S160 F 2.5 ISO**	2.5	M20	Ø ≥ 20	1	16.0	6	H3, 4, 5, 14, 15
S20	**S178 F 2.5 ISO**	2.5	M22	Ø ≥ 22	2	17.8	6	H6, 7, 8, 9, 16
	S189 F 3.0 ISO	3.0	M24, M27	Ø ≥ 24	1	18.9	6	
	S200 F 3.5 ISO	3.5	M30, M33	Ø ≥ 26	1	20.0	6	
	S200 F 4.0 ISO	4.0	M36, M39	Ø ≥ 27	1	20.0	6	
	S200 E 4.5 ISO	4.5	M42, M45	Ø ≥ 28	1	20.0	5	
	S200 D 5.0 ISO	5.0	M48, M52	Ø ≥ 29	1	20.0	4	H16
S35	**S350 F 6.0 ISO**	6.0	M64, M68	Ø ≥ 46	1	35.0	6	H19, 20, 21
	S350 F 8.0 ISO	8.0		Ø ≥ 50	1	35.0	6	

* For complete toolholder description see pages 193 and 194

Full Profile - UN

Inserts for internal thread



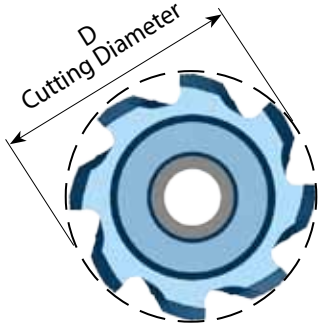
Insert Type	Pitch TPI	Nominal Size	UNC	UNF	UNEF	Ordering Code	Number of Teeth	D	Holder Code
C10	20			1/2		C10 I 20 UN	2	10.0	H1, 2, 12, 13
	18			9/16		C10 I 18 UN	2	10.0	
	13		1/2			C10 I 13 UN	1	10.0	H1, 2, 12
	12	5/8, 11/16, 3/4	9/16			C10 I 12 UN	1	10.0	
C12	32	9/16, 5/8				C12 I 32 UN	3	12.0	H3, 4, 5, 14, 15
	28	9/16, 5/8, 11/16				C12 I 28 UN	3	12.0	
	24				9/16, 5/8, 11/16	C12 I 24 UN	2	12.0	
	20	9/16, 5/8, 11/16			3/4	C12 I 20 UN	2	12.0	
	18			5/8		C12 I 18 UN	2	12.0	
	16	5/8, 11/16		3/4		C12 I 16 UN	1	12.0	
	11		5/8			C12 I 11 UN	1	12.0	H3, 4, 5, 14
	10		3/4			C12 I 10 UN	1	12.0	
C18	32	3/4, 13/16, 7/8				C18 I 32 UN	6	17.8	H6, 7, 8, 9, 16
	28	3/4, 13/16, 7/8				C18 I 28 UN	5	17.8	
	24					C18 I 24 UN	4	17.8	
	20	1 1/16, 1 1/8			13/16, 7/8, 15/16	C18 I 20 UN	3	17.8	
	18					C18 I 18 UN	3	17.8	
	16	7/8, 1				C18 I 16 UN	3	17.8	
	14			7/8		C18 I 14 UN	2	17.8	
	12	7/8		1, 1 1/8		C18 I 12 UN	2	17.8	
	11					C18 I 11 UN	2	17.8	
	9		7/8			C18 I 9 UN	1	17.8	
	8		1			C18 I 8 UN	1	17.8	
C25	8	1 3/16, 1 1/4, 1 5/16				C25 I 8 UN	2	25.0	H10, 11, 17, 18
	7		1 1/4			C25 I 7 UN	1	25.0	
	6	1 7/16, 1 9/16	1 3/8, 1 1/2			C25 I 6 UN	1	25.0	
	5		1 3/4			C25 I 5 UN	1	25.0	
	4		2 1/2, 2 3/4			C25 I 4 UN	1	25.0	

* For complete toolholder description see pages 193 and 194

Full Profile - UN

Inserts for internal thread

Multi Flute

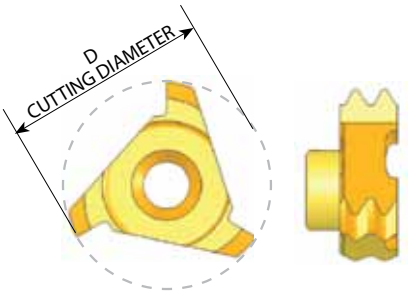


Insert Type	Ordering Code	Pitch TPI	Nominal size	UNC	UNF	UNEF	Number of Teeth	D	No. of Flutes	Holder Code
S20	**S160 H 24 UN**	24				11/16	4	16.0	8	H6, 7, 8, 9, 16
	S169 H 20 UN	20				3/4, 13/16, 7/8, 15/16, 1	4	16.9	8	
	S164 F 16 UN	16	7/8, 15/16, 1		3/4		3	16.4	6	
	S191 F 14 UN	14			7/8		2	19.1	6	
	S186 F 12 UN	12	7/8, 15/16		1		2	18.6	6	
	S178 F 9 UN	9		7/8			1	17.8	6	
	S200 F 8 UN	8	1 1/8	1			1	20.0	6	
	S200 F 7 UN	7		1 1/8, 1 1/4			1	20.0	6	
	S200 E 6 UN	6	1 7/16	1 3/8, 1 1/2			1	20.0	5	
	S200 D 5 UN	5		1 3/4			1	20.0	4	H16
S35	**S350 F 4 UN**	4		2 1/2, 2 3/4, 3			1	35.0	6	H19, 20, 21

* For complete toolholder description see pages 193 and 194

G 55° BSW, BSF, BSP

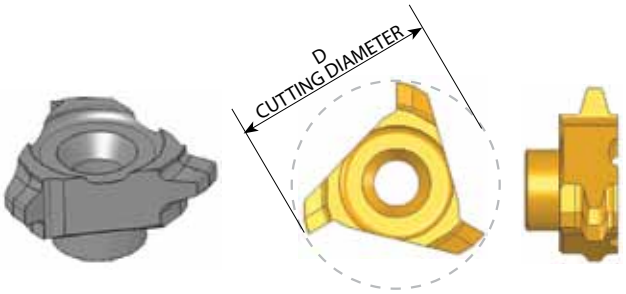
Same Insert for internal and external thread



Insert Type	Pitch TPI	Standard	Ordering Code	Number of Teeth	D	Holder Code
C10	19	G 1/4	**C10 19 W**	2	10.0	H1, 2, 12, 13
C12	19	G 3/8	**C12 19 W**	2	12.0	H3, 4, 5, 14, 15
C18	14	G 7/8	**C18 14 W**	2	17.8	H6, 7, 8, 9, 16
	11	G ≥ 1	**C18 11 W**	2	17.8	

Trapez - DIN 103

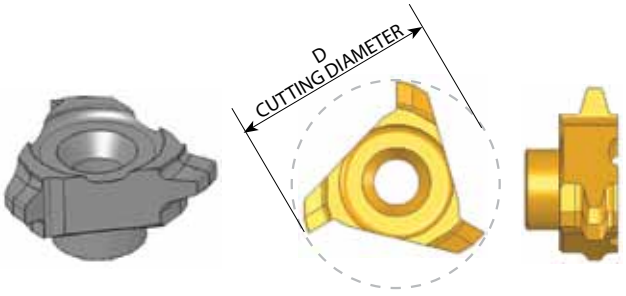
Inserts for internal thread



Insert Type	Pitch mm	Standard	Ordering Code	D	Holder Code
C10	2.0	Ø ≥ 16	**C10 I 2 TR**	10.0	H1, 2, 12,
C18	3.0	Ø ≥ 24	**C18 I 3 TR**	17.8	H6, 7, 8, 9, 16
	4.0	Ø ≥ 26	**C18 I 4 TR**	17.8	H16
	5.0	Ø ≥ 28	**C18 I 5 TR**	17.8	
C25	6.0	Ø ≥ 36	**C25 I 6 TR**	25.0	H10, 11, 17, 18

Acme

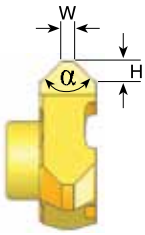
Inserts for internal thread



Insert Type	Pitch TPI	Standard	Ordering Code	D	Holder Code
C18	5	1 1/8, 1 1/4	**C18 I 5 ACME**	18.0	H16
C25	4	1 1/2, 1 3/4, 2	**C25 I 4 ACME**	25.0	H10, 11, 17, 18

* For complete toolholder description see pages 193 and 194

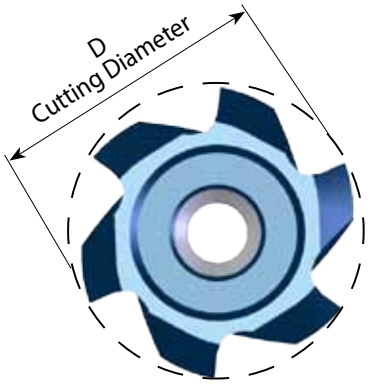
Chamfering and Grooving

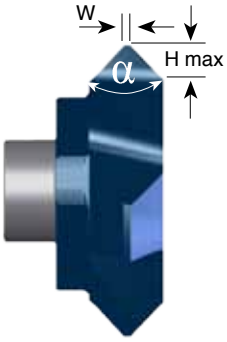


Insert Type	Ordering Code	D	H	W	α	Holder Code*
C10	**C10 C90**	10.0	1.30	0.4	90˚	H1, 2, 12
C12	**C12 C90**	12.0	1.35	0.3	90˚	H3, 4, 5, 14
C18	**C18 C90**	17.8	1.95	1.1	90˚	H6, 7, 8, 9, 16
C25	**C25 C90**	25.0	2.50	1.0	90˚	H10, 11, 17, 18

Chamfering, Grooving and Boring

Multi Flute

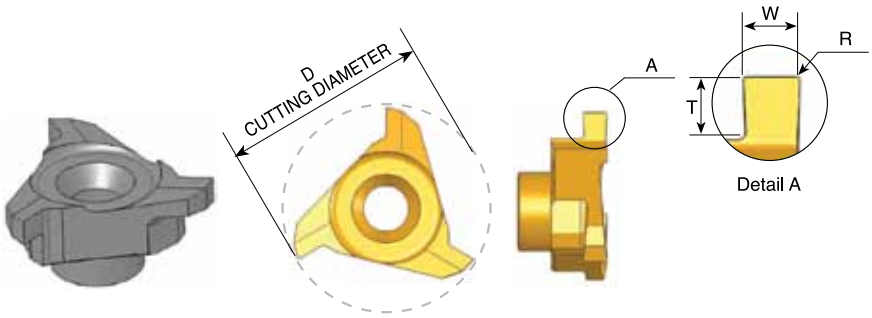




Insert Type	Ordering Code	D	H max	W	α	No. of Flutes	Holder Code
S17	**SC160 E H14**	16.0	1.35	0.2	90°	5	H3, 4, 5, 14, 15
S20	**SC170 E H14**	17.0	1.35	0.2	90°	5	H6, 7, 8, 9, 16
	SC200 F H14	20.0	1.35	0.2	90°	6	H6, 7, 8, 9, 16
	SC200 F H24	20.0	2.35	0.2	90°	6	
S35	**SC350 F H42**	35.0	4.20	0.2	90°	6	H19, 20, 21
S20	**SC200 F H20**	20.0	1.95	1.0	90°	6	H6, 7, 8, 9, 16
	SC200 F H17	20.0	1.70	1.5	90°	6	
	SC200 F H15	20.0	1.50	2.0	90°	6	
	SC200 F H12	20.0	1.20	2.5	90°	6	

* For complete toolholder description see pages 193 and 194

Groove Milling

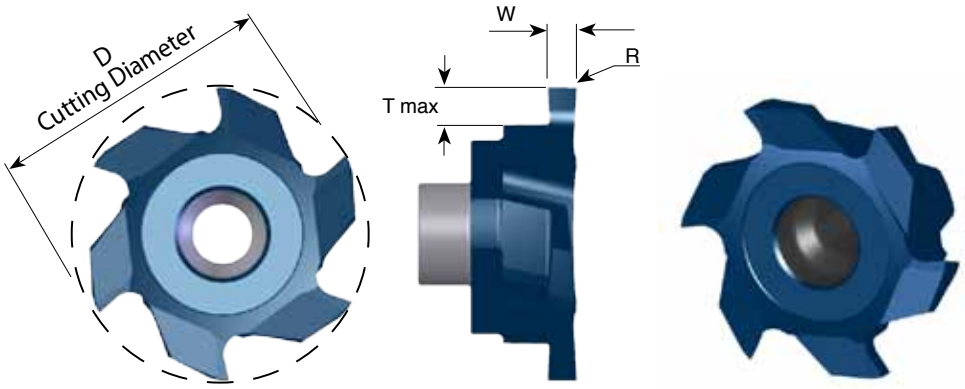


Insert Type	Ordering Code	D	W ±0.02	T max.	R	Groove Dia. (min.)	Holder Code
C10	C10 W08	10.0	0.80	0.80	0.1	Ø > 10.0	H1, 2, 12, 13
	C10 W09		0.90	0.90			
	C10 W10		1.00	0.90			
C12	C12 W08	12.0	0.80	0.80	0.1	Ø > 12.0	H3, 4, 5, 14, 15
	C12 W10		1.00	0.90			
C18	C18 W10	17.8	1.00	1.50	0.1	Ø > 17.8	H6, 7, 8, 9, 16
	C18 W12		1.20	1.50			
	C18 W15		1.50	1.95			
	C18 W20		2.00	2.80			H16
C25	C25 W20	25.0	2.00	3.00	0.2	Ø > 25	H10, 11, 17, 18
	C25 W25		2.50	3.00			
	C25 W30		3.00	3.00			
	C25 W35		3.50	3.50			
	C25 W40		4.00	3.50			
	C25 W50		5.00	3.50			

* For complete toolholder description see pages 193 and 194

Groove Milling

Multi Flute

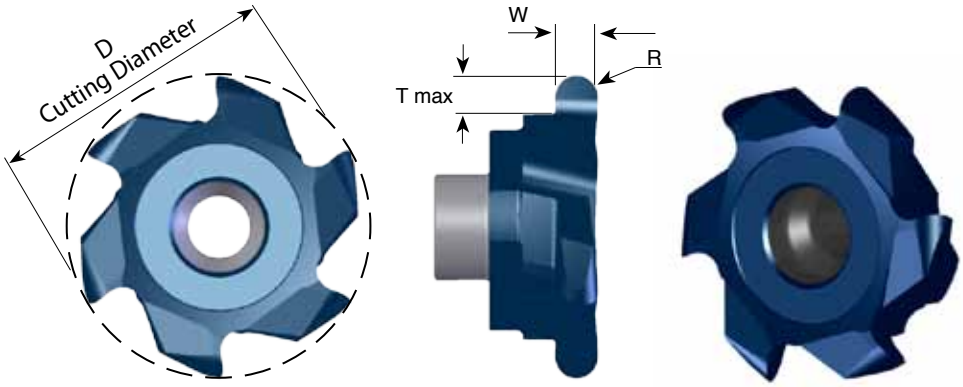


Insert Type	Ordering Code	D	W ±0.02	T Max.	R	Groove Dia. (min)	No. of Flutes	Holder Code
S17	**SG170 F W15**	17.0	1.5	2.8	0.2	Ø > 17	6	H3, 4, 5, 14, 15
	SG170 F W20	17.0	2.0					
	SG170 F W25	17.0	2.5					
S20	**SG200 F W15**	20.0	1.5	2.9	0.2	Ø > 20	6	H6, 7, 8, 9, 16
	SG200 F W20	20.0	2.0					
	SG200 F W25	20.0	2.5					
	SG200 F W30	20.0	3.0					
	SG200 F W40	20.0	4.0					
	SG200 F W49	20.0	4.9					
S20	**SG200 E W20T**	20.0	2.0	3.7	0.2	Ø > 20	5	H16
	SG200 E W25T	20.0	2.5					
	SG200 E W30T	20.0	3.0					
S35	**SG350 F W30T**	35.0	3.0	6.3	0.2	Ø > 35	6	H19, 20, 21
	SG350 F W40T	35.0	4.0					
	SG350 F W50T	35.0	5.0					
	SG350 F W60T	35.0	6.0					
	SG350 F W80T	35.0	8.0					

* For complete toolholder description see pages 193 and 194

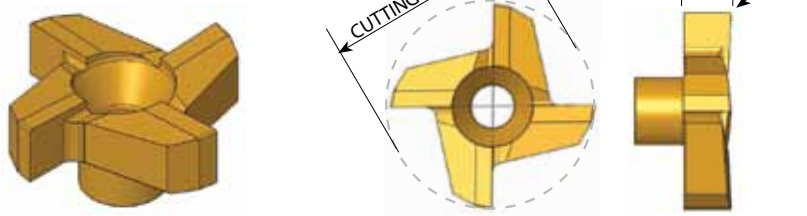
Full Radius Groove Milling

Multi Flute



Insert Type	Ordering Code	D	R	W ±0.02	T Max.	Groove Dia. (min)	No. of Flutes	Holder Code
S20	**SG200 F R10**	20.0	1.0	2.0	2.9	Ø > 20	6	H6, 7, 8, 9, 16
	SG200 F R12	20.0	1.2	2.4				
	SG200 F R15	20.0	1.5	3.0				
	SG200 F R20	20.0	2.0	4.0				

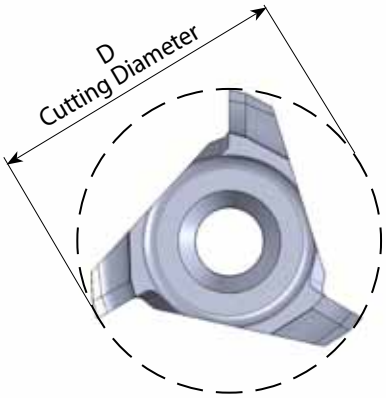
Face Milling and Finishing

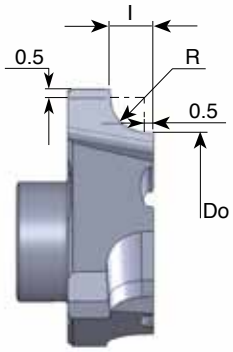


Insert Type	Ordering Code	D	W	R	Holder Code
C18	**C18 F R0.1**	17.8	5.0	0.1	H6, 7, 8, 9, 16
C25	**C25 F R0.2**	25.0	6.0	0.2	H10, 11, 17, 18

* For complete toolholder description see pages 193 and 194

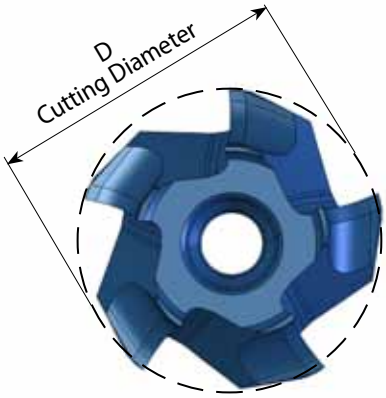
Corner Rounding

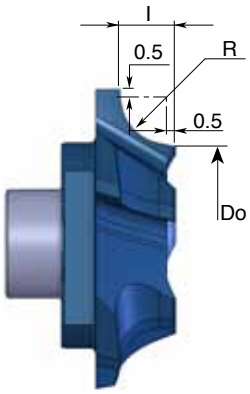




Insert Type	Ordering Code	D	Do	R	I	Holder Code
C10	C10 CR05	10.0	7.9	0.5	1.05	H1, 2, 12, 13
	C10 CR10	10.0	6.9	1.0	1.55	
C18	C18 CR13	17.8	14.2	1.25	1.80	H6, 7, 8, 9, 16
	C18 CR15	17.8	13.7	1.5	2.05	
	C18 CR20	17.8	12.7	2.0	2.55	

Corner Rounding
Multi Flute



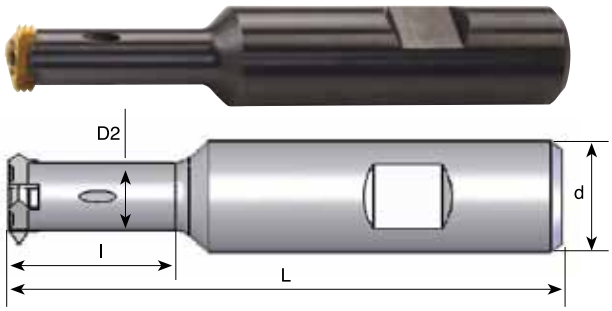


Insert Type	Ordering Code	D	Do	R	I	No. of Flutes	Holder Code
S17	S170 E CR10	17.0	13.9	1.0	1.55	5	H3, 4, 5, 14, 15
	S170 E CR13	17.0	13.4	1.25	1.80	5	
	S170 E CR15	17.0	12.9	1.5	2.05	5	

* For complete toolholder description see pages 193 and 194

Steel Toolholders

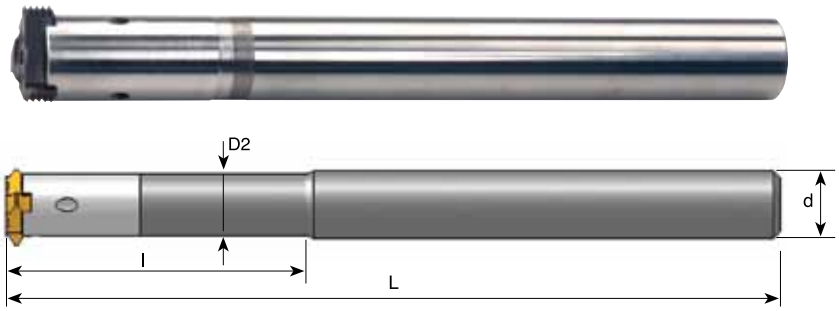
With internal coolant



Tool No.	Ordering Code	Insert Type	d	D2	l	L	Insert Screw	Torx Key
H1	SRC 1210 E	C10	12	7.3	19	70	S5	K5
H2	SRC 1610 G		16		19	90		
H3	SRC 1212 E	C12, S17	12	9.0	25	70	S10	K10
H4	SRC 1612 G		16		25	90		
H5	SRC 1612 H		16		35	100		
H6	SRC 1618 H	C18, S20	16	13.8	48	100	S16	K16
H7	SRC 2018 H		20		32	100		
H8	SRC 2018 J		20		48	110		
H9	SRC 2018 L		20		74	140		
H10	SRC 2525 J	C25	25	17.5	45	115	S27	K27
H11	SRC 2525 M		25		80	150		
H19	SRC 2535 H	S35	25	22	40	100	S33	K33
H20	SRC 2535 K		25		60	130		

Carbide Shank Toolholders

With internal coolant



Tool No.	Ordering Code	Insert Type	d	D2	l	L	Insert Screw	Torx Key
H12	**CRC 0810 L35 K**	C10	8	7.3	35	125	S5	K5
H13	**CRC 0810 K**		8	8.0	__	125	S5	K5
H14	**CRC 1012 L40 M**	C12, S17	10	9.0	40	150	S10	K10
H15	**CRC 1012 M**		10	10.0	__	150	S10	K10
H16	**CRC 1218 P**	C18, S20	12	12.0	__	170	S16	K16
H17	**CRC 1625 R**	C25	16	16.0	__	205	S27	K27
H18	**CRC 2025 L85 S**		20	17.5	85	250	S27	K27
H21	**CRC 2035 S**	S35	20	22.0	__	260	S33	K33

Toolholders without Weldon

CMT Multi Insert Milling Cutters

Carmex presents a new generation of CMT indexable milling inserts and cutters for Grooving, Chamfering and Threading

Inserts

- Insert profiles are fully ground
- Spiral inserts for smooth cutting operation
- Three cutting edges on each insert
- For a wide range of materials and applications

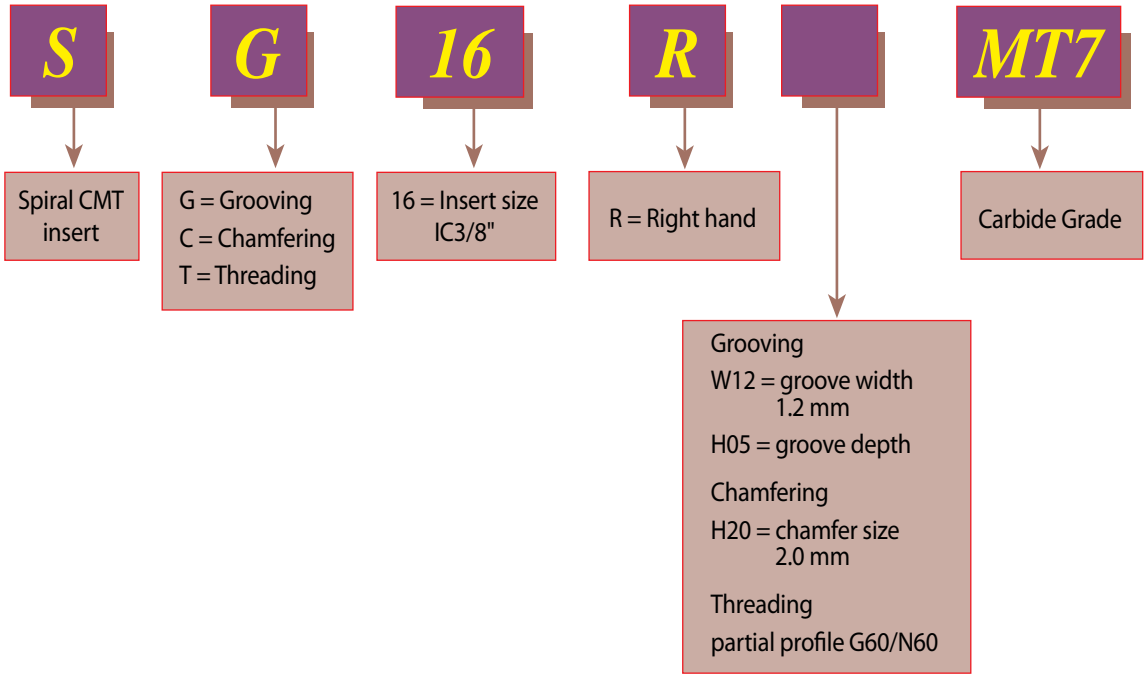
Carbide grade: MT7

Milling cutters / Disc milling cutter

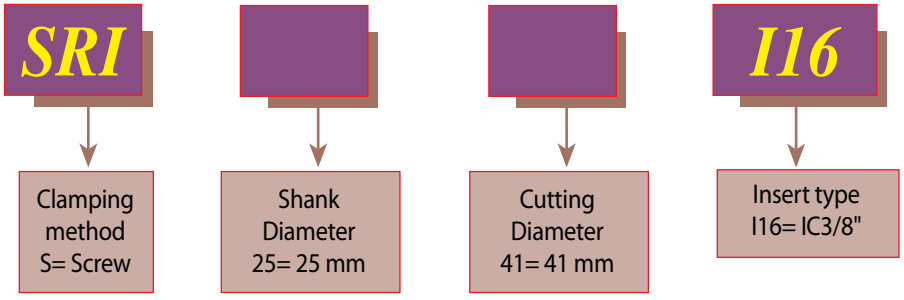
- 4 - 8 inserts per holder, for high productivity
- To use with Carmex standard CMT - S35 toolholders
- The milling cutters are coated with a special layer (silver color) for high Anti-corrosive resistance and extra protection against cutting burrs

Product Identification - Ordering Codes

Inserts

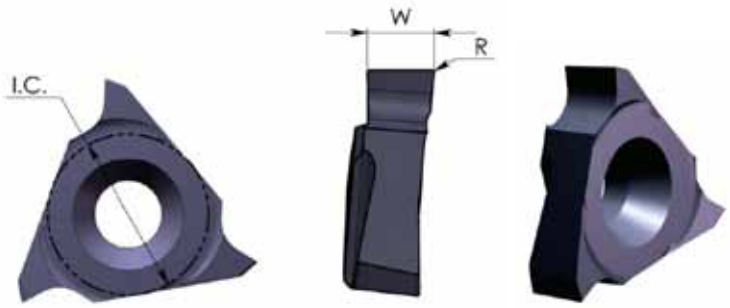


Toolholders



Groove Milling

DIN 471 / 472



Insert Type	I.C.	Ordering Code	W	R	Holder Code
SI16	3/8"	**SG 16 R W14**	1.40	0.10	H22, H23
		SG 16 R W17	1.70	0.10	
		SG 16 R W19	1.95	0.15	
		SG 16 R W22	2.25	0.15	
		SG 16 R W27	2.75	0.20	
		SG 16 R W32	3.25	0.20	
		SG 16 R W42	4.25	0.20	
		SG 16 R W43	4.35	0.20	H22, H23, H24

Right hand cutting

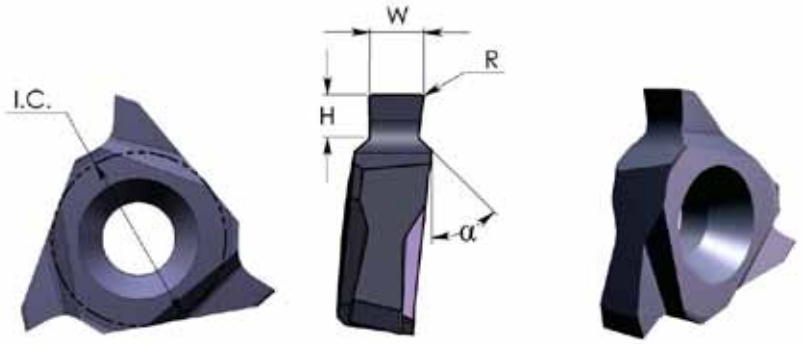
Insert Type	I.C.	Ordering Code	W	R	Holder Code
SI16	3/8"	**SG 16 L W43**	4.35	0.20	H24

Left hand cutting

* Maximum groove depth (T max) according to the toolholder.

Groove Milling with Chamfer

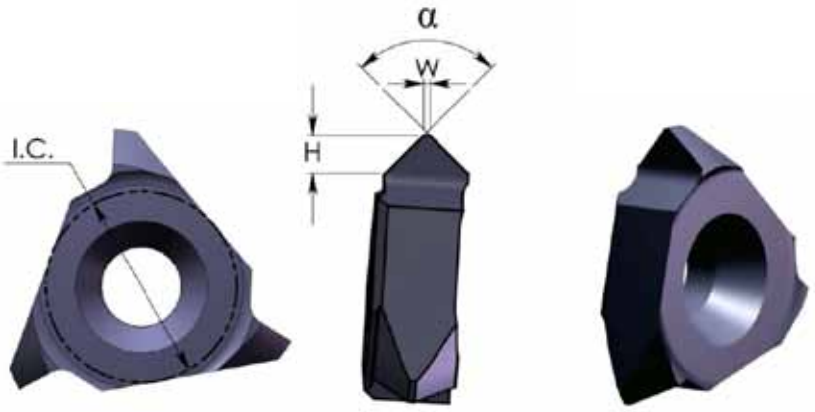
DIN 471 / 472



Insert Type	I.C.	Ordering Code	W	H max	R	α	Holder Code
SI16	3/8"	SG 16 R W12 H05	1.20	0.50	0.10	45°	H22, H23
		SG 16 R W14 H07	1.40	0.70			
		SG 16 R W14 H08	1.40	0.85			
		SG 16 R W17 H08	1.70	0.85			
		SG 16 R W17 H10	1.70	1.00			
		SG 16 R W19 H12	1.95	1.25	0.15		
		SG 16 R W22 H15	2.25	1.50			
		SG 16 R W27 H15	2.75	1.50			
		SG 16 R W27 H17	2.75	1.75			
		SG 16 R W32 H17	3.25	1.75			
		SG 16 R W42 H20	4.25	2.00			
		SG 16 R W42 H25	4.25	2.50			

Right hand cutting

Chamfering

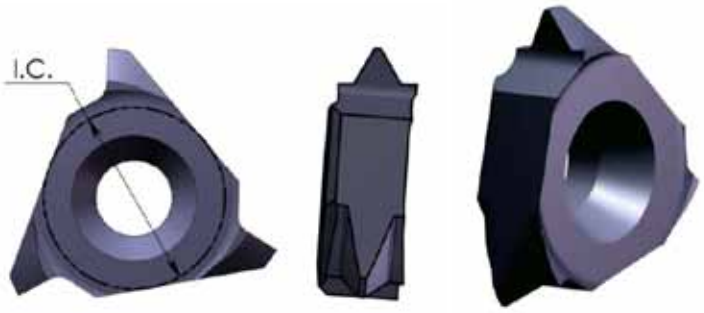


Insert Type	I.C.	Ordering Code	H max	W	α	Holder Code
SI16	3/8"	SC 16 R H20	2.00	0.2	90°	H22, H23
		SC 16 R H19	1.90	0.5		

Maximum groove depth (T max) according to the toolholder.

Partial Profile 60° - ISO, UN

Same Insert for internal and external thread

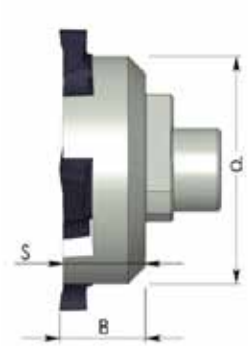


Insert Type	I.C.	Ordering Code	Pitch Range mm	Pitch Range TPI	Holder Code
SI16	3/8"	**ST 16 R G60**	1.5-3.0	16-8	H22, H23
		ST 16 R N60	3.5-5.0	7-5	

Right hand cutting

Toolholders

Milling Cutter- Arbor

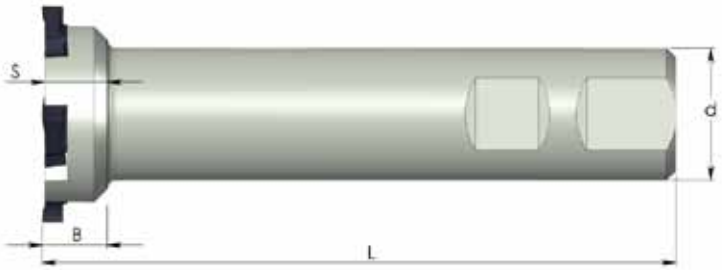


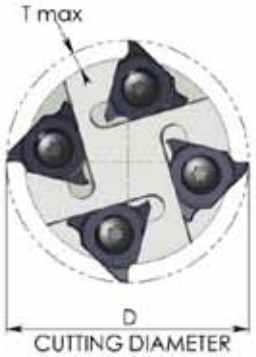
Tool No.	Ordering Code	Insert type	D	d	T max	B	S	Insert Screw	Torx Key
H22	**SRI 41- I16**	SI16	41	33.2	3.6	12.5	12.0	S16S	K16

Right hand cutting

To connect to the standard CMT toolholders S35: SRC 2535 H, SRC 2535 K, CRC 2035 S

Milling Cutter- Weldon Shank

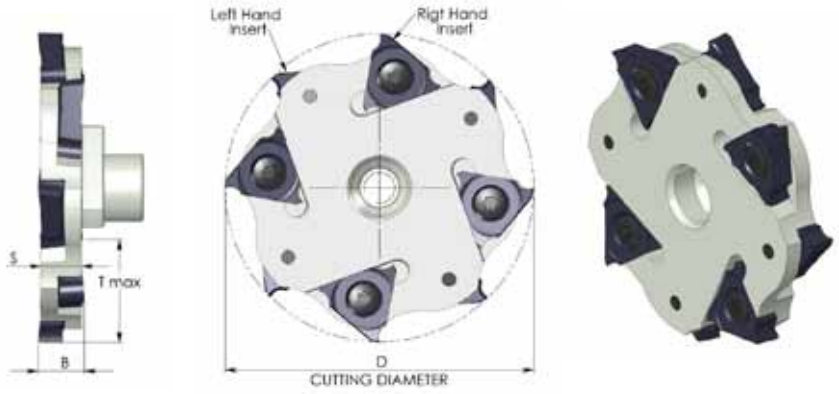




Tool No.	Ordering Code	Insert type	D	d	T max	B	S	L	Insert Screw	Torx Key
H23	**SRI 2541-I16**	SI16	41	25	3.6	12.5	12.0	125	S16S	K16

Right hand cutting

Mill Cutter - Disc Milling



Tool No.	Ordering Code	Insert type	D	T max	B	S	Insert Screw	Torx Key
H24	**SRI 55-I16**	SI16	55	15.5	8.2	7.2	S16M	K16

Right hand cutting

To use only with inserts SG 16 R W43, and SG 16 L W43

To connect to the standard CMT toolholders S35: SRC 2535 H, SRC 2535 K, CRC 2035 S

Mill-Thread Solid Carbide

Advantages of Mill-Thread Solid Carbide

- Thread is generated in one pass.
- Spiral flutes allow smooth cutting action.
- Shorter machining time due to multi, 3 to 6, flutes.
- 2.2 mm and up cutting diameter.
- Threads up to shoulder in blind hole.
- Longer tool life due to special multi-layer coating.
- Same tool can be used for a variety of materials.
- Excellent surface finish.
- Low cutting pressure allows thin wall machining.
- Same tool used for R.H and L.H. threads.

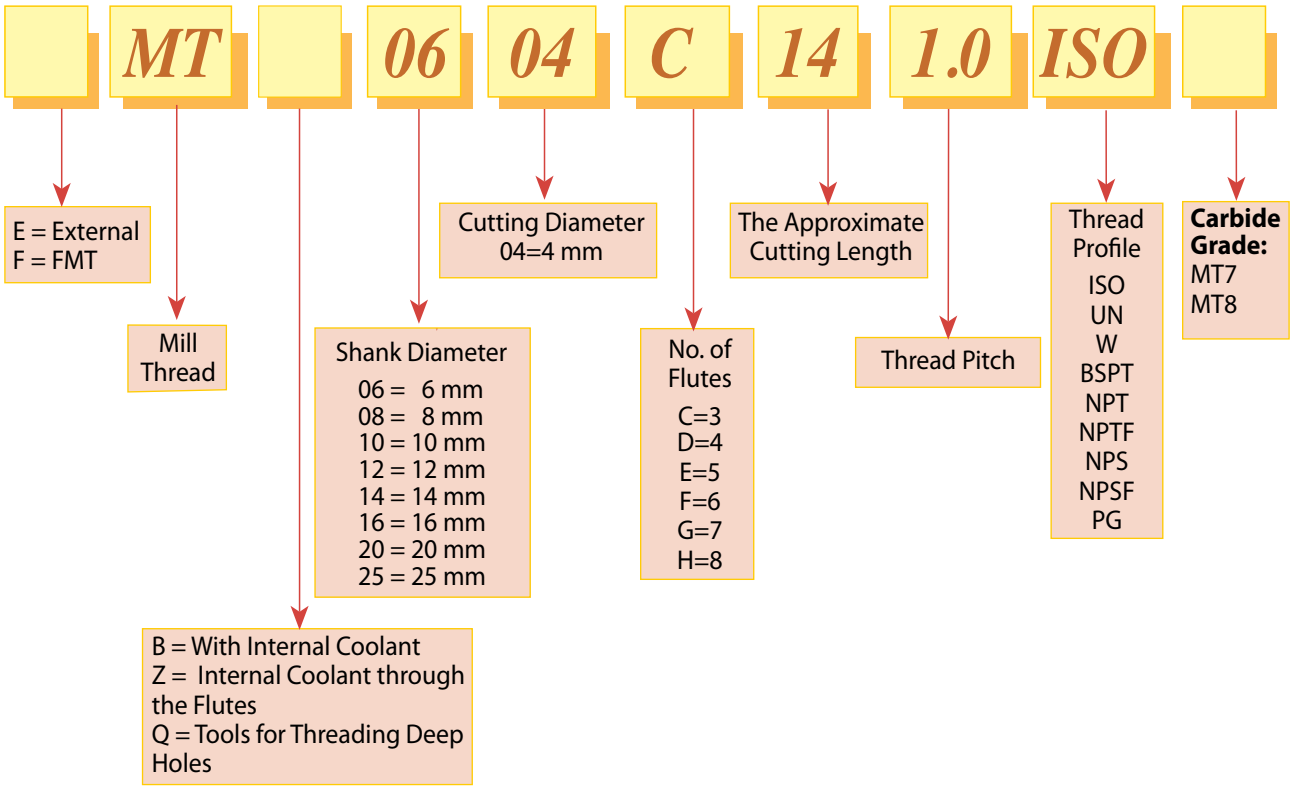
MT - Thread Mills without internal coolant
MTB - Thread Mills with internal coolant bore for blind holes
MTZ - Thread Mills with internal coolant through the flutes
MTQ - Thread Mills that include relieved neck for deep work pieces
FMT - Fast Thread Mills with internal coolant bore

Contents: Page:

Contents: Page:

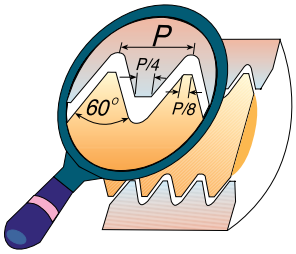
Product Identification

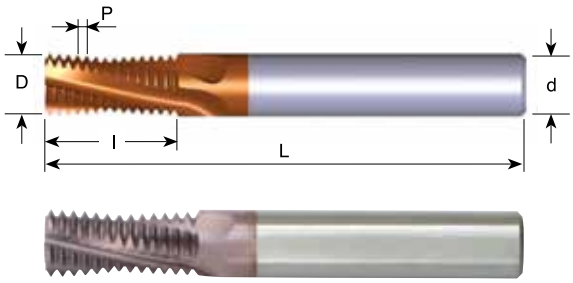
Mill-Thread Solid Carbide Ordering Codes



ISO

Tools for Internal thread





Pitch mm	M coarse	M fine	Ordering Code	d	D	No. of Flutes	l	L
0.5	M3	Ø ≥ 4	MT06022C5 0.5 ISO	6	2.2	3	5.3	58
0.5		Ø ≥ 5	MT06038C10 0.5 ISO	6	3.8	3	10.3	58
0.7	M4	Ø ≥ 5	MT06031C7 0.7 ISO	6	3.1	3	7.4	58
0.75		Ø ≥ 6	MT06045C10 0.75 ISO	6	4.5	3	10.1	58
0.8	M5	Ø ≥ 6	MT06036C9 0.8 ISO	6	3.6	3	9.2	58
1.0	M6	Ø ≥ 7	MT0604C10 1.0 ISO	6	4.0	3	10.5	58
1.0	M6	Ø ≥ 7	MT0604C14 1.0 ISO	6	4.0	3	14.5	58
1.0		Ø ≥ 9	MT0606C12 1.0 ISO	6	6.0	3	12.5	58
1.0		Ø ≥ 10	MT0808D16 1.0 ISO	8	8.0	4	16.5	64
1.25	M8	Ø ≥ 10	MT0605C14 1.25 ISO	6	5.0	3	14.4	58
1.25	M8	Ø ≥ 10	MT0605C19 1.25 ISO	6	5.0	3	19.4	58
1.5	M10	Ø ≥ 12	MT0807C17 1.5 ISO	8	7.0	3	17.3	64
1.5	M10	Ø ≥ 12	MT0807C24 1.5 ISO	8	7.0	3	24.8	76
1.5		Ø ≥ 14	MT1010D21 1.5 ISO	10	10.0	4	21.8	73
1.5		Ø ≥ 20	MT1616F33 1.5 ISO	16	16.0	6	33.8	105
1.75	M12	Ø ≥ 14	MT0808C20 1.75 ISO	8	8.0	3	20.1	64
1.75	M12	Ø ≥ 14	MT0808C28 1.75 ISO	8	8.0	3	28.9	76
2.0	M16	Ø ≥ 17	MT1010C27 2.0 ISO	10	10.0	3	27.0	73
2.0	M16	Ø ≥ 17	MT1010C39 2.0 ISO	10	10.0	3	39.0	105
2.0		Ø ≥ 18	MT1212D27 2.0 ISO	12	12.0	4	27.0	84
2.0		Ø ≥ 26	MT2020F41 2.0 ISO	20	20.0	6	41.0	105
2.5	M20	Ø ≥ 22	MT1414D33 2.5 ISO	14	14.0	4	33.8	84
2.5	M20	Ø ≥ 22	MT1414D48 2.5 ISO	14	14.0	4	48.8	105
3.0	M24	Ø ≥ 25	MT1616C40 3.0 ISO	16	16.0	3	40.5	105
3.0	M24	Ø ≥ 25	MT1616C58 3.0 ISO	16	16.0	3	58.5	120
3.0	M27	Ø ≥ 28	MT2020D43 3.0 ISO	20	20.0	4	43.5	105

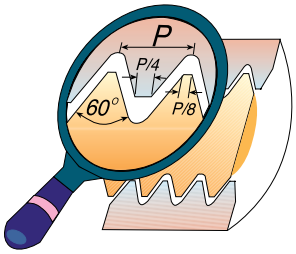
Order example: MT 1212D27 2.0 ISO MT7

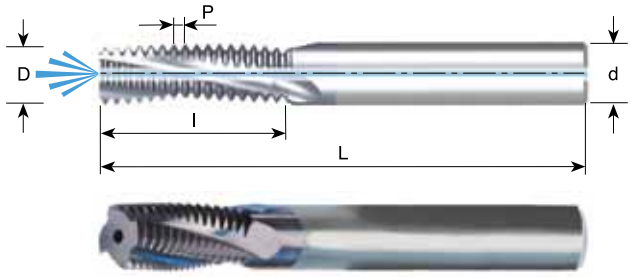
For thread mills with coolant bore see following pages

For small thread mills see pages 227-228, 235 & 245

ISO With internal coolant bore

Tools for Internal thread





Pitch mm	M coarse	M fine	Ordering Code	d	D	No. of Flutes	l	L
0.5		Ø ≥ 5	MTB06038C10 0.5 ISO	6	3.8	3	10.3	58
0.7	M4	Ø ≥ 5	MTB06031C7 0.7 ISO	6	3.1	3	7.4	58
0.75		Ø ≥ 6	MTB06045C10 0.75 ISO	6	4.5	3	10.1	58
0.75		Ø ≥ 12	MTB1010D24 0.75 ISO	10	10.0	4	24.4	73
0.8	M5	Ø ≥ 6	MTB06038C9 0.8 ISO	6	3.8	3	9.2	58
1.0	M6	Ø ≥ 7	MTB06046C10 1.0 ISO	6	4.6	3	10.5	58
1.0	M6	Ø ≥ 7	MTB06046C14 1.0 ISO	6	4.6	3	14.5	58
1.0		Ø ≥ 9	MTB0606C12 1.0 ISO	6	6.0	3	12.5	58
1.0		Ø ≥ 10	MTB0808D16 1.0 ISO	8	8.0	4	16.5	64
1.0		Ø ≥ 12	MTB1010D24 1.0 ISO	10	10.0	4	24.5	73
1.25	M8	Ø ≥ 10	MTB0606C14 1.25 ISO	6	6.0	3	14.4	58
1.25	M8	Ø ≥ 10	MTB0606C19 1.25 ISO	6	6.0	3	19.4	58
1.5	M10	Ø ≥ 12	MTB08078C17 1.5 ISO	8	7.8	3	17.0	64
1.5	M10	Ø ≥ 12	MTB08078C24 1.5 ISO	8	7.8	3	24.8	76
1.5		Ø ≥ 14	MTB1010D21 1.5 ISO	10	10.0	4	21.8	73
1.5		Ø ≥ 16	MTB1212D26 1.5 ISO	12	12.0	4	26.3	84
1.5		Ø ≥ 20	MTB1616F33 1.5 ISO	16	16.0	6	33.8	105
1.75	M12	Ø ≥ 12	MTB1009C20 1.75 ISO	10	9.0	3	20.1	73
1.75	M12	Ø ≥ 12	MTB1009C28 1.75 ISO	10	9.0	3	28.9	73
2.0	M14	Ø ≥ 15	MTB1010C27 2.0 ISO	10	10.0	3	27.0	73
2.0	M16	Ø ≥ 17	MTB12118D27 2.0 ISO	12	11.8	4	27.0	84
2.0	M16	Ø ≥ 17	MTB12118D39 2.0 ISO	12	11.8	4	39.0	105
2.0		Ø ≥ 26	MTB2020F41 2.0 ISO	20	20.0	6	41.0	105
2.5	M20	Ø ≥ 22	MTB1615E33 2.5 ISO	16	15.0	5	33.8	105
2.5	M20	Ø ≥ 22	MTB1615E48 2.5 ISO	16	15.0	5	48.8	105
3.0	M24	Ø ≥ 25	MTB2018D40 3.0 ISO	20	18.0	4	40.5	105
3.0	M24	Ø ≥ 25	MTB2018D58 3.0 ISO	20	18.0	4	58.5	120
3.0	M27	Ø ≥ 27	MTB2020D43 3.0 ISO	20	20.0	4	43.5	105

Order example: MTB 08078C17 1.5 ISO MT7

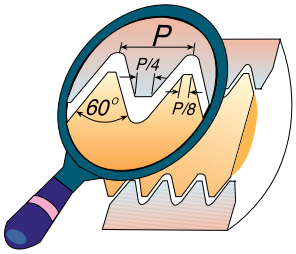
For thread mills with coolant through the flutes see next page

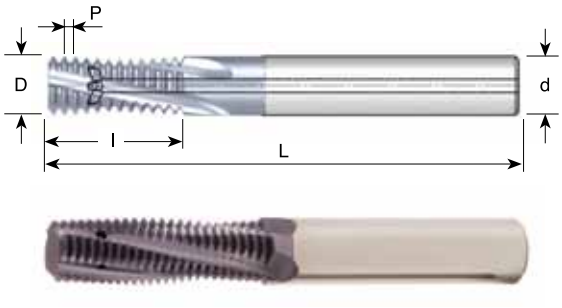
For small thread mills see pages 227-228, 235 & 245

Carmex Precision Tools Ltd.

ISO With internal coolant through the flutes

Tools for Internal Thread





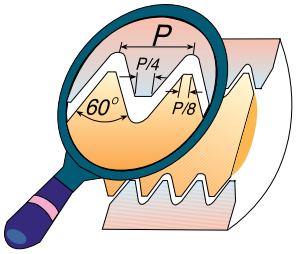
Pitch mm	M coarse	M fine	Ordering Code	d	D	No. of Flutes	l	L
1.0	M6	Ø ≥ 7	MTZ06048C10 1.0 ISO	6	4.8	3	10.5	58
1.0		Ø ≥ 9	MTZ0606C12 1.0 ISO	6	6.0	3	12.5	58
1.0		Ø ≥ 10	MTZ0808D16 1.0 ISO	8	8.0	4	16.5	64
1.25	M8	Ø ≥ 10	MTZ0606C14 1.25 ISO	6	6.0	3	14.4	58
1.25	M8	Ø ≥ 10	MTZ0606C19 1.25 ISO	6	6.0	3	19.4	58
1.5	M10	Ø ≥ 12	MTZ08078C17 1.5 ISO	8	7.8	3	17.0	64
1.5		Ø ≥ 14	MTZ1010D21 1.5 ISO	10	10.0	4	21.8	73
1.5		Ø ≥ 16	MTZ1212D26 1.5 ISO	12	12.0	4	26.3	84
1.5		Ø ≥ 20	MTZ1616E33 1.5 ISO	16	16.0	5	33.8	101
1.75	M12	Ø ≥ 12	MTZ1009C20 1.75 ISO	10	9.0	3	20.1	73
1.75	M12	Ø ≥ 12	MTZ1009C28 1.75 ISO	10	9.0	3	28.9	73
2.0	M14	Ø ≥ 15	MTZ1010C27 2.0 ISO	10	10.0	3	27.0	73
2.0	M16	Ø ≥ 17	MTZ12118D27 2.0 ISO	12	11.8	4	27.0	84
2.5	M20	Ø ≥ 22	MTZ1615E33 2.5 ISO	16	15.0	5	33.8	101

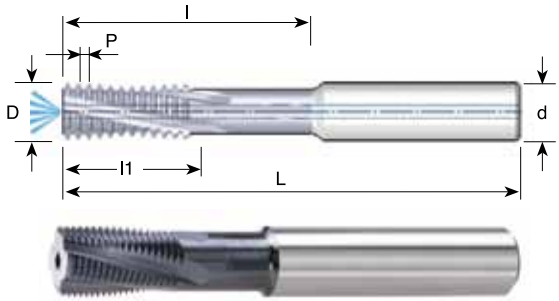
Order example: MTZ 08078C17 1.5 ISO MT7

For small thread mills see pages 227-228, 235 & 245

ISO With relieved neck and internal coolant bore

Tools for Internal Thread





Pitch TPI	M fine	Ordering Code	d	D	No. of Flutes	l1	l	L
1.0	Ø ≥ 12	**MTQ1010D32 1.0 ISO**	10	10.0	4	18.0	32.0	73
1.0	Ø ≥ 14	**MTQ1212D38 1.0 ISO**	12	12.0	4	21.0	38.0	84
1.0	Ø ≥ 18	**MTQ1616F45 1.0 ISO**	16	16.0	6	26.0	45.0	105
1.5	Ø ≥ 13	**MTQ1010D30 1.5 ISO**	10	10.0	4	18.0	30.0	73
1.5	Ø ≥ 15	**MTQ1212D34 1.5 ISO**	12	12.0	4	19.5	34.5	84
1.5	Ø ≥ 19	**MTQ1616F43 1.5 ISO**	16	16.0	6	25.5	43.5	105
1.5	Ø ≥ 23	**MTQ2020F60 1.5 ISO**	20	20.0	6	36.0	60.0	105
2.0	Ø ≥ 16	**MTQ1212D42 2.0 ISO**	12	12.0	4	24.0	42.0	84
2.0	Ø ≥ 20	**MTQ1616E45 2.0 ISO**	16	16.0	5	26.0	45.0	105
2.0	Ø ≥ 24	**MTQ2020F56 2.0 ISO**	20	20.0	6	34.0	56.0	105
3.0	Ø ≥ 22	**MTQ1616D45 3.0 ISO**	16	16.0	4	30.0	45.0	105
3.0	Ø ≥ 26	**MTQ2020E54 3.0 ISO**	20	20.0	5	33.0	54.0	105
3.5	Ø ≥ 26	**MTQ2020D45 3.5 ISO**	20	20.0	4	28.0	45.5	105
4.0	Ø ≥ 31	**MTQ2525D64 4.0 ISO**	25	25.0	4	40.0	64.0	160

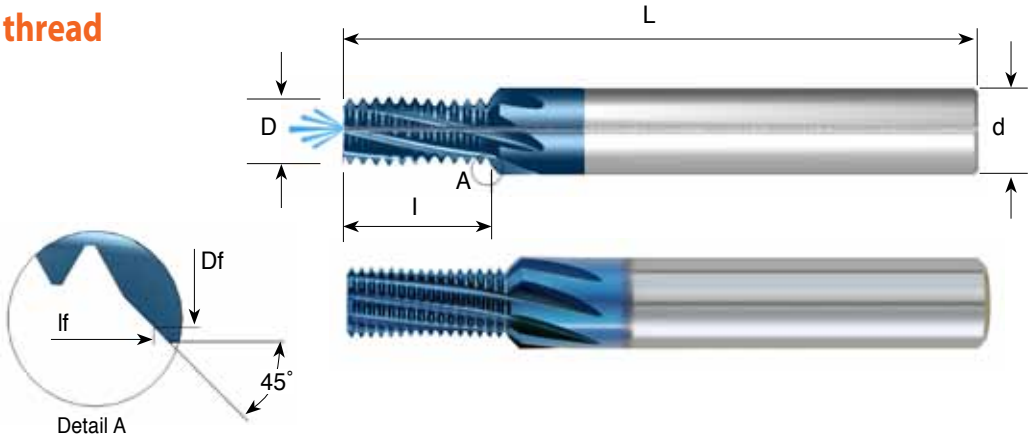
Order example: MTQ 1010D30 1.5 ISO MT7

For small thread mills see pages 227-228, 235 & 245

Carmex Precision Tools Ltd.

ISO Fast MT With internal coolant bore

Tools for Internal thread

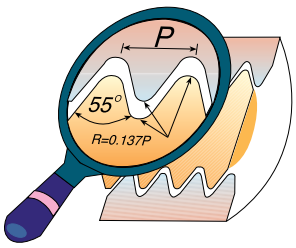


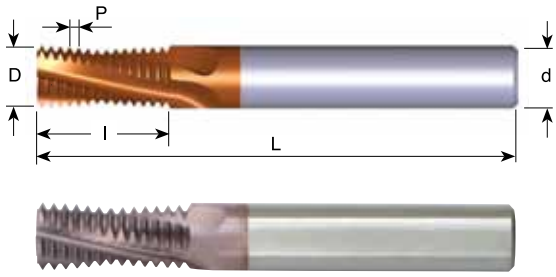
Pitch mm	M coarse	M fine	Ordering Code	d	D	Df	Flutes	l	lf	L
1.0	M6	Ø ≥ 7	**FMT 08048 F10 1.0 ISO**	8	4.8	6.8	6	10.5	11.5	64
1.25	M8	Ø ≥ 10	**FMT 10064 G14 1.25 ISO**	10	6.4	9.6	7	14.4	16.0	73
1.5	M10	Ø ≥ 12	**FMT 1008 G17 1.5 ISO**	10	8.0	9.8	7	17.3	18.2	73
1.75	M12	Ø ≥ 12	**FMT 12095 G20 1.75 ISO**	12	9.5	11.7	7	20.1	21.2	84

Order example: FMT 1008 G17 1.5 ISO MT8

G (55°) BSF, BSP

Same Tool for Internal and External Thread





Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
28	G1/16-G1/8	**MT0606C9 28 W**	6	6.0	3	9.5	58
19	G1/4-3/8	**MT0808C14 19 W**	8	8.0	3	14.0	64
14	G1/2-7/8	**MT1212D19 14 W**	12	12.0	4	19.0	84
14	G1/2-7/8	**MT1212D26 14 W**	12	12.0	4	26.3	84
11	G≥1	**MT1212C24 11 W**	12	12.0	3	24.2	84
11	G≥1	**MT1616D38 11 W**	16	16.0	4	38.1	105
11	G≥1	**MT2020E47 11 W**	20	20.0	5	47.3	105

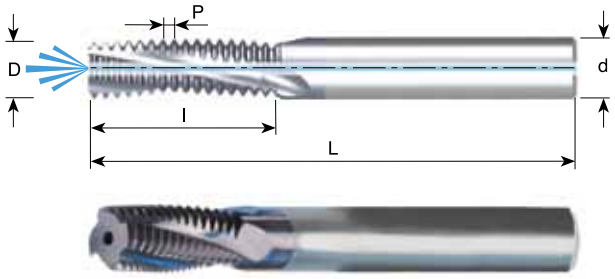
Order example: MT 1212D19 14 W MT7

For small thread mills see pages 231, 234 & 247

For thread mills with coolant see next page

G (55°) BSF, BSP With internal coolant bore

Same Tool for Internal and External Thread



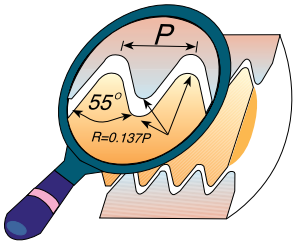
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
28	G1/8	MTB08078C14 28W	8	7.8	3	14.1	64
19	G1/4-3/8	MTB1010D16 19W	10	10.0	4	16.7	73
14	G1/2-7/8	MTB1616E26 14W	16	16.0	5	26.3	105
11	G≥1	MTB1616D38 11W	16	16.0	4	38.1	105
11	G≥1	MTB2020E47 11W	20	20.0	5	47.3	105

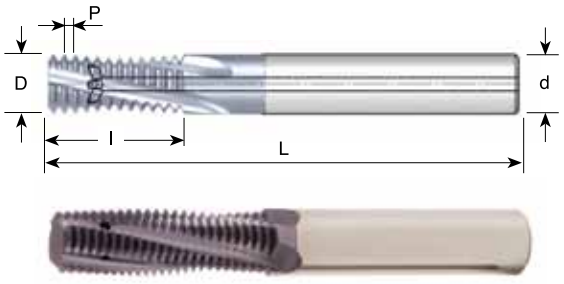
Order example: MTB 1010D16 19 W MT7

For small thread mills see pages 231, 234 & 247

G 55° BSF, BSP With internal coolant through the flutes

Same Tool for Internal and External Thread





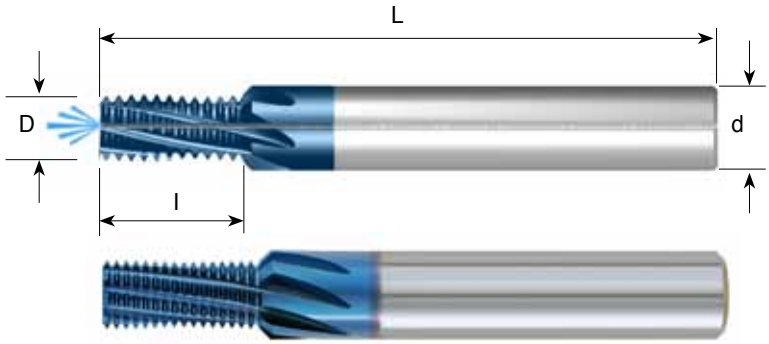
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
28	G1/8	MTZ08078C14 28W	8	7.8	3	14.1	64
19	G1/4-3/8	MTZ1010D16 19W	10	10.0	4	16.7	73
14	G1/2-7/8	MTZ1616E26 14W	16	16.0	5	26.3	101
11	G≥1	MTZ1616D38 11W	16	16.0	4	38.1	101

Order example: MTZ 08078C14 28 W MT7

For small thread mills see pages 231, 234 & 247

G 55° Fast MT With internal coolant bore

Same Tool for Internal and External Thread



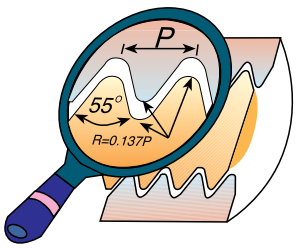
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
28	G1/8	FMT08078H14 28W	8	7.8	8	14.1	64
19	G1/4-3/8	FMT1010G16 19W	10	10.0	7	16.7	73
14	G1/2-7/8	FMT1616H26 14W	14	14.0	8	26.3	84
11	G≥1	FMT1616H38 11W	16	16.0	8	38.1	105

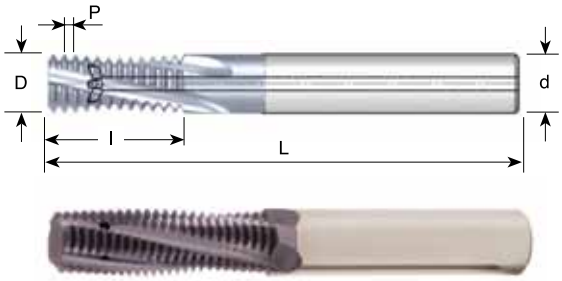
Order example: FMT 1616 H38 11W MT8

* Without cutting chamfer

Whitworth BSW With internal coolant through the flutes

Same Tool for Internal and External Thread





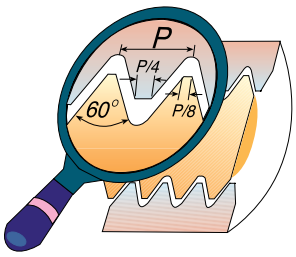
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
* 20	1/4	MTZ06046C12 20W	6	4.6	3	12.1	58
18	5/16	MTZ06053C14 18W	6	5.3	3	14.8	58
16	3/8	MTZ08064C16 16W	8	6.8	3	16.7	64
16	1/2	MTZ10092D24 16W	10	9.2	4	24.6	73
14	7/16	MTZ08078D20 14W	8	7.8	4	20.9	64
12	1/2	MTZ10086D24 12W	10	8.6	4	24.4	73
11	5/8	MTZ12109D28 11W	12	10.9	4	28.9	84

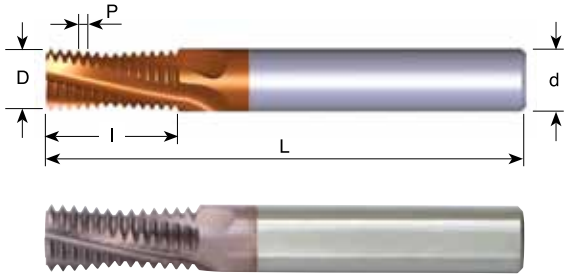
Order example: MTZ 08064C16 16 W MT7

* Cutter without coolant

UN

Tools for Internal Thread





Pitch TPI	UNC	UNF	UNEF	Ordering Code	d	D	No. of Flutes	l	L
40	5			MT06025C6 40UN	6	2.5	3	6.0	58
32	8	10	12	MT06032C6 32UN	6	3.2	3	6.8	58
28		1/4		MT0604C11 28UN	6	4.0	3	11.3	58
28			7/16-1/2	MT0606C14 28UN	6	6.0	3	14.1	58
24		5/16		MT0605C14 24UN	6	5.0	3	14.3	58
24		3/8	9/16-5/8	MT0807C21 24UN	8	7.0	3	20.6	64
20	1/4			MT06045C12 20UN	6	4.5	3	12.1	58
20		7/16-1/2		MT0807C21 20UN	8	7.0	3	21.0	64
20			3/4-1	MT1212E27 20UN	12	12.0	5	27.3	84
18	5/16			MT0605C14 18UN	6	5.0	3	14.8	58
18		9/16-5/8	$1^{1/8}$-$1^{5/8}$	MT1010D26 18UN	10	10.0	4	26.1	73
16	3/8			MT0606C16 16UN	6	6.0	3	16.7	58
16		3/4		MT1212D31 16UN	12	12.0	4	31.0	84
14	7/16			MT0807C20 14UN	8	7.0	3	20.9	64
14		7/8		MT1615E37 14UN	16	15.0	5	37.2	105
13	1/2			MT0808C22 13UN	8	8.0	3	22.5	64
12	9/16			MT1010C26 12UN	10	10.0	3	26.5	73
12		$1\text{-}1^{1/2}$		MT1616E41 12UN	16	16.0	5	41.3	105
11	5/8			MT1010C28 11UN	10	10.0	3	28.9	73
10	3/4			MT1212C34 10UN	12	12.0	3	34.3	84
9	7/8			MT1615C38 9UN	16	15.0	3	38.1	105
8	1			MT1616C42 8UN	16	16.0	3	42.9	105
7	$1^{1/8}$-$1^{1/4}$			MT2020D45 7UN	20	20.0	4	45.3	105

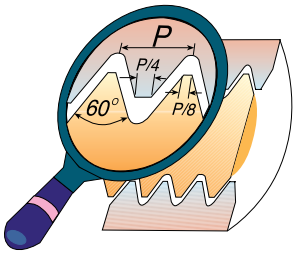
Order example: MT 1615 E37 14 UN MT7

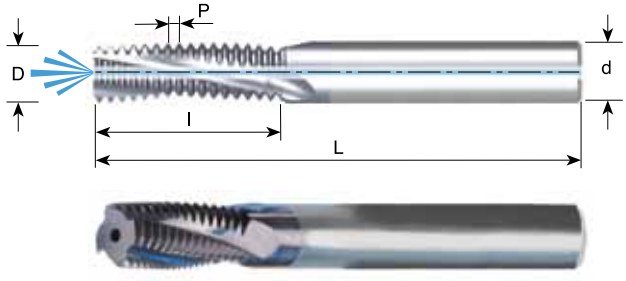
For thread mills with coolant bore see following pages

For small thread mills see pages 229-230, 235 & 246

UN With internal coolant bore

Tools for Internal Thread





Pitch TPI	UNC	UNF	UNEF	Ordering Code	d	D	No. of Flutes	l	L
32	8	10	12	**MTB06032C6 32 UN**	6	3.2	3	6.8	58
32			5/16	**MTB0606C14 32 UN**	6	6.0	3	14.7	58
32			3/8	**MTB0808D18 32 UN**	8	8.0	4	18.7	64
28		1/4		**MTB0605C11 28 UN**	6	5.0	3	11.3	58
28			7/16-1/2	**MTB0606C14 28 UN**	6	6.0	3	14.1	58
24		5/16		**MTB08066C14 24 UN**	8	6.6	3	14.3	64
24		3/8	9/16-5/8	**MTB0808D21 24 UN**	8	8.0	4	20.6	64
20	1/4			**MTB06047C12 20 UN**	6	4.7	3	12.1	58
20		7/16		**MTB0808C21 20 UN**	8	8.0	3	21.0	64
20		1/2		**MTB1010D22 20 UN**	10	10.0	4	22.3	73
20			3/4-1	**MTB1212E27 20 UN**	12	12.0	5	27.3	84
18	5/16			**MTB06056C14 18 UN**	6	5.6	3	14.8	58
18		9/16-5/8	$1^{1/8}$-$1^{5/8}$	**MTB12113D26 18 UN**	12	11.3	4	26.1	84
16	3/8			**MTB08067C16 16 UN**	8	6.7	3	16.7	64
16		3/4		**MTB1212D31 16 UN**	12	12.0	4	31.0	84
14	7/16			**MTB08077C20 14 UN**	8	7.7	3	20.9	64
14		7/8		**MTB1616E37 14 UN**	16	16.0	5	37.2	105
13	1/2			**MTB10092C22 13 UN**	10	9.2	3	22.5	73
12	9/16			**MTB12105C26 12 UN**	12	10.5	3	26.5	84
12		$1\text{-}1^{1/2}$		**MTB1616E41 12 UN**	16	16.0	5	41.3	105
11	5/8			**MTB12114C28 11 UN**	12	11.4	3	28.9	84
10	3/4			**MTB16144D34 10 UN**	16	14.4	4	34.3	105
9	7/8			**MTB1616C38 9 UN**	16	16.0	3	38.1	105
8	1			**MTB20195D42 8 UN**	20	19.5	4	42.9	105
7	$1^{1/8}$-$1^{1/4}$			**MTB2020D45 7 UN**	20	20.0	4	45.3	105

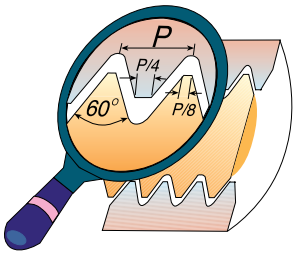
Order example: MTB 1212D31 16 UN MT7

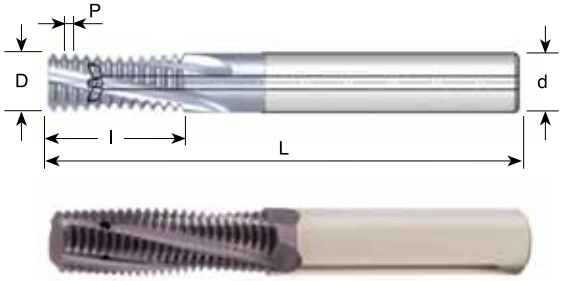
For thread mills with coolant through the flutes see next page

For small thread mills see pages 229-230, 235 & 246

UN With internal coolant through the flutes

Tools for Internal Thread





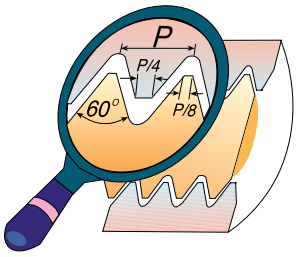
Pitch TPI	UNC	UNF	UNEF	Ordering Code	d	D	No. of Flutes	l	L
28		1/4		**MTZ0605C11 28 UN**	6	5.0	3	11.3	58
28			7/16-1/2	**MTZ0606C14 28 UN**	6	6.0	3	14.1	58
24		5/16		**MTZ08066C14 24 UN**	8	6.6	3	14.3	64
24		3/8	9/16-5/8	**MTZ0808D21 24 UN**	8	8.0	4	20.6	64
20		7/16		**MTZ0808C21 20 UN**	8	8.0	3	21.0	64
20		1/2		**MTZ1010D22 20 UN**	10	10.0	4	22.3	73
20			3/4-1	**MTZ1212E27 20 UN**	12	12.0	5	27.3	84
18	5/16			**MTZ06056C14 18 UN**	6	5.6	3	14.8	58
18		9/16-5/8	$1^{1/8}$-$1^{5/8}$	**MTZ12113D26 18 UN**	12	11.3	4	26.1	84
16	3/8			**MTZ08067C16 16 UN**	8	6.7	3	16.7	64
16		3/4		**MTZ1212D31 16 UN**	12	12.0	4	31.0	84
14	7/16			**MTZ08077C20 14 UN**	8	7.7	3	20.9	64
14		7/8		**MTZ1616E37 14 UN**	16	16.0	5	37.2	101
13	1/2			**MTZ10092C22 13 UN**	10	9.2	3	22.5	73
12	9/16			**MTZ12105C26 12 UN**	12	10.5	3	26.5	84
11	5/8			**MTZ12114C28 11 UN**	12	11.4	3	28.9	84
10	3/4			**MTZ16144D34 10 UN**	16	14.4	4	34.3	101

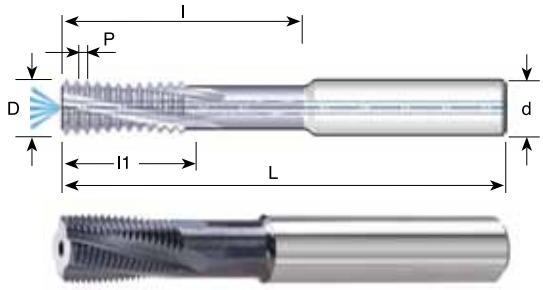
Order example: MTZ 0808D21 24 UN MT7

For small thread mills see pages 229-230, 235 & 246

UN With relieved neck and internal coolant bore

Tools for Internal Thread





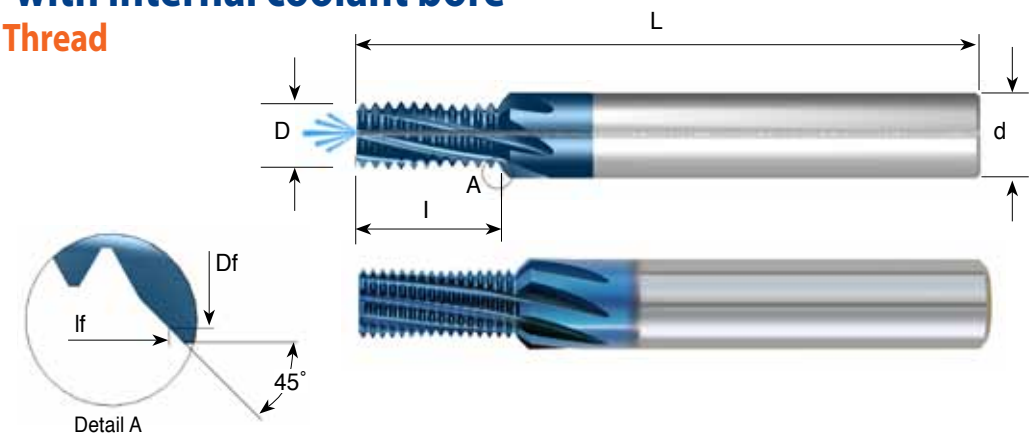
Pitch TPI	Thread size	Ordering Code	d	D	No. of Flutes	l1	l	L
20	Ø ≥ 12	**MTQ1010D30 20 UN**	10	10.0	4	17.8	30.5	73
20	Ø ≥ 14	**MTQ1212E35 20 UN**	12	12.0	5	20.3	35.6	84
20	Ø ≥ 18	**MTQ1616F43 20 UN**	16	16.0	6	25.4	43.2	105
18	Ø ≥ 15	**MTQ1212D35 18 UN**	12	12.0	4	19.7	35.3	84
16	Ø ≥ 15	**MTQ1212D35 16 UN**	12	12.0	4	20.7	35.0	84
16	Ø ≥ 19	**MTQ1616E42 16 UN**	16	16.0	5	25.4	42.9	105
16	Ø ≥ 23	**MTQ2020F58 16 UN**	20	20.0	6	36.5	58.8	105
14	Ø ≥ 20	**MTQ1616E45 14 UN**	16	16.0	5	25.4	45.3	105
12	Ø ≥ 16	**MTQ1212D42 12 UN**	12	12.0	4	25.4	42.3	84
12	Ø ≥ 24	**MTQ2020E55 12 UN**	20	20.0	5	33.9	55.1	105

Order example: MTQ 1212D35 16 UN MT7

For small thread mills see pages 229-230, 235 & 246

UN Fast MT with internal coolant bore

Tools for Internal Thread

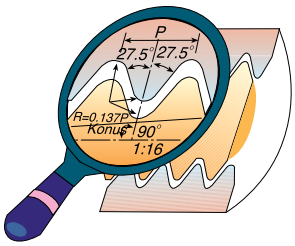


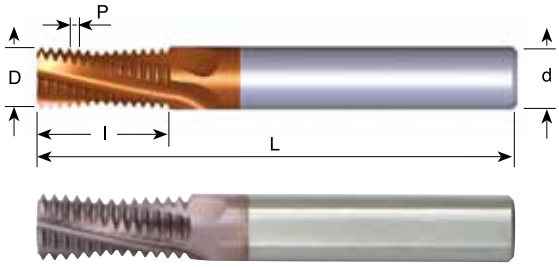
Pitch TPI	UNC	UNF	UNEF	Ordering Code	d	D	Df	Flutes	l	lf	L
24		5/16, 3/8	9/16, 5/8, 11/16	**FMT 10066 G14 24 UN**	10	6.6	9.6	7	14.3	15.8	73
20	1/4			*** FMT 08048 E12 20 UN**	8	4.8	6.8	5	12.1	13.1	64
20		7/16, 1/2	3/4, 1	**FMT 12092 H21 20 UN**	12	9.2	11.4	8	21.0	22.1	84
18	5/16	9/16, 5/8	11/16	**FMT 1006 F14 18 UN**	10	6.0	8.4	6	14.8	16.0	73
16	3/8	3/4		**FMT 10074 F16 16 UN**	10	7.4	9.6	6	16.7	17.8	73
14	7/16	7/8		**FMT 12085 F20 14 UN**	12	8.5	10.7	6	20.9	22.0	84

Order example: FMT 08048 E12 20 UN MT8
* without internal coolant

BSPT

Same Tool for Internal and External Thread





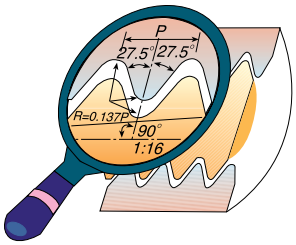
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
28	RC1/16-1/8	**MT0606C9 28 BSPT**	6	6.0	3	9.5	58
19	RC1/4-3/8	**MT0808C14 19 BSPT**	8	8.0	3	14.0	64
14	RC1/2-7/8	**MT1212D19 14 BSPT**	12	12.0	4	19.1	84
11	RC1-2	**MT1616D28 11 BSPT**	16	16.0	4	28.9	105

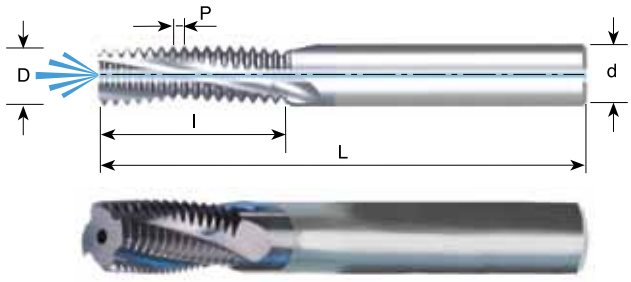
Order example: MT 1616D28 11 BSPT MT7
For thread mills with coolant through the flutes see next page

For conical preparation end mills see page 221

BSPT With internal coolant bore

Same Tool for Internal and External Thread



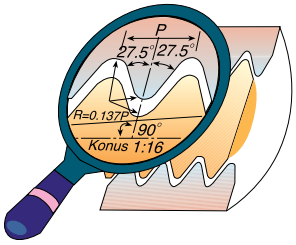


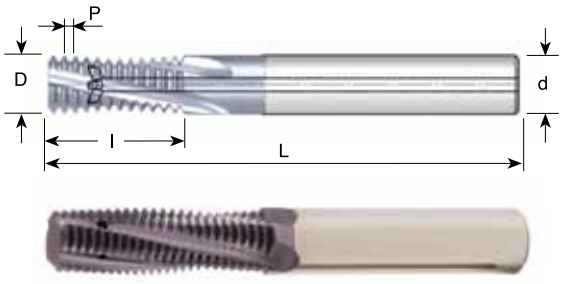
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
28	RC1/8	**MTB08078C14 28 BSPT**	8	7.8	3	14.1	64
19	RC1/4-3/8	**MTB1010D16 19 BSPT**	10	10.0	4	16.7	73
14	RC1/2-7/8	**MTB1616E26 14 BSPT**	16	16.0	5	26.3	105
11	RC1-2	**MTB1616D28 11 BSPT**	16	16.0	4	28.9	105

Order example: MTB 08078C14 28 BSPT MT7

BSPT With internal coolant through the flutes

Same Tool for Internal and External Thread





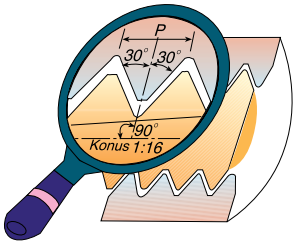
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
28	RC1/8	**MTZ08078C14 28 BSPT**	8	7.8	3	14.1	64
19	RC1/4-3/8	**MTZ1010D16 19 BSPT**	10	10.0	4	16.7	73
14	RC1/2-7/8	**MTZ1616E26 14 BSPT**	16	16.0	5	26.3	101
11	RC1-2	**MTZ1616D28 11 BSPT**	16	16.0	4	28.9	101

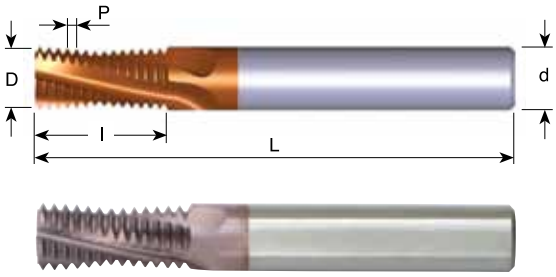
Order example: MTZ 1010D16 19 BSPT MT7

For conical preparation end mills see page 221

NPT

Same Tool for Internal and External Thread



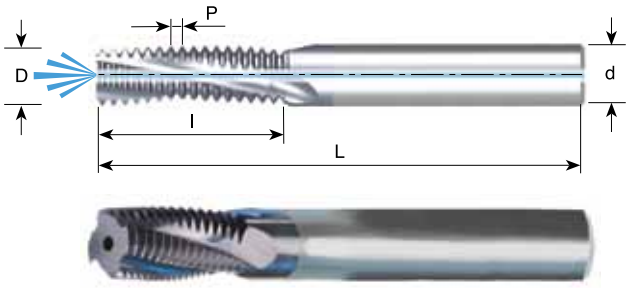


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
27	1/16-1/8	**MT0606C9 27 NPT**	6	6.0	3	9.9	58
18	1/4-3/8	**MT0808C14 18 NPT**	8	8.0	3	14.8	64
14	1/2-3/4	**MT1212D20 14 NPT**	12	12.0	4	20.9	84
11.5	1-2	**MT1616D27 11.5 NPT**	16	16.0	4	27.6	105
8	≥2 1/2	**MT2020D39 8 NPT**	20	20.0	4	39.7	105

Order example: MT 0808C14 18 NPT MT7

NPT With internal coolant

Same Tool for Internal and External Thread



Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
27	1/8	**MTB08076C10 27 NPT**	8	7.6	3	10.8	64
18	1/4-3/8	**MTB1010D16 18 NPT**	10	10.0	4	16.2	73
14	1/2-3/4	**MTB16155D22 14 NPT**	16	15.5	4	22.7	105
11.5	1-2	**MTB2020D29 11.5 NPT**	20	20.0	4	29.8	105
8	≥2 1/2	**MTB2020D39 8 NPT**	20	20.0	4	39.7	105

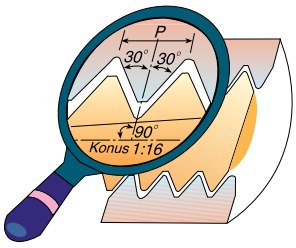
Order example: MTB 1010D16 18 NPT MT7

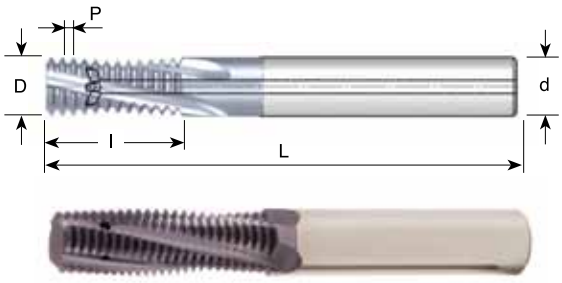
For thread mills with coolant through the flutes see next page

For conical preparation end mills see page 221

NPT With internal coolant through the flutes

Same Tool for Internal and External Thread



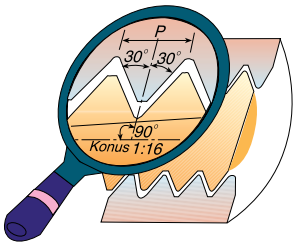


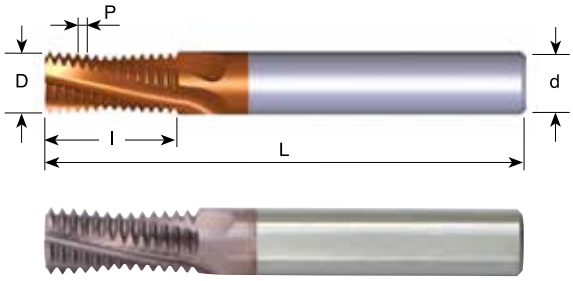
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
27	1/8	MTZ08076C10 27NPT	8	7.6	3	10.8	64
18	1/4-3/8	MTZ1010D16 18NPT	10	10.0	4	16.2	73
14	1/2-3/4	MTZ16155D22 14NPT	16	15.5	4	22.7	101

Order example: MTZ 08076C10 27 NPT MT7

NPTF

Same Tool for Internal and External Thread





Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
27	1/16-1/8	MT0606C9 27 NPTF	6	6.0	3	9.9	58
18	1/4-3/8	MT0808C14 18 NPTF	8	8.0	3	14.8	64
14	1/2-3/4	MT1212D20 14 NPTF	12	12.0	4	20.9	84
11.5	1-2	MT1616D27 11.5 NPTF	16	16.0	4	27.6	105
8	≥2 1/2	MT2020D39 8 NPTF	20	20.0	4	39.7	105

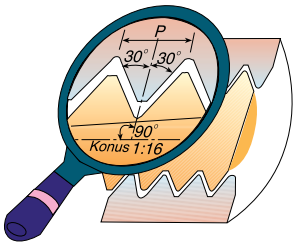
Order example: MT 1212D20 14 NPTF MT7

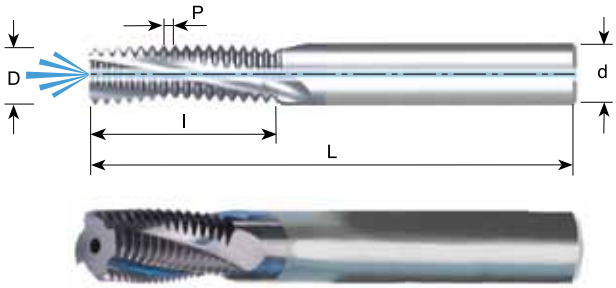
For thread mills with coolant bore see next page

For conical preparation end mills see page 221

NPTF With internal coolant bore

Same Tool for Internal and External Thread



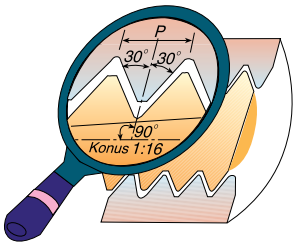


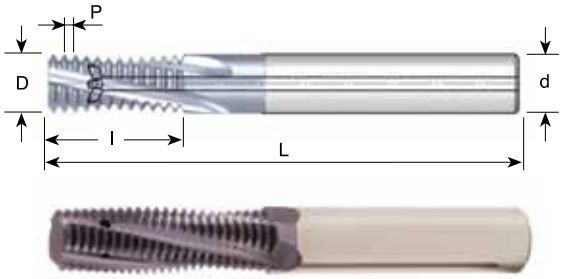
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
27	1/8	MTB08076C10 27 NPTF	8	7.6	3	10.8	64
18	1/4-3/8	MTB1010D16 18 NPTF	10	10.0	4	16.2	73
14	1/2-3/4	MTB16155D22 14 NPTF	16	15.5	4	22.7	105
11.5	1-2	MTB2022D29 11.5 NPTF	20	20.0	4	29.8	105
8	≥ 2 1/2	MTB2020D39 8 NPTF	20	20.0	4	39.7	105

Order example: MTB 16155D22 14 NPTF MT7

NPTF With internal coolant through the flutes

Same Tool for Internal and External Thread





Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
27	1/8	MTZ08076C10 27 NPTF	8	7.6	3	10.8	64
18	1/4-3/8	MTZ1010D16 18 NPTF	10	10.0	4	16.2	73
14	1/2-3/4	MTZ16155D22 14 NPTF	16	15.5	4	22.7	101

Order example: MTZ 1010D16 18 NPTF MT7

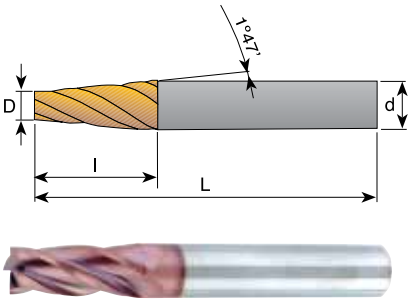
For conical preparation end mills see page 221

Solid Carbide Tapered End Mills

Solid carbide tapered end mills are used for milling preparation of conical threads before the thread milling operation.

Advantages:

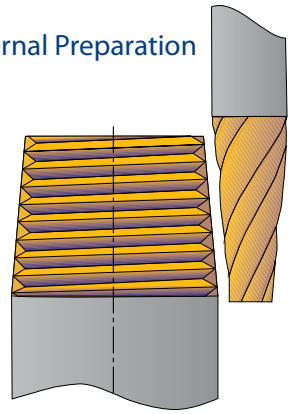
* Increases the tool life of mill thread cutters and indexable inserts.
* Equal and uniform load along the cutting edge of the mill thread cutter.
* Shorter machining time during the mill thread operation, due to the tapered preparation.
* Same tool for internal and external preparation.



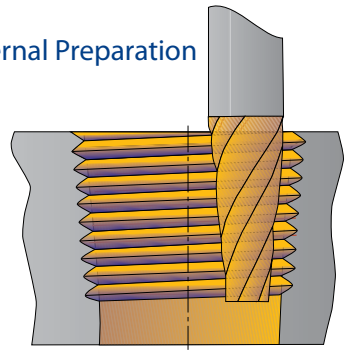
Ordering Code	d	D	l	L	No. of Flutes	Size
SC0652D12	6	5.2	12	58	4	NPT 1/16" - 1/8" NPTF 1/16" - 1/8" BSPT 1/16" - 1/8"
SC1085D24	10	8.5	24	73	4	NPT 1/8" - 1" NPTF 1/8" - 1" BSPT 1/8" - 1"
SC1210D32	12	10	32	84	4	NPT 1/4" - 3" NPTF 1/4" - 3" BSPT 1/4" - 3"

Order example: SC 1085D24 MT7
Carbide grade: MT7

External Preparation

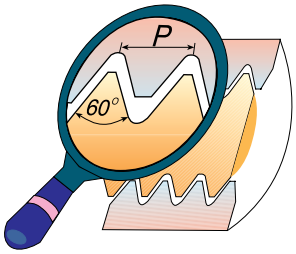


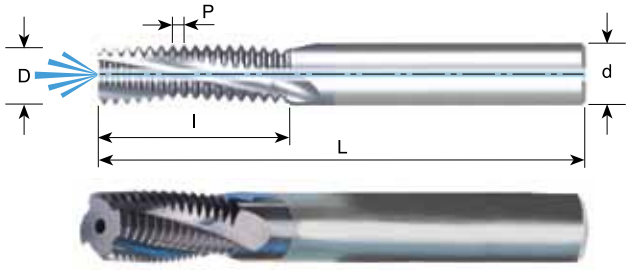
Internal Preparation



NPS With internal coolant bore

Same Tool for Internal and External Thread - Inch Shank



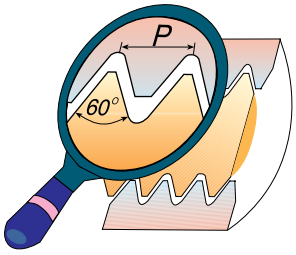


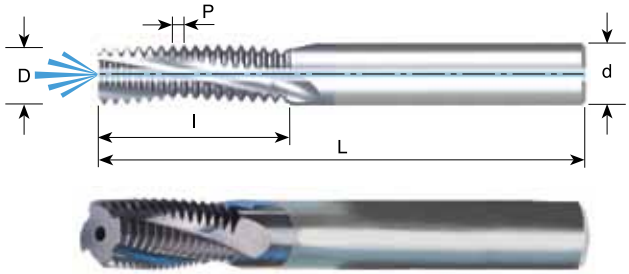
Pitch TPI	Standard	Ordering Code	d inch	D	No. of Flutes	l	L
27	1/8	**MTB0312C04 27 NPS**	5/16	7.6	3	10.8	63
18	1/4-3/8	**MTB0375D06 18 NPS**	3/8	9.5	4	16.2	76
14	1/2-3/4	**MTB0625D08 14 NPS**	5/8	15.5	4	22.7	101
11.5	1-2	**MTB0750D11 11.5 NPS**	3/4	19.0	4	29.8	101

Order example: MTB 0375D06 18 NPS MT7

NPSF With internal coolant bore

Same Tool for Internal and External Thread - Inch Shank



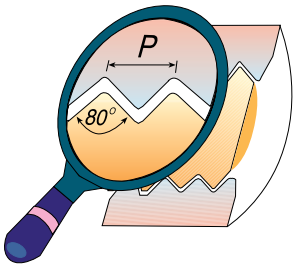


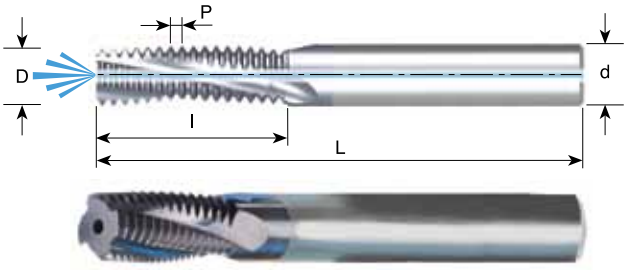
Pitch TPI	Standard	Ordering Code	d inch	D	No. of Flutes	l	L
27	1/8	**MTB0312C04 27 NPSF**	5/16	7.6	3	10.8	63
18	1/4-3/8	**MTB0375D06 18 NPSF**	3/8	9.5	4	16.2	76
14	1/2-3/4	**MTB0625D08 14 NPSF**	5/8	15.5	4	22.7	101
11.5	1-2	**MTB0750D11 11.5 NPSF**	3/4	19.0	4	29.8	101

Order example: MTB 0312C04 27 NPSF MT7

PG DIN 40430 - With internal coolant bore

Same Tool for Internal and External Thread





Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
20	Pg 7	**MTB1010D19 20 PG**	10	10.0	4	19.7	73
18	Pg 9, 11, 13.5, 16	**MTB1212D20 18 PG**	12	12.0	4	20.5	84
16	Pg 21, 29, 36, 42, 48	**MTB1212D23 16 PG**	12	12.0	4	23.0	84

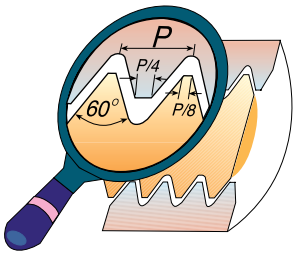
Order example: MTB 1212 D20 18 PG MT7

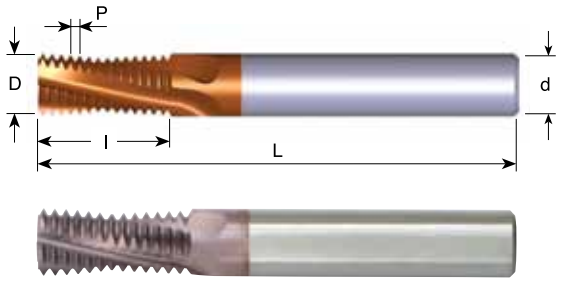
Mill - Thread Solid Carbide for External Threads

Advantages:

* Excellent surface finish thanks to the spiral flutes
* Short machining time due to multi 3 to 5 flutes

ISO

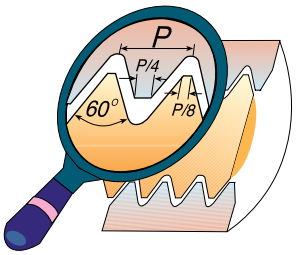


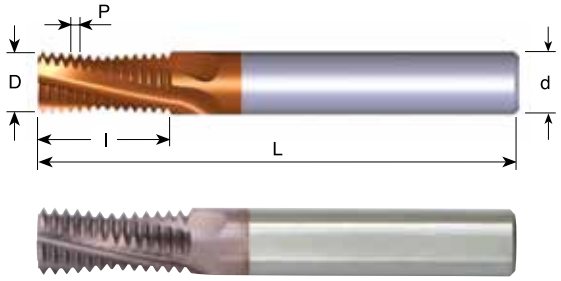


Pitch mm	Ordering Code	d	D	No. of Flutes	l	L
1.0	**EMT1010D16 1.0 ISO**	10	10.0	4	16.5	73
1.0	**EMT1212E20 1.0 ISO**	12	12.0	5	20.5	84
1.25	**EMT1010D16 1.25 ISO**	10	10.0	4	16.9	73
1.5	**EMT1010D15 1.5 ISO**	10	10.0	4	15.8	73
1.5	**EMT1212D20 1.5 ISO**	12	12.0	4	20.3	84
1.75	**EMT1212D20 1.75 ISO**	12	12.0	4	20.1	84
2.0	**EMT1010C17 2.0 ISO**	10	10.0	3	17.0	73
2.0	**EMT1212D21 2.0 ISO**	12	12.0	4	21.0	84

Order example: EMT 1010D15 1.5 ISO MT7

UN





Pitch TPI	Ordering Code	d	D	No. of Flutes	l	L
24	**EMT1010D16 24 UN**	10	10.0	4	16.4	73
20	**EMT1212E21 20 UN**	12	12.0	5	21.0	84
18	**EMT1212D20 18 UN**	12	12.0	4	20.5	84
16	**EMT1212D21 16 UN**	12	12.0	4	21.4	84
14	**EMT1212D20 14 UN**	12	12.0	4	20.9	84
12	**EMT1212D20 12 UN**	12	12.0	4	20.1	84

Order example: EMT 1212D20 18 UN MT7

Mini Mill-Thread

MTS

- Threading from ISO M1 x 0.25 and 0-80UN.
- Working in high cutting speed.
- Short machining time.
- Low cutting forces thanks to the short profile.
- No broken taps.
- Machining of hardened materials up to 45 HRc.

Carbide grade: MT7
Sub-Micron grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). To be run at medium to high cutting speeds. General purpose for all materials.

Advantages

- Enables machining in deep holes.
- Same tool can produce a wide range of threads and pitches.
- Same tool can produce both External and Internal threads.
- Coolant through the flutes is very effective for deep holes.
- Spiral flutes allow smooth cutting action.
- Shorter machining time due to multi (3 to 5) flutes.
- Longer tool life due to special triple coating.

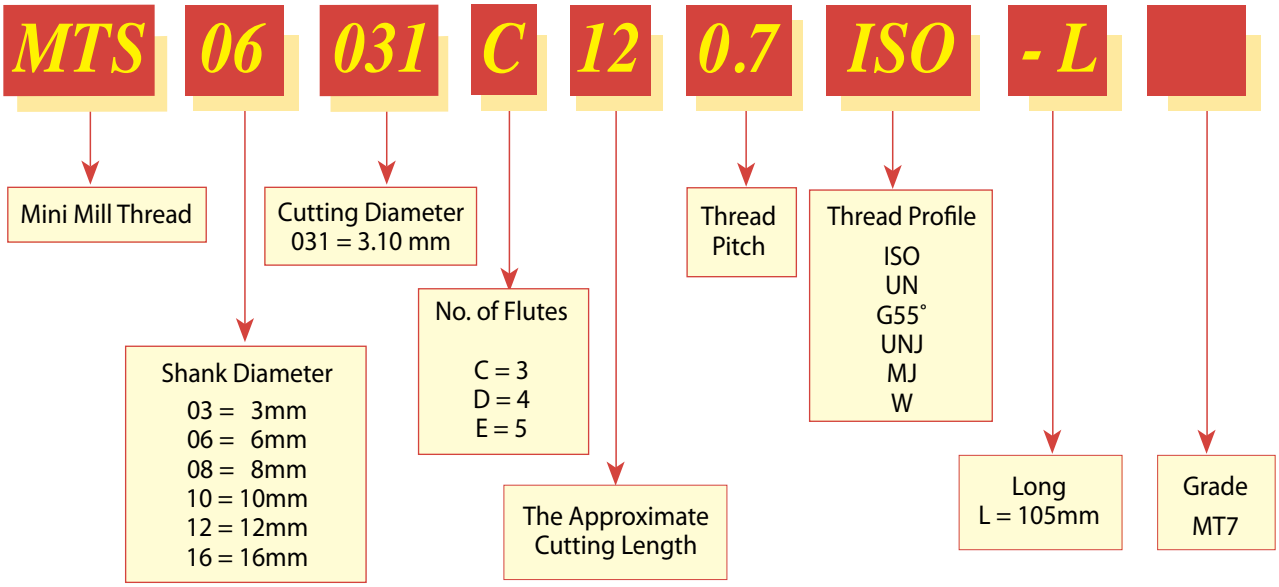
MTI - For threading deep parts

Carbide grade: MT8 Sub-micron grade with advanced PVD triple coating (ISO K10-K20). Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions. General purpose for all materials.

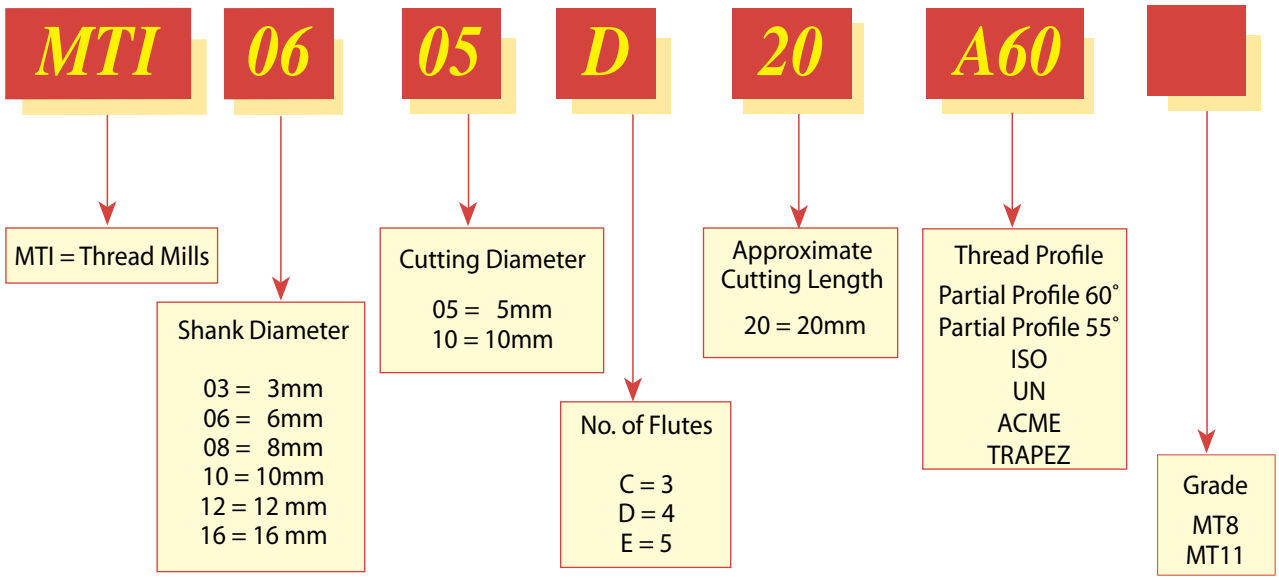
MT11 Ultra-fine Sub-micron grade with advanced PVD triple blue coating.

Product Identification

Mini Mill-Thread MTS Ordering Codes



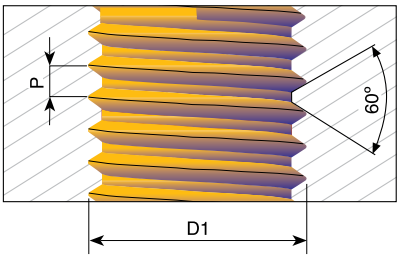
Mini Mill-Thread MTI Ordering Codes



Carmex Precision Tools Ltd.

ISO

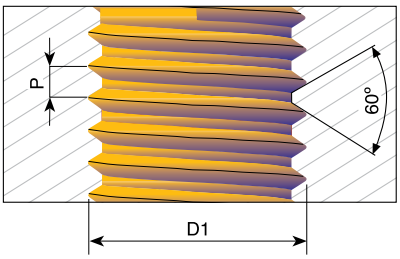
Tools for Internal Thread



Pitch mm	D1	Ordering Code	d	D	No. of Flutes	l	L	Thread depth
0.25	M1	MTS03007C2 0.25 ISO	3	0.72	3	2.5	39	2.5xD1
0.25	M1.2	MTS03009C3 0.25 ISO	3	0.90	3	3.0	39	2xD1
0.3	M1.4	MTS03011C4 0.3 ISO	3	1.05	3	4.0	39	3xD1
0.35	M1.6	MTS03012C5 0.35 ISO	3	1.20	3	4.8	39	3xD1
	M1.6	MTS06012C5 0.35 ISO-L	6	1.20	3	4.8	105	3xD1
0.35	M5	MTS06045D14 0.35 ISO	6	4.50	4	14.5	58	3xD1
0.4	M2	MTS06016C4 0.4 ISO	6	1.53	3	4.5	58	2xD1
	M2	MTS06016C4 0.4 ISO-L	6	1.53	3	4.5	105	2xD1
	M2	MTS03016C6 0.4 ISO	3	1.53	3	6.0	39	3xD1
	M2	MTS03016C10 0.4 ISO	3	1.53	3	10.4	39	5xD1
0.45	M2.2	MTS06017C5 0.45 ISO	6	1.65	3	5.0	58	2xD1
	M2.2	MTS03017C7 0.45 ISO	3	1.65	3	7.0	39	3xD1
0.45	M2.5	MTS0602C5 0.45 ISO	6	1.95	3	5.5	58	2xD1
	M2.5	MTS0602C5 0.45 ISO-L	6	1.95	3	5.5	105	2xD1
	M2.5	MTS0602C7 0.45 ISO	6	1.95	3	7.5	58	3xD1
	M2.5	MTS0602C8 0.45 ISO-L	6	1.95	3	8.0	105	3xD1
	M2.5	MTS0302C10 0.45 ISO	3	1.95	3	10.5	39	4xD1
0.5	M3	MTS06024C6 0.5 ISO	6	2.37	3	6.5	58	2xD1
	M3	MTS06024C6 0.5 ISO-L	6	2.37	3	6.5	105	2xD1
	M3	MTS06024C9 0.5 ISO	6	2.37	3	9.5	58	3xD1
	M3	MTS06024C9 0.5 ISO-L	6	2.37	3	9.5	105	3xD1
	M3	MTS03024C12 0.5 ISO	3	2.40	3	12.5	39	4xD1
	M3	MTS03024C15 0.5 ISO	3	2.40	3	15.5	39	5xD1
0.5	M6, M7	MTS06054D20 0.5 ISO	6	5.35	4	20.0	58	3xD1
0.6	M3.5	MTS06028C7 0.6 ISO	6	2.75	3	7.5	58	2xD1
	M3.5	MTS06028C10 0.6 ISO	6	2.75	3	10.5	58	3xD1
0.7	M4	MTS06031C9 0.7 ISO	6	3.10	3	9.0	58	2xD1
	M4	MTS06031C12 0.7 ISO	6	3.10	3	12.5	58	3xD1
	M4	MTS06031C12 0.7 ISO-L	6	3.10	3	12.5	105	3xD1
	M4	MTS06031C16 0.7 ISO	6	3.10	3	16.7	58	4xD1
0.75	M10	MTS0808D25 0.75 ISO	8	8.00	4	25.0	64	2.5xD1
0.8	M5	MTS06038C12 0.8 ISO	6	3.80	3	12.5	58	2xD1
	M5	MTS06038C16 0.8 ISO	6	3.80	3	16.0	58	3xD1
	M5	MTS06038C16 0.8 ISO-L	6	3.80	3	16.0	105	3xD1
	M5	MTS0604C20 0.8 ISO	6	4.00	3	20.8	58	4xD1

ISO

Tools for Internal Thread



Pitch mm	D1	Ordering Code	d	D	No. of Flutes	l	L	Thread depth
1.0	M6	MTS06047C14 1.0 ISO	6	4.65	3	14.0	58	2xD1
	M6	MTS06047C20 1.0 ISO	6	4.65	3	20.0	58	3xD1
	M6	MTS06047C20 1.0 ISO-L	6	4.65	3	20.0	105	3xD1
	M6	MTS06048C25 1.0 ISO	6	4.80	3	25.0	58	4xD1
1.0	M10	MTS0808D31 1.0 ISO	8	8.00	4	31.0	64	3xD1
1.25	M8	MTS0606C18 1.25 ISO	6	6.0	3	18.0	58	2xD1
	M8	MTS0606C24 1.25 ISO	6	6.0	3	24.0	58	3xD1
	M8	MTS0606C24 1.25 ISO-L	6	6.0	3	24.0	105	3xD1
1.5	M10	MTS08078C23 1.5 ISO	8	7.80	3	23.0	64	2xD1
	M10	MTS08078C31 1.5 ISO	8	7.80	3	31.5	64	3xD1
	M10	MTS08078C31 1.5 ISO-L	8	7.80	3	31.5	105	3xD1
1.75	M12	MTS1009C26 1.75 ISO	10	9.00	3	26.0	73	2xD1
	M12	MTS1009C37 1.75 ISO	10	9.00	3	37.8	73	3xD1
2.0	M16	MTS12118D35 2.0 ISO	12	11.80	4	35.0	84	2xD1
	M16	MTS12118D50 2.0 ISO	12	11.80	4	50.0	105	3xD1
2.5	M20	MTS1615E43 2.5 ISO	16	15.00	5	43.0	105	2xD1

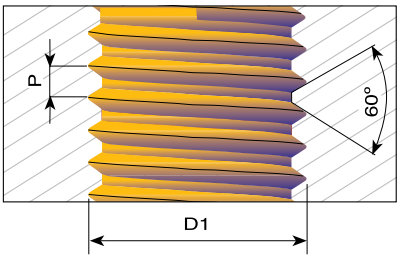
- Machining Titanium, surgical stainless steels and hardened materials up to 45 HRc.
- Suitable for high speed air turbine machines (30,000-40,000 RPM) and for standard machining centers (6,000 RPM and higher).
- Can also be used for general purpose threading.

Order example: MTS 03024C12 0.5 ISO MT7

Carmex Precision Tools Ltd.

UN

Tools for Internal Thread

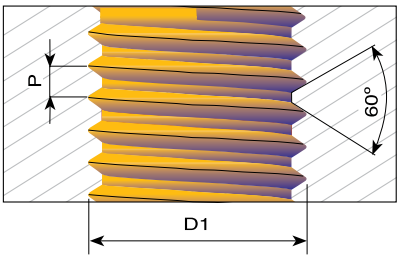


Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	L	Thread depth
80		0	MTS06012C4 80 UN	6	1.15	3	4.0	58	3xD1
		0	MTS03012C8 80 UN	3	1.15	3	8.0	39	5xD1
72		1	MTS06014C3 72 UN	6	1.45	3	3.7	58	2xD1
		1	MTS03015C6 72 UN	3	1.45	3	6.0	39	3xD1
64	1	2	MTS06014C3 64 UN	6	1.40	3	3.8	58	2xD1
56	2	3	MTS03016C4 56 UN	3	1.65	3	4.4	39	2xD1
	2	3	MTS06016C4 56 UN	6	1.65	3	4.4	58	2xD1
	2	3	MTS03016C6 56 UN	3	1.65	3	6.6	39	3xD1
	2	3	MTS06016C6 56 UN	6	1.65	3	6.6	58	3xD1
	2	3	MTS06016C6 56 UN-L	6	1.65	3	6.6	105	3xD1
	2	3	MTS03016C9 56 UN	3	1.65	3	9.2	39	4xD1
	2	3	MTS03016C11 56 UN	3	1.65	3	11.4	39	5xD1
48	3	4	MTS06019C5 48 UN	6	1.90	3	5.2	58	2xD1
40	4		MTS06021C6 40 UN	6	2.10	3	6.3	58	2xD1
	4		MTS06021C6 40 UN-L	6	2.10	3	6.3	105	2xD1
	4		MTS03021C8 40 UN	3	2.10	3	8.0	39	3xD1
	4		MTS06021C8 40 UN	6	2.10	3	8.0	58	3xD1
	4		MTS06021C8 40 UN-L	6	2.10	3	8.0	105	3xD1
	4		MTS03021C12 40 UN	3	2.10	3	12.0	39	4xD1
40	5	6	MTS06024C7 40 UN	6	2.45	3	7.0	58	2xD1
	5	6	MTS06024C9 40 UN	6	2.45	3	9.6	58	3xD1
36		8	MTS06033C9 36 UN	6	3.30	3	9.0	58	2xD1
32	6		MTS06025C7 32 UN	6	2.55	3	7.1	58	2xD1
	6		MTS06025C7 32 UN-L	6	2.55	3	7.1	105	2xD1
	6		MTS03025C10 32 UN	3	2.55	3	10.5	39	3xD1
	6		MTS06025C10 32 UN	6	2.55	3	10.5	58	3xD1
	6		MTS06025C10 32 UN-L	6	2.55	3	10.5	105	3xD1
	6		MTS03025C14 32 UN	3	2.55	3	14.8	39	4xD1
32	8		MTS06032C9 32 UN	6	3.20	3	9.5	58	2xD1
	8		MTS06032C9 32 UN-L	6	3.20	3	9.5	105	2xD1
	8		MTS06032C12 32 UN	6	3.20	3	12.5	58	3xD1
	8		MTS06032C12 32 UN-L	6	3.20	3	12.5	105	3xD1
	8		MTS06032C17 32 UN	6	3.20	3	17.5	58	4xD1
32		10	MTS06037C10 32 UN	6	3.70	3	10.5	58	2xD1
		10	MTS06037C15 32 UN	6	3.70	3	15.0	58	3xD1
		10	MTS06037C15 32 UN-L	6	3.70	3	15.0	105	3xD1
		10	MTS06037C20 32 UN	6	3.70	3	20.0	58	4xD1

Order example: MTS 06021C6 40 UN MT7

UN

Tools for Internal Thread



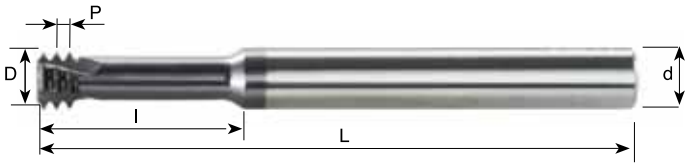
Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	L	Thread depth
28		12	**MTS06042C11 28 UN**	6	4.20	3	11.0	58	2xD1
28		1/4	**MTS0605C14 28 UN**	6	5.00	3	14.5	58	2xD1
		1/4	**MTS0605C19 28 UN**	6	5.00	3	19.0	58	3xD1
		1/4	**MTS0605C19 28 UN-L**	6	5.00	3	19.0	105	3xD1
24	10, 12		**MTS06035C10 24 UN**	6	3.50	3	10.6	58	2xD1
	10, 12		**MTS06035C15 24 UN**	6	3.50	3	15.5	58	3xD1
24		5/16, 3/8	**MTS08066C17 24 UN**	8	6.60	3	17.0	64	2xD1
		5/16, 3/8	**MTS08066C24 24 UN**	8	6.60	3	24.0	64	3xD1
20	1/4		**MTS06047C14 20 UN**	6	4.75	3	14.0	58	2xD1
	1/4		**MTS06047C14 20 UN-L**	6	4.75	3	14.0	105	2xD1
	1/4		**MTS06047C19 20 UN**	6	4.75	3	19.0	58	3xD1
	1/4		**MTS06047C19 20 UN-L**	6	4.75	3	19.0	105	3xD1
20		7/16	**MTS0808C25 20 UN**	8	8.00	3	25.0	64	2xD1
		7/16	**MTS0808C34 20 UN**	8	8.00	3	34.6	64	3xD1
18	5/16		**MTS0606C17 18 UN**	6	6.00	3	17.0	58	2xD1
	5/16		**MTS0606C23 18 UN**	6	6.00	3	23.0	58	3xD1
18		5/8	**MTS1212D35 18 UN**	12	12.00	4	35.0	84	2xD1
		5/8	**MTS1212D49 18 UN**	12	12.00	4	49.0	105	3xD1
16	3/8		**MTS08067C22 16 UN**	8	6.70	3	22.0	64	2xD1
	3/8		**MTS08067C30 16 UN**	8	6.70	3	30.2	64	3xD1
14	7/16		**MTS08077C25 14 UN**	8	7.70	3	25.0	64	2xD1
	7/16		**MTS08077C35 14 UN**	8	7.70	3	35.2	64	3xD1
13	1/2		**MTS10092C27 13 UN**	10	9.20	3	27.5	73	2xD1
	1/2		**MTS10092C40 13 UN**	10	9.20	3	40.1	73	3xD1
12	9/16		**MTS12105C31 12 UN**	12	10.50	3	31.5	84	2xD1
	9/16		**MTS12105C45 12 UN**	12	10.50	3	45.0	105	3xD1
11	5/8		**MTS12114C34 11 UN**	12	11.40	3	34.5	84	2xD1
	5/8		**MTS12114C50 11 UN**	12	11.40	3	50.0	105	3xD1
10	3/4		**MTS16144D41 10 UN**	16	14.40	4	41.5	105	2xD1
	3/4		**MTS16144D59 10 UN**	16	14.40	4	59.7	105	3xD1

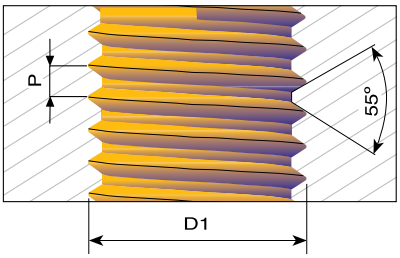
Order example: MTS 0605C19 28 UN MT7

- Machining Titanium, surgical stainless steels and hardened materials up to 45 HRc.
- Suitable for high speed air turbine machines (30,000-40,000 RPM) and for standard machining centers (6,000 RPM and higher).
- Can also be used for general purpose threading.

G 55° BSW, BSP

Same Tool for Internal and External Thread





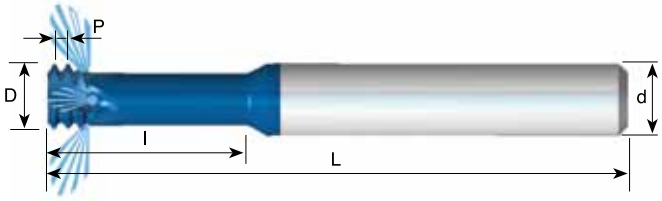
For thread depth up to 2 x D1

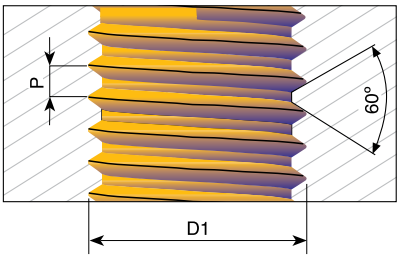
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L	Thread depth
28	G 1/8	**MTS08078C19 28 W**	8	7.8	3	19.5	64	2xD1
19	G 1/4 - 3/8	**MTS1010D30 19 W**	10	10.0	4	30.0	73	2xD1
14	G 1/2 - 7/8	**MTS1212D37 14 W**	12	12.0	4	37.0	84	2xD1
11	G ≥ 1	**MTS1616D44 11 W**	16	16.0	4	44.0	105	2xD1

Order example: MTS 1212D37 14 W MT7

UNJ With internal coolant through the flutes

Tools for Internal Thread





For thread depth up to 2.5 x D1

Pitch TPI	UNJC	UNJF	Ordering Code	d	D	No. of Flutes	l	L
* 32	8	10	MTS06033C10 32 UNJ	6	3.30	3	10.5	58
28		1/4	MTS08051C16 28 UNJ	8	5.10	3	16.0	64
24		5/16, 3/8	MTS08067C20 24 UNJ	8	6.70	3	20.0	64
* 20	1/4		MTS06049C16 20 UNJ	6	4.90	3	16.0	58
20		7/16	MTS0808C28 20 UNJ	8	8.00	3	28.0	64
18	5/16	9/16	MTS08061C20 18 UNJ	8	6.15	3	20.0	64
16	3/8		MTS08069C24 16 UNJ	8	6.90	3	24.0	64
14	7/16		MTS08079C25 14 UNJ	8	7.90	3	25.0	64
13	1/2		MTS10094C27 13 UNJ	10	9.40	3	27.5	73

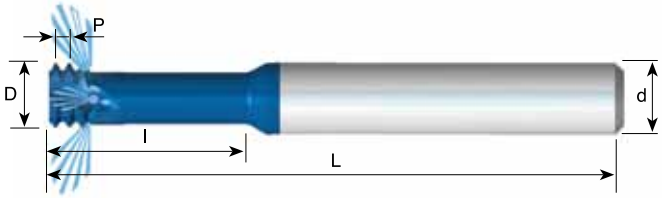
* Cutters without coolant

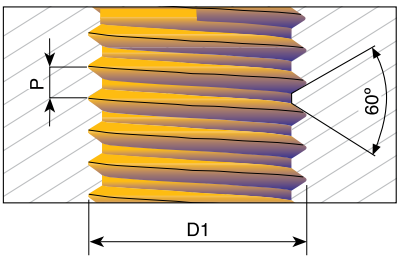
Order example: MTS 06049C16 20 UNJ MT8

Carbide grade MT8 Sub Micron grade with advanced PVD triple coating (ISO K 10-K20). Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions. General purpose for all materials

MJ With internal coolant through the flutes

Tools for Internal Thread





For thread depth up to 2.5 x D1

Pitch TPI	D1	Ordering Code	d	D	No. of Flutes	l	L
* 0.7	MJ4	MTS06032C10 0.7 MJ	6	3.20	3	10.0	58
* 0.8	MJ5	MTS06039C12 0.8 MJ	6	3.90	3	12.5	58
* 1.0	MJ6	MTS06048C15 1.0 MJ	6	4.80	3	15.0	58
1.25	MJ8	MTS08061C20 1.25 MJ	8	6.10	3	20.0	64
1.5	MJ10	MTS0808C25 1.5 MJ	8	8.00	3	25.5	64
1.75	MJ12	MTS10092C30 1.75 MJ	10	9.20	3	30.0	73
2.0	MJ14, MJ16	MTS1010C35 2.0 MJ	10	10.00	3	35.0	73

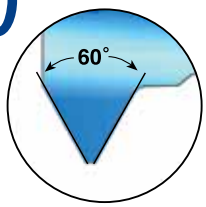
* Cutters without coolant

Order example: MTS 06048C15 1.0 MJ MT8

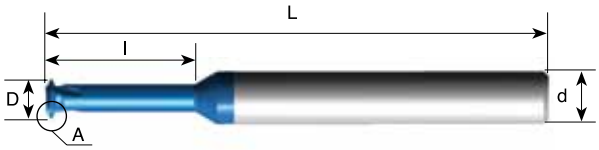
Carbide grade MT8 Sub Micron grade with advanced PVD triple coating (ISO K 10-K20). Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions. General purpose for all materials

Partial Profile 60°

Same Tool for Internal and External Thread



Detail A



Pitch mm	Pitch TPI	Ordering Code	M Coarse	M Fine	UN, UNC, UNS UNF, UNEF	d mm	D	No. of Flutes	l	L
0.25-0.35	100-72	**MTI03012C3 A60**	M1.6 x 0.35	M1.6 x 0.25 M1.8 x 0.25 M2.0 x 0.25	0-80 UNF	3	1.15	3	3.1	39
0.35-0.45	72-56	**MTI03014C4 A60**	M2 x 0.4 M2.2 x 0.45	M2 x 0.35 M2.2 x 0.35	1-64 UNC, 1-72 UNF, 2-56 UNC, 2-64 UNF	3	1.40	3	3.7	39
0.35-0.6	72-40	**MTI03019C5 A60**	M2.5 x 0.45	M2.5 x 0.35 M3 x 0.35	3-84 UNC, 3-56 UNF, 4-40 UNC, 4-48 UNF	3	1.90	3	5.2	39
0.5 -0.8	48-32	**MTI03024C7 A60**	M3 x 0.5 M3.5 x 0.6	M3.5 x 0.5	5-40 UNC, 5-44 UNF, 6-32 UNC, 6-40 UNF	3	2.45	3	7.0	39
0.5 -1.0	48-24	**MTI06032C9 A60**	M4 x 0.7 M4.5 x 0.75	M4 x 0.5	8-32 UNC, 8-36 UNF, 10-24 UNC, 10-28 UNS, 10-32 UNF	6	3.20	3	9.5	58
0.5 -1.0	48-24	**MTI0604C12 A60**	M5 x 0.8 M6 x 1.0	M5 x 0.5 M5.5 x 0.5 M5 x 0.75	10-36 UNS, 10-40 UNS, 10-48 UNS, 12-24 UNC, 12-28 UNF	6	4.00	3	12.5	58

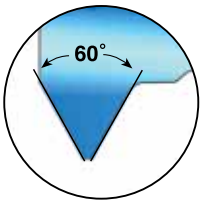
Order example: MTI 03024C7 A60 MT11

Carbide grade: MT11 Ultra-fine Sub-micron grade with PVD triple Blue coating

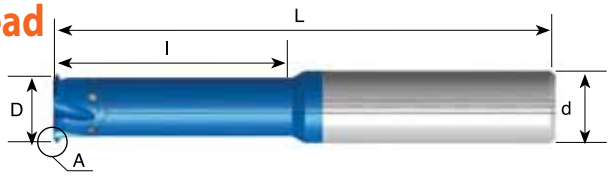
Partial Profile 60°

With internal coolant through the flutes

Same Tool for Internal and External Thread



Detail A



For threading deep parts

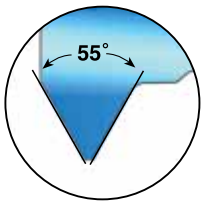
Pitch mm	Pitch TPI	Thread Dia. (mm)	Ordering Code	d	D	No. of Flutes	l	L
Int. 0.5 - 0.8 Ex. 0.4 - 0.8	56-28 64-32	ø≥ 6	**MTI0605D20 A60**	6	5.0	4	20	58
		ø≥ 9	**MTI0808D28 A60**	8	8.0	4	28	64
		ø≥13	**MTI1212E38 A60**	12	12.0	5	38	84
Int. 1.0 - 1.75 Ex. 0.8 - 1.5	28-14 32-16	ø≥10	**MTI0808D30 A60**	8	8.0	4	30	64
		ø≥12	**MTI1010D35 A60**	10	10.0	4	35	73
		ø≥14	**MTI1212E39 A60**	12	12.0	5	39	84
Int. 2.0 - 3.0 Ex. 1.75-2.5	13- 8 15-10	ø≥16	**MTI1212E40 A60**	12	12.0	5	40	84
		ø≥18	**MTI1614E45 A60**	16	14.0	5	45	101
		ø≥20	**MTI1616E50 A60**	16	16.0	5	50	101

Order example: MTI 0808D28 A60 MT8

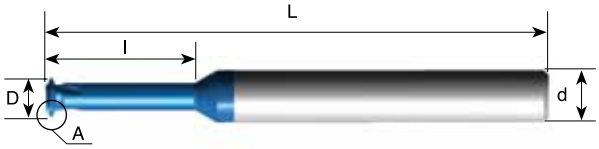
Carbide grade: MT8 With triple Blue coating

Partial Profile 55°

Same Tool for Internal and External Thread



Detail A



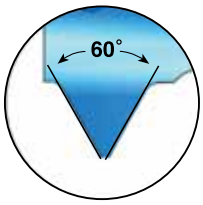
Pitch TPI	Ordering Code	d	D	No. of Flutes	l	L
40-32	**MTI03023C7 A55**	3	2.25	3	7.0	39
28-20	**MTI06044C14 A55**	6	4.35	3	14.0	58
28-18	**MTI06059C20 A55**	6	5.85	3	20.5	58
20-14	**MTI0807C23 A55**	8	7.00	3	23.0	64

Order example: MTI 06044C14A55 MT11

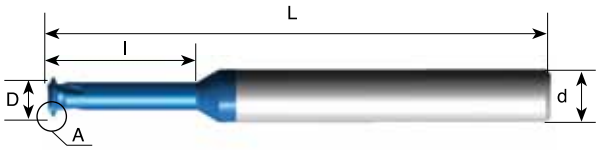
Carbide grade: MT11 Ultra-fine Sub-micron grade with PVD triple Blue coating

ISO

Tools for Internal Thread



Detail A



For thread depth up to 3.5 x D1

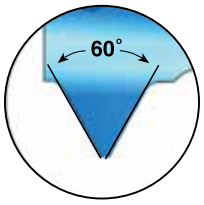
Pitch mm	M Coarse	M Fine	Ordering Code	d	D	No. of Flutes	l	L
0.25	M1 x 0.25		**MTI03007C3 0.25 ISO**	3	0.72	3	3.6	39
0.25	M1.2 x 0.25	M1.4 x 0.25 M1.6 x 0.25	**MTI03009C4 0.25 ISO**	3	0.90	3	4.3	39
0.3	M1.4 x 0.3		**MTI03011C5 0.3 ISO**	3	1.05	3	5.0	39
0.35	M1.6 x 0.35	M2 x 0.35 M2.2 x 0.35	**MTI03012C6 0.35 ISO**	3	1.20	3	5.7	39
0.4	M2 x 0.4		**MTI03016C7 0.4 ISO**	3	1.55	3	7.1	39
0.5	M3 x 0.5	M3.5 x 0.5 M4 x 0.5	**MTI03024C10 0.5 ISO**	3	2.37	3	10.6	39

Order example: MTI 03012C6 0.35 ISO MT11

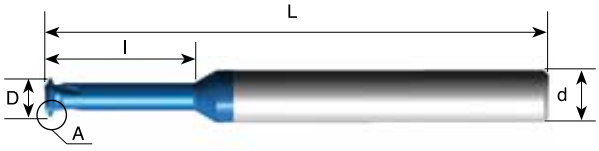
Carbide grade: MT11 Ultra-fine Sub-micron grade with PVD triple Blue coating

UN

Tools for Internal Thread



Detail A



For thread depth up to 3.5 x D1

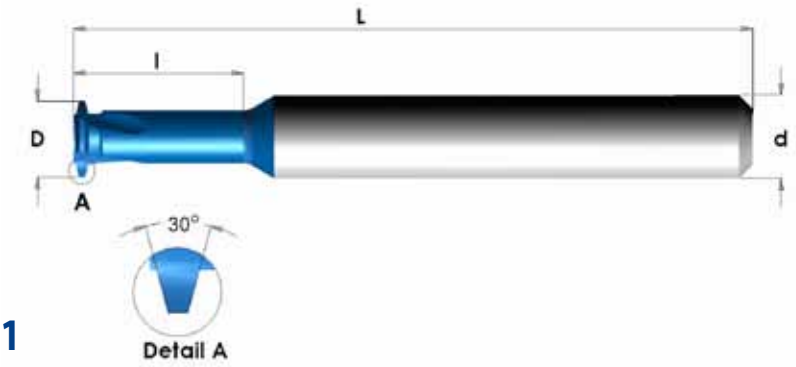
Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	L
80		0	**MTI03012C5 80 UN**	3	1.15	3	5.5	39
72		1	**MTI03015C7 72 UN**	3	1.45	3	6.6	39
56	2	3	**MTI03016C9 56 UN**	3	1.65	3	8.9	39
40	4		**MTI03021C10 40 UN**	3	2.10	3	10.1	39

Order example: MTI 03016C9 56 UN MT11

Carbide grade: MT11 Ultra-fine Sub-micron grade with PVD triple Blue coating

Trapez-DIN 103

Tools for Internal Thread



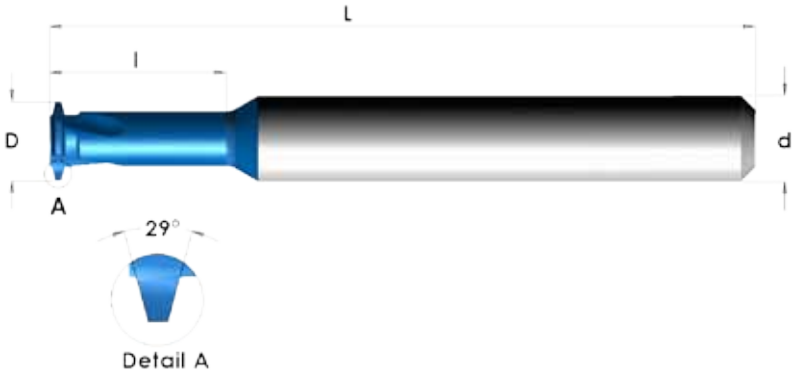
For thread depth up to 2 x D1

Pitch mm	Thread size	Ordering Code	d	D	No. of Flutes	l	L
1.5	Tr8x1.5 Tr9x1.5	**MTI06055C13 1.5 TR**	6	5.5	3	13.5	58
2	Tr10x2 Tr11x2	**MTI08066C21 2 TR**	8	6.6	3	21.0	64
2	Tr12x2 Tr14x2	**MTI10086D25 2 TR**	10	8.6	4	25.0	73
3	Tr12x3	**MTI0807C25 3 TR**	8	7.0	3	25.0	64
3	Tr14x3 Tr22x3	**MTI10089D29 3 TR**	10	8.9	4	29.0	73
4	Tr16x4 Tr18x4 Tr20x4	**MTI10092C33 4 TR**	10	9.2	3	33.0	73
5	Tr22x5 Tr24x5 Tr26x5	**MTI14135D45 5 TR**	14	13.5	4	45.0	105

Order example: MTI 08066C21 2TR MT8

Acme

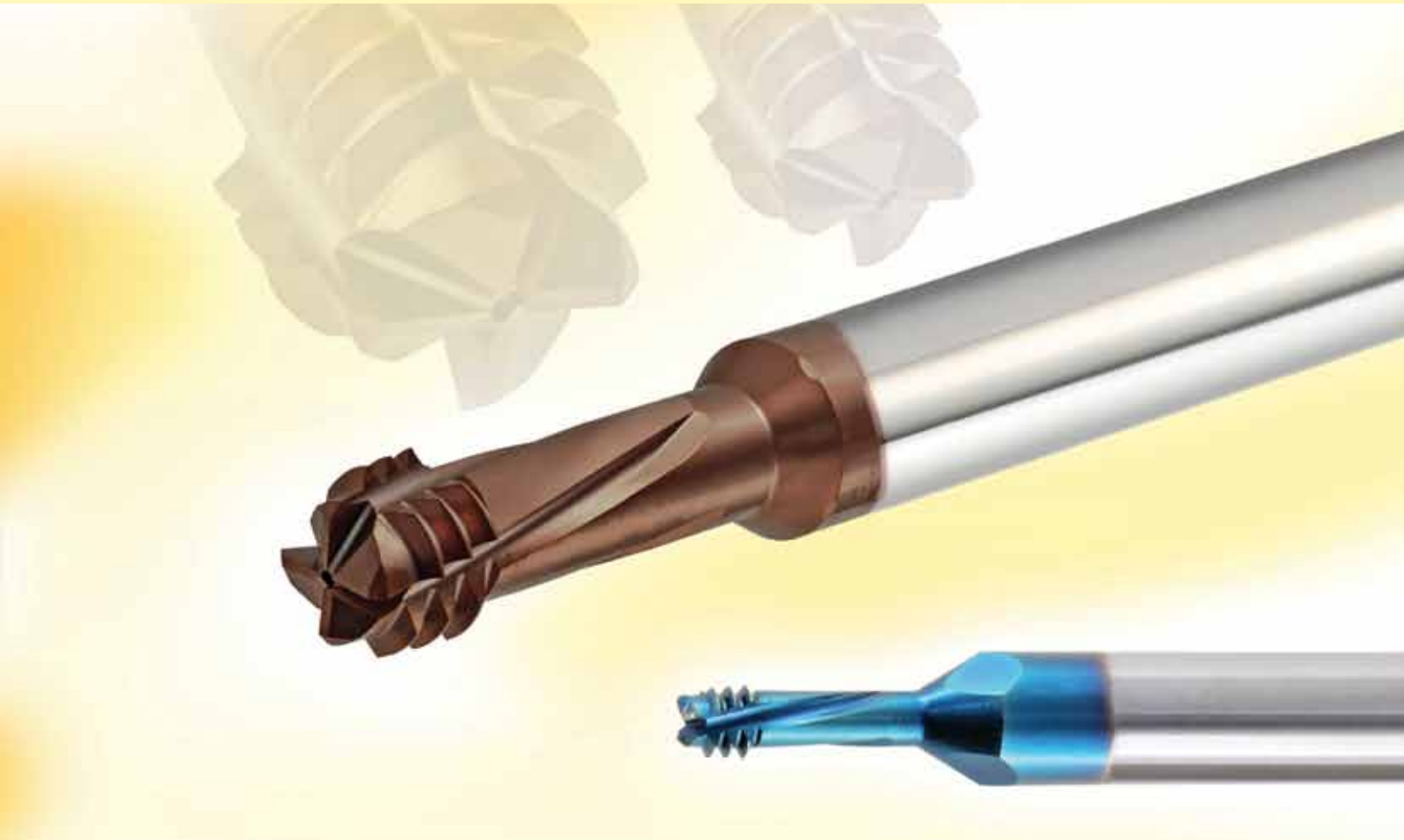
Tools for Internal Thread - Inch Shank



Pitch TPI	Thread size	Ordering Code	d	D	No. of Flutes	l	L
16	1/4-16	**MTI0250C04 16 ACME**	1/4	4.3	3	9.7	64
14	5/16-14	**MTI0250C06 14 ACME**	1/4	5.2	3	15.2	64
12	3/8-12 7/16-12	**MTI0250C08 12 ACME**	1/4	6.1	3	19.1	64
10	1/2-10	**MTI0375D10 10 ACME**	3/8	8.3	4	25.4	76
8	5/8-8	**MTI0500D11 8 ACME**	1/2	10.4	4	27.9	89
6	3/4-6 7/8-6	**MTI0500D12 6 ACME**	1/2	12.0	4	30.5	89
5	1-5 1 1/8-5 1 1/4-5	**MTI 0625E15 5 ACME**	5/8	15.9	5	38.1	102

Order example: MTI 0375D10 10ACME MT8

DMT 3 in 1 - *Drill, Thread, Chamfer



High Performance tools with internal coolant supply for the production of internal threads.
***Circular movement produces the thread hole, the thread and a chamfer in one work process.**

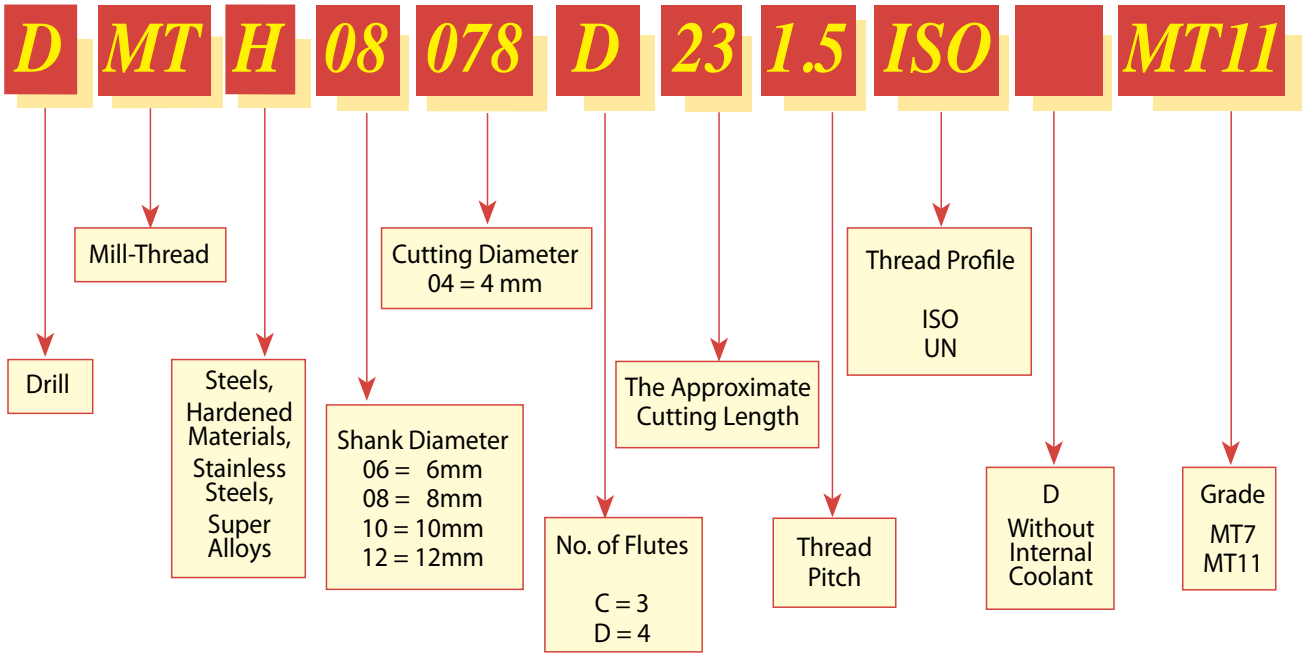
Carbide grade: MT7 Sub-micron grade with Titanium Aluminum Nitride multi-layer coating (ISO K10-K20).
MT11 Ultra - fine Sub-micron grade with advanced PVD triple Blue coating (for DMTH)

Advantages of DMT

- Cancels the need for drilling the hole.
- Short cycle time and high performance reduces machining costs.
- Suitable for blind and through holes.
- Full Profile thread.
- No time lost for tool change, since drilling, chamfering and thread milling are done with one tool.
- Same tool for right-hand or left-hand threads.
- Cuts a wide range of materials.

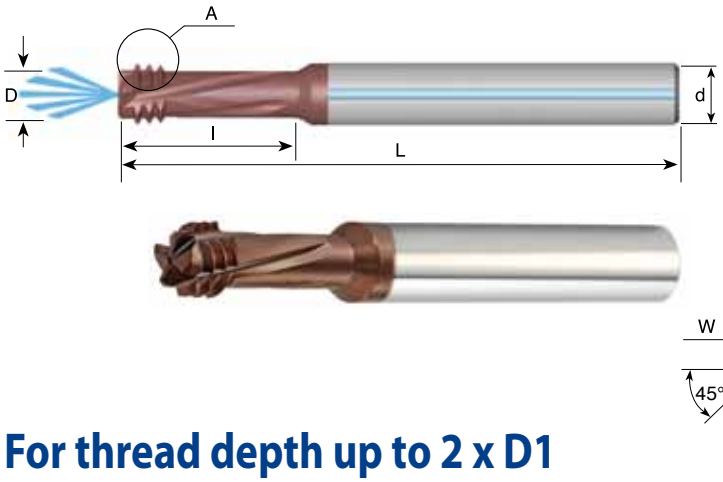
Product Identification

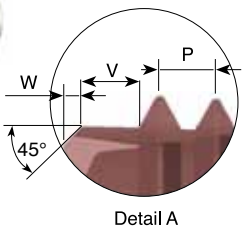
DMT 3 in 1 - *Drill, Thread, Chamfer Ordering Codes



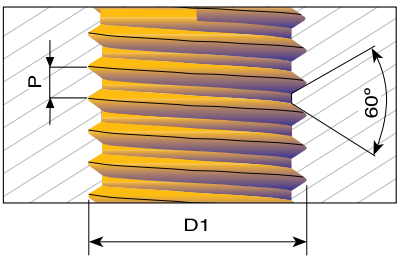
ISO with internal coolant bore

Tools for Internal Thread





Detail A



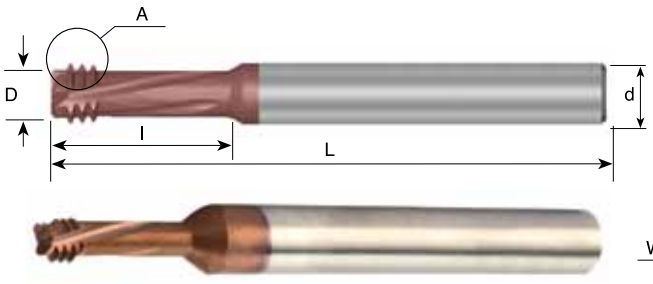
Left hand cutting
For CNC code use M04

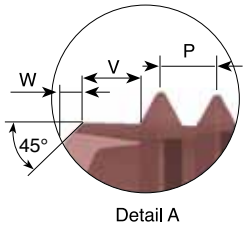
For thread depth up to 2 x D1

Pitch mm	D1	Ordering Code	d	D	No. of Flutes	l	W	V	L
1.0	M6 - M9	**DMT 08047C14 1.0 ISO**	8	4.70	3	14.0	0.4	1.0	64
1.25	M8 - M12	**DMT 08061D18 1.25 ISO**	8	6.10	4	18.0	0.5	1.25	64
1.5	M10 - M15	**DMT 08078D23 1.5 ISO**	8	7.80	4	23.0	0.6	1.5	64
1.75	M12	**DMT 1009D26 1.75 ISO**	10	9.00	4	26.0	0.6	1.75	73
2.0	M16 - M23	**DMT 12118D35 2.0 ISO**	12	11.80	4	35.0	0.6	2.0	84

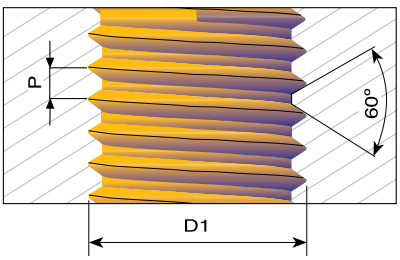
Order example: DMT 08047C14 1.0 ISO MT7

ISO without internal coolant





Detail A



Left hand cutting
For CNC code use M04

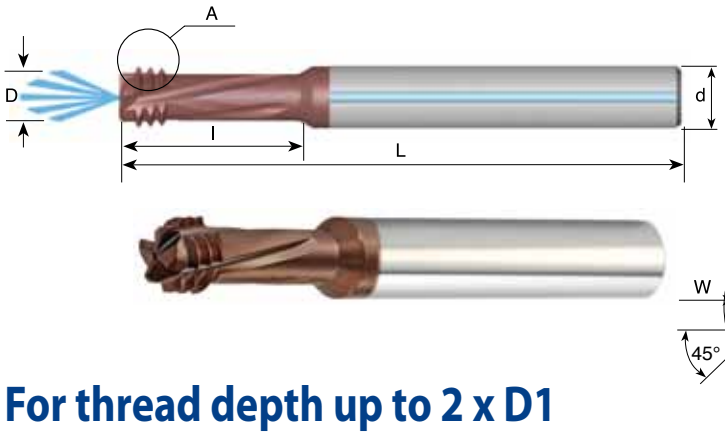
For thread depth up to 2.5 x D1

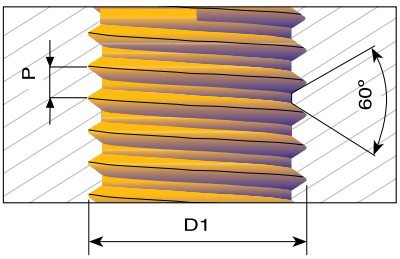
Pitch mm	D1	Ordering Code	d	D	No. of Flutes	l	W	V	L
0.7	M4	**DMT 06032C11 0.7 ISO-D**	6	3.15	3	11.6	0.2	0.7	58
0.8	M5	**DMT 0604C14 0.8 ISO-D**	6	4.00	3	14.4	0.3	0.8	58

Order example: DMT 06032C11 0.7 ISO-D MT7

UN with internal coolant bore

Tools for Internal Thread





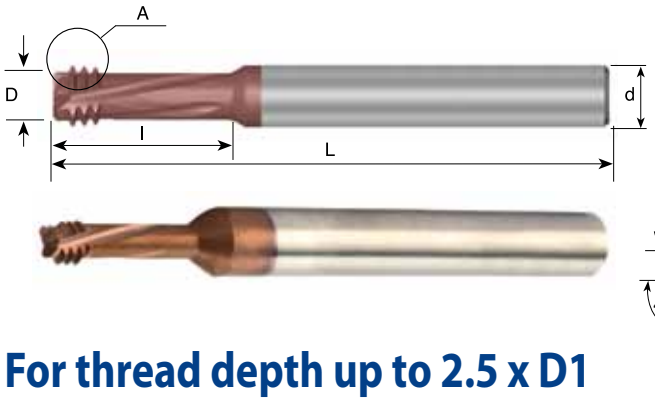
Left hand cutting
For CNC code use M04

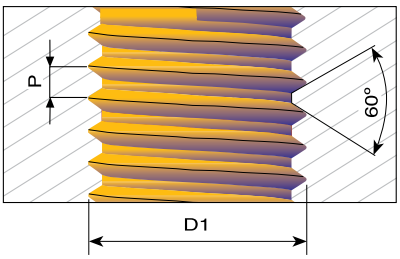
For thread depth up to 2 x D1

Pitch TPI	UN, UNEF, UNF UNC, UNS	Ordering Code	d	D	No. of Flutes	l	W	V	L
28	1/4 - 3/8	**DMT 0805C14 28 UN**	8	5.00	3	14.5	0.4	0.9	64
24	5/16 - 1/2	**DMT 08065D17 24 UN**	8	6.50	4	17.0	0.5	1.05	64
20	1/4 - 3/8	**DMT 08048C14 20 UN**	8	4.80	3	14.0	0.4	1.25	64
18	5/16 - 7/16	**DMT 0806D17 18 UN**	8	6.00	4	17.0	0.5	1.4	64
16	3/8 - 1/2	**DMT 08067C22 16 UN**	8	6.70	3	22.0	0.5	1.6	64

Order example: DMT 08067C 22 16 UN MT7

UN without internal coolant





Left hand cutting
For CNC code use M04

For thread depth up to 2.5 x D1

Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	W	V	L
36		8	**DMT 06033C12 36 UN-D**	6	3.30	3	12.0	0.2	0.7	58
32	8		**DMT 06032C12 32 UN-D**	6	3.20	3	12.3	0.3	0.8	58
32		10	**DMT 06038C14 32 UN-D**	6	3.80	3	14.0	0.3	0.8	58

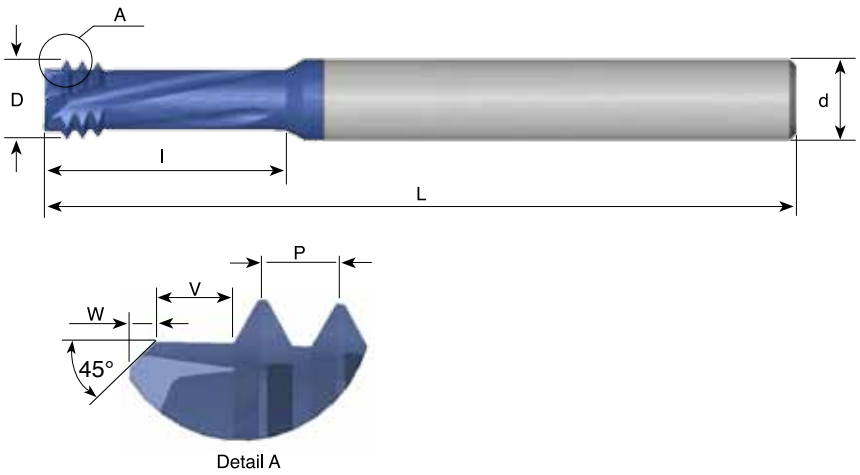
Order example: DMT 06032C12 32UN-D MT7

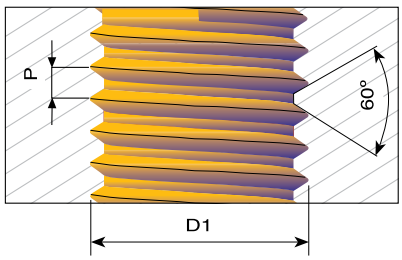
DMTH

The new DMTH tools expand the range of the existing DMT line providing the ability to cut steels, hardened materials, stainless steels and super alloys.

ISO

Tools for Internal Thread





Left hand cutting
For CNC code use M04

For thread depth up to 2 x D1

Pitch mm	D1	Ordering Code	d	D	No. of Flutes	l	W	V	L
0.7	M4	DMTH 06032 C11 0.7 ISO	6	3.1	3	11.6	0.2	0.7	58
0.8	M5	DMTH 0604 C14 0.8 ISO	6	4.0	3	14.4	0.3	0.8	58
1.0	M6 - M9	DMTH 08047 C14 1.0 ISO	8	4.7	3	14.4	0.4	1.0	64
1.25	M8 - M12	DMTH 08061 D19 1.25 ISO	8	6.1	4	19.0	0.5	1.25	64
1.5	M10- M15	DMTH 08078 D23 1.5 ISO	8	7.8	4	23.6	0.6	1.5	64
1.75	M12	DMTH 1009 D28 1.75 ISO	10	9.0	4	28.1	0.6	1.75	73
2.0	M16- M23	DMTH 12118 D36 2.0 ISO	12	11.8	4	36.6	0.6	2.0	84

Order example: DMTH 1009D28 1.75 ISO MT11

UN

Tools for Internal Thread

For thread depth up to 2 x D1

Pitch TPI	UN, UNEF, UNF UNC, UNS	Ordering Code	d	D	No. of Flutes	l	W	V	L
40	4	DMTH 06021 C7 40 UN	6	2.1	3	7.0	0.1	0.6	58
32	6	DMTH 06026 C8 32 UN	6	2.6	3	8.7	0.1	0.8	58
28	1/4-3/8	DMTH 0805 C14 28 UN	8	5.0	3	14.9	0.4	0.9	64
24	5/16-1/2	DMTH 08065 D18 24 UN	8	6.5	4	18.5	0.5	1.05	64
20	1/4-3/8	DMTH 08048 C15 20 UN	8	4.8	3	15.6	0.4	1.25	64
18	5/16-7/16	DMTH 0806 D19 18 UN	8	6.0	4	19.2	0.5	1.4	64
16	3/8-1/2	DMTH 08067 C22 16 UN	8	6.7	3	22.8	0.5	1.6	64
13	1/2	DMTH 10092 C30 13 UN	10	9.2	3	30.0	0.6	2.0	73
11	5/8	DMTH 12114 C37 11 UN	12	11.4	3	37.0	0.6	2.3	84

Order example: DMTH 08048 C15 20UN MT11

HARDCUT
Mill-Thread Solid Carbide for machining hard materials

MTSH Type

Carmex are pioneers in offering solid carbide thread mills designed specifically for the machining of hardened materials up to 62HRc. These tools provide high performance, improved cut and an excellent surface finish.

HARDCUT MTSH & MTH Types

Carbide grade: MT9 / MT11 - *Ultra fine sub-micron grade with Advanced PVD Triple Coating*

MTH Type

Carmex provide innovative mill thread solid carbide tools for machining:

- Hardened steels and cast iron up to 62 HRc.
- High temperature alloys.
- Titanium alloys.
- Super Alloys (Hastelloy, Inconel, Nickel Base Alloys).
- Threading from ISO M1.4 x 0.3 and 0-80UN
- Perfect solution for the Die and Mold industry
- Working at high cutting speeds
- Short machining time
- Low cutting forces thanks to the short profile

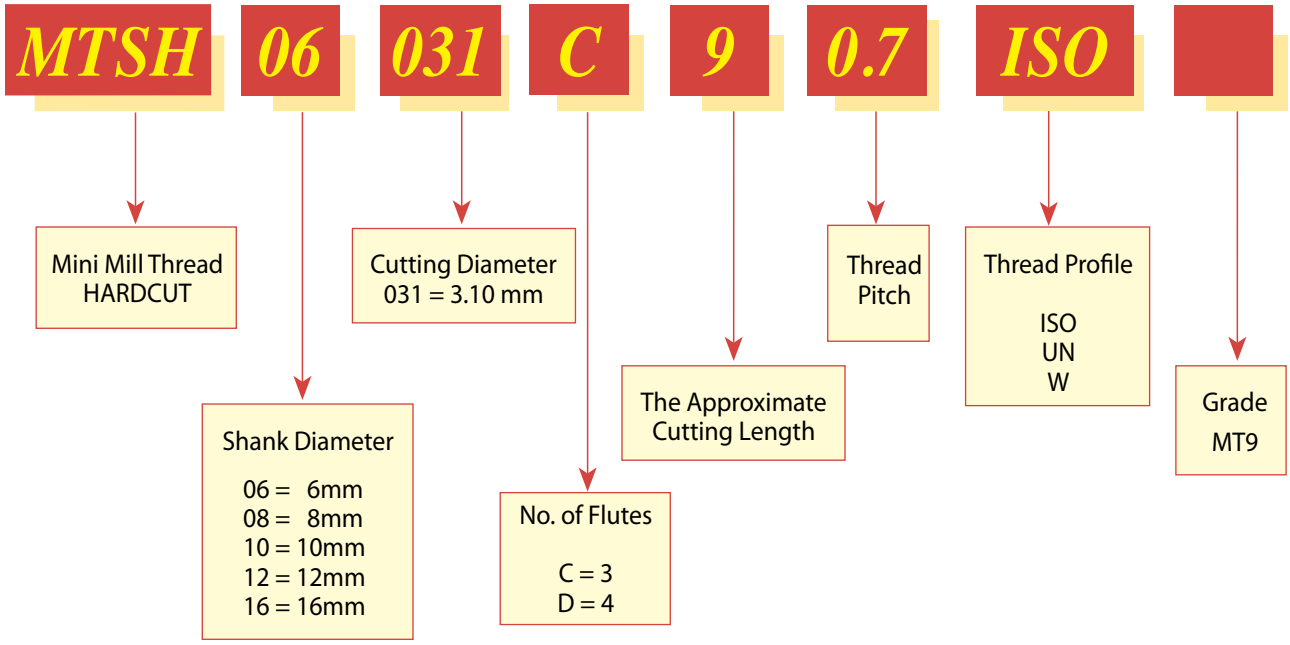
Advantages

- Same tool performs thread milling and chamfering - saves machining time.
- Increased cutting diameter - better rigidity and stability.
- Coating provides high wear and heat resistance.
- Ultra fine grade - dedicated for hardened materials.
- Short chips are produced, insure high process security.
- Short cycle time - increases productivity.
- Thread length up to 2xD.

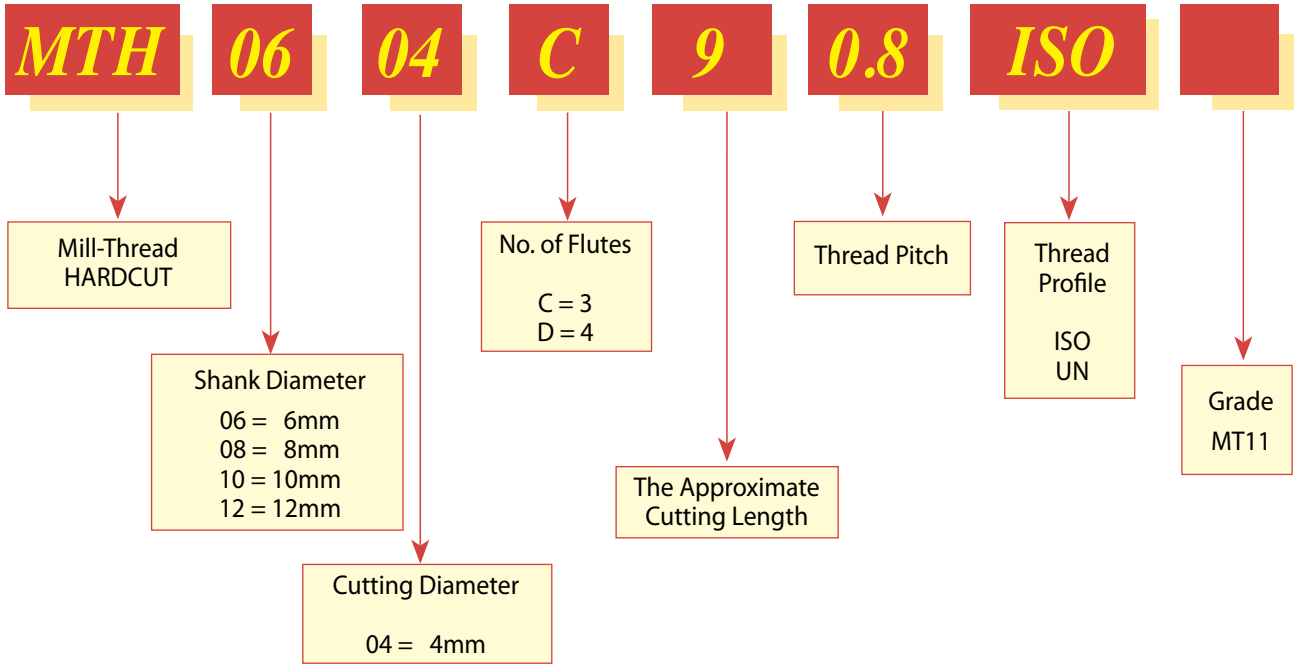
Contents: Page:

Product Identification

Mini Mill-Thread MTSH Type Ordering Codes

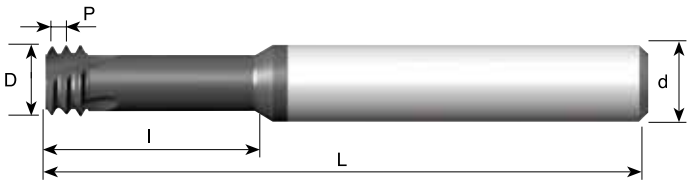


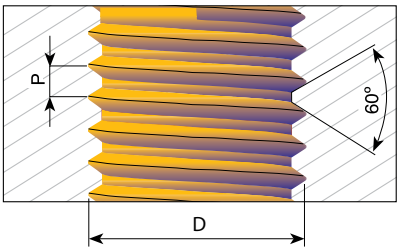
MTH Type Ordering Codes



ISO

Same Tool for Internal and External Thread





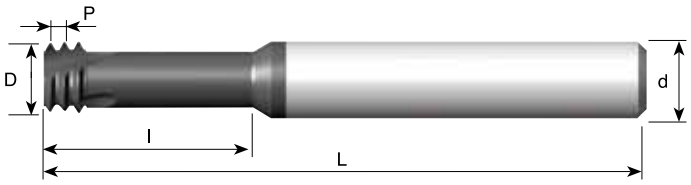
Left hand cutting
For CNC code use M04

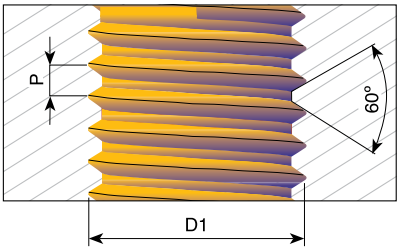
Pitch mm	D1	Ordering Code	d	D	No. of Flutes	l	L	Thread depth
0.3	M1.4	**MTSH03011C4 0.3 ISO**	3	1.05	3	4.0	39	3xD
0.35	M1.6	**MTSH03012C5 0.35 ISO**	3	1.20	3	4.8	39	3xD
0.4	M2	**MTSH06016C4 0.4 ISO**	6	1.53	3	4.5	58	2xD
		MTSH03016C6 0.4 ISO	3			6.0	39	3xD
0.45	M2.2	**MTSH06017C5 0.45 ISO**	6	1.65	3	5.0	58	2xD
		MTSH06017C7 0.45 ISO				7.0	58	3xD
0.45	M2.5	**MTSH0602C5 0.45 ISO**	6	1.95	3	5.5	58	2xD
		MTSH0602C7 0.45 ISO				7.5	58	3xD
0.5	M3	**MTSH06024C6 0.5 ISO**	6	2.37	3	6.5	58	2xD
		MTSH06024C9 0.5 ISO				9.5	58	3xD
0.6	M3.5	**MTSH06028C7 0.6 ISO**	6	2.75	3	7.5	58	2xD
		MTSH06028C10 0.6 ISO				10.5	58	3xD
0.7	M4	**MTSH06031C9 0.7 ISO**	6	3.10	3	9.0	58	2xD
		MTSH06031C12 0.7 ISO				12.5	58	3xD
0.8	M5	**MTSH06038C12 0.8 ISO**	6	3.80	3	12.5	58	2xD
		MTSH06038C16 0.8 ISO				16.0	58	3xD
1.0	M6	**MTSH06047C14 1.0 ISO**	6	4.65	3	14.0	58	2xD
		MTSH06047C20 1.0 ISO				20.0	58	3xD
1.25	M8	**MTSH0606C18 1.25 ISO**	6	6.00	3	18.0	58	2xD
		MTSH0606C24 1.25 ISO				24.0	58	3xD
1.5	M10	**MTSH08078C23 1.5 ISO**	8	7.80	3	23.0	64	2xD
1.75	M12	**MTSH1009C26 1.75 ISO**	10	9.00	3	26.0	73	2xD
2.0	M16	**MTSH12118D35 2.0 ISO**	12	11.80	4	35.0	84	2xD

Order example: MTSH 06031C9 0.7 ISO MT9

UN

Tools for Internal Thread





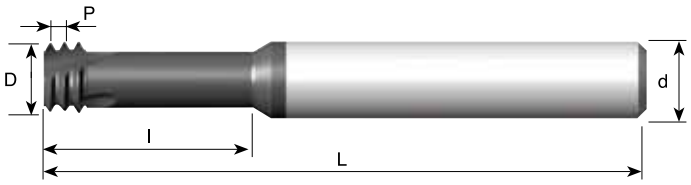
Left hand cutting
For CNC code use M04

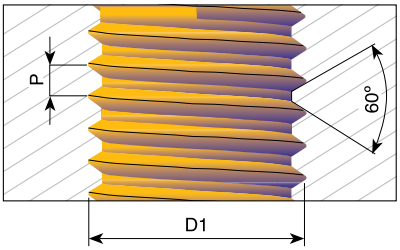
Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	L	Thread depth
80		0	MTSH06012C4 80 UN	6	1.15	3	4.0	58	3xD1
72		1	MTSH06014C3 72 UN	6	1.45	3	3.7	58	2xD1
72		1	MTSH03015C6 72 UN	3	1.45	3	6.0	39	3xD1
64	1	2	MTSH06014C3 64 UN	6	1.40	3	3.8	58	2xD1
56	2	3	MTSH06016C4 56 UN	6	1.65	3	4.4	58	2xD1
56	2	3	MTSH06016C6 56 UN	6	1.65	3	6.6	58	3xD1
48	3	4	MTSH06019C5 48 UN	6	1.90	3	5.2	58	2xD1
40	4		MTSH06021C6 40 UN	6	2.10	3	6.3	58	2xD1
40	4		MTSH06021C8 40 UN	6	2.10	3	8.0	58	3xD1
40	5	6	MTSH06024C7 40 UN	6	2.45	3	7.0	58	2xD1
40	5	6	MTSH06024C9 40 UN	6	2.45	3	9.6	58	3xD1
36		8	MTSH06033C9 36 UN	6	3.30	3	9.0	58	2xD1
32	6		MTSH06025C7 32 UN	6	2.55	3	7.1	58	2xD1
32	6		MTSH06025C10 32 UN	6	2.55	3	10.5	58	3xD1
32	8		MTSH06032C9 32 UN	6	3.20	3	9.5	58	2xD1
32	8		MTSH06032C12 32 UN	6	3.20	3	12.5	58	3xD1
32		10	MTSH06037C10 32 UN	6	3.70	3	10.5	58	2xD1
32		10	MTSH06037C15 32 UN	6	3.70	3	15.0	58	3xD1
28		12	MTSH06042C11 28 UN	6	4.20	3	11.0	58	2xD1
28		1/4	MTSH0605C14 28 UN	6	5.00	3	14.5	58	2xD1
28		1/4	MTSH0605C19 28 UN	6	5.00	3	19.0	58	3xD1
24	10, 12		MTSH06035C10 24 UN	6	3.50	3	10.6	58	2xD1
24		5/16, 3/8	MTSH08066C17 24 UN	8	6.60	3	17.0	64	2xD1
24		5/16, 3/8	MTSH08066C24 24 UN	8	6.60	3	24.0	64	3xD1
20	1/4		MTSH06047C14 20 UN	6	4.75	3	14.0	58	2xD1
20	1/4		MTSH06047C19 20 UN	6	4.75	3	19.0	58	3xD1
20		7/16	MTSH0808C25 20 UN	8	8.00	3	25.0	64	2xD1
18	5/16		MTSH0606C17 18 UN	6	6.00	3	17.0	58	2xD1
18	5/16		MTSH0606C23 18 UN	6	6.00	3	23.0	58	3xD1
18		5/8	MTSH1212D35 18 UN	12	12.00	4	35.0	84	2xD1
16	3/8		MTSH08067C22 16 UN	8	6.70	3	22.0	64	2xD1
14	7/16		MTSH08077C25 14 UN	8	7.70	3	25.0	64	2xD1
13	1/2		MTSH10092C27 13 UN	10	9.20	3	27.5	73	2xD1
12	9/16		MTSH12105C31 12 UN	12	10.50	3	31.5	84	2xD1
11	5/8		MTSH12114C34 11 UN	12	11.40	3	34.5	84	2xD1
10	3/4		MTSH16144D41 10 UN	16	14.40	4	41.5	105	2xD1

Order example: MTSH 06047C14 20 UN MT9

G (55°) BSW, BSP

Same Tool for Internal and External Thread





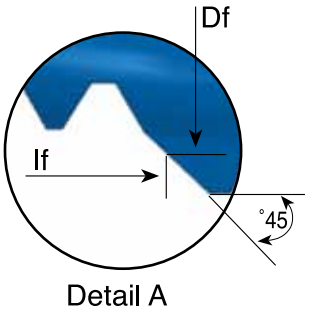
Left hand cutting
For CNC code use M04

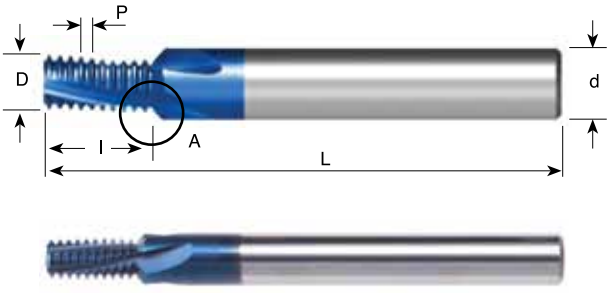
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L	Thread depth
28	G1/8	**MTSH08078 C19 28W**	8	7.8	3	19.5	64	2xD1
19	G1/4-3/8	**MTSH1010 D30 19W**	10	10.0	4	30.0	73	
14	G1/2-7/8	**MTSH1212 D37 14W**	12	12.0	4	37.0	84	
11	G≥1	**MTSH1616 D44 11W**	16	16.0	4	44.0	105	

Order example: MTSH 1010D30 19 W MT9

ISO

Tools for Internal Thread



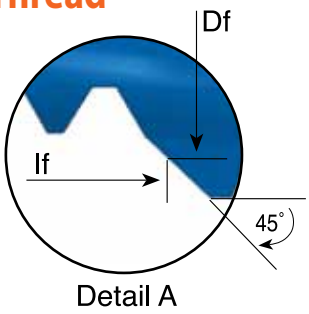


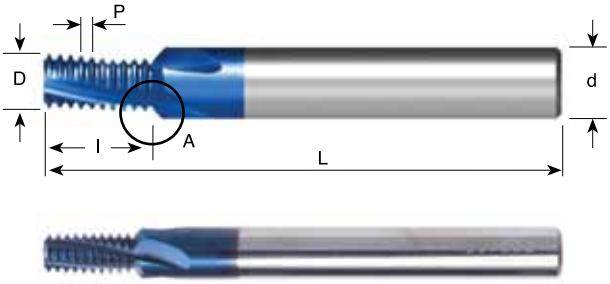
Pitch mm	M coarse	M fine	Ordering Code	d	D	Df	No. of Flutes	l	lf	L
0.5	M3	Ø ≥ 4	MTH06024C5 0.5 ISO	6	2.4	3.6	3	5.3	5.9	58
0.7	M4	Ø ≥ 5	MTH06031C7 0.7 ISO	6	3.1	4.3	3	7.4	8.0	58
0.8	M5	Ø ≥ 6	MTH0604C9 0.8 ISO	6	4.0	5.2	3	9.2	9.8	58
1.0	M6	Ø ≥ 7	MTH08048D10 1.0 ISO	8	4.8	6.4	4	10.5	11.3	64
1.0		Ø ≥ 9	MTH0806D13 1.0 ISO	8	6.0	7.6	4	13.5	14.3	64
1.0		Ø ≥ 10	MTH1008D16 1.0 ISO	10	8.0	9.6	4	16.5	17.3	73
1.25	M8	Ø ≥ 10	MTH0806D14 1.25 ISO	8	6.0	7.6	4	14.4	15.2	64
1.5	M10	Ø ≥ 12	MTH1008D17 1.5 ISO	10	8.0	9.8	4	17.3	18.2	73
1.5		Ø ≥ 14	MTH1210D21 1.5 ISO	12	10.0	11.8	4	21.8	22.7	84
1.75	M12	Ø ≥ 12	MTH12095D20 1.75 ISO	12	9.5	11.5	4	20.1	21.1	84

Order example: MTH08048D10 1.0 ISO MT11

UN

Tools for Internal Thread





Pitch TPI	UNC	UNF	UNEF	Ordering Code	d	D	Df	No. of Flutes	l	lf	L
40	5	6		MTH06025C6 40 UN	6	2.5	3.7	3	6.0	6.6	58
32	6			MTH06026C5 32 UN	6	2.6	3.8	3	5.9	6.5	58
32	8			MTH06032C7 32 UN	6	3.2	4.4	3	7.5	8.1	58
32		10	12	MTH06038C9 32 UN	6	3.8	5.0	3	9.1	9.7	58
28		1/4		MTH08052D11 28 UN	8	5.2	6.8	4	11.3	12.1	64
28			7/16, 1/2	MTH12096D20 28 UN	12	9.6	11.2	4	20.4	21.2	84
24		5/16, 3/8	9/16, 5/8, 11/16	MTH08066D14 24 UN	8	6.6	8.0	4	14.3	15.0	64
20	1/4			MTH06048C12 20 UN	6	4.8	6.0	3	12.1	12.7	58
20		7/16, 1/2	3/4, 1	MTH12092D21 20 UN	12	9.2	10.8	4	21.0	21.8	84
18	5/16	9/16, 5/8	11/16	MTH08057C14 18 UN	8	5.7	7.5	3	14.8	15.7	64
16	3/8	3/4		MTH10074C16 16 UN	10	7.4	9.2	3	16.7	17.6	73
14	7/16	7/8		MTH10085D20 14 UN	10	8.5	9.9	4	20.9	21.6	73
13	1/2			MTH12094D22 13 UN	12	9.4	11.4	4	22.5	23.5	84

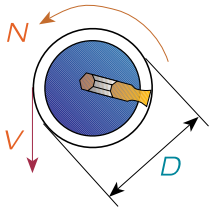
Order example: MTH06048C12 20 UN MT11

Mill-Thread Technical Section

Conversion of Cutting Speed to Rotational Speed

Conversion of selected cutting speed to rotational speed is calculated by the following formula:

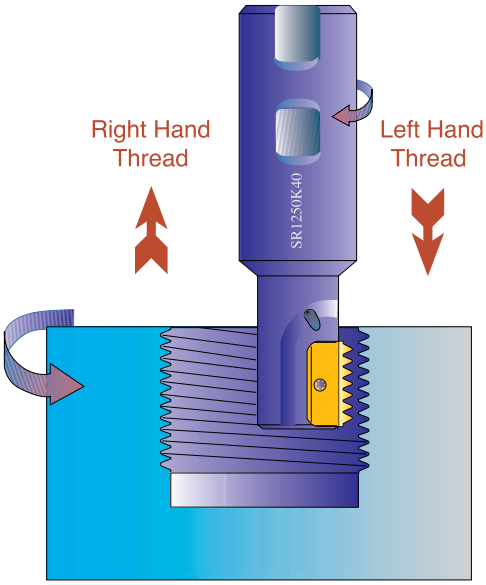
$$N = \frac{V \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 30} = 1274 \text{ RPM}$$



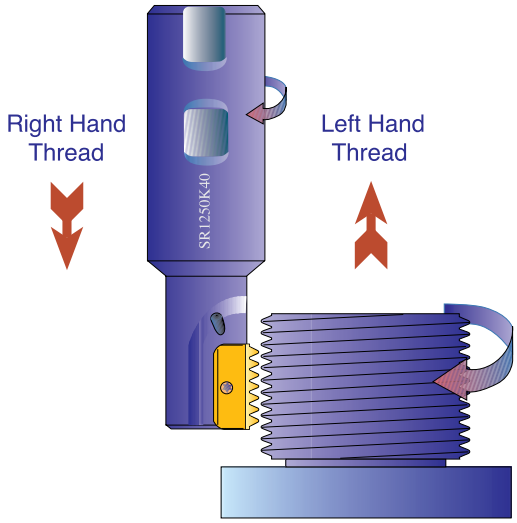
Example: *V=120 m/min*
D=30 mm

D=Cutting diameter

Internal Thread



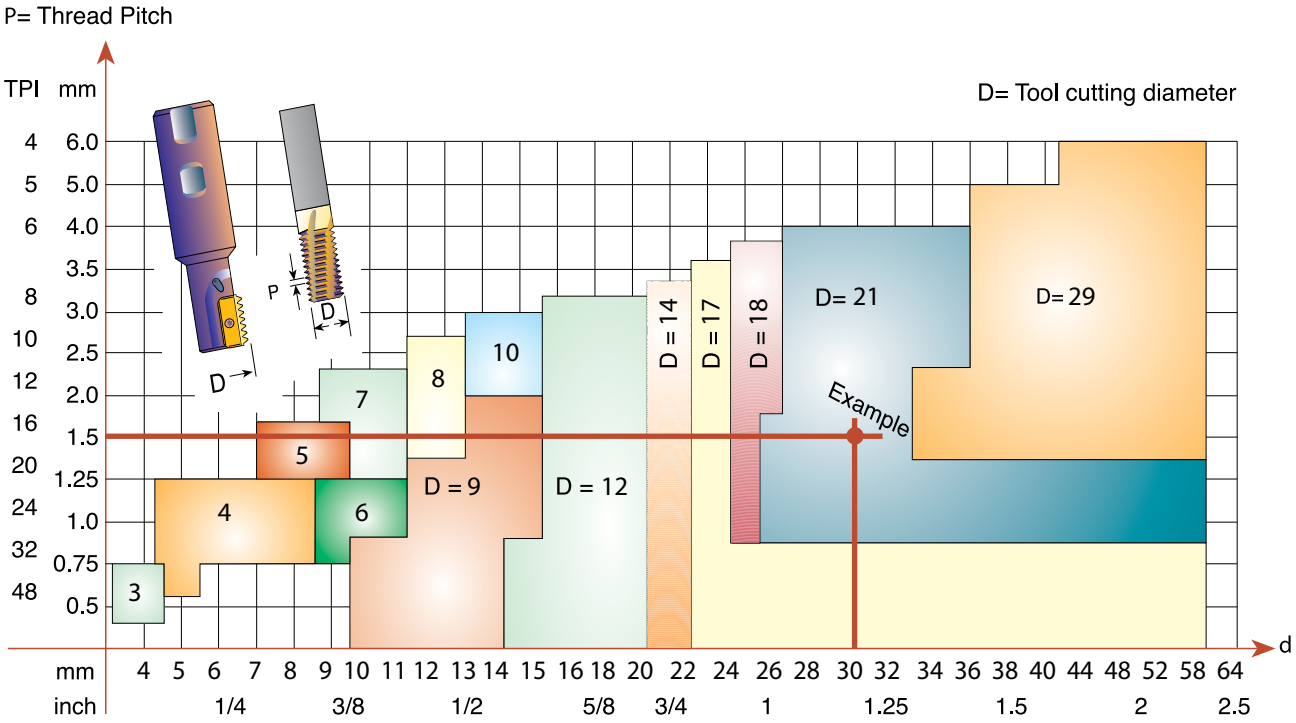
External Thread



Tool Selection

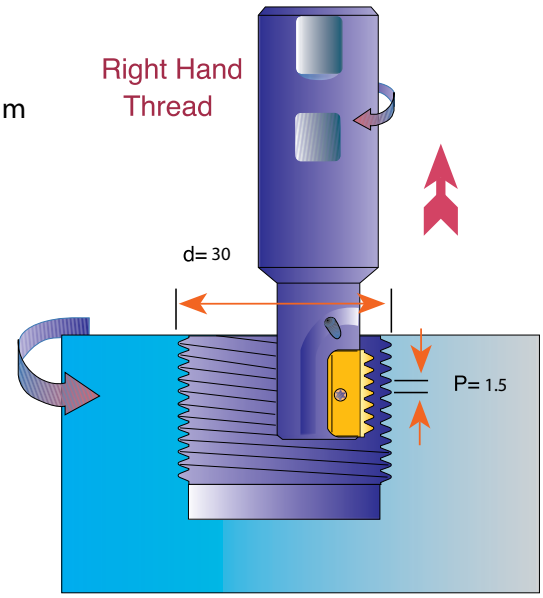
For indexable and solid carbide Mill Threads

The following chart provides a fairly accurate visual selection tool for Internal Threading.
The chart is suitable for the following thread forms: ISO, UN, WHIT, NPT, NPTF, BSPT and PG.



Any tool with a small cutting diameter can produce larger diameter threads.
Example: Internal thread M30 x 1.5:
Find a Milling Tool to produce d=30 Internal
right hand ISO thread with a thread pitch P=1.5 mm.
As can be seen from the chart above, the two red lines
intersect at a selected tool with a cutting diameter of D=21 mm

Chosen toolholder: SR0021 H21
Insert: 21 I 1.5 ISO MT7



If you need assistance, please call your local distributor and ask for help in selecting the appropriate tool as well as for a CNC program to suit your CNC milling machine.

Carmex Mill-Thread catalog and CNC programming Software

This software is provided by Carmex to assist you, the threadmilling user, to select and apply the correct tool to machine threads on CNC machining centers. The program will find tools and inserts which are suitable for your application, calculate cutting data and generate a CNC program for a variety of controls.

The software is available at our web site: www.carmex.com

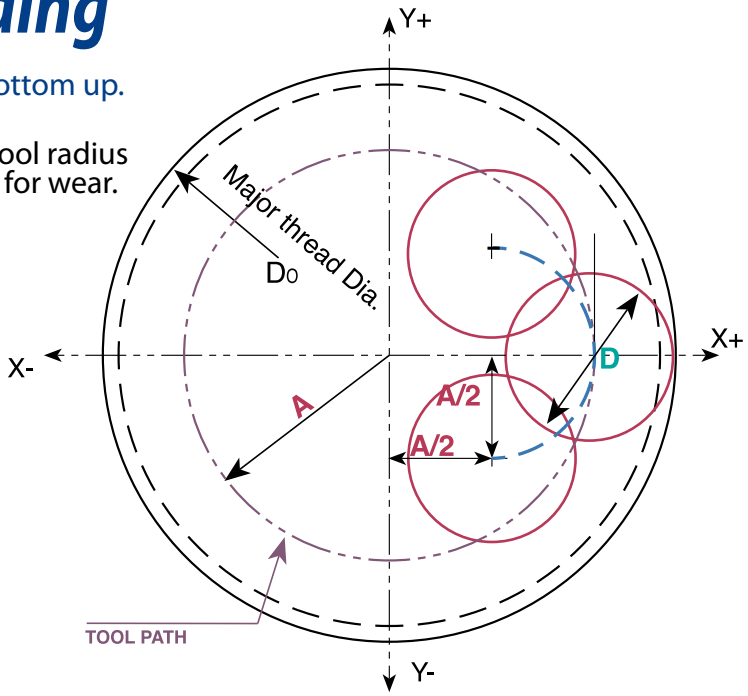
Example of Thread Milling CNC Program for Internal Threading

Right hand thread (climb milling) from bottom up.

Program is based on tool center.
This method of programming needs no tool radius compensation value other than an offset for wear.

$$A = \frac{Do - D}{2}$$

A =Radius of tool path
D_o=Major thread dia.
D =Cutting dia.



General Program

G90 G00 G54 G40 G17 G94X0 Y0 S---M03
G43 H1 Z50.000 M08
G90 G01 Z- (TO THREAD DEPTH) F5000
G91 G41 D1 X(A/2) Y-(A/2) Z0 F---
G03 X(A/2) Y(A/2) Z(1/8 PITCH) I0 J(A/2) F---
G03 X0 Y0 Z(PITCH) I-(A) J0
G03 X-(A/2) Y(A/2) Z(1/8 PITCH) I-(A/2) J0
G01 G40 X-(A/2) Y-(A/2) Z0 F5000
G90 G00 Z50.000

Internal Thread

EXAMPLE : M 32 X 2.0 (Thread depth 18 mm)
TOOLHOLDER : SR0021 H20 (Cutting dia. 21 mm)
INSERT: 21 I 2.0ISO
A = (32-21)/2 = 5.5

G90 G00 G54 G40 G17 G94 X0.000 Y0.000 S2986 M03
G43 H1 Z50.000 M08
G90 G01 Z-18.250 F5000
G91 G41 D1 X2.750 Y-2.750 Z0.000 F215
G03 X2.750 Y2.750 Z0.250 I0.000 J2.750 F74
G03 X0.000 Y0.000 Z2.000 I-5.500 J0.000
G03 X-2.750 Y2.750 Z0.250 I-2.750 J0.000
G01 G40 X-2.750 Y-2.750 Z0.000 F5000
G90 G00 Z50.000

Mill-Thread Inserts Speed and Feed Selection

MT7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

ISO	Materials	Cutting Speed m/min MT7
P	Low and Medium Carbon Steels	115 - 280
	High Carbon Steels	130 - 200
	Alloy Steels, Treated Steels	105 - 180
M	Stainless Steels	130 - 190
	Cast Steels	150 - 190
K	Cast Iron	80 - 70
N	Non-Ferrous & Aluminum	180 - 340
	Synthetics, Duroplastics, Thermoplastics	115 - 460
S	Nickel Alloys, Titanium Alloys	25 - 90

Recommended FEED RATE: 0.05 - 0.15 mm

Spiral Mill-Thread Inserts Speed and Feed Selection

MT7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

ISO	Materials	Cutting Speed m/min MT7
P	Low and Medium Carbon Steels	145 - 360
	High Carbon Steels	165 - 255
	Alloy Steels, Treated Steels	135 - 230
M	Stainless Steels	165 - 245
	Cast Steels	190 - 245
K	Cast Iron	100 - 220
N	Non-Ferrous & Aluminum	230 - 440
	Synthetics, Duroplastics, Thermoplastics	145 - 590
S	Nickel Alloys, Titanium Alloys	30 - 115

Recommended FEED RATE: 0.05 - 0.15 mm

As you may note, cutting speed is shown in range terms. In most standard cases choosing a speed in the middle of the range would be a good choice for a start.

For hard metals reduce cutting speed.

Spiral Finish Speed Selection

MT7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

ISO	Materials	Cutting Speed (m/min)
P	Low and Medium Carbon Steels	200 - 330
	High Carbon Steels	170 - 235
	Alloy Steels, Treated Steels	100 - 195
M	Stainless Steels	180 - 230
	Cast Steels	180 - 230
K	Cast Iron	200 - 350
N	Non-Ferrous and Aluminum	500 - 1100
	Synthetics, Duroplastics, Thermoplastics	400 - 1500
S	Nickel Alloys, Titanium Alloys	30 - 55

Cutting Data

D-Thread type

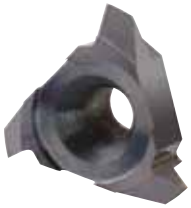
MT7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

ISO	Materials	Cutting Speed (m/min)
P	Low and Medium Carbon Steels <0.55%C	100-205
	High Carbon Steels ≥0.55%C	100-180
	Alloy Steels, Treated Steels	100-140
M	Stainless Steels - Free Cutting	85-125
	Stainless Steels - Austenitic	80-115
	Cast Steels	115-155
K	Cast Iron	75-145
N	Aluminum ≤12%Si, Copper	150-300
	Aluminum >12% Si	150-300
	Synthetics, Duroplastics, Thermoplastics	100-350
S	Nickel Alloys, Titanium Alloys	45- 95

Recommended FEED RATE: 0.07 - 0.15 mm

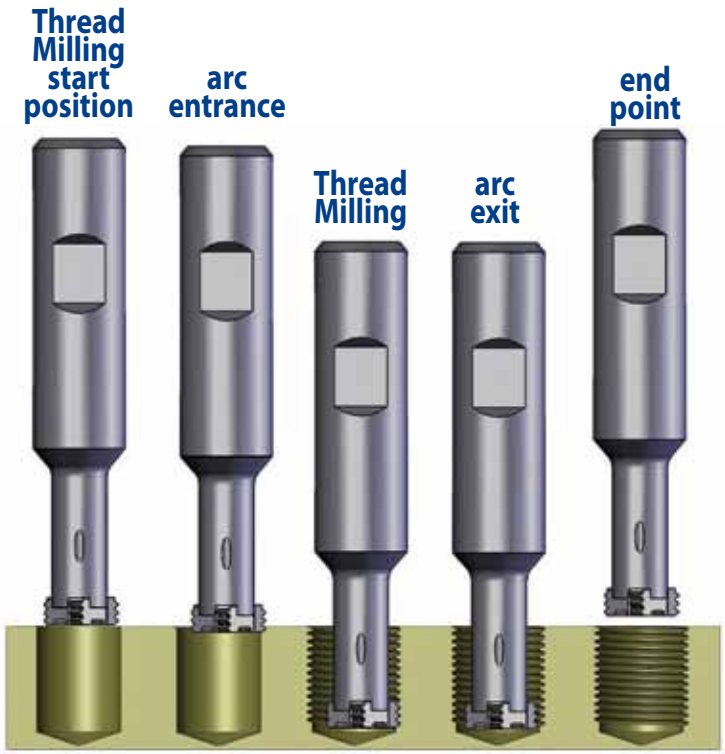
Cutting Data

CMT type



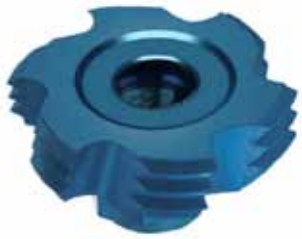
MT7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

ISO	Materials	Cutting Speed m/min	Feed mm/tooth Cutting Diameter=D			
			Ø10	Ø12	Ø18	Ø25
P	Low and Medium Carbon Steels <0.55%C	60 - 120	0.16	0.17	0.20	0.22
	High Carbon Steels ≥0.55%C	60 - 90	0.14	0.16	0.20	0.22
	Alloy Steels, Treated Steels	50 - 80	0.10	0.12	0.16	0.18
M	Stainless Steels - Free Cutting	70 - 100	0.10	0.11	0.15	0.17
	Stainless Steels - Austenitic	60 - 90	0.10	0.11	0.15	0.17
	Cast Steels	70 - 90	0.10	0.12	0.16	0.18
K	Cast Iron	40 - 80	0.16	0.17	0.20	0.22
N	Aluminum ≤12%Si, Copper	100 - 200	0.16	0.17	0.20	0.22
	Aluminum >12% Si	60 - 140	0.10	0.11	0.16	0.18
	Synthetics, Duroplastics, Thermoplastics	50 - 200	0.19	0.19	0.22	0.24
S	Nickel Alloys, Titanium Alloys	20 - 40	0.07	0.07	0.10	0.12
H	Hardened Steel 45 - 50HRc	60 - 70	0.09	0.09	0.13	0.15
	Hardened Steel 50 - 55HRc	50 - 60	0.08	0.08	0.12	0.14



Cutting Data

CMT Spiral Multi Flute Inserts



Carbide grade - MT8:

Sub-Micron Grade with Aluminum Titanium Nitride (AlTiN) multi-layer coating (ISO K10-K20). Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions. General purpose for all materials.

ISO Standard	Material	Cutting Speed m/min	Feed mm/tooth Cutting Diameter = D
			Ø16-Ø35
P	Low and Medium Carbon Steels <0.55%C	60-120	0.14-0.24
	High Carbon Steels ≥0.55%C	60- 90	0.12-0.24
	Alloy Steels,Treated Steels	50- 80	0.08-0.20
M	Stainless Steel-Free Cutting	70-100	0.08-0.19
	Stainless Steel-Austenitic	60- 90	0.08-0.19
	Cast Steels	70- 90	0.08-0.20
K	Cast Iron	40- 80	0.14-0.24
N	Aluminum ≤12%Si, Copper	100-200	0.14-0.26
	Aluminum >12%Si	60-140	0.08-0.22
	Synthetics, Duroplastics, Thermoplastics	50-200	0.17-0.28
S	Nickel Alloys, Titanium Alloys.	20- 40	0.05-0.14
H	Hardened Steel, 45-50HRc	60- 70	0.07-0.17
	Hardened Steel, 51-55HRc	50- 60	0.06-0.16

Cutting Data

CMT Milling cutter

ISO Standard	Material	Cutting Speed m/min	Feed mm/tooth
P	Low and Medium Carbon Steels <0.55%C	60-120	0.05-0.15
	High Carbon Steels ≥0.55%C	60-90	0.05-0.10
	Alloy Steels, Treated Steels	50-80	0.05-0.10
M	Stainless Steel-Free Cutting	70-100	0.04-0.13
	Stainless Steel-Austenitic	60-90	0.04-0.10
	Cast Steels	70-90	0.04-0.13
K	Cast Iron	40-80	0.05-0.15
N	Aluminum ≤12%Si, Copper	100-200	0.05-0.25
	Aluminum >12%Si	60-140	0.03-0.10
	Synthetics, Duroplastics, Thermoplastics	50-200	0.05-0.25
S	Nickel alloys, Titanium Alloys.	20-40	0.03-0.10
H	Hardened Steel, ≤ 45 HRc	60-70	0.03-0.10

Mill-Thread Solid Carbide Grades, Speed and Feed Selection

MT, MTB, MTZ, EMT Types

MT7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

ISO	Materials	Cutting Speed m/min	Feed mm/tooth Cutting Diameter=D										
			Ø2	Ø3	Ø4	Ø6	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25
P	Low and Medium Carbon Steels <0.55%C	100-250	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18
	High Carbon Steels ≥0.55%C	110-180	0.02	0.03	0.03	0.05	0.06	0.07	0.08	0.09	0.10	0.12	0.15
	Alloy Steels, Treated Steels	90- 60	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10
M	Stainless Steels - Free Cutting	60-160	0.02	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.11
	Stainless Steels - Austenitic	60-120	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10
	Cast Steels	130-170	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10
K	Cast Iron	70-150	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18
N	Aluminum ≤12%Si, Copper	150-350	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18
	Aluminum >12% Si	100-250	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10
	Synthetics, Duroplastics, Thermoplastics	100-400	0.05	0.06	0.07	0.08	0.10	0.11	0.12	0.13	0.15	0.18	0.22
S	Nickel Alloys, Titanium Alloys	20- 80	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05

For cutters with long cutting length reduce feed rate by 40%

MTQ type

Thread mills with relieved neck and internal coolant for milling medium and large threads on relatively deep work pieces.

Carbide grade: MT7

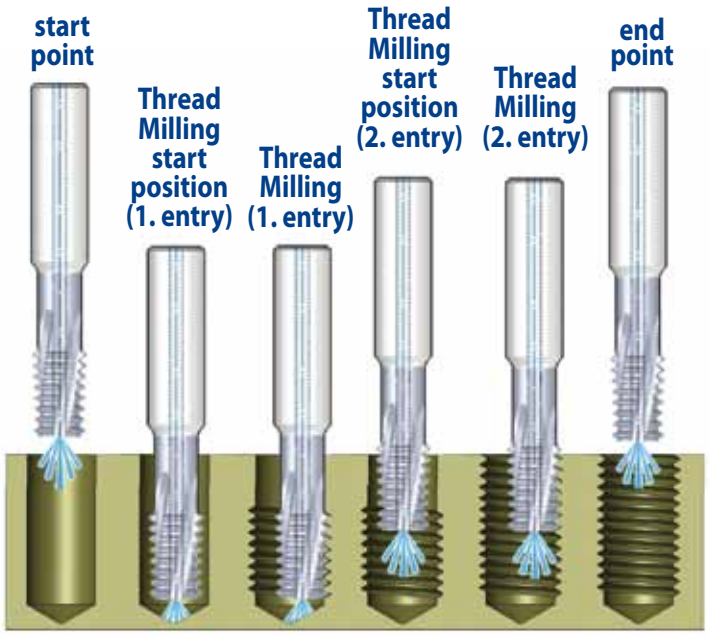
- To produce medium and large threads on relatively deep work pieces.
- To use overhang according to the application.
- To perform deep threads at the bottom of the application.

Advantages

- Provides high rigidity and stability (anti-vibration).
- Accomplishes deep threads in one pass.
- Relatively low cutting forces due to short cutting length.
- Threads length up to 3D.

MT7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

ISO	Materials	Cutting Speed m/min	Feed mm/tooth Cutting Diameter=D					
			Ø10	Ø12	Ø14	Ø16	Ø20	Ø25
P	Low and Medium Carbon Steels < 0.55%C	100 - 250	0.06	0.07	0.07	0.08	0.10	0.12
	High Carbon Steels ≥ 0.55%C	110 - 180	0.05	0.05	0.06	0.07	0.09	0.10
	Alloy Steels, Treated Steels	90 - 160	0.03	0.04	0.04	0.05	0.06	0.07
M	Stainless Steels - Free Cutting	60 - 160	0.04	0.04	0.05	0.06	0.06	0.08
	Stainless Steels - Austenitic	60 - 120	0.04	0.04	0.04	0.05	0.06	0.07
	Cast Steels	130 - 170	0.03	0.04	0.04	0.05	0.06	0.07
K	Cast Iron	70 - 150	0.06	0.07	0.07	0.08	0.10	0.12
N	Aluminum ≤ 12%Si, Copper	150 - 350	0.06	0.07	0.07	0.08	0.10	0.12
	Aluminum > 12% Si	100 - 250	0.03	0.04	0.04	0.05	0.06	0.07
	Synthetics, Duroplastics, Thermoplastics	100 - 400	0.08	0.09	0.10	0.11	0.13	0.15
S	Nickel Alloys, Titanium Alloys	20 - 80	0.02	0.02	0.02	0.03	0.03	0.03



FMT Fast MT

- **Carmex has designed a unique line of solid carbide thread milling tools FMT for increased productivity and high performance.**
- **Large number of flutes enables to achieve significant shorter machining time.**

FMT vs. Taps

Features	FMT	Taps
Thread up to bottom at blind hole	Possible	Not possible
Machining load	Very low	High
Thread surface quality	High	Medium
Process reliability	Very reliable, especially for expensive work pieces	Medium
Thread geometry	Very accurate	Medium
Cycle time	Same or faster than tap	Fast

MT8 Sub Micron grade with advanced PVD triple coating (ISO K10-K20).
Extremely high heat resistant and smooth cutting operation, for high performance and normal machining conditions. General purpose for all materials.

Test Report

Application
Internal right hand thread: M6x1.0
Thread length: 10 mm, Blind hole
Bore size: Ø 5 mm
Chamfer: 0.9 mm

Work piece material
Steel SAE 4340

Cutter description
FMT08048F10 1.0 ISO- with internal coolant
Shank diameter: Ø8 mm
Cutting diameter: Ø4.8 mm
Number of flutes: 6
Cutting length: 10.5 mm
Total length: 64 mm

Cutting conditions
Cutting speed: 130 m/min Feed: 0.016 mm/tooth

Machine
Mori Seiki NV5000 Coolant: emulsion 5%

Results
Tool life : 2,170 threads
Cycle time: 1.5 sec

FMT

ISO Standard	Materials	Cutting Speed m/min	Feed mm/tooth Cutting Diameter = D				
			Ø5	Ø6	Ø8	Ø10	Ø12
P	Low and Medium Carbon Steels < 0.55%C	100-250	0.03	0.06	0.07	0.08	0.09
	High Carbon Steels ≥ 0.55%C	110-180	0.03	0.05	0.06	0.07	0.08
	Alloy Steels, Treated Steels	90- 60	0.02	0.03	0.04	0.05	0.05
M	Stainless Steel - Free Cutting	60-160	0.03	0.04	0.05	0.06	0.06
	Stainless Steel - Austenitic	60-120	0.01	0.03	0.04	0.05	0.05
	Cast Steels	130-170	0.02	0.03	0.04	0.05	0.05
K	Cast Iron	70-150	0.04	0.06	0.07	0.08	0.09
N	Aluminum ≤ 12%Si, Copper	150-350	0.04	0.06	0.07	0.08	0.09
	Aluminum > 12%Si	100-250	0.03	0.03	0.04	0.05	0.05
	Synthetics, Duroplastics, Thermoplastics	100-400	0.06	0.08	0.10	0.11	0.12
S	Nickel Alloys, Titanium Alloys.	20- 80	0.02	0.03	0.03	0.03	0.03
H	Hardened Steel, 45-50HRc	60- 70	0.02	0.03	0.03	0.03	0.03

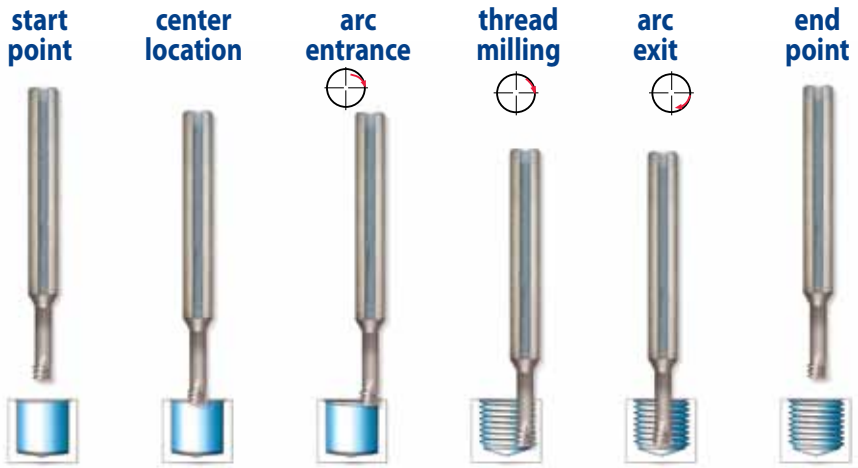
Mini Mill-Thread MTS and MTI types

MT7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

MT8 Sub-Micron Grade with Aluminum Titanium Nitride (AlTiN) multi-layer coating (ISO K10-K20). Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions. General purpose for all materials.

MT11 Ultra-fine sub-micron grade with advanced PVD triple coating.

ISO Standard	Materials	Cutting Speed m/min	Feed mm/tooth Cutting Diameter = D													
			Ø1	Ø1.5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø16
P	Low and Medium Carbon Steels < 0.55%C	60-120	0.04	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	High Carbon Steels ≥ 0.55%C	60- 90	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.12	0.13	0.14	0.14	0.16	0.17	0.18
	Alloy Steels, Treated Steels	50- 80	0.03	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.12	0.13	0.14
M	Stainless Steels - Free Cutting	70-100	0.02	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
	Stainless Steels - Austenitic	60- 90	0.02	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
	Cast Steels	70- 90	0.03	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.12	0.13	0.14
K	Cast Iron	40- 80	0.04	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
N	Aluminum ≤12%Si, Copper	100-200	0.04	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	Aluminum >12% Si	60-140	0.03	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11	0.13	0.14
	Synthetics, Duroplastics, Thermoplastics	50-200	0.09	0.10	0.11	0.12	0.14	0.16	0.18	0.19	0.19	0.19	0.19	0.19	0.20	0.20
S	Nickel Alloys and Titanium Alloys	20- 40	0.03	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08



Mini Mill-Thread vs. Taps

Features	Mini Mill-Thread	Taps
Thread surface quality	High	Medium
Thread geometry	Very accurate	Medium
Thread tolerances	4H, 5H, 6H with std cutter	6H with standard tap, 4H with specific tap
Machining time	Same as tap or shorter	Short
Tool breakage	Almost not possible	Could happen often
Machining load	Very low	High
Range of thread diameters	Wide range of diameters	Specific tap for each diameter
Right/Left hand threading	Same cutter	Specific tap for each
Geometric shape	Full profile	Partial profile

DMT type

MT7 Sub-Micron Grade with Titanium Aluminum Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials; it should be run at medium to high cutting speeds.

ISO	Materials	Cutting Speed m/min	Feed mm/tooth Cutting Diameter = D							
			Ø3	Ø4	Ø5	Ø6	Ø8	Ø9	Ø10	Ø12
P	Low and Medium Carbon Steels < 0.55%C	60-120	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05
	High Carbon Steels ≥ 0.55%C	60-90	0.015	0.02	0.03	0.03	0.04	0.04	0.04	0.05
	Alloy Steels, Treated Steels	50-80	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.04
M	Stainless Steels - Free Cutting	70-100	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	Stainless Steels - Austenitic	60-90	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	Cast Steels	70-90	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.04
K	Cast Iron	40-80	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05
N	Aluminum ≤12%Si, Copper	100-200	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05
	Aluminum >12% Si	60-140	0.015	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	Synthetics, Duroplastics, Thermoplastics	50-200	0.03	0.04	0.05	0.05	0.06	0.06	0.06	0.06

DMTH type

MT11 Ultra-fine Sub-Micron grade with advanced PVD triple Blue coating

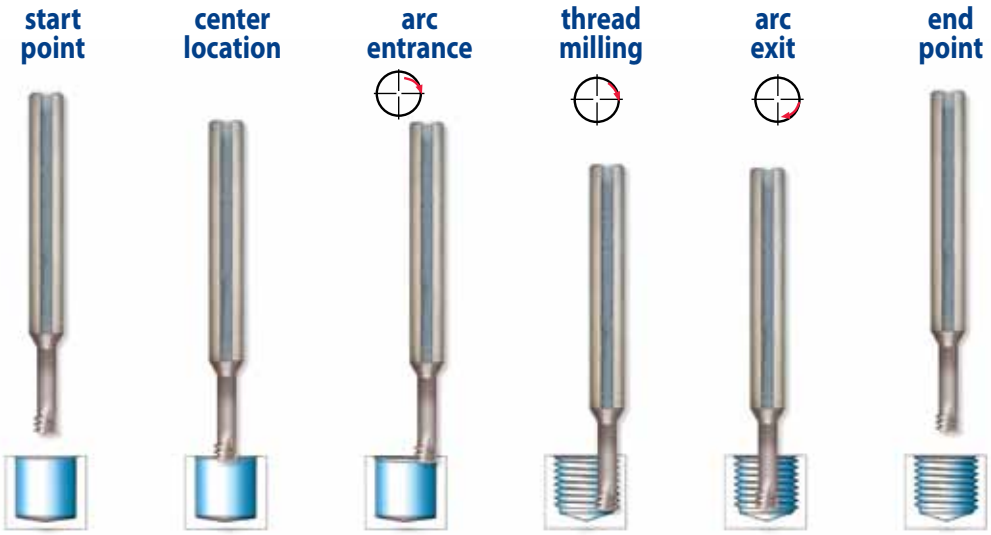
ISO	Materials	Cutting Speed m/min	Feed mm/tooth							
			Ø2	Ø3	Ø4	Ø5	Ø6	Ø8	Ø9	Ø10	Ø12
P	Low and Medium Carbon Steels < 0.55%C	60-120	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05
	High Carbon Steels ≥ 0.55%C	60-90	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.05
	Alloy Steels, Treated Steels	50-80	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.04
M	Stainless Steels - Free Cutting	70-100	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	Stainless Steels - Austenitic	60-90	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	Cast Steels	70-90	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.04
K	Cast Iron	40-80	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.05	0.05
N	Aluminum ≤10%Si, Copper	100-200	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.05	0.05
	Aluminum >10% Si	60-140	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03
	Synthetics, Duroplastics, Thermoplastics	50-200	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06
S	Nickel Alloys, Titanium Alloys and High Temp. Alloys	20-40	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.06	0.06
H	Hardened Steels 45-50 HRc	60-70	0.02	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.05
	Hardened Steels 50-55 HRc	50-60	0.01	0.01	0.01	0.02	0.03	0.03	0.04	0.04	0.04

Mini Mill-Thread MTSH type

MT9 Sub-Micron Grade with advanced PVD triple coating.

Left hand cutting for CNC code use M04

ISO	Materials	Hardness HRc	Cutting Speed m/min	Feed mm/tooth Cutting Diameter = D													
				Ø1	Ø1.5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø16
S	Nickel Alloys, Titanium Alloys and High Temp. Alloys		20-40	0.03	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
H	Hardened Steels	45-50	60-70	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.10	0.11
		51-55	50-60	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.09	0.10
		56-62	40-50	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.08	0.09



Case Study

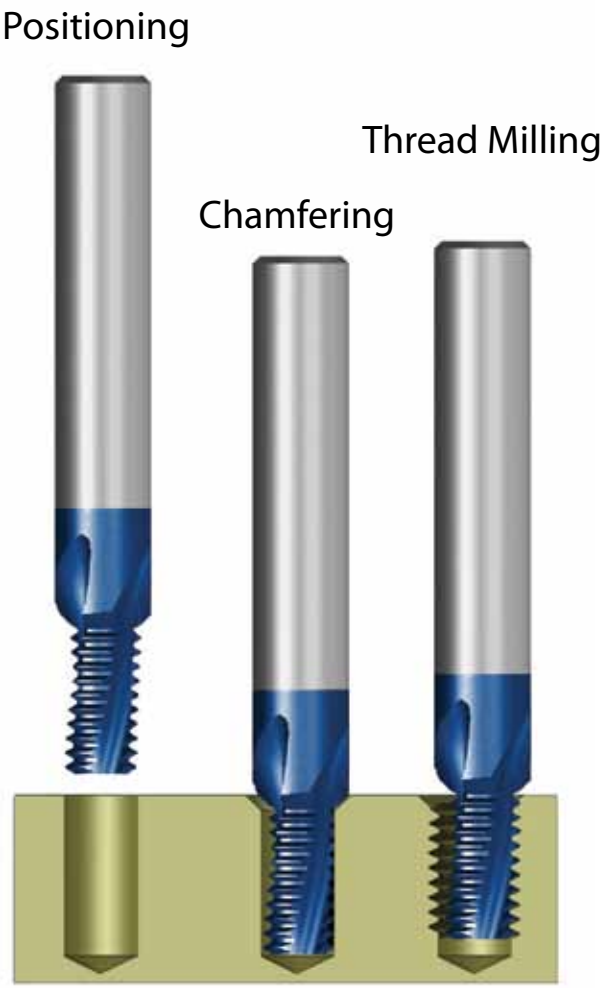
Application	Internal Thread M4 X 0.7
Thread Depth	8.0 mm
Workpiece Material	Tool Steel: D2
Hardness	60-62 (HRc)
Cutter Description	MTSH06031C9 0.7 ISO
Machining Conditions	Cutting Speed: 44 m / min Feed: 0.03 mm / tooth
Machine	Mori Seiki VN5000
Control	Fanuc
Cooling Lubricant	Emulsion
Tool Life (No. of Threads)	84

MTH type

MT11 Sub-Micron Grade with advanced PVD triple coating.

ISO	Materials	Hardness HRc	Cutting Speed m/min	Feed mm/tooth Cutting Diameter = D								
				Ø2.5	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10
S	Nickel Alloys, Titanium Alloys and High Temp. Alloys		20-50	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04
H	Hardened Steels Cast Iron	45-50 51-55 56-62	70-80 60-70 40-50	0.02 0.01 0.005	0.03 0.02 0.01	0.03 0.02 0.01	0.04 0.03 0.02	0.04 0.03 0.02	0.05 0.04 0.03	0.05 0.04 0.03	0.06 0.05 0.04	0.07 0.06 0.05

For cutters with long cutting length reduce feed rate by 40%



Solid Carbide Grooving Tools

For Grooving Deep Parts

Advantages

Carbide grade: MT8 Sub-micron grade with advanced PVD triple coating (ISO K10-K20). Extremely high heat resistant and smooth cutting operation. For high performance and normal machining conditions. General purpose for all materials.

- Enables machining in deep holes
- Coolant through the flutes is very effective for deep holes.
- Spiral flutes allow smooth cutting action.
- Longer tool life due to special multi-layer coating.
- Shorter machining time due to multi (3 to 5) flutes.

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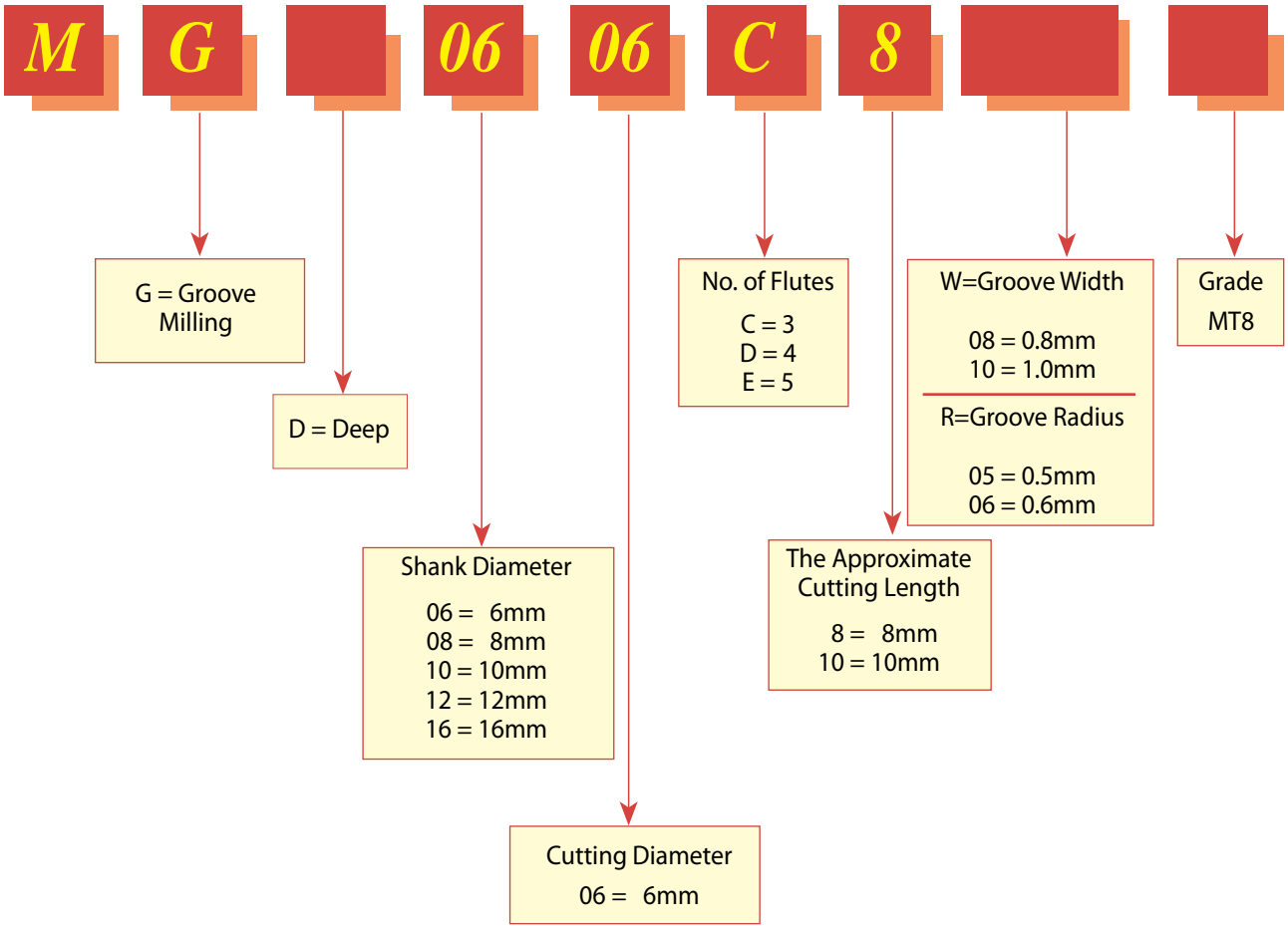
Product Identification

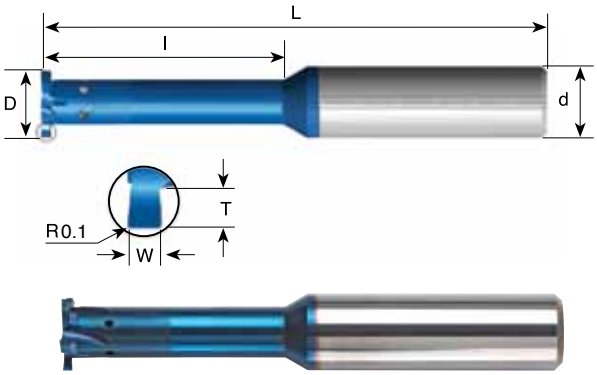
Groove Milling Ordering Codes



Groove Milling

with internal coolant through the flutes

Same Tool for Internal and External Grooving



For grooving deep parts

W ± 0.02	T Max.	Groove Dia. (min.) mm	Ordering Code	d	D	No. of Flutes	l	L
0.50	0.6	ø> 4	*MG0604C4 W05	6	4.0	3	4.2	51
1.00	0.6	ø> 4	*MG0604C4 W10	6	4.0	3	4.2	51
0.80	0.8	ø> 6	MG0606C8 W08	6	6.0	3	8.0	58
1.00	1.0	ø> 6	*MG0606C7 W10	6	6.0	3	7.0	58
1.50	1.0	ø> 6	*MG0606C7 W15	6	6.0	3	7.0	58
1.00	1.2	ø≥ 7.8	MG08078D10 W10	8	7.8	4	10.0	64
1.50	1.5	ø≥ 7.8	MG08078D15 W15	8	7.8	4	15.0	64
2.00	1.5	ø≥ 7.8	MG08078D15 W20	8	7.8	4	15.0	64
1.20	1.4	ø≥ 9.8	MG10098D20 W12	10	9.8	4	20.0	73
1.50	2.0	ø≥ 9.8	MG10098D20 W15	10	9.8	4	20.0	73
2.00	2.0	ø≥ 9.8	MG10098D20 W20	10	9.8	4	20.0	73
1.50	2.2	ø>12	MG1212E30 W15	12	12.0	5	30.0	84
2.00	2.2	ø>12	MG1212E30 W20	12	12.0	5	30.0	84
3.00	2.2	ø>12	MG1212E30 W30	12	12.0	5	30.0	84
1.40	1.8	ø>16	MG1616E30 W14	16	16.0	5	30.0	101
1.70	2.0	ø>16	MG1616E40 W17	16	16.0	5	40.0	101
1.95	2.2	ø>16	MG1616E45 W19	16	16.0	5	45.0	101

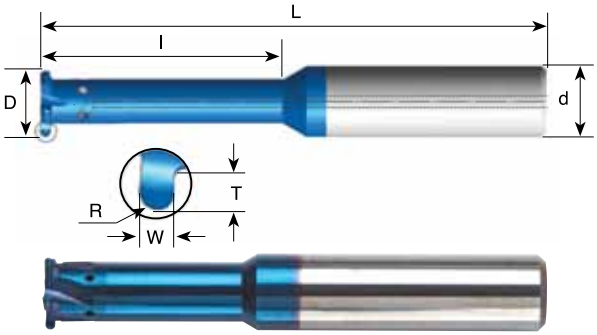
Order example: MG 10098D20 W12 MT8

* Tools without coolant

Full Radius Groove Milling

with internal coolant through the flutes

***Same Tool for Internal and External Grooving**



For grooving deep parts

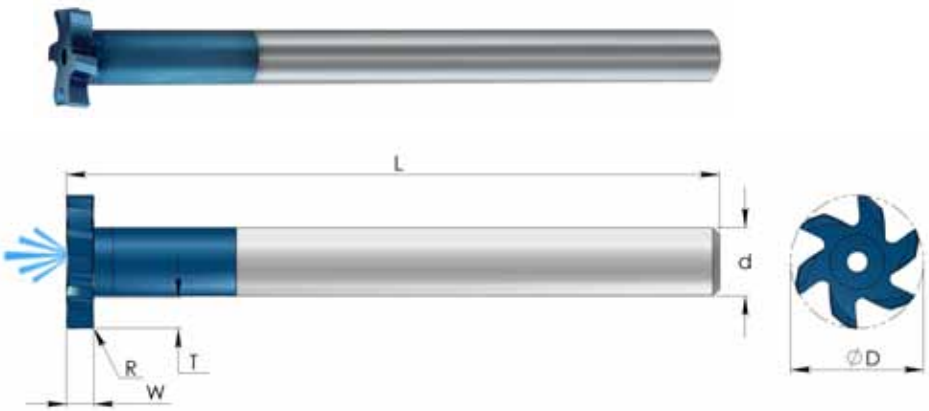
R	W ± 0.02	T Max.	Groove Dia. (min.)	Ordering Code	d	D	No. of Flutes	l	L
0.5	1.00	0.6	ø> 4	*MG0604C4 R05	6	4.0	3	4.2	51
0.5	1.00	0.8	ø> 6	MG0606C8 R05	6	6.0	3	8.0	58
0.75	1.50	1.0	ø> 6	*MG0606C7 R075	6	6.0	3	7.0	58
0.5	1.00	1.0	ø> 8.8	MG10088D16 R05	10	8.8	4	16.0	73
0.6	1.20	1.0	ø>10	MG1010D20 R06	10	10.0	4	20.0	73
0.75	1.50	2.0	ø>10	MG1010D20 R075	10	10.0	4	20.0	73
1.00	2.00	2.0	ø>10	MG1010D20 R10	10	10.0	4	20.0	73
0.9	1.80	1.4	ø>12	MG1212D30 R09	12	12.0	4	30.0	84
1.0	2.00	1.6	ø>16	MG1616E40 R10	16	16.0	5	40.0	101
1.5	3.00	2.2	ø>16	MG1616E40 R15	16	16.0	5	40.0	101

Order example: MG 1010D20 R06 MT8

* Tools without coolant

Deep Groove Milling

with internal coolant bore



Ordering Code	W ±0.02	R	T (max.)	Groove Dia. (min.)	d	D	No. of Flutes	L
MGD 10195 F W15	1.5	0.1	4.5	Ø>19.5	10	19.4	6	133
MGD 10195 F W20	2.0	0.1	4.5	Ø>19.5	10	19.4	6	133
MGD 10195 F W30	3.0	0.1	4.5	Ø>19.5	10	19.4	6	133
MGD 10195 F W35	3.5	0.1	4.5	Ø>19.5	10	19.4	6	133
MGD 10195 F W40	4.0	0.1	4.5	Ø>19.5	10	19.4	6	133
MGD 10195 F W50	5.0	0.1	4.5	Ø>19.5	10	19.4	6	133

* Same tool for internal and external grooving

Mini Chamfer

Advantages

Carbide grade: MT8 Sub-micron grade with advanced PVD triple coating (ISO K10-K20). Extremely high heat resistant and smooth cutting operation, for high performance, and normal machining conditions. General purpose for all materials.

- Optimal for deburring, back chamfering and grooving.
- Double side cutting.
- Spiral flute allows smooth cutting action.

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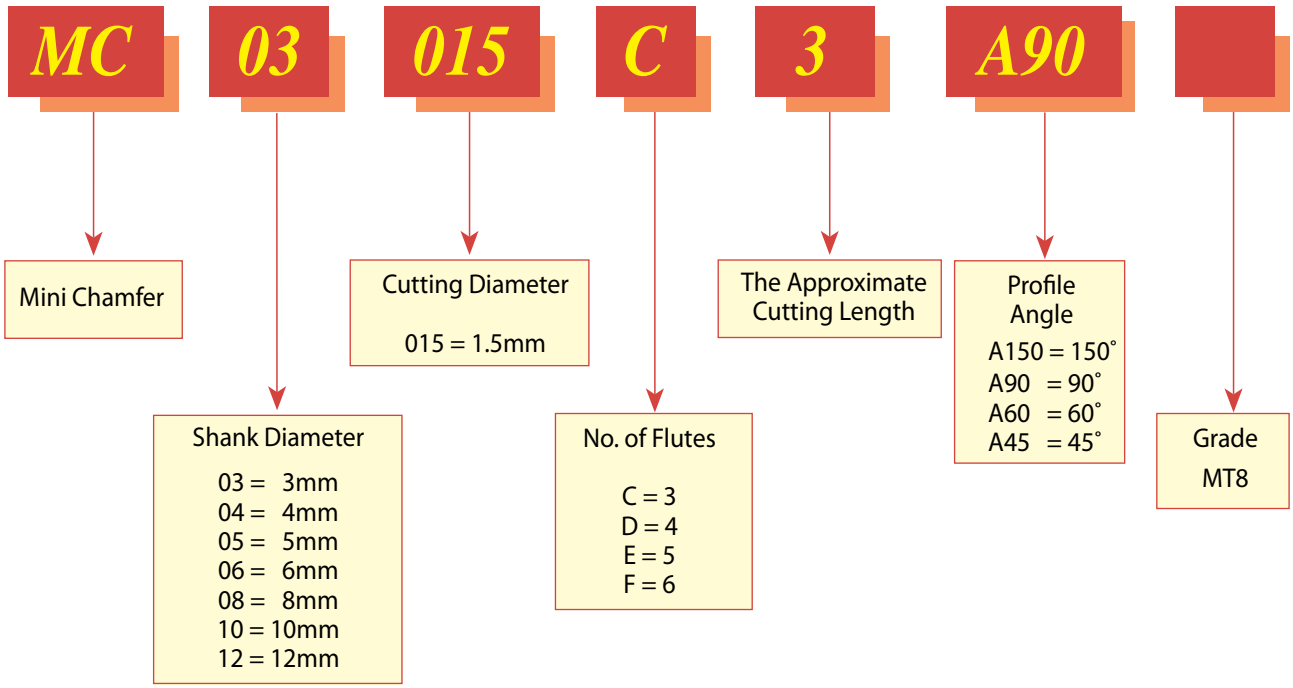
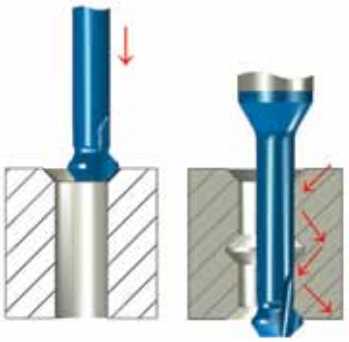
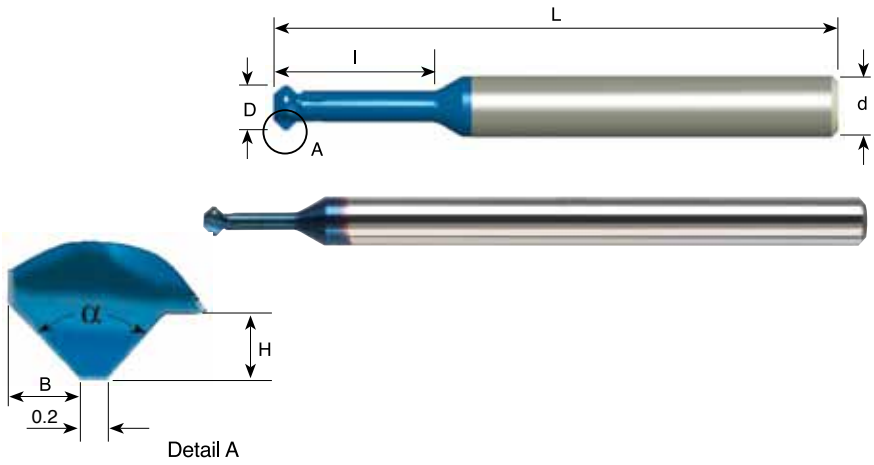
Product Identification

Mini Chamfer Ordering Codes



Mini Chamfer





90°

Ordering Code	d	D	l	H	B	α	No. of Flutes	L
MC03015C3 A90	3	1.5	3.8	0.3	0.4	90°	3	39
MC0302C5 A90	3	2.0	5.0	0.4	0.5	90°	3	39
MC03025C6 A90	3	2.5	6.3	0.5	0.6	90°	3	39
MC0303C7 A90	3	3.0	7.5	0.6	0.7	90°	3	39
MC04035C9 A90	4	3.5	8.8	0.7	0.8	90°	3	51
MC0404C10 A90	4	4.0	10.0	0.8	0.9	90°	3	51
MC05045C11 A90	5	4.5	11.3	1.0	1.1	90°	3	51
MC0505C12 A90	5	5.0	12.5	1.1	1.2	90°	3	51
MC06055C13 A90	6	5.5	13.8	1.2	1.3	90°	3	51
MC0606C15 A90	6	6.0	15.0	1.5	1.6	90°	3	51

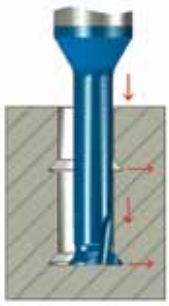
Long Reach 90°

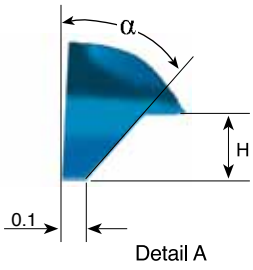
Ordering Code	d	D	l	H	B	α	No. of Flutes	L
MC0303C12 A90	3	3.0	12.0	0.6	0.7	90°	3	39
MC04035C14 A90	4	3.5	14.0	0.7	0.8	90°	3	51
MC0404C16 A90	4	4.0	16.0	0.8	0.9	90°	3	51
MC0404C16L A90	4	4.0	16.0	0.8	0.9	90°	3	105
MC05045C18 A90	5	4.5	18.0	1.0	1.1	90°	3	51
MC0505C20 A90	5	5.0	20.0	1.1	1.2	90°	3	51
MC0505C20L A90	5	5.0	20.0	1.1	1.2	90°	3	105
MC06055C22 A90	6	5.5	22.0	1.2	1.3	90°	3	58
MC0606C24 A90	6	6.0	24.0	1.5	1.6	90°	3	58
MC0606C24L A90	6	6.0	24.0	1.5	1.6	90°	3	105
MC0808D28 A90	8	8.0	28.0	1.6	1.7	90°	4	64
MC0808D28L A90	8	8.0	28.0	1.6	1.7	90°	4	105
MC1010E35 A90	10	10.0	35.0	1.8	1.9	90°	5	73
MC1212F42 A90	12	12.0	42.0	2.1	2.2	90°	6	84

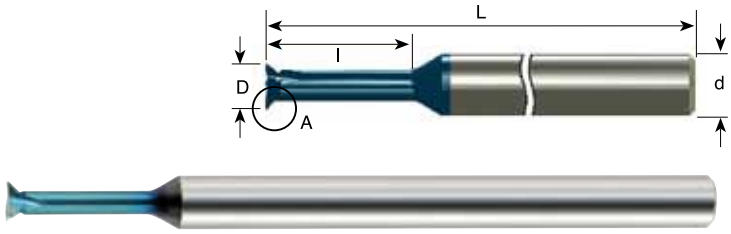
60°

Ordering Code	d	D	l	H	B	α	No. of Flutes	L
MC0302C5 A60	3	2.0	5.0	0.4	0.3	60°	3	39
MC0303C7 A60	3	3.0	7.5	0.6	0.3	60°	3	39
MC04035C9 A60	4	3.5	8.8	0.7	0.5	60°	3	51
MC0404C10 A60	4	4.0	10.0	0.8	0.5	60°	3	51
MC05045C11 A60	5	4.5	11.3	1.0	0.6	60°	3	51
MC0505C12 A60	5	5.0	12.5	1.1	0.7	60°	3	51

Mini Chamfer





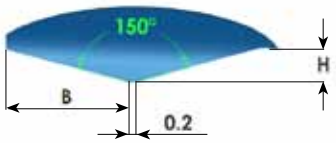


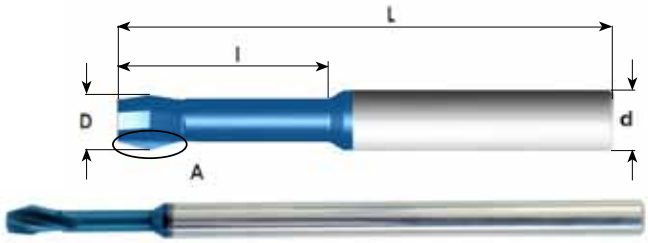
Dovetail 45° *

Ordering Code	d	D	l	H	α	No. of Flutes	L
MC03015C4 A45	3	1.5	4.5	0.3	45°	3	39
MC0302C6 A45	3	2.0	6.0	0.4	45°	3	39
MC03025C7 A45	3	2.5	7.5	0.5	45°	3	39
MC0303C12 A45	3	3.0	12.0	0.6	45°	3	39
MC04035C14 A45	4	3.5	14.0	0.7	45°	3	51
MC0404C16 A45	4	4.0	16.0	0.8	45°	3	51
MC05045C18 A45	5	4.5	18.0	1.0	45°	3	51
MC0505C20 A45	5	5.0	20.0	1.1	45°	3	51
MC06055C22 A45	6	5.5	22.0	1.2	45°	3	58
MC0606C24 A45	6	6.0	24.0	1.5	45°	3	58

* One side cutting

Detail A





150°

Ordering Code	d	D	l	H	B	No. of Flutes	L
MC0303C12 A150	3	3.0	12.0	0.6	2.2	3	39
MC0404C16 A150	4	4.0	16.0	0.8	3.0	3	51
MC0404C16L A150	4	4.0	16.0	0.8	3.0	3	105
MC0505C20 A150	5	5.0	20.0	1.0	3.8	3	51
MC0505C20L A150	5	5.0	20.0	1.0	3.8	3	105
MC0606C24 A150	6	6.0	24.0	1.0	3.8	3	58
MC0606C24L A150	6	6.0	24.0	1.0	3.8	3	105
MC0808C28 A150	8	8.0	28.0	1.0	3.8	3	64
MC0808C28L A150	8	8.0	28.0	1.0	3.8	3	105

Order example: MC 0303 C12 A150 MT8

Mini Chamfer Kit

Kit KMC	Qty
MC 0303 C12 A90	1
MC 03025 C6 A90	1
MC 0404 C10 A90	1
MC 04035 C9 A90	1
MC 05045 C11 A90	1
MC 0606 C24 A90	1

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